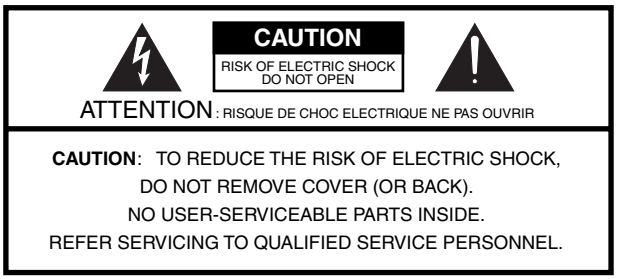
Roland

LIVE MIXING CONSOLE M-480

Owner's Manual

Before using this unit, carefully read the sections entitled: "IMPORTANT SAFETY INSTRUCTIONS" (p. 2), "USING THE UNIT SAFELY" (p. 3–5), and "IMPORTANT NOTES" (p. 6–8). These sections provide important information concerning the proper operation of the unit. Additionally, in order to feel assured that you have gained a good grasp of every feature provided by your new unit, Owner's manual should be read in its entirety. The manual should be saved and kept on hand as a convenient reference.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to r ain or moisture.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

WARNING - When using electric products, basic precautions should always be followed, inc luding the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

For the U.K.

WARNING: THIS APPARATUS MUST BE EARTHED
IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.
GREEN-AND-YELLOW: EARTH, BLUE: NEUTRAL, BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

CAUTION: Danger of explosion if battery is incorrectly replaced.
Replace only with same or equivalent type.

USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠WARNING and ⚠CAUTION Notices

⚠WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

⚠	The △ symbol alerts the user to important instructions or warnings.The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
	The ⃠ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠WARNING

- Connect mains plug of this model to a mains socket outlet with a protective earthing connection.

- Do not open or perform any internal modifications on the unit.

- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

- Never install the unit in any of the following locations.
  - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are
  - Damp (e.g., baths, washrooms, on wet floors); or are
  - Exposed to steam or smoke; or are
  - Subject to salt exposure; or are
  - Humid; or are
  - Exposed to rain; or are
  - Dusty or sandy; or are
  - Subject to high levels of vibration and shakiness.

- Make sure you always have the unit placed so it is level and sure to remain stable. Never place it on stands that could wobble, or on inclined surfaces.

⚠WARNING

- The unit should be connected to a power supply only of the type described in the operating instructions, or as marked on the rear side of unit.

- Use only the attached power-supply cord. Also, the supplied power cord must not be used with any other device.

- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards!

- This unit, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should immediately stop using the unit, and consult an audiologist.

- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.

⚠ WARNING

- Immediately turn the power off, remove the power cord from the outlet, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page when:
  - The power-supply cord or the plug has been damaged; or
  - If smoke or unusual odor occurs
  - Objects have fallen into, or liquid has been spilled onto the unit; or
  - The unit has been exposed to rain (or otherwise has become wet); or
  - The unit does not appear to operate normally or exhibits a marked change in performance.

- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.

- Protect the unit from strong impact.
  (Do not drop it!)

- Do not force the unit's power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through.

- Before using the unit in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

- Keep lithium batteries out of reach of small children. If a child has accidentally swallowed a battery, see a doctor immediately.

- Lithium batteries must never be recharged, heated, taken apart, or thrown into a fire or water.

- Never expose lithium battery to excessive heat such as sunshine, fire or the like.

⚠ CAUTION

- The unit should be located so that its location or position does not interfere with its proper ventilation.

- Always grasp only the plug on the power-supply cord when plugging into, or unplugging from, an outlet or this unit.

- At regular intervals, you should unplug the power plug and clean it by using a dry cloth to wipe all dust and other accumulations away from its prongs. Also, disconnect the power plug from the power outlet whenever the unit is to remain unused for an extended period of time. Any accumulation of dust between the power plug and the power outlet can result in poor insulation and lead to fire.

- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children.

- Never climb on top of, nor place heavy objects on the unit.

- Never handle the power cord or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit.

- Before moving the unit, disconnect the power plug from the outlet, and pull out all cords from external devices.

- Before cleaning the unit, turn off the power and unplug the power cord from the outlet (p. 17).

- Whenever you suspect the possibility of lightning in your area, pull the plug on the power cord out of the outlet.

- Use only the specified type (model no. CR2032) of lithium battery (p. 18). Be sure to insert it as directed (to ensure correct polarity).

- Used lithium batteries must be disposed of in compliance with whatever regulations for their safe disposal that may be observed in the region in which you live.

⚠ CAUTION

- Keep the REAC caps, the lithium battery, the grounding terminal screw, the USB memory cover, the battery cover, and the battery cover screws you may remove and the included the ferrite cores, and the REAC connector covers in a safe place out of children's reach, so there is no chance of them being swallowed accidentally.

- Always turn the phantom power off when connecting any device other than condenser microphones that require phantom power. You risk causing damage if you mistakenly supply phantom power to dynamic microphones, audio playback devices, or other devices that don't require such power. Be sure to check the specifications of any microphone you intend to use by referring to the manual that came with it.

  (This instrument's phantom power: +48 V DC, 14 mA Max)

IMPORTANT NOTES

Power Supply

Power Supply: Use of Batteries

- Do not connect this unit to same electrical outlet that is being used by an electrical appliance that is controlled by an inverter (such as a refrigerator, washing machine, microwave oven, or air conditioner), or that contains a motor. Depending on the way in which the electrical appliance is used, power supply noise may cause this unit to malfunction or may produce audible noise. If it is not practical to use a separate electrical outlet, connect a power supply noise filter between this unit and the electrical outlet.
- Before connecting this unit to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.
- Although the LCD and LEDs are switched off when the POWER switch is switched off, this does not mean that the unit has been completely disconnected from the source of power. If you need to turn off the power completely, first turn off the POWER switch, then unplug the power cord from the power outlet. For this reason, the outlet into which you choose to connect the power cord's plug should be one that is within easy reach and readily accessible.

Placement

- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this unit; or move it farther away from the source of interference.
- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- Noise may be produced if wireless communications devices, such as cell phones, are operated in the vicinity of this unit. Such noise could occur when receiving or initiating a call, or while conversing. Should you experience such problems, you should relocate such wireless devices so they are at a greater distance from this unit, or switch them off.
- Do not expose the unit to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.
- When moved from one location to another where the temperature and/or humidity is very different, water droplets (condensation) may form inside the unit. Damage or malfunction may result if you attempt to use the unit in this condition. Therefore, before using the unit, you must allow it to stand for several hours, until the condensation has completely evaporated.
- Depending on the material and temperature of the surface on which you place the unit, its rubber feet may discolor or mar the surface.
  You can place a piece of felt or cloth under the rubber feet to prevent this from happening. If you do so, please make sure that the unit will not slip or move accidentally.
- Do not put anything that contains water (e.g., flower vases) on this unit. Also, avoid the use of insecticides, perfumes, alcohol, nail polish, spray cans, etc., near the unit. Swiftly wipe away any liquid that spills on the unit using a dry, soft cloth.

Maintenance

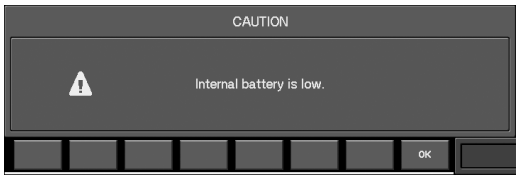
- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a cloth impregnated with a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzine, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Repairs and Data

- Please be aware that all data contained in the unit's memory may be lost when the unit is sent for repairs. Important data should always be backed up on a USB memory, or written down on paper (when possible). During repairs, due care is taken to avoid the loss of data. However, in certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data, and Roland assumes no liability concerning such loss of data.

Memory Backup

- This unit contains a battery which powers the unit's memory circuits while the main power is off. When this battery becomes weak, the message shown below will appear in the display. Once you see this message, have the battery replaced with a fresh one as soon as possible to avoid the loss of all data in memory.



Additional Precautions

- Please be aware that the contents of memory can be irretrievably lost as a result of a malfunction, or the improper operation of the unit. To protect yourself against the risk of loosing important data, we recommend that you periodically save a backup copy of important data you have stored in the unit's memory on a USB memory.
- Unfortunately, it may be impossible to restore the contents of data that was stored in the unit's memory, or on a USB memory once it has been lost. Roland Corporation assumes no liability concerning such loss of data.
- Use a reasonable amount of care when using the unit's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- When connecting / disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- A small amount of heat will radiate from the unit during normal operation.
- When you need to transport the unit, package it in the box (including padding) that it came in, if possible. Otherwise, you will need to use equivalent packaging materials.
- Some connection cables contain resistors. Do not use cables that incorporate resistors for connecting to this unit. The use of such cables can cause the sound level to be extremely low, or impossible to hear. For information on cable specifications, contact the manufacturer of the cable.

Before Using USB memory

Using USB memory

- Carefully insert the USB memory all the way in—until it is firmly in place.
- Never touch the terminals of the USB memory. Also, avoid getting the terminals dirty.
- USB memories are constructed using precision components; handle the cards carefully, paying particular note to the following.
  - To prevent damage to the cards from static electricity, be sure to discharge any static electricity from your own body before handling the cards.
  - Do not touch or allow metal to come into contact with the contact portion of the cards.
  - Do not bend, drop, or subject cards to strong shock or vibration.
  - Do not keep cards in direct sunlight, in closed vehicles, or other such locations (storage temperature: -25 to 85˚ C).
  - Do not allow cards to become wet.
  - Do not disassemble or modify the cards.

About USB memory

- Before using USB memory for the M-480, please format the memory on the M-480.
  For details, please refer to "Formatting USB memory"(p.177).
- Some USB memory might not be able to be used on the M-480.
  If an error message appears when formatting as described in "Formatting USB memory" (p.177), it is not possible to use this USB memory for the M-480.
- The M-480 supports only USB memory (USB flash Memory and USB flash drive).
  Hard Disk and Memory Card Reader via USB is not supported.
- USB memory does not work via USB hub.
- When the access lamp of USB memory is lit or blinking, please do not remove the USB memory.
  This might cause some damage to the data of the USB memory or deficit.
- We recommend to format USB memory before doing mixing operation on the M-480.
- We recommend to use USB memory exclusively for the V-Mixer (M-300, M-380, M-400, or M-480) without storing any other files or programs.

Regarding the CAT5e cable

- In order to keep superb digital transfer quality by REAC, please make sure to use following optional cables for 100m CAT5e cable:
  - SC-W100S 100M CAT5e cable
  - W100S-R 100M CAT5e cable with reel

Channel Edit operation

- You might hear some noise when you control the following:
  - Preamp Gain
  - 4-band EQ
  - Gate
  - Compressor
  - Limiter
  - Channel Link
  - Library Recall

  However, this is not out of order.

Multiple connection of REAC products

- When multiple REAC products are connected to either REAC A or REAC B on the M-480 via REAC splitter or switching hub, please set the REAC mode on each product correctly.
  If you turn on the power of these products with REAC mode set incorrectly, there might be some digital noise generated from REAC products or M-480.
  If this happens, please turn off the power of all REAC products and set the REAC mode correctly.

Copyright

- Recording, duplication, distribution, sale, lease, performance, or broadcast of copyrighted material (musical works, visual works, broadcasts, live performances, etc.) belonging to a third party in part or in whole without the permission of the copyright owner is forbidden by law.
- Do not use this product for purposes that could infringe on a copyright held by a third party. We assume no responsibility whatsoever with regard to any infringements of third-party copyrights arising through your use of this product.
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- Windows is known officially as: ÅgMicrosoft Windows operating system.
- Neutrik and EtherCon are registered trademarks of Neutrik, Inc.

Contents

Introduction

Check the included items

The following items are included with the M-480. Make sure that all of them are present:

- The M-480 itself
- Power cord
  - * Use only the power cord that was included with the M-480.
- REAC connector covers (three)
- Channel number sticker
- Ferrite cores (four)
- Owner's manual (the document you're reading)
- Cover

Conventions used in this manual

The explanations in this manual include illustrations that depict what should typically be shown by the display. Note, however, that your unit may incorporate a newer, enhanced version of the system, so what you actually see in the display may not always match what appears in the manual.

Names

The following input/output units can be connected to the M-480's REAC ports:

- S-1608 stage unit
- S-0816 FOH unit
- S-4000S 40-channel I/O modular rack (Ver. 2.010 and later)
- S-0808 8x8 I/O UNIT
- S-4000M REAC MERGE UNIT

MEMO

The REAC port on the M-480 does not support REAC EMBEDDED POWER. When you connect an S-0808, install an external battery on the S-0808 to power via the DC IN port. Note, however, that when the connection on the M-480 is made via an S-4000M or S-4000D, the S-0808 is powered by the S-4000M or S-4000D, and so no external battery is needed.

In this manual, we may abbreviate these units as the S-1608, S-0816, or S-4000S, or may refer to them collectively as input/output units.

Text enclosed in square brackets [ ] indicates a button. For example, the direction to "press [METER]" means that you are to press the METER button.

If a secondary name is shown for a button, such as [DISP (BUTTON ASSIGN)], the text in parentheses indicates the function that the button has when pressed while holding down [SHIFT].

In the case of function buttons, the function is given in parentheses, such as [F1 (LINK)].

Basic knowledge about REAC

About REAC

The REAC (Roland Ethernet Audio Communication) interface is the core of this system. It uses a proprietary protocol based on Ethernet technology, and allows 40 channels of digital audio to be sent in each direction via a single Cat5e Ethernet cable.

REAC can do the following:

- Send 40 channels of digital audio in each direction
- Send audio up to 100 meters on one Cat5e cable
- A switching hub or the S-OPT option can be used to extend the cable.
- Use a switching hub to easily split the signal
- The transmission delay between REAC devices is extremely small (approximately 375 microseconds)

MEMO

When the signal passes through a switching hub, there will be approximately 200 microseconds of delay for each unit.

About cables

Since Cat5e Ethernet cables are used, it's very easy to connect REAC devices to each other. Cat5e Ethernet cables are commonly used for computer network connections, and have RJ45 plugs.

Types of Ethernet cable

There are two types of Ethernet cables. Although both types have the same exterior appearance, their RJ45 plugs are wired differently, as follows:

- **Crossover cable**

  The internal wiring of the cable is crossed at each RJ45 plug. This means that the connections of the RJ45 plugs will differ at each end of the cable.

- **Straight cable**

  The internal wiring of the cable is the same at each end.

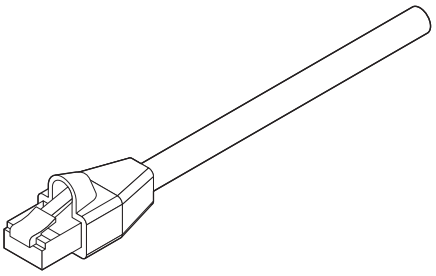
Crossover cables (such as Roland SC-W20F, Roland SC-W100S, or Roland W100S-R) should be used when connecting to the REAC ports on this product.

MEMO

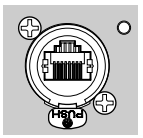
Certain cautions apply if you're using a conventional switching hub with this system. For details, refer to "REAC applications" (p. 142).

Ethernet connectors

Ethernet cables use RJ45 plugs. REAC equipment provides an RJ45 connector for each REAC port.



RJ45 plug



REAC RJ45 connector

For critically important communication, it is vital to protect the RJ45 plug and connector. For such situations, REAC RJ45 connectors use a sturdy Neutrik EtherCon plug. Using the EtherCon RJ45 plug allows a latched-type connector similar to an XLR plug.

The Neutrik Corporation provides EtherCon RJ45 plugs, as well as EtherCon plugs that can be added to the RJ45 plug of commercially available Ethernet cable.

MEMO

The RJ45 connectors of REAC ports can accept either RJ45 plugs or EtherCon plugs.

Cautions for handling Cat5e cables

- Do not apply excessive force to Cat5e cables.
- Do not bundle (bend) a Cat5e cable to a radius less than 25 mm, or fold it in two.
- Do not tightly bundle a Cat5e cable.
- Do not place multiple Cat5e cables in parallel for an extended distance.
- Do not place Cat5e cables near a source of electrical noise (power supply cord, motor, fluorescent lights, etc.).

REAC connections

Here is a typical example of connections using the S-1608.

When connecting REAC devices to each other, the REAC mode of one device must be set to REAC master, and the REAC mode of the other must be set to REAC slave.

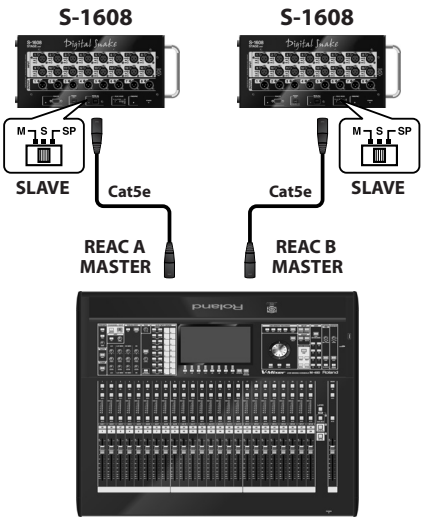
In this system, the M-480 is normally set to be the master (FOH setting), while the input/output units are set to be slaves.

cf.

For a more detailed description of connections, refer to "REAC applications" (p. 142).

MEMO

Cat5e Ethernet cables up to 100 meters long are supported. If you need a longer connection, we recommend that you use the optional S-OPT.



M-480

The default input/output patching between the M-480 and input/output units connected to REAC ports A/B is as follows:

Input jacks		Input channel
REAC A	IN1–16	CH1–16
REAC B	IN1–16	CH17–32

Output jacks		Outputs
REAC A	OUT1–6	AUX1–6
	OUT7–8	MAIN L, R
	OUT9–40	CH1–32 DIRECT OUTS
REAC B	OUT1–6	AUX9–14
	OUT7–8	MAIN L, R
	OUT9–40	CH1–32 DIRECT OUTS

cf.

You can change the input/output settings. For details, refer to "Input/output patchbay" (p. 86).

Cautions when making REAC connections

- REAC connections are designed so that noise will not be produced even if you hot-swap (plug or unplug a live connection). However in rare cases, noise may occur at the audio output of the system. To prevent hot-swapping from causing damage to your speakers or other equipment connected to the audio outputs, please observe the following points:
- Make REAC connections while holding down the [MUTE ALL OUTPUTS] of the input/output unit
- Before you make REAC connections, mute the outputs using [F6 (MUTE ALL OUT)] in the MUTE GROUP screen (p. 114).

MEMO

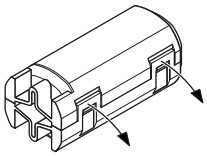
In some cases, the muted state will continue even after you release your finger from [MUTE ALL OUTPUTS] of the input/output unit. In this case, press [MUTE ALL OUTPUTS] once again to mute, and then release your finger to unmute the unit.

Placement

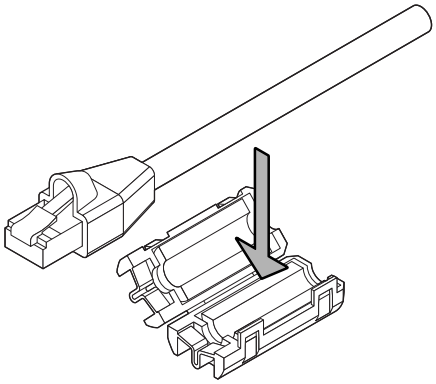
Attaching the ferrite core

Before using the M-480, you must attach the ferrite cores to the Ethernet cable or coaxial cable. This is for the purpose of preventing electromagnetic noise; do not remove it.

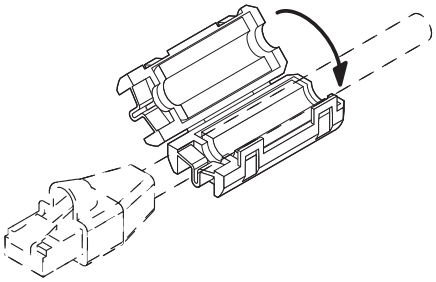
1. **Spread the tabs, and open the ferrite core.**



2. **Attach a ferrite core near the RJ45 plug on the Ethernet cable or near the RCA plug on the coaxial cable.**



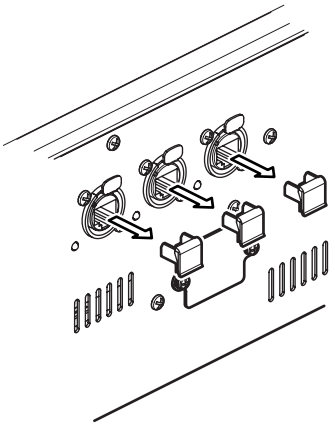
3. **Close the ferrite core until you hear it snap shut.**



4. **Connect the plug with the ferrite core to the M-480's REAC port or DIGITAL OUT jack.**

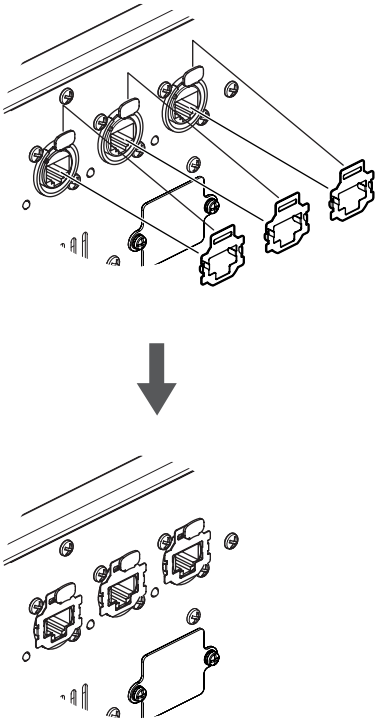
About the REAC caps

When the M-480 is shipped from the factory, REAC caps are attached to the REAC ports. In order to use REAC port, you'll need to remove the REAC cap. Take care not to lose the REAC caps you remove.



About the REAC connector covers

When using an Ethernet cable with standard RJ45 plugs, fit the included REAC connector covers on the REAC ports as shown.



MEMO

Remove the REAC connector cover if you're using an EtherCon type REAC cable (SC-W20F/SC-W100S/W100S-R). Take care not to lose the REAC connector covers you removed.

AC power connections

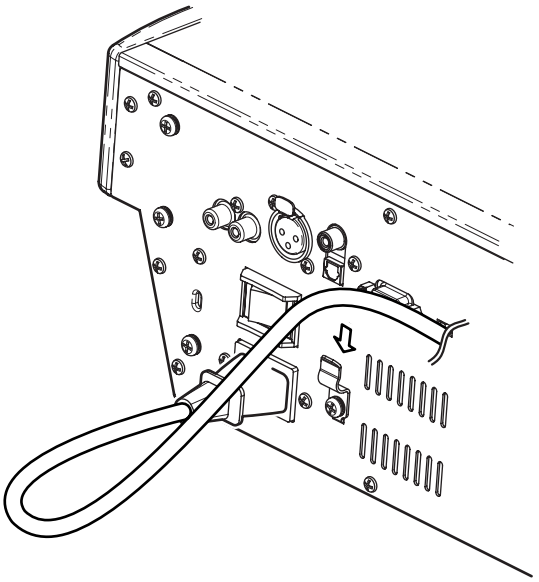
Connect one end of the supplied AC power cord to a grounded AC outlet, and the other end to the AC INPUT connector to provide power for the M-480's internal power supply.

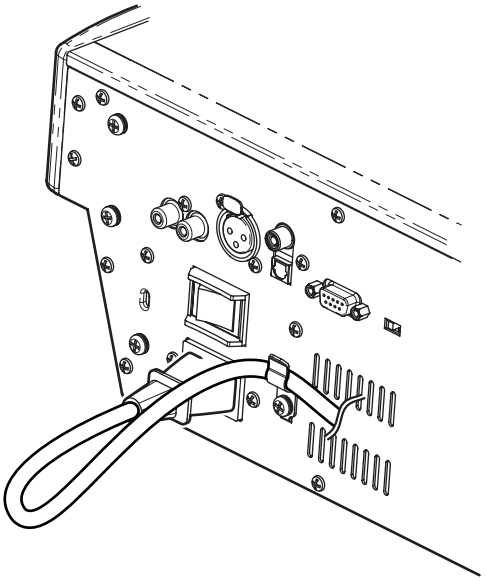
NOTE

Use only the supplied power cords to prevent damage to the units.

Attaching the power cord hook

1. As shown in the illustration, fix the power cord hook over the AC power cord.



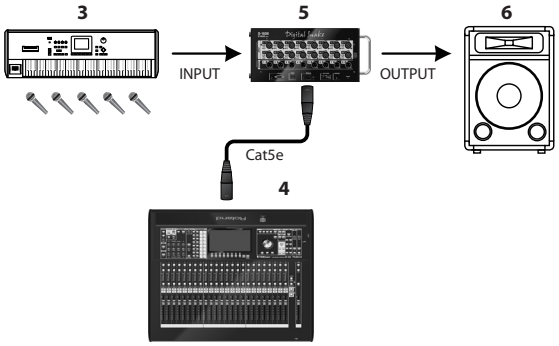


Turning the power on/off

Turning the power on

NOTE

Once the connections have been completed, turn on power to your various devices in the order specified. By turning on devices in the wrong order, you risk causing malfunction and/or damage to speakers and other devices.



M-480

1. **Connect your input/output units (S-1608, S-0816, S-4000S, etc.) to the M-480's REAC port.**
2. **Connect your audio equipment to the audio inputs and audio outputs of the M-480 and your input/output units.**

NOTE

Audio feedback could be produced depending on the location of microphones relative to speakers. This can be remedied by:

1. Changing the orientation of the microphone(s).
2. Relocating microphone(s) at a greater distance from speakers.
3. Lowering volume levels.

3. **Turn on the power of the equipment connected to the audio inputs of the M-480 and your input/output units.**
4. **Turn on the power using the POWER switch located on the M-480's rear panel.**

When the power supply has started up, a screen like the following will appear:

5. **Turn on the power of your input/output units.**

MEMO

For information on how to turn on the power of the input/output unit, refer to the owner's manual of the unit.

6. **Turn on the power of the equipment connected to the audio outputs of the M-480 and your input/output units.**

NOTE

This unit is equipped with a protection circuit. A brief interval (a few seconds) after power up is required before the unit will operate normally.

NOTE

Always make sure to have the volume level turned down before switching on power. Even with the volume all the way down, you may still hear some sound when the power is switched on, but this is normal, and does not indicate a malfunction.

Turning the power off

1. **Mute the outputs using [F6 (MUTE ALL OUT)] in the MUTE GROUP screen (p. 114).**
2. **Turn off the power of the equipment connected to the audio outputs of the M-480 and your input/output units.**
3. **Turn off the power using the POWER switch located on the M-480's rear panel.**

NOTE

Before you turn off the power of the M-480, make sure that it is not reading/writing USB memory or reading/writing scene memory or library data. The data may be destroyed if you turn off the power during such operations.

4. **Turn off the power of your input/output units.**

MEMO

For information about how to turn the power of S-1608/S-0816 off, refer to the owner's manual of the S-1608/S-0816.

MEMO

For information about how to turn the power of S-0808 off, refer to the owner's manual of the S-0808.

5. **Turn off the power of the equipment connected to the audio inputs of the M-480 and your input/output units.**

NOTE

To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

NOTE

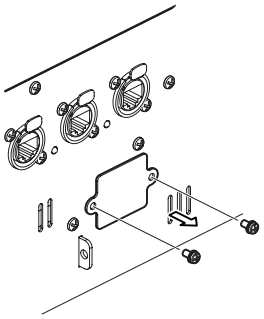
If you need to turn off the power completely, first turn off the POWER switch, then unplug the power cord from the power outlet. Refer to **Power Supply** (p. 6).

About the internal lithium battery

The M-480 has an internal lithium battery that backs up the clock function and the mixer settings. If this battery runs down, the clock function and the feature that provides for the reinstatement of the mixer settings that existed prior to switching off the power will no longer operate correctly. If a popup message recommending that you replace the battery appears when you turn on the power, replace the battery as described in the following procedure.

Replace the old battery with a CR2032 type lithium battery. Ask your consumer electronics dealer for a "CR2032 type lithium battery."

1. **Back up the M-480's mixer settings to USB memory (p. 160).**
2. **Switch off the M-480's power, and disconnect the power cord from the AC outlet.**
3. **Remove the two screws that fasten the battery cover as shown in the illustration, and detach the battery cover.**

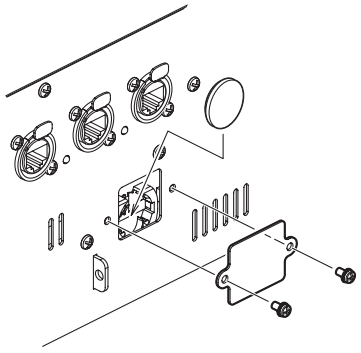


4. **Remove the old battery, and insert the new battery.**

NOTE

Be careful not you cut your hand.

5. **Attach the battery cover as shown in the illustration, and fasten it using the two screws you removed in step 3.**



6. **Turn on the power of the M-480, and set the date and time (p. 162).**
7. **Load the previously saved settings (MIXER PARAMETER, SYSTEM SETTING) from the USB memory to which you backed up the data in step 1. (p. 160)**

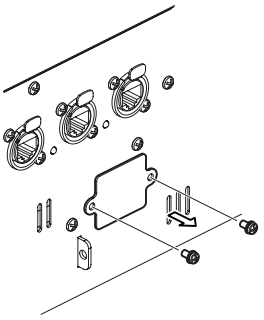
À propos de la pile interne au lithium

French language
for Canadian Safety Standard

Le M-480 est équipé d'une pile au lithium qui fait fonctionner l'horloge et préserve les réglages du mélangeur. Si la pile est faible, l'horloge et la restauration des réglages du mélangeur ne fonctionnent pas correctement. Si un message contextuel recommandant de remplacer la pile s'affiche lorsque l'appareil est mis sous tension, il faut la remplacer comme suit.

Remplacement de la pile usée par une pile au lithium de type CR2032. Il faut s'assurer d'obtenir pile au lithium de type CR2032 du détaillant d'appareils électroniques.

1. **Faire une copie de sauvegarde des réglages du mélangeur interne dans la mémoire USB (p. 160).**
2. **Couper l'alimentation du M-480 et débrancher le câble d'alimentation de la prise de courant.**
3. **Comme le montre l'illustration, retirer les deux vis qui retiennent le couvercle du compartiment de la pile et retirer le couvercle.**

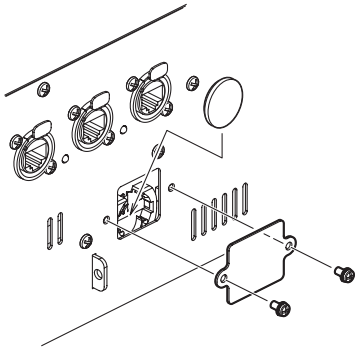


4. **Retirer la pile usée et insérer la pile neuve.**

NOTE

Faites attention de ne pas vous couper.

5. **Remettre en place le couvercle du compartiment de la pile et le fixer à l'aide des deux vis retirées à l'étape 3.**



6. **Mettre le M-480 sous tension et régler la date et l'heure (p. 162).**
7. **Charger les réglages enregistrés (PARAMÈTRE DU MÉLANGEUR, RÉGLAGE DU SYSTÈME) dans la mémoire USB où la copie de sauvagarde a été faite à l'étape 1. (p. 160)**

About USB memory

The M-480 can use USB memory to store and read a variety of data.

- Record and play WAV files using the USB Memory Recorder
- Save and load user settings files
- Back up and recover internal mixer data

NOTE

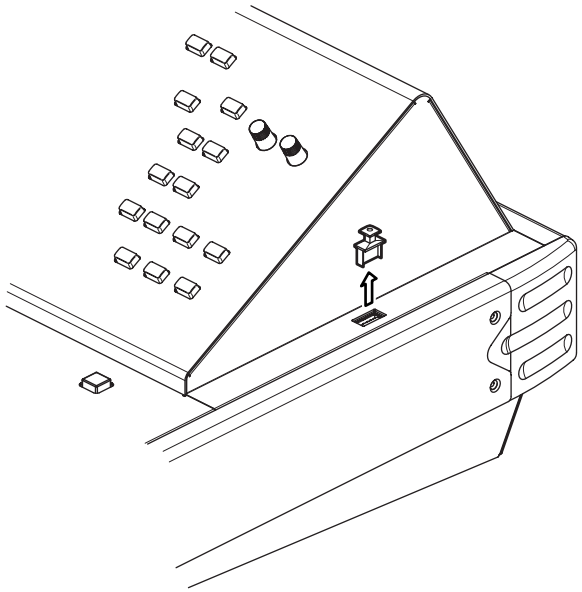
Carefully insert the USB memory all the way in—until it is firmly in place.

MEMO

USB memory used with the USB Memory Recorder must support USB 2.0 (Hi-speed).

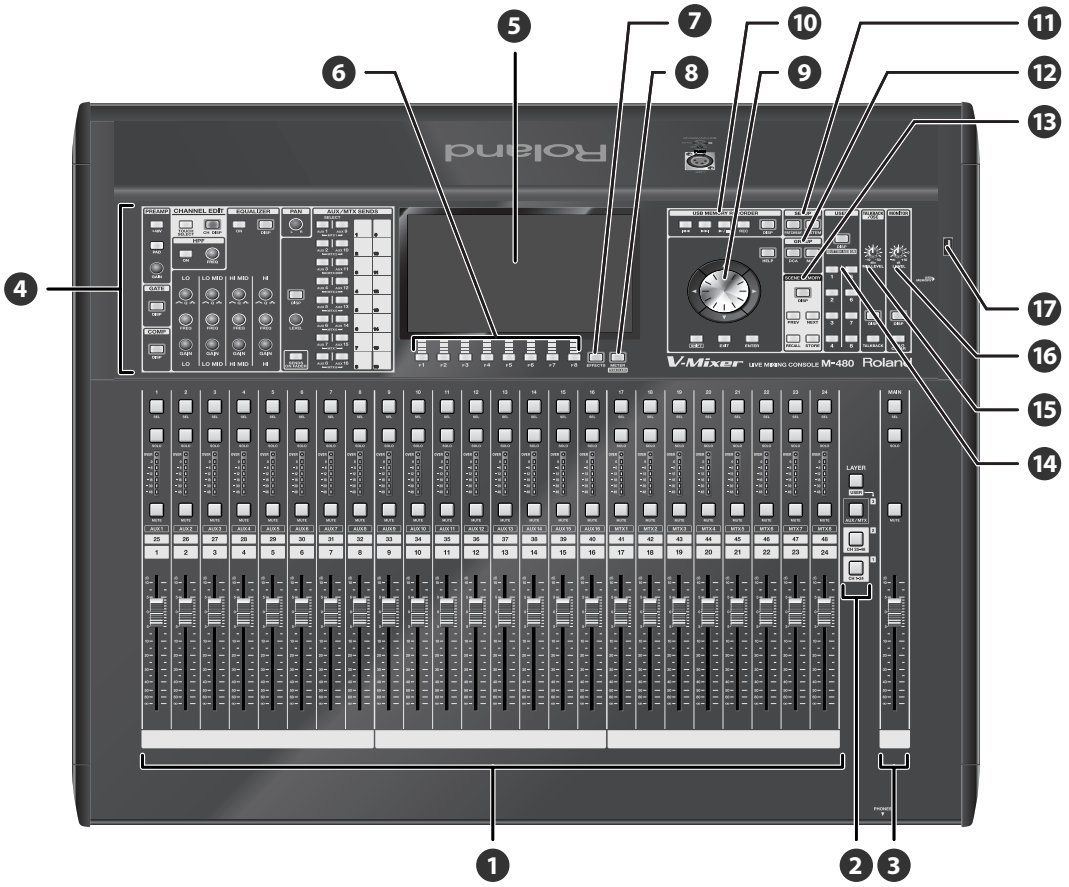
About the USB memory cover

When the M-480 is shipped, a USB memory cover is attached to the USB MEMORY connector. Remove the USB memory cover when using USB memory. Take care not to lose the USB memory cover so it can be returned to the USB MEMORY connector protecting it from loose debris.



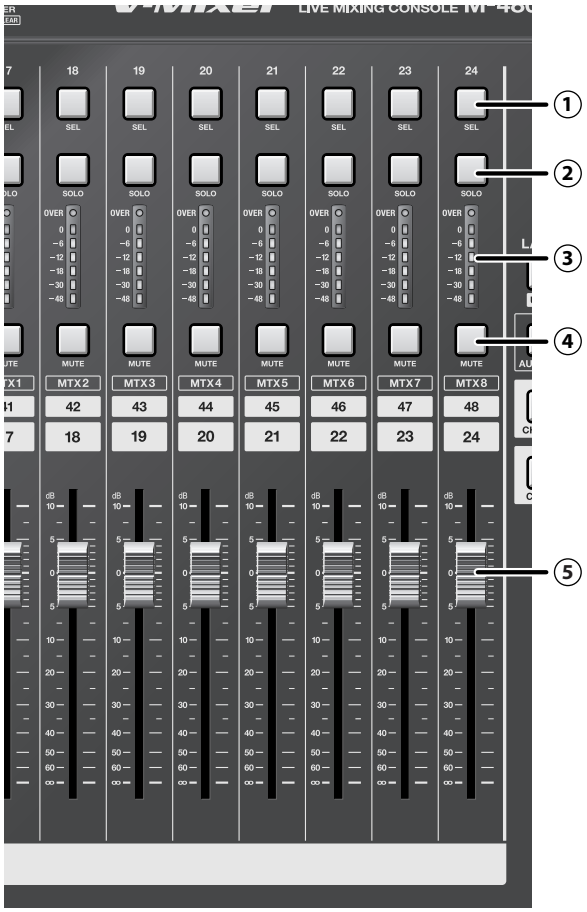
Explanation of the panels

Top panel/Front panel



❶	Fader module section	p. 21
❷	Layer section	p. 21
❸	MAIN fader module	p. 22
❹	CHANNEL EDIT section	p. 22
❺	Display	p. 25
❻	Function button section	p. 25
❼	[EFFECTS] button	p. 25
❽	[METER] button	p. 25
❾	Screen controller section	p. 25
❿	USB MEMORY RECORDER section	p. 26
⓫	SETUP section	p. 26
⓬	GROUP section	p. 26
⓭	SCENE MEMORY section	p. 27
⓮	USER Section	p. 28
⓯	TALKBACK/OSC Section	p. 28
⓰	MONITOR Section	p. 28
⓱	USB MEMORY connector	p. 28

1 Fader module section



This section lets you control the 24 channels you selected in the Layer section.

① [SEL] buttons

Use these buttons to select the channel that you want to control in the CHANNEL EDIT section or in the screen. The [SEL] button of the currently selected channel will light.

② [SOLO] buttons

These buttons turn solo on/off for each channel. The button will be lit when solo is on.

cf.
"Using Solo" (p. 119)

③ Meters

These indicate the signal level of each channel.

cf.
"Editing the meter settings" (p. 96)

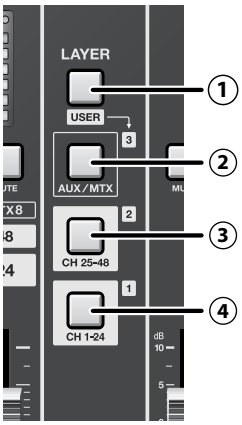
④ [MUTE] buttons

These turn muting on/off for each channel. The button will be lit if mute is active.

⑤ Faders

These adjust the signal level of each channel.

2 LAYER section



This section lets you select the channel layer that will be assigned to the fader module section. The button of the currently assigned channel layer will be lit.

① [USER] layer button

This switches the USER layer mode on/off. It also calls up user faders to the fader module section.

Button	User Fader Layer
[AUX/MTX]	Layer 3
[CH 25–48]	Layer 2
[CH 1–24]	Layer 1

cf.
"Editing the user fader layers" (p. 139)

② [AUX/MTX] layer button

This assigns AUX1–16 and MTX1–8 to the fader module section.

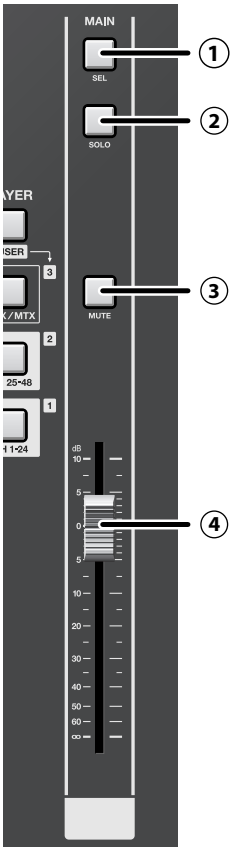
③ [CH 25–48] layer button

This assigns CH25–48 to the fader module section

④ [CH 1–24] layer button

This assigns CH1–24 to the fader module section.

3 MAIN fader module



1 [SEL] button

This button selects the MAIN channel so that it can be controlled from the CHANNEL EDIT section or in the screen. It will light if the MAIN channel is selected.

MEMO

By repeatedly pressing [SEL] you can alternately select the MAIN L, MAIN R, or MAIN C channels.

2 [SOLO] button

This button turns solo on/off for the MAIN L/R/C channels. It will be lit if solo is on.

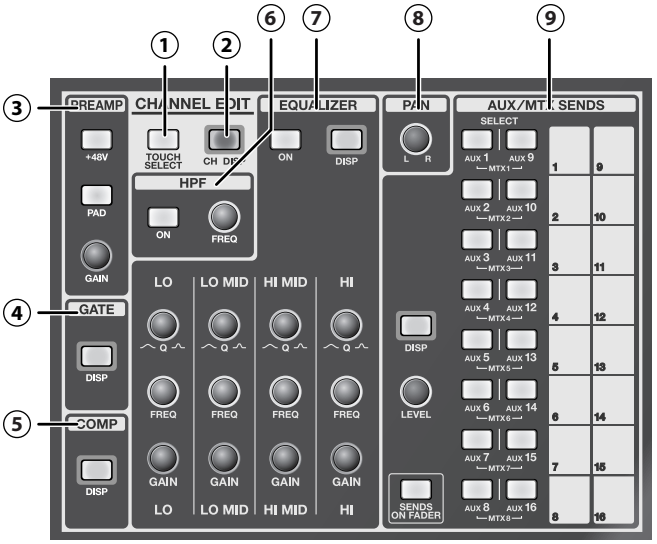
3 [MUTE] button

This turns muting on/off for the MAIN L/R/C channel. The button will be lit if mute is active.

4 Fader

This adjusts the signal level of the MAIN L/R/C channels.

4 CHANNEL EDIT section



In this section you can operate the main parameters of the currently selected channel.

1 [TOUCH SELECT] button

This button turns the Touch Select function on/off. It will light if the Touch Select function is on.

MEMO

The Touch Select function lets you select a channel by touching its fader.

2 [CH DISP] button

This button accesses the CHANNEL DISPLAY screen. It will light red when the screen is shown.

③ PREAMP area

- **[+48V] button**

  This turns the +48V phantom power on/off.

- **[PAD] button**

  This switches the pad on/off. Turning this on will lower the input sensitivity of the preamp by 20 dB.

- **GAIN knob**

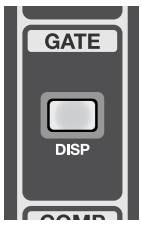
  This adjusts the preamp gain of CH1–48. When ATT Ctrl (p. 50) on the CHANNEL DISPLAY screen is active, this also adjusts the attenuator.

  This adjusts the attenuator of AUX1–16, MTX1–8, or MAIN L/R/C.

These controls are invalid for the following channels:

- Input channels to which you have not patched an input port
- Input channels to which you've patched a port that has no preamp gain, such as an internal port

④ GATE area



In this area you can operate the gate/expander that is provided for CH1–48.

- **[DISP] button**

  This accesses the GATE/EXPANDER popup where you can make detailed settings. The button will light red when the popup is shown.

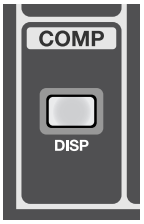
  MEMO

  You can turn the gate/expander on or off by holding down [SHIFT] and pressing [DISP].

This control is invalid for the following channels:

- AUX1–16
- MTX1–8
- MAIN L/R/C

⑤ COMP area



In this area you can operate the compressor that is provided on CH1–48 and the limiter that is provided on AUX1–16, MTX 1–8, and MAIN L/R/C.

- **[DISP] button**

  This accesses a popup where you can make detailed settings. This will access the COMPRESSOR popup for CH1–48, or the LIMITER popup for AUX1–16, MTX 1–8, and MAIN L/R/C. The button will light red when the popup is shown.

  MEMO

  You can turn the compressor or limiter on or off by holding down [SHIFT] and pressing [DISP].

⑥ HPF (High-pass filter) area

In this area you can operate the HPF that is provided for CH1–48.

- **[ON] button**

  This button turns the filter on/off. It will light if the filter is on.

- **FREQ knob**

  This adjusts the frequency of the filter.

These controls are invalid for the following channels:

- AUX1–16
- MTX1–8
- MAIN L/R/C

⑦ EQUALIZER area

In this area you can operate the 4-band EQ that is provided on CH1–48, AUX1–16, MTX 1–8, and MAIN L/R/C.

- **[ON] button**

  This button turns the EQ on/off. It will light if the EQ is on.

- **[DISP] button**

  This accesses the EQUALIZER popup where you can make detailed settings. The button will light red when the popup is shown.

- **Q knob**

  This adjusts the Q of each band.

- **FREQ knob**

  This adjusts the frequency of each band.

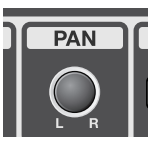
- **GAIN knob**

  This adjusts the gain of each band.

MEMO

When the GATE/EXPANDER popup (p. 71), COMPRESSOR popup (p. 76), or LIMITER popup (p. 80) is displayed, the parameters of the gate/expander, compressor, or limiter can be adjusted using the Q knobs, FREQ knobs, or GAIN knobs.

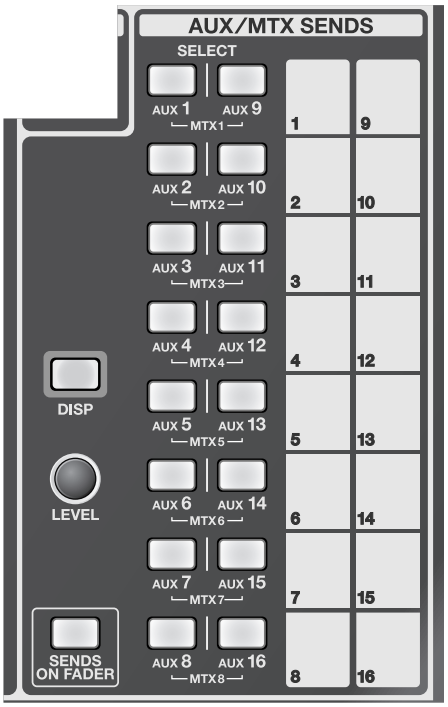
⑧ PAN area



- **PAN knob**

  For CH 1–48 and RTN 1L–6R, this adjusts the pan. For AUX 1–16, MTX 1–8, MAIN L/R, it adjusts the balance.

⑧ AUX/MTX SENDS area



In this area you can adjust the send level to the AUX/MTX buses.

- [AUX1]–[AUX16] buttons

  These buttons select the send-destination bus. AUX or MTX can be selected on CH and RTN, MTX can be selected on AUX and MAIN.

MEMO

To select an MTX as the send-destination, hold down one of the [AUX1]–[AUX8], and press its right side [AUX9]–[AUX16].

MEMO

You can turn the corresponding send switch on/off by holding down [SHIFT] and pressing [AUX1]–[AUX16].

- **[DISP] button**

  This button accesses the AUX (MTX) SENDS popup. It will light red when the popup is shown.

- **LEVEL knob**

  This adjusts the send level to the selected AUX/MTX bus.

MEMO

If a MTX channel is selected, this will adjust the send levels from AUX1–16 to MTX.

MEMO

If AUX/MTX buses are stereo-linked, selecting the odd-numbered AUX/MTX bus will let you adjust the send pan, and selecting the even-numbered AUX/MTX bus will let you adjust the send level.

- **[SENDS ON FADER] button**

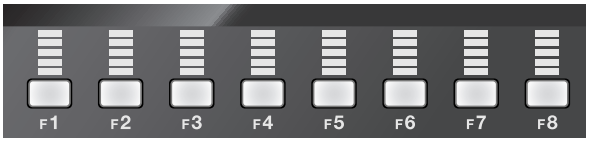
  This button turns SENDS ON FADER mode on/off. It will blink if SENDS ON FADER mode is on.

cf.
"Using the SENDS ON FADER" (p. 45)

5 Display

This area shows mixer parameters, system settings, and meters. You can use the CHANNEL EDIT section, the function button section, and the screen controller section to perform operations in the display.

6 Function button section



Use these buttons to operate the function buttons shown at the bottom of the display, and to operate the tabs that switch between display screens.

7 [EFFECTS] button

This button accesses the EFFECTS screen where you can control the FX, GEQ, and external inserts. It will light red when the screen is shown.

8 [METER] button

This button accesses the METER screen where you can view the meters. It will light red when the screen is shown.

MEMO

You can clear the level meter's peak hold or over indications by holding down [SHIFT] and pressing [METER].

9 Screen controller section

① Cursor buttons / Value dial

- **Cursor buttons**

  These buttons move the cursor up/down/left/right in the screen.

- **Value dial**

  This adjusts the value of the parameter at which the cursor is located.

② [SHIFT] button

This button has the following two functions:

- Some buttons change their function while [SHIFT] is held down.
- You can hold down [SHIFT] to modify the range by which a value will change when you operate the CHANNEL EDIT section's knob or the value dial, allowing you to adjust the setting in finer detail.

MEMO

You can use the user preference SHIFT LOCK (p. 141) to change the behavior of the SHIFT button.

③ [EXIT] button

If you press this button while another screen is shown, you will return to the HOME screen. If you press this button while a popup is shown, the popup will close.

④ [ENTER] button

Use this button to turn an on-screen button on/off, or to confirm a change you've made to the settings.

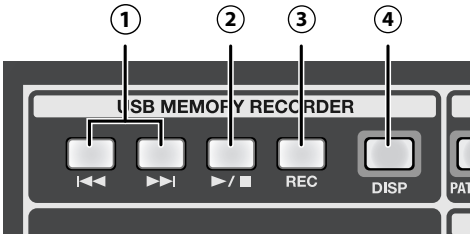
⑤ [HELP] button

This button accesses the HELP CONTENTS popup. If you hold down [HELP] and press another button, an explanation of that button will appear in the HELP popup. This button will light red while the popup is shown.

cf.

For more about using HELP, refer to the "Help function" (p. 167).

⑩ USB MEMORY RECORDER section



① [I◄◄] / [►►I] button

Here you can select the song to play, and rewind or fast-forward the playback.

- **Selecting a song**

  By pressing these buttons, you can jump to the beginning of the preceding or following song. During playback, [I◄◄] takes you back to the beginning of the playing song.

- **Rewinding or fast-forwarding during playback**

  By pressing and holding these buttons while a song is playing, you can rewind or fast-forward. Normal playback will resume when you release the button.

② [►/ ■] button

Use this button to start or stop playback, or to start recording.

- **Playing a song**

  When you press this button while the recorder is stopped, the currently selected song will play.

- **Stopping a song**

  When you press this button while the song is playing, playback will stop.

- **Starting recording**

  When you press this button in recording-standby mode, recording will start.

- **Stopping recording**

  When you press this button while recording a song, recording will stop.

③ REC button

Use this button to put the recorder in recording-standby mode, or to divide the song currently being recorded.

- **Recording-standby mode**

  When you press this button while the recorder is stopped, the recorder will enter recording-standby mode. Press [►/ ■] to start recording.

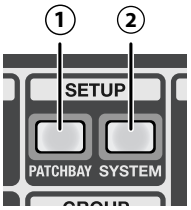
- **Dividing the song currently being recorded**

  When you press this button while a song is being recorded, recording of the song currently being recorded will be completed, and recording of a new song will begin.

④ [DISP] button

This button accesses the RECORDER screen where you can make recorder settings and manage the song list. It will light red when the screen is shown.

⑪ SETUP section



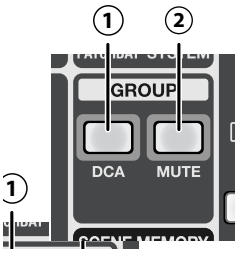
① [PATCHBAY] button

This button accesses the PATCHBAY screen where you can make settings for the input/output patchbay. It will light red while the screen is shown.

② [SYSTEM] button

This button accesses the SYSTEM screen where you can make various system settings. It will light red when the screen is shown.

⑫ GROUP section



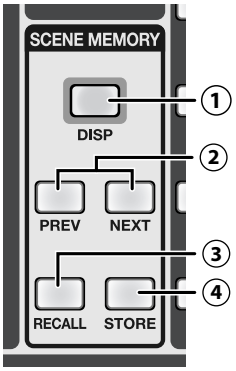
① [DCA] button

This button accesses the DCA GROUP screen where you can control the DCA groups and make settings for them. It will light red when the screen is shown.

② [MUTE] button

This button accesses the MUTE GROUP screen where you can control the mute groups and make settings for them. It will light red when the screen is shown.

13 SCENE MEMORY section



1 [DISP] button

This button accesses the SCENE screen where you can manage the scene list and make scene settings. It will light red when the screen is shown.

MEMO

Holding down [SHIFT] and pressing [DISP] displays the SCENE QUICKVIEW popup (p. 123).

2 [RECALL] button

This recalls the mixer parameters from the currently selected scene number.

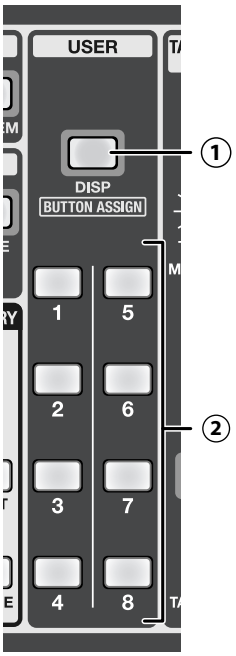
3 [PREV] / [NEXT] buttons

These buttons move to the preceding or following scene number.

4 [STORE] button

This stores the current mixer parameters into the currently selected scene number.

14 USER section



1 [DISP] button

This button accesses the USER screen where you can change or edit the user settings. It will light red when the screen is shown.

MEMO

If you hold down [SHIFT] and press this button, the USER BUTTON tab of the USER PREFERENCE popup will appear. This is a convenient way to check the user button settings.

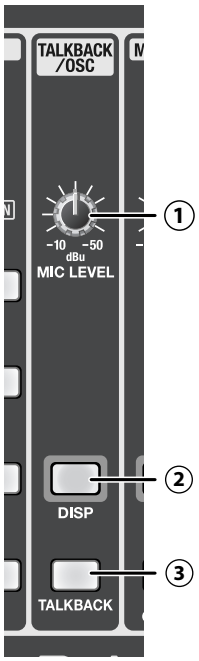
2 USER [1]–[8] buttons

These access the function that is assigned to each button. You can make function assignments in the USER PREFERENCE popup. For details, refer to "Editing the user button assignments" (p. 140).

MEMO

By holding down [SHIFT] and pressing a USER1–8 button, you can access the functions assigned to user buttons 9–16.

15 TALKBACK/OSC (talkback/oscillator) section



1 MIC LEVEL knob

This adjusts the preamp gain of the TALKBACK MIC input over a range of -10 dBu– -50 dBu.

MEMO

In the TALKBACK/OSCILLATOR screen, you can select a talkback mic input from the CONSOLE INPUT 1–4.

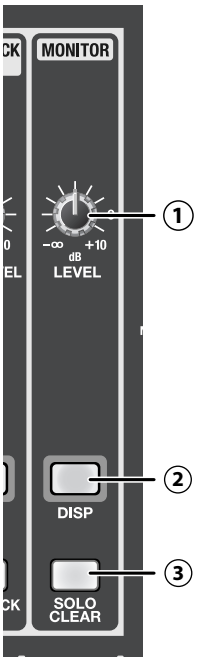
2 [DISP] button

This button accesses the TALKBACK/OSCILLATOR screen, where you can make talkback settings and oscillator settings. It will light red when the screen is shown.

3 [TALKBACK] button

This button turns talkback on/off. It will blink while talkback is on.

16 MONITOR section



1 LEVEL knob

This adjusts the monitor output level in a range of -Inf dB – +10.0 dB.

2 [DISP] button

This button accesses the MONITOR screen where you can make monitor or solo settings. It will light red when the screen is shown.

3 [SOLO CLEAR] button

This button clears (turns off) the solo settings of all channels in a single operation.

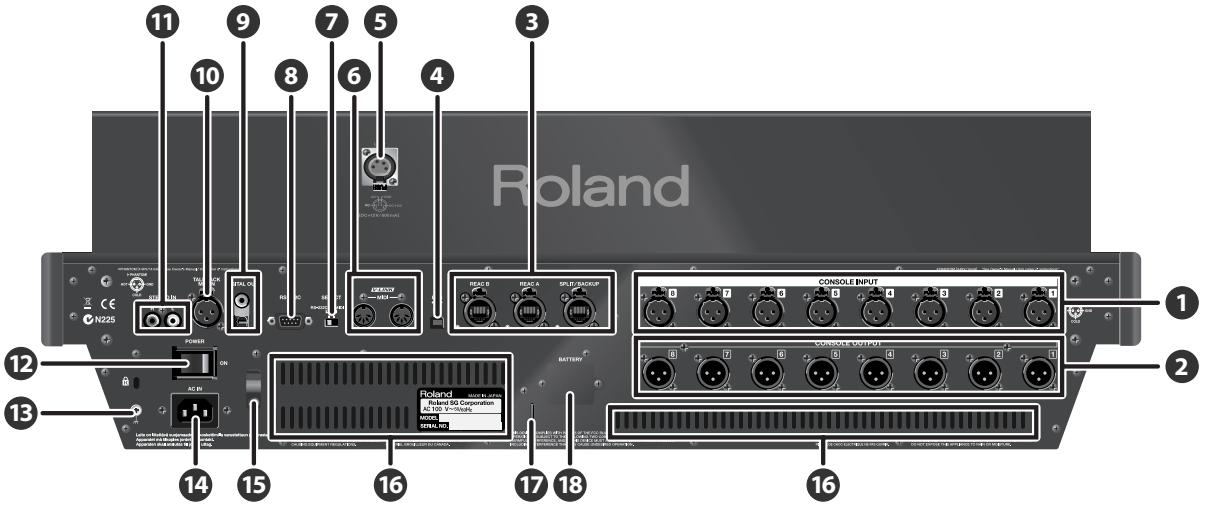
17 USB MEMORY connector

You can connect USB memory to this connector.

NOTE

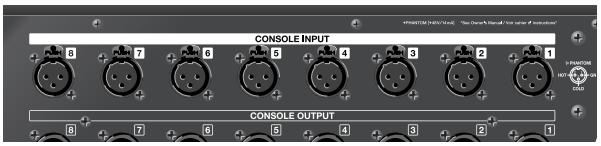
Before you disconnect USB memory, make sure that data is not being written to USB memory or being read from it. If you disconnect USB memory while these operations are occurring, you risk damaging the data.

Rear panel



❶	CONSOLE INPUT jacks	p. 30
❷	CONSOLE OUTPUT jacks	p. 30
❸	REAC ports	p. 30
❹	USB connector	p. 31
❺	LAMP connector	p. 31
❻	MIDI connectors	p. 31
❼	RS-232C/MIDI select switch	p. 31
❽	RS-232C connector	p. 31
❾	DIGITAL OUT jack	p. 31
❿	TALKBACK MIC IN jack	p. 31
⓫	STEREO IN jacks	p. 31
⓬	POWER switch	p. 32
⓭	Grounding terminal	p. 32
⓮	AC INPUT connector	p. 32
⓯	Power cord hook	p. 32
⓰	Cooling vent	p. 32
⓱	Security slot	p. 32
⓲	BATTERY slot	p. 32

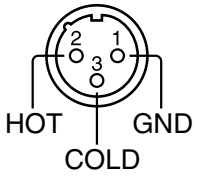
1 CONSOLE INPUT jacks



These are balanced XLR-3-31 female input jacks for inputting analog audio signals from microphones or line level equipment. By default they are patched to CH33–40.

NOTE

Wiring diagrams for these jacks are shown below. Make connections after first checking the wiring diagrams of other equipment you intend to connect.

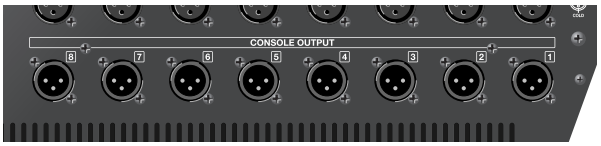


+PHANTOM [+48V/14mA]

NOTE

When connection cables with resistors are used, the volume level of equipment connected to the inputs (CONSOLE INPUT jacks, TALKBACK MIC IN jack, or STEREO IN jacks) may be low. If this happens, use connection cables that do not contain resistors.

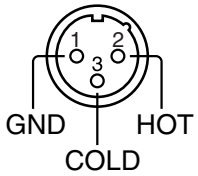
2 CONSOLE OUTPUT jacks



These are balanced XLR-3-32 male output jacks for outputting analog audio signals. By default, AUX OUT 1–8, MONITOR L/R are patched to them.

NOTE

Wiring diagrams for these jacks are shown below. Make connections after first checking the wiring diagrams of other equipment you intend to connect.



The CONSOLE INPUT 1–8 jacks and CONSOLE OUTPUT 1–8 jacks can also be used as input/output jacks for inserting external effect processors into channels. For details, refer to "Inserting an external effects device" (p. 110).

3 REAC ports (A, B, SPLIT/BACKUP)

- **REAC A, B port**

  These are RJ45 connectors for connecting input/output units such as the S-1608, S-0816, or S-4000S via Cat5e Ethernet cables.

MEMO

These connectors support Cat5e Ethernet cables up to 100 meters long. If you need a longer connection, we recommend that you use the optional S-OPT.

The default input/output patching between the M-480 and input/output units connected to REAC ports A/B is as follows:

Input jacks		Input channel
REAC A	IN1–16	CH1–16
REAC B	IN1–16	CH17–32

Output jacks		Outputs
REAC A	OUT1–6	AUX1–6
	OUT7–8	MAIN L, R
	OUT9–40	CH1–32 DIRECT OUTS
REAC B	OUT1–6	AUX9–14
	OUT7–8	MAIN L, R
	OUT9–40	CH1–32 DIRECT OUTS

- **SPLIT/BACKUP port**

  This is used as a backup connection for the REAC A port, or for split connection. You can also use it for multi-channel recording on a PC in which you've installed the REAC driver.

cf.

For details on backup connections and slit connections, refer to "REAC applications and settings" (p. 142).

The REAC A/B ports and SPLIT/BACKUP port have REAC indicators that show the REAC communication status. The state of the REAC indicator has the following significance:

Status	Explanation
Unlit	No connection with a REAC device has been established.
Lit	A split connection with a REAC device has been established.
Blinking	Connected normally with a REAC device.

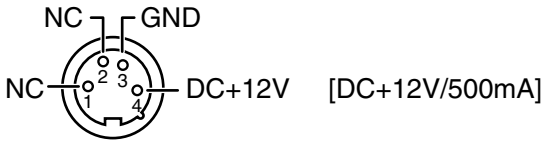
4 USB connector

This USB connector can be connected to your PC to control the M-480 remotely.

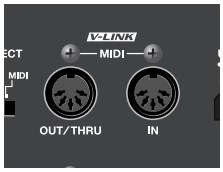
cf.
For details, refer to "USB MIDI" (p. 152).

5 LAMP connector

This is an XLR-4-31 type connector that supplies power to a commercially available gooseneck lamp.



6 MIDI connectors



These connectors are for connection with MIDI equipment. An IN connector (for reception) and an OUT/THRU connector (for transmission and "thru") are provided. You can use the REMOTE popup to switch between the OUT and THRU functions.

cf.
For details, refer to "MIDI settings" (p. 153).

7 RS-232C / MIDI select switch

On the M-480 you can use either the MIDI connectors or the RS-232C connector. This switch selects the connector(s) you will use.

NOTE

You must switch off the M-480's power before changing the position of this switch.

8 RS-232C connector

You can use this RS-232C connector to remotely control the M-480 from an external device.

9 DIGITAL OUT jack

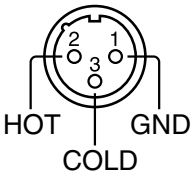
These jacks output a consumer format (IEC-60958 compliant) digital audio signal. Two types are provided: coaxial and optical. The same digital audio signal is output from both jacks. By default, MONTOR L/R is patched to these jacks.

10 TALKBACK MIC IN jack

This is a balanced XLR-3-31 female input jack for connecting a talkback mic.

NOTE

Wiring diagrams for these jacks are shown below. Make connections after first checking the wiring diagrams of other equipment you intend to connect.

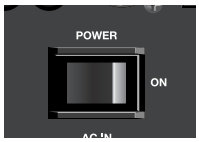


+PHANTOM [+48V/14mA]

11 STEREO IN jacks

These are RCA phono jacks for inputting analog audio signals from line level equipment. By default they are patched to CH47 and CH48.

12 POWER switch



This turns the power on/off.

cf.

If you need to turn off the power completely, first turn off the POWER switch, then unplug the power cord from the power outlet. Refer to Power Supply (p. 6).

13 Grounding terminal

Use this to connect the M-480 to an electrical ground.

Do not ground the M-480 to locations such as the following:

- **Water pipe (doing so may cause electrical shock)**
- **Gas pipes (doing so may cause fire or explosion)**
- **Telephone ground or lightning rod (hazardous if lightning occurs)**

NOTE

Depending on the circumstances of a particular setup, you may experience a discomforting sensation, or perceive that the surface feels gritty to the touch when you touch this device, microphones connected to it, or the metal portions of other objects, such as guitars. This is due to an infinitesimal electrical charge, which is absolutely harmless. However, if you are concerned about this, connect the ground terminal (see figure) with an external ground. When the unit is grounded, a slight hum may occur, depending on the particulars of your installation. If you are unsure of the connection method, contact the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

14 AC INPUT connector

Connect the included power cord to the AC INPUT connector.

NOTE

Do not connect any power cord to the M-480 other than the included one.

15 Power cord hook

You can use this power cord hook to prevent the power cord from being accidentally disconnected.

cf.

For details on attaching the power cord hook, refer to "Attaching the power cord hook" (p. 16).

16 Cooling vent

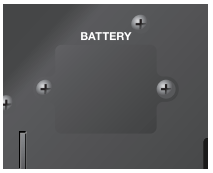
This cooling vent cools the M-480. When placing the M-480, take care not to block the cooling vent.

17 Security slot

You can attach a commercially available security lock here. For details, refer to the following website:

http://www.kensington.com/

18 BATTERY slot



This slot contains a lithium battery that maintains the M-480's clock function and preserves the mixer settings.

If the battery runs down, you'll need to replace it. For details on replacing the battery, refer to "About the internal lithium battery" (p. 18).

Front Panel

PHONES jack

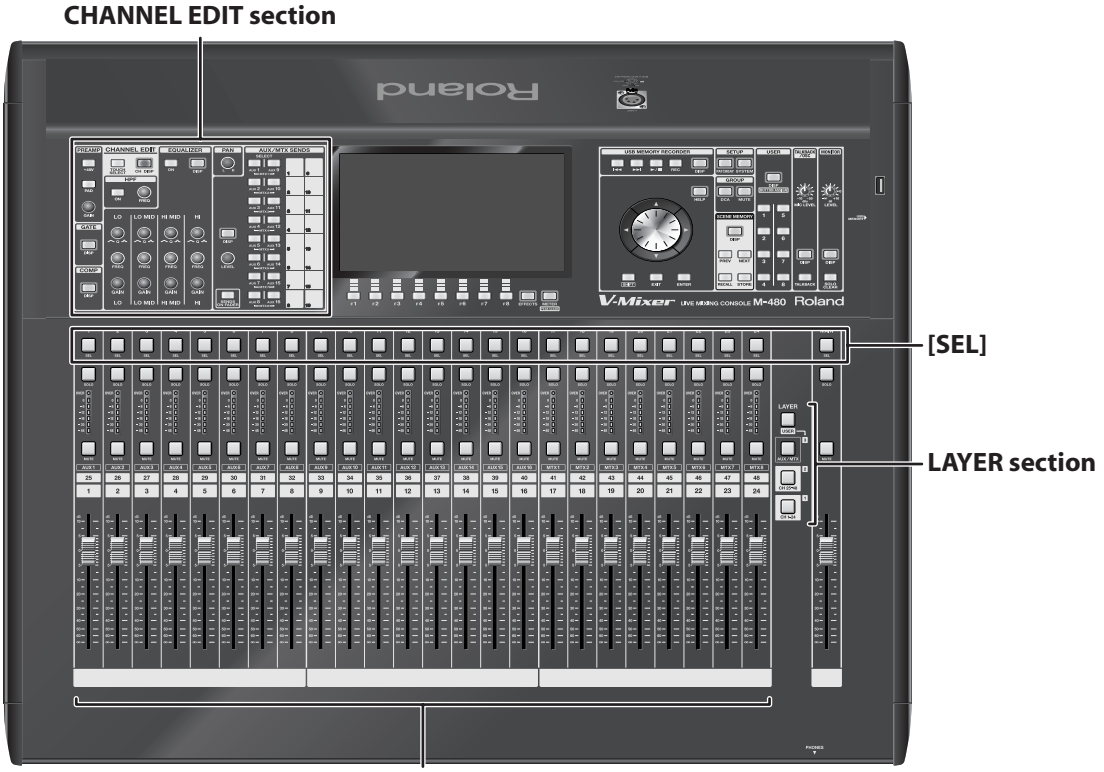
You can connect a set of headphones to this jack, and use it to monitor the MONITOR L/R audio signal.

PHONES LEVEL knob

This adjusts the output level to the headphones connected to the PHONES jack.

Basic operation

Basic panel operations



Selecting the channel layer

1. **Use the Layer section buttons to select the channel layer that will be controlled by the fader module section.**

Operating channel

1. **Use a fader in the fader module section to adjust channel levels.**

2. **Press a [SEL] button to select the channel that you want to edit.**

The CHANNEL DISPLAY screen will appear.

3. **Use a controller in the CHANNEL EDIT section to adjust the values.**

TIP

You can make adjustments in finer increments by holding down [SHIFT] while you operate the CHANNEL EDIT section's knobs or the value dial.

TIP

If you want to edit channel parameters that are not shown in the CHANNEL DISPLAY screen, you can press the [DISP] button in each area of the CHANNEL EDIT section to access a screen that lets you make settings in greater detail.

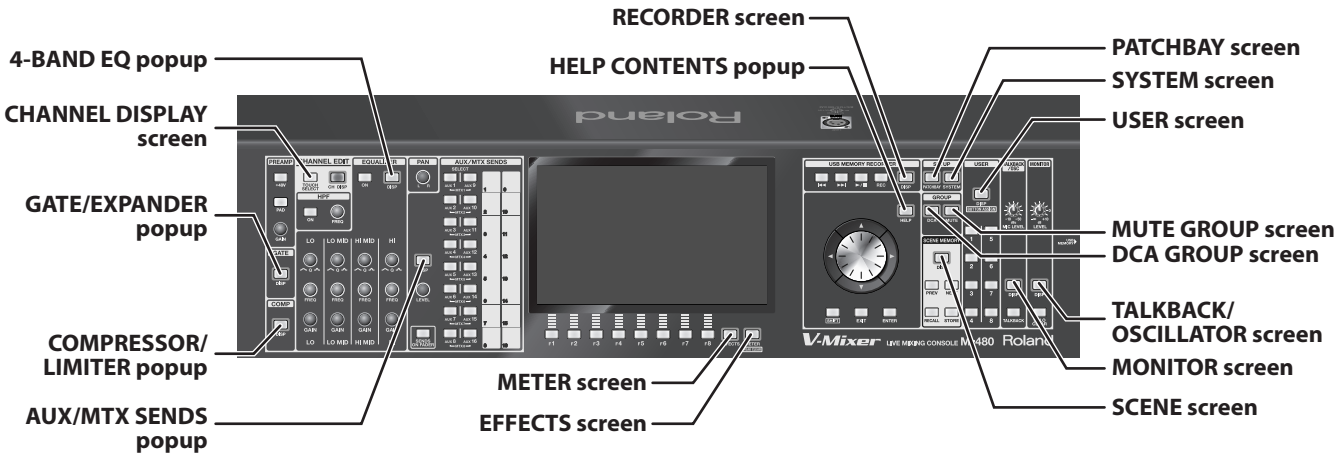
MEMO

If you clear the check mark for the CHANNEL SELECT item "CHANNEL DISPLAY follows CH SELECT button" in User Preference (p. 141), pressing a [SEL] will select the channel without showing the CHANNEL DISPLAY screen. In this case, you can access the CHANNEL DISPLAY screen by pressing the [CH DISP] in the CHANNEL EDIT section.

Accessing a screen

When you press a screen select button that's lit in green, or a screen select button that has a blue border, the corresponding screen or popup will appear, and the button will light in red.

The following illustration shows the name of the screen or popup that appears for each button:



MEMO

Popups are displayed on top of the screen. You can close the popup by pressing the button that turned red when you accessed that popup.

Home screen

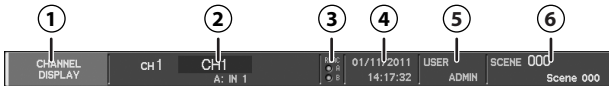
To return to the Home screen, press the button that turned red when you pressed it to access a screen. (Buttons that access a popup are excepted.)

A user setting lets you choose either the CHANNEL DISPLAY screen or the METER screen as the Home screen. For details on how to choose the Home screen, refer to "Editing other user preferences" (p. 141).

Screen operations

About the screen display

❶ Top display area



This area is always shown in the upper part of the screen.

① Screen name

This shows the name of the screen currently shown in the main display area.

MEMO

The background color of the Screen name will change depending on the channel layer selected:

Layer	Color
CH 1–24	Yellow
CH 25–48	Orange
AUX/MTX	Blue
USER Layer 1	Yellow with red line
USER Layer 2	Orange with red line
USER Layer 3	Blue with red line

② Channel indicator

This indicates the currently selected channel's number, name, and port name.

MEMO

A port name such as "A: IN 1" blinks when the corresponding input/output unit is not connected correctly, or a non existent port is patched to the channel.

③ REAC indications

These indicate the status of the REAC A/B:

Display	Description
Unlighted	No REAC device connected
Flashing	Establishing connection with REAC device.
Lighted	Normal connection with REAC device

③ Date&time indication

This shows the current date and time.

⑤ User setting indication

This shows the current user settings.

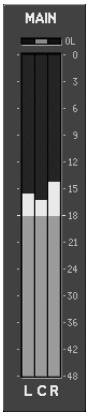
⑥ Scene indication

This shows the number and name of the currently selected scene.

❷ Main display area

Most screen operations are performed in this area. The name of the current screen is shown in the screen name indication of the top display area. You can use the cursor and function buttons to perform operations in this area.

❸ Main level indication



This shows the output level of the MAIN L/R/C.

❹ Sub-display area

This area shows supplementary information. The following information is shown:

● Indication of the currently edited parameter value

When you edit a parameter whose value is not shown in the screen, or use the controllers of the CHANNEL EDIT section to edit a parameter, the value is shown here for a short time.

* If you attempt to operate a parameter that has been disabled by a user setting (p. 137), the following indication will appear:

● Output mute status

This indicates that the outputs have been muted by means of [F6 (MUTE ALL OUT)] in the MUTE GROUP screen (p. 114), or by means of [MUTE ALL OUTPUTS] on the input/output unit.

● Oscillator indication

This is shown if the oscillator is on.

● Recorder status indication

While a song is playing or being recorded, this shows the song name and time information.

Popup Indication

These are popups that are shown overlaid on the main display area. They provide a cursor and function buttons for performing operations in the screen.

MEMO

While a popup is displayed, cursor and function button operations are valid only for the popup.

Function button operations

The function buttons are assigned to the main display area of the screen or the popup, and are operated using [F1]–[F8]. There are three types of function buttons, as follows:

● Command function buttons

These execute commands or access popups.

● On/off function buttons

These turn parameters or functions on/off. The button in the screen is shown in gray when off, or light blue when on.

● Display select tabs

These tabs are used to switch between screens.

Cursor operations

The cursor is indicated by a red frame in the main display area or in the popup. Use the up/down/left/right keys to move the cursor.

Button operations

Buttons in the screen are used to turn a function on/off, to execute a command, or to access a screen. To operate a button, move the cursor to the desired button and press [ENTER].

● ON/OFF buttons

These are used to turn a parameter or function on/off. The button is shown in gray when off, or in color (e.g., red, yellow, or blue) when on.

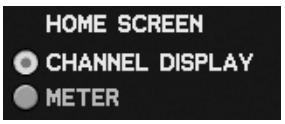
● Popup access buttons

These are used to access a related popup.

● Select buttons

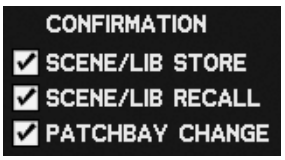
There are the following two types of select buttons:

- Radio buttons



These are used to select one of multiple mutually exclusive choices. Only the last-selected button will be selected.

- Check buttons



These are used when it is possible to select more than one of multiple choices. You can check more than one of these items if desired.

● ALL/CLR buttons

These buttons assist you in operating check buttons. Pressing the ALL button will add all applicable check marks buttons. Pressing the CLR button will clear all applicable check marks.

Knob operations

Knobs in the screen can be operated by the knobs of the CHANNEL EDIT section or by the value dial. To use the value dial, move the cursor to the desired knob.

TIP

You can make more detailed settings by holding down [SHIFT] while you operate the knobs or the value dial.

TIP

Purple knobs in the screen cannot be edited from the CHANNEL EDIT section.

