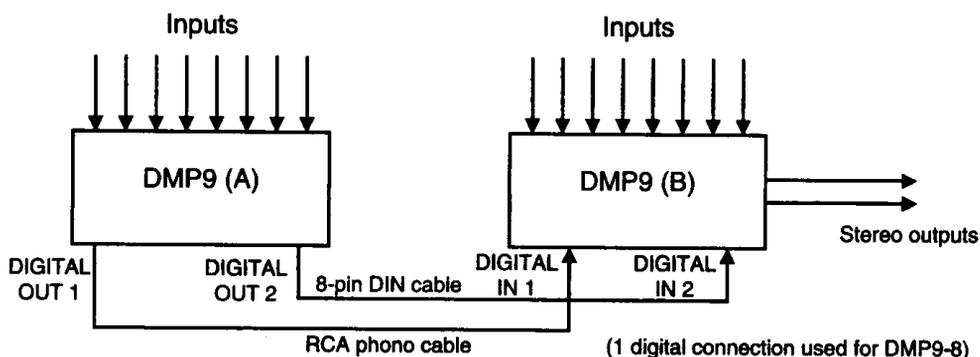


Chapter 14: Cascading the DMP9

In this chapter, we explain how to cascade DMP9s for channel expansion. In a cascade system, the inputs channels and auxiliary returns of each DMP9 are mixed down to stereo, then output to the subsequent DMP9 using the digital inputs and outputs. The following illustration shows two DMP9s cascaded together:



The above illustration shows the Yamaha format digital inputs and outputs being used. Alternatively, the IEC958 (Consumer) format digital inputs and outputs could be used. By using both digital inputs and outputs, stereo bus and solo signals can be cascaded.

To use cascade, the following functions must be setup:

- On DMP9 (A), the wordclock source should be set to Internal.
- The source for DMP9 (A) digital output should be set using the D.Out Routing LCD function. See “Digital Output Routing” on page 62.
- On DMP9 (B), the wordclock source must be derived from the digital input that is set to CASCADE. This applies to all subsequent DMP9s, too.
- On DMP9 (B), the digital input should be set to CASCADE using the D.In Routing LCD function. See “Digital Input Routing” on page 58.
- The digital input that is to set CASCADE should be assigned to a stereo bus using the Cascade Assign LCD function. See “Cascade Assign” on page 71.
- The Master Delay LCD function must be setup. See “Master Delay” on page 72.

Note: In theory, any number of DMP9s can be cascaded. However, you should check for digital noise, which may occur when too many units are cascaded.

- If the output level from DMP9 (A) is too high, use the Cascade PAD LCD function to attenuate the digital input signal, thus increasing the mixing headroom.
- Make sure that digital input and output emphasis settings are correct.

Note: When the DMP9 is connected to a DMP7, DMP7D, or DMP11, emphasis must be set to ON, because these units process all internal digital audio data with emphasis ON. If a 44.1 kHz wordclock is being sourced from an external device, the wordclock source should be set to the respective digital input.

Cascade Assign

This function allows you to assign digital inputs to stereo buses. A digital input must be routed to CASCADE before this function can be used. See “Digital Input Routing” on page 58.

1. Press the [DIO] button repeatedly until the display shown below appears:

```

-Cascade Assign-
      ST1  ST2
Digi.1  |---| |---|
Digi.2  |---| |---|

```

2. Use the [◀] and [▶] PARAMETER buttons to select the following parameters:

Digi.1 to St1 — DIGITAL INPUT1 to Stereo bus1.

Digi.1 to St2 — DIGITAL INPUT1 to Stereo bus2.

Digi.2 to St1 — DIGITAL INPUT2 to Stereo bus1.

Digi.2 to St2 — DIGITAL INPUT2 to Stereo bus2.

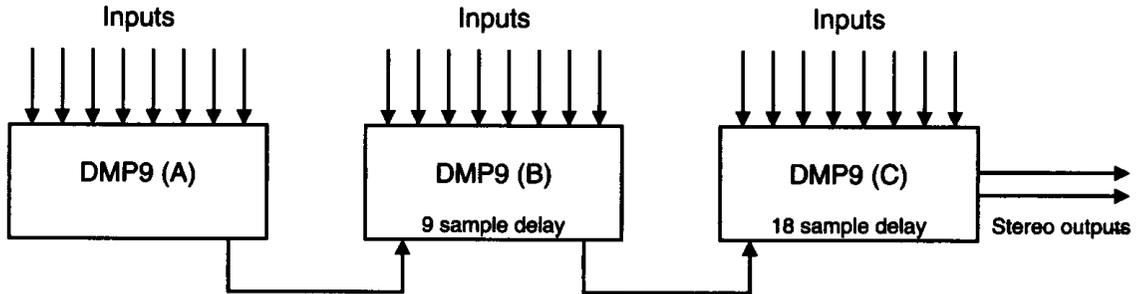
Three dashes “---” indicate that a digital input signal is not routed to CASCADE. See “Digital Input Routing” on page 58.

On the DMP9–8, ST1 is ST, and the Digi.1 to St2 and Digi.2 to St2 parameters are not available.

3. Use the [+ / ON] and [- / OFF] PARAMETER buttons to assign digital inputs to the stereo buses. A digital input is assigned when it is set to ON.

Master Delay

From input to output, it takes a DMP9 the finite time of 9 samples to process a digital audio signal. So in a cascade system, delay compensation must be applied to subsequent DMP9s to keep all signals in sync. Typically, the first DMP9 has no delay, the second is set to 9, the third to 18, and so on, as shown below. The delay can be set for ST1 and ST2 outputs independently.



Although it's 9 samples for DMP9s, you should check the relevant operating manuals when cascading other devices.

A delay of 9 samples is about $190\mu\text{s}$ at a sampling frequency of 48 kHz.

1. Press the [UTILITY] button repeatedly until the display shown below appears:

```

--Master Delay--
▶ST1 : 009Sample
▶ST2 : 009Sample
Time: 0.19msec
  
```

2. Use the [◀] and [▶] PARAMETER buttons to select either ST1 or ST2.
3. Use the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to set the delay. Delay range: 000 to 511 samples.

Pressing the [+ / ON] and [- / OFF] PARAMETER buttons simultaneously for one second sets the value to 0.

The delay value is also expressed as time (milliseconds).

Cascade Pad

This function allows you to attenuate a digital input signal when it is used as a cascade input. This is useful when a digital input signal is at a relatively high level. Attenuating the signal will increase the available mixing headroom.

A digital input must be routed to CASCADE before this function can be used. See “Digital Input Routing” on page 58.

1. Press the [DIO] button repeatedly until the display shown below appears:

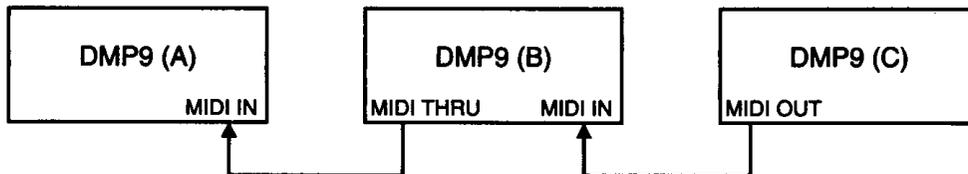
```

- Cascade PAD -
▶Digi.1:    ---dB
▶Digi.2:    ---dB
  
```

2. Use the [◀] and [▶] PARAMETER buttons to select Digi.1 or Digi.2, DIGITAL INPUT1 and DIGITAL INPUT2, respectively.
3. Use the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to set the pad. Pad range: 0.0 dB to -95.2 dB (128 steps)

Cascade, Scene Memories, & MIDI

By making the following MIDI connections, corresponding scene memories can be stored and recalled on a number of DMP9s simultaneously:



When a scene memory is stored on DMP9 (C), a MIDI Scene Memory Store Request message is sent to DMP9 (B) and DMP9 (A), which subsequently store the corresponding scene memory. The Memory Store Request Out ON/OFF parameter on the System Flags LCD function must be set to ON for this to happen.

Note: If the Memory Protect is set to ON, you will not be able to store scene memories. See “Memory Protect” on page 57.

Cascade & MIDI Bulk Dump

When DMP9s are cascaded together, it is useful to be able to transfer scene memories, Setup data, Control Change to parameter assignments, etc., between them. By connecting the MIDI OUT of one DMP9 to the MIDI IN of another, MIDI Bulk Dump can be used to do exactly this. DMP9s can also request Bulk Dump data from other DMP9s. See “MIDI Bulk Dump” on page 80.

Chapter 15: MIDI

In this chapter, we explain the DMP9 MIDI functions. The DMP9 uses three types of MIDI messages: Program Change, Control Change, and System Exclusive.

MIDI Data Receive Indicator

When the DMP9 receives MIDI data via its MIDI IN jack, a red dot flashes between the two digits on the MEMORY indicator:



MIDI Setup

This LCD function allows you to set up some basic MIDI parameters.

1. Press the [MIDI] button repeatedly until the following display appears:

```

--MIDI Setting--
▶Tx Channel : 1
▶Rx Channel : 1
▶Mode : Channel
  
```

2. Use the [◀] and [▶] PARAMETER buttons to select parameters, and the DATA ENTRY control or the [+ON] and [-OFF] PARAMETER buttons to set them.

The parameters are:

Tx Channel — This parameter determines which MIDI Channel the DMP9 uses to send Program Change, Control Change, and Bulk Dump/Request messages. Range: 1 to 16.

While the DMP9 is receiving MIDI data, a dot next to the tenth character of the scene memory title will appear.

Rx Channel — This parameter determines which MIDI Channel the DMP9 uses to receive Program Change, Control Change, and Bulk Dump/Request messages. Range: 1 to 16.

Note: If the OMNI parameter on the PGM Change or CTRL Change LCD function is turned on, the above MIDI Channel settings are ignored.

Mode — This parameter is used to set the operating mode for Control Change messages: Register or Channel. See “MIDI Control Changes” on page 77.

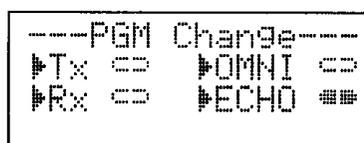
MIDI Program Change

MIDI Program Change messages can be used to store and recall scene memories. Initially, scene memories 1 to 50 are assigned to Program Change numbers 1 to 50. However, you can change the assignments using the PGM Assign LCD function.

When a scene memory is stored or recalled by pressing the [STORE] or [RECALL] button, respectively, the DMP9 outputs the respective Program Change message. This can be used to store and recall scene memories on a number of DMP9s simultaneously. It can also be used to select effect programs, synthesizer programs, etc., on other MIDI devices. For example, recalling scene memory 10 on the DMP9 will, by default, output Program Change 10, which could be used to call up an effect program on an external effects unit or select a voice on a synthesizer. Alternatively, you could send a Program Change message from a synthesizer to recall a DMP9 scene memory. Scene memory recalls can also be recorded to a MIDI sequencer. During playback, each scene memory can then be recalled automatically at the correct point in a song.

Basic Setup

1. Press the [MIDI] button repeatedly until the following display appears:



2. Use the [◀] and [▶] PARAMETER buttons to select parameters, and the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to set them.

A filled oblong symbol indicates that the parameter is active.

The parameters are:

Tx — This parameter determines whether or not Program Change messages are transmitted.

Rx — This parameter determines whether or not Program Change messages are received.

OMNI — Normally, Program Change messages are sent and received on the specified MIDI Channel. See “MIDI Setup” on page 74. However, when OMNI is active, they are sent and received on all MIDI Channels.

ECHO — This parameter determines whether or not Program Change messages received at the MIDI IN connection are echoed through to the MIDI OUT connection with any MIDI data generated by the DMP9.

Scene Memory to Program Change Assign

Initially, scene memories 1 to 50 are assigned to Program Change numbers 1 to 50. This function allows you to change these assignments. Use the Scene Memory to Program Change Assignment Table at the rear of this *Owner's Guide* to note down your assignments. Assignments can be saved via MIDI Bulk Dump. See "MIDI Bulk Dump" on page 80.

1. Press the [MIDI] button repeatedly until the following display appears:

```
-- PGM Assign --
PGM 1 : MEM 1
▶PGM 2 : ▶MEM 2
PGM 3 : MEM 3
```

2. With the cursor in the left-hand column, use the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to select a Program Change message.
3. Press the [▶] PARAMETER button to move the cursor to the right-hand column, then use the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to select a scene memory.

MIDI Control Changes

DMP9 parameters can be controlled using MIDI Control Change messages. There are 671 controllable parameters. MIDI Control Changes are divided into 16 banks, with 96 in each bank. MIDI Control Changes can be assigned to parameters using the CTRL Assign LCD function. There are two modes of operation: Channel and Register. These modes are set on the MIDI Setting LCD function. See "MIDI Setup" on page 74.

In **Channel** mode, each bank uses a separate MIDI Channel. The MIDI Channels used depends on the MIDI Channel specified on the MIDI Setting LCD function. See "MIDI Setup" on page 74.

For example, where n = the specified MIDI Channel:

Bank0 MIDI Channel = $n+0$

Bank1 MIDI Channel = $n+1$

Bank11 MIDI Channel = $n+11$

If the resultant MIDI Channel is greater than 16, start again from 1. For example, a calculated value of 19 will in fact be MIDI Channel3.

The OMNI parameter setting on the CTRL Change LCD function is ignored in Channel mode. So make sure that the MIDI Channel settings on the sending and receiving devices are set correctly.

In **Register** mode, MIDI Control Change 98 (Non-Registered Parameter LSB) is used to specify the bank number, and all Control Change messages use the MIDI Channel specified on the MIDI Setting LCD function. See "MIDI Setup" on page 74.

When a Control Change message is received, the parameter assigned to that Control Change is adjusted. Likewise, when a parameter is adjusted on the DMP9, a corresponding Control Change message is output. This can be used to control other DMP9s simultaneously. In addition, you could, for example, assign a parameter to one of the common MIDI Control Changes such as Modulation, Master Volume, etc., and then control that parameter from a synthesizer or MIDI keyboard. Parameter adjustments can also be recorded to a MIDI sequencer as Control Change messages, thus providing dynamic automation.

Basic Setup

1. Press the [MIDI] button repeatedly until the following display appears:

```

- CTRL Change -
▶Tx  Ⓞ   ▶OMNI  Ⓞ
▶Rx  Ⓞ   ▶ECHO  ##
▶Memory RECALL Ⓞ
  
```

2. Use the [◀] and [▶] PARAMETER buttons to select parameters, and the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to set them.

For all parameters, a filled oblong symbol indicates that the parameter is active.

The parameters are:

Tx — This parameter determines whether or not Control Change messages are transmitted.

Rx — This parameter determines whether or not Control Change messages are received.

OMNI — Normally, Control Change messages are received on the specified MIDI Channel. See “MIDI Setup” on page 74. However, when OMNI is active, they are received on all MIDI Channels. Note that when the Control Change mode is set to Channel, this setting is ignored.

ECHO — This parameter determines whether or not Control Change messages received at the MIDI IN connection are echoed through to the MIDI OUT connection with any MIDI data generated by the DMP9.

Memory RECALL — This parameter determines whether or not MIDI Control Change messages are output when a scene memory is recalled. Parameters that are output as MIDI Control Change messages can be selected on the Control Change Out Parameter LCD function. Parameters must be assigned to MIDI Control Changes (“Control Change to Parameter Assign” on page 78), and the Tx parameter on the Control Change LCD function (“Basic Setup” on page 77) must be turned on to use this function. This function is useful when you are controlling the DMP9 via a computer, since you don’t have to store and check the scene memory data.

With Memory RECALL set to ON, pressing the [RECALL] button will output the corresponding MIDI Program Change message, then the corresponding MIDI Control Change data.

Control Change to Parameter Assign

This function allows you to assign MIDI Control Changes to DMP9 parameters. The MIDI Control Change to Parameter Assignment Table at the rear of this *Owner’s Guide* lists the initial assignments. It also has space for you to note down your own. Assignments can be saved via MIDI Bulk Dump. See “MIDI Bulk Dump” on page 80.

1. Press the [MIDI] button repeatedly until the following display appears:

```

- CTRL Assign -
▶Prm No.: 0
Inf 1 Level
▶Bank:0 ▶CTRL:0

```

2. With the cursor next to Prm No., use the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to select a parameter.
3. Move the cursor to Bank, then use the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to select a bank.
4. Move the cursor to CTRL, then use the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to select a Control Change.

Control Change Out Parameter Assign

This function determines which parameters are output as MIDI Control Change messages when a scene memory is recalled. For this to work, the Memory RECALL parameter on the CTRL Change LCD function must be set to on (“Basic Setup” on page 77), and the Parameters must be assigned to MIDI Control Changes (“Control Change to Parameter Assign” on page 78).

1. Press the [MIDI] button repeatedly until the following display appears:

```

-CTRL Out PRM.-
▶ON/OFF◀▶Pan◀
▶Level◀▶SEND◀
▶EQ◀▶OTHERS◀
  
```

2. Use the [◀] and [▶] PARAMETER buttons to select parameters, and the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to set them.

For all parameters, a filled oblong symbol indicates that the parameters are selected.

The parameters are:

ON/OFF — input channel (including Solo mode), return channel, stereo master and aux send master ON/OFF.

Pan — Input channel pan (width), (input channel balance), return channel width, return channel balance, stereo master balance.

Level — Input channel, return channel, stereo master and aux send master level controls.

SEND — Input channel send 1 to 4 ON/OFF, Pre/Post, and level.

EQ — Input channel EQ frequency, gain, Q, type, ON/OFF, and pad.

OTHERS — All other scene memory parameters not listed above.

If any of the above parameters are turned on, Channel mode(Monaural/Stereo) MIDI Control Changes 482 to 489 are output.

MIDI Bulk Dump/Request

This function allows you to save various types of DMP9 data via MIDI Bulk Dump. It also allows you to request data from other DMP9s. MIDI Bulk Dump data can be stored by a MIDI filer, MIDI sequencer, or synthesizer with built-in MIDI filer facilities, such as the Yamaha SY99.

1. Press the [MIDI] button repeatedly until the following display appears:

```

----- Bulk -----
▶OMNI  ##  ▶ALL
▶MEM 1- 1 ▶SETUP
▶EDIT ▶PGM ▶CTRL
  
```

2. Use the [◀] and [▶] PARAMETER buttons to select the parameters.
3. To send the selected data, press the [+ON] PARAMETER button. The message “Sure?” will appear. Press the [+ON] PARAMETER button again to confirm, or the [-OFF] PARAMETER button to cancel.
4. To request the selected data, press the [-OFF] PARAMETER button. The message “Sure?” will appear. Press the [-OFF] PARAMETER button again to confirm, or the [+ON] PARAMETER button to cancel.

The parameters are:

OMNI — When the oblong symbol is filled (on), Bulk Dump data and request messages can be received even when the MIDI Rx Channel does not match.

