

MRX Designer User Guide

This user guide explains “MRX Designer,” which is part of the “MTX-MRX Editor” Windows application and which allows you to make settings for the MRX7-D (subsequently referred to as the MRX).

For an explanation of MTX-MRX Editor topics that are not part of MRX Designer, refer to “MTX-MRX Editor User Guide.”

In this user guide, < > indicates a key on the computer keyboard. <Shift> indicates the Shift key.

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An overview of MRX Designer

The MRX is a freely configurable processor that allows you to place components as desired to freely design a system.

The MRX can be operated from an external controller such as a DCP, Wireless DCP, or MCP1.

Using the PGM1 allows a paging system to be constructed.

MRX Designer is dedicated software for configuring the MRX.

In MRX Designer, your workflow consists of freely placing [Components](#) in [Design sheet](#) and then [Compile](#) the result.

Then, in communication with the MRX unit, you'll use the [Component editor](#) to edit the parameters.

Parameters are stored/recalled in the form of [Snapshot](#).

Multiple parameters that you want to store/recall can be grouped ([Parameter Sets](#)), and ten sets of parameter values can be stored for each parameter set as snapshots.

A snapshot can be registered in a [Preset](#) and recalled together with devices such as the MTX, XMV, and DCP. Multiple snapshots ([Snapshot Group](#)) can be registered in one preset. Snapshots and snapshot groups can also be recalled from a remote controller.

You can also link multiple parameters ([Parameter Link Group](#)).

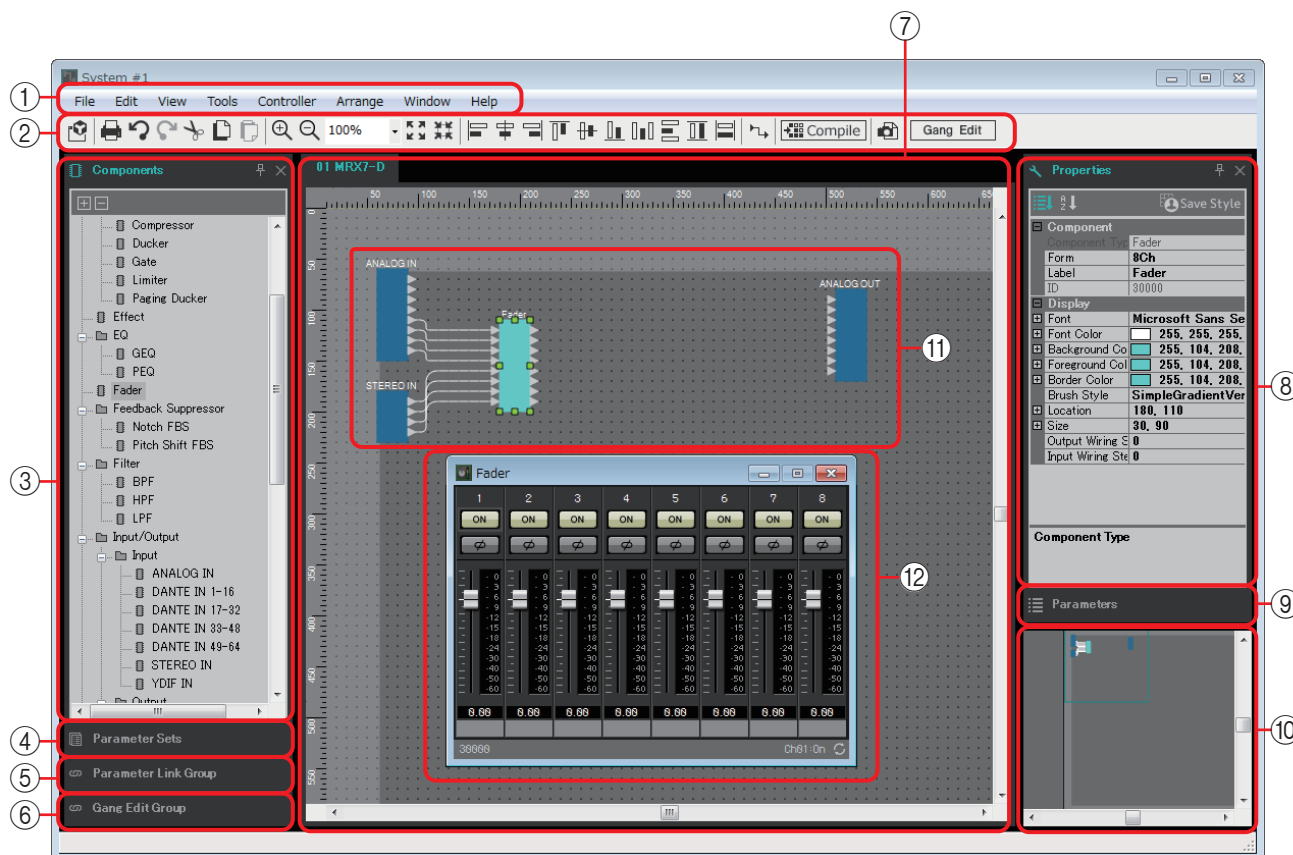
Components can be linked ([Gang edit group](#)).



The initial values of a component, together with data that specifies the wiring between components, can be saved on a computer as a [User style](#). By saving a user style, you can avoid having to change the settings each time you place a component. User styles can also be transferred to another computer.

Components and the wires between components can be encapsulated as a [User Defined Block](#). By encapsulating multiple components as a single block, you can make the style sheet look cleaner, or copy blocks to easily create the same functionality for other channels. By specifying "View Only" mode or "Protect" mode for individual blocks, you can protect blocks when "[Protect User Defined Block](#)" is executed.

Screen structure

MRX Designer consists of a “menu bar,” “tool buttons,” “Components area,” “Parameter Sets area,” “Parameter Link Group area,” “design sheet,” “Properties area,” “Parameters area,” and “Bird’s Eye view.”



In the upper right of each area is a “” symbol; when you click this, the area becomes an icon and is placed at the left or right side of the screen, allowing the design sheet to occupy more of the screen. When you place the cursor on this icon, the area is temporarily expanded. If you want to once again view an iconized area in its fixed position, move the cursor over the icon and click the “” symbol that appears. When you place the cursor on the border between the design sheet and an area, the cursor changes shape, allowing you to drag to change the width of the area.

① Menu bar

The commands that can be executed in MTX Editor can be found here, grouped by category.

Click here to see a list of commands. (page 12)

② Tool buttons

Frequently-used functions are provided here as buttons. (page 17)

③ “Components” area

This is a list of the components that can be used on the MRX. If you want to use a component, drag and drop it onto the design sheet; it will be installed in the MRX as a function.

For details on arranging components, refer to “[Placing components.](#)”

④ **“Parameter Sets” area**

In this screen you can create parameter sets for each system, and store or recall snapshots. From the design sheet, call up the component editor. While holding down <Ctrl>, drag the parameter that you want to register and drop it on the parameter set name in the “Parameter Sets” area; the parameter is registered in the parameter set. Snapshots can also be created in this area. (page 29)

⑤ **“Parameter Link Group” area**

In this screen you can create parameter link groups for each system. From the design sheet, call up the component editor. While holding down <Ctrl>, drag the parameter that you want to register and drop it on the parameter link group name in the “Parameter Link Group” area; the parameter is registered in the parameter link group. (page 37)

⑥ **“Gang Edit Group” area**

This screen lets you create gang edit groups for each system. In the design sheet, hold down <Ctrl>, and drag and drop a component onto a group name in the “Gang Edit Group” area to register it as a target of the gang edit group. (page 39)

⑦ **Design sheet**

In this sheet you can place and connect components. Place and connect components for each MRX. (page 20)

⑧ **“Properties” area**

In this area you can view and edit information for the component, part, or background that you click. (page 41)

⑨ **“Parameters” area**

This area lists the parameters of the component that is placed in the design sheet. In this area you can open a component editor, or drag and drop a parameter or component to register it in a parameter set, parameter link group, remote control setup list, GPI dialog box, “Digital Control Panel” dialog box, or “Wireless DCP” dialog box.

⑩ **Bird’s Eye view**

This shows an overview of the design sheet. The area surrounded by a green frame is shown in the design sheet. Drag the frame to move the area shown in the design sheet. When a ↔ icon is shown at the four corners, you can drag it to make the frame larger or smaller; the displayed area of the design sheet changes accordingly. To zoom-in/out the Bird’s Eye view itself, hold down <Ctrl> and turn the mouse wheel.

If you place the cursor on the border between the Bird’s Eye view and the “Parameters” area, the cursor changes shape, letting you drag to change the height of the view.

⑪ **Component**

This is a module for audio processing or audio input/output. To open the component editor, double-click or right-click and choose [Open Component Editor]. (page 43)

⑫ **Component editor**

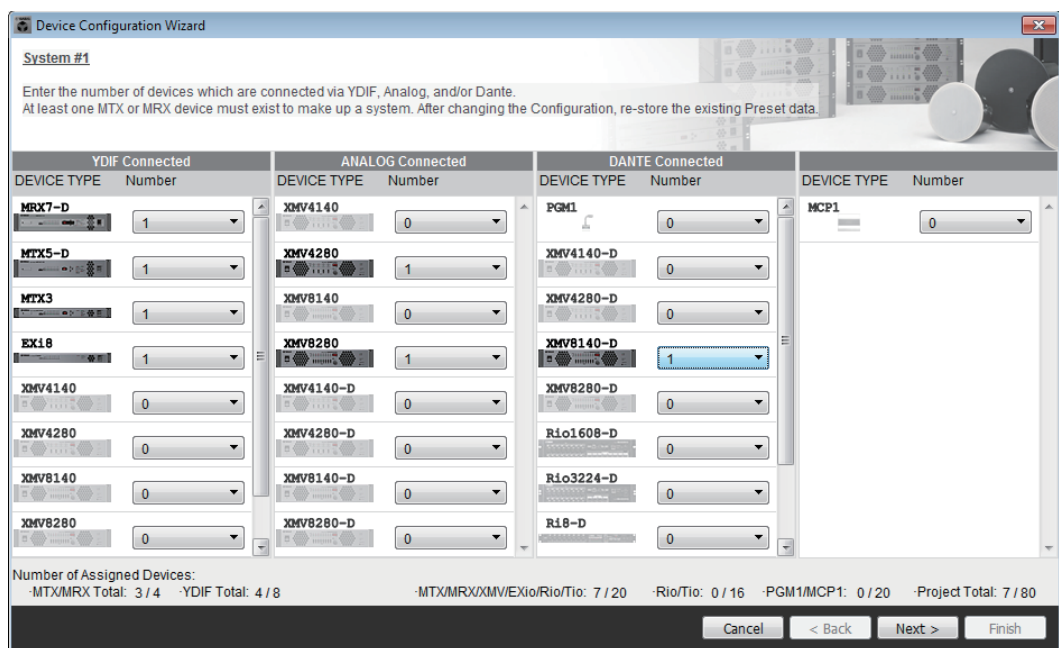
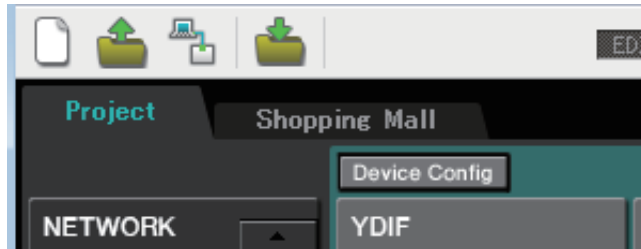
This popup window lets you edit the parameters of the component. (page 43)

Basic use of MRX Designer

The basic workflow in MRX Designer is described below.

1. Register the MRX in the “Device Configuration Wizard.”

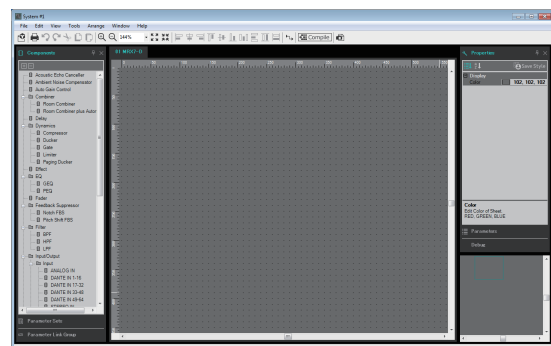
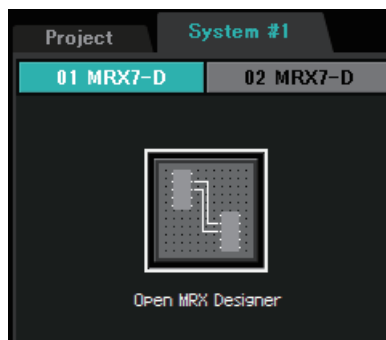
The “Device Configuration Wizard” appears when you click the [Device Config] button, etc. Register other devices as necessary.



2. In the System screen, select MRX7-D.

3. Click the “Open MRX Designer” button.

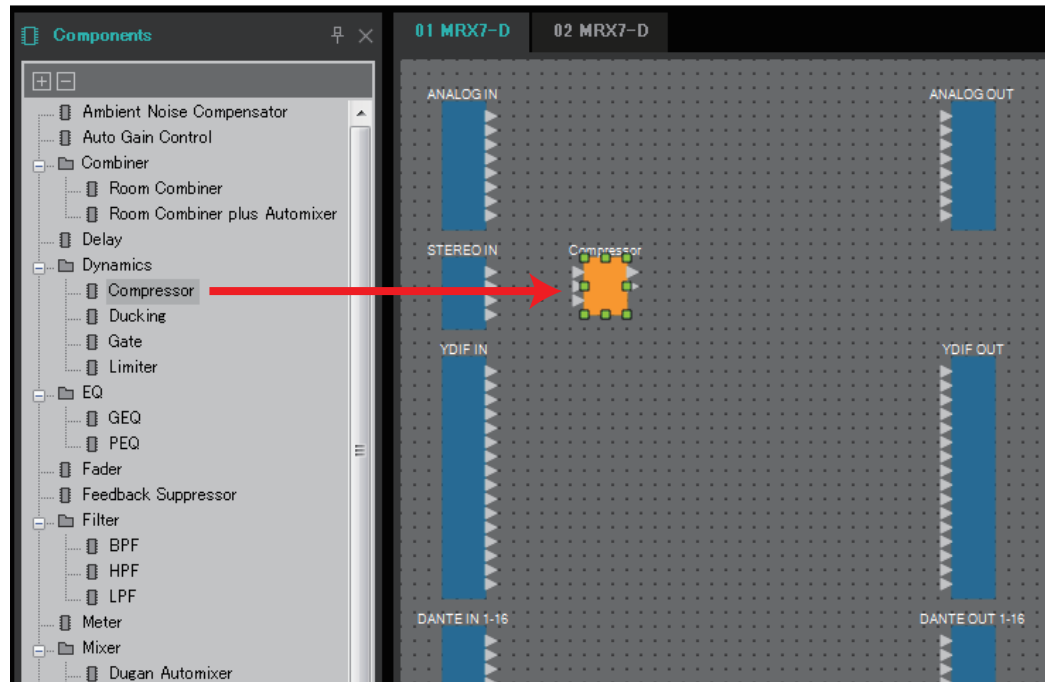
The MRX Designer window opens.



4. From the “Components” area at the left, drag the component that you want to use and drop it on the design sheet.

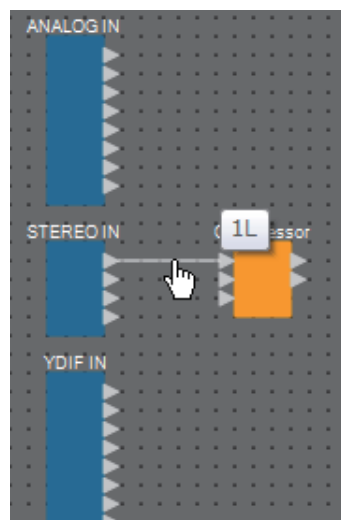
If you drop a component that has multiple candidates such as channels, the candidates are displayed; select the one that you want to use.

- NOTE**
- Double-click on a component in the “Components” area to select Stamp mode; in this mode, components are placed successively each time you click the design sheet. To cancel Stamp mode, press <Esc> or click any component in the list.
 - The input/output jacks of the MRX are not placed in the default state. Place the ports that you want to use from “Input/Output” in the “Component” area at the left.

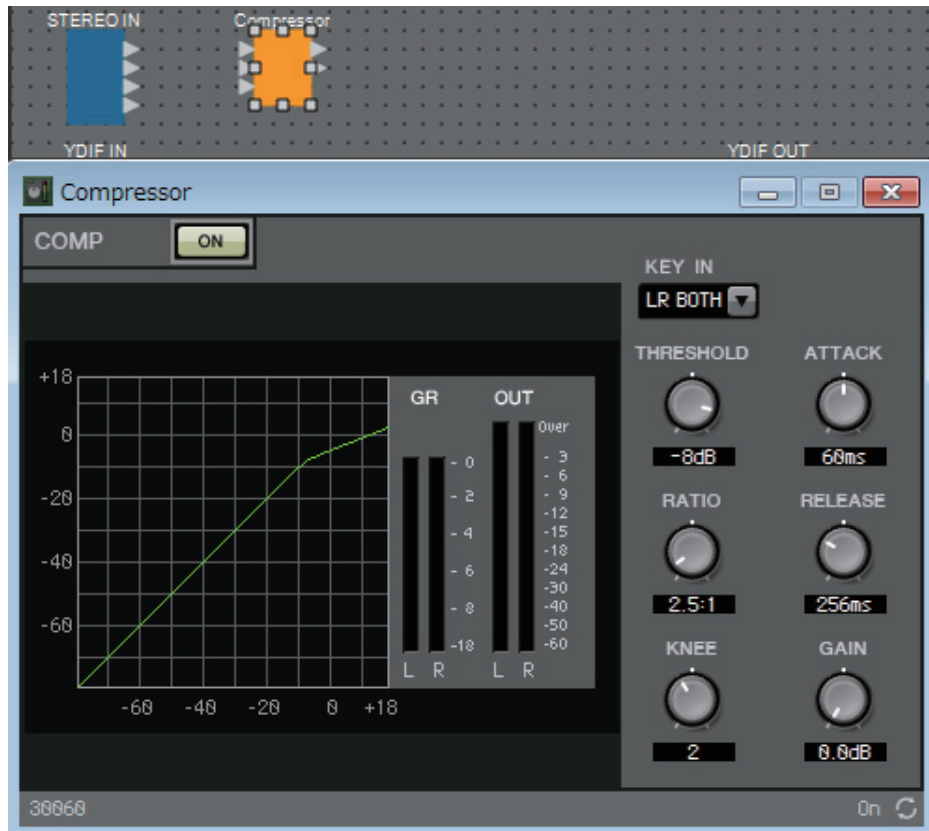


5. To make a connection, drag the ► of a component and drop it on the ◀ of another component.

For details, refer to [Connecting ports](#).



- 6.** Double-click a component or right-click it and choose “Open Component Editor”; the component editor opens, allowing you to operate the parameters.



- 7.** When you have made the necessary settings, click the “Compile” button to check whether there are any problems with the placement and connections of the component.



The steps up to this point can be performed beforehand using MRX Designer.

To make connections with other equipment, you’ll use the “EXT. I/O” screen of MTX-MRX Editor. For details, refer to the “MTX-MRX Editor User Guide.”

Go online with the MTX/MRX system, and then make detailed parameter settings.

Menu bar

The commands that can be executed in MTX Editor can be found here, grouped by category. [Click here to see a list of commands.](#)

Menu	Command	Summary	Dialog box or window that appears
[File]	[Save]	Saves the MTX-MRX Editor project file (overwriting the previous version of the file). The first time you save, the “Save File” dialog box will appear; specify a name for the file and save it.	“Save File” dialog box
	[Save with Style]	Saves the MTX-MRX Editor project file including the user style. Even if this project file is opened on another computer, the user style is not automatically imported. If you want to import it, open the project file and then execute [Import Style from Project File].	“Save File” dialog box
	[Export Style]	A user style saved on the computer can be exported as a file (filename extension .mrxs).	“Export Style” dialog box
	[Import Style]	An exported user style can be imported into the computer.	“Import Style” dialog box
	[Import Style from Project File]	From a project file that includes the user style, imports the user style into the computer.	—
	[Reset Style to Factory Default]	Initializes the user style to the state immediately after installation.	—
	[Print]	Shows the printer settings and a print preview of the design sheet.	“Print” dialog box
	[Install Speech Privacy File]	The environmental sounds to be played back by the Speech Privacy component can be transmitted to the MRX.	“Install Speech Privacy File” dialog box
	[FileTransfer]	Starts the “FileTransfer” application for transferring .rcsl files etc. to an iPad (with ProVisionaire Touch (V1.2 or later) installed) in the same network. In some cases, the “Network Setup” dialog box might appear before the application is started; if so, select the adapter that is connected to the network that includes the iPad.	“File Transfer” application
[PGM1 Label Creator]	Starts the “PGM1 Label Creator” application to create labels for the PGM1/PGX1.	“PGM1 Label Creator” application	

Menu	Command	Summary	Dialog box or window that appears
[Edit]	[Undo]	Cancels the preceding operation.*1	—
	[Redo]	Re-executes the operation that was canceled by [Undo].*1	—
	[Cut]	Moves the selected item to the copy buffer.	—
	[Copy]	Copies the selected item to the copy buffer. The copied component etc. can be pasted into drawing software such as Paint.	—
	[Paste]	Pastes the item from the copy buffer.	—
	[Paste Parameters]	Overwrites (copies) the parameters of the component in the copy buffer to the selected component.	—
	[Paste to User Defined Block]	Pastes the item from the copy buffer into the selected User Defined Block.	—
	[Delete]	Deletes the selected component or wire.	—
	[Duplicate]	Duplicates the selected component and wire.	—
	[Select All]	Selects all components, User Defined Blocks, and wires in the design sheet. If you want to select the contents of a User Defined Block, select the User Defined Block and then choose [Select All].	—
	[Select All Wires]	Selects all wires in the design sheet. If you want to select the contents of a User Defined Block, select the User Defined Block and then choose [Select All Wires].	—
	[Create User Defined Block]	Encapsulates the selected components as a User Defined Block.	—
	[Unpack User Defined Block]	Unpacks the components of the selected User Defined Block onto the design sheet.	—
	[Unbundle Wires]	Displays the wires connected to the selected component or User Defined Block spaced apart at equal intervals.	—
	[Bundle Wires]	Displays the wires connected to the selected component or User Defined Block overlaid together.	—
[Protect User Defined Block]	Protects or unprotects a User Defined Block whose [Lock Mode] is set to “View Only” or “Protect.”	“Protect User Defined Block” dialog box or “Unprotect User Defined Block” window	

Menu	Command	Summary	Dialog box or window that appears
[View]	[Components]	If this item has a check mark, the corresponding area is shown.	—
	[Parameter Sets]		—
	[Parameter Link Group]		—
	[Gang Edit Group]		—
	[Properties]		—
	[Parameters]		—
	[Bird's Eye View]	<p>Selects the Bird's Eye view display type.</p> <p>[Floating] : Shows the Bird's Eye view in a separate window from MRX Designer.</p> <p>[Docking] : Shows the Bird's Eye view in the lower right of MRX Designer.</p> <p>[Hide] : Hides the Bird's Eye view.</p>	—
	[Zoom In]	Magnifies the display within the design sheet.	—
	[Zoom Out]	Shrinks the display within the design sheet.	—
	[Zoom to 100%]	Sets the display magnification in the design sheet to 100%	—
	[Zoom to Fit]	Adjusts the magnification so that all placed components can be seen in the design sheet.	—
[Print Aria]	On the design sheet, shows the paper size specified in the "Print" dialog box. The (x,y)=(0,0) of the design sheet is the top left of the paper.	—	
[Tools]	[Compile]	Analyzes the placement and wiring of the components in the selected MTX/MRX system to see whether there are any problems.	"Compile" dialog box
	[Snapshot Group]	Specifies a snapshot group.	"Snapshot Group" dialog box
	[Remote Control Setup List]	Registers the parameters that will be controlled from a remote controller.	"Remote Control Setup List" dialog box
	[Peak Hold]	If ON is checked, the meters of the assigned component will hold the maximum value. If you select Reset, the held maximum value is reset.	—
	[Trace Signal Path]	If you select a port or wire while this is checked, the signal path is traced toward the output and toward the input, starting from the selected item.	—
	[Duplicate Port Label]	If you make a connection while this is checked, the port name of the connection-source is copied to the connection-destination port.	—
























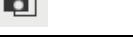

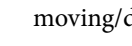
Menu	Command	Summary	Dialog box or window that appears
Controller	[GPI]	Lets you make settings for the GPI connector of the MRX. For details, refer to “MTX-MRX Editor User Guide.”	“GPI” dialog box
	[Digital Control Panel]	Lets you make settings for a DCP.	“Digital Control Panel” dialog box / “Wireless DCP” dialog box / “MCP1” dialog box
	[Wireless DCP]	Lets you make settings for a Wireless DCP.	“Port Name” dialog box
	[MCP1]	Lets you make settings for an MCP1.	“MCP1” dialog box
	[PGM1/PGX1]	Lets you make settings for a PGM1/PGX1.	“PGM1/PGX1” dialog box
[Arrange]	[Align Left Sides]	Aligns the left side to the left-most component of the selected multiple components.	—
	[Align Horizontal Centers]	Aligns the center of the component to the horizontal center of the selected multiple components.	—
	[Align Right Sides]	Aligns the right side to the right-most component of the selected multiple components.	—
	[Align Tops]	Aligns the top side to the highest of the selected multiple components.	—
	[Align Vertical Centers]	Aligns the center of the component to the vertical center of the selected multiple components.	—
	[Align Bottoms]	Aligns the bottom side to the lowest of the selected multiple components.	—
	[Distribute Horizontally]	Spaces the selected components evenly in the horizontal direction.	—
	[Distribute Vertically]	Spaces the selected components evenly in the vertical direction.	—
	[Same Heights]	Aligns the height of the selected components. Depending on the number of ports, the height might not align.	—
	[Same Widths]	Aligns the width of the selected components. Depending on the port name, the width might not align.	—
	[Bring to Front]	Moves the selected component or wire to the front.	—
[Send to Back]	Moves the selected component or wire to the back.	—	
[Window]	[Close All Editor Windows]	Closes all component editor and parameter setting windows.	—
	[Show All Editor Windows]	Shows all component editor and parameter setting windows in the foreground.	—
	[Hide All Editor Windows]	Hides all component editor and parameter setting windows.	—
	[Show MTX-MRX Editor]	Shows MTX-MRX Editor in the foreground.	—

Menu	Command	Summary	Dialog box or window that appears
[Help]	[Shortcut Keys]	Shows a list of shortcut keys.	"Shortcut keys" window
	[Operation Manual]	Displays basic operations.	"Operation Manual" window

- *1. In the [Properties] area, you can specify the operation that the [Undo]/[Redo] command will affect: either placing/moving/deleting a component, or creating/deleting a wire between components.

Tool buttons

Commands frequently used in MRX Designer, such as “Compile” and “Align Left Side,” are provided as buttons.

Button	Command	Summary
	[Show MTX-MRX Editor]	Shows “MTX-MRX Editor” in the foreground.
	[Print]	Prints the design sheet.
	[Undo]	Cancels the preceding operation.*1
	[Redo]	Re-executes the operation that was canceled by [Undo]. *1
	[Cut]	Moves the selected item to the copy buffer.
	[Copy]	Copies the selected item to the copy buffer.
	[Paste]	Pastes the item from the copy buffer to the selected location.
	[Zoom In]	Magnifies the display within the design sheet.
	[Zoom Out]	Shrinks the display within the design sheet.
	--	Indicates the current magnification within the design sheet. Click ▼ to change the magnification. You can click the numeric display area and enter a number directly.
	[Zoom to 100%]	Sets the display magnification in the design sheet to 100%
	[Zoom to Fit]	Adjusts the magnification so that all placed components can be seen in the design sheet.
	[Align Left Sides]	Aligns the left side to the left-most component of the selected multiple components.
	[Align Horizontal Centers]	Aligns the center of the component to the horizontal center of the selected multiple components.
	[Align Right Sides]	Aligns the right side to the right-most component of the selected multiple components.
	[Align Tops]	Aligns the top side to the highest of the selected multiple components.
	[Align Vertical Centers]	Aligns the center of the component to the vertical center of the selected multiple components.
	[Align Bottoms]	Aligns the bottom side to the lowest of the selected multiple components.
	[Distribute Horizontally]	Spaces the selected components evenly in the horizontal direction.
	[Distribute Vertically]	Spaces the selected components evenly in the vertical direction.
	[Same Heights]	Aligns the height of the selected components. Depending on the number of ports, the height might not align.
	[Same Widths]	Aligns the width of the selected components. Depending on the port name, the width might not align.
	[Trace Signal Path]	Traces the signal path toward the output and toward the input, starting from the selected port or wire.
	[Compile]	Analyzes the placement and wiring of the MRX components included in the selected MTX/MRX system to determine whether there are any problems.
	[Preset]	Displays the “Preset” dialog box. This dialog box is the same as the “Preset” dialog box of MTX-MRX Editor.
	[Gang Edit]	Switches the gang edit group’s [Active] button on/off. If this turns on, the name of the currently selected gang edit group is shown at the right of the button.

*1. In the [Properties] area, you can specify the operation that the [Undo]/[Redo] command will affect: either placing/moving/deleting a component, or creating/deleting a wire between components.

Shortcut keys

Here are the shortcut keys that you can use in MRX Designer.

Key combinations	Operation
< ↑ > / <Ctrl>+< ↑ >	Scrolls the design sheet upward. If a component is selected, this moves the selected component upward.
< ↓ > / <Ctrl>+< ↓ >	Scrolls the design sheet downward. If a component is selected, this moves the selected component downward.
< ← > / <Ctrl>+< ← >	Scrolls the design sheet to the left. If a component is selected, this moves the selected component to the left.
< → > / <Ctrl>+< → >	Scrolls the design sheet to the right. If a component is selected, this moves the selected component to the right.
<Page Up>	Scrolls the design sheet upward.
<Page Down>	Scrolls the design sheet downward.
<Home>	Moves to the left-most component.
<End>	Moves to the right-most component.
<Ctrl> + <Home>	Moves to the component in the top left corner.
<Ctrl> + <End>	Moves to the component in the bottom right corner.
Mouse wheel	Scrolls the design sheet up/down.
<Shift> + mouse wheel	Scrolls the design sheet left/right.
<Ctrl> + mouse wheel	Zooms the design sheet in/out.
Alphabetical keys and numeric keys	Select the component in the design sheet whose label starts with the corresponding character. If there are multiple such components, they are selected successively. Selects the components, parameters, or groups with a matching initial letter in the “Components” area, “Parameter Sets” area, “Parameter Link Group” area, or “Parameters” area. If there are multiple such components, they are selected successively.
<Ctrl> + click	In the design sheet, this lets you simultaneously select or de-select multiple components or component ports, wires, or text. In the “Parameters” area, this lets you simultaneously select or de-select multiple components or parameters.
Click →<Shift> + click	In the “Parameters” area, this lets you simultaneously select or de-select multiple components or parameters.
Drag the mouse cursor	Selects the components, component ports, wires, and text that are completely enclosed by the rectangular area in the design sheet.
<Ctrl> + drag the mouse cursor	Selects the components, component ports, wires, and text that are completely or partially enclosed by the rectangular area in the design sheet.
<Shift> + drag the mouse cursor	Selects the input ports of the components that are completely enclosed by the rectangular area in the design sheet.
<Alt> + drag the mouse cursor	Selects the output ports of the components that are completely enclosed by the rectangular area in the design sheet.

Key combinations	Operation
<Shift> + <Alt> + drag the mouse cursor	Selects the input ports and output ports of the components that are completely enclosed by the rectangular area in the design sheet.
Double-click a component in the “Components” area	Initiates Stamp mode. Stamp mode is a function that places a component on the design sheet each time you click.
<Esc>	Exits Stamp mode or editing.
<Ctrl> + drag and drop a component or text onto the design sheet	Duplicates the component or text.
<Alt> + click a parameter	Sets the parameter to nominal.
<Alt> + <F4>	Closes the component editor or parameter setting window that is in the foreground.
<F5>	Initiates synchronization, and goes online.
<Ctrl> + <F5>	Goes offline.

Design sheet

Here you can place components and connect them.

Parameter settings are the main operations that you can perform while online. Operations such as placing and connecting components can only be done while offline.

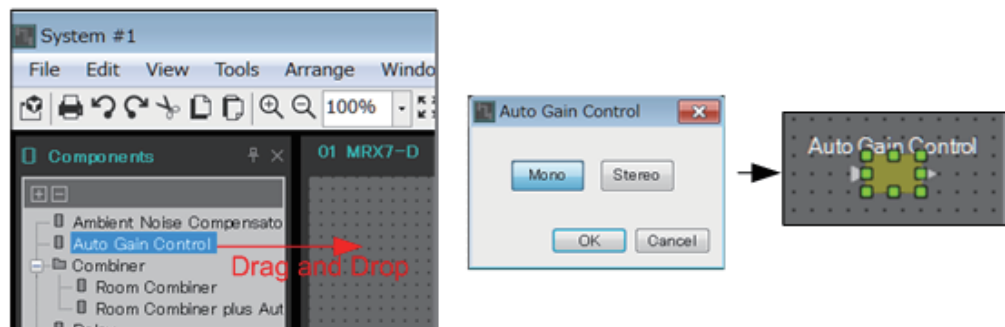
□ Placing components

Here we explain how to place components on the design sheet.

NOTE If any component in the “Components” area is selected, pressing an alphabetical key will select the component of the matching initial letter.

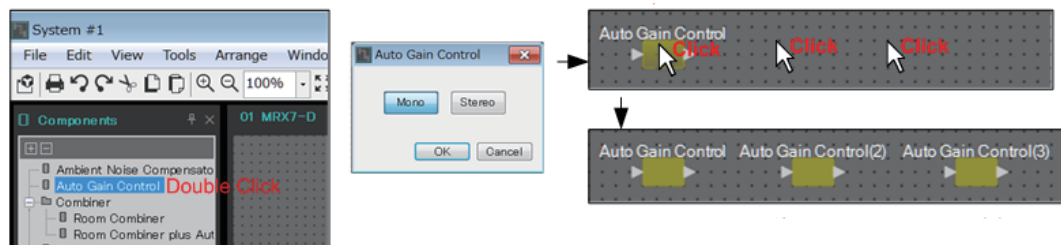
- **Placing a single component**

Drag a component from the list in the “Components” area and drop it on the design sheet.



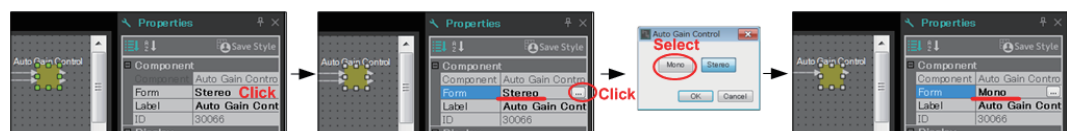
- **Placing multiple instances of the same component**

Double-click on a component in the “Components” area to select Stamp mode; in this mode, the component is placed each time you click the design sheet. To cancel Stamp mode, press <Esc> or click any component in the list.



- **Changing the number of channels for a component you placed**

In the “Properties” area, click the property Form field; then click the [...] that appears and select the desired number of channels. This cannot be changed on a component for which [...] is not shown.



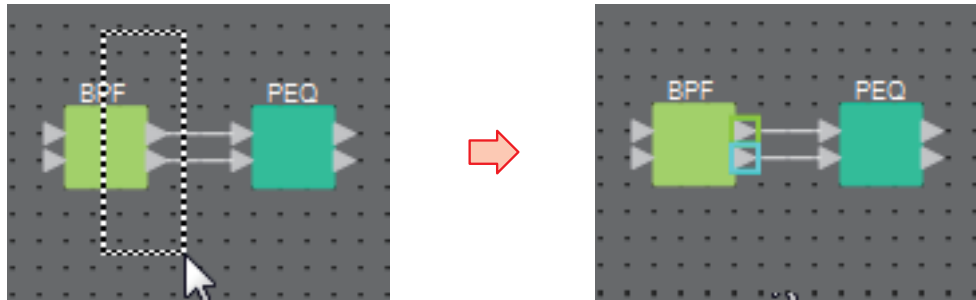
□ Selecting multiple components, ports, or wires

Here's how to select multiple components placed in the design sheet, or multiple wires that connect ports of components.

- **Use the mouse cursor to completely enclose objects**

Drag the mouse cursor to select the components, component ports, wires, and text that are completely enclosed by the rectangular area in the design sheet.

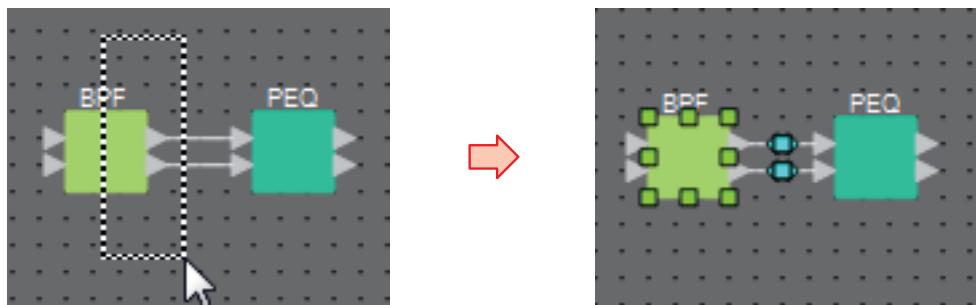
NOTE If the selection encloses an expanded User Defined Block, and the point at which you start dragging is on the style sheet, then the objects on the style sheet are selected. If the point at which you start dragging is on a User Defined Block, then objects on the User Defined Block are selected.



- **Hold down <Ctrl> and use the mouse cursor to completely or partially enclose objects**

Hold down <Ctrl> and drag the mouse cursor to select the components, component ports, wires, and text that are completely or partially enclosed by the rectangular area in the design sheet.

NOTE If the selection encloses an expanded User Defined Block, and the point at which you start dragging is on the style sheet, then the objects on the style sheet and the User Defined Block are selected. If the point at which you start dragging is on a User Defined Block, then objects on the User Defined Block are selected.

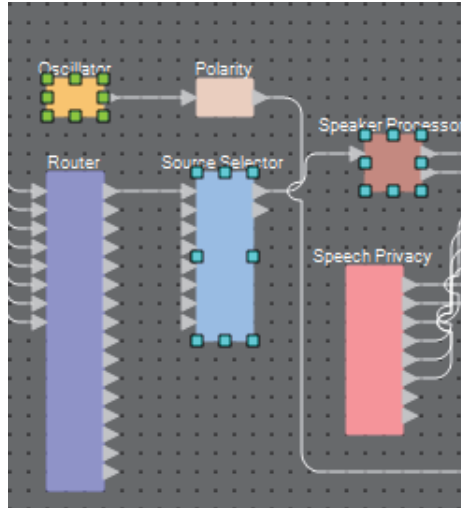


- **Hold down <Ctrl> and click objects**

Hold down <Ctrl> and click the target that you want to select.

If you hold down <Ctrl> and click an object that is already selected, the selection is cleared. This is convenient when you have selected multiple objects by enclosing them, and then want to de-select one of the selected objects.

NOTE *If objects in a User Defined Block and on the style sheet are simultaneously selected, there are some limitations on operation; for example, you can't move components.*

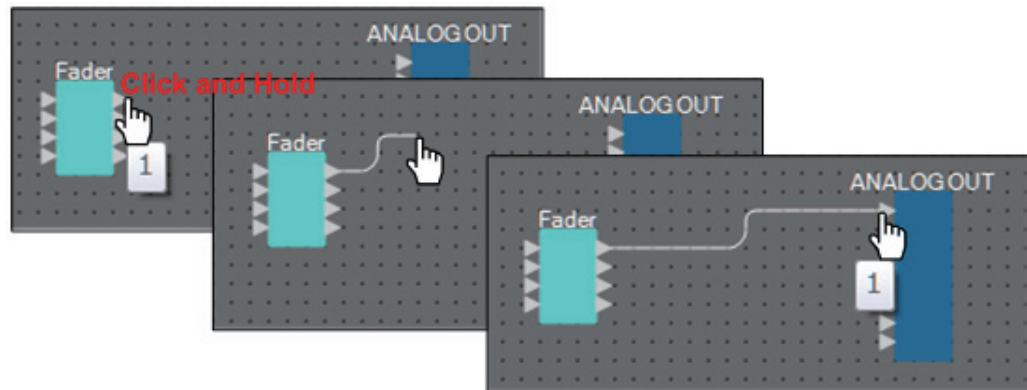


□ Connecting ports

Here we explain how to make connections between ports of components by creating a wire between the ports.

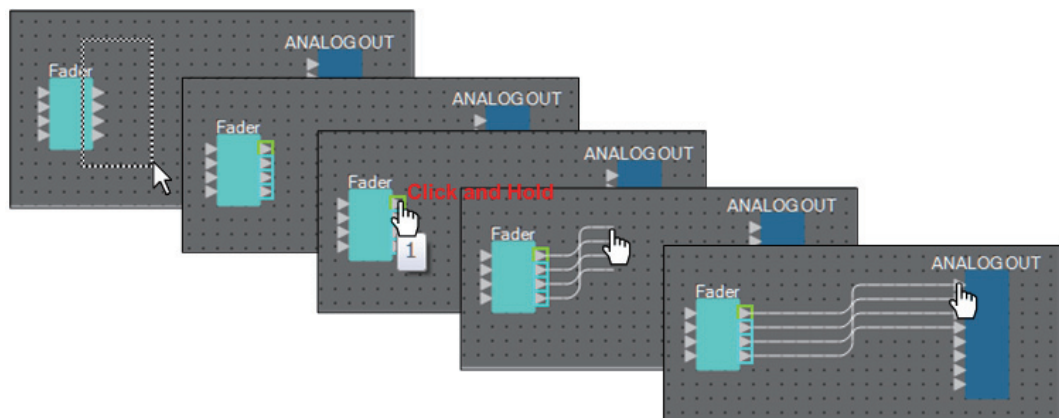
- **Making one connection at a time**

Drag one output port to the input port of the destination component.



- **Making multiple connections at a time**

Select multiple output ports, and drag one of these ports to an input port of the destination component.

