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**PM1D System Software V1.6**

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**Supplementary Manual**



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The illustrations and LCD screens as shown in this owner's manual are for instructional purposes only, and may appear somewhat different from those on your instrument.

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This supplementary manual explains the functionality that has been added or changed in PM1D system software V1.6. Please use this manual in conjunction with the existing manuals.

\* In cases where the console (CS1D) display differs from the screen of the PM1D Manager application program, explanations that apply only to the PM1D Manager are distinguished by an indication of [PM1D Manager].

## Additions and changes in V1.6

The additions and changes made in PM1D system software V1.6 are summarized below. For details on each function, refer to the corresponding page.

### ■ Improvements to functions that were added in V1.5 (→p.5)

Of the new functions that were added in V1.5, “Panel Assign” and “Unit Name” have been improved.

### ■ Channel name area added to the EQ CH and LCR screens (→p.8)

An area that displays the channel names has been added to the EQ CH screens of the IN EQ function, and to the LCR screen of the PAN/ROUTING.

### ■ DCA Auto Naming function (→p.9)

The DCA [NAME] indicator in the DCA GROUP block can now be made to display the channel names of the two last-assigned channels.

### ■ Input Channel Auto Naming function (→p.11)

You can now make the INPUT block INPUT [NAME] indicator always display the port name.

### ■ Pan Nominal Position (→p.13)

You now have the option of specifying that paired input channels (or ST IN channels) will be at nominal level (0 dB) when panned to far left or right.

### ■ DCA Unity (→p.14)

When cue-monitoring a DCA group, it is now possible to always monitor the unity-level signal regardless of the state of the DCA fader or DCA [MUTE] switch.

### ■ Scene Link Event (→p.15)

You can now cause a pre-programmed string of MIDI events to be output from the desired MIDI OUT connector when a specific scene is recalled.

### ■ Selective Recall (→p.18)

A Selective Recall function has been added, allowing you to specify for each scene, parameters/channels that will be excluded from recall when that scene is recalled.

### ■ Extended functionality for Recall Safe (→p.21)

The Recall Safe function has been extended, resulting in slight changes to the Recall Safe screen, and adding parameters that can be set to Recall Safe.

### ■ Clear Library (→p.22)

A CLEAR button has been added to each library screen, allowing you to erase a library as desired.

### ■ Extended functionality for the attenuators (→p.23)

The functionality of the input channel attenuators has been expanded to allow cut/boost in a range of -96 to +24 dB.

### ■ Global Channel Copy (→p.24)

Now you can choose desired parameters from the currently selected channel, and copy them to multiple channels of the same type in a single operation.

### ■ Input Meter Bridge (→p.27)

The levels of input channels and ST IN channels can now be displayed in the meter bridge.

### ■ Parameter Lock/Console Lock (→p.33)

By specifying a password, the user can prevent certain parameters from being edited until the correct password is input, or prohibit console operations.

### ■ Surround panning (→p.37)

Surround Pan functionality has been added, allowing sounds from an input channel to be placed in a two-dimensional space when a multi-channel playback system is used.

### ■ Multi-band dynamics processor (→p.46)

A multi-band dynamics processor that includes an independent compressor for each of three bands has been added as an effect type for the internal effects.

### ■ File transfer mode (→p.47)

Data saved on a computer in which PM1D Manager is installed can now be uploaded to the console, and CS1D settings can be downloaded to the computer.

### ■ Additional preference items (→p.48)

The following items have been added to the UTILITY function PREFERENCE screen.

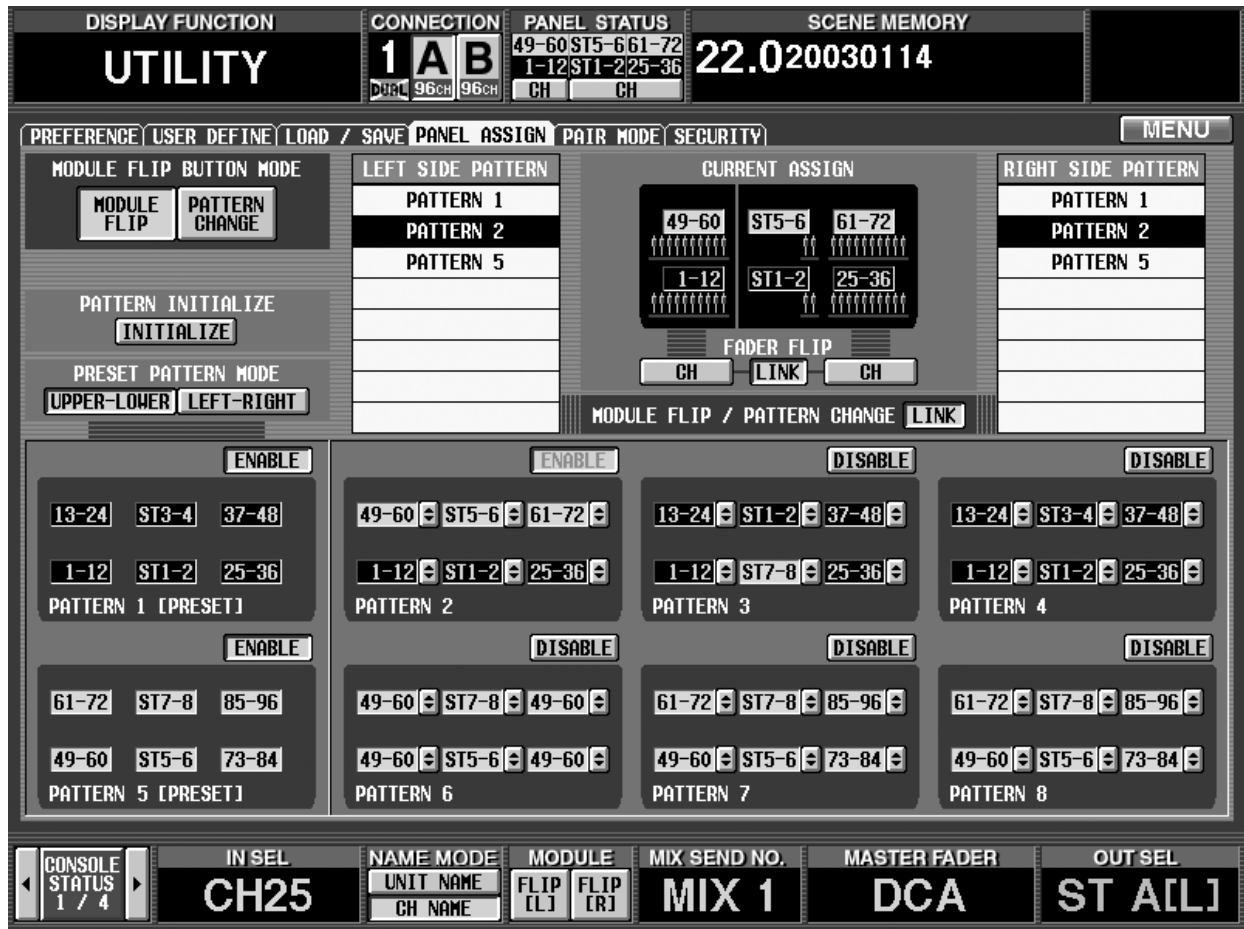
- PROHIBIT DCA ASSIGN ON SELECTED CH BLOCK
- SKIP CONFIRMATIONS FOR MIX MINUS SHORTCUT
- LIBRARY PROTECTION

## Improvements to functions that were added in V1.5

The following improvements have been made to the new functions that were added in V1.5.

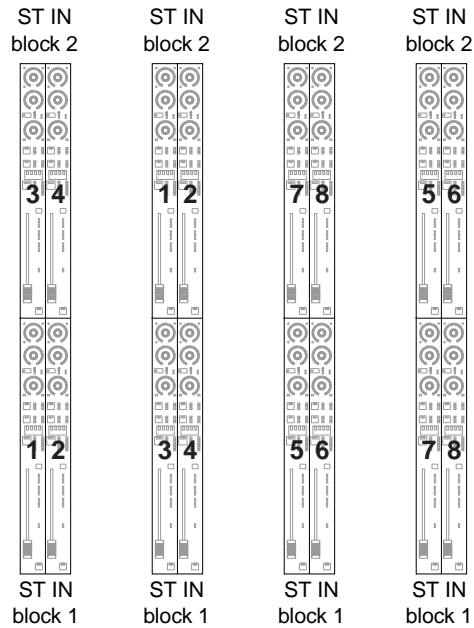
### Panel Assign in the ST IN block

In V1.5, a PANEL ASSIGN screen was added to the UTILITY function, allowing the combination of input channels and ST IN channels reflected in the panel to be specified for each individual block.



However for ST IN channels, the combinations that could be assigned to the panel were limited to the following four possibilities.

•The four combinations that were possible in V1.5



This limitation has been removed in V1.6. For example, any two ST IN channels of consecutive number such as ST IN channels 1/2 and 5/6, or 1/2 and 7/8, can be combined freely. Also, if necessary, you may assign combinations of the same ST IN channel to upper and lower ST IN blocks; e.g., ST IN channels 1/2 and 1/2, or ST IN channels 5/6 and 5/6.

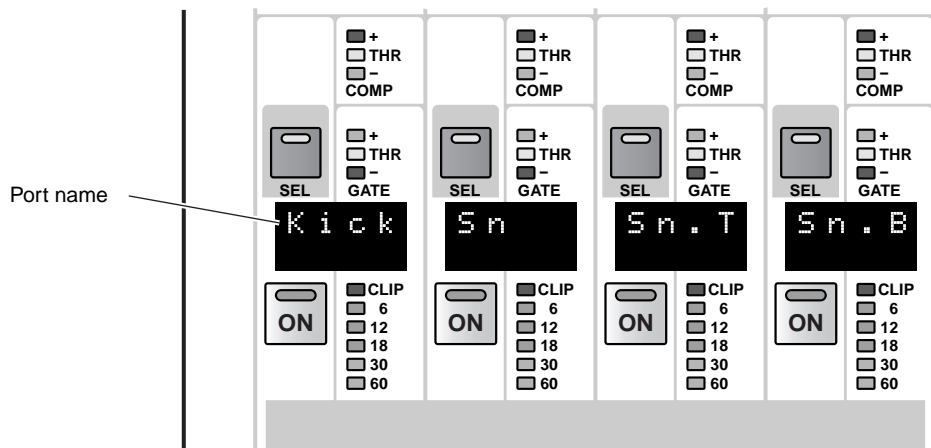
## Panel display of the unit name

In V1.5, the UNIT NAME screen added to the SYS/W.CLOCK function allowed you to assign a name to each port of each input/output unit or card. In addition, if you turned on the UNIT NAME button in the NAME MODE area at the bottom of the screen, the name of the port assigned to that channel would be displayed instead of the short name of the input channel shown in the screen.



In V1.6 when you turn on the UNIT NAME button in the NAME MODE area, the INPUT [NAME] indicator in the INPUT block will also show the name of the port assigned to that channel.

- INPUT block



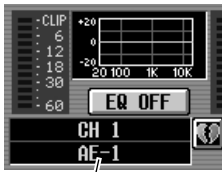
## Channel name area added to the EQ CH and LCR screens

An area that displays the channel name of each channel has been added to the EQ CH screens (CH 1-24, CH 25-48, CH 49-72, CH 73-96, ST IN 1-8) of the IN EQ function and to the LCR screen of the PAN/ROUTING function.

### Channel name area

If the CH NAME button located in the NAME MODE area at the bottom of the display is turned on, this area will show the short name of the corresponding channel.

- EQ CH screen



Short name of the input channel

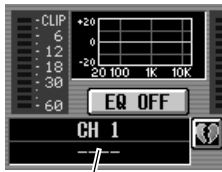
- LCR screen



Short name of the input channel

When the UNIT NAME button is on, the name of the port assigned to that channel will be displayed.

- EQ CH screen



Port name of the input channel

- LCR screen

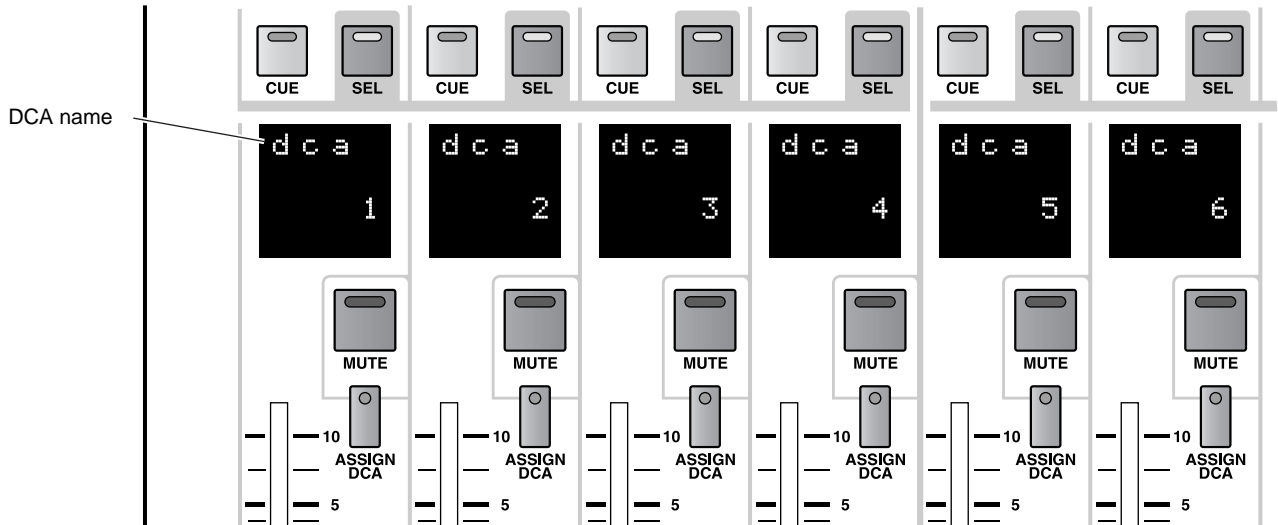


Short name of the input channel



## DCA Auto Naming function

Normally, the DCA [NAME] indicator in the DCA GROUP block will display the name assigned to each DCA group.



In V1.6, the channel names of the last-assigned two channels can also be displayed in the DCA [NAME] indicator. (This is called the “DCA auto naming function.”)

### DCA auto naming procedure

The auto naming procedure is as follows.

1. Access the IN PATCH/OUT PATCH function NAME screen.

The screenshot shows the 'IN PATCH NAME' screen. The top bar includes 'DISPLAY FUNCTION IN PATCH', 'CONNECTION 1 A B', and 'SCENE MEMORY 00.0 Initial Data'. Below this is a 'NAME LIBRARY' table with columns for 'SHORT' and 'LONG' names. A 'LIST SELECT' menu is on the left, and a keyboard interface is on the right. The bottom status bar shows 'IN SEL CH 1', 'NAME MODE UNIT NAME', and 'OUT SEL MIX 1'.

	SHORT	LONG		SHORT	LONG
CH 1	ch 1	ch 1	1	Kick	Kick
CH 2	ch 2	ch 2	2	Sn	Snare
CH 3	ch 3	ch 3	3	Sn. T	SnareTop
CH 4	ch 4	ch 4	4	Sn. B	SnareBtm
CH 5	ch 5	ch 5	5	P. Sn	Picco. Sn
CH 6	ch 6	ch 6	6	HH	Hi-Hat
CH 7	ch 7	ch 7	7		
CH 8	ch 8	ch 8	8		
CH 9	ch 9	ch 9	9	Tom1	Tom 1
CH 10	ch10	ch10	10	Tom2	Tom 2
CH 11	ch11	ch11	11	Tom3	Tom 3
CH 12	ch12	ch12	12	Tom4	Tom 4
CH 13	ch13	ch13	13	Tom5	Tom 5
CH 14	ch14	ch14	14	Tom6	Tom 6
CH 15	ch15	ch15	15		
CH 16	ch16	ch16	16		
CH 17	ch17	ch17			
CH 18	ch18	ch18			
CH 19	ch19	ch19			
CH 20	ch20	ch20			
CH 21	ch21	ch21			
CH 22	ch22	ch22			
CH 23	ch23	ch23			
CH 24	ch24	ch24			

- In the LIST SELECT area (1), move the cursor to the DCA button and press the [ENTER] switch. The name list (2) will show a list of the long names (eight characters) assigned to each DCA group.

	SHORT	LONG
DCA 1		dca 1
DCA 2		dca 2
DCA 3		dca 3
DCA 4		dca 4
DCA 5		dca 5
DCA 6		dca 6
DCA 7		dca 7
DCA 8		dca 8
DCA 9		dca 9
DCA10		dca 10
DCA11		dca 11
DCA12		dca 12

- In the name list, move the cursor to the column of the desired DCA group.
- Make sure that the cursor is located at the first character of the text box (3) at right, and click the DCA AUTO NAMING button of the character palette (4). A highlighted "D" character will be input into the character palette.



- If a PS/2 keyboard is connected to the CS1D, you can also type Ctrl + D to input the highlighted "D" character. (As a shortcut, you can hold down the Ctrl key and type the first character of the button name in the character palette.)
- When you input the highlighted "D," no further characters can be input into the text box. Also, any previously-input characters will be deleted.
- To delete the highlighted "D," click the CLEAR button.

- Click the ENTER button at the right of the character palette.

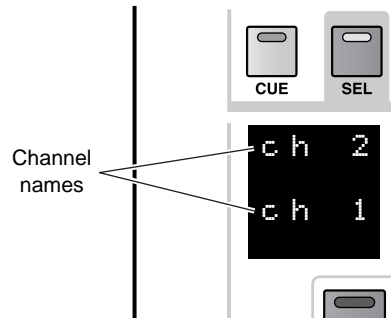
A highlighted "D" character will be input in the long name field of the name list.

	SHORT	LONG
DCA 1		<b>D</b> dca 1
DCA 2		dca 2
DCA 3		dca 3
DCA 4		dca 4
DCA 5		dca 5
DCA 6		dca 6
DCA 7		dca 7
DCA 8		dca 8
DCA 9		dca 9
DCA10		dca 10
DCA11		dca 11
DCA12		dca 12

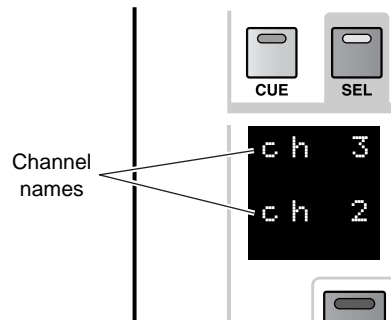
The Auto Naming function is now enabled for the corresponding DCA group. At this time, the DCA [NAME] indicator will go dark if a channel has not been assigned to the corresponding DCA group.

- As necessary, perform the same operation for other DCA groups.
- Assign channels to the DCA groups for which you performed steps 3–6.

For example if you assign input channels 1 and then 2 to DCA group 1, the corresponding DCA [NAME] indicator will show the channel names of input channels 1/2.



If you then add input channel 3 to the same DCA group, the DCA [NAME] indicator will change as follows.



- Be aware that when you use the DCA Auto Naming function, the DCA [NAME] indicator will show the short names of the two last-assigned channels.
- A maximum of twelve channels of names will be remembered for a DCA group. If a paired channel is assigned, the lower-numbered channel will be displayed above.
- If you remove input channel 3 from DCA group 1 in the example described above, the display will be blank.



- If you turn on the UNIT NAME button in the NAME MODE area at the bottom of the screen, the DCA [NAME] indicator will show the name of the port assigned to that channel, instead of showing the short name of the input channel.
- If you turn Cue Monitor on for a DCA group for which Auto Naming is enabled, the channel that was last assigned to that DCA group will be selected (its [SEL] key will light).

## Input Channel Auto Naming function

As explained earlier, V1.5 added the capability of displaying the channel name or port name in the INPUT [NAME] indicator of the INPUT block.

However if necessary, it is also possible to specify that the patched port name be always displayed as the input channel name for only a specific input channel. This is referred to as the “Input channel auto naming function.”

### Input Channel Auto Naming procedure

The auto naming procedure is as follows.

1. Access the IN PATCH/OUT PATCH function NAME screen.



2. In the LIST SELECT area (①), move the cursor to the INPUT button and press the [ENTER] switch. The name list (②) will show a list of the short names (four characters) and long names (eight characters) assigned to each input channel.