Fader operations

Faders in the screen can be operated by the corresponding fader controller or by the value dial. To use the value dial, move the cursor to the desired fader.

TIP

You can make more detailed settings by holding down [SHIFT] while you operate the value dial.

List operations

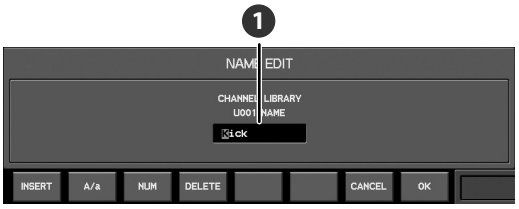
The selected item in a list is shown highlighted in red. Use the up/down keys or the value dial to select a different item.

Editing a name

You'll use the NAME EDIT popup to edit names.

Here we'll explain operations that are common to the NAME EDIT popup.

Operations in the NAME EDIT popup



1 Name edit field

You can edit the name in this field.

The buttons and dial will have the following functions in the name edit field:

Button/Dial	Function
Cursor buttons	Move the cursor location.
Value dial	Changes the character at the cursor location
[F1 (INSERT)]	Inserts a space at the cursor location. The text at the right of the cursor location will move to the right.
[F2 (A/a)]	Changes the letter at the cursor location between uppercase and lowercase. If the character is not an English letter, it will be changed to the letter "A."
[F3 (NUM)]	Converts the character at the cursor location to the numeral "0."
[F4 (DELETE)]	Deletes the character at the cursor location. The text at the right of the cursor location will move to the left.
[F7 (CANCEL)]	Cancels any changes and closes the popup.
[F8 (OK)]	Confirms the changes and closes the popup.

MEMO

There are limitations on the number of characters you can use in a name. The maximum number of characters will depend on the screen or popup that uses the NAME EDIT popup.

MEMO

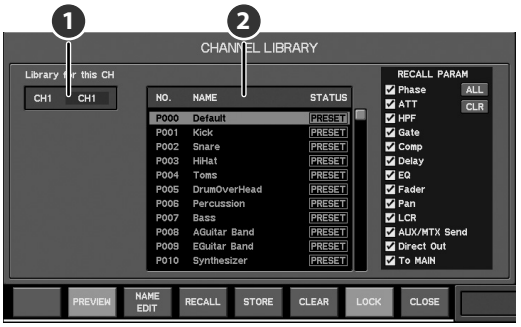
If an INSERT operation causes the name to exceed the maximum number of characters, the excess will be deleted.

Library operations

Library operations are performed in the following popups:

CHANNEL LIBRARY	p. 54
AUX/MTX/MAIN LIBRARY	p. 67
GATE/EXP LIBRARY	p. 75
COMP LIBRARY	p. 79
LIMITER LIBRARY	p. 81
4-BAND EQ LIBRARY	p. 83
FX LIBRARY	p. 102
GEQ LIBRARY	p. 109
INPUT PATCHBAY LIBRARY	p. 88
OUTPUT PATCHBAY LIBRARY	p. 90
M-48 LIBRARY	p. 188

LIBRARY popup



1 Target indication

This shows the target to which the library operation will apply.

2 Library data list

This lists the library data:

NO.	Indicates library data numbers. Preset data number is start with 'P'. User data number is start with 'U'.
NAME	Indicates the name of library data.
STATUS	"PRESET" is shown for the preset data. "LOCK" is shown for the locked user data.

The function buttons have the following operations:

[F2 (PREVIEW)]	Previews (auditions) the selected library data.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

Storing data to a library

1. **Access the desired LIBRARY popup.**

2. **Verify that the desired channel or effect is shown as the object of the store operation.**

3. **Select the desired number in the library data list.**

MEMO

You cannot store to the numbers in which "PRESET" or "LOCK" is shown.

4. **Press [F5 (STORE)].**

The LIBRARY STORE popup will appear.

5. **Editing name in name editing field.**

cf.

For details on operations in the NAME EDIT popup, refer to "Editing a name" (p. 39).

6. **Press [F8 (STORE)].**

A message will ask you to confirm the operation.

7. **Press [F8 (STORE)] to execute the library store operation and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

If "SCENE/LIB STORE" in the CONFIRMATION section of the User Preference (p. 141) is not selected, a confirmation message will not appear in step 7.

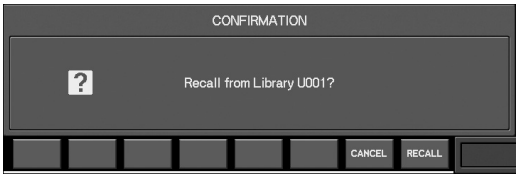
Recalling data from a library

1. **Access the desired LIBRARY popup.**

2. **Make sure that the applicable channel/effect indication shows the object that you want to recall.**

3. **Select the desired library data in the library data list.**

4. **Press [F4 (RECALL)].**



A message will ask you to confirm the operation.

5. **Press [F8 (RECALL)] to execute the library recall operation and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

If "SCENE/LIB RECALL" in the CONFIRMATION section of User Preference (p. 141) is not selected, a confirmation message will not appear in step 4.

Locking/unlocking a library data

The user data can be locked to prevent it from being accidentally overwritten.

1. **Access the LIBRARY popup.**

2. **From the library data list, select the desired library data.**

MEMO

You cannot lock/unlock library data in which "PRESET" is shown.

3. **Press [F7 (LOCK)] to lock or unlock the library data.**

Editing the name of library data

You can assign a name of up to twelve characters to user data. Use the NAME EDIT popup to edit the name.

1. **Access the desired LIBRARY popup.**

2. **From the library data list, select the desired library data.**

MEMO

You cannot edit library data in which "PRESET" or "LOCK" is shown.

3. **Press [F3 (NAME EDIT)] to access the NAME EDIT popup.**

4. **Use the NAME EDIT popup to edit the name.**

cf.

For details on operations in the NAME EDIT popup, refer to "Editing a name" (p. 39).

5. **Press [F8 (OK)] to finalize the edited name and close the NAME EDIT popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Clearing data of a library

1. **Access the desired LIBRARY popup.**

2. **From the library data list, select the desired library data.**

MEMO

You cannot clear library data in which "PRESET" or "LOCK" is shown.

3. **Press [F6 (CLEAR)].**

A message will ask you to confirm the operation.

4. **Press [F8 (CLEAR)]**

The library data you selected in step 2 will be cleared.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Message operations

● **CONFIRMATION message**

This message asks you to confirm an operation.

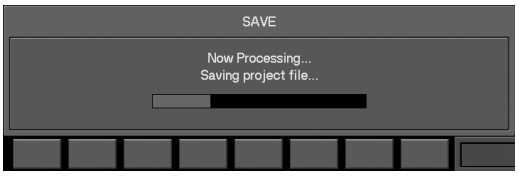
● **CAUTION message**

This message cautions you that a problem has occurred during operation.

● **ERROR message**

This message will appear if a fatal error occurs.

● **Wait message**

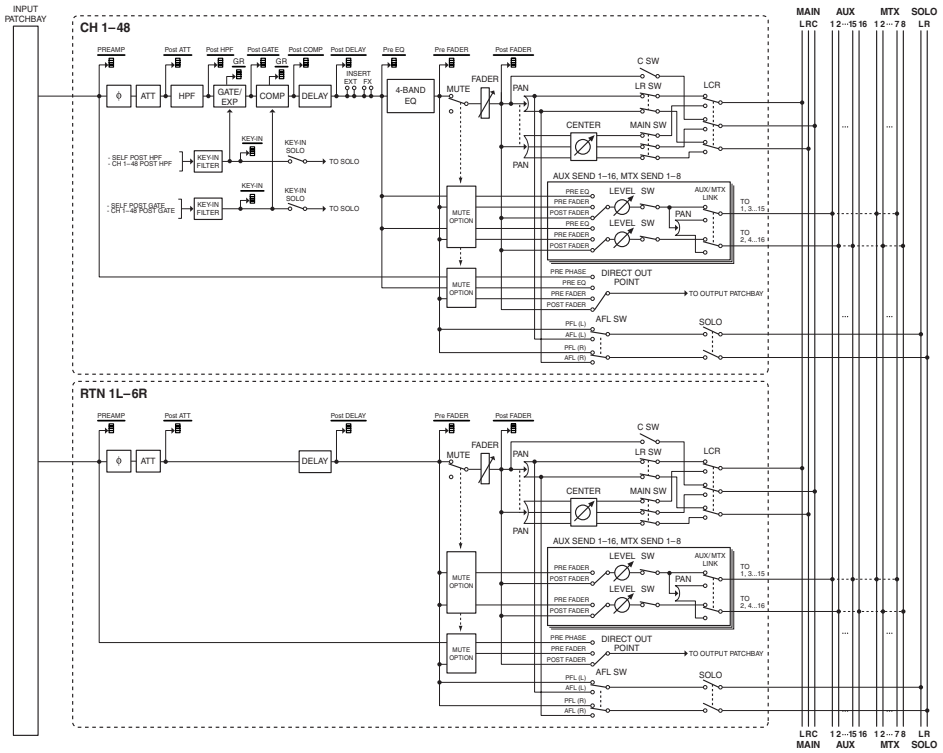


This message is shown while a time consuming process is being executed. You cannot close this until the process is completed.

Input channel operations

About the input channels

The input channels process the audio signals from the input jacks and internal ports, and send them to the MAIN bus and AUX/MTX buses.



- **INPUT PATCHBAY**

  This section patches input ports to input channels.

- ϕ (**Phase)**

  This reverses the phase of the audio signal.

- **ATT (Attenuator)**

  This adjusts the input level in the digital domain.

- **HPF (High-pass filter)***

  This is a hi-pass filter that passes the region higher than the specified frequency.

- **GATE/EXPANDER***

  This is a dynamics processor that can be used as a gate, expander, or ducking.

- **COMPRESSOR***

  This is a dynamics processor that can be used as a compressor.

- **DELAY**

  This delays the input signal.

- **EXT FX INSERT (External effect insert)***

  An external effects processor can be inserted at this point using the rear panel CONSOLE IN1–8 and CONSOLE OUT1–OUT8 jacks.

- **FX INSERT (Effect insert)***

  FX1–FX6 can be inserted at this point.

- **4-BAND EQ***

  This is an EQ with four bands.

- **MUTE**

  This mutes the channel.

- **FADER**

  This adjusts the send level to the MAIN.

- **PAN**

  This adjusts the left/right panning of the audio signal sent to the MAIN.

- **CENTER**

  When LCR SW is on, this specifies the proportion of the signal that is sent to MAIN C when PAN is at center.

- **LCR SW (LCR switch)**

  When turn this on, PAN will operate across the three outputs MAIN L, MAIN C, and MAIN R.

- **MAIN SW (Main switch)**

  This turns the send to the MAIN L/R/C bus on/off.

- **LR SW / C SW**

  These individually turn the send to the MAIN L/R and MAIN C bus on/off.

- **AUX/MTX SENDS**

  These adjust the send to the AUX/MTX bus.

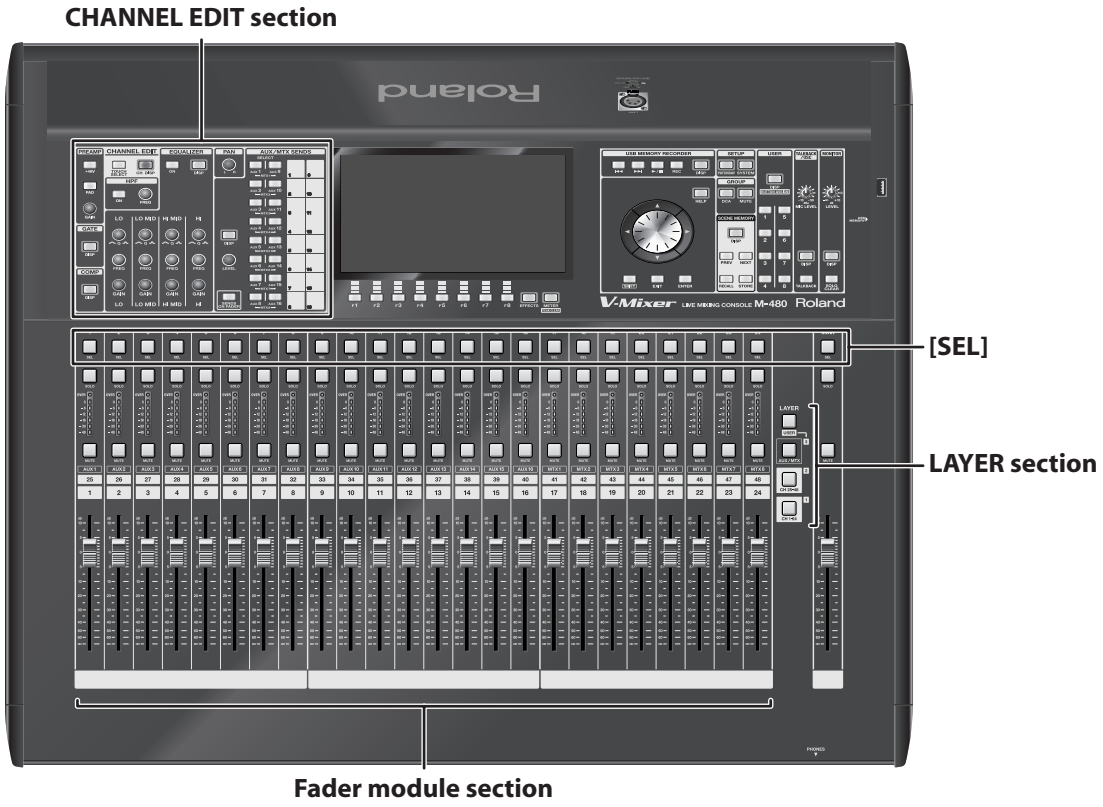
- **DIRECT OUT POINT**

  This specifies the position from which the direct out signal is taken.

*: CH1–48 only.

Operations using the CHANNEL EDIT section

Most input channel operations can be performed in the CHANNEL EDIT section. Here we will explain input channel operations using the CHANNEL EDIT section.



Selecting the channel

1. **In the LAYER section, press [CH 1–24] or [CH 25–48] to assign the input channel to the fader module section.**

2. **Press a [SEL] button to select the input channel that you want to edit.**

The CHANNEL DISPLAY screen will appear.

MEMO

By default, RTN 1–6 are assigned to the fader 1–6 in USER Layer 3. The [SEL] button will toggle between the Left and Right of the RTN channel each time you press it.

MEMO

If you clear the check mark for the CHANNEL SELECT item "CHANNEL DISPLAY follows CH SELECT button" in User Preference (p. 141), pressing a [SEL] will select the channel without showing the CHANNEL DISPLAY screen. In this case, you can access the CHANNEL DISPLAY screen by pressing the [CH DISP] in the CHANNEL EDIT section.

Even if you don't access the CHANNEL DISPLAY screen, the value of the currently-operated parameter is shown in the sub display area when you operate any dial in the CHANNEL EDIT section.

Preamp gain adjustments

Use the PREAMP area to adjust the preamp gain.

Turning +48V phantom power on/off

1. **Press [+48V] to turn +48V phantom power on/off.**

   If +48V phantom power is on, the [+48V] button will light.

NOTE

You must turn the phantom power off if you've connected equipment that does not require +48V phantom power. Mistakenly supplying phantom power to a dynamic microphone, audio playback device, or any other device that does not require phantom power will cause malfunctions. Carefully read the owner's manual for your microphone or other device, and make sure of its specifications.

MEMO

Since noise will be produced when you switch the phantom power setting, the output of the channel whose setting you change will be briefly muted.

Adjusting the preamp gain

1. **Use the GAIN dial to adjust the preamp gain.**

NOTE

The preamp gain is not a continuous control, it is digital with stepped control. In certain situations artifact noise may occur when changing preamp gain.

Turning -20 dB pad on/off

1. **Press [PAD] to turn pad on/off.**

   If pad is on, the [PAD] button will light.

MEMO

Since noise will be produced when you switch the pad setting, the output of the channel whose setting you change will be briefly muted.

TIP

Turn the pad on if the input level is too high even when the preamp gain is set to the minimum position.

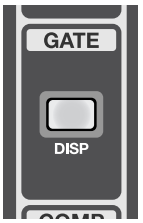
HPF (High-pass filter) operations

Use the HPF area of the CHANNEL EDIT section to operate the filter.

1. **Press [ON] to turn the HPF on/off.**
2. **Use the FREQ knob to adjust the cutoff frequency of the HPF.**

Gate/expander operations

Use the GATE area to operate the gate/expander.



1. **Press [DISP] of the GATE area to access the GATE/EXPANDER popup.**

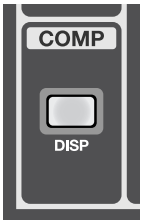
cf.
For details, refer to "Gate/expander operations" (p. 70).

MEMO

Holding down [SHIFT] and pressing [DISP] for the GATE area switches the gate/expander on/off.

Compressor operations

Use the COMP area to operate the compressor.



1. **Press [DISP] of the COMP area to access the COMPRESSOR popup.**

cf.
For details, refer to "Compressor operations" (p. 76).

MEMO

Holding down [SHIFT] and pressing [DISP] for the COMP area switches the compressor on/off.

4-band EQ operations

Use the EQUALIZER area to operate the 4-band EQ.

1. **Press [ON] to turn the 4-band EQ on/off.**
2. **Use the GAIN knob to adjust the gain.**
3. **Use the FREQ knob to adjust the frequency.**
4. **Use the Q knob to adjust the Q.**

TIP

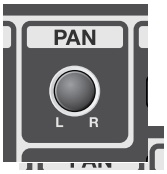
You can make fine adjustments by holding down [SHIFT] while you operate the knob.

MEMO

By pressing [DISP] you can access the 4-BAND EQ popup, where you can make detailed settings for the 4-band EQ. For details, refer to "4-band EQ operations" (p. 82).

Adjusting the pan

Use the PAN area to adjust the PAN.



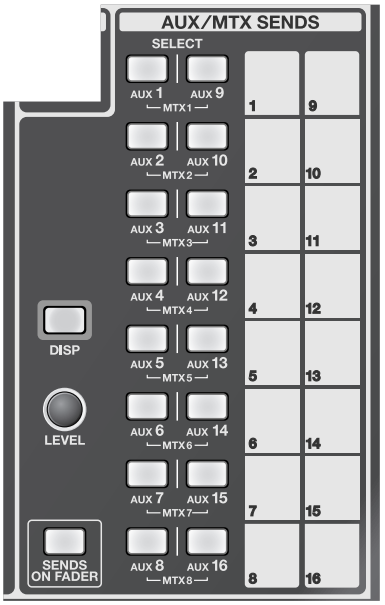
1. **Use the PAN knob to adjust the pan.**

TIP

You can make fine adjustments by holding down [SHIFT] while you operate the knob.

Sending to the AUX/MTX buses

Use the AUX/MTX SENDS area to perform these operations.



Using the SEND LEVEL knob

1. **Press [AUX1]–[AUX16] to select the send-destination AUX/MTX bus.**

MEMO

To select an MTX as the send-destination, hold down one of the [AUX1]–[AUX8], and press its right side [AUX9]–[AUX16].

2. **Use the LEVEL encoder to adjust the amount sent to the selected AUX/MTX bus.**

MEMO

You can make fine adjustments by holding down [SHIFT] while you operate SEND LEVEL.

MEMO

You can turn the corresponding send switch on/off by holding down [SHIFT] and pressing [AUX1]–[AUX16].

Using the SENDS ON FADER

1. **Press [AUX1]–[AUX16] to select the send-destination AUX bus.**
2. **Press [SENDS ON FADER] so it is blinking.**
3. **Use the top panel faders to adjust the amount sent from each input channel to the selected AUX/MTX bus.**

MEMO

If the MAIN FADER item "SENDS ON FADER MASTER" in User Preference (p. 141) is checked, the MAIN fader module becomes the send-destination AUX/MTX fader.

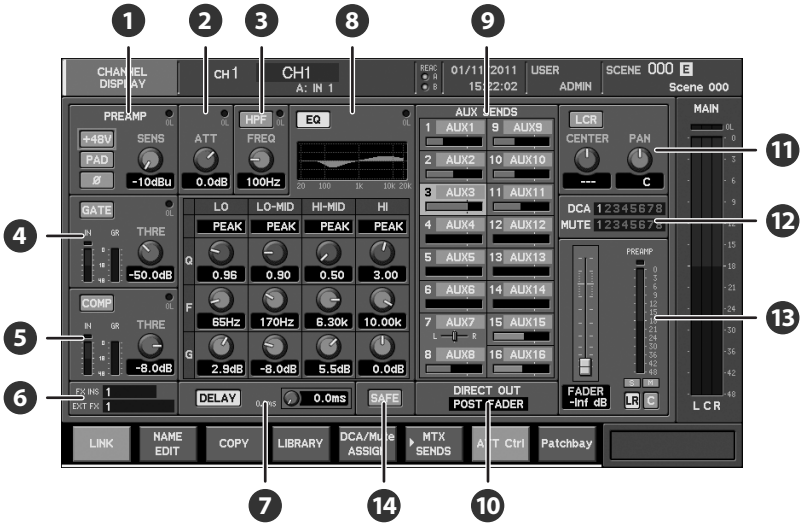
MEMO

By pressing [DISP] you can access the AUX (MTX) SENDS popup. For details, refer to "AUX (MTX) SENDS popup" (p. 84).

Operations in the CHANNEL DISPLAY screen

The principal parameters of an input channel can be operated in the CHANNEL DISPLAY screen.

CHANNEL DISPLAY screen



1 Preamp

Here you can make settings for the preamp of the input jack that is patched to the channel.

1 +48V button

This turns the +48V phantom power on/off.

NOTE

You must turn the phantom power off if you've connected equipment that does not require +48V phantom power. Mistakenly supplying phantom power to a dynamic microphone, audio playback device, or any other device that does not require phantom power will cause malfunctions. Carefully read the owner's manual for your microphone or other device, and make sure of its specifications.

MEMO

Since noise will be produced when you switch the phantom power setting, the output of the channel whose setting you change will be briefly muted.

2 PAD button

This turns the pad on/off. Turning this on will lower the input sensitivity of the preamp by 20 dB.

MEMO

Since noise will be produced when you switch the pad setting, the output of the channel whose setting you change will be briefly muted.

TIP

Turn the pad on if the input level is too high even when the preamp gain is set to the minimum position.

3 Ø (Phase) button

This reverses the phase of the audio signal. Turning this on will reverse the phase of the signal, and turning it off will maintain the normal phase.

4 OL (Overload) indicator

This will light red when the output of the preamp exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

5 GAIN knob

This adjusts the preamp gain in a range of -65 dBu– -10 dBu (if PAD is on, a range of -45 dBu– +10 dBu).

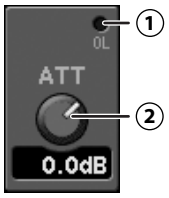
NOTE

The preamp gain is not a continuous control, it is digital with stepped control. In certain situations artifact noise may occur when changing preamp gain. This is normal.

For the following channels, the preamp area will show only the Ø (phase) button:

- Channels to which no input port is patched
- Channels to which a port that has no preamp (such as an internal port) is patched

❷ ATT (Attenuator)



① OL (Overload) indicator

This will light red when the output of the attenuator exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

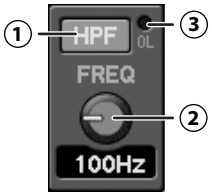
② ATT knob

This adjusts the input level of the channel in a range of -48.0 dB– +24.0 dB.

Normally, you should use the preamp gain to adjust the input level of the channel, and leave the attenuator at 0 dB. It is convenient to use the attenuator in the following types of cases:

- When you've patched a port that has no preamp gain, such as an internal port
- When you've allowed plenty of head margin to avoid overloading the preamp's AD converter, and want to boost the level at the channel

❸ HPF (High-pass filter)



① HPF button

This turns the HPF on/off.

② FREQ knob

This adjusts the cutoff frequency in a range of 20 Hz–20.0 kHz.

③ OL (Overload) indicator

This will light red when the output of the filter exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

cf.

You can select the slope for the HPF (p. 82).

❹ Gate/expander

① GATE button

This turns the gate/expander on/off.

② IN meter

This shows the input level of the gate/expander. For stereo-linked channels, two meters (L and R) will be shown.

③ GR meter

This shows the amount of gain reduction for the gate/expander.

④ OL (Overload) indicator

This will light red when the output of the gate/expander exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

⑤ THRE knob

This adjusts the threshold level of the gate/expander in a range of -80.0 dB–0.0 dB.

cf.

For details, refer to "Gate/expander operations" (p. 70).

❺ Compressor

① COMP button

This turns the compressor on/off.

② IN meter

This shows the input level of the compressor. For stereo-linked channels, two meters (L and R) will be shown.

③ GR meter

This shows the amount of gain reduction for the compressor.

④ OL (Overload) indicator

This will light red when the output of the compressor exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

⑤ THRE knob

This adjusts the threshold level of the compressor in a range of -40.0 dB–0.0 dB.

cf.

For details, refer to "Compressor operations" (p. 76).

6 Insert indication

① FX INS

If FX1–FX6 are inserted, the number of the inserted FX is shown here.

If the number is shown in white, the effect insertion is enabled. If it is shown in gray, effect insertion is bypassed.

By moving the cursor to FX INS and press [ENTER], you can access the FX 1–6 tab of the EFFECTS screen will appear.

cf.

Inserting an effect into a channel is done in the EFFECTS screen. For details, refer to "Inserting an effect into a channel" (p. 101).

MEMO

Up to six effects can be inserted into one channel. In this case, they will be inserted in series, in order of the FX number.

② EXT FX

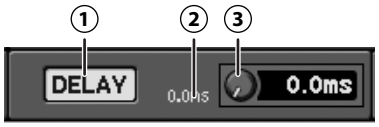
If an external effects processor is inserted, this shows the number of the inserted EXT FX.

By moving the cursor to EXT FX and pressing [ENTER], you can access the EXT FX 1–6 tab or EXT FX 7–8 tab of the EFFECTS screen.

cf.

Inserting an external effects processor into a channel is done in the EXTERNAL INSERT screen. For details, refer to "Inserting an EXT FX into a channel" (p. 111).

7 DELAY



① DELAY button

This turns the delay on/off.

② DELAY TIME

This indicates the delay time in milliseconds.

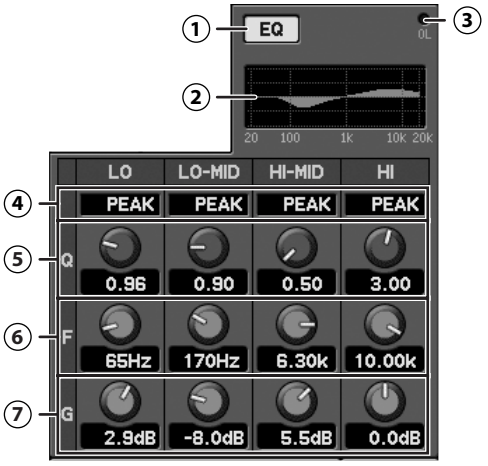
③ DELAY knob

This adjusts the amount of delay in a range of 0.0 ms–400.0 ms (when delay unit is millisecond).

You can select one of the following delay units (p. 156):

ms	millisecond
ft	Feet
m	Meter
F	Frame (24, 25, 29.97, 30fps)

8 4-band EQ



① EQ button

This turns the 4-band EQ on/off.

② 4-band EQ graph

This shows the approximate response of the 4-band EQ.

③ OL (Overload) indicator

This will light red when the output of the 4-band EQ exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

④ TYPE

These select the filter type from the following choices:

Type	Function	Desc.
LSV	Low shelving	LO only
HPF1	-6 dB/oct high-pass filter	
HPF2	-12 dB/oct high-pass filter	
PEAK	Peaking	
BPF	Band-pass filter	
NOTCH	Notch filter	
HSV	High shelving	HI only
LPF1	-6 dB/oct low-pass filter	
LPF2	-12 dB/oct low-pass filter	

⑤ Q knobs

These adjust the Q in a range of 0.36–16. Higher values will produce a sharper curve.

MEMO

This is not shown when LSV, HPF1, HSV, or LPF1 is selected as the filter type.

⑥ FREQ knobs

These adjust the frequency in a range of 20 Hz–20.0 kHz.

⑦ GAIN knobs

These adjust the gain in a range of -15.0 dB– +15.0 dB.

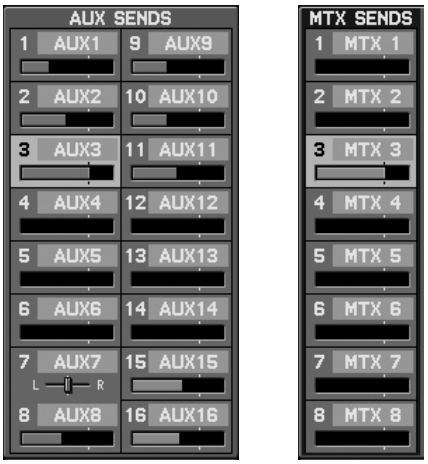
MEMO

This is not shown when HPF1, HPF2, BPF, NOTCH, LPF1, or LPF2 is selected as the filter type.

cf.

For details, refer to "4-band EQ operations" (p. 82).

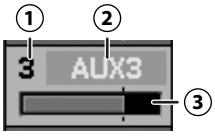
⑨ AUX SENDS, MTX SENDS



Here you can adjust the sends to the AUX or MTX buses.

● AUX sends, MTX sends

The AUX sends, MTX sends are organized as follows:



MEMO

To show the MTX sends or AUX sends, press [F6 (▶ MTX SENDS)] or [F6 (▶ AUX SENDS)].

① AUX/MTX number

This indicates the AUX/MTX number.

② AUX/MTX name

This indicates the AUX/MTX name.

③ Send level bar

This adjusts the send level to the AUX/MTX bus in a range of -Inf dB– +10.0 dB.

The color of the send level bar indicates the send point and the status of the send switch as follows:

Blue	send point is PRE EQ or PRE FADER
Green	send point is POST FADER
Gray	Send switch is off

● AUX/MTX pan slider

If the AUX/MTX send-destination is stereo-linked, this lets you adjust the left/right panning of the audio signal in a range of L63–R63. This is shown in the area of the odd-numbered AUX/MTX send.

cf.

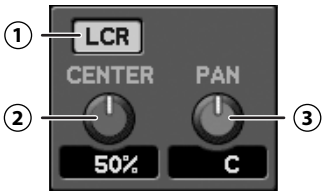
For details, refer to "AUX/MTX send operations (CH1–48, RTN1–6)" (p. 84).

⑩ DIRECT OUT point

You can choose one of the following as the position from which the channel's signal is taken as the direct out signal:

PRE PHASE	Take the pre-phase signal.
PRE EQ	Take the pre-EQ signal
PRE FADER	Take the pre-fader signal
POST FADER	Take the post fader signal

⑪ PAN



① LCR button

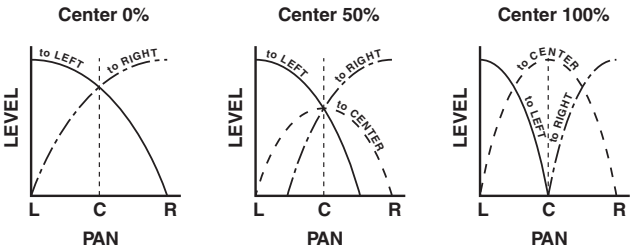
This button specifies how signals are sent from the channel to MAIN L/R and MAIN C.

OFF	The signals sent to MAIN L/R and MAIN C can be individually turned on/off by using the LR button and C button.
ON	PAN will operate across the three outputs MAIN L, MAIN C, and MAIN R. The convergence of the sound to MAIN C can be adjusted by CENTER. The signals sent to MAIN L/R and MAIN C can be collectively turned on/off by the MAIN button.

② CENTER

This specifies the proportion of the signal that is sent to MAIN C when PAN is at C (center) as a value in a range of 0%–100%. This is valid when the LCR button is on.

0%	No signal will be sent to MAIN C.
100%	When PAN is set to C, the signal will be sent only to MAIN C.



③ PAN

- When LCR button is off

  This adjusts the left/right panning of the audio signal sent to the MAIN L/R buses in a range of L63–R63.

- When LCR button is on

  This adjusts the left/center/right panning of the audio signal sent to the MAIN L/R/C buses in a range of L63–R63.

⑫ Group

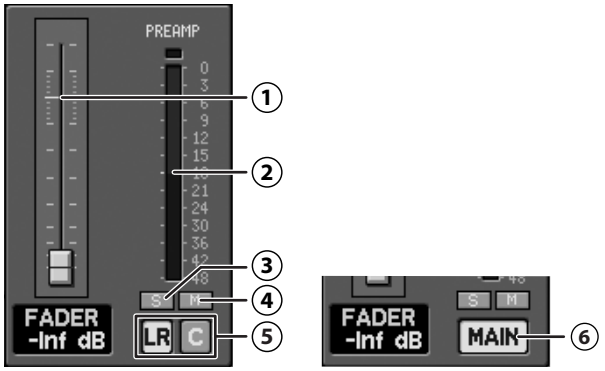
This indicates whether the channel is assigned to a DCA group or a MUTE group.

If you move the cursor to DCA GROUP or MUTE GROUP and press [ENTER], the DCA/MUTE GROUP ASSIGN popup will appear, allowing you to make DCA group or MUTE group assignments.

MEMO

You can also access the DCA/MUTE GROUP ASSIGN popup by pressing [F5 (DCA/Mute ASSIGN)].

⑬ Fader



① Fader

This adjusts the amount sent to the MAIN in a range of -Inf dB– +10.0 dB.

MEMO

You can make settings in finer increments by operating the value dial while you hold down [SHIFT].

② Channel meter

This indicates the signal level of the channel. For a stereo-linked channel, two meters L and R are shown. The level detection point is according to the setting in the METER screen. For details, refer to "Editing the meter settings" (p. 96).

③ S button

This turns SOLO on/off for the channel.

④ M button

This turns MUTE on/off for the channel.

⑤ LR button / C button

These individually turn the send to the MAIN L/R and MAIN C on/off. These are shown only when the LCR button is on.

⑥ MAIN button

This turns the send to the MAIN L/R/C on/off. This is shown only when the LCR button is off.

⑭ SAFE button

When this is turned on, scene recall will not affect the channel.

MEMO

This switches the state of the corresponding Channel recall scope button (p. 125) in the GLOBAL SCOPE popup.

The function buttons have the following operations:

[F1 (LINK)] *	Turns channel link on/off (p. 51).
[F2 (NAME EDIT)]	Accesses the NAME EDIT popup, where you can specify the channel name (p. 52).
[F3 (COPY)] *	Accesses the CH COPY popup, where you can copy channel settings (p. 53).
[F4 (LIBRARY)] *	Accesses the CH LIBRARY popup, where you can use the channel library (p. 54).
[F5 (DCA/Mute ASSIGN)]	Accesses the DCA/MUTE GROUP ASSIGN popup, where you can assign the channel to DCA groups and MUTE groups (p. 55).
[F6 (▶ MTX SENDS)] [F6 (▶ AUX SENDS)]	Switches between the MTX sends display and the AUX sends display.
[F7 (ATT Ctrl)]	If this is on, the target of the GAIN knob will change to controlling the channel attenuator.
[F8 (Patchbay)]	Accesses the PATCHBAY screen (p. 87).

* CH 1–48 only.

MEMO

The [F7 (ATT Ctrl)] setting is common to all channels CH1–48. When the M-480 is configured as a Monitor console, it is convenient to use the GAIN knob as an attenuator over the shared inputs.
The [F7 (ATT Ctrl)] setting is stored in the M-480 as a system parameter. It is not saved in scene memory.

TIP

When you press [F8 (Patchbay)] to access the PATCHBAY screen, the PATCHBAY screen will appear with the currently selected channel highlighted.

Accessing the CHANNEL DISPLAY screen

1. In the fader module section, press [SEL] to select a channel.

The CHANNEL DISPLAY screen will appear.

TIP

Pressing a different [SEL] while the CHANNEL DISPLAY screen is shown will switch you to the display for that channel.

MEMO

If you clear the check mark for the CHANNEL SELECT item "CHANNEL DISPLAY follows CH SELECT button" in User Preference (p. 141), pressing a [SEL] will select the channel without showing the CHANNEL DISPLAY screen. In this case, you can access the CHANNEL DISPLAY screen by pressing the [CH DISP] in the CHANNEL EDIT section.

Stereo-linking channels

Adjacent odd-numbered and even-numbered channels can be stereo-linked so that their parameters will have the same settings. This is convenient when you're dealing with stereo sources.

1. Access the CHANNEL DISPLAY screen for the channel that you want to stereo-link.

2. Press [F1 (LINK)].

A confirmation message will appear, asking you to confirm the stereo-link operation.

The function buttons have the following operations:

[F6 (CANCEL)]	Cancels the stereo-link operation and closes the popup.
[F7 (LINK (L <- R))]	The parameters of the odd-numbered channel will be set to the values of the even-numbered channel.
[F8 (LINK (L -> R))]	The parameters of the even-numbered channel will be set to the values of the odd-numbered channel.

3. Press [F7 (LINK (L <- R))] or [F8 (LINK (L -> R))], the channels will be stereo-linked.

Stereo-linked parameters

The following parameters are linked by stereo-link:

- Attenuator
- HPF
- Gate/expander parameters other than Key In
- Compressor parameters other than Key In
- Delay
- 4-band EQ parameters
- Fader parameters
- AUX/MTX send level, send switch, and send point
- Direct out point

MEMO

When you enable stereo-link, the gate/expander and compressor will operate in stereo.

MEMO

RTN channel is always stereo-linked.

Specifying a channel name and color label

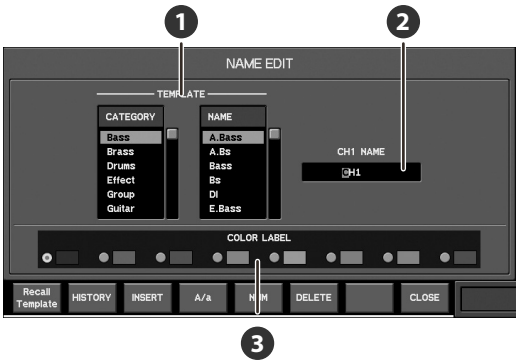
You can specify a channel name and color label for each input channel. The channel name can be up to six characters, and you can select one of eight colors as the color label.

Channel name entry and color label selection are done in the NAME EDIT popup.

Accessing the NAME EDIT popup

1. Access the CHANNEL DISPLAY screen for the desired channel.

2. Press [F2 (NAME EDIT)] to access the NAME EDIT popup.



1 TEMPLATE

Here you can select a name from a list.

- **CATEGORY list**

  Select the category.

- **NAME list**

  Select a name from within that category.

TIP

Choose the CATEGORY first, and then choose a NAME.

2 Name edit field

You can edit the name in this field.

3 Color label selection button

Use these buttons to select a color label for the channel.

The function buttons have the following operations:

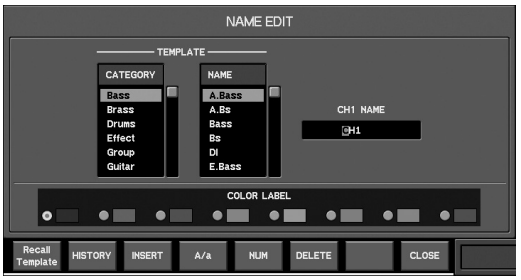
[F1 (Recall Template)]	Enters the name selected in the TEMPLATE list into the name edit field.
[F2 (HISTORY)]	Successively recalls the channel names that have been entered since power-up, starting with the most recent name.
[F3 (INSERT)]	Inserts a space at the cursor location. The characters to the right of the cursor location will move to the right.
[F4 (A/a)]	Changes the letter at the cursor location between uppercase and lowercase. If the character is not an English letter, it will be changed to the letter "A."
[F5 (NUM)]	Changes the character at the cursor location to the numeral "0."
[F6 (DELETE)]	Deletes the character at the cursor location. The characters to the right of the cursor location will move to the left.
[F8 (CLOSE)]	Closes the popup.

MEMO

Up to sixteen names will be remembered in HISTORY.
If HISTORY becomes full, the oldest name will be deleted.

Editing the channel name

1. Access the NAME EDIT popup for the desired channel.



2. Move the cursor to the name edit field, and edit the channel name.

Use the cursor left/right buttons to move the cursor location.

Use the value dial to change the character at the cursor location.

3. Press [F8 (CLOSE)] to close the popup.

Choosing a color label

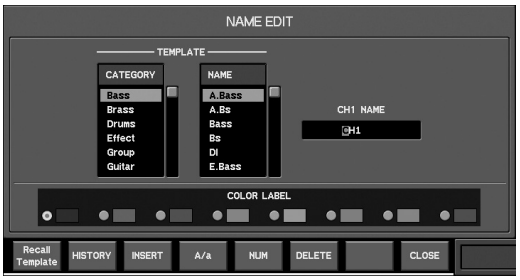
1. Access the NAME EDIT popup for the desired channel.

2. Move the cursor to the desired color label select button, and press [ENTER] to make your selection.

3. Press [F8 (CLOSE)] to close the popup.

Using the template to enter a channel name

1. Access the NAME EDIT popup for the desired channel.



2. Move the cursor to the CATEGORY list in the TEMPLATE area, and select the category of the name you want to enter.

3. Move the cursor to the NAME list in the TEMPLATE area, and select the name that you want to enter.

4. Press [F1 (Recall Template)].

The selected name will be entered in the name edit field.

5. Move the cursor to the name edit field, and you'll be able to edit the name that was entered.

6. Press [F8 (CLOSE)] to close the popup.

MEMO

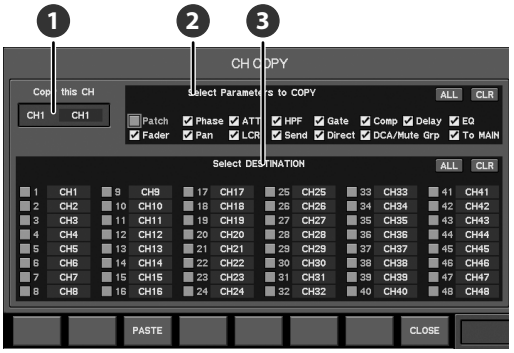
If you enter a name from the template, the name that was previously in the name edit field will be deleted.

Copying channel settings to another channel

Channel settings can be copied to another channel. Channel copying is done in the CHANNEL COPY popup.

1. Access the CHANNEL COPY popup for the desired copy-source channel.

2. Press [F3 (COPY)] to access the CHANNEL COPY popup.



1 Copy-source channel

This indicates the copy-source channel.

2 Copy parameter select buttons

Here you can select the parameters that will be copied. You can select the following parameters:

Patch	Input patching
Phase	Phase
ATT	Attenuator
HPF	HPF (high-pass filter)
Gate	Gate/expander
Comp	Compressor
Delay	Delay
EQ	4-band EQ
Fader	Fader
Pan	Pan
LCR	LCR button, CENTER
Send	AUX/MTX sends
Direct	Direct out point
DCA/Mute Group	DCA groups and MUTE groups
To MAIN	MAIN button, LR button, C button

3 Copy-destination channel select buttons

Here you can select the copy-destination channel(s).

The function buttons have the following operations:

[F3 (PASTE)]	Executes the copy.
[F8 (CLOSE)]	Closes the popup.

3. Move the cursor to the desired copy parameter select button, and press [ENTER] to select it.

4. Move the cursor to the desired copy-destination channel select button, and press [ENTER] to select it. You can select more than one channel.

5. Press [F3 (PASTE)].

A confirmation message will appear, asking you to confirm the Copy operation.

6. Press [F8 (PASTE)] to execute the Copy.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

7. Press [F8 (CLOSE)] to close the popup.

MEMO

When you execute PASTE, the copy-destination channel select buttons will be cleared.

Using the channel library

You can recall channel settings from the library, or store the settings of the current channel in the library.

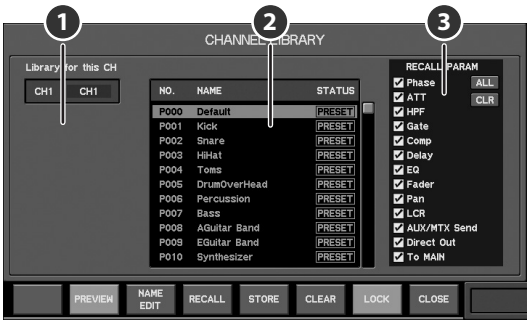
Channel library operations are performed in the CHANNEL LIBRARY popup.

1. Access the CHANNEL DISPLAY screen for the desired channel.

2. Press [F4 (LIBRARY)] to access the CHANNEL LIBRARY popup.

cf.

For details on library operations, refer to “Library operations” (p. 39).



1 Target channel

This indicates the channel that is the target of the CHANNEL LIBRARY popup.

2 Library data list

This is a list of the library data.

3 Recall parameter select buttons

Use these to select the parameters that will be recalled.

You can select the following parameters:

Phase	Phase
ATT	Attenuator
HPF	HPF (high-pass filter)
Gate	Gate/expander
Comp	Compressor
Delay	Delay
EQ	4-band EQ
Fader	Fader
Pan	Pan
LCR	LCR button, CENTER
AUX/MTX Send	AUX/MTX sends
Direct Out	Direct out point
To MAIN	MAIN button, LR button, C button

NOTE

Noise may occur when you execute a library preview or recall, but this is not a malfunction.

The function buttons have the following operations:

[F2 (PREVIEW)]	Previews (auditions) the selected library data.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

Assigning channels to DCA groups and MUTE groups

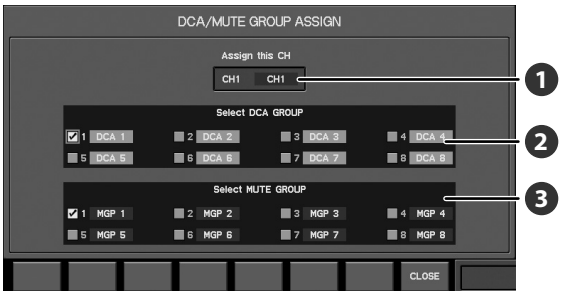
Input channels can be assigned to DCA groups and mute groups.

Assignments to DCA groups and mute groups are made in the DCA/MUTE GROUP ASSIGN popup.

Accessing the DCA/MUTE GROUP ASSIGN popup

1. **Access the CHANNEL DISPLAY screen for the desired channel.**

2. **Press [F5 (DCA/Mute GROUP ASSIGN)] to access the DCA/MUTE GROUP ASSIGN popup.**



❶ Target channel

This indicates the channel that is the target of the DCA/MUTE GROUP ASSIGN popup.

❷ DCA GROUP select buttons

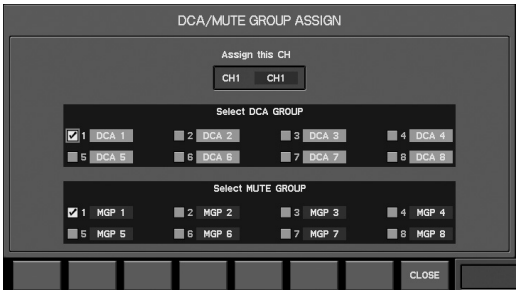
Use these to select the DCA group to which the channel will be assigned.

❸ MUTE GROUP select buttons

Use these to select the MUTE group to which the channel will be assigned.

Assigning a channel to a DCA group

1. **Access the DCA/MUTE GROUP ASSIGN popup for the desired channel.**



2. **Verify that the target channel is correct.**

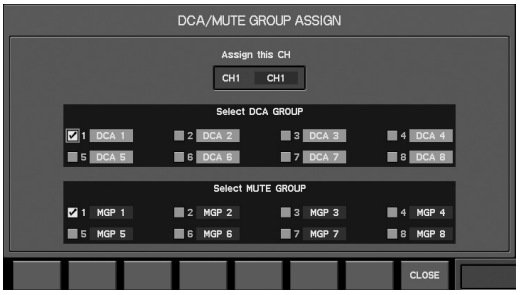
3. **Move the cursor to the desired DCA group select button, and press [ENTER] to select it.**

4. **Press [F8 (CLOSE)] to close the popup.**

cf.
For details, refer to “DCA groups” (p. 112).

Assigning a channel to a MUTE group

1. **Access the DCA/MUTE GROUP ASSIGN popup for the desired channel.**



2. **Verify that the target channel is correct.**

3. **Move the cursor to the desired MUTE group select button, and press [ENTER] to select it.**

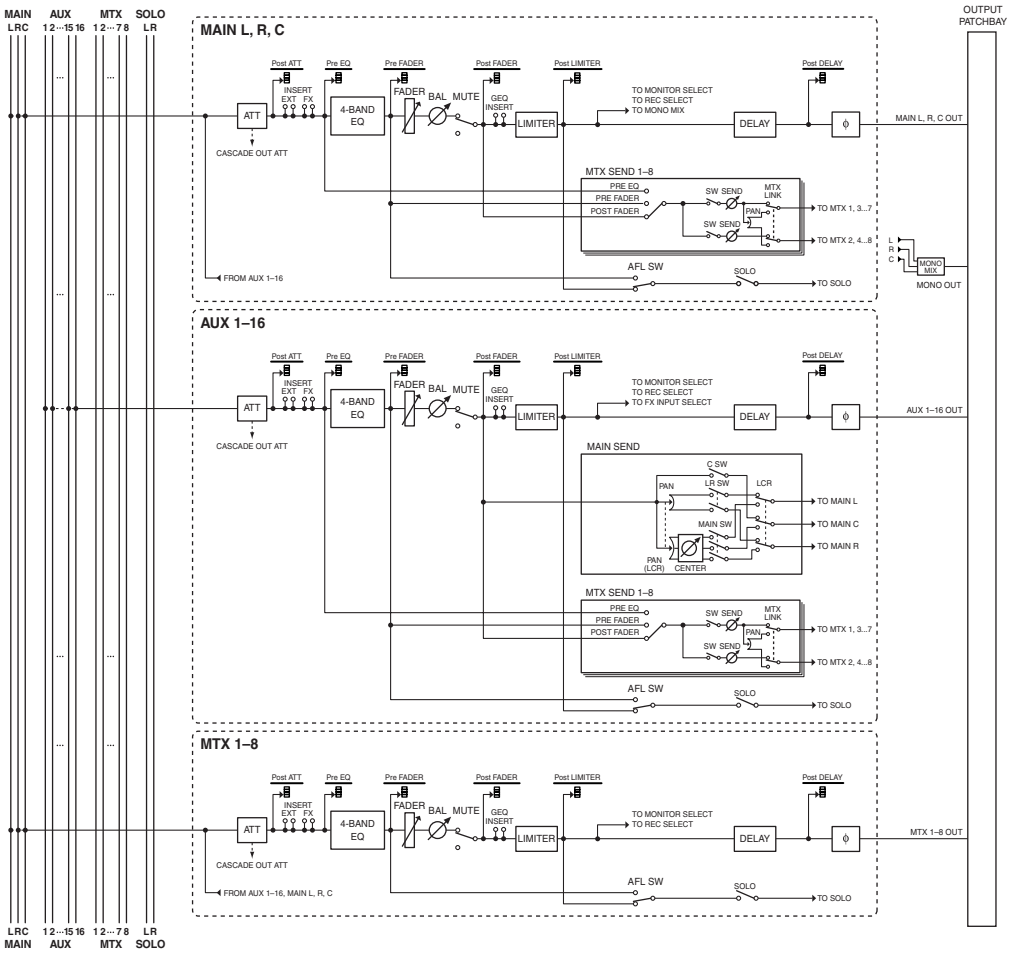
4. **Press [F8 (CLOSE)] to close the popup.**

cf.
For details, refer to “Mute groups” (p. 114).

AUX, MTX, MAIN operations

About AUX, MTX, MAIN

The AUX and MAIN process the mixed audio signals from the input channels, and send them to the output ports. MTX (MATRIX) process a mix of the audio signals from input channels, AUX, and MAIN, and send them to an output ports.



- **ATT (Attenuator)**

  This adjusts the input level.
- **EXT FX INSERT (External Effect insert)**

  These ports let you use the rear panel CONSOLE IN1–8 and CONSOLE OUT1–8 ports to insert external effects processors.
- **FX INSERT (Effect insert)**

  These ports let you insert FX1–6.
- **4-BAND EQ**

  This is an EQ with four bands.
- **FADER**

  This adjusts the output level.
- **BALANCE**

  This adjusts the left/right balance for MAIN L/R or for stereo-linked AUX/MTX buses.
- **MUTE**

  This mutes the output of the channel. The post fader sends to the MAIN L/R bus and AUX buses will also be muted.
- **LIMITER**

  This limits the output level.
- **MAIN SEND (AUX1–8 only)**

  This adjusts the send to MAIN.
- **MTX SEND (MATRIX send)**

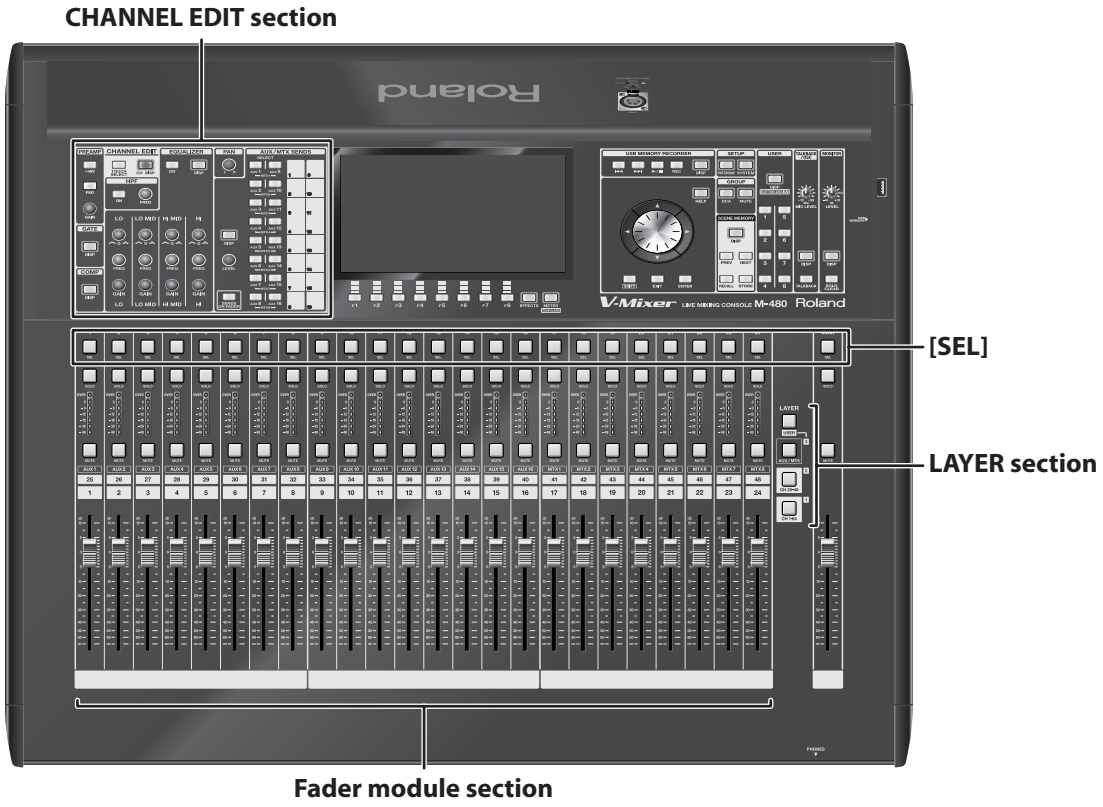
  This adjusts the send to MTX1–8.
- **DELAY**

  This delays the output signal.
- **ϕ (Phase)**

  This reverses the phase of the audio signal.

Operations using the CHANNEL EDIT section

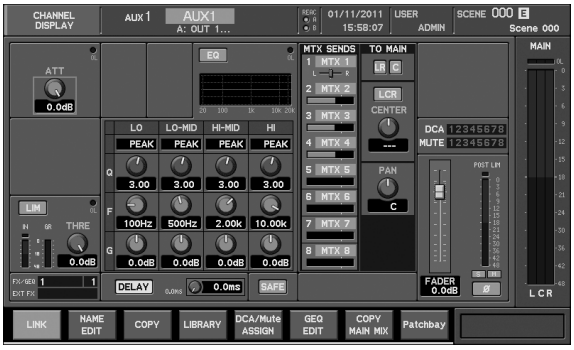
Most operations for the AUX, MTX, and MAIN can be performed in the CHANNEL EDIT section. Here we will explain channel operations using the CHANNEL EDIT section.



Selecting the channel

1. **In the LAYER section, press [AUX/MTX] to assign the input channel to the fader module section.**

2. **Press a [SEL] button to select the input channel that you want to edit.**



The CHANNEL DISPLAY screen will appear.

TIP

Each time you press the MAIN [SEL] button, it will select the MAIN L, MAIN R, or MAIN C one after another.

MEMO

If you clear the check mark for the CHANNEL SELECT item "CHANNEL DISPLAY follows CH SELECT button" in User Preference (p. 141), pressing a [SEL] will select the channel without showing the CHANNEL DISPLAY screen. In this case, you can access the CHANNEL DISPLAY screen by pressing the [CH DISP] in the CHANNEL EDIT section.

Even if you operate the knobs of the CHANNEL EDIT section without accessing the CHANNEL DISPLAY screen, the value of the currently-operated parameter is shown in the sub-display area.

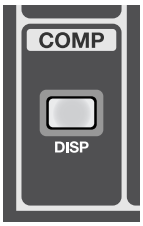
ATT (Attenuator) adjustments

Use the PREAMP area to adjust the attenuator.

1. Use the GAIN dial to adjust the attenuator.

Limiter operations

Use the COMP area to operate the limiter.



1. Press [DISP] of the COMP area to access the LIMITER popup.

cf.

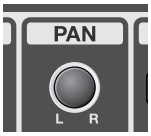
For details, refer to “Limiter operations” (p. 80).

MEMO

Holding down [SHIFT] and pressing [DISP] for the COMP area switches the limiter on/off.

Adjusting the left/right output balance

Use the PAN area to operate the left/right balance. This is valid for the MAIN L/R and for stereo-linked AUX/MTX.



1. Use the PAN knob to adjust the balance.

TIP

You can make fine adjustments by holding down [SHIFT] while you operate the knob.

4-band EQ operations

Use the EQUALIZER area to operate the EQ.

1. Press [ON] to turn the 4-band EQ on/off.

2. Use the GAIN knob to adjust the gain.

3. Use the FREQ knob to adjust the frequency.

4. Use the Q knob to adjust the Q.

TIP

You can make fine adjustments by holding down [SHIFT] while you operate the knob.

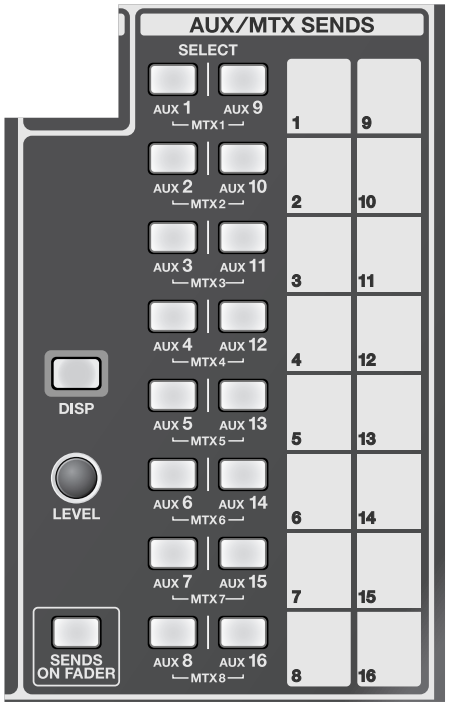
MEMO

By pressing [DISP] you can access the 4-BAND EQ popup, where you can make detailed settings for the 4-band EQ. For details, refer to “4-band EQ” (p. 82).

Sending to the MTX buses

This operation is performed in the AUX/MTX SENDS area.

You can adjust the send level in either of two ways: operating on AUX/MAIN, or operating on MTX.



Operating on AUX/MAIN

1. **Press [SEL] of the AUX or MAIN to select the send-source.**
2. **Press [AUX1]–[AUX8] to select the send-destination MTX bus.**
3. **Use the SEND LEVEL knob to adjust the amount of signal sent to the MTX bus.**

   TIP

   You can make fine adjustments by holding down [SHIFT] while you operate the knob.

   MEMO

   You can turn the corresponding send switch on/off by holding down [SHIFT] and pressing [AUX1]–[AUX8].

   MEMO

   By pressing [DISP] you can access the MTX SENDS popup where you can make detailed MTX send settings (p. 85).

Operating on MTX

1. **Press [SEL] of the MTX to select the send-destination MTX bus.**
2. **Press [AUX1]–[AUX16] on the AUX/MTX SENDS area to select the send-source AUX.**
3. **Use the SEND LEVEL knob to adjust the amount of signal sent to the MTX bus.**

   MEMO

   You can also adjust the send level from the MAIN to the MTX in the CHANNEL DISPLAY screen of the MTX.

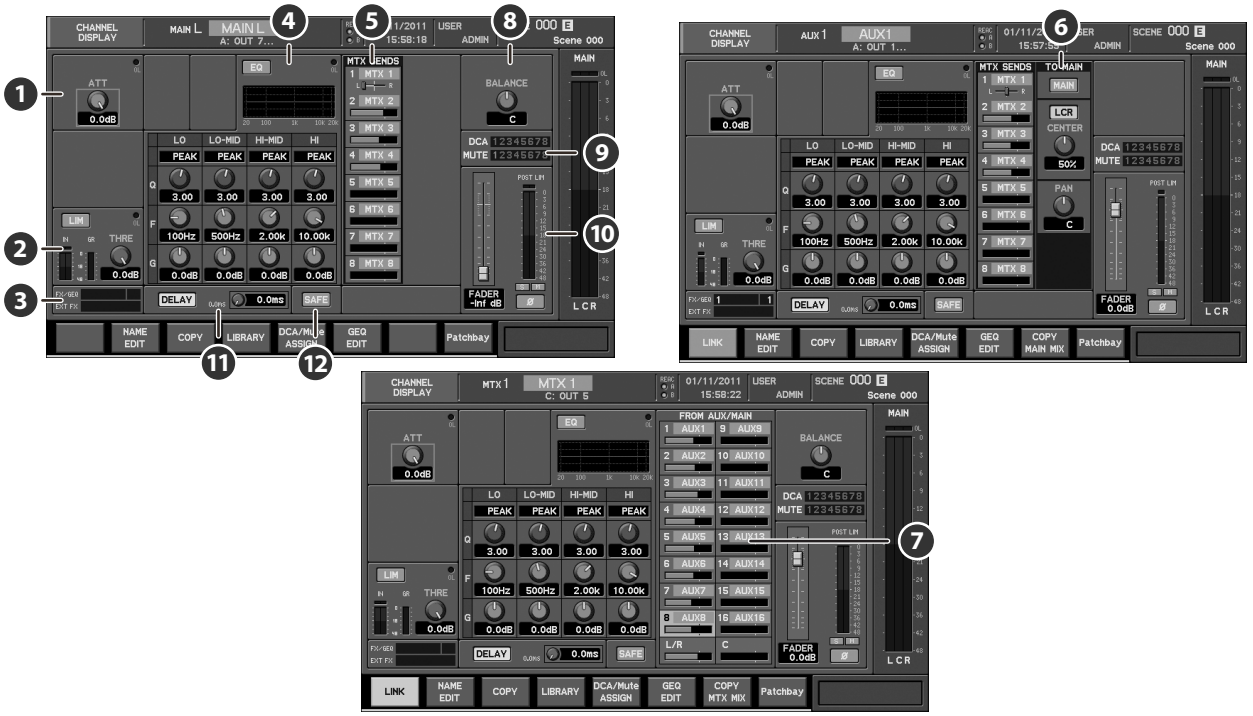
   TIP

   You can make fine adjustments by holding down [SHIFT] while you operate the knob.

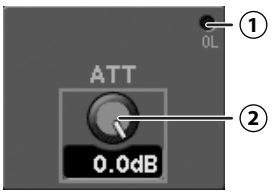
Operations in the CHANNEL DISPLAY screen

The principal parameters of the AUX, MTX, and MAIN can be operated in the CHANNEL DISPLAY screen.

CHANNEL DISPLAY screen



1 ATT (Attenuator)



1 OL (Overload) indicator

This will light red when the output of the attenuator exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

2 ATT knob

This adjusts the channel's input level in a range of -48 dB–0 dB (6 dB steps).

Normally, you should leave the attenuator set at 0 dB. It is convenient to use the attenuator in situations like the following:

- When the input of an AUX, MTX, MAIN is overloaded and must be lowered

2 Limiter

1 LIM button

This turns the limiter on/off.

2 IN meter

This indicates the input level of the limiter. For stereo-linked channels, two meters (L and R) are shown.

3 GR meter

This indicates the amount of gain reduction produced by the limiter.

4 OL (Overload) indicator

This will light red when the output of the limiter exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

5 THRE knob

This adjusts the limiter's threshold level in a range of -40.0 dB–0.0 dB.

cf.

For details, refer to “Limiter operations” (p. 80).

❸ Insert indication

① FX INS

If FX1–6 are inserted, the number of the inserted FX is shown here.

If the number is shown in white, the effect insertion is enabled. If it is shown in gray, effect insertion is bypassed.

By moving the cursor to FX INS and press [ENTER], you can access the FX 1–6 tab of the EFFECTS.

cf.

Inserting an effect into a channel is done in the EFFECTS screen. For details, refer to “Inserting an effect into a channel” (p. 101).

MEMO

Up to six effects can be inserted into one channel. In this case, they will be inserted in series, in order of the FX number.

② GEQ INS

If a GEQ is inserted, this shows the number of the GEQ that is inserted.

If the number is shown in white, the inserted GEQ is enabled. If it is shown in gray, the inserted GEQ is bypassed.

By moving the cursor to GEQ INS and pressing [ENTER], you can access the GEQ 1–6 tab or GEQ 7–12 tab of the EFFECTS screen.

cf.

Inserting a GEQ is done in the EFFECTS screen. For details, refer to “Inserting the GEQ” (p. 105).

③ EXT FX

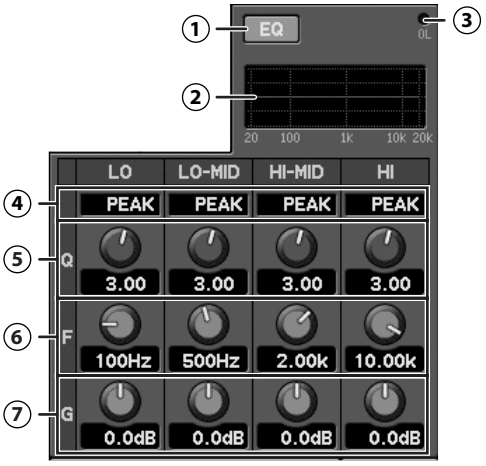
If an external effects processor is inserted, this shows the number of the inserted EXT FX.

By moving the cursor to EXT FX and pressing [ENTER], you can access the EXT FX 1–6 tab or EXT FX 7–8 tab of the EFFECTS screen.

cf.

Inserting an external effects processor into a channel is done in the EXTERNAL INSERT screen. For details, refer to “Inserting an EXT FX into a channel” (p. 111).

❹ 4-band EQ



① EQ button

This turns the 4-band EQ on/off.

② 4-band EQ graph

This shows the approximate response of the 4-band EQ.

③ OL (Overload) indicator

This will light when the output of the 4-band EQ exceeds the OVER Lev setting specified in the METER SETUP popup (p. 96).

④ Type

These select the filter type from the following choices:

Type	Function	Desc.
LSV	Low shelving	LO only
HPF1	-6 dB/oct high-pass filter	
HPF2	-12 dB/oct high-pass filter	
PEAK	Peaking	
BPF	Band-pass filter	
NOTCH	Notch filter	
HSV	High shelving	HI only
LPF1	-6 dB/oct low-pass filter	
LPF2	-12 dB/oct low-pass filter	

⑤ Q knobs

This adjusts the Q in a range of 0.36–16.00. Higher values produce a sharper curve.

MEMO

This is not shown when LSV, HPF1, HSV, or LPF1 is selected as the filter type.

⑥ FREQ knobs

This adjusts the frequency in a range of 20 Hz–20.0 kHz.

⑦ GAIN knobs

This adjusts the gain in a range of -15.0 dB–+15.0 dB.

MEMO

This is not shown when HPF1, HPF2, BPF, NOTCH, LPF1, or LPF2 is selected as the filter type.

cf.

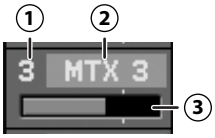
For details, refer to “4-band EQ” (p. 82).

5 MTX SENDS (AUX, MAIN only)

Here you can adjust the sends from the AUX or MAIN to the MTX.

● MTX sends 1–8

The MTX send area is structured as follows:



① MTX number

This indicates the MTX number.

② MTX name

This indicates the MTX name.

③ Send level bar

This adjusts the send level to each MTX in a range of -Inf dB–+10.0 dB.

The color of the level bar indicates the send point or status of the send switch as follows:

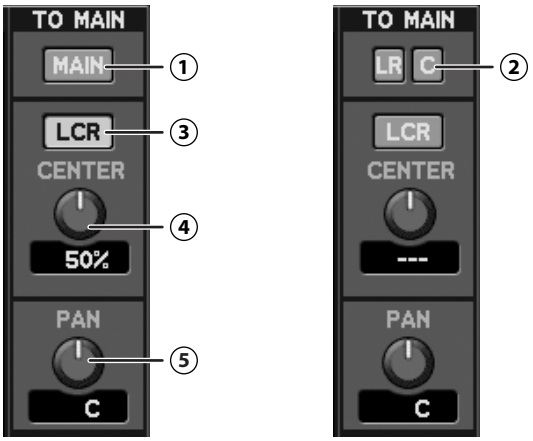
Color of the send level bar	Status
Blue	send point is PRE EQ or PRE FADER
Green	send point is POST FADER
Gray	Send switch is off

● MTX pan slider

If the send-destination is a stereo-linked pair of MTX, this slider adjusts the left/right position in a range of L63–R63. This is shown for the odd-numbered MTX send.

cf.
For detailed MTX send settings, refer to “p. 85”.

6 TO MAIN (AUX only)



These specify the send level from the AUX to MAIN.

① MAIN button

This turns the send to MAIN L/R/C. This is shown only when the LCR button is on.

② LR button / C button

These individually turn the send to the MAIN L/R and MAIN C on/off. These are shown only when the LCR button is on.

③ LCR button

This button specifies how signals are sent from the AUX to MAIN L/R and MAIN C.

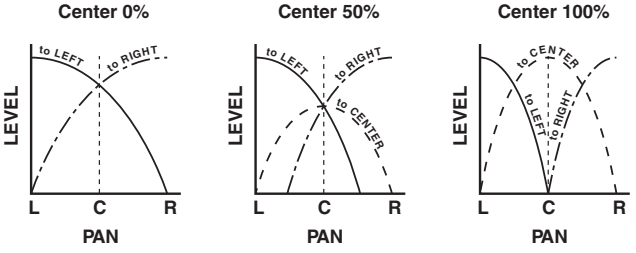
OFF	The signals sent to MAIN L/R and MAIN C can be individually turned on/off by using the LR button and C button.
ON	PAN will operate across the three outputs MAIN L, MAIN C, and MAIN R. The convergence of the sound to MAIN C can be adjusted by CENTER. The signals sent to MAIN L/R and MAIN C can be collectively turned on/off by the MAIN button. *

* The MAIN button appears at the position of LR button and C button when the LCR button is turned on.

④ CENTER

This specifies the proportion of the signal that is sent to MAIN C when PAN is at C (center) as a value in a range of 0%–100%. This is available when the LCR button is on.

0%	No signal will be sent to MAIN C.
100%	When PAN is set to C, the signal will be sent only to MAIN C.



⑤ PAN

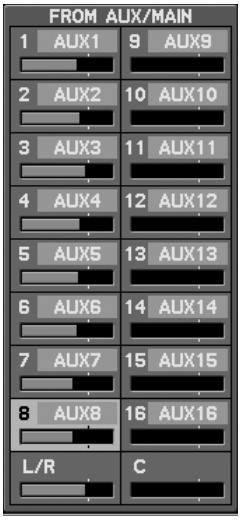
- When LCR button is off

  This adjusts the left/right panning of the audio signal sent to the MAIN L/R buses in a range of L63–R63.

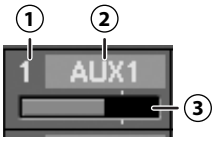
- When LCR button is on

  This adjusts the left/center/right panning of the audio signal sent to the MAIN L/R/C buses in a range of L63–R63.

⑦ FROM AUX send / FROM MAIN send (MTX only)



These adjust the send levels from the AUX or MAIN to the MTX. The FROM AUX send /FROM MAIN send are structured as follows:



① AUX number/MAIN number

This indicates the AUX number, MAIN L/R or MAIN C.

② AUX/MAIN name

This indicates the name of the AUX/MAIN.

③ Send level bar

This adjusts the send level to the MTX in a range of -Inf dB–+10.0 dB.

The color of the level bar indicates the send point or status of the send switch as follows:

Color of the send level bar	Status
Blue	send point is PRE EQ or PRE FADER
Green	send point is POST FADER
Gray	Send switch is off

⑧ Balance

This adjusts the left/right output balance sent from MAIN L/R or stereo-linked AUX/MTX in a range of L63–R63.

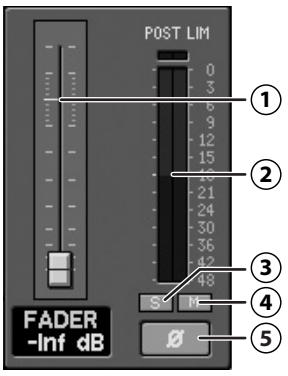
⑨ Group

By moving the cursor to DCA GROUP or MUTE GROUP and pressing [ENTER], you can access the DCA/MUTE GROUP ASSIGN popup where you can make DCA group and MUTE group assignments.

MEMO

You can also access the DCA/MUTE GROUP ASSIGN popup window by pressing [F5 (DCA/Mute ASSIGN)].

⑩ Fader



① Fader

This adjusts the output level in a range of -Inf dB–+10.0 dB.

② Channel meter

This indicates the signal level of the channel. For stereo-linked channels, two meters (L and R) are shown. The point at which the signal level is detected will be as specified in the METER screen. For details, refer to “Editing the meter settings” (p. 96).

③ S button

This turns SOLO on/off for the channel.

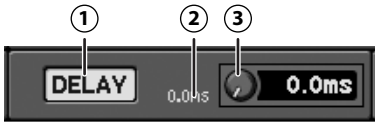
④ M button

This turns MUTE on/off for the channel.

⑤ Ø (Phase) button

This reverses the phase of the audio signal.

⓫ DELAY



① DELAY button

This turns the delay on/off.

② DELAY TIME

This indicates the delay time in milliseconds.

③ DELAY knob

This adjusts the amount of delay in a range of 0.0 ms–400.0 ms (when delay unit is millisecond).

MEMO

You can select one of the following delay units (p. 156):

ms	millisecond
ft	Feet
m	Meter
F	Frame (24, 25, 29.97, 30fps)

⓬ SAFE button

When this is turned on, scene recall will not affect the channel.

MEMO

This switches the state of the corresponding Channel recall scope button (p. 125) in the GLOBAL SCOPE popup.

The function buttons have the following operations:

[F2 (NAME EDIT)]	Accesses the NAME EDIT popup where you can specify the channel name (p. 52).
[F3 (COPY)]	Accesses the AUX/MTX/MAIN COPY popup where you can copy channel settings (p. 66).
[F4 (LIBRARY)]	Accesses the AUX/MTX/MAIN LIBRARY popup where you can use the channel library (p. 67).
[F5 (DCA/Mute ASSIGN)]	Accesses the DCA/MUTE GROUP ASSIGN popup where you can make DCA group and MUTE group assignments (p. 55).
[F6 (GEQ EDIT)]	Access the corresponding GEQ EDIT popup, when a GEQ is inserted.
[F8 (Patchbay)]	Accesses the PATCHBAY screen (p. 87).

TIP

If you press [F8 (Patchbay)] to access the PATCHBAY screen, the currently selected channel will be highlighted in the PATCHBAY screen.

The function button specific to the MAIN C has the following operation:

[F1 (LINK to MAIN L/R)]	If you turn this on, you'll be able to use the MAIN fader to control MAIN L/R and MAIN C while maintaining the fader balance between MAIN L/R and MAIN C (p. 66).

The function buttons specific to the AUX have following operations:

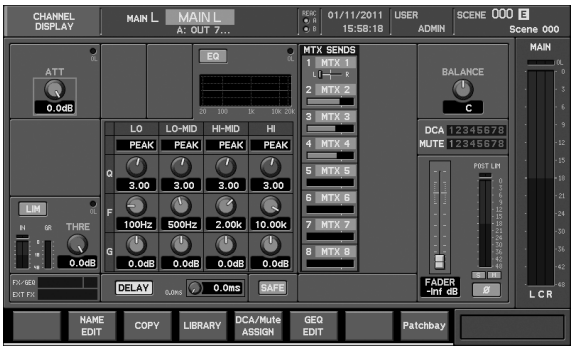
[F1 (LINK)]	Turns channel link on/off (p. 65).
[F7 (COPY MAIN MIX)]	Copies the send amount from each input channel to MAIN L/R. (p. 68)

The function buttons specific to the MTX have following operations:

[F1 (LINK)]	Turns channel link on/off (p. 65).
[F7 (COPY MX MIX)]	Copies the mix of a MTX to another MTX channel (p. 69).

Accessing the CHANNEL DISPLAY screen

1. In the fader module section, press [SEL] to select a channel.



TIP

Each time you press the MAIN [SEL], it will select the MAIN L, MAIN R, or MAIN C one after another.