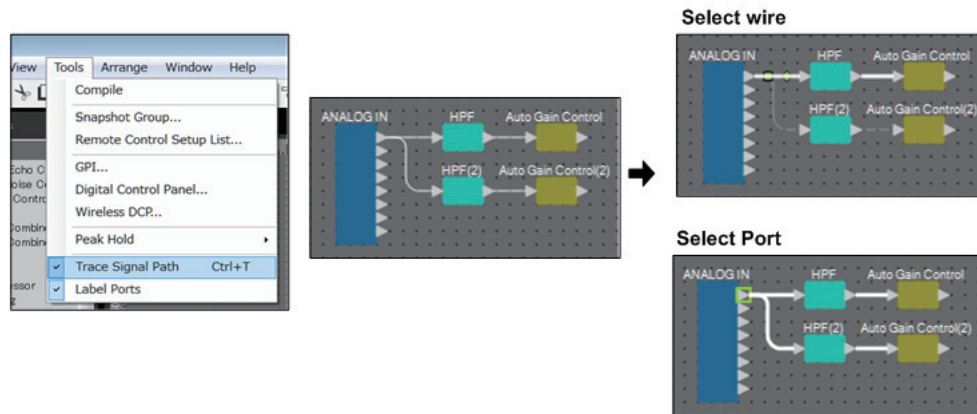


□ Tracing the signal path

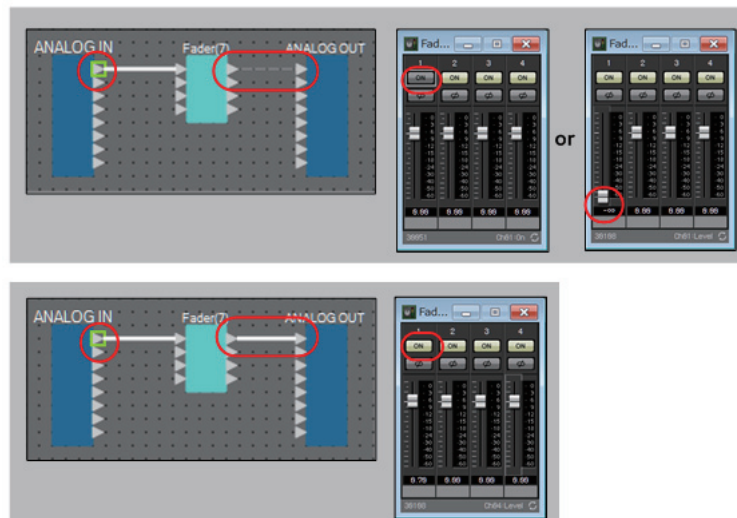
Here we explain how to view the signal path.

To view the signal path, add a check mark to the [Tools] menu → [Trace Signal Path] command.

- **Click a wire**
The path of the signal flowing through that wire is shown.
- **Click a port**
The path of the signal flowing through that port is shown.



If the signal path is connected but no audio signal flows because it is turned OFF or the level is minimized, the signal path is shown as a dashed line.



□ Duplicating an input port name

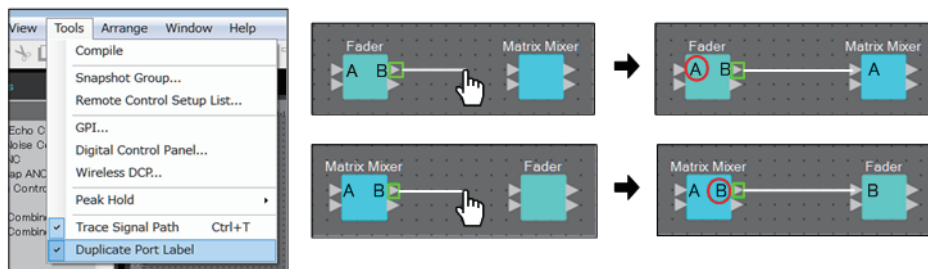
If you want to use the signal name as the port name, it is convenient to duplicate the port name. Here we explain how to automatically duplicate the input port name.

In general, the input port name is automatically duplicated to the input port of the connection-destination component, but the following exceptions apply.

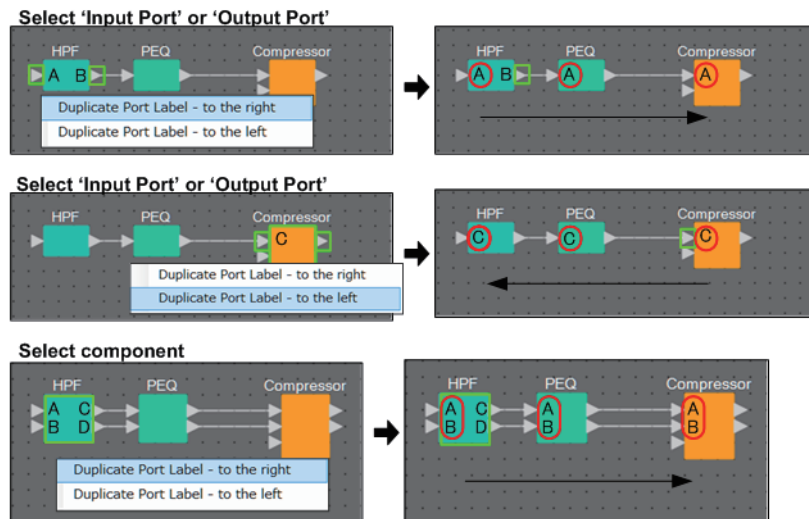
- For a mixer-type component or a component that has only an output, the output port name is duplicated to the input port of the connection-destination.
- If the duplication-source port name is blank, it is not automatically duplicated.

NOTE *If the port name has already been specified, the port name is overwritten by the automatic duplication.*

- **Automatically duplicating the port name when components are connected**
If [Tools] menu → [Duplicate Port Label] has a check mark, the port name is automatically duplicated when you make a connection between components.



- **Duplicating the port name of components along the signal path**
In the context menu that appears when you right-click a port or component, choose [Duplicate Port Label - to the right] or [Duplicate Port Label - to the left]; the input port name is duplicated to the input port of the following or preceding components. However if a mixer-type component exists within this path, duplication stops at the mixer-type component.



□ About [Unbundle Wires]

After you have placed all of the necessary components and have finished creating wires between them, you can select all components and execute [Unbundle Wires] to prevent the wires from overlapping in the display.

When you execute [Unbundle Wires], the items in the “Properties” area for the components and the wires connected to the components are set to the following values.

	Item	Value
Component	Output Wiring Step	10
	Input Wiring Step	10
Wire	Wire Routing	Automatic
	Auto Block Avoidance	False

If you want to selectively change the spacing between the wires, perform the operation above, and then change the [Output Wiring Step] or [Input Wiring Step] values.

If you don't want wires to overlap when you're making connections, execute the following procedure.

- 1. Place all components.**
- 2. Select all components, and execute [Unbundle Wires].**
- 3. Make one connection between components, and select the wire.**
- 4. Set the wire's [Wire Routing] to [Automatic], and set [Auto Block Avoidance] to [False].**
- 5. Click the [Save Style] button to save the wire's user style to the computer.**

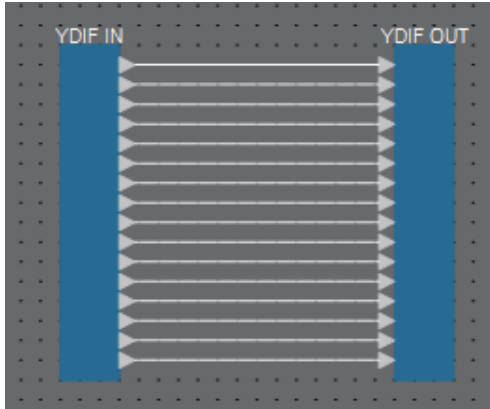
Subsequently when you connect wires, they are shown without overlapping.

The diagram illustrates the workflow for unbundle wires and saving a style:

- Select All Components:** Shows three fader components with overlapping wires.
- Edit Menu Unbundle Wires:** Executes the command to separate the wires.
- Edit Menu Bundle Wires:** Executes the command to return wires to their original overlapping state.
- Change Wire Style:** Shows the Properties window for a wire with the following settings:
 - Wire Routing: Automatic
 - Auto Block Avoidance: False
 - Orthogonal Wire: True
 - Orthogonal Wire: RoundedLineWithJu
 The **Save Style** button is highlighted.
- Make Connections:** Shows a wire being connected between two fader components, resulting in a clean, non-overlapping wire layout.

□ YDIF handling

In an MTX/MRX system that uses YDIF to transmit or receive audio signals, you'll need to make connections by placing YDIF IN and YDIF OUT components on the MRX. If these connections are not made, the YDIF signal might be disconnected inside the MRX, causing the sound to no longer be output. If you're not performing signal processing inside the MRX, connect the inputs directly to the outputs as shown in the diagram below.

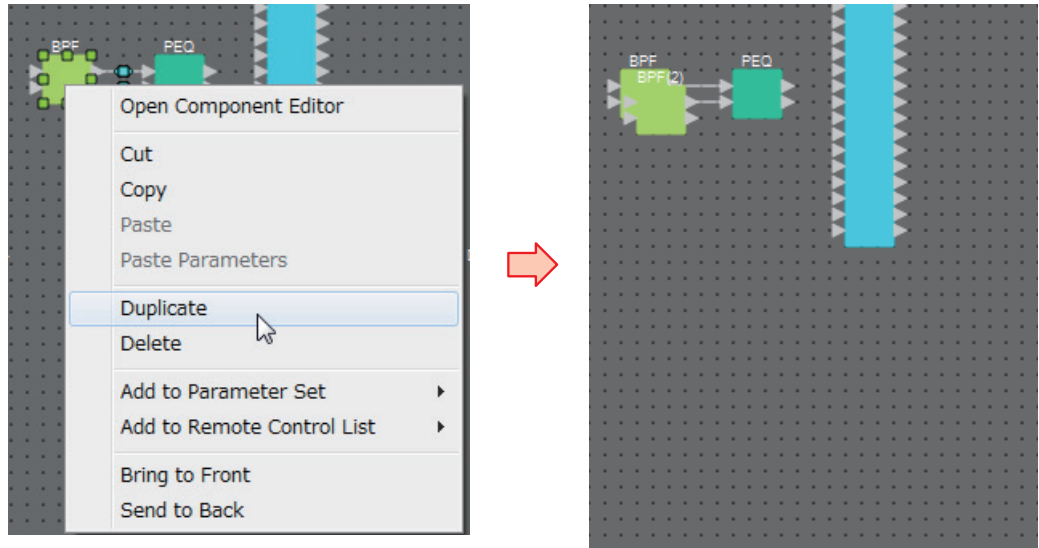


□ Duplicating components

Here we explain how to duplicate components together with their parameters.

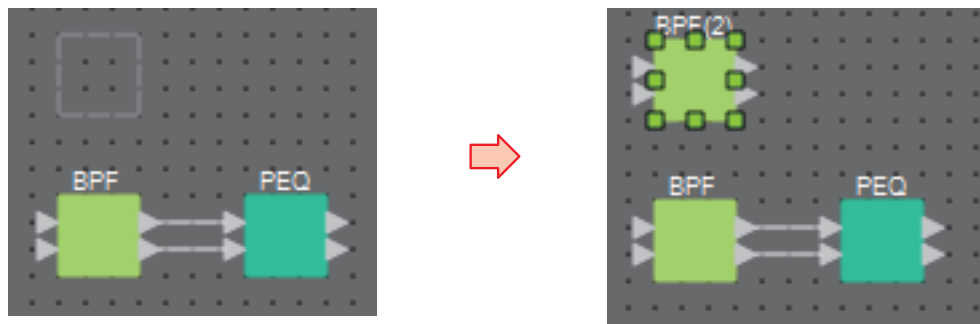
- **Right-click a component and choose [Duplicate]**

A duplicate, overlapping component is created. If multiple components with their wires are selected when you choose [Duplicate], the components are duplicated together with their wires.



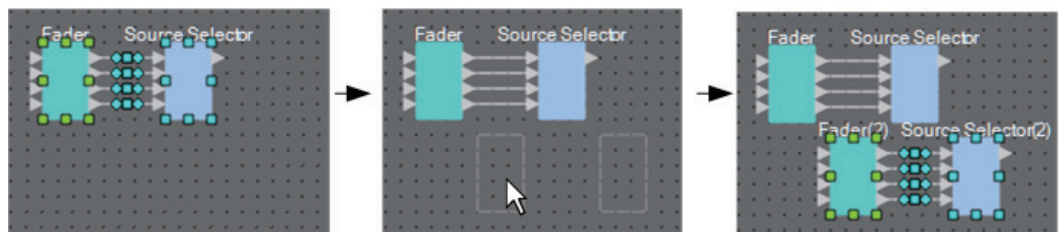
- **Drag and drop a component while holding down <Ctrl>**

A duplicate is created where you drop the component.



- **Drag and drop multiple components with their wires while holding down <Ctrl>**

Duplicates of the components together with their wires are created where you drop the component.



“Parameter Sets” area

A set of parameters stored or recalled as a snapshot is called a “parameter set.” You can create such a parameter set, register the desired parameters of the MRX to the parameter set, and store the current values of the parameter set members as a snapshot. One parameter set can store up to 10 different snapshots. A parameter can be registered in more than one parameter set.

Parameters can be registered in a parameter set in the following ways.

Registration source	Registration method
Design sheet	While holding down <Ctrl>, drag and drop a component onto a parameter set name.
	Right-click a component, and use [Add to Parameter Set] to select the parameter set to which it will be registered.
Component editor / Link Master editor / Parameter setting window	While holding down <Ctrl>, drag and drop a parameter onto a parameter set name.
	Right-click a parameter, and use [Add to Parameter Set] to select the parameter set in which it will be registered. Right-click somewhere other than on a parameter, and use [Add to Parameter Set] to select the parameter set in which the component will be registered.
“Parameters” area*1	Drag and drop the component or parameter onto a parameter set name.
	Right-click the component or parameter, and use [Add to Parameter Set] to select the parameter set to which it will be registered.
“Parameter Sets” area	Select the registration-destination parameter set, and then click the [Add Device] button and select a device.
“Parameter Link Group” area	Right-click the parameter link group, and select [Add to Parameter Set] to register the link master fader or [ON] button.

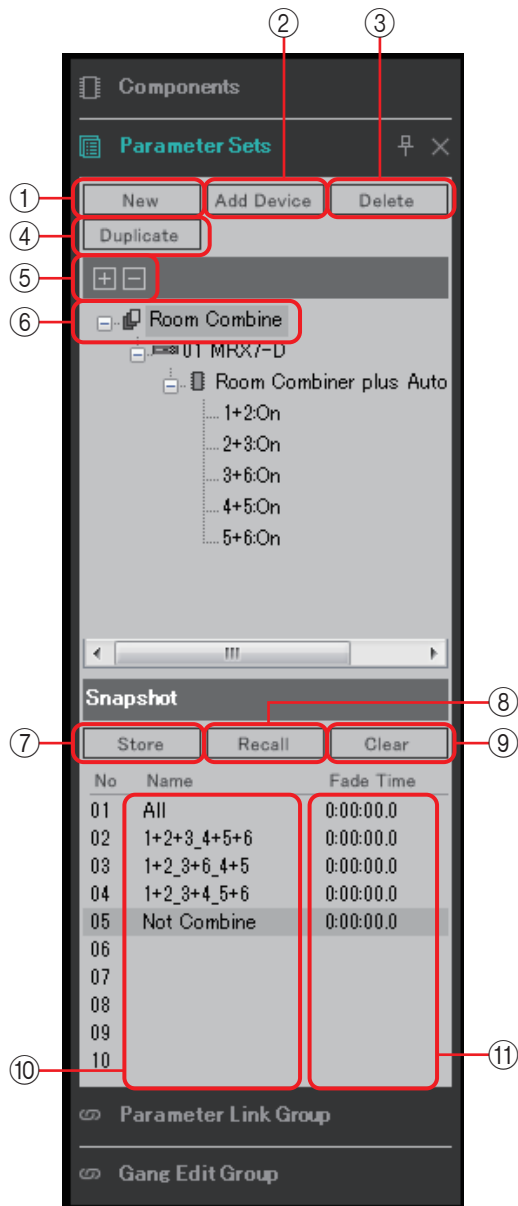
*1. You can also use <Shift> or <Ctrl> to simultaneously register multiple components or parameters in a parameter set.

NOTE *If you are going to recall all of the parameters of a component, the recall will take less time if you register the component rather than registering the individual parameters in the parameter set.*
If you are going to recall all of the parameters in an MRX unit, the recall will take less time if you register the MRX unit rather than registering the individual parameters or components in the parameter set.

If you are changing only the internal settings of an MRX unit, recall a snapshot. If you want to change other things in addition to internal settings of the MRX unit, you should register a snapshot in a preset so that the snapshot is recalled when the preset is recalled.

You can also combine multiple snapshots into a group (“Snapshot Group” dialog box). Grouping snapshots allows you to recall multiple snapshots in a single operation.

Snapshots and snapshot groups can also be assigned to a DCP, Wireless DCP, GPI, or scheduler in addition to a preset. You can also register a snapshot to a Remote Control Setup List, and recall it from a remote controller.



If you place the cursor on the border between Parameter Sets and Snapshot, the cursor changes shape, letting you drag to change the height of Snapshot.

① [New] button

Creates a new parameter set.

② [Add Device] button

Registers an individual device to the parameter set.

NOTE Even if you register an entire device, the Link Master settings of the parameter link group are not included.

③ [Delete] button

Deletes the selected parameter set, MRX, parameter, or link master.

NOTE When a member of a parameter set is deleted, it is also deleted from the snapshot data. If, after storing a snapshot, you add a parameter to the parameter set, you should overwrite-store the snapshot once again.

④ **[Duplicate] button**

Duplicates the selected parameter set. If you want to duplicate the snapshots as well, add a check mark to [Duplicate Snapshots Also] in the “Duplicate” dialog box that appears.

⑤ **[+]/[-] buttons**

Completely expands or completely minimizes the parameter set display.

⑥ **Parameter set name**

Shows the name of the parameter set. You can double-click the parameter set name and edit it.

NOTE *If any parameter set in the “Parameter Sets” area is selected, pressing an alphabetical key will select the parameter set of the matching initial letter.*

⑦ **[Store] button**

Stores (saves) a snapshot.

⑧ **[Recall] button**

Recalls a snapshot.

⑨ **[Clear] button**

Deletes a snapshot.

⑩ **[Name] field**

Shows the name of the snapshot. You can double-click the snapshot name and edit it.

⑪ **[Fade Time] field**

This shows the time (Fade Time) that is taken to change the level of fader components or the send level of Matrix components that are registered in the parameter set. Double-click this to open the “Fade Time” dialog box. In the dialog box that appears, specify the time over which the change will happen. You can specify up to three hours.



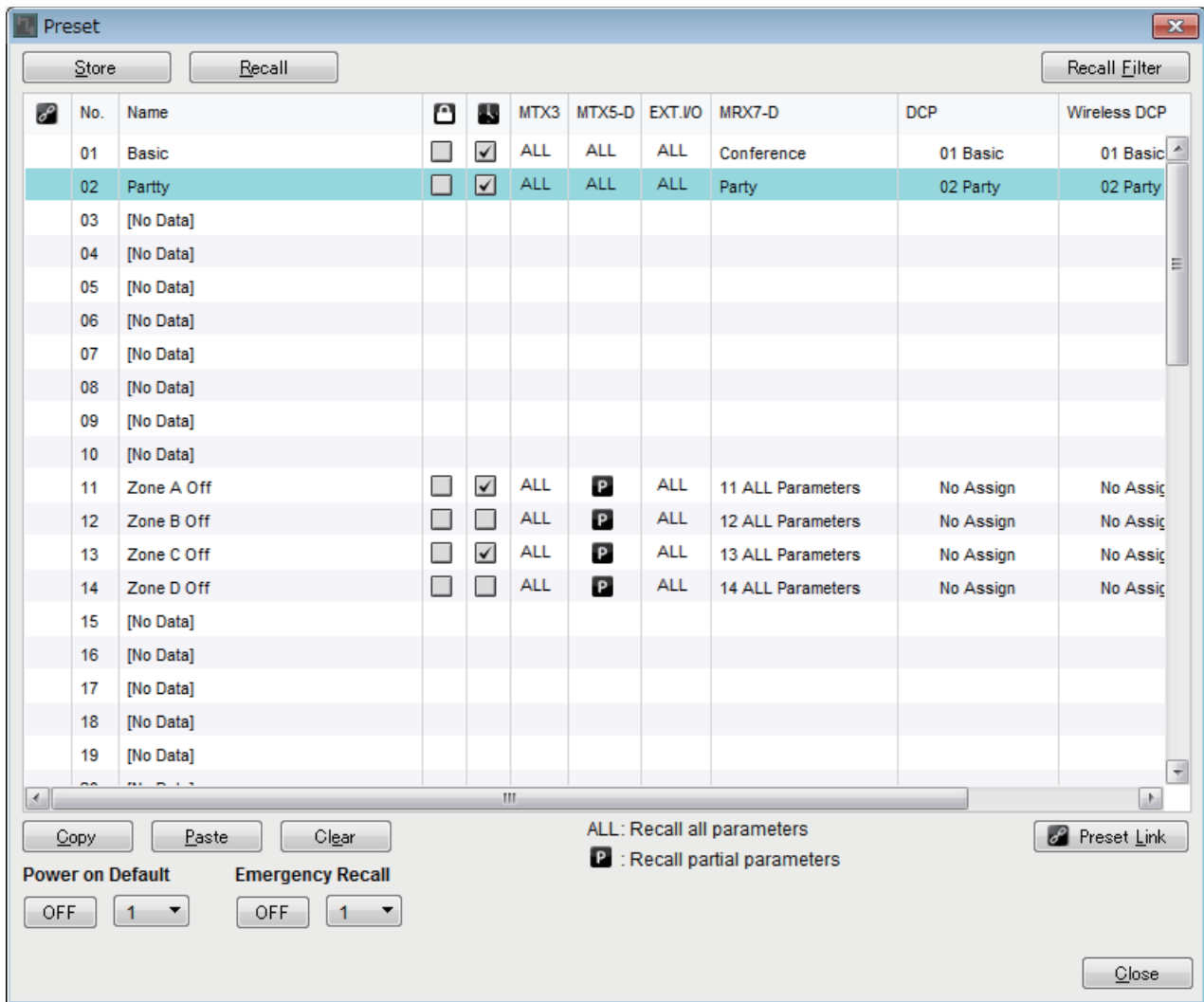
□ “Preset” dialog box

If you register a snapshot in a preset, it can be recalled together with devices such as the MTX, XMV, and DCP.

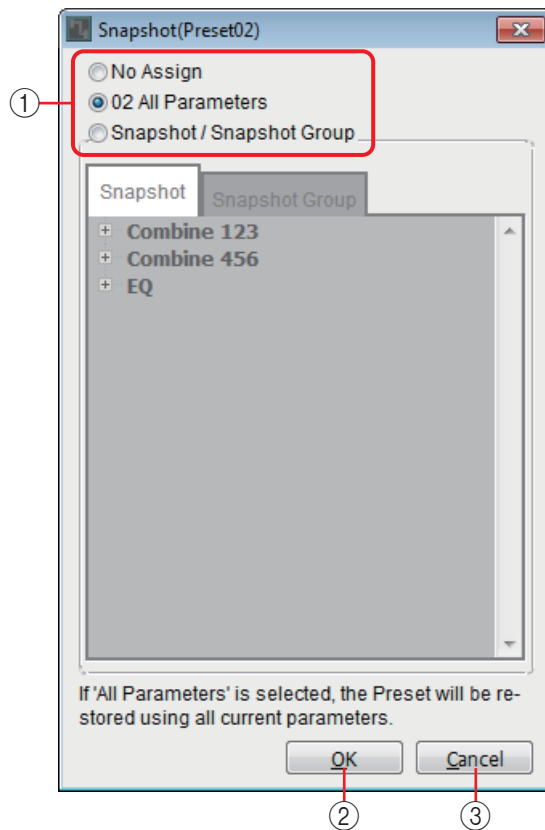
To store all of the parameters of the MRX units included in the MTX/MRX system, store the preset by pressing the [Store] button in the “Preset” dialog box. The parameters are linked to the preset as [All Parameters].

However if you want to change only some of the parameters of the MRX, replace [All Parameter] with a snapshot. Here we explain how to register a snapshot in a preset.

NOTE When you select [All Parameters], all Link Master settings are also included. If you want to store all parameters but only some of the Link Master parameters, register individual devices in the parameter set, and then register Link Master parameters individually.



When you double-click the MRX7-D field of a preset in the “Preset” dialog box, the “Snapshot” dialog box appears.



① **Preset recall method selection buttons**

Depending on the selection here, preset recall will operate as follows.

- No Assign** : The corresponding preset will not recall the parameters of the MRX.
- All Parameters** : The corresponding preset will control all parameters (including all Link Master settings) of the MRX.
- Snapshot / Snapshot Group** : The corresponding preset will recall a snapshot or multiple snapshots (a snapshot group).

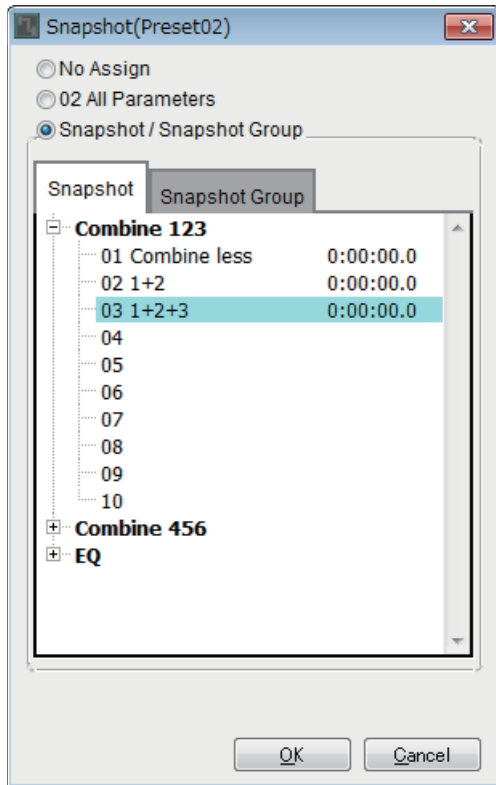
② **[OK] button**

Applies the settings and closes the dialog box.

③ **[Cancel] button**

Closes the dialog box without applying the settings.

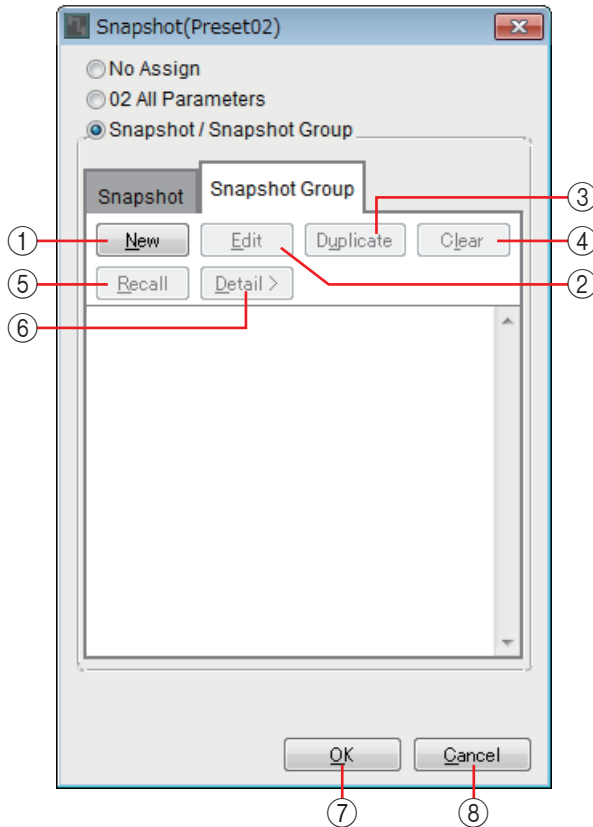
Using a preset to recall only one snapshot



Open the [Snapshot] tab.

Select the snapshot that you want to recall, and click the [OK] button.

Using a preset to recall multiple snapshots



Open the [Snapshot Group] tab.

① [New] button

Opens the "New Snapshot Group" dialog box, allowing you to create a new snapshot group.

② [Edit] button

Opens the "Edit Snapshot Group" dialog box, allowing you to edit the selected snapshot group. The procedure is the same as in the "New Snapshot Group" dialog box.

③ [Duplicate] button

Copies the selected snapshot group and opens the "Duplicate Snapshot Group" dialog box, allowing you to edit it. The procedure is the same as in the "New Snapshot Group" dialog box.

④ [Clear] button

Deletes the selected snapshot group.

⑤ [Recall] button

Recalls the selected snapshot group.

⑥ [Detail>] button

Shows/hides the snapshots that are registered in the snapshot group.

⑦ [OK] button

Applies the settings and closes the dialog box.

⑧ [Cancel] button

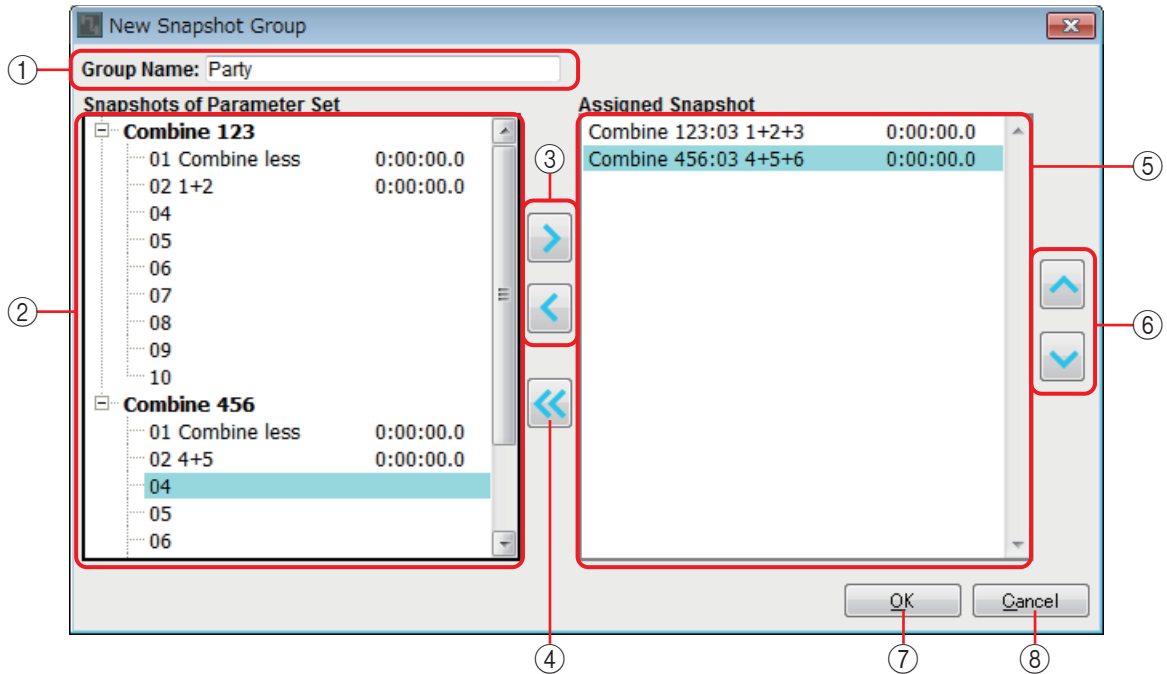
Closes the dialog box without applying the settings.

“New Snapshot Group” dialog box

A snapshot group recalls multiple snapshots in succession.

A created snapshot group can be used with a preset, scheduler, GPI, DCP, Wireless DCP, or Remote Control Setup List.

In this dialog box you can select a snapshot and register it in the snapshot group or delete it.



① **“Group Name”**

Shows the name of the snapshot group. You can select the displayed name and edit it.

② **“Snapshots of Parameter Set” field**

Shows the stored snapshots.

③ **[>]/[<] buttons**

These buttons register a snapshot in the snapshot group, or remove a registered snapshot group.

④ **[<<] button**

This button removes all registered snapshots.

⑤ **“Assigned Snapshot” field**

Shows the snapshots that are registered in the snapshot group.

⑥ **[^]/[v] buttons**

These buttons change the recall order of the registered snapshots.

⑦ **[OK] button**

Applies the settings and closes the dialog box.

⑧ **[Close] button**

Closes the dialog box without applying the settings.

“Parameter Link Group” area

You can create a parameter link group that links multiple parameters such as Level or ON/OFF. The parameters of multiple MRX units within the MTX/MRX system can be registered in a single parameter link group. A single parameter can also be registered in more than one parameter link group. A created parameter link group can be used with a snapshot, scheduler, GPI, DCP, Wireless DCP, or Remote Control Setup List.

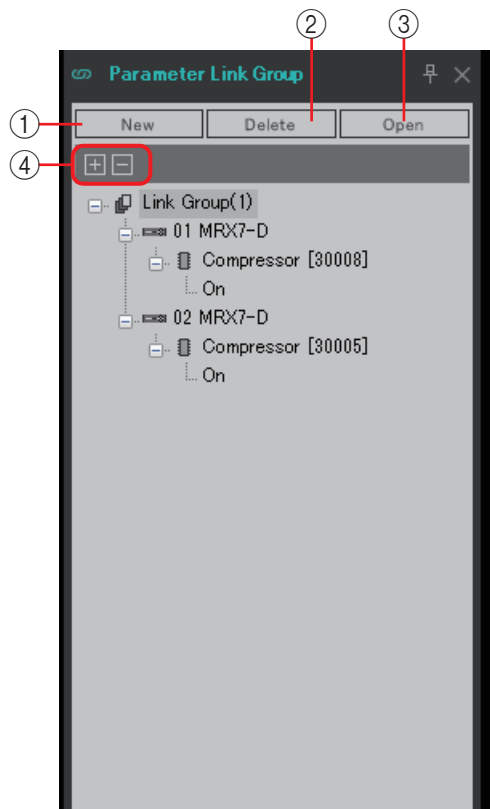
Level-type parameters and ON/OFF-type parameters cannot coexist in a single parameter link group. For each MTX/MRX system, there can be up to 64 parameter link groups.

Parameters can be registered in a parameter link group in the following ways.

Registration source	Registration method
Component editor / Parameter setting window	While holding down <Ctrl>, drag and drop a parameter onto a parameter link group name.
	Right-click a parameter, and use [Add to Parameter Link Group] to select the parameter link group in which it will be registered.
“Parameters” area*1	Drag and drop a parameter onto a parameter link group name.
	Right-click a parameter, and use [Add to Parameter Link Group] to select the parameter link group in which it will be registered.

*1. You can also use <Shift> or <Ctrl> to simultaneously register multiple parameters in a parameter link group.

- NOTE**
- In some cases, you'll want to use a stereo fader to process signals such as STEREO IN, SD IN, or the source selector. In such cases, place the same number of “Fader” components as the number of channels that you want to use, and (for a stereo signal) create a parameter link group for every two channels. The link master fader will be a stereo fader.
 - If any parameter link group in the “Parameter Link Group” area is selected, pressing an alphabetical key will select the parameter link group of the matching initial letter.



- ① **[New] button**
Creates a new parameter link group.
- ② **[Delete] button**
Deletes the selected parameter link group or parameter.
- ③ **[Open] button**
Displays the Link Master editor for the selected parameter link group.
- ④ **[+]/[-] buttons**
Completely expands or completely minimizes the parameter link group display.

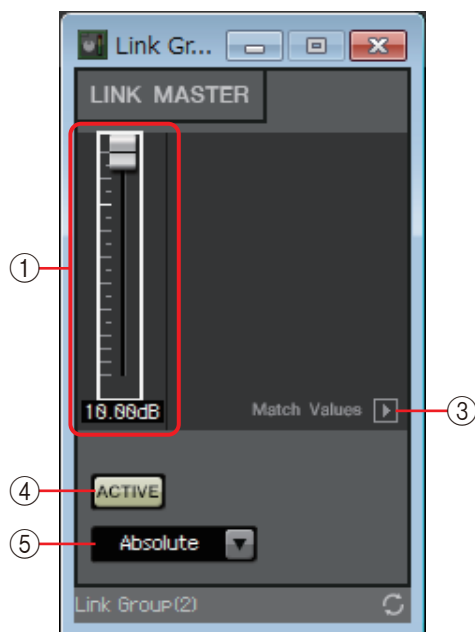
□ Link Master editor

There is a link master for each parameter link group.

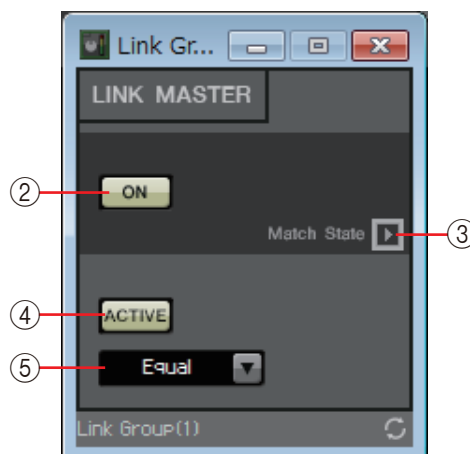
When you change a link master parameter, the change also affects the parameters that are registered to the parameter link group. Even if you change a parameter that is registered to the parameter link group, the change does not affect the link master parameters.

The name of the parameter link group is shown in the title bar and at the bottom of the editor.

LEVEL-type



ON/OFF-type



① **Fader (Level-type only)**

Specifies the value of a level-type parameter.

② **[ON] button (ON/OFF-type only)**

Turns the parameter on/off.

③ **[Match Values] button**

If [Absolute] or [Equal] is selected in the combo box, this button sets the value of the registered parameter to be the same as the link master value.

④ **[ACTIVE] button**

If this is on, the parameter link group is enabled. Turn this off if you want to temporarily disable the link.

⑤ **Combo box**

Specifies how Level-type and ON/OFF-type settings are applied.

[Absolute]/[Equal]	Sets the value of the registered parameter to the same value as the link master.
[Relative]/[Opposite]	When you operate the link master, the registered parameters change while maintaining their relative position.

“Gang Edit Group” area

In this area you can create gang edit groups that link multiple components. Components of multiple MRX units within a MTX/MRX system can be registered in a single gang edit group.

This lets you simultaneously modify the parameters of similar components within a group. Since this can be done even when offline, you can use it to make final adjustments to (for example) the Speaker Processor while listening to the sound at the actual location.

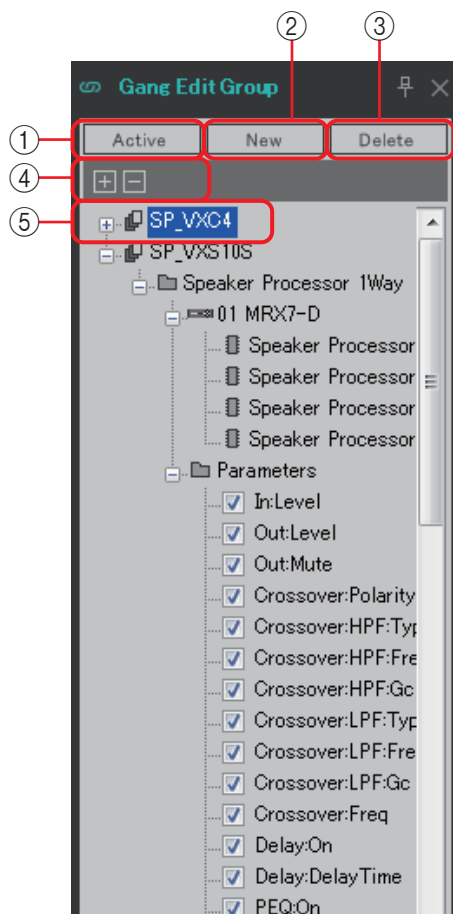
When you open the component editor for any one of the components that you want to edit, it becomes the master, allowing you to edit the settings of the other linked components. If you want to use this Link function after making gang edit group settings, leave the MTX-MRX Editor and MTX/MRX system online during operation.

For each MTX/MRX system, there can be up to 64 gang edit groups.

Parameters can be registered in a gang edit group using the following methods.

Registration source	Registration method
Design sheet	While holding down <Ctrl>, drag and drop a component onto a gang edit group name.
	Right-click a component, and use [Add to Gang Edit Group] to select the gang edit group to which it will be registered.
“Parameters” area *1	Drag and drop a component onto a gang edit group name.
	Right-click a component, and use [Add to Gang Edit Group] to select the gang edit group to which it will be registered.

*1. You can also use <Shift> or <Ctrl> to simultaneously register multiple components to a gang edit group.



① **[Active] button**

Enables/disables the gang edit group function. This applies to the currently selected group.

② **[New] button**

Creates a new gang edit group.

③ **[Delete] button**

Deletes the selected gang edit group or component.

④ **[+]/[?] buttons**

Completely expands or completely minimizes the gang edit group display.

⑤ **[Parameters] check box**

Select the check box for parameters that you want to link.

The actual procedure is described below.

1. Click the [New] button.

2. Enter a gang edit group name, and click the [OK] button.

3. Drag and drop a component from the design sheet while holding down <Ctrl>, or from the “Parameters” area.

4. Clear the check box of parameters that you don’t want to link.

5. Click the [Active] button or the [Gang Edit] button located in the tool buttons.

6. Select the gang edit group that you want to link.

7. Double-click a component in the design sheet associated with the selected gang edit group.

8. Use the component editor to edit the parameter.

Parameters of the same type of components that are associated with the gang edit group will change in tandem.

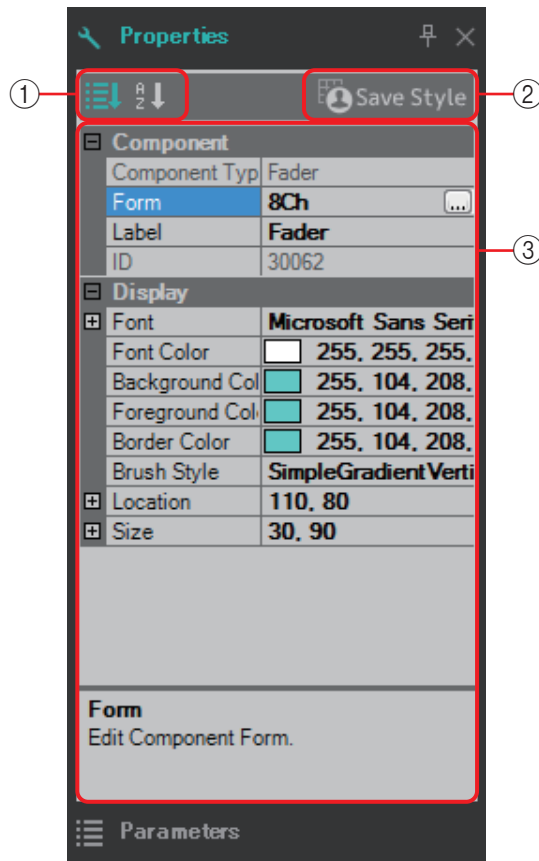
9. Click the [Active] button or the [Gang Edit] button located in the tool buttons.

This specifies the unlinked state.



NOTE When MTX-MRX Editor is online, and [Active] is on, operating an external controller will modify the linked parameters.

“Properties” area

In this area you can view and edit information for the currently-selected component, port, wire, or design sheet. Click the property Form field to make the [...] appear, and click it to select the desired number of channels. This cannot be changed on a component for which [...] is not shown.



① Display select buttons

These buttons select whether user style items are shown by category () or in alphabetical order ().

② [Save Style] button

Saves the currently-displayed settings to the computer as a user style. Components, ports, wires, and the design sheet are saved.

Items specified in the “Properties” area can be saved as a user style, so that the next time you place a new component or connect wires, they will be placed with the same appearance as was saved in the style.

If you want to use the same user style on another computer, execute one of the following procedures.