When the oblong symbol is unfilled (off), Bulk Dump data and request messages on the Rx Channel, which is set on the MIDI LCD function, only are received.

This parameter affects Bulk Dump receive only. The transmission MIDI Channel is determined by the Tx Channel parameter on the MIDI LCD function.

ALL — This allows you to dump/request all the following data types simultaneously.

MEM — This allows you to dump/request scene memory data. You can dump just one, or a range of scene memories. Use the [◀] and [▶] PARAMETER buttons to select the upper and lower range parameters, and the DATA ENTRY control to set them.

Note: You can send a range of scene memories, but you cannot request a range. A request message will cause the receiving DMP9 to send all scene memories.

SETUP — This allows you to dump/request the Setup data.

EDIT — This allows you to dump/request the Edit buffer data.

PGM — This allows you to dump/request the scene memory to Program Change assignment table.

CTRL — This allows you to dump/request the MIDI Control Change to parameter assignment table.

Receiving MIDI Bulk Dump Data

The DMP9 can receive MIDI Bulk Dump Data at any time. However, to receive scene memory data, the Memory Protect function must be set to OFF. See “Memory Protect” on page 57.

MIDI Local

This LCD function is used to set local MIDI parameters.

1. Press the [MIDI] button repeatedly until the following display appears:

```
---MIDI Local---  
▶Local: ON  
MIDI IN: EDIT  
▶Bulk ECHO: OFF
```

2. Use the [◀] and [▶] PARAMETER buttons to select the parameters, and the DATA ENTRY control or the [+ / ON] and [- / OFF] PARAMETER buttons to set them.

The parameters are:

Local — OFF/ON

When set to ON, the DMP9 controls are effective, and any adjustments will change the data in the edit buffer. That is, the current mix settings. MIDI Control Change messages are output when the controls are adjusted. This is the normal operating mode.

When set to OFF, the DMP9 controls are not effective. Adjusting a control will not change the data in the edit buffer. However, MIDI Control Change messages are output when a control is adjusted, and received MIDI Control Change messages will affect the edit buffer data. Therefore, you can control the DMP9 using MIDI Control Change messages, but not the front panel controls.

This parameter also affects the operation of the red dot on the MEMORY indicator. See “MEMORY Indicator” on page 54.

MIDI IN — EDIT/REMOTE

This parameter is effective only when the Local parameter is set to OFF. With Local set to ON, this parameter will automatically be set to EDIT.

When set to EDIT, received MIDI Control Change messages **will** affect the edit buffer data.

When set to REMOTE (Local set to OFF), received MIDI Control Change messages **will not** affect the edit buffer data.

This parameter is useful when a DMP9 is controlled remotely from another DMP9; it can be used to protect the edit buffer data.

Bulk ECHO — OFF/ON

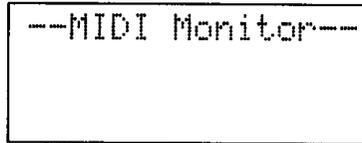
When set to ON, MIDI Bulk Dump data received at the MIDI IN will be output to the MIDI OUT. However, the Bulk Dump data must be Bulk Dump data intended for a DMP9 and its MIDI Channel must not match that of the DMP9.

When set to OFF, MIDI Bulk Dump data will not be echoed.

MIDI Monitor

This function allows you to monitor incoming MIDI data.

1. Press the [MIDI] button repeatedly until the following display appears:



MIDI Monitor/Indicator Filter

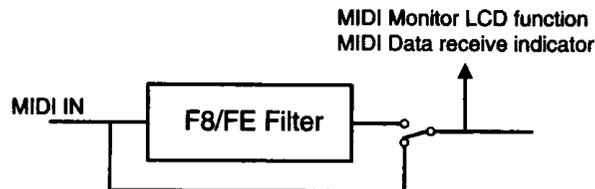
MIDI Clock (F8) and Active Sensing (FE) messages can be filtered so that they do not appear on the MIDI Monitor LCD function and do not cause the MIDI receive indicator dot on the MEMORY indicator to flash.

Press the [+ / ON] PARAMETER button to filter F8/FE.

Press the [- / OFF] PARAMETER button to display F8/FE.

The current filter setting is indicated on the bottom line of the LCD.

The MIDI filter is located as shown below:



Initializing the MIDI Parameters

This function allows you to reset all MIDI parameters to their initial (factory) values.

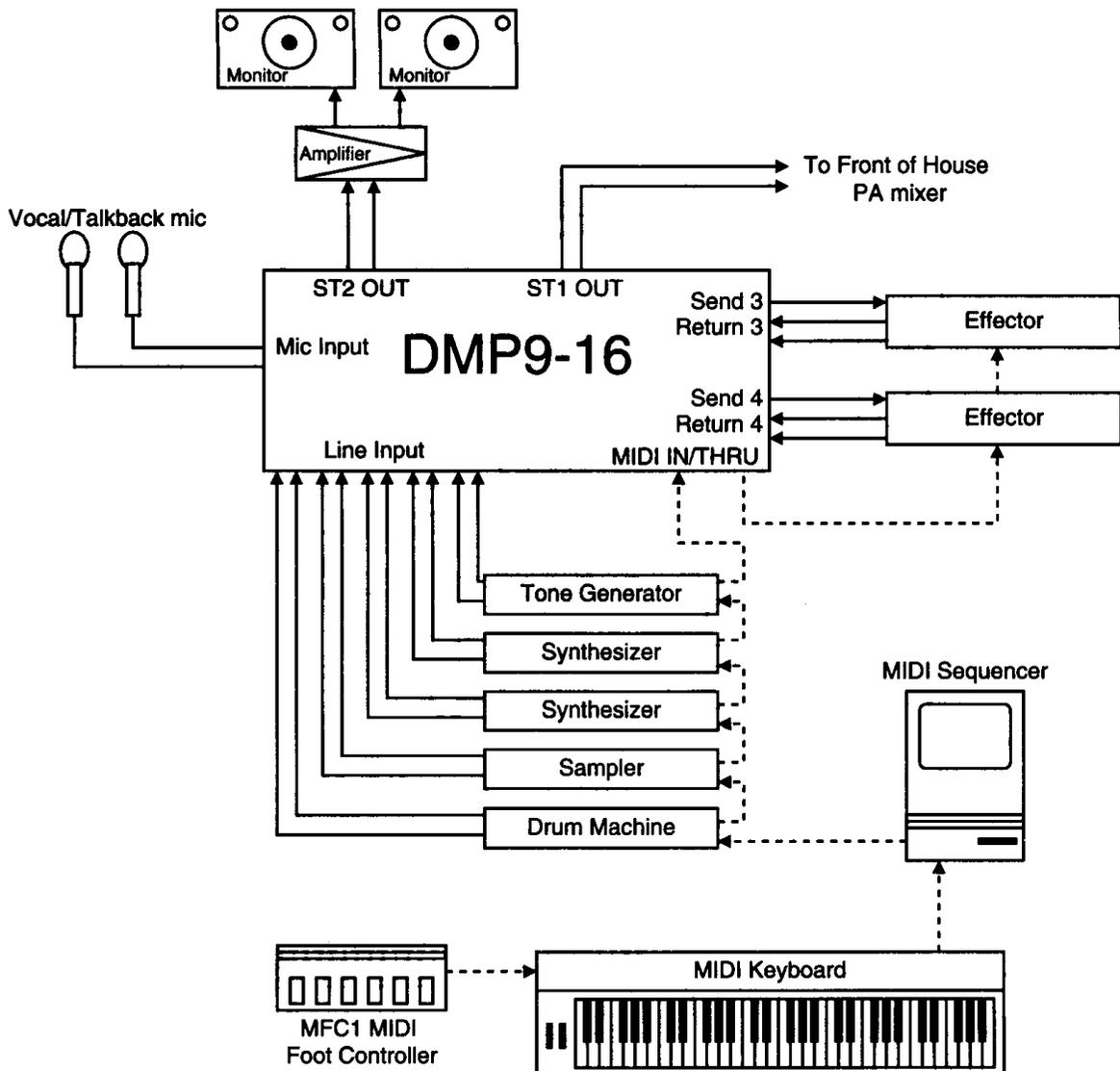
1. With the DMP9 powered off, press and hold down the [+ / ON] and [- / OFF] PARAMETER buttons.
2. Power on the DMP9.

All MIDI parameters will be initialized.

Chapter 16: Applications

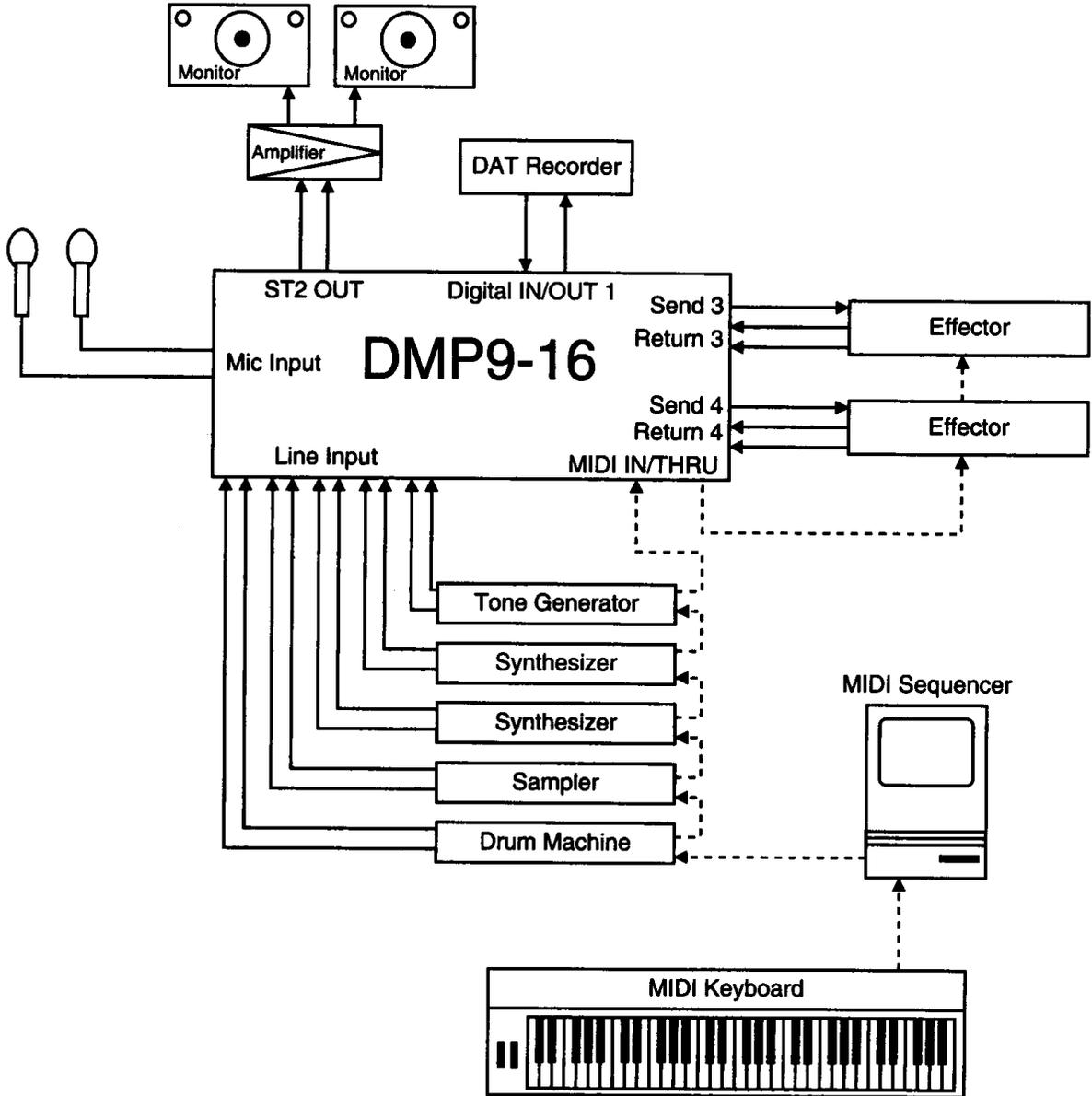
DMP9 in a Synthesizer Setup

In this system, the DMP9 is being used as a keyboard mixer for live performance. Additional effects are provided by two effectors connected to auxiliaries 3 and 4. STEREO OUT 2 feeds the keyboardist's monitor speakers, and STEREO OUT 1 feeds the front of house mixer. The MIC INPUTS can be used for backing vocals or talkback. MIDI Program Change messages can be sent from the Foot Controller, keyboard, or sequencer to select DMP9 scene memories. MIDI Control Change messages can be used for real-time DMP9 parameter control.



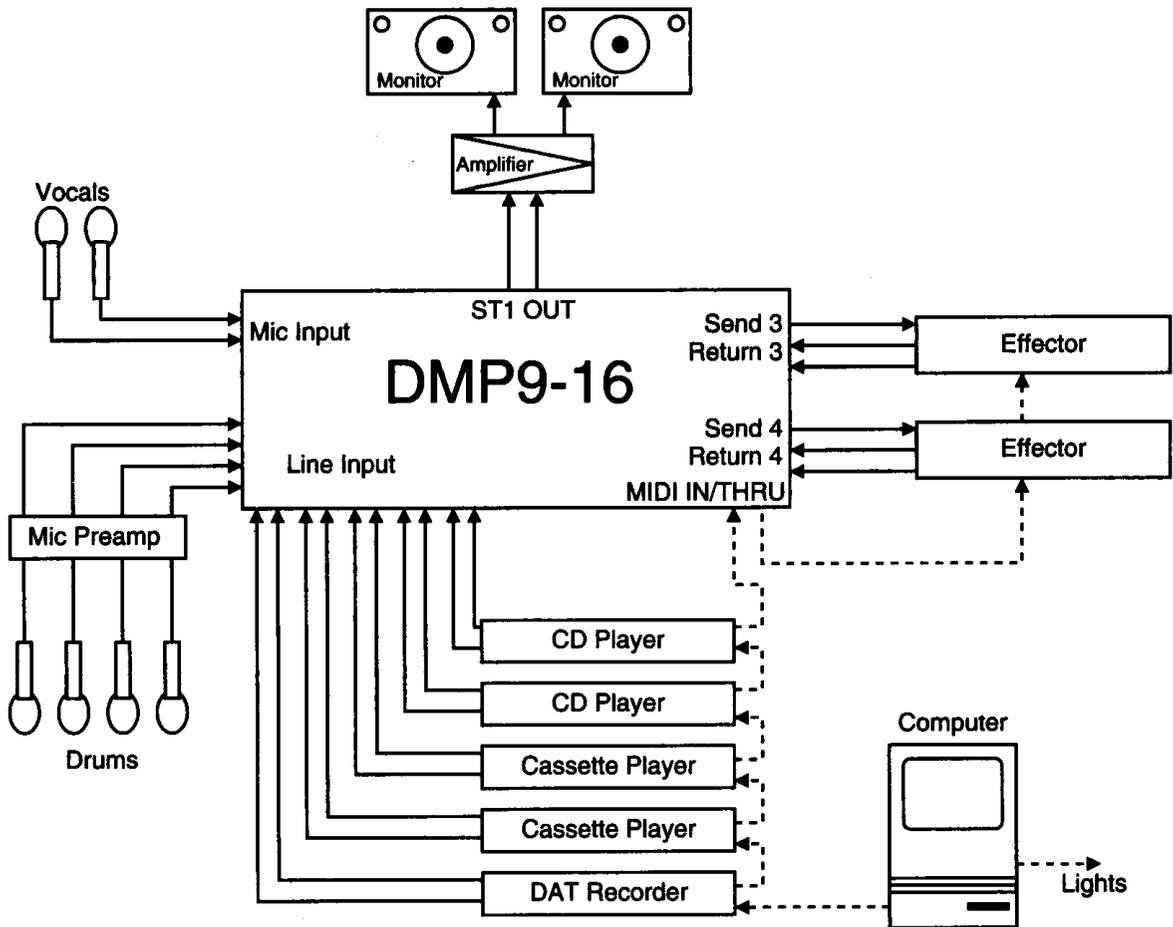
DMP9 and MIDI Sequencer in a Home/Project Studio

In this system, the DMP9 is being used in a Home/Project studio. Additional effects are provided by two effectors connected to auxiliaries 3 and 4. STEREO OUT 2 feeds the monitor speakers, and DIGITAL OUT 1 feeds the DAT recorder, for mastering. The MIC INPUTS can be used for vocals. MIDI Program Change messages can be sent from the sequencer to select DMP9 scene memories, and MIDI Control Change messages can be used for real-time DMP9 parameter control. Both providing fully automated mixdowns.



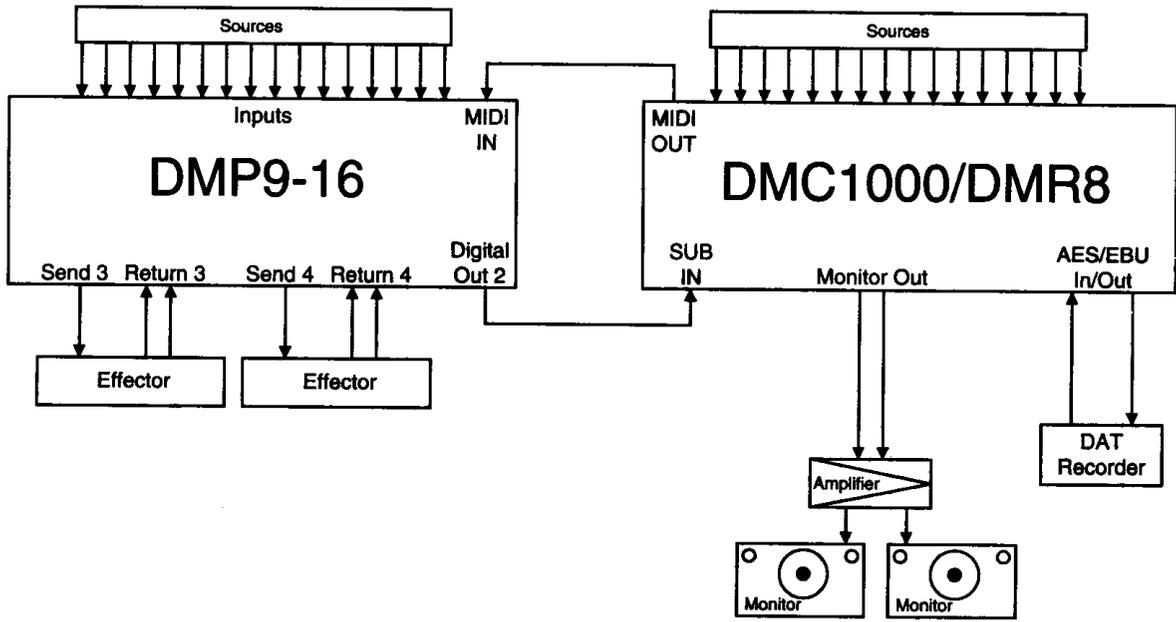
DMP9 in an Installation

In this system, the DMP9 is being used in an installation. The computer provides control of the DMP9, audio playback devices, effectors, and lighting system.

