



DM 1000 *Version 2*

Control from a Video Editor

Startup Guide

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Overview

This document provides a step-by-step explanation of the settings needed in order to control the DM1000 V2 from a video editor. To ensure smooth integration of the new functionality of DM1000 V2, refer to your owner's manual as you follow the steps in this document to perform the necessary settings and tests. At some points in this process, you will need to verify or change settings in your video editor, so please locate the owner's manual for your video editor and keep it at hand for reference before you begin.

Functionality enabled by connecting the DM1000 V2 to your video editor

If you connect the DM1000 V2 to your video editor and control the DM1000 from your video editor, you will be able to use functionality such as the following:

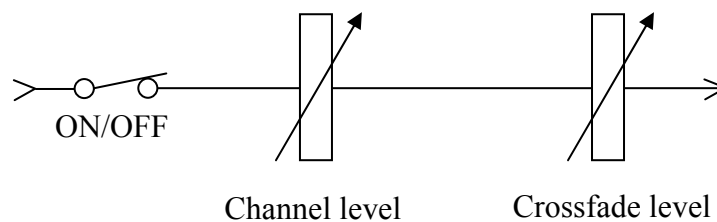
- Crossfade audio signals by operations such as Dissolve
- Monitor the audio signals when you switch or preview sources

This functionality is controlled via the ESAM Serial II Protocol (ESAM II) - Extended protocol, which is designed to link the operation of video editors and mixers in a post-production environment.

The audio signal crossfade functionality of the DM1000 V2 is implemented using the input channel level faders of the mixer block. While being controlled from the editor, the level will be as follows:

$$\text{Actual level} = \text{channel level} \times \text{crossfade level (range of 0 dB to } -\infty \text{ dB)}$$

This is just as though a virtual crossfader located after the channel level fader were being controlled by the editor. In the owner's manual, this crossfade level is referred to as the "ESAM FADER."



The monitor functionality sends the signal of the channel selected by the video editor's preview or monitor function via the DM1000's STEREO, BUS, or SOLO bus from CONTROL ROOM to the desired jacks (by default, the OMNI OUT 11/12 jacks). The choice of bus and its operation will depend on the preview and monitor functionality of your video editor; modify the settings of your video editor so that the system will operate as desired.

The following video editors have been confirmed to work when connected to the DM1000 V2.

- Sony BVE2000, 9100 (9100 requires option)
- Accom Axial 2010, 2020, 3000
- Ampex ACE200
- Panasonic AG A850

1. Make settings in your video editor

On your video editor that has been confirmed to work with the DM1000, make settings so that it will transmit and receive ESAM-II commands for serial control of the mixer. The method for making these settings will depend on the video editor, so refer to its owner's manual for details. In particular if your editor is able to control a mixer using methods other than serial control, you may need to change its control method to serial control.

< Hint >

In most cases, you can make the appropriate settings for connecting the DM1000 simply by setting your video editor to control the Graham Patten Systems, Inc. D/ESAM, which is a typical ESAM-compatible mixer.

2. Connect the DM1000 V2 to your video editor

Connect the two devices so that the ESAM-II protocol compliant editor will be able to control the DM1000. The following table shows the pin assignments of the DM1000's REMOTE connector connected to the editor, and of the serial mixer control connector of the video editor.

Pin no.	Video editor	DM1000 REMOTE connector
1	Frame Ground	Frame Ground
2	Receive A	Receive A (*)
3	Transmit B	Transmit B (*)
4	Transmit Signal Common	Transmit Signal Common
5	Spare	Spare
6	Receive Signal Common	Receive Signal Common
7	Receive B	Receive B (*)
8	Transmit A	Transmit A (*)
9	Frame Ground	Frame Ground

* The special cable must cross-connect 2 and 8, and 3 and 7.

Note that you cannot simply use an RS232C or RS422 straight cable or cross-cable “as is.” Refer to the pin assignment table above, and change the wiring as needed. The cable from the DM1000 must be connected to the “serial mixer control connector.” Video editors have a D-sub 9-pin connector for video recorders, but the DM1000 cannot be connected to a video recorder connector or to the parallel control connector of a video editor.