- Use [File] menu → [Export Style] to save the user style as a file; then use [File] menu → [Import Style] on the other computer to load the file.
- Use [File] menu → [Save with Style] to create a project file that includes the user style; then after loading the file on the other computer, use [File] menu → [Import Style from Project File] to load it.

③ Properties

This area shows information about the currently-selected component, port, wire, or design sheet.

Click an item at the right to edit the information. You can select multiple items of the same type and edit them simultaneously.

- NOTE**
- *The Component Type and ID cannot be edited.*
 - *If multiple items are selected, the information of the last-selected item is shown.*
 - *If a port is selected, clicking the button located in the right side of the [Label] edit area makes the “Port Name” dialog box appear.*

Components and the component editor

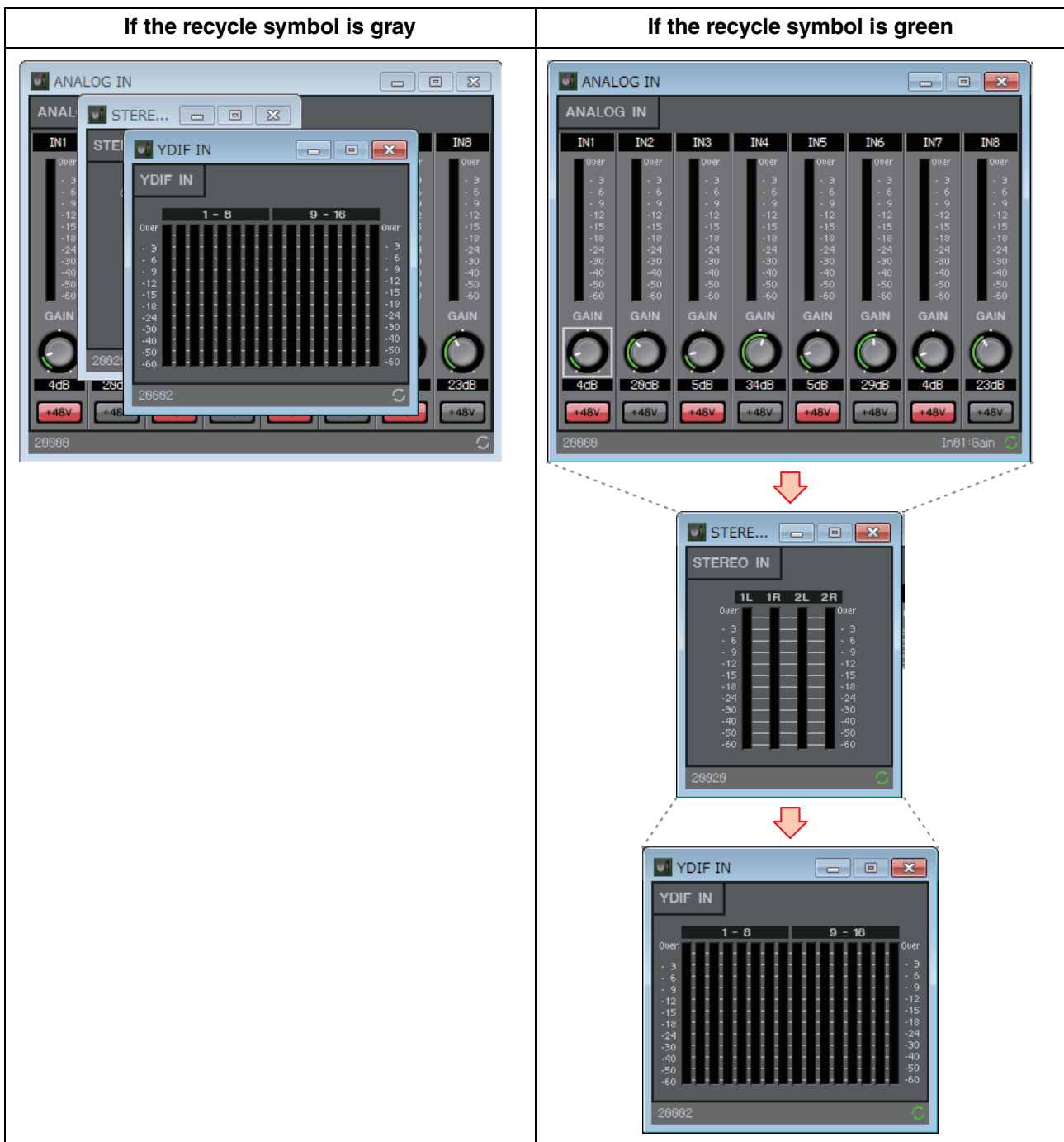
Here we explain components, the component editor, and the dialog boxes and windows that are closely related to components. For components that differ in the number of inputs and outputs, the illustration shows the most typical model.

When you double-click a component in the design sheet, the component editor opens.

If you right-click to access the context menu and choose [Register as default Values], the current parameter values are registered as the default values. New component will be placed with the registered values. These default values can also be exported/imported as a user style file. For details on the context menu, refer to “[Context menus](#).”

The component ID is shown in the lower left of the component editor. This is used to distinguish multiple instances of the same component.

If you don't want to open multiple component editors, click the recycle symbol (♻️) in the lower right of the component editor to make it turn green (♻️). If you open another component editor, the display of the component editor in the foreground will change.



□ Editing the parameters

Here we explain how to set the parameters in the component editor.

Knobs

There are several ways to edit a knob parameter.



- Select the knob, hold down the left mouse button, and move the mouse cursor up or down.
- Select the knob and turn the mouse wheel.
- Select the numeric display area, hold down the left mouse button, and move the mouse cursor up or down.
- Select the numeric display area and turn the mouse wheel.
- Double-click the numeric display area and directly enter a numeric value.

Sliders

There are several ways to edit slider parameters such as faders.



- Drag the slider's controller.
- Select the slider's controller, and turn the mouse wheel inside the frame.
- Select the numeric display area, hold down the left mouse button, and move the mouse cursor up or down.
- Select the numeric display area and turn the mouse wheel.
- Double-click the numeric display area and directly enter a numeric value.

Buttons

The parameter of a button changes when you click the button.

There are several types of buttons. The color of the illumination differs depending on the function.

- **Switching a function between enabled and disabled**

The button is lit when the function is enabled.

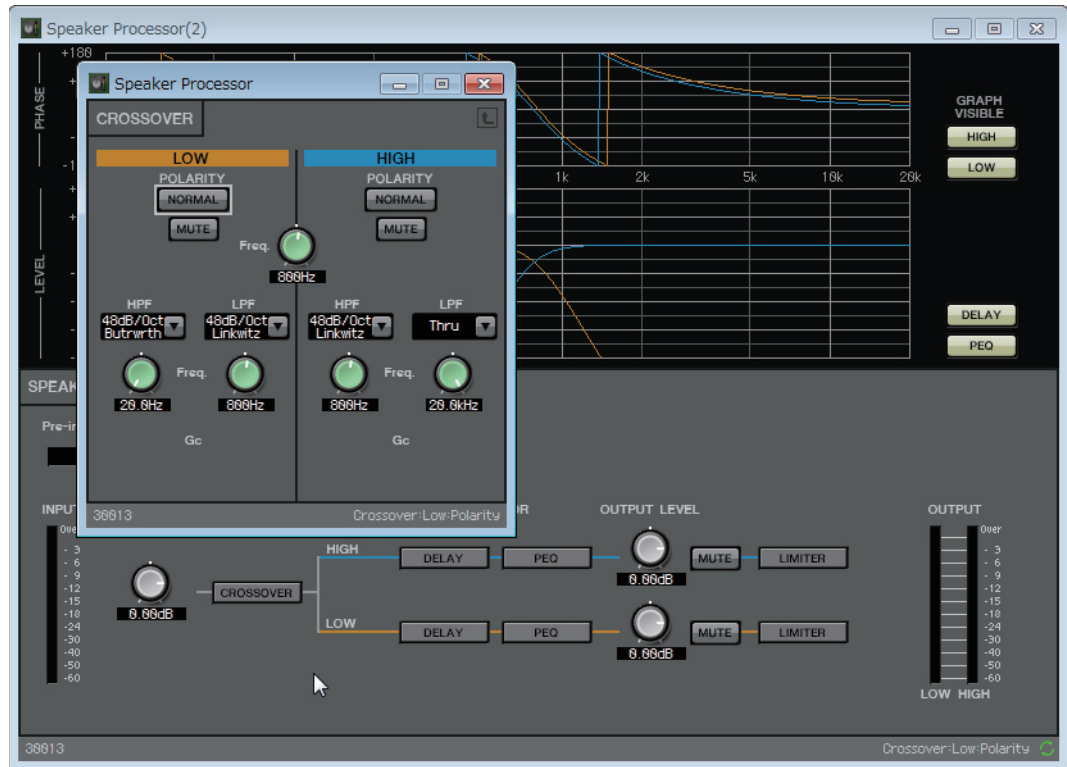


- **Making a mutually exclusive selection**

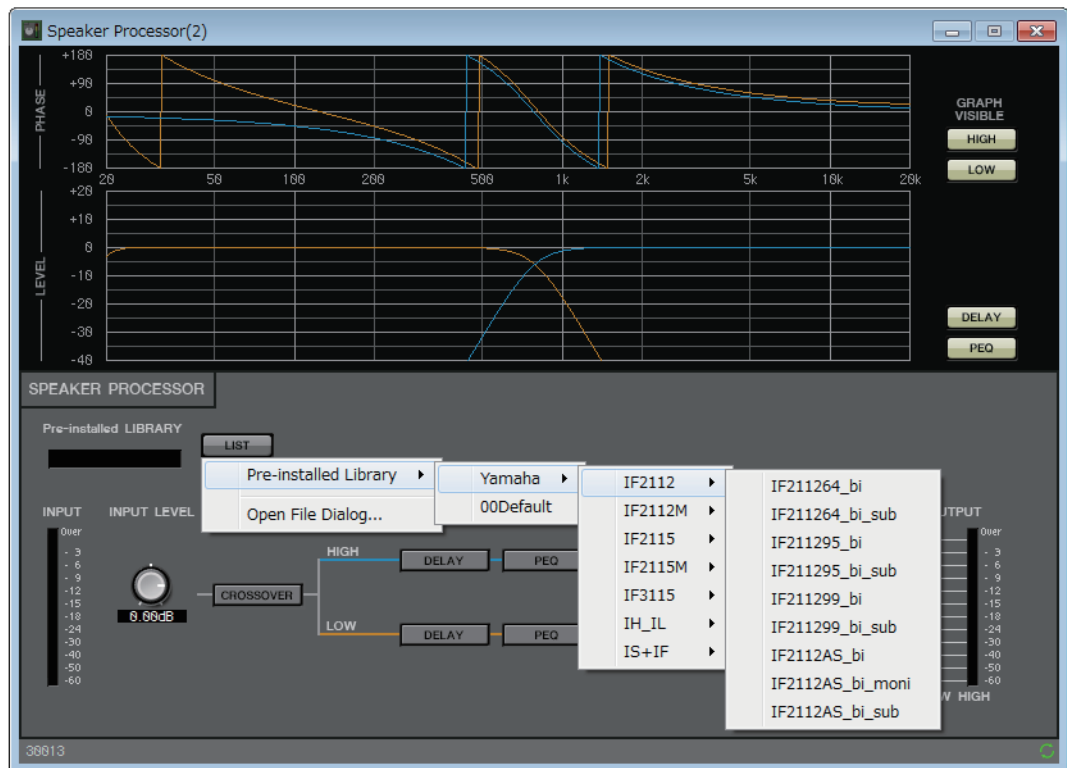
In a set of multiple buttons, enabling one button disables all other buttons.



- **Opening a parameter setting window or another component editor**
Click the button to open a parameter setting window or another component editor.



- **Displaying a menu**
Click the button to access a menu.



□ Acoustic Echo Canceller (AEC)

Acoustic Echo Canceller (AEC) is a function that eliminates the acoustic echo that can be a problem during remote conferencing when sound from a speaker is picked up by microphones or reflected from a wall, or steady-state noise such as produced by air conditioning systems. By providing the other party with clear audio from which such echo and noise have been removed, conversation during the remote conference can be conducted smoothly.

In order to eliminate acoustic echo that originates with the other party, the other party must also be equipped with a system that provides an acoustic echo canceller function.

The MRX7-D can provide up to eight channels of AEC per unit.

The following amount of delay is added to a signal path in which the AEC component is placed.

When word clock is 44.1 kHz: 26.17 msec

When word clock is 48 kHz: 24.02 msec



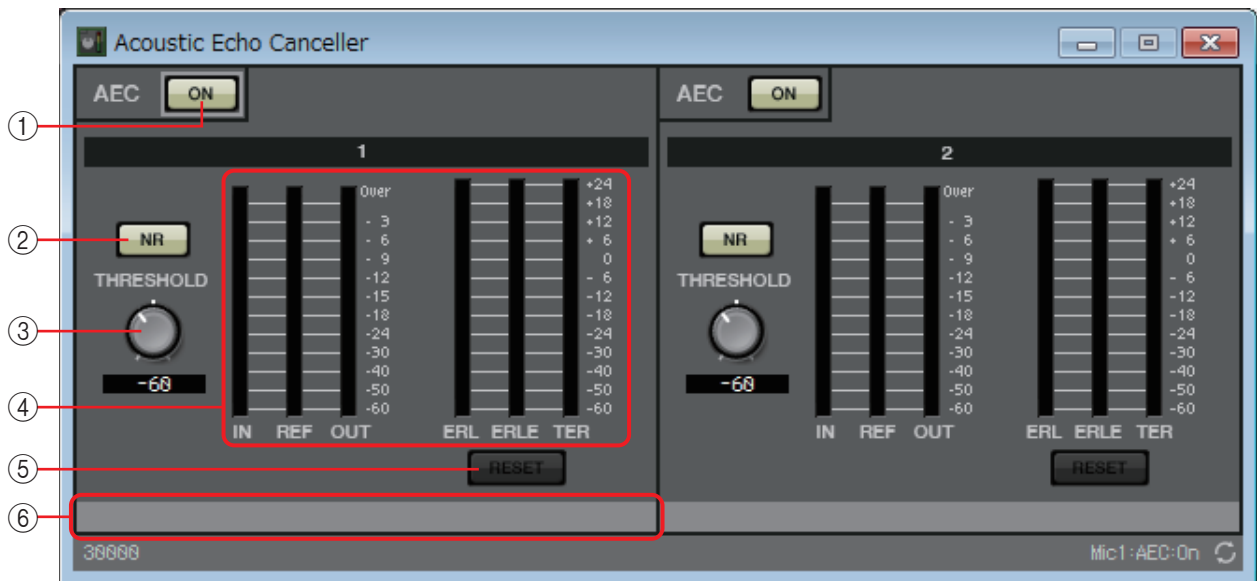
The AEC inputs are as follows, starting from the top.

- **MicIn 1:** Input from mic
- **MicIn 2:** Input from mic
- **Reference:** Input for the signal that you do not want transmitted to the remote location (signal that is considered as echo, and is to be removed) (e.g., Codec In)

NOTE Use mics from the same conference room as the input to MicIn 1 and MicIn 2.

■ “AEC” editor

Here you can make settings related to AEC. In the left side of the screen, make settings for the mic connected to MicIn 1; in the right side of the screen, make settings for the mic connected to MicIn 2.



① AEC [ON] button

Switches the AEC function between enabled and disabled.

② [NR] button

This is an on/off switch for the noise reduction function which removes steady-state noise such as produced by a projector or air conditioner in the local location. We recommend that you leave this on.

③ [THRESHOLD] knob

When applying noise reduction, noise that exceeds the Threshold level is attenuated down to the level specified by Threshold.

④ Level meters

These show the input/output levels and information related to acoustic echo.

- **[IN] level meter**
Shows the input level from the mic.
- **[REF] level meter**
Shows the input level from Reference.
- **[OUT] level meter**
Shows the output level from AEC.
- **[ERL] level meter**
Shows the ratio between the “Reference input” and the “echo amount included in the mic input detected by AEC.”

In general, an ideal setup will have ERL (Echo Return Loss) in an approximate range between 0 dB and -16 dB. If this is higher than 0 dB, the mic input level might be too high or the mic and speaker might be too close. If this is lower than -16 dB, the mic input level might be too low.

- **[ERLE] level meter**
Shows the amount of acoustic echo in dB units that was removed from the mic input as a result of AEC learning. If the echo is being removed correctly, a negative value is shown.
- **[TER] level meter**
Shows the amount of acoustic echo in dB units that was ultimately removed.

⑤ [RESET] button

Click this button to reset the information that AEC learned.

⑥ Port text box

Shows the port name. You can double-click the name and edit it.

□ Ambient Noise Compensator (ANC)

ANC (Ambient Noise Compensator) is a function that boosts or attenuates the level of the program source according to the level that is being input via an ambient noise detection mic. The ANC function provided by the MTX is a gap-type ANC that detects silent intervals such as between songs, detects the noise level during those intervals, and varies the level accordingly.

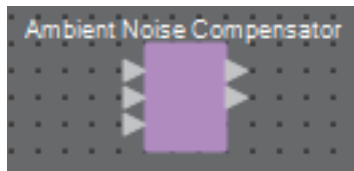
When placing this in the design sheet, select either MONO or STEREO as appropriate for the program source. The illustrations used in the following explanation are for the case of STEREO.

Place the ambient noise detection mic in a location where it will not receive direct sound from the speakers but will be close to the source of the ambient noise, such as on the ceiling in the middle of the room above the crowd or audience, and at a distance from the speakers.

Examples of use

Example 1: In a location where a speech is being given, automatically adjust the output level of the program source up or down according to the level of ambient noise (e.g., crowd noise).

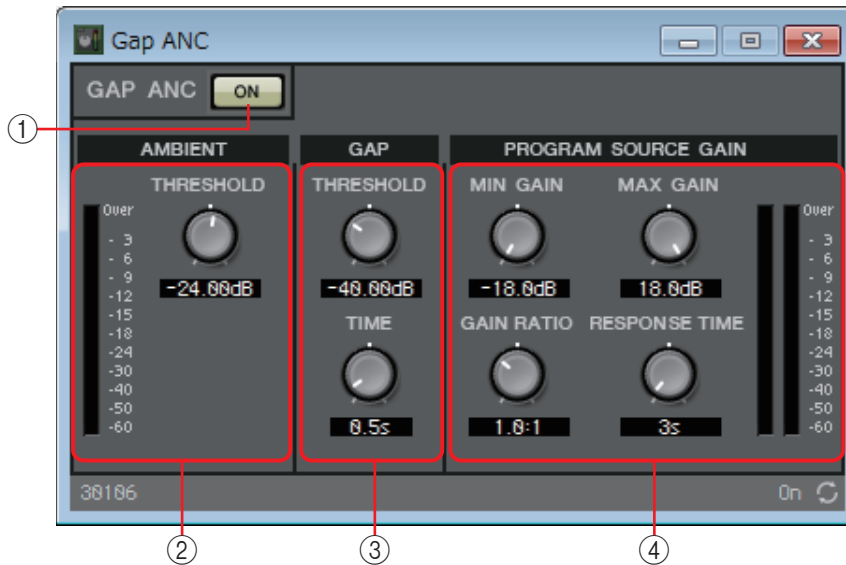
Example 2: In a restaurant, adjust the background music (program source) according to the noise of the surrounding conversation in order to maintain privacy.



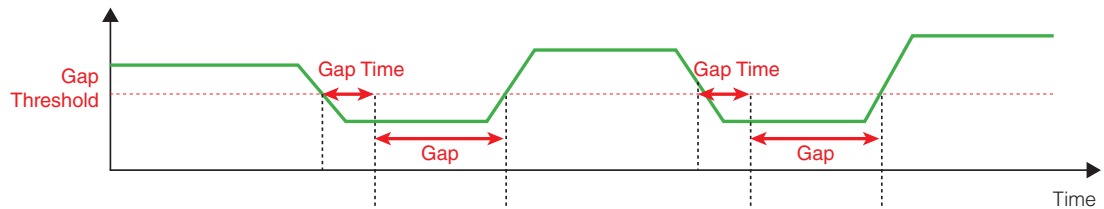
Connect the signal from the ambient noise detection mic to the bottom input.

“Ambient Noise Compensator” editor

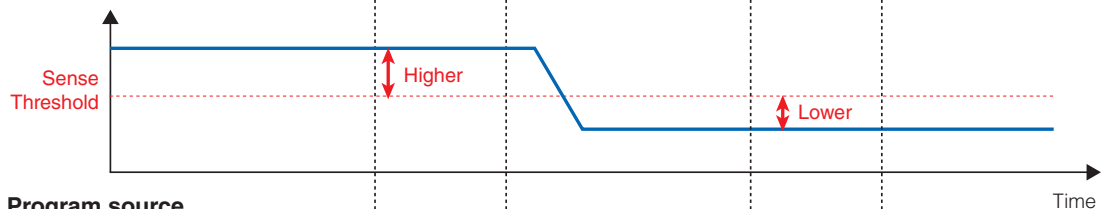
Here you can make settings related to ANC.



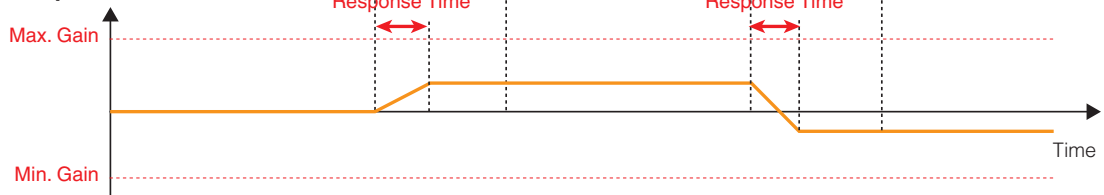
Program source input level



Ambient noise level



Program source compensation amount



① ANC [ON] button

Switches the ANC function between enabled and disabled.

② AMBIENT

- **Level meter**
Shows the level of ambient noise.
- **[THRESHOLD] knob**
Specifies the average level of ambient noise. If the level of ambient noise exceeds this value, the level of the program source is raised; if the level is lower than this value, the level of the program source is lowered.

③ **GAP**

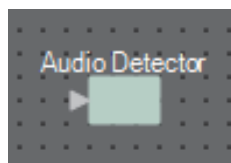
- **[THRESHOLD] knob**
Specifies the threshold value of the program source.
If the level of the program source remains below the threshold for a specified time, it will be interpreted as a gap.
- **[TIME] knob**
Specifies the time required for a gap to be detected.

④ **PROGRAM SOURCE GAIN**

- **[MIN GAIN] knob**
Specifies the minimum value of program source level compensation.
- **[MAX GAIN] knob**
Specifies the maximum value of program source level compensation.
- **[GAIN RATIO] knob**
Specifies the ratio of program source level compensation. This is specified as the ratio “Program source compensation amount”: “Amount of ambient noise increase from the threshold value.”
- **[RESPONSE TIME] knob**
Specifies the response speed for level compensation.
- **Level meter**
Indicates the output level of the program source after compensation.

□ Audio Detector

Audio Detector is a function that detects audio signals. By registering the detection indicator to the GPI Output, a signal can be output from the unit's GPI [OUT] connector when an audio signal is detected.



"Audio Detector" editor

Here you can specify the threshold value of the audio signal, and see whether an input exceeding the threshold value has been detected.



① **Detection indicator**

Lights when an input exceeding the threshold value is detected. If this is registered to an GPI Output or Remote Control Setup List, the lit status of the detection indicator can be viewed on the external device.

② **[THRESHOLD] knob**

Specifies the threshold value at which an audio signal is detected.

③ **[INFINITE HOLD] button**

If this is on, the detection indicator remains lit once an audio signal is detected.

If this is off, the detection indicator lights when audio is detected, and when the audio signal falls below the threshold value, the detection indicator goes dark after the time specified by the [HOLD] knob has elapsed.

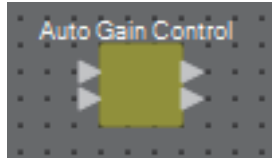
④ **[HOLD] knob**

If the [INFINITE HOLD] button is off, this specifies the time that the detection indicator remains lit after the audio signal falls below the threshold value.

□ Auto Gain Controller (AGC)

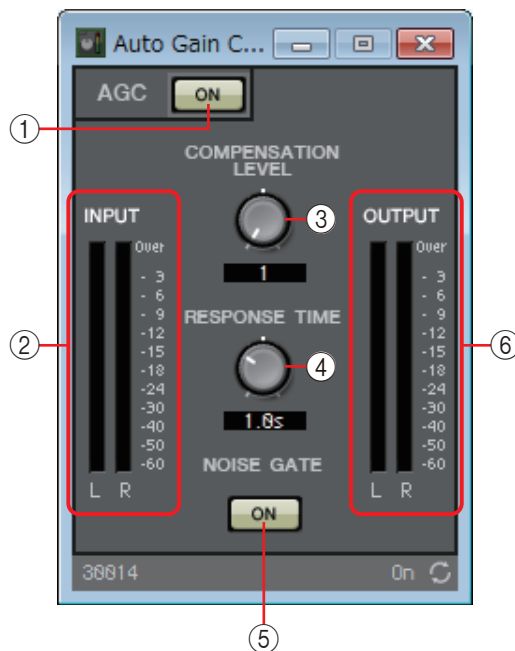
AGC (Auto Gain Controller) is a function that automatically compensates the gain according to the input level, keeping a constant output level for an incoming signal whose level is changing. For example, differences in how closely and how loudly a person is speaking into a mic can make their amplified voice vary in volume, making it less intelligible. In such cases, the volume will be automatically adjusted within a fixed range.

When placing this in the design sheet, select either MONO or STEREO as appropriate for the input/output. The illustrations used in the following explanation are for the case of STEREO.

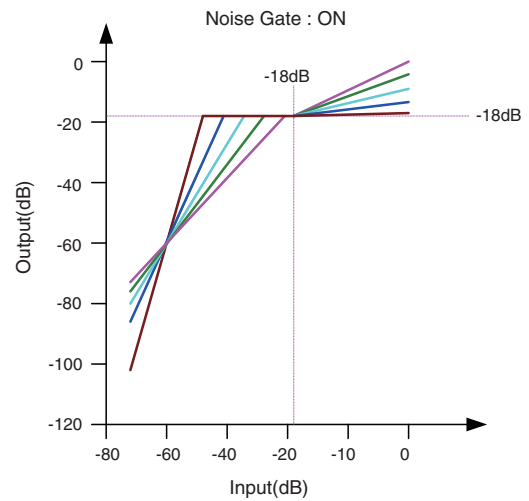
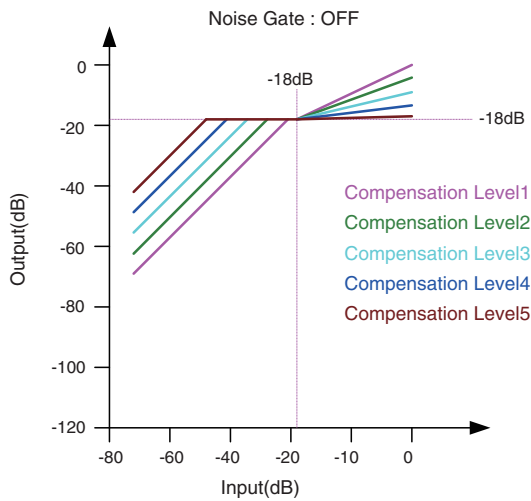


“Auto Gain Controller” editor

Here you can make settings related to AGC.



Compensation Level	Threshold	Ratio
1	-21	1
2	-27.75	1.3
3	-34.5	2
4	-41.25	4
5	-48	20



If the input is below the Threshold value, the output is adjusted so that the output is -18 dB when it reaches the Threshold value.
 If the input is above the Threshold value and below -18 dB, the output is set to -18 dB.
 If the input is above the Threshold value and above -18 dB, the output level is adjusted by the Ratio value.

If the noise gate is on, the volume is adjusted so that input and output are the same level at -60 dB, and then adjusted so that the output is -18 dB when it reaches the Threshold value.
 If the input is above the Threshold value and below -18 dB, the output is set to -18 dB.
 If the input is above the Threshold value and above -18 dB, the output level is adjusted by the Ratio value.

① **AGC [ON] button**

Switches the AGC function between enabled and disabled.

② **[INPUT] level meter**

Shows the input signal level.

③ **[COMPENSATION LEVEL] knob**

Specifies the amount of gain compensation. Higher settings will produce more compensation. Please note that it might not be possible to maintain a constant output level if this value is changed suddenly.

④ **[RESPONSE TIME] knob**

Specifies the response speed for gain compensation. This applies to compensation that raises the gain; it is the time required for a 6 dB increase. It does not affect compensation that lowers the gain.

⑤ **NOISE GATE [ON] button**

Switches the noise gate between enabled and disabled.

⑥ **[OUTPUT] level meter**

Shows the compensated output signal level.

Combiner

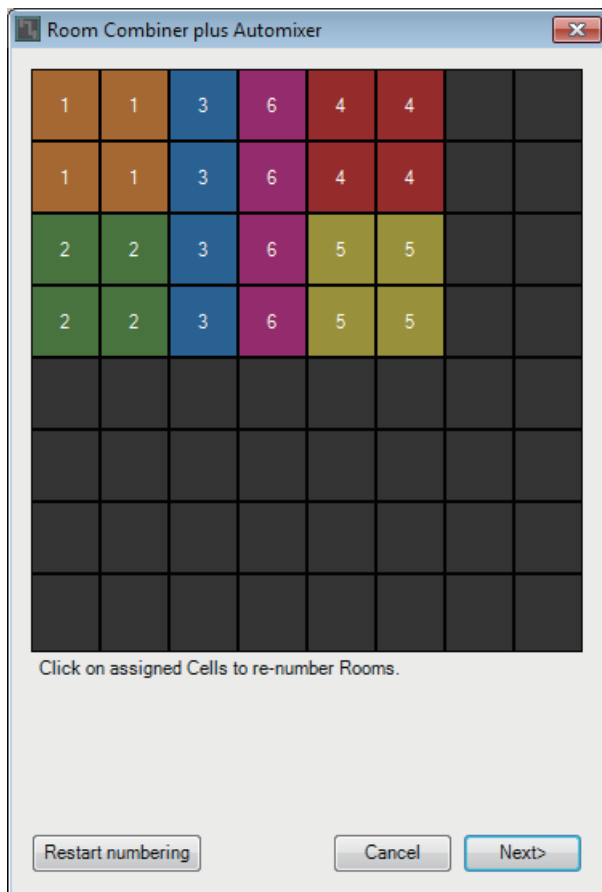
This function is used when audio signals are shared between multiple rooms, or when a single room is partitioned in varying ways. The audio signal outputs are changed according to how the rooms are divided or connected. The MRX provides two types of combiner: “Room Combiner” and “Room Combiner plus Automixer.” The latter adds Dan Dugan Automixer functionality. Up to eight rooms can be registered in the combiner, and you can also specify the shape of the rooms as their actual shape. You can register snapshots in a remote controller such as a DCP or Wireless DCP, and recall parameters as appropriate for the state of the rooms.

Here we explain using “Room Combiner plus Automixer.”

When you drag this from the “Components” area and drop it on the design sheet, a dialog box appears, allowing you to design the room.

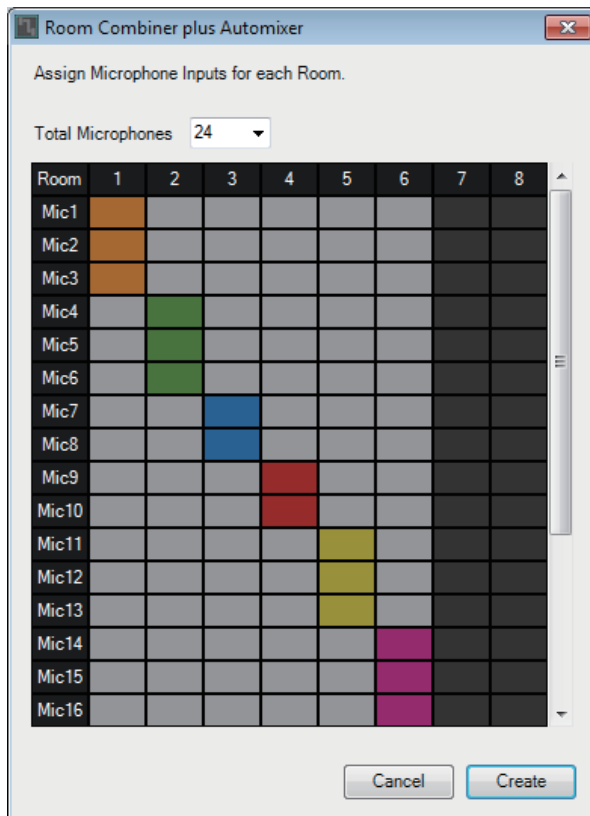


Drag the cells to create the room. When you click a cell that makes up a room, the room is canceled; when you drag from a cell that makes up a room to a cell that is not part of a room, the room is extended. Create the rooms, and then click the [NEXT>] button. The screen changes to a screen where you can reassign the room numbers.



If you want to reassign the room numbers, click the room numbers consecutively. During editing, if you want to renumber the rooms starting from 1, click the [Restart numbering] button.

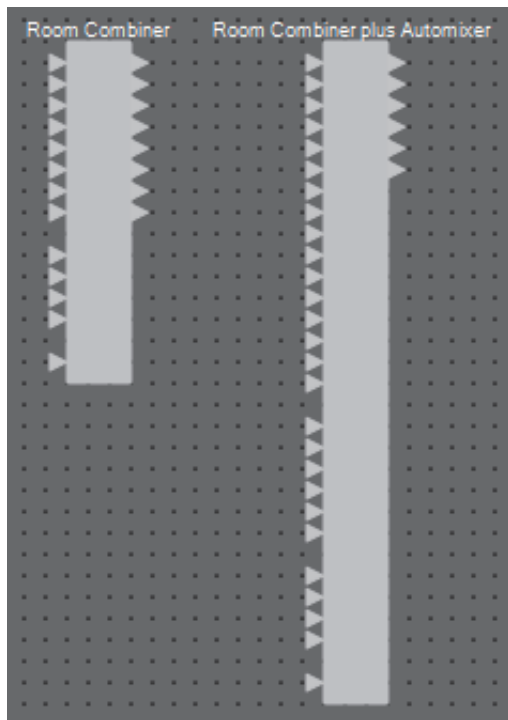
After you have finished renumbering, click the [Next>] button. The screen changes to a screen where you can specify the number of mics placed in the rooms.



In the dropdown list, select the number of mics used by all rooms, and click or drag the cells of the mics to be assigned to the rooms.

After you have finished making assignments, click the [Create] button. “Room Combiner plus Automixer” is placed in the design sheet.

“Room Combiner” does not have this screen.

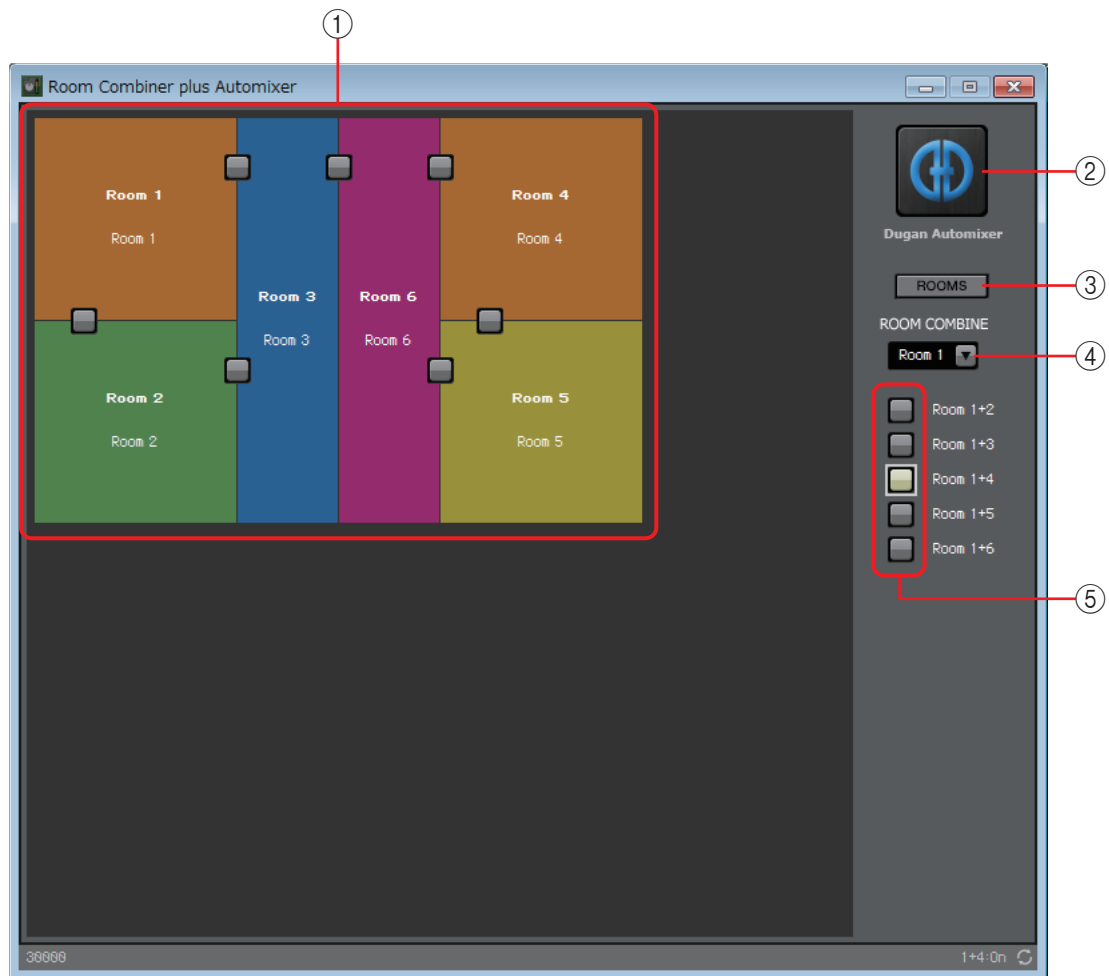


The inputs are assigned as follows, starting from the top.

- **Room Combiner**
 - Room In (pre-mixed sound or individual mics) x number of rooms
 - BGM In x 4
 - Page In (broadcast to all rooms) x 1
- **Room Combiner plus Automixer**
 - In (inputs sent through Automixer) x number of mics (maximum 24 mics)
 - Local In (inputs not sent through Automixer) x number of rooms
 - BGM In x 4
 - Page In (broadcast to all rooms) x 1

“Room Combiner” editor / “Room Combiner plus Automixer” editor

Here you can specify which rooms are combined.



① **Rooms**

This area shows the rooms. When you click a button located between two rooms (the combine button), the rooms are combined. Combined rooms are shown in the same color. When you double-click or right-click a tile and choose [Open Parameter Window], the combiner parameter setting window appears.

② **[Dugan Automixer] button (only for Room Combiner plus Automixer)**

When you click this, the Dugan Automixer window for Room Combiner plus Automixer appears.

③ **[ROOMS] button**

Click this to open the combiner parameter setting window.

④ **Room selection dropdown list**

This selects the room to which the combine buttons shown below are assigned.

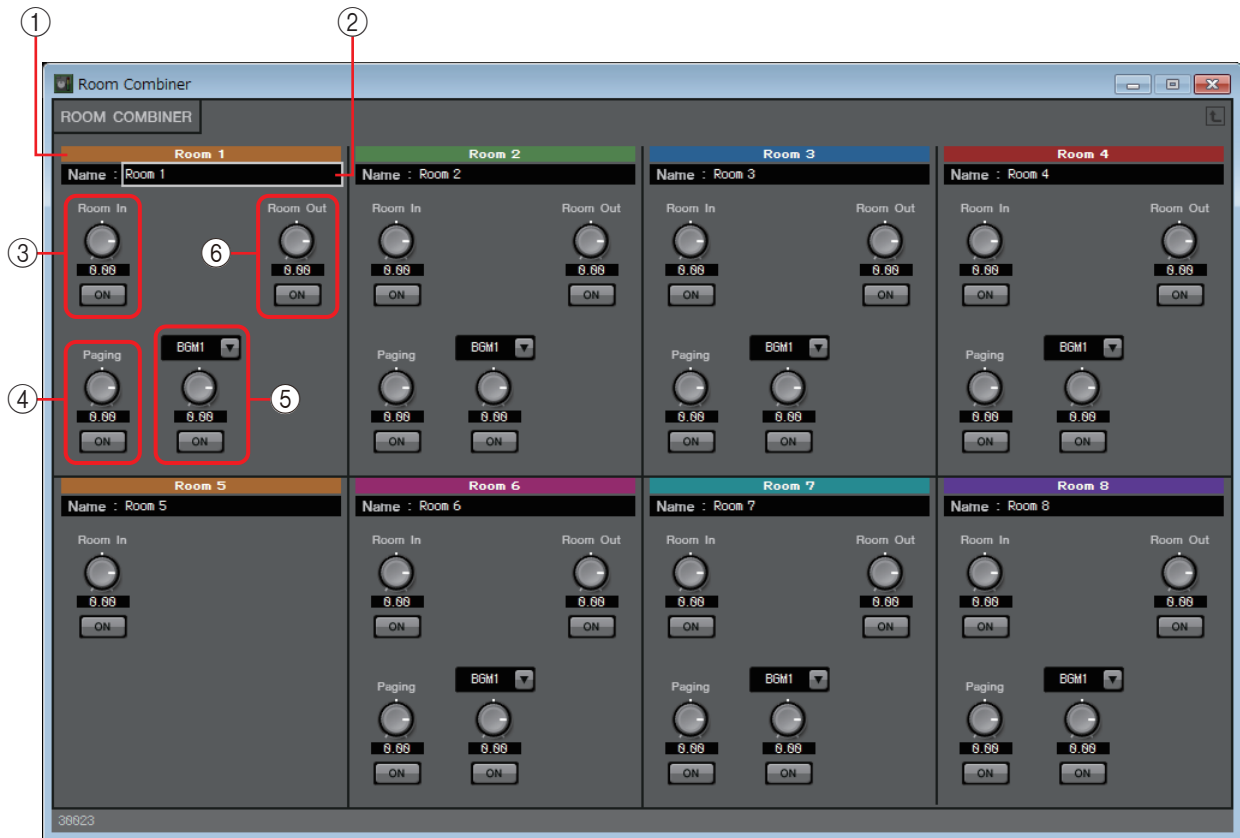
⑤ **Combine buttons**

These specify which rooms are combined. Non-adjacent rooms can also be combined.

Combiner parameter setting window (Room Combiner)

Here you can view and edit the parameters of all rooms.

When rooms are connected, [Room In] can be adjusted for each room; however, the setting of the lowest-numbered room takes priority for [Paging]/[BGM]/[Room Out].



① **Index**

Shows the number and color assigned to the room. Connected rooms are shown in the same color.

② **[Name] box**

Indicates the room name. You can double-click the name and edit it.

③ **[Room In]**

Adjusts the send amount from Room In to Room Out, and turns mute on/off.

④ **[Paging]**

Adjusts the send amount from Page In to Room Out, and turns mute on/off.