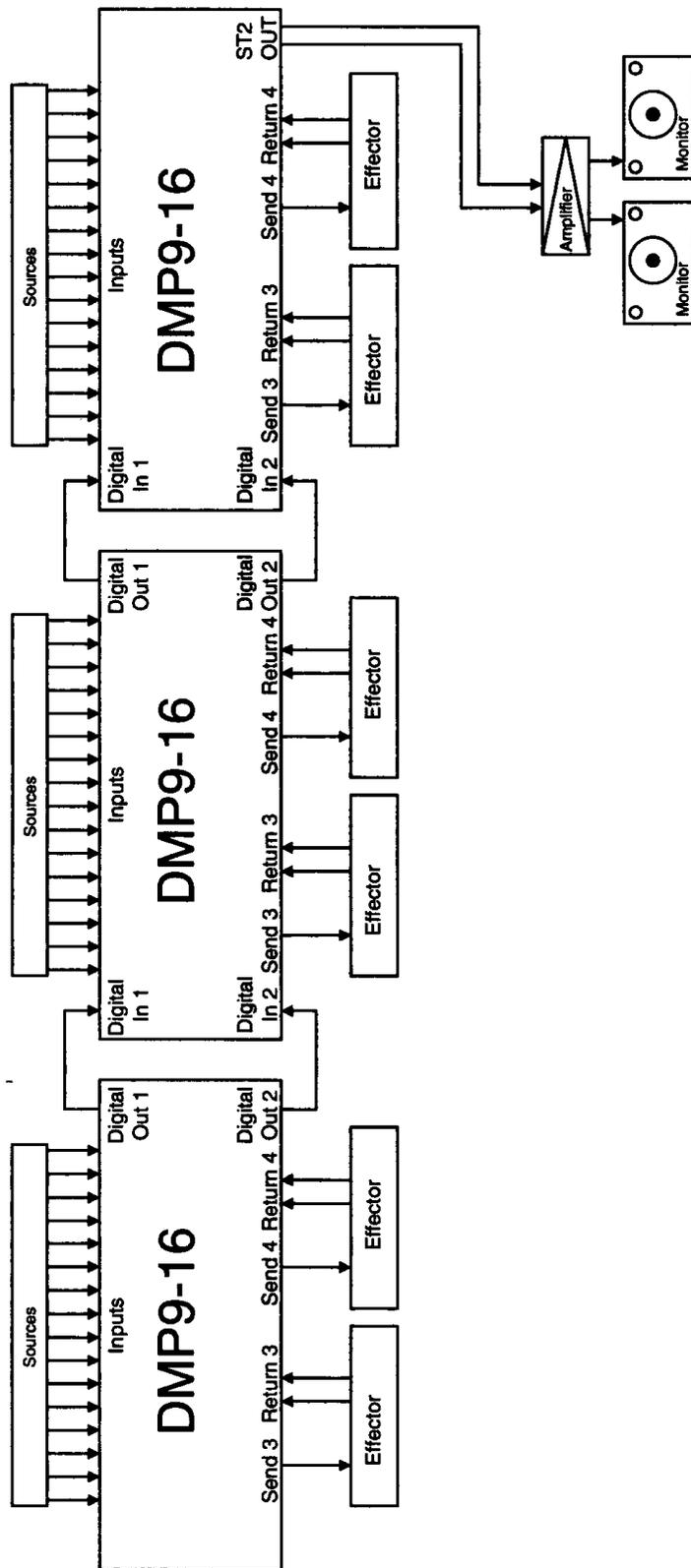


DMP9 as a Sub Mixer

In this system, the DMP9 is being used as a sub mixer for input channel expansion in conjunction with a DMR8 or DMC1000. The DMP9 input channels are mixed down to stereo, with internal effects, then connected to the DMR8/DMC1000 via the Yamaha format DIGITAL OUT 2. A MIDI connection allows simultaneous scene memory recall on both units.

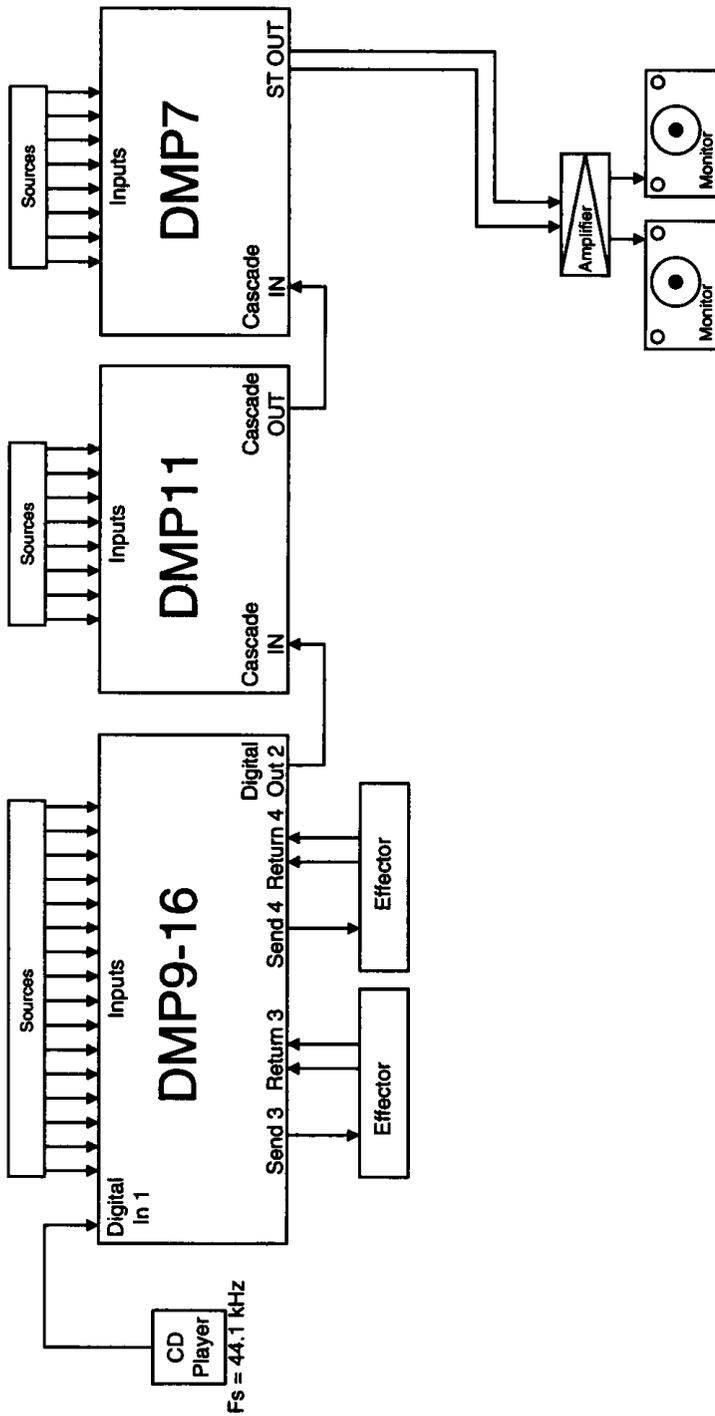


48-Channel Mixdown



In this system, three DMP9-16s are used for 48 channel mixing. DMP9 input channels are mixed down to stereo, with internal effects, then fed to the subsequent DMP9-16 via the Yamaha format digital inputs and outputs. The Master Delay function must be set to compensate for processing delays.

DMP9, DMP11, & DMP7 in Cascade



In this system, a DMP9-16 is used in cascade with a DMP11 and DMP7. The complete system provides 32 inputs. DMP9-16 input channels are mixed down to stereo, with internal effects, then fed to the DMP11 and DMP7 via the Yamaha format DIGITAL OUT 2. The CD player is being used as a 44.1 kHz master wordclock source. The DMP11 and DMP7 must use a 44.1 kHz wordclock in order for their EQ to work correctly.

Troubleshooting

Symptom	Remedy
The DMP9 cannot be powered up.	Make sure that the DMP9 power cable is connected to an AC receptacle of the voltage type marked on the rear panel.
	Make sure that the POWER switch is in the ON position.
	Check the mains plug fuse, if fitted.
A signal has been input, but no sound is output.	Is the DMP9 wordclock set correctly? See "Master Clock Select" on page 64.
	Make sure that the input channel is turned on. See "Input Channel On/Off button" on page 31.
	Make sure that the input channel is assigned to a stereo bus. See "Bus Assign" on page 26.
	Make sure that the MASTER [ON] button is ON, the MASTER level control is turned up, and the respective rotary STEREO OUT control is turned up.
An input channel seems to be lacking gain.	Make sure that the input channel Pad function is not set. See "Pad" on page 22.
A stereo signal is being input, but the resulting signal appears to be mono.	Make sure that the input channel Width and Balance function are set correctly. See "Panpot, Width, & Balance" on page 29.
A microphone is connected to input 1 or 2, but nothing can be heard.	Make sure that respective input is set for mic input. See "Mic Input (channels 1 & 2 only)" on page 19.
A channel signal appears to be delayed or phase shifted.	Make sure that the input channel Phase function is not set incorrectly. See "Phase" on page 24.
	Make sure that the input channel Delay function has not been set unnecessarily. See "Delay" on page 24.
	Make sure that your balanced cable connections are not hot / cold crossed.
Cannot select effect types.	First, select the effect, then position the cursor on Effect Recall and press the [+ / ON] parameter button to recall it. See "Selecting Effects" on page 48.
Cannot store a scene memory.	Is the Memory Protect function turned on? See "Memory Protect" on page 57.
Cannot store a mix scene to scene memory 0.	This is correct. Scene memory 0 is for recalling the initial DMP9 settings only. See "Scene Memory 0" on page 54.
The Fade time setting doesn't appear to have any effect.	You must set the fade Time parameter, then store the scene memory that you want to be affected. See "Fade Time" on page 56.
A digital signal is connected to a digital input, but nothing can be heard.	Has the D. In Routing function been set? See "Digital Input Routing" on page 58.
A digital input signal can be heard, but it doesn't sound quite right.	Make sure that the DMP9 is deriving its wordclock from the respective digital input. See "Master Clock Select" on page 64.
	Make sure that the connecting cable is designed for use with digital audio.
	If you are using both digital inputs, both signals must share the same wordclock. See "Using Both Digital Inputs" on page 61.
The digital output signal cannot be recorded.	Did the digital input signal originate from a device that conforms to SCMS.
Grouping does not work.	Is the group enabled? See "Grouping Channels" on page 53.
High frequencies (above 3.5 kHz) appear to be unnaturally boosted or attenuated.	Are the emphasis functions set correctly? See "Digital Input Emphasis" on page 59, "Output Emphasis" on page 63, and "Internal Emphasis" on page 65.
Cannot adjust the level.	Make sure that the Master CLK Sel LCD function is set correctly. See "Master Clock Select" on page 64.
MIDI Program Change messages are not output.	Is the Tx parameter on the PGM Change LCD function set to on? See "MIDI Program Change" on page 75.
	Has a Program Change been assigned to the scene memory? See "Scene Memory to Program Change Assign" on page 76.
	Have you recalled a scene memory?

Symptom	Remedy
MIDI Control Change messages are not output.	Is the Tx parameter on the CTRL Change LCD function set to on? See "MIDI Control Changes" on page 77.
	Has a Control Change been assigned to the parameter? See "Control Change to Parameter Assign" on page 78.
MIDI Program Change messages are not received.	Is the Rx parameter on the PGM Change LCD function set to on? See "MIDI Program Change" on page 75.
	Are the MIDI Channels set correctly?
MIDI Control Change messages are not received.	Is the Rx parameter on the CTRL Change LCD function set to on? See "MIDI Control Changes" on page 77.
	Are the MIDI Channels set correctly?
	Is the mode set correctly, Channel or Register?
	Has the Control Change been assigned to a parameter? See "Control Change to Parameter Assign" on page 78.
Signal is not affected by controls.	Is the channel selected?
	Is MIDI Local on? See "MIDI Local" on page 81.
	Are the connected MIDI devices causing a MIDI loop?

Error Messages

System Errors

When the DMP9 is powered on, it initializes its RAM and clears the working area. If any abnormality occurs at this time, it is indicated by an error message on the MEMORY number indicator:



MIDI Transmission/Receive Errors

The following error messages may appear on the LCD while sending and receiving MIDI data.

MIDI Over Run

Over run occurred during reception. The transmission device may be abnormal or the MIDI cable may be defective.

MIDI Framing Error

Framing Error occurred during reception. The transmission device may be abnormal or the MIDI cable may be defective.

MIDI Rx Buf Full

Reception Buffer became full during reception. Too much data was sent and the DMP9 could not process it in time.

Framing Error occurred. The transmission device may be abnormal or the MIDI cable may be defective.

MIDI Tx Buf Full

Transmission Buffer became full during transmission. Too much data was sent.

The following errors may also occur when receiving MIDI data:

MIDI Parity Err

MIDI Break Rx

MIDI IRQ Clear

DSP (Digital Signal Processor) Transmission/Reception Error

The following error messages may appear on the LCD when the DSP and CPU are sending and receiving data.

DSP Over Run

DSP Framing Err

DSP Rx Buf Full

DSP Tx Buf Full

DSP Parity Err

DSP Break Rx

DSP IRQ Clear

If one of these errors occurs, contact your Yamaha dealer.

DEQ (Digital Equalizer Transmission/Reception Error)

The following error messages may appear on the LCD when the DEQ and CPU are sending and receiving data.

DEQ Over Run

DEQ Framing Err

DEQ Rx Buf Full

DEQ Tx Buf Full

DEQ Parity Err

DEQ Break Rx

DEQ IRQ Clear

If one of these errors occurs, contact your Yamaha dealer.

Operation Error and Other Messages

The following error messages may appear on the LCD.

No.0 is FIXED!

You tried to store the data in Scene Memory 0.

No Data!

No data is included in the Scene Memory you have just tried to recall.

Memory Protected

You cannot store the data because the Scene Memory is protected.

No Edit Backup

You tried to use the Scene Memory Undo function, but the previous data does not exist.

No xxxx for RETURN! or No xxxx for RET!

You tried to show the parameter not included for RETURN.

BULK Rx xxxx

MIDI Bulk data was received.

MIDI "FE" Stopped

MIDI Active Sensing (FEh) stopped.

Backup Recalled

You performed the Scene Memory Undo function.

D1 In Format ERR Routing "ON"?

Format error occurred in Digital1 In signal. This is shown if professional-format data was input when Digital1 In was being used, or if the sampling frequency in the Channel Status bytes and the actual sampling frequency do not match. When this error occurs, pressing the PARAMETER [+ / ON] key will allow you to continue using the Digital1 In. Pressing the [- / OFF] key will turn it OFF. You cannot perform other operations until you press either of these keys.

D1 In DATA Error Auto "OFF"

The Digital 1 In signal is not IEC958, EIAJ CP-1201 (consumer type), or the sampling frequency information in the Channel Status is different to the actual sampling frequency. Check the transmission device.

D2 In DATA Error Auto "OFF"

Data error occurred in Digital2 In signal. This is shown (when Digital2 In is being used) if the sampling frequency does not match that on the DMP9, the signal is cut, or Parity Error occurs. You cannot perform other operations until you press the PARAMETER [+ / ON] key.

DMP9 Fatal Error

If one of the following error messages appears, DMP9 functions may be disabled. In this case, initialize the DMP9 (restore factory defaults). If this does not correct the problem, please contact your Yamaha dealer.

Bus Error

Address Error

Illegal Instruc.

Division by 0

CHK instruc.

TRAPV instruc.

Violation

Trace

Line 1010 em

Line 1111 em

System Reversed

Vector Uunit

Spurious Int.

System Initialization

Factory Settings

To initialize the DMP9 to its factory settings, press and hold down the MEMORY [RECALL] button, RETURN [SEL] button, and [UTILITY] button, then power on.

The following steps are carried out.

1. Initializing Scene Memory No.0 (STEREO) and OWNER'S RAM.
2. Clearing the RAMs other than Scene Memory No.0 and OWNER'S RAM.
3. Initializing MIDI Program/Control Change Assign Table.
4. Initializing Edit Buffer/Backup Buffer/Setup Buffer.
5. Initializing Level/Pan Table.
6. Copying Scene Memory No.0 to Scene Memories No.1 to No.50.
7. Initializing the ports.
8. Refreshing the LCD screen.
9. Reset

RAM Clear

To initialize the user's RAM, press and hold down the [◀] and [▶] PARAMETER buttons, then power on.

The following steps are carried out.

1. Clearing the RAMs other than Scene Memory No.0 and OWNER'S RAM.
2. Initializing MIDI Program/Control Change Assign Table.
3. Initializing Edit Buffer/Backup Buffer/Setup Buffer.
4. Initializing Level/Pan Table.
5. Copying Scene Memory No.0 to Scene Memories No.1 to No.50.
6. Initializing the ports.
7. Refreshing the LCD screen.
8. Reset

MIDI standard table settings (From the Production Department)

To initialize the MIDI tables, press and hold down the [+ / ON] and [- / OFF] PARAMETER buttons, then power on.

The following steps are carried out.

1. Clearing the RAM that is used to store the MIDI tables.
2. Initializing the MIDI Program Change Assign Table.
3. Initializing the MIDI Control Change Assign Table.
4. Reset

Appendix

DMP9 Compatible Yamaha Products

MFC1 MIDI Foot Controller

The MFC1 is a MIDI foot controller that can transmit MIDI Program changes messages. This could be used with the DMP9 for selecting scene memories. With the addition of an optional FC7 Foot Controller and footswitch, the MFC1 can transmit MIDI Control Change messages, which could be used for real-time DMP9 parameter control.

QX3 MIDI Sequencer

The QX3 is a dedicated 16-track MIDI sequencer. As well as recording MIDI data from musical instruments, it can be used to record DMP9 Program Change and Control Change messages for automated mixdowns.

MDF2 MIDI Data Filer

The MDF2 MIDI Data Filer provides convenient MIDI data storage for the DMP9. Data can be bulk dumped from the DMP9 to the MDF2 for storage, and recalled at anytime. The MDF2 also provides real-time MIDI recording and playback.

HA8 Mic Preampifier

The HA8 contains eight high-performance microphone preamplifiers, each providing phantom power, up to 74 dB of gain, 20 Hz to 40 kHz response, $\leq 0.0022\%$ THD, and -128 dB equivalent input noise. The HA8 can be used with the DMP9 to expand the number of microphone inputs.