CH	SHORT	LONG
CH 1	ch 1	ch 1
CH 2	ch 2	ch 2
CH 3	ch 3	ch 3
CH 4	ch 4	ch 4
CH 5	ch 5	ch 5
CH 6	ch 6	ch 6
CH 7	ch 7	ch 7
CH 8	ch 8	ch 8
CH 9	ch 9	ch 9
CH10	ch10	ch10
CH11	ch11	ch11
CH12	ch12	ch12

3. In the name list, select the desired input channel, and move the cursor to the short name field.
4. Make sure that the cursor is located at the first character of the text box (③) at right, and click the UNIT NAME ASSIGN button of the character palette (④).

A highlighted “U” character will be input into the character palette.





- If a PS/2 keyboard is connected to the CS1D, you can also type Ctrl + U to input the highlighted “U” character. (As a shortcut, you can hold down the Ctrl key and type the first character of the button name in the character palette.)
- When you input the highlighted “U,” no further characters can be input into the text box. Also, any previously-input characters will be deleted.
- To delete the highlighted “U,” click the CLEAR button.

**5. Click the ENTER button at the right of the character palette.**

A highlighted “U” character will be input in the short name field of the name list.

	SHORT	LONG
CH 1	U	ch 1
CH 2	ch 2	ch 2
CH 3	ch 3	ch 3
CH 4	ch 4	ch 4
CH 5	ch 5	ch 5
CH 6	ch 6	ch 6
CH 7	ch 7	ch 7
CH 8	ch 8	ch 8
CH 9	ch 9	ch 9
CH10	ch10	ch10

The Auto Naming function is now enabled for the corresponding input channel. Now the port name assigned to the channel will always be displayed in areas of the screen that display the short name of the corresponding channel, and in the corresponding INPUT [NAME] indicator of the panel.



It is also possible to select the long name field instead of the short name field in step 3. In this case, the port name will always be displayed in areas of the screen that display the long name of the corresponding channel.

## Pan Nominal Position

Normally if a signal sent from an input channel to the stereo bus is panned to the far-left or far-right position, the level will increase by +3 dB compared to when the signal is panned to the center. This is done so that a constant volume (energy) will be output whether the signal is mono or stereo; however when inputting a stereo source such as a synthesizer or CD player, you may consider this an inconvenience.

Thus, V1.6 adds the option of specifying that only paired input channels (or ST IN channels) will be at nominal level (0 dB) when pan is set to far left or right.

### Pan Nominal Position procedure

Use the following procedure to enable this option.

1. **Access the PAN/ROUTING function CH to MIX screen.**

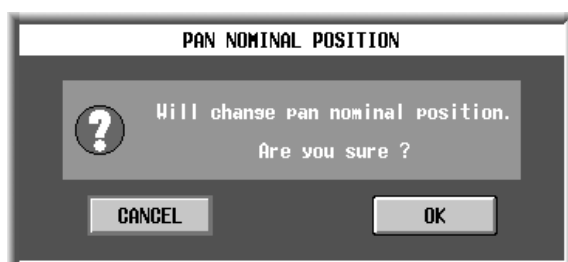
The PAN NOMINAL POSITION field has been added to this screen.



- **CENTER** ..... If this button is on, all input channels and ST IN channels will be at nominal level (0 dB) when panned to the center, and +3 dB when panned fully left or right. (This is the default setting.)
- **L ↔ R**..... If this button is on, paired input channels and ST IN channels will be at -3 dB when panned to the center, and at nominal level when panned fully left or right (L63 or R63).

2. **Move the cursor to the L ↔ R button and press the [ENTER] switch.**

A popup window will ask you to confirm the changed Pan Nominal setting.



3. **Move the cursor to the OK button and press the [ENTER] switch.**

4. **Enable pairing for the desired channels, and make sure that a mode other than BALANCE is selected as the pan mode.**

In this state, panning fully left or right will produce a nominal level only for paired input channels and for ST IN channels.

- ⚠ • Pan Nominal Position does not affect unpaired monaural input channels.
- Even in the case of a paired input channel (or a ST IN channel), this setting has no effect if the pan mode is set to BALANCE.
- In the case of L-MONO or R-MONO, this setting has no effect; however in the LR-MONO state, changes in the Pan Nominal Position setting will be valid.
- When you change the Pan Nominal Position setting, the MIX SEND PAN of signals being sent to paired MIX buses will also be switched.
- The Pan Nominal Position of each input channel can be viewed in the graph in the PAN/ROUTING function LCR screen.



By setting Pan Nominal Position to L ↔ R, you can minimize changes in level that occur when a paired channel is switched between PAN, BALANCE, L-MONO, R-MONO, or LR-MONO.

## DCA Unity

When cue-monitoring a DCA group, it is now possible to always monitor the unity-level signal. In previous versions, even when you pressed the DCA [CUE] switch, you could not monitor the signal of a DCA group whose DCA fader was lowered or whose DCA [MUTE] switch was on. However in V1.6, you have the option of always monitoring the DCA group at unity level (the level equivalent to setting the DCA fader at 0 dB).

### DCA Unity procedure

To use this option, access the MONI/CUE function CUE/SOLO screen, and turn on the DCA UNITY ON/OFF button that has been added to the DCA area.



If this button is on, pressing the DCA [CUE] button allows you to monitor that DCA group at unity level, regardless of the current position of the DCA fader or the on/off state of the DCA [MUTE] switch.



- The setting of the DCA UNITY ON/OFF button does not affect the individual channels included in the DCA groups.
- If the fader of a channel included in the DCA group is lowered or if its [ON] switch is turned off, you will not be able to monitor that channel via the DCA group.

## Scene Link Event

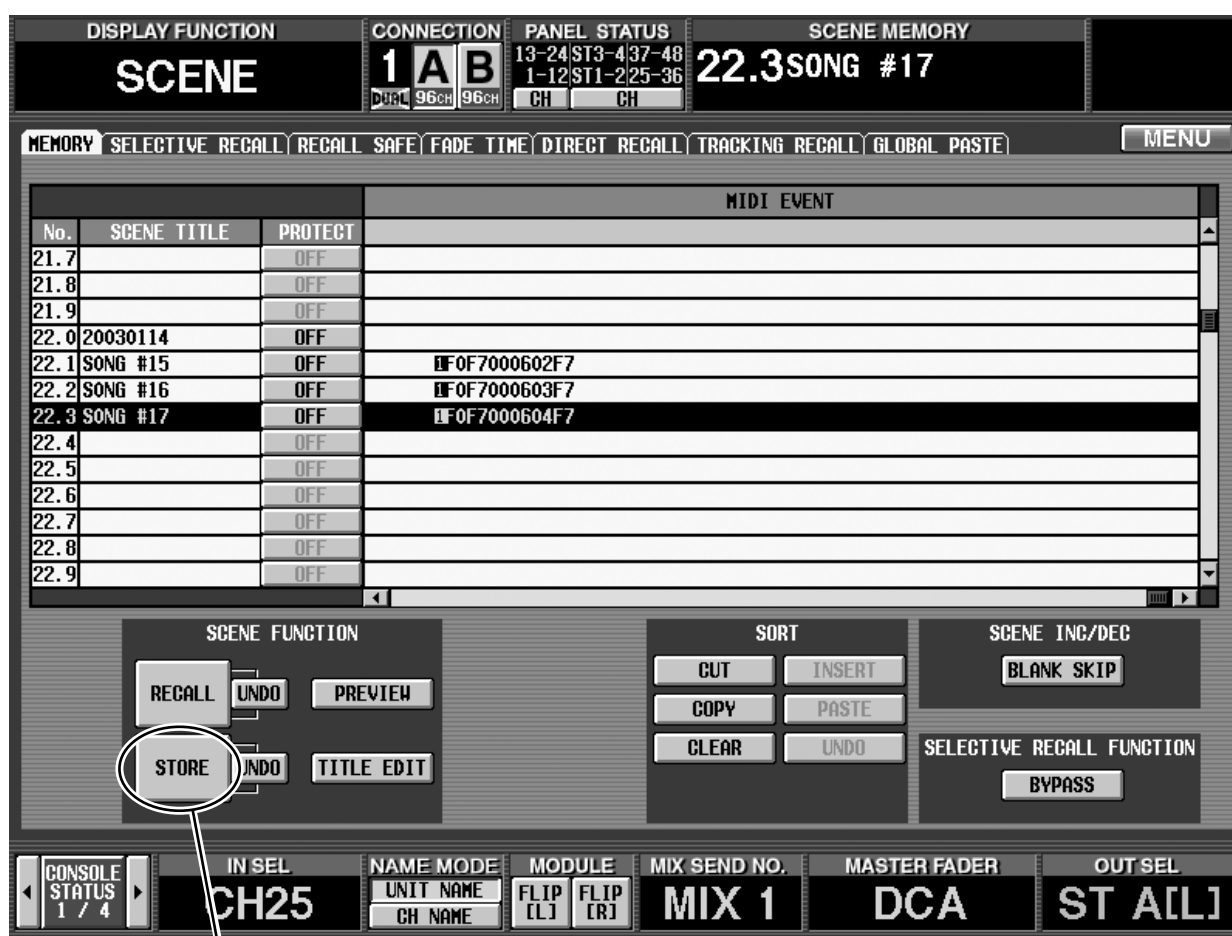
You can now cause a string of MIDI events to be output from the desired MIDI OUT connector when a specific scene is recalled. (This is called the “Scene Link Event” function.)

By using this function to pre-program MIDI events for each scene, you can modify the internal settings of an external device when that scene is recalled, or automatically start the transport of an external device.

### Scene Link Event procedure

Here’s how to program MIDI events for each scene.

1. Access the SCENE function MEMORY screen.
2. In the list, click the row for the desired scene to select it.



STORE button

- ⚠ You cannot program MIDI events for a READ ONLY scene or a protected scene.

3. Click the STORE button in the lower left of the screen.

The SCENE STORE popup window will appear, allowing you to assign a title or comment and store the scene.



4. Click the COMMENT/MIDI EVENT field to select it.  
The EVENT CODE SET button will appear at the lower left of the character palette.



The highlighted numeral or “E” character will be added to the COMMENT/MIDI EVENT field. Also, characters in the characters palette other than 0–9 and A–F will be grayed-out, and will be unavailable for input.



5. Click the EVENT CODE SET button.  
The characters in the COMMENT/MIDI EVENT field will be erased, and a highlighted “M” character will be input in their place. Also, the characters in the character palette will be grayed-out except for 1, 2, and E, and will be unavailable for input.



7. Use the 0–9 and A–F characters of the character palette to directly input the MIDI event in hexadecimal format.  
Two hexadecimal characters correspond to one byte of the MIDI message.



8. When you have finished inputting the MIDI event, click the AUTO STORE button or the MANUAL STORE button.  
The MIDI event you input will be stored in the scene. You can check the contents of the MIDI event by scrolling to the right edge of the scene list in the MEMORY screen.

When you recall this scene, the MIDI event will be transmitted from the specified MIDI OUT connector.



- If a PS/2 keyboard is connected to the CS1D, you can also type Ctrl + E to input the highlighted “M” character. (As a shortcut, you can hold down the Ctrl key and type the first character of the button name in the character palette.)
- To erase the highlighted “M,” click the CLEAR button.



- The PM1D system is in no way aware whether the MIDI message you input is a valid one. Please use care when inputting the message.
- You can input a maximum of 32 bytes into the COMMENT/MIDI EVENT field, calculated as follows. Since a total of two bytes are used by the highlighted “M” and the character that specifies the output destination, you can input a maximum of 30 bytes of MIDI data here.

[Calculation method]

- One comment character ..... 1 byte
- Highlighted “M” ..... 1 byte
- Highlighted “1” ..... 1 byte
- Highlighted “2” ..... 1 byte
- Highlighted “E” ..... 1 byte
- Two characters of the MIDI message . 1 byte

6. Click either 1, 2, or E in the character palette to select the MIDI OUT connector from which the MIDI event will be output.  
The numerals or “E” character correspond to the following MIDI OUT connectors.
- 1 ..... MIDI OUT connector of console 1
  - 2 ..... MIDI OUT connector of console 2 (if using Dual Console mode)
  - E ..... MIDI OUT connector of the engine



- It is possible to input two or more messages, as long as the total stays within 32 bytes. However you should be aware that, depending on the type of message, the receiving device may not be able to process MIDI events received in immediate succession.
- If you input more than 32 bytes, a warning of “LENGTH OVER!” will be displayed, and you will not be able to press the STORE button. Delete characters until the warning is no longer displayed.
- You cannot input “FE” (Active Sensing) as a MIDI code.
- While inputting the MIDI event, you can click the EVENT CODE SET button and insert the event that specifies the output destination. This lets you output events to different MIDI OUT connectors.
- *f*Even if you recall a scene for which a fade time is set, the MIDI event will be transmitted immediately after the scene is recalled.

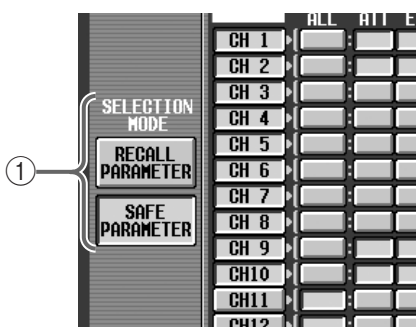
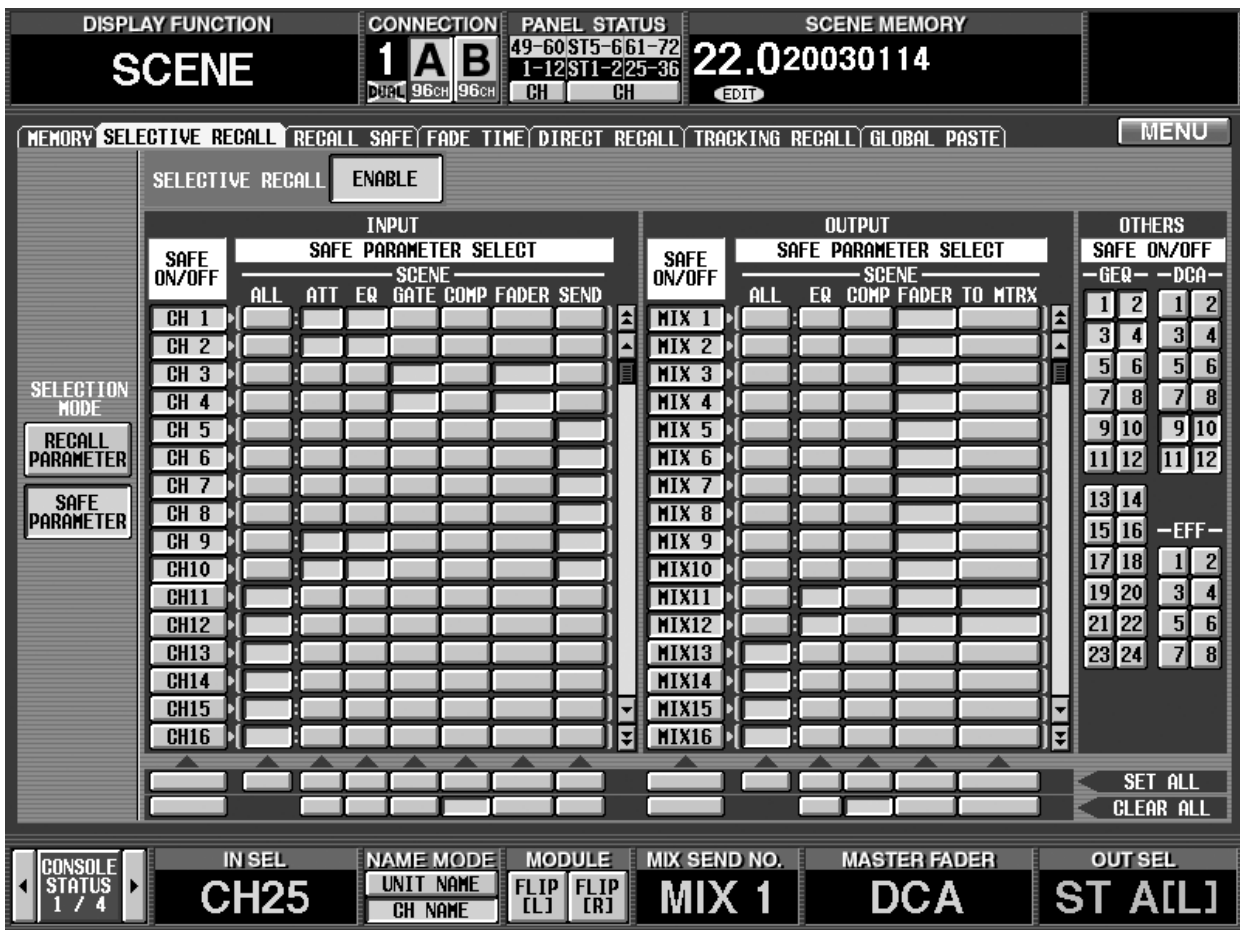
## Selective Recall

In V1.6 you can restrict the parameters/channels that will be recalled when a specific scene is recalled, or conversely specify parameters/channels that will be excluded from the recall operation for a specific scene. (This function is called “Selective Recall.”)

In previous versions, you could use a function called Recall Safe to select channels/parameters that would be excluded from recall operations. These Recall Safe settings are global, and are common to all scenes. (Channels/parameters excluded from a recall operation do not change when any scene is recalled.) In contrast, the Selective Recall function lets you store – for each scene – a combination of parameters/channels that will be recalled, or conversely a combination of parameters/channels that will be excluded from the recall operation. This lets you create partial scene images for store/recall, using them in a way similar to libraries.

So that you can universally enable/disable the Selective Recall function settings saved in each scene, a BYPASS button has been added to the MEMORY screen SELECTIVE RECALL FUNCTION area.

V1.6 adds a SELECTIVE RECALL screen to the SCENE function, allowing you to make Selective Recall settings.



### ① SELECTION MODE

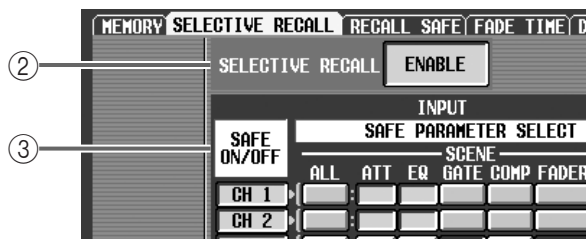
Use the following two buttons to select how you want to use the SELECTIVE RECALL screen.

- **RECALL PARAMETER button**  
If this button is on, you can use the buttons in the screen to select the channels/parameters that will be affected by a recall operation.
- **SAFE PARAMETER button**  
If this button is on, you can use the buttons in the screen to select the channels/parameters that will be excluded from a recall operation.



Each time you switch between the RECALL PARAMETER button and the SAFE PARAMETER button, the settings in the screen will be initialized as follows.

- When you switch to the RECALL PARAMETER button, all channels will be set to RECALL ON/OFF button = On and RECALL PARAMETER SELECT = ALL.
- When you switch to the SAFE PARAMETER button, all channels will be set to SAFE ON/OFF button = Off and SAFE PARAMETER SELECT = ALL.



② **ENABLE/DISABLE button**

This button enables (button indicates ENABLE) or disables (button indicates DISABLE) the Selective Recall function individually for each scene.

③ **RECALL ON/OFF button SAFE ON/OFF button**

This button selects the channel that will be affected. The function of this button will change depending on the mode you select in the SELECTION MODE area (①).

- **If RECALL PARAMETER is on**  
This button will function as the SAFE ON/OFF button to specify channels that will be affected by recall operations.
- **If SAFE PARAMETER is on**  
This button will function as the SAFE ON/OFF button to specify channels that will be excluded from recall operations.  
The input channels/output channels for which this function can be set are the same as in the SCENE function RECALL SAFE screen.



④ **RECALL PARAMETER SELECT button SAFE PARAMETER SELECT button**

This button selects the parameter that will be affected. The function of this button will change depending on the button you select in the SELECTION MODE area (①).

- **If RECALL PARAMETER is on**  
This button will function as the RECALL PARAMETER SELECT button to specify parameters that will be affected by recall operations.
- **If SAFE PARAMETER is on**  
This button will function as the SAFE ON/OFF button to specify parameters that will be excluded from recall operations.