TIP

By pressing a different [SEL] while the CHANNEL DISPLAY screen is shown, you can switch to the display for that channel.

MEMO

If you clear the check mark for the CHANNEL SELECT item "CHANNEL DISPLAY follows CH SELECT button" in User Preference (p. 141), pressing a [SEL] will select the channel without showing the CHANNEL DISPLAY screen. In this case, you can access the CHANNEL DISPLAY screen by pressing the [CH DISP] in the CHANNEL EDIT section.

Stereo-linking AUX/MTX

You can stereo-link adjacent odd-numbered and even-numbered AUX/MTX so that their parameters will have the same settings. This is convenient when you want stereo output.

1. Access the CHANNEL DISPLAY screen for the AUX/MTX that you want to stereo-link.

2. Press [F1 (LINK)].

A confirmation message will appear, asking you to confirm the stereo-link operation.

The function buttons have the following operations:

[F6 (CANCEL)]	Cancels the stereo-link operation and closes the popup.
[F7 (LINK (L <- R))]	The parameters of the odd-numbered channel will be set to the values of the even-numbered channel.
[F8 (LINK (L -> R))]	The parameters of the even-numbered channel will be set to the values of the odd-numbered channel.

3. Press [F7 (LINK (L <- R))] or [F8 (LINK (L -> R))], the AUX/MTX will be stereo-linked.

About linked parameters

Stereo-link will link the following parameters:

- Attenuator
- Limiter parameters
- 4-band EQ parameters
- Fader parameters
- MAIN send level, send switch, and send point
- MTX send level, send switch, and send point
- DELAY

MEMO

MAIN L/R is always stereo-linked.

TIP

When linked, the limiter will operate in stereo.

Linking MAIN L/R and MAIN C

If you turn [F1 (LINK to MAIN L/R)] on, you'll be able to use the MAIN fader to control MAIN L/R and MAIN C simultaneously, while maintaining the fader balance between MAIN L/R and MAIN C.

MEMO

By default, [F1 (LINK to MAIN L/R)] is on.

MEMO

Turning on [F1 (LINK to MAIN L/R)] also links the MAIN [SOLO] / [MUTE] operation.

MEMO

If you turn [F1 (LINK to MAIN L/R)] on, the MAIN L/R fader also controls MAIN C. Because the MAIN C fader does not control the MAIN L/R, you can use the MAIN C fader to change the fader balance between MAIN L/R and MAIN C.

1. Access the CHANNEL DISPLAY screen for the MAIN C.

MEMO

Each time you press MAIN [SEL], it will select the MAIN L, MAIN R, or MAIN C one after another.

2. Press [F1 (LINK to MAIN L/R] to turn it on.

Specifying a channel name and color label

You can specify a channel name and color label for each AUX, MTX, and MAIN. The channel name can be up to six characters, and you can select one of eight colors as the color label.

Channel name entry and color label selection are done in the NAME EDIT popup.

cf.

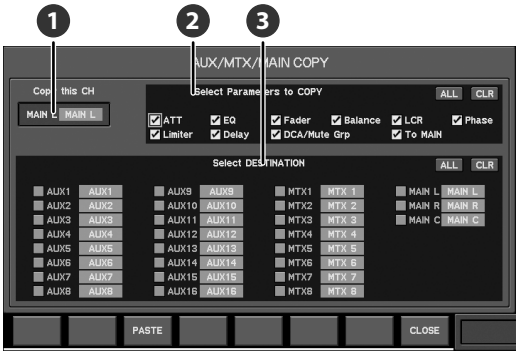
For details on NAME EDIT popup, refer to "Specifying a channel name and color label" (p. 52).

Copying channel settings to another channel

Channel settings can be copied to another channel. Channel copying is done in the AUX/MTX/MAIN COPY popup.

1. Access the CHANNEL DISPLAY screen or the desired copy-source channel.

2. Press [F3 (COPY)] to access the AUX/MTX/MAIN COPY popup.



1 Copy-source channel

This indicates the copy-source channel.

2 Copy parameter select buttons

Here you can select the parameters that will be copied. You can select the following parameters:

ATT	Attenuator
EQ	4-band EQ
Fader	Fader
Balance	Balance
LCR	LCR button, CENTER (AUX only)
Phase	Phase
Limiter	Limiter
Delay	Delay
DCA/Mute Grp	DCA groups and MUTE groups
TO Main	To MAIN (AUX only)

3 Copy-destination channel select buttons

Here you can select the copy-destination channel(s).

The function buttons have the following operations:

[F3 (PASTE)]	Executes the copy.
[F8 (CLOSE)]	Closes the popup.

3. Move the cursor to the desired copy parameter select button, and press [ENTER] to select it.

4. Move the cursor to the desired copy-destination channel select button, and press [ENTER] to select it. You can select more than one channel.

5. Press [F3 (PASTE)].

A confirmation message will ask you to confirm the Copy operation.

6. Press [F8 (PASTE)] to execute the Copy operation.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

7. Press [F8 (CLOSE)] to close the popup.

MEMO

When you execute PASTE, the copy-destination channel select buttons will be cleared.

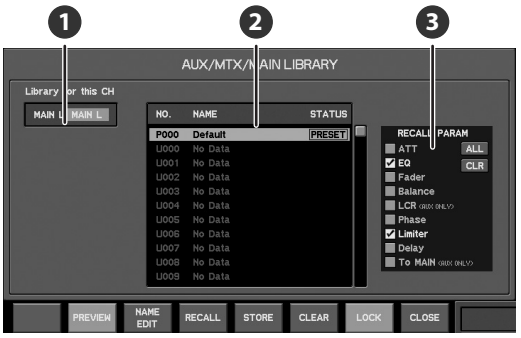
Using the AUX/MTX/MAIN library

You can recall channel settings from the library, or store the settings of the current channel in the library.

AUX/MTX/MAIN library operations are performed in the AUX/MTX/MAIN LIBRARY popup.

1. Access the CHANNEL DISPLAY screen for the desired channel.

2. Press [F4 (LIBRARY)] to access the AUX/MTX/MAIN LIBRARY popup.



1 Target channel

This indicates the channel that is the target of the AUX/MTX/MAIN LIBRARY popup.

2 Library data list

This is a list of the library data.

3 Recall parameter select buttons

Use these to select the parameters that will be recalled. You can select the following parameters:

ATT	Attenuator
EQ	4-band EQ
Fader	Fader
Balance	Balance
LCR	LCR button, CENTER (AUX only)
Phase	Phase
Limiter	Limiter
Delay	Delay
To MAIN	MAIN button, LR button, C button, PAN (AUX only)

NOTE

Noise may occur when you preview or recall a library item, but this is not a malfunction.

The function buttons have the following operations:

[F2 (PREVIEW)]	Previews (auditions) the selected library data.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf.

For details on library operations, refer to “Library operations” (p. 39).

Assigning channels to DCA groups and MUTE groups

AUX/MTX/MAIN can be assigned to DCA groups and MUTE groups. Assignments to DCA groups and MUTE groups are made in the GROUP ASSIGN popup.

cf.

For details on GROUP ASSIGN popup, refer to “Assigning channels to DCA groups and MUTE groups” (p. 55).

Copying the MAIN mix (AUX1–16 only)

1. Access the CHANNEL DISPLAY screen for the AUX to which you want to copy the MAIN mix.

2. Press [F7 (COPY MAIN MIX)].

A confirmation message will ask you to confirm the operation.

3. Press [F8 (OK)] to copy the send amount from each input channel to MAIN.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

In the case of stereo-linked AUXes, the pan from each input channel to MAIN will also be copied.

Copying a MTX mix to another MTX (MTX1–8)

You can copy the mix from one MTX to another MTX. Use the COPY MTX MIX popup to perform this operation.

1. Access the CHANNEL DISPLAY screen for the desired copy-source MTX.

2. Press [F7 (COPY MTX MIX)] to access the COPY MATRIX MIX popup.

1 Copy-source channel

This indicates the copy-source MTX.

2 Copy-destination channel select button

This indicates the copy-destination MTX.

The function buttons perform the following operations:

[F3 (PASTE)]	Executes the copy.
[F8 (CLOSE)]	Closes the popup.

3. Use the copy-destination select button to select the copy-destination MTX.

4. Press [F3 (PASTE)].

A confirmation message will ask you to confirm the operation.

5. Press [F8 (PASTE)] to copy the mix to the MTX you selected in step 3.

MEMO

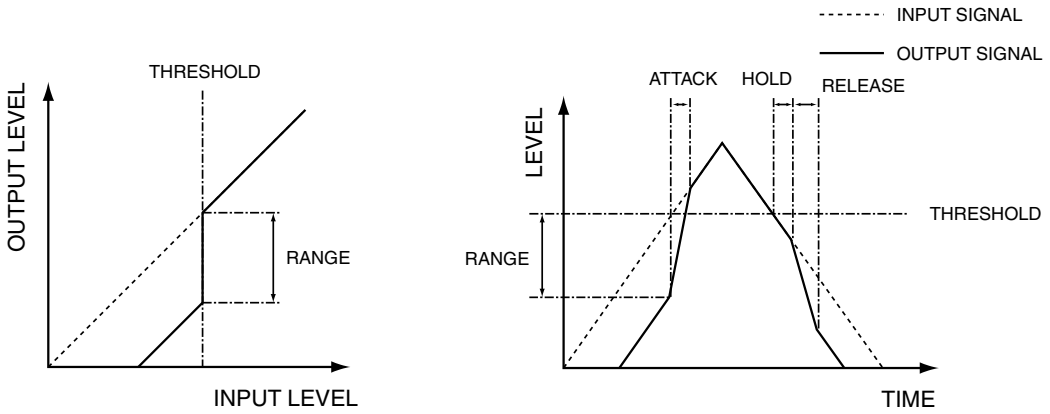
Pressing [F7 (CANCEL)] will cancel the operation.

Dynamics

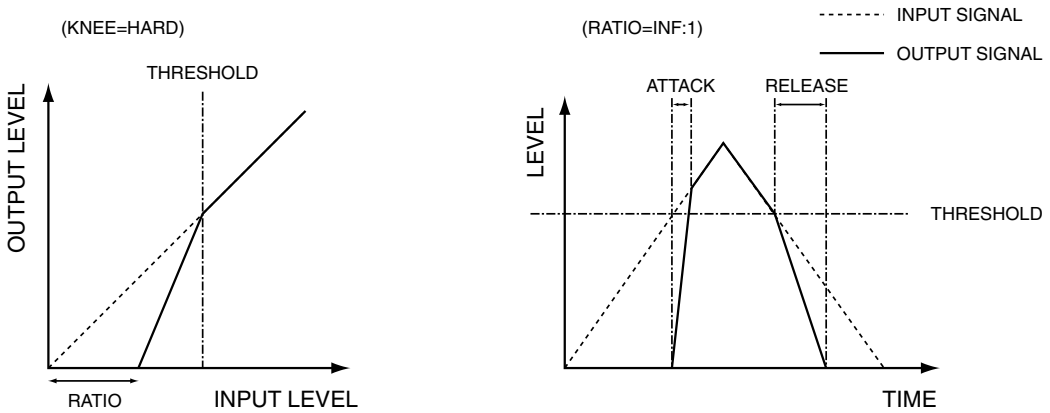
Gate/expander operations

A gate/expander is provided on CH1–48, and can be used as a gate, an expander, or a ducking processor.

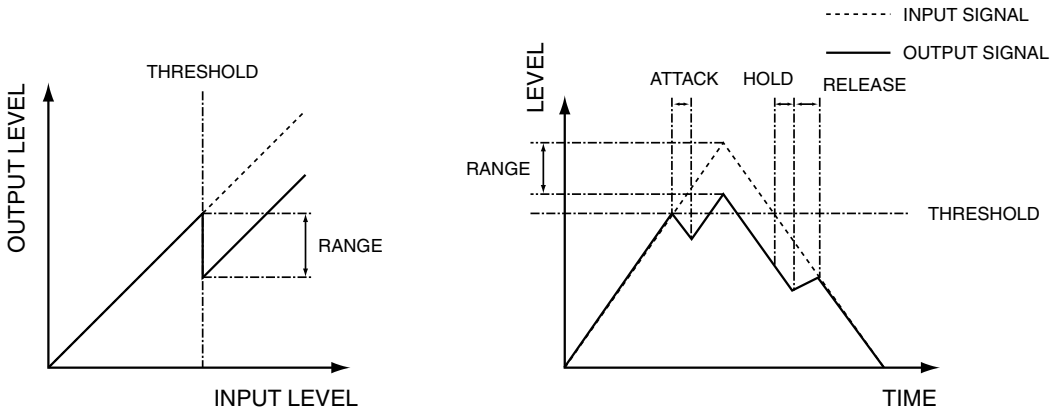
A gate applies a user-adjustable level of attenuation (RANGE) to input signals that are lower than the threshold level.



An expander applies a user-adjustable ratio of attenuation (RATIO) to input signals that are lower than the threshold level.



A ducking applies a user-adjustable level of attenuation (RANGE) to input signals that are higher than the threshold level.

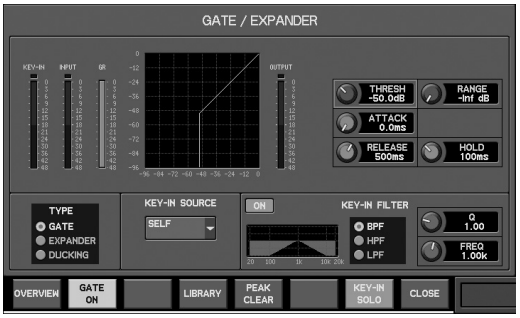


Gate/expander operations are performed in the GATE/EXPANDER popup.

Accessing the GATE/EXPANDER popup

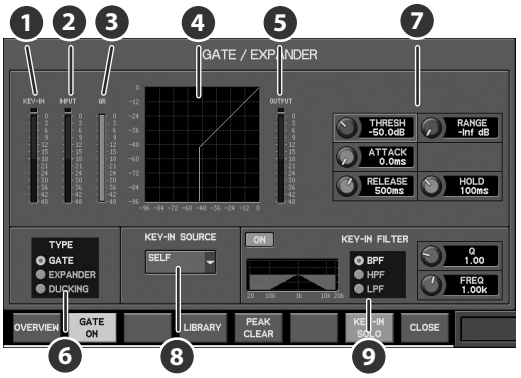
1. **In the fader module section, press a [SEL] button to select the desired channel.**

2. **In the GATE area of the CHANNEL EDIT section, press [DISP].**



The GATE/EXPANDER popup will appear.

GATE/EXPANDER popup



1 KEY-IN meter

This indicates the level of the key-in signal. For stereo-linked channels, two meters are shown (L and R).

2 IN meter

This indicates the input level to the gate/expander. For stereo-linked channels, two meters are shown (L and R).

3 GR (Gain Reduction) meter

This indicates the amount of gain reduction produced by the gate/expander.

4 Gate/expander graph

This indicates the approximate response of the gate/expander.

5 OUT meter

This indicates the output level of the gate/expander. For stereo-linked channels, two meters are shown (L and R).

6 TYPE select button

These select the gate/expander type from the following choices:

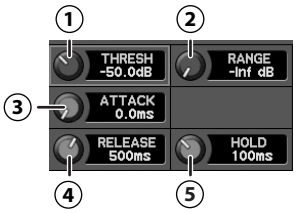
GATE
EXPANDER
DUCKING

7 Parameters

In this field you can edit the gate/expander parameters.

The contents of this field will depend on the type you select in the TYPE select button.

Gate



① THRESH knob

This adjusts the threshold level in a range of -80.0 dB–0.0 dB.

② RANGE knob

This adjusts the RANGE in a range of -Inf dB–0.0 dB.

③ ATTACK knob

This adjusts the ATTACK time in a range of 0.0 ms–800.0 ms. This is the time from when the input signal exceeds the threshold level until the gate opens completely.

④ RELEASE knob

This adjusts the RELEASE time in a range of 0 ms–8000 ms. This is the time over which the gate reaches its maximum effect after the HOLD time has elapsed.

⑤ HOLD knob

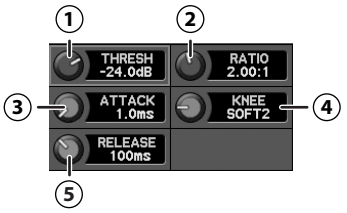
This adjusts the HOLD time in a range of 0 ms–8000 ms. This is the time from when the input signal falls below the threshold level until the gate begins closing.

MEMO

When the GATE/EXPANDER popup is displayed, the gate/expander can be adjusted using the EQUALIZER area controls for the CHANNEL EDIT section.

Knob		Parameter
LO MID	Q	Threshold level
	FREQ	Attack time
	GAIN	Release time
HI MID	Q	Range
	FREQ	-
	GAIN	Hold time

Expander



① THRESH knob

This adjusts the threshold level in a range of -80.0 dB–0.0 dB.

② RATIO knob

This adjusts the RATIO in a range of 1.00:1–INF:1 (14 steps).

③ ATTACK knob

This adjusts the ATTACK time in a range of 0.0 ms–800.0 ms. This is the time from when the input signal exceeds the threshold level until the expander effect disappears.

④ KNEE knob

This adjusts the KNEE in a range of HARD or SOFT1–SOFT9 (ten steps). The way in which the expander is applied to the region near the threshold level can be adjusted between steep (HARD) and gentle (SOFT9).

⑤ RELEASE knob

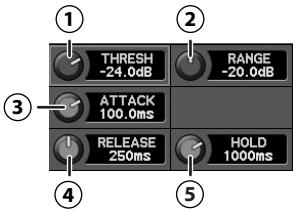
This adjusts the RELEASE time in a range of 0 ms–8000 ms. This is the time from when the input signal falls below the threshold level until the expander effect reaches its maximum.

MEMO

When the GATE/EXPANDER popup is displayed, the gate/expander can be adjusted using the EQUALIZER area controls for the CHANNEL EDIT section.

Knob		Parameter
LO MID	Q	Threshold level
	FREQ	Attack time
	GAIN	Release time
HI MID	Q	Ratio
	FREQ	Knee
	GAIN	-

Ducking



① THRESH knob

This adjusts the threshold level in a range of -80.0 dB–0.0 dB.

② RANGE knob

This adjusts the RANGE in a range of -Inf dB–0.0 dB.

③ ATTACK knob

This adjusts the ATTACK time in a range of 0.0 ms–800.0 ms. This is the time from when the input signal exceeds the threshold level until the ducking effect reaches its maximum.

④ RELEASE knob

This adjusts the RELEASE time in a range of 0 ms–8000 ms. This is the time over which the ducking effect disappears after the HOLD time has elapsed.

⑤ HOLD knob

This adjusts the HOLD time in a range of 0 ms–8000 ms. This is the time from when the input signal falls below the threshold level until the ducking effect begins to disappear.

MEMO

When the GATE/EXPANDER popup is displayed, the gate/expander can be adjusted using the EQUALIZER area controls for the CHANNEL EDIT section.

Knob		Parameter
LO MID	Q	Threshold level
	FREQ	Attack time
	GAIN	Release time
HI MID	Q	Range
	FREQ	-
	GAIN	Hold time

⑧ KEY-IN SELECT popup button

This accesses the KEY-IN SELECT popup where you can select the key-in signal. For stereo-linked channels, there will be two (L and R). The channel currently selected as the key-in signal is shown on the button.

⑨ KEY-IN FILTER

① ON button

This turns the key-in filter on/off.

② Filter graph

This indicates the approximate response of the key-in filter.

③ Filter type select buttons

These buttons select one of the following filter types:

BPF (Band-pass filter)	Passes the region at the specified frequency.
HPF (High-pass filter)	Passes the region higher than the specified frequency.
LPF (Low-pass filter)	Passes the region below the specified frequency.

④ Q knob

This adjusts the filter's Q in a range of 0.36–16.00.

⑤ FREQ knob

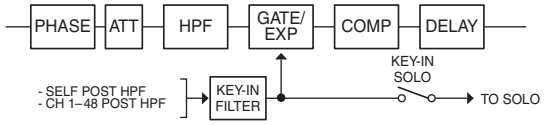
This adjusts the frequency in a range of 20 Hz–20.0 kHz.

The function buttons have the following operations:

[F1 (OVERVIEW)]	Accesses the GATE/EXPANDER OVERVIEW popup (p. 75).
[F1 (GATE ON)]	Turns the gate/expander on/off.
[F4 (LIBRARY)]	Accesses the GATE/EXP LIBRARY popup (p. 75).
[F5 (PEAK CLEAR)]	Clears the level meter's peak hold or over indication.
[F7 (KEY-IN SOLO)]	If you turn this on, you can hear the output signal of the key-in filter (p. 74).
[F8 (CLOSE)]	Closes the popup.

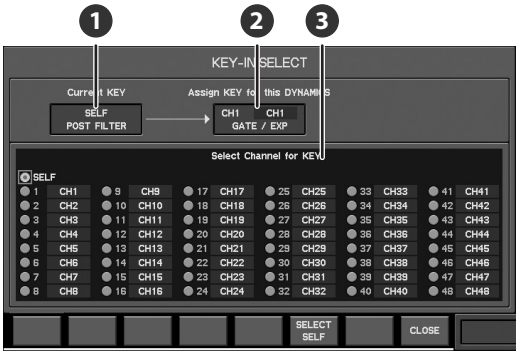
Selecting the key-in signal for the gate/expander

The key-in signal used by the gate/expander is taken from the post-HPF point of the CH1–48.



Use the KEY-IN SELECT popup to select the key-in signal.

1. Move the cursor to the KEY-IN SELECT popup button and press [ENTER].



The KEY-IN SELECT popup will appear.

1 Current key indicator

This indicates the current key.

2 Dynamics type indication

This indicates the type of dynamics to which the KEY-IN SELECT popup applies.

3 Key-in signal select buttons

These buttons select the channel that will be used as the key-in signal.

The function buttons have the following operations:

[F6 (SELECT SELF)]	Selects the channel itself as its own key-in signal.
[F8 (CLOSE)]	Closes the popup.

2. Move the cursor to the desired key-in signal select button, and press [ENTER] to select it.

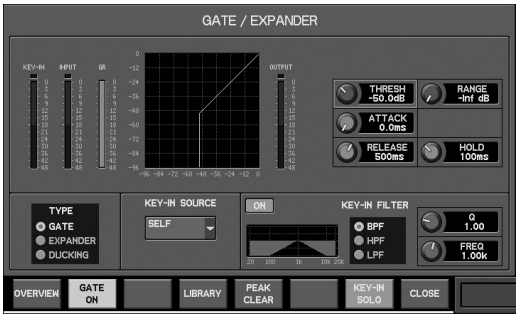
3. Press [F8 (CLOSE)] to close the popup.

MEMO

If you want the channel itself to be its own key-in signal, press [F6 (SELECT SELF)].

Using key-in filter

1. Access the GATE EXPANDER popup.



2. Use the filter type select buttons to select the filter type.

3. Use the FREQ/Q knobs, in the KEY-IN FILTER section, to adjust the filter.

4. Use the ON button, in the KEY-IN FILTER section, to turn the filter on.

MEMO

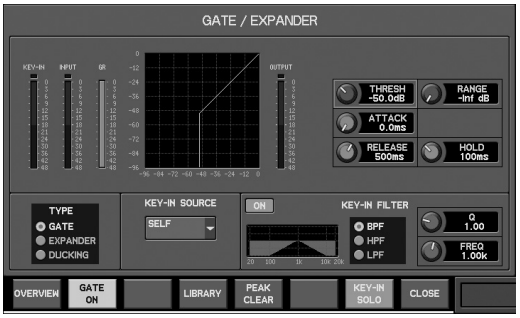
If you turn [F7 (KEY-IN SOLO)] on, you can hear the output signal of the key-in filter via the M-480's monitor output.

MEMO

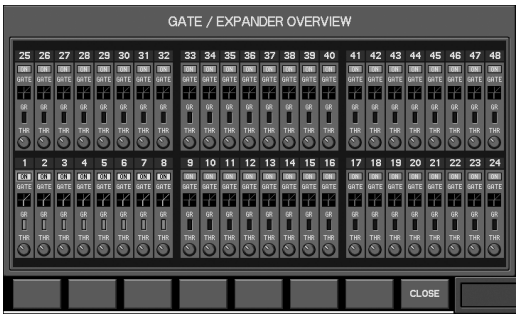
[F7 (KEY-IN SOLO)] will automatically be cancelled when you close the GATE/EXPANDER popup.

Listing the GATE/EXPANDER states

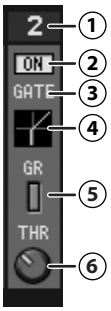
1. **Access the GATE EXPANDER popup.**



2. **Press [F1 (OVERVIEW)] to access the GATE/EXPANDER OVERVIEW popup.**



This shows the overall gate/expander status for CH1–48.



① Channel number

② ON button

This turns the gate/expander on/off.

③ Type indication

This indicates the currently selected type.

④ Gate/expander graph

This shows the approximate response of the gate/expander.

⑤ GR (Gain Reduction) meter

This shows the amount of gain reduction for the gate/expander.

⑥ THR knob

This adjusts the threshold level of the gate/expander in a range of -80.0 dB–0.0 dB.

The function buttons have the following operations:

[F8 (CLOSE)]	Closes the popup.

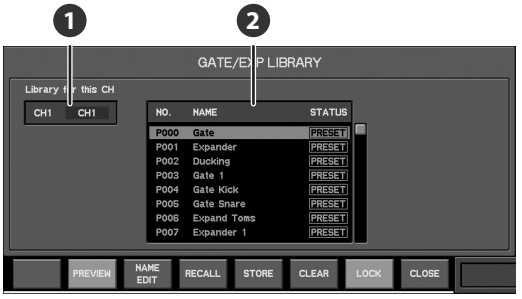
Using the gate/expander library

You can recall gate/expander settings from the library, or store the current gate/expander settings in the library.

The GATE/EXP LIBRARY popup is used to perform gate/expander library operations.

1. **Access the GATE/EXPANDER popup.**

2. **Press [F4 (LIBRARY)] to access the GATE/EXP LIBRARY popup.**



❶ Channel indication

This indicates the channel to which the GATE/EXPANDER LIBRARY popup applies.

❷ Library data list

This is a list of the library data.

The function buttons have the following operations:

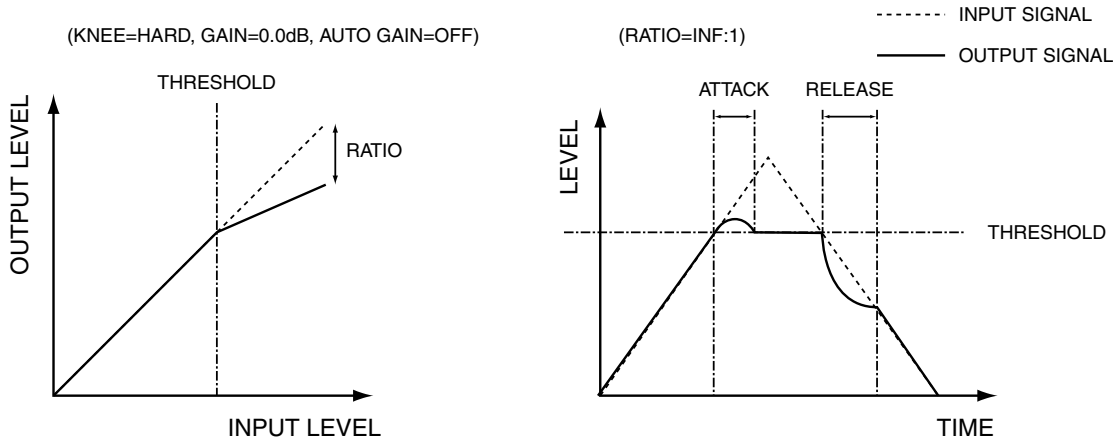
[F2 (PREVIEW)]	Previews (auditions) the library data that is selected in the list.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf. For details on library operations, refer to “Library operations” (p. 39).

Compressor operations

Compressors are provided on CH1–48.

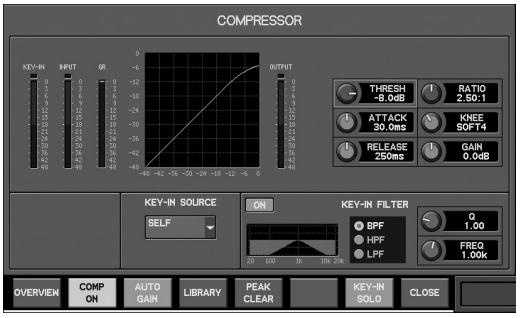
They apply a user-adjustable ratio of attenuation to input signals that exceed the threshold level.



The COMPRESSOR popup is used to perform compressor operations.

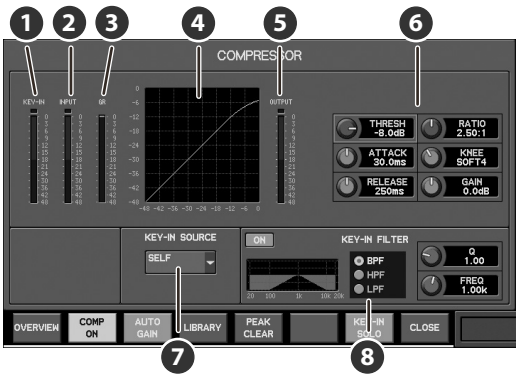
Accessing the COMPRESSOR popup

1. **In the fader module section, press a [SEL] button to select the desired channel.**
2. **In the COMP area of the CHANNEL EDIT section, press [DISP].**



The COMPRESSOR popup will appear.

COMPRESSOR popup



❶ KEY-IN meter

This indicates the level of the key-in signal. For stereo-linked channels, two meters (L and R) are shown.

❷ IN meter

This indicates the input level to the compressor. For stereo-linked channels, two meters (L and R) are shown.

❸ GR (Gain Reduction) meter

This indicates the amount of gain reduction produced by the compressor.

❹ Compressor graph

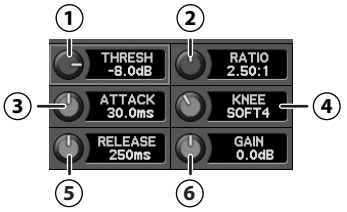
This indicates the approximate response of the compressor.

❺ OUT meter

This indicates the output level of the compressor. For stereo-linked channels, two meters (L and R) are shown.

❻ Parameters

In this field you can edit the compressor parameters.



① THRESH knob

This adjusts the threshold level in a range of -40.0 dB–0.0 dB.

② RATIO knob

This adjusts the RATIO in a range of 1.00:1–INF:1(14 steps).

③ ATTACK knob

This adjusts the ATTACK time in a range of 0.0 ms–800.0 ms. This is the time from when the input signal exceeds the threshold level until the compressor reaches its maximum effect.

④ KNEE knob

This adjusts the KNEE in a range of HARD to SOFT1–SOFT9 (ten steps). The way in which the compressor applies to the region near the threshold level can be adjusted between steep (HARD) and gradual (SOFT9).

⑤ RELEASE knob

This adjusts the RELEASE time in a range of 0 ms–8000 ms. This is the time from when the signal falls below the threshold level until the compressor is no longer applied.

⑥ GAIN knob

This adjusts the GAIN in a range of -40.0 dB–+40.0 dB. This adjusts the output level of the compressor.

MEMO

If AUTO GAIN is on, the GAIN will have an effective range of -40.0 dB–+6.0 dB. If the GAIN value is outside the effective range, the value will be shown in red.

MEMO

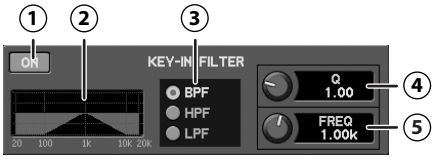
When the COMPRESSOR popup is displayed, the compressor can be adjusted using the EQUALIZER area controls for the CHANNEL EDIT section.

Knob		Parameter
LO MID	Q	Threshold level
	FREQ	Attack time
	GAIN	Release time
HI MID	Q	Ratio
	FREQ	Knee
	GAIN	Gain

⑦ KEY-IN SELECT popup button

This accesses the KEY-IN SELECT popup window where you can select the key-in signal. For stereo-linked channels, there are two buttons (L and R). The channel currently selected as the key-in signal is shown on the button.

⑧ KEY-IN FILTER



① ON button

This turns the key-in filter on/off.

② Filter graph

This indicates the approximate response of the key-in filter.

③ Filter type select buttons

These buttons select one of the following filter types:

BPF (Band-pass filter)	Passes the region at the specified frequency.
HPF (High-pass filter)	Passes the region higher than the specified frequency.
LPF (Low-pass filter)	Passes the region below the specified frequency.

④ Q knob

This adjusts the filter's Q in a range of 0.36–16.00.

⑤ FREQ knob

This adjusts the frequency in a range of 20 Hz–20.0 kHz.

The function buttons have the following operations:

[F1 (OVERVIEW)]	Accesses the COMPRESSOR OVERVIEW popup (p. 79).
[F2 (COMP ON)]	Turns the compressor on/off.
[F3 (AUTO GAIN)]	Turn AUTO GAIN on/off.
[F4 (LIBRARY)]	Accesses the COMP LIBRARY popup window (p. 79).
[F5 (PEAK CLEAR)]	Clears the level meter's peak hold or over indication.
[F7 (KEY-IN SOLO)]	If you turn this on, you can hear the output signal of the key-in filter (p. 78).
[F8 (CLOSE)]	Closes the popup.

MEMO

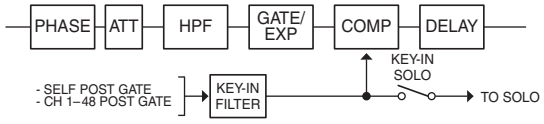
If you turn AUTO GAIN on, the output response of the compressor will be boosted as high as possible while maintaining 6 dB of headroom.

The compressor will narrow the dynamic range, since it reduces the output of incoming signals that exceed the threshold level. If AUTO GAIN is on, the upper limit of the output level when ATTACK time is 0 ms will be boosted while maintaining 6 dB of headroom from clip level (0 dB), thus maximizing the dynamic range.

The 6 dB of headroom is maintained in order to prevent the compressor's output from clipping during the attack portion of the input signal when the ATTACK time is set to a longer value.

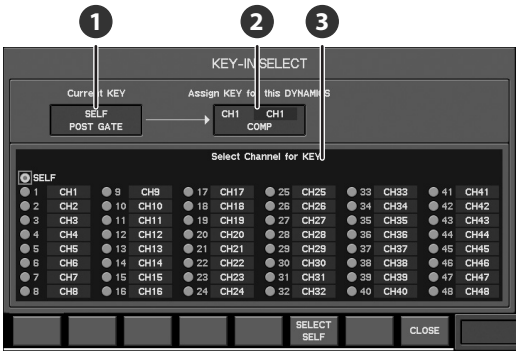
Selecting the key-in signal for the compressor

The key-in signal used by the compressor is taken from the post-gate point of the CH1–48.



To select the key-in signal, use the KEY-IN SELECT popup.

1. **Move the cursor to the KEY-IN SELECT popup button, and press [ENTER].**



The KEY-IN SELECT popup will appear.

1 Current key indication

This indicates the current key.

2 Dynamics type indication

This indicates the type of dynamics to which the KEY-IN SELECT popup applies.

3 Key-in signal select buttons

These buttons select the channel that will be used as the key-in signal.

The function buttons have the following operations:

[F6 (SELECT SELF)]	Selects the channel itself as its own key-in signal.
[F8 (CLOSE)]	Closes the popup.

2. **Move the cursor to the desired key-in signal select button, and press [ENTER] to select it.**

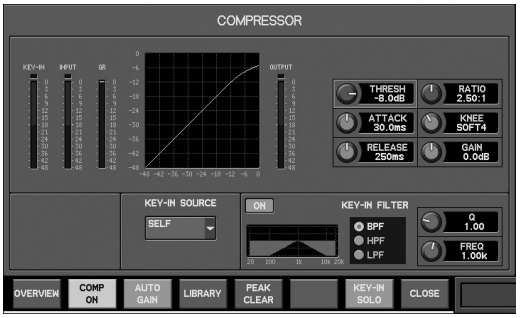
3. **Press [F8 (CLOSE)] to close the popup.**

MEMO

If you want the channel itself to be its own key-in signal, press [F6 (SELCT SELF)].

Using key-in filter

1. **Access the COMPRESSOR popup.**



2. **Use the filter type select buttons to select the filter type.**

3. **Use the FREQ/Q knobs, in the KEY-IN FILTER section, to adjust the filter.**

4. **Use the ON button, in the KEY-IN FILTER section, to turn the filter on.**

MEMO

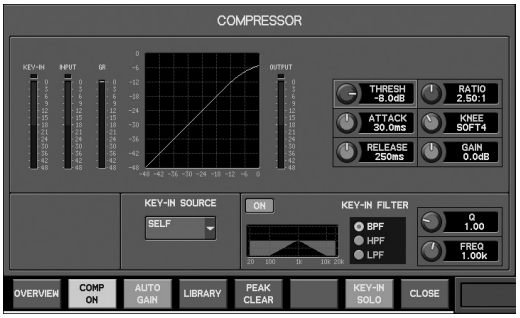
If you turn [F7 (KEY-IN SOLO)] on, you can hear the output signal of the key-in filter via the M-480's monitor output.

MEMO

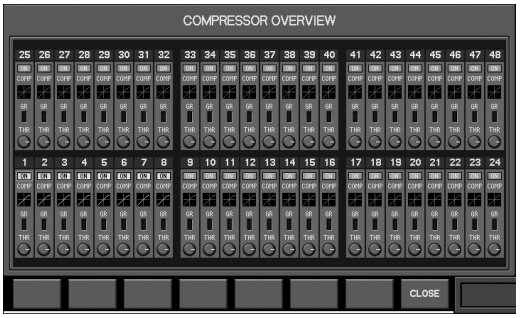
[F7 (KEY-IN SOLO)] will automatically be cancelled when you close the COMPRESSOR popup.

Listing the COMPRESSOR states

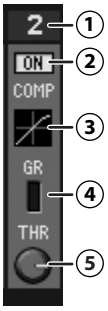
1. Access the COMPRESSOR popup.



2. Press [F1 (OVERVIEW)] to access the COMPRESSOR OVERVIEW popup.



This shows the overall compressor status for CH1–48.



① Channel number

② ON button

This turns the compressor on/off.

③ Compressor graph

This shows the approximate response of the compressor.

④ GR (Gain Reduction) meter

This shows the amount of gain reduction for the compressor.

⑤ THR knob

This adjusts the threshold level of the compressor in a range of -80.0 dB–0.0 dB.

The function buttons have the following operations:

[F8 (CLOSE)]	Closes the popup.

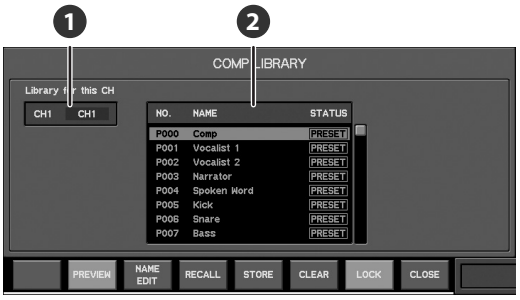
Using the compressor library

You can recall compressor settings from the library, or store the current compressor settings in the library.

The COMP LIBRARY popup is used to perform compressor library operations.

1. Access the COMPRESSOR popup.

2. Press [F4 (LIBRARY)] to access the COMP LIBRARY popup.



① Channel indication

This indicates the channel to which the GATE/EXPANDER LIBRARY popup applies.

② Library data list

This is a list of the library data.

The function buttons have the following operations:

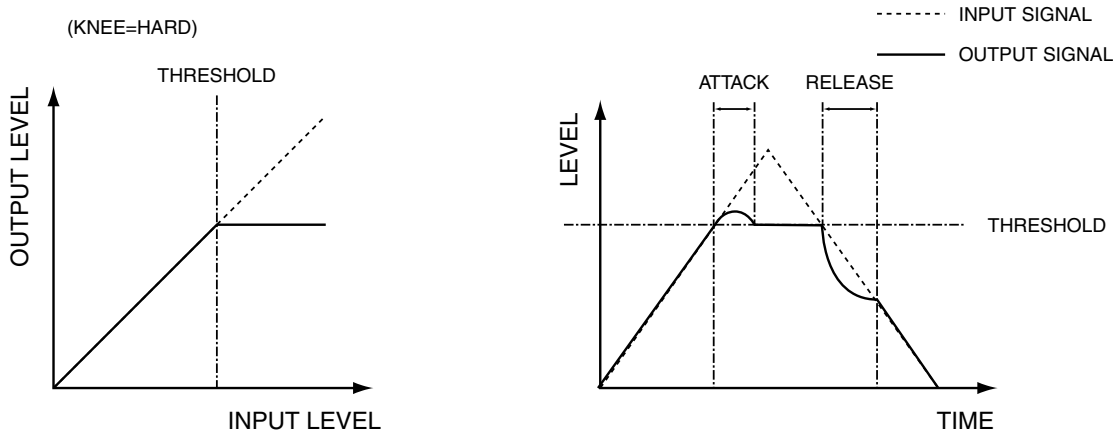
[F2 (PREVIEW)]	Previews (auditions) the library data that is selected in the list.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf.
For details on library operations, refer to “Library operations” (p. 39).

Limiter operations

Limiters are provided on each AUX1–16, MTX1–8, and MAIN L/R/C.

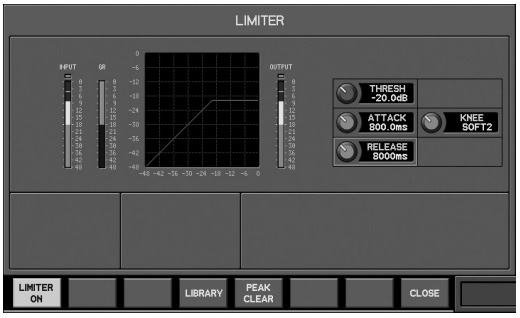
They attenuate the signal so that the output does not exceed the threshold level.



The LIMITER popup is used to perform limiter operations.

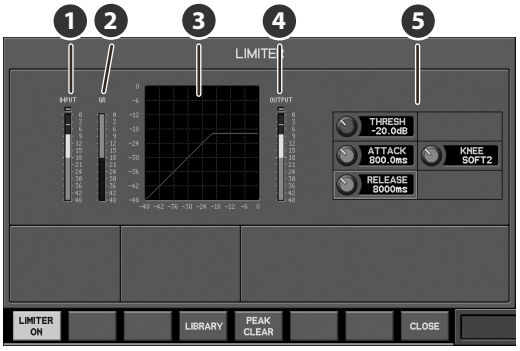
Accessing the LIMITER popup

1. **In the fader module section, press [SEL] to select the desired channel.**
2. **In the COMP area of the CHANNEL EDIT section, press [DISP].**



The LIMITER popup will appear.

LIMITER popup



❶ IN meter

This indicates the input level of the limiter. For stereo-linked channels, two meters (L and R) are shown.

❷ GR (Gain reduction) meter

This indicates the amount of gain reduction produced by the limiter.

❸ Limiter graph

This indicates the approximate response of the limiter.

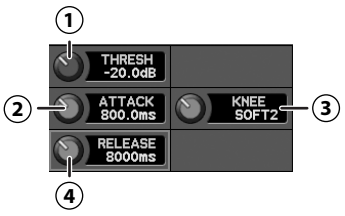
❹ OUT meter

This indicates the output level of the limiter. For stereo-linked channels, two meters (L and R) are shown.

❺ Parameters

In this field you can edit the compressor parameters.

fig.PopLmtGuide2.eps



① THRESH knob

This adjusts the threshold level in a range of -40.0 dB–0.0 dB.

② ATTACK knob

This adjusts the ATTACK time in a range of 0.0 ms–800.0 ms. This is the time from when the input signal exceeds the threshold level until the limiter reaches its maximum effect.

③ KNEE knob

This adjusts the KNEE in a range of HARD to SOFT1–SOFT9 (ten steps). The way in which the limiter applies to the region near the threshold level can be adjusted between steep (HARD) and gradual (SOFT9).

④ RELEASE knob

This adjusts the RELEASE time in a range of 0 ms–8000 ms. This is the time from when the signal falls below the threshold level until the limiter is no longer applied.

MEMO

When the LIMITER popup is displayed, the limiter can be adjusted using the EQUALIZER area controls for the CHANNEL EDIT section.

Knob		Parameter
LO MID	Q	Threshold level
	FREQ	Attack time
	GAIN	Release time
HI MID	Q	-
	FREQ	Knee
	GAIN	-

The function buttons have the following operations:

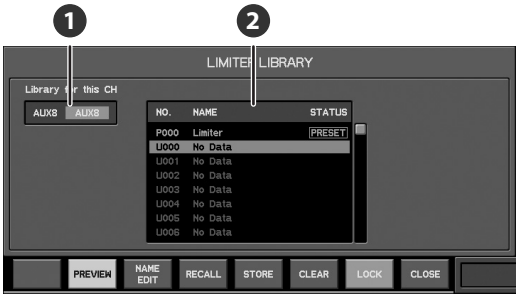
[F1 (LIMITER ON)]	Turns the limiter on/off.
[F4 (LIBRARY)]	Accesses the LIMITER LIBRARY popup.
[F5 (PEAK CLEAR)]	Clears the level meter's peak hold or over indication.
[F8 (CLOSE)]	Closes the popup.

Using the limiter library

You can recall limiter settings from the library, or store the current limiter settings in the library.

The LIMITER LIBRARY popup is used to perform limiter library operations.

1. **Access the LIMITER popup.**
2. **Press [F4 (LIBRARY)] to access the LIMITER LIBRARY popup.**



❶ Channel indication

This indicates the channel to which the GATE/EXPANDER LIBRARY popup applies.

❷ Library data list

This is a list of the library data.

The function buttons have the following operations:

[F2 (PREVIEW)]	Previews (auditions) the library data that is selected in the list.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf.

For details on library operations, refer to "Library operations" (p. 39).

4-band EQ

4-band EQ operations

4-band EQ is provided on CH1–48, AUX 1–16, MTX 1–8, and MAIN L/R/C.

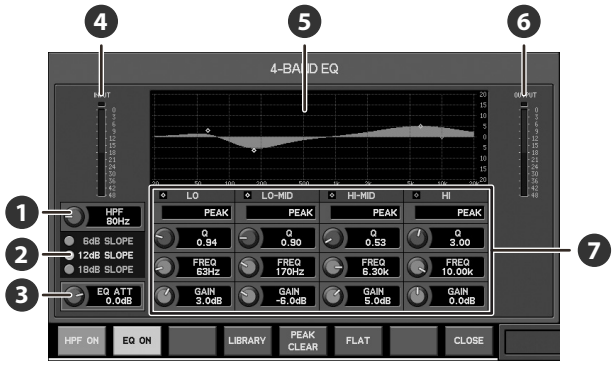
The 4-BAND EQ popup is used to perform 4-band EQ operations.

Accessing the 4-BAND EQ popup

1. **In the fader module section, press a [SEL] button of CH1–32 to select the desired channel.**

2. **In the EQUALIZER area of the CHANNEL EDIT section, press [DISP].**

   The 4-BAND EQ popup will appear.



1 HPF (High-pass filter) (CH 1–48 only)

This is a high-pass filter that passes the region higher than the cutoff frequency. You can adjust the frequency in a range of 20 Hz–20.0 kHz.

2 SLOPE

This selects the HPF slope from the following choices:

6 dB SLOPE	-6 dB/oct high-pass filter
12 dB SLOPE	-12 dB/oct high-pass filter
18 dB SLOPE	-18 dB/oct high-pass filter

3 EQ ATT

This adjusts the EQ input level in a range of -48.0 dB–+15.0 dB.

4 IN meter

This indicates the input level of the 4-band EQ. For stereo-linked channels, two meters (L and R) are shown.

5 4-band EQ graph

This indicates the approximate response of the 4-band EQ.

6 OUT meter

This indicates the output level of the 4-band EQ. For stereo-linked channels, two meters (L and R) are shown.

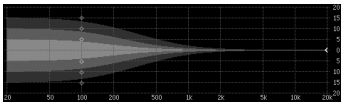
7 4-band EQ parameters

① Type

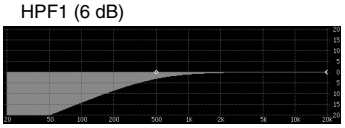
These select the filter type from the following choices:

Type	Function	Desc.
LO SHELF	Low shelving	LO only
HPF1 (6 dB)	-6 dB/oct high-pass filter	
HPF2 (12 dB)	-12 dB/oct high-pass filter	
PEAK	Peaking	
BAND PASS	Band-pass filter	
NOTCH	Notch filter	
HI SHELF	High shelving	HI only
LPF1 (6 dB)	-6 dB/oct low-pass filter	
LPF2 (12 dB)	-12 dB/oct low-pass filter	

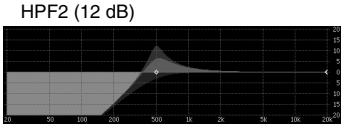
LO SHELF



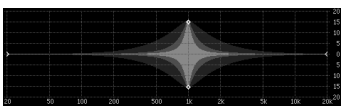
HPF1 (6 dB)



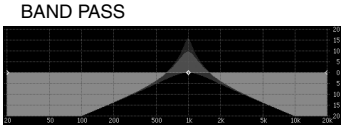
HPF2 (12 dB)



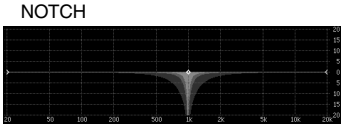
PEAK



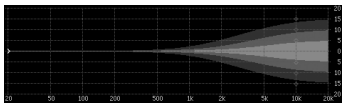
BAND PASS



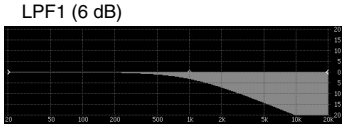
NOTCH



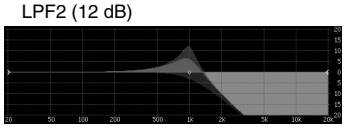
HI SHELF



LPF1 (6 dB)



LPF2 (12 dB)



② Q knob

This adjusts the Q in a range of 0.36–16.00. Higher values produce a sharper curve.

MEMO

This is not shown when LO SHELF, HPF1 (6 dB), HI SHELF, or LPF1 (6 dB) is selected as the filter type.

③ FREQ knob

This adjusts the frequency in a range of 20 Hz–20.0 kHz.

④ GAIN knob

This adjusts the gain in a range of -15.0 dB–+15.0 dB.

MEMO

This is not shown when HPF1 (6 dB), HPF2 (12 dB), BAND PASS, NOTCH, LPF1 (6 dB), or LPF2 (12 dB) is selected as the filter type.

NOTE

Noise may occur when you operate the HPF or 4-band EQ, but this is not a malfunction.

The function buttons have the following operations:

[F1 (HPF ON)]*	Turns the HPF on/off.
[F2 (EQ ON)]	Turns the 4-band EQ on/off.
[F4 (LIBRARY)]	Accesses the 4-BAND EQ LIBRARY popup.
[F5 (PEAK CLEAR)]	Clears the level meter's peak hold or over indication.
[F6 (FLAT)]	Sets the 4-band EQ to flat response.
[F8 (CLOSE)]	Closes the popup.

* CH 1–48 only.

Setting the 4-band EQ to a flat state

1. **Access the 4-BAND EQ popup.**
2. **Press [F6 (FLAT)].**

A confirmation message will ask you to confirm the operation.

3. **Press [F8 (FLAT)]; the gain of the LO, LO-MID, HI-MID, and HI bands will be set to 0.0 dB.**

MEMO

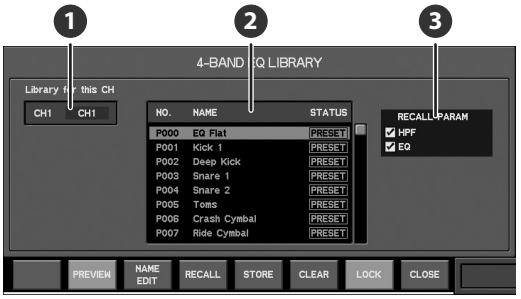
Pressing [F7 (CANCEL)] will cancel the operation.

Using the 4-band EQ library

You can recall 4-band EQ and HPF settings from the library, or store the current 4-band EQ and HPF settings to the library.

The 4-BAND EQ LIBRARY popup is used to perform 4-band EQ library operations.

1. **Access the 4-BAND EQ popup.**
2. **Press [F4 (LIBRARY)] to access the 4-BAND EQ LIBRARY popup.**



❶ Channel indication

This indicates the channel to which the 4-BAND EQ LIBRARY popup applies.

❷ Library data list

This is a list of the library data.

❸ Recall parameter select buttons

These select the section that will be recalled.

The function buttons have the following operations:

[F2 (PREVIEW)]	Previews (auditions) the selected library data.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf.

For details on library operations, refer to "Library operations" (p. 39).

NOTE

Noise may occur when you preview or recall a library item, but this is not a malfunction.

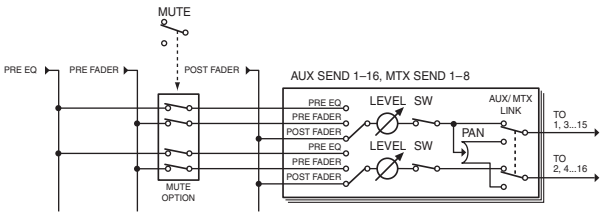
AUX send/MTX send

AUX/MTX send operations (CH1–48, RTN1–6)

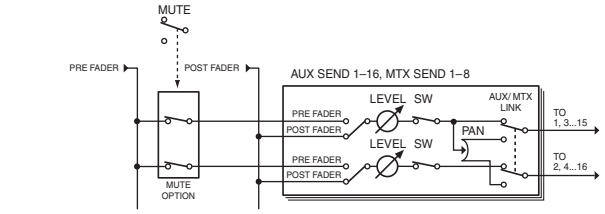
The AUX/MTX sends are used to send audio signals from input channels to AUX1–16 and MTX1–8.

fig.InBlkSends.eps

CH 1-48



RTN 1L-6R



The AUX (MTX) SENDS popup is used to perform AUX/MTX send operations.

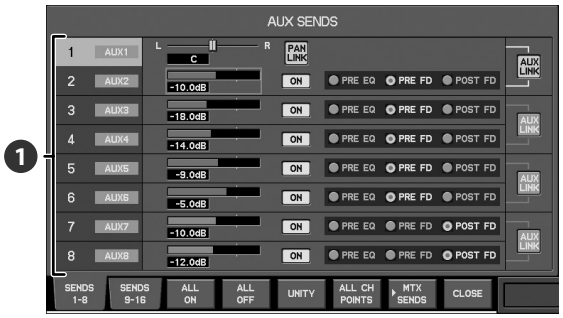
cf.

The CH-MUTE OPTION determines whether AUX/MTX sends are muted when the channel is muted (p. 156).

AUX (MTX) SENDS popup

1. **In the fader module section, press a [SEL] button to select the desired channel.**

2. **In the AUX/MTX SENDS area of the CHANNEL EDIT section, press [DISP].**



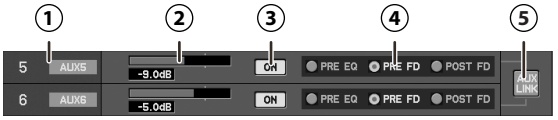
The AUX (MTX) SENDS popup will appear.

3. **Use the [F7 (▶ MTX SENDS)] or [F7 (▶ AUX SENDS)] to switch to the MTX SENDS popup or the AUX SENDS popup.**

   In the AUX SENDS popup, you can use the [F1 (SENDS 1–8)], or [F2 (SENDS 9–16)] tab to switch two display pages.

❶ AUX sends 1–16, MTX sends 1–8

These adjust the sends from the channel to AUX/MTX.



① Number/Name

This indicates the AUX/MTX number and name.

② Send level bar

This adjusts the send level to AUX/MTX in a range of -Inf dB–+10.0 dB. The color of the send level bar indicates the send point or the status of the send switch, as follows:

Blue	PRE EQ or PRE FADER send point
Green	POST FADER send point
Gray	Send switch is off

③ ON button

This turns the send switch on/off.

④ Send point select buttons

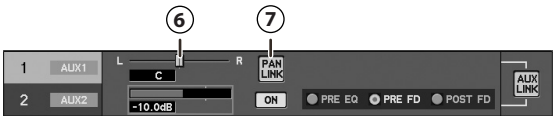
These select the point from which the channel signal is sent to AUX/MTX, from the following choices:

PRE EQ	Send from the pre-EQ point.
PRE FD	Send from the pre-fader point.
POST FD	Send from the post-fader point

⑤ LINK switch

This turns the AUX/MTX stereo-link on/off.

If AUX/MTX is stereo-linked, the following parameters will be shown for the odd-numbered AUX/MTX send:



⑥ Pan slider

This adjusts the send pan in a range of L63–R63.

⑦ PAN LINK button

This turns the PAN LINK switch on/off. If PAN LINK is on, the pan from the channel to MAIN will be linked with the pan from the channel to the stereo-linked AUX/MTX.

The function buttons have the following operations:

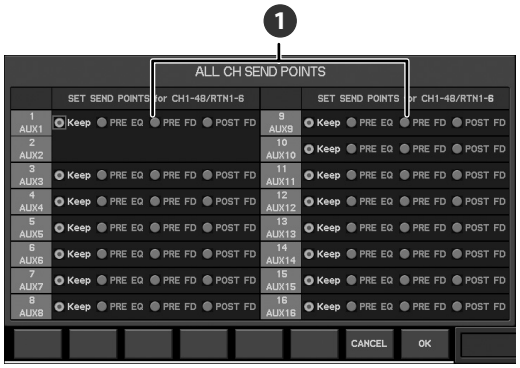
[F1 (SENDS 1–8)]*	Displays the sends to AUX1–8.
[F2 (SENDS 9–16)]*	Displays the sends to AUX 9–16.
[F3 (ALL ON)	Turns on all send switches for each send field.
[F4 (ALL OFF)	Turns off all send switches for each send field.
[F5 (UNITY)	Sets the send level to 0.0 dB for the send field at the cursor location.

[F6 (ALL CH POINTS)]	Access the ALL CH SEND POINTS popup.
[F7 (▶ MTX SENDS)] [F7 (▶ AUX SENDS)]	Switches to the MTX SENDS popup or the AUX SENDS popup.
[F8 (CLOSE)]	Closes the popup.

* AUX SENDS popup only.

Setting all AUX/MTX send points in a singe operations

1. **Access the AUX (MTX) SENDS popup.**
2. **Use the [F7 (▶ MTX SENDS)] or [F7 (▶ AUX SENDS)] to switch to the MTX SENDS popup or the AUX SENDS popup.**
3. **Press [F6 (ALL CH POINTS)] to access the ALL CH SEND POINTS popup.**



1 Send point select buttons

These buttons select the send point for AUX1–16 or MTX1–8 from the following choices:

Keep	Maintains the current setting.
PRE EQ	Specifies pre-EQ.
PRE FD	Specifies pre-fader.
POST FD	Specifies post-fader.

4. **Use the send point select buttons to select the desired send point.**
5. **Press [F8 (OK)].**

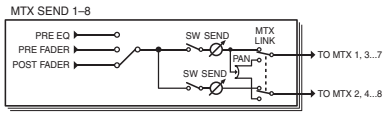
The AUX or MTX send points you selected in step 4 will be assigned for all channels CH1–48 and RTN1–6 in a single operation, and the popup will close.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

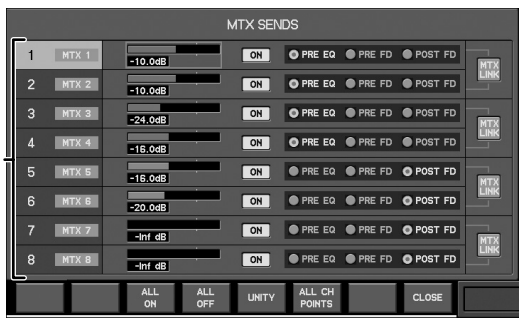
MTX send operations (AUX1–16, MAIN L/R/C)

The MTX sends are used to send audio signals from AUX1–16 or MAIN L/R/C to MTX1–8.



The MTX SENDS popup is used to perform MTX send operations.

1. **In the fader module section, press a [SEL] button to select the desired channel.**
2. **In the AUX/MTX SENDS area of the CHANNEL EDIT section, press [DISP].**



The MTX SENDS popup will appear.

1 MTX sends 1–8

These adjust the sends from the AUX or MAIN to MTX. The MTX send area is structured as follows:

cf.

"AUX sends 1–16, MTX sends 1–8" (p. 84)

The function buttons have the following operations:

[F3 (ALL ON)]	Turns on all send switches for each send field.
[F4 (ALL OFF)]	Turns off all send switches for each send field.
[F5 (UNITY)]	Sets the send level to 0.0 dB for the send field at the cursor location.
[F8 (CLOSE)]	Closes the popup.

Input/output patchbay

Default setting of the input/output patchbay

Default settings of the input patchbay

When the M-480 is in its default state, the input patchbay is set as follows:

Input channel	Input port
CH1–16	REAC A IN1–16
CH17–32	REAC B IN1–16
CH33–40	CONSOLE IN1–8
CH41–42	FX5 OUT L, R
CH43–44	FX6 OUT L, R
CH45–46	PLAY L, R
CH47–48	STEREO IN L, R
RTN1L–6R	none

MEMO

You can also use the EFFECTS screen to patch an effect output to a channel. For details, refer to "Using an effect via send/return" (p. 100).

MEMO

You can also use the RECORDER screen to patch a USB memory recorder output to a channel. For details, refer to "Specifying the output-destination for the USB memory recorder" (p. 130).

Default settings of the output patchbay

When the M-480 is in its default state, the output patchbay is set as follows:

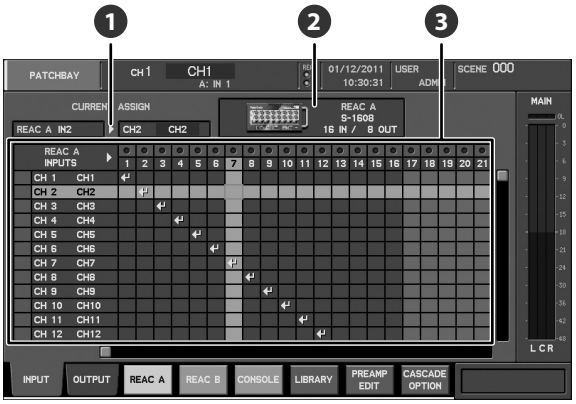
Output port		Output
REAC A or REAC B	OUT1–6	AUX1–6
	OUT7–8	MAIN L, R
	OUT9–40	CH1–32 DIRECT OUT
CONSOLE	OUT1–6	AUX1–6
	OUT7–8	MONITOR L, R
DIGITAL	OUT L/R	MONITOR L, R

Patchbay operations

You can change the settings of the input/output patchbays. Use the PATCHBAY screen to perform patchbay operations.

Accessing the PATCHBAY screen

1. In the SETUP section of the top panel, press [PATCHBAY].



The PATCHBAY screen will appear.

① Current assign indication

For the input patchbay, this indicates the physical input source that is patched to the input channel at the cursor location.

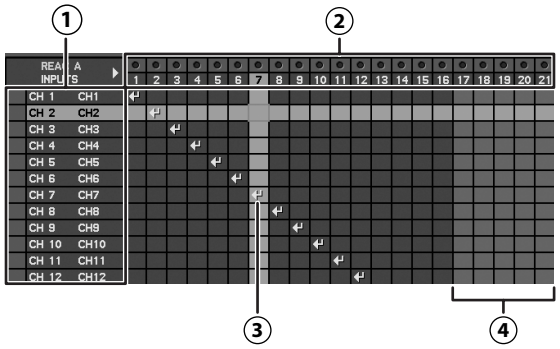
For the output patchbay, this indicates the output channel that is patched to the physical output at the cursor location.

② Device indication

This indicates the input/output unit that is connected to the REAC port currently selected by the function buttons, or indicates the M-480 itself.

③ Patchbay grid

This grid lets you make patchbay settings.



① Channel indication

This indicates the channel number and name.

② Jack indication

This indicates the jack number. For the input patchbay, this also indicates the signal level at the input jack.

The color indicates the signal level as follows:

Black	Below -48 dB
Green	Between -48 dB and -18 dB
Yellow	Between -18 dB and 0 dB
Red	Above 0 dB

③ Patch symbol

A patch symbol is shown where the currently patched channel and jack intersect. To change the patching, move the cursor to the location where the desired channel and jack intersect, and press [ENTER].

④ Unavailable jack area

The number area is shown in gray for jacks that cannot be used with the currently connected REAC slave input/output unit.

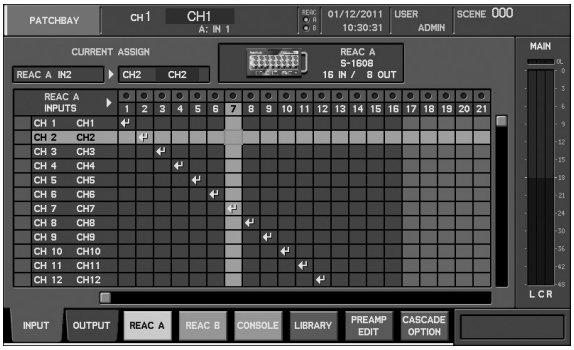
The function buttons have the following operations:

[F1 (INPUT)]	Displays the INPUT tab, where you can set the input patchbay (p. 88).
[F2 (OUTPUT)]	Displays the OUTPUT tab, where you can set the output patchbay (p. 90).
[F3 (REAC A)]	Allows you to make patchbay settings for the REAC A input/output jacks.
[F4 (REAC B)]	Allows you to make patchbay settings for the REAC B input/output jacks.
[F5 (CONSOLE)]	Allows you to make patchbay settings for the M-480's rear panel input/output jacks, and for internal ports such as the effect output and the USB memory recorder output.
[F6 (LIBRARY)]	Accesses the INPUT PATCHBAY LIBRARY popup (p. 88) or OUTPUT PATCHBAY LIBRARY popup (p. 90).
[F7 (PREAMP EDIT)]	Accesses the PREAMP EDIT popup, where you can set the preamp gain.

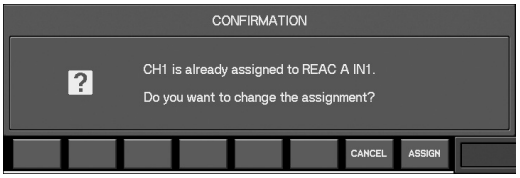
Input patchbay operations

Editing the input patching

1. **Access the PATCHBAY screen.**
2. **Press [F1 (INPUT)] to access the INPUT tab.**



3. **Press [F3 (REAC A)], [F4 (REAC B)], or [F5 (CONSOLE)] to select the desired location for the input jack.**
4. **Move the cursor to the intersection of the desired channel and jack, and press [ENTER].**



If an input port is already patched to the channel, a message will ask you to confirm the input patching change.

Press [F8 (ASSIGN)] to change the input patching.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

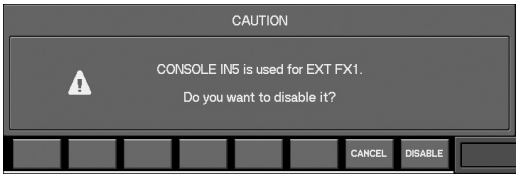
MEMO

If the "PATCHBAY CHANGE" item in the CONFIRMATION section of User Preference (p. 141) is unselected, no confirmation message will appear in step 4.

MEMO

Two input jacks may not be assigned to one input channel. However, one input jack may be assigned to more than one input channel.

If you attempt to patch a CONSOLE IN that an EXT FX is using, a caution message such as the following will appear:



Press [F8 (DISABLE)] to disable the corresponding EXT FX and continue with the patching change.

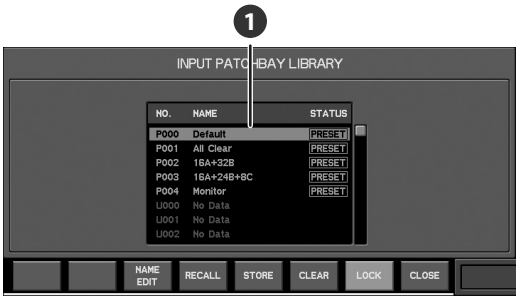
Pressing [F7 (CANCEL)] will cancel the operation.

Using the input patchbay library

The input patchbay library lets you store the current input patchbay settings for later recall.

The INPUT PATCHBAY LIBRARY popup is used to perform input patchbay library operations.

1. **Access the PATCHBAY screen.**
2. **Press [F1 (INPUT)] to access the INPUT tab.**
3. **Press [F6 (LIBRARY)] to access the INPUT PATCHBAY LIBRARY popup.**



1 Library data list

This is a list of library data.

The function buttons have the following operations:

[F3 (NAME EDIT)]	Accesses the NAME EDIT popup
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf.

For details on library operations, refer to "Library operations" (p. 39).

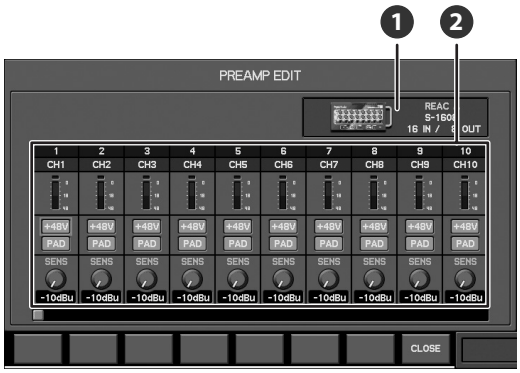
Editing the preamp

You can setup the preamp gain of the input jacks directly.

TIP

It is useful when an input jack is not patched to M-480's input channel, but is a split source used for a multi-channel recording system.

1. **Access the PATCHBAY screen.**
2. **Press [F1 (INPUT)] to access the INPUT tab.**
3. **Press [F3 (REAC A)], [F4 (REAC B)], or [F5 (CONSOLE)] to select the desired location for the input jack.**
4. **Press [F7 (PREAMP EDIT)] to access the PREAMP EDIT popup.**



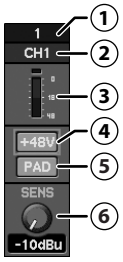
The PREAMP EDIT popup will appear.

❶ Device indication

This indicates the input/output unit or the M-480 itself that is the target of the PREAMP EDIT popup.

❷ Preamp

Here you can setup the preamps.



① Input number

This indicates the input jack number.

② Channel name

If the input jack is patched to the M-480's input channel, this indicates the name of the input channel to which the input jack is patched.

MEMO

If the input jack is patched to more than one channel, the name of the lowest number channel is shown.

③ Level meter

This indicates the input level.

④ +48V buttons

This turns the +48V phantom power on/off.

NOTE

You must turn the phantom power off if you've connected equipment that does not require +48V phantom power. Mistakenly supplying phantom power to a dynamic microphone, audio playback device, or any other device that does not require phantom power will cause malfunctions. Carefully read the owner's manual for your microphone or other device, and make sure of its specifications.

MEMO

Since noise will be produced when you switch the phantom power setting, the output of the channel whose setting you change will be briefly muted.

⑤ PAD button

This switches the pad on/off. Turning this on will lower the input sensitivity of the preamp by 20 dB.

MEMO

Since noise will be produced when you switch the pad setting, the output of the channel whose setting you change will be briefly muted.

⑥ GAIN knob

This adjusts the preamp gain in a range of -65 dBu– -10 dBu (if PAD is on, a range of -45 dBu– +10 dBu).

NOTE

The preamp gain is not a continuous control, it is digital with stepped control. In certain situations artifact noise may occur when changing preamp gain. This is normal.

For the following cases, the preamp area will not show +48 button, PAD button, and GAIN knob:

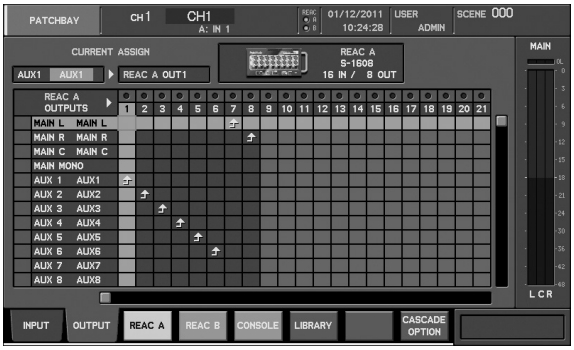
- Digital input (the SI-AES4 for example).
- When the REAC port is REAC split.

5. **Move cursor to the desired input jack.**
6. **Use the +48V button, PAD button and GAIN knob to setup the preamp.**
7. **Press [F8 (CLOSE)] to close the popup.**

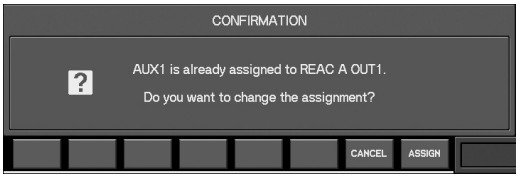
Output patchbay operations

Editing the output patching

1. **Access the PATCHBAY screen.**
2. **Press [F2 (OUTPUT)] to access the OUTPUT tab.**



3. **Press [F3 (REAC A)], [F4 (REAC B)], or [F5 (CONSOLE)] to select the desired location for the output jack.**
4. **Move the cursor to the intersection of the desired channel and jack, and press [ENTER].**



If a channel is already patched to the output port, a message will ask you to confirm the output patching change.

Press [F8 (ASSIGN)] to change the output patching.

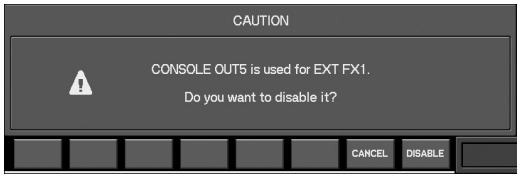
MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

If the "PATCHBAY CHANGE" item in the CONFIRMATION section of User Preference (p. 141) is unselected, no confirmation message will appear in step 4.

If you attempt to patch to a CONSOLE OUT that an EXT FX is using, a caution message such as the following will appear:



Press [F8 (DISABLE)] to disable the corresponding EXT FX and continue with the patching change.

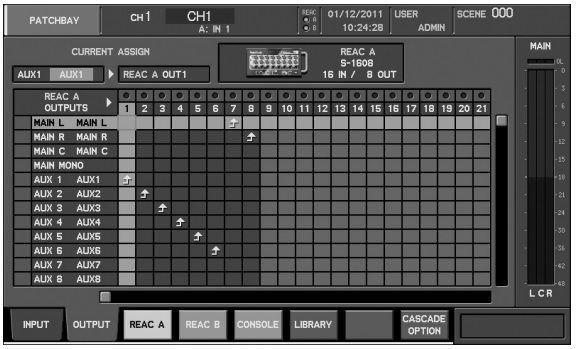
Pressing [F7 (CANCEL)] will cancel the operation.

Using the output patchbay library

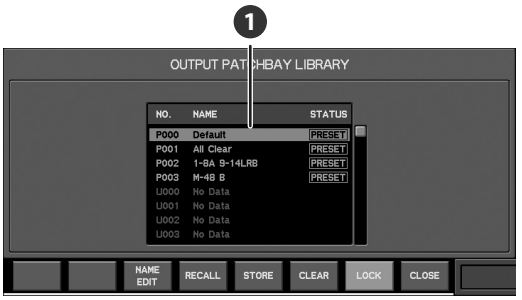
The output patchbay library lets you store the current output patchbay settings for later recall.

The OUTPUT PATCHBAY LIBRARY popup is used to perform output patchbay library operations.

1. **Access the PATCHBAY screen.**
2. **Press [F2 (OUTPUT)] to access the output patchbay.**



3. **Press [F6 (LIBRARY)] to access the OUTPUT PATCHBAY LIBRARY popup.**



1 Library data list

This is a list of library data.

The function buttons have the following operations:

[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

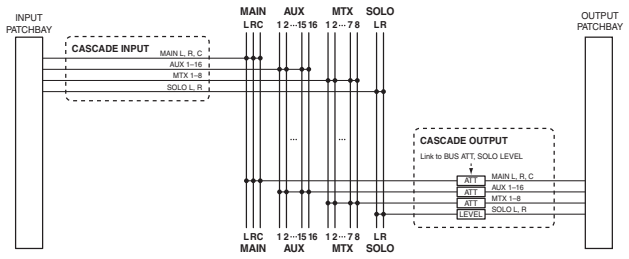
cf.

For details on library operations, refer to "Library operations" (p. 39).

Cascade connection

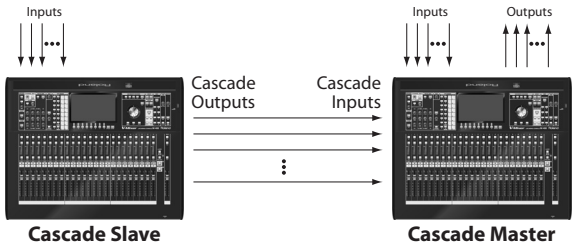
By using the cascade outputs in the output patchbay, and the cascade inputs in the input patchbay, you can connect the AUX buses, MTX buses, or MAIN buses between two or more M-480s. This enables the number of input channels to be greatly increased.

If you cascade-connect the M-480 using a REAC connection, you can link a variety of functions by using the Cascade Link function (p. 92).



Signal flow

From the cascade outputs of one M-480, the bus signals for the cascade-connection flow into the cascade inputs of another M-480. The M-480 on the upper-side of the signal flow is called "Cascade Slave" console, and the last one of the signal flow is called "Cascade Master" console. The cascade connected bus can be outputted from the Cascade Master console.