DMR8

The DMR8 is an integrated digital audio mixer and recorder. It provides fully automated 8-channel mixing, 8-track 20-bit digital recording, three digital effectors, and comprehensive synchronization for Audio/Video applications. The DMP9 can be used as a sub mixer to expand the number of channels. The DMR8 features a Yamaha format Slave Mix In connection, so the DMP9 can be connected with ease.

DMC1000

The DMC1000 is an 8-input, 8-bus, 8-monitor digital mixing console, with 28-bit internal processing and full automation. The DMP9 can be used as a sub mixer to expand the number of channels. The DMP9 can be connected directly to one of the DMC1000's Yamaha format digital inputs.

Specifications

Analog Input	DMP9-16	16 mono channel (1, 2 with mic input), 8 stereo pairs, or a combination of both.
	DMP9-8	8 mono channel, 4 stereo pairs, or a combination of both.
Analog Output		Stereo x2, headphone x1
Aux Send		2 channel for internal effects, 2 analog outputs
Aux Return		2 channel for internal effects, DMP9-8: 1 analog input, DMP9-16: 2 analog inputs
Bus		DMP9-16: ST1, ST2/Solo. DMP9-8: ST and solo.
Digital I/O		2 channel x2
Input Pad (Input only)		0.0 dB ~ -95.2 dB (128 positions)
EQ (Input only)	Frequency	20.9 Hz ~ 20.16 kHz sweepable (120 positions)
	Gain	±18 dB (73 positions)
	Q	0.100 ~ 8.157 (128 positions)
	Type	Peaking, Shelving
Level Controller		Rotary encoder with 8-point LED
Display		16-character 4-line LCD
Frequency response	FS @ 48 kHz	20 Hz ~ 22 kHz +1, -3 dB
	FS @ 44.1 kHz	20 Hz ~ 20 kHz +1, -3 dB
	FS @ 32 kHz	20 Hz ~ 14.5 kHz +1, -3 dB
Total Harmonic Distortion		Less than 0.05% (1 kHz @ +4 dB ST OUT) with Emphasis
Dynamic Range		Greater than 92 dB (1 kHz ST OUT) with Emphasis
Data Length	A/D	16 bit
	Digital Input1	20 bit
	Digital Input2	24 bit
	D/A	18 bit
	Digital Output1	20 bit (effective bit length may be limited due to input source)
	Digital Output2	24 bit (effective bit length may be limited due to input source)
Internal Data Processing	EQ	32 bit
	DSP	28 bit
	SRAM (delay)	24 bit
Sampling Frequency	Internal	48 kHz ±10ppm
	Digital Input	48, 44.1, 32 kHz ±1000ppm
Power Requirements	U.S. & Canadian Model	120V AC, 60 Hz
	General Model	230V AC, 50 Hz
	British Model	240V AC, 50 Hz
Power Consumption		60 W
Scene Memories		51 (50 user, 1 initial set)
Dimensions	(W x H x D)	480 x 144 x 386 mm (19" x 5.7" x 15.2" inch) 3U rack mount
Weight		DMP9-8 10 kg (22 lbs). DMP9-16 10.8 kg (23.8 lbs)

0 dB is referenced to 0.775 V rms

Input Specifications

Input Terminals	Actual Load Impedance	For Use With Nominal	Input level		Connector in Mixer
			Nominal	Max. before clip	
LINE INPUT 1-16[-16] 1-8[-8]	20k Ω	600 Ω	-20 dB ~ +4 dB	-4 dB ~ +20 dB (16 dB headroom)	Phone Jack
MIC INPUT 1, 2 [-16], [-8]	3k Ω	600 Ω	-60 dB ~ -36 dB	-44 dB ~ -20 dB (16 dB headroom)	XLR-3-31 type
AUX RETURN 3(L, R), 4(L,R) [-16] 3(L, R) [-8]	20k Ω	600 Ω	-20 dB ~ +4 dB	-4 dB ~ +20 dB (16 dB headroom)	Phone Jack
DIGITAL INPUT1 (IEC958, EIAJ CP-1201)	75 Ω	75 Ω	0.2 Vpp ~ 0.6 Vpp		RCA pin jack
DIGITAL INPUT2 (Yamaha format)	150 Ω	150 Ω	RS-422A		8-pin DIN
MIDI IN	—	—	—	—	5-pin DIN

0 dB is referenced to 0.775 V rms

[-16]: DMP9-16. [-8]: DMP9-8

Output Specifications

Output Terminals	Actual Source Impedance	For Use With Nominal	Output Level		Connector in Mixer
			Nominal	Max. before clip	
STEREO OUTPUT1 [-16] ST OUT (BALANCE) [-8]	100 Ω	600 Ω Lines	+4 dB (1.23V)	+20 dB (16 dB headroom)	XLR-3-32 type (balanced)
STEREO OUTPUT2 [-16] ST OUT (UNBALANCE) [-8]	110 Ω	10k Ω Lines	+4 dB (1.23V)	+20 dB (16 dB headroom)	Phone jack (unbalanced)
AUX SEND3(L), 4(R) [-16] 3(L), 4(R) [-8]	110 Ω	10k Ω Lines	+4 dB (1.23V)	+20 dB (16 dB headroom)	Phone jack
PHONES	150 Ω	8 Ω	0.5 mW	20 mW	Stereo phone jack
		40 Ω	1.5mW	70 mW	
DIGITAL OUTPUT1 (IEC958, EIAJ CP-1201)	75 Ω	75 Ω	0.5 Vpp \pm 20%		RCA pin jack
DIGITAL OUTPUT2 (Yamaha format)	150 Ω	150 Ω	RS-422A		8-pin DIN
WORD CLK OUT	75 Ω	75 Ω	TTL		BNC
MIDI OUT, MIDI THRU	—	—	—	—	5-pin DIN

0 dB is referenced to 0.775 V rms

[-16]: DMP9-16. [-8]: DMP9-8

Specifications subject to change without notice.

Glossary

A/D converter: A device that converts analog signals into digital signals.

Aliasing: A type of signal distortion that occurs during A/D conversion if the sampling frequency is less than double that of the highest audio frequency. A/D converters employ aliasing filters to filter out audio frequencies higher than half the sampling frequency. *See also* Nyquist Sampling Theorem.

Bulk Dump: A DMP9 MIDI function that allows data transfer between DMP9s. Data such as Setup and scene memories is transmitted as MIDI System Exclusive messages.

Bus: In an audio mixer, a common conductor used to collect and distribute signals. Sometimes spelled buss. In the DMP9, input channel signals are fed to a stereo bus, which in turn feeds the stereo outputs.

Cascade: A digital stereo connection developed by Yamaha that allows digital audio transfer between devices. DMP9s can be cascaded together for channel expansion, etc., using the digital inputs and outputs.

IEC958 (Consumer) : A digital interface format that is used to transfer digital audio data between consumer type digital audio equipment such as CD players, consumer DAT recorders, and the new DCC and Mini Disc recorders. Two channels of digital audio (left & right) are carried in one connection, usually a phono/RCA jack type connection. This format is often referred to as S/PDIF (Sony/Philips Digital Interface Format).

Channel mode: A mode in which each bank of MIDI Control Change messages used to control DMP9 parameters are transmitted on individual MIDI channels.

Control Change: A type of MIDI message that offers real-time control. Typical Control Changes include Modulation, Volume, Pan, and Portamento. All DMP9 mix parameters can be controlled using MIDI Control Change messages

Copyright flag: A data bit in the Channel Status of a digital audio signal that is used to display copyright information and prevent digital copying. If a device conforming to SCMS such as a DAT recorder detects that the copyright flag has been set, it will not enter record.

D/A converter: A device that converts digital signals into analog signals.

DSP: A type of IC designed specifically for processing large amounts of data at high speed in real time. This type of processor is ideal for handling digital audio data.

Dynamic range: The difference between the loudest and quietest signal levels in a system. In an audio device, usually the difference between the maximum output level and the residual noise floor. In a digital system, the available dynamic range is determined by the data resolution, approximately 6 dB per digital bit. Hence, a 16-bit system theoretically provides a 96 dB dynamic range.

Edit buffer: An internal RAM area that stores the current DMP9 parameter settings. That is, the current mix scene. When a mix scene is stored, the Edit buffer data is copied to the selected scene memory. When a mix scene is recalled, the data of the selected scene memory is copied to the Edit buffer.

Emphasis: A 6 dB/octave level boost applied to frequencies above 3.5 kHz before A/D conversion. After D/A conversion, a 6 dB/octave level cut is applied, often called de-emphasis.

EQ snapshot: A set of EQ settings at a particular point in a mix. Early automated mixers could only store EQ settings. The DMP9, however, can store all mixer settings, so the term mix scene is more appropriate. *See also* Mix Scene and Scene Memories.

Fade time: The time taken for level controls to reach their new positions when a scene memory is recalled.

MIDI: An acronym for Musical Instrument Digital Interface. An internationally agreed standard that allows electronic musical instruments to communicate with each other.

Mix scene: A set of mixer settings at a particular point in a song. Just like a play, a piece of music consists of various scenes, each requiring different mixer settings. *See also* Scene Memories.

Nyquist Sampling Theorem: This theorem states that the sampling frequency of a digital audio system must be at least twice that of the highest audio frequency, otherwise waveform distortion called aliasing will occur. *See also* Aliasing.

PCM: An abbreviation for Pulse Code Modulation. During A/D conversion, an analog audio signal is first converted into pulses, with one pulse representing one sample, then converted into binary data words using PCM.

Program Change: A type of MIDI message that is used to select programs, patches, and, on the DMP9, scene memories.

RAM: A type of memory IC that stores data that can be edited, but requires a continuous electrical charge. DMP9 settings and scene memories are stored in RAM. An internal backup battery provides the continuous charge. *Contrast with* ROM.

Register mode: A mode in which all MIDI Control Change messages used to control DMP9 parameters are transmitted on the same MIDI channel and MIDI Control Change 98 (Non Registered Parameter LSB) is used to identify banks.

ROM: A type of memory IC that stores data that cannot be edited, but does not require a continuous electrical charge. The DMP9 operating system is stored in ROM. *Contrast with* RAM.

Sampling frequency: The number of times per second that an analog audio signal is sampled (measured) during A/D conversion. The value of each sample is then stored as a data word. Once in the digital domain, the data will remain at the same sampling frequency until final D/A conversion. Sampling frequency conversion is possible, although generally expensive.

Scene memory: A DMP9 memory location that can be used to store mix scenes and EQ snapshots. Scene memories can be recalled at any time using front panel buttons or remotely using MIDI Program Change messages. These messages could be sent from a MIDI footswitch, keyboard, or sequencer.

SCMS: An acronym for Serial Copy Management System, pronounced "Scums" or Scams". A copy protection system used in consumer type digital audio equipment that prevents second generation digital copying by setting a copyright flag that is present in the digital signal. *See also* Copyright Flag.

S/N (Signal to Noise ratio): In an audio system, the difference, usually expressed as a ratio in decibels, between the nominal signal level and the residual noise floor.

System Exclusive: A type of MIDI message that is used to transmit data between MIDI devices exclusively. The DMP9 uses System Exclusive messages to transmit Setup data and scene memory data between DMP9s. *See also* Bulk Dump.

User bits: A number of data bits that are transmitted along with the digital audio in IEC958 and EIAJ CP1201 formats. The DMP9 transmits and receives DMP9 specific data bits.

Wordclock: A clock signal that is used to synchronize the data processing circuits of all devices connected in a digital audio system. The wordclock frequency is the same as the sampling frequency.

Yamaha: A digital audio format developed by Yamaha that is used to transfer digital audio data between Yamaha's professional digital audio equipment. Each time slot (1 wordclock in length) is divided into 64-bit periods, and contains two PCM samples of between 16 and 24 bits (left/odd and right/even).

Further Reading

For those who would like to know more about the fascinating world of digital audio and related DMP9 subjects, here are a few suggested books.

1. *Introducing Digital Audio*, Ian R Sinclair, 2nd edition, PC Publishing, 1992.
A good all-round introduction to digital audio for experienced analog audio users. Second edition explains oversampling and bitstream techniques.
2. *Coding for Digital Recording*, John Watkinson, Focal Press (Butterworth Group), 1990.
3. *Principles of Digital Audio*, Ken C. Pohlmann, Howard W.Sams & Co, 1989.
Covering all aspects of digital audio, this book is ideal for the newcomer who wants to know the basics — plus a bit more.
4. *The Art of digital Audio*, John Watkinson, Focal Press (Butterworth Group), 1990.
An essential read for digital audio professionals — but only for the serious!
5. *Yamaha Sound Reinforcement Handbook*, Gary Davis and Ralph Jones, 2nd edition, Hal Leonard Publishing Corporation, 1990.
Although primarily concerned with Sound Reinforcement, many of the subjects covered in this book also apply to DMP9 applications. The 2nd edition also includes a comprehensive section on MIDI and timecode synchronization.

Index

A

- Analog cable notes 15
- Analog line input 19
- Appendix 95
- Applications 4, 83
- Auto level monitor screen 67
- Auto master on/off screen 67
- Auxiliary Returns 40
 - balance 44
 - balance monitor 45
 - bus assign 41
 - clip LED 40
 - graphical level monitor 42
 - input connections 40
 - level control 41
 - numeric level monitor 43
 - ON/OFF 45
 - phase 41
 - signal LED 40
 - solo 46
 - titling 40
 - trim control 40
 - width 44
- Auxiliary sends 38
 - 3/4 modes 39
 - input channel on/off 32
 - input channel pre/post 32
 - level control 38
 - level monitor 38
 - metering 39
 - ON/OFF 39
 - output connections 38

B

- Backup battery ii
- Balance
 - auxiliary return monitor 45
 - auxiliary returns 44
 - input channel monitor 31
 - input channels 29
 - mode 69
 - stereo outputs 36
- Basic setup 16
- Battery
 - backup ii
 - check 66
- Bulk dump 80
 - cascade 73
- Bus assign
 - auxiliary returns 41
 - input channels 26

C

- Cables 15
 - Cascading 70
 - assign 71
 - bulk dump 73
 - master delay 72
 - pad 73
 - scene memories & MIDI 73
 - with DMP11 & DMP7 88
 - Ch Mode Select, LCD function 20
 - Ch. Title, LCD function 21
 - Channel modes, selecting 20
 - Channel status monitor 59
 - Channels, selecting 17
 - Chorus 50
 - Clip LED
 - auxiliary returns 40
 - input channels 21
 - Connecting cables 15
 - Connector contacts ii
 - Control Change
 - basic setup 77
 - out parameter assign 79
 - parameter assign 78
 - Control Changes 77
 - Copyright notice ii
- ### D
- Data organization 18
 - Delay
 - input channels 24
 - master delay 72
 - Delay L-C-R 52
 - Digital audio & the DMP9 1
 - Digital I/O cable notes 15
 - Digital inputs 58
 - channel status monitor 59
 - input emphasis 59
 - input routing 58
 - notes 61
 - SCMS 61
 - signal range 61
 - user bit monitor 60
 - wordclock source 61
 - Digital multi effects 1
 - Digital outputs 62
 - emphasis 63
 - routing 62
 - user bits 63
 - DMP11 88
 - DMP7 88
 - DMP9
 - applications 4, 83
 - basic setup 16

- cascading 70
 - data organization 18
 - features 2
 - initializing 67
 - inside diagram 3
 - other Yamaha products 95
 - touring 6
- DMP9-16
 - front panel 6
 - rear panel 12
- DMP9-8
 - front panel 7
 - rear panel 12

E

- Early Ref.1 51
- Early Ref.2 51
- Edit buffer
 - title 57
 - what is it? 18
- Effect recall assignment 67
- Effects 47
 - assign 49
 - Chorus 50
 - Delay L-C-R 52
 - Early Ref.1 51
 - Early Ref.2 51
 - editing 48
 - Flange 50
 - Gate Reverb 51
 - HQ-Rev1 Hall 50
 - HQ-Rev2 Room 50
 - HQ-Rev3 Stage 50
 - HQ-Rev4 Plate 50
 - individual 49
 - parameters 50
 - Phasing 51
 - Pitch Change 52
 - Rev1 Hall 50
 - Rev2 Room 50
 - Rev3 Stage 50
 - Rev4 Plate 50
 - Reverse Gate 51
 - selecting 48
 - serial 49
 - Stereo Echo 52
 - Symphonic 51
 - Tremolo 51
 - using 47
- Emphasis
 - digital inputs 59
 - digital outputs 63
 - internal 65
- EQ, inputs channels 23

Error messages 91
Expanding channels 2

F

Fade time 56
Features 2
Flange 50
Front panel
 DMP9-16 6
 DMP9-8 7
Further reading 100

G

Gate Reverb 51
Getting around the user interface 17
Getting started 15
Glossary 98
Graphical level monitor
 auxiliary returns 42
 inputs channels 27
 stereo outputs 34
Grouping channels 53
 setting up a group 53

H

Home studio 84
HQ-Rev1 Hall 50
HQ-Rev2 Room 50
HQ-Rev3 Stage 50
HQ-Rev4 Plate 50

I

Initializing 67
Input channels 19
 analog line input 19
 auxiliary sends on/off 32
 auxiliary sends pre/post 32
 balance 29
 bus assign 26
 clip LED 21
 delay 24
 digital inputs 19
 EQ 23
 graphical level monitor 27
 grouping 53
 level control 25
 mic inputs 19
 modes, selecting 20
 numeric level monitor 28
 ON/OFF 31
 pad 22
 pan/balance monitor 31
 panpot 29
 parameter copy 33

phase 24
signal LED 21
solo 33
titling 21
trim control 21
width 29

Input specifications 97
Inside the DMP9 3
Installation ii
Installation setup 85
Internal emphasis 65
Introduction 1

L

LCD function
 auxiliary sends ON/OFF 32
 auxiliary sends PRE/POST 32
 Battery Check 66
 Bulk 80
 Bus Assign 26, 41
 Cascade Assign 71
 Cascade PAD 73
 Ch Group 53
 Ch Mode Select 20
 Ch Status Rx 59
 Ch Status Tx 69
 Ch. Title (CH) 21
 Ch. Title (RET) 40
 Channel Delay 24
 CTRL Assign 78
 CTRL Change 77
 CTRL Out PRM. 79
 D. In Emphasis 59
 D. In Routing 58
 D.Out Emphasis 63
 D.Out Routing 62
 Eff. Assign 49
 Effect1 PRM. 48
 Effect1 TYPE 48
 Emphasis 65
 EQ 23
 Fade Time 56
 Initialize Mem#0 68
 Level (INPUT) 27
 Level (RETURN) 42
 Level (SendMst) 38
 Level (ST.Mast) 34
 Level Monitor 28, 35, 43
 LINE/MIC Select 19
 Master CLK Sel 64
 Master Delay 72
 Master ON/OFF 35, 39
 Mem. Title Edit 56
 Memory Protect 57