The types of parameters for which this function can be set are the same as in the SCENE function RECALL SAFE screen, with the exception that you cannot specify UNIT (a unit patched to an input channel) as an input channel.

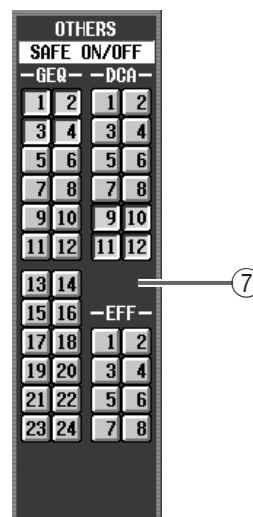


⑤ **SET ALL**

If you click this button, all corresponding parameter buttons will be turned on.

⑥ **CLEAR ALL**

If you click this button, all corresponding parameter buttons will be turned off.



⑦ **OTHERS**

Use these buttons to select parameters other than the above. The function of these buttons will change depending on the button that is selected in the SELECTION MODE area (①).

- **If RECALL PARAMETER is on**  
These buttons select the parameters that will be affected by recall operations.

• **If SAFE PARAMETER is on**

These buttons select the parameters that will be excluded from recall operations.

The parameters that can be selected are the same as in the SCENE function RECALL SAFE screen, with the exception that there is no MUTE MASTER (on/off for all mute groups).

In the case of parameters for which there is only one parameter for two adjacent odd-numbered/even-numbered channels (such as the parameters listed below), the parameter will be excluded from the recall operation only if both channels are specified for selective recall.

- HA GAIN GANG
- HA A/B LINK
- GATE LINK
- COMP LINK
- DELAY GANG
- PAN MODE
- GEQ LINK




---

All of the Selective Recall settings will be linked for two paired channels, ST IN channels, or STEREO A/B channels.

---



- Recall Safe and Selective Recall may be used together. Channels/parameters that are set to Recall Safe, or channels/parameters for which the Selective Recall settings of the scene being recalled exclude them from recall operations, will not be recalled.
- If a scene is recalled in PREVIEW mode, Selective Recall has no effect.
- If, when a scene is recalled, a conflict in pairing settings occurs between Recall Safe and Selective Recall, that pairing will be forcibly defeated. (The channel that is excluded from the recall will maintain all its parameters in the state prior to recall.)
- However if two channels are paired in the current scene, and only one of these channels is set to Safe by the Selective Recall settings of the scene you are recalling, recalling that scene will cause both channels to be Safe, and the state prior to recall will be maintained.
- If MIX channels set to Selective Recall have differing mix types (VARI or FIX) before and after recall, the mix type before recall will apply.

- If you set the SELECTIVE RECALL ENABLE/DISABLE button to ENABLE, and store a scene in which all channels/all parameters are excluded from recall operations, no parameters will change when you next recall that scene. In such cases, you can temporarily disable Selective Recall by turning on the BYPASS button in the SELECTIVE RECALL FUNCTION area of the SCENE function MEMORY screen, so that you will be able to recall the previous scene.
- If you later want to make changes to the combination of channels/parameters that were set to Selective Recall, access the SCENE function MEMORY screen, and in the SELECTIVE RECALL FUNCTION area, turn the BYPASS switch on before you recall that scene. Alternatively, you can recall the scene in PREVIEW mode. Then use the SELECTIVE RECALL screen to edit the combination of channels/parameters, and store the scene again into the same scene number.
- If you recall a scene in which the RECALL PARAMETER button = On and the ENABLE/DISABLE button = ENABLE, parameters applying to the entire scene (such as fade time ENABLE/DISABLE and TIME parameters, and Pan Nominal Position) will not be recalled.

## Extended functionality for Recall Safe

The Recall Safe function of prior versions has been extended as follows.

### Recall Safe is now possible for compressor and gate

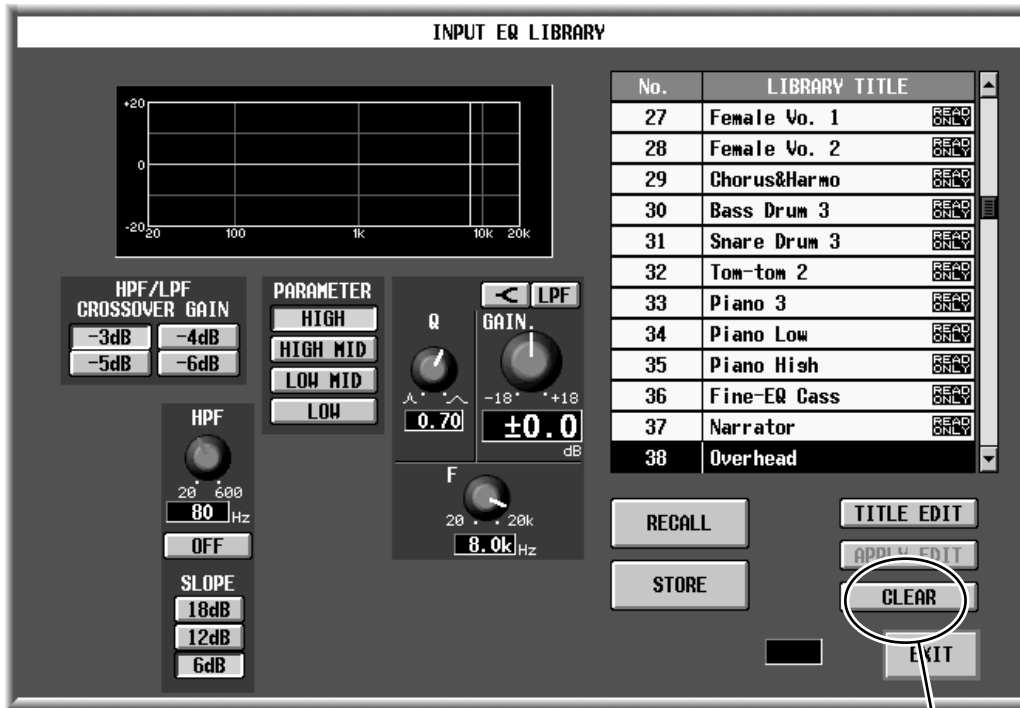
Compressor and gate have been added to the parameters for which you can make Recall Safe settings. Accordingly, the SCENE function RECALL SAFE screen has been redesigned as follows.

The screenshot displays the RECALL SAFE screen with the following details:

- Top Status:** DISPLAY FUNCTION: SCENE; CONNECTION: 1 A B; PANEL STATUS: 49-60 ST5-661-72, 1-12 ST1-225-36; SCENE MEMORY: 22.020030114
- Menu Bar:** MEMORY, SELECTIVE RECALL, RECALL SAFE, FADE TIME, DIRECT RECALL, TRACKING RECALL, GLOBAL PASTE, MENU
- Main Grid:**
  - INPUT SAFE PARAMETER SELECT:** Columns: SAFE ON/OFF, SCENE (ALL, ATT, EQ, GATE, COMP, FADER, SEND), UNIT (I3DIO:1-1 to I3DIO:2-4).
  - OUTPUT SAFE PARAMETER SELECT:** Columns: SAFE ON/OFF, SCENE (ALL, EQ, COMP, FADER, TO MTRX), UNIT (MIX 1 to MIX16).
  - OTHERS:** SAFE ON/OFF for GEQ, DCA, and EFF.
- Bottom Status Bar:**
  - CONSOLE STATUS: 1 / 4
  - IN SEL: CH25
  - NAME MODE: UNIT NAME, CH NAME
  - MODULE: FLIP [L], FLIP [R]
  - MIX SEND NO.: MIX 1
  - MASTER FADER: DCA
  - OUT SEL: ST A[L]

## Clear Library

A CLEAR button has been added to each library screen, allowing you to erase a library as desired.



CLEAR button

In previous versions, a library that was once stored could not be erased except by overwriting onto it. However in V1.6, you can select a library in the list that you want to erase, and then click the CLEAR button to erase the library, returning it to a blank state.

If the FOLLOW SCENE button of the LIBRARY PROTECTION area (added to the PREFERENCE screen from V1.6) is turned on (→p.48), libraries that are linked to a scene cannot be erased. (If you attempt to recall, a warning message will appear.)

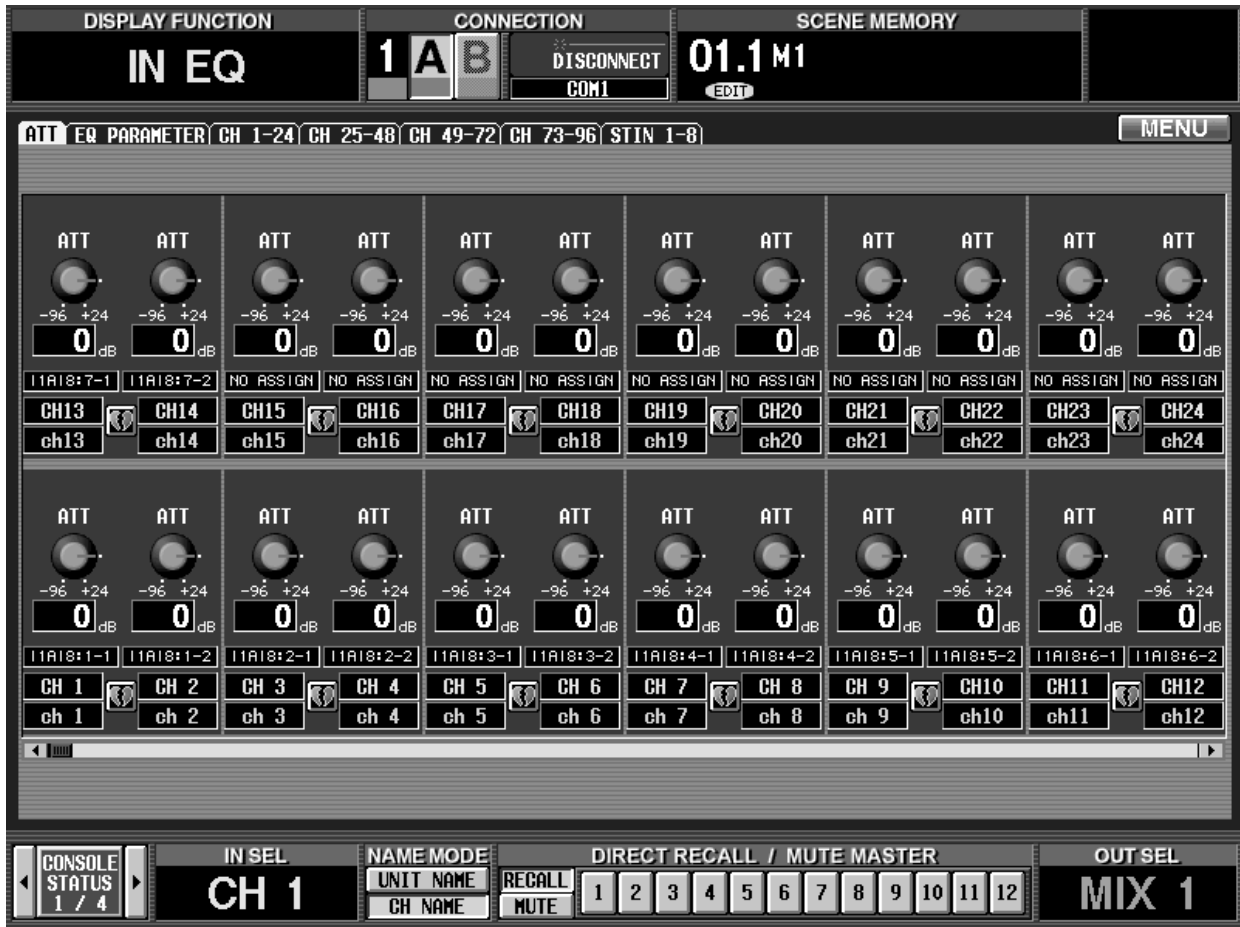
If this preference item is off, a library can be erased even if it linked to a scene. However in this case, the library number linked to the scene will be remembered even if that library is now blank; when that scene is recalled, nothing will be recalled to blank library items.

## Extended functionality for the attenuators

The functionality of the input channel attenuators has been expanded to allow cut/boost in a range of  $-96$  to  $+24$  dB.

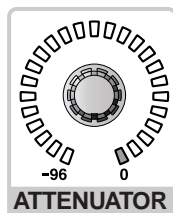
In previous versions, leaving a large margin in the analog domain for an input channel sometimes caused a situation in which sufficient input level could not be obtained even with the fader raised all the way. In V1.6, this problem has been addressed by providing up to  $+24$  dB of boost in the digital domain.

In order to let you rapidly set the attenuator for each input channel, a dedicated ATT screen for setting the attenuators has been added to the INPUT EQ function.

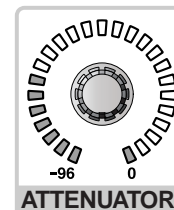


In conjunction with this change, the [ATTENUATOR] encoder display in the SELECTED INPUT CHANNEL has been changed as follows.

- **Range of  $-96$  dB to  $0$  dB**  
Same display method as previous.



- **Range of  $+1$  dB to  $+24$  dB**  
The  $0$  dB LED will remain lit, and the LEDs at the  $-96$  dB side will light consecutively.



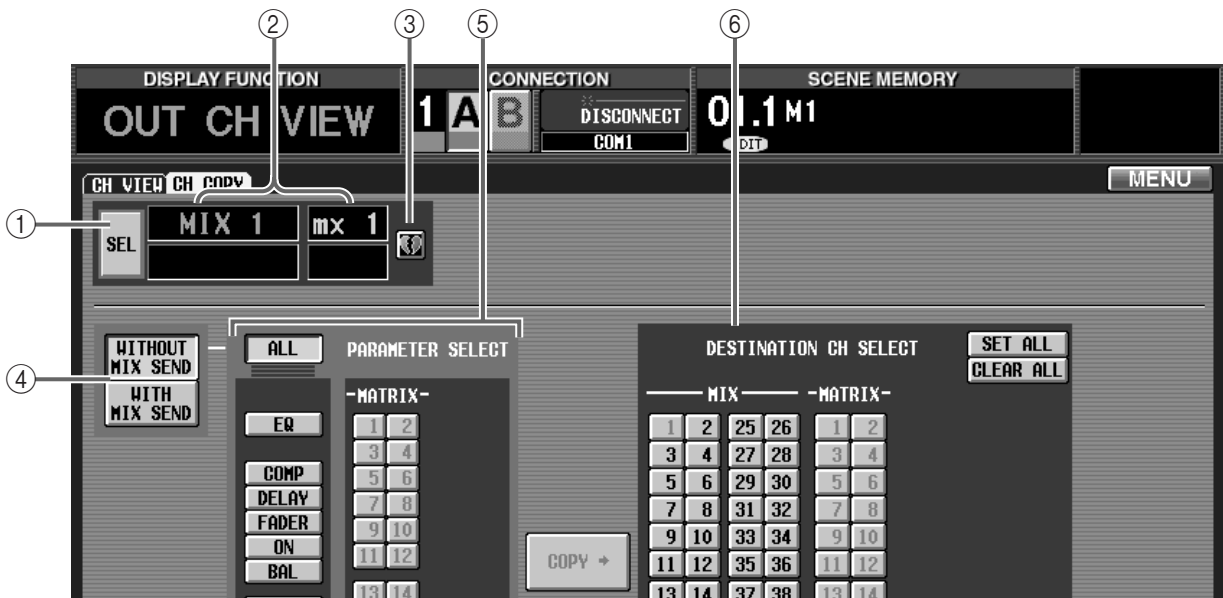
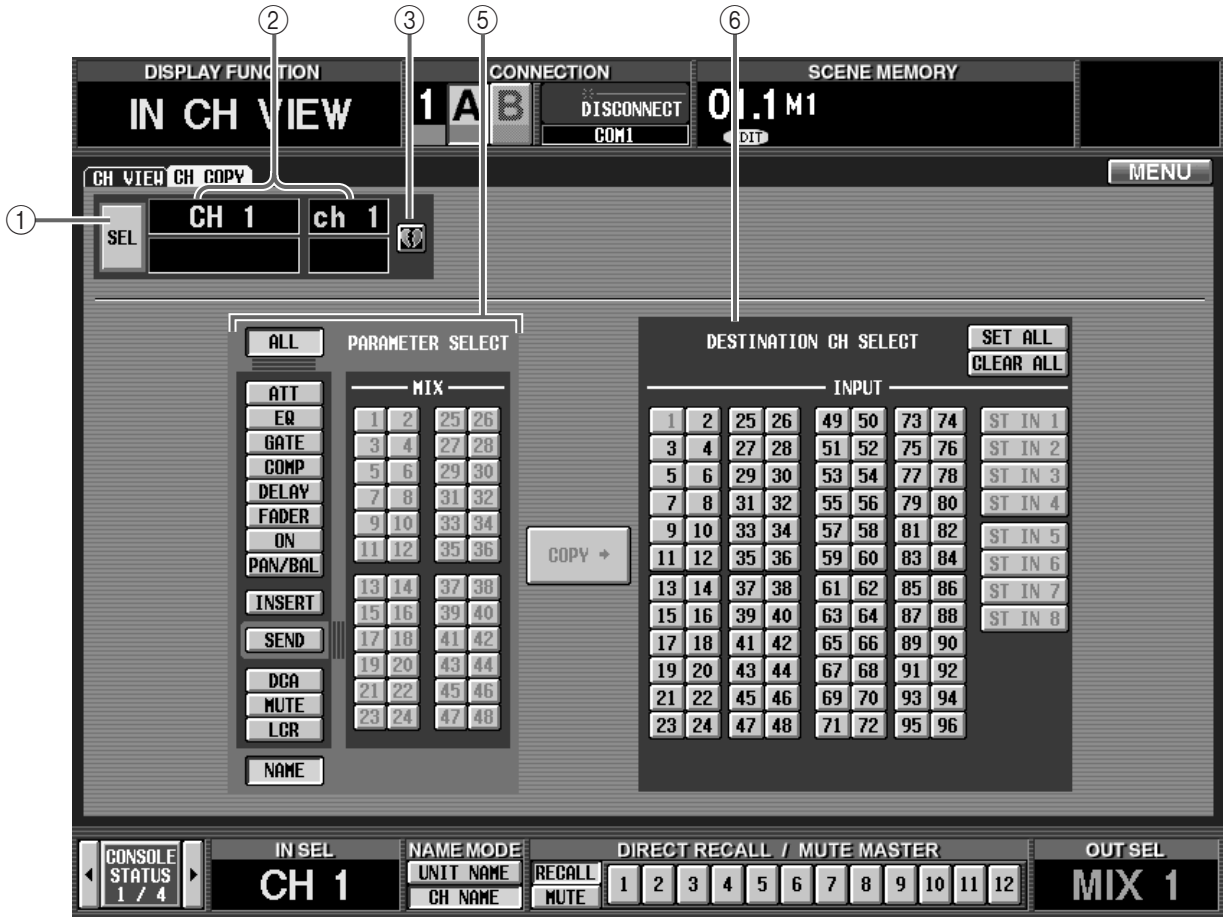
⚠ In the MIDI CTRL CHANGE screen (MIDI/GPI/TC function), the variable range of the [INPUT CH ATT] parameter that can be assigned to a control change has also been extended to the range shown above. Please note that this is not compatible with the control change values in V1.5 and earlier.

## Global Channel Copy

Now you can choose desired parameters from the currently selected channel, and copy them to multiple channels of the same type in a single operation. This function is called “Global Channel Copy.”

### CH COPY screen

To allow you to use the Global Channel Copy function, a CH COPY screen has been added to the IN CH VIEW function and to the OUT CH VIEW function.