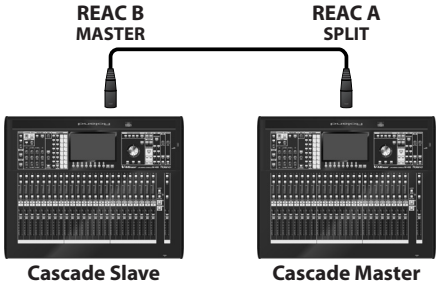


Notes when using cascade-connection

* If you use the M-480's SPLIT/BACKUP port (p. 30) for the cascade connection, it is not possible to use the Cascade Link function (p. 92).
* CAS OUT MAIN L, R, C does not contain the signal sent from the AUX.
* CAS OUT MTX 1–8 does not contain the signal sent from the AUX or MAIN.
* The attenuator for the AUX, MTX, or MAIN acts when input signals are summing into the bus. When you use the attenuator for AUX, MTX, or MAIN, you have to adjust it for each of the M-480s.
* When REAC is used for the cascade connection, the word clock worsens as the number of M-480 increase. Noise may occur when you cascade connect more than two M-480s using REAC.
* Because of the mixing latency and input/output latency (REAC, Analog Audio, or AES/EBU), the cascade output signals from one M-480 are mixed into the other M-480's buses with a minimal delay. Compensate for this delay by using the input channel delay. In this case, all signals for cascade-connection should go through same route so that the delay time for all cascade signals will be same (e.g. all signals connected via REAC.)

Setting up Cascade connection

Here we explain how to setup the cascade connection by giving the example of two M-480 cascaded using the REAC B of the Cascade Slave console and the REAC A of the Cascade Master console.

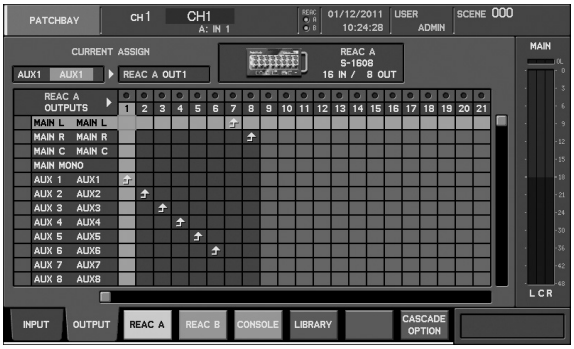


Setting up the Cascade Slave console

Output Patchbay settings

1. Access the PATCHBAY screen.

2. Press [F2 (OUTPUT)] to access the OUTPUT tab.



3. Press [F4 (REAC B)] to select the REAC B.

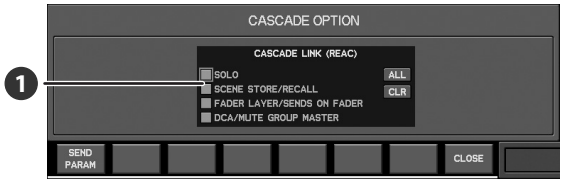
4. Patch the cascade outputs (CAS OUT) to the REAC B outputs.

Here set as follows:

Cascade output	REAC B output
CAS OUT MAIN L, R, C	OUT1–3
CAS OUT AUX1–16	OUT4–19
CAS OUT MTX1–8	OUT20–27
CAS OUT SOLO L, R	OUT28–29

Cascade Link function settings

5. Press [F8 (CASCADE OPTION)].



The CASCADE OPTION popup will appear.

1 CASCADE LINK (REAC) select buttons

These buttons specify the function that will be linked by the Cascade Link function.

MEMO

Control messages for the checked functions are sent to the other M-480 via REAC.

MEMO

When an M-480 receives the control message for the Cascade Link function, it will be preformed only when the corresponding function is checked.

- SOLO

  This links the solo function. When solo is turned on, the SOLO bus audio can be monitored from the MONITOR and PHONES outputs of the Cascade Master console, and the [SOLO CLEAR] will blink.

  MEMO

  To monitoring the Cascade Slave's solo in the Cascade Master console, you need to cascade connect the SOLO L/R.

- SCENE STORE/RECALL

  Storing a scene also stores another M-480's scene into the same scene number with the same scene name. Recalling a scene also recalls another M-480's scene with the same scene number.

  MEMO

  The M-480 will not store to a locked scene (p. 120).

  MEMO

  The M-480 will not recall a blank scene (p. 120).

  MEMO

  Even when the "SCENE STORE" or "SCENE RECALL" item is not allowed in the User settings (p. 137), the M-480 will follow the other M-480's storing or recalling commands.

- FADER LAYER/SENDS ON FADER

  This links the layer selection in the Layer section, the AUX/MTX selection in the AUX/MTX SENDS area, and on/off state of the [SENDS ON FADER] button.

  MEMO

  To link the layer selection, press and hold one of the layer buttons

  MEMO

  The [AUX/MTX] layer selection is not linked.

- DCA/MUTE GROUP MASTER

  This links the DCA group faders and MUTE group on/off.

The function buttons have the following operations:

[F1 (SEND PARAM)]	Sends current parameters to other M-480s.
[F8 (CLOSE)]	Closes the popup.

6. Check desired function for the CASCADE LINK (REAC) select buttons.

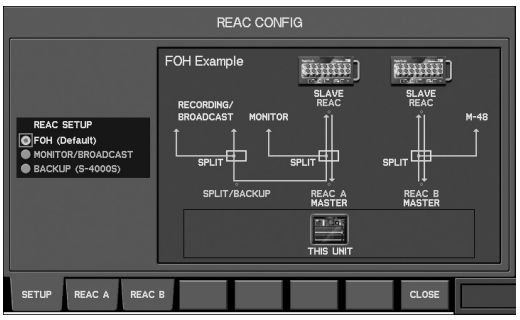
7. Press [F8 (CLOSE)] to close the popup.

Setting up the Cascade Master console

REAC settings

1. **In the SETUP section, press [SYSTEM] to access the SYSTEM screen.**

2. **Press [F2 (REAC CONFIG)].**
   The REAC CONFIG popup will appear.
3. **Press [F1 (SETUP)]**



   The SETUP tab will be shown.

cf.
"REAC settings" (p. 144)

4. **Move the cursor to the "MONITOR/BROADCAST" in the REAC SETUP select button, and press [ENTER].**
   A message will ask you to confirm the operation.
5. **Press [F8 (SET)].**
6. **Press [F8 (CLOSE)] to close the popup.**

Input patchbay settings

7. **Access the PATCHBAY screen.**
8. **Press [F1 (INPUT)] to access the INPUT tab.**
9. **Press [F3 (REAC A)] to select the REAC A.**
10. **Patch the REAC A inputs to the cascade inputs (CAS IN).**
    Here set as follows:

REAC A input	Cascade input
IN1–3	CAS IN MAIN L, R, C
IN4–19	CAS IN AUX1–16
IN20–27	CAS IN MTX1–8
IN28–29	CAS IN SOLO L, R

Cascade Link function settings

11. **Press [F8 (CASCADE OPTION)].**

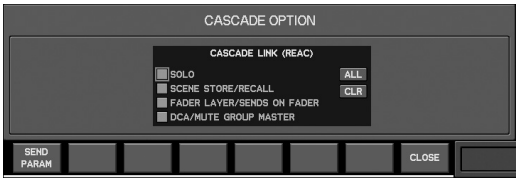
    The CASCADE OPTION popup will appear.

12. **Setup the Cascade Link function. Check desired function for the CASCADE LINK (REAC) select buttons.**
13. **Press [F8 (CLOSE)] to close the popup.**

Matching parameter values

By sending current parameter values to the other M-480, you can match the parameter values for the Cascade Link function.

1. **In the send-source M-480, access the PATCHBAY screen.**
2. **Press [F8 (CASCADE OPTION)].**



   The CASCADE OPTION popup will appear.

3. **Press [F1 (SEND PARAM)].**

   A message will ask you to confirm the operation.

4. **Press [F8 (SEND)].**
   Current parameter values will be sent to the other M-480.
   Parameters being sent to the other M-480 varies according to the selection in the CASCADE LINK (REAC) select button:
   - FADER LAYER/SENDS ON FADER
     If this is checked, current fader layer selection, AUX/MTX selection in the AUX/MTX SENDS, and on/off state of the [SENDS ON FADER] will be sent.
   - DCA/MUTE GROUP MASTER
     If this is checked, current DCA group fader values, solo on/off, mute on/off, and MUTE group on/off will be sent.

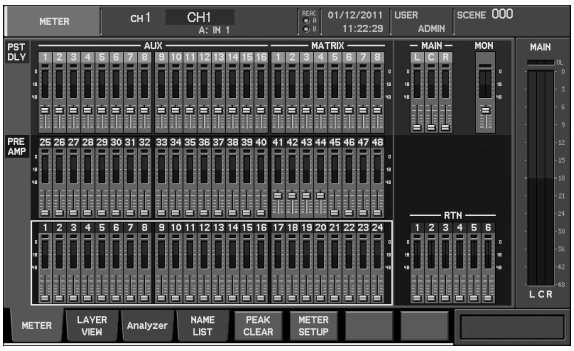
Metering

About the meters

Here we will explain the METER screen.

Accessing the METER screen

1. Press the top panel [METER] button.



The METER screen will appear.

The content shown in the METER screen changes when you switch tabs.

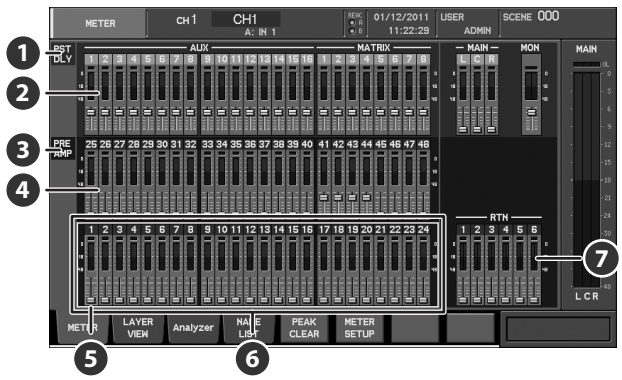
The function buttons have the following operations:

[F1 (METER)]	Accesses the METER tab, which shows the levels of all channels.
[F2 (LAYER VIEW)]	Accesses the LAYER VIEW tab, which shows the levels of the same channels as the top panel channel layer.
[F3 (Analyzer)]	Displays the Analyzer tab, which shows the 31-band realtime analyzer.
[F4 (NAME LIST)]	Displays the NAME LIST tab, which lists the channel names and group names.
[F5 (PEAK CLEAR)]	Clears the level meter's peak hold or over indications.
[F6 (METER SETUP)]	Accesses the METER SETUP popup (p. 96).

Viewing the meters

To view the meters for all channels, use the METER tab of the METER screen.

METER tab



1 BUS meter point

This indicates the point at which the AUX, MTX, and MAIN meters are detecting the level.

2 AUX/MTX/MAIN meters

These indicate the level and fader position for AUX1–16, MTX1–8, and MAIN L/C/R.

3 CH meter point

This indicates the point at which the CH1–48 and RTN1–6 meters are detecting the level.

4 CH meters

This indicates the level and fader position for CH1–48.

5 Cursor

This indicates the currently selected channel. You can use the value dial to adjust the fader of the channel at the cursor location.

TIP

When you press [SEL] to change the selected channel, the cursor in the screen will move. When you move the cursor in the screen, the [SEL] indication of the top panel will likewise move.

MEMO

If the "CHANNEL DISPLAY follows CH SELECT button" item in the CHANNEL SELECT section of User Preference (p. 141) is selected, pressing a [SEL] will cause the CHANNEL DISPLAY screen of that channel to appear.

6 Panel layer indication

The frame indicates the channel layer that is selected in the layer section of the top panel.

MEMO

The panel layer indication is not shown if the USER layer is selected.

7 RTN meters

This indicates the level and fader position for RTN1–6.

Viewing the channel strip of the channel layer

To view the channel strips, use the LAYER VIEW tab of the METER screen.

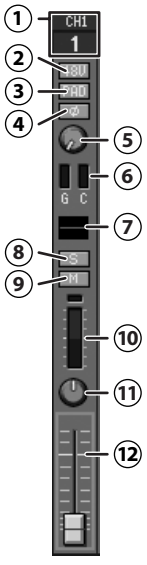
LAYER VIEW tab

1 Channel strip

This shows the level and principal parameters of the channels.

Channel strip operations

You can move the cursor to the buttons, knobs, and faders of the channel strip, and use the value dial to edit them.



① Channel number/name

This indicates the channel number and name.

② +48V button (CH1–48, RTN1–6)

This turns +48V phantom power on/off for the input jack that is patched to the channel.

③ PAD button (CH1–48, RTN1–6)

This is an on/off switch for the pad of the input jack that is patched to the channel. If this is on, the input sensitivity of the preamp will be lowered by 20 dB.

④ ø (phase) button

This inverts the phase of the audio signal. The phase will be inverted if this is on, and will be normal if this is off.

⑤ Preamp gain knob (CH1–48, RTN1–6)

This adjusts the preamp gain for the input jack patched to the channel, in a range of -65 dBu– -10 dBu (or a range of -45 dBu–+10 dBu if PAD is on).

NOTE

The preamp gain is not a continuous control, it is digital with stepped control. In certain situations artifact noise may occur when changing preamp gain. This is normal.

⑥ Gain Reduction

This indicates the amount of gain reduction:

G	Gate/expander (CH1–48)
C	Compressor (CH1–48)
L	Limiter (AUX1–16, MTX1–8, MAIN L/R/C)

⑦ EQ graph

This indicates the approximate response of the 4-band EQ.

⑧ S button

This turns SOLO on/off for the channel.

⑨ M button

This turns MUTE on/off for the channel.

⑩ Meter

This indicates the level of the channel.

⑪ Pan/Balance knob

This adjusts the pan of the channel. For stereo-linked AUX channels and MTX channels, this adjusts the left/right output balance.

⑫ Fader

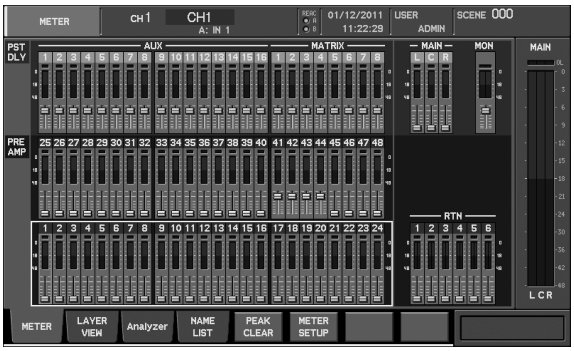
This adjusts the fader of the channel.

Editing the meter settings

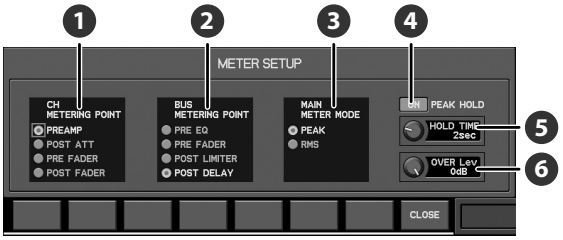
In the METER SETUP popup you can change the level detection point of the meter, and make peak hold settings.

Accessing the METER SETUP popup

1. Press [METER] to access the METER screen.



2. Press [F6 (METER SETUP)] to access the METER SETUP popup.



1 CH METERING POINT selection buttons

Use these to select the level detection point for the CH1–48 and RTN1–6 meters.

2 BUS METERING POINT selection buttons

Use these to select the level detection point for the AUX, MTX, and MAIN meters.

3 MAIN METER MODE

Use this to select the main meter mode:

PEAK	Shows the peak main levels
RMS	Shows the averaged main levels

4 PEAK HOLD button

This turns the meter's peak hold function on/off.

5 HOLD TIME knob

This sets the duration that the meter's peak hold or OVER indication will stay lit, in a range of 1 sec–4 sec or CONTINUE. Meter peak hold is enabled only when the PEAK HOLD button is on.

MEMO

If CONTINUE is selected, the indication will remain until you execute the PEAK CLEAR operation (by pressing a function button) in the METER screen, etc.

6 OVER Lev knob

This adjusts the level at which the OVER indication of the meter will light, in a range of -18 dB–0 dB.

3. Press [F8 (CLOSE)] to close the popup.

MEMO

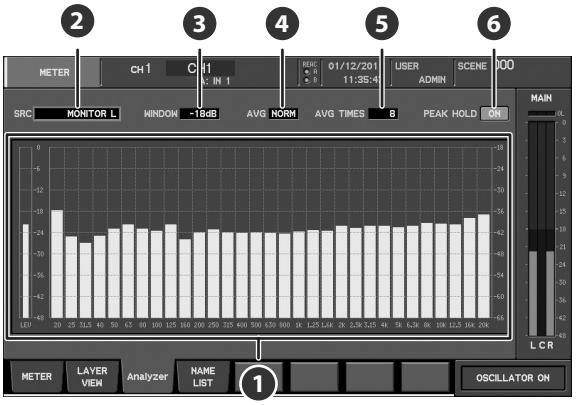
You can also make the setting for changing the level detection point from a USER button (p. 140).

The METERING POINT setting you make in the METER SETUP popup will apply to the top panel meters, the meters in the METER screen, the channel meters in the CHANNEL DISPLAY screen, the MONITOR screen, and the meters in the TALKBACK/OSC screen.

Using the analyzer

1. Press [METER] to access the METER screen.

2. Press [F3 (Analyzer)] to access the Analyzer tab.



1 Analyzer display

This shows a 31-band realtime analyzer and the source level.

2 SRC (source)

This selects the source for the analyzer.

If an input channel is selected, its direct out will be the source for the analyzer.

If an output channel is selected, its output will be the source for the analyzer.

TIP

If you select MONITOR L or MONITOR R, you can use [SOLO] to conveniently switch the channel that's being sent to the analyzer.

3 WINDOW

Here you can move the analyzer's vertical display region in a

range of 0 dB – -48 dB.

4 AVG (average)

Here you can select the averaging method for the analyzer:

OFF	Averaging will not be performed.
NRM	Averages evenly by the number specified in the AVG TIMES.
EXP	Recent times will be weighted more heavily in the calculation.

5 AVG TIMES (average times)

This specifies the value (1–128) by which the analyzer's display will be averaged.

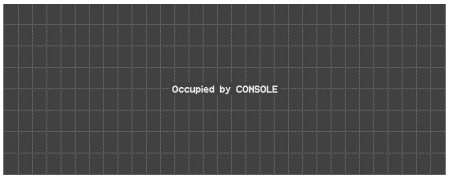
6 PEAK HOLD button

When this is on, the analyzer's peaks will be held.

MEMO

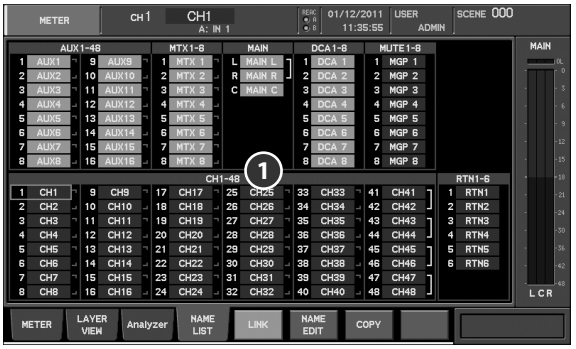
The Hold time is specified by the HOLD TIME setting of the METER SETUP popup.

If the M-480 and M-480RCS (software that remotely controls the M-480 from a PC) attempt to display the analyzer simultaneously, display on the M-480 will take priority. In this case, the analyzer levels will not be shown in the M-480RCS window (as shown below).



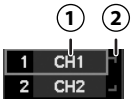
Listing the channel names and group names

NAME LIST tab



1 Name list

This lists the names of each channel and group.



① Name

This is the name of the channel or group. If you move the cursor to the name of a channel, that channel will become the selected channel.

② Link indication

This indicates the link status of the channel.

MEMO

To change the link status of a channel, move the cursor to the name of the desired channel, and press [F5 (LINK)] to turn link on/off.

The function buttons specific to the NAME LIST tab have the following operations:

[F5 (LINK)]*1	Turns link on/off for the channel at the cursor location.
[F6 (NAME EDIT)]	Accesses the NAME EDIT popup, where you can edit the name at the cursor location.
[F7 (COPY)] *2	Accesses the COPY popup, with the channel at the cursor location as the copy-source.

*1 This is unavailable if the cursor is at RTN1–6, MAIN L, MAIN R, DCA1–8, or MUTE1–8.

*2 This is unavailable if the cursor is at DCA1–8 or MUTE1–8.

cf.
NAME EDIT popup (p. 52).

cf.
CHANNEL COPY popup (p. 53).
AUX/MTX/MAIN COPY popup (p. 66).

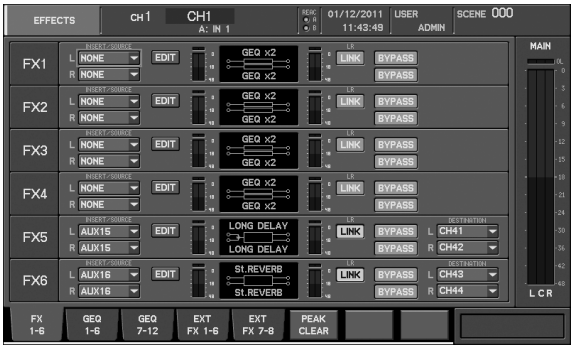
Effects and GEQ

The M-480 provides six effects (FX1–6) and twelve GEQ processors (GEQ1–12).

The EFFECTS screen is used to operate the effects and GEQs.

Accessing the EFFECTS screen

1. Press the top panel [EFFECTS] button.



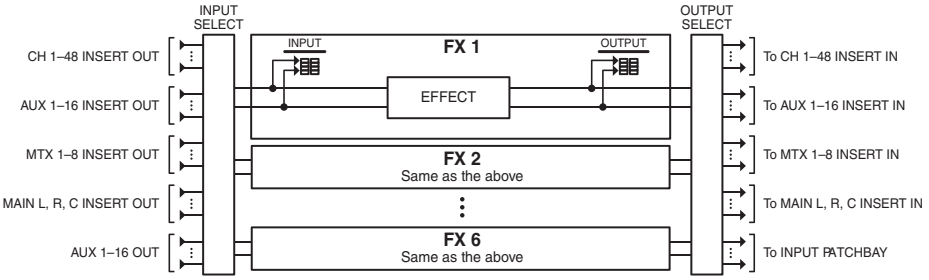
The EFFECTS screen will appear.

You can switch tabs to change the content shown in the EFFECTS screen.

The function buttons have the following operations:

[F1 (FX1–6)]	Accesses the FX 1–6 tab.
[F2 (GEQ1–6)]	Accesses the GEQ 1–6 tab.
[F3 (GEQ7–12)]	Accesses the GEQ7–12 tab.
[F4 (EXT FX1–6)]	Accesses the EXT FX 1–6 tab.
[F5 (EXT FX7–8)]	Accesses the EXT FX 7–8 tab.

About effects

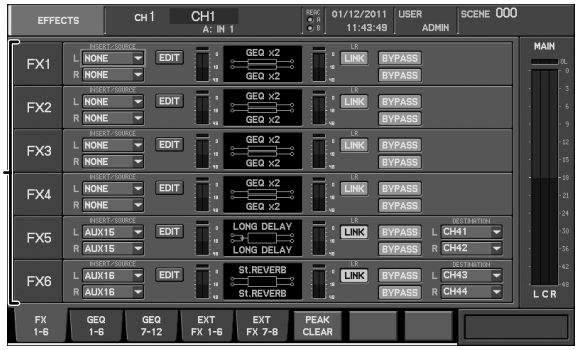


The M-480 contains six internal effects (FX1–6), each of which allows you to select from various effect types including reverb, delay, and 31-band GEQ.
You can use effects by inserting them into a channel, or in a send/return configuration using an AUX channel in combination with an input channel as the FX return.
The FX1–6 tab of the EFFECTS screen is used to perform effect operations.

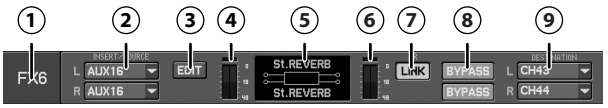
Accessing the FX1–6 tab

1. Access the EFFECTS screen.

2. Press [F1 (FX 1–6)] to display the FX 1–6 tab.



1 FX1–6



This area indicates the status of FX1–6. It is organized as follows:

① Effect number indication

This indicates the effect number.

② FX INSERT/SOURCE SELECT popup button

This selects the input-source for the effect. The current input-source is shown on the button. When you move the cursor to the button and press [ENTER], the FX INSERT/SOURCE SELECT popup will appear. This can be set separately for the L and R channels.

③ EDIT button

This accesses the corresponding FX EDIT popup.

④ **IN meters**

These indicate the input level to the effect.

⑤ **Effect name indication**

The upper line shows the library name, and the lower line shows the effect type name.

The icon indicates the input/output configuration for the effect:

● **Mono-in/Stereo-out**

This is a monaural-input/stereo-output type effect. These effects are used mainly in a send/return configuration.

MEMO

If you specify two input-sources, the two inputs will be mixed to mono before being input.

● **Dual mono**

This allows the effect to be used as two monaural effects. These effects are used mainly for insertion in a channel.

● **Stereo-in/Stereo-out**

This is a stereo-input/stereo-output type effect. These effects can be inserted into a stereo channel, or used in a send/return configuration with stereo-linked AUX channels.

⑥ **OUT meters**

These indicate the output level from the effect.

⑦ **LR LINK button**

This links the parameters between the L and R sides.

The following effect types support LR LINK:

- GEQ x2
- DELAY x2
- P.SHIFTER x2
- CH STRIP x2
- SDE-3000 x2
- SPH-323 x2

⑧ **BYPASS L, R buttons**

These buttons turn the bypass on/off. When these are on, the input signal will be "thru-ed" to the output.

MEMO

You can also make the setting for switching bypass on or off from a USER button (p. 140).

⑨ **FX DESTINATION SELECT popup button**

These select the output-destination for the effect. The current output-destination is shown on the button. When you move the cursor to the button and press [ENTER], the FX DESTINATION SELECT popup will appear.

MEMO

If more than one output-destination channel are exist, the lowest number channel is shown.

MEMO

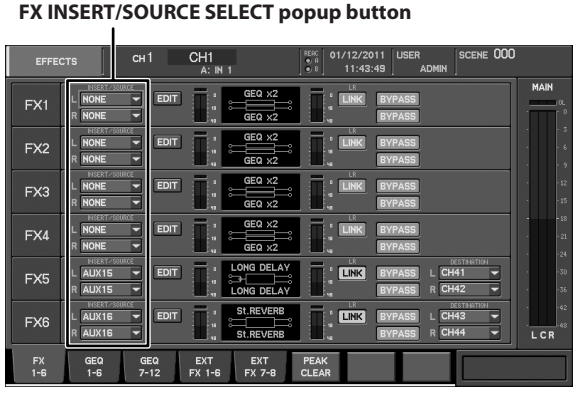
If you select insertion into a channel in the FX INSERT/SOURCE SELECT popup, the corresponding FX DESTINATION SELECT button will be unavailable. If you want to re-enable the FX DESTINATION SELECT button, select an input-source other than Insert in the corresponding FX INSERT/SOURCE SELECT popup.

Effect input/output settings

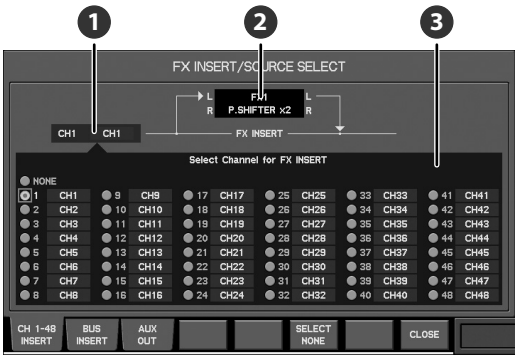
The FX INSERT/SOURCE SELECT popup and the FX DESTINATION SELECT popup are used to select the input-source and output-destination for the effect.

Accessing the FX INSERT/SOURCE SELECT popup

1. Access the EFFECTS screen, and display the FX1–6 tab.



2. Move the cursor to the FX INSERT/SOURCE SELECT popup button L or R of the desired effect, and press [ENTER].



The FX INSERT/SOURCE SELECT popup will appear.

❶ **Current insert-destination/input-source indication**

This indicates the current insert-destination channel or the input-source channel for the effect.

❷ Applicable effect indication

This indicates the effect to which the FX INSERT/SOURCE SELECT popup applies.

❸ Insert-destination/input-source select buttons

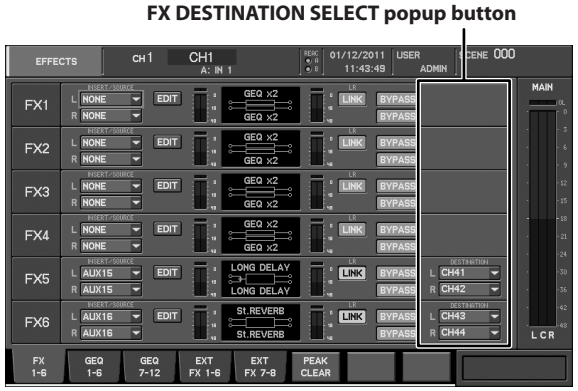
Here you can select the insert-destination channel or the input-source channel for the effect.

The function buttons have the following operations:

[F1 (CH 1–48 INSERT)]	Displays CH1–48 as the insert-destination channel select buttons.
[F2 (BUS INSERT)]	Displays AUX1–16, MTX1–8, and MAIN L/R/C as the insert-destination channel select buttons.
[F3 (AUX OUT)]	Displays AUX1–16 as the input-source channel select buttons.
[F6 (SELECT NONE)]	Clears the input-source selection.
[F8 (CLOSE)]	Closes the popup.

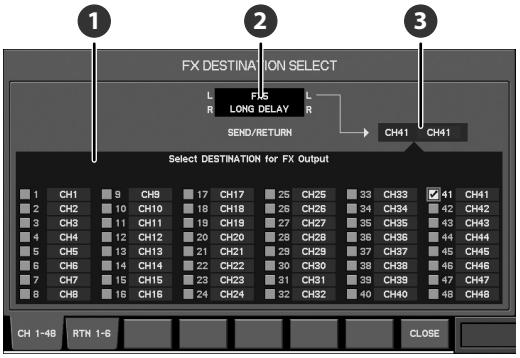
Accessing the FX DESTINATION SELECT popup

1. Access the EFFECTS screen, and display the FX1–6 tab.



2. Move the cursor to the FX DESTINATION SELECT popup button L or R of the desired effect, and press [ENTER].

The FX DESTINATION SELECT popup will appear.



❶ Output channel select buttons

These select the output-destination channel for the effect.

MEMO

You can select more than one output-destination channel.

❷ Applicable effect indication

This indicates the effect to which the FX DESTINATION SELECT popup applies.

❸ Current output-destination indication

This indicates the current output-destination channel.

MEMO

If more than one output-destination channel are exist, the lowest number channel is shown.

Using an effect via send/return

Effects such as reverb and delay are typically used in a send/return configuration.

Here we will explain the procedure for using FX5 as a send/return type effect using AUX15 and CH41–42.

Specifying the effect input-source

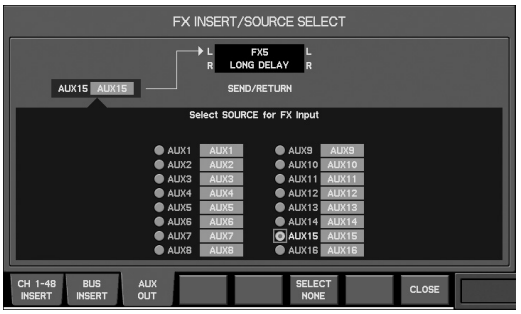
1. Access the EFFECTS screen, and display FX1–6 tab.

2. Move the cursor to the FX INSERT/SOURCE SELECT popup button L for FX5, and press [ENTER].

The FX INSERT/SOURCE SELECT popup will appear.

3. Press [F3 (AUX OUT)] to access the AUX OUT tab.

4. Move the cursor to the AUX15 button, and press [ENTER] to select it.



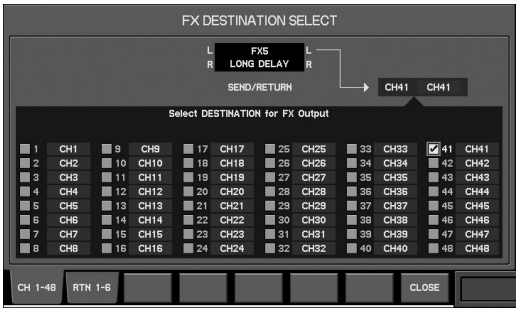
5. Press [F8 (CLOSE)] to close the popup.

6. In the same way as you did in steps 1 through 5, select AUX15 as the input-source for the R side of FX5.

Specifying the effect return channel

1. **Access the EFFECTS screen, and display the FX1–6 tab.**
2. **Move the cursor to the FX DESTINATION SELECT popup button L for FX5, and press [ENTER].**

   The FX DESTINATION SELECT popup will appear.
3. **Move the cursor to the CH41 button, and press [ENTER] to select it.**



If an input port is already patched to the channel, a message will ask you to confirm the input patching change.

Press [F8 (ASSIGN)] to change the input patching.

MEMO

If the "PATCHBAY CHANGE" item in the CONFIRMATION section of User Preference (p. 141) is unselected, no confirmation message will appear in step 3.

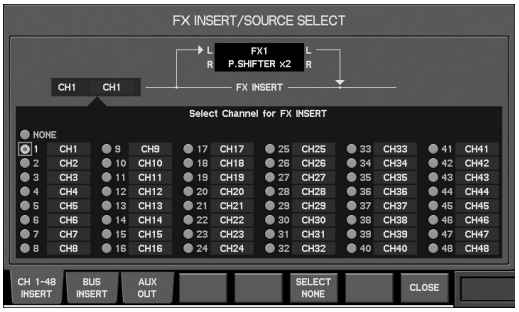
4. **Press [F8 (CLOSE)] to close the popup.**
5. **In the same way as you did in steps 1 through 4, select CH42 as the output-destination for the R side of FX5.**

Inserting an effect into a channel

Here we will explain the procedure for inserting the L side of FX1 into CH1.

1. **Access the EFFECTS screen, and display the FX1–6 tab.**
2. **Move the cursor to the FX INSERT/SOURCE SELECT popup button L for FX1, and press [ENTER].**

   The FX INSERT/SOURCE SELECT popup will appear.
3. **Press [F1 (CH 1–48 INSERT)] to access the CH 1–48 INSERT tab.**
4. **Move the cursor to the CH1 button, and press [ENTER] to select it.**



5. **Press [F8 (CLOSE)] to close the popup.**

TIP

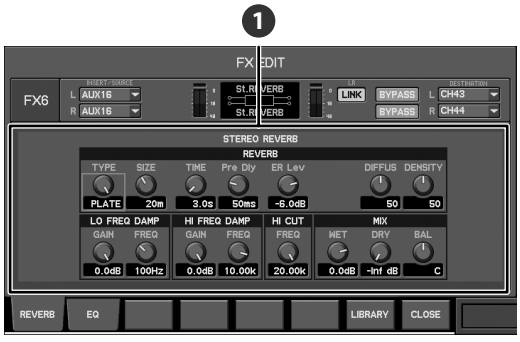
If you want to insert the effect into both channels of a stereo-linked pair, make insert settings for both the L and R sides.

Editing effect parameters

The FX EDIT popup is used to edit the effect parameters.

Accessing the FX EDIT popup

1. **Access the EFFECTS screen, and access the FX1–6 tab.**
2. **Move the cursor to the EDIT button for the desired FX, and press [ENTER].**



The FX EDIT popup will appear.

1 Effect parameter field

In this field you can edit the effect parameters. The contents of this field will depend on the effect type.

The function buttons have the following operations:

[F1]–[F6]	Switch the display in the effect parameter field. The number of tabs will depend on the effect type.
[F6 (TEMPO)]	Accesses the TEMPO popup. This exists only for delay-type effects (p. 103).
[F7 (LIBRARY)]	Accesses the FX LIBRARY popup (p. 102).
[F8 (CLOSE)]	Closes the popup.

MEMO

You can also make the setting for accessing the popup from a USER button (p. 140).

Editing effect parameters

1. **Access the FX EDIT popup for the desired effect.**

2. **Use [F1]–[F6] to switch between tabs to view the parameters you want to edit.**

3. **Move the cursor to the desired parameter, and use the value dial to change the value.**

4. **Press [F8 (CLOSE)] to close the popup.**

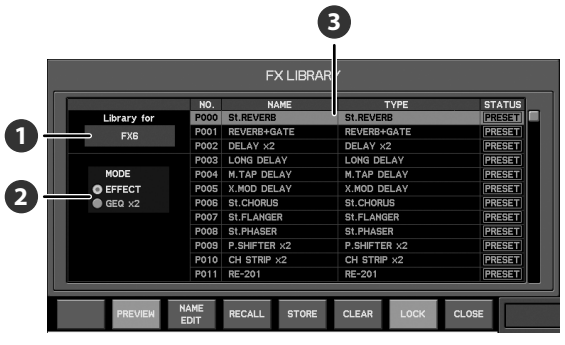
Using the effect library

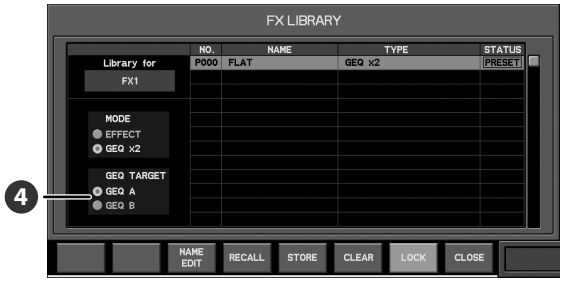
The effect library is used to select the effect type. You can recall effect settings from the library, and store the current effect settings in the library.

Effect library operations are performed in the FX LIBRARY popup.

1. **Access the FX EDIT popup for the desired effect.**

2. **Press [F7 (LIBRARY)].**





The FX LIBRARY popup will appear.

❶ Applicable effect indicator

This indicates the FX to which the FX LIBRARY popup applies.

❷ MODE select buttons

These select the effect mode from the following choices:

EFFECT	Use as a conventional effect.
GEQ x2	Use as a dual GEQ.

❸ Library data list

This is the list of library data. If you've used the MODE select buttons to select "GEQ x2", the GEQ library (p. 109) will be shown:

NO.	Indicates library data numbers. Preset data number is start with 'P'. User data number is start with 'U'.
NAME	Indicates the name of library data.
TYPE	Indicates the effect type.
STATUS	"PRESET" is shown for the preset data. "LOCK" is shown for the locked user data.

❹ Applicable GEQ select buttons

If you've used the MODE select buttons to select "GEQ x2", these buttons select whether the A side or B side will be the target of library operations.

The function buttons have the following operations:

[F2 (PREVIEW)]	Previews (auditions) the library data that is selected in the list.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf. For details on library operations, refer to "Library operations" (p. 39).

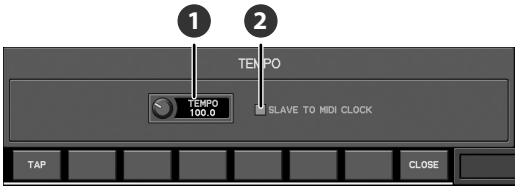
Setting the tempo

From the FX EDIT popup for delay-type effects, you can access the TEMPO popup, which lets you set the tempo used for delay-type effects.

This tempo is used in common by FX1–6.

1. Access the FX EDIT popup for a delay-type effect.

2. Press [F6 (TEMPO)].



The TEMPO popup will appear.

1 TEMPO knob

Sets the tempo (BPM) in a range of 5.0–300.0.

2 SLAVE TO MIDI CLOCK select button

If this is selected, the tempo will synchronize to MIDI clock messages received from the M-480's rear panel MIDI connector or USB connector. In this case, you won't be able to use the TEMPO knob or the tap tempo function using [F1 (TAP)] or a user button.

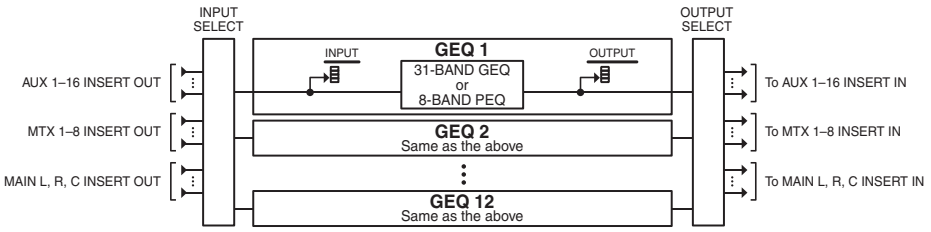
The function buttons have the following operations:

[F1 (TAP)]	Specifies the tempo (BPM) as the average interval at which the button is pressed (Tap Tempo).
[F8 (CLOSE)]	Closes the popup.

MEMO

You can assign TAP TEMPO as a function for a user button (p. 140). This allows you to use USER [1]–[8] to enter the tempo via tap tempo.

About the GEQ



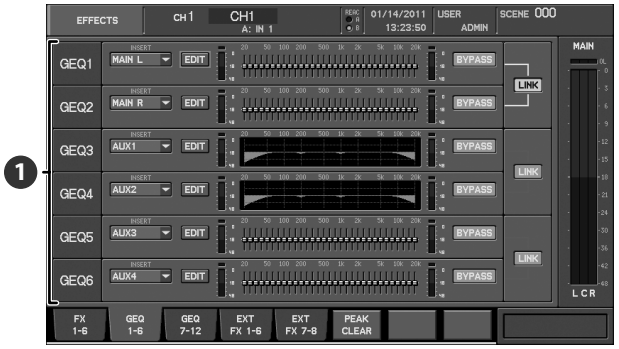
The M-480 provides twelve GEQ processors, GEQ 1–12, that can be used as 31-band GEQ or 8-band parametric EQ. You can insert a GEQ processor into the AUX 1–16, MTX 1–8, or MAIN L/R/C.

The GEQ1–6 tab or GEQ 7–12 tab of the EFFECTS screen is used to perform effect operations.

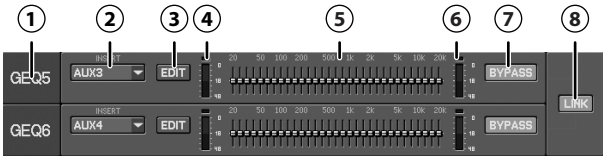
Accessing the GEQ 1–6 (GEQ 7–12) tab

1. **Access the EFFECTS screen.**

2. **Press [F2 (GEQ 1–6)] (or [F3 (GEQ 7–12)]) to display the GEQ 1–6 (or GEQ 7–12) tab.**



❶ GEQ 1–6 (GEQ 7–12)



This shows GEQ 1–6 (GEQ 7–12). This area is organized as follows:

① GEQ number indication

This indicates the GEQ number.

② GEQ INSERT SELECT popup button

This selects the channel into which the GEQ will be inserted. The selected channel is shown on the button. When you move the cursor to the button and press [ENTER], the GEQ INSERT SELECT popup will appear.

③ EDIT button

This accesses the corresponding GEQ EDIT popup.

④ IN meters

These indicate the input level to the GEQ.

⑤ GEQ state indication

This indicates the state of the GEQ.

⑥ OUT meters

These indicate the output level from the GEQ.

⑦ BYPASS buttons

This turns the bypass on/off. When this is on, the input signal will be "thru-ed" to the output.

MEMO

You can also make the setting for switching bypass on or off from a USER button (p. 140).

⑧ LINK button

This links adjacent odd-numbered and even-numbered GEQ processors. If they are linked, the GEQ settings will be identical.

MEMO

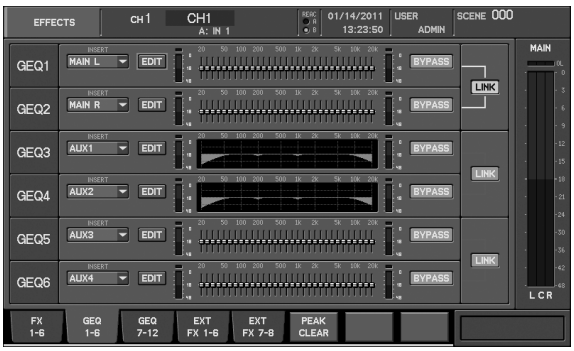
When you activate LINK, the odd-numbered processor's settings will be applied to the even-numbered processor.

Inserting the GEQ

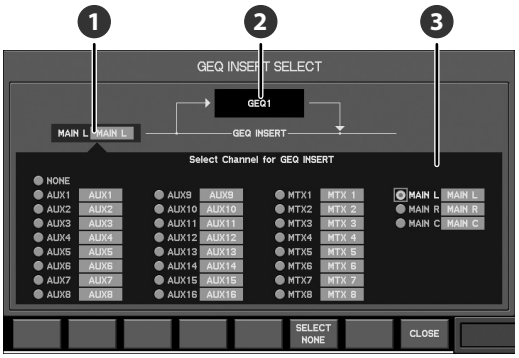
Use the GEQ INSERT SELECT popup to select the destination into which you want to insert a GEQ.

Accessing the GEQ INSERT SELECT popup

1. Access the EFFECTS screen, and display the GEQ 1–8 (GEQ 7–12) tab.



2. Move the cursor to the GEQ INSERT SELECT popup button for the desired GEQ, and press [ENTER].



The GEQ INSERT SELECT popup will appear.

1 Current insert destination indication

This indicates the current insert destination.

2 Applicable effect indication

This indicates the GEQ to which the GEQ INSERT SELECT popup applies.

3 Insert-destination select buttons

Here you can select the insert-destination channel into which the GEQ will be inserted.

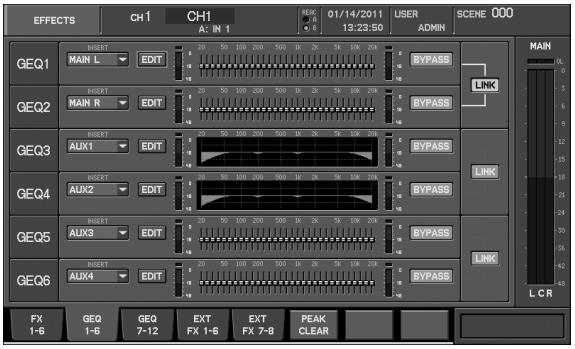
The function buttons have the following operations:

[F6 (SELECT NONE)]	Clears the input-source selection.
[F8 (CLOSE)]	Closes the popup.

Inserting the GEQ to MAIN L/R

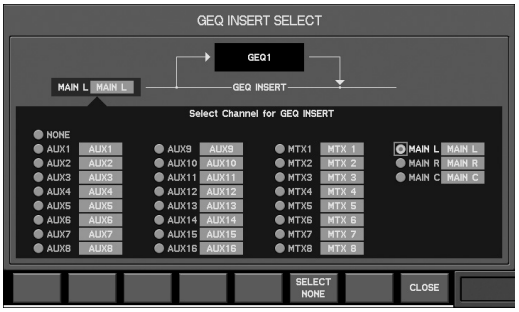
This section describes the procedure for inserting linked GEQ 1 and GEQ 2 into the MAIN L/R.

1. Access the EFFECTS screen, and display the GEQ 1–8 tab.



2. Move the cursor to the LINK button at the right of GEQ 1 and GEQ 2, and press [ENTER] to turn the button on.

3. Move the cursor to the GEQ INSERT SELECT popup button for GEQ 1, and press [ENTER].



The GEQ INSERT SELECT popup will appear.

4. Move the cursor to the MAIN L insert-destination channel select button, and press [ENTER] to select it.

5. Press [F8 (CLOSE)] to close the popup.

6. In the same way as you did in steps 1 through 5, select MAIN R as the insert destination for GEQ 2.

Editing the GEQ parameters

The GEQ EDIT popup is used to edit the GEQ.

Accessing the GEQ EDIT popup

1. **Access the EFFECTS screen, and display the GEQ 1–6 (GEQ 7–12) tab.**

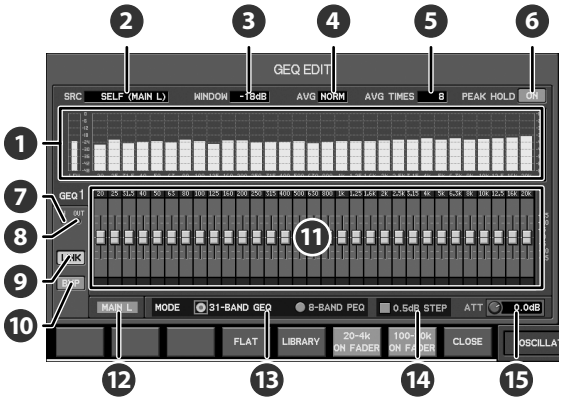
2. **Move the cursor to the EDIT button for the desired GEQ, and press [ENTER].**

The GEQ EDIT popup will appear.

MEMO

You can also make the setting for accessing the popup from a USER button (p. 140).

31-band GEQ



1 Analyzer display

This shows a 31-band realtime analyzer and the source level.

2 SRC (source)

This selects the source for the analyzer.

3 WINDOW

Here you can move the analyzer's vertical display region in a range of 0 dB – -48 dB.

4 AVG (average)

Here you can select the averaging method for the analyzer:

OFF	Averaging will not be performed.
NRM	Averages evenly by the number specified in the AVG TIMES.
EXP	Recent times will be weighted more heavily in the calculation.

5 AVG TIMES (average times)

This specifies the value (1–128) by which the analyzer's display will be averaged.

6 PEAK HOLD button

When this is on, the analyzer's peaks will be held.

MEMO

The Hold time is specified by the HOLD TIME setting of the METER SETUP popup.

7 IN meter

This indicates the level of the signal input to the GEQ

8 OUT meter

This indicates the level of the signal output from the GEQ

9 LINK button

This links adjacent odd-numbered and even-numbered GEQ processors. If processors are linked, their GEQ settings will be

identical.

⑩ BYP (bypass) button

This turns the bypass on/off. When this is on, the input signal will be "thru-ed" to the output.

⑪ GEQ faders

For each frequency band, these adjust the amount of boost or cut in a range of -15.0 dB – +15.0 dB.
The value of the fader you operate is shown in the sub-display area.

MEMO

A click may sometimes occur when you operate the GEQ faders. This is normal and not a malfunction.

⑫ Insert destination indication

This indicates the current insert destination.

⑬ EQ MODE select buttons

Here you can select either 31-band GEQ or 8-band PEQ.

31-BAND GEQ	Use the GEQ as a 31-band GEQ.
8-BAND PEQ	Use the GEQ as a n 8-band parametric EQ.

⑭ 0.5 dB STEP select button

If this is checked, the GEQ fader operation is stepped by 0.5 dB.

⑮ EQ ATT (EQ attenuator)

This adjusts the input level to the GEQ in a range of -42.0 dB – +15.0 dB.

The function buttons have the following operations:

[F4 (FLAT)]	Sets the 31-band GEQ to a flat response.
[F5 (LIBRARY)]	Access the GEQ LIBRARY popup (p. 109).
[F6 (20–4k ON FADER)]	Allows you to use the top panel faders to operate the corresponding bands.
[F7 (100–20k ON FADER)]	
[F8 (CLOSE)]	Closes the popup.

Using the top panel faders to control the 31-band GEQ

1. Access the GEQ EDIT popup for the desired GEQ.

2. Press [F6 (20–4k ON FADER)] or [F7 (100–20k ON FADER)] to turn it on.

The corresponding faders will be displayed on the screen. You can accomplish GEQ operations using the top panel faders.

MEMO

If a fader's position is anything other than 0 dB, the corresponding [MUTE] will blink. When you press the blinking [MUTE], the fader will be reset to the 0 dB position.

MEMO

If the 0.5 dB STEP select button is checked, the GEQ fader operation becomes stepped by 0.5 dB.

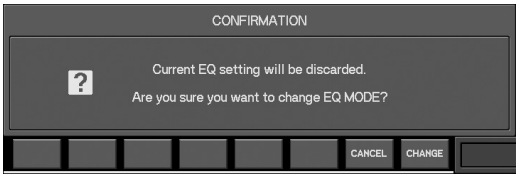
TIP

Touching a top panel fader with your hand will cause the cursor to move to the corresponding GEQ fader in the screen.

Using the 8-band parametric EQ

1. Access the GEQ EDIT popup for the desired GEQ.

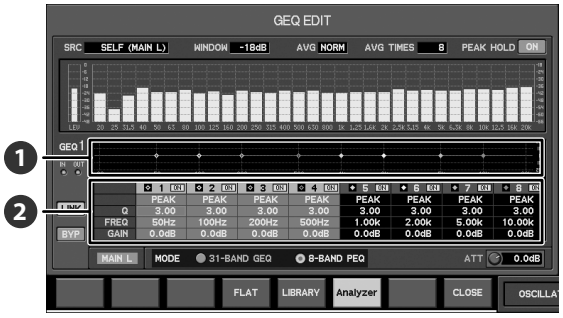
2. Use the EQ MODE select buttons to select 8-BAND PEQ.



A message will ask you to confirm the operation.

3. Press [F8 (CHENGE)] to switch to the 8-band parametric EQ.

8-band parametric EQ

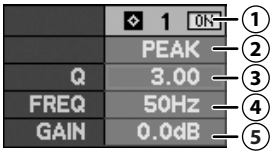


❶ EQ graph

This indicates the approximate characteristics of the 8-band parametric EQ.

❷ Parametric EQ

Here you can adjust the filter for each band.



① ON button

This turns the filter on/off.

② TYPE

This selects one of the following filter types:

Type	Function	Desc.
LSV	Low shelving	1 only
HPF1	-6 dB/oct high-pass filter	
HPF2	-12 dB/oct high-pass filter	
PEAK	Peaking	
BPF	Band-pass filter	
NOTCH	Notch filter	
HSV	High shelving	8 only
LPF1	-6 dB/oct low-pass filter	
LPF2	-12 dB/oct low-pass filter	

③ Q

This adjusts the Q in a range of 0.36–16.00. Higher values produce a sharper curve.

MEMO

This is not shown when LSV, HPF1, HSV, or LPF1 is selected as the filter type.

④ FREQ knob

This adjusts the frequency in a range of 20 Hz–20.0 kHz.

⑤ GAIN knob

This adjusts the gain in a range of -15.0 dB–+15.0 dB.

MEMO

This is not shown when HPF1, HPF2, BPF, NOTCH, LPF1 or LPF2 is selected as the filter type.

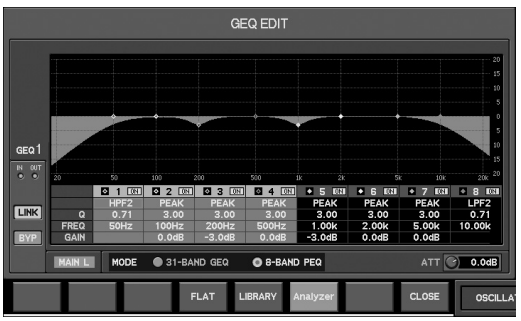
MEMO

The 8-band PEQ can be adjusted using the EQUALIZER area controls. The corresponding bands will be highlighted on the screen. The highlighted area moves with the cursor.

The function buttons have the following operations:

[F4 (FLAT)]	Sets the 8-band PEQ to a flat response.
[F5 (LIBRARY)]	Access the GEQ LIBRARY popup (p. 109).
[F6 (Analyzer)]	Displays/hides the analyzer.
[F8 (CLOSE)]	Closes the popup.

For the 8-band parametric EQ, you can switch the analyzer between visible and hidden. Use [F6 (Analyzer)] to show or hide the analyzer.



If the analyzer is hidden, the EQ graph's vertical axis will be shown larger.

4. Move the cursor to the desired parameter, and use the value dial to edit the value.

Using the analyzer

1. Access the GEQ EDIT popup for the desired GEQ.

MEMO

If using the 8-band parametric EQ, turn [F6 (analyzer)] on to display the analyzer.

2. Use SRC to select the source for the analyzer.

- If you select SELF, the source will be the output of the channel in which the GEQ is inserted.
- If the analyzer display is too large or too small, use WINDOW to adjust the vertical display area.
- As desired, use AVG and AVG TIMES to make settings for averaging.

MEMO

If an input channel is selected as the source, its direct out will be the source for the analyzer.

MEMO

If an output channel is selected as the source, its output will be the source for the analyzer.

TIP

If you want to see the response of the sound that is actually being produced from the speakers, set up a measurement mic, patch it to an input channel of the M-480, and select that channel as the source.

If the M-480 and M-480RCS (software that remotely controls the M-480 from a PC) attempt to display the analyzer simultaneously, display on the M-480 will take priority. In this case, the analyzer levels will not be shown in the M-480RCS window (as shown below).

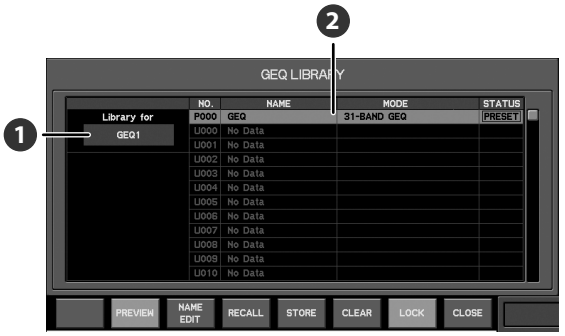
Using the GEQ library

You can recall GEQ settings from the library, and store the current GEQ settings in the library.

GEQ library operations are performed in the GEQ LIBRARY popup.

1. Access the GEQ EDIT popup for the desired GEQ.

2. Press [F5 (LIBRARY)].



The GEQ LIBRARY popup will appear.

1 Applicable GEQ indicator

This indicates the GEQ to which the GEQ LIBRARY popup applies.

2 Library data list

This is a list of the library data

The function buttons have the following operations:

[F2 (PREVIEW)]	Previews (auditions) the library data that is selected in the list.
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup.
[F4 (RECALL)]	Recalls the selected library data.
[F5 (STORE)]	Stores the current settings into the selected library data.
[F6 (CLEAR)]	Clears the selected library data.
[F7 (LOCK)]	Locks/unlocks the selected library data.
[F8 (CLOSE)]	Closes the popup.

cf.

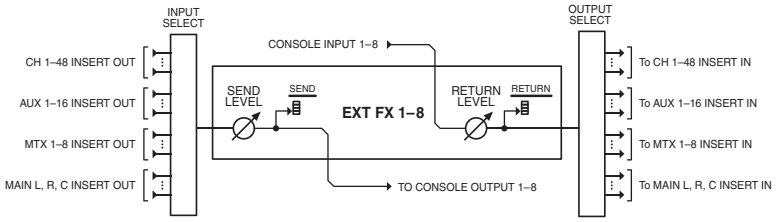
For details on library operations, refer to “Library operations” (p. 39).

MEMO

The GEQ library is shared by GEQ 1–12 and by the GEQ x2 of FX 1–6.

Inserting an external effects device

About inserting an external effects device



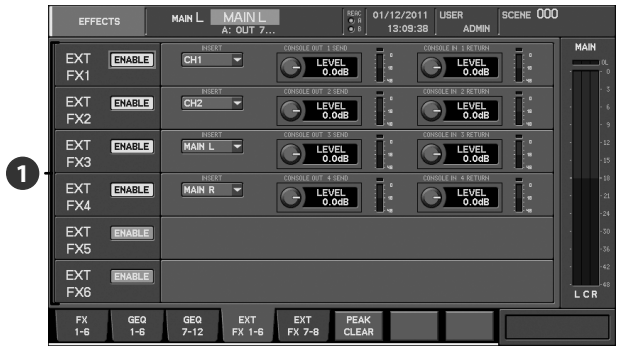
You can use the CONSOLE IN 1–8 and CONSOLE OUT 1–8 jacks located on the M-480's rear panel to insert up to eight external effects devices into channels. The eight external effects devices are shown virtually as an EXT FX1–8 rack, allowing you to adjust the input levels and insert them into channels.

EXT FX1–8 use the following input/output jacks:

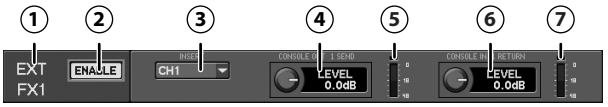
External effect	Output jack	Input jack
EXT FX1	CONSOLE OUT 1	CONSOLE IN 1
EXT FX2	CONSOLE OUT 2	CONSOLE IN 2
EXT FX3	CONSOLE OUT 3	CONSOLE IN 3
EXT FX4	CONSOLE OUT 4	CONSOLE IN 4
EXT FX5	CONSOLE OUT 5	CONSOLE IN 5
EXT FX6	CONSOLE OUT 6	CONSOLE IN 6
EXT FX7	CONSOLE OUT 7	CONSOLE IN 7
EXT FX8	CONSOLE OUT 8	CONSOLE IN 8

To insert external effects devices into channels, you'll use the EXT FX 1–6 tab and EXT FX 7–8 tab of the EFFECTS screen.

EXT FX 1–6 (EXT FX 7–8) tab



1 EXT FX 1–6 (EXT FX 7–8)



This area indicates the status of EXT FX. It is organized as follows:

① External effect number

This indicates the number of the external effect.

② ENABLE button

This enables or disables the EXT FX.

If you turn the ENABLE button on, you'll be able to use the corresponding CONSOLE IN jack and CONSOLE OUT jack to insert your external effects device into the assigned channel, and the buttons, knobs, and meters ③–⑦ described below will be shown.

③ EXT FX INSERT SELECT popup button

This selects the channel into which the external effect will be inserted. The selected channel is shown on the button. When you move the cursor to the button and press [ENTER], the EXT FX INSERT SELECT popup will appear.

④ SEND LEVEL knob

This adjusts the output level to the external effect in a range of -Inf dB–+6.0 dB.

MEMO

The CONSOLE OUT jack is fixed at a nominal output level of +4 dBu. The SEND LEVEL knob adjusts the output level in the digital domain.

⑤ OUT meter

This indicates the level of the signal being output to the external effect.

⑥ RETURN LEVEL knob

This adjusts the input level from the external effect in a range of -Inf dB–+6.0 dB.

MEMO

When you're using it for insertion of an external effects device, the CONSOLE IN jack's nominal input level is fixed at +4 dBu. The RETURN LEVEL knob adjusts the input level in the digital domain.

⑦ IN meter

This indicates the level of the signal being input from the external effect.

Inserting an external effects device into a channel

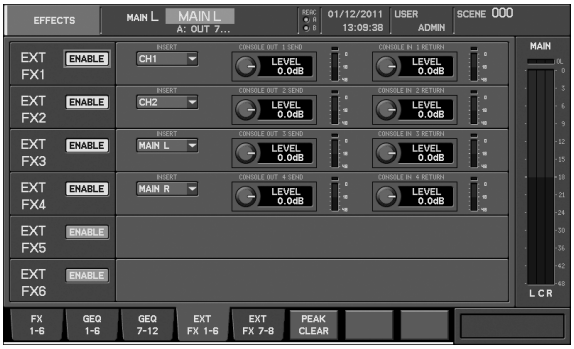
To insert an external effects device into a channel, connect the CONSOLE IN jack and CONSOLE OUT jack to your external effects device, and insert the corresponding EXT FX into the desired channel.

The EXT FX INSERT SELECT popup is used to insert an EXT FX into a channel.

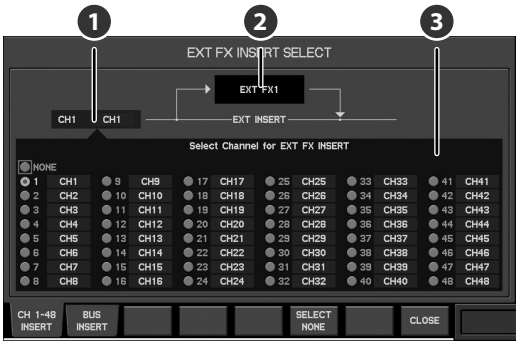
Accessing the EXT FX INSERT SELECT popup

1. **Press the top panel [EFFECTS] button to access the EFFECTS screen.**

2. **Press [F4 (EXT FX 1–6)] (F5 (EXT FX 7–8)]) to access the EXT FX 1–6 (EXT FX 7–8) tab.**



3. **Move the cursor to the EXT FX INSERT SELECT popup button for the desired EXT FX, and press [ENTER].**



The EXT FX INSERT SELECT popup will appear.

❶ Current insert-destination indication

This indicates the current insert-destination.

❷ Applicable EXT FX indication

This indicates the EXT FX to which the EXT FX INSERT SELECT popup applies.

❸ Insert-destination select buttons

These buttons select the channel into which the EXT FX will be inserted.

The function buttons have the following operations:

[F1 (CH 1–48 INSERT)]	Displays CH1–48 as the insert-destination channel select buttons.
[F2 (BUS INSERT)]	Displays AUX1–16, MTX1–8, and MAIN L/R/C as the insert-destination channel select buttons.
[F6 (SELECT NONE)]	Clears the insert-destination selection.
[F8 (CLOSE)]	Closes the popup.

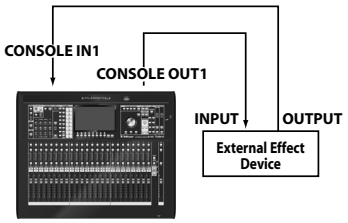
Inserting an EXT FX into a channel

Here we'll explain how to connect your external effects device to CONSOLE IN1 and CONSOLE OUT1, and insert it into CH1.

1. **Access the EXTERNAL INSERT screen.**

2. **Move the cursor to the ENABLE button for EXT FX1, and press [ENTER] to select it.**

3. **Connect your external effects device to CONSOLE IN1 and CONSOLE OUT1.**



NOTE

If you connect your external effects device while the EXT FX ENABLE button is off, the input and output may loop.

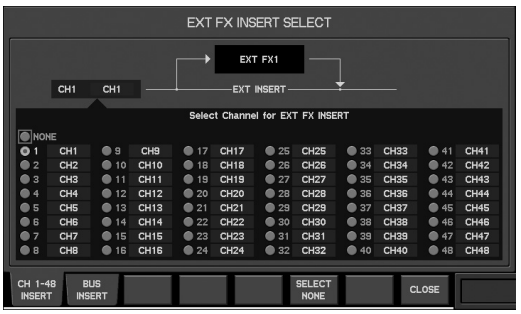
NOTE

If the EXT FX insert-destination is already specified when you connect your external effects device, noise may be heard in the channel.

4. **Move the cursor to the EXT FX INSERT SELECT popup button for EXT FX1, and press [ENTER].**

   The EXT FX INSERT SELECT popup will appear.

5. **Move the cursor to the CH1 insert-destination channel select button, and press [ENTER] to select it.**

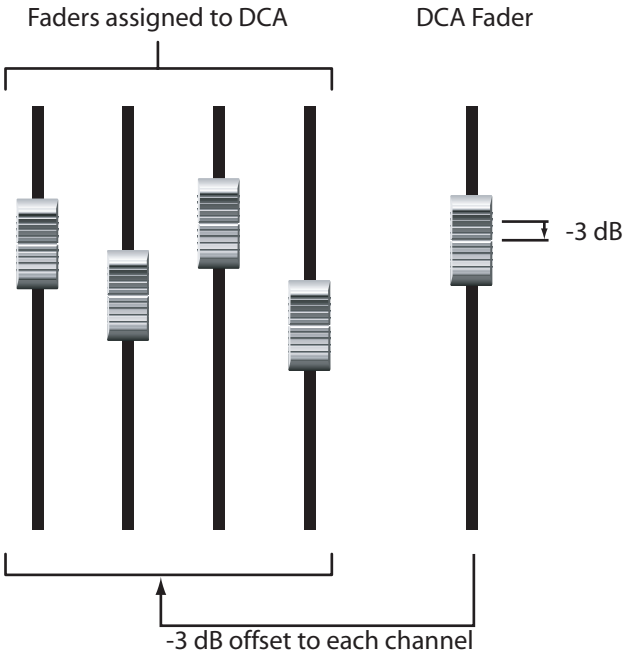


6. **Press [F8 (CLOSE)] to close the popup.**

DCA groups

About DCA groups

DCA grouping is a function that lets you make relative adjustments to the output level of channels so that the level of multiple channels belonging to a group can be controlled together.

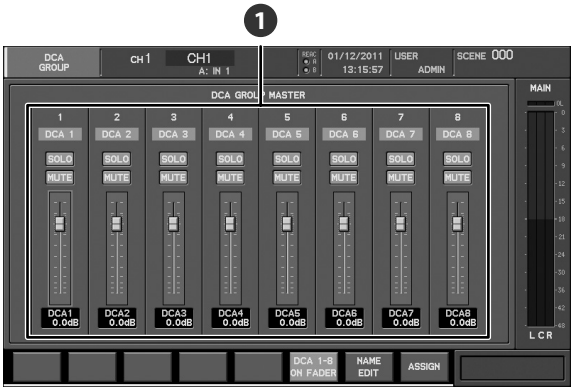


A channel can belong to more than one DCA group. This is convenient when grouping drums or instruments.
The DCA GROUP screen is used to make DCA group settings.

DCA group settings

Accessing the DCA GROUP screen

1. In the GROUP section, press [DCA].



The DCA GROUP screen will appear.

1 DCA group 1–8 faders

These adjust the levels of DCA groups 1–8 in a range of -Inf dB–+10.0 dB.

The function buttons have the following operations:

[F6 (DCA 1–8 ON FADER)]	If this is on, the top panel fader modules 1–8 will control DCA groups.
[F7 (NAME EDIT)]	Accesses the NAME EDIT popup (p. 113).
[F8 (ASSIGN)]	Accesses the DCA GROUP ASSIGN popup.

MEMO

When you access the DCA GROUP ASSIGN popup, the [F6 (DCA1–8 ON FADER)] function will be temporarily disabled.

Using the panel to control DCA groups

1. Access the DCA GROUP screen.

2. Press [F6 (DCA 1–8 ON FADER)] to turn it on.

3. Use the fader module 1–8 to adjust the level of the DCA groups.

4. By pressing [SOLO], you can operate the solo settings of all channels belonging to the corresponding DCA group.

5. By pressing [MUTE], you can operate the mute settings of all channels belonging to the corresponding DCA group.

Assigning a channel to a DCA group

The DCA GROUP ASSIGN popup is used to assign a channel to a DCA group.

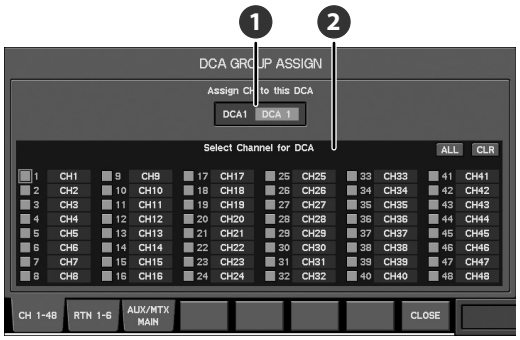
MEMO

You can also use the DCA/MUTE GROUP ASSIGN popup of the CHANNEL DISPLAY screen to assign a channel to a DCA group. For details, refer to "Assigning a channel to a DCA group" (p. 55).

Accessing the DCA GROUP ASSIGN popup

1. **In the GROUP section, press [DCA] to access the DCA GROUP screen.**

2. **Move the cursor to the DCA group fader of the desired DCA group, and press [F8 (ASSIGN)].**



The DCA GROUP ASSIGN popup will appear.

1 Target DCA group indication

This indicates the DCA group to which the settings in the DCA GROUP ASSIGN popup will apply.

2 Channel select buttons

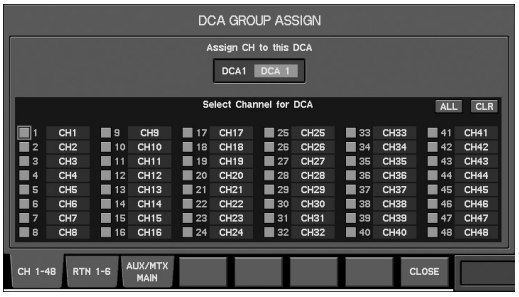
Here you can select the channels that will be assigned to the DCA group.

The function buttons have the following operations:

[F1 (CH 1–48)]	Displays CH1–48 as the channel select buttons.
[F2 (RTN 1–6)]	Displays RTN1–6 as the channel select buttons.
[F3 (AUX/MTX/MAIN)]	Displays AUX1–16, MTX1–8, and MAIN L/R/C as the channel select buttons.
[F8 (CLOSE)]	Closes the popup.

Assigning a channel to a DCA group

1. **Access the DCA GROUP ASSIGN popup for the desired DCA group.**



2. **Verify that the target DCA group is correct.**

3. **Move the cursor to the desired channel select button, and press [ENTER] to select it.**

4. **Press [F8 (CLOSE)] to close the popup.**

MEMO

When the DCA GROUP ASSIGN popup is displayed, you can press a top panel [SEL] to turn on/off the corresponding channel's assignment to the DCA group.

Specifying a name and color label for the DCA group

You can specify a name and color label for each DCA group. A name of up to six characters can be specified, and you can choose one of eight colors as the color label.

The NAME EDIT popup is used to edit the name and select a color label.

Accessing the NAME EDIT popup

1. **Access the DCA GROUP screen.**

2. **Move the cursor to the DCA group fader of the desired DCA group, and press [F7 (NAME EDIT)].**

The NAME EDIT popup will appear.

cf.

For details on name editing, refer to "Editing the channel name" (p. 52).

Mute groups

About mute groups

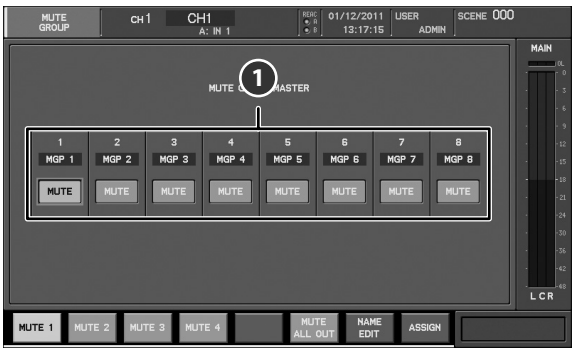
Mute grouping is a function that lets you control the mute status of multiple channels belonging to a mute group. A channel can belong to more than one mute group.

The MUTE GROUP screen is used to make mute group settings.

MUTE GROUP screen

Accessing the MUTE GROUP screen

1. In the GROUP section, press [MUTE].



The MUTE GROUP screen will appear.

1 MUTE group 1–8 button

These buttons turn mute groups 1–8 on/off. When you turn on a mute group, the channels belonging to that group will be muted.

MEMO

You can also make the setting for switching MUTE groups on or off from a USER button (p. 140).

The function buttons have the following operations:

[F1 (MUTE1)]–[F4 (MUTE4)]	Turns MUTE group 1–4 on/off.
[F6 (MUTE ALL OUT)]	Mutes all outputs of the M-480 and input/output units.
[F7 (NAME EDIT)]	Accesses the NAME EDIT popup (p. 115).
[F8 (ASSIGN)]	Accesses the MUTE GROUP ASSIGN popup.

MEMO

Output muting controlled by [F6 (MUTE ALL OUT)] cannot be stored in a scene memory. When the M-480 is started up, muting caused by [F6 (MUTE ALL OUT)] will be turned off.

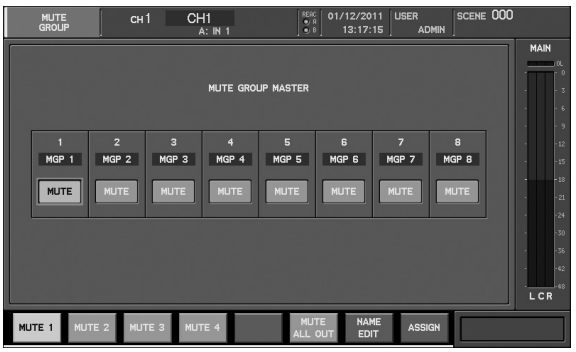
Assigning a channel to a mute group

The MUTE GROUP ASSIGN popup is used to assign a channel to a mute group.

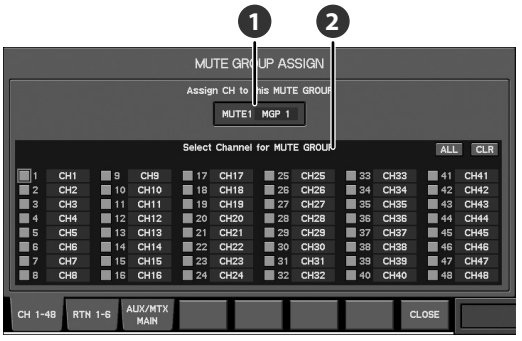
cf.

You can also use the DCA/MUTE GROUP ASSIGN popup of the CHANNEL DISPLAY screen to assign a channel to a mute group. For details, refer to "Assigning a channel to a MUTE group" (p. 55).

1. Access the MUTE GROUP screen.



2. Move the cursor to the MUTE group button of the desired mute group, and press [F8 (ASSIGN)].



The MUTE GROUP ASSIGN popup will appear.

1 Target mute group indication

This indicates the mute group to which the settings in the MUTE GROUP ASSIGN popup will apply.

2 Channel select buttons

Here you can select the channels that will be assigned to the mute group.

The function buttons have the following operations:

[F1 (CH 1–48)]	Displays CH1–48 as the channel select buttons.
[F2 (RTN 1–6)]	Displays RTN1–6 as the channel select buttons.
[F3 (AUX/MTX/MAIN)]	Displays AUX1–16, MTX1–8, and MAIN L/R/C as the channel select buttons.
[F8 (CLOSE)]	Closes the popup.

3. Move the cursor to the desired channel select button, and press [ENTER] to select it.

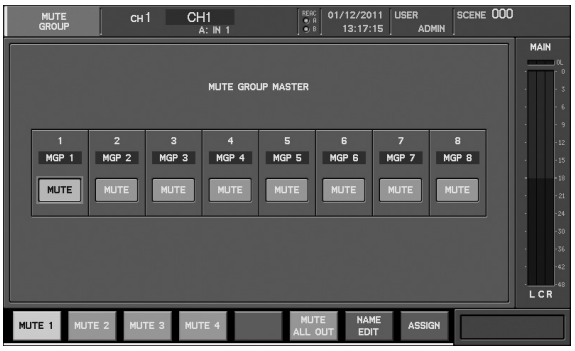
4. Press [F8 (CLOSE)] to close the popup.