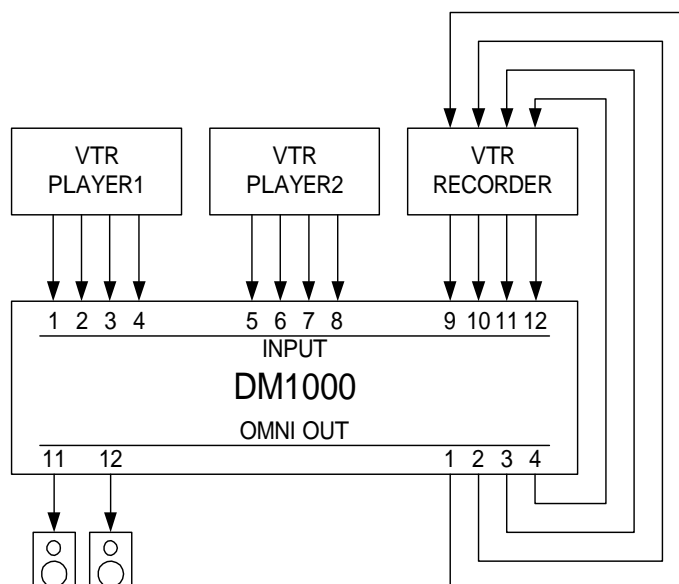
3. Connect the DM1000 V2 to your video recorders

Connect the audio signals from the video recorders to the DM1000’s audio input jacks. You can connect to the DM1000’s analog jacks, or to the analog or digital jacks on an MY card. If you’re using a digital video recorder, you can use the 2TRACK IN jacks, or install a card that allows transmission and reception of AES/EBU signals, such as the MY8-AE/AE96/AE96S or MY16-AE. The MY cards have D-sub 25-pin connectors (female), so you will need to obtain a cable appropriate for the connector you use.

The following explanation will assume that you are using two VTRs for playback and one VTR for recording, and that they are connected as follows:

- Playback VTR (P1) output connected to INPUT jacks 1, 2, 3, 4
- Playback VTR (P2) output connected to INPUT jacks 5, 6, 7, 8
- Recording VTR (REC) output connected to INPUT jacks 9, 10, 11, 12
- OMNI OUT jacks 1, 2, 3, 4, connected to the inputs of the recording VTR (REC)

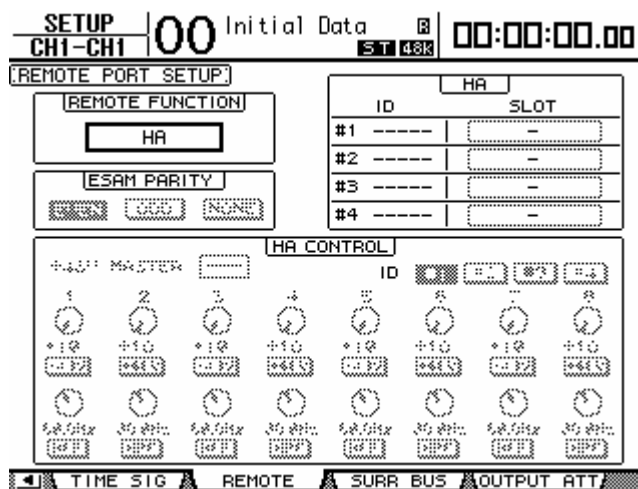
(If you’re using an MY card, these will be INPUT jacks 17 and following, so substitute the INPUT jack numbers appropriately.)



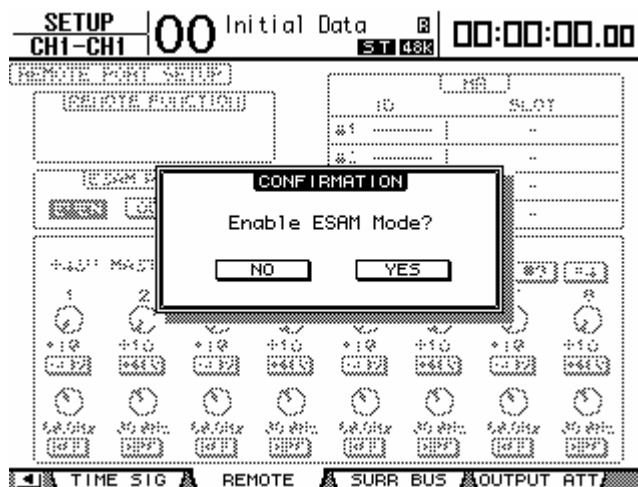
In order to input/output digital signals, the audio signals must also be synchronized with the DM1000 V2. For details on the word clock settings required for synchronization, refer to the DM1000 owner’s manual section “Word clock connections and settings.”