⑤ **[BGM]**

Selects one of BGM1 to 4, adjusts the amount of that BGM that is sent to Room Out, and turns mute on/off.

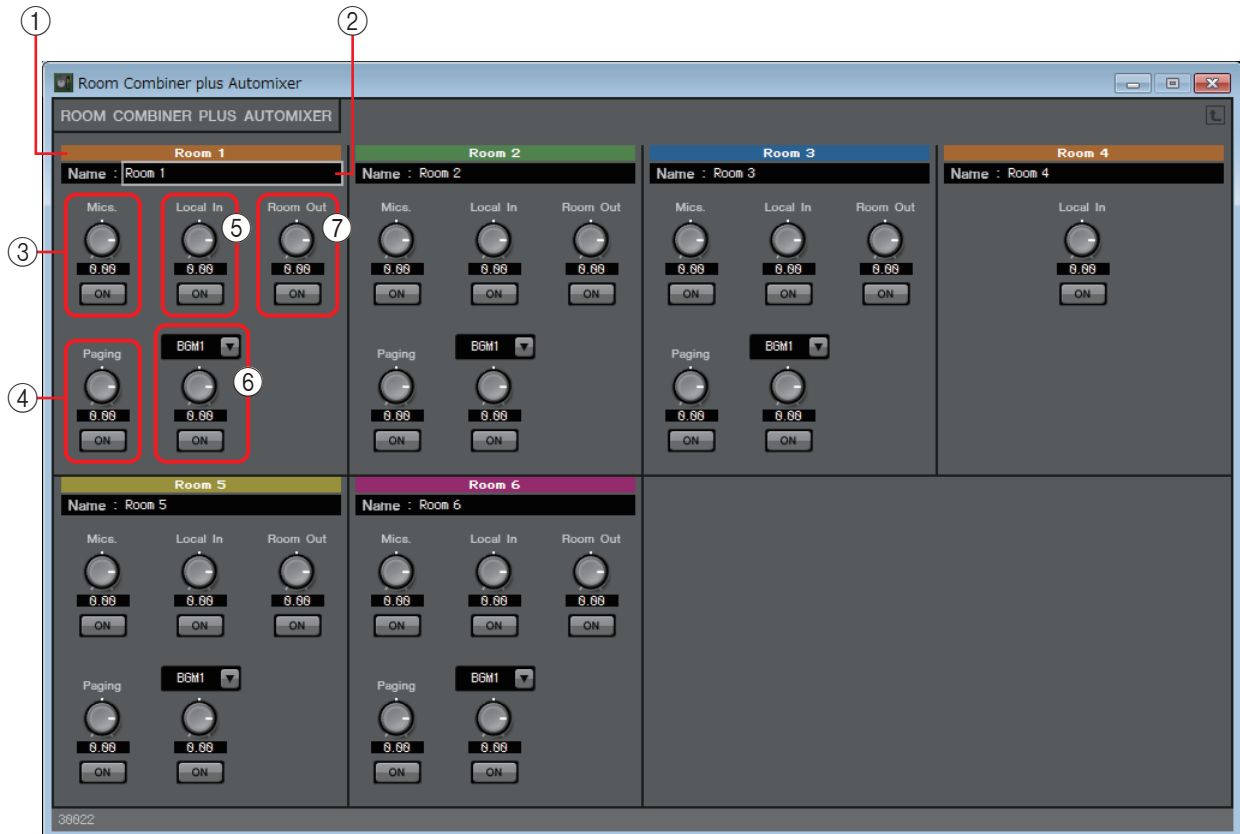
⑥ **[Room Out]**

Adjusts the Room Out level and turns mute on/off.

Combiner parameter setting window (Room Combiner plus Automixer)

This mixes [Local In], [BGM], and [Paging] with each room's mic inputs that have been auto-mixed and output by the Dugan Automixer. Here you can view and edit the parameters of all rooms.

When rooms are connected, [Local In] can be adjusted for each room; however, the setting of the lowest-numbered room takes priority for parameters other than [Local In].



① **Index**

Shows the number and color assigned to the room. Connected rooms are shown in the same color.

② **[Name] box**

Indicates the room name. You can double-click the name and edit it.

③ **[Mics]**

Adjusts the send amount from the Dugan Automixer to Room Out, and turns mute on/off.

④ **[Paging]**

Adjusts the send amount from Page In to Room Out, and turns mute on/off.

⑤ **[Local In]**

Adjusts the send amount from Local In to Room Out, and turns mute on/off.

⑥ **[BGM]**

Selects one of BGM1 to 4, adjusts the amount of that BGM that is sent to Room Out, and turns mute on/off.

⑦ **[Room Out]**

Adjusts the Room Out level and turns mute on/off.

Dugan Automixer window (Room Combiner plus Automixer)

This customizes the “Dugan Automixer” component for use with Room Combiner plus Automixer. For details, refer to [“Dugan Automixer” component editor](#).

Although the “Dugan Automixer” component mixes mics in units of groups, this window does not have a Group parameter because mics are mixed for each room. The name of the room to which the mic was originally assigned is shown above the channel number.



□ Delay

In a sound system that includes multiple speaker units, it may appear to a listener that the voice of the person talking is originating from a nearby speaker unit, rather than from the actual person. In such cases, you can correct the perceived localization by delaying the audio of the nearby speaker unit in proportion to the distance between the speaker unit near the person who is talking and the speaker unit that is far from that person.

If sound from different speaker units is mutually interfering, adding a slight delay to one of the audio signals will shift the interfering frequencies, lessening the unnatural sensation.

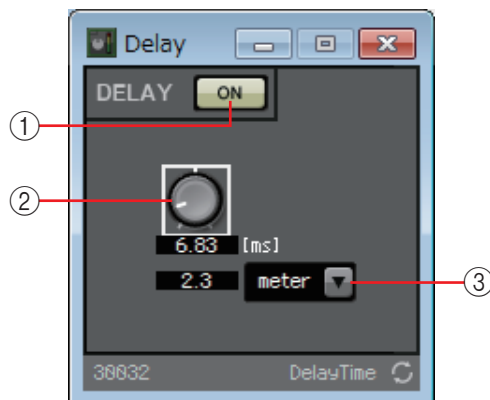
When placing this in the design sheet, select either MONO or STEREO, and specify the maximum delay amount (maximum 1000 ms); set these parameters according to the input/output and the appropriate maximum amount of delay. The illustrations used in the following explanation are for the case of STEREO.

NOTE Selecting a component that has a large amount of delay will consume more of the MRX's memory.



“Delay” component editor

Here you can specify the amount of delay in terms of time or distance.



① **DELAY [ON] button**

Switches the delay function between enabled and disabled.

② **Delay Time knob**

Specifies the delay time.

③ **Type list box**

The delay time specified by the Delay Time knob is converted into the units you select, and shown at the left.

NOTE Sample is shown based on the frequency specified in the MTX-MRX Editor “Word Clock” dialog box.

□ Dynamics

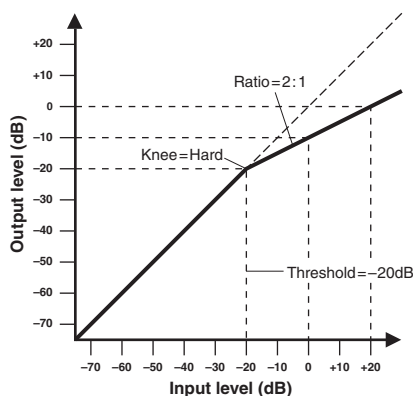
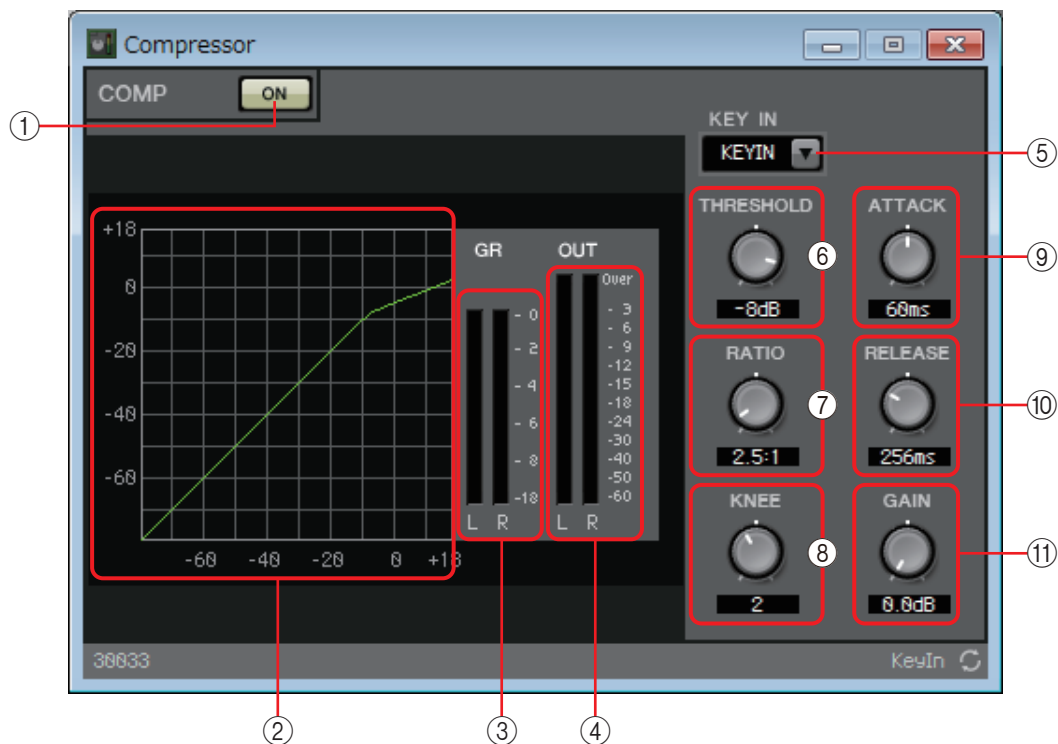
The MRX lets you specify four types of component that modify the dynamic range: Compressor, Ducker, Gate, Limiter, and Paging Ducker. The illustrations used in the following explanation are for the case of STEREO.



For components other than Paging Ducker, the bottom input is for inputting the key-in signal. For Paging Ducker, the bottom input is for inputting the signal from the paging mic.

“Compressor” component editor

This type of signal processing compresses the dynamic range. Use this to prevent problems that can occur in the sound if the input exceeds a certain level (threshold).



① **COMP [ON] button**

Switches the compressor function between enabled and disabled.

② **Compressor curve**

This shows the effect as a graph. The horizontal axis is the input signal level, and the vertical axis is the output signal level.

③ **[GR] meter**

Indicates the amount of gain reduction.

④ **[OUT] meter**

Shows the output signal level.

⑤ **[KEY IN] list box**

From this list, select the input signal that is used as the key-in signal; that is, the reference signal that causes the compressor to operate.

The following choices are provided.

- **[SELF]**
For a monaural channel component, the input signal is used as the trigger source.
- **[L]/[R]**
For a stereo channel component, the L or R input signal is used as the trigger source.
- **[LR BOTH]**
For a stereo channel component, both L/R input signals are used as the trigger source. The higher of the L/R input signals will be the trigger.
- **[KEYIN]**
The key-in input is used as the trigger source.

⑥ **[THRESHOLD] knob**

Specifies the threshold level at which the compressor will take effect.

⑦ **[RATIO] knob**

Specifies the compression ratio.

When the threshold level is exceeded, the output signal will be adjusted at the ratio specified by “input signal : output signal.” For example with a setting of 4:1, the portion of the signal that exceeds the threshold value will be compressed to 1/4th.

⑧ **[KNEE] knob**

Specifies how compression will be applied.

With the [HARD] setting, compression will operate like a limiter. If the [HARD] setting produces an unnatural impression, raise the value. However, raising the value excessively will increase the amount of compression for the portion below the threshold level. If anything other than single-byte alphanumeric characters is entered, the setting will be [HARD].

⑨ **[ATTACK] knob**

Specifies the attack time (the time from when the input signal exceeds the threshold until the maximum compression is reached).

⑩ **[RELEASE] knob**

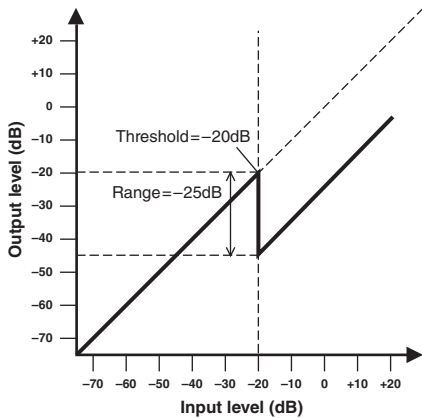
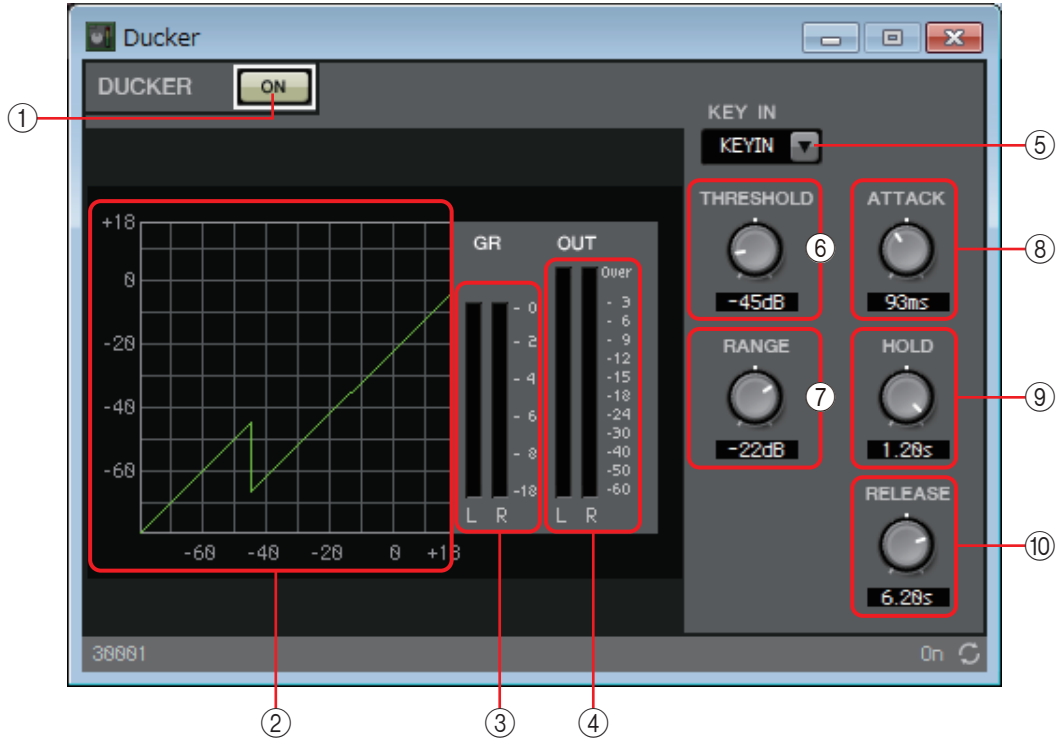
Specifies the release time (the time from when the input signal falls below the threshold until compression is no longer applied).

⑪ **[GAIN] knob**

Sets the gain of the output signal.

“Ducker” component editor

This function reduces the audio signal level (volume) of the input channel when an audio signal is input to a specific channel. For example if this is used on background music and the key-in source is assigned to a channel with a mic connected, the background music will automatically diminish when an announcement is made into that mic, and automatically return to the original volume when the announcement is over.



① **DUCKER[ON] button**

Switches the DUCKER function between enabled and disabled.

② **Ducking curve**

This shows the effect as a graph. The horizontal axis is the input signal level, and the vertical axis is the output signal level.

③ **[GR] meter**

Indicates the amount of gain reduction.

④ **[OUT] meter**

Shows the output signal level.

⑤ **[KEY IN] list box**

From this list, select the input signal that is used as the key-in signal; that is, the reference signal that causes DUCKER to operate.

The following choices are provided.

- **[SELF]**
For a monaural channel component, the input signal is used as the trigger source.
- **[L]/[R]**
For a stereo channel component, the L or R input signal is used as the trigger source.
- **[LR BOTH]**
For a stereo channel component, both L/R input signals are used as the trigger source.
The higher of the L/R input signals will be the trigger.
- **[KEYIN]**
The key-in input is used as the trigger source.

⑥ **[THRESHOLD] knob**

Specifies the threshold level at which DUCKER is applied.

⑦ **[RANGE] knob**

Specifies the amount of attenuation applied when DUCKER is active.

⑧ **[ATTACK] knob**

Specifies the attack time (the time from when the input signal exceeds the THRESHOLD until the amount of attenuation specified by the [RANGE] knob is reached).

⑨ **[HOLD] knob**

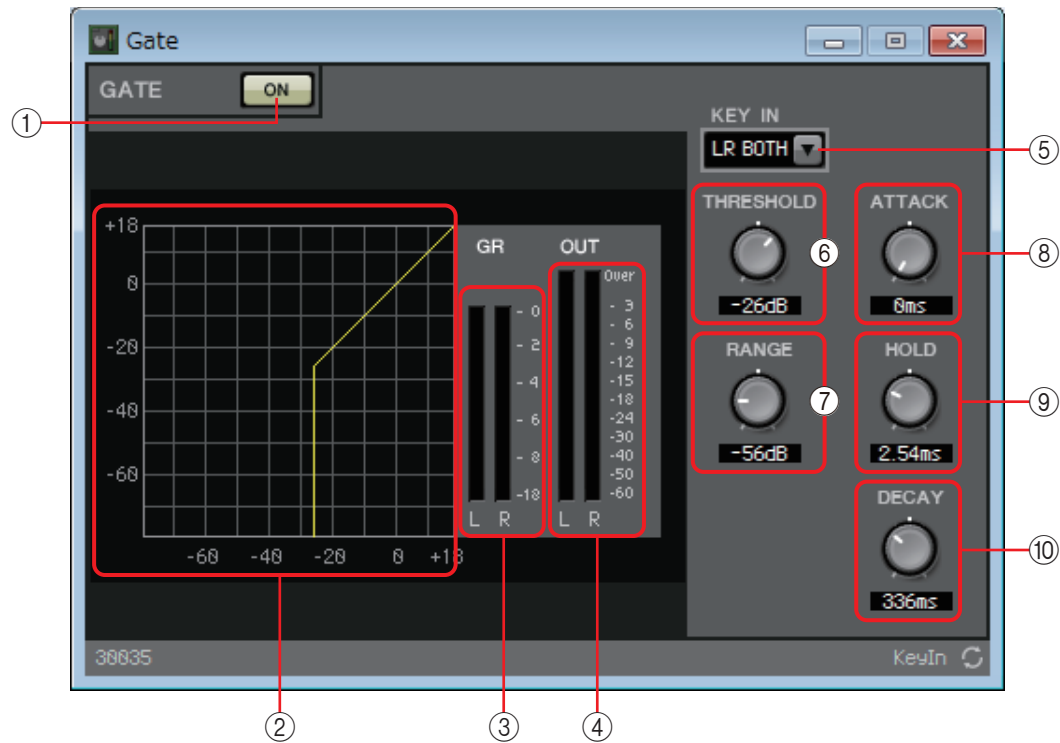
Specifies the hold time (the time from when the input signal falls below the THRESHOLD until attenuation begins to be removed).

⑩ **[RELEASE] knob**

Specifies the release time (the time from when the hold time specified by the [HOLD] knob has elapsed until DUCKER is no longer applied). The setting is expressed as the time required for the level to change 6 dB.

"Gate" component editor

This type of signal processing passes the audio signal only while it exceeds a specified volume. Use this to cut low-level noise, such as when there is no input from a mic, or when the input is below a specified level (the threshold value).



① **GATE [ON] button**

Switches the gate function between enabled and disabled.

② **Gate curve**

This shows the effect as a graph. The horizontal axis is the input signal level, and the vertical axis is the output signal level.

③ **[GR] meter**

Indicates the amount of gain reduction.

④ **[OUT] meter**

Shows the output signal level.

⑤ **[KEY IN] list box**

From this list, select the input signal that is used as the key-in signal; that is, the reference signal that causes the gate to operate.

The following choices are provided.

- **[SELF]**
For a monaural channel component, the input signal is used as the trigger source.
- **[L]/[R]**
For a stereo channel component, the L or R input signal is used as the trigger source.
- **[LR BOTH]**
For a stereo channel component, both L/R input signals are used as the trigger source. The higher of the L/R input signals will be the trigger.
- **[KEYIN]**
The key-in input is used as the trigger source.

⑥ **[THRESHOLD] knob**

Specifies the threshold level at which the gate will take effect.

⑦ **[RANGE] knob**

Specifies the amount of attenuation applied when the gate is active.

⑧ **[ATTACK] knob**

Specifies the attack time (the time from when the input signal exceeds the threshold until the gate opens).

⑨ **[HOLD] knob**

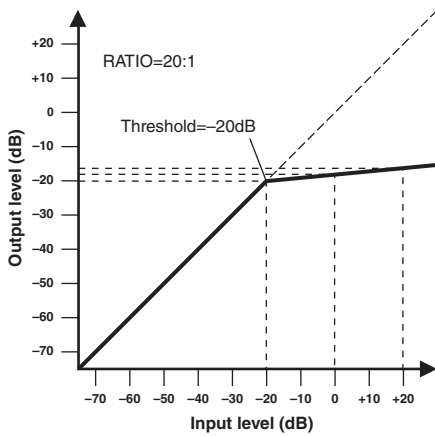
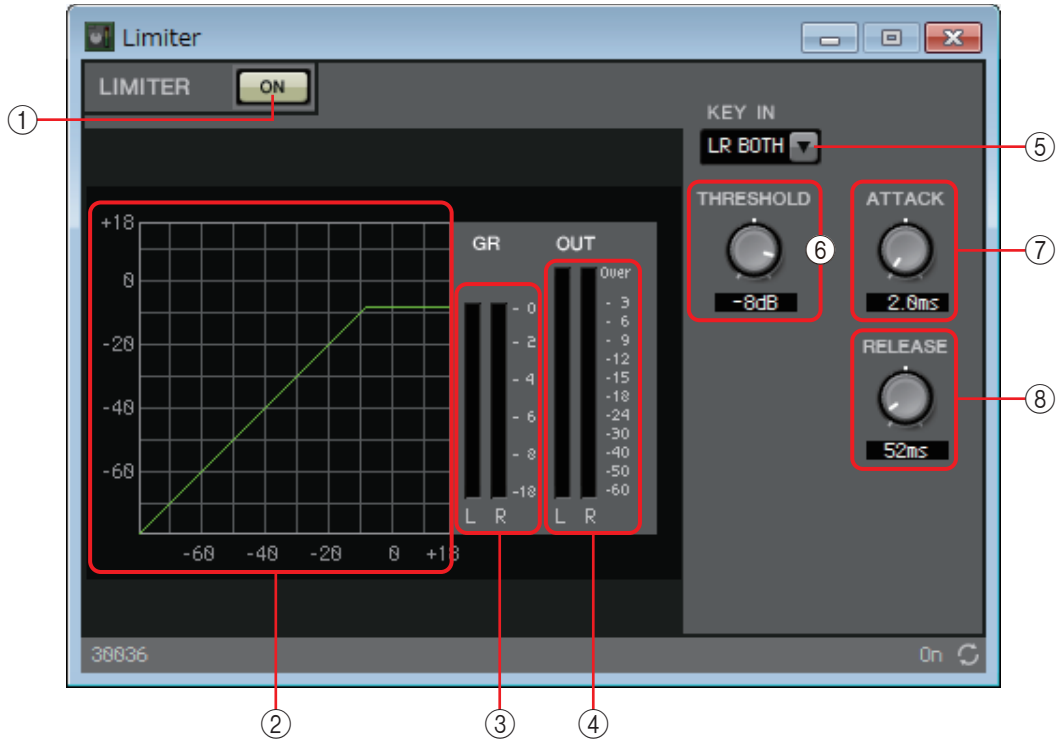
Specifies the hold time (the time from when the input signal falls below the threshold until the gate begins to close).

⑩ **[DECAY] knob**

Specifies the decay time (the time over which the gate closes after the hold time has elapsed).

“Limiter” component editor

Input signals that exceed the threshold value are compressed $\infty:1$, preventing signals greater than the threshold value from being output. This is used mainly to keep power amps and speaker systems from being damaged by excessive input.



① **LIMITER [ON] button**

Switches the limiter function between enabled and disabled.

② **Limiter curve**

This shows the effect as a graph. The horizontal axis is the input signal level, and the vertical axis is the output signal level.

③ **[GR] meter**

Indicates the amount of gain reduction.

④ **[OUT] meter**

Shows the output signal level.

⑤ **[KEY IN] list box**

From this list, select the input signal that is used as the key-in signal; that is, the reference signal that causes the limiter to operate.

The following choices are provided.

- **[SELF]**
For a monaural channel component, the input signal is used as the trigger source.
- **[L]/[R]**
For a stereo channel component, the L or R input signal is used as the trigger source.
- **[LR BOTH]**
For a stereo channel component, both L/R input signals are used as the trigger source.
The higher of the L/R input signals will be the trigger.
- **[KEYIN]**
The key-in input is used as the trigger source.

⑥ **[THRESHOLD] knob**

Specifies the threshold level at which the limiter is applied.

⑦ **[ATTACK] knob**

Specifies the attack time (the time from when the input signal exceeds the threshold until the maximum limiter effect is reached).

⑧ **[RELEASE] knob**

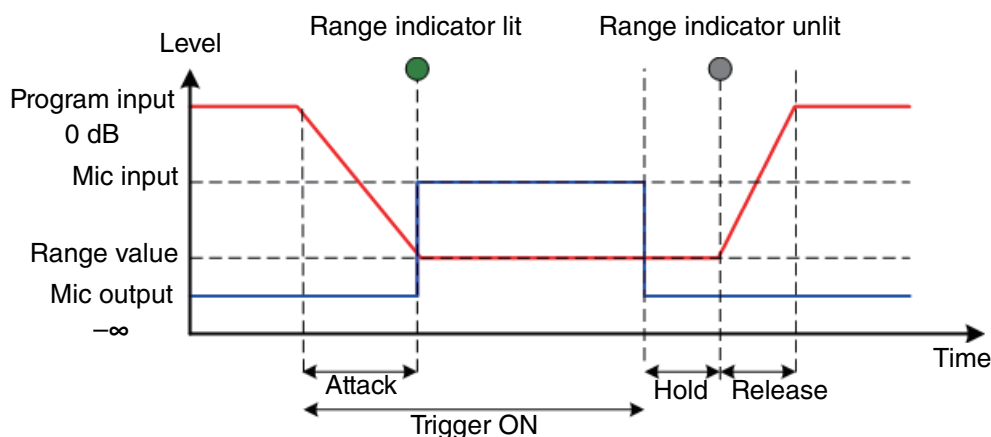
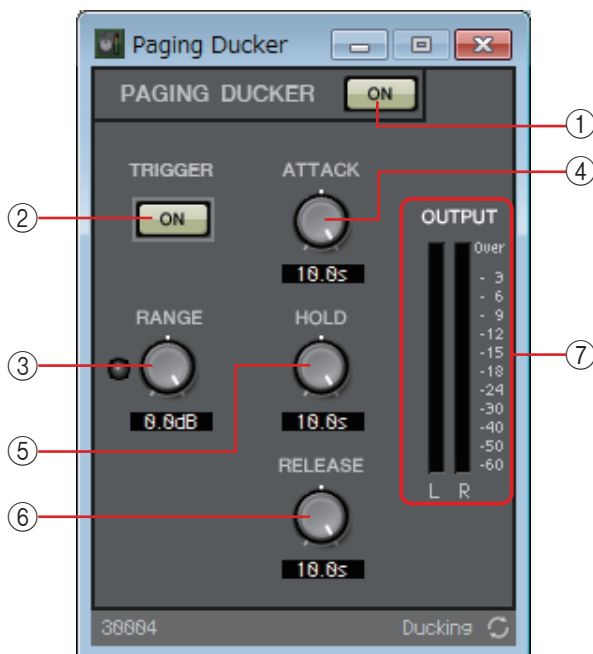
Specifies the release time (the time from when the input signal falls below the threshold until the limiter effect is no longer applied).

“Paging Ducker” component editor

This function controls the audio signal level of the program source by the on/off status of the TRIGGER [ON] button.

Since the TRIGGER [ON] button and [RANGE] indicator can be registered to GPI or the Remote Control Setup List, they can be controlled from an external device or made to light an external LED.

The MRX7-D can provide up to 24 Paging Duckers per unit.



① **PAGING DUCKER [ON] button**

Switches the paging ducker function between enabled and disabled.

② **TRIGGER [ON] button**

If you turn this on, the audio signal level of the program source is lowered to the value specified by the [RANGE] knob. If you turn this off, the audio signal level of the program source returns to its original level. Set this so that it operates in tandem with the talk switch/button of the paging mic.

③ **[RANGE] knob/indicator**

The knob sets the audio signal level of the program source when the TRIGGER [ON] button is on. The indicator is lit when the signal decreases to the level specified by the knob. If you attach an LED to GPI and register the [RANGE] indicator to GPI, you’ll be able to check whether the paging mic is active.

④ **[ATTACK] knob**

Specifies the time over which the audio signal level of the program source decreases to the level specified by the [RANGE] knob, starting when the TRIGGER [ON] button turns on.

⑤ **[HOLD] knob**

Specifies the time after which the audio signal level of the program source starts returning to the original level after the TRIGGER [ON] button turns off.

⑥ **[RELEASE] knob**

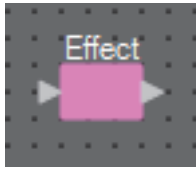
Specifies the time over which the audio signal level of the program source returns to the original level after the time specified by the [HOLD] knob.

⑦ **[OUTPUT] meter**

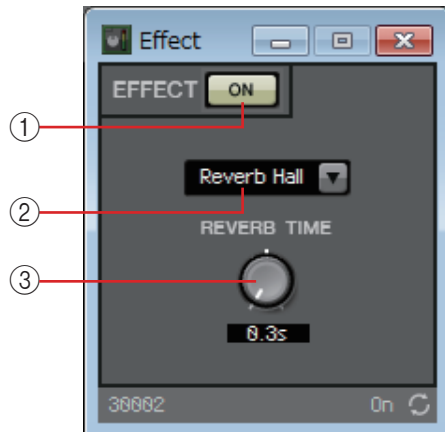
Shows the output signal level.

□ Effect

The MRX provides a mono channel effect.



“Effect” component editor



① EFFECT [ON] button

Switches the effect between enabled and disabled.

② Effect type list box

Selects the effect type. You can choose one of the following four types.

- **Reverb Hall**
Reverb that simulates an expansive space such as a concert hall.
- **Reverb Stage**
Reverb that simulates a broad stage.
- **Karaoke Echo**
Mic echo designed for karaoke use.
- **Vocal Echo**
Vocal echo designed specifically for stage vocals.

③ Effect parameter knob

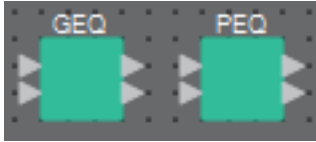
Adjusts the parameter of the effect. This will be [REVERB TIME] if the effect type is reverb, and “DELAY TIME” if the effect type is echo.

EQ

The MRX provides two types of equalizer: GEQ and PEQ.

When placing this in the design sheet, select either MONO or STEREO, and select the number of bands. Set these parameters according to the input/output and the appropriate number of bands. The illustrations used in the following explanation are for the case of STEREO.

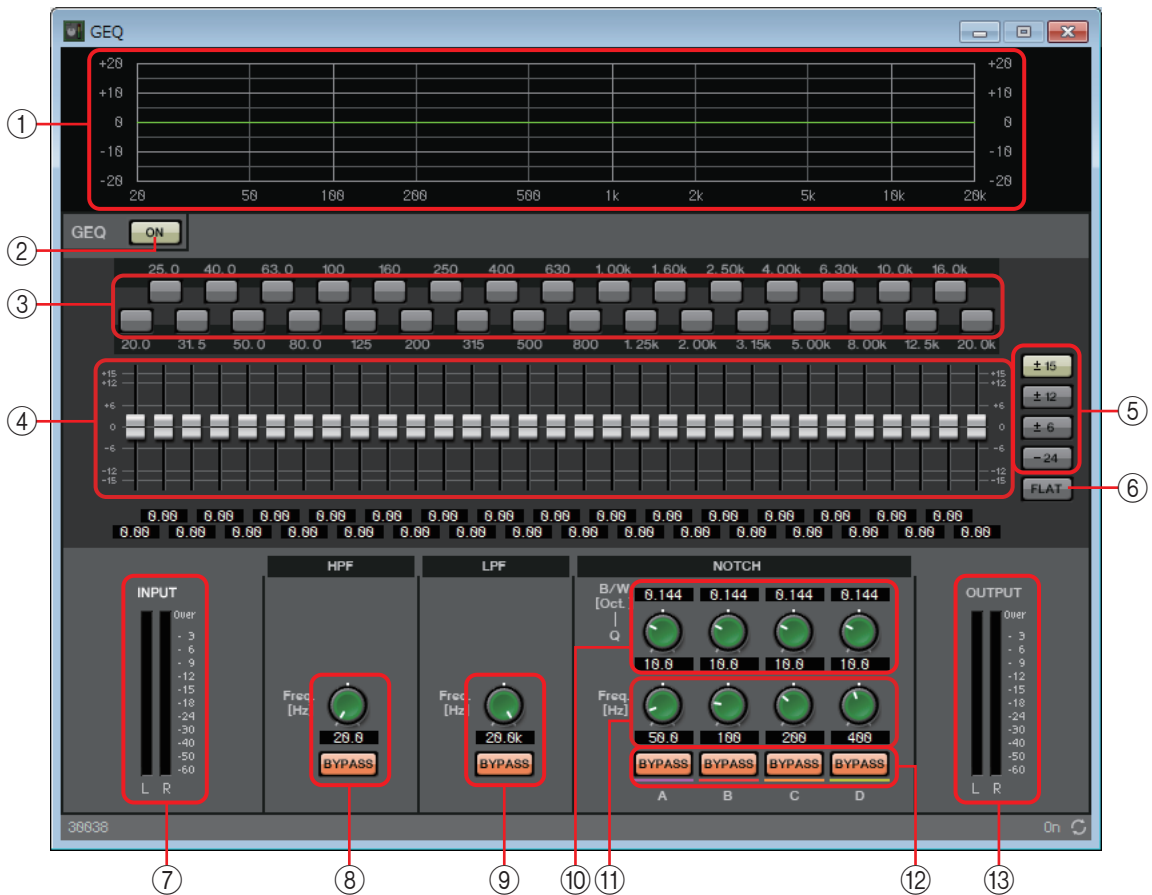
NOTE *Unselecting a component that has a large number of bands will consume more of the MRX's DSP resources.*



“GEQ” component editor

Here you can make GEQ settings.

When placing the GEQ in the design sheet, you can choose from 7, 15, or 31 bands. The illustrations shown here are for when 31 bands are selected.



① **EQ curve**

This shows the response as a graph.

② **GEQ [ON] button**

Switches the GEQ function between enabled and disabled.

③ **Bypass buttons**

Specify whether each band is bypassed. If you click a button to make it light, that band is bypassed.

④ **Gain faders**

Adjust the output gain of each band.

⑤ **[±15]/[±12]/[±6]/[-24] buttons**

Select the range of GEQ gain adjustment. When you click a button, the display of the gain faders and EQ curve will change to the range you select.

⑥ **[FLAT] button**

Moves all gain faders to the 0 position.

⑦ **[INPUT] meter**

Shows the input signal level.

⑧ **[HPF] knob / HPF [BYPASS] button**

Specifies the cutoff frequency of the high-pass filter. If you are not using the high-pass filter, click the [BYPASS] button to turn bypass on (lit).

⑨ **[LPF] knob / LPF [BYPASS] button**

Specifies the cutoff frequency of the low-pass filter. If you are not using the low-pass filter, click the [BYPASS] button to turn bypass on (lit).

⑩ **[B/W-Q] knob**

Specifies the width of the frequency band adjusted by the notch filter.

⑪ **[Freq.] knob**

Specifies the center frequency of the notch filter.

⑫ **NOTCH [BYPASS] button**

Switches the notch filter bypass on/off. If you are not using the notch filter, turn bypass on (lit).

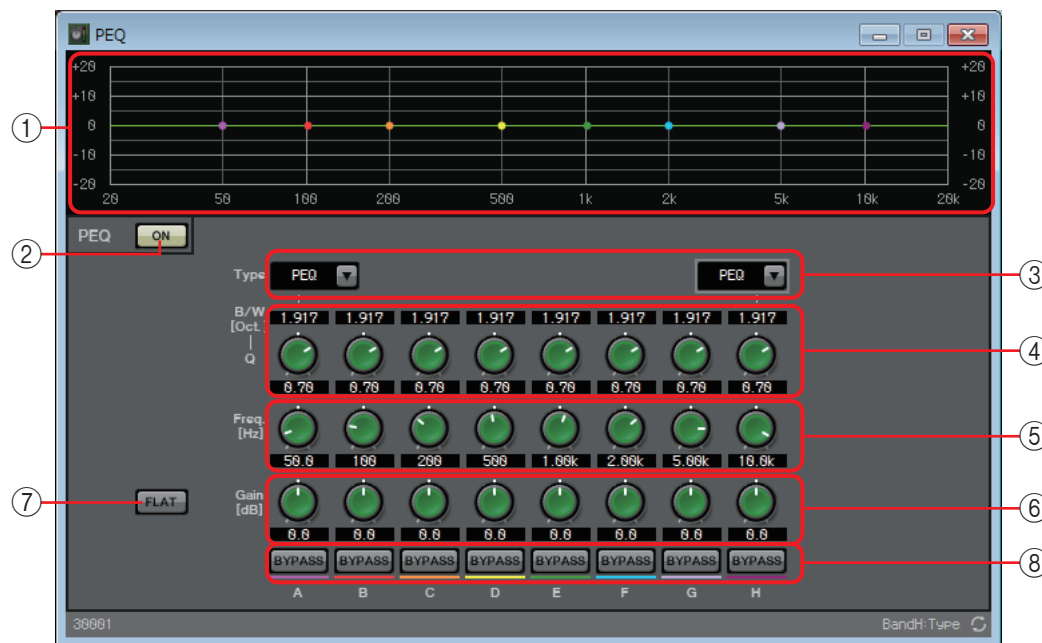
⑬ **[OUTPUT] meter**

Shows the output signal level.

“PEQ” component editor

Here you can make PEQ settings.

When placing the PEQ in the design sheet, you can choose from 2, 3, 4, 6, or 8 bands. The illustrations shown here are for when 8 bands are selected.



① EQ curve

This shows the response as a graph. You can change the settings by dragging the points in the graph.

② PEQ [ON] button

Switches the PEQ function between enabled and disabled.

③ [Type] list box

Selects the type of filter that is used for the far left and far right band. The number of knobs below increases or decreases according to the type that you select.

The following types of filter are provided.

- **PEQ (Parametric Equalizer)**
The volume in the region of the specified frequency will be boosted or cut for the width specified by the Q setting.
- **L.SHELF (Low Shelf)**
The volume of the entire low-frequency region below the specified frequency will be boosted or cut. Use this for purposes such as bass boost. [6dB/Oct] and [12dB/Oct] specify the amount of attenuation per octave.
- **H.SHELF (High Shelf)**
The volume of the entire high-frequency region above the specified frequency will be boosted or cut. Use this for purposes such as high boost. [6dB/Oct] and [12dB/Oct] specify the amount of attenuation per octave.
- **HPF (High Pass Filter)**
The region below the specified frequency will be cut.
- **LPF (Low Pass Filter)**
The region above the specified frequency will be cut.

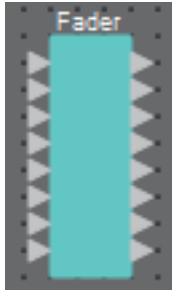
- ④ **[B/W-Q] knob**
Specifies the width of each band’s frequency region.
- ⑤ **[Freq] knob**
Adjusts the center frequency of each band.
- ⑥ **[Gain] knob**
Specifies the gain in each band’s frequency region.
- ⑦ **[FLAT] button**
Moves all [Gain] knobs to the 0 position.
- ⑧ **[BYPASS] button**
Specifies whether each band is bypassed. If you click a button to make it light, that band is bypassed.

□ Fader

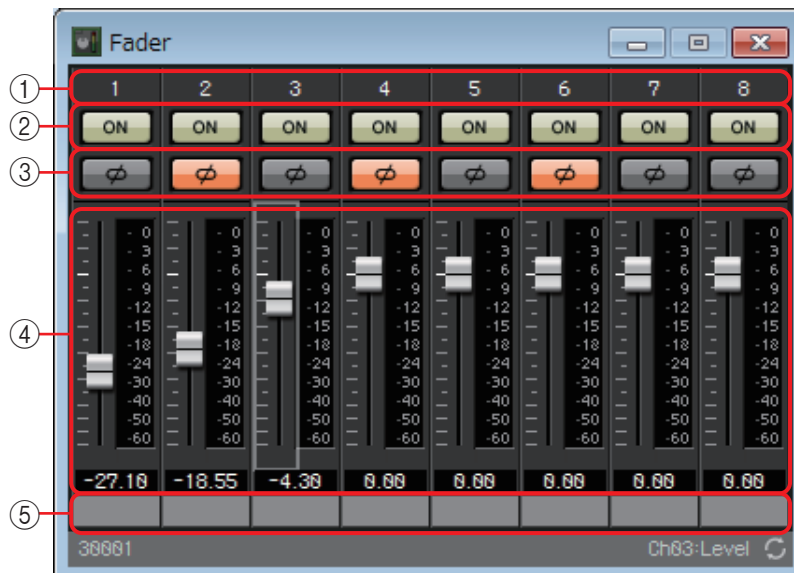
This adjusts the output level of each channel.

Specify the number of channels when you place the component in the design sheet. Select this according to the number of channels whose level you want to adjust. The illustration used in the following explanation is for the case of eight channels.

NOTE A component with a large number of channels occupies more DSP resources of the MRX.



“Fader” component editor



① **Channel index**

Indicates the channel number.

② **[ON] button**

Switches the output of each channel between enabled and disabled.

③ **[Ø] button**

Specifies whether the phase of the output signal of each channel is inverted. If you click the button to make it light, the phase of that channel's output signal is inverted.

④ **Fader**

This adjusts the output level of each channel. You can right-click the fader to access the context menu, and select [0 dB] or [-Infinity].

⑤ **Port name**

Shows or edits the port name. This is linked with the “Label” of the component's ports.

□ Feedback Suppressor

The Feedback Suppressor (subsequently referred to as FBS) is a function that prevents the unpleasant acoustic feedback that occurs when sound from a speaker is picked up by a mic and re-amplified. In addition to being unpleasant, acoustic feedback places a strain on the speakers, and can damage them. To prevent such feedback, place the speakers so that their sound will not be picked up by the mic and amplified. If acoustic feedback still occurs, you can use FBS to improve the feedback margin. The MRX can provide two types of FBS: Notch FBS and Pitch Shift FBS.