MEMO

When the MUTE GROUP ASSIGN popup is displayed, you can press a top panel [SEL] to turn on/off the corresponding channel's assignment to the mute group.

Using mute groups

1. Access the MUTE GROUP screen.



2. Move the cursor to the desired mute group button, and press [ENTER] to turn it on/off.

MEMO

You can also make the setting for switching MUTE groups on or off from a USER button (p. 140).

Specifying a name and color label for a mute group

You can specify a name and color label for each mute group. A name of up to six characters can be specified, and you can choose one of eight colors as the color label.

The NAME EDIT popup is used to edit the name and select a color label.

Accessing the NAME EDIT popup

1. Access the MUTE GROUP screen.

2. Move the cursor to the MUTE group button of the desired mute group, and press [F7 (NAME EDIT)].

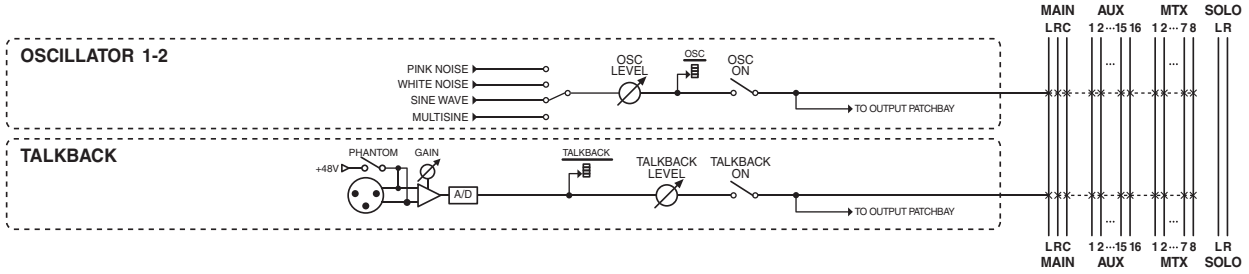
The NAME EDIT popup will appear.

cf.

For details on name editing, refer to "Editing the channel name" (p. 52).

Talkback/Oscillator

About talkback and oscillator

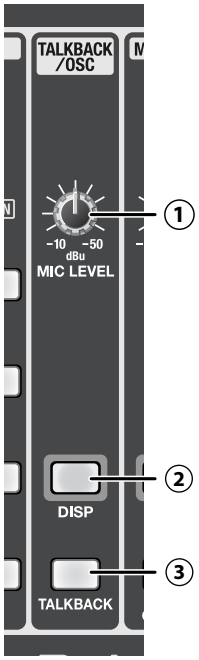


Talkback is a function that sends the input of a mic connected to the TALKBACK MIC IN on the rear panel jack to an AUX, MTX, MAIN L/R/C, or the output patchbay. This is useful when the mixer operator needs to convey instructions to performers on stage or to staff.

Oscillator is a function that generates pink noise, white noise, or a sine wave, and sends it to an AUX, MTX, MAIN L/R/C, or the output patchbay. This is useful when you need to measure the acoustical response of a hall, or when checking the connections of external devices. This is useful when checking the connections of external devices. You can use both OSC 1 and OSC 2 simultaneously.

TALKBACK/OSC section

Talkback and oscillator operations are performed in the TALKBACK/OSC section.



① MIC LEVEL knob

This adjusts the preamp gain of the TALKBACK MIC IN.

② DISP button

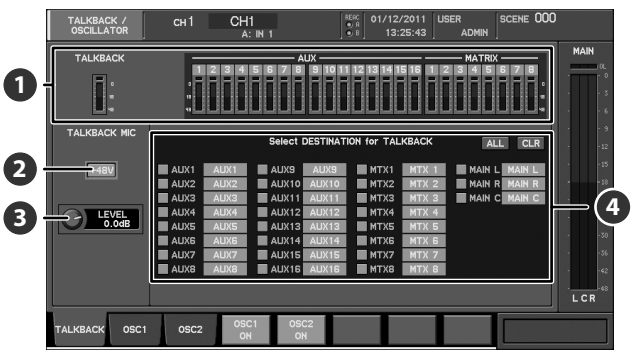
This accesses the TALKBACK/OSCILLATOR screen, where you can make talkback settings and oscillator settings.

③ TALKBACK button

This turns talkback on/off. It will be lit when talkback is on.

Using talkback

1. **Connect your mic to the TALKBACK MIC IN jack located on the rear panel.**
2. **In the TALKBACK/OSCILLATOR section, press [DISP] to access the TALKBACK/OSCILLATOR screen.**
3. **Press [F1 (TALKBACK)] to access the TALKBACK tab.**



1 Meters

These indicate the talkback input level, the AUX levels, MTX levels, and MAIN levels.

2 +48V button

This turns the +48V phantom power on/off for the TALKBACK MIC IN.

MEMO

You must turn off phantom power if you've connected a device that does not require +48V phantom power. Inadvertently supplying phantom power to a dynamic microphone, audio playback device, or any other device that does not require phantom power will cause malfunctions. Carefully read the owner's manual included with the microphone or other device you're using, and check its specifications.

3 LEVEL knob

This adjusts the level of the talkback in a range of -Inf dB–+10.0 dB.

4 Talkback output-destination select buttons

These buttons select the buses to which the talkback will be sent.

4. In the TALKBACK/OSC section, use the MIC LEVEL knob to adjust the input gain of the mic.

If you've connected a mic that requires +48V phantom power, use the on-screen +48V button to turn on +48V phantom power.

5. Use the talkback output-destination select buttons to select the bus to which the talkback signal will be sent.

6. In the TALKBACK/OSC section, press [TALKBACK] to turn talkback on.

MEMO

If talkback is on, [TALKBACK] will be lit in the talkback/oscillator section.

The way in which [TALKBACK] turns on/off will depend on how you press the button.

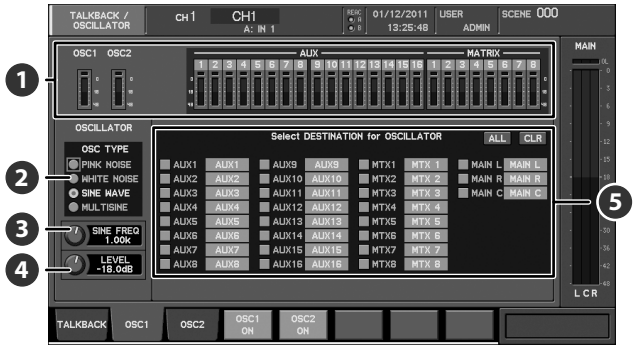
If you press and immediately release the button, the button will operate in Latch mode, alternately turning talkback on or off.

If you press and hold down the button, the button will operate in Momentary mode, and talkback will remain on only while you continue holding down the button.

Using the oscillator

1. Access the TALKBACK/OSCILLATOR screen.

2. Press [F2 (OSC 1)] ([F3 (OSC 2)]) to access the OSC 1 (OSC 2) tab.



1 Meters

These indicate the OSC 1 output level, OSC 2 output level, AUX levels, MTX levels, and MAIN levels.

2 Oscillator type select buttons

You can select the type of signal generated by the oscillator from the following choices:

PINK NOISE	Pink noise will be generated
WHITE NOISE	White noise will be generated
SINE WAVE	A sine wave will be generated
MULTISINE	31-band multisine will be generated

3 SINE FREQ knob

This adjusts the frequency of the sine wave in a range of 20 Hz–20 kHz.

4 LEVEL knob

This adjusts the level of the sine wave in a range of -Inf dB–0.0 dB.

5 Oscillator output destination select buttons

These buttons select the buses to which the oscillator will be sent.

The function buttons have the following operations:

[F4 (OSC 1 ON)]	Turns the OSC 1 on/off.
[F5 (OSC 2 ON)]	Turns the OSC 2 on/off.

3. Use the oscillator type select buttons to select the type of signal you want to generate.

4. Use the SINE FREQ knob and LEVEL knob to adjust the sine wave.

5. Use the oscillator output-destination select buttons to select the bus to which the oscillator signal will be sent.

6. Press [F4 (OSC 1 ON)] ([F5 (OSC 2 ON)]) to turn the oscillator on.

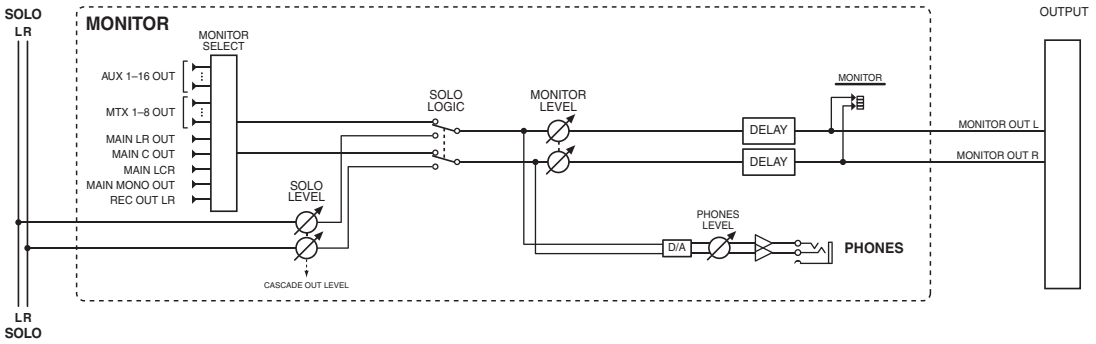
The oscillator signal will be sent to the bus you selected in step 5.

MEMO

You can also make the setting for switching the oscillator on or off from a USER button (p. 140).

Monitor/Solo

About monitoring



Monitoring is a function by which the AUX, MTX, MAIN, or USB memory recorder signal that you select as the monitor source can be sent from the output jacks or headphone jack. This is used mainly by a mixing engineer to monitor the signals.

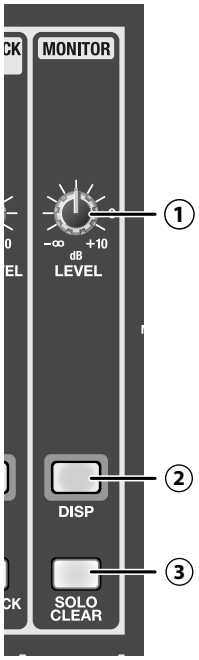
The monitor output is split to the MONITOR OUT L/R and PHONES OUT, and the level of these two can be adjusted independently. You can use the output patchbay to patch MONITOR OUT L/R to any desired output jacks.

Solo is a function by which the channel you select using a [SOLO] button is sent from the MONITOR OUT L/R or PHONES OUT jacks. This is used to monitor a channel temporarily.

Normally, the monitor signal will be output to MONITOR OUT L/R and PHONES. Solo is enabled when you turn on Solo for a channel; the signal of the channel for which Solo was turned on will be automatically sent to the Monitor output.

Operations in the MONITOR section

The top panel MONITOR section is used to perform Monitor/Solo operations.



① LEVEL knob

This adjusts the monitor output level in a range of -Inf dB–+10.0 dB.

② DISP button

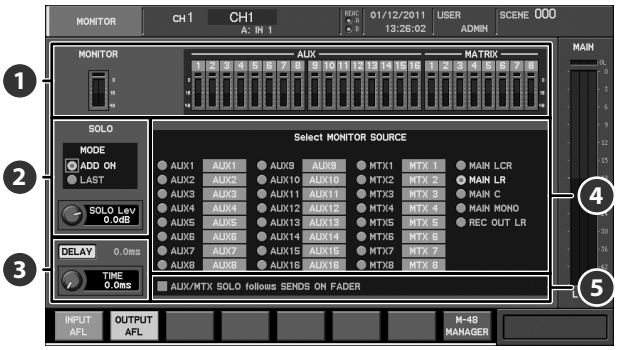
This accesses the MONITOR screen, where you can make monitor and solo settings.

③ SOLO CLEAR button

This turns off the solo settings of all channels. It will blink if any channels are currently being soloed.

Accessing the MONITOR screen

1. In the top panel MONITOR section, press [DISP].

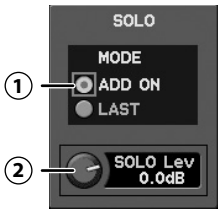


The MONITOR screen will appear.

① Meters

These indicate the level of the AUX, MTX, MAIN, and MONITOR.

❷ SOLO



① SOLO MODE select buttons

These select the solo mode from the following choices:

ADD ON	Channels whose [SOLO] are on will be mixed for monitoring.
LAST	Only the channel whose [SOLO] was turned on most recently will be monitored.

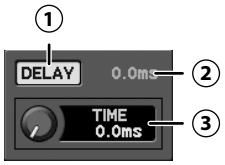
② SOLO Lev knob

This adjusts the solo level in a range of -Inf dB–+10.0 dB.

MEMO

The solo output level is affected not only by the SOLO Lev knob, but also by the LEVEL knob in the monitor section or by the LEVEL knob of the PHONES jack.

❸ DELAY



① DELAY button

This turns the delay on/off.

② DELAY TIME

This indicates the delay time in milliseconds.

③ DELAY knob

This adjusts the amount of delay in a range of 0.0 ms–400.0 ms (when delay unit is millisecond).

MEMO

You can select the units for the delay (p. 156).

❹ Monitor source select buttons

These select the monitor source.

MEMO

You can also assign monitor source selections to the USER buttons (p. 140).

❺ AUX/MTX SOLO follows SENDS ON FADER button

If this is checked, the solo of the AUX/MTX will be turned on in tandem with SENDS ON FADER. When SENDS ON FADER mode is turned off, the solo will be turned off.

The function buttons have the following operations:

[F1 (INPUT AFL)]	Selects the point from which the signal will be sent from the CH1–48 or RTN 1–6 to solo. If this is on, the post-pan signal of the channel will be sent. If this is off, the pre-fader signal will be sent.
[F2 (OUTPUT AFL)]	Selects the point from which the signal will be sent from the AUX, MTX, or MAIN to solo. If this is on, the post-fader signal of the channel will be sent. If this is off, the pre-fader signal will be sent.
[F8 (M-48 MANAGER)]	This accesses the M-48 MANAGER popup (p. 174)

Using Monitor

1. **Access the MONITOR screen.**
2. **Use the monitor source select buttons to select the desired monitor source.**
   The monitor signal will be output from the output jacks to which MONITOR OUT L/R are patched, and from the PHONES jack.
3. **Use the MONITOR section's LEVEL knob or the PHONES LEVEL knob to adjust the monitor output level.**

By default, MONITOR L/R is patched to CONSOLE OUT 7/8 and to DIGITAL OUT. You can use the output patchbay to change the output-destination. For details, refer to "Output patchbay operations" (p. 90).

Using Solo

1. **Access the MONITOR screen.**
2. **Use the SOLO MODE select buttons to select the desired solo mode.**
3. **On the top panel, press [SOLO] for the desired channel.**
   The signal of that channel will be sent to solo buses, and output from the output jacks to which MONITOR OUT L/R are patched, and from the PHONES jack.
4. **Use the SOLO Lev knob to adjust the solo level.**
5. **Use the MONITOR section's LEVEL knob or the PHONES LEVEL knob to adjust the monitor output level.**

The M-480's solo has the following priorities:

(High)	4	Key-in solo
Priority	3	CH solo
	2	DCA solo
(Low)	1	AUX/MTX/MAIN solo

Solo operates under following rules:

- Turning on higher priority solo temporary replaces lower priority solos. It returns to lower priority solos when higher priority solo is cleared.
- Turning on lower priority solo clears higher priority solos.

Scene memory

About scene memory

Scene memory is a function that lets you store mixer parameters as a scene, and recall them when desired. Scene memory is a function that lets you store and recall mixing parameters as "scenes." The M-480 can store 300 scenes in its internal memory, and you can assign a sixteen-character name to each scene.

The following scene functions are also provided:

Lock

Prohibits overwriting, deletion, renaming, or editing for the scene (p. 123).

Recall Filter function

Specifies the parameters that will be recalled for each scene (p. 122).

Global Scope function

Specifies the region (channels, parameters) that will be recalled for all scenes (p. 125).

The following mixer parameters are stored in a scene:

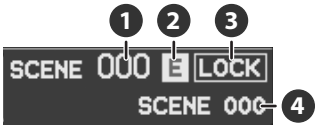
- Preamp (input/output unit, and the M-480's CONSOLE INPUT)
- Input patchbay
- Output patchbay
- CH1–48 and RTN 1–6
- AUX1–16, MTX1–8, and MAIN L/R/C
- Effects
- Talkback/Oscillator
- DCA groups and MUTE groups
- USB memory recorder

MEMO

The following parameter are not stored in a scene:

- The status of the TALKBACK button.
- The position of the TALKBACK MIC LEVEL knob.
- The status of the TALKBACK phantom power.
- The setting of the monitor.
- The statuses of the SOLO buttons.
- The recorder status (e.g., playing or recording) of the USB memory recorder.
- The playback mode of the USB memory recorder.
- The song selection of the USB memory recorder.
- The user settings (user preferences, user level)

About the scene indication in the top display area



Basic information about the scene is shown in the top display area.

1 Scene number

This indicates the number of the currently selected scene. If the number is blinking, a number other than the current scene number is selected.

MEMO

The current mixer parameters are referred to as the current scene. The scene number that was most recently recalled or stored is called the "current scene number."

2 E symbol

This will be shown if the mixer parameters have been edited after the scene was recalled or stored.

Since this means that the mixer parameters no longer match the data in scene memory, you'll need to store them into a scene memory if you want to keep them.

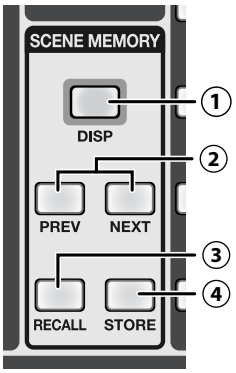
3 LOCK symbol

This indicates whether the currently selected scene is locked. You cannot store to a locked scene or delete it.

4 Scene name

This indicates the name of the currently selected scene. The scene name is not shown for a blank scene (a scene in which nothing has been stored).

SCENE MEMORY section



The top panel SCENE MEMORY section is used to perform scene memory operations.

① DISP button

This button accesses the SCENE screen where you can manage the scene list and make scene settings.

MEMO

Holding down [SHIFT] and pressing [DISP] displays the SCENE QUICKVIEW popup (p. 123).

② RECALL button

This recalls the mixer parameters from the currently selected scene number.

③ PREV / NEXT buttons

Use these buttons to return to the previous scene or advance to the next scene.

④ STORE button

This stores the current mixer parameters into the currently selected scene number.

Storing the mixer parameters into scene memory

1. **Use [PREV] or [NEXT] to select the store-destination scene number.**

2. **Press [STORE].**

The SCENE STORE popup will appear.

3. **Use the name edit field to edit the name of the scene name.**

NOTE

For details on name editing, refer to "Editing a name" (p. 39).

4. **Press [F8 (STORE)].**

A confirmation message will ask you to confirm the scene storage operation.

5. **Press [F8 (STORE)] to execute the Store operation.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

If the "SCENE/LIB STORE" button located in the CONFIRMATION area of User Preferences (p. 141) is not selected, no confirmation message will appear in step 5.

MEMO

If "LOCK" is indicated next to the scene number, that scene is locked, and you can't store to it. Use the SCENE screen if you want to unlock the scene. For details, refer to "Locking/ Unlocking a scene" (p. 123).

Recalling a scene memory to the mixer parameters

1. **Use [PREV] or [NEXT] to select the scene number that you want to recall.**

2. **Press [RECALL].**

A confirmation message will ask you to confirm the scene recall operation.

3. **Press [F8 (RECALL)] to execute the Recall operation.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

NOTE

Noise may occur when you recall a scene, but this is not a malfunction.

MEMO

If the "SCENE/LIB RECALL" button located in the CONFIRMATION area of User Preferences (p. 141) is not selected, no confirmation message will appear in step 3.

MEMO

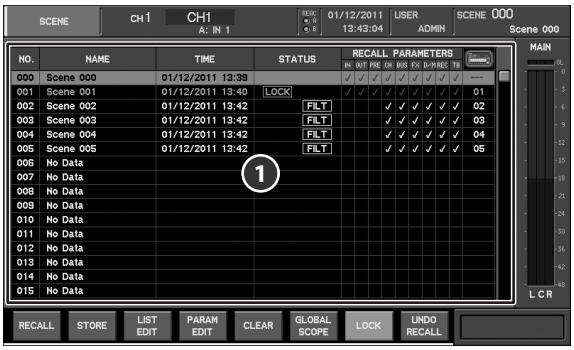
You can't recall a blank scene.

Operations in the SCENE screen

The SCENE screen is used to edit the scene list and make various scene settings.

Accessing the SCENE screen

1. In the SCENE MEMORY section, press [DISP].



The SCENE screen will appear.

1 Scene list

This lists the scenes. The current scene is shown in green. The list shows the following items:

Item	Explanation
NO.	Scene number.
NAME	Scene name.
TIME	Date and time at which the scene was stored.
STATUS	If the scene is locked or if the Recall Filter is turned on, this area will indicate LOCK or FILT, respectively.
RECALL PARAMETERS	A check mark is shown for parameters that will be recalled as specified by the Recall Filter settings.
M-48	Indicates the memory number that the M-48 recalls.

The RECALL PARAMETERS items are as follows:

Item	Explanation
IN	Input patchbay settings
OUT	Output patchbay settings
PRE	Preamp settings (gain, +48V phantom power, pad)
CH	Input channel settings
BUS	AUX, MTX, and MAIN L/R settings
FX	Effect and external effects device insertion settings
D/M	DCA group and MUTE group settings
REC	USB memory recorder settings
TB	Talkback and oscillator settings

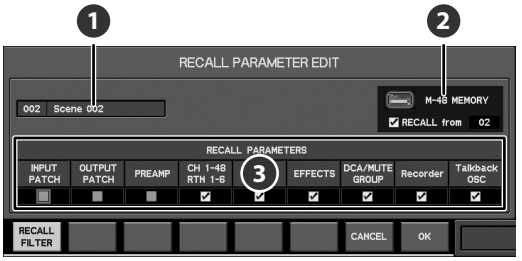
The function buttons have the following operations:

[F1 (RECALL)]	This recalls the mixer parameters from the currently selected scene number.
[F2 (STORE)]	This stores the current mixer parameters into the currently selected scene number.
[F3 (LIST EDIT)]	Accesses the SCENE LIST EDIT popup where you can edit the scene list (p. 124).
[F4 (PARAM EDIT)]	Accesses the RECALL PARAMETER EDIT popup where you can edit the Recall Filter for the scene selected in the scene list (p. 122).
[F5 (CLEAR)]	Clears the contents of the scene selected in the scene list, making it a blank scene (p. 125).
[F6 (GLOBAL SCOPE)]	Accesses the GLOBAL SCOPE popup (p. 125).
[F7 (LOCK)]	Locks or unlocks the scene selected in the scene list.
[F8 (UNDO RECALL)]	Undoes (cancels) the last-performed recall.

Using the Recall Filter function

1. Access the SCENE screen.

2. In the scene list, select the desired scene and press [F4 (PARAM EDIT)].



The RECALL PARAMETER EDIT popup will appear.

1 Scene indication

This indicates the scene that will be the object of the RECALL PARAMETER EDIT popup.

2 M-48 MEMORY

① RECALL button

Add a check mark here if you also want M-48 memory recall to occur when you recall the scene.

② Memory number

This specifies the M-48 memory number that will be recalled for all connected M-48 units.

3 RECALL PARAMETERS select buttons

These buttons specify the parameters that will be recalled if the recall filter is turned on.

The RECALL PARAMETERS select buttons consist of the following items:

Item	Explanation
INPUT PATCH	Input patchbay setting
OUTPUT PATCH	Output patchbay settings
PREAMP	Preamp settings (gain +48V phantom power, pad)
CH1–48 RTN 1–6	Input channel settings
BUS	AUX, MTX, and MAIN settings
EFFECTS	Effect and external effect insertion settings
DCA/MUTE GROUP	DCA group and MUTE group settings
RECORDER	USB memory recorder settings
TALKBACK/OSC	Talkback and oscillator settings

The function buttons have the following operations:

[F1 (RECALL FILTER)]	Turns the recall filter on/off.
[F7 (CANCEL)]	Cancels the changes and closes the popup.
[F8 (OK)]	Finalizes the changes and closes the popup.

3. **Press [F1 (RECALL FILTER)] to turn it on.**
4. **Use the RECALL PARAMETERS select buttons to add a check mark to the parameters that you want to recall.**
5. **Press [F8 (OK)] to finalize the changes and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Locking/Unlocking a scene

1. **Access the SCENE screen.**
2. **Select the desired scene from the scene list.**
3. **Press [F7 (LOCK)] to lock or unlock the scene.**

Momentarily displaying the scene list

While carrying out other operations, you can temporary display the scene list and perform scene memory operations.

1. **Hold down [SHIFT] and press [DISP] in the SCENE MEMORY section.**

The SCENE QUICKVIEW popup will appear.

1 Scene list

This lists the scenes. The current scene is shown in green. The items listed are the same as for the SCENE screen.

The function buttons have the following operations:

[F1 (RECALL)]	This recalls the mixer parameters from the currently selected scene number.
[F2 (STORE)]	This stores the current mixer parameters into the currently selected scene number.
[F4 (CLEAR)]	Clears the contents of the scene selected in the scene list, making it a blank scene (p. 125).
[F6 (LOCK)]	Locks or unlocks the scene selected in the scene list.
[F7 (UNDO RECALL)]	Undoes (cancels) the last-performed recall.
[F8 (CLOSE)]	Closes the popup.

MEMO

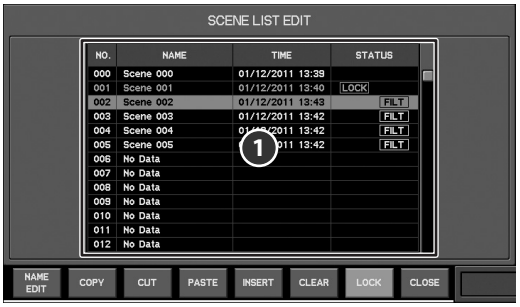
You can also make the setting for accessing the popup from a USER button (p. 140).

Editing the scene list

The SCENE LIST EDIT popup is used to edit the scene list.

Accessing the SCENE LIST EDIT popup

1. **Access the SCENE screen.**
2. **Press [F3 (LIST EDIT)].**



The SCENE LIST EDIT popup will appear.

In the SCENE LIST EDIT popup you can edit the scene names, and copy, cut, paste, insert, or clear scenes in the list.

❶ Scene list

This is a list of the scenes.

The function buttons have the following operations:

[F1 (NAME EDIT)]	Accesses the NAME EDIT popup, where you can edit the scene name (p. 124).
[F2 (COPY)]	Copies the scene selected in the scene list (p. 124).
[F3 (CUT)]	Cuts (removes) the scene selected in the scene list (p. 125).
[F4 (PASTE)]	Pastes the copied or cut scene to the selected number (p. 124).
[F5 (INSERT)]	Inserts the copied or cut scene to the selected number (p. 125).
[F6 (CLEAR)]	Erases the content of the scene selected in the scene list, returning it to a blank scene (p. 125).
[F7 (LOCK)]	Locks or unlocks the scene that's selected in the scene list.
[F8 (CLOSE)]	Closes the popup.

When you use [F2 (COPY)] or [F3 (CUT)], the contents of the selected scene will be temporarily saved in the clipboard. [F4 (PASTE)] or [F5 (INSERT)] paste or insert the contents that were saved in the clipboard. The contents of the clipboard will disappear when you close the SCENE LIST EDIT popup.

Editing the name of a scene

1. **Access the SCENE LIST EDIT popup.**
2. **From the scene list, select the scene whose name you want to edit.**
3. **Press [F1 (NAME EDIT)].**

The NAME EDIT popup will appear.

4. **Move the cursor to the name edit field, and edit the scene name.**

cf.

For details on name editing, refer to "Editing a name" (p. 39).

5. **Press [F8 (CLOSE)] to close the popup.**

MEMO

You can't edit the name of a scene that is locked.

Copying a scene to another number

1. **Access the SCENE LIST EDIT popup.**
2. **From the scene list, select the copy-source scene, and press [F2 (COPY)].**

A message will ask you to confirm the Copy operation.

Press [F8 (COPY)] to save the selected scene in the clipboard.

MEMO

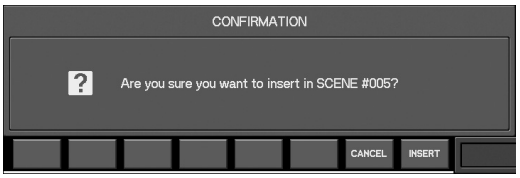
Pressing [F7 (CANCEL)] will cancel the operation.

3. **Select the desired copy-destination scene from the scene list.**
4. **Press [F4 (PASTE)] or [F5 (INSERT)] to copy the scene.**

- If you press [F4 (PASTE)], a message will ask you to confirm the insert operation.

Press [F8 (PASTE)] to carry out the Paste operation. The scene you selected in step 2 will be overwritten onto the number you selected in step 3.

- If you press [F5 (INSERT)], a message will ask you to confirm the Insert operation.



Press [F8 (INSERT)] to carry out the Insert operation. The scene you selected in step 3 and all subsequent scene will be renumbered upward by one, and the scene you copied in step 2 will be copied to the number you selected in step 3.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

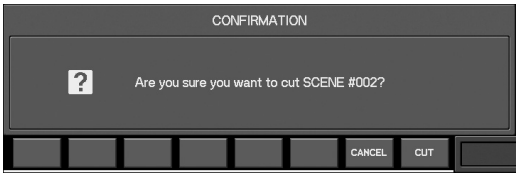
If a scene exists at scene number 299, you won't be able to use [F5 (INSERT)] to insert a scene.

MEMO

You can't paste to a scene that's locked.

Cutting a scene

1. **Access the SCENE LIST EDIT popup.**
2. **From the scene list, select the scene that you want to cut, and press [F3 (CUT)].**



A message will ask you to confirm Cut operation.

Press [F8 (CUT)] to carry out the Cut operation. The selected scene will be cut, and the numbers that follow the selected scene number will be renumbered downward by one.

MEMO

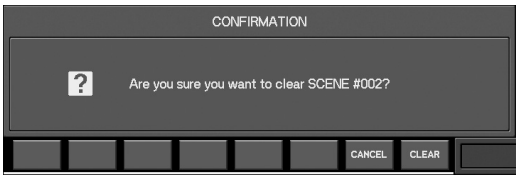
Pressing [F7 (CANCEL)] will cancel the operation.

TIP

Following step 2, you can use [F4 (PASTE)] or [F5 (INSERT)] to paste or insert the cut scene to any desired scene number.

Erasing the contents of a scene

1. **Access the SCENE LIST EDIT popup.**
2. **From the scene list, select the scene whose contents you want to erase.**
3. **Press [F6 (CLEAR)].**



A message will ask you to confirm the Clear operation.

Press [F8 (CLEAR)] to carry out the Clear operation. The contents of the scene you selected in step 2 will be erased.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

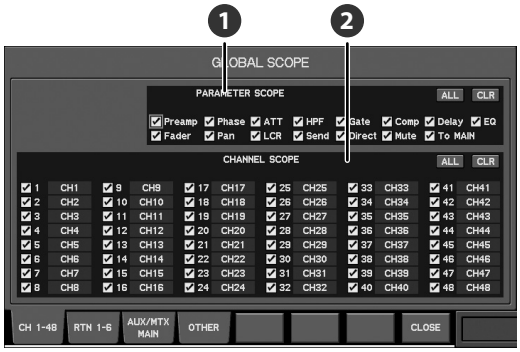
You can't erase a scene that is locked.

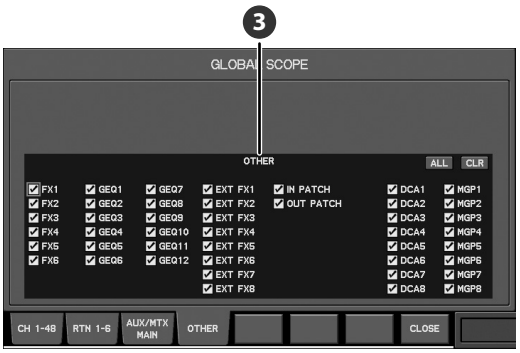
The Global Scope function

Global Scope is a function that lets you limit the channels and parameters that will be recalled; its settings apply to all scenes.

The GLOBAL SCOPE popup is used to make settings for the Global Scope function.

GLOBAL SCOPE popup





1 Parameter recall scope buttons (CH1–48, RTN 1–6, AUX/MTX/MAIN tab)

These buttons specify the scope of the parameters that will be recalled for the channels selected by the channel recall scope buttons.

De-select the parameters that you don't want to be recalled.

The parameter recall scope buttons correspond to the following parameters:

- For CH1–48 and RTN 1–6

Item	Explanation
Preamp	Preamp gain, pad, and +48V phantom power
Phase	Phase
ATT	Attenuator
HPF*	High-pass filter
Gate*	Gate/Expander
Comp*	Compressor
Delay	Delay
EQ*	4-band EQ
Fader	Faders
Pan	Pan
LCR	LCR button, CENTER
Send	AUX/MTX sends
Direct	Direct out point
Mute	Mute
To MAIN	MAIN send

*: CH 1–48 only.

- For AUX/MTX/MAIN

Item	Setting
ATT	Attenuator
EQ	4-band EQ
Fader	Faders
Balance	Balance
LCR	LCR button, CENTER
Phase	Phase
Limiter	Limiter
Delay	Delay
MTX Send	MTX sends
Mute	Mute
To MAIN	MAIN send

❷ Channel recall scope buttons

These buttons specify the channels that will be included in the recall scope.

De-select the channels that you don't want to be recalled.

❸ OTHER parameter recall scope buttons

Use these to specify other parameters that will be included in the scope of recall.

De-select the parameters that you don't want to be recalled.

The function buttons have the following operations:

[F1 (CH 1–48)]	Displays CH1–48 as the channel recall scope buttons.
[F2 (RTN 1–6)]	Displays RTN 1–6 as the channel recall scope buttons.
[F3 (AUX/MTX/MAIN)]	Displays AUX1–16, MTX1–8, and MAIN L/R/C as the channel recall scope buttons.
[F4 (OTHER)]	Displays the OTHER parameter recall scope buttons.
[F8 (CLOSE)]	Closes the popup.

Using the Global Scope function

1. **Access the SCENE screen.**
2. **Press [F6 (GLOBAL SCOPE)] to access the GLOBAL SCOPE popup.**
3. **Use the channel recall scope buttons of [F1 (CH 1–48)] and [F2 (RTN 1–6)] to specify the channel recall scope.**
4. **Specify the scope of parameters that will be recalled for CH 1–48 and RTN 1–6.**
5. **Use the channel recall scope buttons of [F3 (AUX/MTX/MAIN)] to specify the channel recall scope.**
6. **Specify the scope of parameters that will be recalled for AUX, MTX and MAIN.**
7. **Use the OTHER parameter recall scope buttons of [F4 (OTHER)] to specify the other parameters that will be recalled.**
8. **Press [F8 (CLOSE)] to close the popup.**

Linking scene memories to M-48 memories

Linking M-48 store operations

If desired, M-48 memories can be stored simultaneously when a scene memory is stored on the M-480.

The current memory of each M-48 unit will be stored to the specified memory number (except for M-48 units whose MEMORY SAFE function (p. 175) is on).

MEMO

Scenes stored by this operation are set so that when they are recalled, the memories of the M-48 units will also be recalled.

1. **Access the SCENE screen.**
2. **Select the scene number to use as the destination for the store operation, and press [F2 (STORE)].**

The SCENE STORE popup will appear.

3. **Verify the scene name shown in the name edit field, and edit it if desired.**

MEMO

The M-48 memory will be stored with the same name.

4. In the M-48 MEMORY section, add a check mark to the STORE button① and specify the memory number②.

MEMO

By holding down [SHIFT] and pressing [◀] or [▶], you can quickly move the cursor between the name edit field and M-48 MEMORY.

MEMO

You can press [F6 (MEMORY LIST)] to access the M-48 MEMORY LIST popup, where you can view the M-48's memory names.

5. Press [F8 (STORE)].

A confirmation message will ask you to confirm the Store operation.

MEMO

If the user preference CONFIRMATION select button "SCENE/LIB STORE" is unchecked, the Store operation will be executed without showing the confirmation message.

6. Press [F8 (STORE)] to execute the Store operation.

MEMO

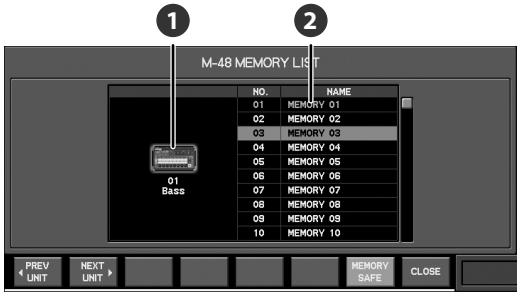
Pressing [F7 (CANCEL)] will cancel the operation.

TIP

If you want to exclude a specific M-48 unit from the memory store operation, use the M-48's MEMORY SAFE function (p. 175).

M-48 MEMORY LIST popup

To access the M-48 MEMORY LIST popup, press the SCENE STORE popup's [F6 (MEMORY LIST)] button. Here you can verify the memory name of the M-48's storage destination.



① Unit indication

This indicates the M-48 unit that is the object of the M-48 MEMORY LIST popup.

② Memory list

This indicates the memory number and name.

MEMO

The memory of the current memory number is shown in green.

The function buttons have the following operations:

[F1 (◀PREV UNIT)]	Change the target unit.
[F2 (NEXT UNIT▶)]	
[F7 (MEMORY SAFE)]	Turns the MEMORY SAFE function on/off for the target M-48 unit.
[F8 (CLOSE)]	Closes the popup.

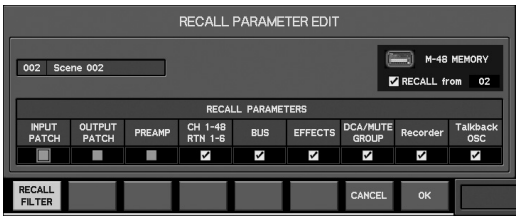
Linking M-48 recall operations

For each scene memory, you can specify whether M-48 memories will be recalled, and also specify the memory number that the M-48 units will recall.

MEMO

When you recall the scene that contains this setting, each M-48 will recall its memory (except for M-48 units whose MEMORY SAFE function (p. 175) is on).

1. Access the RECALL PARAMETER EDIT popup for the desired scene.



2. In the M-48 MEMORY area, add a check mark to the RECALL button① and specify the memory number②.

3. Press [F8 (OK)] to finalize the change and close the popup.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

TIP

If you want to exclude the memory of a specific M-48 unit from recall, use the M-48's MEMORY SAFE function (p. 175).

USB memory recorder

About the USB memory recorder

The M-480 provides a two-track recorder function that uses USB memory. This function allows you to choose any two sources from AUX1–16, MTX1–8, MAIN L, MAIN R, MAIN C, MAIN MONO, MAIN L+C, and MAIN R+C, and record the audio signal to USB memory as a WAV file, or to play back a WAV file from USB memory.

About WAV files

The recorded WAV files will be in the following formats:

The sampling frequency of the recorded WAV file will be the same as the sampling frequency of the M-480.

Sampling frequency	Bit depth	Number of channels
48 kHz	16 bits	2 channels
44.1 kHz	16 bits	2 channels

WAV files in the following formats can be played:

If the sampling frequency of the WAV file differs from the sampling frequency of the M-480 itself, the file will be resampled and played back.

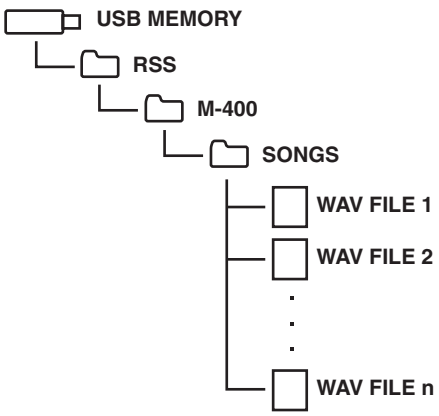
Sampling frequency	Bit depth	Number of channels
48 kHz	16 bits	1 channel
48 kHz	16 bits	2 channels
44.1 kHz	16 bits	1 channel
44.1 kHz	16 bits	2 channels

MEMO

The M-480 cannot display filenames that use multi-byte characters such as Japanese.

Location of the WAV files

WAV files will be recorded in the "/RSS/M-400/SONGS" folder of the USB memory, and WAV files in the same folder can be played.



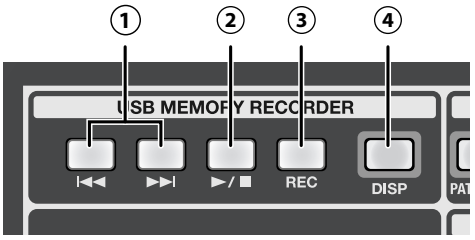
cf.

Do not disconnect the USB memory or power-off the M-480 while data is being saved to USB memory. Doing so may damage the data saved on USB memory.

About USB memory

The USB memory used by the USB memory recorder must be able to read or write data with sufficient speed when used with the M-480. To check the speed of USB memory, use the SYSTEM screen USB MEMORY popup (p. 165).

USB MEMORY RECORDER section



1 ◄◄ / ►►| button

Here you can select the song to play, and rewind or fast-forward the playback.

2 ► / ■ button

Use this button to start or stop playback, or to start recording.

3 REC button

Use this button to put the recorder in recording-standby mode, or to divide the song currently being recorded.

4 DISP button

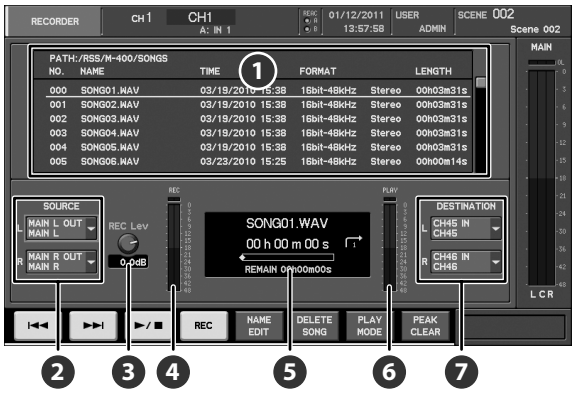
This button accesses the RECORDER screen where you can make recorder settings and manage the song list. It will light red while this screen is shown.

Using the USB memory recorder

USB memory recorder settings are made in the RECORDER screen.

Accessing the RECORDER screen

1. In the USB MEMORY RECORDER section, press [DISP].



The RECORDER screen will appear.

The USB memory recorder plays WAV files located in the "/RSS/M-400/SONGS" folder of USB memory in the order of their name.

❶ Song list

This area shows the WAV files in the SONGS folder. The WAV file selected for playback will be underlined.

NO.	Indicates the alphabetical order of the WAV files.
NAME	Indicates the name of the WAV file.
TIME	Indicates the date and time that the WAV file was last edited.
FORMAT	Indicates the format of the WAV file.
LENGTH	Indicates the time length of the WAV file.

MEMO

To select songs in the song list, use [I◄◄] and [►►I] of the USB MEMORY RECORDER section.

❷ RECORDER SOURCE SELECT popup buttons

These buttons access the RECORDER SOURCE SELECT popup, where you can select the input-source for the USB memory recorder. The current input-source channel is shown on the button. This can be set separately for the L and R channels.

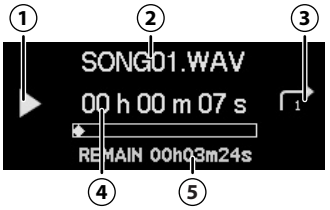
❸ REC Lev knob

This adjusts the recording level of the USB memory recorder in a range of -Inf dB–+10.0 dB.

❹ REC meter

This indicates the recording level of the USB memory recorder.

❺ Recorder display



① Recorder status

This indicates the recording or playback status of the USB memory recorder.


Playing

Record-ready or recording

② WAV file name

This indicates the name of the WAV file currently being recorded or currently selected for playback.

③ Playback mode

This indicates the playback mode. The following playback modes are provided:

Play one song

Repeat one song

Play to the last song

Repeat all songs

④ Time indicator

This indicates time information for the WAV file currently being recorded or played.

⑤ REMAIN

If a WAV file is playing, this indicates the remaining playback time of the WAV file.
During recording, this indicates the remaining amount of time that can be recorded to USB memory.

❻ PLAY meter

This indicates the playback level.

❼ RECORDER DESTINATION SELECT popup buttons

These buttons access the RECORDER DESTINATION SELECT popup, where you can select the output-destination for the USB memory recorder. The current output-destination channel is shown on the button. This can be set separately for the L and R channels.

MEMO

If more than one output-destination channel are exist, the lowest number channel is shown.

The function buttons have the following operations:

[F1 (I◄◄)]	Selects the previous WAV file. Holding this down during playback rewinds the WAV file being played.
[F2 (►►I)]	Selects the next WAV file. Holding this down during playback fast-forwards the WAV file being played.
[F3 (►/ ■)]	Plays the WAV file selected using the song list.
[F4 (REC)]	Puts the USB memory recorder into recording standby.
[F5 (NAME EDIT)]	Accesses the NAME EDIT popup, where you can edit the name of the WAV file (p. 131).
[F6 (DELETE SONG)]	Deletes the WAV file that's selected in the song list (p. 131).
[F7 (PLAY MODE)]	Cycles through the available playback modes.
[F8 (PEAK CLEAR)]	Clears the level meter's peak hold or over indication.

Specifying the input-source for the USB memory recorder

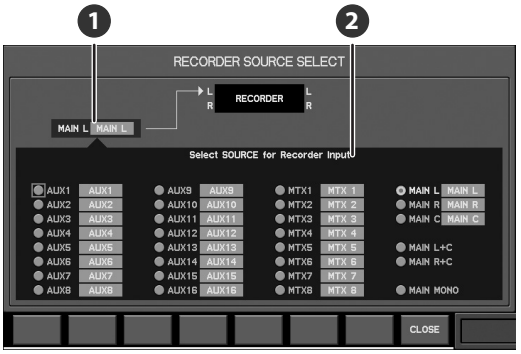
By default, the inputs of the USB memory recorder are specified as follows:

Input	Input-source
RECORDER IN L	MAIN L
RECORDER IN R	MAIN R

The RECORDER SOURCE SELECT popup is used to specify the input.

1. Access the RECORDER screen.

2. Move the cursor to the L channel of the RECORDER SOURCE SELECT popup button, and press [ENTER].



The RECORDER SOURCE SELECT popup will appear.

1 Current source indication

This indicates the current input-source.

2 Input-source select buttons

Use these to select the input-source channel for the USB memory recorder.

3. Move the cursor to the channel that you want to use as the input-source, and press [ENTER] to select it.

4. Press [F8 (CLOSE)] to close the popup.

5. Make settings for the R channel in the same way.

Specifying the output-destination for the USB memory recorder

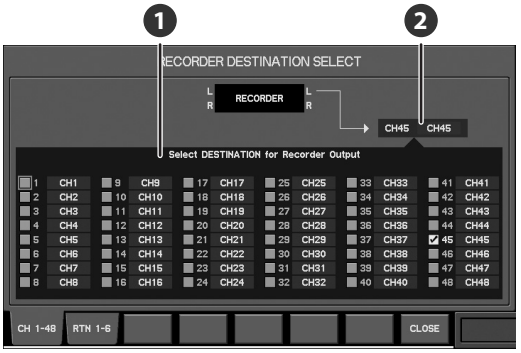
By default, the outputs of the USB memory recorder are specified as follows:

Output	Output-destination
RECORDER OUT L	CH45
RECORDER OUT R	CH46

The RECORDER DESTINATION SELECT popup is used to specify the output.

1. Access the RECORDER screen.

2. Move the cursor to the L channel of the RECORDER DESTINATION SELECT popup button, and press [ENTER].



The RECORDER DESTINATION SELECT popup will appear.

❶ Output-destination select buttons

Use these to select the output-destination channel for the USB memory recorder.

MEMO

You can select more than one output-destination channel.

❷ Current destination indication

This indicates the current output-destination channel.

MEMO

If more than one output-destination channel are exist, the lowest number channel is shown.

The function buttons have the following operations:

[F1 (CH 1–48)]	Displays CH 1–48 as the output-destination channel select buttons.
[F2 (RTN 1–6)]	Displays RTN 1–6 as the output-destination channel select buttons.
[F8 (CLOSE)]	Closes the popup.

3. Move the cursor to the channel that you want to use as the output-destination, and press [ENTER] to select it.

If an input port is already patched to the channel, a message will ask you to confirm the input patching change.

Press [F8 (ASSIGN)] to change the input patching.

MEMO

If the "PATCHBAY CHANGE" item in the CONFIRMATION section of User Preference (p. 141) is unselected, no confirmation message will appear in step 3.

4. Press [F8 (CLOSE)] to close the popup.

5. Make settings for the R channel in the same way.

Recording to USB memory

1. Press [REC].

The USB memory recorder will be in record-ready condition.

2. Press [►/ ■].

Recording to USB memory will begin, and the sub-display area will indicate the recording time.

MEMO

Pressing [REC] during recording lets you split the WAV file.

3. To stop recording, press [►/ ■].

Playing WAV files from USB memory

1. Press [I◄◄] or [►►I] to select a WAV file.

The selected WAV file is shown in the sub-display area.

2. Press [►/ ■].

The selected WAV file will play.

The sub-display area shows the playback time.

MEMO

Pressing and holding [I◄◄] during playback rewinds the playback, and pressing and holding [►►I] fast-forwards it.

3. To stop playback, press [►/ ■].

Renaming a WAV file

1. Access the RECORDER screen.

2. From the song list, select the desired WAV file.

3. Press [F5 (NAME EDIT)].

The NAME EDIT popup will appear.

4. Use the name edit field to edit the file name.

5. Press [F8 (OK)] to finalize the name you edited and close the popup.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

For details on name editing, refer to "Editing a name" (p. 39).

Deleting a WAV file

1. Access the RECORDER screen.

2. From the song list, select the WAV file that you want to delete.

3. Press [F6 (DELETE SONG)].

A message will ask you to confirm that you want to delete the WAV file.

4. Press [F8 (DELETE)] to delete the WAV file you selected in step 2.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

User settings

About user settings

Each user who uses the M-480 can have their own individual user settings. These settings can be used according to the level of the user to restrict the range of channels and parameters that can be operated, and to customize the user buttons, user fader layers, and preference settings to the user's liking. User settings include the following items:

User name

A name of up to eight characters.

Password

The password that will be required in order to use the user settings.

User level

This setting specifies whether the user has privileges to manage the M-480, and specifies the range of channels and parameters that can be operated.

MEMO

The privileges to manage the M-480 are called ADMIN privileges.

User preferences

This includes user fader layers, user button, and other preference settings.

Types of user settings

There are three types of user settings as follows:

ADMIN

These are user settings of a user who manages the M-480. The settings are stored in internal memory. There are no limitations to operation; the GUEST user settings can be edited and users can be created and edited. A password can be specified.

GUEST

This user setting can be used by anyone. The settings are stored in internal memory. The features available to the GUEST are specified by an ADMIN user. A password cannot be specified.

TIP

A user who can use user settings with ADMIN privileges is referred to as an ADMIN user.

MEMO

A GUEST cannot be given ADMIN privileges.

USER

These are user settings that an ADMIN user creates on USB memory. A name of up to eight characters can be assigned. The user level is specified by an ADMIN user. A password can be specified.

MEMO

Any user can make their own user preference settings.

NOTE

Do not disconnect the USB memory or switch off the M-480's power while data is being saved to USB memory. Doing so may destroy the data saved in USB memory.

Multiple USERs can be created on separate USB memory devices so that the USB memory can be used as a physical user authentication key, or multiple USERs can be created on a single USB memory device, with passwords used to authenticate users.

On the M-480, one setting is in use at all times. The user setting is remembered even when the power is turned off, and the same user settings will be active the next time the power is turned on.

MEMO

The user password will not be requested when the power is turned on. If you want to ensure that the user settings are not used by unauthorized persons, switch to GUEST before you turn off the power.

MEMO

In the default condition, the M-480 will start up with the ADMIN settings without any password.

Creating and editing user settings

The USER screen is used to create and edit user settings.

User settings consist of the following two types of settings:

User level (p. 137)

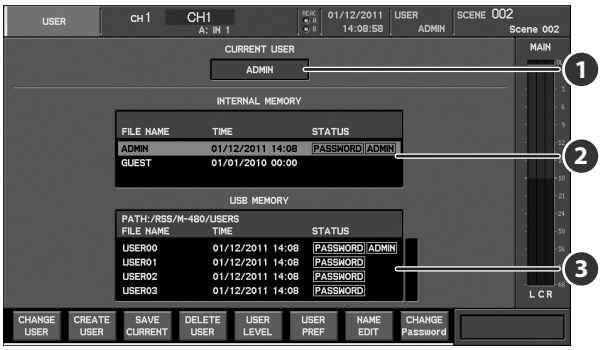
This specifies whether the user has ADMIN privileges, and specifies the range of channels and parameters that the user is allowed to manipulate.

User preferences (p. 139)

These include user fader layers, user button, and other preference settings.

Accessing the USER screen

1. In the USER section, press [DISP].



The USER screen will appear.

1 Current user indication

This shows the current user name.

2 User list (Internal)

3 User list (USB memory)

This lists the user settings saved in internal memory and in USB memory.

The following items are shown:

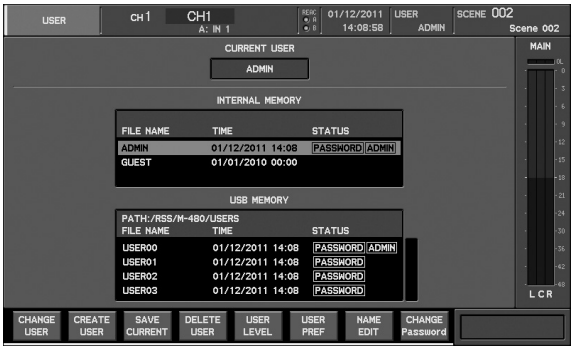
FILE NAME	Indicates the name of the user settings.
TIME	Indicates the date and time at which the settings were last changed.
STATUS	If a password has been specified, the indication PASSWORD appears here. In the case of a user who has ADMIN privileges, ADMIN is indicated.

The function buttons have the following operations:

[F1 (CHANGE USER)]	Switches to the user settings selected in the list (p. 133).
[F2 (CREATE USER)]	Creates a new user in USB memory (p. 134).
[F3 (SAVE CURRENT)]	Saves the user settings temporarily held in internal memory to USB memory (p. 135).
[F4 (DELETE USER)]	Deletes the user selected in the USB MEMORY user list (p. 135).
[F5 (USER LEVEL)]	Edits the user level setting (p. 137).
[F6 (USER PREF)]	Edits the user preference settings (p. 139).
[F7 (NAME EDIT)]	Accesses the NAME EDIT popup, where you can edit the name of the user settings selected in the USB memory user list (p. 135).
[F8 (CHANGE Password)]	Changes the password for the user settings selected in the list (p. 136).

Switching user settings

1. Access the USER screen.



2. From the user list, select the desired user.

3. Press [F1 (CHANGE USER)].

If a password has been specified, the ENTER PASSWORD popup will appear.

1 Applicable user indication

This indicates the user settings to which the ENTER PASSWORD popup applies.

2 Password entry field

Enter the password in this field.
Use the left/right cursor buttons to move the cursor, and use the value dial to change the character at the cursor position.
"*" is shown for characters not at the cursor position.

The function buttons have the following operations:

[F1 (A/a)]	Changes the letter at the cursor location between uppercase and lowercase. If the character is not a letter, it will be replaced by the letter "A."
[F2 (NUM)]	Changes the character at the cursor location to "0."
[F3 (DELETE)]	Deletes the character at the cursor location. The characters to the right of the cursor location will be moved toward the left.
[F7 (CANCEL)]	Cancels password entry and closes the popup.
[F8 (OK)]	Finalizes password entry and closes the popup.

4. When you enter the password and press [F8 (OK)], you will switch to the user settings you selected in step 2.

MEMO

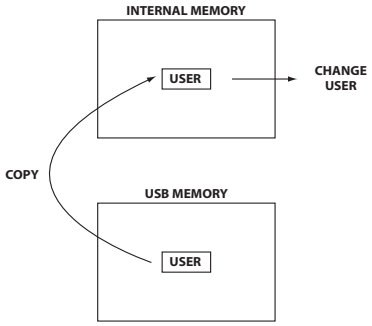
Pressing [F7 (CANCEL)] will cancel the operation.

If the password you entered was incorrect, the following error message will appear. Press [F8 (OK)] to return to the ENTER PASSWORD popup.

Switching to user settings in USB memory is performed as follows:

- The user settings in USB memory are copied to internal memory.
- Operation will switch to the user settings that were copied to internal memory.

This means that the current user settings will become the user settings in internal memory.



This allows user settings to be used even after the USB memory has been exchanged; for example, in order to use the USB MEMORY recorder. The user settings copied to internal memory are temporary, and will disappear if you switch to other user settings.

For this reason, a confirmation message like the following will appear when you switch to other user settings, suggesting that you save to USB memory.

In this confirmation message, the function buttons have the following operations:

[F6 (DON'T SAVE)]	Discards the user settings in internal memory and switches the user settings.
[F7 (CANCEL)]	Cancels the change in user settings.
[F8 (OK)]	Saves the user settings from internal memory to USB memory, and then switches the user settings.

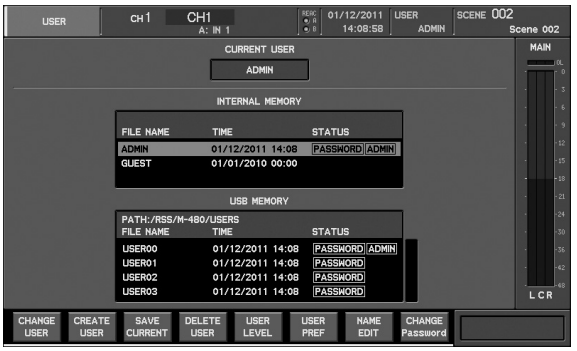
Creating user settings

You can create user settings if the current user setting has ADMIN privileges.

User settings are created on USB memory.

1. **Connect USB memory to the USB memory connector.**

2. **Access the USER screen.**



3. **Press [F2 (CREATE USER)].**

The CREATE NEW USER popup will appear.

4. **Use the name edit field to edit the user name.**

cf.

For details on name editing, refer to “Editing a name” (p. 39).

5. **Press [F8 (CREATE)] to create user settings.**

The user settings will be created in USB memory.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

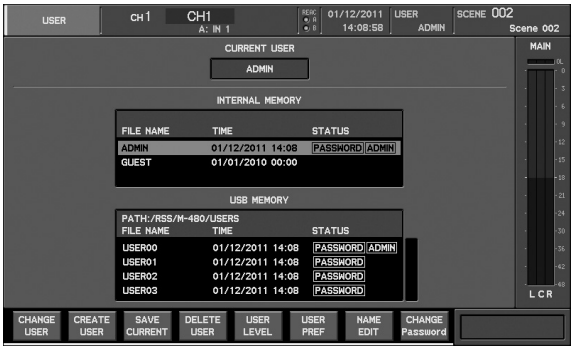
The created user settings will be as follows:

- User level will be all operations permitted, without ADMIN privileges
- User preferences will be the default condition

Saving the current user settings in USB memory

Here's how to save the current user settings in USB memory. This can be done if the current user setting is other than ADMIN or GUEST.

1. **Connect USB memory to the USB memory connector.**
2. **Access the USER screen.**



3. **Press [F3 (SAVE CURRENT)].**

The SAVE CURRENT USER popup will appear.

4. **Use the name edit field to edit the user name.**

cf.

For details on name editing, refer to "Editing a name" (p. 39).

5. **To save the settings, press [F8 (SAVE)].**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

If you save to identically named user settings in USB memory, a caution message will caution you that the previous data will be overwritten.

To save and overwrite the old data, press [F8 (REPLACE)].

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Deleting user settings

Here's how to delete user settings from USB memory.

You can delete user settings if the current user setting has ADMIN privileges.

1. **Access the USER screen.**
2. **From the USB memory user list, select the user that you want to delete.**
3. **Press [F4 (DELETE USER)].**

A message will ask you to confirm that you want to delete the user settings.

4. **When you press [F8 (DELETE USER)], the user settings you selected in step 2 will be deleted.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Editing the name of user settings

You can edit the name of a user. A name of up to eight characters can be specified.

1. **Access the USER screen.**
2. **From the user list, select the desired user.**
3. **Press [F7 (NAME EDIT)].**

The NAME EDIT popup will appear.

4. **Use the name edit field to edit the user name.**
5. **Press [F8 (OK)] to finalize the name you edited and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

cf.

For details on name editing, refer to "Editing a name" (p. 39).

Changing the password of user settings

You can change the password for ADMIN or USER settings.

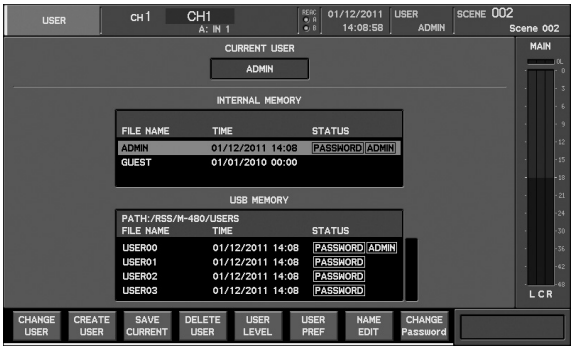
If you have specified a password, an ENTER PASSWORD popup will appear when you switch user settings.

If you don't specify a password, you won't need to enter a password when you switch users.

MEMO

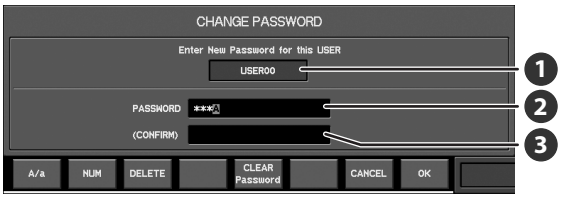
Editing the password for users other than the current one can be done only by a user who has ADMIN privileges.

1. Access the USER screen.



2. From the user list, select the desired user name.

3. Press [F8 (CHANGE PASSWORD)].



The CHANGE PASSWORD popup will appear.

1 Applicable user indication

This indicates the user name to which the CHANGE PASSWORD popup applies.

2 PASSWORD entry field

Specify the password in this field.
Use the left/right cursor buttons to move the cursor, and use the value dial to change the character at the cursor position. The characters at other than the cursor position are displayed as "*."

3 CONFIRM field

This field is used to confirm the entry in the PASSWORD field. Enter the same password as you did in the PASSWORD field.

If the contents entered in the PASSWORD field and the CONFIRM field do not match, the following error message will appear.

The function buttons have the following operations:

[F1 (A/a)]	Changes the letter at the cursor location between uppercase and lowercase. If the character is not a letter, it will be replaced by the letter "A."
[F2 (NUM)]	Changes the character at the cursor location to "0."
[F3 (DELETE)]	Deletes the character at the cursor location. The characters to the right of the cursor location will be moved toward the left.
[F5 (CLEAR Password)]	Clears the password.
[F7 (CANCEL)]	Cancels password entry and closes the popup.
[F8 (OK)]	Finalizes password entry and closes the popup.

4. Enter the desired password in the PASSWORD entry field and the CONFIRM field.

If you don't want to specify a password, press [F5 (CLEAR Password)].

5. Press [F8 (OK)] to finalize the password you specified and close the popup.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

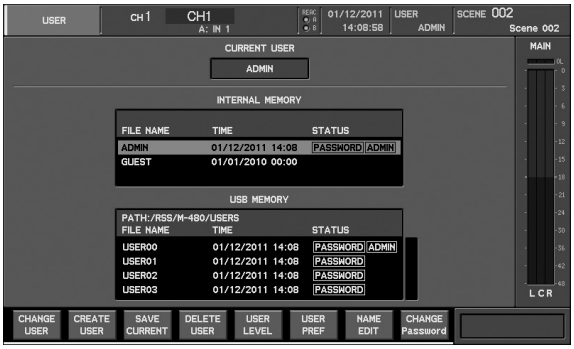
Limiting the range of possible operations

You can limit the range of operations that are possible by editing the user levels to correspond to the user settings.

You edit the user level at the USER LEVEL popup.

Accessing the USER LEVEL popup

1. Access the USER screen.



2. From the user list, select the desired user.

MEMO

You can't specify the user level for ADMIN.

3. Press [F5 (USER LEVEL)].

The USER LEVEL popup will appear.

This has four tabs: CH 1–48, RTN 1–6, AUX/MTX/MAIN and OTHER.

● CH 1–48, RTN 1–6, AUX/MTX/MAIN tabs

❶ Applicable user indication

This indicates the user settings to which the USER LEVEL popup applies.

❷ ADMIN button

Select this option if you want to give ADMIN privileges to the user.

❸ Parameter access permission buttons

These buttons select the parameters that the user will be able to operate for the channels selected by the channel access permission buttons. The parameters that are selected here will be operable.

The parameter access permission buttons correspond to the following parameters:

- For CH1–48 and RTN 1–6

Item	Explanation
Preamp	Preamp gain, pad, and +48V phantom power
Phase	Phase
ATT	Attenuator
HPF*	High-pass filter
Gate*	Gate/Expander
Comp*	Compressor
Delay	Delay
EQ*	4-band EQ
Fader	Faders
Pan	Pan
LCR	LCR button, CENTER
Send	AUX/MTX sends
Direct	Direct out point
Mute	Mute
To MAIN	MAIN send

*: CH 1–48 only.

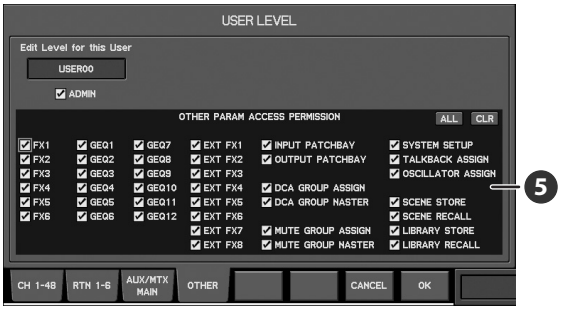
- For AUX/MTX/MAIN

Item	Setting
ATT	Attenuator
EQ	4-band EQ
Fader	Faders
Balance	Balance
LCR	LCR button, CENTER
Phase	Phase
Limiter	Limiter
Delay	Delay
MTX Send	MTX sends
Mute	Mute
To MAIN	MAIN send

❹ Channel access permission buttons

These buttons select the channels that the user will be able to operate. The channels that are selected here will be operable.

● **OTHER tab**



5 Other parameter access permission buttons

These buttons select other parameters that the user will be able to operate. The parameters that are selected here will be operable.

MEMO

The "TALKBACK/OSC" button in the OTHER PARAMETER ACCESS PERMISSION section enables or disables operation of the talkback/oscillator output-destination select button (p. 117).

The function buttons have the following operations:

[F1 (CH 1–48)]	Accesses the CH 1–48 tab.
[F2 (RTN 1–6)]	Accesses the RTN 1–6 tab.
[F3 (AUX/MTX/MAIN)]	Accesses the AUX/MTX/MAIN tab.
[F4 (OTHER)]	Accesses the OTHER tab.
[F7 (CANCEL)]	Cancels the changes and closes the popup.
[F8 (OK)]	Confirms the changes and closes the popup.

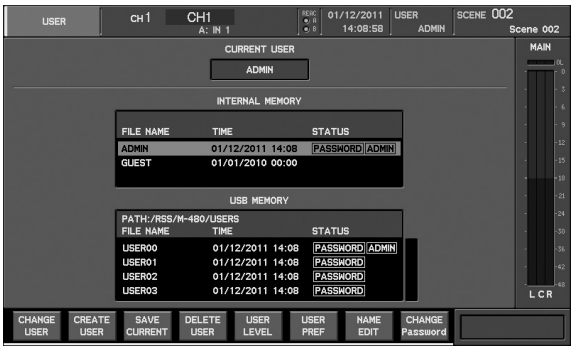
Editing the user level

The USER LEVEL popup is used to edit the user level.

MEMO

You can't specify the user level for ADMIN.

1. Access the USER screen.



2. From the user list, select the desired user.

3. Press [F5 (USER LEVEL)].

4. Use the ADMIN button to specify whether the user will have ADMIN privileges.

5. Use [F1 (CH 1–48)] and [F2 (RTN 1–6)] to access the CH 1–48 tab and RTN 1–6 tab, and specify the channels and parameters to which the user will have access.

6. Press [F3 (AUX/MTX/MAIN)] to access the AUX/MTX/MAIN tab, and specify the channels and parameters to which the user will have access.

7. Press [F4 (OTHER)] to access the OTHER tab, and specify the parameters to which the user will have access.

8. Press [F8 (OK)] to finalize the changes and close the popup.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

If a user who does not have ADMIN privileges attempts to access the USER LEVEL popup, an ENTER PASSWORD popup will appear, requesting that the ADMIN password be entered.

- Enter the ADMIN password and press [F8 (OK)] to access the USER LEVEL popup, where you can edit the user level.
- If you press [F7 (CANCEL], the USER LEVEL popup will appear in view-only mode. In view-only mode you can't edit the user level.

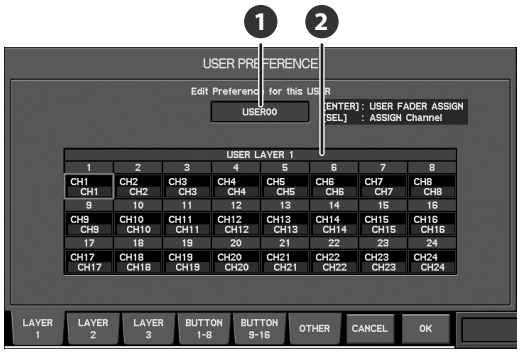
Editing the user fader layers

The user fader layers are a function for assigning any channel to the top panel fader module section (p. 21). There are three user fader layers, and you can assign any 24 channels for each user layer.

Editing the user fader layer assignments

1. **Access the USER screen.**
2. **From the user list, select the desired user.**
3. **Press [F6 (USER PREF)].**

   The USER PREFERENCE popup will appear.
4. **Press the button from [F1 (LAYER 1)] through [F3 (LAYER 3)] that matches the user fader layer whose settings you want to make.**



The USER FADER tab will appear.

1 Applicable user indication

This indicates the user settings to which the USER PREFERENCE popup applies.

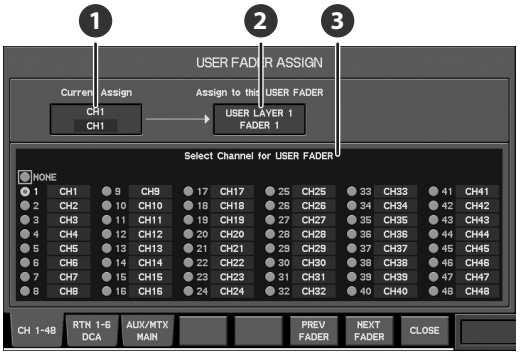
2 User fader assign 1–24

This area indicates the channels that are assigned to user faders 1–24.

The function buttons have the following operations:

[F1 (LAYER 1)]	Accesses the LAYER 1 tab.
[F2 (LAYER 2)]	Accesses the LAYER 2 tab.
[F3 (LAYER 3)]	Accesses the LAYER 3 tab.
[F4 (BUTTON 1–8)]	Accesses the BUTTON 1–8 tab.
[F5 (BUTTON 9–16)]	Accesses the BUTTON 9–16 tab.
[F6 (OTHER)]	Accesses the OTHER tab.
[F7 (CANCEL)]	Cancels the changes and closes the popup.
[F8 (OK)]	Confirms the changes and closes the popup.

5. **Move the cursor to the desired user fader assignment, and press [ENTER].**



The USER FADER ASSIGN popup will appear.

1 Current assignment

This indicates the channel that is currently assigned to the user fader.

2 Applicable user fader

This indicates the user fader to which the USER FADER ASSIGN setting applies.

3 Assignment channel select buttons

Here you can select the channel that will be assigned to the user fader. The selected channel will be assigned to the user fader.

The function buttons have the following operations:

[F1 (CH 1–48)]	Displays CH1–48 as the assignment channel select buttons.
[F2 (RTN 1–8 DCA)]	Displays RTN1–8 and DCA1–8 as the assignment channel select buttons.
[F3 (AUX/MTX/MAIN)]	Displays AUX1–16, MTX1–8, and MAIN L/R/C as the assignment channel select buttons.
[F6 (PREV FADER)]	Changes the target user fader.
[F7 (NEXT FADER)]	
[F8 (CLOSE)]	Confirms the changes and closes the popup.

6. **Use [F1]–[F3] to access the tab that contains the desired channel.**
7. **Move the cursor to the desired channel, and press [ENTER] to select it.**
8. **Press [F8 (CLOSE)] to finalize the changes and close the USER FADER ASSIGN popup.**
9. **Press [F8 (OK)] to finalize the changes and close the USER PREFERENCE popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

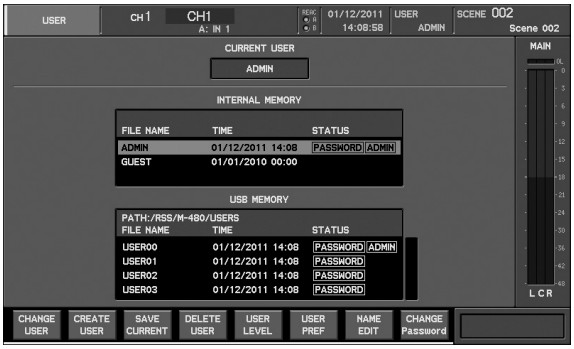
As an alternative to pressing [ENTER] in step 5, you can use the value dial or [SEL] button to edit the user fader assignment.

Editing the user button

The user buttons are a function for assigning desired functions to the [1] through [8] buttons on the USER section (p. 28). You can make settings for 16 user buttons. You can operate user buttons 1 through 8 using the [1] through [8] buttons, and you can operate user buttons 9 through 16 by holding down [SHIFT] and pressing the [1] through [8] buttons.

Editing the user button assignments

1. Access the USER screen.

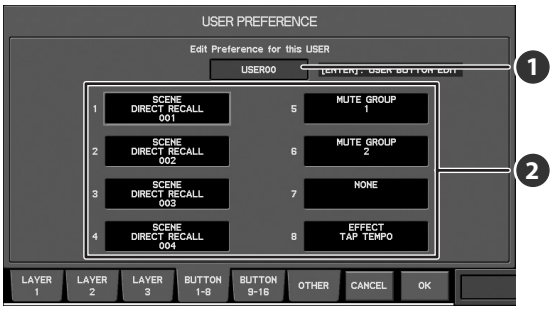


2. From the user list, select the desired user.

3. Press [F6 (USER PREF)].

The USER PREFERENCE popup will appear.

4. Press [F4 (BUTTON 1–8)] (or [F5 (BUTTON 9–16)]) to access the BUTTON 1–8 tab (or the BUTTON 9–16 tab.)



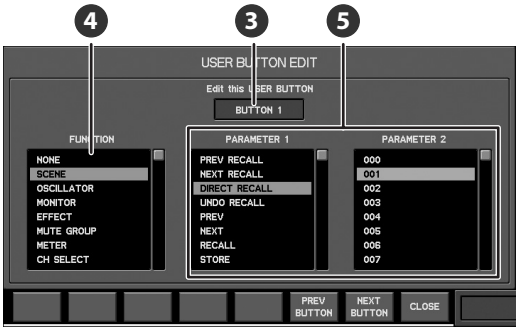
❶ Applicable user indication

This indicates the user settings to which the USER PREFERENCE popup applies.

❷ User button assign 1–8 (9–16)

This area indicates the functions that are assigned to user buttons 1–8. (or user buttons 9–16)

5. Move the cursor to the desired user button assignment, and press [ENTER].



The USER BUTTON EDIT popup will appear.

❸ Applicable user button

This indicates the user button to which the USER BUTTON ASSIGN popup applies.

❹ FUNCTION list

You can select a function from this list.

❺ PARAMETER 1 and 2 list

Here you can select the parameters of the function you've selected in the FUNCTION list.

The function buttons have the following operations:

[F6 (PREV BUTTON)]	Changes the target user button.
[F7 (NEXT BUTTON)]	
[F8 (CLOSE)]	Confirms the changes and closes the popup.

6. In the FUNCTION list, select the desired function.

7. Next, use the PARAMETER 1 list and PARAMETER 2 list to select the parameters.

MEMO

For a list of the functions that can be assigned, refer to "User button functions" (p. 192).

8. Press [F8 (CLOSE)] to finalize the changes and close the USER BUTTON ASSIGN popup.

9. Press [F8 (OK)] to finalize the USER PREFERENCE changes and close the popup.

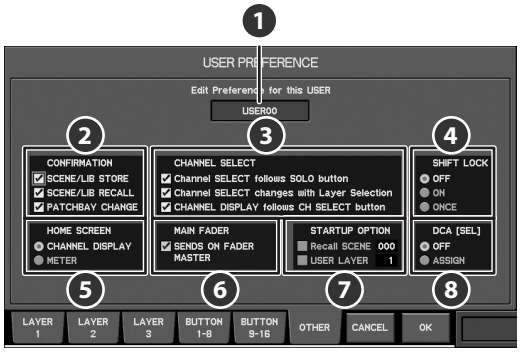
MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Editing other user preferences

1. **Access the USER screen.**
2. **From the user list, select the desired user.**
3. **Press [F6 (USER PREF)].**

   The USER PREFERENCE popup will appear.
4. **Press [F6 (OTHER)] to access the OTHER tab.**



The OTHER tab will appear.

1 Applicable user indication

This indicates the user settings to which the USER PREFERENCE popup applies.