Memory Store 55
Memory Title 57
MIDI Local 81
MIDI Monitor 82
MIDI Setting 74
Oscillator 65
PAD 22
Pan Moni. (INPUT) 31
Pan Moni. (RET.) 45
Pan/Bal Mode 69
Panpot 29
Parameter Copy 33
PGM Assign 76
PGM Change 75
PHASE 24, 41
Send 3/4 Mode 39
ST1/2 Balance 36
ST2 Int BUS Sel 37
ST2 OUT Select 36
System Flags 67
User's Bit Rx 61
User's Bit Tx 63
Width/Balance 30, 44

Level control
 auxiliary returns 41
 auxiliary sends 38
 input channels 25
 stereo outputs 34
Level setting 18
Line inputs 19
LINE/MIC Select 19
Local MIDI 81

M

Master clock
 setting 64
 what is it? 64
Master stereo outputs 34
Memory backup battery ii
Memory indicator 54
Memory store request out 67
Metering
 auxiliary sends 39
 stereo outputs 37
Mic inputs 19
MIDI 74
 bulk dump 80
 cascade 73
 control changes 77
 data receive indicator 74
 F8/FE monitor filter 82
 initializing MIDI parameters 82
 local 81
 monitor 82

program change 75
 setup 74
 MIDI control & the DMP9 1
 Multi-channel mixdown setup 87

N**Naming**

auxiliary returns 40
 input channels 21
 scene memories 56
 Numeric level monitor
 auxiliary returns 43
 inputs channels 28
 stereo outputs 35

O**ON/OFF**

auxiliary returns 45
 auxiliary sends 39
 input channels 31
 stereo outputs 35

Optimizing level settings 18

Oscillator 65

Output specifications 97

Owner's Guide

road map 5
 using 5

Owner's mode 68

channel status transmit 69
 entering 68
 initialize scene memory 0 68
 pan, width, & balance mode 69