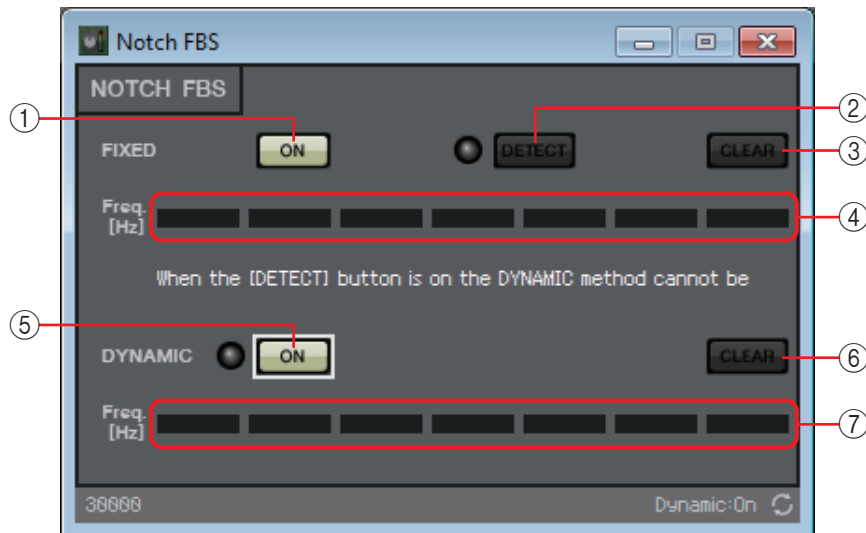
Notch FBS uses a notch filter to lower the level of the feedback point.

Pitch Shift FBS slightly shifts the pitch of the frequency point that is feeding-back, thereby ending the feedback loop.

Up to eight Notch FBS units can be placed in an MRX unit.



“Notch FBS” component editor



FIXED

After the speakers and mics have been installed, and while the MRX settings are being made, this method proactively finds feedback points in the current sound system, and applies the appropriate filters. This is effective for mics whose position is fixed.

① **FIXED [ON] button**

Switches the detection result between enabled and disabled.

② **[DETECT] button**

Starts or stops detection. This is available only when online. Detection does not end automatically. During detection, the DYNAMIC filtering is disabled. For details on the detection procedure, refer to [Performing FBS detection for the FIXED type](#).

③ **[CLEAR] button**

Clears the filter settings.

④ **[Freq.]**

Displays the frequencies of the filters that were applied. Up to seven filters will be applied.

DYNAMIC

This method continually finds the changing feedback points while the MRX unit is in use, and updates the filter settings accordingly. This is effective for wireless mics whose location is not fixed, and which can be used in a variety of positions.

⑤ **DYNAMIC [ON] button**

Enables or disables the DYNAMIC function. FBS operation will begin when you turn this on.

⑥ **[CLEAR] button**

Clears the filter settings.

⑦ **[Freq.]**

Displays the frequencies of the filters that were applied. Up to seven filters will be applied.

- NOTE**
- The indicator will light when the following occurs.
 - When a frequency is displayed
 - When a currently-displayed frequency is rewritten
 - When using *FIXED*, calculation will continue repeatedly even after all seven filters have been displayed, for example to combine the frequencies that are closest to each other. However when using *DYNAMIC*, if all seven filters are already displayed but new feedback is found, the filter that was specified first and that will have the least effect on the audio quality will be discarded, and replaced by the newly-specified filter. A filter will be discarded automatically after a certain length of time has elapsed since it was applied.
 - It is not possible to completely eliminate all feedback in all environments.
 - If feedback increases when you raise a fader or the gain, and is not automatically suppressed, lower the fader or gain to prevent the speakers from being damaged.

Performing FBS detection for the FIXED type

In order to obtain good results, you should set up the mics, speakers, and other sound equipment, and adjust the output EQ settings before performing detection. If you want, *FIXED* can also be used in conjunction with *DYNAMIC*.

1. Adjust the power amp output volume.

While vocalizing into the mic, gradually raise the power amp output to the volume at which the system will be operated in actual use. In addition, clap your hands and verify that feedback does not occur.

2. Maintain silence in the space for which you want to suppress feedback.

3. Minimize the input of the mic that you want to detect.

To minimize the input, you can either adjust the input gain or use the fader to adjust the output. In the components that you have placed, adjust the parameters of the appropriate component.

4. Click the [DETECT] button to begin detection.

5. Gradually raise the input of the mic that you want to detect.

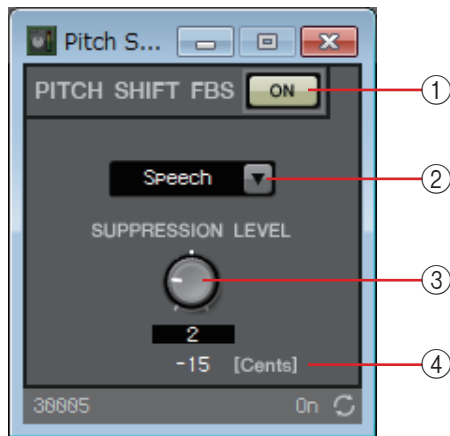
Feedback will occur, but the MRX will immediately detect that frequency and insert a filter.

Repeat this operation. When you have obtained a satisfactory result, click the [DETECT] button to end detection.

NOTE If you don't notice any result, it may be that detection has failed. Click the [CLEAR] button to discard the detection result. If you want to make the settings once again, adjust the position of the mics and speakers, adjust the volume, and try the above procedure once again from step 1. In some cases, detection will not occur correctly if the overall volume is raised excessively, or if the mics and speakers are too close, or if sound from a speaker is directly entering a mic.

HINT The MRX cannot detect multiple feedback points simultaneously. Settings will be easier if you raise the fader or gain slowly so that feedback occurs gradually.

“Pitch Shift FBS” component editor



① **PITCH SHIFT FBS [ON] button**

Switches the Pitch Shift FBS function between enabled and disabled. Pitch Shift FBS operation will begin when you turn this on.

② **Mode list box**

Selects the type of input signal.
The modes are as follows.

- **Speech**
Choose this if the input signal is speech.
- **Music**
Choose this if the input signal is music.

③ **[SUPPRESSION LEVEL] knob**

Specifies the amount by which feedback is suppressed. Higher values produce a stronger effect.

④ **[Cents]**

Indicates the amount of pitch change applied by the effect, in units of cents.

□ Filter

A filter allows a specific frequency region to pass and attenuates other frequency regions.

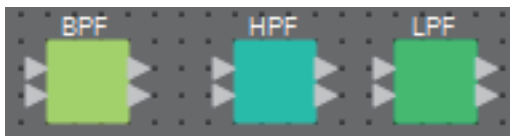
The MRX provides three types of filter: BPF (band-pass filter), HPF (high-pass filter), and LPF (low-pass filter). Select either MONO or STEREO when you place this component in the design sheet. The illustrations used in the following explanation are for the case of STEREO.

Each component editor has a [HPF] list box or [LPF] list box; click this to access a menu. You can combine six slopes with four filter types.

[6dB/Oct], [12dB/Oct], [18dB/Oct], [24dB/Oct], [36dB/Oct], and [48dB/Oct] specify the amount of attenuation per octave. Lower values apply more gentle attenuation; higher values apply steeper attenuation.

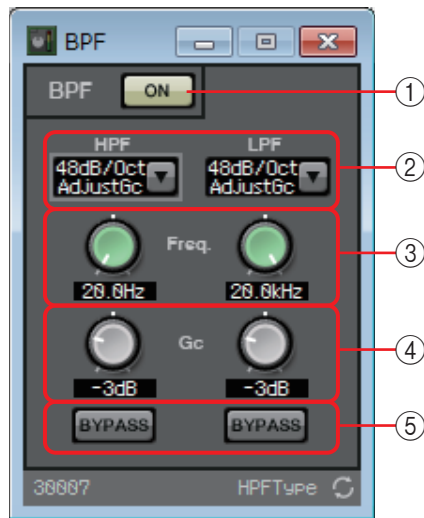
Each type of filter is described below.

- **Thru**
No filter will be applied. There will be no attenuation; the response will be the same at all frequencies.
- **AdjustGc (Adjustable Gc)**
Adjusts the Gc (gain at the cutoff frequency) in a range of -6 to $+6$ dB. Setting this to -3 dB will produce a Butterworth filter, and setting this to -6 dB will produce a Linkwitz-Riley filter. The Gc knob will appear when you select this.
- **Butwrth (Butterworth)**
This is the most common response. The passed region is flat, and the gain at the cutoff frequency is -3 dB.
- **Bessel**
This curve emphasizes the phase response; the attenuation is more gradual than Butterworth, but the waveform will not be distorted when a square wave is passed through it.
- **Linkwitz (Linkwitz-Riley)**
The order of this filter will be a power of two; the summed voltage of the LPF and HPF outputs will produce a gain of 0 dB across the entire frequency range. The passed region is flat, and the gain at the cutoff frequency is -6 dB.



“BPF” component editor

This filter passes the signal in a specified frequency band, and attenuates the signal in other frequency regions.



① **BPF [ON] button**

Enables or disables the BPF.

② **[HPF]/[LPF] list box**

Select the amount of attenuation per octave, and the type of filter.

③ **[Freq.] knobs**

Specify the cutoff frequency of the HPF and LPF.

④ **[Gc] knob**

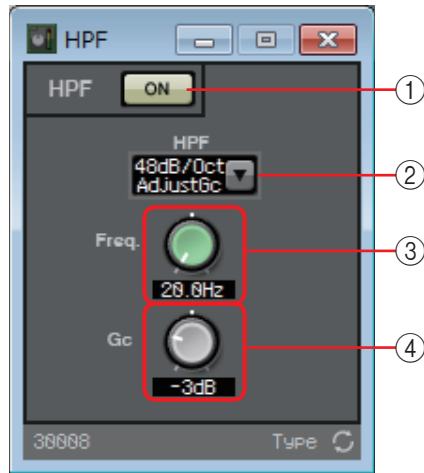
When [AdjustGc] (Adjustable Gc) is selected in the [HPF]/[LPF] list box, these knobs specify the gain at the cutoff frequency.

⑤ **[BYPASS] buttons**

Specify whether each band is bypassed. If you click a button to make it light, that filter is bypassed.

“HPF” component editor

This filter passes the signal of the region above the specified frequency, and attenuates the signal in the lower frequency region.



① **HPF [ON] button**

Enables or disables the HPF.

② **[HPF] list box**

Selects the amount of attenuation per octave, and the type of filter.

③ **[Freq.] knob**

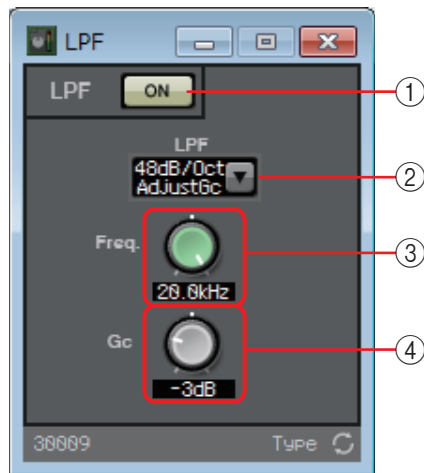
Specifies the cutoff frequency.

④ **[Gc] knob**

When [AdjustGc] (Adjustable Gc) is selected in the [HPF] list box, this knob specifies the gain at the cutoff frequency.

“LPF” component editor

This filter passes the signal of the region below the specified frequency, and attenuates the signal in the upper frequency region.



① **LPF [ON] button**

Enables or disables the LPF.

② **[LPF] list box**

Selects the amount of attenuation per octave, and the type of filter.

③ **[Freq.] knob**

Specifies the cutoff frequency.

④ **[Gc] knob**

When [AdjustGc] (Adjustable Gc) is selected in the [LPF] list box, this knob specifies the gain at the cutoff frequency.

□ Inputs/Outputs

These are the input/output jacks and SD card of the MRX.

The inputs consist of ANALOG, STEREO, YDIF and DANTE.

DANTE IN and SD CARD do not have a component editor.

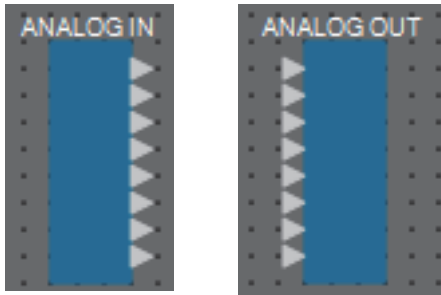
The outputs consist of ANALOG, YDIF, and DANTE.

YDIF OUT does not have a component editor.

If a Mini-YGDAI card is specified, SLOT shows the name of the card.

If you want to output audio from an SD card, place an SD CARD component.

NOTE To place a SLOT, select Mini-YGDAI card. The component corresponding to the selected card is placed on the design sheet.



“ANALOG IN” editor

Here you can make settings for the [INPUT] jack inputs, and view the levels of the audio signals that are being input.



① **Channel index**

Indicates the analog input jack number.

② **Level meter**

Indicates the analog input level.

③ **[GAIN] knob**

Adjusts the analog gain of the HA (head amp).

④ **[+48V] button**

Turns the HA phantom power (+48V) on/off.

Notice

Be sure to leave this button off if you do not need phantom power.

When turning phantom power on, you must observe the precautions below in order to prevent noise and possible damage to the unit and to external devices.

- Leave this button off if a device that does not support phantom power is connected to the [INPUT] connector.
- Do not connect/disconnect a cable to/from the [INPUT] connector while this button is on.
- Lower the output level to the minimum before turning phantom power on/off.

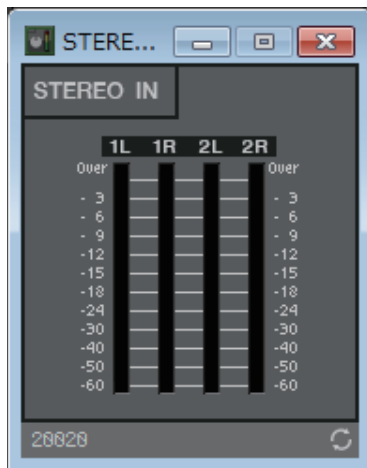
NOTE There is no master switch. To avoid malfunctions, be sure to set this appropriately for the equipment that is connected.

⑤ **Port name**

Shows or edits the port name. This is linked with the “Label” of the component’s ports.

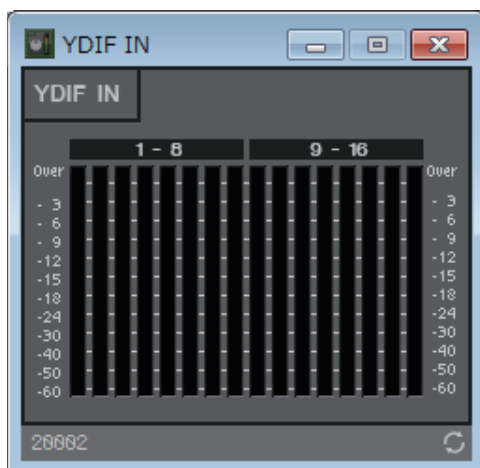
“STEREO IN” editor

This shows the level of the audio signals that are being input from the [ST IN] jacks.



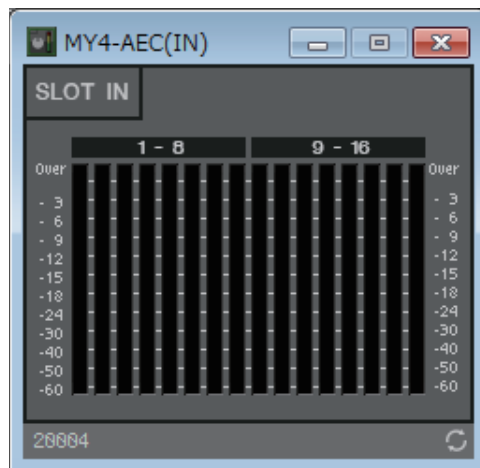
“YDIF IN” editor

This shows the level of the audio signals that are being input from the [YDIF] jacks.



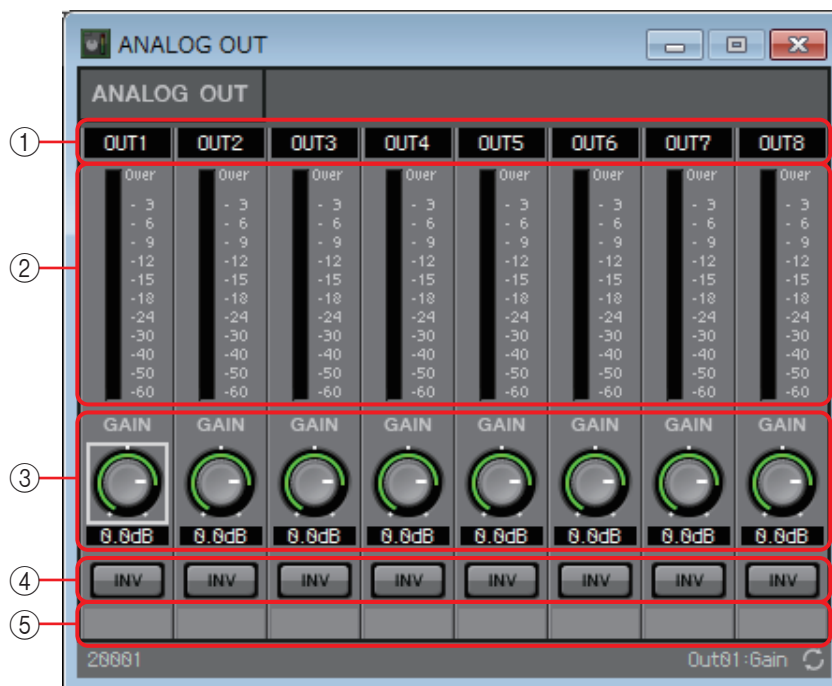
“SLOT IN” editor

This shows the level of the audio signals that are being input to the Mini-YGDAI card.



“ANALOG OUT” editor

Here you can make settings for the [OUTPUT] jack outputs, and view the levels of the audio signals that are being output.



① **Channel index**

Indicates the analog output jack number.

② **Level meter**

Indicates the analog output level.

③ **[GAIN] knob**

Adjusts the output gain.

④ **[INV] button**

Switches the polarity of the output signal.

⑤ **Port name**

Shows or edits the port name. This is linked with the “Label” of the component’s ports.

“DANTE OUT” editor

Here you can make settings related to DANTE output.



① Channel index

Indicates the DANTE channel number.

② [GAIN] knob

Adjusts the output gain.

③ [INV] button

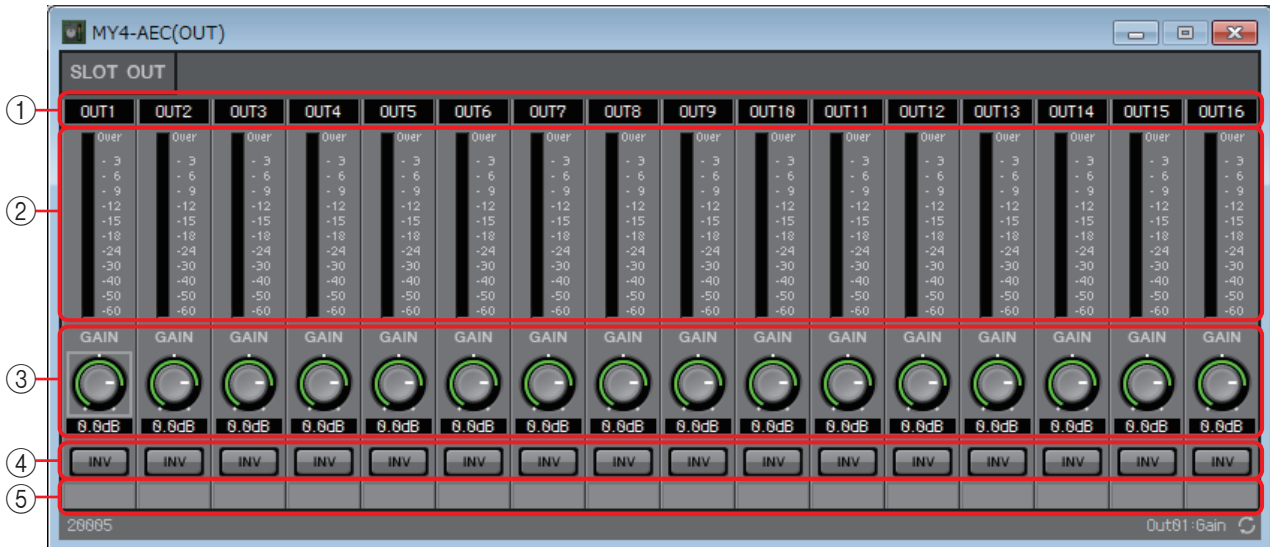
Switches the polarity of the output signal.

④ Port name

Shows or edits the port name. This is linked with the “Label” of the component’s ports.

“SLOT OUT” editor

Here you can make settings for the Mini-YGDAI card outputs, and view the levels of the audio signals that are being output.



① **Channel index**

Indicates the output jack number.

② **Level meter**

Indicates the output level.

③ **[GAIN] knob**

Adjusts the output gain.

④ **[INV] button**

Switches the polarity of the output signal.

⑤ **Port name**

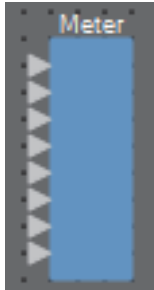
Shows or edits the port name. This is linked with the “Label” of the component’s ports.

□ Meter

This displays the signal level of each channel.

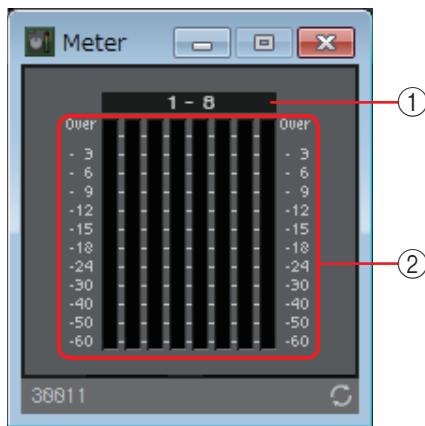
Specify the number of channels when you place this component in the design sheet. Select this according to the number of channels that you want to display. The illustration used in the following explanation is for the case of eight channels.

NOTE A component with a large number of channels occupies more DSP resources of the MRX.



“Meter” component editor

This displays the output level of each channel.



① Channel index

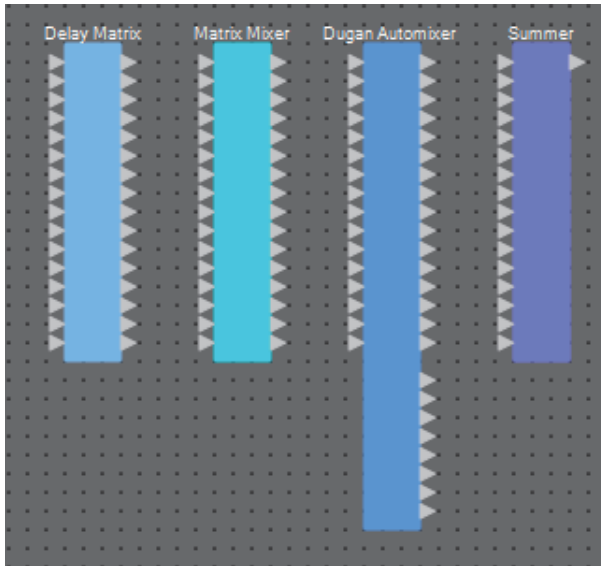
Channel numbers are shown in units of eight channels.

② Meter

This displays the signal level of each channel.

□ Mixer

The MRX provides four types of mixers: Delay Matrix, Dugan Automixer, Matrix Mixer, and Summer. When placing this component in the design sheet, select the number of channels that is appropriate for input and output (and in the case of the Delay Matrix, specify the maximum delay value). The Delay Matrix has a maximum delay of 500 ms, and the maximum number of inputs and outputs is 16-in/16-out. The maximum number of inputs for the Dugan Automixer is 24 channels. The maximum number of inputs and outputs for the Matrix Automixer is 64-in/64-out. The maximum number of Summer inputs and outputs is 16-in/1-out. Since the Summer simply mixes and outputs the input audio, it has no component editor. The illustration used in the following explanation is for the case of 16 channels.

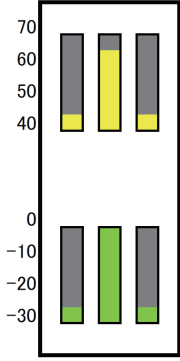
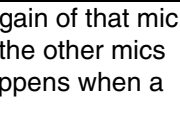
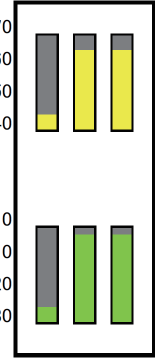
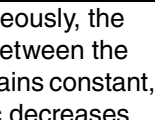


Starting from the top, the Dugan Automixer has the following outputs.
 Discrete Out (processed sound) × number of mics
 Group Mix Out (the mixed sound of each group) × number of groups

“Dugan Automixer” component editor

In a system used for unscripted speech, the automixer detects the mics that are in use and automatically optimizes the gain distribution, maintaining a consistent system gain between multiple mics without requiring an engineer to be constantly adjusting the faders. The Dugan Automixer provided on the MRX can automatically adjust the automix gain for up to 24 mics used for speech.

In this explanation, we describe using the Dugan Automixer with three mics.

When one person is speaking	When two people are speaking
<p>Mic input audio (dB)</p>  <p>Automix gain (dB)</p> 	<p>Mic input audio (dB)</p>  <p>Automix gain (dB)</p> 
<p>When one person speaks, the gain of that mic instantly rises, and the gain of the other mics decreases. The same thing happens when a different person speaks.</p>	<p>When two people speak simultaneously, the gain is automatically distributed between the two mics so that the total gain remains constant, and the gain of the remaining mic decreases.</p>

The Dugan Automixer differs from the functionality of a limiter or an auto level controller. When multiple people are speaking, the engineer can use the faders to adjust individual levels as usual. Even when nobody is speaking, the mic audio level is detected and the gain is distributed automatically, so the faders can be left raised.



Master field

① Channel display

For input channels 1–8, 9–16 and 17–24, this area shows each channel’s automix gain (Automix gain) meter and the man (yellow) / auto (green) / mute (red) status.

When you select the region of channels 1–8, 9–16 or 17–24, the channels displayed in the channel control field switch between 1–8, 9–16 and 17–24.

If there are fewer than eight mics, channels 9–16 and 17–24 are not shown. If there are fewer than 16 mics, channels 17–24 are not shown.

② [OVERRIDE] button

This function instantly mutes all mics except for a specific mic, such as the mic of the chair or head.

If this is on, channels whose [override] button is on are set to “man,” and channels whose [override] button is off are set to “mute.”

For the specified mic, such as of the chair or head, click the [override] button in the channel strip to make it light yellow. Press the button once again to return to the previous setting.

③ [MUTE] button

Turns mute on/off for all mics in the group.

④ [reset] button

Resets the various parameters to their default values.

⑤ [meters] button

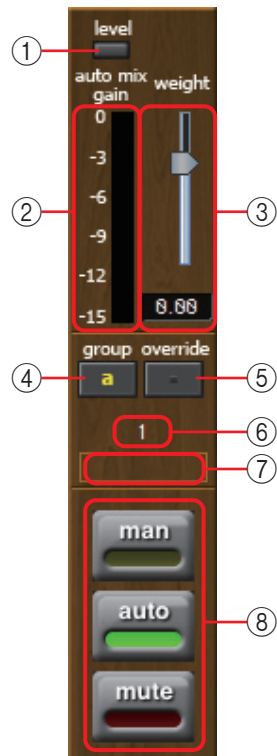
Switches the meter display of the channel control field between gain/input/output.

NOTE When using [weight] to adjust the relative sensitivity between the input channels, switching the meter display to “gain” lets you use the channel control field to adjust the gain amount, providing better visibility.

Channel control field

This is color-coded by group.

Channels of the same group are mixed.



① [level] indicator

This lights green when the audio reaches the appropriate level for automixing.

NOTE

- If the [level] indicator goes dark, raise the input gain.
- If the [level] indicator turns red, lower the input gain.

② Meter

The meter provides three display modes: gain (green: automix gain) /input (yellow: input level) /output (blue: output level). The display mode switches each time you press the [meters] button in the master field.

NOTE Normally you will leave this in the “gain” display mode.

③ [weight] slider

Adjusts the relative sensitivity between input channels. Set the meter display to “gain,” and adjust the weight setting so that the meters are at approximately the same level when there is no input. For example if noise is heard near a certain mic (e.g., air conditioner wind noise), lowering the weight value of that channel will reduce the noise.

The automixer calculates the proportion of a specific channel’s input level relative to the mix of all inputs in the group. The following examples describe how weight control works.

● **If the weight setting value is raised on one channel**

- The automix gain value of that channel increases, and the value of other channels decreases.
- Channels with a high weight setting will more easily obtain automix gain in comparison to other channels.

● **If the weight setting value is lowered on one channel**

- The automix gain value of that channel decreases, and the value of other channels increases.
- If people speak simultaneously into multiple mics, it will be more difficult to differentiate them from the other mics.

④ **[group] button**

Selects the group to which each channel belongs. Click the button to switch the group.

⑤ **[override] button**

When the master field’s [OVERRIDE] button is on, the setting of this button determines whether the corresponding channel switches to “man” mode or “mute” mode.

- If you turn on the [OVERRIDE] button of the master field when the [override] button of the channel control field is on, the channel mode changes to “man.”
- If you turn on the [OVERRIDE] button of the master field when the [override] button of the channel control field is off, the channel mode changes to “mute.”
- When the [OVERRIDE] button of the master field is turned off, that channel returns to its previous mode.

⑥ **Input channel number**

Indicates the input channel number.

⑦ **Port name**

Shows or edits the port name. This is linked with the “Label” of the component’s ports.

⑧ **[man]/[auto]/[mute] buttons**

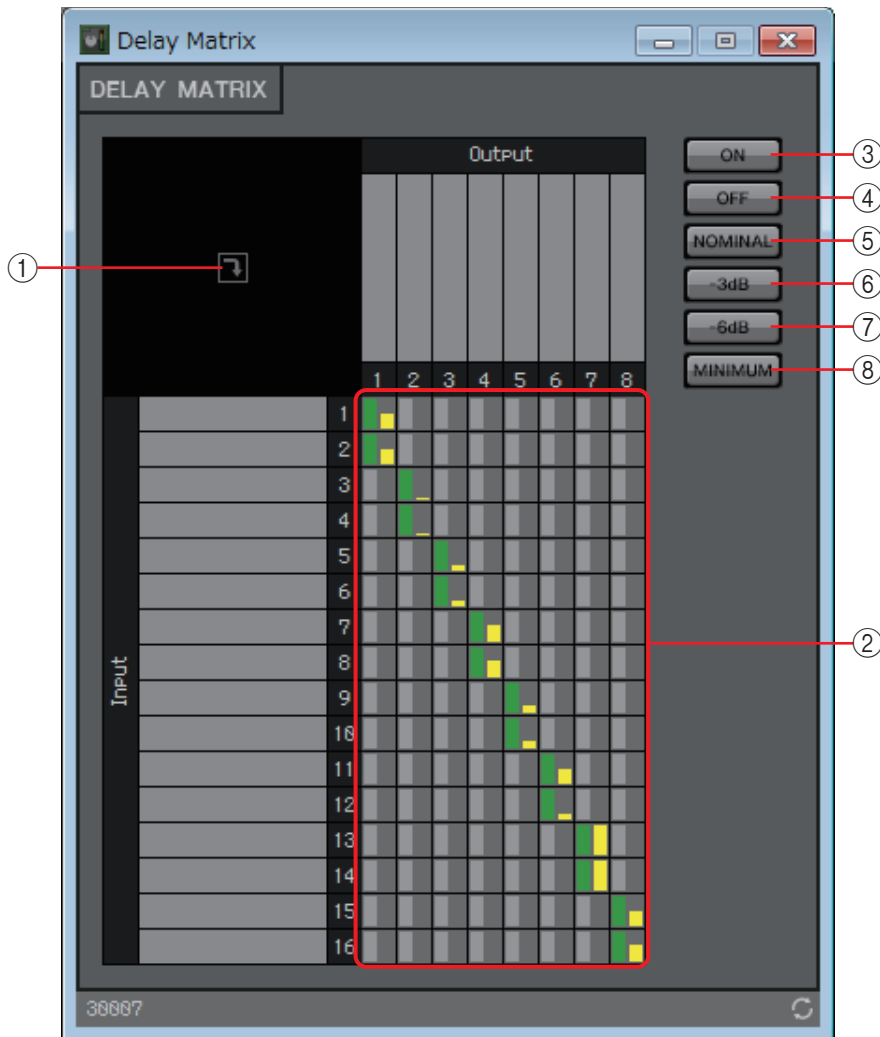
These buttons toggle the channel between man/auto/mute.

- man** : The audio is passed through without modifying the gain. Select this mode if singing into the mic.
- auto** : The automixer is turned on. Select this mode for conversation.
- mute** : The channel is muted.

“Delay Matrix” component editor / “Matrix Mixer” component editor

This mixer places the input channels and output buses in a matrix. In the “Matrix Mixer” component editor you can adjust the group balance for each output bus. In the “Delay Matrix” component editor you can adjust the group balance and delay for each output bus. Here we explain using a screenshot of the “Delay Matrix” component editor.

NOTE Selecting a component that has a large amount of delay will consume more of the MRX’s memory.



① Window open button

Opens the “Delay Matrix” parameter setting window / “Matrix Mixer” parameter setting window, allowing you to make settings such as the send level to each output channel.

② Channel matrix

Shows the send level and delay of each channel. The vertical axis indicates the input channel, and the horizontal axis indicates the output channel. Click here to turn send on/off.

You can right-click a cross-point and choose Open Parameter Windows (opens a parameter setting window), Out ON (turn on the entire vertical axis), Out Off (turn off the entire vertical axis), In ON (turn on the entire horizontal axis), or In OFF (turn off the entire horizontal axis).

You can also open a parameter setting window by double-clicking a cross-point.

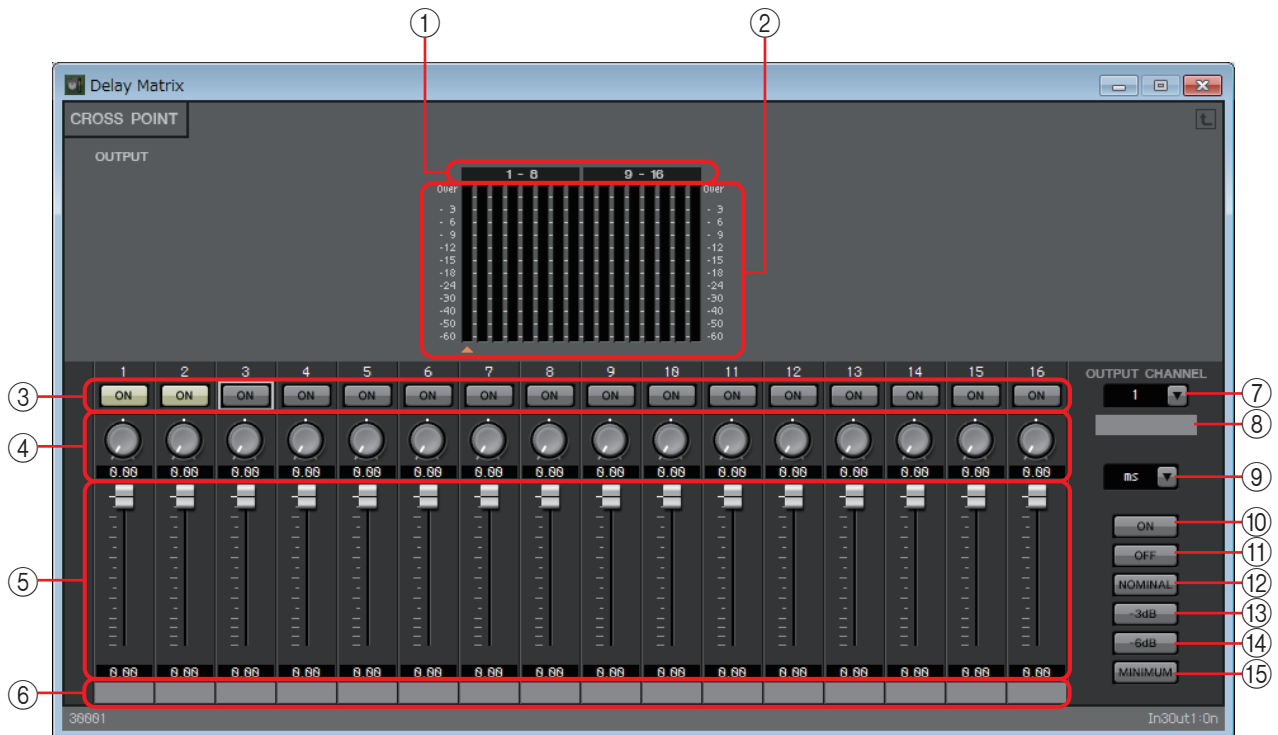
When you double-click a port name display area located above or to the left of the matrix, a window opens, allowing you to edit the name of the port.

- ③ **[ON] button**
Turns all on.
- ④ **[OFF] button**
Turns all off.
- ⑤ **[NOMINAL] button**
Sets the matrix send level to 0 dB.
- ⑥ **[-3dB] button**
Sets the matrix send level to -3 dB.
- ⑦ **[-6dB] button**
Sets the matrix send level to -6 dB.
- ⑧ **[MINIMUM] button**
Sets the matrix send level to $-\infty$ dB.

“Delay Matrix” parameter setting window / “Matrix Mixer” parameter setting window

Here you can adjust settings such as the send level to the output channels.

The output channel parameter setting window opens when you click the window open button of the “Delay Matrix” component editor or the “Matrix Mixer” component editor. Here we explain using a screenshot of the “Delay Matrix” parameter setting window.



- ① **Meter index**
Meter channel numbers are shown in units of eight channels.
- ② **Meter**
This displays the signal level of each output channel. Below the meter, a ▲ symbol indicating the currently selected output channel is shown.

- ③ **[ON] button**
Switches the send on/off.
- ④ **Delay Time knob (“Delay Matrix” parameter setting window only)**
Specifies the delay time. The units are msec. You can select the units in the Type list box.
- ⑤ **Fader**
Adjusts the send level from the input channel.
- ⑥ **Input port name**
Shows or edits the input port name.
This is linked with the “Label” of the component’s ports.
- ⑦ **[OUTPUT CHANNEL] list box**
Switches the output channel for which to make settings.
- ⑧ **Output port name**
Shows or edits the output port name.
This is linked with the “Label” of the component’s ports.
- ⑨ **Type list box**
The delay time specified by the Delay Time knob is converted into the units you select, and shown at the left.
 - **ms** Milliseconds
 - **Sample** Number of samples (The range will depend on the sampling frequency setting.)
 - **Meter** Meters/second
 - **Feet** Feet/second
- ⑩ **[ON] button**
Turns all on.
- ⑪ **[OFF] button**
Turns all off.
- ⑫ **[NOMINAL] button**
Sets the send level from the input channel to 0 dB.
- ⑬ **[-3dB] button**
Sets the send level from the input channel to -3 dB.
- ⑭ **[-6dB] button**
Sets the send level from the input channel to -6 dB.
- ⑮ **[MINIMUM] button**
Sets the send level from the input channel to $-\infty$ dB.

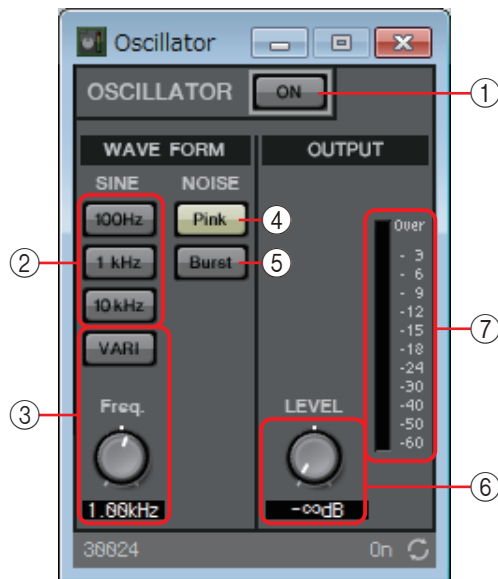
□ Oscillator

The MRX provides a mono channel oscillator.



“Oscillator” component editor

Here you can specify the generated waveform and its level.



① **OSCILLATOR [ON] button**

Specifies whether the specified signal is output.

② **[100Hz]/[1kHz]/[10kHz] buttons**

These buttons output a sine wave of the corresponding frequency.

③ **[VARI] button / [Freq.] knob**

If this button is on, a sine wave of the frequency specified by the knob is output.

If you want to use this as a pilot tone, mix it immediately after YDIF OUT or DANTE OUT.

④ **[Pink] button**

Outputs pink noise.

⑤ **[Burst] button**

Outputs burst noise.

⑥ **[LEVEL] knob**

Specifies the output level.

⑦ **Meter**

Shows the level of the signal that is being output.

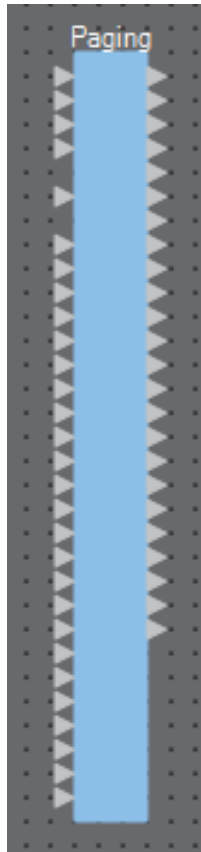
□ Paging

This component is for the PGM1 paging station microphone.

It adjusts the volume of the program source according to the paging broadcast. For details on how to use this, refer to the MRX setup guide.

If using the PGM1, set Program to something other than SD.

If using the scheduler's Paging function, place the "Paging" component even if a PGM1 is not connected.