2 CONFIRMATION select buttons

These buttons select the operations for which a CONFIRM popup will appear. When you perform an operation for which the corresponding button is selected here, a CONFIRM popup will appear, asking you to confirm the operation.

This area contains the following items:

SCENE/LIB STORE	Scene or library store operations
SCENE/LIB RECALL	Scene or library recall operations
PATCHBAY CHANGE	Changes to the input/output patchbay

3 CHANNEL SELECT operation select buttons

These buttons choose the way in which channel selection will occur. The channel selection mode whose button is selected will be used.

You can choose one of the following three channel select modes:

Channel SELECT follows SOLO button	[SOLO] will select the channel.
Channel SELECT changes with Layer Selection	The selected channel for each layer is remembered, and button operations in the layer section will change the selected channel.
CHANNEL DISPLAY follows CH SELECT button	Pressing [SEL] will access the CHANNEL DISPLAY screen.

4 SHIFT LOCK select buttons

These change the behavior of the SHIFT button. [SHIFT] will light if SHIFT is on:

OFF	SHIFT will be on only while you hold down [SHIFT].
ON	SHIFT will alternately turn on or off each time you press [SHIFT].
ONCE	SHIFT will turn on when you press [SHIFT], and will turn off when you execute a function associated with SHIFT.

5 HOME SCREEN select buttons

Use these to select the Home screen (p. 35). You can choose one of the following:

CHANNEL DISPLAY	The CHANNEL DISPLAY screen will be the home screen.
METER	The METER will be the home screen.

6 MAIN FADER operation select button

This changes the behavior of the MAIN fader module:

SENDS ON FADER MASTER	While the SENDS ON FADER mode is on, the MAIN fader module becomes send-destination AUX/MTX fader.

7 STARTUP OPTION select buttons

This makes the setting for the state in effect on power-up. The selection items are as indicated below:

Recall SCENE	This causes the scene of the specified number to be recalled on power-up.
USER LAYER	This causes the user layer of the specified number to be selected.

8 DCA [SEL] select buttons

This selects the operation that pressing [SEL] performs when DCA1 through 8 has been called up to the top panel's fader module section (p. 21). The selection items are as indicated below:

OFF	[SEL] is disabled.
ASSIGN	The DCA GROUP ASSIGN popup (p. 113) is accessed.

5. **Move the cursor to the desired item, and press [ENTER] to change it.**
6. **Press [F8 (OK)] to finalize the USER PREFERENCE changes and close the popup.**

REAC applications and settings

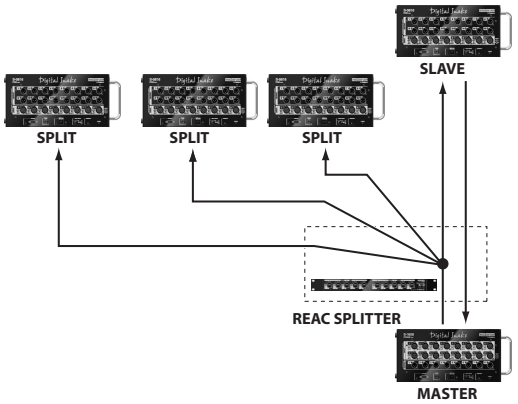
REAC applications

This chapter explains more advanced ways to use REAC.

For basic information about REAC, refer to "Basic knowledge about REAC" (p. 13).

REAC splitting

By connecting a REAC splitter between the REAC master and slave, you can split the output from the REAC master device and distribute it to multiple REAC split devices.



To assign a REAC device to operate in split mode, you must set its REAC mode to Split. The REAC split device will function solely to receive signals from the REAC master device.

Caution when using a REAC splitter

For a REAC splitter, you can use the S-4000D or an Ethernet switching hub. Switching hubs that meet the following conditions can be used with the M-480:

- **1000BASE-T compatible device (IEEE 802.3ab, Gigabit Ethernet) that supports 100 BASE-TX (IEEE 802.3u, Fast Ethernet)**
- **Full duplex communication (simultaneous bidirectional communication)**

The network transmission time between REAC devices is approximately 375 microseconds, but if the signal passes through a REAC splitter (S-4000D or an Ethernet switching hub), approximately 200 microseconds of delay will occur for each device. A maximum of four REAC splitters can be connected in series.

About the M-480's REAC functionality

REAC A port

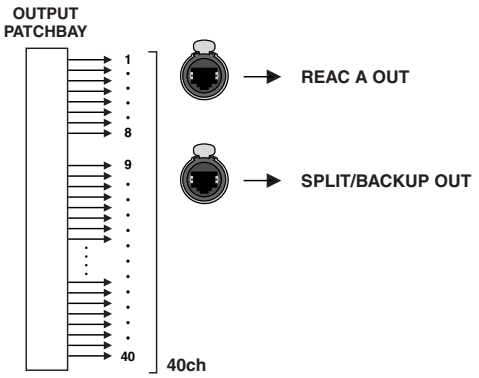
The REAC A port belongs to the REAC A system. The REAC A port operate as the REAC master or the REAC slave.

SPLIT/BACKUP port

From the SPLIT/BACKUP port, you can take the same output as the REAC A port, or create a redundant REAC connection between the M-480 and an S-4000S (p. 143).

The output of REAC A port and SPLIT/BACKUP port

The forty channels from the output patchbay are output to the REAC A port and SPLIT/BACKUP port.



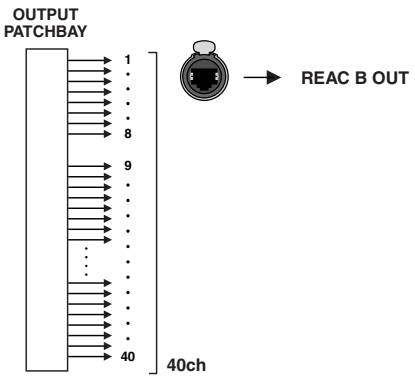
When the M-480's REAC is set to MONITOR/BROADCAST (p. 144), the REAC A port operates as the REAC split. In this case, the M-480 cannot output signals to the REAC A and SPLIT/BACKUP.

REAC B port

The REAC B port belongs to the REAC B system, which is separate from the REAC A port. The REAC B port always operates as the REAC master.

REAC B port output

The forty channels from the output patchbay are output to the REAC B port.

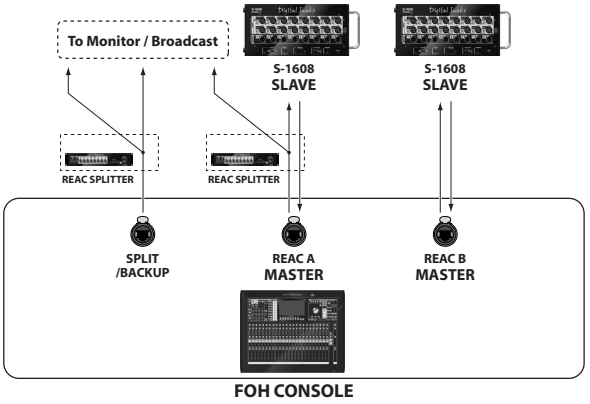


REAC connection examples

Here we show some examples of REAC setups and connections. For details on REAC settings for the M-480, refer to "REAC settings" (p. 144).

FOH console setup

Set the M-480's REAC setting to FOH (p. 144). The M-480's REAC A and REAC B will both be the REAC master.



Example:

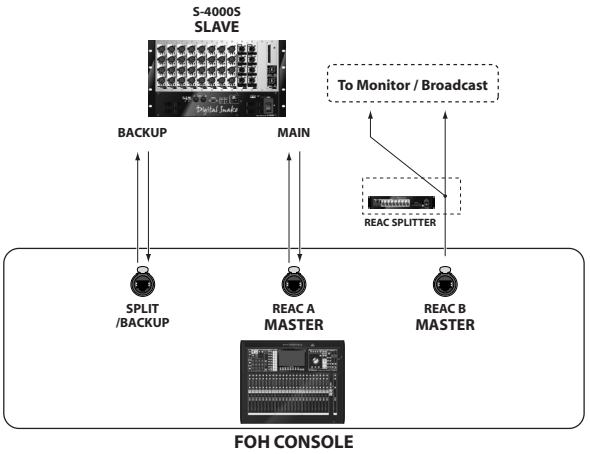
Both the REAC A and the REAC B are used for input/output from/to stage. By using M-480's two REAC systems, you can place input/output units on both sides of the stage.

Redundant REAC connection

To create a redundant REAC connection between the M-480 and an S-4000S, set the M-480's REAC setting to BACKUP (p. 144).

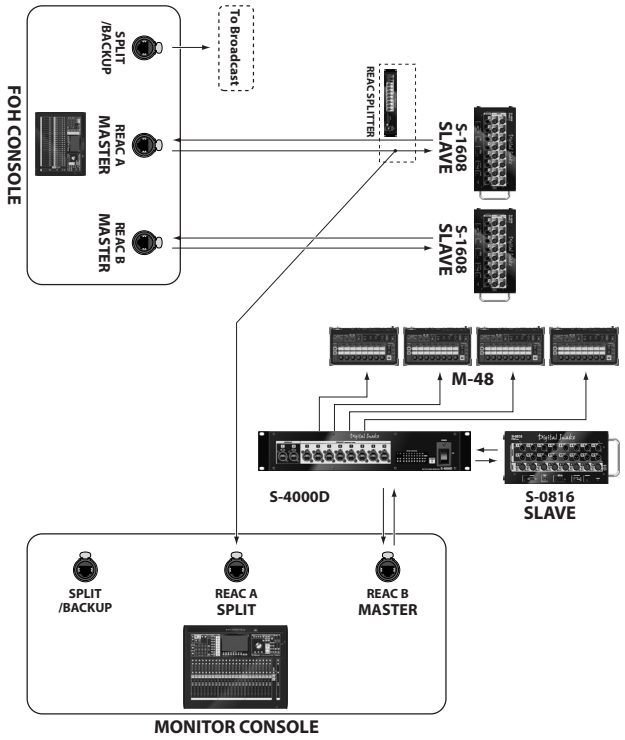
Connect the M-480's REAC A port to the S-4000S' MAIN REAC port, and connect the SPLIT/BACKUP port to the S-4000S' BACKUP REAC port.

With these connections, if the REAC A port—MAIN REAC port cable becomes broken, the connection will automatically be switched to the SPLIT/BACKUP port—BACKUP/REAC port cable, and the audio will continue without interruption.



Monitor/Broadcast console setup

Set the M-480's REAC setting to MONITOR/BROADCAST A (p. 144). REAC A will be the REAC split, and REAC B will be the REAC master.



Example:

The output from the FOH console's REAC A port (REAC master) is received by the monitor/broadcast console's REAC A port (REAC split). The units connected to the monitor/broadcast console's REAC B port and the rear panel CONSOLE OUTPUT jacks are used as the outputs of the monitor/broadcast console.

MEMO

The sampling frequency of the monitor console must match the sampling frequency of the FOH console.

Recording to a PC

You can use a REAC driver with SONAR DAW software to record multi-channel audio (40 channels) from the M-480's REAC port to a computer.

For details, refer to the following website:

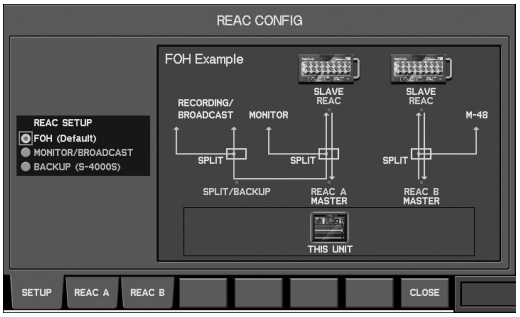
http://www.cakewalk.com/

REAC settings

The SETUP tab of the REAC CONFIG popup is used to make REAC settings for the M-480.

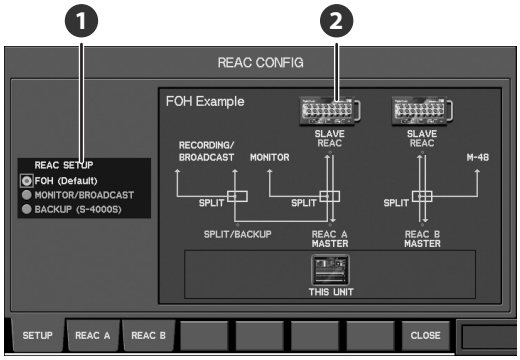
1. In the SETUP section, press [SYSTEM] to access the SYSTEM screen.

2. Press [F2 (REAC CONFIG)].



The REAC CONFIG popup will appear.

3. Press [F1 (SETUP)].



The SETUP tab will appear.

❶ REAC SETUP select buttons

These buttons select REAC settings appropriate for the desired application.

❷ Setup indication

This area shows the content of the REAC SETUP select buttons at cursor location, and the types of connections.

4. Move the cursor to the REAC SETUP select buttons, select the desired application, and press [ENTER].

You can choose from the following applications:

FOH	Use the M-480 as a FOH (Front Of House) console. Normally, you should choose this setting.
MONITOR/ BROADCAST	Use the M-480 as a monitor console or broadcast console. The REAC outputs from the FOH console will be received at REAC A.
BACKUP (S-4000S)	Connect the S-4000S using redundant connections.

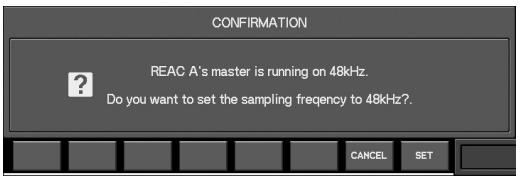
cf. For details on example connections for various applications, refer to “REAC connection examples” (p. 143).

5. Use the setup display area to check the input/output unit connections, REAC mode settings for the input/output units, and the signal flow.

cf. For basic knowledge about REAC, refer to “Basic knowledge about REAC” (p. 13).

cf. For more advanced applications of REAC, refer to “REAC applications” (p. 142).

In some cases, a message like the following may appear after you select MONITOR/BROADCAST A in step 4.



This confirmation message will appear if there is a difference in sampling frequency between the FOH console (REAC master) and the MONITOR/BROADCAST console (REAC split).

If you press [F8 (SET)], the cutoff frequency of the MONITOR/ BROADCAST console will be set to match that of the FOH console.

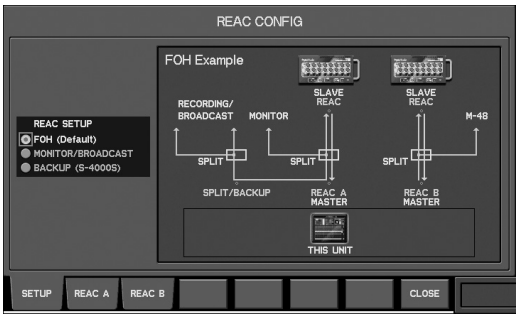
If you press [F7 (CANCEL)], the current sampling frequency will be maintained. If you cancel, it will not be possible to receive the split from the FOH console.

Checking the devices connected to REAC A and REAC B

To view information about the devices connected to REAC A and REAC B, you can use the REAC A tab and REAC B tab of the REAC CONFIG popup.

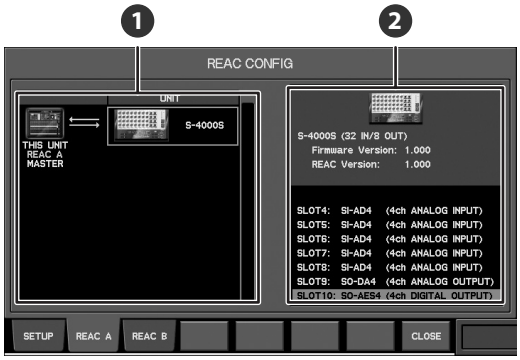
1. **In the SETUP section, press [SYSTEM] to access the SYSTEM screen.**

2. **Press [F2 (REAC CONFIG)].**



The REAC CONFIG popup will appear.

3. **Press [F2 (REAC A)] (or [F3 (REAC B)]) to access the REAC A tab (or the REAC B tab).**



The REAC A tab (or the REAC B tab) will appear.

1 Device list

This area shows the devices connected to REAC A or REAC B.

MEMO

Some devices, like the REAC split devices, may not be shown in the list.

2 Device information

This area shows the name, the number of inputs and outputs and the following information of the selected device:

Firmware Version	Firmware version
REAC Version	REAC version

MEMO

This area also shows following information:

- **S-4000S**

  You can view the modules that are installed in SLOT1 - SLOT10.

- **S-4000M**

  You can view the model name and version number of the units connected to the S-4000M's port 1–4.

4. **Note the information for the connected REAC device in the device list and the device information.**

MEMO

If the S-4000M is connected, the function button [F5 (S-4000M CONFIG)] will appear (p. 146).

Editing the S-4000M's Input/Output Settings

The S-4000M has a Merge patchbay and an Output patchbay (Output patchbay supports S-0808 8x8 I/O UNITS only). You can edit the S-4000M's Merge/Output patchbays using S-4000 RCS to change input/output assignments.

Merge Patchbay

This merges the inputs of the REAC slave units (connected to the REAC ports 1–4 of the S-4000M) into the channels to the M-480's REAC port.

Output Patchbay

This assigns channels from the M-480 to the outputs of the S-0808 units (REAC ports 1–4).

NOTE

You cannot edit an S-4000M's input/output settings when the S-4000M is set to the THRU mode.

Storing Input/Output Setups

The S-4000M input/output setup is saved to internal memory. The S-4000M configuration window loads and displays the setup from the connected S-4000M.

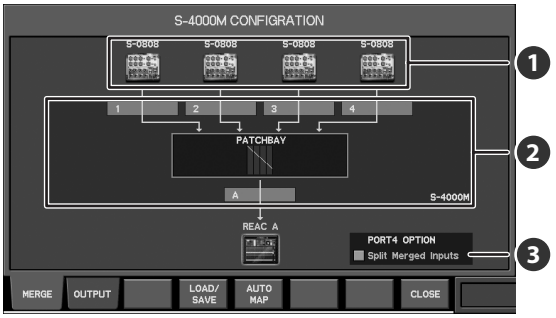
You can save/load the S-4000M input and output setups to a USB memory as an S-4000M Input/Output Setup file (p. 151).

MEMO

S-4000M's input/output setups cannot be saved as part of scene memory.

S-4000M CONFIGURATION popup

To edit S-4000M's Merge/Output patchbay, use the S-4000M CONFIGURATION popup.



❶ SLAVE device indication

This part indicates the REAC slave devices connected to REAC ports 1–4 of the S-4000M.

❷ S-4000M Merge Patchbay

This part displays how the REAC slave devices are being patched through the M-480.

❸ PORT4 OPTION

Add a check mark to this if you want to send the merged inputs being sent to the M-480 out to REAC port 4 as well (p. 150).

The function buttons have the following operations:

[F1 (MERGE)]	Displays MERGE tab (p. 148).
[F2 (OUTPUT)]	Displays OUTPUT tab (p. 149).
[F4 (LOAD/SAVE)]	Access the S-4000M LOAD/SAVE popup (p. 151).
[F5 (AUTO MAP)]	Resets the S-4000M Input/Output setup (p. 147).
[F8 (CLOSE)]	Closes the popup

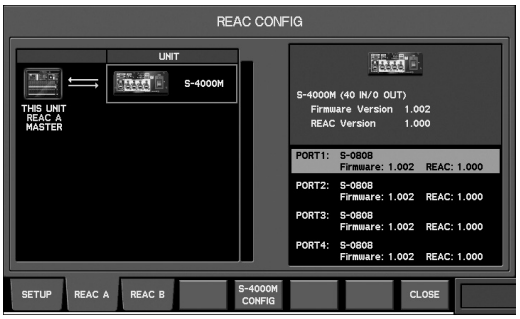
Accessing the S-4000M CONFIGURATION popup

1. In the SETUP section, press [SYSTEM] to access the SYSTEM screen.

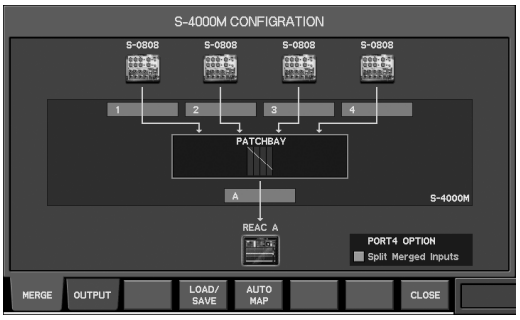
2. Press [F2 (REAC CONFIG)].

The REAC CONFIG popup will appear.

3. Select the target REAC port by pressing [F2 (REAC A)] or [F3 (REAC B)].



4. Press [F5 (S-4000M CONFIG)].



The S-4000M CONFIGURATION popup will appear.

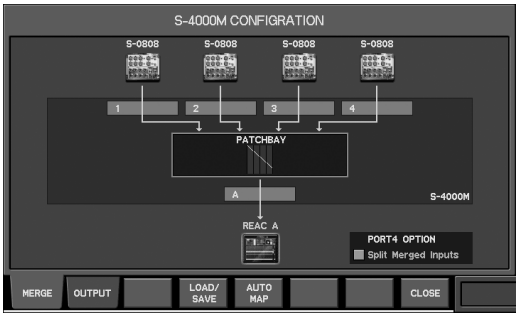
Resetting S-4000M Input/Output Setups (System Reset)

You can reset and optimize the merge/output patchbays according to the devices physically connected to REAC ports 1–4.

MEMO

This has the same function as [AUTO MAP SLAVE UNITS] button on S-4000M's front panel.

1. Access the S-4000M CONFIGURATION popup.



2. Press [F5 (AUTO MAP)].

A confirmation message will ask you to confirm the operation.

3. Press [F8 (OK)] to reset the S-4000M Input/Output setups.

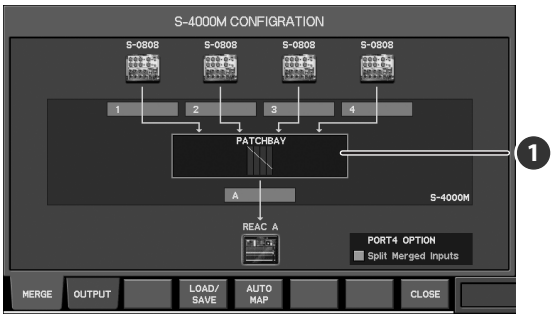
MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Merge Patchbay Operations

1. **Access the S-4000M CONFIGURATION popup.**

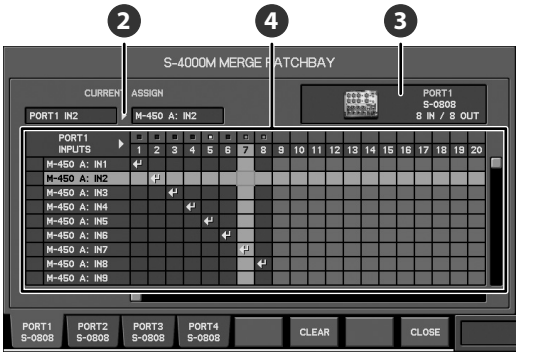
2. **Press [F1 (MERGE)] to access the MERGE tab.**



① Merge Patchbay

This part displays overall view of the S-4000M's merge patchbay.
You can move the cursor to the Merge Patchbay and press [ENTER] to access the S-4000M MERGE PATCHBAY popup.

3. **Move cursor to the Merge Patchbay and press [ENTER].**



The S-4000M MERGE PATCHBAY popup will appear.

② Current assign indication

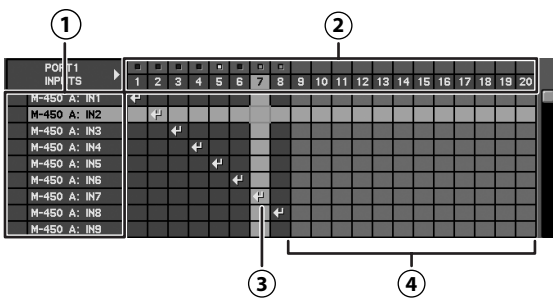
This indicates the physical input source that is patched to the channel at the cursor location.

③ Device indication

This indicates the REAC slave device that is selected by the function buttons [F1 (PORT1)]–[F4 (PORT4)].

④ Patchbay grid

This grid lets you make patchbay settings.



① REAC channel indication

This indicates the number of the REAC channels being sent to the M-480.

② Input indication

This indicates the input numbers of the REAC slave device and the signal level s.

The color indicates the signal level as follows:

Color	Signal Level
Black	Below -48 dB
Green	Between -48 dB and -18 dB
Yellow	Above -18 dB

③ Patch symbol

A patch symbol is shown where the currently patched REAC channel and input intersect. To change the patching, move the cursor to the location where the desired REAC channel and input intersect, and press [ENTER].

④ Unavailable area

The number area is shown in gray for inputs that cannot be used with the currently connected REAC slave device.

The function buttons have the following operations:

[F1 (PORT1)]–[F4 (PORT4)]	Selects the S-4000M's REAC port
[F6 (CLEAR)]	Clear all assignments of currently selected REAC port.
[F8 (CLOSE)]	Closes the popup

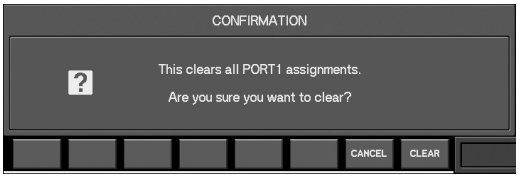
4. **Press [F1 (PORT1)]–[F4 (PORT4)] to select the desired S-4000M's REAC port.**

5. **Move the cursor to the intersection of the desired REAC channel and input, and press [ENTER].**

Clearing all assignments

1. **As described in step 1–4 of "Merge Patchbay Operations" (p. 148), access the S-4000M MERGE PATCHBAY popup.**

2. **Press [F6 (CLEAR)].**



A confirmation message will ask you to confirm the operation.

3. **Press [F8 (CLEAR)] to clear all assignments associated with the currently selected S-4000M's REAC port.**

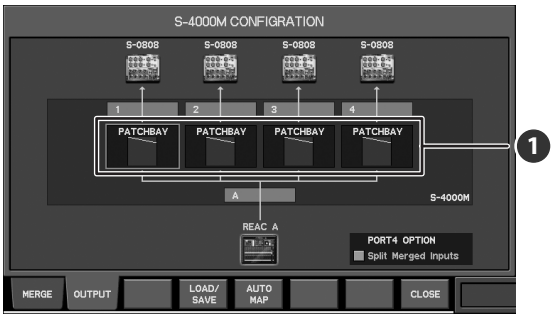
MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Output Patchbay Operations (S-0808)

1. **Access the S-4000M CONFIGURATION popup.**

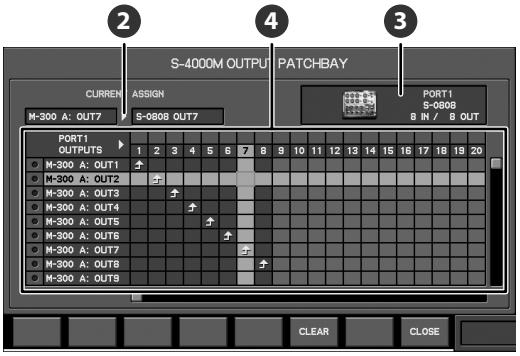
2. **Press [F2 (OUTPUT)] to access the OUTPUT tab.**



❶ Output Patchbay

This part displays overall view of the S-4000M's output patchbay. You can move the cursor to the Output Patchbay and press [ENTER] to access the S-4000M OUTPUT PATCHBAY popup.

3. **Move cursor to the desired Output Patchbay and press [ENTER].**



The S-4000M OUTPUT PATCHBAY popup will appear.

❷ Current assign indication

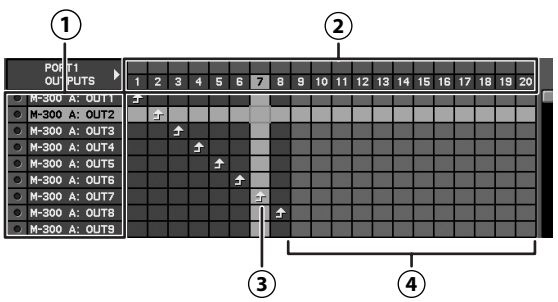
This indicates the channel that is patched to the physical output at the cursor location.

❸ Device indication

This indicates the REAC slave device that is that is the target of the S-4000M OUTPUT PATCHBAY popup.

❹ Patchbay grid

This grid lets you make patchbay settings.



① REAC channel indicator

This indicates the number and the signal level of the REAC channels being sent from the M-480.

The color indicates the signal level as follows:

Color	Signal Level
Black	Below -48 dB
Green	Between -48 dB and -18 dB
Yellow	Between -18 dB and 0 dB
Red	Above 0 dB

② Output indication

This indicates the output numbers of the REAC slave device.

③ Patch symbol

A patch symbol is shown where the currently patched REAC channel and output intersect. To change the patching, move the cursor to the location where the desired REAC channel and output intersect, and press [ENTER].

④ Unavailable area

The number area is shown in gray for outputs that cannot be used with the currently connected REAC slave device.

The function buttons have the following operations:

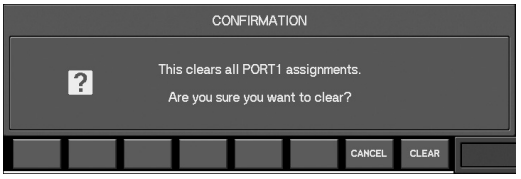
[F6 (CLEAR)]	Clear all assignments.
[F8 (CLOSE)]	Closes the popup

4. **Move the cursor to the intersection of the desired REAC channel and output, and press [ENTER].**

Clearing all assignments

1. **As described in step 1–3 of "Output Patchbay Operations (S-0808)" (p. 149), access the S-4000M OUTPUT PATCHBAY popup.**

2. **Press [F6 (CLEAR)].**



A confirmation message will ask you to confirm the operation.

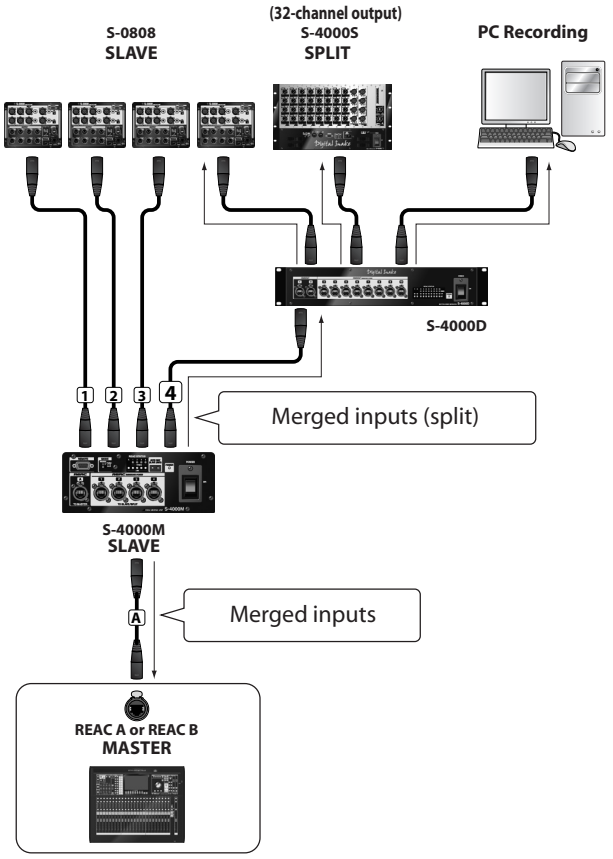
3. **Press [F8 (CLEAR)] to clear all assignments associated with the currently selected S-4000M's REAC port.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Splitting Merged Inputs (S-4000M's Split Function)

By using the S-4000M's Split Function, you can split the merged inputs (being sent to the M-480) to REAC port 4 of the S-4000M. It is very convenient when splitting to a monitor console or a multi-channel recording system.



MEMO

When a REAC splitter (like the S-4000D) is connected to the S-4000M's REAC port A, the signal from the M-480 is split.

Notes About the S-4000M's Split Function

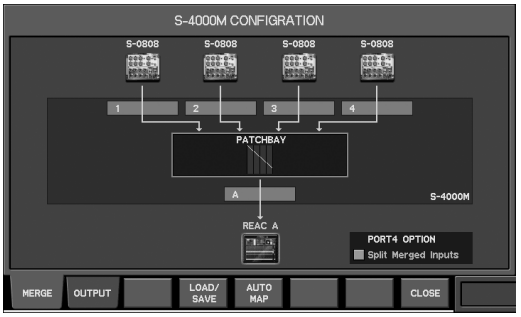
* You can connect a REAC slave device to S-4000M's REAC port 4 via a REAC splitter (like the S-4000D). In this case, the physical inputs of the REAC slave device operate normally but all merged inputs being sent to the M-480 will being sent out from the physical outputs.
* If an M-48 is connected to the S-4000M's REAC port 4, it is not possible to manage/setup the M-48 from the M-480.

TIP

Using the S-4000M's split function makes it unnecessary to use the M-480's output to REAC for stage-input splitting or recording.

Using S-4000M's split function

1. Access the S-4000M CONFIGURATION popup.



If the "Split Inputs to PORT4" button in the PORT4 OPTION is checked, then the S-4000M's split function is already turned on. The following steps will not be necessary.

2. Disconnect the REAC cable connected to REAC port 4 on the S-4000M.

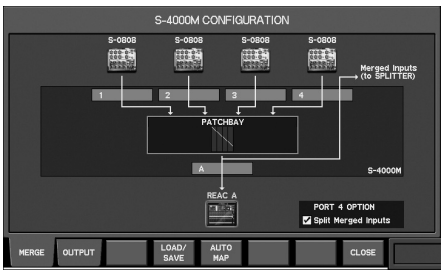
3. Move cursor to the Split Merged Inputs button in the PORT4 OPTION, and press [ENTER].

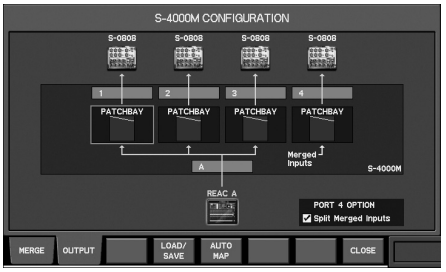
A confirmation message will ask you to confirm the operation.

4. Press [F8 (OK)] to enable the S-4000M's split function.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.





5. Connect the REAC cable to REAC port 4 on the S-4000M.

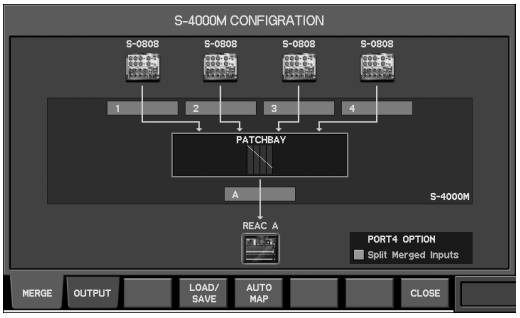
Saving/Loading the S-4000M's Input/Output Setups

You can save/load the S-4000M input and output setups to a USB memory as an S-4000M Input/Output Setup file.

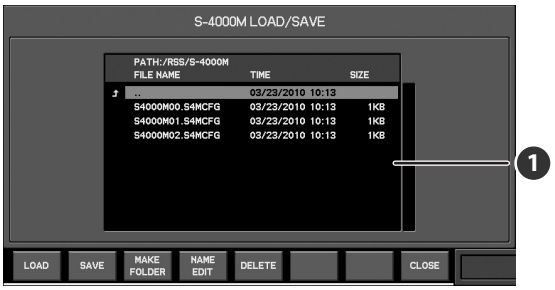
To save/load the S-4000M Input/Output Setup File, use the S-4000M LOAD/SAVE popup.

Accessing the S-4000M LOAD/SAVE popup

1. Access the S-4000M CONFIGURATION popup.



2. Press [F4 (LOAD/SAVE)].



The S-4000M LOAD/SAVE popup will appear.

1 File list

This lists the S-4000M Input/Output Setup files that have been saved to USB memory. You can specify the save-destination folder for the file, or specify the file that you want to load.

The function buttons have the following operations:

[F1 (LOAD)]	Loads the S-4000M Input/Output Setup file selected in the file list.
[F2 (SAVE)]	Saves the S-4000M's input/output setups.
[F3 (MAKE FOLDER)]	Creates a folder in the file list.
[F4 (NAME EDIT)]	Accesses the NAME EDIT popup where you can edit the name of the file or folder.
[F5 (DELETE)]	Deletes the selected file or folder from the file list.
[F8 (CLOSE)]	Closes the popup

Saving the S-4000M Input/Output Setup file

1. Access the S-4000M LOAD/SAVE popup.

2. Press [F2 (SAVE)].

The S-4000M SAVE popup will appear.

3. Edit the name of the S-4000M Input/Output Setup file in the name edit field.

4. When you press [F8 (SAVE)], a message indicating the status of the save procedure will appear. When saving is completed, the message will close.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

NOTE

Do not disconnect the USB memory or switch off the M-480's power while data is being saved to USB memory. Doing so may destroy the data saved in USB memory.

Loading the S-4000M Input/Output Setup file

1. Access the S-4000M LOAD/SAVE popup.

2. In the file list, select the S-4000 Input/Output Setup file that you want to load.

3. Press [F1 (LOAD)].

A confirmation message will ask you to confirm the operation.

4. When you press [F8 (LOAD)], a message indicating the status of the load procedure will appear. When loading is completed, the message will close.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

NOTE

Do not disconnect the USB memory or switch off the M-480's power while data is being saved to USB memory. Doing so may destroy the data saved in USB memory.

Remote

Remote functions

MIDI

You can use the rear panel MIDI IN/OUT connectors to remotely control the M-480 from an external device, or control an external device from the M-480. You can use either MIDI or RS-232C, not both. If you want to use MIDI, set the rear panel RS-232C/MIDI select switch to the MIDI position.

NOTE

Always make sure to switch off the M-480's power before you change the setting of the MIDI/RS-232C select switch.

MIDI can transmit and receive the following messages:

Message	Explanation	Transmitted/ Received
Control change	Control of channel faders and mute	Transmitted/ Received
Program change	Recall scene memories	Transmitted/ Received
System exclusive	Control of mixer parameters	Transmitted/ Received
MMC	Control of the USB memory recorder	Received only

V-LINK

If you connect a V-LINK compatible video device such as the V-440HD to the rear panel MIDI IN connector, you'll be able to use your video device to control the volume of specific channels.

The M-480 allows up to sixteen audio sources to be controlled via V-LINK.

The following V-LINK compatible video devices can be connected to the M-480:

- V-440HD (Ver. 2.07 or later)
- V-44SW (Ver. 1.07 or later)
- V-8
- LVS-800
- V-1600HD

MEMO

In order to use V-LINK, the MIDI/RS-232C select switch of the M-480 must be set to the MIDI position.

MEMO

The M-480 can use MIDI and USB MIDI simultaneously. If the same message is received via both MIDI and USB MIDI, the last-received message will be used.

USB MIDI

By connecting the rear panel USB port to a PC, you can use USB MIDI to remotely control the M-480.

USB MIDI can transmit and receive the following messages:

Message	Explanation	Transmitted/ Received
Control change	Control of channel faders and mute	Transmitted/ Received
Program change	Recall scene memories	Transmitted/ Received
System exclusive	Control of mixer parameters	Transmitted/ Received
MMC	Control of the USB memory recorder	Received only

MEMO

You'll need to install the USB MIDI driver on the PC that's to be connected to the M-480 using USB. Download the USB MIDI driver from the Roland website below:

http://www.rolandsystemsgroup.net/

MEMO

The M-480 can be remotely controlled from M-480RCS via its rear panel USB connector. M-480RCS is application software that runs on Windows PC. It allows you to edit M-480 project files and to remotely control the M-480. You can obtain the "M-480RCS" software and the "M-480RCS Users Guide" (PDF version) from the Roland website listed below. For details on using M-480RCS, refer to the "M-480RCS Users Guide."

http://www.rolandsystemsgroup.net/

RS-232C

You can use the RS-232C connector located on the rear panel to control the M-480 from an external computer or other device. For details on the RS-232C commands, refer to the "V-Mixer RS-232C Reference" (PDF version), which you can obtain from the Roland website listed below:

http://www.rolandsystemsgroup.net/

Remote settings

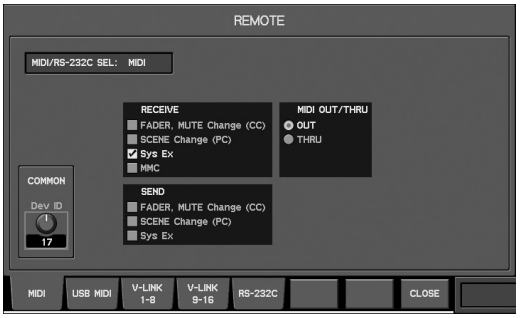
The REMOTE popup of the SYSTEM screen is used to make remote settings.

MIDI settings

The MIDI tab of the REMOTE popup is used to make MIDI settings.

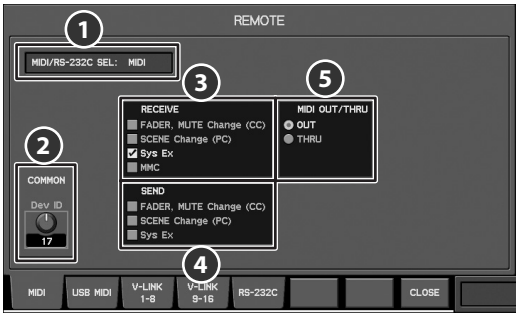
1. In the SETUP section, press [SYSTEM] to access the SYSTEM screen.

2. Press [F4 (REMOTE)].



The REMOTE popup will appear.

3. Press [F1 (MIDI)].



The MIDI tab will appear.

❶ MIDI/RS-232C selection indication

This shows the status of the rear panel MIDI/RS-232C select switch.

The functionality of the selected connector(s) is active.

MIDI	MIDI is selected.
RS-232C	RS-232C is selected.

NOTE

Always make sure to switch off the M-480's power before you change the setting of the MIDI/RS-232C select switch.

❷ Dev ID knob

This sets the M-480's device ID in a range of 1–32. This setting is common to the MIDI tab, USB MIDI tab, and V-LINK tab.

❸ RECEIVE select buttons

Here you can select the items of MIDI data that the M-480 will receive.

FADER, MUTE Change (CC)	Faders and mute changes (control changes)
SCENE Change (PC)	Scene changes (program changes)
Sys Ex	System exclusive
MMC	MMC for the USB memory recorder

❹ SEND select buttons

Here you can select the items of MIDI data that the M-480 will transmit.

FADER, MUTE Change (CC)	Fader and mute changes (control changes)
SCENE Change (PC)	Scene changes (program changes)
Sys Ex	System exclusive

❺ MIDI OUT/THRU select buttons

These select the function of the rear panel MIDI OUT/THRU connectors.

OUT	Use as a MIDI OUT connector.
THRU	Use as a MIDI THRU connector.

MEMO

If you select THRU, the settings of the SEND buttons will have no effect.

4. In the MIDI/RS-232C select indication, verify the status of the rear panel MIDI/RS-232C select switch.

5. Move the cursor to the Dev ID knob and specify the device ID.

6. Move the cursor to the RECEIVE select buttons for each item that you want MIDI to receive, and press [ENTER] to select the button.

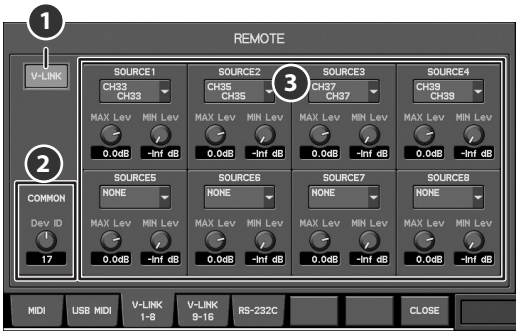
7. Move the cursor to the SEND select buttons for each item that you want MIDI to transmit, and press [ENTER] to select the button.

8. Move the cursor to the desired MIDI OUT/THRU select button, and press [ENTER] to select it.

V-LINK settings

To make V-LINK settings, use the V-LINK tab of the REMOTE popup.

1. **In the SETUP section, press [SYSTEM] to access the SYSTEM screen.**
2. **Press [F4 (REMOTE)] to access the REMOTE popup.**
3. **Press [F3 (V-LINK 1–8)] ([F4 (V-LINK 9–16)]).**



The V-LINK tab will appear.

1 V-LINK button

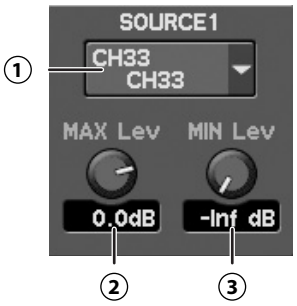
Turns the V-LINK function on/off.

2 Dev ID knob

This specifies the device ID of the M-480 in a range of 1–32. This setting is common to the MIDI tab, the USB MIDI tab, and the V-LINK tab.

3 SOURCE field 1–8 (9–16)

Here you can specify the channels that will correspond to V-LINK sources 1–8 (9–16), and the maximum level and minimum level for each channel.



1 V-LINK SOURCE CHANNEL SELECT popup button

This accesses the V-LINK SOURCE CHANNEL SELECT popup, where you can select the channel that corresponds to each source.

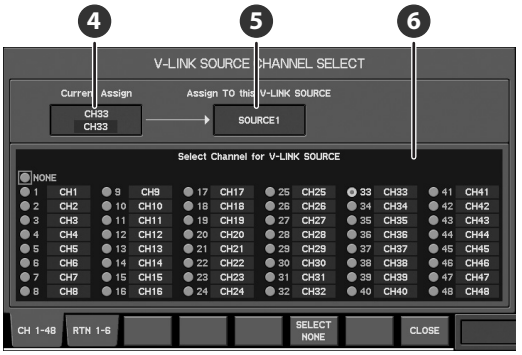
2 MAX Lev knob

This specifies the level when the source level is at the maximum (100%), in a range of -Inf dB–+10.0 dB.

3 MIN Lev knob

This specifies the level when the source level is at the minimum (0%), in a range of -Inf dB–+10.0 dB.

4. **Move the cursor to the Dev ID knob and specify the device ID.**
5. **Move the cursor to the V-LINK SOURCE CHANNEL SELECT popup button for the desired source, and press [ENTER].**



The V-LINK SOURCE CHANNEL SELECT popup will appear.

4 Current V-LINK source channel indication

This indicates the current V-LINK source channel.

5 Applicable V-LINK source indication

This indicates the V-LINK source to which the settings of the V-LINK SOURCE SELECT popup will apply.

6 SOURCE CHANNEL select buttons

These buttons select the channel that will correspond to the source.

The function buttons have the following operations:

[F1 (CH 1–48)]	Displays CH 1–48 as the SOURCE CHANNEL select buttons.
[F2 (RTN 1–6)]	Displays RTN 1–6 as the SOURCE CHANNEL select buttons.
[F6 (SELECT NONE)]	Clears the source channel selection.
[F8 (CLOSE)]	Closes the popup.

6. **Move the cursor to the desired channel, and press [ENTER] to select it.**

MEMO

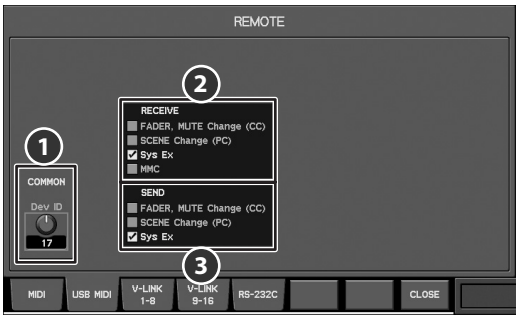
If you're using a stereo source, specify one of the stereo-linked channels.

7. **Press [F8 (CLOSE)] to close the V-LINK SOURCE CHANNEL SELECT popup.**
8. **Move the cursor to the MAX Lev knob in the desired SOURCE field, and use the value dial to specify the maximum level of the channel.**
9. **Move the cursor to the MIN Lev knob in the desired SOURCE field, and use the value dial to specify the minimum level of the channel.**
10. **Move the cursor to the V-LINK button and press [ENTER] to turn it on.**

USB MIDI settings

To make USB MIDI settings, use the USB MIDI tab of the REMOTE popup.

1. **In the SETUP section, press [SYSTEM] to access the SYSTEM screen.**
2. **Press [F4 (REMOTE)] to access the REMOTE popup.**
3. **Press [F2 (USB MIDI)].**



The USB MIDI tab will appear.

1 Dev ID knob

This specifies the device ID of the M-480 in a range of 1–32. This setting is common to the MIDI tab, the USB MIDI tab, and the V-LINK tab.

2 RECEIVE select buttons

These buttons select the items that USB MIDI will receive.

FADER, MUTE Change (CC)	Fader and mute changes (control changes)
SCENE Change (PC)	Scene changes (program changes)
Sys Ex	System exclusive
MMC	MMC for the USB memory recorder

3 SEND select buttons

These buttons select the items that USB MIDI will transmit.

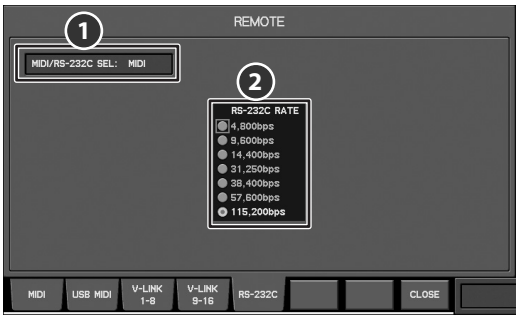
FADER, MUTE Change (CC)	Fader and mute changes (control changes)
SCENE Change (PC)	Scene changes (program changes)
Sys Ex	System exclusive

4. **Move the cursor to the Dev ID knob and specify the device ID.**
5. **Move the cursor to the RECEIVE select buttons for each item that you want USB MIDI to receive, and press [ENTER] to select the button.**
6. **Move the cursor to the SEND select buttons for each item that you want USB MIDI to transmit, and press [ENTER] to select the button.**

RS-232C settings

The RS-232C tab of the REMOTE popup is used to make RS-232C settings.

1. **In the SETUP section, press [SYSTEM] to access the SYSTEM screen.**
2. **Press [F4 (REMOTE)] to access the REMOTE popup.**
3. **Press [F5 (RS-232C)].**



The RS-232C tab will appear.

1 MIDI/RS-232C selection indicator

This shows the status of the rear panel MIDI/RS-232C select switch.

The functionality of the selected connector(s) is active.

MIDI	MIDI is selected.
RS-232C	RS-232C is selected.

NOTE

Always make sure to switch off the M-480's power before you change the setting of the MIDI/RS-232C select switch.

2 RS-232C rate select buttons

These buttons specify the RS-232C communication speed. Choose the setting that matches the speed setting on your computer.

4. **In the MIDI/RS-232C select indication, verify the status of the rear panel MIDI/RS-232C select switch.**
5. **Move the cursor to the RS-232C rate select button that matches the communication speed of your computer, and press [ENTER] to select the button.**

Other settings and functions

System information and basic mixer settings

Accessing the SYSTEM screen

1. In the SETUP section, press [SYSTEM].

The SYSTEM screen will appear.

In the SYSTEM screen you can view or edit various types of information.

The function buttons have the following operations:

[F1 (INIT)]	Accesses the INITIALIZE popup, where you can initialize the mixer settings (p. 158).
[F2 (REAC CONFIG)]	Accesses the REAC CONFIG popup, where you can make REAC settings (p. 144).
[F3 (LOAD/SAVE)]	Accesses the LOAD/SAVE popup, where you can load or save mixer settings (p. 159).
[F4 (REMOTE)]	Accesses the REMOTE popup, where you can make remote settings (p. 153).
[F5 (DATE TIME)]	Accesses the DATE&TIME popup, where you can specify the date and time (p. 162).
[F6 (USB MEMORY)]	Accesses the USB MEMORY popup, where you can manage USB memory (p. 163).
[F7 (SYSTEM UPDATE)]	Updates the system program.
[F8 (LOCK CONSOLE)]	Locks the console to prohibit operation (p. 166).

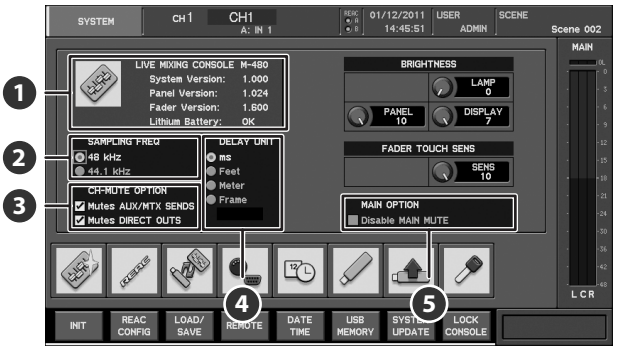
MEMO

SYSTEM UPDATE is for future system program updates. For details on the system update procedure, refer to the operating instructions provided with the updater.

Viewing system information and making basic mixer settings

The SYSTEM screen is used to view system information and make basic mixer settings.

1. Access the SYSTEM screen.



1 INFORMATION area

This area shows the firmware version and the state of the internal lithium battery.

The INFORMATION area shows the following items:

System Version	System firmware version
Panel Version	Panel firmware version
Fader Version	Fader firmware version
Lithium Battery	Status of the internal lithium battery

2 SAMPLING FREQ select buttons

These buttons select the sampling frequency at which the M-480 will operate.

3 CH-MUTE OPTION select buttons

These buttons make the settings for the channel mute options.

- **Mutes AUX/MTX SENDS**

  If this is checked, muting input channel also mutes AUX/MTX sends.

- **Mutes DIRECT OUTS**

  If this is checked, muting input channel also mute DIRECT OUTs.

4 DELAY UNIT select buttons

These buttons select the units for the delay shown in the CHANNEL DISPLAY screens and MONITOR screen.

You can select one of the following delay units:

ms	millisecond
Feet	Feet
Meter	Meter
Frame	Frame (24, 25, 29.97, 30fps)

❺ MAIN OPTION select button

This specifies the MAIN L/R/C setting.

Disable MAIN MUTE	Disable the top panel [MUTE] for MAIN.

2. View the system information in the INFORMATION area.

If the Battery indication shows OK, the internal lithium battery voltage is satisfactory.

If this shows LOW or NG, the voltage is low. Replace the internal lithium battery as described in "About the internal lithium battery" (p. 18).

3. Use the SAMPLING FREQ select buttons to select either 44.1 kHz or 48 kHz as the sampling frequency at which the M-480 will operate.

A message will ask you to confirm the operation.

Press [F8 (SET)] to switch to the sampling frequency you selected in step 3.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

The sampling frequency setting also determines the sampling frequency of the M-480's DIGITAL OUT connector and the sampling frequency for recording and playback on the USB memory recorder.

4. Use the DELAY UNIT select buttons to select the delay units shown in the CHANNEL DISPLAY screens (AUX/MTX/MAIN) and the MONITOR screen.

If you select "Frame" as the delay units, move cursor to the "fps" field, and use dial to select the frame-rate.

5. Use the CH-MUTE OPTION select buttons to make the settings for the channel mute options.

MEMO

The channel mute options are applied to all input channels.

MEMO

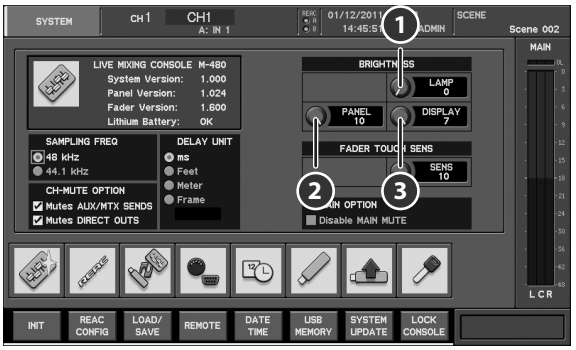
Sends from POST FADER are always muted by the channel muting, regardless of the channel mute option settings.

6. Make the desired MAIN OPTION setting.

Adjusting the brightness of the lamp, panel, and display

The BRIGHTNESS field of the SYSTEM screen is used to adjust the brightness of the panel, and display.

1. Access the SYSTEM screen.



❶ LAMP knob

This adjusts the brightness of the lamp connected to the rear panel LAMP connector.

❷ PANEL knob

This adjusts the brightness of the panel buttons and meters.

❸ DISPLAY knob

This adjusts the brightness of the display.

2. Move the cursor to the LAMP knob, and use the value knob to adjust the brightness of the lamp.

Higher values produce greater brightness.

MEMO

At a setting of 0, the lamp will be off.

3. Move the cursor to the PANEL knob, and use the value knob to adjust the brightness of the panel buttons and meters.

Higher values produce greater brightness.

4. Move the cursor to the DISPLAY knob, and use the value dial to adjust the brightness of the display.

Higher values produce greater brightness.

Adjusting the fader touch sensitivity

1. Access the SYSTEM screen.

1 SENS knob

This adjusts the touch sensitivity of the faders.

2. Move the cursor to the SENS knob, and use the value dial to adjust the touch sensitivity of the faders.

MEMO

If this is set to 0, fader touch sensitivity will be off.

If you turn [TOUCH SELECT] on in the CHANNEL EDIT section, you'll be able to select a channel by touching its fader.

If a channel is not selected when you touch its fader, increase the setting of the SENS knob.

If the faders are too sensitive, turn down the SENS knob.

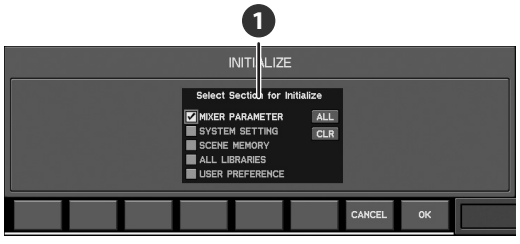
MEMO

Depending on the environment in which you're using the M-480, fader touch sensitivity may not operate correctly, and the fader motor may operate incorrectly while you're operating the fader. If this occurs, use the M-480 with the SENS knob set to 0 so that touch sensitivity is turned off.

Initializing the mixer settings

1. Access the SYSTEM screen.

2. Press [F1 (INIT)].



The INITIALIZE popup will appear.

1 Initialize section select buttons

These buttons select the sections to be initialized.

3. Use the initialize section select buttons to select the sections that you want to initialize.

You can select the following sections:

MIXER PARAMETER	The mixer parameters will be initialized.
SYSTEM SETTING	The system settings will be initialized.
SCENE MEMORY	The scene memory will be erased.
ALL LIBRARY	All user libraries will be initialized.
USER PREFERENCE	The user preferences will be initialized.

MEMO

SYSTEM SETTING includes the following items:

- The M-480's sampling frequency setting
- Panel, and display brightness settings
- REAC settings
- Remote settings

4. Press [F8 (OK)].

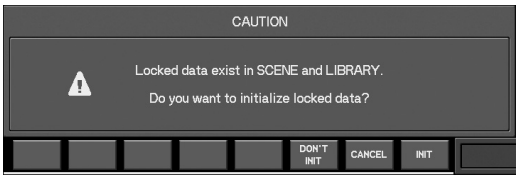
A message will ask you to confirm the operation.

5. When you press [F8 (INIT)], the section you selected in step 3 will be initialized.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

If you attempt to initialize the scenes or libraries when a locked scene or library exists, the following caution message will appear.



If you press [F6 (DON'T INIT)], the locked data will not be initialized; only the data that was not locked will be initialized.

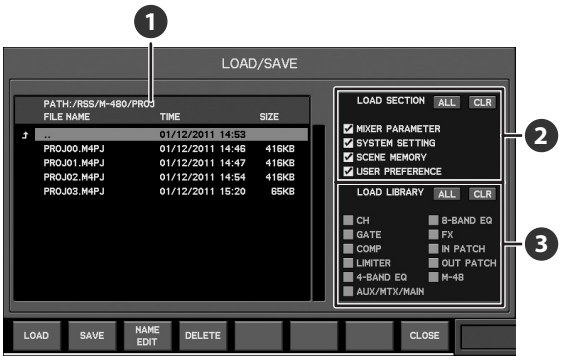
If you press [F7 (CANCEL)], the initialization operation will be cancelled.

If you press [F8 (INIT)], all data (including the locked data) will be initialized.

Saving/loading mixer settings

You can use USB memory to save or load mixer settings as a project file. The LOAD/SAVE popup of the SYSTEM screen is used to save or load mixer settings.

LOAD/SAVE popup



1 Project file list

This lists the project files that are saved in USB memory.

MEMO

By selecting a folder and pressing [ENTER], you can move downward into that folder. By selecting ".." and pressing [ENTER] you can move back to the folder above the current one.

2 LOAD SECTION select buttons

Use these buttons to select the sections for which you want to load mixer settings.

You can select the following sections:

MIXER PARAMETER	Mixer parameters
SYSTEM SETTING	System settings
SCENE MEMORY	Scene memories
USER PREFERENCE	User preference

3 LOAD LIBRARY select buttons

Use these buttons to select the user libraries for which you want to load mixer settings.

You can select following libraries:

CH	Channel library
GATE	Gate/Expander library
COMP	Compressor library
LIMITER	Limiter library
4-BAND EQ	4-band EQ library
AUX/MTX/MAIN	AUX/MTX/MAIN library
GEQ	GEQ library
FX	Effect library
IN PATCH	Input patchbay library
OUT PATCH	Output patchbay library
M-48	M-48 Library

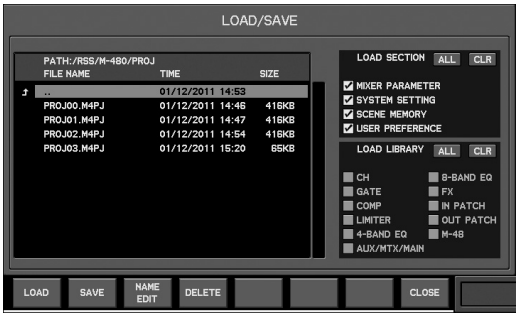
The function buttons have the following operations:

[F1 (LOAD)]	Loads the project file that is selected in the list (p. 160).
[F2 (SAVE)]	Saves the current mixer settings as a project file to USB memory (p. 160).
[F3 (NAME EDIT)]	Opens the NAME EDIT popup where you can edit the name of the project file selected in the list (p. 161).
[F4 (DELETE)]	Deletes the project file that is selected in the list (p. 161).
[F8 (CLOSE)]	Closes the popup.

Accessing the LOAD/SAVE popup

1. Access the SYSTEM screen.

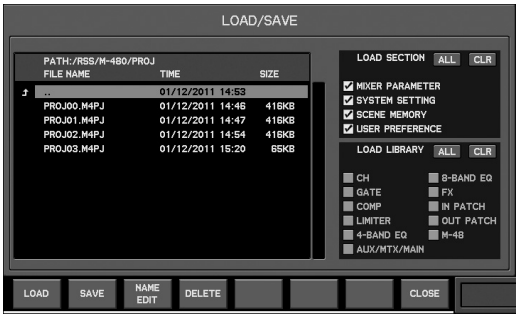
2. Press [F3 (LOAD/SAVE)].



The LOAD/SAVE popup will appear.

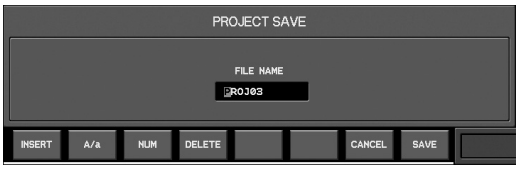
Saving mixer settings to USB memory

1. **Access the LOAD/SAVE popup.**



2. **Move the cursor to the project file list, and move to the location in the folder hierarchy in which you want to save the data.**

3. **Press [F2 (SAVE)].**



The PROJECT SAVE popup will appear.

4. **Use the name edit field to edit the name of the project files.**

cf.

For details on name editing, refer to “Editing a name” (p. 39).

5. **Press [F8 (SAVE)] to execute the Save; a “now processing” message will indicate the progress of the operation. When saving is completed, the progress indication will close.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

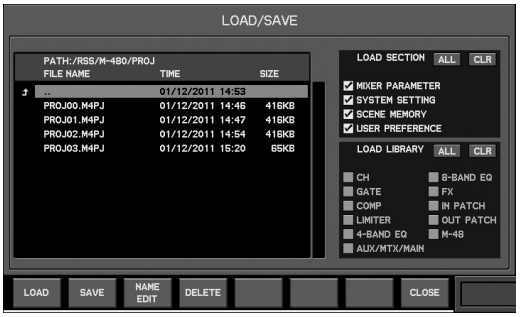
NOTE

Do not disconnect the USB memory or switch off the M-480’s power while data is being saved to USB memory. Doing so may destroy the data saved in USB memory.

It’s a good idea to save your mixer settings, since in the unlikely event that the M-480 should malfunction, this will allow you to move your settings to a backup M-480 unit and continue operating.

Loading mixer settings from USB memory

1. **Access the LOAD/SAVE popup.**



2. **Move the cursor to the project file list, and select the file that you want to load.**

3. **Move the cursor to the LOAD SECTION select buttons, and select the sections that you want to load.**

4. **Press [F1 (LOAD)].**

A message will ask you to confirm the operation.

5. **Press [F8 (LOAD)] to execute the Load; a “now processing” message will indicate the progress of the operation. When loading is completed, the progress indication will close.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

NOTE

Do not disconnect the USB memory or switch off the M-480’s power while data is being loaded from USB memory. Doing so may destroy the data saved in USB memory.

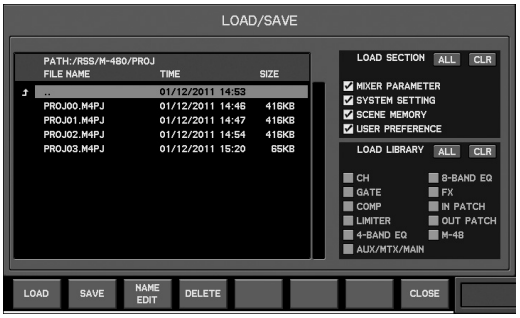
If you attempt to load mixer settings when a locked scene or library exists, the following caution message will appear.

If you press [F7 (CANCEL)], the operation will be cancelled.

If you press [F8 (LOAD)], the mixer settings will be loaded (the locked data will be overwritten).

Renaming a project file

1. **Access the LOAD/SAVE popup.**



2. **Move the cursor to the project file list, and select the project file that you want to rename.**

3. **Press [F3 (NAME EDIT)].**

The NAME EDIT popup will appear.

4. **Use the name edit field to edit the name of the project files. You can specify a name of up to eight characters.**

cf.

For details on name editing, refer to “Editing a name” (p. 39).

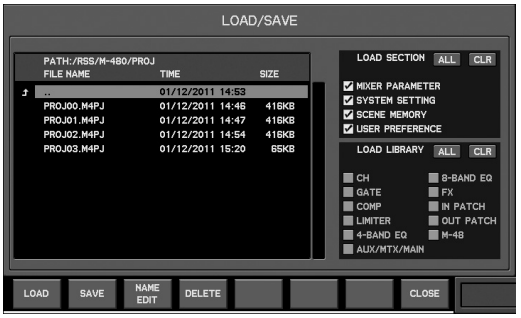
5. **Press [F8 (OK)] to finalize the name you edited and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Deleting a project file

1. **Access the LOAD/SAVE popup.**



2. **Move the cursor to the project file list, and select the project file that you want to delete.**

3. **Press [F4 (DELETE)].**

A message will ask you to confirm the operation.

4. **Press [F8 (DELETE)] to carry out the delete operation.**

MEMO

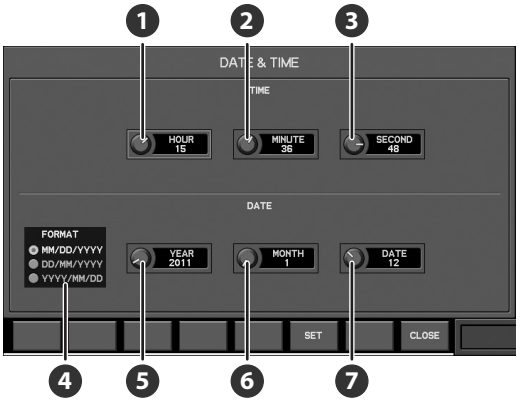
Pressing [F7 (CANCEL)] will cancel the operation.

Date&time settings

Use the DATE&TIME popup of the SYSTEM screen to set the date and time.

1. Access the SYSTEM screen.

2. Press [F5 (DATE TIME)].



The DATE&TIME popup will appear.

1 HOUR knob

This specifies the current hour in a range of 0–23.

2 MINUTE knob

This specifies the current minute in a range of 0–59.

3 SECOND knob

This specifies the current second in a range of 0–59.

4 FORMAT select buttons

These buttons select the format of the date.

You can choose one of the following formats:

MM/DD/YYYY	Month/Date/Year
DD/MM/YYYY	Date/Month/Year
YYYY/MM/DD	Year/Month/Date

5 YEAR knob

This specifies the year in a range of 2000 to 2099.

6 MONTH knob

This specifies the month in a range of 1–12.

7 DATE knob

This specifies the date in a range of 1–31.

The function buttons have the following operations:

[F6 (SET)]	Finalizes the specified date and time.
[F8 (CLOSE)]	Closes the popup.

3. Use the FORMAT select buttons to select the date format.

4. Use the YEAR, MONTH, and DATE knobs to specify the date.

5. Use the HOUR, MINUTE, and SECOND knobs to specify the time.

6. Press [F6 (SET)] to finalize the setting.

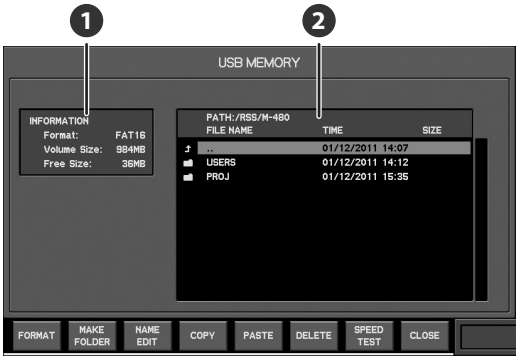
Managing USB memory

The USB MEMORY popup of the SYSTEM SCREEN is used to perform USB memory management.

Accessing the USB MEMORY popup

1. Access the SYSTEM screen.

2. Press [F6 (USB MEMORY)].



The USB MEMORY popup will appear.

1 USB memory information

This area shows information about the USB memory.

The following information is shown:

Format	Type of format
Volume Size	Total capacity of USB memory
Free Size	Available space in USB memory

2 File list

This area shows the files in the USB memory.

MEMO

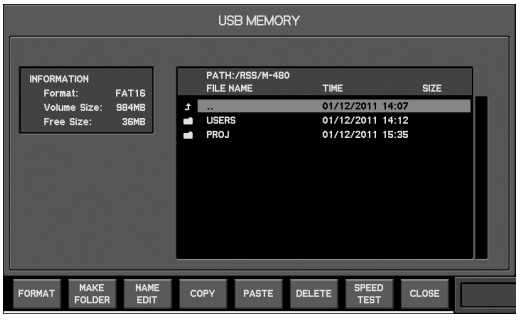
If you move the cursor to a folder and press [ENTER], you'll move to the level below that folder. If you move the cursor to ".." and press [ENTER], you'll move to the level above the current folder.

The function buttons have the following operations:

[F1 (FORMAT)]	Formats the USB memory (p. 163).
[F2 (MAKE FOLDER)]	Creates a folder in the list (p. 164).
[F3 (NAME EDIT)]	Accesses the NAME EDIT popup, where you can edit the file name (p. 164).
[F4 (COPY)]	Copies the file at the cursor position in the list (p. 165).
[F5 (PASTE)]	Pastes the copied file into the list (p. 165).
[F6 (DELETE)]	Deletes the file at the cursor position in the list (p. 165).
[F7 (SPEED TEST)]	Tests the speed of USB memory.
[F8 (CLOSE)]	Closes the popup.

Formatting USB memory

1. Access the USB MEMORY popup.



2. Press [F1 (FORMAT)].

A message will ask you to confirm the operation.

3. Press [F8 (FORMAT)] to carry out the Format operation.

A progress message will indicate the state of formatting.

When the "Completed" indication appears, formatting is complete.

MEMO

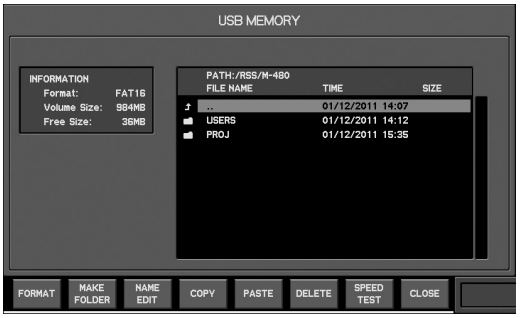
Pressing [F7 (CANCEL)] will cancel the operation.

NOTE

Do not disconnect the USB memory or switch off the M-480's power while USB memory is being formatted.

Creating a folder

1. **Access the USB MEMORY popup.**



2. **In the file list, move to the level at which you want to create a folder.**

3. **Press [F2 (MAKE FOLDER)].**

The MAKE FOLDER popup will appear.

4. **Use the name edit field to edit the name.**

cf.

For details on name editing, refer to “Editing a name” (p. 39).

5. **Press [F8 (OK)] to create the folder and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Renaming a file or folder name

1. **Access the USB MEMORY popup.**

2. **In the file list, move the cursor to the desired file or folder.**

3. **Press [F3 (NAME EDIT)].**

The NAME EDIT popup will appear.

4. **Use the name edit field to edit the name. You can specify a name of up to twelve characters.**

MEMO

Even if the original name exceeded twelve characters, the name after editing will not exceed twelve characters.

5. **Press [F8 (OK)] to finalize the name you edited and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

cf.

For details on name editing, refer to “Editing a name” (p. 39).

Copying a file

1. **Access the USB MEMORY popup.**
2. **In the file list, move the cursor to the desired file.**

   MEMO
   You can't copy a folder.

3. **Press [F4 (COPY)].**

   A message will ask you to confirm the operation.

   Press [F8 (COPY)] to carry out the Copy operation. The file you selected in step 2 will be copied to the clipboard.

   MEMO
   Pressing [F7 (CANCEL)] will cancel the operation.

4. **In the file list, move to the level at which you want to paste the copied file.**
5. **Press [F5 (PASTE)].**

   A message will ask you to confirm the operation.

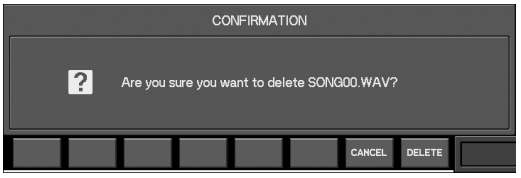
   Press [F8 (PASTE)] to carry out the Paste operation.

   MEMO
   Pressing [F7 (CANCEL)] will cancel the operation.

   MEMO
   You can't paste while you playing/recording the USB memory recorder.

Deleting a file

1. **Access the USB MEMORY popup.**
2. **In the file list, move the cursor to the file you want to delete.**
3. **Press [F6 (DELETE)].**



   A message will ask you to confirm the operation.

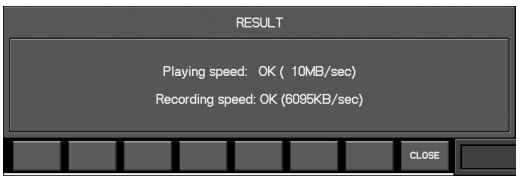
   Press [F8 (DELETE)] to carry out the Delete operation.

   MEMO
   Pressing [F7 (CANCEL)] will cancel the operation.

Testing the speed of USB memory

Here's how to test your USB memory's reading and writing speed to verify whether it can be used by the USB memory recorder for playback and recording.

1. **Access the USB MEMORY popup.**
2. **Press [F7 (SPEED TEST)].**



   A "now processing" message will appear, and the USB memory will be tested. When the test is completed, the results will be displayed.

Playing Speed	Indicates whether the USB memory can be used for playback by the USB memory recorder. If this is OK, the memory can be used.
Recording Speed	Indicates whether the USB memory can be used for recording by the USB memory recorder. If this is OK, the memory can be used.

3. **Press [F8 (CLOSE)] to close the popup.**

   MEMO
   If the test result is "NG" (Not Good), we do not recommend that you use this USB memory with the USB memory recorder.

   MEMO
   In order for the speed of USB memory to be tested, the USB memory must have several MB of free space.

Console Lock

You can lock the console to prevent it from being operated. If a password has been specified for the current user settings, you will need to enter the password in order to unlock the console.

MEMO

If you turn off the power while the console is locked, the console lock setting will be defeated the next time you turn on the power.

Locking the console

1. Access the SYSTEM screen.

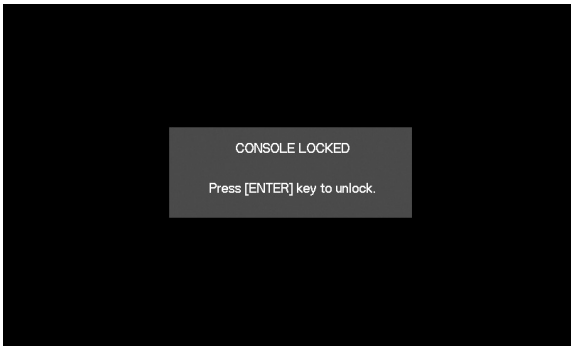
2. Press [F8 (LOCK CONSOLE)].

If a password has been specified for the current user settings, the ENTER PASSWORD popup will appear.

Enter the user password and press [F8 (OK)].

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.



The console will be locked.

Unlocking the console

1. When the console is locked, press [ENTER].

If a password has been specified for the current user settings, the ENTER PASSWORD popup will appear.

Enter the user password and press [F8 (OK)].

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

2. The console will be unlocked.

Help function

The Help function explains how to use the M-480.

MEMO

The Help contents are provided only in English.

Using the Help function

1. Press [HELP].

The HELP CONTENTS popup will appear.