4. Enable commands to be exchanged with the video editor

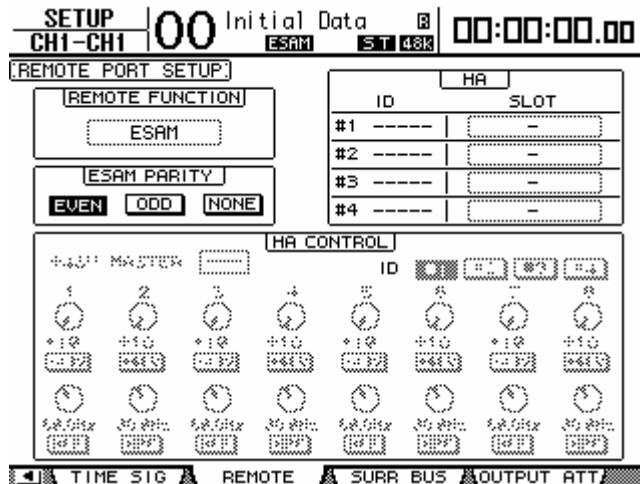
In the DISPLAY ACCESS section, repeatedly press the [SETUP] key to access the REMOTE (REMOTE PORT SETUP) page of the SETUP screen.



Move the cursor to the REMOTE FUNCTION field, select “ESAM”, and press the [ENTER] key to confirm your choice. A screen will ask you to confirm. Select YES to switch to ESAM mode.



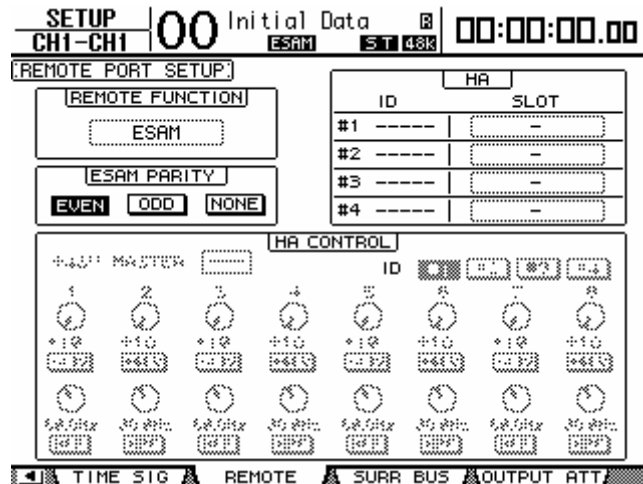
Now the DM1000 will be able to transmit and receive ESAM commands.



5. Verify that the DM1000 is correctly connected to your video editor

Now you must verify that the DM1000 is correctly connected so that it can be controlled by the video editor. If you are unable to control the DM1000 V2 from your video editor, it is important to determine whether the fault lies in the settings of the editor or in the settings of the DM1000. Although it is a simplified method, the following procedure will allow you to determine this by watching the DM1000's error display.

- 5.1 On the keyboard of the video editor, press the key that selects the player or recorder device (e.g., P1, P2, or REC key) or the ALL STOP key.
- 5.2 Check whether an indication of "REMOTE Parity Error" appears in the bottom line of the DM1000's LCD screen. If this message does not appear, change the setting in the screen as described in step 5.3, and try the operation of step 5.1 again. If this message appears, it means that some type of commands are being received from the editor. Perform step 5.4 to set the parity correctly.
- 5.3 In the DISPLAY ACCESS section, repeatedly press the [SETUP] key to access the REMOTE (REMOTE PORT SETUP) page of the SETUP screen. Move the cursor to the ESAM PARITY parity field, select a setting other than the current setting, and then perform step 5.1 again. Continue doing so until the "REMOTE Parity Error" indication appears at the bottom of the LCD screen in step 5.2. If this does not appear, it is probable that the DM1000 is not correctly connected to the video editor, so you will need to check the settings from step 1. In this state, the DM1000 cannot be controlled from the video editor even if you proceed to the next step.



5.4 In the DISPLAY ACCESS section, press the [SETUP] key repeatedly to access the REMOTE (REMOTE PORT SETUP) page of the SETUP screen. Move the cursor to the ESAM PARITY field, and choose the same setting as the PARITY setting of your video editor. Most video editors use the EVEN setting, but some models such as the Ampex ACE200 use ODD. Change this setting so that performing step 5.1 will does not produce the error indication in step 5.2. If the error in step 5.2 appears no matter how you change this setting, please re-check the connection between the DM1000 and the video editor. It may be that there is a faulty connection within the cable or in the connector.