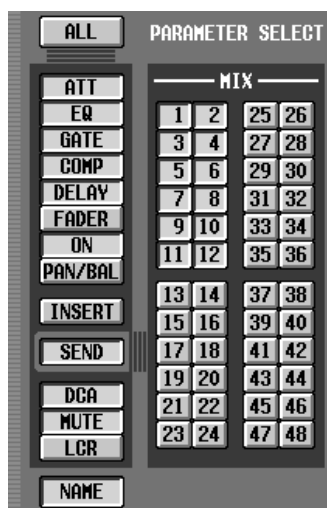


- ① **SEL (select the copy-source channel)**  
Selects the copy-source channel. The procedure is the same as for the identically-named button in CH VIEW.
- ② **Channel number/name**  
Displays the number and short name (or unit name) of the copy-source channel.
- ③ **Pair setting**  
Indicates the pairing status of the channel that is selected as the copy-source. You can also click this button to enable/disable pairing.
- ④ **WITHOUT MIX SEND/WITH MIX SEND button (only in the OUT CH VIEW function CH COPY screen)**  
When a MIX channel is selected as the copy-source, this button selects whether the send levels of the signals sent from each input channel to that MIX bus will be copied. These two buttons are valid only if the PARAMETER SELECT: ALL button is on.
- ⑤ **PARAMETER SELECT**  
Selects the parameter to be copied.
- ⑥ **DESTINATION CH SELECT (select the copy-destination channels)**  
Selects the copy-destination channels. Buttons corresponding to the copy-source channel and buttons for channels of types differing from the copy-source channel will be grayed-out, and cannot be selected.

## Using the Global Channel Copy function

1. Access the CH COPY screen of the IN CH VIEW or OUT CH VIEW function.
  2. Press a [SEL] switch to select the desired copy-source input channel or output channel.  
Alternatively, you can select the copy-source by clicking a SEL button in the screen to access the CHANNEL SELECT popup window.
- ⚠ If you change the copy-source, all settings in the PARAMETER SELECT area and the DESTINATION CH SELECT area will be cancelled.
3. Use the buttons in the PARAMETER SELECT area to select the parameters that you want to copy.  
The following parameters can be selected.

- IN CH VIEW function CH COPY screen



- ALL..... All parameters except for NAME
- ATT ..... Attenuator
- EQ ..... EQ function settings
- GATE..... GATE function settings
- COMP ..... COMP function settings
- DELAY ..... DELAY function settings
- FADER..... Fader level

- ON..... [ON] switch on/off status
- PAN/BAL..... Pan/balance setting
- INSERT ..... Insert on/off and insert position
- SEND..... Send level to the specified MIX bus(es)
- DCA..... DCA groups to which the channel belongs
- MUTE..... Mute groups to which the channel belongs
- LCR..... Settings of the LCR screen
- NAME..... Name of the input channel



- If the SEND button is on, use the MIX area at the right to select the send-destination MIX bus(es). (You may select more than one.)
- If you click the ALL button, all parameters except for NAME will be selected. At this time, all MIX buses will be selected for the SEND parameter.

• **OUT CH VIEW function CH COPY screen**



- **ALL**..... All parameters except for NAME
- **EQ** ..... EQ function settings
- **COMP** ..... COMP function settings
- **DELAY** ..... DELAY function settings
- **FADER** ..... Fader level
- **ON**..... [ON] switch on/off status
- **BAL** ..... Balance setting (valid only for STEREO A/B channels or paired MIX/MATRIX channels)
- **INSERT**..... Insert on/off and insert position
- **TO MTRX**..... Send level to the specified MATRIX buses (valid only for STEREO A/B channels or MIX channels)
- **DCA** ..... DCA groups to which the channel belongs
- **MUTE** ..... Mute groups to which the channel belongs
- **LCR** ..... Settings of the LCR screen
- **NAME** ..... Name of the output channel



- If a MIX channel or STEREO A/B channel is selected and the TO MTRX button is turned on, use the MATRIX area at the right to select the destination MATRIX bus(es).
- If you click the ALL button, all parameters except for NAME will be selected. At this time, all MIX buses will be selected for the TO MTRX parameter.

Only if you select a MIX channel in the OUT CH VIEW function CH COPY screen, and turn on the ALL button, will you also be able to choose whether send levels for signals sent from input channels to the MIX bus will be copied as well. To make this setting, use the following two buttons located at the left of the ALL button.

• **WITHOUT MIX SEND button**

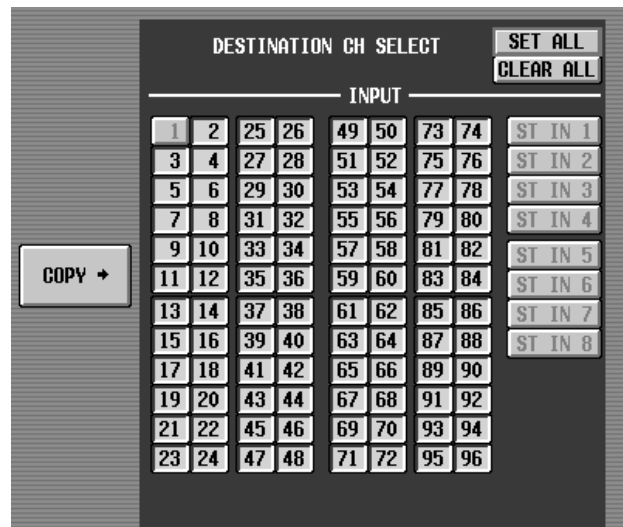
If this button is on, the send level of signals sent from each input channel to the corresponding MIX bus will not be copied.

• **WITH MIX SEND button**

If this button is on, the send level of signals sent from each input channel to the corresponding MIX bus will be copied as well.

Since not only the settings of the MIX channel but also the send levels from the input channels to the MIX bus will be copied completely, this is convenient when you want to change the MIX bus you are using.

4. **In the DESTINATION CH SELECT area, select the copy-destination channel(s).**



Buttons for the copy-source channel and for channels of a type differing from the copy-source channel will be grayed-out, and cannot be selected. However as an exception, it is possible to copy between two paired input channels and a ST IN channel.



By clicking the SET ALL button you can select all items. By clicking the CLEAR ALL button you can de-select all items.

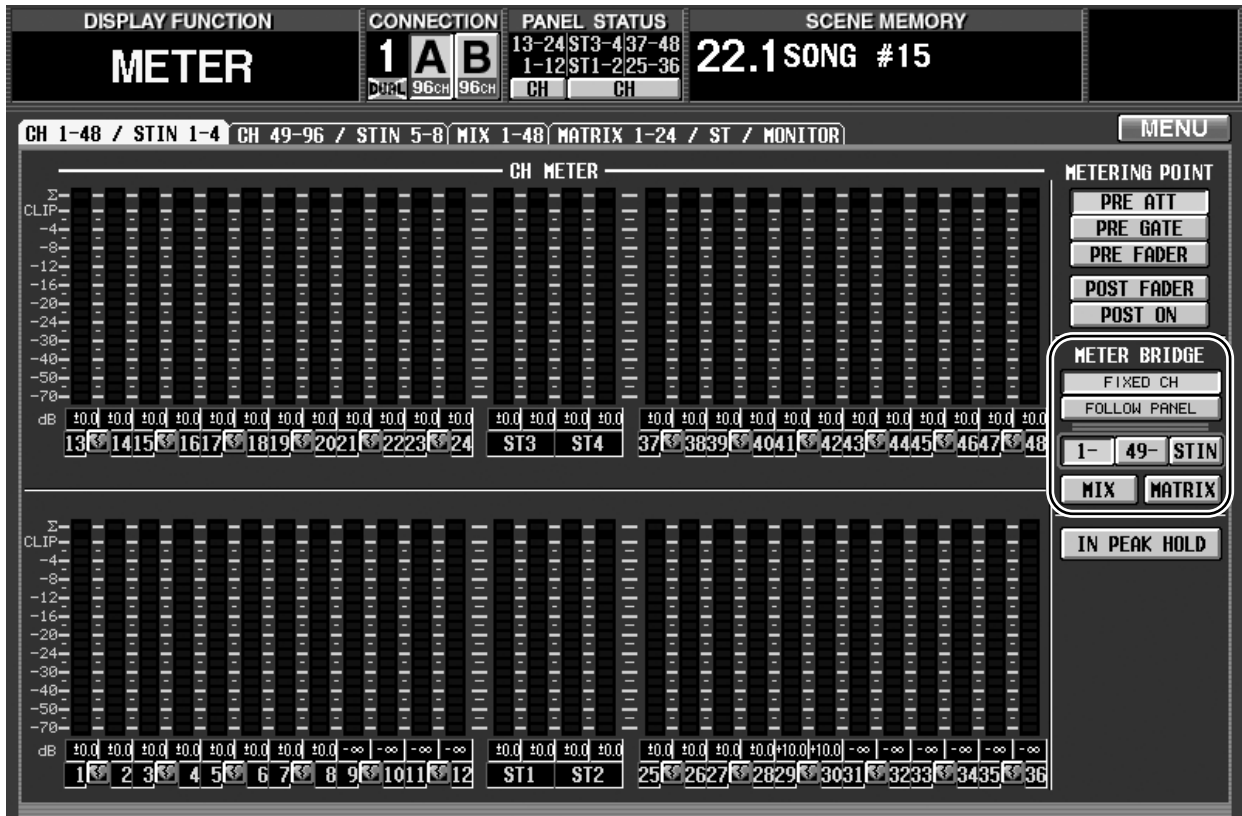
5. **To execute the copy, click the COPY→ button located in the center of the screen.**

# Input Meter Bridge

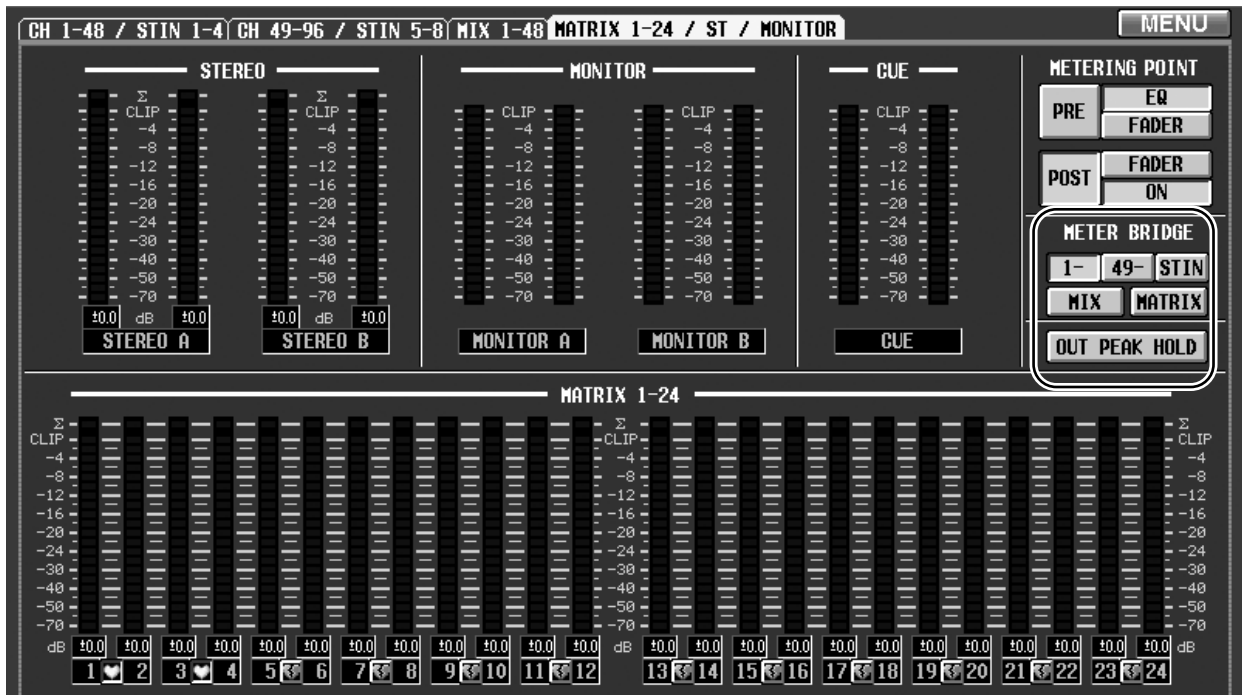
The meter bridge can now display the levels of input channels and ST IN channels. The display can be switched from within the screen or from the panel.

A METER BRIDGE area has been added to all screens of the METER function, allowing you to switch the meter bridge display. (However, the MIX 1-48 screen and MATRIX 1-24/ST/MONITOR screen do not show the FIXED CH button and FOLLOW PANEL button explained below.)

- CH 1-48/STIN 1-4 screen



- MATRIX 1-24/ST/MONITOR screen



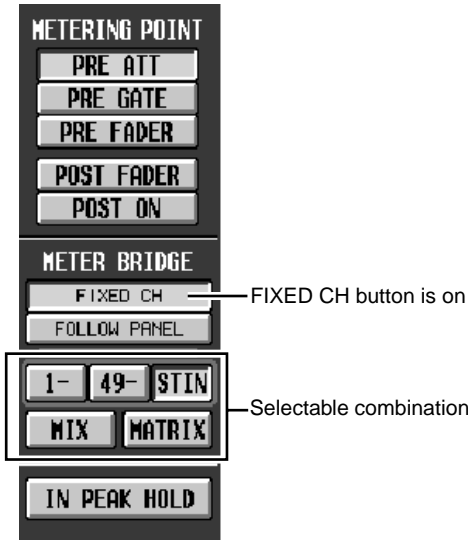
In the CH 1-48/STIN 1-4 screen or the CH 49-96/STIN 5-8 screen, use the buttons of the METER BRIDGE area to select the mode by which the meter bridge will display the input channel levels. You can choose FIXED CH mode or FOLLOW PANEL mode. The display in the METER BRIDGE area and the operation of the meter bridge will change as follows, according to the mode you choose.

⚠ PM1D Manager is not able to display input channel levels in the meter bridge. However, the PEAK HOLD button of PM1D Manager will change to “IN PEAK HOLD” or “OUT PEAK HOLD” just as in the CS1D screen.

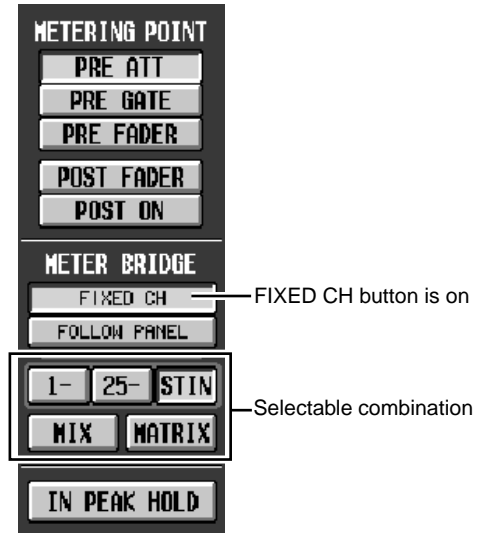
### FIXED CH mode

When the FIXED CH button is on, the combination of input channels displayed in the meter bridge will always be fixed.

• **Horizontal pairing mode**



• **Vertical pairing mode**



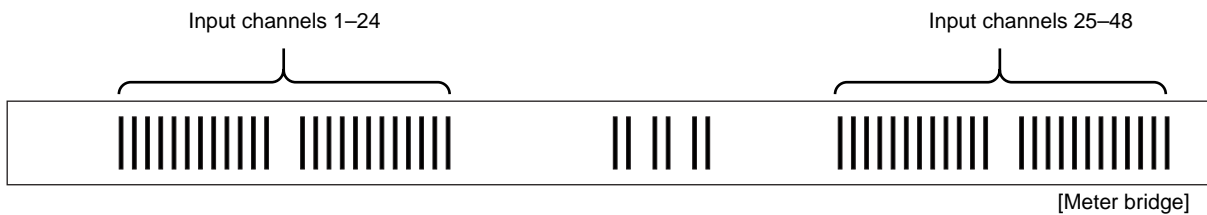
Use the following buttons to select the combination that is displayed.

• **1- button**

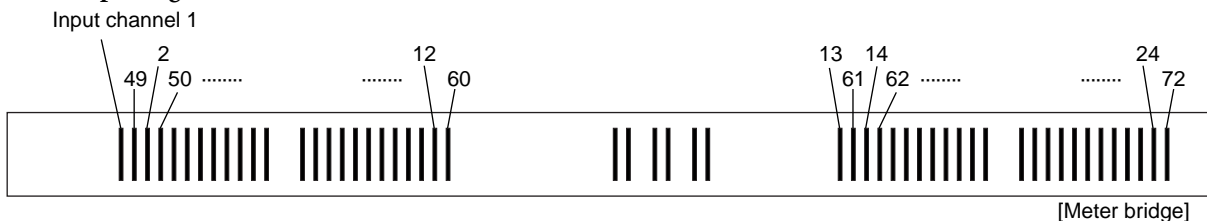
(Selectable only if the FIXED CH button is on)

When this button is on, the meters will always display the levels of input channels 1–48 (if Vertical pairing mode is selected, channels 1, 49, 2, 50...24, 72) regardless of the currently selected panel assignment or layer.

**Horizontal pairing mode**

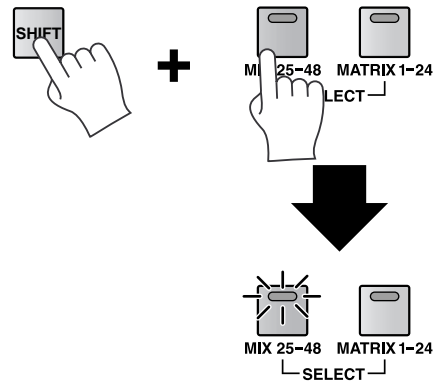


**Vertical pairing mode**



At this time, the MIX/MATRIX bus number LED located at the bottom of the meter bridge will go dark. In the METER section, the METER SELECT [MIX 25-48] switch will blink, and the [MATRIX 1-24] switch will go dark.

You can also hold down the top panel [SHIFT] switch and press the METER section METER SELECT [MIX 25-48] switch to make the meter bridge show the input levels of the input channels. In this case as well, only the METER SELECT [MIX 25-48] switch will blink, and the above [I-] button will automatically be turned on.



• [49-] button

(Selectable only if the FIXED CH button is on. Displayed as 25- in Vertical pairing mode.)

When this button is on, the meters will always display the levels of input channels 49–96 (if Vertical pairing mode is selected, channels 25, 73, 26, 74...48, 96) regardless of the currently selected panel assignment or layer.

**Horizontal pairing mode**

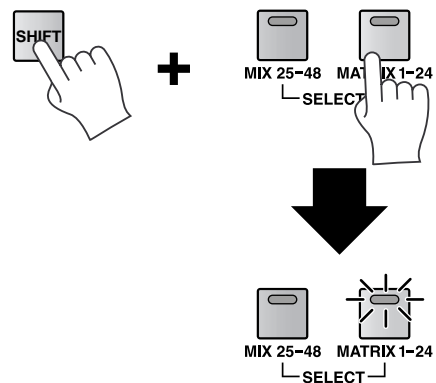


**Vertical pairing mode**



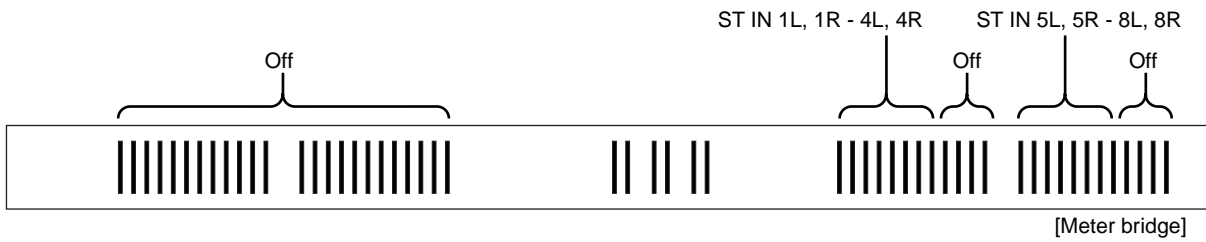
At this time, the MIX/MATRIX bus number LED located at the bottom of the meter bridge will go dark. In the METER section, the METER SELECT [MIX 25-48] switch will go dark, and the [MATRIX 1-24] switch will blink.

You can also hold down the top panel [SHIFT] switch and press the METER section METER SELECT [MATRIX 1-24] switch to make the meter bridge show the input levels of the input channels. In this case as well, only the METER SELECT [MATRIX 1-24] switch will blink, and the above [49-] button will automatically be turned on.