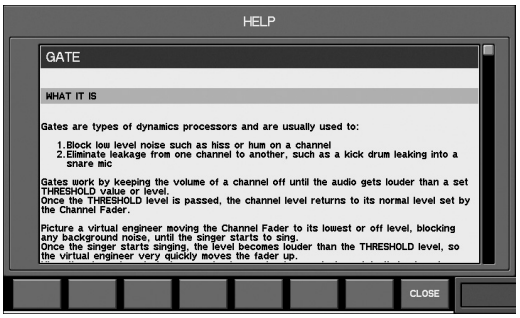
1 CONTENTS list

This lists the Help contents.

The function buttons have the following operations:

[F1 (OPEN)]	Displays the content selected in the list.
[F8 (CLOSE)]	Closes the popup.

2. In the CONTENTS list, select the desired content and press [F1 (OPEN)].



The HELP popup will appear.

Use the up/down cursor buttons or the value dial to scroll the display.

Press [F8 (CLOSE)] to close the HELP popup.

Help shortcuts

By holding down [HELP] and pressing a top panel button, you can access the Help content related to that button.

You can use the following buttons as Help shortcuts:

- [EFFECTS]
- [METER]
- [SYSTEM]
- [PATCHBAY]
- GROUP section [DCA]
- GROUP section [MUTE]
- COMP section [DISP]
- GATE section [DISP]
- EQ section [DISP]
- AUX/MTX SENDS section [DISP]
- SCENE section [DISP]
- USER section [DISP]
- RECORDER section [DISP]
- TALKBACK/OSC section [DISP]
- MONITOR section [DISP]

Other settings

Initializing the M-480's internal memory

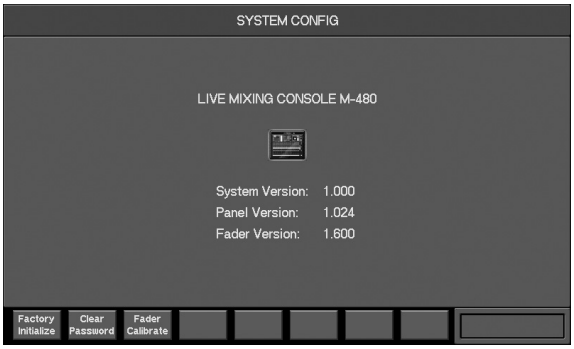
The following items will be initialized, returning them to the factory settings:

- **System settings**
- **Mixer parameters**
- **Scene memories**
- **All USER library data**
- **User settings**

NOTE

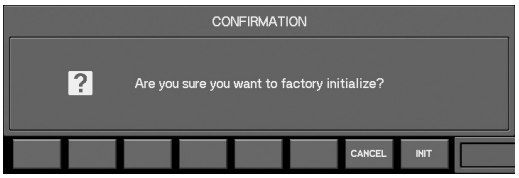
When you initialize the internal memory, all data that had been saved in memory will be lost.
If you want to keep this data, you must save it to USB memory as a project file (p. 160) and user file (p. 135) to USB memory.

1. **In the SETUP section, hold down [SYSTEM] and turn the power on.**



The M-480 will start up in SYSTEM CONFIG MODE, and the SYSTEM CONFIG screen will appear.

2. **Press [F1 (Factory Initialize)].**



A message will ask you to confirm the operation.

3. **Press [F8 (INIT)].**

Initialization will begin.

NOTE

Do not turn off the power until the initialization is completed.

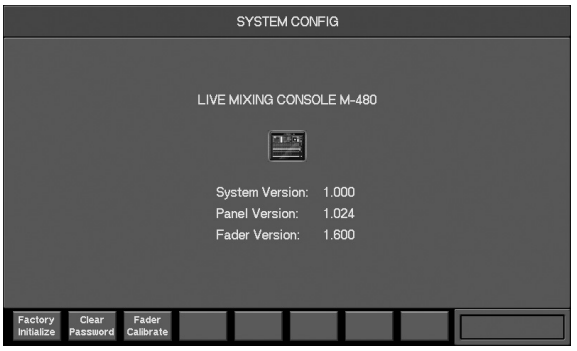
4. **Turn off the power.**

Clearing the ADMIN password

If you've forgotten the ADMIN password, you can use the following procedure to clear the ADMIN password.

If you want to reset the password, you can do so after this procedure as described in "Changing the password of user settings" (p. 136).

1. **In the SETUP section, hold down [SYSTEM] and turn the power on.**



The M-480 will start up in SYSTEM CONFIG MODE, and the SYSTEM CONFIG screen will appear.

2. **Press [F2 (Clear Password)].**

A message will ask you to confirm the operation.

3. **Press [F8 (CLEAR)].**

The ADMIN password will be cleared.

4. **Turn off the power.**

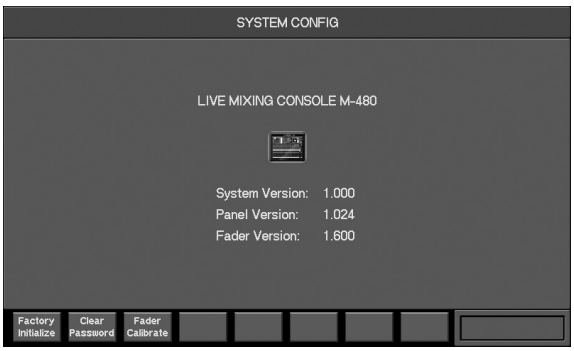
MEMO

You can also clear the ADMIN password by holding down both the [DISP] button of the USER section and the [SOLO CLEAR] button of the MONITOR section while you switch on the power.

Fader calibration

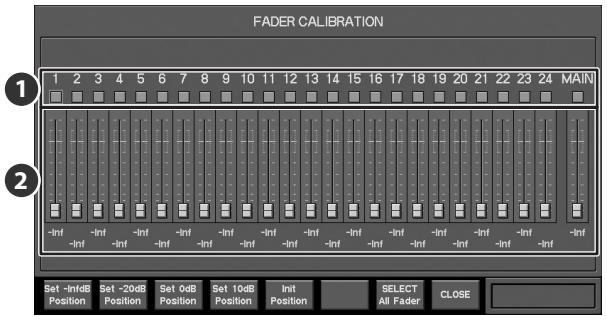
If the fader positions are no longer aligned with the index markings of the top panel, you can use the Fader Calibration function to correct the misalignment.

1. In the SETUP section, hold down [SYSTEM] and turn the power on.



The M-480 will start up in SYSTEM CONFIG MODE, and the SYSTEM CONFIG screen will appear.

2. Press [F3 (Fader Calibrate)].



The FADER CALIBRATION popup will appear.

1 Fader select buttons

Use these buttons to select the fader that you want to calibrate.

2 Fader indication

These indicate the internal fader positions and volume (dB).

The function buttons have the following operations:

[F1 (Set -Inf dB Position)]	Sets the current top panel position of the selected fader to -Inf dB.
[F2 (Set -20 dB Position)]	Sets the current top panel position of the selected fader to -20 dB.
[F3 (Set 0 dB Position)]	Sets the current top panel position of the selected fader to 0 dB.
[F4 (Set 10 dB Position)]	Sets the current top panel position of the selected fader to 10 dB.
[F5 (Init Position)]	Initializes the calibration setting of the selected fader.
[F7 (SELECT All Fader)]	Adds or clears the check mark for all fader select buttons.
[F8 (CLOSE)]	Closes the FADER CALIBRATION popup.

3. Add a check mark to the fader select button of the fader you want to adjust.

TIP

You can also use the top panel [SEL] buttons to add or clear the check mark for the fader select buttons.

4. Move the selected fader to the position you want to specify.

You can specify the following four points:

- 10 dB (all the way up)
- 0 dB
- -20 dB
- -Inf dB (all the way down)

MEMO

We recommend that you adjust all of the above four points for each fader that has drifted out of calibration.

5. Press the function button that corresponds to the location at which you set the fader.

Position	Function button
10 dB (all the way up)	[F4 (Set 10dB Position)]
0 dB	[F3 (Set 0dB Position)]
-20 dB	[F2 (Set -20dB Position)]
-Inf dB (all the way down)	[F1 (Set -Inf dB Position)]

A message will ask you to confirm the operation.

6. Press [F8 (SET)].

The fader position will be specified for the selected fader.

MEMO

If the relationship of -Inf dB < -20 dB < 0 dB < 10 dB is not maintained, the setting will be ignored when you press [F8 (SET)].

7. Press [F8 (CLOSE)].

The FADER CALIBRATION popup will close.

8. Turn off the power.

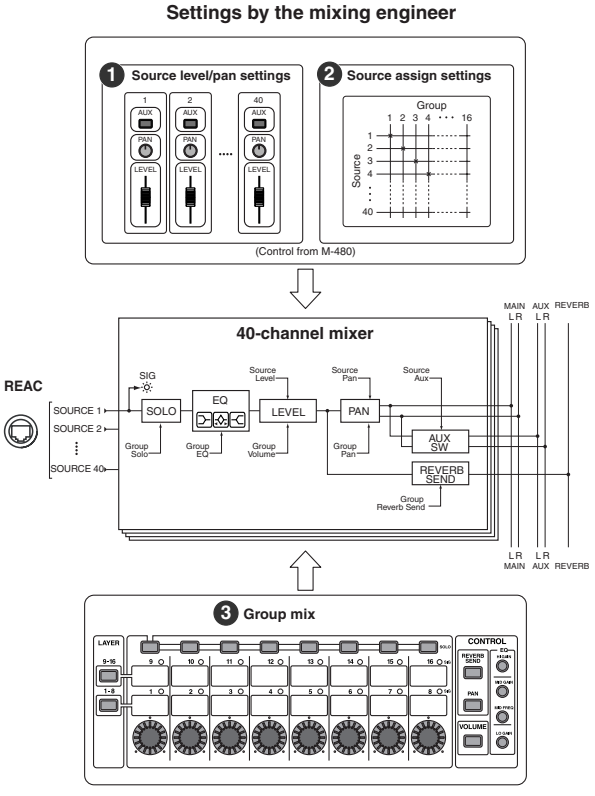
Management of the M-48 live personal mixer

What is the M-48 live personal mixer?

The M-48 is a live personal mixer that allows each musician to create their own monitor mix. By unifying the professional monitor mix created by the mixing engineer with the personal mix created by each musician, the M-48 provides a monitoring environment that's ideal for the musician.

The M-48 provides a REAC port that is able to receive up to 40 channels of digital audio via REAC. The digital audio sources are mixed by the internal 40-channel mixer for monitoring via headphones or monitor speakers.

Settings and operations for the 40-channel mixer



The sources 1–40 being input via REAC are mixed by the M-48's 40-channel mixer. Settings and operation of the 40-channel mixer are shared between the mixing engineer and the musician.

TERM

The 40 digital audio source channels being input via REAC to the M-48 are referred to as sources 1–40.

Settings by the mixing engineer

These settings are made by the mixing engineer from the M-480.

1 Source level/pan settings

These settings specify the LEVEL, PAN, and AUX switch settings for sources 1–40 (p. 178).

2 Source assign settings

These settings assign sources 1–40 to sixteen groups for operation on the M-48 (p. 181).

Settings by the musician

These operations are performed by the musician on the M-48 unit.

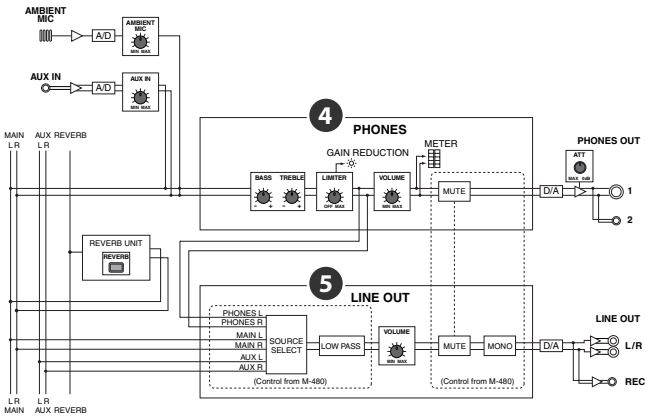
3 Group mix

VOLUME, PAN, REVERB SEND, and 3-BAND EQ can be adjusted for each group created by the source assignment settings.

MEMO

The group mix can also be viewed and edited from the M-480 (p. 182).

Two sets of outputs



The M-48 provides two sets of output: PHONES and LINE OUT.

4 PHONES

REVERB, AMBIENT MIC, and AUX IN are mixed into the MAIN bus, then BASS, TREBLE, and LIMITER are applied to the mix which is then output from these ports. This is used for headphones or in-ear monitoring.

5 LINE OUT

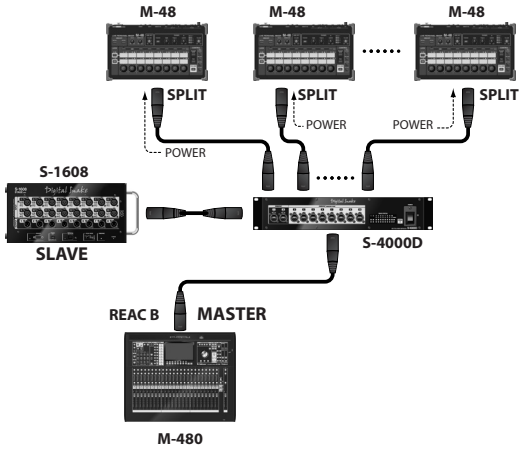
As the LINE OUT source, you can choose PHONES (the signal immediately before PHONES VOLUME), MAIN bus, or AUX bus. This is used for a floor monitor or for two-channel recording. Since a low-pass filter is provided on LINE OUT, it can also be used to output just the low-frequency range to a floor monitor or tactile transducer.

Memory functionality

The M-48 has 16 memories, and allows mixer settings to be stored or recalled.

Memories 1–16 can be manipulated from the M-48 itself or from the M-480.

Connecting M-48 units to the M-480



Use the REAC B port to connect M-48 units to the M-480. A separately available S-4000D splitter and power distributor is required in order to connect M-48 units.

The output from the M-480's REAC B port is distributed via the S-4000D. Up to sixty-four M-48 units are supported.

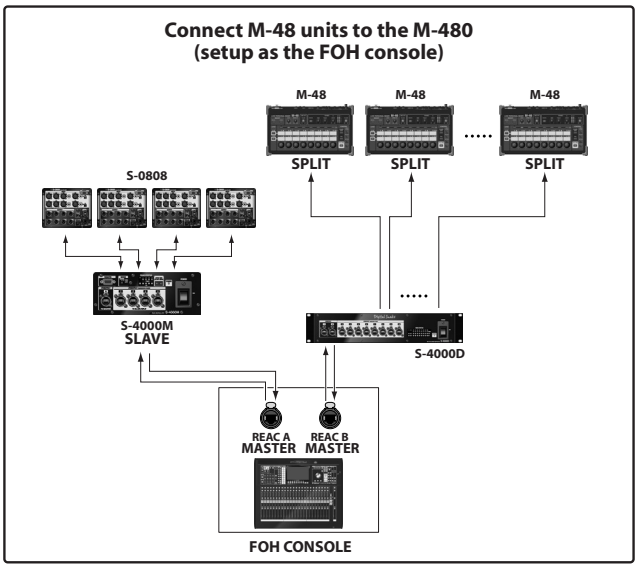
The mixing engineer can make settings for each M-48 unit from the M-480.

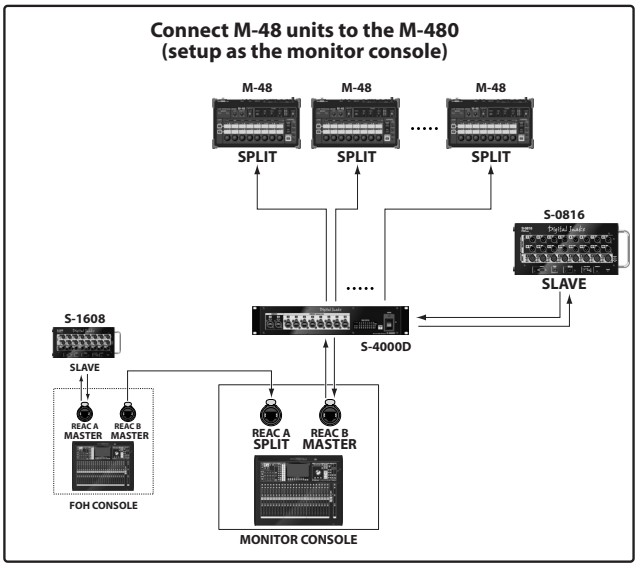
MEMO

If an M-48 unit is connected to the M-480's REAC A port, it will not be possible to set or manage the M-48 from the M-480.

Connection examples

Here are some examples of connecting M-48 units to an M-480 that is being used as an FOH console or as a monitor console.





Editing and managing M-48 units

Each musician will be able to use their M-48 with greater comfort and convenience if the mixing engineer has made the appropriate settings for each M-48. In particular, the mixing engineer should consult with each musician when assigning sources to groups. Each musician can decide what sources they want assigned to which knobs (groups).

The following settings are made by the mixing engineer:

Setting	Page	Screen
Specifying the outputs from the M-480 to the M-48 unit	p. 173	PATCHBAY screen
Editing the M-48's unit name	p. 175	M-48 MANAGER popup
Making preference settings for an M-48 unit	p. 177	M-48 PREFERENCES popup
Source Level/Pan settings	p. 178	M-48 SOURCE LEV/PAN popup
Source Assign settings	p. 181	M-48 SOURCE ASSIGN popup

The following settings and management functionality for the M-48 are also provided:

Function	Page	Screen
Viewing the connected M-48 units	p. 174	M-48 MANAGER popup
Muting the output of an M-48 unit	p. 175	
Disabling memory operations from the M-480 (MEMORY SAFE function)	p. 175	
Using the Engineer's Monitor function	p. 184	
Checking and adjusting the musician's mix (Group Mix)	p. 182	M-48 GROUP MIX popup
Copying M-48 settings	p. 185	M-48 COPY popup
M-48 memory operations	p. 186	M-48 MEMORY popup
Using the M-48 library	p. 188	M-48 LIBRARY popup
Saving/loading USB memory	p. 188	M-48 LOAD/SAVE popup
Linking scene memories to M-48 memories	p. 126	SCENE screen

Where the settings are stored

The M-48's settings are stored in each M-48 unit itself. The M-480 can load and manage the settings of each connected M-48 unit.

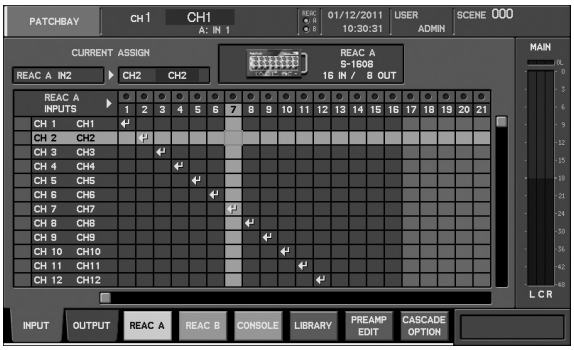
There are two ways to store the M-48's settings on an external device:

- Store the settings in the M-480's M-48 library (p. 188)
- Save the settings to USB memory (p. 190)

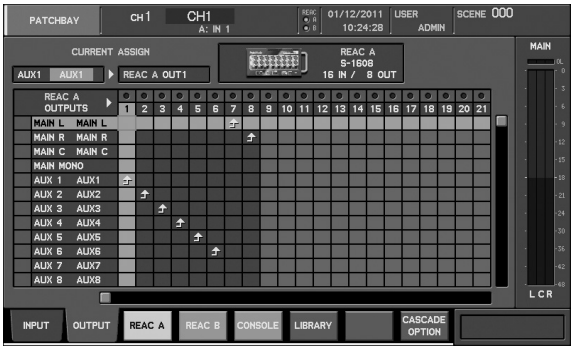
Specifying the outputs from the M-480 to the M-48 unit

Use the REAC B output patchbay to specify the outputs from the M-480 to the M-48.

1. In the SETUP section, press [PATCHBAY] to access the PATCHBAY screen.



2. Press [F2 (OUTPUT)] and [F4 (REAC B)] to view the REAC B output patchbay.



3. Use the patchbay grid to select the channels that will be output to the M-48.

For example, you might make settings as follows:

REAC B	Channel	Purpose
OUT 1–6	AUX1–6	S-1608 stage outputs
OUT 7–8	MAIN L, MAIN R	
OUT 9–40	CH1–32 direct out	M-48 sources

TIP

By using direct out from the PRE EQ or PRE FADER positions, you can create a mix in which the M-48's source level/pan settings are independent of the M-480.

TIP

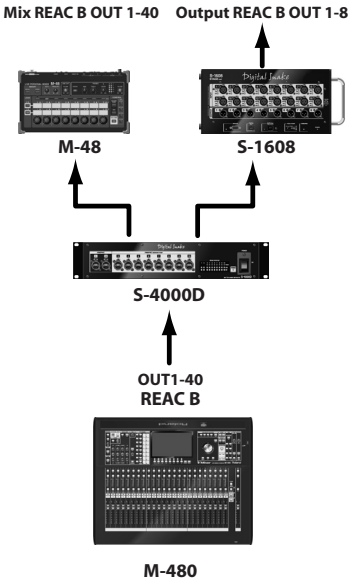
If you use direct out from the POST FADER position, each source will be output at the level determined by the M-480's channel fader. In this case the actual LEVEL setting of the M-48 source is controlled by the M-480 fader.

In addition to input channel direct outs, you can use a variety of outputs as sources for the M-48.

- By patching the AUX, MTX, or MAIN outputs you can use group mixes or the house mix as a source for the M-48.
- By patching TALKBACK you can establish smooth communication with the musicians.

These output settings are shared by all REAC devices that are connected to REAC B.

Example) When the S-1608 and M-48 are connected to REAC B



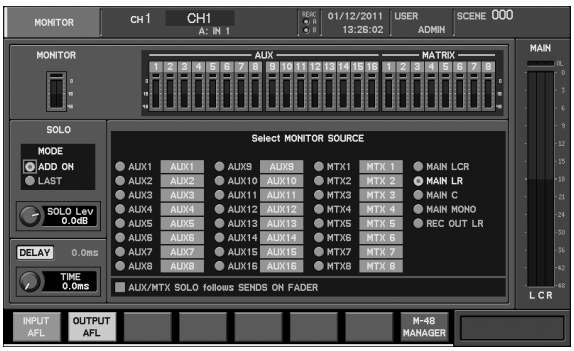
- REAC B OUT 1–8 are output from OUTPUT 1–8 of the S-1608.
- Of the 40 sources the M-48 receives via REAC B OUT, sources 1–8 are the same as OUTPUT 1–8 of the S-1608.

Viewing the connected M-48 units

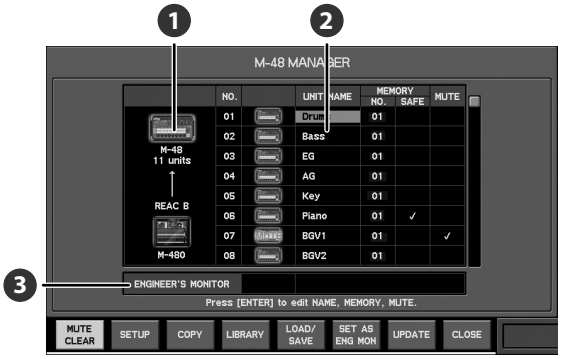
You can use the M-48 MANAGER popup to view a list of the M-48 units connected to the M-480's REAC B port.

Accessing the M-48 MANAGER popup

1. In the MONITOR section, press [DISP] to access the MONITOR screen.



2. Press [F8 (M-48 MANAGER)].



The M-48 MANAGER popup will appear.

1 Number of M-48 units

This indicates the number of M-48 units that are connected to the M-480's REAC B port.

2 M-48 list

This lists the M-48 units that are connected to the M-480's REAC B port. You can move the cursor to an item in the list and press [ENTER] to edit that item.

The items shown in the list and the function of the [ENTER] button are as follows:

Item	Explanation	Function of [ENTER]
NO.	Indicates the order in the list	Accesses the ARRANGE UNIT popup
UNIT NAME	Indicates the unit name	Accesses the NAME EDIT popup
MEMORY NO.	Indicates the current memory number	Accesses the M-48 MEMORY popup
MEMORY SAFE	If this is checked, MEMORY SAFE is activated; recall/store operations from the M-480 will be prohibited	Check/uncheck
MUTE	If this is checked, the M-48's output will be muted	Check/uncheck

3 ENGINEER'S MONITOR

This shows the unit designated as the Engineer's Monitor (p. 184)

The function buttons have the following operations:

[F1 (MUTE CLEAR)]	Clears output muting for all M-48 units. This will be on (light blue) if there are any M-48 units whose output is muted (p. 175).
[F2 (SETUP)]	Accesses the M-48 SETUP popup, where you can make settings for the M-48 unit at the cursor location (p. 176).
[F3 (COPY)]	Accesses the M-48 COPY popup, where you can copy settings from the M-48 unit at the cursor location to another M-48 unit (p. 185).
[F4 (LIBRARY)]	Accesses the M-48 LIBRARY popup, where you can recall/store library data for the M-48 unit at the cursor location (p. 188).
[F5 (LOAD/SAVE)]	Accesses the M-48 LOAD/SAVE popup, where settings of the M-48 at the cursor location can be saved to USB memory or loaded from USB memory (p. 189).
[F6 (SET AS ENG MON)]	Specifies the M-48 at the cursor location as the Engineer's Monitor (p. 184). This is shown when nothing is set as the Engineer's Monitor.
[F6 (ENG MON SETUP)]	Accesses the M-48 ENGINEER'S MONITOR SETUP popup (p. 184). This is shown when an M-48 unit is set as the Engineer's Monitor.
[F7 (UPDATE)]	Updates the M-48's system program.*
[F8 (CLOSE)]	Closes the popup

* M-48 UPDATE is for future updates of the system program. For details on performing the update, refer to the explanation provided with the updater.

MEMO

You can assign a USER button to access the M-48 MANAGER popup (p. 140).

Editing the M-48's unit name

A unit name of up to eight characters can be assigned to each M-48. If you're managing multiple M-48 units, use these names to quickly distinguish between the units.

MEMO

With the factory settings, the unit name will be "NO NAME."

1. **Access the M-48 MANAGER popup.**

2. **In the M-48 list, move the cursor to the UNIT NAME of the desired M-48 and press [ENTER].**

The NAME EDIT popup will appear.

3. **Edit the name in the name field.**

cf.

For details on name editing, refer to "Editing a name" (p. 39).

MEMO

If you turn [F6 (BLINK LEDs)] on, all LEDs of the target M-48 will flash. You can use this to identify a specific unit.

4. **Press [F8 (OK)] to finalize the name and close the popup.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Muting the output of an M-48 unit

1. **Access the M-48 MANAGER popup.**

2. **In the M-48 list, move the cursor to the MUTE field of the desired M-48 and press [ENTER] to add a check mark.**

The PHONES and LINE OUT outputs of the checked M-48 unit(s) will be muted.

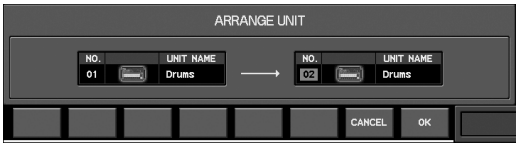
MEMO

If any of the M-48 units in the M-48 list have been muted, the M-48 MANAGER popup's [F1 (MUTE CLEAR)] indication will be on.

Changing the order of a unit in the M-48 list

1. **Access the M-48 MANAGER popup.**

2. **In the M-48 list, move the cursor to the NO. field of the desired M-48 and press [ENTER].**



The ARRANGE UNIT popup will appear.

3. **Use the value dial to specify the desired order for that M-48 unit.**

4. **Press [F8 (OK)].**

The M-48 list will be reordered so that the selected M-48 is in the place you specified in step 3, and the popup will close.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

The M-480 will show the connected M-48 units in the M-48 list in the order in which the units are detected; the displayed order is remembered so that this order can be reproduced the next time the power is turned on.

MEMO

This operation will update the display priority order as well as the order in the M-48 list.

Disabling memory operations from the M-480 (MEMORY SAFE function)

1. **Access the M-48 MANAGER popup.**

2. **In the M-48 list, move the cursor to the MEMORY SAFE field of the desired M-48 and press [ENTER] to add a check mark.**

M-48 units with a check mark will not accept Store or Recall operations from the M-480.

MEMO

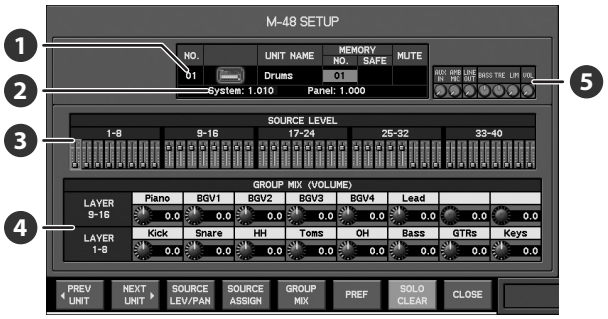
When you're managing multiple M-48 units, this allows you to prevent unintended memory operations, or to exclude specific M-48 units when linking scene memories with M-48 memories.

Making settings for an M-48 unit

Accessing the M-48 SETUP popup

1. Access the M-48 MANAGER popup.

2. In the M-48 list, move the cursor to the desired target M-48 unit and press [F2 (SETUP)].



The M-48 SETUP popup will appear.

1 Target M-48 indication

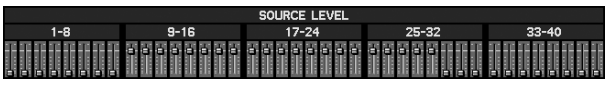
This indicates the M-48 unit that is the target of the settings. This shows the same item as the M-48 list of the M-48 MANAGER popup.

2 Version number

This indicates the version of the target M-48 unit.

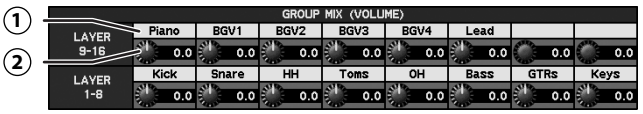
System	System program version
Panel	Panel program version

3 SOURCE LEVEL



This is an overview of the source levels. The approximate levels of sources 1–40 are shown. You can also use the value dial to adjust the level.

4 GROUP MIX (VOLUME)



This is an overview of the group mix volumes.

1 Group name

This indicates the group name. If you move the cursor here and press [ENTER], the NAME EDIT popup will appear, allowing you to edit the group name. You can enter a group name of up to six characters.

2 Volume knob

This adjusts the group's volume in a range of -Inf dB – +20.0 dB.

MEMO

If no index markings are shown for a knob, this means that no source has been assigned to that group.

5 Knob indication

This area indicates the position of the following knobs:

- [AUX IN] knob
- [AMBIENT MIC] knob
- LINE OUT [VOLUME] knob
- [BASS] knob and [TREBLE] knob
- [LIMITER] knob
- [PHONES [VOLUME] knob

MEMO

These knobs cannot be edit from this screen.

The function buttons have the following operations:

[F1 (◀ PREV UNIT)]	Changes the target M-48 unit. The target for the settings will change according to the order of the M-48 list in M-48 MANAGER.
[F2 (NEXT UNIT ▶)]	
[F3 (SOURCE LEV/PAN)]	Accesses the M-48 SOURCE LEV/PAN popup, where you can set the source level and pan (p. 178).
[F4 (SOURCE ASSIGN)]	Accesses the M-48 SOURCE ASSIGN popup, where you can specify source assignments (p. 181).
[F5 (GROUP MIX)]	Accesses the M-48 GROUP MIX popup, where you can make group mix settings (p. 183).
[F6 (PREF)]	Accesses the M-48 PREFERENCES popup, where you can make preference settings (p. 177).
[F7 (SOLO CLEAR)]	Clears all group solo settings. If a group is being soloed, this will be on (blue).
[F8 (CLOSE)]	Closes the popup.

MEMO

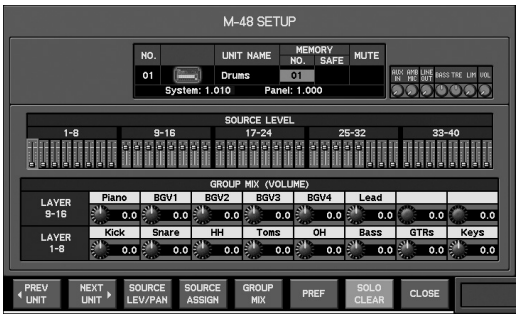
You can assign a USER button to access the M-48 SETUP popup popup (p. 140).

3. View the settings of the target M-48 unit.

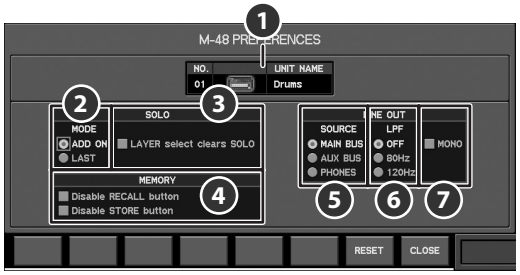
You can use [F1 (◀ PREV UNIT)] or [F2 (NEXT UNIT ▶)] to move to a different unit.

Making preference settings for an M-48 unit

1. Access the desired M-48 SETUP popup.



2. Press [F6 (PREF)].



The M-48 PREFERENCES popup will appear.

3. Make the desired preference settings.

1 Target unit indication

This indicates the M-48 that is the target of the M-48 PREFERENCES popup.

2 SOLO mode selection buttons

These buttons select the solo operation.

The solo modes and their operations are as follows:

ADD ON	Multiple groups can be soloed. Soloed groups will be mixed for monitoring.
LAST	Only the last soloed group will be monitored.

3 LAYER select clears SOLO button

This specifies that when the layer is switched, the solo settings of the now-hidden layer will automatically be cleared.

4 MEMORY operation select buttons

These buttons restrict memory operations performed from the M-48's panel.

Disable RECALL button	If this is checked, the [RECALL] button will be disabled.
Disable STORE button	If this is checked, the [STORE] button will be disabled.

5 LINE OUT SOURCE select buttons

These buttons select one of the following as the LINE OUT source:

MAIN BUS	Output the signal of the MAIN BUS.
AUX BUS	Output the signal of the AUX bus (the mix of the sources whose AUX switch is turned on in the source level/pan settings, p. 178).
PHONES	Output the signal from before the PHONES VOLUME.

NOTE

You'll need to exercise due caution in order to prevent feedback if you select "PHONES," since the signal from the ambient microphone will also be included in the output.

6 LINE OUT LPF (Low-pass filter)

This is the LPF setting for the line out.

OFF	The LPF will not be used.
80 Hz	The frequency region below 80 Hz will be passed.
120 Hz	The frequency region below 120 Hz will be passed.

NOTE

Note that the level of the output from Line Out will change significantly if you switch the LPF from a setting of "80 Hz" or "120 Hz" to "OFF." Be sure to exercise due caution so that the signal sent to the equipment connected to Line Out, or to your ears, is not at an excessively high level.

MEMO

The LPF is a 12 dB/oct filter that passes the region below the specified frequency.

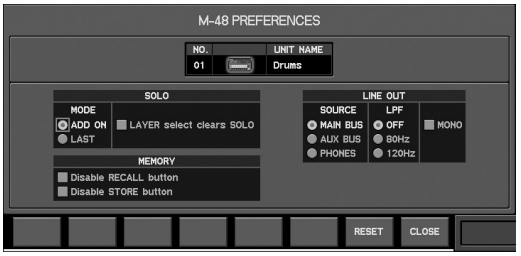
7 LINE OUT MODE select button

If the MONO button is checked, a monaural mix will be output from the line out.

Returning the preference settings to the default state

1. Access the desired M-48 SETUP popup.

2. Press [F6 (PREF)].



The M-48 PREFERENCES popup will appear.

3. **Press [F7 (RESET)].**

A message will ask you to confirm the operation.

4. **Press [F8 (RESET)] to return the preference settings to their default state.**

The preference settings will be set to the following values:

Parameter		Values
SOLO	MODE	ADD ON
	LAYER select clears SOLO	No
MEMORY	Disable RECALL button	No
	Disable STORE button	No
LINE OUT	SOURCE	MAIN BUS
	LPF	OFF
	MONO	OFF

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Assigning group names for an M-48 unit

1. **Access the desired M-48 SETUP popup.**

2. **In the GROUP MIX (VOLUME) area, move the cursor to the desired group name and press [ENTER].**

The NAME EDIT popup will appear.

3. **Use the name edit field to edit the name.**

cf.

For details on name editing, refer to “Editing a name” (p. 39).

4. **Press [F8 (OK)] to finalize the edited name and close the popup.**

MEMO

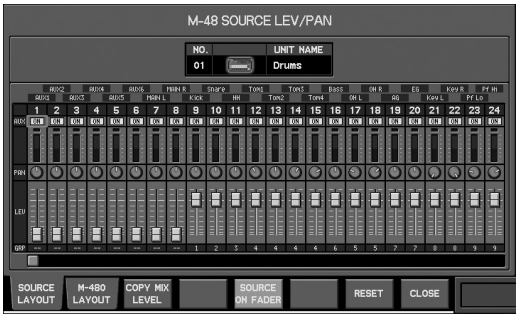
Pressing [F7 (CANCEL)] will cancel the operation.

Source Level/Pan settings

M-48 SOURCE LEV/PAN popup

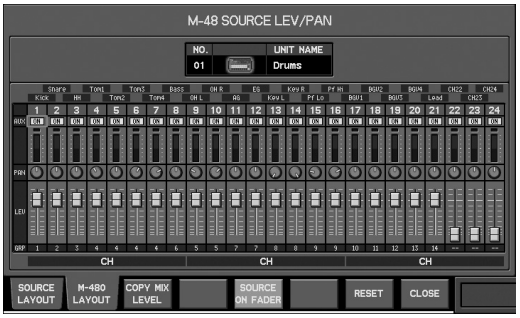
This popup lets you set the LEVEL, PAN, and AUX switch for each source 1–40. Two views are provided:

- **SOURCE LAYOUT tab**



This shows the sources arranged in order of their number (the order in the M-480’s REAC B output patchbay).

- **M-480 LAYOUT tab**



This shows the sources as they are seen from the M-480’s fader module section. This display will change according to the M-480’s fader layer.

MEMO

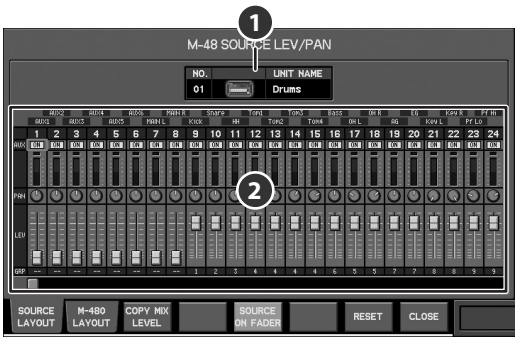
Nothing is shown at the position of sources that are not patched to the REAC B output.

MEMO

If the same channel is being output multiple times to REAC B, only the lowest-numbered output will be operable.

The following outputs cannot be operated in the M-480 LAYOUT tab because they do not appear in the M-480’s top panel fader module section:

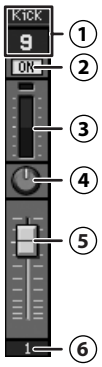
- MAIN L, MAIN R, MAIN MONO
- MONITOR L, MONITOR R
- REC L, REC R
- TALKBACK/OSC
- REAC A IN1–40, REAC B IN1–40
- CONSOLE IN1–8
- STEREO IN L, STEREO IN R



❶ Target M-48 indication

This shows the unit name of the M-48 that is the target of the M-48 SOURCE LEV/PAN.

❷ Source LEVEL/PAN



① Source number/name indication

In the SOURCE LAYOUT tab, this indicates the source number and name. In the M-480 LAYOUT tab, this indicates the M-480's channel number and name.

MEMO

The M-480's channel name or output name is used as the source name.

MEMO

In the SOURCE LAYOUT tab, the names of sources for which nothing is being output from the M-480's REAC B are not shown; the background will be gray. In the M-480 LAYOUT tab, channels not being output to the M-480's REAC B will have a gray background.

② AUX button

If this is on, the post-fader signal will be mixed to the AUX bus.

③ Meter

This indicates the input level of the source.

④ PAN knob

This adjusts the source's panning in a range of L63–C–R63.

⑤ Fader

This adjusts the source's level in a range of -Inf dB – +10.0 dB.

⑥ Group

Shows a group to which a source is assigned.

MEMO

If a source is not assigned to any groups, that shows "--."

cf.

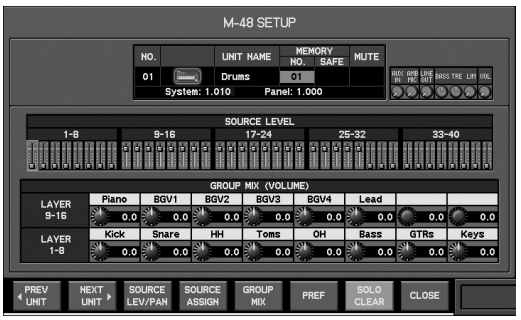
"Source Assign settings" (p. 181)

The function buttons have the following operations:

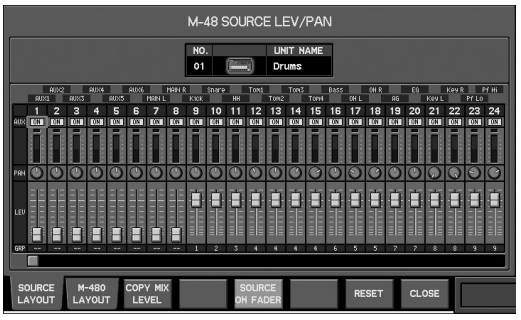
[F1 (SOURCE LAYOUT)]	Switches to the SOURCE LAYOUT tab.
[F2 (M-480 LAYOUT)]	Switches to the M-480 LAYOUT tab.
[F3 (COPY MIX LEVEL)]	Accesses the COPY MIX LEVEL popup, where you can copy the M-480's mix levels to sources (p. 180).
[F5 (SOURCE ON FADER)]	If this is on, you'll be able to use the top panel faders to adjust the source levels.
[F7 (RESET)]	Resets the source level/pan settings (p. 180).
[F8 (CLOSE)]	Closes the popup.

Accessing the M-48 SOURCE LEV/PAN popup

1. Access the desired M-48 SETUP popup.



2. Press [F3 (SOURCE LEV/PAN)].



The M-48 SOURCE LEV/PAN popup will appear.

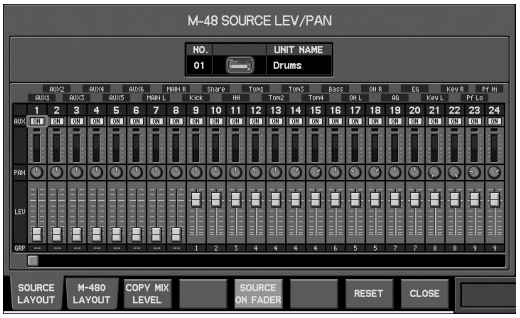
3. Verify that the desired M-48 is shown in the target unit indication.

If the wrong unit is selected, press [F8 (CLOSE)] to close the popup; then re-select the target and return to step 2.

4. Use [F1 (SOURCE LAYOUT)] or [F2 (M-480 LAYOUT)] to select the display that you prefer.

Editing the source level/pan settings

1. **Access the desired M-48 SOURCE LEV/PAN popup.**



2. **Move the cursor to the faders and pan knobs of sources 1–40, and use the value dial to edit the values.**

3. **If you want to use the M-480's top panel faders to control the levels, turn [F5 (SOURCE ON FADER)] on.**

   The display in the M-480 LAYOUT tab will switch in tandem with the M-480's channel layer buttons.

Resetting the source level/pan settings

1. **Access the desired M-48 SOURCE LEV/PAN popup.**

2. **Press [F7 (RESET)].**

   A message will ask you to confirm the operation.

3. **Press [F8 (RESET)] to reset the source level/pan settings and close the popup.**

   The parameters of each source will be set to the following values:

Parameter	Value
AUX switch	ON
PAN	C
LEVEL	-Inf dB

MEMO

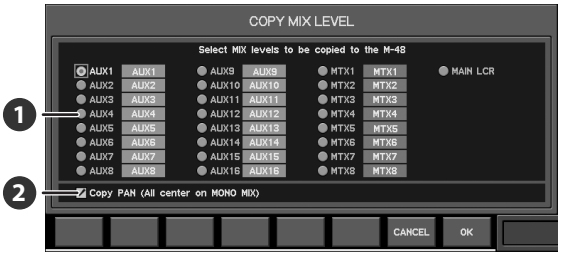
Pressing [F7 (CANCEL)] will cancel the operation.

Copying the M-480's mix levels to the source levels

Here's how you can copy the M-480's mix levels (the levels from channels to MAIN, AUX, or MTX) to the level of the corresponding source.

1. **Access the desired M-48 SOURCE LEV/PAN popup.**

2. **Press [F3 (COPY MIX LEVEL)].**



   The COPY MIX LEVEL popup will appear.

1 Mix level select buttons

These select the mix from which the levels will be copied: AUX1–16, MTX1–8, or MAIN LCR.

MEMO

If you select MAIN LCR, the sends from AUX to MAIN will also be included.

2 Copy PAN (All center on MONO MIX) button

If this is on, the send pan will also be copied.

MEMO

If you use the mix level select buttons to select a mono mix, the pan settings will be in the center.

3. **Use the mix level select buttons to select the mix levels that you want to copy.**

MEMO

If you also want to copy the pan, turn the Copy PAN (All center on MONO MIX) button on.

4. **Press [F8 (OK)].**

   A message will ask you to confirm the operation.

MEMO

In this example, the MAIN L/R mix is being copied.

5. **Press [F8 (COPY)]; the mix levels you selected in step 3 will be copied to the levels of the corresponding sources, and the popup will close.**

MEMO

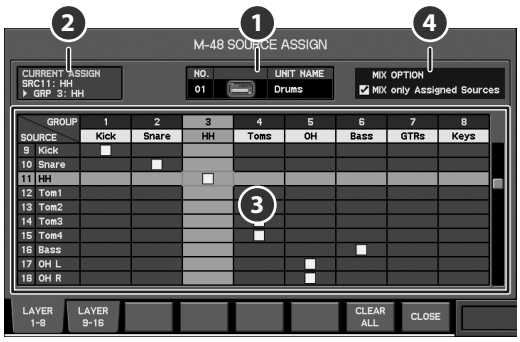
Pressing [F7 (CANCEL)] will cancel the operation.

Source Assign settings

This assigns source 1 through 40 to group 1 through 16 for operating the M-48 panel. You make assignments to the groups using the M-48 SOURCE ASSIGN popup.

Accessing the M-48 SOURCE ASSIGN popup

1. **Access the desired M-48 SETUP popup.**
2. **Press [F4 (SOURCE ASSIGN)].**



The M-48 SOURCE ASSIGN popup will appear.

❶ Target M-48 indication

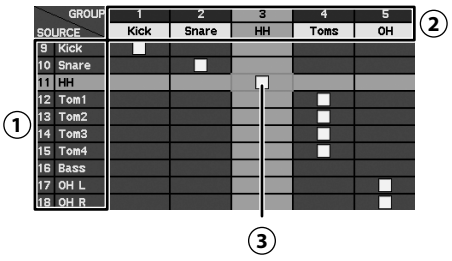
This indicates the unit name of the M-48 that is the target of the M-48 SOURCE ASSIGN popup.

❷ Current assign indication

This indicates the group to which the source at the cursor location is assigned.

❸ Assignment grid

This grid lets you assign sources to groups (knob 1–16).



① Source indication

This indicates the number and name of each source.

② Group indication

This indicates the number and name of each group (knob).

③ Assignment symbol

This symbol is shown at the intersection of each currently assigned source and group.

MEMO

To change an assignment, move the cursor to the location where the desired source and group intersect, and press [ENTER].

MEMO

A source can be assigned only to one group. You cannot assign the same source to multiple groups.

❹ MIX OPTION select button

If the "Mix only Assigned sources" is checked, only sources assigned to a group will be mixed to (heard by) the M-48's MAIN buses.

NOTE

You cannot check the "Mix only Assigned Sources" if the system program version of the M-48 is prior to 1.01.

The function buttons have the following operations:

[F1 (LAYER 1–8)]	Displays groups 1–8.
[F2 (LAYER 9–16)]	Displays groups 9–16.
[F7 (CLEAR ALL)]	Clears the source assignment settings (p. 182).
[F8 (CLOSE)]	Closes the popup.

If the "Mix only Assigned sources" on the MIX OPTION select button is not checked, a source that is not assigned to any group will also be mixed to the M-48's MAIN buses, and that source cannot be controlled from the M-48's panel.

In some cases you may want to set a source level up even though it is not assigned to a group (knob) for a particular M-48.

1. **For talkback communication**

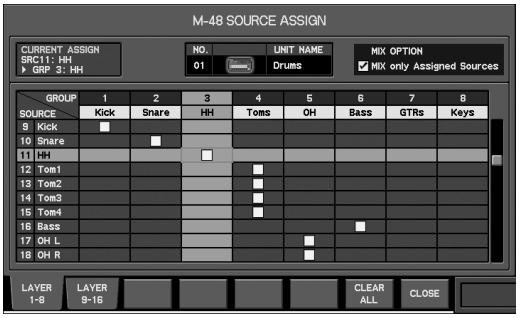
   The mixing engineer can have talkback as one of the 40 sources, leaving the source level up but not assigned to a particular group (knob). This way the talkback signal is not controlled by any of the M-48 knobs yet still can be heard by the musician.

2. **To provide simple control**

   E.g., The mixing engineer can provide just vocal control for a vocalist via source assignment. All other sources are not assigned to any groups (knobs) and can be provided as a fixed mix. The vocalist just adjusts the volume of their voice alone.

Setting the source assignments

1. **Access the M-48 SOURCE ASSIGN popup.**



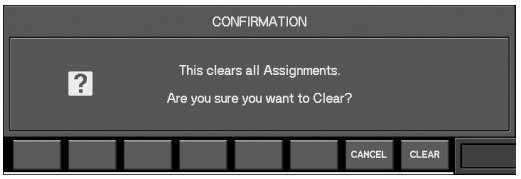
2. **In the assignment grid, move the cursor to the location where the desired source and group intersect, and press [ENTER] to make an assignment symbol appear.**

MEMO

A source can be assigned only to one group. You cannot assign the same source to multiple groups.

Clearing the source assignments

1. **Access the M-48 SOURCE ASSIGN popup.**
2. **Press [F7 (CLEAR ALL)].**



A message will ask you to confirm the operation.

3. **Press [F8 (CLEAR)]; the source assignments will be cleared and the popup will close.**

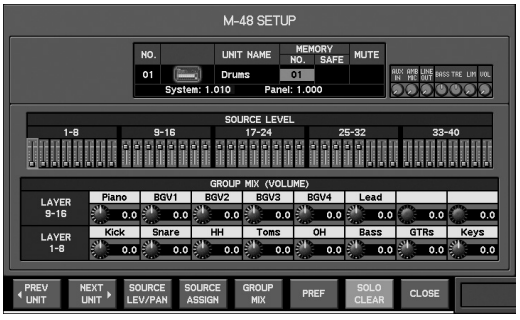
MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

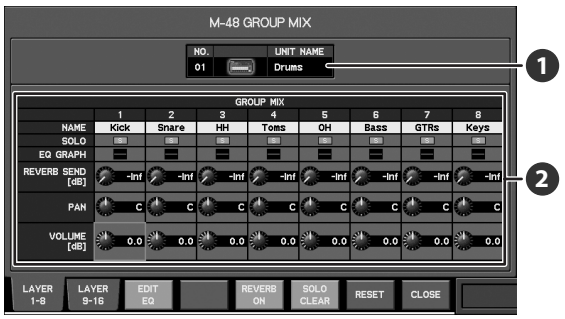
Checking and adjusting the musician's mix (Group Mix)

Accessing the M-48 GROUP MIX popup

1. **Access the desired M-48 SETUP popup.**



2. **Press [F5 (GROUP MIX)].**

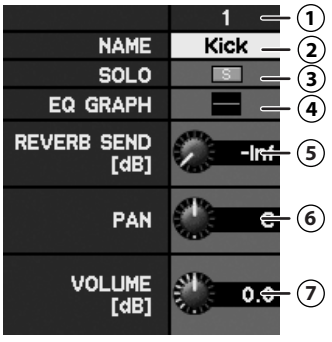


The M-48 GROUP MIX popup will appear.

❶ Target M-48 indication

This indicates the unit name of the M-48 that is the target of the M-48 GROUP MIX popup.

❷ Group mix



① Group number

This indicates the group number.

② NAME

This indicates the group name.

MEMO

You can move the cursor here and press [ENTER] to access the NAME EDIT popup.

③ SOLO button

This turns solo on/off for each group.

④ **EQ graph**

This indicates the approximate response of the group's EQ.

MEMO

You can move the cursor here and press [ENTER] to turn the EQ indication on/off.

⑤ **REVERB SEND knob**

This adjusts the group's reverb send in a range of -Inf dB – +10.0 dB.

⑥ **PAN knob**

This adjusts the group's pan in a range of L63–C–R63.

MEMO

This pan setting is a relative adjustment to the pan specified by the source level/pan settings. In some cases, the M-48's source pan may reach the maximum or minimum value before this value reaches the maximum or minimum value.

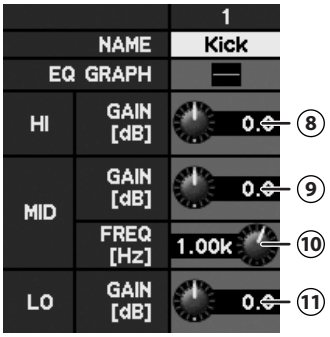
⑦ **VOLUME knob**

This volume setting is a relative adjustment to the level specified by the source level/pan settings.

MEMO

In some cases, the M-48's source level may reach the maximum or minimum value before this value reaches the maximum or minimum value.

The following knobs are shown if the EQ setting indication is displayed:



⑧ **HI GAIN knob**

This adjusts the HI gain in a range of -15.0 dB – +15.0 dB.

⑨ **MID GAIN knob**

This adjusts the MID gain in a range of -15.0 dB – +15.0 dB.

⑩ **MID FREQ knob**

This adjusts the MID center frequency in a range of 20 Hz–20.0 kHz.

⑪ **LO GAIN knob**

This adjusts the LO gain in a range of -15.0 dB – +15.0 dB.

The function buttons have the following operations:

[F1 (LAYER 1–8)]	Switches the group layer.
[F2 (LAYER 9–16)]	
[F3 (EDIT EQ)]	Turning this on will switch to the EQ setting display.
[F5 (REVERB ON)]	Turns the reverb on/off.
[F6 (SOLO CLEAR)]	Clears solo settings for all groups. This will be on if any groups are soloed.
[F7 (RESET)]	Returns the group mix to the default state (p. 183).
[F8 (CLOSE)]	Closes the popup.

Checking and adjusting the group mix

1. **Access the desired M-48 GROUP MIX popup.**
2. **Use [F1 (LAYER 1–8)] or [F2 (LAYER 9–16)] to choose the group you want to view, and note the group mix settings.**

   MEMO

   Turning [F3 (EDIT EQ)] on will switch to the EQ setting indication, allowing you to view the EQ values.
3. **If necessary, move the cursor to a parameter and use the value dial to edit the value.**

Resetting the group mix to the default settings

1. **Access the desired M-48 GROUP MIX popup.**
2. **Press [F7 (RESET)].**

A message will ask you to confirm the operation.

3. **Press [F8 (RESET)]; the group mix will be reset to the default settings.**

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

This operation will not change the group names.

The parameters of each group will be set to the following values:

Parameter	Value
VOLUME	0.0 dB
PAN	C
REVERB SEND	-Inf dB
HI GAIN	0.0 dB
MID GAIN	0.0 dB
MID FREQ	1.00 kHz
LO GAIN	0.0 dB
SOLO	OFF

Using the Engineer's Monitor function

By designating an M-48 located beside the engineer as the Engineer's Monitor, he/she can monitor and control the mix of any musician's M-48 unit from the Engineer's Monitor.

MEMO

On the Engineer's Monitor, you cannot monitor the AUX IN or the AMBIENT MIC on the musician's side.

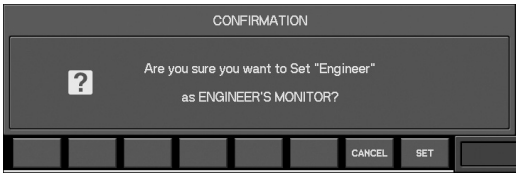
NOTE

You cannot use the Engineer's Monitor function if system program version of the M-48 is prior to 1.01.

Specifying an Engineer's Monitor unit

1. Access the M-48 MANAGER popup.

1. In the M-48 list, move the cursor to the desired target M-48 unit and press [F8 (SET AS ENG MON)].



A message will ask you to confirm the operation.

2. Press [F8 (SET)] to specify the selected M-48 unit as the Engineer's Monitor.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

3. To monitor a musician's mix, select the corresponding M-48 unit in the M-48 MANAGER popup.

4. You can also control the musician's group mix from the Engineer's Monitor.

MEMO

To control the musician's mix from the Engineer's Monitor unit, the MONITOR-ONLY select button on the M-48 ENGINEER'S MONITOR SETUP popup must be cleared.

MEMO

The solo function on the M-48 works independently on the musician's side and engineer's side. Therefore, solo operation on engineer's side does not affect the musician's side.

MEMO

The M-48 unit specified as the Engineer's Monitor will be registered to the M-480's system settings, and it can be saved to the M-480's project file. When you initialize the M-480's system settings, the Engineer's Monitor setting will be cleared. You can load the Engineer's Monitor settings by loading the system settings from the M-480's project file you saved.

MEMO

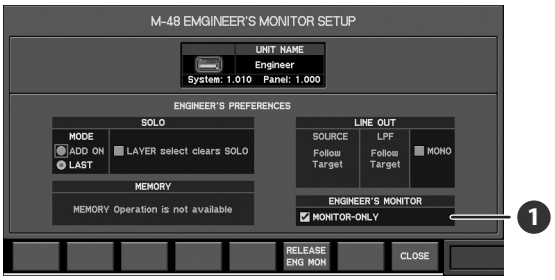
The following knobs work independently on the engineer's side and musician's side. The positions of each knob on the musician's side are displayed on the M-48 SETUP popup.

- [AUX IN] knob
- [AMBIENT MIC] knob
- LINE OUT [VOLUME] knob
- [BASS] knob and [TREBLE] knob
- [LIMITER] knob
- [PHONES [VOLUME] knob

Editing the Engineer's Monitor preference settings

1. Access the M-48 MANAGER popup.

2. Press [F6 (ENG MON SETUP)] to access the M-48 ENGINEER'S MONITOR SETUP popup.



1 MONITOR-ONLY select button

If this is checked, the Engineer's Monitor unit works just for audio monitoring, and it does not control the musician's mix.

3. The following items of the preference settings (p. 177) can be edited.

- SOLO MODE select buttons
- LAYER select clears SOLO button
- LINE OUT MODE select button

MEMO

The LINE OUT SOURCE select button and the LINE OUT LPF select button follows the settings of the musician's side.

MEMO

MEMORY operation on the Engineer's Monitor unit is not allowed.

4. Make the desired setting for the MONITOR-ONLY select button.

If you want to control the musician's group mix from the Engineer's Monitor unit, clear the MONITOR-ONLY button.

5. Press [F8 (CLOSE)] to close the popup.

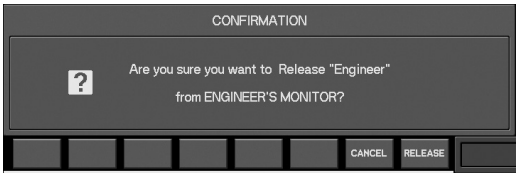
Releasing the Engineer's Monitor unit

1. Access the M-48 MANAGER popup.

2. Press [F6 (ENG MON SETUP)].

The M-48 ENGINEER'S MONITOR SETUP popup will appear.

3. Press [F6 (RELEASE ENG MON)].



A message will ask you to confirm the operation.

4. Press [F8 (RELEASE)] to release the ENGINEER'S MONITOR unit.

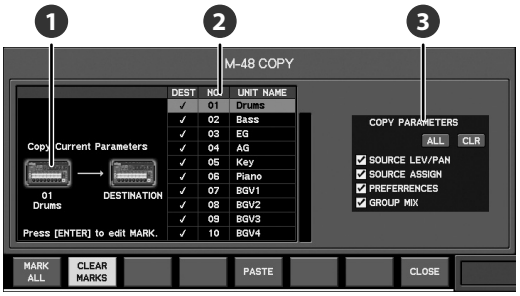
MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Copying M-48 settings

1. Access the M-48 MANAGER popup.

2. In the M-48 list, move the cursor to the desired copy-source M-48 unit, and press [F3 (COPY)].



The M-48 COPY popup will appear.

❶ Copy-source unit indication

This indicates the copy-source M-48 unit.

❷ Copy-destination list

Specify the copy-destination M-48 unit(s) in this list.

The list shows the following items:

DEST	Press [ENTER] to add or clear the check mark. A check mark indicates that the unit is selected as a copy-destination.
NO.	Indicates the number in the list.
UNIT NAME	Indicates the unit name.

❸ Copy parameter select buttons

Use these to select the parameters to be copied. Parameters for which there is a check mark will be copied.

SOURCE LEV/PAN	Source level/pan settings
SOURCE ASSIGN	Group assignment settings
PREFERENCES	Preference settings
GROUP MIX	Group mix

The function buttons have the following operations:

[F1 (MARK ALL)]	Adds a check mark to all DEST fields of the copy-destination list.
[F2 (CLEAR MARKS)]	Clears the check marks from all DEST fields of the copy-destination list. This indication will be on if any DEST fields have check marks.
[F5 (PASTE)]	Executes the copy.
[F8 (CLOSE)]	Closes the popup.

3. Verify that the copy-source unit indication shows the desired M-48 unit.

If the wrong copy-source unit is selected, press [F8 (CLOSE)] to close the popup, return to step 2, and select the desired copy source.

4. In the copy-destination list, add a check mark to the desired copy-destination M-48 units.

Press [ENTER] to assign or clear a check mark.

MEMO

You can use [F1 (MARK ALL)] or [F2 (CLEAR MARKS)] to assign or clear check marks for all DEST fields in the copy-destination list.

5. Use the copy parameter select buttons to select the parameters that you want to copy.

6. Press [F5 (PASTE)].

A message will ask you to confirm the operation.

7. Press [F8 (PASTE)].

The copy will be executed, and a message indicating the processing status will appear. This message will close when copying is completed.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

M-48 memory operations

You manipulate M-48 memory using the M-48 MEMORY popup.

Accessing the M-48 MEMORY popup

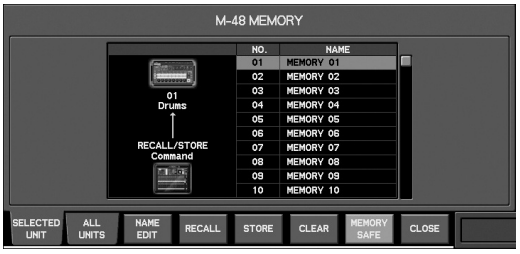
1. Access the M-48 MANAGER popup.

2. In the M-48 list, move the cursor to the desired M-48 MEMORY NO., and press [ENTER].

The M-48 MEMORY popup will appear.

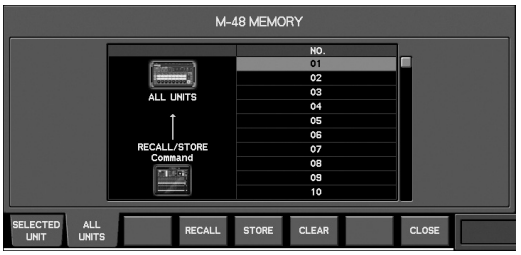
There are two views: the SELECTED UNIT tab and the ALL UNITS tab.

- **SELECTED UNIT tab**

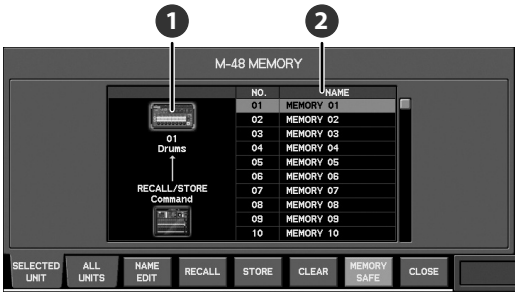


In this tab you can manipulate the memories of the M-48 unit that is selected in the M-48 list.

- **ALL UNITS tab**



In this tab you can manipulate the memories of all M-48 units (except for units whose MEMORY SAFE function is on).



❶ Target unit indication

This indicates the M-48 that is the target of memory operations.

❷ Memory list

This lists the memories of the target M-48 unit. The current memory number is shown in green.

The list shows the following items:

NO.	Indicates the memory number.
NAME	Indicates the memory name. *

* This is not shown in the ALL UNITS tab.

The function buttons have the following operations:

[F1 (SELECTED UNIT)]	Shows the SELECTED UNIT tab.
[F2 (ALL UNITS)]	Shows the ALL UNITS tab.
[F3 (NAME EDIT)] *1 *2	Accesses the NAME EDIT popup where you can edit the memory name.
[F4 (RECALL)] *2	Recalls the memory number selected in the list (p. 187).
[F5 (STORE)] *2	Accesses the M-48 MEMORY STORE popup, where you can store to the memory number selected in the list (p. 187).
[F6 (CLEAR)] *2	Returns the contents of the memory selected in the list to the default state (p. 187).
[F7 (MEMORY SAFE)] *1	Turns MEMORY SAFE on/off for the target M-48 unit.
[F8 (CLOSE)]	Closes the popup.

**1 Not shown in the ALL UNITS tab.*

**2 Not available if [F7 (MEMORY SAFE)] is on.*

Storing the M-48's current memory

1. **Access the M-48 MEMORY popup.**
2. **Select the desired memory in the memory list.**

   MEMO

   If the ALL UNITS tab is shown, all M-48 units will be affected by this operation (except for units whose MEMORY SAFE function is on).
3. **Press [F5 (STORE)].**

   The M-48 MEMORY STORE popup will appear.
4. **Edit the name in the name edit field, and press [F8 (STORE)].**

   A message will ask you to confirm the store operation.

   MEMO

   You cannot execute this operation for units whose MEMORY SAFE function is turned on.
5. **Press [F8 (STORE)].**

   The M-48's current memory settings will be stored to the memory you selected in step 2, and the popup will close.

   MEMO

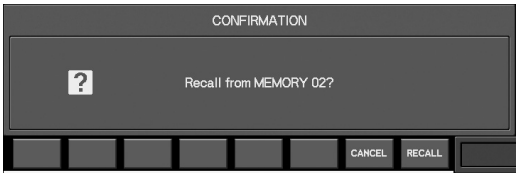
   Pressing [F7 (CANCEL)] will cancel the operation.

Recalling a memory to the M-48

1. **Access the M-48 MEMORY popup.**
2. **Select the desired memory in the memory list.**

   MEMO

   If the ALL UNITS tab is shown, all M-48 units will be affected by this operation (except for units whose MEMORY SAFE function is turned on).
3. **Press [F4 (RECALL)].**



   A message will ask you to confirm the recall operation.

   MEMO

   You cannot execute this operation for units whose MEMORY SAFE function is turned on.
4. **Press [F8 (RECALL)].**

   The memory you selected in step 2 will be recalled to the M-48's current memory, and the popup will close.

   MEMO

   Pressing [F7 (CANCEL)] will cancel the operation.

Clearing the contents of an M-48 memory

1. **Access the M-48 MEMORY popup.**
2. **Select the desired memory in the memory list.**

   MEMO

   If the ALL UNITS tab is shown, all M-48 units will be affected by this operation (except for units whose MEMORY SAFE function is turned on).
3. **Press [F6 (CLEAR)].**

   A message will ask you to confirm the operation.

   MEMO

   You cannot execute this operation for units whose MEMORY SAFE function is turned on.
4. **Press [F8 (CLEAR)].**

   The contents of the memory you selected in step 2 will be cleared, and the memory will be initialized.

   MEMO

   Pressing [F7 (CANCEL)] will cancel the operation.

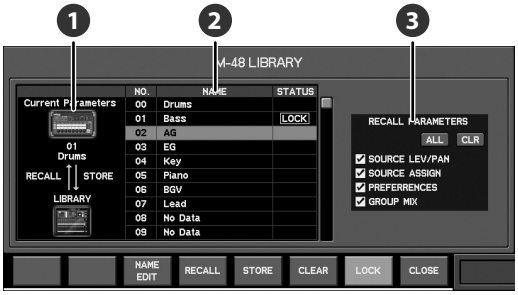
Using the M-48 library

The current settings of the M-48 can be organized in the form of a "Library," and saved on the M-480.

Accessing the M-48 LIBRARY popup

1. Access the M-48 MANAGER popup.

2. In the M-48 list, move the cursor to the desired M-48 unit and press [F4 (LIBRARY)].



The M-48 LIBRARY popup will appear.

1 Target unit indication

This indicates the M-48 unit to which operations in the M-48 LIBRARY popup will apply.

2 Library list

This lists the library items for the target M-48.

The following items are shown in the list:

NO.	Indicates the library item number.
NAME	Indicates the library item name.
STATUS	This will indicate LOCK if the library item is locked.

3 Recall parameter select buttons

These buttons select the parameters that will be recalled from the library. Parameters with a check mark will be recalled.

SOURCE LEV/PAN	Source level/pan settings
SOURCE ASSIGN	Group assign settings
PREFERENCES	Preference settings
GROUP MIX	Group mix

The function buttons have the following operations:

[F3 (NAME EDIT)] *	Accesses the NAME EDIT popup, where you can edit the name of a library item.
[F4 (RECALL)]	Recalls the library item selected in the list (p. 189).
[F5 (STORE)] *	Accesses the LIBRARY STORE popup, where you can store to the library item selected in the list (p. 188).
[F6 (CLEAR)] *	Clears the library item selected in the list (p. 189).
[F7 (LOCK)]	Locks/unlocks the library item selected in the list.
[F8 (CLOSE)]	Closes the popup.

* Cannot be used if the selected library item is locked.

Storing to the M-48 library

1. Access the M-48 LIBRARY popup.

2. In the library list, select the store-destination number.

3. Press [F5 (STORE)].

The LIBRARY STORE popup will appear.

4. Edit the name in the name edit field, and press [F8 (STORE)].

A message will ask you to confirm the operation.

5. Press [F8 (STORE)]; the store operation will be executed, and a status message will indicate the progress of the operation.

When the store operation is completed, the message will disappear.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

The confirmation message in step 4 will not appear if the user preference CONFIRMATION select button "SCENE/LIB STORE" is unchecked.

Recalling settings from the M-48 library

1. **Access the M-48 LIBRARY popup.**
2. **In the library list, select the library item that you want to recall.**
3. **Use the recall parameter select buttons to select the parameters that you want to recall.**
4. **Press [F4 (RECALL)].**

A message will ask you to confirm the recall operation.

5. **Press [F8 (RECALL)]; the recall operation will be executed, and a status message will indicate the progress of the operation.**

When the recall is completed, the message will disappear.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

MEMO

The confirmation message in step 4 will not appear if the user preference CONFIRMATION select button "SCENE/LIB RECALL" is unchecked.

Clearing an M-48 library item

1. **Access the M-48 LIBRARY popup.**
2. **In the library list, select the library item that you want to clear.**
3. **Press [F6 (CLEAR)].**

A message will ask you to confirm the operation.

4. **Press [F8 (CLEAR)].**

The library item you selected in step 2 will be cleared.

MEMO

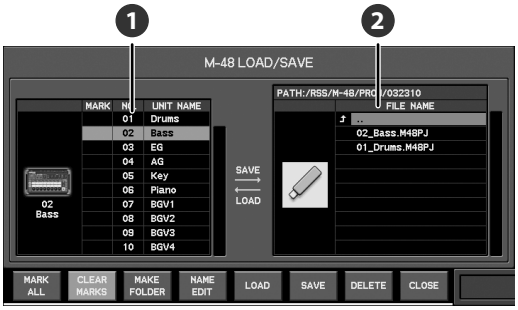
Pressing [F7 (CANCEL)] will cancel the operation.

Saving/loading USB memory

This loads or stores all data saved in M-48 units as M-48 project files on USB memory.

Accessing the M-48 LOAD/SAVE popup

1. **Access the M-48 MANAGER popup.**
2. **Press [F5 (LOAD/SAVE)].**



The M-48 LOAD/SAVE popup will appear.

1 Target unit list

This list shows the M-48 units to which the load or save operation will apply. The list shows the following items:

MARK	Add check marks to this column if you want to load or save data for multiple M-48 units. Pressing [ENTER] will add or remove the check mark.
NO.	Indicates the number in the list.
UNIT NAME	Indicates the unit name.

2 Project file list

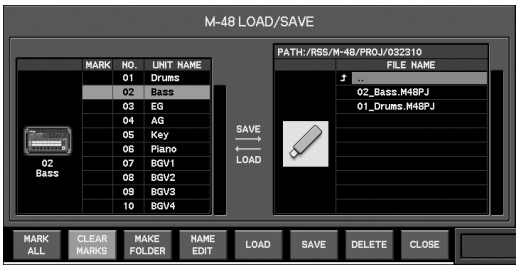
This lists the M-48 project files that have been saved to USB memory. You can specify the save-destination folder for the project file, or specify the project file that you want to load.

The function buttons have the following operations:

[F1 (MARK ALL)]	Adds a check mark to all MARK fields of the target unit list.
[F2 (CLEAR MARKS)]	Clears the check marks from all MARK fields of the target unit list. This will be on if any MARK fields are checked.
[F3 (MAKE FOLDER)]	Creates a folder in the project file list.
[F4 (NAME EDIT)]	Accesses the NAME EDIT popup where you can edit the name of the file or folder.
[F5 (LOAD)]	Loads the project file selected in the project file list (p. 191).
[F6 (SAVE)]	Saves the data of the target unit (p. 190).
[F7 (DELETE)]	Deletes the selected file or folder from the project file list (p. 191).
[F8 (CLOSE)]	Closes the popup.

Saving an M-48 project to USB memory

1. Access the M-48 LOAD/SAVE popup.



2. In the target unit list, select the M-48 unit whose project you want to save.

If you want to save the projects for multiple M-48 units, press [ENTER] to add or clear the check marks in the appropriate MARK fields.

MEMO

By pressing [F1 (MARK ALL)] or [F2 (CLEAR MARKS)] you can add or clear the check marks in all MARK fields of the target unit list.

3. In the project file list, move to the location in the folder hierarchy in which you want to save the data.

By selecting a folder and pressing [ENTER], you can move downward into that folder. By selecting ".." and pressing [ENTER] you can move back to the folder above the current one.

MEMO

Pressing [F3 (MAKE FOLDER)] will create a new folder.

4. Press [F6 (SAVE)].

The M-48 SAVE popup will appear.

MEMO

If you selected a single M-48 unit in step 2, specify a file name.

MEMO

If you added a check mark to multiple M-48 units in step 2, specify a folder name. A new folder with the specified name will be created, and a separate project file for each M-48 unit will be saved in that folder. The name of each project file will consist of the "number in the list" + "unit name."

5. Edit the name in the name edit field, and press [F8 (SAVE)].

A message will ask you to confirm the operation.

MEMO

The amount of time required for the save procedure to be carried out will vary depending on the number of M-48 units you've selected in step 2.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

6. When you press [F8 (SAVE)], a message indicating the status of the save procedure will appear.

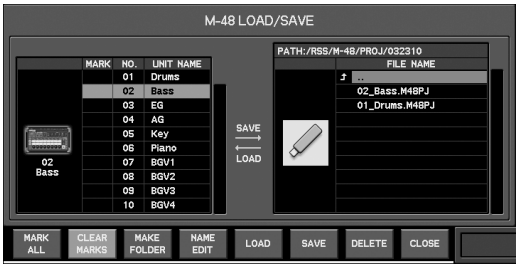
When saving is finished, the "Completed" message will appear.
Press [F8 (OK)] to close the message.

NOTE

Do not disconnect the USB memory or switch off the M-480's power while data is being saved to USB memory. Doing so may damage the data saved on USB memory.

Loading an M-48 project from USB memory

1. Access the M-48 LOAD/SAVE popup.



2. In the project file list, select the project file that you want to load.

By selecting a folder and pressing [ENTER], you can move downward into that folder. By selecting ".." and pressing [ENTER] you can move back to the folder above the current one.

3. In the target unit list, select the M-48 unit into which you want to load the project.

If you want to load the project into multiple M-48 units, press [ENTER] to add or clear the appropriate check marks.

MEMO

By pressing [F1 (MARK ALL)] or [F2 (CLEAR MARKS)] you can add or clear the check marks in all MARK fields of the target unit list.

4. Press [F5 (LOAD)].

A message will ask you to confirm the operation.

MEMO

Loading will require approximately one minute for each unit. The total amount of time required for loading will depend on the number of M-48 units you selected in step 3.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

5. Press [F8 (LOAD)]; the load operation will be executed, and a message will indicate the processing status.

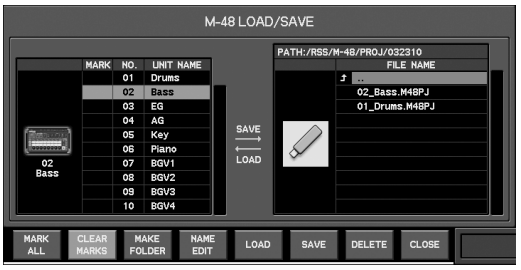
When loading is finished, the "Completed" message will appear.
Press [F8 (OK)] to close the message.

NOTE

Do not disconnect the USB memory or switch off the M-480's power while data is being loaded from USB memory. Doing so may damage the data saved on USB memory.

Deleting a project file or folder

1. Access the M-48 LOAD/SAVE popup.



2. In the project file list, select the project file that you want to delete.

MEMO

This operation cannot delete files or folders other than M-48 project files or folders.