P**Pad**

cascade 73
 input channels 22

Panpot

input channel monitor 29
 input channels 29
 mode 69
 pan special function 67

Parameter copy 33

Phase

auxiliary returns 41
 input channels 24

Phasing 51

Phones 37

Pitch Change 52

Power on/off procedure 16

Precautions & Notes i

Program change 75

basic setup 75
 scene memory assignment 76

Project studio 84
 Protect, scene memories 57

R**Rear panel**

DMP9-16 12
 DMP9-8 12

Recalling scene memories 55

Remote buffer, what is it? 18

Rev1 Hall 50

Rev2 Room 50

Rev3 Stage 50

Rev4 Plate 50

Reverse Gate 51

Road map, to this guide 5

S

Safety Information i

Scene memories 54

fade time 56

initialize scene memory 0 68

memory indicator 54

memory protect 57

program change assignment 76

recalling 55

scene memory 0 54

storing 55

titling 56

undoing recalls 55

what are they? 1, 18

SCMS 61

Selecting channels 17

Setup data, what is it? 18

Signal LED

auxiliary returns 40

input channels 21

Solo

auxiliary returns 46

input channels 33

Specifications 96

ST internal bus select 37

ST2 out select 36

Stereo Echo 52

Stereo outputs 34

balance 36

graphical level monitor 34

master level control 34

metering 37

numeric level monitor 35

ON/OFF 35

ST internal bus select 37

ST2 out select 36

volume controls 37

Storing scene memories 55

Sub mixer setup 86

Symphonic 51

Synthesizer setup 83

System flags 67

auto level monitor screen 67

auto master on/off screen 67

effect recall assignment 67

memory store request out 67

pan special function 67

System initialization 94

T**Titling**

auxiliary returns 40

input channels 21

scene memories 56

Touring the DMP9 6

Trademarks ii

Tremolo 51

Trim controls

auxiliary returns 40

input channels 21

Troubleshooting 89

U

Undoing scene memory recalls 55

User bits

digital input monitor 61

digital outputs 63

User interface 17

W

Warnings i

Welcome to the DMP9 1

Width

auxiliary returns 44

input channels 29

mode 69

Wordclock

digital inputs 61

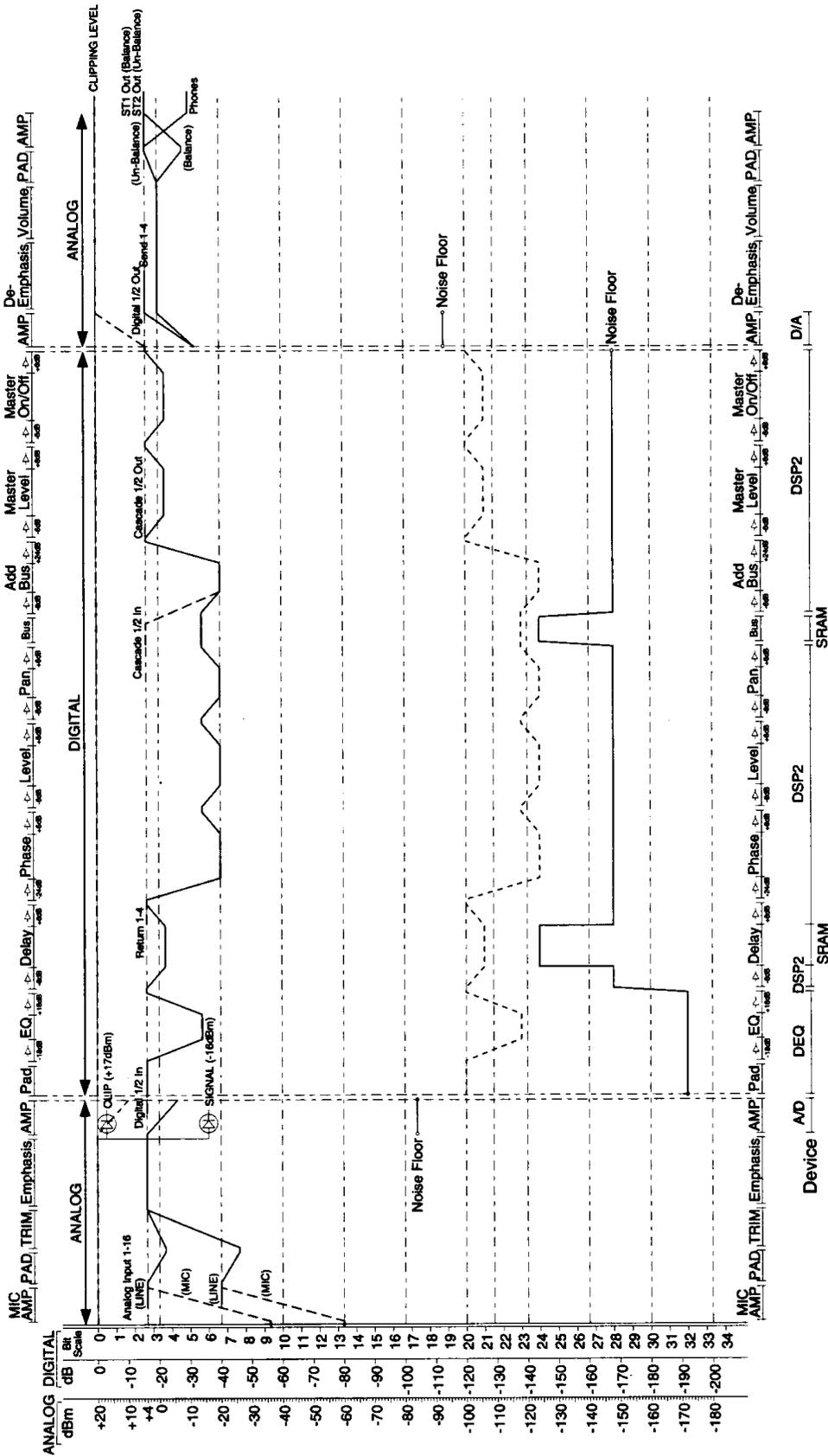
setting 64

what is it? 64

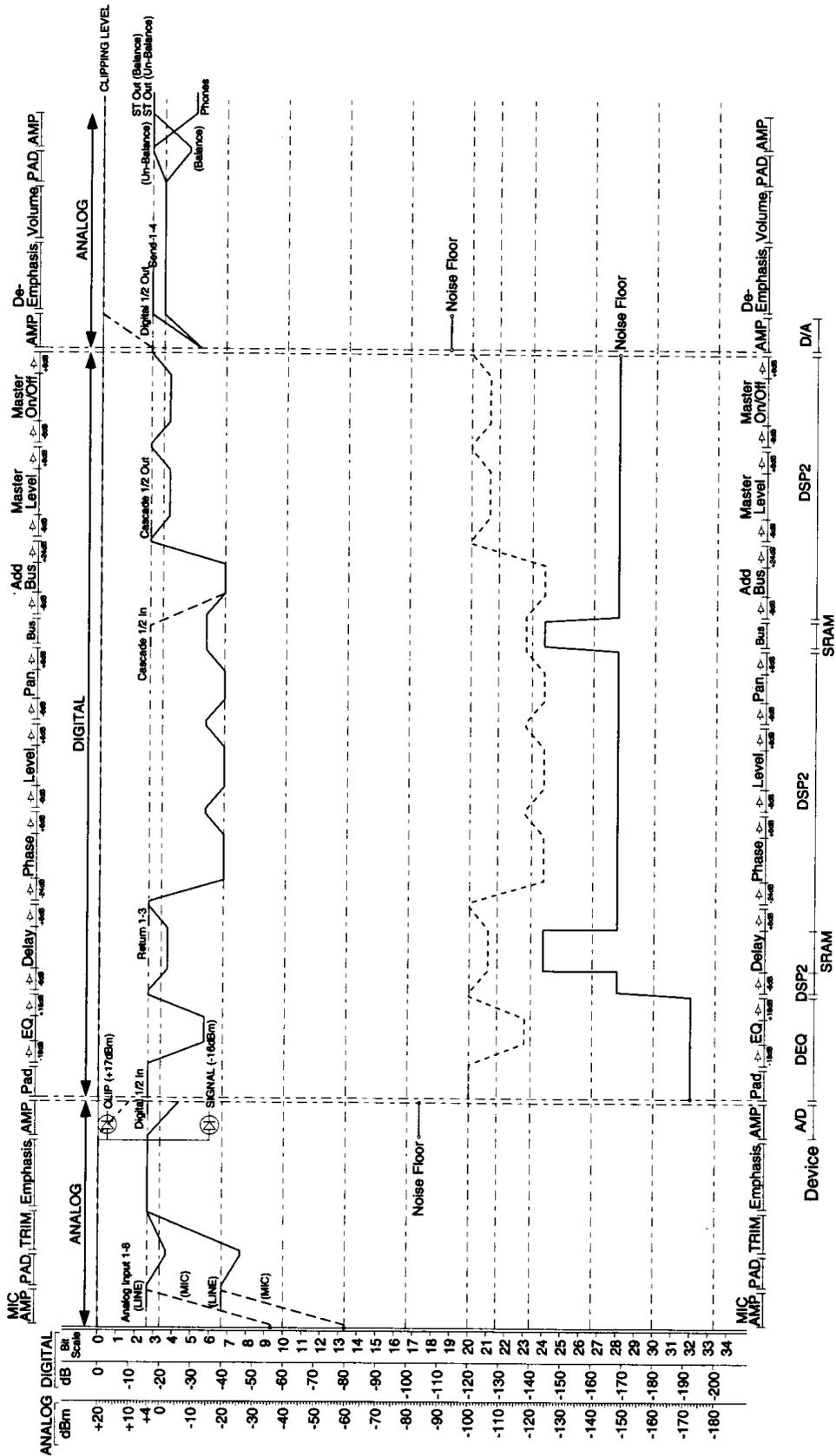
Y

Yamaha compatible products 95

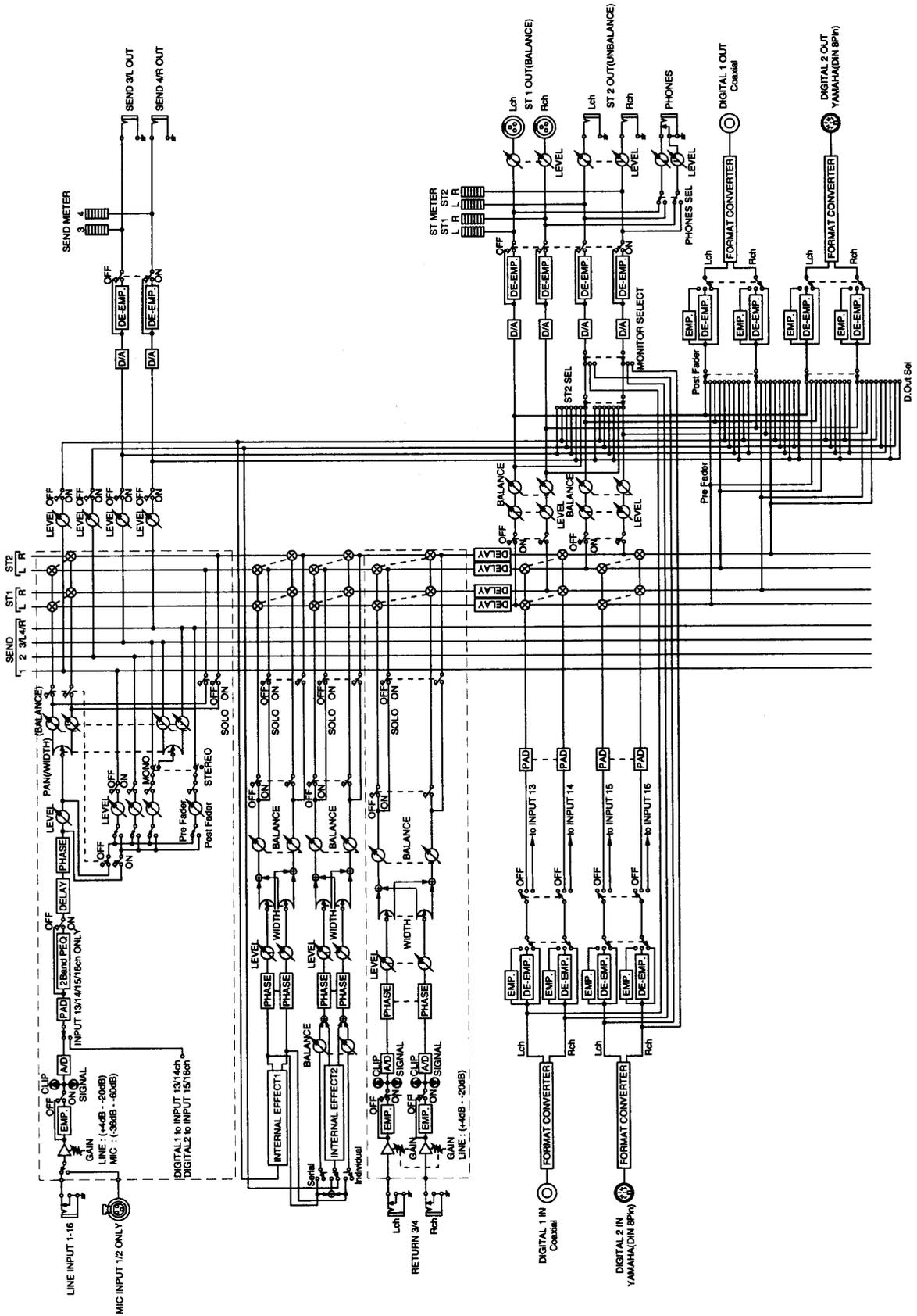
DMP9-16 Level Diagram



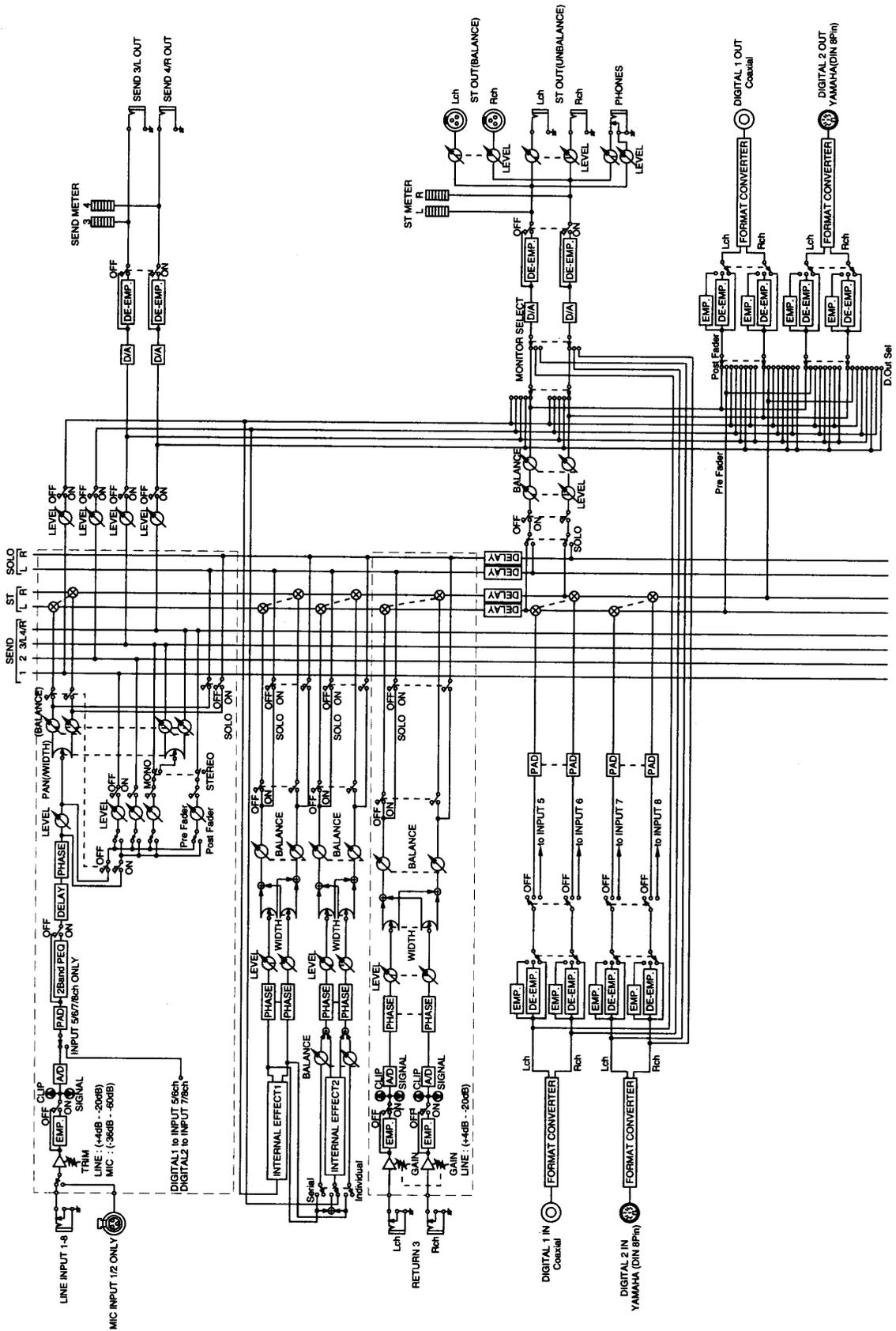
DMP9-8 Level Diagram



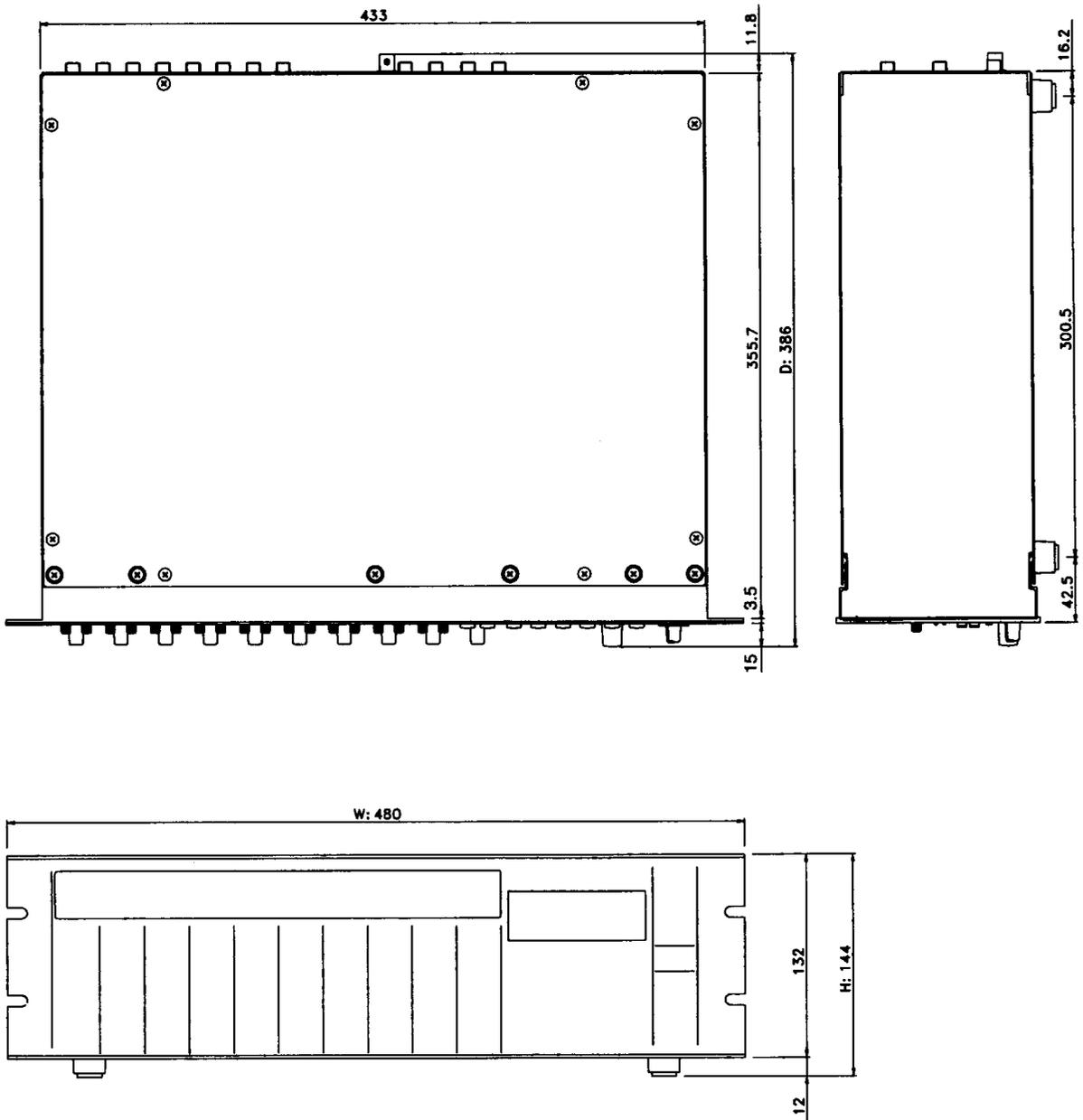
DMP9-16 Block Diagram



DMP9-8 Block Diagram



DMP9 Dimensions



Scene Memory to Program Change Assignment Table

Program Change No.	Initial Scene Memory No.	User Scene Memory No.
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
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	

Program Change No.	Initial Scene Memory No.	User Scene Memory No.
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	—	

Program Change No.	Initial Scene Memory No.	User Scene Memory No.
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	0	

MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup			
	DMP9-16		DMP9-8				Control Change No.	Bank		
	Control Change No.	Bank	Control Change No.	Bank						
0	0	0	0	0	Input Channel 1 Level	128				
1	1		1		Input Channel 2 Level					
2	2		2		Input Channel 3 Level					
3	3		3		Input Channel 4 Level					
4	4		4		Input Channel 5 Level					
5	5		5		Input Channel 6 Level					
6	6		6		Input Channel 7 Level					
7	7		7		Input Channel 8 Level					
8	8		—	—	Input Channel 9 Level					
9	9				Input Channel 10 Level					
10	10				Input Channel 11 Level					
11	11				Input Channel 12 Level					
12	12				Input Channel 13 Level					
13	13				Input Channel 14 Level					
14	14				Input Channel 15 Level					
15	15				Input Channel 16 Level					
16	16				8		0	Aux Return Channel 1 Level		
17	17				9			Aux Return Channel 2 Level		
18	18				10			Aux Return Channel 3 Level		
19	19				—		—	Aux Return Channel 4 Level		
20	20				11		0	Stereo Master 1 Level		
21	21				12			Stereo Master 2 Level†		
22	22				13			Aux Send Master 1 Level		
23	23				14			Aux Send Master 2 Level		
24	24		15	Aux Send Master 3 Level						
25	25		16	Aux Send Master 4 Level						
26	26		17	Input 1 to Aux Send 1 Level						
27	27		18	Input 2 to Aux Send 1 Level						
28	28		19	Input 3 to Aux Send 1 Level						
29	29		20	Input 4 to Aux Send 1 Level						
30	30		21	Input 5 to Aux Send 1 Level						
31	31		22	Input 6 to Aux Send 1 Level						
32	32		23	Input 7 to Aux Send 1 Level						
33	33		—	—	Input 8 to Aux Send 1 Level					
34	34				Input 9 to Aux Send 1 Level					
35	35				Input 10 to Aux Send 1 Level					
36	36				Input 11 to Aux Send 1 Level					
37	37				Input 12 to Aux Send 1 Level					
38	38				Input 13 to Aux Send 1 Level					
39	39		Input 14 to Aux Send 1 Level							
40	40		Input 15 to Aux Send 1 Level							
41	41		Input 16 to Aux Send 1 Level							
42	42		24	0	Input 1 to Aux Send 2 Level					
43	43		25		Input 2 to Aux Send 2 Level					
44	44		26		Input 3 to Aux Send 2 Level					
45	45		27		Input 4 to Aux Send 2 Level					
46	46	28	Input 5 to Aux Send 2 Level							

† On the DMP9-8, 2 does not appear.

Add-8 MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup	
	DMP9-16		DMP9-8				Control Change No.	Bank
	Control Change No.	Bank	Control Change No.	Bank				
47	47	0	29	0	Input 6 to Aux Send 2 Level	128		
48	48		30		Input 7 to Aux Send 2 Level			
49	49		31		Input 8 to Aux Send 2 Level			
50	50		—	—	Input 9 to Aux Send 2 Level			
51	51				Input 10 to Aux Send 2 Level			
52	52				Input 11 to Aux Send 2 Level			
53	53				Input 12 to Aux Send 2 Level			
54	54				Input 13 to Aux Send 2 Level			
55	55				Input 14 to Aux Send 2 Level			
56	56				Input 15 to Aux Send 2 Level			
57	57				Input 16 to Aux Send 2 Level			
58	58		32	0	Input 1 to Aux Send 3 Level			
59	59		33		Input 2 to Aux Send 3 Level			
60	60		34		Input 3 to Aux Send 3 Level			
61	61		35		Input 4 to Aux Send 3 Level			
62	62		36		Input 5 to Aux Send 3 Level			
63	63		37		Input 6 to Aux Send 3 Level			
64	64		38		Input 7 to Aux Send 3 Level			
65	65		39		Input 8 to Aux Send 3 Level			
66	66		—	—	Input 9 to Aux Send 3 Level			
67	67				Input 10 to Aux Send 3 Level			
68	68				Input 11 to Aux Send 3 Level			
69	69				Input 12 to Aux Send 3 Level			
70	70				Input 13 to Aux Send 3 Level			
71	71				Input 14 to Aux Send 3 Level			
72	72				Input 15 to Aux Send 3 Level			
73	73				Input 16 to Aux Send 3 Level			
74	74		40	0	Input 1 to Aux Send 4 Level			
75	75		41		Input 2 to Aux Send 4 Level			
76	76		42		Input 3 to Aux Send 4 Level			
77	77		43		Input 4 to Aux Send 4 Level			
78	78		44		Input 5 to Aux Send 4 Level			
79	79	45	Input 6 to Aux Send 4 Level					
80	80	46	Input 7 to Aux Send 4 Level					
81	81	47	Input 8 to Aux Send 4 Level					
82	82	—	—	Input 9 to Aux Send 4 Level				
83	83			Input 10 to Aux Send 4 Level				
84	84			Input 11 to Aux Send 4 Level				
85	85			Input 12 to Aux Send 4 Level				
86	86			Input 13 to Aux Send 4 Level				
87	87			Input 14 to Aux Send 4 Level				
88	88			Input 15 to Aux Send 4 Level				
89	89			Input 16 to Aux Send 4 Level				
90	90	48	0	Input 1 Pan/Width	33			
91	91	49		Input 2 Pan/Width				
92	92	50		Input 3 Pan/Width				
93	93	51		Input 4 Pan/Width				
94	94	52		Input 5 Pan/Width				
95	95	53		Input 6 Pan/Width				

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup		
	DMP9-16		DMP9-8				Control Change No.	Bank	
	Control Change No.	Bank	Control Change No.	Bank					
96	0	1	54	0	Input 7 Pan/Width	33			
97	1		55		Input 8 Pan/Width				
98	2		—	—	Input 9 Pan/Width				
99	3				Input 10 Pan/Width				
100	4				Input 11 Pan/Width				
101	5				Input 12 Pan/Width				
102	6				Input 13 Pan/Width				
103	7				Input 14 Pan/Width				
104	8				Input 15 Pan/width				
105	9				Input 16 Pan/Width				
106	10		56	0	Aux Return 1 Width				
107	11		57		Aux Return 2 Width				
108	12		58		Aux Return 3 Width				
109	13		—	—	Aux Return 4 Width				
110	14				Stereo Master 1 Balance				
111	15		59	0	Stereo Master 2 Balance [†]				
112	16		60		Input 1 On/Off(SOLO)				
113	17		61		Input 2 On/Off(SOLO)				
114	18		62		Input 3 On/Off(SOLO)				
115	19		63		Input 4 On/Off(SOLO)				
116	20		64		Input 5 On/Off(SOLO)				
117	21		65		Input 6 On/Off(SOLO)				
118	22		66		Input 7 On/Off(SOLO)				
119	23		67	Input 8 On/Off(SOLO)					
120	24		—	—	Input 9 On/Off(SOLO)		2		
121	25				Input 10 On/Off(SOLO)				
122	26				Input 11 On/Off(SOLO)				
123	27				Input 12 On/Off(SOLO)				
124	28				Input 13 On/Off(SOLO)				
125	29				Input 14 On/Off(SOLO)				
126	30				Input 15 On/Off(SOLO)				
127	31				Input 16 On/Off(SOLO)				
128	32		68	0	Aux Return 1 On/Off(SOLO)				
129	33	69	Aux Return 2 On/Off(SOLO)						
130	34	70	Aux Return 3 On/Off(SOLO)						
131	35	—	—	Aux Return 4 On/Off(SOLO)					
132	36			Stereo Master 1 On/Off					
133	37	71	0	Stereo Master 2 On/Off [†]					
134	38	72		Aux Send Master 1 On/Off					
135	39	73		Aux Send Master 2 On/Off					
136	40	74		Aux Send Master 3 On/Off					
137	41	75		Aux Send Master 4 On/Off					
138	42	76		Input 1 to Aux Send 1 On/Off					
139	43	77		Input 2 to Aux Send 1 On/Off					
140	44	78		Input 3 to Aux Send 1 On/Off					
141	45	79	Input 4 to Aux Send 1 On/Off						
142	46	80	Input 5 to Aux Send 1 On/Off						
143	47	81	Input 6 to Aux Send 1 On/Off						

[†] On the DMP9-8, 2 does not appear.

Add-10 MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup		
	DMP9-16		DMP9-8				Control Change No.	Bank	
	Control Change No.	Bank	Control Change No.	Bank					
144	48	1	82	0	Input 7 to Aux Send 1 On/Off	2			
145	49		83		Input 8 to Aux Send 1 On/Off				
146	50		—	—	Input 9 to Aux Send 1 On/Off				
147	51				Input 10 to Aux Send 1 On/Off				
148	52				Input 11 to Aux Send 1 On/Off				
149	53				Input 12 to Aux Send 1 On/Off				
150	54				Input 13 to Aux Send 1 On/Off				
151	55				Input 14 to Aux Send 1 On/Off				
152	56				Input 15 to Aux Send 1 On/Off				
153	57				Input 16 to Aux Send 1 On/Off				
154	58				84		0	Input 1 to Aux Send 2 On/Off	
155	59				85			Input 2 to Aux Send 2 On/Off	
156	60		86	Input 3 to Aux Send 2 On/Off					
157	61		87	Input 4 to Aux Send 2 On/Off					
158	62		88	Input 5 to Aux Send 2 On/Off					
159	63		89	Input 6 to Aux Send 2 On/Off					
160	64		90	Input 7 to Aux Send 2 On/Off					
161	65		91	Input 8 to Aux Send 2 On/Off					
162	66		—	—	Input 9 to Aux Send 2 On/Off				
163	67				Input 10 to Aux Send 2 On/Off				
164	68				Input 11 to Aux Send 2 On/Off				
165	69				Input 12 to Aux Send 2 On/Off				
166	70				Input 13 to Aux Send 2 On/Off				
167	71				Input 14 to Aux Send 2 On/Off				
168	72				Input 15 to Aux Send 2 On/Off				
169	73				Input 16 to Aux Send 2 On/Off				
170	74		92	0	Input 1 to Aux Send 3 On/Off				
171	75		93		Input 2 to Aux Send 3 On/Off				
172	76		94		Input 3 to Aux Send 3 On/Off				
173	77		95		Input 4 to Aux Send 3 On/Off				
174	78		0	1	Input 5 to Aux Send 3 On/Off				
175	79		1		Input 6 to Aux Send 3 On/Off				
176	80	2	Input 7 to Aux Send 3 On/Off						
177	81	3	Input 8 to Aux Send 3 On/Off						
178	82	—	—	Input 9 to Aux Send 3 On/Off					
179	83			Input 10 to Aux Send 3 On/Off					
180	84			Input 11 to Aux Send 3 On/Off					
181	85			Input 12 to Aux Send 3 On/Off					
182	86			Input 13 to Aux Send 3 On/Off					
183	87			Input 14 to Aux Send 3 On/Off					
184	88			Input 15 to Aux Send 3 On/Off					
185	89			Input 16 to Aux Send 3 On/Off					
186	90	4	1	Input 1 to Aux Send 4 On/Off					
187	91	5		Input 2 to Aux Send 4 On/Off					
188	92	6		Input 3 to Aux Send 4 On/Off					
189	93	7		Input 4 to Aux Send 4 On/Off					
190	94	8		Input 5 to Aux Send 4 On/Off					
191	95	9		Input 6 to Aux Send 4 On/Off					

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup		
	DMP9-16		DMP9-8				Control Change No.	Bank	
	Control Change No.	Bank	Control Change No.	Bank					
192	0	2	10	1	Input 7 to Aux Send 4 On/Off	2			
193	1		11		Input 8 to Aux Send 4 On/Off				
194	2		-	-	-		Input 9 to Aux Send 4 On/Off		
195	3						Input 10 to Aux Send 4 On/Off		
196	4						Input 11 to Aux Send 4 On/Off		
197	5						Input 12 to Aux Send 4 On/Off		
198	6						Input 13 to Aux Send 4 On/Off		
199	7						Input 14 to Aux Send 4 On/Off		
200	8						Input 15 to Aux Send 4 On/Off		
201	9						Input 16 to Aux Send 4 On/Off		
202	10						Input 1 Stereo 1 Assign On/Off		
203	11						Input 2 Stereo 1 Assign On/Off		
204	12						Input 3 Stereo 1 Assign On/Off		
205	13						Input 4 Stereo 1 Assign On/Off		
206	14						Input 5 Stereo 1 Assign On/Off		
207	15						Input 6 Stereo 1 Assign On/Off		
208	16						Input 7 Stereo 1 Assign On/Off		
209	17						Input 8 Stereo 1 Assign On/Off		
210	18		Input 9 Stereo 1 Assign On/Off						
211	19		Input 10 Stereo 1 Assign On/Off						
212	20		Input 11 Stereo 1 Assign On/Off						
213	21	Input 12 Stereo 1 Assign On/Off							
214	22	Input 13 Stereo 1 Assign On/Off							
215	23	Input 14 Stereo 1 Assign On/Off							
216	24	Input 15 Stereo 1 Assign On/Off							
217	25	Input 16 Stereo 1 Assign On/Off							
218	26	Aux Return 1 Stereo 1 Assign On/Off							
219	27	Aux Return 2 Stereo 1 Assign On/Off							
220	28	Aux Return 3 Stereo 1 Assign On/Off							
221	29	Aux Return 4 Stereo 1 Assign On/Off							
222	30	12	1	Input 1 Stereo 2 Assign On/Off†					
223	31	13		Input 2 Stereo 2 Assign On/Off†					
224	32	14		Input 3 Stereo 2 Assign On/Off†					
225	33	15		Input 4 Stereo 2 Assign On/Off†					
226	34	16		Input 5 Stereo 2 Assign On/Off†					
227	35	17		Input 6 Stereo 2 Assign On/Off†					
228	36	18		Input 7 Stereo 2 Assign On/Off†					
229	37	19		Input 8 Stereo 2 Assign On/Off†					
230	38	-	-	-	Input 9 Stereo 2 Assign On/Off				
231	39				Input 10 Stereo 2 Assign On/Off				
232	40				Input 11 Stereo 2 Assign On/Off				
233	41				Input 12 Stereo 2 Assign On/Off				
234	42				Input 13 Stereo 2 Assign On/Off				
235	43				Input 14 Stereo 2 Assign On/Off				
236	44				Input 15 Stereo 2 Assign On/Off				
237	45				Input 16 Stereo 2 Assign On/Off				
238	46	20	1	Aux Return 1 Stereo 2 Assign On/Off†					
239	47	21		Aux Return 2 Stereo 2 Assign On/Off†					

† On the DMP9-8, 2 does not appear.