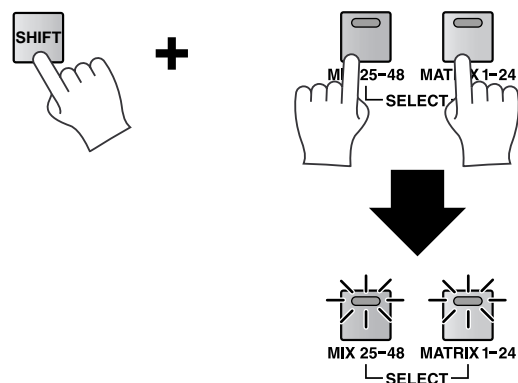
• **STIN** button

When this button is on, the twenty-four meters at the right of center will display the levels of ST IN 1–8 in the locations shown in the following diagram. While this button is on, the ST IN 1–8 levels will always be displayed in the same location, even in FOLLOW PANEL mode.



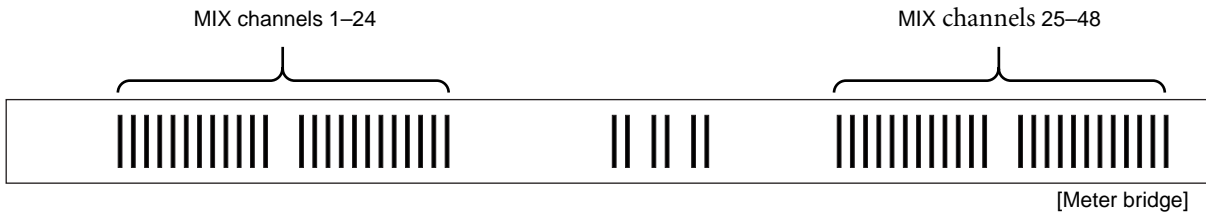
At this time, the MIX/MATRIX bus number LED located at the bottom of the meter bridge will go dark. In the METER section, the METER SELECT [MIX 25-48] switch and [MATRIX 1-24] switch will both blink.

By holding down the top panel [SHIFT] switch and simultaneously pressing the METER SELECT [MIX 25-48] switch and [MATRIX 1-24] switch in the METER section, you can also make the meter bridge display the ST IN channel input levels. In this case, the METER SELECT [MIX 25-48] switch and [MATRIX 1-24] switch will simultaneously blink, and the above-mentioned **STIN** button will automatically turn on.



• **MIX** button

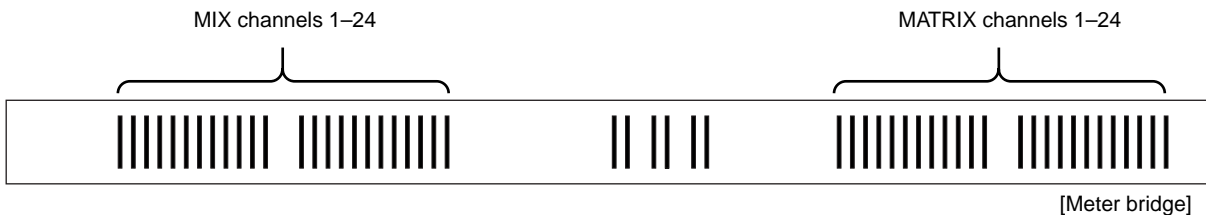
When this button is on, the forty-eight meters at left and right will display the output levels of MIX channels 1–48. This button is linked with the METER section METER SELECT [MIX 25-48] switch.



At this time, the MIX/MATRIX bus number LED located at the bottom of the meter bridge will light. In the METER section, the METER SELECT [MIX 25-48] switch will light, and the [MATRIX 1-24] switch will go dark.

• **MATRIX** button

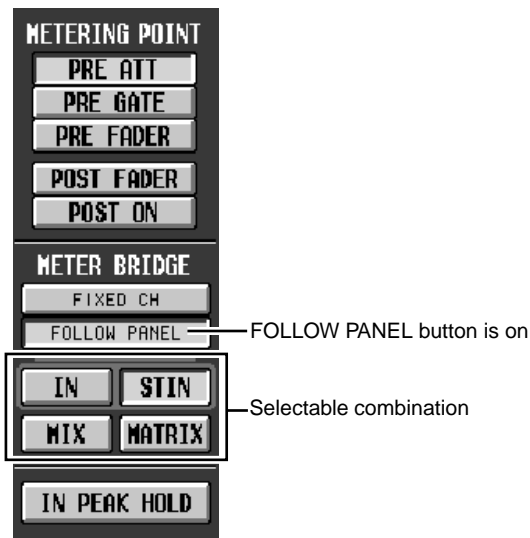
When this button is on, the output levels of MIX channels 1–24 will be displayed at the left of center, and the output levels of MATRIX channels 1–24 will be displayed at the right of center. This button is linked with the METER section METER SELECT [MIX 25-48] switch.



At this time, the MIX/MATRIX bus number LED located at the bottom of the meter bridge will light. In the METER section, the METER SELECT [MIX 25-48] switch will go dark, and the [MATRIX 1-24] switch will light.

## FOLLOW PANEL mode

When the FOLLOW PANEL button is on, the combination of input channels displayed in the meter bridge will vary depending on the type of input channels that are currently assigned to the INPUT blocks.

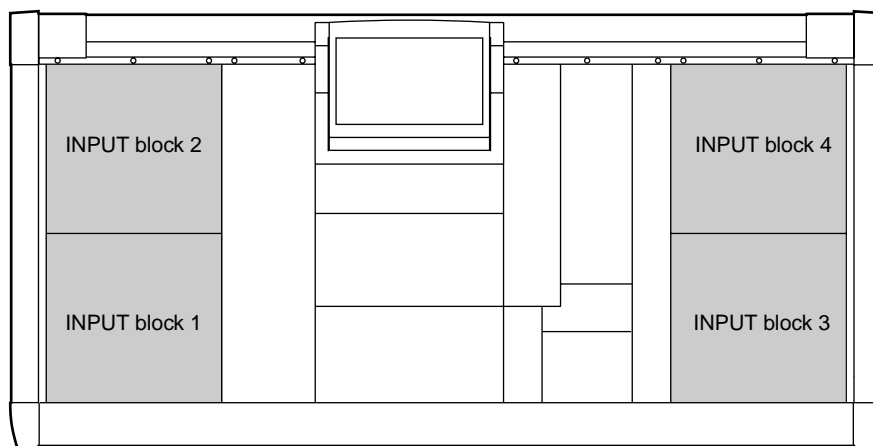
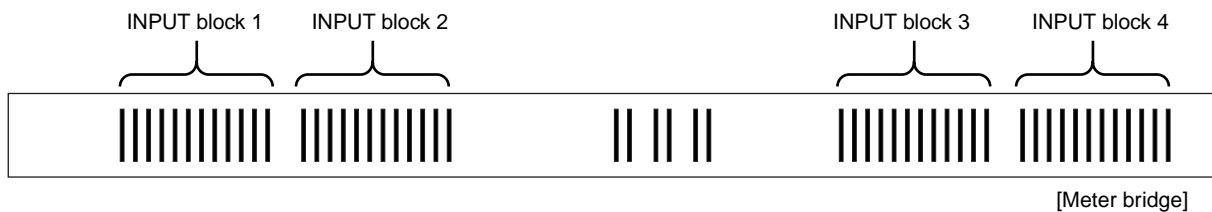


Use the following buttons to select the combination that will be displayed.

- **IN** button

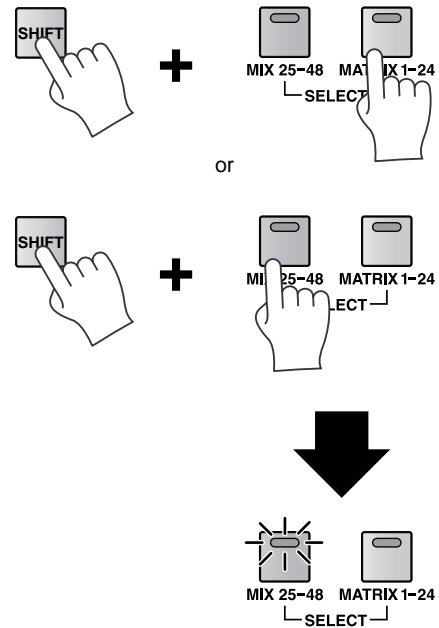
(Selectable only when the FOLLOW PANEL button is on)

When this button is on, the forty-eight meters at left and right will display the input levels of the input channels currently assigned to INPUT blocks 1-4.



At this time, the MIX/MATRIX bus number LED located at the bottom of the meter bridge will go dark. In the METER section, the METER SELECT [MIX 25-48] switch will blink, and the [MATRIX 1-24] switch will go dark.

You can also hold down the top panel [SHIFT] switch and press the METER section METER SELECT [MIX 25-48] switch or [MATRIX 1-24] switch to make the meter bridge show the input levels of the input channels. In this case as well, only the METER SELECT [MIX 25-48] switch will blink, and the above **IN** button will automatically be turned on.



At this time, the MIX/MATRIX bus number LED in the lower part of the meter bridge will go dark.

- **ST IN** button  
The same display will appear as when the ST IN button is turned on in FIXED CH mode.
- **MIX** button  
The same display will appear as when the MIX button is turned on in FIXED CH mode.
- **MATRIX** button  
The same display will appear as when the MATRIX button is turned on in FIXED CH mode.

- ⚠ While the meter bridge shows the input channel or ST IN channel levels, the panel switches in the METER section will operate differently, as follows.
- The METER [PRE] switch cannot be operated. However if PRE ATT/PRE GATE / PRE FADER is selected as the metering point, the METER [PRE] switch LED will blink.
  - While the METER screen IN PEAK HOLD button is on, the METER [PEAK HOLD] switch LED will blink.



## Parameter Lock/Console Lock

In V1.6, the user can specify a password, and disable changes in specified parameters (Parameter Lock) or prohibit console operations (Console Lock) until the correct password is input. This function is a convenient way to prevent an unauthorized third party from tampering with the console while the engineer is resting.

There are two types of password; a “**system password**” that is common to the entire system, and a “**console password**” that can be set for the individual console. These two may be set individually. Specifying the system password allows you to use the Parameter Lock and Console Lock functions. Specifying the console password allows you to use only the Console Lock function.

### SECURITY screen

A SECURITY screen has been added to the UTILITY function, allowing you to input passwords and enable or defeat Parameter Lock or Console Lock.



#### ① SYSTEM PASSWORD

This specifies the password for the entire system. When using DUAL CONSOLE mode, the system password is common to both consoles.

#### ② PARAMETER LOCK

When you turn this button on, the parameters selected in the LOCK PARAMETER SELECT area (④) will be locked.

⚠ If not even one parameter has been selected, this button will be grayed-out, and cannot be turned on.

#### ③ CONSOLE LOCK

This button locks the console. You must input the System Password in order to use this button to enable/defeat Console Lock.



- ④ **LOCK PARAMETER SELECT**  
If the PARAMETER LOCK button is on, this area lets you select the parameter(s) for which change will be disabled. (You may select more than one parameter.)

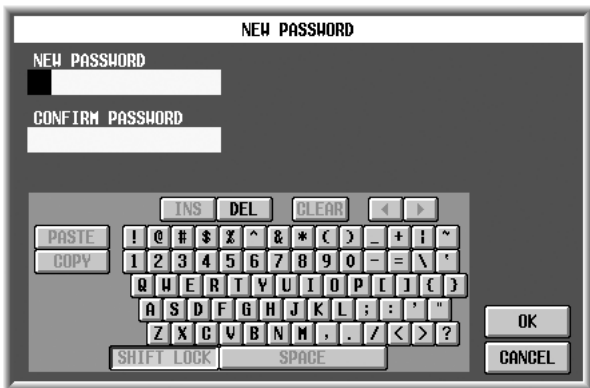


- ⑤ **CONSOLE PASSWORD**  
This specifies the password for the individual console. When using DUAL CONSOLE mode, this password can be specified individually for each console.
- ⑥ **CONSOLE LOCK**  
This button locks the console. You must input the Console Password in order to use this button to enable/disable Console Lock.

### Setting the System Password/Console Password

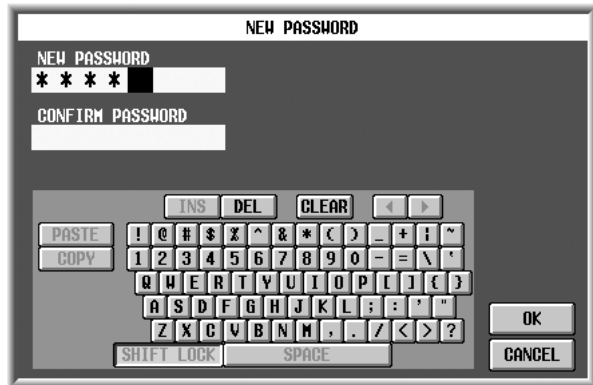
Here's how to set the password required for the Parameter Lock or Console Lock functions.

1. Access the UTILITY function SECURITY screen.
2. To set the System Password, click the SYSTEM PASSWORD button. To set the Console Password, click the CONSOLE PASSWORD button. The NEW PASSWORD popup window will appear.

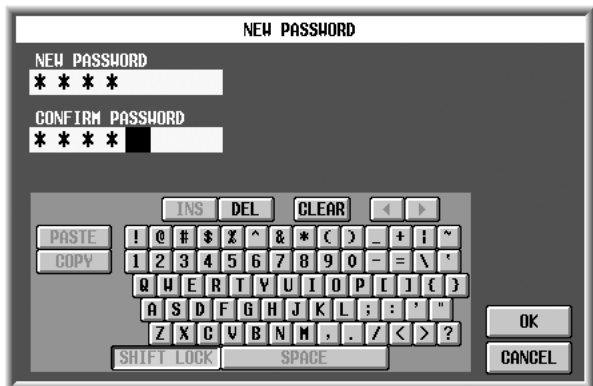


- If you want to change an existing password, input the current password into the AUTHORIZATION popup window that appears when you click SYSTEM PASSWORD, and then execute steps 2–5.
- If you want to remove the password, input the current password into the AUTHORIZATION popup window that appears when you click SYSTEM PASSWORD, then execute steps 2–5 with NEW PASSWORD and CONFIRM PASSWORD left blank, and click the OK button.

3. **Make sure that the cursor is located at the NEW PASSWORD field, and use the character palette to input a password of up to eight characters.**  
All characters of the character palette except for SPACE may be used in the password. Uppercase and lowercase characters are not distinguished. (The SHIFT LOCK button in the text palette will remain on.) The characters you input will be displayed as "\*" (asterisks).




4. Click the CONFIRM PASSWORD field to move the cursor there, and input the same password once again for confirmation.



While the NEW PASSWORD or AUTHORIZATION popup windows are displayed, the COPY, PASTE, SPACE, INS, ←, and → buttons of the character palette cannot be used. Also, the DEL button will have the same function as the Backspace key of the keyboard.

### 5. Click the OK button.

The popup window will close, you will return to the previous screen, and the new password will take effect.

-  • If the passwords you input in the NEW PASSWORD field and CONFIRM PASSWORD field are different, a warning message will be displayed, and the password will not be changed.

- Please be aware that if you forget the system password, the only way to unlock the system is to initialize the memory.
- The system password is remembered even if the console is powered-off.

## Parameter Lock

### 1. In the LOCK PARAMETER SELECT area, select the parameter(s) for which you want to disable operation. (You may select more than one.)

The following parameters correspond to each button.

- **SYSTEM CONFIGURATION**  
Changing the operation mode of the console/engine, changing the cascade mode
- **WORD CLOCK SETUP**  
Changing the word clock setting
- **UNIT OUT/ST OUT DITHER**  
Changing the dither-related settings of output units and stereo output
- **INPUT PATCH**..... Changing the input patch settings
- **OUTPUT PATCH**..... Changing the output patch settings
- **INPUT CH ON/OFF**.... Switching input channels on/off
- **OUTPUT CH ON/OFF**. Switching output channels on/off
- **MIX TO ST ON/OFF** .... Operating the MIX [TO ST] switch of a MIX channel
- **DCA MUTE ON**..... Turning on the DCA [MUTE] switch



The DCA MUTE ON item only prohibits turning the DCA [MUTE] switch from off to on. Even if this item is selected, it will be possible to switch the DCA [MUTE] switch from on to off.

### 2. Click the PARAMETER LOCK button.


The AUTHORIZATION popup window will appear, asking you to input the password.

### 3. Input the password and click the OK button.

The PARAMETER LOCK button will turn on, and a message of “SOME PARAMETERS WERE LOCKED” will appear at the bottom of the screen.

If in this state, you attempt to modify locked parameters in the screen or on the panel, a warning message will appear. (If you are using DUAL CONSOLE mode, the message will appear only on the console that was operated.)

Even if parameters are locked, recalling a scene will generally disable the lock, and the settings will be overwritten by the recalled content. However, the following exceptions apply.

- If a scene is recalled while input patch/output patch is locked, the patch settings will not change.
  - If a scene is recalled while dither settings are locked, the unit dither settings will not be recalled.
  - If a unit library or scene with different unit assignments is recalled, the unit/patch settings will be overwritten by the recalled content regardless of the parameter lock setting.
  - When you undo a scene recall, the input patch, output patch, and dither settings will be undone regardless of the parameter lock setting.
  - In PREVIEW mode, parameter lock applies only to the current scene. Even the locked parameters can be operated freely for a recalled scene.
  - Since settings of the SYSTEM CONFIGURATION and WORD CLOCK screens are not part of a scene, they will be locked even in PREVIEW mode.
- 4. To defeat Parameter Lock, access the UTILITY function SECURITY screen, and click the PARAMETER LOCK button.**  
The AUTHORIZATION popup window will appear, asking you to input the password.
- 5. Input the password and click the OK button.**  
Parameter Lock will be defeated.
-  • If you lock parameters when using Dual Console mode, Parameter Lock will apply to both consoles.
  - If two engines are cascade-connected, and you lock parameters on one system, the other system will not be affected.
  - If you forget the system password, you will need to initialize the memory. (Refer to “CS1D Reference Manual (Software),” p.194)

## Console Lock

There are two ways to set/defeat Console Lock; by using the System Password or by using the Console Password. The two methods are the same in that you are disabling/enabling operations on the currently-operated console. However while the **console password will be reset when you turn power off and on again, the system password will not be reset until you initialize the memory.**

Console Lock will be defeated when the power of the console is turned off and then on again.

1. **Access the UTILITY function SECURITY screen.**
2. **Click the CONSOLE LOCK button.**

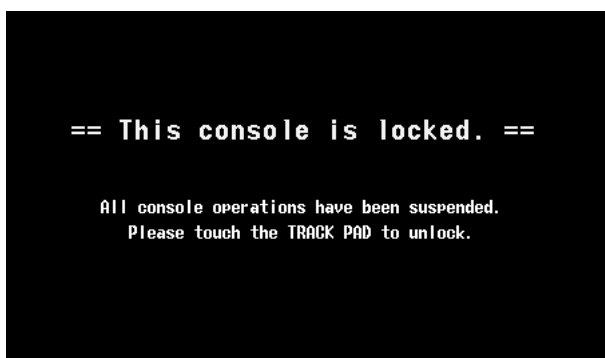
If you want to use the system password, click the CONSOLE LOCK button in the SYSTEM PASSWORD area. If you want to use the console password, click the CONSOLE LOCK button in the CONSOLE PASSWORD area.

The corresponding AUTHORIZATION popup window will appear, asking you to input the password.



3. **Input the appropriate password and click the OK button.**

The following screen will appear, and the faders, controls, and keys of the console will no longer be operable.



- ⚠ Be aware that the cursor keys or ENTER key of the panel cannot be used to defeat Console Lock.



While the console is locked, all display components of the panel will go dark except for the meter bridge. Also, operating any of the controls except for the track pad will have no effect. When lock is defeated, the faders will return to the positions in which they were prior to being locked.

- ⚠ If you are using Dual Console mode, operations on an unlocked console are valid even if one console is locked.

4. **To defeat Console Lock, operate the track pad, external mouse, or external keyboard.**  
The AUTHORIZATION popup window will appear, asking you to input the password.

5. **Input the appropriate password and click the OK button.**

If the password is correct, the popup window will close and the normal screen will reappear.

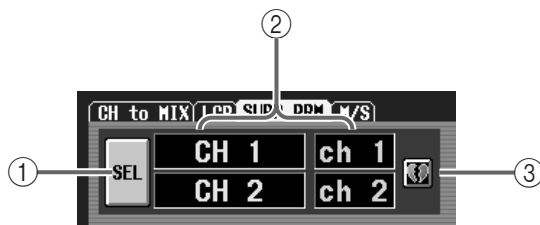
## Surround panning

Surround panning between multiple output channels is now possible; something that could not be done using the LR PAN of previous versions.