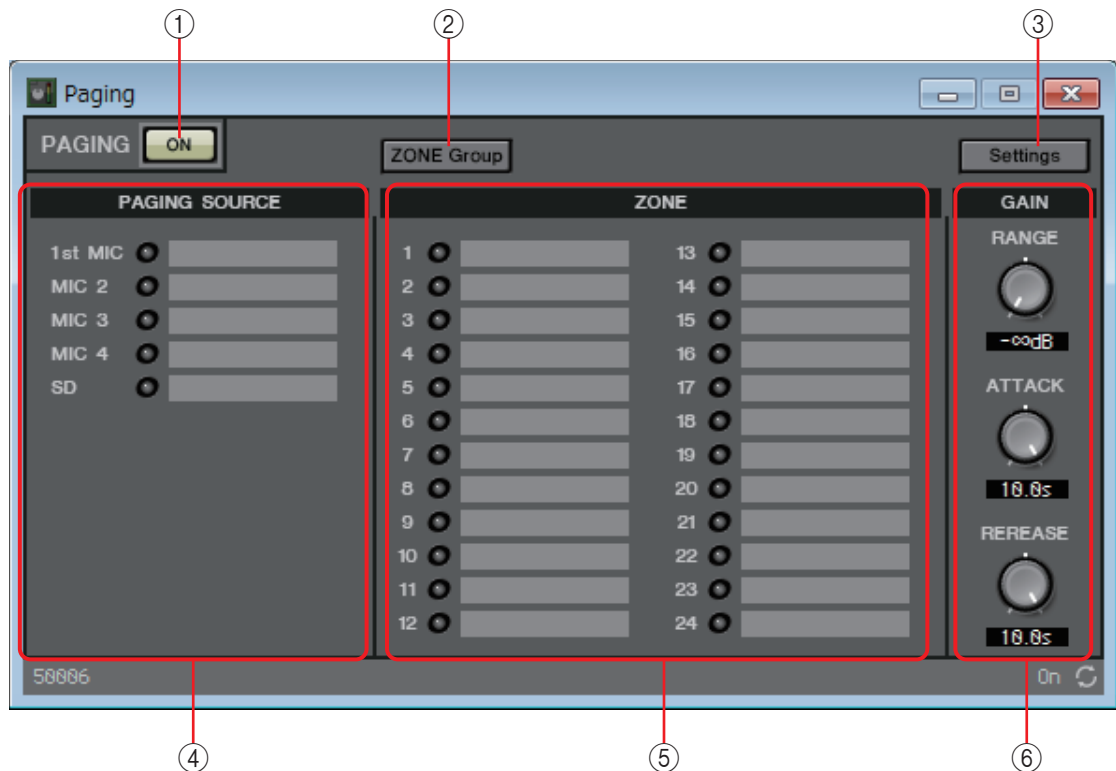


The inputs are as follows, starting from the top.

- **1st Priority Mic:** Input of the priority mic
- **Mic2-4:** Inputs of mics other than the priority mic
- **SD:** Input for chime or message playback
- **Program1-24:** Inputs of programs to be broadcast to zones to which paging will be broadcast

“Paging” component editor

Here you can make basic settings for paging broadcast.



① **PAGING [ON] button**

Turns the paging function on/off.

② **[ZONE Group] button**

Opens the “Zone Group” window where you can make zone group settings.

③ **[Settings] button**

Opens the “PGM1/PGX1” dialog box.

④ **PAGING SOURCE settings area**

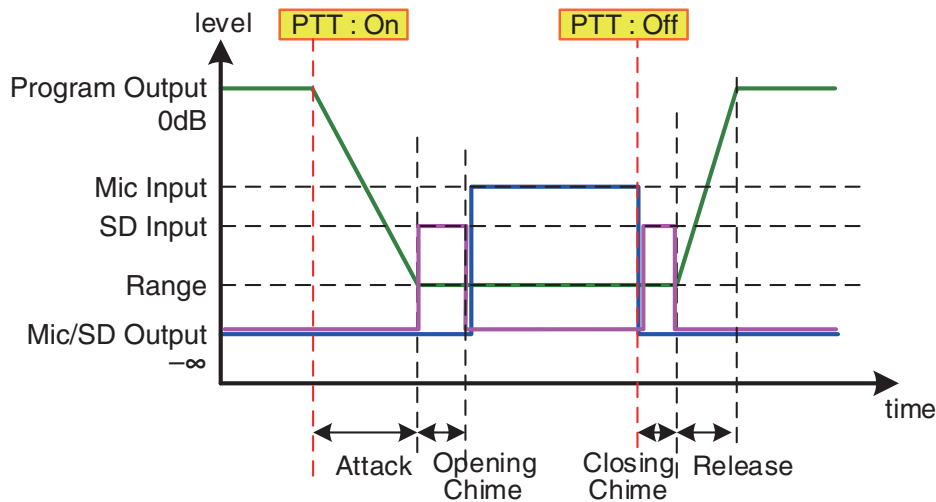
- **Indicator**
This is lit if there is a currently-broadcasting PGM1 or SD.
- **Input text box**
Shows the input port name. You can double-click the name and edit it.

⑤ **ZONE area**

- **Indicator**
An indicator is lit if there is a zone that is currently broadcasting due to operation of a PGM1 or due to a Paging event by the scheduler.
- **Zone text box**
Shows the output port name. You can double-click the name and edit it.

⑥ GAIN setting area

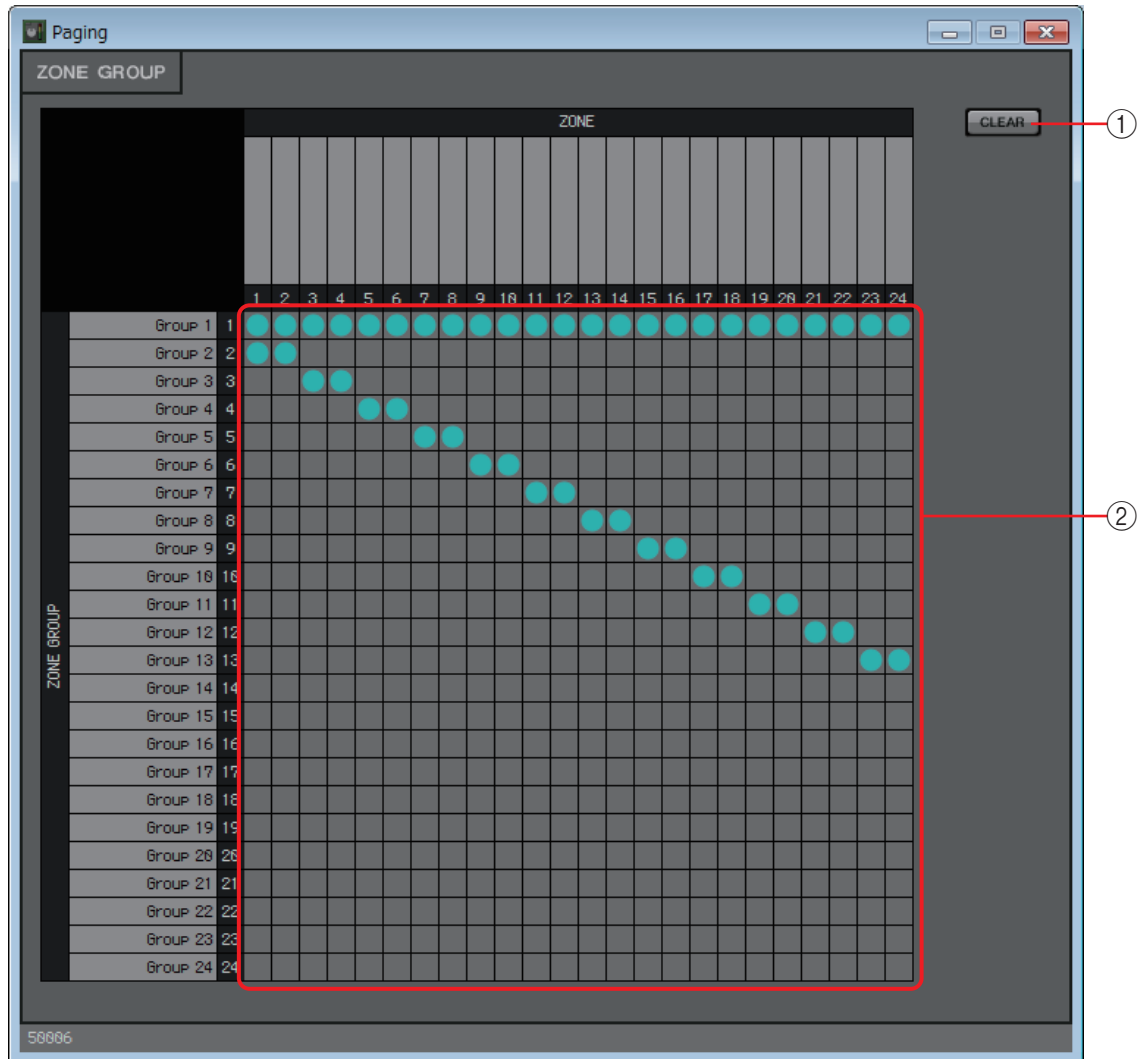
Each knob resets to the default value if you click it while holding down the <Alt> key. In this area, you can make settings related to the line shown in green in the flow depicted below.



- **[RANGE] knob**
Specifies the Program value while the chime is sounding or while the PGM1 is broadcasting.
- **[ATTACK] knob**
Specifies the time from when the PGM1's PTT turns on until the program decreases to the RANGE value.
- **[RELEASE] knob**
Specifies the time from when the broadcast or the closing chime finishes playing until the program returns to its original level. –

"Zone Group" window

Specify a zone group if you want a single zone/message select button of a PGM1/PGX1 to broadcast to multiple zones.



① [Clear] button

Turns off all grouping.

② Zone group matrix

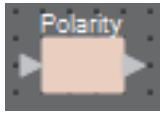
In this matrix you can make zone group settings. Click an intersection in the matrix to turn it on/off. Zones that are turned on belong to a zone group.

When you double-click a text box located above or to the left of the matrix, a window opens, allowing you to edit the name of the output port or zone group.

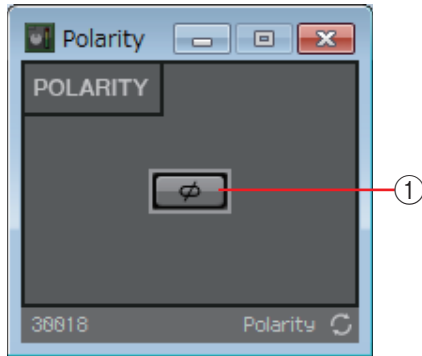
NOTE The grid squares can also be registered in a Parameter Set or Remote Control List by holding down <Ctrl> and dragging and dropping.

❑ Polarity

This inverts the polarity of the input signal, and outputs the result.



“Polarity” component editor



① [Ø] button

If this is on, the polarity of the input signal is inverted, and the result is output.

❑ Revolabs Control

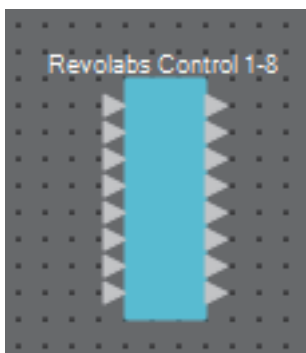
This switches channels on/off within this component according to mute button operations of an Executive Elite mic made by revolabs corporation.

If this is used simultaneously with the Acoustic Echo Canceller (AEC) component, placing this component after the AEC allows AEC to learn constantly regardless of whether the mic is on or off. Set the Base DSP Unit of the Executive Elite as follows.

- Set the Base DSP Unit’s IP address to the same subnet as that of the MTX/MRX system.
- In the Local Web UI’s External Control Configuration, set the “External Control” [Processor] to “Yamaha MRX7-D,” set “Connection Mode” to [Telnet], and set the MRX7-D’s IP address and port number to 49280. The MRX7-D’s IP address must be configured as a static address.
- Use the LAN port to connect the unit to the MTX/MRX system.

When placing this component on the design sheet, select the mic channel numbers in units of eight channels. The illustration used in the following explanation is for the case of channels 1–8.

When you place this component on the design sheet, the MRX parameters that are controlled from the revolabs mic are automatically specified in the Remote Control Setup List.



“Revolabs Control” editor

To prevent inconsistencies between the values of the settings, set the parameters of the “Revolabs Control” component so that they are controlled only from the revolabs mic. Also, do not allow the settings to be overwritten by presets or snapshots.



① **Channel index**

Indicates the channel number of the mic.

② **[ON] button**

Indicates the on/off status of the mic’s mute button.

Operating the [ON] button does not change the mute on/off status of the mic.

③ **Port text box**

Shows or edits the port name. This is linked with the “Label” of the component’s ports.

④ **[Remote Control Setup List] button**

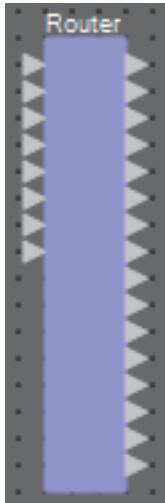
When you click this, the “[Remote Control Setup List](#)” dialog box appears.

Router

This component distributes inputs to output ports.

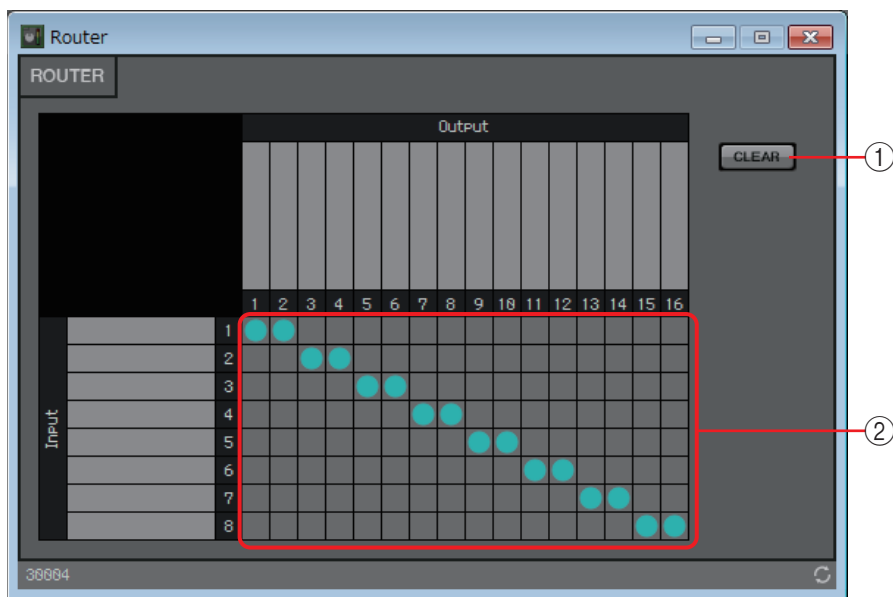
Although one input can be output to multiple channels, multiple inputs cannot be output to a single channel. In other words, this component can distribute signals, but cannot mix them.

Select the number of channels (maximum 64In/64Out) when you place this component in the design sheet. In the explanation here, the illustration shows the example of 8 input channels and 16 output channels.



“Router” component editor

Here you can specify how the signals are distributed.



① [Clear] button

Turns all outputs off.

② Router

This is a router that distributes the signals. Click a square in the grid to switch the output on/off.

When you double-click a port name display area located above or to the left of the router, a window opens, allowing you to edit the name of the port.

NOTE The grid squares can also be registered in a Parameter Set or Remote Control List by holding down <Ctrl> and dragging and dropping.

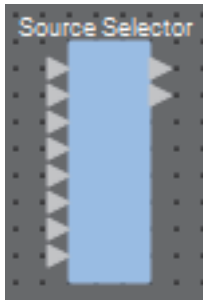
□ Source Selector

This selects one source from multiple input sources.

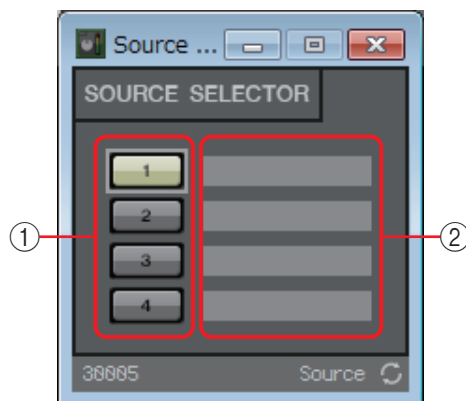
Source indicates the number of input sources, and Channel indicates the number of channels of those sources.

For example, a “4 Source 2 Channel” component selects one 2-channel source from four 2-channel sources.

When placing this component in the design sheet, select the number of input sources (4/8/16) and the number of channels in those sources (1/2/6 in the case of 4/8 input sources, or 1/2 in the case of 16 input sources). The explanatory illustration here shows the example of four input sources where each source has two channels.



“Source Selector” component editor



① **Selector buttons**

Select the source that will be output.

② **Port name**

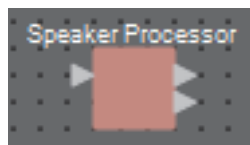
Shows or edits the port name.

This is linked with the “Label” of the component’s ports.

□ Speaker Processor

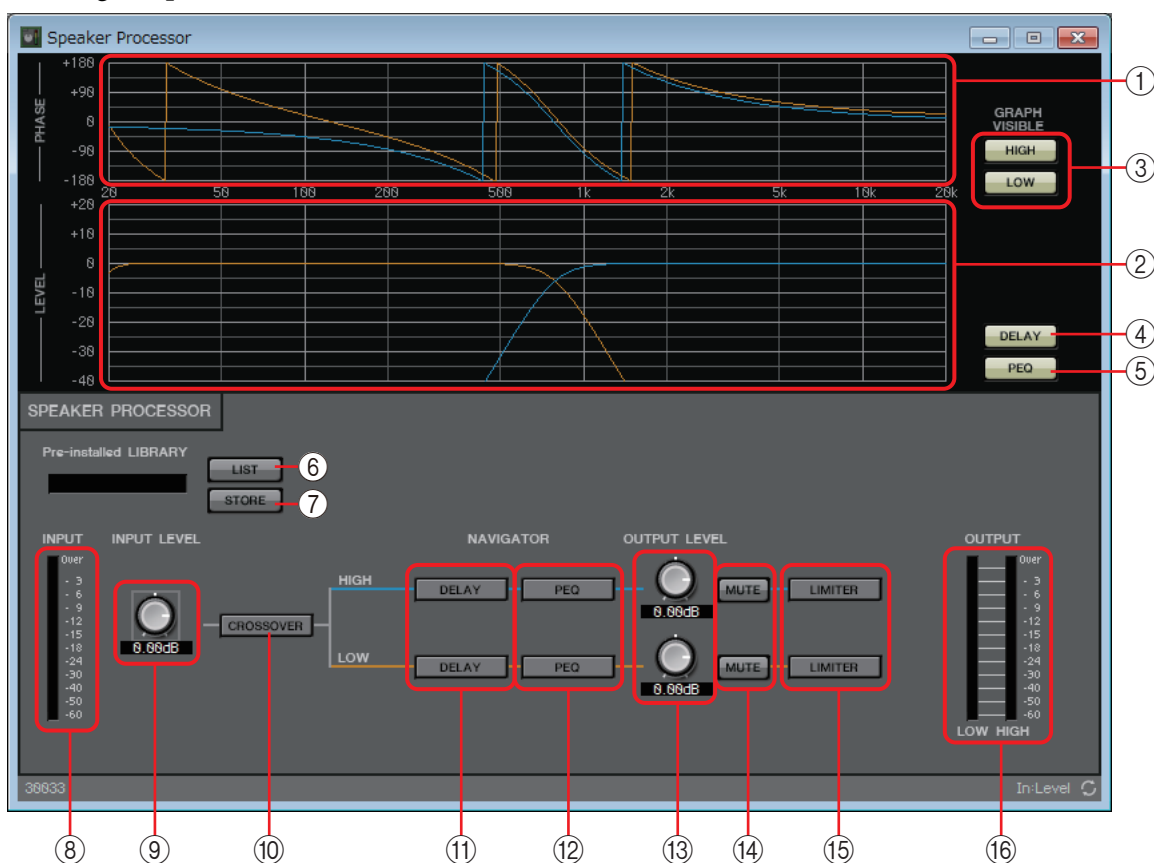
The speaker processor is a crossover processor for speaker adjustment; it includes an APF (All Pass Filter), Horn EQ, and limiter.

When placing this component in the design sheet, select the number of output channels to the speakers that are connected. Select “1” if the connected speakers are used in single amp mode (full range), select “2” for bi-amp mode, select “3” for tri-amp mode, and select “4” for quad-amp mode. The illustrations used in the following explanation are for the case of bi-amp mode.



“Speaker Processor” component editor

Here you can view the Speaker Processor parameter response, and access windows for setting the parameters.



① **[PHASE] graph**

Displays a crossover phase response curve. This display takes into account the response of the PEQ and the Delay. Output channels are color-coded.

② **[LEVEL] graph**

Displays a crossover amplitude response curve. This display takes into account the response of the PEQ and the Output Level. Output channels are color-coded.

③ **GRAPH VISIBLE buttons**

These buttons switch the graph of the corresponding output channel between visible and hidden. These are shown if there are multiple output channels.

④ **[DELAY] button**

Shows or hides the DELAY response in the crossover curve that is displayed.

⑤ **[PEQ] button**

Shows or hides the PEQ response in the crossover curve that is displayed.

⑥ **Pre-installed LIBRARY [LIST] button**

Selects and shows library items.

NOTE *In the libraries that are pre-installed in MTX-MRX Editor, the LIMITER's Threshold value is set to the value that is appropriate when using a power amp with 26 dB voltage gain. As necessary, make appropriate adjustments to the MRX's LIMITER settings and output level, and to the power amp's voltage gain and attenuator. For example if using a power amp whose voltage gain is 30 dB, you should either lower the power amp's attenuator value by 4 dB or lower the MRX's LIMITER Threshold value by 4 dB. The voltage gain of an XMV unit varies depending on the type and setting. For details, refer to the XMV Owner's Manual.*

⑦ **Pre-installed LIBRARY [STORE] button**

Saves the current state as a library item (file extension [.ce3]).

NOTE *MRX libraries are compatible with MTX libraries. However, since the MTX crossover's HIGH band does not have an LPF parameter, it will not be applied if you load an MRX library. After loading a library that was created on the MTX, you will need to set the LPF parameter for the crossover's HIGH band.*

⑧ **[INPUT] meter**

Shows the input signal level.

⑨ **[INPUT LEVEL] knob**

Specifies the input level. You can double-click the numeric display area and directly enter a numeric value.

⑩ **[CROSSOVER] button**

Opens the “[CROSSOVER](#)” parameter setting window where you can make crossover settings.

⑪ **[DELAY] button**

Opens a window where you can make delay settings for each output channel. For details on these settings, refer to “[Delay](#)” component editor.

⑫ **[PEQ] button**

Opens a window where you can make PEQ settings for each output channel. For details on these settings, refer to “[PEQ](#)” component editor.

NOTE *The Speaker Processor's PEQ is a 6-band PEQ.*

⑬ **[OUTPUT LEVEL] knob**

Specifies the output level of each output channel.

⑭ **[MUTE] button**

Switches mute on/off for each output channel.

⑮ **[LIMITER] button**

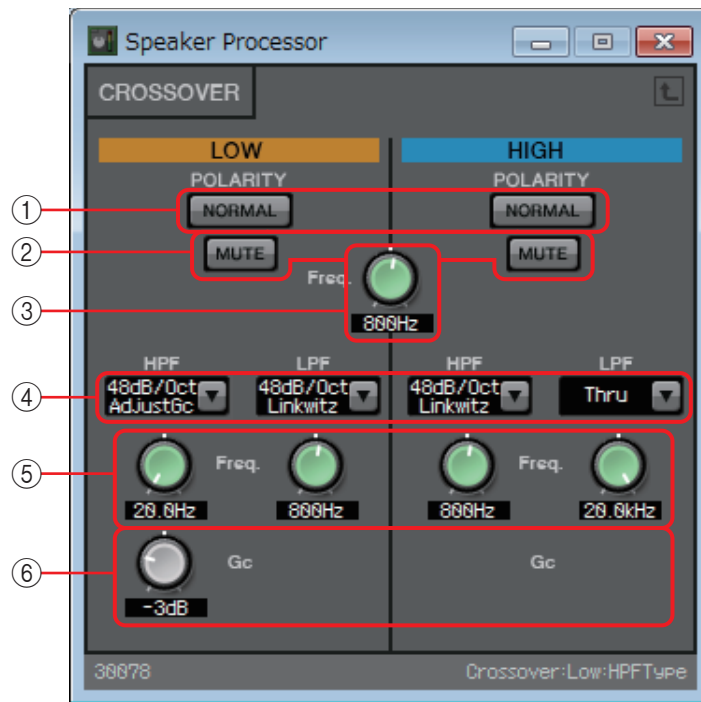
Opens a window where you can make limiter settings for each output channel. For details on these settings, refer to “[LIMITER](#)” parameter setting window.

⑯ **[OUTPUT] meter**

Displays the output signal level of each output channel.

“CROSSOVER” parameter setting window

Here you can make crossover settings for the output channels.



① **POLARITY [NORMAL]/[INVERTED] buttons**

Specify whether the polarity of each output channel will be inverted.

② **[MUTE] button**

Switches mute on/off for each output channel. This is linked with the [MUTE] button of the “Speaker Processor” component editor.

③ **Cross [Freq.] knob**

Specifies the crossover frequency of each output channel.

④ **[HPF]/[LPF] list box**

Select the attenuation per octave and filter type for each output channel. For details on the attenuation slope and filter types, refer to “[Filter](#)”.

⑤ **HPF/LPF [Freq.] knobs**

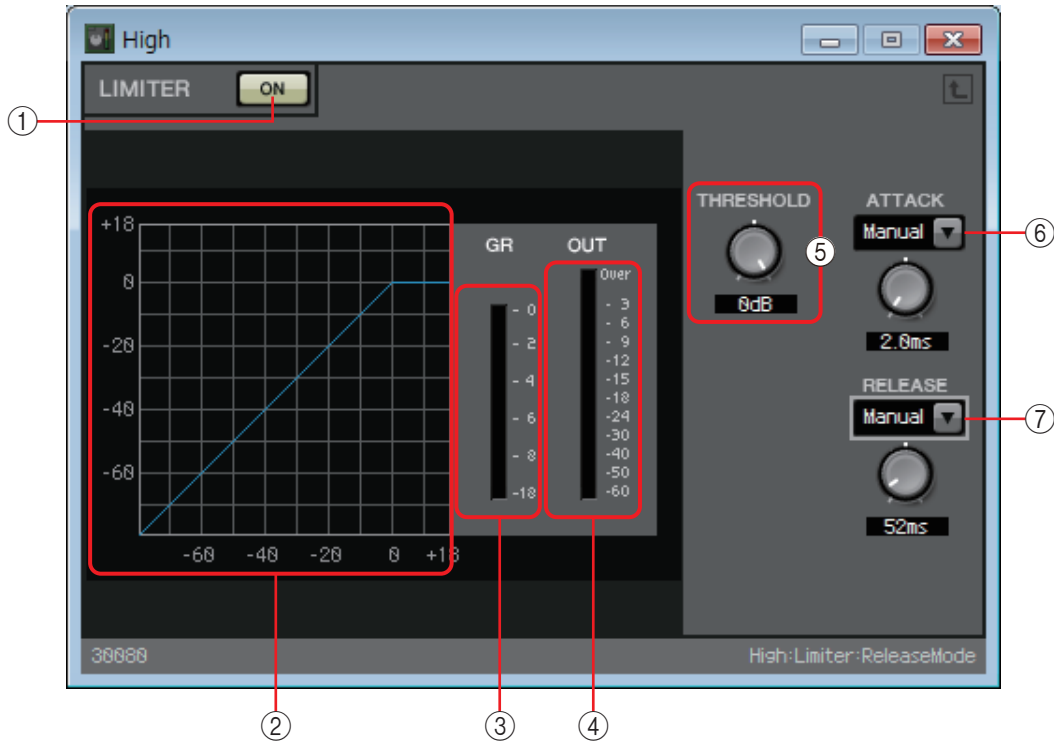
Specify the cutoff frequency of the HPF and LPF.

⑥ **[Gc] knob**

When [AdjustGc] (Adjustable Gc) is selected in the [HPF]/[LPF] list box, this knob specifies the gain at the cutoff frequency.

“LIMITER” parameter setting window

Here you can make limiter settings for each output channel. The following explanation uses the HIGH band window.



① **LIMITER [ON] button**

Switches the limiter function between enabled and disabled.

② **Limiter curve**

This shows the effect as a graph. The horizontal axis is the input signal level, and the vertical axis is the output signal level.

③ **[GR] meter**

Indicates the amount of gain reduction.

④ **[OUT] meter**

Shows the output signal level.

⑤ **[THRESHOLD] knob**

Specifies the threshold level at which the limiter is applied.

⑥ **[ATTACK] list box**

Specifies the speed at which the limiter will take effect. If Manual is selected, a knob is shown, allowing you to specify the setting in msec units. If Fast/Mid/Slow is selected, the following settings will be made automatically according to the crossover's HPF cutoff frequency in the Speaker Processor settings.

- **Fast**..... 1/4 wavelength of the cutoff frequency
- **Mid**..... 1/2 wavelength of the cutoff frequency
- **Slow**..... 1 wavelength of the cutoff frequency

⑦ [RELEASE] list box

Specifies the speed at which the limiter will release. If Manual is selected, a knob is shown, allowing you to specify the setting in msec units. If Fast/Mid/Slow is selected, the following settings will be made automatically according to the crossover's HPF cutoff frequency in the Speaker Processor settings.

- **Fast**..... 4 wavelengths of the cutoff frequency
- **Mid**..... 8 wavelengths of the cutoff frequency
- **Slow**..... 16 wavelengths of the cutoff frequency

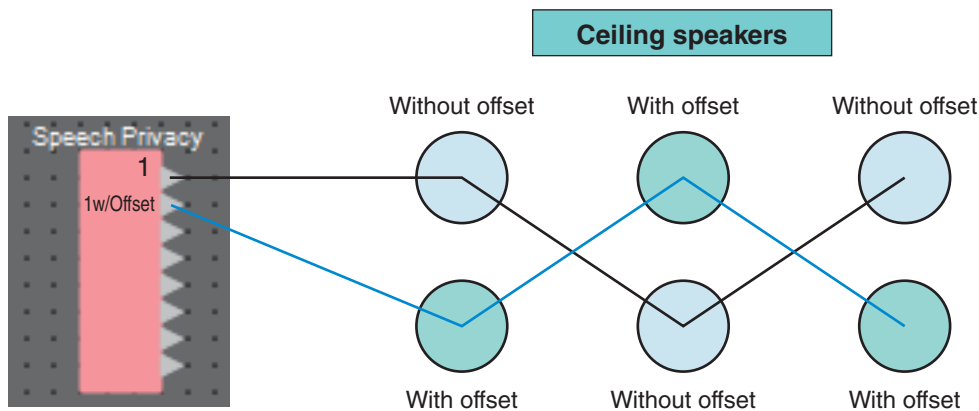
□ Speech Privacy

This function mixes environmental sounds and masking sounds to make it difficult for people nearby to overhear conversation in a specific location.

On the MRX7-D, only one such function is provided on each unit.

Although there are two outputs for each mixed signal, these two consist of an output without offset and an output with offset. By assigning these two outputs to alternating speakers, you can reduce the unnatural sensation of skewed phase where the sound overlaps.

Before going online with the MTX/MRX system, select [Install Speech Privacy File] from the MTX-MRX Editor's [System] menu or MRX Designer's [File] menu, and use ["Install Speech Privacy File" dialog box](#) to install a file in the MRX.



“Speech Privacy” component editor

Here you can make settings for the environmental sounds and masking sounds.



① **Source index**

This indicates the number of the source to specify.

② **[Environmental Sound] list box**

Specifies the environmental sound to use. Select this as appropriate for the output environment.

- Forest** : Forest sounds
- Seashore** : The sound of waves
- Street** : Street noise
- Building** : Air conditioning sound

③ **[Speech Sound Masker] knob**

Specifies the proportion of masking sound that is added to the output audio. The unit is a percentage (%).

④ **[LEVEL] knob**

Specifies the level of the mix of environmental sounds and masking sounds.

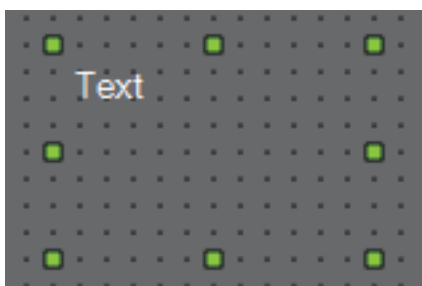
⑤ **[ON] button**

Specifies whether to mute the mixed signal of each source.

□ **Text**

This is a text box used to place text in the design sheet.

You can double-click the area displayed as [Text], and enter text.

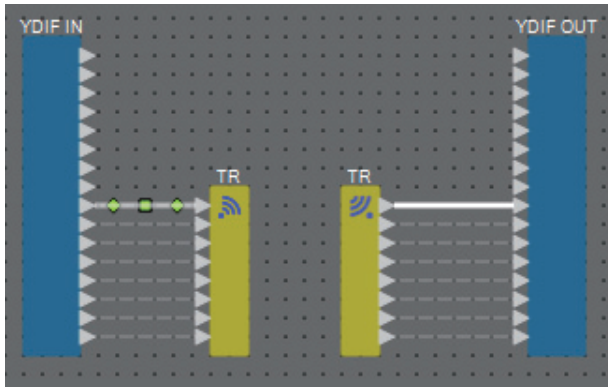


□ Transmitter/Receiver

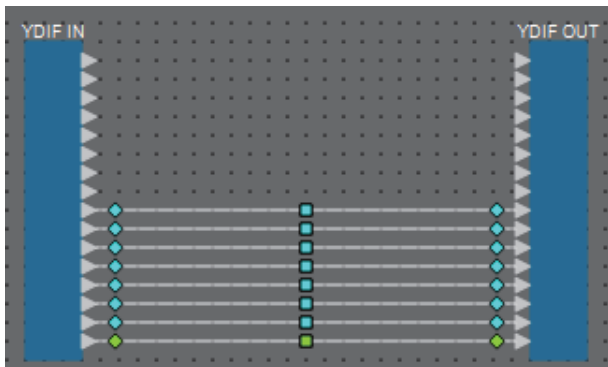
This function wirelessly connects components that are located at a distance from each other on the design sheet.

The Transmitter component and Receiver component of the same component label are connected. If there are multiple ports, identically-numbered ports are connected to each other. One Transmitter component can be connected to multiple Receiver components.

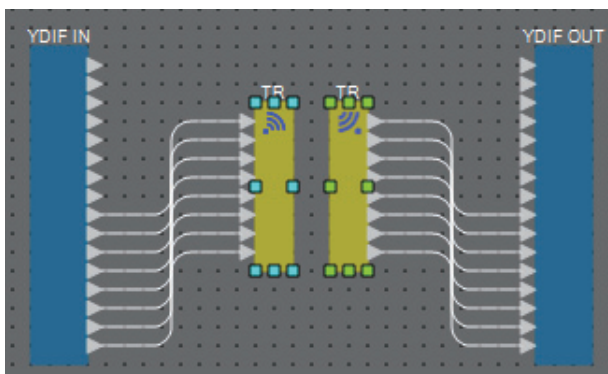
When placing this component in the design sheet, select the component label and the number of channels. Either enter a new name as the component label, or select a component label with which it will be associated. As the number of channels, select the number of channels that you want to use.



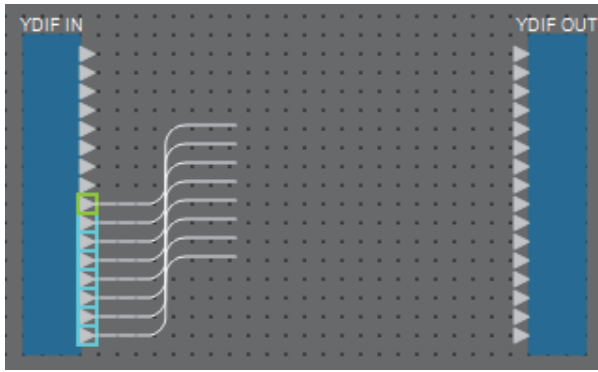
When you select a wire and press <Space>, a Transmitter component and Receiver component are added.



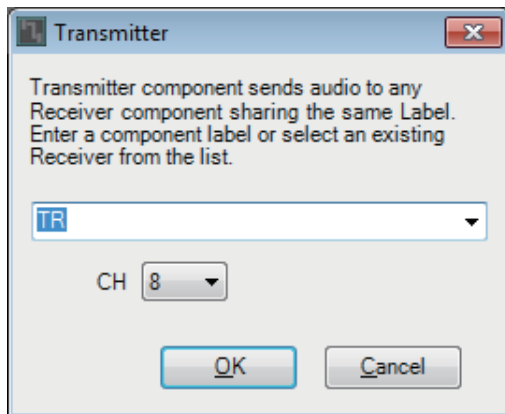
↓ <Space>



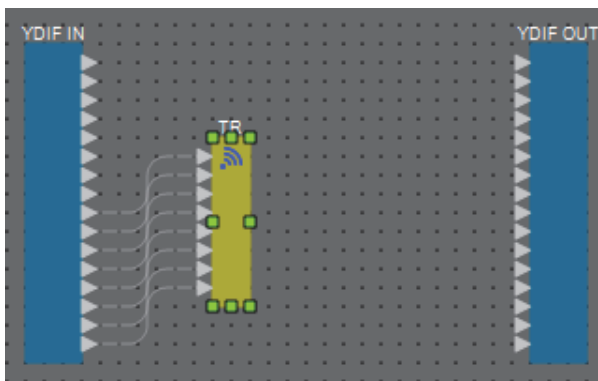
If you hold down the mouse button in the middle of a connection and press <Space>, a Transmitter component or Receiver component is created.



↓ <Space>



↓ [OK]



□ User Defined Block

Components and the wires between components can be encapsulated as a User Defined Block. By encapsulating multiple components as a single block, you can make the style sheet look cleaner, or copy blocks to easily create the same functionality for other channels.

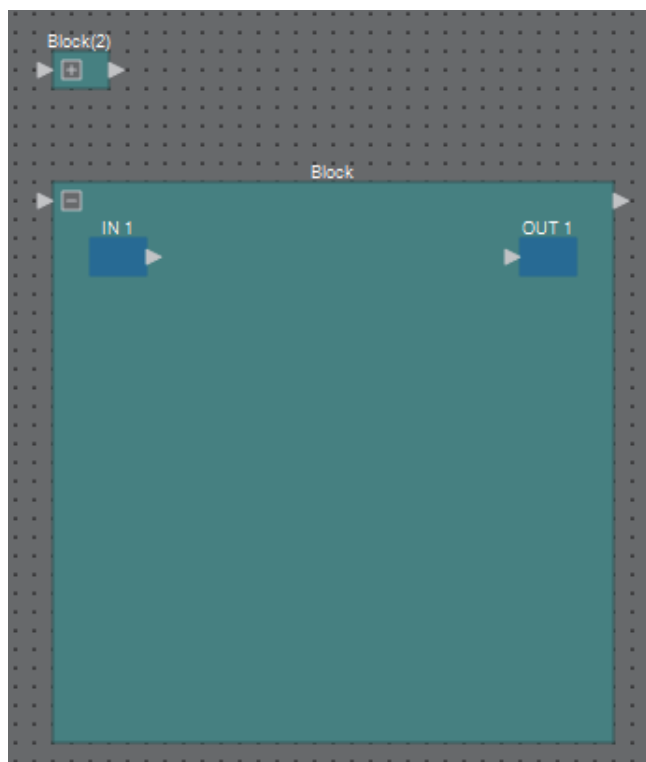
A protect function is provided for User Defined Block. By protecting it, you can prevent another person from changing the configuration or parameters, or prevent them from looking inside.

Here's how to place a User Defined Block.

- Drag and drop from the “Component” area. (An empty block is placed.)
- With the components selected, right-click and choose [Create User Defined Block]. (This places a block that contains the selected components.)
- With the components selected, choose [Edit] menu → [Create User Defined Block]. (This places a block that contains the selected components.)

When placing a User Defined Block, specify the number of inputs and outputs as a block. The number of inputs and outputs can be changed later in “Form” of the “Properties” area. The inputs and outputs directly connect components outside the block with components inside the block.

To show or hide the contents of a block, click the [+]/[-] in the upper left of the block, or double-click the block.



Components in a block can be placed, connected, and edited in the same way as in a design sheet. With a block selected, you can drag and drop the top, bottom, left, or right corners to expand or shrink the block. With an expanded block selected, you can drag and drop the top, bottom, left, or right edges to move the block on the design sheet.

Here's how to unpack a User Defined Block.

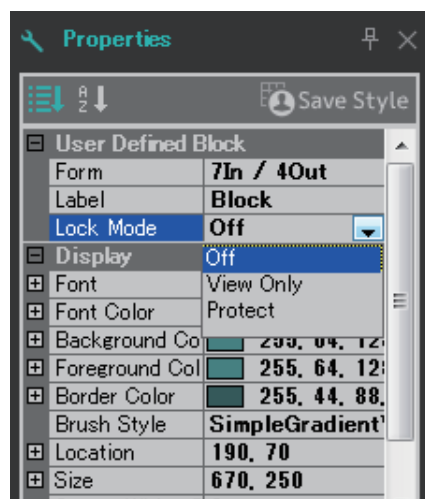
- Right-click the block and choose [Unpack User Defined Block].
- With the block selected, choose [Edit] menu → [Unpack User Defined Block].

There are three User Defined Block protection modes.

- **Off mode**
The unprotected state.
- **View Only mode**
A protected User Defined Block or a component editor inside the block can be opened, but the configuration and parameters cannot be changed. Components in the User Defined Block are not shown in the “Parameters” area.
A lock icon (🔒) is shown at the lower left of the component editor in a protected block.
- **Protect mode**
A protected User Defined Block cannot be opened. Components in the User Defined Block are not shown in the “Parameters” area. Use this when you want to keep the content completely concealed.
A lock icon (🔒) is shown at the upper left of the protected block.

To apply protection, proceed as follows.

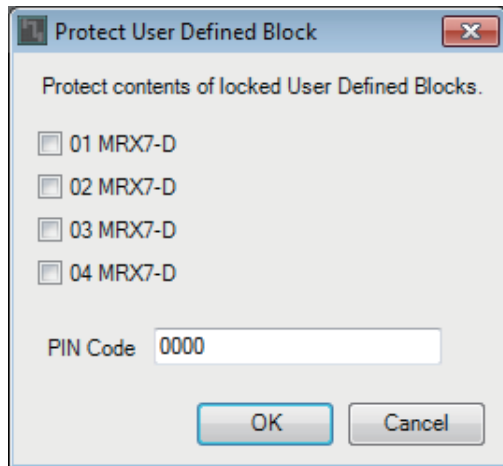
- 1. Select the User Defined Block that you want to protect.**
If you select multiple User Defined Blocks, they will be protected in the same mode.
- 2. In the “Properties” area, use [Lock Mode] to specify the lock mode that you want to apply.**



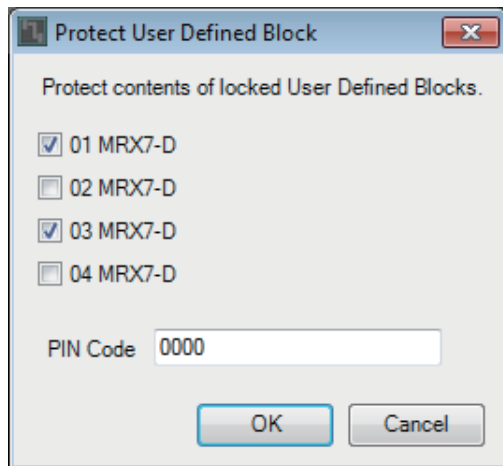
- 3. As necessary, repeat steps 1 and 2 to specify the lock mode for other User Defined Blocks.**

4. Choose [Edit] menu → [Protect User Defined Block].

The “Protect User Defined Block” dialog box appears.