< Hint >

If you operate the video editor when the DM1000 V2 is not connected to the video editor, the video editor may indicate “Mixer Local.” This indicates that you attempted to control the audio mixer even though it was not connected to the video editor. If this occurs, use the above procedure to check the connection.

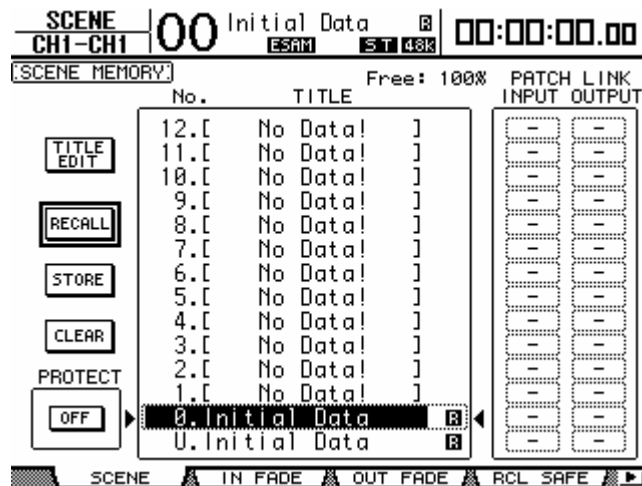
The DM1000 V2 does not have the ability of indicating that it received a command from the REMOTE connector.

6. Match the frame type with the video

In the DISPLAY ACCESS section, press the [SETUP] key repeatedly to access the TIME PREF (TIME REFERENCE) page of the SETUP screen. Move the cursor to the FRAMES field, and choose the same frame type as the video you are editing. The crossfade time on the DM1000 is calculated according to this frame type, so if this setting is incorrect, you will not obtain the desired crossfade times.

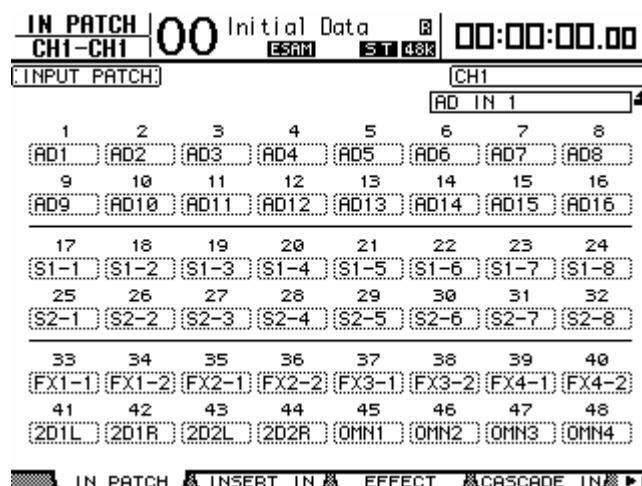
7. Initialize the DM1000's mixer settings

Initialize DM1000 settings such as fader and on/off to the factory-set condition. This is done by recalling a scene memory. The procedure is described in chapter 14 Scene Memory of the owner's manual. Use this procedure to recall scene memory 0. Once you've made mixer settings, you can store them in a scene memory. After making the mixer settings appropriate for your environment, store them in a scene memory.



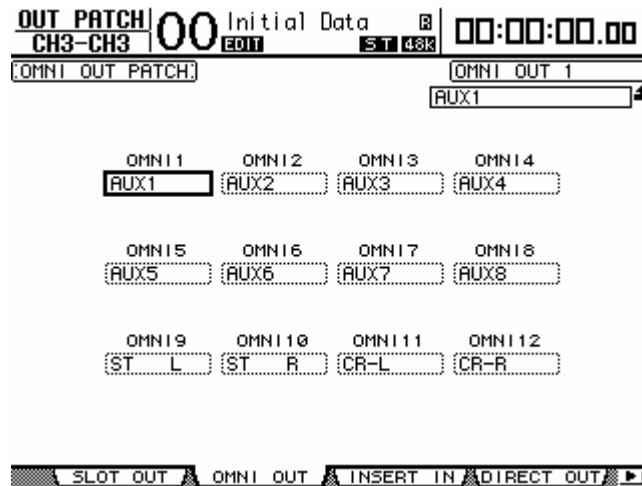
8. Patch the INPUT jack signals to input channels