To move the sound image, you can use the track pad, mouse, CURSOR [◀]/[▶]/[▲]/[▼] switches, panel encoders, or MIDI control change messages.

### SURR PRM screen

A SURR PRM screen has been added to the PAN/ROUTING function, allowing you to set surround parameters and perform surround panning operations.



#### ① SEL (channel select)

Selects the input channel/ST IN channel for which you will perform surround panning.

In the SURR PRM screen you can set surround parameters in units of two channels.

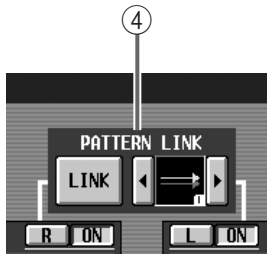
#### ② Channel number/name

Indicates the number and short name (or unit name) of the channel.

#### ③ Pairing

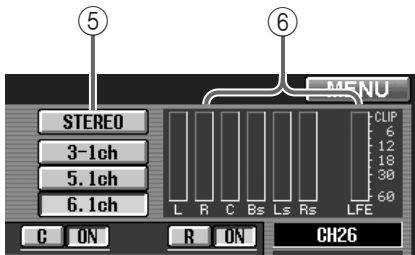
Indicates the pairing status of the selected channels. You can click this button to set/defeat pairing.

⚠ Even if input channels are paired, surround parameters are not linked except for the on/off setting of the sends to each mix channel (MIX 17–24).



④ **PATTERN LINK buttons**

Specify whether movements of the sound image will be linked for the two channels shown in the screen. If you want them to be linked, use the ◀ button and ▶ button to select one of the eight link patterns.

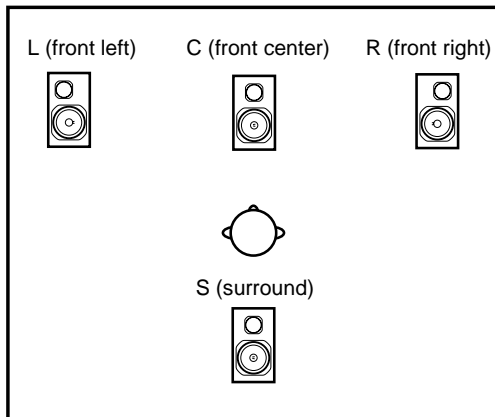


⑤ **Surround mode select buttons**

Select one of the following three surround modes.

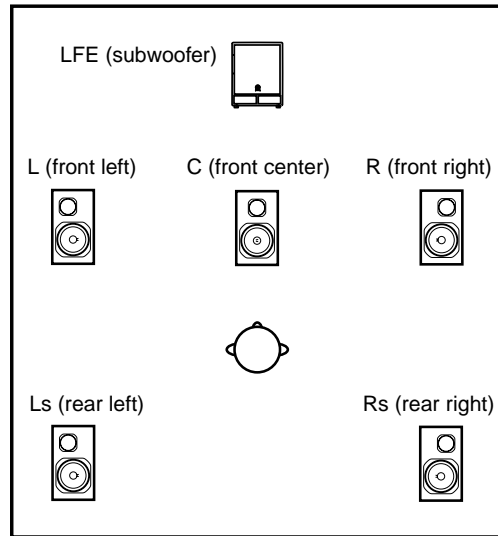
• **3-1ch**

This mode uses four channels; L (front left), C (front center), R (front right), and S (surround).



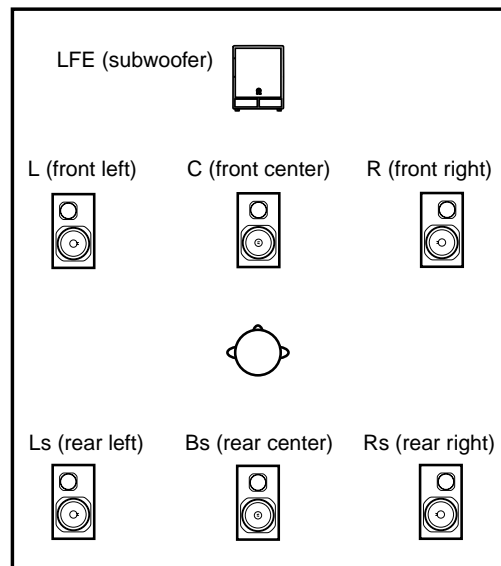
• **5.1ch**

This mode uses six channels; L (front left), C (front center), R (front right), Ls (rear left), Rs (rear right), and LFE (subwoofer).



• **6.1ch**

This mode uses seven channels; the channels of 5.1ch and a Bs (rear center) channel.



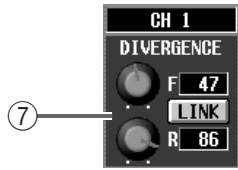
⑥ **Level meters**

These meters indicate the master level of the surround buses.



Be aware that the level meters in the SURR PRM screen show the final levels of the surround buses; they do not show the send levels that are being sent from the input channel to the surround bus.

• If surround mode = 6.1ch



⑦ DIVERGENCE

These parameters specify the balance (0–100) at which a signal panned to the center will be sent to the center buses (C, S, Bs) and the left/right buses (L, R, Ls, Rs). With a setting of 0, the signal will be sent only to the left/right buses. With a setting of 100, the signal will be sent only to the center buses. With a setting of 50, the same level will be sent to the left/right buses and the center buses.

If 6.1ch is selected as the surround mode, the screen will show an F knob that adjusts the front divergence, an R knob that adjusts the rear divergence, and a LINK button between them.

The LINK button links the front and rear divergence. If you switch this button on, the value of the F knob will be copied to the R knob, and the F knob and R knob values will be linked.

If 3-1ch or 5.1ch are selected as the surround mode, the screen will show only a knob that adjusts the front divergence.

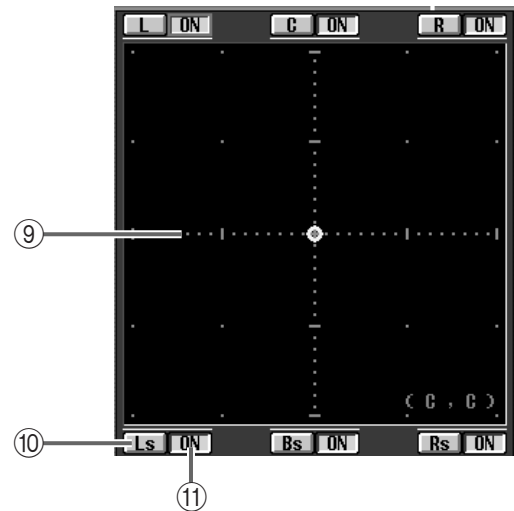
• If surround mode = 3-1ch or 5.1ch



⑧ LFE (Low Frequency Effects) knob

Adjusts the output level of the signal sent from the input channel to the LFE (Low Frequency Effects) bus for the subwoofer. The signal sent from the input channel to the LFE bus can be switched on/off by the ON/OFF button.

This knob and button will appear only if the surround mode is 5.1ch or 6.1ch.



⑨ Surround pan grid

Adjusts the surround panning centered on the listening point. The current position is shown by the ○ symbol.

⑩ Panning buttons

These buttons correspond to the surround buses. If you move the cursor to a button and press the [ENTER] switch, the panning will move to that position.

⑪ Surround bus ON/OFF buttons

The signal sent from the input channel to each surround bus can be switched on/off using these buttons.

## Internal settings and operation in surround mode

When either 3-1ch, 5.1ch, or 6.1ch is selected as the surround mode in the SURR PRM screen, the internal settings and operation of the PM1D system will change as follows.

### ■ Surround buses

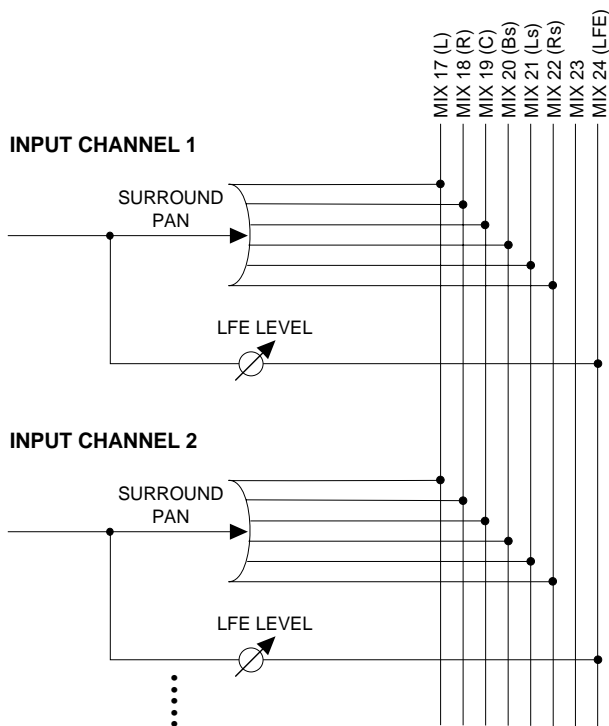
MIX buses 17–24 will be switched to operate as dedicated surround buses. The following surround channels will be assigned to MIX buses 17–24 according to the currently selected surround mode.

- Surround channel output destination

Surround mode	MIX bus 17	MIX bus 18	MIX bus 19	MIX bus 20	MIX bus 21	MIX bus 22	MIX bus 23	MIX bus 24
3-1ch	L	R	C	S	—	—	—	—
	Front left	Front right	Front center	Surround				
5.1ch	L	R	C	—	Ls	Rs		LFE
	Front left	Front right	Front center		Rear left	Rear right		Subwoofer
6.1ch	L	R	C	Bs	Ls	Rs	—	LFE
	Front left	Front right	Front center	Rear center	Rear left	Rear right		Subwoofer

For example if 6.1ch is selected as the surround mode, the surround panning signal flow will be as follows.

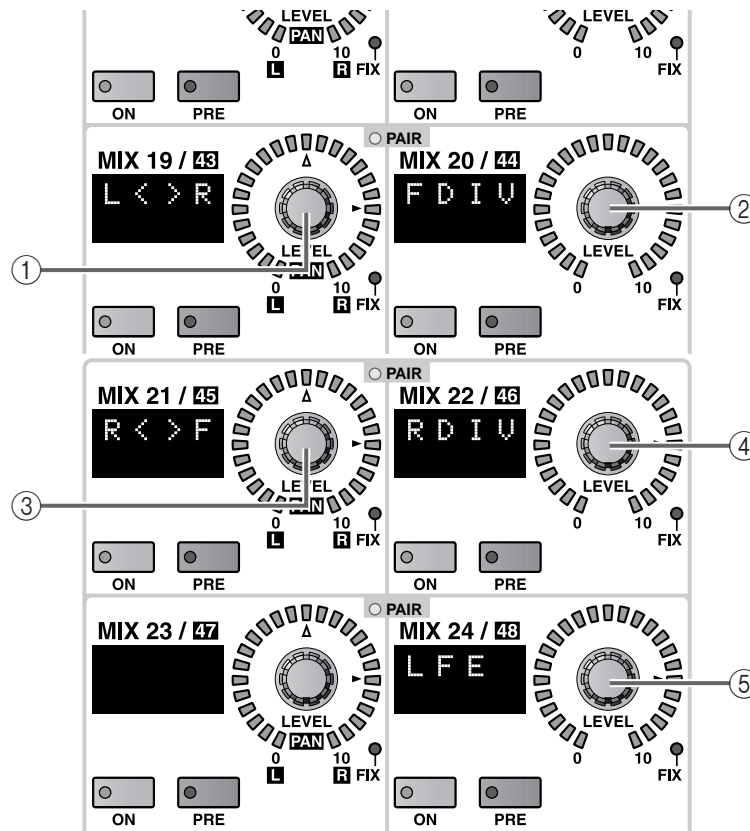
- Signal flow when surround mode = 6.1ch





## ■ SELECTED INPUT CHANNEL block

In the SELECTED INPUT CHANNEL block MIX SEND section, the illumination of MIX SEND [NAME] indicators 17–24 and the movement of MIX SEND [LEVEL/PAN] encoders 17–24 will change as follows, according to the currently selected surround mode.



- ① **L<>R**  
This encoder functions as a controller that moves the surround pan of the currently selected channel between left and right.
- ② **FDIV**  
This encoder functions as a controller that controls the front divergence of the currently selected channel. Turning the encoder toward the right increases the value.  
This is linked with the knob displayed in the SURR PRM screen DIVERGENCE area (if the surround mode = 6.1ch, this will be the F knob).
- ③ **R<>F**  
This encoder functions as a controller that moves the position of the currently selected channel between front and rear.
- ④ **RDIV (6.1ch only)**  
This encoder functions as a controller that controls the rear divergence of the currently selected channel. Turning the encoder toward the right increases the value.  
If the surround mode is 6.1ch, this is linked with the R knob displayed in the DIVERGENCE area.
- ⑤ **LFE (5.1ch/6.1ch only)**  
This encoder controls the send level of the signal sent from the currently selected channel to the LFE surround bus (MIX bus 24).

Turning the encoder toward the right increases the value.

If the surround mode is 6.1ch or 5.1ch, this is linked with the LFE knob displayed in the LFE area of the SURR PRM screen.

While surround mode is active, the MIX SEND [LEVEL/PAN] encoders for MIX 17–24 will not function as conventional send level controllers. Also, the MIX SEND [NAME] indicators will not display the MIX bus names.

Instead, the MIX SEND [NAME] indicators will indicate the names of surround mode functions, and the MIX SEND [LEVEL/PAN] encoders for MIX 17–24 will control the functions described in ①–⑤. MIX SEND [LEVEL/PAN] encoders to which no function is assigned will do nothing; their MIX SEND [NAME] indicators will be dark.

However, the MIX SEND [ON] switches 17–24 will indicate the on/off status of the send to each MIX bus as they normally do, and can also be switched on/off.

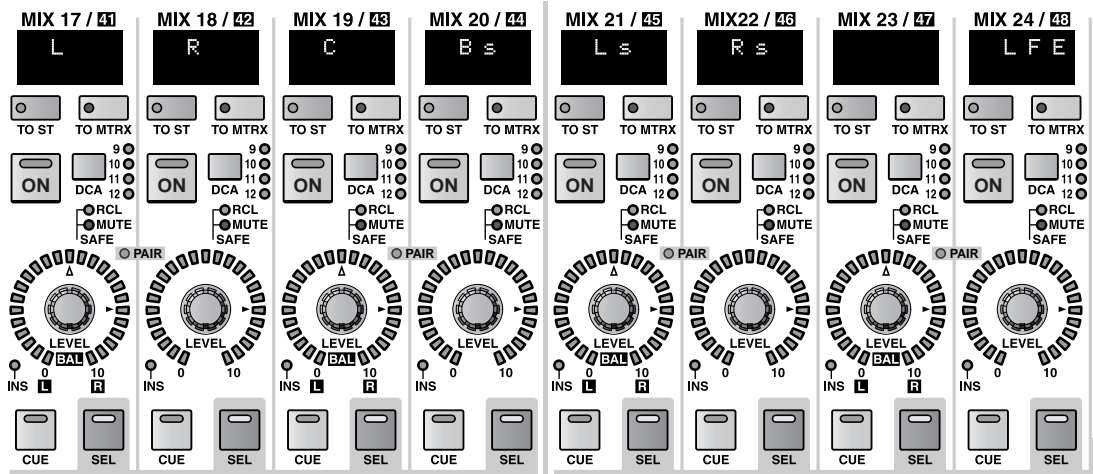
- ⚠ • Note that encoders ①–④ function as controllers that control specific surround parameters; they do not control the send level to the MIX buses. In contrast, encoder ⑤ controls the send level to MIX bus 24 in the usual way.

- MIX SEND [ON] switches 17–24 turn on/off the signals that are sent from an input channel to the corresponding surround bus. (Buses not used by the current surround mode can be operated, but will make no difference.) These are linked with the surround bus ON/OFF buttons in the SURR PRM screen.

- While a surround mode is active, MIX SEND [PRE] switches 17–24 cannot be operated (they are fixed at Post).
- No audio signal at all will be sent to a MIX bus 17–24 to which the current surround mode does not assign a signal.

**MIX OUTPUT block**

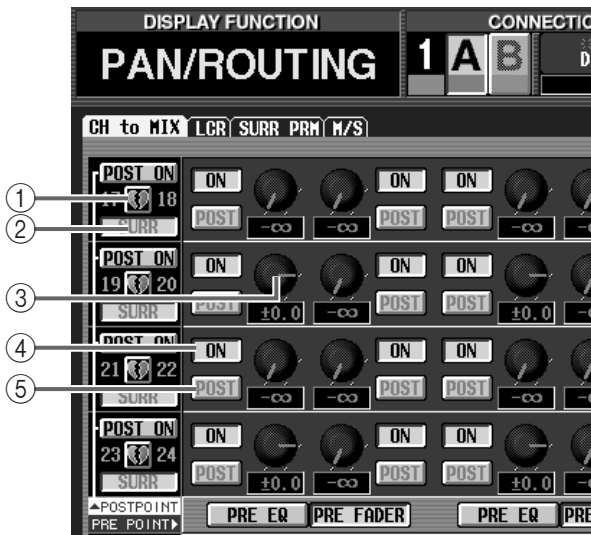
The MIX [NAME] indicators of MIX channels 17–24 will display the names of the surround channels assigned to the MIX channels, according to the currently selected surround mode. These names are set automatically when you switch to surround mode. However, you are free to modify the names afterward.



The encoders of MIX channels 17–24 are used to control the output level of each surround bus.

**CH to MIX screen**

The PAN/ROUTING function CH to MIX screen will change as follows.



- Pairing**  
Pairing for MIX buses 17–24 will be forcibly defeated; they will function as monaural buses. It is not possible to pair MIX buses 17–24 while surround mode is active.
- VARI/FIX indicator**  
The VARI/FIX indicator of MIX buses 17–24 will indicate “SURR.” This setting cannot be changed while surround mode is active.

- Send level**  
The knob and value box indicate the send level of the signal that is sent from the input channel/ST IN channel to MIX buses 17–24. This value is calculated based on the current surround pan settings, and cannot be changed from this screen.
- ON/OFF buttons**  
The ON/OFF buttons for the signals sent from each input channel to MIX buses 17–24 used for surround will all be turned on. (However, you may switch them off afterward.)  
These buttons are linked with the surround bus ON/OFF buttons in the SURR PRM screen, and with SELECTED INPUT CHANNEL block MIX SEND [ON] switches 17–24.
- PRE/POST buttons**  
All signals sent from each input channel to MIX buses 17–24 are set to POST (post fader). This setting cannot be changed while surround mode is active.

- ⚠ When you access the JOB SELECT popup window from the CH to MIX screen, the OK button will be grayed-out and cannot be clicked if MIX buses 17–24 are selected.
- If you copy the send levels to a MIX bus or copy the MIX bus on/off or pre/post settings while surround mode is active, MIX buses 17–24 will be excluded from the operation.

## Making surround pan settings

Here's how to select a surround mode and make surround pan settings for the desired two adjacent channels.

1. According to the surround mode that you wish to use, connect an appropriate playback system to the output units that are patched to MIX channels 17–24.

⚠ If you use 5.1ch or 6.1ch surround mode, you will normally connect a dedicated low-frequency subwoofer to MIX channel 24 (LFE). However, simply switching the surround mode will not change the EQ (filter) settings. You will need to use the EQ (LPF) of MIX channel 24 to remove the high-frequency portion as appropriate for the response of the subwoofer you are using.

2. Access the PAN/ROUTING function SURR PRM screen.
3. Use the surround mode select buttons to select the desired surround mode, and press the [ENTER] switch.

The SURROUND MODE popup window will appear, asking you to confirm that you want to change the surround mode.



4. Move the cursor to the OK button and press the [ENTER] switch.  
The selected surround mode will become active.
5. Press the [SEL] switch of an input channel or ST IN channel (or a SEL button in the screen) to select the channel for which you want to adjust the surround panning.  
The SURR PRM screen always displays the surround parameters for two adjacent channels; surround pan settings are made in units of two channels.
6. Adjust the surround panning of the channel.

You can use any of the following methods to adjust the surround panning.