Add-12 MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup		
	DMP9-16		DMP9-8				Control Change No.	Bank	
	Control Change No.	Bank	Control Change No.	Bank					
240	48		22	1	Aux Return 3 Stereo 2 Assign On/Off†				
241	49		—	—	Aux Return 4 Stereo 2 Assign On/Off				
242	50		23	1	Input 1 to Aux Send 1 Pre/Post				
243	51		24		Input 2 to Aux Send 1 Pre/Post				
244	52		25		Input 3 to Aux Send 1 Pre/Post				
245	53		26		Input 4 to Aux Send 1 Pre/Post				
246	54		27		Input 5 to Aux Send 1 Pre/Post				
247	55		28		Input 6 to Aux Send 1 Pre/Post				
248	56		29		Input 7 to Aux Send 1 Pre/Post				
249	57		30		Input 8 to Aux Send 1 Pre/Post				
250	58					Input 9 to Aux Send 1 Pre/Post			
251	59					Input 10 to Aux Send 1 Pre/Post			
252	60				Input 11 to Aux Send 1 Pre/Post				
253	61				Input 12 to Aux Send 1 Pre/Post				
254	62				Input 13 to Aux Send 1 Pre/Post				
255	63				Input 14 to Aux Send 1 Pre/Post				
256	64				Input 15 to Aux Send 1 Pre/Post				
257	65				Input 16 to Aux Send 1 Pre/Post				
258	66	2	31	1	Input 1 to Aux Send 2 Pre/Post	2			
259	67		32		Input 2 to Aux Send 2 Pre/Post				
260	68		33		Input 3 to Aux Send 2 Pre/Post				
261	69		34		Input 4 to Aux Send 2 Pre/Post				
262	70		35		Input 5 to Aux Send 2 Pre/Post				
263	71		36		Input 6 to Aux Send 2 Pre/Post				
264	72		37		Input 7 to Aux Send 2 Pre/Post				
265	73		38		Input 8 to Aux Send 2 Pre/Post				
266	74						Input 9 to Aux Send 2 Pre/Post		
267	75						Input 10 to Aux Send 2 Pre/Post		
268	76			Input 11 to Aux Send 2 Pre/Post					
269	77			Input 12 to Aux Send 2 Pre/Post					
270	78			Input 13 to Aux Send 2 Pre/Post					
271	79			Input 14 to Aux Send 2 Pre/Post					
272	80			Input 15 to Aux Send 2 Pre/Post					
273	81			Input 16 to Aux Send 2 Pre/Post					
274	82		39	1	Input 1 to Aux Send 3 Pre/Post				
275	83		40		Input 2 to Aux Send 3 Pre/Post				
276	84		41		Input 3 to Aux Send 3 Pre/Post				
277	85		42		Input 4 to Aux Send 3 Pre/Post				
278	86		43		Input 5 to Aux Send 3 Pre/Post				
279	87		44		Input 6 to Aux Send 3 Pre/Post				
280	88		45		Input 7 to Aux Send 3 Pre/Post				
281	89		46		Input 8 to Aux Send 3 Pre/Post				
282	90				Input 9 to Aux Send 3 Pre/Post				
283	91				Input 10 to Aux Send 3 Pre/Post				
284	92				Input 11 to Aux Send 3 Pre/Post				
285	93				Input 12 to Aux Send 3 Pre/Post				
286	94				Input 13 to Aux Send 3 Pre/Post				
287	95				Input 14 to Aux Send 3 Pre/Post				

† On the DMP9-8, 2 does not appear.

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup	
	DMP9-16		DMP9-8				Control Change No.	Bank
	Control Change No.	Bank	Control Change No.	Bank				
288	0		—	—	Input 15 to Aux Send 3 Pre/Post			
289	1		—	—	Input 16 to Aux Send 3 Pre/Post			
290	2		47		Input 1 to Aux Send 4 Pre/Post			
291	3		48		Input 2 to Aux Send 4 Pre/Post			
292	4		49		Input 3 to Aux Send 4 Pre/Post			
293	5		50		Input 4 to Aux Send 4 Pre/Post			
294	6		51	1	Input 5 to Aux Send 4 Pre/Post			
295	7		52		Input 6 to Aux Send 4 Pre/Post			
296	8		53		Input 7 to Aux Send 4 Pre/Post			
297	9		54		Input 8 to Aux Send 4 Pre/Post			
298	10				Input 9 to Aux Send 4 Pre/Post			
299	11				Input 10 to Aux Send 4 Pre/Post			
300	12				Input 11 to Aux Send 4 Pre/Post			
301	13				Input 12 to Aux Send 4 Pre/Post			
302	14		—	—	Input 13 to Aux Send 4 Pre/Post			
303	15				Input 14 to Aux Send 4 Pre/Post			
304	16				Input 15 to Aux Send 4 Pre/Post			
305	17				Input 16 to Aux Send 4 Pre/Post	2		
306	18		55		Input 1 Phase Normal/Reverse			
307	19		56		Input 2 Phase Normal/Reverse			
308	20		57		Input 3 Phase Normal/Reverse			
309	21		58		Input 4 Phase Normal/Reverse			
310	22		59	1	Input 5 Phase Normal/Reverse			
311	23		60		Input 6 Phase Normal/Reverse			
312	24	3	61		Input 7 Phase Normal/Reverse			
313	25		62		Input 8 Phase Normal/Reverse			
314	26				Input 9 Phase Normal/Reverse			
315	27				Input 10 Phase Normal/Reverse			
316	28				Input 11 Phase Normal/Reverse			
317	29				Input 12 Phase Normal/Reverse			
318	30		—	—	Input 13 Phase Normal/Reverse			
319	31				Input 14 Phase Normal/Reverse			
320	32				Input 15 Phase Normal/Reverse			
321	23				Input 16 Phase Normal/Reverse			
322	24		63		Input 1 Pad			
323	25		64		Input 2 Pad			
324	26		65		Input 3 Pad			
325	27		66		Input 4 Pad			
326	38		67	1	Input 5 Pad			
327	39		68		Input 6 Pad			
328	40		69		Input 7 Pad			
329	41		70		Input 8 Pad	128		
330	42				Input 9 Pad			
331	43				Input 10 Pad			
332	44				Input 11 Pad			
333	45		—	—	Input 12 Pad			
334	46				Input 13 Pad			
335	47				Input 14 Pad			
336	48				Input 15 Pad			

Add-14 MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup	
	DMP9-16		DMP9-8				Control Change No.	Bank
	Control Change No.	Bank	Control Change No.	Bank				
337	49		—	—	Input 16 Pad	128		
338	50		71		Input 1 Equalizer On/Off			
339	51		72		Input 2 Equalizer On/Off			
340	52		73		Input 3 Equalizer On/Off			
341	53		74	1	Input 4 Equalizer On/Off			
342	54		75	1	Input 5 Equalizer On/Off			
343	55		76	1	Input 6 Equalizer On/Off			
344	56		77	1	Input 7 Equalizer On/Off			
345	57		78	1	Input 8 Equalizer On/Off			
346	58				Input 9 Equalizer On/Off	2		
347	59				Input 10 Equalizer On/Off			
348	60				Input 11 Equalizer On/Off			
349	61				Input 12 Equalizer On/Off			
350	62		—	—	Input 13 Equalizer On/Off			
351	63				Input 14 Equalizer On/Off			
352	64				Input 15 Equalizer On/Off			
353	65				Input 16 Equalizer On/Off			
354	66		79		Input 1 Low Equalizer Frequency			
355	67		80		Input 2 Low Equalizer Frequency			
356	68		81		Input 3 Low Equalizer Frequency			
357	69		82	1	Input 4 Low Equalizer Frequency			
358	70		83	1	Input 5 Low Equalizer Frequency			
359	71		84	1	Input 6 Low Equalizer Frequency			
360	72	3	85	1	Input 7 Low Equalizer Frequency			
361	73	3	86	1	Input 8 Low Equalizer Frequency			
362	74				Input 9 Low Equalizer Frequency	120		
363	75				Input 10 Low Equalizer Frequency			
364	76				Input 11 Low Equalizer Frequency			
365	77				Input 12 Low Equalizer Frequency			
366	78				Input 13 Low Equalizer Frequency			
367	79				Input 14 Low Equalizer Frequency			
368	80				Input 15 Low Equalizer Frequency			
369	81				Input 16 Low Equalizer Frequency			
370	82		87		Input 1 Low Equalizer Gain			
371	83		88		Input 2 Low Equalizer Gain			
372	84		89		Input 3 Low Equalizer Gain			
373	85		90	1	Input 4 Low Equalizer Gain			
374	86		91	1	Input 5 Low Equalizer Gain			
375	87		92	1	Input 6 Low Equalizer Gain			
376	88		93	1	Input 7 Low Equalizer Gain			
377	89		94	1	Input 8 Low Equalizer Gain	73		
378	90				Input 9 Low Equalizer Gain			
379	91				Input 10 Low Equalizer Gain			
380	92				Input 11 Low Equalizer Gain			
381	93				Input 12 Low Equalizer Gain			
382	94				Input 13 Low Equalizer Gain			
383	95				Input 14 Low Equalizer Gain			

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup	
	DMP9-16		DMP9-8				Control Change No.	Bank
	Control Change No.	Bank	Control Change No.	Bank				
384	0	4	—	—	Input 15 Low Equalizer Gain	73		
385	1		—	—	Input 16 Low Equalizer Gain			
386	2		95	1	Input 1 Low Equalizer Q	128		
387	3		0	2	Input 2 Low Equalizer Q			
388	4		1		Input 3 Low Equalizer Q			
389	5		2		Input 4 Low Equalizer Q			
390	6		3		Input 5 Low Equalizer Q			
391	7		4		Input 6 Low Equalizer Q			
392	8		5		Input 7 Low Equalizer Q			
393	9		6		Input 8 Low Equalizer Q			
394	10		—		—		Input 9 Low Equalizer Q	
395	11			Input 10 Low Equalizer Q				
396	12			Input 11 Low Equalizer Q				
397	13			Input 12 Low Equalizer Q				
398	14			Input 13 Low Equalizer Q				
399	15			Input 14 Low Equalizer Q				
400	16			Input 15 Low Equalizer Q				
401	17			Input 16 Low Equalizer Q				
402	18		7	2	Input 1 Low Equalizer Type	2		
403	19		8		Input 2 Low Equalizer Type			
404	20		9		Input 3 Low Equalizer Type			
405	21		10		Input 4 Low Equalizer Type			
406	22		11		Input 5 Low Equalizer Type			
407	23		12		Input 6 Low Equalizer Type			
408	24		13		Input 7 Low Equalizer Type			
409	25		14		Input 8 Low Equalizer Type			
410	26		—	—	Input 9 Low Equalizer Type			
411	27				Input 10 Low Equalizer Type			
412	28				Input 11 Low Equalizer Type			
413	29				Input 12 Low Equalizer Type			
414	30				Input 13 Low Equalizer Type			
415	31				Input 14 Low Equalizer Type			
416	32				Input 15 Low Equalizer Type			
417	33				Input 16 Low Equalizer Type			
418	34		15	2	Input 1 High Equalizer Frequency	120		
419	35		16		Input 2 High Equalizer Frequency			
420	36		17		Input 3 High Equalizer Frequency			
421	37		18		Input 4 High Equalizer Frequency			
422	38		19		Input 5 High Equalizer Frequency			
423	39		20		Input 6 High Equalizer Frequency			
424	40		21		Input 7 High Equalizer Frequency			
425	41		22		Input 8 High Equalizer Frequency			
426	42	—	—	Input 9 High Equalizer Frequency				
427	43			Input 10 High Equalizer Frequency				
428	44			Input 11 High Equalizer Frequency				
429	45			Input 12 High Equalizer Frequency				
430	46			Input 13 High Equalizer Frequency				
431	47			Input 14 High Equalizer Frequency				
432	48			Input 15 High Equalizer Frequency				

Add-16 MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup		
	DMP9-16		DMP9-8				Control Change No.	Bank	
	Control Change No.	Bank	Control Change No.	Bank					
433	49	4	—	—	Input 16 High Equalizer Frequency	120			
434	50		23	2	Input 1 High Equalizer Gain	73			
435	51		24		Input 2 High Equalizer Gain				
436	52		25		Input 3 High Equalizer Gain				
437	53		26		Input 4 High Equalizer Gain				
438	54		27		Input 5 High Equalizer Gain				
439	55		28		Input 6 High Equalizer Gain				
440	56		29		Input 7 High Equalizer Gain				
441	57		30		Input 8 High Equalizer Gain				
442	58		—		—		Input 9 High Equalizer Gain		
443	59						Input 10 High Equalizer Gain		
444	60			Input 11 High Equalizer Gain					
445	61			Input 12 High Equalizer Gain					
446	62			Input 13 High Equalizer Gain					
447	63			Input 14 High Equalizer Gain					
448	64			Input 15 High Equalizer Gain					
449	65			Input 16 High Equalizer Gain					
450	66		31	2	Input 1 High Equalizer Q	128			
451	67		32		Input 2 High Equalizer Q				
452	68		33		Input 3 High Equalizer Q				
453	69		34		Input 4 High Equalizer Q				
454	70		35		Input 5 High Equalizer Q				
455	71		36		Input 6 High Equalizer Q				
456	72		37		Input 7 High Equalizer Q				
457	73		38		Input 8 High Equalizer Q				
458	74		—	—	Input 9 High Equalizer Q				
459	75				Input 10 High Equalizer Q				
460	76				Input 11 High Equalizer Q				
461	77				Input 12 High Equalizer Q				
462	78				Input 13 High Equalizer Q				
463	79				Input 14 High Equalizer Q				
464	80				Input 15 High Equalizer Q				
465	81				Input 16 High Equalizer Q				
466	82		39	2	Input 1 High Equalizer Type	2			
467	83		40		Input 2 High Equalizer Type				
468	84		41		Input 3 High Equalizer Type				
469	85		42		Input 4 High Equalizer Type				
470	86		43		Input 5 High Equalizer Type				
471	87		44		Input 6 High Equalizer Type				
472	88		45		Input 7 High Equalizer Type				
473	89		46		Input 8 High Equalizer Type				
474	90		—	—	Input 9 High Equalizer Type				
475	91	Input 10 High Equalizer Type							
476	92	Input 11 High Equalizer Type							
477	93	Input 12 High Equalizer Type							
478	94	Input 13 High Equalizer Type							
479	95	Input 14 High Equalizer Type							

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup		
	DMP9-16		DMP9-8				Control Change No.	Bank	
	Control Change No.	Bank	Control Change No.	Bank					
480	0	5	—	—	Input 15 High Equalizer Type	2			
481	1		—	—	Input 16 High Equalizer Type				
482	2		47	2	Input 1/2 Monaural/Stereo				
483	3		48		Input 3/4 Monaural/Stereo				
484	4		49		Input 5/6 Monaural/Stereo				
485	5		50		Input 7/8 Monaural/Stereo				
486	6		—	—	Input 9/10 Monaural/Stereo				
487	7				Input 11/12 Monaural/Stereo				
488	8				Input 13/14 Monaural/Stereo				
489	9				Input 15/16 Monaural/Stereo				
490	10		51	2	SOLO Mode On/Off		16		
491	11		52		Internal Effect 1 Type				
492	12		53		Internal Effect 2 Type				
493	13		54		Internal Effect 1 Parameter 1 High Byte				
494	14		55		Internal Effect 1 Parameter 1 Low Byte				
495	15		56		Internal Effect 1 Parameter 2 High Byte				
496	16		57		Internal Effect 1 Parameter 2 Low Byte				
497	17		58		Internal Effect 1 Parameter 3 High Byte				
498	18		59		Internal Effect 1 Parameter 3 Low Byte				
499	19		60		Internal Effect 1 Parameter 4 High Byte				
500	20		61		Internal Effect 1 Parameter 4 Low Byte				
501	21		62		Internal Effect 1 Parameter 5 High Byte				
502	22		63		Internal Effect 1 Parameter 5 Low Byte				
503	23		64		Internal Effect 1 Parameter 6 High Byte				
504	24		65		Internal Effect 1 Parameter 6 Low Byte				
505	25		66		Internal Effect 1 Parameter 7 High Byte				
506	26		67	Internal Effect 1 Parameter 7 Low Byte					
507	27		68	Internal Effect 1 Parameter 8 High Byte					
508	28		69	Internal Effect 1 Parameter 8 Low Byte					
509	29		70	Internal Effect 1 Parameter 9 High Byte					
510	30		71	Internal Effect 1 Parameter 9 Low Byte	*1				
511	31		72	Internal Effect 1 Parameter 10 High Byte					
512	32	73	Internal Effect 1 Parameter 10 Low Byte						
513	33	74	Internal Effect 2 Parameter 1 High Byte						
514	34	75	Internal Effect 2 Parameter 1 Low Byte						
515	35	76	Internal Effect 2 Parameter 2 High Byte						
516	36	77	Internal Effect 2 Parameter 2 Low Byte						
517	37	78	Internal Effect 2 Parameter 3 High Byte						
518	38	79	Internal Effect 2 Parameter 3 Low Byte						
519	39	80	Internal Effect 2 Parameter 4 High Byte						
520	40	81	Internal Effect 2 Parameter 4 Low Byte						
521	41	82	Internal Effect 2 Parameter 5 High Byte						
522	42	83	Internal Effect 2 Parameter 5 Low Byte						
523	43	84	Internal Effect 2 Parameter 6 High Byte						
524	44	85	Internal Effect 2 Parameter 6 Low Byte						
525	45	86	Internal Effect 2 Parameter 7 High Byte						
526	46	87	Internal Effect 2 Parameter 7 Low Byte						
527	47	88	Internal Effect 2 Parameter 8 High Byte						

* Depends on selected effect type.