On the DM1000, the signals connected to the INPUT jacks can be patched to the desired channel. In this example, the signals from INPUT jacks 1 and following will be patched to channels 1 and following. In the DISPLAY ACCESS section, press the [INPUT PATCH] key repeatedly to access the IN PATCH page of the IN PATCH screen. Starting with channel 1, assign each channel to AD1 (INPUT jack 1), AD2 (INPUT jack 2), ... etc., so that INPUT jacks 1-4 are assigned to channels 1-4, INPUT jacks 5-8 are assigned to channels 5-8, and INPUT jacks 9-12 are assigned to channels 9-12.

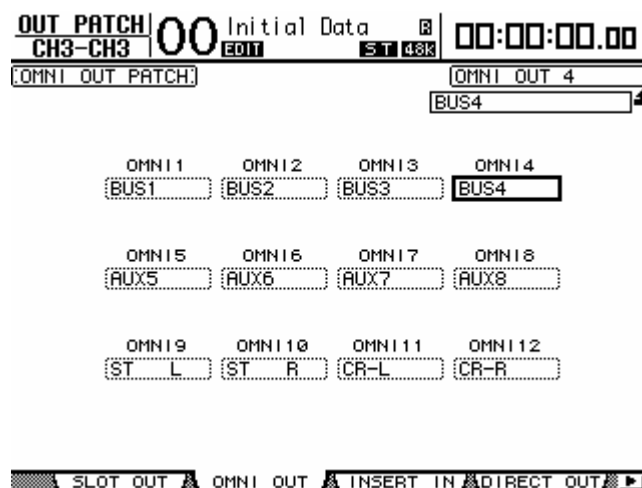


9. Patch the bus signals to output jacks

The crossfaded signals will be routed via buses to the video recorder used for recording. The playback audio from the video recorder used for recording will be routed via the stereo bus and output from the monitor speakers. Patch the appropriate bus to each jack in order to create this output signal routing.



In this example, patch buses 1-4 to OMNI OUT jacks 1-4, and patch the control monitor L/R channels to 11-12.



10. Assign the audio channel inputs for the video recorders and the DM1000

Specify the relationship between the DM1000's INPUT jacks and the video recorders. Based on these assignments, the DM1000 will interpret commands from the video editor, and will control the appropriate channel accordingly. (On some editors such as the BVE9100, these assignments are not used; instead, control will occur according to the settings of the video editor. These settings are provided by

ESAM-II as “machine commands.” If the video editor is using “source commands” to control the system, you must match the channel settings specified by the video editor. Some video editors allow you to choose whether to use “machine commands” or “source commands.” If your video editor supports both source commands and machine commands, we recommend that you set it to transmit and receive machine commands.)

In the DISPLAY ACCESS section, press the [REMOTE] key repeatedly to access the ESAM1-32 (ESAM MACHINE ASSIGN CH1-32) page and ESAM33-48 (ESAM MACHINE ASSIGN CH33-48) page of the REMOTE screen.

REMOTE		00	Initial Data		R	00:00:00.00											
CH1-CH1		ESAM	ST 48K														
ESAM MACHINE ASSIGN CH1-32		MOTOR															
REC	MACHINE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
●	A	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	B	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	C	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	E	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	G	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	H	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
REC	MACHINE	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
●	A	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	B	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	C	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	E	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	G	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	H	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Assign 1,2,3,4 to machine A; 5,6,7,8 to machine B; and 9,10,11,12 to machine C. On the video editor as well, there are settings that let you match video recorders and machine names (machine numbers). Assign machine A as the first machine of the editor, so that the machine assignments of the video editor will match the machine assignments on the DM1000. If the correct assignments have not been made, the wrong machine (channel) will be controlled.

REMOTE		00	Initial Data		R	00:00:00.00											
CH12-CH12		ESAM	ST 48K														
ESAM MACHINE ASSIGN CH1-32		MOTOR															
REC	MACHINE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
●	A	●	●	●	●	...	...	...	...	...	...	...	...	...	...	...	...
...	B	...	...	...	...	●	●	●	●	...	...	...	...	...	...	...	...
...	C	...	...	...	...	...	...	...	...	●	●	●	●	...	...	...	...
...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	E	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	G	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	H	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
REC	MACHINE	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
●	A	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	B	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	C	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	E	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	G	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	H	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Select the recording VTR. Move the cursor to the REC column and press the [ENTER] key to select one REC machine from machines A-H. In this example, machine C is selected.