- **Using the track pad**  
Move the pointer into the surround pan grid of the channel you want to control, and drag the yellow ○ symbol forward, backward, left, or right. (The ○ symbol will turn red while you are dragging it.)
- **Using the cursor switches**  
Move the cursor to the surround pan grid of the channel you want to control, and press the [ENTER] switch. Alternatively, click within the grid and then press the [ENTER] switch. (The ○ symbol will turn red.)

In this state, you can press the CURSOR [◀]/[▶] switches to move the surround panning in the left/right direction, or press the CURSOR [▲]/[▼] switches to move the surround panning in the front/rear direction, over a range of eight steps respectively.

By holding down the [SHIFT] switch and pressing the CURSOR [◀]/[▶]/[▲]/[▼] switches you can rapidly move the surround pan over a range of thirty-two steps in the left/right or front/rear direction.

- **Using the SELECTED INPUT CHANNEL section**  
You can use the SELECTED INPUT CHANNEL section MIX SEND [LEVEL/PAN] encoders to control the surround panning.  
Use the [SEL] switch to select the channel that you want to control. Then turn encoder 19 to move the surround panning left/right, and turn encoder 21 to move it in the front/rear direction in units of one step.
- **Using the panning buttons of the SURR PRM screen**  
If you want to rapidly move the channel signal to the position of a speaker, click one of the panning buttons (such as L, C, R) located at the edge of the surround pan grid in the SURR PRM screen.
- **Using MIDI control changes**  
In V1.6 the following three surround parameters have been added to the MIDI CTRL CHANGE screen as assignable surround parameters.



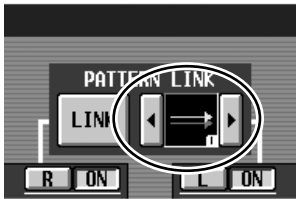
- **[SURR] L-R PAN**  
Controls the left/right surround pan value. Panning will move toward the right as the value increases.
- **[SURR] F-R PAN**  
Controls the front/rear surround pan value. The minimum value pans the sound to the rear, and the maximum value pans it to the front.
- **[SURR] F-R INV.PAN**  
Controls the front/rear surround pan value. The maximum value pans the sound to the rear, and the minimum value pans it to the front.

By assigning these parameters to the desired control change number, the surround panning of a specific input channel or the channel currently selected by its [SEL] switch can be controlled via MIDI.



For details on using control changes, refer to “PM1D System Software V1.5 Supplementary Manual” p.71.

**7. If you want surround pan operations to be linked for two adjacent channels, turn on the PATTERN LINK button, and use the buttons at the right to select a link pattern.**



You can select one of the following eight link patterns.

Pattern 1		The channels will move in the same direction for front/rear and left/right movement.
Pattern 2		The channels will move in opposite directions front/rear, and in the same direction left/right.
Pattern 3		The channels will move in the same direction front/rear, and in opposite directions left/right.
Pattern 4		Odd-numbered channel left/right movement is linked with even-numbered channel rear/front movement; odd-numbered channel front/rear movement is linked with even-numbered channel left/right movement.
Pattern 5		Odd-numbered channel left/right movement is linked with even-numbered channel front/rear movement; odd-numbered channel front/rear movement is linked with even-numbered channel left/right movement.
Pattern 6		Front/rear and left/right movement are both linked in the opposite direction.
Pattern 7		Odd-numbered channel left/right movement is linked to even-numbered channel front/rear movement; odd-numbered channel front/rear movement is linked to even-numbered channel right/left movement.
Pattern 8		Odd-numbered channel left/right movement is linked to even-numbered channel rear/front movement; odd-numbered channel front/rear movement is linked to even-numbered channel left/right movement.

**8. Operate other surround parameters as necessary.**

• **Divergence**

This sets the proportion (in a range of 0–100) at which the center channel signal will be distributed between the center and the left/right surround buses.

If the surround mode is 3-1ch or 5.1ch, use the knob in the DIVERGENCE area of the screen to set the center divergence. (Alternatively, you can operate SELECTED INPUT CHANNEL section MIX SEND [LEVEL/PAN] encoder 20.)

If the surround mode is 6.1ch, use the F knob in the DIVERGENCE area of the screen (or MIX SEND [LEVEL/PAN] encoder 20) to set the center divergence for the front, and use the R knob (or MIX SEND [LEVEL/PAN] encoder 22) to set the center divergence for the rear.

• **LFE**

If the surround mode is 5.1ch or 6.1ch, you can adjust the signal level that is sent to the LFE bus. Use the LFE knob in the screen, or SELECTED INPUT CHANNEL section MIX SEND [LEVEL/PAN] encoder 24.

## Cautions regarding surround pan

Cautions and limitations regarding the use of surround pan are explained below.

### ■ Scene recall operations

- The surround mode setting is saved in the scene.
- If you recall a scene that has a differing surround mode, the screen and panel display will change accordingly. In this case, the surround mode, the settings of MIX channels 17–24, and the surround-related parameters of all input channels will all be recalled, regardless of the Selective Recall or Recall Safe settings.
- If when one channel is excluded from recall, you recall a scene whose PATTERN LINK button is turned on, the PATTERN LINK button will remain on, and only the other channel will be recalled. Subsequent operation will function according to the LINK setting.

### ■ Channel library recall operations

- Input libraries contain all of the surround-related parameters except for the surround mode.
- PATTERN LINK settings will be recalled from an input channel library only if the recall-destination channels are paired.
- If PATTERN LINK is on, and you recall a monaural (non-paired) input channel library, the PATTERN LINK button setting will remain on, and only the other channel will be recalled. Subsequent operation will function according to the LINK setting.

### ■ Channel copy

- When you perform panel operations to copy an input channel, surround-related parameters will also be copied.
- However, PATTERN LINK settings will be copied only if the copy-source channel is paired and set to ALL.
- In order to copy surround-related parameters in the IN CH VIEW function CH COPY screen, you must turn on the PARAMETER SELECT area's ALL button, or the SEND button and MIX 17–24 buttons. (When surround mode is active, the PARAMETER SELECT area MIX 17–24 buttons are always linked.)

### ■ Global paste

- When using the Global Paste function while surround mode is active, the MIX SEND 17–24 buttons in the GLOBAL PASTE screen PARAMETER SELECT area are always linked.
- In order to paste surround-related parameters, you must turn on the PARAMETER SELECT area's LEVEL button, or the SEND button and MIX SEND 17–24 buttons. If two adjacent channels are selected in the SOURCE CH SELECT area, PATTERN LINK settings will also be pasted.
- If different surround modes are selected for the paste-source and paste-destination, MIX buses 17–24 will be excluded from the operation.

## Multi-band dynamics processor

A multi-band dynamics processor that includes an independent compressor and limiter for each of the three bands low, mid, and high has been added as an effect type for the internal effects.

This effect type is stored in effect library No.30.



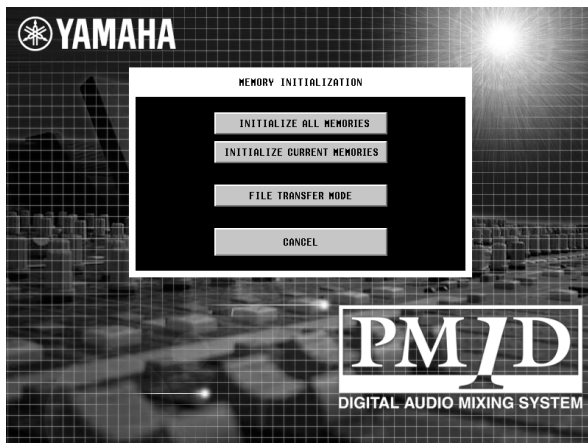
If a library using this effect type is recalled, SOLO buttons (LOW, MID, HIGH) will be displayed in the center of the screen. These buttons allow you to solo each of the frequency-divided bands. For details on the other parameters, refer to p.49.

## File transfer mode

In previous versions, the only way to transfer data between the CS1D and a computer in which PM1D Manager is installed was to load/save the data using a PCMCIA card.

However in V1.6, data edited on your computer can be uploaded to the console, and console settings including scenes can be downloaded to the PM1D.

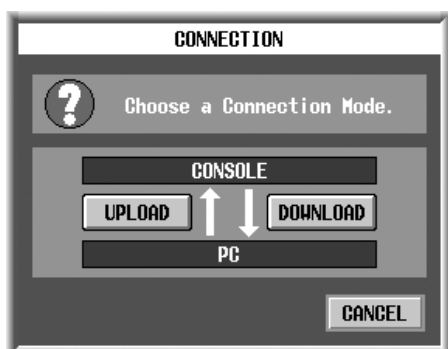
1. Turn off the power of the PW1D power supply, and then turn it on again.
2. After the opening screen appears, continue pressing the left/right switches of the track pad until the following screen appears.



3. Click the FILE TRANSFER MODE button. The screen will change as follows, and the system will wait to be connected to the computer.



4. Connect your computer to the CS1D via the serial connector or USB connector, and open the CONNECTION popup window.



5. Click the UPLOAD button to upload data, or the DOWNLOAD button to download data.



If you click CANCEL in the screen shown above instead of the UPLOAD button or DOWNLOAD button, the PM1D will start up in normal mode.

Transfer of the scenes and all libraries will begin, and the PROGRESS popup window will appear, indicating the progress status. All panel operations are disabled until transfer is completed.

- For example, transferring all CS1D data to the computer will take slightly more than one hour, whether you use a serial connection or a USB connection.
- If you want to cancel the transfer, click the CANCEL button on your PC.

A popup window will appear on both the CS1D and the PC to indicate that transfer has ended.

6. Click the OK button on your PC.

The PC will go off-line, and the PM1D will start up in its normal state.

Even if the PC is connected to the engine, and PM1D Manager and the engine are on-line, you can use the FILE TRANSFER MODE screen to perform file transfer between the console connected to the engine and PM1D Manager. In this case, the PM1D Manager settings will be transferred to the console, and then a connection can be established between the engine and console. When a connection is established between the engine and console, the PC will temporarily go off-line.

## Additional preference items

The following additions and changes have been made to the UTILITY function PREFERENCE screen.

- **PROHIBIT DCA ASSIGN ON SELECTED CH BLOCK**

This option prohibits changes in the DCA group assignment of a channel from being made using the DCA section of the SELECTED INPUT CHANNEL block or SELECTED OUTPUT CHANNEL block.

If this item is on, **operations in the DCA section of the SELECTED INPUT CHANNEL block and SELECTED OUTPUT CHANNEL block will not be valid.** This allows you to prevent channels from being inadvertently assigned to or removed from a DCA group if a switch of the DCA section is touched accidentally.

- **SKIP CONFIRMATIONS FOR MIX MINUS SHORTCUT**

This option allows rapid execution of the Mix Minus function that was added in V1.5.

Mix Minus is a function that instantly sets the signal sent from a channel to a specific MIX bus to a level of -infinity dB, and sets the signal sent from all the other channels to that same MIX bus to nominal level (0 dB).

There are two ways to use Mix Minus:


- ① **Click the MIX MINUS button in the CH to MIX screen**
- ② **Hold down the [SEL] switch of an input channel and press a [SEL] switch in the MIX block**

If this preference item is turned on, no confirmation popup window will appear when you perform method ②; the settings will be changed instantly.

- **LIBRARY PROTECTION**

This option prohibits erasure of libraries that are linked to a protected scene.

V1.6 adds a CLEAR button that allows you to erase a specified library. However if you erase a library (unit, patch, name) that is linked to a protected scene, that scene can no longer be reproduced. Thus, if this preference is turned on (FOLLOW SCENE), an attempt to erase a library that is linked to a scene will cause a message to be displayed, and the erasure will not be possible.

 Library numbers displayed in the scene list will not be erased even if LINK is off.

- **Changes in the AUTO DISPLAY ON/OFF area**

The following changes have been made in the AUTO DISPLAY ON/OFF area.

- **ATT/EQ**

The name has been changed from “EQ” to “ATT/EQ.” Also, in previous versions, operating the SELECTED INPUT CHANNEL block [ATTENUATOR] encoder when this button was on would move the cursor to the ATT knob of the EQ PARAMETER screen. However in V1.6, the cursor will move to the newly added ATT screen.

- **PAN/ROUTING**

The name has been changed from “ROUTING” to “PAN/ROUTING.” If this button is on, operating a SELECTED INPUT CHANNEL block MIX SEND [LEVEL/PAN] encoder 17–24 when surround mode is active will make the cursor move to the corresponding parameter of the SURR PRM screen.

However, the cursor will not move if you operate the encoder of a MIX bus 17–24 that is not being used as a surround bus.



## Preset Effects Programs (added in V1.6)

- Basic effect programs

### Dynamic Effects

#	Title	Type	Description
30	Multi Band Dyna.	MULTI BAND DYNA.	Multi-band dynamics processor

## Effects Parameters (added in V1.6)

- **MULTI BAND DYNA.** [Type: STEREO]

Parameter	Range	Description
LOW GAIN	-96.0 - +12.0 [dB]	Level of the low-frequency range
MID GAIN	-96.0 - +12.0 [dB]	Level of the mid-frequency range
HIGH GAIN	-96.0 - +12.0 [dB]	Level of the high-frequency range
PRESENCE	-10 - +10	"+" settings lower the high-frequency threshold and raise the low-frequency threshold. "-" settings do the opposite. With a setting of 0, the high, mid, and low-frequency ranges are all affected alike.
CMP.THRESHOLD	-24.0 - 0.0 [dB]	Compressor threshold level
CMP.RATIO	1:1 - 20:1	Compression ratio
CMP.RELEASE	5.0ms - 42.3s (@fs=48kHz), 6.0ms - 46.0s (@fs=44.1kHz)	Compressor release time
CMP.ATAK	0 - 120 [ms]	Compressor attack time
CMP.KNEE	HARD, SOFT 1 - 5	Compressor knee
CMP.BYPASS	OFF, ON	Compressor bypass
LIM.THRESHOLD	-24.0 - 0.0 [dB]	Limiter threshold
LIM.RELEASE	5.0ms - 42.3s (@fs=48kHz), 6.0ms - 46.0s (@fs=44.1kHz)	Limiter release time
LIM.ATAK	0 - 120 [ms]	Limiter attack time
LIM.KNEE	HARD, SOFT 1 - 5	Limiter knee
LIM.BYPASS	OFF, ON	Limiter bypass
LOOKUP DELAY	0.0 - 100.0 [ms]	Lookup delay
L-M XOVER	21.2 - 8.00k [Hz]	Low/mid crossover frequency
M-H XOVER	21.2 - 8.00k [Hz]	Mid/high crossover frequency
CEILING	-6.0 - 0.0 [dB], OFF	Limiting value to prevent excessive output
BALANCE	0 - 100 [%]	WET/DRY balance

## Scene Memory/Effect Library to Program Change Table

Please refer to page 35 in the appendix of the CS1D Reference Manual (Appendices).

### MIDI control change NRPN (Non Registered Parameter Number) assignment table

INPUT (NRPN LSB 0-111 : CH NUMBER1-96,  
STIN1L-8R, 112 : SELECT CH)

Parameter name	NRPN	
	MSB	LSB
ON/OFF	0	0-111
FADER	1	0-111
PAN/BALANCE	2	0-111
RECALL SAFE ON/OFF	3	0-111
GATE ON/OFF	4	0-111
GATE RANGE	5	0-111
GATE LPF ON/OFF	6	0-111
GATE LPF FREQ	7	0-111
GATE HPF ON/OFF	8	0-111
GATE HPF FREQ	9	0-111
GATE THRESHOLD	10	0-111
GATE ATTACK	11	0-111
GATE DECAY	12	0-111
GATE HOLD	13	0-111
COMP ON/OFF	14	0-111
COMP RATIO	15	0-111
COMP XOVER ON/OFF	16	0-111
COMP XOVER FREQ	17	0-111
COMP KNEE/WIDTH	18	0-111
COMP OUT GAIN	19	0-111
COMP THRESHOLD	20	0-111
COMP ATTACK	21	0-111
COMP RELEASE	22	0-111
EQ LOW TYPE	23	0-111
EQ HIGH TYPE, LPF SLOPE	24	0-111
EQ ON/OFF	25	0-111
HPF ON/OFF	26	0-111
EQ ATT	27	0-111
EQ LOW F	28	0-111
EQ LOW G	29	0-111
EQ LOW Q	30	0-111
EQ L-MID F	31	0-111
EQ L-MID G	32	0-111
EQ L-MID Q	33	0-111
EQ H-MID F	34	0-111
EQ H-MID G	35	0-111
EQ H-MID Q	36	0-111
EQ HIGH F	37	0-111
EQ HIGH G	38	0-111
EQ HIGH Q	39	0-111
HPF FREQ	40	0-111
HPF FREQ Dimension	41	0-111
SURROUND LR	42	0-112
SURROUND FR	43	0-112
SURROUND FR INVERT	44	0-112

MIX (NRPN LSB 0-47, 48-95 : MIX1-48)

Parameter name	NRPN	
	MSB	LSB
ON/OFF	68	0-47
FADER	68	48-95
BALANCE	69	0-47
RECALL SAFE ON/OFF	69	48-95
COMP ON/OFF	70	0-47
COMP RATIO	70	48-95
COMP XOVER ON/OFF	71	0-47
COMP XOVER FREQ	71	48-95
COMP KNEE/WIDTH	72	0-47
COMP OUT GAIN	72	48-95
COMP THRESHOLD	73	0-47
COMP ATTACK	73	48-95
COMP RELEASE	74	0-47
EQ ON/OFF	74	48-95
EQ SUB-LOW TYPE,SLOPE	75	0-47
EQ HIGH TYPE,SLOPE	75	48-95
EQ SUB-LOW Q	76	0-47
EQ SUB-LOW F	76	48-95
EQ SUB-LOW G	77	0-47
EQ SUB-LOW BYPASS	77	48-95
EQ LOW Q	78	0-47
EQ LOW F	78	48-95
EQ LOW G	79	0-47
EQ LOW BYPASS	79	48-95
EQ L-MID Q	80	0-47
EQ L-MID F	80	48-95
EQ L-MID G	81	0-47
EQ L-MID BYPASS	81	48-95
EQ MID Q	82	0-47
EQ MID F	82	48-95
EQ MID G	83	0-47
EQ MID BYPASS	83	48-95
EQ H-MID Q	84	0-47
EQ HI-MID F	84	48-95
EQ H-MID G	85	0-47
EQ H-MID BYPASS	85	48-95
EQ HIGH Q	86	0-47
EQ HIGH F	86	48-95
EQ HIGH G	87	0-47
EQ HIGH BYPASS	87	48-95

**MATRIX (NRPN LSB 0-23,24-47,48-71,72-95 : MATRIX1-24)**

Parameter name	NRPN	
	MSB	LSB
ON/OFF	90	0-23
FADER	90	24-47
BALANCE	90	48-71
RECALL SAFE ON/OFF	90	72-96
COMP ON/OFF	91	0-23
COMP RATIO	91	24-47
COMP XOVER ON/OFF	91	48-71
COMP XOVER FREQ	91	72-96
COMP KNEE/WIDTH	92	0-23
COMP OUT GAIN	92	24-47
COMP THRESHOLD	92	48-71
COMP ATTACK	92	72-96
COMP RELEASE	93	0-23
EQ ON/OFF	93	24-47
EQ SUB-LOW TYPE,SLOPE	93	48-71
EQ HIGH TYPE,SLOPE	93	72-96
EQ SUB-LOW Q	94	0-23
EQ SUB-LOW F	94	24-47
EQ SUB-LOW G	94	48-71
EQ SUB-LOW BYPASS	94	72-96
EQ LOW Q	95	0-23
EQ LOW F	95	24-47
EQ LOW G	95	48-71
EQ LOW BYPASS	95	72-96
EQ L-MID Q	96	0-23
EQ L-MID F	96	24-47
EQ L-MID G	96	48-71
EQ L-MID BYPASS	96	72-96
EQ MID Q	97	0-23
EQ MID F	97	24-47
EQ MID G	97	48-71
EQ MID BYPASS	97	72-96
EQ H-MID Q	98	0-23
EQ H-MID F	98	24-47
EQ H-MID G	98	48-71
EQ H-MID BYPASS	98	72-96
EQ HIGH Q	99	0-23
EQ HIGH F	99	24-47
EQ HIGH G	99	48-71
EQ HIGH BYPASS	99	72-96