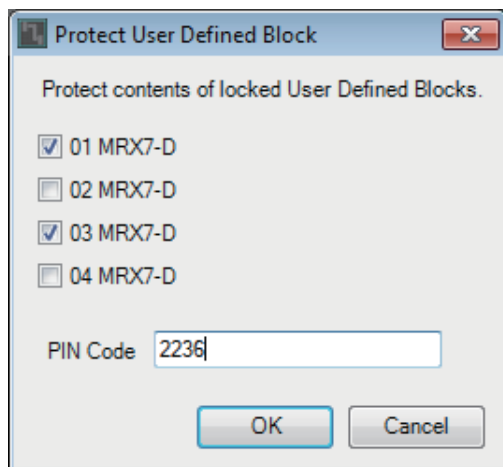


5. Select the MRX units within the MTX/MRX system that are to be protected.



6. Specify a PIN Code that will remove protection within the MTX/MRX system.

Specify the PIN Code as a four-digit number.



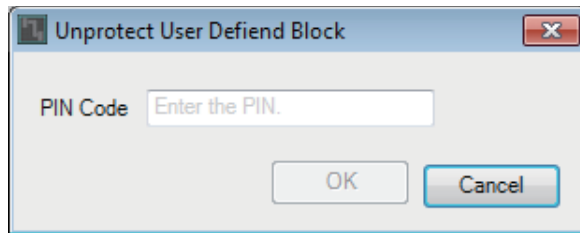
7. Click the [OK] button.

The protection corresponding to the specified lock mode is applied to the User Defined Blocks of the selected MRX units.

To remove protection, proceed as follows.

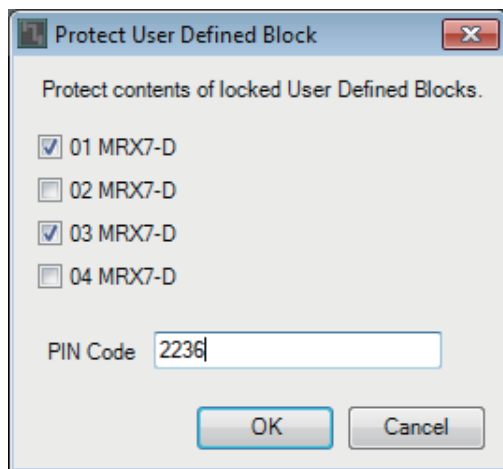
1. Choose [Edit] menu → [Protect User Defined Block].

The “Unprotect User Defined Block” dialog box appears.

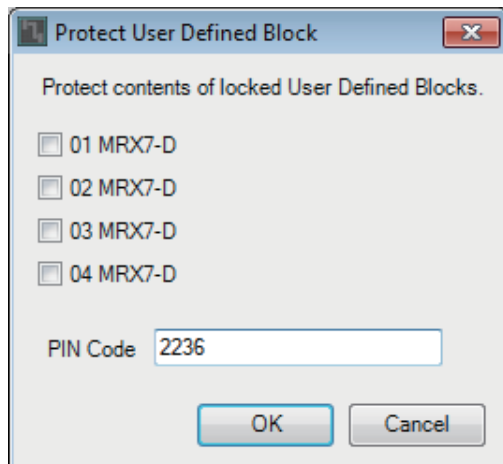


2. Enter the PIN Code that was specified when locking, and click the [OK] button.

The “Protect User Defined Block” dialog box appears.



3. Clear the check boxes for the MRX units that you want to unprotect.



4. Click the [OK] button.

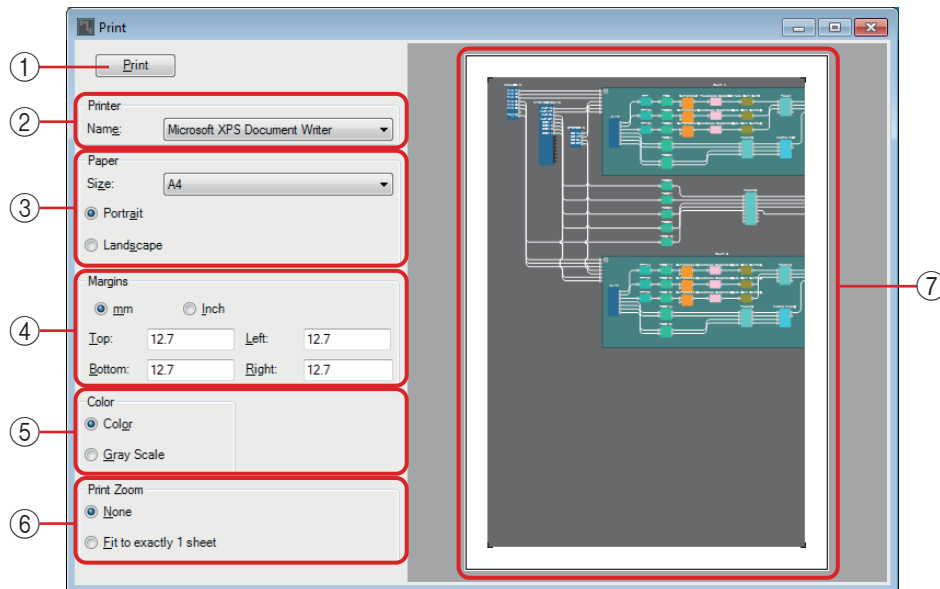
Protection is removed. The [Lock Mode] setting is maintained.

Dialog boxes and applications

Here we explain dialog boxes and applications that were not explained in “Components and component editors.”

□ “Print” dialog box

Here you can make settings related to printing a design sheet, specify the size of paper shown on the design sheet, and see a print preview.



① [Print] button

Click this to open the Windows “Print” dialog box.

② Printer

- **[Naming] list box**
Specifies the printer to use.

③ Print Paper

- **[Size] list box**
Specifies the size of the paper. If the [View] menu item [Print Area] has a check mark, the size of paper shown on the design sheet follows this setting.
- **[Portrait]/[Landscape] option buttons**
Specify the orientation of the paper. The orientation of the paper shown on the design sheet follows this setting.

④ Margins

- **[mm]/[Inch] option buttons**
Specify the units for the top, bottom, left, and right margins.
- **[Top]/[Bottom]/[Left]/[Right] text boxes**
Specify the top, bottom, left, and right margins.

⑤ Color

- **[Color]/[Gray Scale] option buttons**
Specify whether to print in color or in gray scale.

⑥ **Print Zoom**

- **[None]/[Fit on one page] option buttons**

Specify either that the printed content will be the region within the paper shown on the design sheet, or that the content will be reduced in size to fit on a single page.

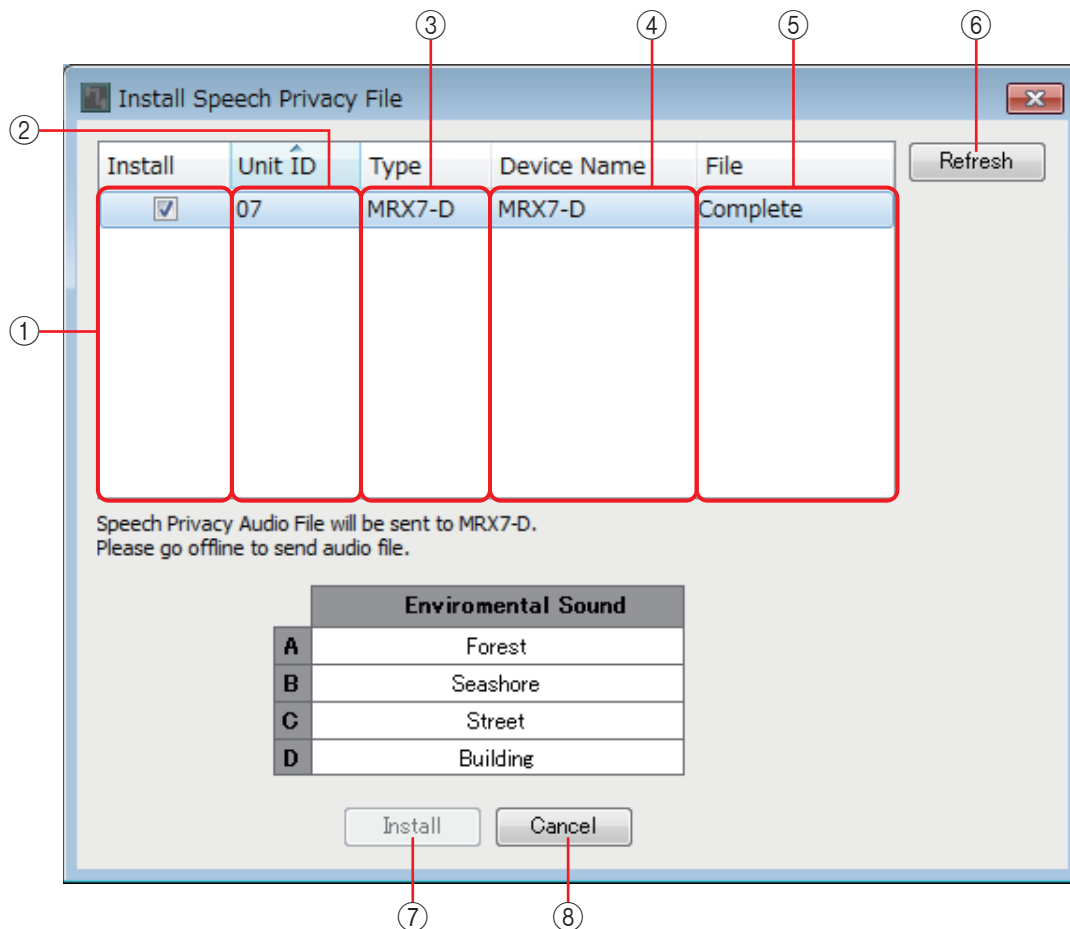
⑦ **Preview area**

Shows a print preview.

□ “Install Speech Privacy File” dialog box

Here you can install files for the Speech Privacy component into the MRX. Perform these operations before going online with the MTX/MRX system.

When installation is completed, the MRX will restart.



① **[Install] field**

Specify whether to install a file. If this has a check mark, a file will be installed in the MRX.

② **[Unit ID] field**

Indicates the UNIT ID of the applicable MRX.

③ **[Type] field**

Indicates the model name of the applicable MRX.

④ **[Device Name] field**

Indicates the device name of the applicable MRX.

⑤ **[File] field**

Indicates the state of the files held in the applicable MRX.

“**Installed**” : The file is installed.

Bar : The file is being installed.

“**Completed**” : File installation is completed.

⑥ **[Refresh] button**

Updates the display.

⑦ **[Install] button**

Begins installing files into MRX units for which there is a check mark in their [Install] field.

⑧ **[Cancel] button**

Closes the dialog box without installing the files.

□ “File Transfer” application

This transfers exported files with a .rcsl extension, PDF files, or image files to an iPad in the same network which has ProVisionaire Touch (V1.2 or later) or ProVisionaire Touch Kiosk installed. Before transferring the file, start ProVisionaire Touch or ProVisionaire Touch Kiosk, and make it visible in the screen.

If a network adapter is not selected, the [Network Setup] dialog box appears; select a network adapter.

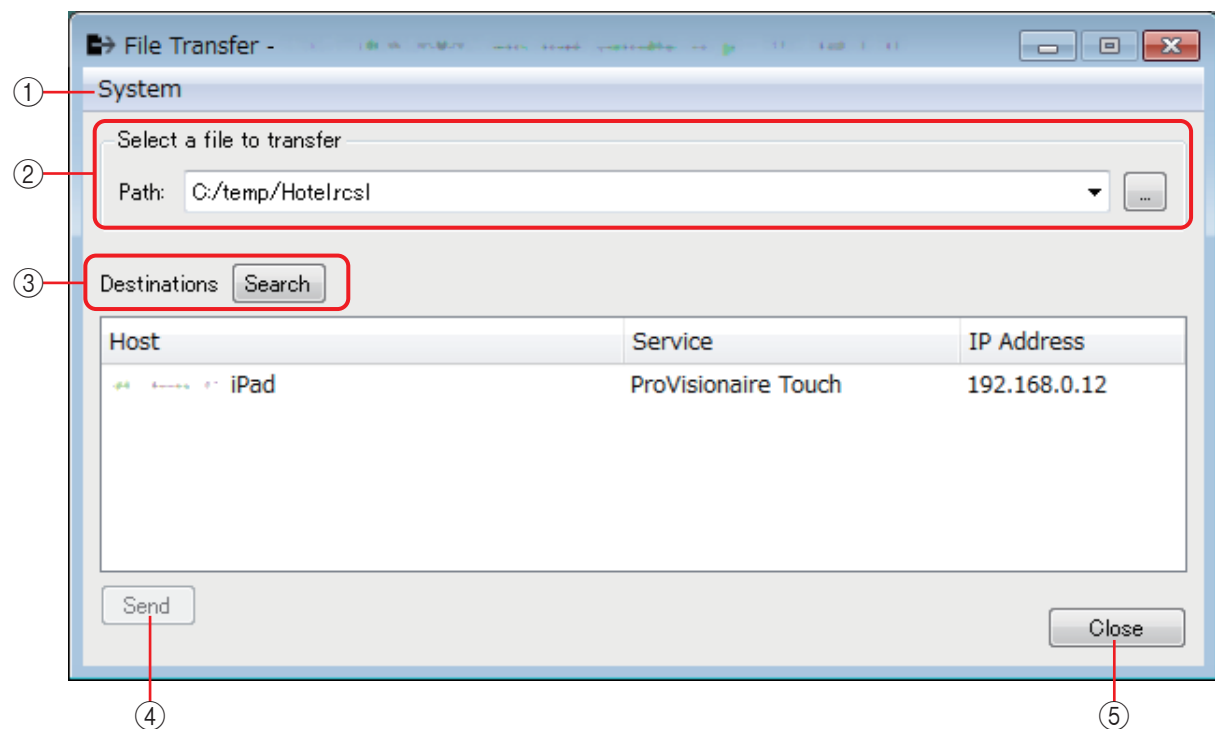
ProVisionaire Touch can receive files with the following extensions.

.rcsl, .pdf, .jpg, .jpeg, .bmp, .png, .pvt, .ypvt, .ypvk

.pvt, .ypvt, and .ypvk files are saved in the file folder of ProVisionaire Touch. ProVisionaire Touch Kiosk can only receive files with the .ypvk extension.

.rcsl can be used if the MRX7-D is registered as a device with ProVisionaire Touch.

.pdf, .jpg, .jpeg, .bmp, and .png can be used if ProVisionaire Touch places the corresponding widget.



① [System] menu

From the “Network Setup” command, open the “Network Setup” dialog box.

② Select a file to transfer

Select the file that you want to transfer. If you click the button at right, the “Open File” dialog box appears, allowing you to select a file.

③ Destinations

Select the transfer-destination iPad. If the transfer-destination iPad is not shown, press the [Search] button to search the network. The [Search] button is enabled if the file to be transmitted is selected.

④ [Send] button

Sends the selected file to the selected iPad.

⑤ [Close] button

Closes the “File Transfer” application.

□ “PGM1 Label Creator” application

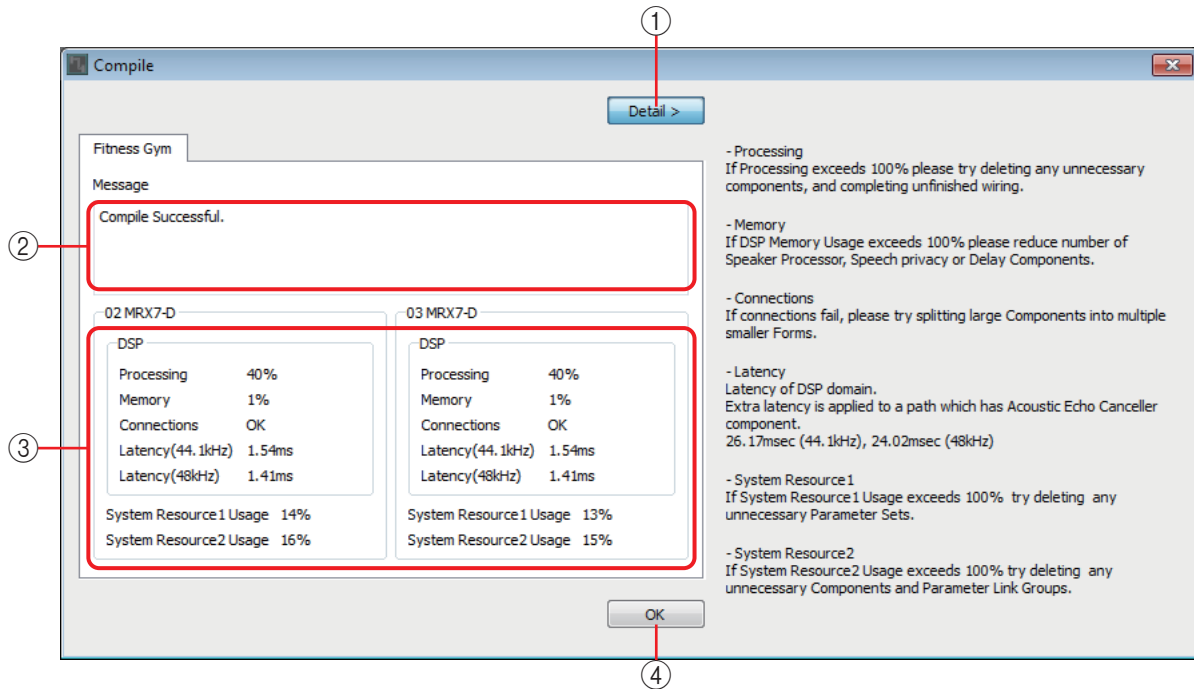
Here you can create a printable label image for the PGM1 or PGX1.

For details on the “PGM1 Label Creator” application, refer to “MTX-MRX Editor User Guide.”

To print the label, connect a printer to the computer.

□ “Compile” dialog box

Analyzes the placement and wiring of the components in the selected MTX/MRX system to determine whether there are any problems. Here you can also view statistics such as the resource usage.



① **[Detail] button**

Displays tips on what you can do if compilation fails.

② **[Message] area**

Indicates whether compilation was successful. If it was successful, the message “Completed successfully” is shown. If compilation failed, the message “Compilation was not successful” is shown.

③ **Result display area**

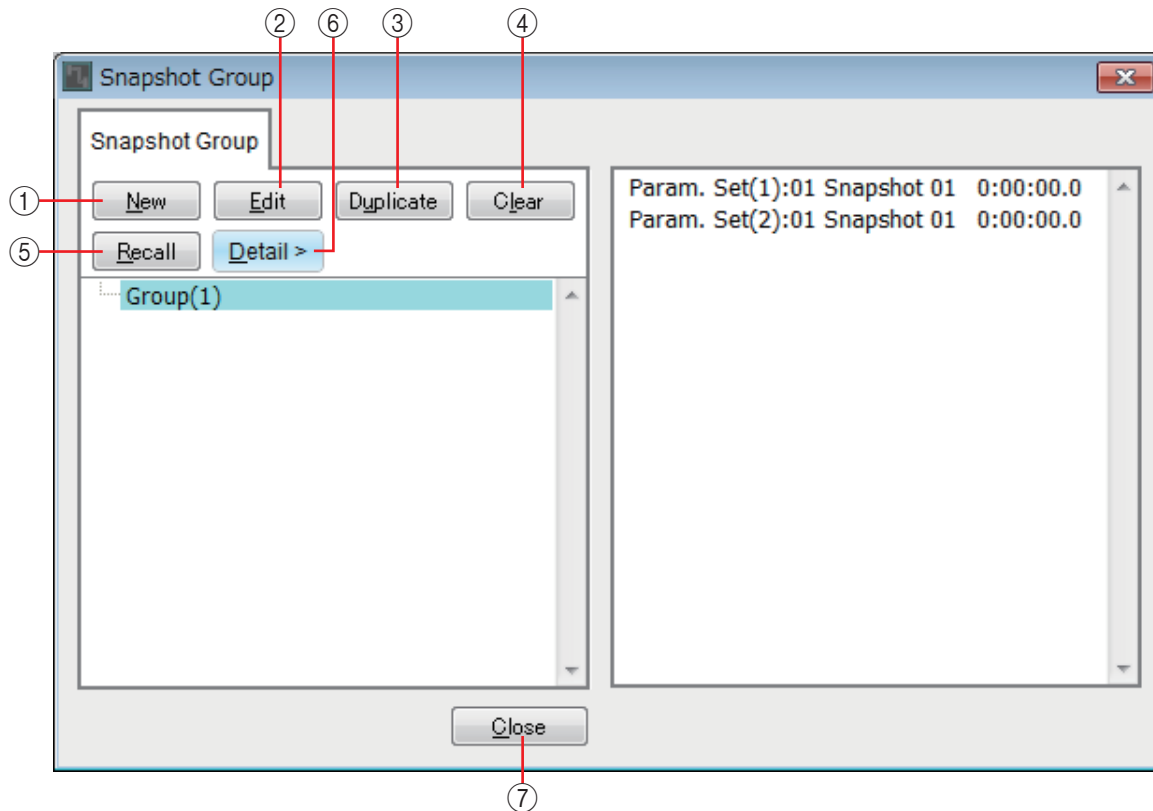
Displays the results of compilation. It is possible to go online with the MTX/MRX system only if compilation is successful.

④ **[OK] button**

Closes the dialog box.

□ “Snapshot Group” dialog box

Here you can create or edit a snapshot group.



① [New] button

Opens the “New Snapshot Group” dialog box, allowing you to create a new snapshot group. For details on this dialog box, refer to [“New Snapshot Group” dialog box](#).

② [Edit] button

Opens the “Edit Snapshot Group” dialog box, allowing you to edit the selected snapshot group. The method of operation is the same as for [“New Snapshot Group” dialog box](#).

③ [Duplicate] button

Copies the selected snapshot group and opens the “Duplicate Snapshot Group” dialog box, allowing you to edit it. The method of operation is the same as for [“New Snapshot Group” dialog box](#).

④ [Clear] button

Deletes the selected snapshot group.

⑤ [Recall] button

Recalls the selected snapshot group.

⑥ [Detail] button

Shows/hides the snapshots that are registered in the snapshot group.

⑦ [Close] button

Closes the dialog box.

□ “Remote Control Setup List” dialog box

The MRX can be controlled from an external device via the Dante [PRIMARY]/[SECONDARY] connectors or the [RS-232C] connector. Here you can register MRX parameters, meters, snapshots, and snapshot groups to be controlled from an external device.

Set up the external device as described in “MTX3 / MTX5-D / MRX7-D / XMV Series / EXi8 / EXo8 Remote Controller Protocol Specification.”

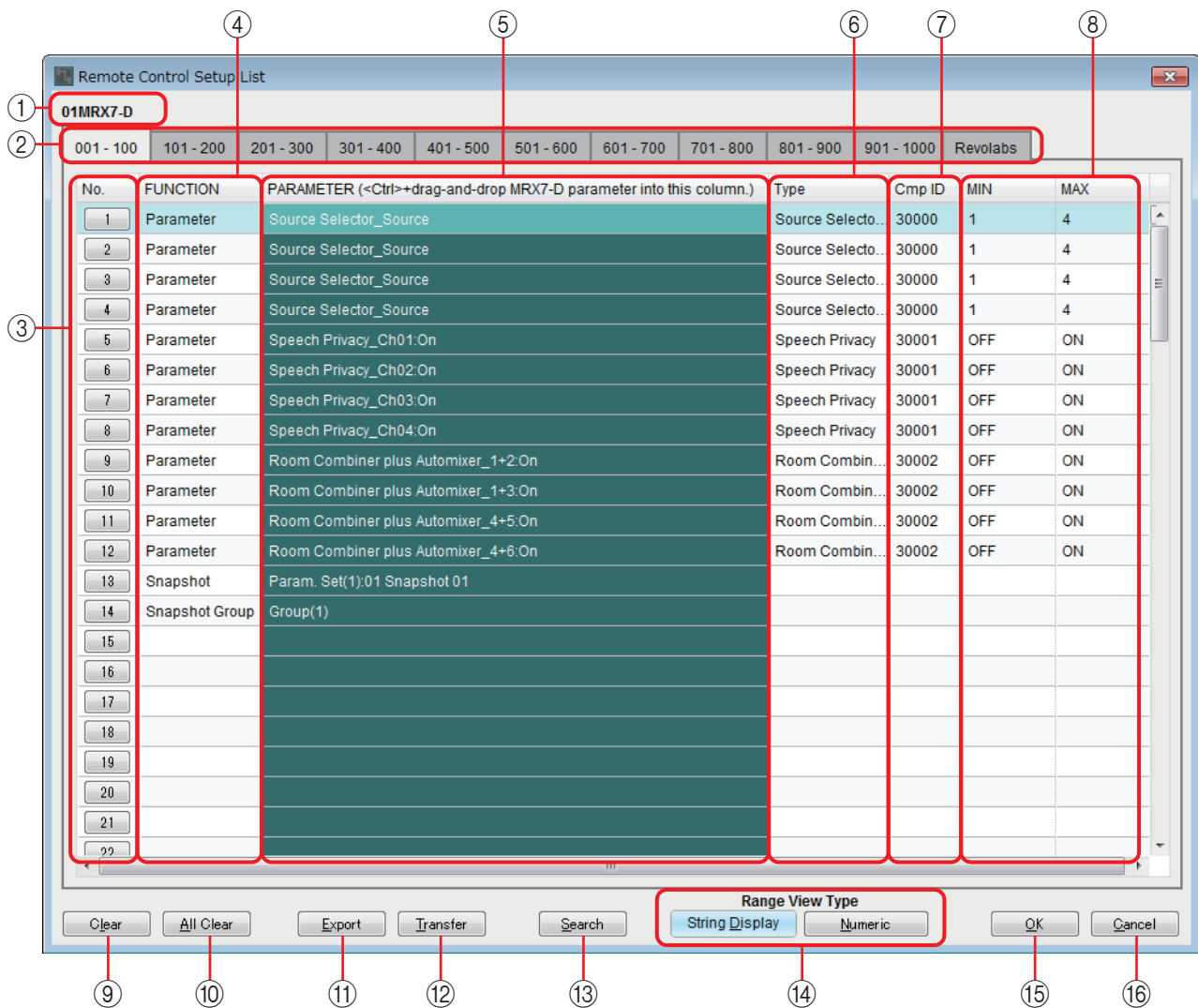
Parameters can be registered in the list in the following ways.

Registration source	Registration method				
Design sheet	While holding down <Ctrl>, drag and drop a component onto the [PARAMETER] field.				
	Right-click a component, and use [Add to Parameter Set] to select where it will be registered.				
Component editor / Link Master editor / Parameter setting window	While holding down <Ctrl>, drag and drop a parameter onto the [PARAMETER] field.				
	Right-click a parameter, and use [Add to Remote Control List] to select where it will be registered. Right-click somewhere other than on a parameter, and use [Add to Remote Control List] to select where it will be registered; you can register all parameters of the component or the meters of the component.				
	<table border="1"> <tr> <td>Add to Next Available Number</td> <td>Register in the earliest unused number.</td> </tr> <tr> <td>Add to end</td> <td>Register after the last-registered parameter.</td> </tr> </table>	Add to Next Available Number	Register in the earliest unused number.	Add to end	Register after the last-registered parameter.
	Add to Next Available Number	Register in the earliest unused number.			
Add to end	Register after the last-registered parameter.				
“Parameters” area*¹	Drag and drop the component or parameter onto the [PARAMETER] field.				
	Right-click a component or parameter, and use [Add to Remote Control List] to select where it will be registered.				
“Parameter Link Group” area	While holding down <Ctrl>, drag and drop a parameter link group onto the [PARAMETER] field.				
	Right-click a parameter link group, and use [Add to Remote Control List] to select where it will be registered.				

*1. You can also use <Shift> or <Ctrl> to simultaneously register multiple components or parameters in the list.

The following context menu appears when you right-click within the list.

[Find]	If the [FUNCTION] field indication of the right-clicked item is Parameter, the component editor that includes the corresponding parameter will open with that parameter selected. If the [FUNCTION] field indication of the right-clicked item is Level Meter, the corresponding component in the design sheet will be selected.
[Cut]	Moves the right-clicked item to the copy buffer.
[Copy]	Copies the right-clicked item to the copy buffer.
[Paste]	Pastes the item from the copy buffer to the right-clicked location.
[Insert]	Inserts a line in the list. Insertion is not possible if the item is at number 1000 in the list. If inserting multiple rows that would exceed 1000 items in the list, items are inserted up to number 1000 in the list.
[Delete]	Deletes the right-clicked item.
[Swap]	Swaps the right-clicked item. Use [Swap]→[Source] to select the swap-source item, and use [Swap]→[Destination] to select the swap-destination item. You can also select a swap-destination where there is no item.



① **Editing target**

Indicates the UNIT ID and MRX device name of the unit that is being edited.

② **List display switching tabs**

Select the range of items shown in the list, in units of 100.

- NOTE**
- Although items can also be registered in the [revolabs] tab, placing a “revolabs control” component will overwrite the items of the “revolabs control” component.
 - If you move the cursor over a tab during drag and drop, the tabs will switch.

③ **[IndexNo] buttons**

Indicate the list number. When you click this, the “Snapshots” dialog box for lists will appear.

④ **[FUNCTION] field**

Shows the type of item that is registered in the list.

⑤ **[PARAMETER] field**

Shows the item that is registered in the list.

⑥ **[Type] field**

Shows the type of component that has the parameter registered in the list.

⑦ **[Cmp ID] field**

Shows the ID of the component that has the parameter registered in the list.

⑧ **[MIN]/[MAX] fields**

Show the lower and upper limits or the selection range of the parameter that is registered in the list. In the case of level-type parameters for which a Min/Max value can be specified, clicking this will open a dialog box where you can specify the range.

⑨ **[Clear] button**

Deletes the selected item from the list. You can use <Ctrl> or <Shift> to select multiple items.

⑩ **[All Clear] button**

Deletes all items from the list.

⑪ **[Export] button**

Saves the list. There are two types of file format.

*.csv : This file format allows MRX parameters to be viewed in a spreadsheet application. You can use this when using commands to operate the MRX.

*.rcsl : This file format can be loaded into ProVisionaire Touch.

⑫ **[Transfer] button**

Starts the "FileTransfer" application for transferring files to ProVisionaire Touch or ProVisionaire Touch Kiosk.

⑬ **[Search] button**

Opens the “Search” [dialog box for searching the list](#) of the “Remote Control Setup List” dialog box.

⑭ **Range View Type [String Display]/[Numeric] buttons**

Switch the display of the [MIN]/[MAX] fields.

String Display : Display in the format that is shown in the component editor.

Numeric : Display as the internal value.

⑮ **[OK] button**

Applies the settings and closes the dialog box.

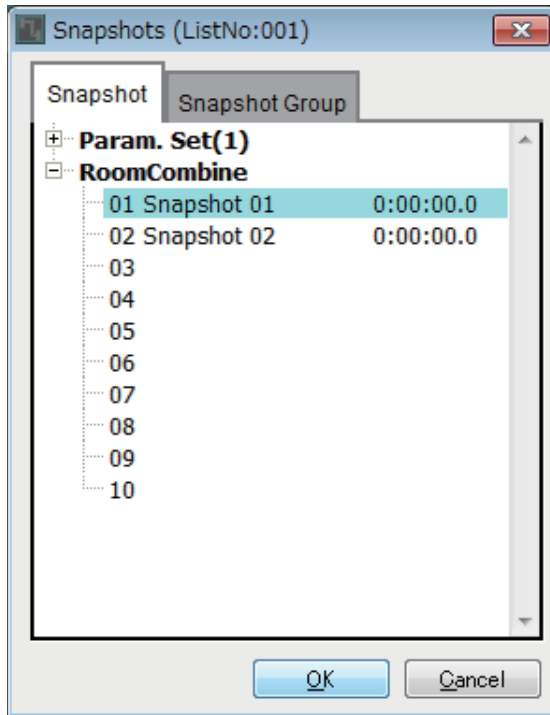
⑯ **[Cancel] button**

Closes the dialog box without applying the settings.

■ “Snapshots” dialog box for lists

Use this when registering a snapshot or snapshot group in the “Remote Control Setup List” dialog box.

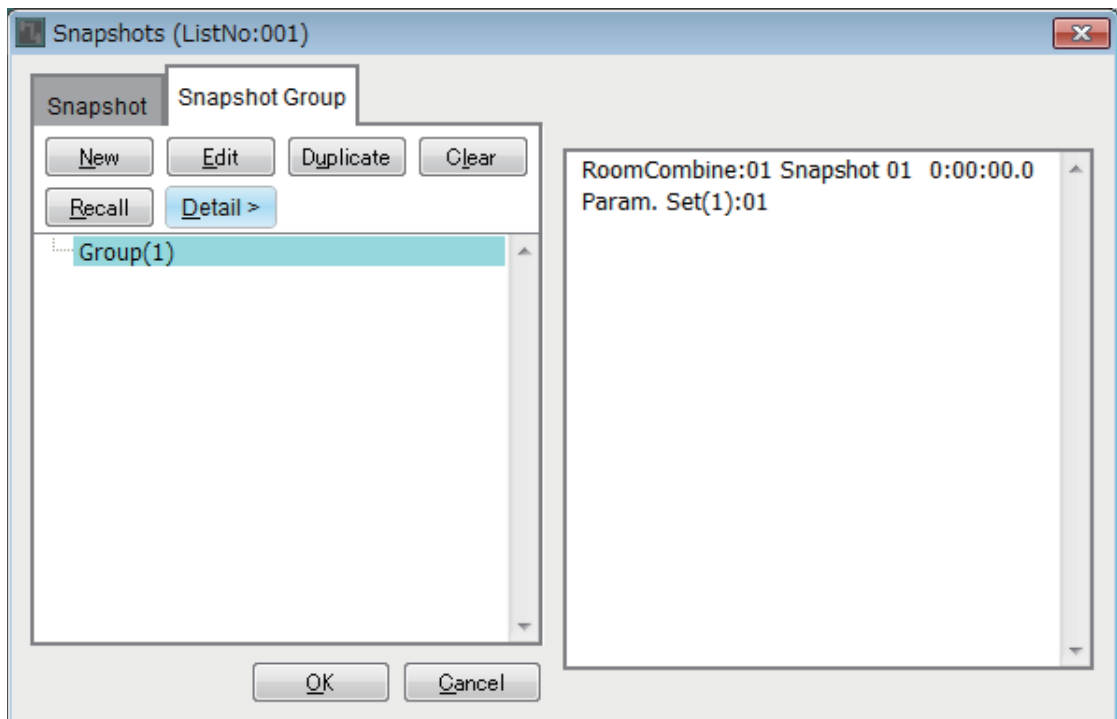
Registering a snapshot in the list



Open the [Snapshot] tab.

Select the snapshot that you want to recall, and click the [OK] button.

Registering a snapshot group in the list

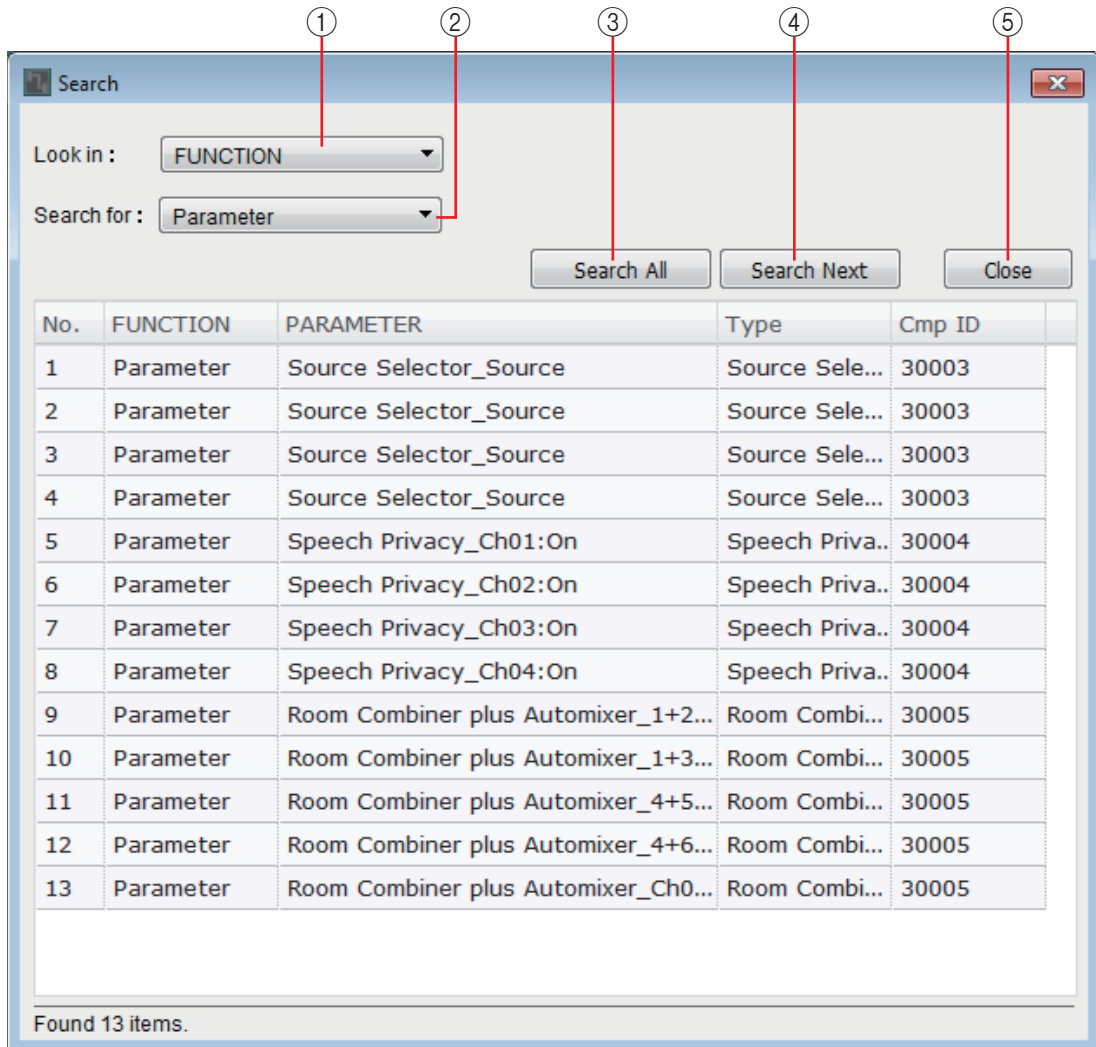


Open the [Snapshot Group] tab.

For details on the procedure, refer to [“New Snapshot Group” dialog box](#).

■ “Search” dialog box for searching the list

Use this when you want to search within the list of the “Remote Control Setup List” dialog box.



① **[Look In:] list box**

Selects the location to search.

② **[Search for:] text box / list box**

A list box appears if you selected [FUNCTION] in the [Look In:] list box; otherwise, a text box appears.

Select the item to search, or enter text.

③ **[Search All] button**

Searches the list for the specified conditions, and shows the results below.

When you click an item in the displayed search results, the focus moves to the corresponding item in the “Remote Control Setup List” dialog box.

④ **[Search Next] button**

Searches the list for the specified conditions, and moves the focus to the item that was found in the “Remote Control Setup List” dialog box. When you click this button again, the focus moves to the next search result item.

⑤ **[Close] button**

Closes the “Search” dialog box for searching the list.

□ “GPI” dialog box

For details on the “GPI” dialog box and the “Settings” dialog box, refer to “MTX-MRX Editor User Guide.”

For details on functions, displays, and parameters that are unique to the MRX, refer to [List of settings in “Settings” dialog boxes.](#)

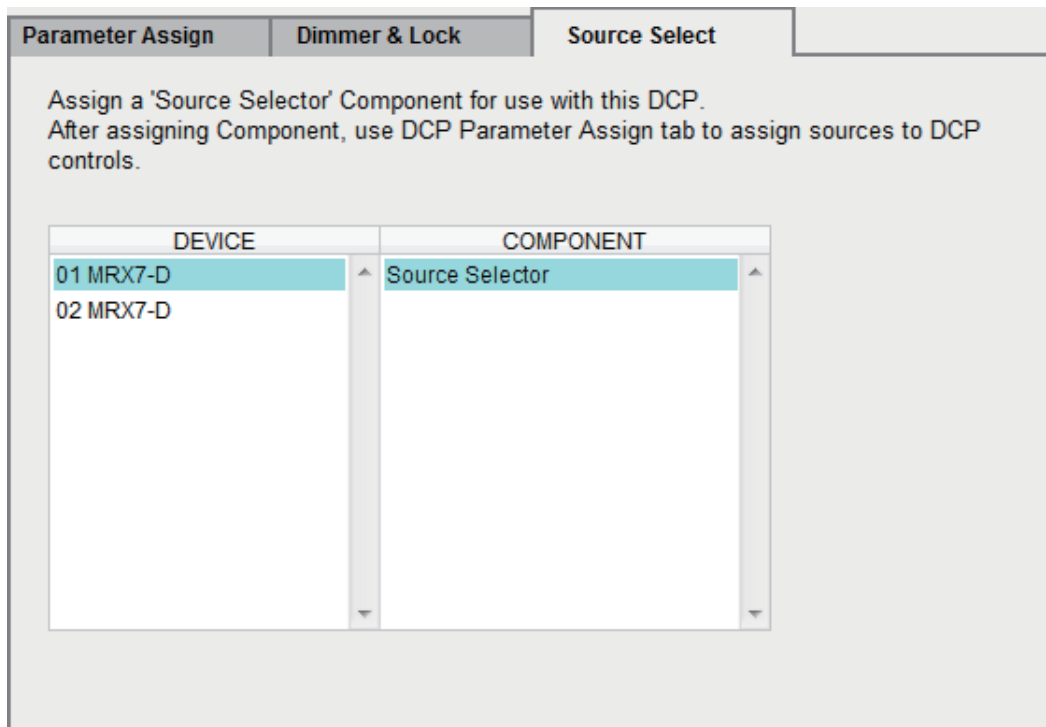
NOTE If you want to use the [GPI OUTPUT] jack to indicate that a preset has been recalled, make settings in the “Preset” dialog box.

□ “Digital Control Panel” dialog box / “Wireless DCP” dialog box / “MCP1” dialog box

For details on the “Digital Control Panel” dialog box, “Wireless DCP” dialog box, “MCP1” dialog box and the “Settings” dialog box, refer to “MTX-MRX Editor User Guide.”

For details on functions, displays, and parameters that are unique to the MRX, refer to [List of settings in “Settings” dialog boxes.](#)

Here we explain the [Source Select] tab.



In order to use the [MRX Source Select] function, you must first select the “Source Selector” component for each DCP or for each Wireless DCP or MCP1 page.