“Pre-read” is a feature that allows a single VTR to be used as both the playback machine and the recording machine for editing.

In case of “Pre-read” mode, no recording VTR must be selected. Otherwise the selected VTR cannot be controlled as playback VTR.

REMOTE		00 Initial Data		ESAM		ST 48R		00:00:00.00									
CH12-CH12		ESAM MACHINE ASSIGN CH1-32		MOTOR													
REC	MACHINE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
...	A	●	●	●	●	...	...	...	...	...	...	...	...	...	...	...	...
...	B	...	...	...	...	●	●	●	●	...	...	...	...	...	...	...	...
●	C	...	...	...	...	...	...	...	...	●	●	●	●	...	...	...	...
...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	E	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	G	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	H	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
REC	MACHINE	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
...	A	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	B	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
●	C	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	E	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	G	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	H	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

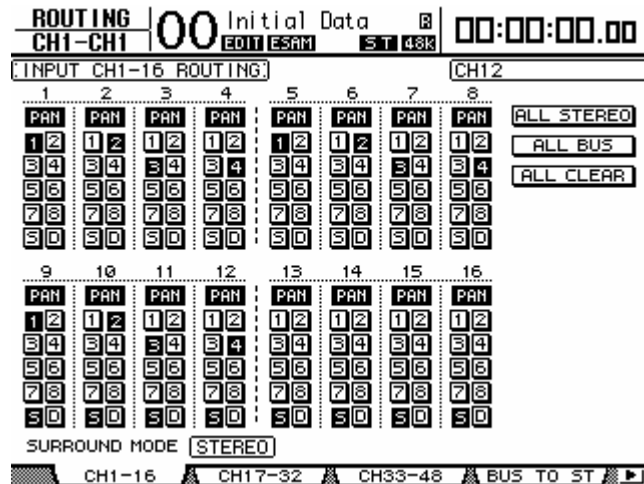
11. Specify the fader operation of the DM1000

When the video editor is used to crossfade or perform other operations on the DM1000, the DM1000 can move the faders to the actual levels. In other words when the crossfade begins, the faders will move upward for the channels that are fading-in, and move downward for the channels that are fading-out, giving you a visual indication of the actual levels.

However, if appropriate for your system, you can make settings so that the faders always control the input signal balance (as on mixers made by other manufacturers) and do not operate as crossfaders. In the DISPLAY ACCESS section, press the [REMOTE] key repeatedly to access the ESAM1-32 (ESAM MACHINE ASSIGN CH1-32) page and ESAM33-48 (ESAM MACHINE ASSIGN CH33-48) page of the REMOTE screen. There you can turn the MOTOR button Off so that the faders will not move, or On so that the faders will move. For this example, turn the MOTOR button On so that the faders will move.

12. Specify the output destination (bus) for the signals input to the DM1000

The signals that are input to the DM1000 will be sent via buses and output to the jacks connected to the recording VTR. Specify the routing (bus assignments) so that this will occur. In the SELECTED CHANNEL section, press the ROUTING [DISPLAY] key repeatedly to access the appropriate page for the channel you want to assign.



“Pre-read” is a feature that allows a single VTR to be used as both the playback machine and the recording machine for editing.

This requires a VTR that provides pre-read functionality. The playback signal from the REC machine must also be sent to the desired BUS 1–8. However, if you are not using pre-read, you must not send the playback signal from the REC machine to BUS 1–8 since this would cause a signal loop.

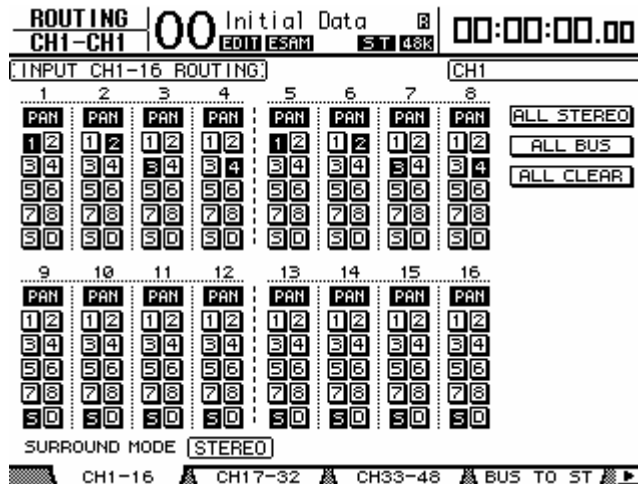
If you are switching between using pre-read and not using it, you can edit the routing appropriately and store the appropriate settings in scene memories so that they can be recalled to switch settings as needed.