Add-18 MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup	
	DMP9-16		DMP9-8				Control Change No.	Bank
	Control Change No.	Bank	Control Change No.	Bank				
528	48	5	89	2	Internal Effect 2 Parameter 8 Low Byte	*1		
529	49		90		Internal Effect 2 Parameter 9 High Byte			
530	50		91		Internal Effect 2 Parameter 9 Low Byte			
531	51		92		Internal Effect 2 Parameter 10 High Byte			
532	52		93		Internal Effect 2 Parameter 10 Low Byte			
533	53		94		Input 1/2 Balance(Stereo mode Only)		33	
534	54		95	Input 3/4 Balance(Stereo mode Only)				
535	55		0	Input 5/6 Balance(Stereo mode Only)				
536	56		1	Input 7/8 Balance(Stereo mode Only)				
537	57			Input 9/10 Balance(Stereo mode Only)				
538	58		—	Input 11/12 Balance(Stereo mode Only)				
539	59		—	Input 13/14 Balance(Stereo mode Only)				
540	60			Input 15/16 Balance(Stereo mode Only)				
541	61		2	Aux Return 1 Balance	3			
542	62		3	Aux Return 2 Balance				
543	63		4	Aux Return 3 Balance				
544	64		—	Aux Return 4 Balance	—			
545	65		5	Internal Effect Assign	3			
546	66		6	Internal Effect Assign Level(Depth)	101			
547	67		7	Input 1 Delay High Byte	701			
548	68		8	Input 1 Delay Low Byte				
549	69		9	Input 2 Delay High Byte	701			
550	70		10	Input 2 Delay Low Byte				
551	71		11	Input 3 Delay High Byte	701			
552	72		12	Input 3 Delay Low Byte				
553	73		13	Input 4 Delay High Byte	701			
554	74		14	Input 4 Delay Low Byte				
555	75		15	Input 5 Delay High Byte	701			
556	76		16	Input 5 Delay Low Byte				
557	77		17	Input 6 Delay High Byte	701			
558	78		18	Input 6 Delay Low Byte				
559	79		19	Input 7 Delay High Byte	701			
560	80		20	Input 7 Delay Low Byte				
561	81	21	Input 8 Delay High Byte	701				
562	82	22	Input 8 Delay Low Byte					
563	83		Input 9 Delay High Byte	701				
564	84		Input 9 Delay Low Byte					
565	85		Input 10 Delay High Byte	701				
566	86		Input 10 Delay Low Byte					
567	87		Input 11 Delay High Byte	701				
568	88		Input 11 Delay Low Byte					
569	89		Input 12 Delay High Byte	701				
570	90		Input 12 Delay Low Byte					
571	91		Input 13 Delay High Byte	701				
572	92		Input 13 Delay Low Byte					
573	93		Input 14 Delay High Byte	701				
574	94		Input 14 Delay Low Byte					
575	95		Input 15 Delay High Byte	701				
576	0		Input 15 Delay Low Byte					

* Depends on selected effect type.

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup	
	DMP9-16		DMP9-8				Control Change No.	Bank
	Control Change No.	Bank	Control Change No.	Bank				
577	1	6	—	—	Input 16 Delay High Byte	701		
578	2		—	—	Input 16 Delay Low Byte			
579	3		23	3	Aux Return 1 Phase	2		
580	4		24		Aux Return 2 Phase			
581	5		25		Aux Return 3 Phase			
582	6		—	—	Aux Return 4 Phase			
583	7		26	3	Fade Time	101		
584	8		27		SEND3/4 Mode (Individual/Stereo Bus)	2		
585	9		28		Stereo 2 Out Select†	3		
586	10		29		Stereo 2 Int BUS Select†	6 (5‡)		
587	11		—	—	Phones Select	2 (0‡)		
588	12							
589	13							
590	14							
591	15							
592	16							
593	17							
594	18							
595	19							
596	20							
597	21							
598	22							
599	23							
600	24							
601	25							
602	26							
603	27							
604	28							
605	29							
606	30			3				
607	31							
608	32							
609	33							
610	34							
611	35							
612	36							
613	37							
614	38							
615	39							
616	40							
617	41							
618	42							
619	43							
620	44							
621	45							
622	46							
623	47							
624	48							

† On the DMP9-8, 2 does not appear. ‡ DMP9-8

Add-20 MIDI Control Change to Parameter Assignment Table

Param No.	Initial Setup				DMP9 Parameter	Data No.	User Setup	
	DMP9-16		DMP9-8				Control Change No.	Bank
	Control Change No.	Bank	Control Change No.	Bank				
625	49							
626	50							
627	51							
628	52							
629	53							
630	54							
631	55							
632	56							
633	57							
634	58							
635	59							
636	60							
637	61							
638	62							
639	63							
640	64							
641	65							
642	66							
643	67							
644	68							
645	69							
646	70							
647	71							
648	72	6		3				
649	73							
650	74							
651	75							
652	76							
653	77							
654	78							
655	79							
656	80							
657	81							
658	82							
659	83							
660	84							
661	85							
662	86							
663	87							
664	88							
665	89							
666	90							
667	91							
668	92							
669	93							
670	94							
671	95							

MIDI Control Change Data Format

For MIDI data transmission, a parameter's minimum internal data value is expressed by 00h, and the maximum value is expressed by 7fh. For example, for Panpot data, the internal data value "0" is expressed by 00h, and the internal data value "32(MAX)" is expressed by 7fh.

To derive the midway value of the internal data, the following calculation is used (MIDI midway value = 64).

First, 128 (the maximum value used in MIDI) is divided by the internal data No. (Panpot:33) to obtain the MIDI data number equivalent to one internal data number. The internal data numbers for all parameters are given in the previous tables.

e.x. Panpot: $128 / 33 = 3...29$

To express the midway value of the internal data using the MIDI midway value (64), the remainder obtained from the above calculation is added to both sides of the MIDI range. If there is another remainder, "1" is added to the result.

e.x. Panpot: $29 / 2 = 14...1$

$$14 + 1 = 15$$

Therefore, when MIDI data is X, the internal data is calculated using the following formula:

e.x. Panpot: $(X - 15) / 3$

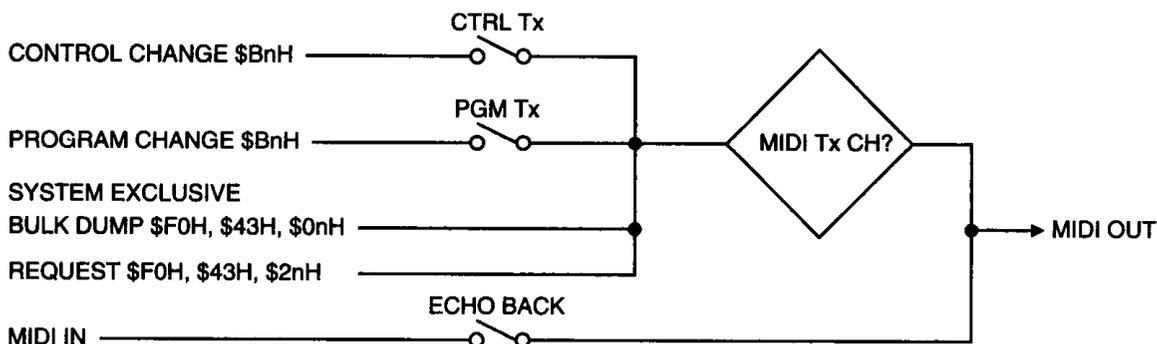
If the resultant value is below 0, it becomes the minimum internal data value.

If the resultant value exceeds the maximum internal data value, it becomes the maximum internal data value.

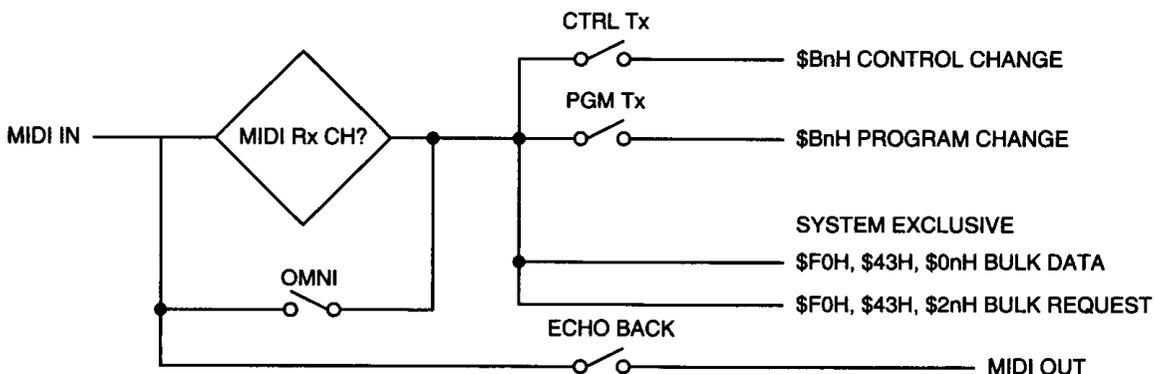
For data that consists of two bytes (Delay Time, Effect Parameter), 16384 (14-bit value) is used instead of "128" (Minimum: 0000h, Maximum: 3fffh).

MIDI Data Format

Transmission Condition



Receive Condition



1 Transmit/Receive Data

The DMP9 transmits and receives Program Change, Control Change, and System Exclusive messages. Real-time messages: Active Sensing and MIDI reset are received only.

1-1 Program Change

Transmission channel number (Tx Channel No.) is used for transmission. Messages are received only when the receive channel number (Rx Channel No.) matches or when OMNI is set to ON.

Receiving a Program Change message recalls the scene memory assigned to that Program number. When a scene memory is recalled using the [RECALL] button, the corresponding Program Change message is output. Program Changes can be assigned to scene memories by the user.

2-2 Control Change

Control Change messages can be transmitted and received in Channel mode and Register mode. In Channel mode, the MIDI Channel No. is the Transmission/Receive Channel (Tx/Rx Channel No.) plus parameter Bank Number (Bank). If the resultant value exceeds 16, the remainder will be the Channel number. If all parameters are transmitted and received in this mode, many MIDI channels are used. See <Cf1> below.

In Register mode, the Channel number uses the transmission/receive Channel number (Tx/Rx Channel No.), and the parameter Bank Number (Bank) is specified by Non-Registered Parameter Number (NRPN) 62h(98 in decimal). In this mode, only one MIDI channel is required, and OMNI operation is available. See <Cf2> below.

The DMP9 parameter corresponding to the Control Change Bank number and Control Change number will be adjusted.

If an assigned parameter is adjusted using the front panel controls, the corresponding Control Change message is output. Parameters can be assigned to Control Changes by the user.

<Cf1> The data format will be as follows:

When you adjust a parameter of Channel number 10, Bank number 2, and Control number 72:

BB 48 dd (dd is data)

When you adjust a parameter of Channel number 13, Bank number 5, and Control number 20:

B1 14 dd (dd is data)

<Cf2> The data format will be as follows:

When you adjust a parameter of Channel number 10, Bank number 2, and Control number 72:

B9 62 02 B9 48 dd (dd is data)

2-3 System Exclusive Messages

Transmission channel number (Tx Channel No.) is used for transmission. Messages are received only when the receive channel number (Rx Channel No.) matches or when OMNI is set to ON.

The DMP9 transmits and receives scene memory contents, Program Change Assignment Table, Control Change Assignment Table, Setup Memory Assignment Table, and the Edit buffer contents. Level table, and Panpot/Balance table can be received but not transmitted.

2-4 Real-time Message

Only Active Sensing (FEh), and MIDI Reset (FFh) are received. Running status is cleared if the unit does not receive any data for more than 300 ms after receiving Active Sensing or when MIDI Reset is received.

A. MIDI Bulk Dump Data Format

1 One Memory Mixing Program Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00001000	08	1034(512×2+10) bytes
BYTE COUNT (LOW)	00001010	0A	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01001101	4D	'M'
MEMORY NO.	0xxxxxxx	mm	mm=1(01h)→50(32h) [Scene Memory No.], 127(7Fh) [Edit Buffer]
DATA* ¹	0xxxxxxx	dsH	Scene Memory Data (512×2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

2 All Program Change Assignment Table Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00000010	02	266(128×2+10) bytes
BYTE COUNT (LOW)	00001010	0A	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010000	50	'P'
	00100000	20	' '
DATA* ¹	0xxxxxxx	dsH	Program Change Table (128×2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

*¹DATA FORMAT: Internal Value Ds, D1, D2, D3, ..., De (Dx=00h→ffh)

dxH = ASCII((Dx/16) AND 0fh) → (HIGH) '0', ..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

dxL = ASCII(Dx AND 0fh) → (LOW) '0', ..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

3 All Control Change Assignment Table Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00010101	15	2698(96×7×2×2+10) bytes
BYTE COUNT (LOW)	00001010	0A	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01000011	43	'C'
	00100000	20	' '
DATA* ¹	0xxxxxxx	dsH	Control Change Table (96×7×2×2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

4 Setup Memory Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00000100	04	522(256×2+10) bytes
BYTE COUNT (LOW)	00001010	0A	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010011	53	'S'
	00100000	20	' '
DATA* ¹	0xxxxxxx	dsH	Setup Memory (256×2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

*¹DATA FORMAT: Internal Value D_s, D₁, D₂, D₃, ..., D_e (D_x=00h→ffh)

dxH = ASCII((D_x/16) AND 0fh) → (HIGH) '0', ..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

dxL = ASCII(D_x AND 0fh) → (LOW) '0', ..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

5 Input Fader(Input/Aux Return) Table Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00000100	04	522(128x2x2+10) bytes
BYTE COUNT (LOW)	00001010	0A	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01000011	43	'T'
	01001001	49	'I'
DATA* ¹	0xxxxxxx	dsH	Input Fader Table (128x2x2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

6 Master Fader(Stereo/Aux Send) Table Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00000100	04	522(128x2x2+10) bytes
BYTE COUNT (LOW)	00001010	0A	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01000011	43	'T'
	01001101	4D	'M'
DATA* ¹	0xxxxxxx	dsH	Master Fader Table (128x2x2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

*¹DATA FORMAT: Internal Value Ds,D1,D2,D3,...,De(Dx=00h→ffh)

dxH = ASCII((Dx/16) AND 0fh) → (HIGH) '0',..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

dxL = ASCII(Dx AND 0fh) → (LOW) '0',..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

7 Pan/Width(Input/Aux Return) Table Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00000001	01	142(33×2×2+10) bytes
BYTE COUNT (LOW)	00001110	0E	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01000011	43	'T'
	01010000	50	'P'
DATA* ¹	0xxxxxxx	dsH	Pan/Width Table (33×2×2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

8 Balance(Input/Aux Return/Stereo) Table Bulk Data Format

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0000xxxx	0n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
BYTE COUNT (HIGH)	00000001	01	142(33×2×2+10) bytes
BYTE COUNT (LOW)	00001110	0E	
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01000011	43	'T'
	01000010	42	'B'
DATA* ¹	0xxxxxxx	dsH	Balance Table (33×2×2bytes)
	0xxxxxxx	dsL	
	↓	↓	
	0xxxxxxx	deH	
	0xxxxxxx	deL	
CHECK SUM	0xxxxxxx	ee	ee=NOT('L'+ 'M'+...+dsH+...+deL) AND 7fh
EOX	11110111	F7	End Of Exclusive

*¹DATA FORMAT: Internal Value D_s, D₁, D₂, D₃, ..., D_e (D_x=00h→ffh)

dxH = ASCII((D_x/16) AND 0fh) → (HIGH) '0', ..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

dxL = ASCII(D_x AND 0fh) → (LOW) '0', ..., '9', 'A', 'B', 'C', 'D', 'E', 'F'

B. MIDI Bulk Dump Request Format

1 One Memory Mixing Program Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
DATA NAME	00110110	36	'6' (DMP9-8:'7')
MEMORY NO.	01001101	4D	'M'
	0xxxxxxx	mn	mn=1(01h)→50(32h)[Scene Memory], 127(7fh)[Edit Buffer]
EOX	11110111	F7	End Of Exclusive

2 All Program Change Assignment Table Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010000	50	'P'
	00100000	20	' '(Space)
EOX	11110111	F7	End Of Exclusive

3 All Control Change Assignment Table Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01000011	43	'C'
	00100000	20	' '(Space)
EOX	11110111	F7	End Of Exclusive

4 Setup Memory Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010011	53	'S'
	00100000	20	' '(Space)
EOX	11110111	F7	End Of Exclusive

5 Memory Store Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010111	57	'W'
	00100000	20	' '(Space)
EOX	11110111	F7	End Of Exclusive

6 Input Fader(Input/Aux Return) Table Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010100	54	'T'
	01001001	49	'I'
EOX	11110111	F7	End Of Exclusive

7 Master Fader(Stereo/Aux Send) Table Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010100	54	'T'
	01001101	4D	'M'
EOX	11110111	F7	End Of Exclusive

8 Pan/Width(Input/Aux Return) Table Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010100	54	'T'
	01010000	50	'P'
EOX	11110111	F7	End Of Exclusive

9 Balance(Input/Aux Return/Stereo) Table Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01010100	54	'T'
	01000010	42	'B'
EOX	11110111	F7	End Of Exclusive

10 All Data Bulk Request

STATUS	11110000	F0	System Exclusive Message
ID NO.	01000011	43	Manufacturer's ID No. [Yamaha]
SUB STATUS	0010xxxx	2n	n=0→15 [Tx/Rx Channel No.]
FORMAT NO.	01111110	7E	Universal Bulk Dump
	01001100	4C	'L'
	01001101	4D	'M'
	00100000	20	' '(Space)
	00100000	20	' '(Space)
	00111000	38	'8'
	01000001	41	'A'
	00110010	32	'2'
	00110110	36	'6' (DMP9-8:'7')
DATA NAME	01000001	41	'A'
	00100000	20	' '(Space)
EOX	11110111	F7	End Of Exclusive

All Data = [Scene Memory] + [Program Change Table] + [Control Change] + [Setup Memory]
 + [Input Fader Table] + [Master Fader Table] + [Pan/Width Table] + [Balance Table]

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	Memorized
Mode	Default Messages Altered	X X *****	OMNI off / OMNI on OMNI on/off X	Memorized
Note Number	True Voice	X *****	X X	
Velocity	Note On Note Off	X X	X X	
After Touch	Keys Ch's	X X	X X	
Pitch bend		X	X	
Control Change	0-95 96-97 98-99 100-120	O X O X	O X O X	*1
Prog Change	:True#	O 0-127 *****	O 0-127 0-50	*2
System Exclusive		O	O	Bulk Dump/Request
System Common	:Song Pos :Song Sel :Tune	X X X	X X X	
System Real Time	:Clock :Commands	X X	X X	
Aux Messages	:Local ON/OFF :All Notes OFF :Active Sense	X X X X	X X X X	

Notes *1: Each parameter can be assigned to any Control Change and these assignment tables can be stored in memory.
*2: For program 1-128, memory #0-#50 is selected.

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	Memorized
Mode	Default Messages Altered	X X *****	OMNI off / OMNI on OMNI on/off X	Memorized
Note Number	True Voice	X *****	X X	
Velocity	Note On Note Off	X X	X X	
After Touch	Keys Ch's	X X	X X	
	ch bend	X	X	
Control Change	0-95 96-97 98-99 100-120	O X O X	O X O X	*1
Prog Change	:True#	O 0-127 *****	O 0-127 0-50	*2
	System Exclusive	O	O	Bulk Dump/Request
System Common	:Song Pos :Song Sel :Tune	X X X	X X X	
System Real Time	:Clock :Commands	X X	X X	
Aux Messages	:Local ON/OFF :All Notes OFF :Active Sense	X X X X	X X X X	

Notes *1: Each parameter can be assigned to any Control Change and these assignment tables can be stored in memory.
*2: For program 1-128, memory #0-#50 is selected.

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