For details on the [MRX Source Select] function, refer to [List of settings in “Settings” dialog boxes.](#)

□ “PGM1/PGX1” dialog box

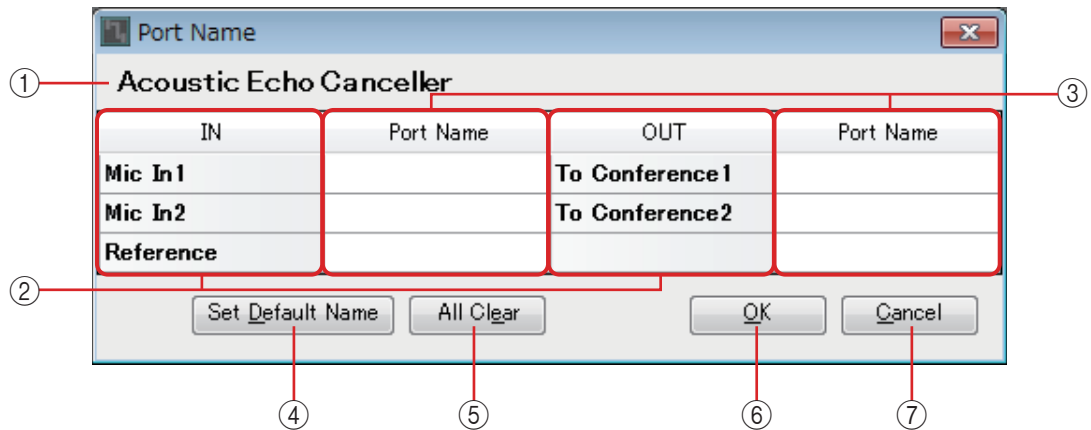
Here you can make assignments for the zone/message select buttons of the PGM1 or PGX1, and make settings for the PTT button.

For details on the “PGM1/PGX1” dialog box, refer to “MTX-MRX Editor User Guide.”

□ “Port Name” dialog box

If a port is selected, clicking the button located in the right side of the Label edit area in the “Properties” area makes this appear.

Here you can edit all port names of the component that includes the selected port.



① **Component name**

Indicates the component name of the component that includes the selected port.

② **[IN]/[OUT] fields**

Show the default port names.

③ **[Port Name] field**

Shows or edits the port name. When you press <Enter>, the input is confirmed and the focus moves to the next port. You can also use the cursor keys to move the focus.

④ **[Set Default Name] button**

Specifies the name that is shown in the [Port Name] fields of the [IN]/[OUT] areas.

⑤ **[All Clear] button**

Clears all port names.

⑥ **[OK] button**

Saves the settings and closes the dialog box.

⑦ **[Cancel] button**

Closes the dialog box without saving the changes.

List of settings in “Settings” dialog boxes

Here we explain functions, displays, and parameters that are unique to the MRX.

For details on items that are shared in common with the MTX series, refer to “MTX-MRX Editor User Guide.”

□ Digital Control Panel / Wireless DCP / MCP1

Settings for the DCP and Wireless DCP are explained here.

If [FUNCTION] is [MRX Parameter]

Parameters can be registered in the following ways.

Registration source	Registration method
Component editor / Link Master editor / Parameter setting window	While holding down <Ctrl>, drag and drop a parameter onto the [PARAMETER] field.
“Parameters” area* ¹	Drag and drop a parameter onto the [PARAMETER] field.
“Parameter Link Group” area	While holding down <Ctrl>, drag and drop a parameter link group onto the [PARAMETER] field.

*1. You can also use <Shift> or <Ctrl> to simultaneously register multiple parameters in a list.

When a parameter is registered, its UNIT ID, device name, component name, and parameter name are shown if it is an individual parameter. In the case of a link master parameter in a parameter link group, the parameter link group name and the parameter name are shown.

In the case of a Wireless DCP, only ON/OFF-type parameters can be registered to a switch.

■ If the parameter registered to a switch is an ON/OFF-type parameter

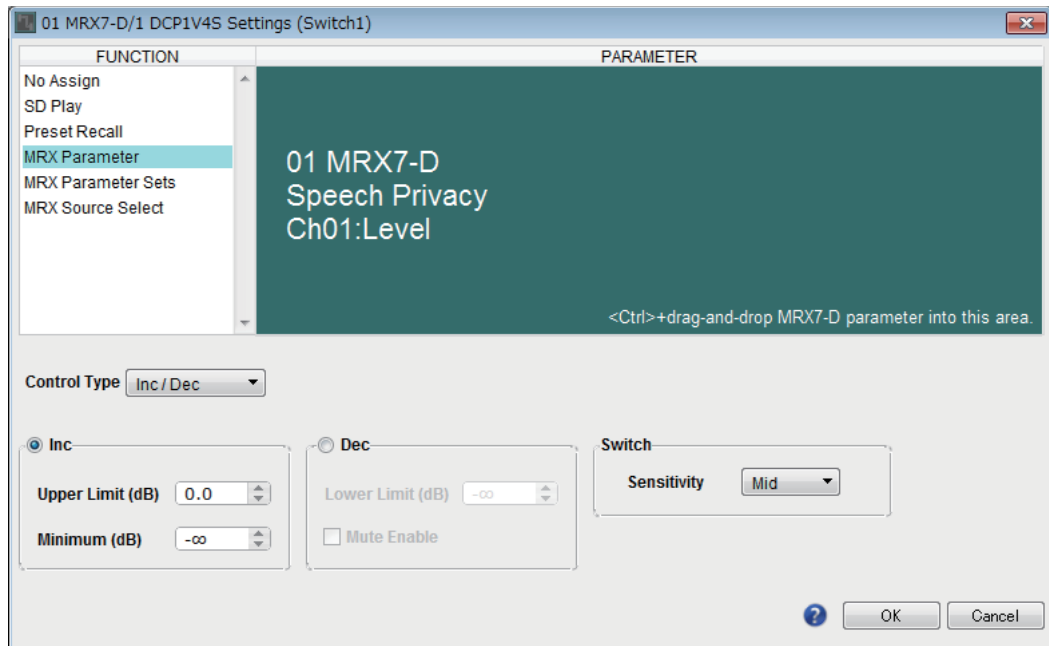
The switch controls the on/off setting of the parameter.



■ If the parameter registered to a switch is an Level-type parameter (DCP)

● If the [Control Type] is [Inc/Dec]

Use the switch to change the level or send level.



○ [Inc]

If you select this option, pressing the switch each time will raise the level or the send level.

◆ [Upper Limit]

Specifies the maximum level achieved when you press the switch.

◆ [Minimum]

If the current parameter value is lower than the value specified here, pressing the switch once will set the parameter to this value.

○ [Dec]

If you select this option, pressing the switch each time will lower the level or the send level.

◆ [Lower Limit]

Specifies the minimum level achieved when you press the switch.

◆ [Mute Enable] check box

If this is on, the Mute state ($-\infty$ dB) will be enabled if the level is lowered below the value specified by [Lower Limit].

○ [Switch]

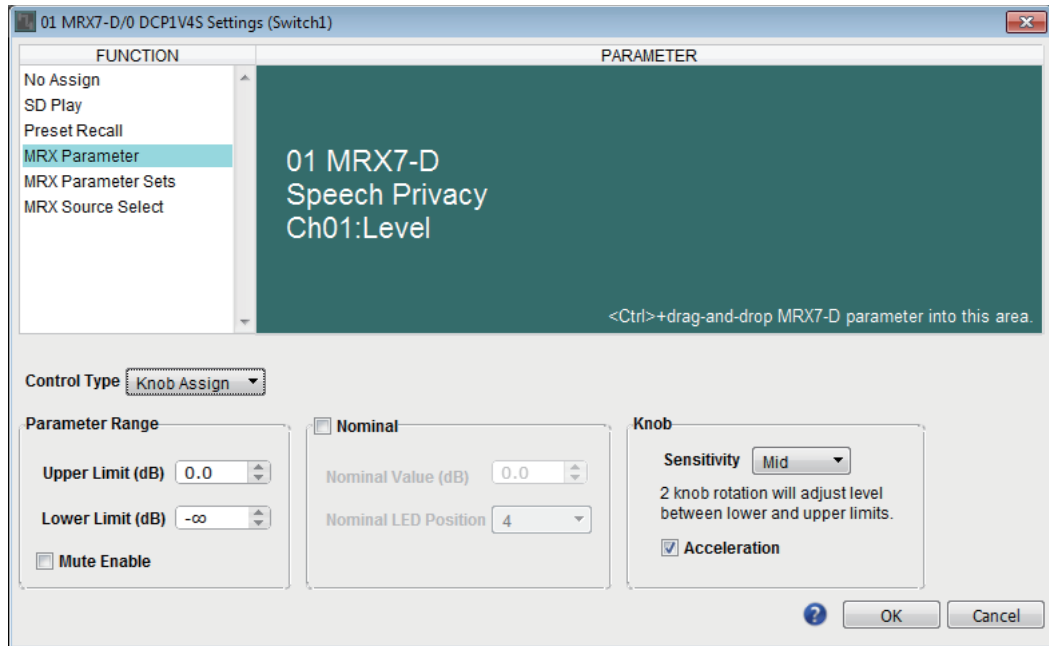
Allows you to make switch-related settings.

[Sensitivity] specifies the sensitivity at which the parameter will change when the switch is pressed.

● If the [Control Type] is [Knob Assign] (DCP1V4S only)

The switch changes what will be controlled by the knob.

Choose this if you want the knob to have more than one function.



○ [Parameter Range]

Use [Upper Limit] and [Lower Limit] to specify the range in which the level can be varied.

If [Mute Enable] is on, the Mute state ($-\infty$ dB) will be enabled if the level is lowered below the value specified by [Lower Limit].

- NOTE**
- If the nominal value specified by the following [Nominal Value] is higher than the [Upper Limit], the [Upper Limit] will rise in tandem with the [Nominal Value]. Conversely, if the nominal value goes below the [Lower Limit], the [Lower Limit] will fall in tandem with the [Nominal Value].
 - By using [Parameter Range] you can limit the range in which the user can control the volume. For example you can use this to specify the maximum volume of background music, or use a controller to make fine volume adjustments in a narrow range of -6 dB to $+6$ dB.

○ [Nominal] check box

Here you can make settings for the Nominal function.

By specifying the nominal value, you can assign a specific LED position as the normal volume setting. For example by specifying the center LED as the volume setting for normal use and setting the maximum value to the maximum volume that is allowable for the system, you can prevent damage to the system that might occur if the volume of the background music were raised during a noisy time.

If the check box is selected, the Nominal function will be on.

[Nominal Value] specifies the nominal value.

[Nominal LED Position] specifies the LED position that will light when the level reaches the nominal value.

If the check box is cleared (Nominal function off), both parameters will be grayed-out and unavailable.

○ **[Knob]**

Here you can make settings for the DCP's knobs.

[Sensitivity] specifies the sensitivity at which the parameter will change when the knob is rotated.

If [Acceleration] is on, the parameter will change faster if the knob is rotated more rapidly. If [Fast] is selected as the [Sensitivity], the [Acceleration] setting is dimmed and unavailable.

■ **If the parameter registered to a knob or to an MCP1's switch is a Level-type parameter**

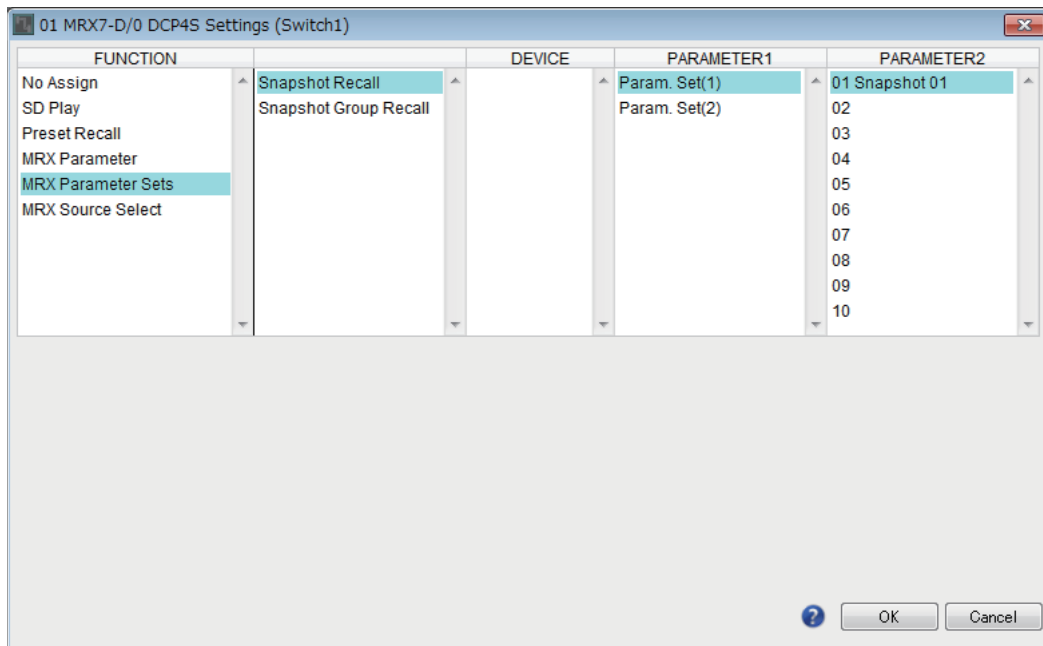
Use the knob or the MCP1's switch to raise or lower the level or send level.

For details on these settings, refer to [If the \[Control Type\] is \[Knob Assign\] \(DCP1V4S only\)](#).

The MCP1's [Sensitivity] specifies the sensitivity at which the parameter will change when the switch is operated.

If [FUNCTION] is [MRX Parameter Sets] (switch only)

The specified snapshot or snapshot group is recalled.



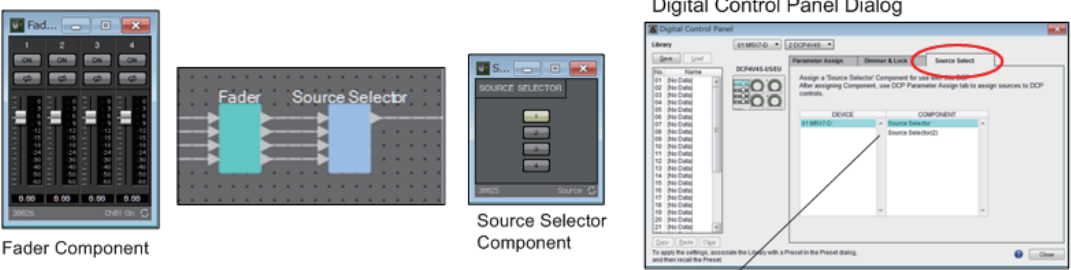
If [FUNCTION] is [MRX Source Select] (DCP/Wireless DCP)

The function assigned to the switch or knob/slider will change according to the “Source Selector” component specified beforehand in the “Source Select” tab of the “Digital Control Panel” dialog box or “Wireless DCP” dialog box.

If using a knob/slider to adjust level (other than DCP4S-EU/US)

The following example uses a switch for source selection, and a knob/slider to adjust the associated level.

FUNCTION : MRX Source Select



Fader Component

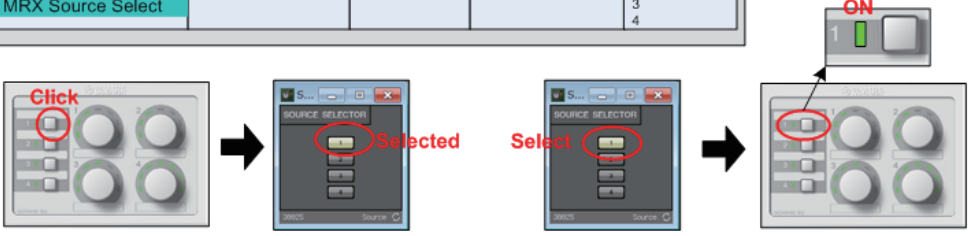
Source Selector Component

Digital Control Panel Dialog

Step 1 - FUNCTION : MRX Source Select(Switch)

Settings (Switch1)

FUNCTION	DEVICE	PARAMETER1	PARAMETER2
MRX Parameter	Source Select	01 MRX7-D	Source Selector
MRX Parameter Sets	Inc/Dec		1
MRX Source Select			2
			3
			4



Click

Selected

Select

ON

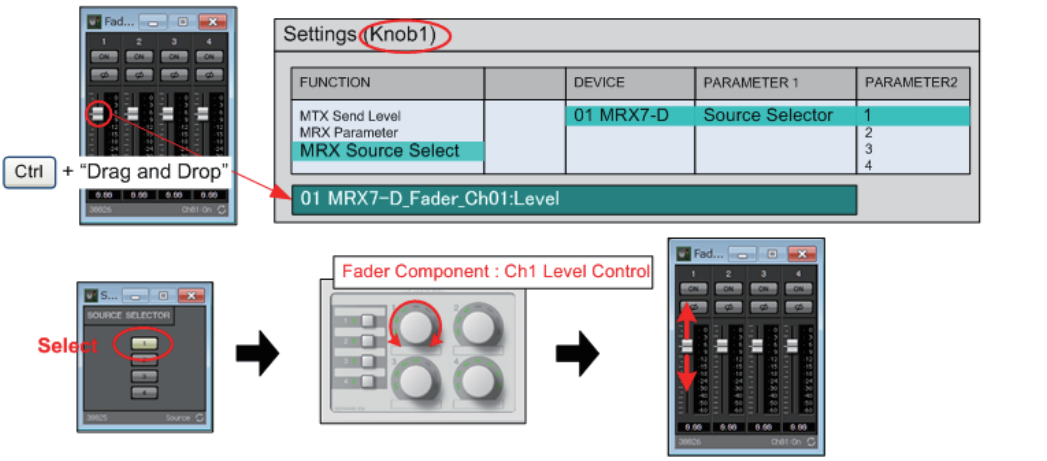
Step 2 - FUNCTION : MRX Source Select(Knob)

Settings (Knob1)

FUNCTION	DEVICE	PARAMETER 1	PARAMETER2
MTX Send Level	01 MRX7-D	Source Selector	1
MRX Parameter			2
MRX Source Select			3
			4

Ctrl + "Drag and Drop"

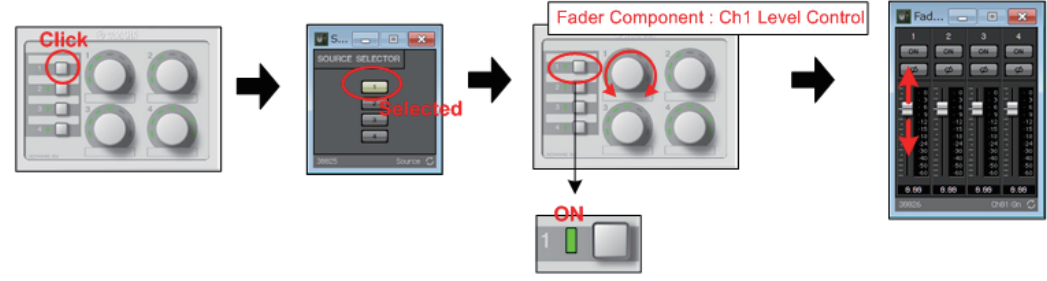
01 MRX7-D_Fader_Ch01:Level



Select

Fader Component : Ch1 Level Control

Step 1 + Step 2



Click

Selected

Fader Component : Ch1 Level Control

ON

We will explain the settings for the switch and the knob/slider in this example.

Switch settings

Select the following parameter type to be operated by the switch, and then make various settings.

- Source Select
- **[PARAMETER1]/[PARAMETER2]**
[PARAMETER1] shows the component that is specified in the “Source Select” tab.
[PARAMETER2] specifies the source that will be turned on. ON can be specified only for one source.

Knob/slider settings

- **[PARAMETER1]/[PARAMETER2]**
[PARAMETER1] shows the component that is specified in the “Source Select” tab.
If the above switch is used to change the source of the “Source Selector” component, the level-type parameter specified below is assigned to the knob/slider.
The following parameters can be specified for each source ((each one of [PARAMETER2])).
- **[Select Parameter:]**
Specify the level-type parameter that will be linked with the selected source. The [Clear] button clears the parameter.
- **[Parameter Range]**
Use [Upper Limit] and [Lower Limit] to specify the range in which the level can be varied.
If [Mute Enable] is on, the Mute state ($-\infty$ dB) will be enabled if the level is lowered below the value specified by [Lower Limit].

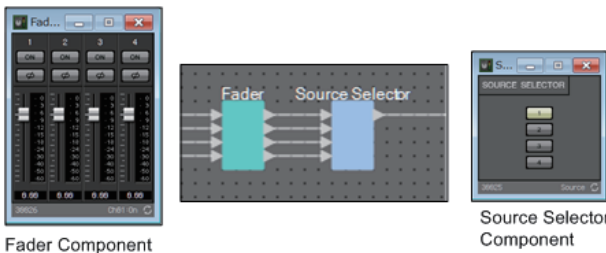
- NOTE**
- If the nominal value specified by the following [Nominal Value] is higher than the [Upper Limit], the [Upper Limit] will rise in tandem with the [Nominal Value]. Conversely, if the nominal value goes below the [Lower Limit], the [Lower Limit] will fall in tandem with the [Nominal Value].
 - By using [Parameter Range] you can limit the range in which the user can control the volume. For example you can use this to specify the maximum volume of background music, or use a controller to make fine volume adjustments in a narrow range of -6 dB to $+6$ dB.

- **[Nominal] check box (DCP only)**
Here you can make settings for the Nominal function.
By specifying the nominal value, you can assign a specific LED position as the normal volume setting. For example by specifying the center LED as the volume setting for normal use and setting the maximum value to the maximum volume that is allowable for the system, you can prevent damage to the system that might occur if the volume of the background music were raised during a noisy time.
If the check box is selected, the Nominal function will be on.
[Nominal Value] specifies the nominal value.
[Nominal LED Position] specifies the LED position that will light when the level reaches the nominal value.
If the check box is cleared (Nominal function off), both parameters will be grayed-out and unavailable.
- **[Knob] (DCP only)**
Here you can make settings for the DCP’s knobs.
[Sensitivity] specifies the sensitivity at which the parameter will change when the knob is rotated.
If [Acceleration] is on, the parameter will change faster if the knob is rotated more rapidly. If [Fast] is selected as the [Sensitivity], the [Acceleration] setting is dimmed and unavailable.

If using a switch to adjust the level

The following example is for using a switch instead of a knob/slider to control the level.

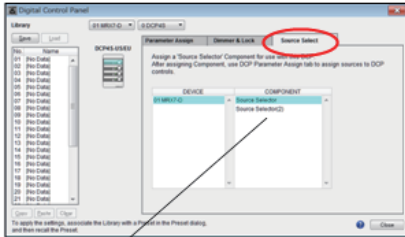
FUNCTION : MRX Source Select



Fader Component

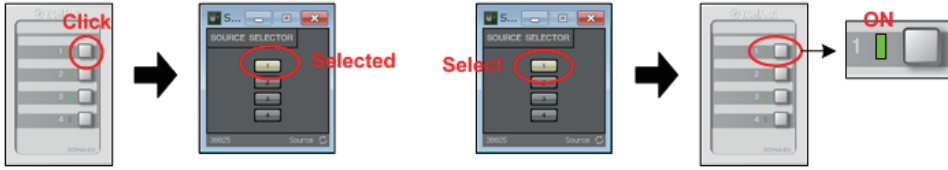
Source Selector Component

Digital Control Panel Dialog



Step1 - FUNCTION : MRX Source Select(Switch)

FUNCTION		DEVICE	PARAMETER 1	PARAMETER 2
MRX Parameter	Source Select	01 MRX7-D	Source Selector	1
MRX Parameter Sets	Inc/Dec			2
MRX Source Select				3
				4



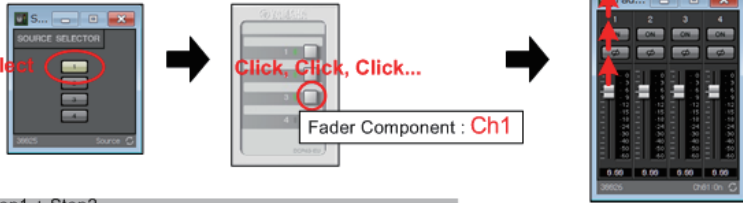
Step2 - FUNCTION : MRX Source Select (Switch)

FUNCTION		DEVICE	PARAMETER 1	PARAMETER 2
MRX Parameter	Source Select	01 MRX7-D	Source Selector	1
MRX Parameter Sets	Inc/Dec			2
MRX Source Select				3
				4

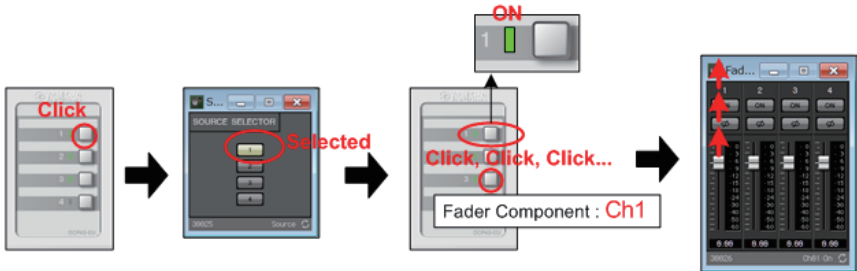
Ctrl + "Drag and Drop"

01 MRX7-D_Fader_Ch01:Level

Inc Dec



Step1 + Step2



We will explain the switch settings in this example.

Switch settings

Select the following parameter type to be operated by the switch, and then make various settings.

- Source Select
- Inc/Dec

○ **[PARAMETER1]/[PARAMETER2]**

[PARAMETER1] shows the component that is specified in the “Source Select” tab. In the case of Source Select, [PARAMETER2] specifies the source that will be turned on. ON can be specified only for one source.

In the case of Inc/Dec, if the above switch is used to change the source of the “Source Selector” component, the level-type parameter specified below is assigned to the switch.

The following parameters can be specified for each source ([each one of [PARAMETER2]).

○ **[Select Parameter:]**

Specify the level-type parameter that will be linked with the selected source. The [Clear] button clears the parameter.

○ **[Inc]**

If you select this, the level is raised each time you press the switch.

◆ **[Upper Limit]**

Specifies the maximum level achieved by pressing the switch.

○ **[Dec]**

If you select this, the level is lowered each time you press the switch.

If [FUNCTION] is [MRX Source Select] (MCP1)

The function assigned to the switch will change according to the “Source Selector” component specified beforehand in the “Source Select” tab of the “MCP1” dialog box.

If the source select function is assigned to a switch

Tap the switch to change sources.

Switch settings

Select the following parameter type to be operated by the switch, and then make various settings.

- Source Select
- **[PARAMETER1]/[PARAMETER2]**
[PARAMETER1] shows the component that is specified in the “Source Select” tab. [PARAMETER2] specifies the source that will be turned on. ON can be specified only for one source.

Assigning the level adjustment function that is linked when the switch selects a source

The linked level-type parameter will be operated when the switch is tapped to turn on the source.

Switch settings

Select the following parameter type to be operated by the switch, and then make various settings.

- Inc/Dec
- **[PARAMETER1]/[PARAMETER2]**
[PARAMETER1] shows the component that is specified in the “Source Select” tab. [PARAMETER2] specifies the source that will be turned on. ON can be specified only for one source.
- **[Select Parameter:]**
Specify the level-type parameter that will be linked with the selected source. The [Clear] button clears the parameter.
- **[Parameter Range]**
Use [Upper Limit] and [Lower Limit] to specify the range in which the level can be varied.
If [Mute Enable] is on, the Mute state ($-\infty$ dB) will be enabled if the level is lowered below the value specified by [Lower Limit].

NOTE By using [Parameter Range] you can limit the range in which the user can control the volume.
For example you can use this to specify the maximum volume of background music, or use a controller to make fine volume adjustments in a narrow range of -6 dB to $+6$ dB.
- **[Sensitivity]**
This specifies the sensitivity at which the parameter will change when the switch is tapped.

□ GPI Input/GPI Output

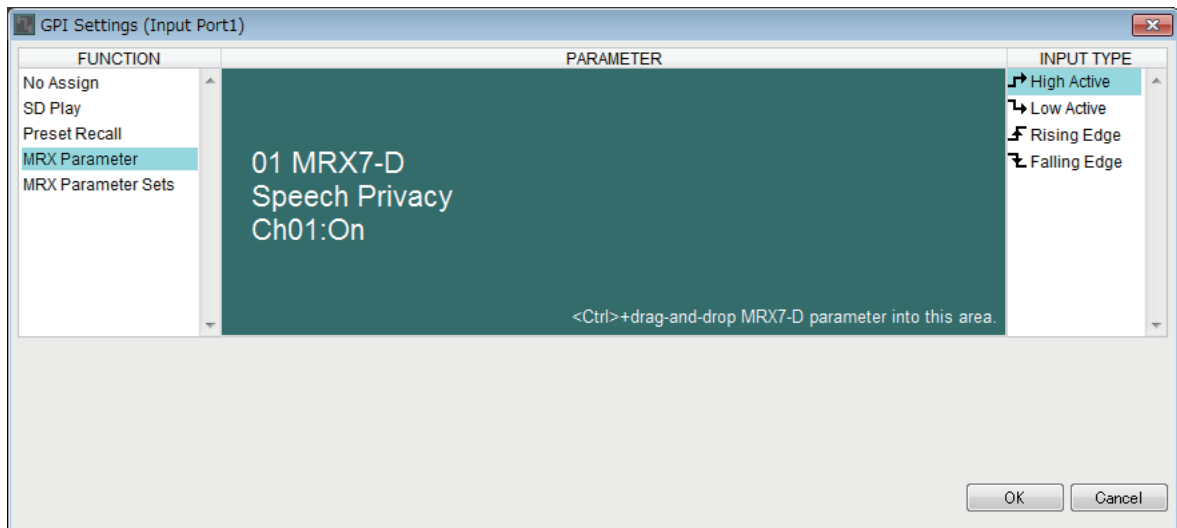
For details on these settings, refer to “MTX-MRX Editor User Guide.”

If [FUNCTION] is [MRX Parameter]

Parameters can be registered in the following ways.

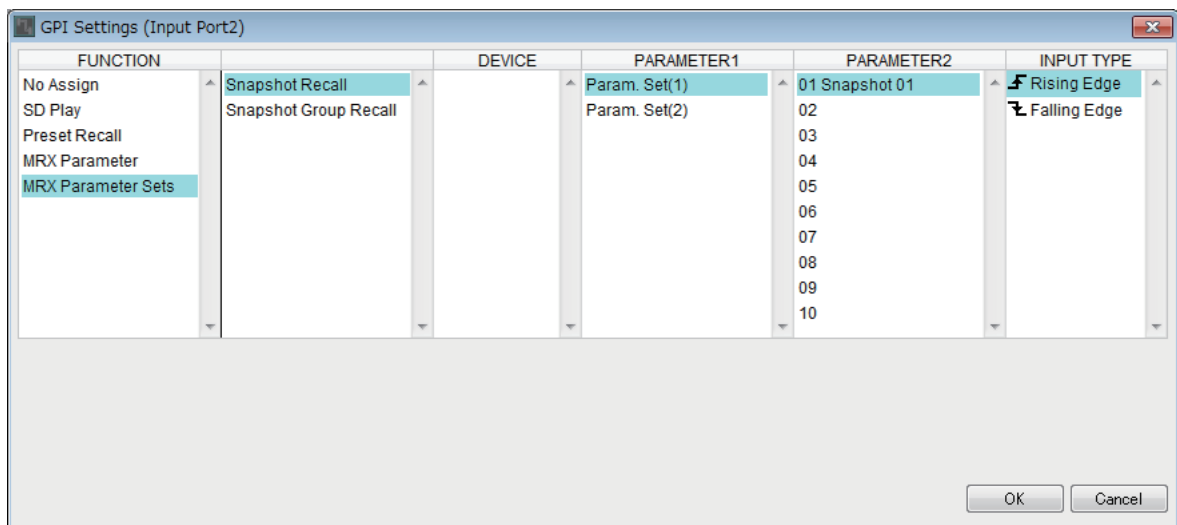
Registration source	Registration method
Component editor / Link Master editor / Parameter setting window	While holding down <Ctrl>, drag and drop a parameter onto the [PARAMETER] field.
“Parameters” area*1	Drag and drop a parameter onto the [PARAMETER] field.
“Parameter Link Group” area	While holding down <Ctrl>, drag and drop a parameter link group onto the [PARAMETER] field.

*1. You can also use <Shift> or <Ctrl> to simultaneously register multiple parameters in a list.



If [FUNCTION] is [MRX Parameter Sets] (Input only)

Select the snapshot or snapshot group that will be recalled by a signal from the [GPI IN] connector.



Context menus

In some areas, a context menu appears when you right-click.

A context menu does not appear for Snapshot in the “Parameter Sets” area, the “Properties” area, or the Bird’s Eye view.

□ Components

When you right-click a component, the following context menu appears (not all items are shown for all components).

Menu	Content	
Open Component Editor	Opens the component editor.	
Find Pair	If you execute this for a Transmitter component or Receiver component, the paired component will be in a selected state.	
Cut	Moves the selected item to the copy buffer.	
Copy	Copies the component, including the parameter settings of the component editor.	
Paste	Duplicates the copied component, including the parameter settings of the component editor.	
Paste Parameters	If you select an existing component of the same type and execute this, the copied parameters of the component are applied.	
Duplicate	Duplicates the copied component, including the parameter settings of the component editor.	
Delete	Deletes the component.	
Add to Parameter Set	Registers the component to the parameter set.	
Add to Gang Edit Group	Registers the component to the gang edit group.	
Add to Remote Control List	Registers all of the component’s parameters or the component’s meters in the Remote Control Setup List. If multiple components are registered simultaneously, they are registered as meters.	
	Add to Next Available Number	Register in the earliest unused number.
	Add to end	Register after the last-registered parameter.
Bring to Front	Moves the component display to the foreground.	
Send to Back	Moves the component display to the background.	
Unbundle Wires	Displays the wires connected to the selected component or User Defined Block spaced apart at equal intervals.	
Bundle Wires	Displays the wires connected to the selected component or User Defined Block overlaid together.	
Duplicate Port Label - to the right	Duplicates the input port name of the selected component to the input port of each downstream component in the signal path.	
Duplicate Port Label - to the left	Duplicates the input port name of the selected component to the input port of each upstream component in the signal path.	
Create User Defined Block	Encapsulates the selected components as a User Defined Block.	

□ User Defined Block

When you right-click a User Defined Block, the following context menu appears; menu items may be present or absent depending on whether the block is open or closed.

Menu	Content				
Open User Defined Block	Opens or closes the User Defined Block.				
Cut	Moves the User Defined Block to the copy buffer.				
Copy	Copies the User Defined Block.				
Paste	Duplicates the item from the copy buffer into the design sheet.				
Paste to User Defined Block	Duplicates the item from the copy buffer into the User Defined Block.				
Duplicate	Duplicates the copied User Defined Block.				
Delete	Deletes the User Defined Block.				
Select All	Selects all components and wires in the User Defined Block.				
Select All Wires	Selects all wires in the User Defined Block.				
Add to Parameter Set	Registers all components of the User Defined Block to the parameter set.				
Add to Gang Edit Group	Registers all components of the User Defined Block to the gang edit group.				
Add to Remote Control List	Registers the meters of all components of the User Defined Block to the Remote Control Setup List. If there is only one component, all of the component's parameters or the component's meters are registered.				
	<table border="1"> <tr> <td>Add to Next Available Number</td> <td>Register in the earliest unused number.</td> </tr> <tr> <td>Add to end</td> <td>Register after the last-registered parameter.</td> </tr> </table>	Add to Next Available Number	Register in the earliest unused number.	Add to end	Register after the last-registered parameter.
	Add to Next Available Number	Register in the earliest unused number.			
Add to end	Register after the last-registered parameter.				
Bring to Front	Moves the User Defined Block display to the foreground.				
Send to Back	Moves the User Defined Block display to the background.				
Unbundle Wires	Shows the wires connected to the User Defined Block separated with equal spacing.				
Bundle Wires	Shows the wires connected to the User Defined Block overlaid on each other.				
Duplicate Port Label - to the right	Duplicates the input port name of the selected component to the input port of each downstream component in the signal path.				
Duplicate Port Label - to the left	Duplicates the input port name of the selected component to the input port of each upstream component in the signal path.				
Unpack User Defined Block	Unpacks the selected User Defined Block.				

□ Component editor / Parameter setting window

When you right-click a component editor or a parameter setting window, the following context menu appears. The upper four items appear if you right-click on a location other than a parameter.

Menu	Content				
Large Scale View	Sets MRX Designer's component editor and MTX-MRX Editor to a vertical and horizontal display magnification of 200%.				
Register as default values	Register the component's current parameter values in a style as the default values. New components will be placed with the registered default values. The registered default values can be imported/exported as a style file.				
Reset default values to Factory Default	Returns the default value of the component to the values immediately after MTX-MRX Editor was installed.				
Copy	Copies the component, including the parameter settings of the component editor.				
Paste Parameters	Content If you select an existing component of the same type and execute this, the copied parameters of the component are applied.				
Add to Parameter Set	If you execute this on a parameter, the parameter is registered in the parameter set. If you execute this elsewhere than on a parameter, the component is registered in the parameter set.				
Add to Gang Edit Group	If you execute this on a parameter, the parameter is registered in the gang edit group. If you execute this elsewhere than on a parameter, the component is registered in the gang edit group.				
Add to Remote Control List	If you execute this on a parameter, the parameter is registered in the Remote Control Setup List. If you execute this elsewhere than on a parameter, all of the component's parameters or the component's meters are registered in the Remote Control Setup List. <table border="1" data-bbox="496 1245 1425 1373"> <tbody> <tr> <td>Add to Next Available Number</td> <td>Register in the earliest unused number.</td> </tr> <tr> <td>Add to end</td> <td>Register after the last-registered parameter.</td> </tr> </tbody> </table>	Add to Next Available Number	Register in the earliest unused number.	Add to end	Register after the last-registered parameter.
Add to Next Available Number	Register in the earliest unused number.				
Add to end	Register after the last-registered parameter.				

□ Component ports

The following context menu appears when you right-click the port of a component.

Menu	Content
Duplicate Port Label - to the right	Duplicates the port name of the input port corresponding to the selected input port or output port, copying it to the input port of each downstream component in the signal path.
Duplicate Port Label - to the left	Duplicates the port name of the input port corresponding to the selected input port or output port, copying it to the input port of each upstream component in the signal path.

□ Wire

The following context menu appears when you right-click a wire.

Menu	Content
Delete	Deletes the wire.
Bring to Front	Moves the selected wire to the front.
Send to Back	Moves the selected wire to the back.
Add a Transmitter & Receiver	Connects the selected wire using a Transmitter component and Receiver component.

□ Design sheet

The following context menu appears when you right-click a design sheet that contains no components.

Menu	Content
Paste	Pastes the copied component to the design sheet.
Select All	Selects all components and wires in the design sheet.
Select All Wires	Selects all wires in the design sheet. (Except for those inside a User Defined Block)
Close All Editor Windows	Closes all component editor and parameter setting windows.
Snap To Grid	If this is checked, components are aligned with the grid of the design sheet.

□ “Parameter Sets” area

The following context menu appears when you right-click a parameter set, device, component, or parameter in the “Parameter Sets” area.

Menu	Content
Find	If you execute this for a component, the corresponding component in the design sheet is selected. If you execute this for a parameter, the component editor that includes the corresponding parameter will open with that parameter selected. This cannot be executed for a parameter set or device.
Delete	Deletes the item. Settings in a lower level are also deleted.

□ “Parameter Link Group” area

The following context menu appears when you right-click a parameter link group, device, component, or parameter in the “Parameter Link Group” area.

Menu	Content				
Open Link Master	Opens the Link Master editor for the parameter link group.				
Find	If you execute this for a component, the corresponding component in the design sheet is selected. If you execute this for a parameter, the component editor that includes the corresponding parameter will open with that parameter selected. This cannot be executed for a parameter link group or device.				
Delete	Deletes the item. Settings in a lower level are also deleted.				
Add to Parameter Set	If you execute this for a parameter link group, the link master fader or [ON] button is registered in the parameter set.				
Add to Remote Control List	If you execute this for a parameter link group, the link master fader or [ON] button is registered in the Remote Control Setup List.				
	<table border="1"> <tr> <td>Add to Next Available Number</td> <td>Register in the earliest unused number.</td> </tr> <tr> <td>Add to end</td> <td>Register after the last-registered parameter.</td> </tr> </table>	Add to Next Available Number	Register in the earliest unused number.	Add to end	Register after the last-registered parameter.
	Add to Next Available Number	Register in the earliest unused number.			
Add to end	Register after the last-registered parameter.				

□ “Gang Edit Group” area

The following context menu appears when you right-click a gang edit group, component type, device, or parameter in the “Gang Edit Group” area.

Menu	Content
Find	If you execute this for a component, the corresponding component in the design sheet is selected.
Delete	Deletes the item. Settings in a lower level are also deleted.
ALL ON	If you execute this on a parameter, all parameters turn on.
ALL OFF	If you execute this on a parameter, all parameters turn off.

□ “Parameters” area

The following context menu appears when you right-click a component or parameter in the “Parameters” area.

Menu	Content		
Find	If you execute this for a component, the corresponding component in the design sheet is selected. If you execute this for a parameter, the component editor that includes the corresponding parameter will open with that parameter selected.		
Add to Parameter Set	If you execute this on a parameter, the parameter is registered in the parameter set. If you execute this on a component, the component is registered in the parameter set.		
Add to Gang Edit Group	If you execute this on a component, the component is registered in the gang edit group.		
Add to Parameter Link Group	If you execute this on a parameter, the parameter is registered in the parameter link group.		
Add to Remote Control List	If you execute this on a parameter, the parameter is registered in the Remote Control Setup List. If you execute this on a component, all of the component’s parameters or the component’s meters are registered in the Remote Control Setup List. If multiple components are registered simultaneously, they are registered as meters.		
	<table border="1"> <tr> <td data-bbox="496 1039 762 1120">Add to Next Available Number</td> <td data-bbox="762 1039 1442 1120">Register in the earliest unused number.</td> </tr> </table>	Add to Next Available Number	Register in the earliest unused number.
	Add to Next Available Number	Register in the earliest unused number.	
<table border="1"> <tr> <td data-bbox="496 1120 762 1180">Add to end</td> <td data-bbox="762 1120 1442 1180">Register after the last-registered parameter.</td> </tr> </table>	Add to end	Register after the last-registered parameter.	
Add to end	Register after the last-registered parameter.		

Troubleshooting

Problem	Possible cause	Action
A compile error occurs.	Processing exceeded 100%.	Either delete unnecessary components, or minimize the unconnected input ports.
	Memory exceeded 100%.	Reduce the maximum delay value for Delay. If it still exceeds 100%, delete Delay, Speaker Processor, or Speech Privacy components.
	Connections failed.	In some cases, you may obtain success if a component with a large number of input/output channels is divided into multiple components with a smaller number of input/output channels.
	System Resource 1 exceeded 100%.	Delete unneeded parameter sets.
	System Resource 2 exceeded 100%.	Delete unneeded components or unneeded parameter link groups.
Can't place a component. Can't make a connection.	The system is online.	Use MTX-MRX Editor to put the system offline.