In this explanation, we assume that you are not using pre-read.

12.1 If you are not using pre-read

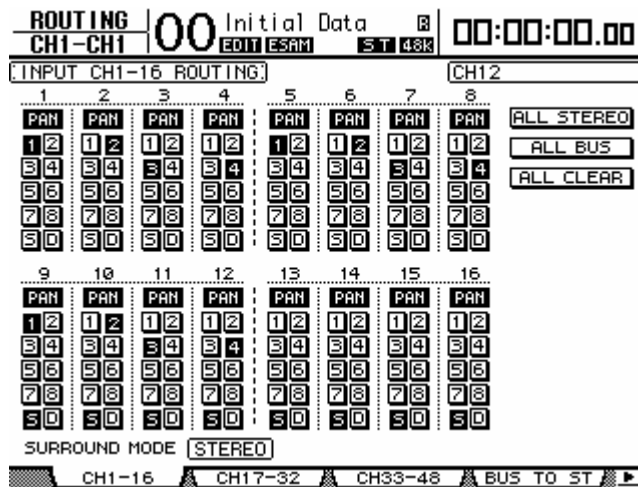
For channels to which the signals from the playback VTR are being input, turn on the bus assign for the desired BUS 1–8, and turn off the assignment to the stereo bus. In this example, turn on only the BUS 1–4 assignments for the respective channels

For channels to which the signals from the recording VTR are being input, turn on only the assignment to the stereo bus, and turn off the remaining bus assignments.



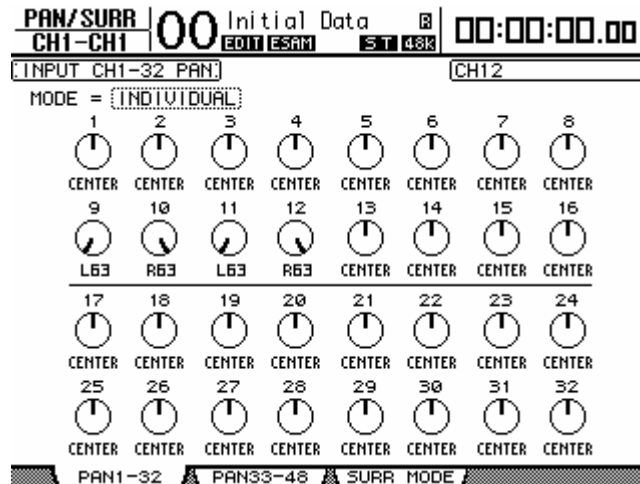
12.2 If you are using pre-read

For channels to which the signals from the playback VTR and the recording VTR are being input, turn on the desired BUS 1-8 assignments. Stereo bus assignments must be turned on so that the input signals can be monitored via the stereo bus.



13. Set the panning of the signals being input to the DM1000

For the channels routed to the stereo bus, set the pan to the monitoring positions. If monitoring in stereo, you might pan channel 9 to the left and channel 10 to the right, so that the left channel of your monitors will output the channel 9 signal and the right channel will output the channel 10 signal.

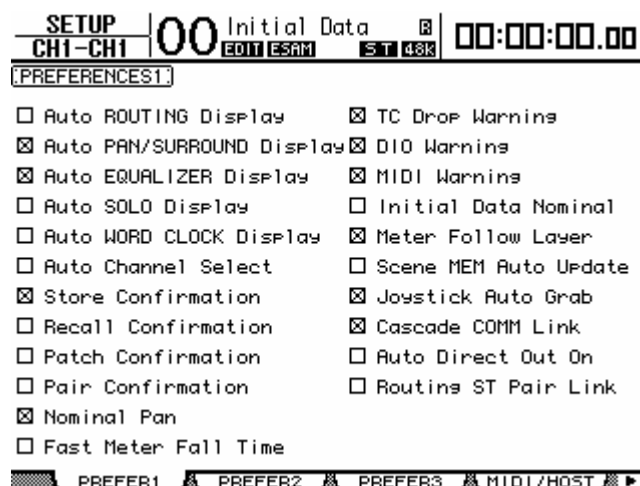


14. Pair the input channels

If the signals being played back from the VTR are stereo, using the DM1000's Pair function will allow you to handle them as a stereo signal, and control them by a single fader and ON/OFF switch.