**ST MASTER (NRPN LSB EVEN,ODD : STEREO MASTER A,B)**

Parameter name	NRPN	
	MSB	LSB
ON/OFF	101	0,1
FADER	101	2,3
BALANCE	101	4,5
RECALL SAFE ON/OFF	101	6,7
COMP ON/OFF	101	8,9
COMP RATIO	101	10,11
COMP XOVER ON/OFF	101	12,13
COMP XOVER FREQ	101	14,15
COMP KNEE/WIDTH	101	16,17
COMP OUT GAIN	101	18,19
COMP THRESHOLD	101	20,21
COMP ATTACK	101	22,23
COMP RELEASE	101	24,25
EQ ON/OFF	101	26,27
EQ SUB-LOW TYPE, SLOPE	101	28,29
EQ HIGH TYPE, SLOPE	101	30,31
EQ SUB-LOW Q	101	32,33
EQ SUB-LOW F	101	34,35
EQ SUB-LOW G	101	36,37
EQ SUB-LOW BYPASS	101	38,39
EQ LOW Q	101	40,41
EQ LOW F	101	42,43
EQ LOW G	101	44,45
EQ LOW BYPASS	101	46,47
EQ L-MID Q	101	48,49
EQ L-MID F	101	50,51
EQ L-MID G	101	52,53
EQ L-MID BYPASS	101	54,55
EQ MID Q	101	56,57
EQ MID F	101	58,59
EQ MID G	101	60,61
EQ MID BYPASS	101	62,63
EQ H-MID Q	101	64,65
EQ HI-MID F	101	66,67
EQ H-MID G	101	68,69
EQ HI-MID BYPASS	101	70,71
EQ HIGH Q	101	72,73
EQ HIGH F	101	74,75
EQ HIGH G	101	76,77
EQ HIGH BYPASS	101	78,79

**DCA (NRPN LSB 0-11,12-23 : DCA1-12)**

Parameter name	NRPN	
	MSB	LSB
DCA FADER(0-11)	102	0-11
DCA MUTE(12-23)	102	12-23

**EFFECT (NRPN LSB 0-7,8-15,16-23,24-31,32-39,40-47,48-55,56-63,64-71,72-79,80-87,88-95,96-103,104-111 : EFFECT1-8)**

Parameter name	NRPN	
	MSB	LSB
BYPASS ON/OFF	103	0-7
ATT L	103	8-15
ATT R	103	16-23
WET BALANCE	103	24-31
PARAMETER1	103	32-39
PARAMETER2	103	40-47
PARAMETER3	103	48-55
PARAMETER4	103	56-63
PARAMETER5	103	64-71
PARAMETER6	103	72-79
PARAMETER7	103	80-87
PARAMETER8	103	88-95
PARAMETER9	103	96-103
PARAMETER10	103	104-111
PARAMETER11	104	0-7
PARAMETER12	104	8-15
PARAMETER13	104	16-23
PARAMETER14	104	24-31
PARAMETER15	104	32-39
PARAMETER16	104	40-47
PARAMETER17	104	48-55
PARAMETER18	104	56-63
PARAMETER19	104	64-71
PARAMETER20	104	72-79
PARAMETER21	104	80-87

**GEQ (NRPN LSB 0-23,24-47,48-71,72-95,96-119 : GEQ1-24)**

Parameter name	NRPN	
	MSB	LSB
GEQ ON/OFF	105	0-23
NOTCH1 ON/OFF	105	24-47
NOTCH2 ON/OFF	105	48-71
NOTCH3 ON/OFF	105	72-95
NOTCH4 ON/OFF	105	96-119
GEQ BAND1 G	106	0-23
GEQ BAND2 G	106	24-47
GEQ BAND3 G	106	48-71
GEQ BAND4 G	106	72-95
GEQ BAND5 G	106	96-119
GEQ BAND6 G	107	0-23
GEQ BAND7 G	107	24-47
GEQ BAND8 G	107	48-71
GEQ BAND9 G	107	72-95
GEQ BAND10 G	107	96-119
GEQ BAND11 G	108	0-23
GEQ BAND12 G	108	24-47
GEQ BAND13 G	108	48-71
GEQ BAND14 G	108	72-95
GEQ BAND15 G	108	96-119
GEQ BAND16 G	109	0-23
GEQ BAND17 G	109	24-47
GEQ BAND18 G	109	48-71
GEQ BAND19 G	109	72-95
GEQ BAND20 G	109	96-119
GEQ BAND21 G	110	0-23
GEQ BAND22 G	110	24-47
GEQ BAND23 G	110	48-71
GEQ BAND24 G	110	72-95
GEQ BAND25 G	110	96-119
GEQ BAND26 G	111	0-23
GEQ BAND27 G	111	24-47
GEQ BAND28 G	111	48-71
GEQ BAND29 G	111	72-95
GEQ BAND30 G	111	96-119
GEQ BAND31 G	112	0-23
NOTCH1 Q	112	24-47
NOTCH2 Q	112	48-71
NOTCH3 Q	112	72-95
NOTCH4 Q	112	96-119
NOTCH1 F	113	24-47
NOTCH2 F	113	48-71
NOTCH3 F	113	72-95
NOTCH4 F	113	96-119

# MIDI Data Format

## 1. TRANSMIT/RECEIVE DATA

### 1.1 CHANNEL MESSAGE

#### 1.1.1 CONTROL CHANGE (Bn) BANK SELECT

##### <Reception>

In PROGRAM CHANGE SINGLE CH mode when [Bank] is ON, this message can be received via the MIDI IN for BANK SELECT reception is enabled, if the [Rx CH] matches.

This will specify the bank for a subsequently-received program change.

##### <Transmission>

In SINGLE CH mode when [Bank] is ON, and you recall a scene memory or effect library, a bank select message will be transmitted (before the program change message) from the selected MIDI OUT, on the specified [Tx CH].

STATUS	1011nnnn	Bn	Control Change
	00000000	00	Bank Select MSB
	0vvvvvvv	vv	MSB Value
	00100000	20	Bank Select LSB
	0vvvvvvv	vv	LSB Value

#### 1.1.2 CONTROL CHANGE (Bn) ASSIGN

##### <Reception>

If CONTROL CHANGE ASSIGN is ON and CONTROL CHANGE is set to SINGLE CH mode, this message can be received from the MIDI IN for which reception is enabled, if the [Rx CH] matches. The parameter that is assigned in the [Control Change Table] will be modified.

In MULTI mode, any MIDI channel will be received. The received MIDI channel (i.e., its number) will be added to the number of the parameter assigned in the [Control Change Table] (the same number as NRPN) to determine the parameter that will be modified by the message.

This message is not echoed, but will be transmitted as described below even when a parameter is modified as a result of the MIDI reception.

##### <Transmission>

In SINGLE CH mode, when a parameter assigned in the [Control Change Table] has been modified, this message will be transmitted from the MIDI OUT for the selected [Tx CH].

In MULTI CH mode, when a parameter corresponding to a parameter number (same as NRPN) assigned in the [Control Change Table] +15 or less is modified, this message will be transmitted from the selected MIDI OUT, with the MIDI channel representing the difference from the parameter number. If the parameter is assigned to more than one control number, the message will be transmitted using the lowest-numbered control number.

If a parameter with a resolution of greater than 7 bits is assigned to a control number in the range of 1–31, that control number +32 can be assigned as the LSB of the same parameter.

STATUS	1011nnnn	Bn	Control Change
	0ccccccc	cc	Control No. (1-5, 7-31, 33-37, 39-95, 102-119)
	0vvvvvvv	vv	Value

The transmitted and received values are calculated as follows. (The same applies to the NRPN messages discussed later.)

Given the following:

$(128 \text{ or } 16384 \text{ in the case of word data}) / (\text{number of parameter steps})$

$= X \dots Y$

$\text{INT}((Y + 1) / 2) = Z$

Reception:

If  $(\text{MIDI data} - Z) < 0$ , then parameter = 0

If  $((\text{MIDI data} - Z) / Z) > \text{MAX}$ , then parameter = MAX

Otherwise,  $\text{INT}(\text{MIDI data} - Z) / X = \text{parameter}$

Transmission:

If parameter = 0, then MIDI data = 0

If parameter = MAX, then MIDI data = (127 or 16383 in the case of word data)

Otherwise,  $(X \times \text{parameter}) + \text{INT}(X / 2) + Z = \text{MIDI data}$

#### 1.1.3 CONTROL CHANGE (Bn) NRPN

##### <Reception>

If NRPN is ON, and if the [Rx CH] matches, this message can be received at the MIDI IN for which reception is enabled.

There is a one-to-one correspondence between the received NRPN number and the parameter that will change. (See the "MIDI control change NRPN (Non Registered Parameter Number) assignment table".)

This message is not echoed, but the transmission described below will occur even if a parameter is modified due to MIDI reception.

##### <Transmission>

If NRPN is ON and a parameter is modified, this message will be transmitted from the MIDI OUT selected by [Tx CH].

If both CONTROL ASSIGN and NRPN are simultaneously ON, an assigned parameter will be transmitted as a control change.

If the parameter has a resolution of less than 7 bits, only the MSB data will be transmitted.

STATUS	1011nnnn	Bn	Control Change
	01100010	62	NRPN LSB
	0vvvvvvv	vv	MSB Value
	01100011	63	NRPN MSB
	0vvvvvvv	vv	LSB Value
	00000110	06	DATA ENTRY MSB
	0vvvvvvv	vv	MSB Value
	00110110	26	DATA ENTRY LSB
	0vvvvvvv	vv	LSB Value

60 h (INC) and 61 h (DEC) are not supported.

#### 1.1.4 PROGRAM CHANGE (Cn)

##### <Reception>

If [Program Change Rx] is ON, this message can be received at the MIDI IN for which reception is enabled, if the [Rx CH] matches in the case of SINGLE mode. However if [OMNI] is ON, this message will be received regardless of the channel.

In the case of MULTI mode, all MIDI channels will be received, and will be divided into banks according to the channel.

If [Program Change ECHO] is ON, this message will be echoed.

A scene memory or effect library will be recalled according to the settings of the [Program Change Table].

##### <Transmission>

If [Program Change TX] is ON, this message will be transmitted from the selected MIDI OUT on the [Tx CH] channel (in the case of SINGLE mode), when a scene or effect library is recalled.

In the case of MULTI mode, this will be transmitted on the MIDI channel according to the bank. If the recalled memory number is assigned to more than one program number, the program number for the lowest-numbered channel of the lowest-numbered bank will be transmitted.

STATUS	1100nnnn	Cn	Program Change
DATA	0nnnnnnn	nn	Program No. (0-127)

1.2 EXCLUSIVE MESSAGE (F0-F7)

1.2.1 MOTION CONTROL STATE (MCS)  
MMC STOP/PLAY/FORWARD/REWIND

<Transmission>

These messages are transmitted by assignment to USER DEFINE or GPI.

[DEVICE NO.] specifies the transmission destination.

STATUS	11110000	F0	System Exclusive Message
ID No.	01111111	7F	Real Time System Exclusive
Device ID	00000000	dd	Destination (00-7E, 7F:all call)
Command	00000110	06	Machine Control Command(mcc)sub-id
	00000000	cc	Command String
			[1]:Stop
			[3]:Deferred Play
			[4]:Fast Forward
			[5]:Rewind
EOX	11110111	F7	End of Exclusive

1.2.2 MOTION CONTROL PROCESS (MCP)  
MMC LOCATE (target)

<Transmission>

This message is transmitted by assignment to USER DEFINE or GPI. [DEVICE NO.] specifies the transmission destination. (This requires setting the ID of the receiving device.)

STATUS	11110000	F0	System Exclusive Message
ID No.	01111111	7F	Real Time System Exclusive
Device ID	00000000	dd	Destination (00-7E, 7F:all call)
Command	00000110	06	Machine Control Command(mcc)sub-id
	01000100	44	Locate
	00000110	06	byte count
	00000001	01	"target" sub command
	0tthhhhh	th	frame type, hour
	0mmmmmm	nm	minute
	0sssssss	ss	second
	0ffffff	ff	frame
	0sssssss	ss	sub-frame(only'0')
EOX	11110111	F7	End of Exclusive

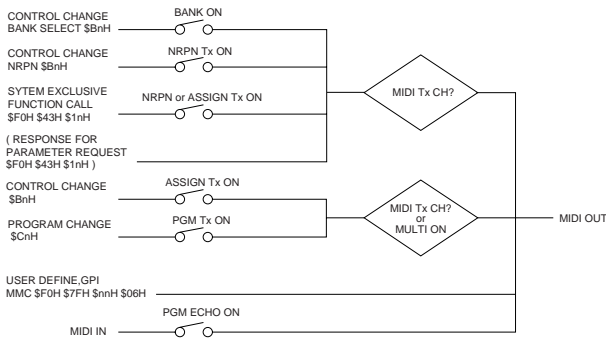
1.3 ACTIVE SENSING (Fe)

<Reception>

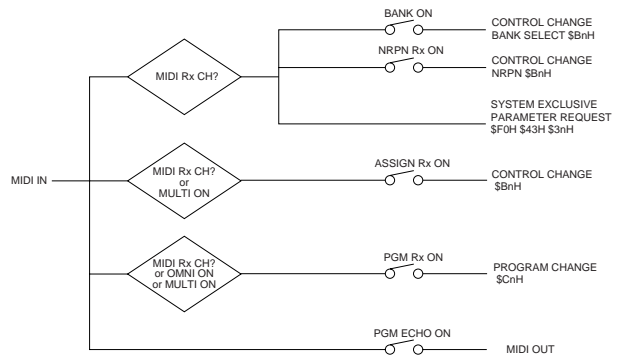
Once this message has been received, and there is an interval of 300 ms during which nothing is received, Running Status will be cleared, and MIDI communication will be initialized.

STATUS	11111110	FE	Active Sensing
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2. TRANSMISSION CONDITION



3. RECEIVE CONDITION



4. PARAMETER CHANGE

BASIC FORMAT

STATUS	11110000	F0	System Exclusive Message
ID No.	01000011	43	Manufacture's ID No. (YAMAHA)
SUB STATUS	0pppnnnn	pn	p=mode 1:parameter change or response for request 3:parameter request n=0-15(Device Channel No.1-16)
GROUP ID	00111110	3e	MODEL ID(digital mixer)
MODEL ID	00001001	09	Device code(PM1D)
PARAM TYPE	0ttttttt	tt	(TYPE)
DATA	00000000	dd0	DATA 0
	:	:	:
	00000000	ddn	DATA n
EOX	11110111	F7	End of Exclusive

PARAMETER VALUE REQUEST (type 0x00:Current Memory)

<Reception>

These messages can be received via the port that is enabled for reception. The VALUE RESPONSE message described below is sent in reply to this message.

STATUS	11110000	F0	System Exclusive Message
ID No.	01000011	43	Manufacture's ID No. (YAMAHA)
SUB STATUS	0pppnnnn	3n	parameter request n=0-15(Device Channel No.1-16)
GROUP ID	00111110	3e	MODEL ID(digital mixer)
MODEL ID	00001001	09	Device code(PM1D)
PARAM TYPE	00000000	00	Current Memory
DATA	0ttttttt	dd0	data type
	0aaaaaaaa	dd1	addressHIGH(BIT13-7)
	0aaaaaaaa	dd2	addressLOW(BIT6-0)
	0ddddd	dd3	REQUEST BYTE COUNT
EOX	11110111	F7	End of Exclusive

data type

- 0x00 SCENE LOW ADDRESS(BIT14 LOW)
- 0x10 SCENE HIGH ADDRESS(BIT14 HIGH)
- 0x0a ENGINE SETUP

PARAMETER VALUE RESPONSE (type 0x00:Current Memory)

<Transmission>

This message is sent in reply when the above VALUE REQUEST is received.

STATUS	11110000	F0	System Exclusive Message
ID No.	01000011	43	Manufacture's ID No. (YAMAHA)
SUB STATUS	0pppnnnn	1n	response for request

```

n=0-15(Device Channel
No.1-16)
GROUP ID 00111110 3e MODEL ID(digital mixer)
MODEL ID 00001001 09 Device code(PM1D)
PARAM TYPE 00000000 00 Current Memory
DATA 0ttttttt dd0 data type
0aaaaaaa dd1 addressHIGH(BIT13-7)
0aaaaaaa dd2 addressLOW(BIT6-0)
0ddddd dd3 data
:
0ddddd ddn
EOX 11110111 F7 End of Exclusive

```

For SETUP 0:LOAD,  
 1:RECALL SAFE INPUT ALL ON,  
 2:RECALL SAFE INPUT ALL OFF,  
 3:RECALL SAFE OUTPUT ALL ON,  
 4:RECALL SAFE OUTPUT ALL OFF

EFF LIBRARY are transmitted when you recall a number that is not assigned to a program change.

Data type:

The "data" field contains the requested number of data bytes from the requested address, converted from 8-bit to 7-bit form. The MSB's for seven bytes will be the first byte of data.

Example) [seven bytes of 8 bit data] [8 bytes of 7 bit data]  
 80 01 82 03 84 05 06 → 54 00 01 02 03 04 05 06

The "data type" is the same as for a Parameter Value Request.

**PARAMETER CHANGE (type 0x02:function call)**

**<Transmission>**

If transmission is ON for Control Change ASSIGN or NRPN, this message is transmitted when an operation causing multiple parameters to be modified simultaneously is performed. This message is not received.

```

STATUS 11110000 F0 System Exclusive Message
ID No. 01000011 43 Manufacture's ID
No.(YAMAHA)
SUB STATUS 0ppppnnn 1n response for request
n=0-15(Device Channel
No.1-16)
GROUP ID 00111110 3e MODEL ID(digital mixer)
MODEL ID 00001001 09 Device code(PM1D)
PARAM TYPE 00000010 02 function call
DATA 0ttttttt dd0 function
0aaaaaaa dd1 category/number
0aaaaaaa dd2 channel/number2
0ddddd dd3 type
EOX 11110111 F7 End of Exclusive

```

function	category/number	number2,channel
0x04 EFF Lib Recall	LIB No.Bit7-1	LIB No..Bit0, EFF No.0-7
	(LIB No.1-199, EFF No.0-7)	
0x04 EFF Copy	No.Bit7-1	No.Bit0, EFF No.0-7
	(No.255, EFF No.0-7)	
0x05 GEQ Recall	Category Library 126	GEQ No.0-23
0x05 GEQ Copy,Link	No.127	GEQ No.0-23
0x06 IN EQ Lib Recall	Category Library 126	CH No.0-111
0x06 IN EQ Copy	Category Copy 127	CH No.0-111
0x07 OUT EQ Lib Recall	Category Library 126	CH No.0-73
0x07 OUT EQ Copy	Category Copy 127	CH No.0-73
0x08 IN GATE Lib Recall	Category Library 126	CH No.0-111
0x08 IN GATE Copy	Category Copy 127	CH No.0-111
0x09 IN COMP Lib Recall	Category Library 126	CH No.0-111
0x09 IN COMP Change	Category Copy 127	CH No.0-111
0x0a OUT COMP Lib Recall	Category Library 126	CH No.0-73
0x0a OUT COMP Change	Category Copy 127	CH No.0-73
0x0b IN CH Lib Recall	Category Library 126	CH No.0-111
0x0c OUT CH Lib Recall	Category Library 126	CH No.0-73
0x0d IN CH COPY	Source CH No.0-111	Destination CH No.0-111,127 *1
0x0e OUT CH COPY	Source CH No.0-73	Destination CH No.0-73,127 *1
0x0f IN CH PAIR/LR-MONO	*2	CH No.0-111
0x10 OUT CH PAIR	*2	CH No.0-73
0x11 SETUP CHANGE	127	0

(\*1 Since multiple destination channels are possible when using the CH COPY function of the LCD, this will be 127 (fixed) instead.  
 \*2 0:PAIR L->R, 1:PAIR R->L, 2:RESET BOTH, 3:PAIR RELEASE  
 4:L-MONO, 5:R-MONO, 6:LR-MONO, 7:L,R,LR-MONO RELEASE )

type For EFF BIT5-0:EFFECT TYPE  
 For GEQ BIT6:MONO/LINK  
 For EQ, GATE, COMP, CH, COPY, PAIR  
 BIT6:MONO/PAIR, BIT5-3:reserved  
 BIT2:GATE TYPE, BIT1, 0:COMP TYPE



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