You can pair the channels either by using the [SEL] keys or by making the setting in the LCD screen. For details, refer to the DM1000 owner's manual.

If the channels of a stereo input signal are panned to left and right, the monitor signal will also be stereo. With the factory settings, panning two paired channels to far left and far right will raise the level by approximately 3 dB in comparison to when the channels are centered. However, you can make settings so that the level does not change when paired channels are fully panned. This setting is made in the PREFER1 page of the SETUP screen. To access this page, press the DISPLAY ACCESS section [SETUP] key repeatedly to access PREFER1 (PREFERENCE1). If Nominal Pan is checked, the level will not change when panned fully.



15. Use the panel [SEL] LED to indicate the ESAM fader on/off status

When you press the [AUTO] key, the [SEL] LED of each channel will indicate the current status of the ESAM faders.

Press the [AUTO] key to make it light, so that the [SEL] key of each channel indicates the ESAM FADER on/off status. If a channel's [SEL] LED is lit, its level is being controlled from the video editor. If you press the [SEL] key to make this LED go dark, the level of that channel will no longer be controlled from the video editor. This means that if you want to control a level manually, make the [SEL] LED go dark for the desired channel.

If the ESAM FADER is on, the lit state of the [SEL] key will differ as follows depending on the status of the channel.

- Dark ESAM FADER is off
- Lit red ESAM FADER is on; a FROM channel
- Blinking red ESAM FADER is on; a TO channel
- Lit green ESAM FADER is on; not a FROM/TO channel

16. Adjust the input/output levels

Here we will set the level balance of the channels that are faded-out by crossfading (the levels of the FROM machine) and of the channels that are faded-in by crossfading (the levels of the TO machine). Fader operations modify the channel levels. When a crossfade is initiated by an ESAM command from the video editor, the crossfade level (the ESAM fader) will change from 0 dB to $-\infty$ dB on the FROM machine channel, and from $-\infty$ dB to 0 dB on the TO machine channel.

Set the stereo fader to 0 dB. If you are not using pre-read, you will need to set the REC machine channels to 0 dB in order to monitor the return from the REC machine.

- Level settings for the FROM machine
Use the faders to adjust the level of the channels you want to assign to the FROM machine. When ESAM commands are subsequently sent from the video editor, they will be assigned to the FROM machine. The fader level at this time will be the starting level for the crossfade (the starting level for the fade-out). The ESAM fader has a fixed starting value of 0 dB and target value of $-\infty$ dB.

- **Level settings for the TO machine**
Use the faders to adjust the level of the channels you want to assign to the TO machine. When ESAM commands are subsequently sent from the video editor, they will be assigned to the TO machine. The fader level at this time will be the target level for the crossfade (the ending level for the fade-in). The ESAM fader has a fixed starting value of $-\infty$ dB and target value of 0 dB.

17. Specify the delay for the input channels

As necessary, specify the delay for each input channel. Sometimes, video effect processing can cause the image to be delayed relative to the audio. In such cases, use the DM1000's input delay or output delay settings to re-synchronize the delayed image. For details, refer to the DM1000 owner's manual.

18. Store the scene memory

Store your bus assignments and level settings in a scene memory. If you store them, you will be able to replicate your settings up to this point simply by recalling the stored scene. For details on how to store to a scene memory, refer to the DM1000 owner's manual.

19. Controlling the system from your video editor

From your video editor, you can select video recorders and perform crossfades by using operations such as Dissolve. If the VTR is being controlled by the video editor, the faders should move for the channels to which the selected VTR is connected, and the [SEL] LED status should change according to your operations.

Monitor-related DM1000 functionality will change depending on the settings of the video editor you are using. You can change the settings of your video editor so that monitor mode and preview mode operate as desired.

The Monitor mode determines how the system will be performed when you use the video source select keys on your video editor to select a device. The Preview mode determines how preview, recording, and review will be performed on your video editor. Each mode has several operating options. These mode settings are normally made in the Audio Mixer configuration window of the video editor. The

combination of mode settings will determine how the video editor will be performed, and will also determine the mixer commands transmitted from the video editor, thus additionally determining how the DM1000 will respond.