MEMO

A folder must be empty before it can be deleted.

3. Press [F7 (DELETE)].

A message will ask you to confirm the operation.

4. Press [F8 (DELETE)] to delete the file or folder.

MEMO

Pressing [F7 (CANCEL)] will cancel the operation.

Appendix

User button functions

FUNCTION	PARAM1	PARAM2	LED	Explanation
NONE	-	-	Unlit	
SCENE	PREV RECALL	-	Lit while held	Recalls the scene of the previous number
	NEXT RECALL	-	Lit while held	Recalls the scene of the next number
	DIRECT RECALL	000–299	Lit while held	Recalls the scene of the specified number
	UNDO RECALL	-	Lit if UNDO is available	Cancels the scene recall
	PREV	-	Lit while held	Moves to the previous scene number
	NEXT	-	Lit while held	Moves to the next scene number
	RECALL	-	Lit while held	Recalls the scene of the current number
	STORE	-	Lit while held	Stores the scene of the current number
	SCENE QUICKVIEW	-	Lit when the specified screen is displayed	Accesses the SCENE QUICK VIEW popup (p. 123).
OSCILLATOR	OSC 1 ON	-	ON: lit, OFF: unlit	Oscillator on/off
	OSC 2 ON			
MONITOR	SOURCE SELECT	AUX1–16, MTX1–8, MAIN LR, MAIN C, MAIN MONO, MAIN LCR, REC OUT LR	Lit if assignment is identical	Changes the monitor source to the specified source
	M-48 MANAGER	-	Lit when the specified screen is displayed	Accesses the M-48 MANAGER popup (p. 174)
	M-48 SETUP	1–64	Lit when the specified screen is displayed	Accesses the M-48 SETUP popup (p. 176) (PARAM2 specifies the number in the M-48 list.)
EFFECT	BYPASS FX	FX1 L–FX6 R	ON: lit, OFF: unlit	Turns Bypass on/off for the specified FX
	BYPASS GEQ	GEQ1–GEQ12	ON: lit, OFF: unlit	Turns Bypass on/off for the specified GEQ
	EDIT FX	FX1–FX6	Lit when the specified screen is displayed	Accesses the FX EDIT popup (p. 101)
	EDIT GEQ	GEQ1–GEQ12, FX1 GEQ A–FX6 GEQ B	Lit when the specified screen is displayed	Accesses the GEQ EDIT popup (p. 106) or FX EDIT popup.
	TAP TEMPO		Blinks in time with the tempo	Setting the tempo (p. 103)
MUTE GROUP	1–8		ON: lit, OFF: unlit	Turns the specified mute group on/off
METER	PEAK CLEAR	-	Lit while held	Clears the meter peak hold and Over indications
	CHANGE METER POINT	CH, BUS	Lit while held	The level detection point of the specified meter will be changed each time you press the button.
CH SELECT	PREVIOUS	-	Lit while held	Selects the channel that precedes the current channel
	NEXT	-	Lit while held	Selects the channel that follows the current channel
CH EDIT	+48V SW	-	Lit while held	While the button is held, [SEL] operates as an ON/OFF switch
	PAD SW	-	Lit while held	While the button is held, [SEL] operates as an ON/OFF switch
	PHASE SW	-	Lit while held	While the button is held, [SEL] operates as an ON/OFF switch
	GATE SW	-	Lit while held	While the button is held, [SEL] operates as an ON/OFF switch
	COMP SW	-	Lit while held	While the button is held, [SEL] operates as an ON/OFF switch
	SET UNITY	-	Lit while held	Hold down the button and press [SEL] to set the fader of the corresponding channel to 0.0 dB
RECORDER	PREV SONG	-	Unlit	Selects the previous WAV file
	NEXT SONG	-	Unlit	Selects the next WAV file
	PLAY/STOP	-	During playback/ recording: lit	Plays the selected WAV file
	REC	-	During recording: lit, during recording standby: blink	Puts the USB memory recorder into recording standby
MUTE	MAIN L/R	-	ON: lit, OFF: unlit	Turns the specified mute on/off.
	MAIN C			

Error message list

Message	Explanation
xxx is directory.	You attempted to copy the xxx directory of the USB memory.
xxx is used for EXT FXx Do you want to disable it?	Port xxx is being used by EXT FXx. Do you want to disable EXT FXx?
Cannot operate the USB memory. It exceeds the power capability.	The device connected to the USB MEMORY connector used more than the maximum allowable electrical current.
Directory is not empty.	You attempted to delete a non-empty directory in USB memory.
Internal battery is low.	The internal lithium battery has run down.
Internal data were damaged. M-480 starts with initialized setting.	Data was initialized because the internal memory data was lost when the internal lithium battery was depleted or was replaced.
Invalid USER NAME.	You attempted to assign a blank user name.
Media is abnormal.	The USB memory has malfunctioned.
Media not formatted.	The USB memory has not been formatted.
MIDI/RS-232C Rx Error Framing.	An inappropriate signal is being input to MIDI/RS-232C.
MIDI/RS-232C Rx Error Buffer Full.	Too much data is being received via MIDI/RS-232C.
Passwords do not match.	The two passwords you entered to change the user password do not match.
REAC x Error Fan Stop.	The cooling fan of the input/output unit connected to REAC x has stopped.
REAC x Error Temp High.	The temperature of the input/output unit connected to REAC x has become abnormally high.
REAC x: Wrong sampling frequency.	A REAC device whose sampling frequency is not supported by the M-480 is connected to REAC x.
The data is locked	You attempted to edit a locked scene or library item.
The internal FAN has stopped.	The cooling fan located on the bottom panel has stopped.
This operation is not allowed.	You attempted to perform an operation that is prohibited by your user settings.
USB MIDI Rx Error Buffer Full.	Too much data is being received via USB MIDI.
Now Playing/Now Recording	You attempted to copy a file in USB memory while the USB memory recorder was playing or recording.

Troubleshooting

Overall operation

No sound

- A device is not powered on.
- An input/output unit is not connected correctly.
- The devices are not connected correctly.
- The volume of a connected amp or other device is lowered.
- A volume level setting is lowered.
  - Channel fader
  - MAIN fader, AUX faders
  - DCA group faders
  - MONITOR LEVEL knob
  - PHONES LEVEL knob
  - MAIN, AUX, or MTX channel attenuator
- Output patchbay settings are incorrect.
- The MUTE ALL OUTPUTS button is turned on for a connected input/output unit.

Sound is not being input

- A device is not powered on.
- An input/output unit is not connected correctly.
- The devices are not connected correctly.
- Input patchbay settings are incorrect.
- The channel fader is lowered.
- The channel is muted.
- The channel's MAIN switch is off.
- The DCA fader to which the channel belongs is lowered.

The preamp of a specific channel is not shown

- The input is not patched in the input patchbay.
- The input that is patched in the input patchbay does not have a preamp.

Sound is noisy or distorted

- The preamp gain is inappropriate
  The sound will be distorted if the preamp gain is too high. The proportion of noise will be greater if the preamp gain is too low.
- The channel's dynamics, EQ, etc. are overloading.
  Check the overload indication or level meter in the CHANNEL DISPLAY to see if any section is overloading. If you find a section that's overloading, adjust the parameters for it.

The volume level of the instrument connected to the CONSOLE INPUT jack, TALKBACK MIC IN jack, or STEREO IN jack is too low.

Could you be using a connection cable that contains a resistor? Use a connection cable that does not contain a resistor.

Can't input successfully from REAC; noise is heard

If REAC devices are connected incorrectly or if the REAC mode setting is incorrect, it will not be possible to input from REAC, and noise may be heard.

In this case, first check the connections between the M-480 and the input/output units.

- Make sure that the input/output units are connected to the correct REAC port
- Make sure that the REAC mode of the input/output units is correct

MEMO

After changing the REAC mode of an input/output unit, you must cycle the power to that input/output unit.

Then initialize the REAC connection.

1. **Disconnect the REAC cable, and wait for about five seconds.**
2. **Reconnect the REAC cable.**

You've forgotten the ADMIN password

- To clear the ADMIN password, switch on the M-480's power while holding down the [DISP] button in the USER section and the [SOLO CLEAR] button in the MONITOR section.

Top panel faders do not work

- SENDS ON FADER is turned on.
- The M-480 is in a mode where the faders are used to control the GEQ.

Can't read or write USB memory

- The USB memory is not formatted
- The USB memory is formatted as other than FAT (e.g., NTFS or HFS)
- The USB memory does not have sufficient free space

Remote

Can't control an external device

- The settings of the external device are incorrect.
- The external device is not connected correctly.
- The cable is broken.
- The MIDI OUT setting is set to THRU.
- The RS-232C baud rate is not set correctly.
- The M-480 is not set to transmit messages.

Can't control the M-480 from an external device

- The settings of the external device are incorrect.
- The external device is not connected correctly.
- The cable is broken.
- The RS-232C baud rate is not set correctly.
- The M-480 is not set to receive messages.

Other

Insufficient volume from a device connected to the output jacks

- You're using a cable that contains a built-in resistor.

Data disappeared from USB memory

- You switched off the power or disconnected the USB memory while writing or reading USB memory.

Settings don't change when you recall a scene

- The recall is being filtered by the RECALL PARAMETER and GLOBAL SCOPE settings.

REAC indicator

The REAC A port and REAC B port provide a REAC indicator that shows the REAC communications status.

The following table shows the meaning of the REAC indicator status:

Status	Meaning
Lit	REAC communication is established
Blinking	REAC communication is taking place
Unlit	No communication

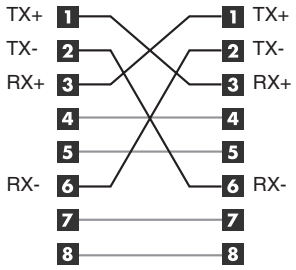
If REAC connection is unsuccessful, check the following points:

- **Make sure that all REAC devices are powered on.**
- **Check the Cat5e cable connections.**
- **Make sure that the Cat5e cables are not damaged.**
- **Verify that you're using the appropriate type of cables. (See "About cables" (p. 13))**
- **If you're using a switching hub, is it operating?**
- **If you're using a switching hub, is it connected correctly?**
- **If you're using a switching hub, does it have the correct specifications? (See "Requirements for switching hubs" (p. 196))**

Pin configuration diagrams

Cat5e Ethernet cables (RJ45 EtherCon type connectors)

Cat5e crossover cables (REAC cables SC-W100S)



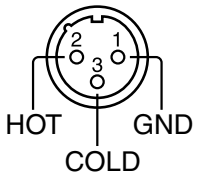
Audio jacks (XLR)

INPUT and OUTPUT

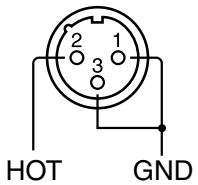
Balanced connections are recommended.

If you use unbalanced connections, connect the cold and ground.

- **Balanced connection**



- **Unbalanced connection**



INPUT jacks provide phantom power (+48V/14mA).

Requirements for switching hubs

Switching hubs used to connect REAC devices must meet the following conditions:

- **We recommend a switching hub that supports 1000BASE-T (IEEE 802.3ab, Gigabit Ethernet)**
- **100BASE-TX interface must be supported (IEEE 802.3u, Fast Ethernet)**
- **Full duplex communication (simultaneous bidirectional communication) must be supported**

Caution when using a switching hub

- **The network propagation time between REAC devices is approximately 375 microseconds, but if the signal passes through a switching hub, there will be approximately 200 microseconds of delay for each unit.**
- **Up to four switching hubs can be connected in series.**
- **Connect REAC devices to a switching hub that supports 100BASE-TX.**
- **Carefully read the owner's manual of the switching hub you use.**

Main specifications

M-480 (V): LIVE MIXING CONSOLE

Mixing Channels

INPUT: 48 channels, 6 stereo returns

BUS: MAIN L/C/R, 16 AUX buses, 8 MATRIX buses

OUTPUT: 10 ports (Max 90 ports When using REAC devices)

AD/DA Conversion

Sample Rate: 48.0 kHz or 44.1 kHz

Signal Processing: 24 bits

Internal processing

56 bits

Frequency Response

CONSOLE OUTPUT jacks (1 to 8): -2 dB / +0 dB (20 k ohms load, +4 dBu, typ.)

PHONES jack: -3 dB / +0 dB (40 ohms load, 150 mW, typ.)

* Sample Rate: 48.0 kHz or 44.1 kHz
* Input Connector: CONSOLE INPUT (Pad: ON, Input gain: +4 dBu, 20 Hz to 20 kHz)

Total Harmonic Distortion + Noise

CONSOLE OUTPUT jacks (1 to 8): 0.05 % (+4 dBu, typ.)

PHONES jack: 0.05 % (typ., 40 ohms load, 150 mW, typ.)

* Sample Rate: 48.0 kHz or 44.1 kHz
* Input Connector: CONSOLE INPUT (Pad: ON, Input gain: +4 dBu, 20 Hz to 20 kHz)

Dynamic Range

CONSOLE OUTPUT jacks (1 to 8): 110 dB (typ.)

* Sample Rate: 48.0 kHz or 44.1 kHz
* Input Connector: CONSOLE INPUT (Pad: ON, Input gain: +4 dBu)

Crosstalk@ 1 kHz

CONSOLE INPUT jacks (1 to 8): -80 dB (Pad: ON, Input gain: +10 dBu, typ.)

CONSOLE OUTPUT jacks (1 to 8): -100 dB (typ.)

* Sample Rate: 48.0 kHz or 44.1 kHz

Nominal Input Level (Variable)

CONSOLE INPUT jacks (1 to 8): -65 to -10 dBu (Pad: OFF) or -45 to +10 dBu (Pad: ON), (typ.)

STEREO IN jacks (L / R): -18 to 0 dBu

TALKBACK MIC IN jack: -50 to -10 dBu

Pad

20 dB ON / OFF

Input Impedance

CONSOLE INPUT jacks (1 to 8): 14 k ohms

STEREO IN jacks (L / R): 10 k ohms

TALKBACK MIC IN jack: 41 K ohms

Non Clip Maximum Input level

CONSOLE INPUT jacks (1 to 8): +8 dBu (Pad: OFF) or +28 dBu (Pad: ON), (typ.)

STEREO IN jacks (L / R): +18 dBu (typ.)

TALKBACK MIC IN jack: +8 dBu (typ.)

Appendix

Nominal Output Level

CONSOLE OUTPUT jacks (1 to 8): +4 dBu (Load impedance: 10 k ohms, typ.)

Output Impedance

CONSOLE OUTPUT jacks (1 to 8): 600 ohms

PHONES jack: 100 ohms

Recommended Load Impedance

CONSOLE OUTPUT jacks (1 to 8): 10 k ohms or greater

PHONES jack: 8 ohms or greater

Non Clip Maximum Output level

CONSOLE OUTPUT jacks (1 to 8): +22 dBu (1 kHz, 10 k ohms load, typ.)

PHONES jack: 150 mW + 150 mW (1 kHz, 40 ohms load, typ.)

Residual Noise Level (IHF-A, typ.)

-88 dBu (All faders: Min)

-80 dBu (Main Fader: Unity, Channel faders: Unity only one CONSOLE IN channel, Preamp gain: Min)

-61 dBu (Main Fader: Unity, Channel faders: Unity only one CONSOLE IN channel, Preamp gain: Max)

-73 dBu (All faders: Unity, Preamp gain: Min, S-1608 + S-4000S-3208, Total 48CH)

-41 dBu (All faders: Unity, Preamp gain: Max, S-1608 + S-4000S-3208, Total 48CH)

* Input 150 ohms terminate
* Output Connector: CONSOLE OUTPUT jacks (1 to 8)
* Sample Rate: 48.0 kHz or 44.1 kHz

Equivalent Input Noise Level (E.I.N.)

-126 dBu (Main Fader: Unity, Channel faders: Unity only one CONSOLE IN channel, Preamp gain: Max)

* Output Connector: CONSOLE OUTPUT jacks (1 to 8)
* Sample Rate: 48.0 kHz or 44.1 kHz

Network Latency

2.8 mS (typ.) *1

* Total System Latency of audio signal from S-1608 inputs to outputs via M-480's REAC ports (A or B).
* Sample Rate: 48.0 kHz
* Effects : No insert effects

Connectors

CONSOLE INPUT jacks (1 to 8): XLR-3-31 type (balanced, phantom power)

TALKBACK MIC IN jack: XLR-3-31 type (balanced, phantom power)

STEREO IN jacks (L / R): RCA phono type

CONSOLE OUTPUT jacks (1 to 8): XLR-3-32 type (balanced)

PHONES jack: Stereo 1/4 inch phone type

DIGITAL OUT jacks x 2: Optical type, Coaxial type

REAC ports Å~3: RJ-45 EtherCon type

RS-232C connector: 9-pin D-sub type

MIDI connectors (OUT/THRU, IN): 5-pin DIN type

USB connectors: USB Type A and Type B

LAMP connector: XLR-4-31 type

Grounding terminal

AC INPUT connector

* XLR type: 1 GND, 2 HOT, 3: COLD
* phantom power: DC +48 V(unloaded maximum), 14 mA(maximum load) (All XLR type inputs)
* LAMP power: DC +12 V/500 mA

Display

800 x 480 dots Wide VGA backlit TFT color screen

Power Supply

AC 115 V, AC 117 V, AC 220 V, AC 230 V, AC 240 V (50/60 Hz)

Power Consumption

95 W

Dimensions

749 (W) x 614 (D) x 229.0 (H) mm

29-1/2(W) x 24-11/16(D) x 9-1/16(H) inches

Weight

20 kg

44 lbs 1 oz

Operation Temperature

+5 to +40 degrees Celsius

+41 to +104 degrees Fahrenheit

Accessories

Power Cord

REAC Connector Covers x 3

Ferrite Core x 4

Cover

Channel number sticker

Owner's Manual

Options (sold separately)

Cat5e Ethernet Crossover Cable with Neutrik(R) EtherCon(R) Plug: SC-W100S (100 m)

Cat5e Ethernet Crossover Cable with Neutrik(R) EtherCon(R) Plug and reel: W100S-R (100 m)

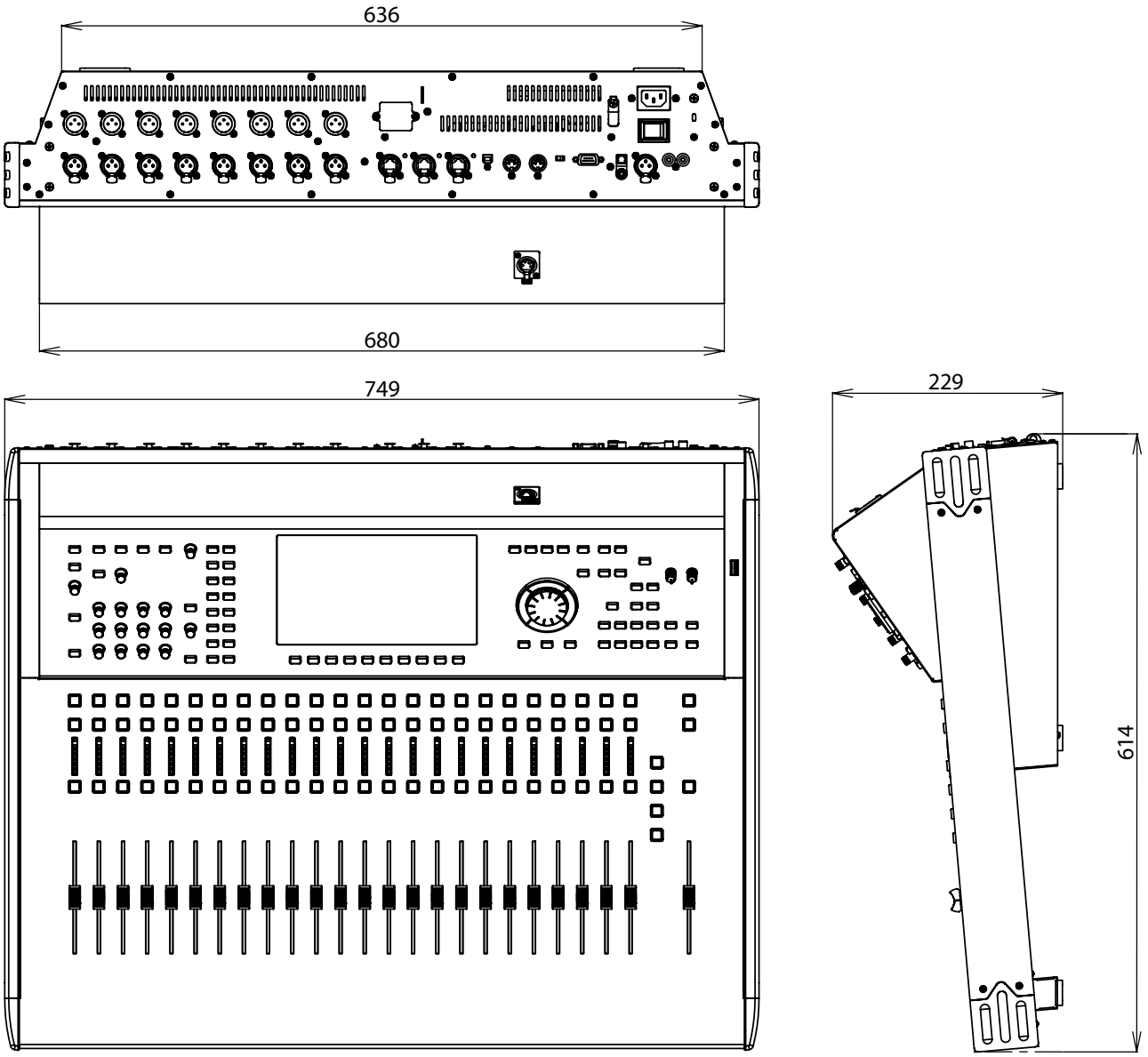
* 0 dBuÅÅ0.775 Vrms

* In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

*1: When a REAC Splitter&Distributor S-4000D or a switching hub is used in-line with REAC cables, the network latency will increase by the amount of processing delay introduced by the splitting device itself. The actual delay is dependant upon the specifications of the splitting device, though the maximum delay amount for a single splitting device should be about 200 microseconds.

* In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

Dimensions

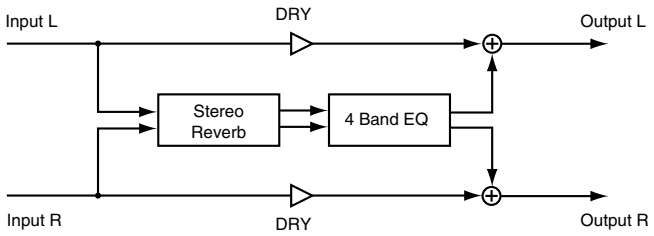


Dimensions are shown in millimeters.

Effect types

Reverb

St.REVERB (Stereo Reverb)



This is a stereo-in, stereo-out reverb. It adds reverberation without impairing the position of the sound image that's been set for the stereo input, by panning or other means.

Reverb

TYPE

Type of reverb

Value

ROOM1: **Typical room reverb**

ROOM2: **Room reverb with a softer tone than ROOM1**

HALL1: **Typical hall reverb**

HALL2: **Hall reverb with a softer tone than HALL1**

PLATE: **Plate reverb**

SIZE (Room size)

Size of the room or hall

Value: **5–40 m**

TIME (Reverb time)

Length of the reverberation

Value: **0.1–32.0 s**

Pre Dly (Pre-delay time)

Time until the reverb is heard

Value: **0–200 ms**

ER Lev (Early reflection level)

Level of the early reflections

Value: **-Inf–0.0 dB**

DIFFUS (Diffusion)

Amount of scattering for the early reflections

Value: **0–100**

DENSITY

Density of the reverb sound

Value: **0–100**

LO FREQ DAMP GAIN

Low-frequency attenuation of the reverb sound

Value: **-36.0–0.0 dB**

LO FREQ DAMP FREQ

Frequency at which the low-frequency region of the reverb sound begins to be attenuated

Value: **20 Hz–2.00 kHz**

HI FREQ DAMP GAIN

High-frequency attenuation of the reverb sound

Value: **-36.0–0.0 dB**

HI FREQ DAMP FREQ

Frequency at which the high-frequency region of the reverb sound begins to be attenuated

Value: **200 Hz–20.00 kHz**

HI CUT FREQ

Frequency at which the high-frequency region of the reverb sound will be cut

Value: **200 Hz–20.00 kHz**

WET (Wet Level)

Level of the reverb sound

Value: **-Inf–+6.0 dB**

DRY (Dry Level)

Level of the original sound

Value: **-Inf–+6.0 dB**

BAL (Balance)

L/R output level balance of the reverb

Value: **L63–C–R63**

EQ

EQ SW (EQ switch)

Turns the EQ on/off

Value: **OFF, ON**

EQ ATT (EQ attenuator)

Attenuator for the EQ

Value: **-42.0–+6.0 dB**

TYPE (LO, LO-MID, HI-MID, HI)

Filter type. (*1)

Value: **PEAK, LSV, HSV, LPF1, HPF1, LPF2, HPF2, BPF, NOTCH, THRU**

GAIN (LO, LO-MID, HI-MID, HI)

Gain. (*1)

Value: **-15.0–+15.0 dB**

FREQ (LO, LO-MID, HI-MID, HI)

Frequency. (*1)

Value: **20 Hz–20.00 kHz**

Q (LO, LO-MID, HI-MID, HI)

Steepness of the frequency response curve. (*1)

Value: **0.36–16.00**

(*1) Depending on the Type setting of each band, there are certain combinations for which the Freq, Gain, and Q values will have no effect, as listed below.

PEAK (Peaking)

Creates a hill or valley in the region of FREQ.

Freq: Valid Gain: Valid Q: Valid

LSV (Low Shelving)

Boosts/cuts the region below FREQ

Freq: Valid Gain: Valid Q: —

HSV (High Shelving)

Boosts/cuts the region above FREQ

Freq: Valid Gain: Valid Q: —

LPF1 (Low-Pass Filter 1)

Passes the frequency region below FREQ

Freq: Valid Gain: — Q: —

HPF1 (High-Pass Filter 1)

Passes the frequency region above FREQ

Freq: Valid Gain: — Q: —

LPF2 (Low-Pass Filter 2)

A sharper response curve than LPF1

Freq: Valid Gain: — Q: Valid

HPF2 (High-Pass Filter 2)

A sharper response curve than HPF1

Freq: Valid Gain: — Q: Valid

BPF (Band Pass Filter)

Passes the frequency region around FREQ.

Freq: Valid Gain: — Q: Valid

NOTCH (Notch Filter)

Removes the frequency region around FREQ

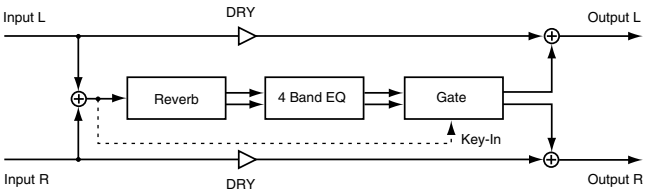
Freq: Valid Gain: — Q: Valid

THRU (Thru)

Passes all frequency regions

Freq: — Gain: — Q: —

REVERB+GATE



This is a mono-in, stereo-out reverb. It provides a gate that can be used for gating or ducking, allowing you to cut the reverb during its decay, or to cut the reverb when the level of the original sound is high.

Reverb

SIZE (Room size)

Size of the room or hall

Value: **5–40 m**

TIME (Reverb time)

Length of the reverberation

Value: **0.1–32.0 s**

Pre Dly (Pre-delay time)

Time until the reverb is heard

Value: **0–200 ms**

ER Lev (Early reflection level)

Level of the early reflections

Value: **-Inf–0.0 dB**

DIFFUS (Diffusion)

Amount of scattering for the early reflections

Value: **0–100**

DENSITY

Density of the reverb sound

Value: **0–100**

LO FREQ DAMP GAIN

Low-frequency attenuation of the reverb sound

Value: **-36.0–0.0 dB**

LO FREQ DAMP FREQ

Frequency at which the low-frequency region of the reverb sound begins to be attenuated

Value: **20 Hz–2.00 kHz**

HI FREQ DAMP GAIN

High-frequency attenuation of the reverb sound

Value: **-36.0–0.0 dB**

HI FREQ DAMP FREQ

Frequency at which the high-frequency region of the reverb sound begins to be attenuated

Value: **200 Hz–20.00 kHz**

HI CUT FREQ
Frequency at which the high-frequency region of the reverb sound will be cut

Value: **200 Hz–20.00 kHz**

WET (Wet Level)
Level of the reverb sound

Value: **-Inf–+6.0 dB**

DRY (Dry Level)
Level of the original sound

Value: **-Inf–+6.0 dB**

EQ

EQ SW (EQ switch)
Turns the EQ on/off

Value: **OFF, ON**

EQ ATT (EQ attenuator)
Attenuator for the EQ

Value: **-42.0–+6.0 dB**

TYPE (LO, LO-MID, HI-MID, HI)
Filter type. (*1)

Value: **PEAK, LSV, HSV, LPF1, HPF1, LPF2, HPF2, BPF, NOTCH, THRU**

GAIN (LO, LO-MID, HI-MID, HI)
Gain. (*1)

Value: **-15.0–+15.0 dB**

FREQ (LO, LO-MID, HI-MID, HI)
Frequency. (*1)

Value: **20 Hz–20.00 kHz**

Q (LO, LO-MID, HI-MID, HI)
Steepness of the frequency response curve. (*1)

Value: **0.36–16.00**

(*1) Depending on the Type setting of each band, there are certain combinations for which the Freq, Gain, and Q values will have no effect, as listed below.

PEAK (Peaking)
Creates a hill or valley in the region of FREQ.

Freq: Valid Gain: Valid Q: Valid

LSV (Low Shelving)
Boosts/cuts the region below FREQ

Freq: Valid Gain: Valid Q: —

HSV (High Shelving)
Boosts/cuts the region above FREQ

Freq: Valid Gain: Valid Q: —

LPF1 (Low-Pass Filter 1)
Passes the frequency region below FREQ

Freq: Valid Gain: — Q: —

HPF1 (High-Pass Filter 1)
Passes the frequency region above FREQ

Freq: Valid Gain: — Q: —

LPF2 (Low-Pass Filter 2)
A sharper response curve than LPF1

Freq: Valid Gain: — Q: Valid

HPF2 (High-Pass Filter 2)
A sharper response curve than HPF1

Freq: Valid Gain: — Q: Valid

BPF (Band Pass Filter)
Passes the frequency region around FREQ.

Freq: Valid Gain: — Q: Valid

NOTCH (Notch Filter)
Removes the frequency region around FREQ

Freq: Valid Gain: — Q: Valid

THRU (Thru)
Passes all frequency regions

Freq: — Gain: — Q: —

GATE

GT SW (GATE switch)
Turns the gate on/off

Value: **OFF, ON**

GT MODE (Gate mode)
Value

GATE: **Sound lower than the THRESHOLD level will be attenuated by the amount specified by RANGE**

DUCK: **Sound that exceeds the THRESHOLD level will be attenuated by the amount specified by RANGE**

THRE (Threshold level)
Threshold level of the gate

Value: **-80.0 –0.0 dB**

RANGE
Range of the gate

Value: **-80.0 –0.0 dB**

ATK (Attack time)
Attack time of the gate

Value: **0.0–800 ms**

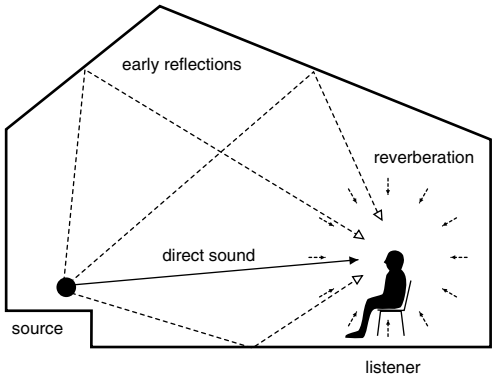
REL (Release time)
Release time of the gate

Value: **0–8000 ms**

HOLD (Hold time)
Hold time for the gate

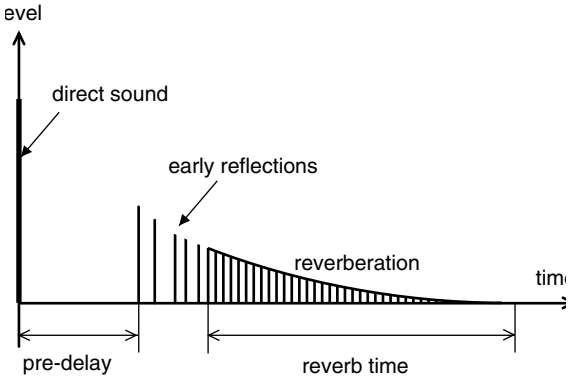
Value: **0–8000 ms**

Types of sound



The sound you normally hear is divided into three types: “direct sound,” “early reflections,” and “reverberation.” The “direct sound” is the sound that reaches the listener directly from the source. “Early reflections” are sounds that have reflected one to several times from the walls or other surfaces of the room. “Reverberation” is sound that has reflected many times before reaching the listener.

How sound and time are related



The reflected sounds reach the listener in the following order. The pre-delay is the time from when the direct sound is heard until the reverb arrives. The reverb time is the duration until the reverb disappears.

Tonal character of reverb

The tonal character of reverb is affected by the material of the walls and other reflective surfaces. This is because the reflectivity of the surfaces will affect the proportion of high and low frequencies that are reflected. You can use the DFP (Damp Filter) to vary this property of the sound. The high-frequency range or low-frequency range of the reverb will be attenuated as you decrease the value of the HI FREQ DAMP GAIN or LO FREQ DAMP GAIN parameters, respectively.

If you want to produce soft-sounding reverb, lower the HI FREQ DAMP FREQ. If you want to produce crisp-sounding reverb, raise the LO FREQ DAMP FREQ.

Delay

MEMO

As delay units, you can use msec, Meter, Feet, Frame (24, 25, 29.97, 30fps), or Note. The M-480's delay is based on msec units, and simply changing the delay unit parameter will not change the delay time in msec units. This means that after changing the delay unit, there may be a discrepancy between the msec value and the value that is displayed in the specified units. To correct this discrepancy, please re-specify the delay time.

MEMO

The relationship between Meter, Feet, Frame, and msec is shown below. (Rounded values are shown as the calculated results.)

Meter
[msec] = Delay [Meter] x 1000 / 343.59 [Meter/sec]

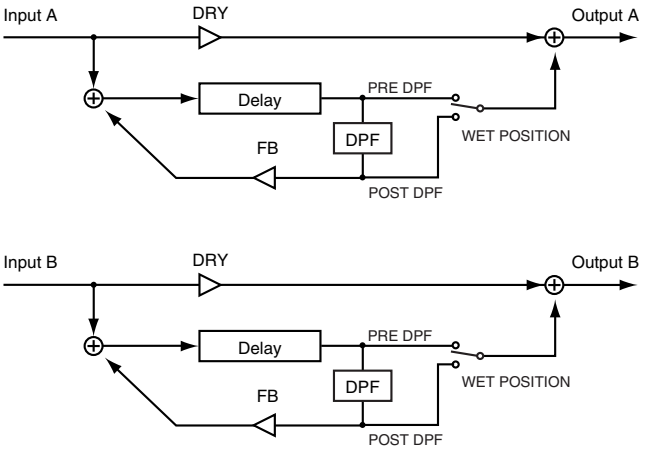
Feet
[msec] = Delay [Feet] x 1000 / 1127.26 [Feet/sec]

Frame (24, 25, 29.97, 30fps)
[msec] = Delay [Frame] x 1000 / FrameRate

MEMO

If you specify Note as the delay unit, the delay time will be determined by the relation between Tempo and Note. In some cases, the relation between Tempo and Note may mean that the result would exceed the maximum allowable delay time. If this occurs, the value is shown in red.
The Note values are as follows:
Off, 1/64T, 1/64, 1/32T, 1/64D, 1/32, 1/16T, 1/32D, 1/16, 1/8T, 1/16D, 1/8, 1/4T, 1/8D, 1/4, 1/2T, 1/4D, 1/2, 1/1T, 1/2D, 1/1
T signifies Triplet, and D signifies Dotted. For example, 1/4 means quarter note, 1/4T means quarter-note triplet, and 1/4D means dotted quarter note.

DELAY x2



This is a dual-mono delay.

Delay A/B

DELAY UNIT

Specifies the units for delay

Value: **msec, Note, Meter, Feet, Frame (24, 25, 29.97, 30)**

TIME

Time between the original sound and when the delay is heard

Value: **0.0–1350 ms**

FB (Feedback)

Amount of delayed sound returned to the input of the delay. The feedback level specifies the amount of sound that is returned. Increasing this setting will increase the number of delay repetitions.

Value: **0–100**

LO FREQ DAMP GAIN

Low-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

LO FREQ DAMP FREQ

Frequency at which the low-frequency region of the delay sound begins to be attenuated

Value: **20 Hz–2.00 kHz**

HI FREQ DAMP GAIN

High-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

HI FREQ DAMP FREQ

Frequency at which the high-frequency region of the delay sound begins to be attenuated

Value: **200 Hz–20.00 kHz**

WET POSITION

The wet position specifies how the delay's wet signal is related to the position of the DPF (Damp Filter).

Value

PRE DAMP: **Takes the wet sound from before the damp filter.**
The signal before passing through the damp filter is used as the wet signal. In this case, the damp filter is applied only to the delay feedback.

POST DAMP: **Takes the wet sound from after the damp filter.**
the signal after passing through the damp filter is used as the wet signal. In this case, the damp filter is applied to all of the delay sound.

WET (Wet Level)

Level of the delay sound

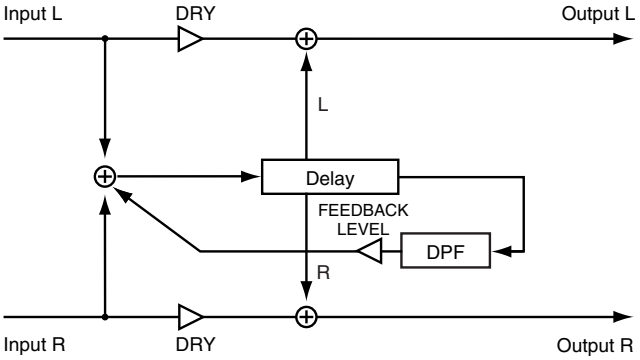
Value: **-Inf–+6.0 dB**

DRY (Dry Level)

Level of the original sound

Value: **-Inf–+6.0 dB**

LONG DELAY



This is a mono-in, stereo-out long delay.

Delay

DELAY UNIT

Specifies the units for delay

Value: **msec, Note, Meter, Feet, Frame (24, 25, 29.97, 30)**

L TIME

Time from the original sound until the left-channel delay is heard

Value: **0.0–2700 ms**

R TIME

Time from the original sound until the right-channel delay is heard

Value: **0.0–2700 ms**

FEEDBACK TIME (Feedback time)

Time until the delayed sound is returned to the input of the delay

Value: **0.0–2700 ms**

FEEDBACK LEVEL (Feedback level)

Amount of delayed sound returned to the input of the delay. The feedback level specifies the amount of sound that is returned. Increasing this setting will increase the number of delay repetitions.

Value: **0–100**

LO FREQ DAMP GAIN

Low-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

LO FREQ DAMP FREQ

Frequency at which the low-frequency region of the delay sound begins to be attenuated

Value: **20 Hz–2.00 kHz**

HI FREQ DAMP GAIN

High-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

HI FREQ DAMP FREQ

Frequency at which the high-frequency region of the delay sound begins to be attenuated

Value: **200 Hz–20.00 kHz**

WET (Wet Level)

Level of the delay sound

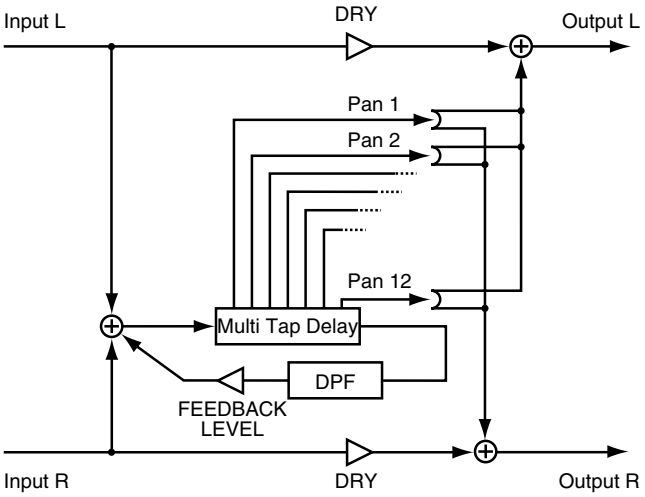
Value: **-Inf–+6.0 dB**

DRY (Dry Level)

Level of the original sound

Value: **-Inf–+6.0 dB**

M.TAP DELAY (Multi Tap Delay)



This is a mono-in, stereo-out twelve-stage tap delay.

Delay

DELAY UNIT
Specifies the units for delay

Value: **msec, Note, Meter, Feet, Frame (24, 25, 29.97, 30)**

DELAY 1–12 TIME
Time from the original sound until the delay is heard

Value: **0.0–2700 m**

DELAY 1–12 LEVEL
Level of the delay sound

Value: **-Inf–+6.0 dB**

DELAY 1–12 PAN
Panning of the delay sound

Value: **L63–C–R6**

FEEDBACK TIME (Feedback time)
Time until the delayed sound is returned to the input of the delay

Value: **0.0–2700 ms**

FEEDBACK LEVEL (Feedback level)
Amount of delayed sound returned to the input of the delay. The feedback level specifies the amount of sound that is returned. Increasing this setting will increase the number of delay repetitions.

Value: **0–100**

LO FREQ DAMP GAIN
Low-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

LO FREQ DAMP FREQ
Frequency at which the low-frequency region of the delay sound begins to be attenuated

Value: **20 Hz–2.00 kHz**

HI FREQ DAMP GAIN
High-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

HI FREQ DAMP FREQ
Frequency at which the high-frequency region of the delay sound begins to be attenuated

Value: **200 Hz–20.00 kHz**

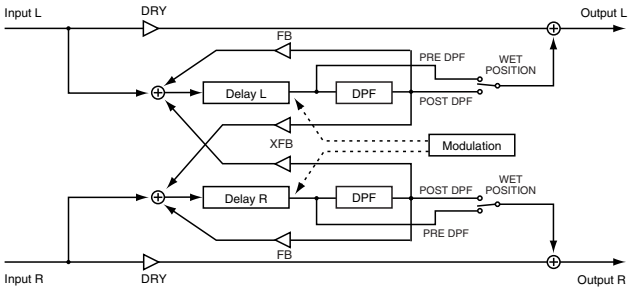
WET (Wet Level)
Level of the delay sound

Value: **-Inf–+6.0 dB**

DRY (Dry Level)
Level of the original sound

Value: **-Inf–+6.0 dB**

X.MOD DELAY (Cross-modulation Delay)



This is a stereo-in, stereo-out cross-modulation delay.

Delay

DELAY UNIT

Specifies the units for delay

Value: **msec, Note, Meter, Feet, Frame (24, 25, 29.97, 30)**

MODULATION WAVE

Waveform used for modulation

Value: **SIN, SQR, EXP+, EXP-**

MODULATION RATE

Value: **0.1–10.0 Hz**

MODULATION DEPTH

Depth of modulation

Value: **0–100**

MODULATION PHASE

Phase difference between modulation L and R

Value: **-180–180 deg**

L TIME

Time from the original sound until the left-channel delay is heard

Value: **0.0–1000 ms**

R TIME

Time from the original sound until the right-channel delay is heard

Value: **0.0–1000 ms**

FB (Feedback)

Amount of delayed sound returned to the input of the delay. The feedback level specifies the amount of sound that is returned. Increasing this setting will increase the number of delay repetitions.

Value: **-100–100**

XFB (Cross feedback)

Amount of delayed sound returned to the input of the delay of the opposite side

Value: **-100–100**

TIP

Cross feedback will feed back the effect sound to the opposite input (left or right).

LO FREQ DAMP GAIN

Low-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

LO FREQ DAMP FREQ

Frequency at which the low-frequency region of the delay sound begins to be attenuated

Value: **20 Hz–2.00 kHz**

HI FREQ DAMP GAIN

High-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

HI FREQ DAMP FREQ

Frequency at which the high-frequency region of the delay sound begins to be attenuated

Value: **200 Hz–20.00 kHz**

WET POSITION

The wet position specifies how the delay's wet signal is related to the position of the DPF (Damp Filter).

Value

PRE DAMP: **Takes the wet sound from before the damp filter.**
The signal before passing through the damp filter is used as the wet signal. In this case, the damp filter is applied only to the delay feedback.

POST DAMP: **Takes the wet sound from after the damp filter.**
the signal after passing through the damp filter is used as the wet signal. In this case, the damp filter is applied to all of the delay sound.

WET (Wet Level)

Level of the delay sound

Value: **-Inf–+6.0 dB**

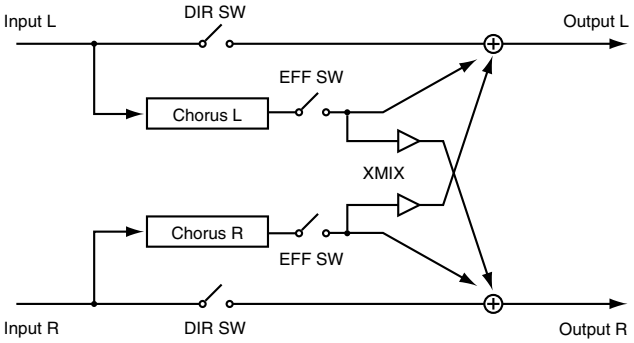
DRY (Dry Level)

Level of the original sound

Value: **-Inf–+6.0 dB**

Modulation

St.CHORUS (Stereo Chorus)



This is a stereo-in, stereo-out chorus. It lets you apply chorus without impairing the position of the sound image that's been set for the stereo input, by panning or other means.

Chorus

RATE
Chorus rate
Value: **0.1–10.0 Hz**

DEPTH
Chorus depth
Value: **0–100**

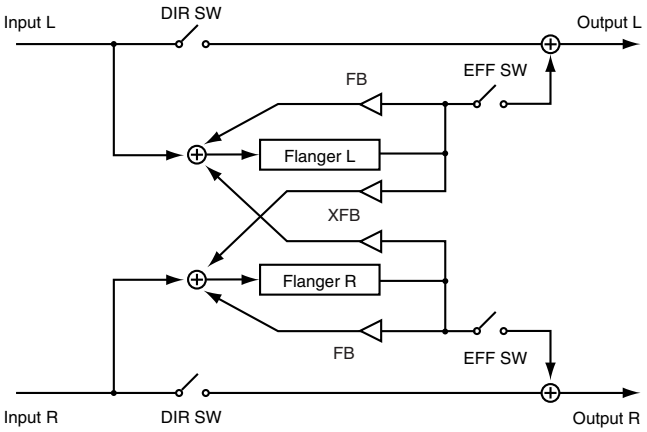
Pre Dly (Pre-delay)
Time until the chorus sound is output
Value: **0–100 ms**

XMIX (Cross mix)
Mix amount for the opposite-side chorus
Value: **-100–100**

DIR SW (Direct switch)
Turns the unprocessed sound on/off
Value: **OFF, ON**

EFF SW (Effect switch)
Turns the effect sound on/off
Value: **OFF, ON**

St.FLANGER (Stereo Flanger)



This is a stereo-in, stereo-out flanger. It lets you apply flanging without impairing the position of the sound image that's been set for the stereo input, by panning or other means.

Flanger

RATE
Flanger rate
Value: **0.01–10 Hz**

DEPTH
Flanger depth
Value: **0–100**

MANUAL
Center frequency at which the flanger effect is applied
Value: **0–100**

LFO PHASE
Phase difference between L and R for the LFO (Low-Frequency Oscillator)
Value: **-180–180 deg**

FB (Feedback)
Amount of flanger sound that is returned to the input of the flanger
Value: **-100–100**

XFB (Cross feedback)
Amount of flanger sound that is returned to the opposite-side input of the flanger
Value: **-100–100**

LEVEL
Flanger level
Value: **0–100**

DIR SW (Direct switch)
Turns the unprocessed sound on/off

Value: **OFF, ON**

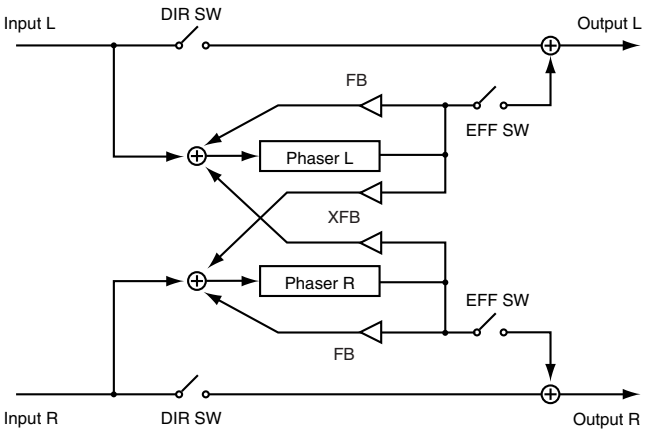
EFF SW (Effect switch)

Turns the effect sound on/off

Value: **OFF, ON**

Feedback means returning the effect sound back into the input. The feedback level specifies the amount of sound that is returned. Cross-feedback is when the effect sound is returned back to the opposite-side (left or right) input. The cross-feedback level specifies the amount of sound that is returned. In modulation-type effects, raising the feedback value will make the sound richer and more spacious. Negative values will invert the phase.

St.PHASER (Stereo Phaser)



This is a stereo-in, stereo-out phaser. It lets you apply a phaser effect without impairing the position of the sound image that's been set for the stereo input, by panning or other means.

Phaser

RATE

Phaser rate

Value: **0.01–10.0 Hz**

DEPTH

Phaser depth

Value: **0–100**

MANUAL

Center frequency at which the phaser effect is applied

Value: **0–100**

LFO PHASE

Phase difference between L and R for the LFO (Low-Frequency Oscillator)

Value: **-180–180 deg**

FB (Feedback)

Amount of phaser sound that is returned to the input of the phaser

Value: **-100–100**

XFB (Cross feedback)

Amount of phaser sound that is returned to the opposite-side input of the phaser

Value: **-100–100**

LEVEL

Phaser level

Value: **0–100**

MODE

Type of phaser

Value: **4STAGE, 8STAGE**

DIR SW (Direct switch)

Turns the unprocessed sound on/off

Value: **OFF, ON**

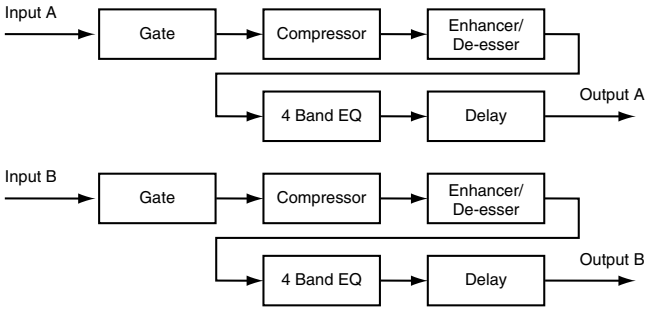
EFF SW (Effect switch)

Turns the effect sound on/off

Value: **OFF, ON**

Channel strip

CH STRIP x2 (Channel Strip x2)



This is a dual-mono channel strip. It provides gate, compressor, enhancer/de-esser, EQ, and delay.

GATE/EXPANDER A/B

GATE SW (GATE switch)
Turns the gate on/off
Value: **OFF, ON**

MODE (Gate mode)
Value: **GATE, EXPANDER, DUCKING**

THRE (Threshold level)
Threshold level
Value: **-80.0–0.0 dB**

RATIO
Expander ratio
Value: **1.00:1–INF:1**

KNEE
Expander knee
Value: **HARD, SOFT1–SOFT9**

RANGE
Range of GATE or DUCKING
Value: **-Inf–0.0 dB**

ATK (Attack time)
Attack time
Value: **0.0–800.0 ms**

REL (Release time)
Release time
Value: **0–8000 ms**

HOLD (Hold time)
GATE or DUCKING hold time
Value: **0–8000 ms**

COMPRESSOR A/B

COMP SW (Compressor switch)
Turns the compressor on/off
Value: **OFF, ON**

THRE (Threshold level)
Threshold level of the compressor
Value: **-40.0–0.0 dB**

RATIO
Compression ratio
Value: **1.00:1–INF:1**

KNEE
Compressor knee
Value: **HARD, SOFT1–SOFT9**

ATK (Attack time)
Compressor attack time
Value: **0.0–800 ms**

REL (Release time)
Compressor release time
Value: **0–8000 ms**

GAIN
Compressor gain
Value: **-40.0–+40.0 dB**

AUTO GAIN
Turns compressor auto gain on/off
Value: **OFF, ON**

ENHANCER/DE-ESSER A/B

ENHANCER/DE-ESSER SW (Enhancer/De-esser switch)
Turns the enhancer/de-esser on/off
Value: **OFF, ON**

MODE (Gate mode)
Value

ENHANCER: **Enhances the harmonic content of the sound, giving the sound greater clarity. If the high-frequency region is weak, it will be strengthened. The DE-ESSER threshold setting is not used**

DE-ESSER: **Restrains the sibilants, softening the sound. If the high-frequency region is excessive, it will be moderated. The ENHANCER sensitivity and ENHANCER mix level are not used.**

SENS (Enhancer sensitivity)
Enhancer sensitivity
Value: **0–100**

FREQ (Frequency)
Frequency above which is handled as the high-frequency region
Value: **200 Hz–20.0 kHz**

MIX (Enhancer mix)
Enhancer mix level
Value: **0.0–12.0 dB**

THRE (De-esser threshold)
Threshold level for the de-esser
Value: **-36.0–0.0 dB**

EQ A/B

EQ SW (EQ switch)
Turns the EQ on/off
Value: **OFF, ON**

EQ ATT (EQ attenuator)
Attenuator for the EQ
Value: **-42.0–+6.0 dB**

TYPE (LO, LO-MID, HI-MID, HI)
Filter type. (*1)
Value: **PEAK, LSV, HSV, LPF1, HPF1, LPF2, HPF2, BPF, NOTCH, THRU**

GAIN (LO, LO-MID, HI-MID, HI)
Gain. (*1)
Value: **-15.0–+15.0 dB**

FREQ (LO, LO-MID, HI-MID, HI)
Frequency. (*1)
Value: **20 Hz–20.00 kHz**

Q (LO, LO-MID, HI-MID, HI)
Steepness of the frequency response curve. (*1)
Value: **0.36–16.00**

(*1) Depending on the Type setting of each band, there are certain combinations for which the Freq, Gain, and Q values will have no effect, as listed below.

PEAK (Peaking)
Creates a hill or valley in the region of FREQ.
Freq: Valid Gain: Valid Q: Valid

LSV (Low Shelving)
Boosts/cuts the region below FREQ
Freq: Valid Gain: Valid Q: —

HSV (High Shelving)
Boosts/cuts the region above FREQ
Freq: Valid Gain: Valid Q: —

LPF1 (Low-Pass Filter 1)
Passes the frequency region below FREQ
Freq: Valid Gain: — Q: —

HPF1 (High-Pass Filter 1)
Passes the frequency region above FREQ
Freq: Valid Gain: — Q: —

LPF2 (Low-Pass Filter 2)
A sharper response curve than LPF1
Freq: Valid Gain: — Q: Valid

HPF2 (High-Pass Filter 2)
A sharper response curve than HPF1
Freq: Valid Gain: — Q: Valid

BPF (Band Pass Filter)
Passes the frequency region around FREQ.
Freq: Valid Gain: — Q: Valid

Notch (Notch Filter)
Removes the frequency region around FREQ
Freq: Valid Gain: — Q: Valid

THRU (Thru)
Passes all frequency regions
Freq: — Gain: — Q: —

Delay A/B

DELAY UNIT
Specifies the units for delay
Value: **msec, Note, Meter, Feet, Frame (24, 25, 29.97, 30)**

DELAY SW (Delay switch)
Turns the delay on/off
Value: **OFF, ON**

TIME
Time between the original sound and when the delay is heard
Value: **0.0–1350 ms**

FB (Feedback)
Amount of delayed sound returned to the input of the delay. The feedback level specifies the amount of sound that is returned. Increasing this setting will increase the number of delay repetitions.
Value: **0–100**

LO FREQ DAMP GAIN
Low-frequency attenuation of the delay sound
Value: **-36.0–0.0 dB**

LO FREQ DAMP FREQ
Frequency at which the low-frequency region of the delay sound begins to be attenuated
Value: **20 Hz–2.00 kHz**

HI FREQ DAMP GAIN

High-frequency attenuation of the delay sound

Value: **-36.0–0.0 dB**

HI FREQ DAMP FREQ

Frequency at which the high-frequency region of the delay sound begins to be attenuated

Value: **200 Hz–20.00 kHz**

WET POSITION

The wet position specifies how the delay's wet signal is related to the position of the DPF (Damp Filter).

Value

PRE DAMP: **Takes the wet sound from before the damp filter.**
The signal before passing through the damp filter is used as the wet signal. In this case, the damp filter is applied only to the delay feedback.

POST DAMP: **Takes the wet sound from after the damp filter.**
the signal after passing through the damp filter is used as the wet signal. In this case, the damp filter is applied to all of the delay sound.

WET (Wet Level)

Level of the delay sound

Value: **-Inf–+6.0 dB**

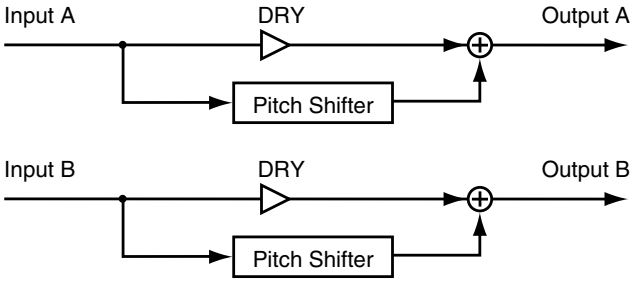
DRY (Dry Level)

Level of the original sound

Value: **-Inf–+6.0 dB**

Pitch shift

P.SHIFTER x2 (Pitch Shifter x2)



This is a dual-mono pitch shifter.

Pitch Shifter A/B

MODE

Value

MONO VOICE: **Suitable for a monophonic voice.**

MONO INST: **Suitable for a monophonic instrument.**

POLY FAST, POLY MID, POLY SLOW:
Suitable for polyphonic instruments

MEMO

The difference between POLY FAST, POLY MID, and POLY SLOW is in the length of time (delay) it takes before the pitch-shifted sound is produced.
POLY FAST offers a shorter time until the pitch-shifted sound is heard, but the pitch-shifted sound will be less stable.
POLY SLOW takes a longer time until the pitch-shifted sound is heard, but the pitch-shifted sound will be more stable.
POLY MID has a response time for the pitch-shifted sound that is between POLY FAST and POLY SLOW.

COURSE

Amount of pitch shift (in semitone steps)

Value: **-12–12**

FINE

Amount of pitch shift (in one-cent steps)

Value: **-100–100**

TIP

Use the Coarse setting to specify the approximate pitch, and make fine adjustments using Fine.

WET (Wet Level)

Level of the pitch-shifted sound

Value: **-Inf–+6.0 dB**

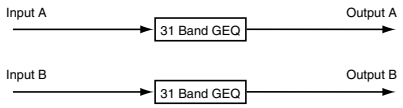
DRY (Dry Level)

Level of the original sound

Value: **-Inf–+6.0 dB**

GEQ

GEQx2



This is a dual-mono 31-band GEQ.

GEQ A/B

ATT (Attenuator)

Attenuator for the GEQ

Value: **-42.0–+15.0 dB**

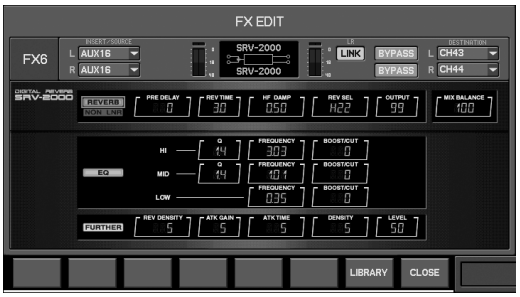
20 Hz Gain–20 kHz Gain

Gain of each band

Value: **-15.0–+15.0 dB**

Roland vintage effects

SRV-2000 (DIGITAL REVERB SRV-2000)



This is a mono-in, stereo-out reverb that models the Roland SRV-2000 MIDI digital reverb. It provides two modes: REVERB mode in which it operates as a conventional reverb, and NON LNR (non-linear) mode in which the reverb sound is cut off according to the gate time setting.

MIX BALANCE

Balance between the direct sound and reverb sound

Value: **0–100**

REVERB

MODE

Switches between REVERB mode and NON LNR mode

Value: **REVERB, NON LNR**

PRE DELAY

Time until the reverb sound is output

Value: **0–160 ms (REVERB mode)**

0–120 ms (NON LNR mode)

REV TIME (Reverb Time)

Length of the reverb sound

Value: **0.1–99 s (REVERB mode)**

-.9–99 s (NON LNR mode)

MEMO

The lower and upper limits of the value will differ depending on the REV SEL setting (in REVERB mode).

REV SEL	REV TIME	
	Lower limit	Upper limit
P-A, P-B, H37, R37	0.5	99
H32, R32	0.4	90
H26, R26	0.3	70
H22, R22	0.2	50
H15, R15	0.1	30
R7.0	0.1	6.0
R1.0	0.1	1.0
R0.3	0.1	0.5

MEMO

For negative (-) values, the reverberation will gradually become louder (negative values are shown as -.9, for example).

HF DAMP (Hi Frequency Damp)

Proportion by which the high-frequency range is attenuated (only in REVERB mode)

Value: **0.05–1.00**

GATE TIME

Time from when the reverb sound begins until the sound is cut off (only in NON LNR mode)

Value: **10–450 ms**

REV SEL (Reverb Select)

Type of reverb (only in REVERB mode)

Value

P-A, P-B: **Two types of PLATE reverb, A or B**

H37, H32, H26, H22, H15:
HALL reverb
Number indicates the room size (in meters)

R37, R32, R26, R22, R15, R7.0, R1.0, R0.3:
ROOM reverb
Number indicates the room size (in meters)

OUTPUT

Output level of reverb sound

Value: **0–99**

EQ

HI Q

Steepness of the HI EQ frequency response curve

Value: **0.2–9.0**

HI FREQUENCY

Center frequency for the HI EQ

Value: **0.80–9.99 kHz**

HI BOOST/CUT

Amount of boost/cut for the HI EQ

Value: **-24– +12 dB**

MID Q

Steepness of the MID EQ frequency response curve

Value: **0.2–9.0**

MID FREQUENCY

Center frequency for the MID EQ

Value: **0.25–9.99 kHz**

MID BOOST/CUT

Amount of boost/cut for the MID EQ

Value: **-24– +12 dB**

LOW FREQUENCY
Cutoff frequency for the LO EQ

Value: **0.04–1.00 kHz**

LOW BOOST/CUT
Amount of boost/cut for the LO EQ

Value: **-24– +12 dB**

FURTHER

REV DENSITY (Reverb Density)
Density of the reverb sound (only in REVERB mode)

Value: **0–9**

ATK GAIN (Attack Gain)
Attack gain for the early reflections

Value: **0–9**

ATK TIME (Attack Time)
Attack time for the early reflections

Value: **0–9**

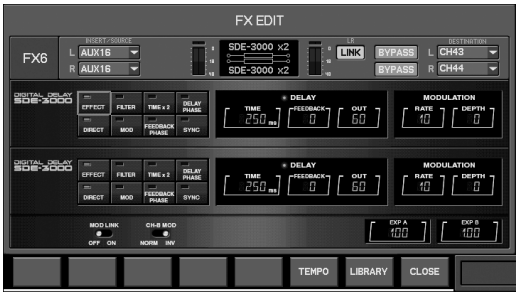
DENSITY
Density of the early reflections

Value: **0–9**

LEVEL
Level of the early reflections

Value: **0–99**

SDE-3000 x2 (DIGITAL DELAY SDE-3000)



This is a delay that models the Roland SDE-3000 digital delay. The original unit was mono-in, mono-out, but this modeling provides a dual-mono configuration with two such units in parallel. The MOD LINK Sw allows you to use this as a stereo-in, stereo-out unit.
The SDE-3000 was released in 1983, and was used in numerous recording studios and PA systems around the world.

EFFECT Sw (Effect Switch)
Specifies whether to output the effect sound

Value: **OFF, ON**

DIRECT Sw (Direct Switch)
Specifies whether to output the direct sound

Value: **OFF, ON**

SYNC Sw (Sync Switch)
Specifies whether to synchronize with tempo (when this is on, the time is specified as a note value)

Value: **OFF, ON**

MOD LINK Sw (Modulation Link Switch)
Specifies whether the modulation of the two SDE-3000 units will be linked

Value: **OFF, ON**

CH-B MOD (CH-B Modulation)
Specifies whether to invert the phase of the modulation for channel B (the lower SDE-3000)

Value: **NORM, INV**

EXP A (Expand A)
Expands the TIME of channel A by up to 1.60 times

Value: **1.00–1.60**

EXP B (Expand B)
Expands the TIME of channel B by up to 1.60 times

Value: **1.00–1.60**

MEMO

Just as in the original unit, the EXP A/B setting will change the sampling frequency of processing. For inputs other than an electric guitar or electric bass, an alias noise may be generated. If this occurs, lower the value to a point where alias noise does not occur.

DELAY

FILTER Sw (FILTER Switch)
Changes the frequency response of the delay sound

Value: **OFF, ON**

TIME x2 Sw (Time x 2 Switch)
Value

OFF: **TIME range 0–1500 ms (when EXP A/B 1.00) Frequency response 10 Hz–17 kHz (+0.5 dB/-3 dB)**

ON: **TIME range 0–3000 ms (when EXP A/B 1.00) Frequency response 10 Hz–8 kHz (+0.5 dB/-3 dB)**

DELAY PHASE Sw (Delay Phase Switch)
Reverse/normal phase for the delay sound (useful in conjunction with modulation)

Value: **OFF, ON**

FEEDBACK PHASE Sw (Feedback Phase Switch)
Reverse/normal phase for the delay sound feedback

Value: **OFF, ON**

TIME

Time from original sound to when delay sound is heard (the value in parentheses is when the TIME x2 Sw is on)

Value: **0–1500 ms (When SYNC Sw is OFF)**
OFF, 1/64T–1/1 (When SYNC Sw is ON)

MEMO

The upper limit of the value will differ depending on the EXP A/B value. The following table shows the TIME range when EXP A/B is 1.00 and when it is 1.60.

EXP A/B	TIME range	
	When the TIME x2 Sw is off	When the TIME x2 Sw is on
1.00	0–1500 ms	0–3000 ms
1.60	0–2400 ms	0–4800 ms

FEEDBACK

Amount of delay sound returned to the delay's input

Value: **0–99**

OUT

Output level of the delay sound

Value: **0–99**

MODULATION

MOD Sw (Modulation Switch)

Modulation on/off

Value: **OFF, ON**

RATE

Modulation oscillator frequency

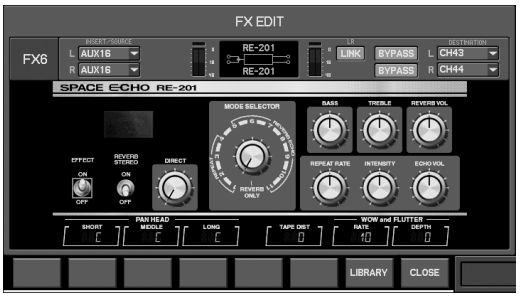
Value: **0–99**

DEPTH

Modulation depth

Value: **0–99**

RE-201 (SPACE ECHO RE-201)



This is a delay that models the Roland RE-201 Space Echo. The original was mono-in, mono-out, but this modeling adds PAN HEAD SHORT/MIDDLE/LONG settings and a REVERB STEREO Sw, allowing you to use it as a mono-in, stereo-out effect.
The RE-201 was a very popular product that was produced from1974 to 1987.

EFFECT Sw (Effect Switch)

Specifies whether the effect sound will be output

Value: **OFF, ON**

DIRECT

Level of the original sound

Value: **0–100**

ECHO

MODE SELECTOR

Combination of the three playback heads and reverb

Value: **1–11, REVERB ONLY**

MEMO

The mode selector position corresponds to the playback head and reverb as follows.

Mode selector position		REPEAT				REVERB ECHO							REV ONLY
		1	2	3	4	5	6	7	8	9	10	11	
Playback head	S	●				●			●		●	●	
	M		●		●		●		●	●		●	
	L			●	●			●		●	●	●	
Reverb						●	●	●	●	●	●	●	●

* Settings indicated by ● are valid.

REPEAT RATE

Tape speed

Value: **0–100**

INTENSITY

Number of times the delay sound will repeat

Value: **0–100**

ECHO VOL (Echo Volume)

Volume of the tape echo sound

Value: **0–100**

BASS

Low-frequency tone of the tape echo sound

Value: **0–100**

TREBLE

High-frequency tone of the tape echo sound

Value: **0–100**

TAPE

PAN HEAD SHORT

Panning of the short playback head

Value: **L63–C–R63**

PAN HEAD MIDDLE

Panning of the middle playback head

Value: **L63–C–R63**

PAN HEAD LONG
Panning of the long playback head

Value: **L63–C–R63**

TAPE DIST (Tape Distortion)
Adds distortion typical of a tape

Value: **0–100**

WOW and FLUTTER RATE
Speed of pitch modulation caused by tape aging and uneven rotation

Value: **0–100**

WOW and FLUTTER DEPTH
Depth of pitch modulation caused by tape aging and uneven rotation

Value: **0–100**

REVERB

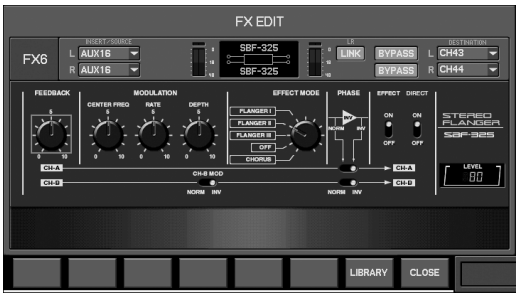
REVERB STEREO Sw (Reverb Stereo Switch)
Specifies whether the reverb sound will be output in stereo

Value: **OFF, ON**

REVERB VOL (Reverb Volume)
Level of the reverb sound

Value: **0–100**

SBF-325 (STEREO FLANGER SBF-325)



This is a stereo-in, stereo-out flanger that models the Roland SBF-325 Stereo Flanger.

FEEDBACK
Amount of flanger sound returned to the input (valid only if EFFECT MODE is set to FLANGER)

Value: **0.0–10.0**

EFFECT MODE

Value	
FLANGER I:	**Monaural mode flanger**
FLANGER II:	**Stereo mode flanger**
FLANGER III:	**Cross-mix mode flanger**
OFF:	**Modulation off**
CHORUS:	**Chorus**

CH-B MOD (CH-B Modulation)
Specifies whether the channel B flanger effect will be inverted

Value: **NORM, INV**

CH-A
Specifies whether the channel A flanger sound will be phase-reversed

Value: **NORM, INV**

CH-B
Specifies whether the channel B flanger sound will be phase-reversed

Value: **NORM, INV**

EFFECT Sw (Effect Switch)
Specifies whether the effect sound will be output

Value: **OFF, ON**

DIRECT Sw (Direct Switch)
Specifies whether the original sound will be output

Value: **OFF, ON**

LEVEL
Output level

Value: **0–100**

SPH-323 (PHASE SHIFTER SPH-323)

This is a phase shifter that models the Roland SPH-323 Phase Shifter. The original was mono-in, mono-out, but this modeling is a dual-mono design with two units in parallel. The MOD LINK Sw allows you to use this as a stereo-in, stereo-out effect.

CENTER FREQ (Center Frequency)
Center frequency at which the phaser effect is applied

Value: **0–100**

RESONANCE
Boosts the region around the center frequency specified by CENTER FREQ

Value: **0.0–10.0**

SHIFT MODE
Specifies the number of stages for the phaser

Value: **8STAGE, 4STAGE**

EFFECT Sw (Effect Switch)

Specifies whether the effect sound will be output

Value: **OFF, ON**

DIRECT Sw (Direct Switch)

Specifies whether the original sound will be output

Value: **OFF, ON**

LEVEL

Output level

Value: **0–100**

MOD LINK Sw (Modulation Link Switch)

Specifies whether the modulation of the two SPH-323 units will be linked

Value: **OFF, ON**

CH-B MOD (CH-B Modulation)

Specifies whether the phase of the modulation for channel B (the lower SPH-323) will be inverted

Value: **NORM, INV**

MODULATION

LFO1 DEPTH

LFO1 modulation depth

Value: **0.0–10.0**

LFO1 RATE

LFO1 modulation rate

Value: **0–100**

LFO2 DEPTH

LFO2 modulation depth

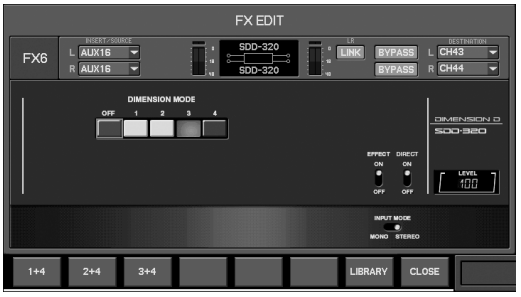
Value: **0.0–10.0**

LFO2 RATE

LFO2 modulation rate

Value: **0–100**

SDD-320 (DIMENSION D SDD-320)



This is a stereo-in, stereo-out chorus that models the Roland SDD-320 Dimension D.

The SDD-320 was released in 1979, and became standard equipment in many recording studios.

DIMENSION MODE

Specifies how the chorus changes

Value: **OFF, 1, 2, 3, 4, 1+4, 2+4, 3+4**

MEMO

1+4, 2+4, and 3+4 can be selected by pressing [F1 (1+4)], [F2 (2+4)], or [F3 (3+4)], respectively.

INPUT MODE

Input signal stereo/mono setting

Value: **MONO, STEREO**

EFFECT Sw (Effect Switch)

Specifies whether the effect sound will be output

Value: **OFF, ON**

DIRECT Sw (Direct Switch)

Specifies whether the original sound will be output

Value: **OFF, ON**

LEVEL

Output level

Value: **0–100**

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For EU Countries

UK This symbol indicates that in EU countries, this product must be collected separately from household waste, as defined in each region. Products bearing this symbol must not be discarded together with household waste.

DE Dieses Symbol bedeutet, dass dieses Produkt in EU-Ländern getrennt vom Hausmüll gesammelt werden muss gemäß den regionalen Bestimmungen. Mit diesem Symbol gekennzeichnete Produkte dürfen nicht zusammen mit den Hausmüll entsorgt werden.

FR Ce symbole indique que dans les pays de l'Union européenne, ce produit doit être collecté séparément des ordures ménagères selon les directives en vigueur dans chacun de ces pays. Les produits portant ce symbole ne doivent pas être mis au rebut avec les ordures ménagères.

IT Questo simbolo indica che nei paesi della Comunità europea questo prodotto deve essere smaltito separatamente dai normali rifiuti domestici, secondo la legislazione in vigore in ciascun paese. I prodotti che riportano questo simbolo non devono essere smaltiti insieme ai rifiuti domestici. Ai sensi dell'art. 13 del D.Lgs. 25 luglio 2005 n. 151.

ES Este símbolo indica que en los países de la Unión Europea este producto debe recogerse aparte de los residuos domésticos, tal como esté regulado en cada zona. Los productos con este símbolo no se deben depositar con los residuos domésticos.

PT Este símbolo indica que nos países da UE, a recolha deste produto deverá ser feita separadamente do lixo doméstico, de acordo com os regulamentos de cada região. Os produtos que apresentem este símbolo não deverão ser eliminados juntamente com o lixo doméstico.

NL Dit symbool geeft aan dat in landen van de EU dit product gescheiden van huishoudelijk afval moet worden aangeboden, zoals bepaald per gemeente of regio. Producten die van dit symbool zijn voorzien, mogen niet samen met huishoudelijk afval worden verwijderd.

DK Dette symbol angiver, at i EU-lande skal dette produkt opsamles adskilt fra husholdningsaffald, som defineret i hver enkelt region. Produkter med dette symbol må ikke smides ud sammen med husholdningsaffald.

NO Dette symbolet indikerer at produktet må behandles som spesialavfall i EU-land, iht. til retningslinjer for den enkelte regionen, og ikke kastes sammen med vanlig husholdningsavfall. Produkter som er merket med dette symbolet, må ikke kastes sammen med vanlig husholdningsavfall.

SE Symbolen anger att i EU-länder måste den här produkten kasseras separat från hushållsavfall, i enlighet med varje regions bestämmelser. Produkter med den här symbolen får inte kasseras tillsammans med hushållsavfall.

FI Tämä merkintä ilmaisee, että tuote on EU-maissa kerättävä erillään kotitalousjätteistä kunkin alueen voimassa olevien määräysten mukaisesti. Tällä merkinnällä varustettuja tuotteita ei saa hävittää kotitalousjätteiden mukana.

HU Ez a szimbólum azt jelenti, hogy az Európai Unióban ezt a terméket a háztartási hulladéktól elkülönítve, az adott régióban érvényes szabályozás szerint kell gyűjteni. Az ezzel a szimbólummal ellátott termékeket nem szabad a háztartási hulladék közé dobni.

PL Symbol oznacza, że zgodnie z regulacjami w odpowiednim regionie, w krajach UE produktu nie należy wyrzucać z odpadami domowymi. Produktów opatrzonych tym symbolem nie można utylizować razem z odpadami domowymi.

CZ Tento symbol udává, že v zemích EU musí být tento výrobek sbírán odděleně od domácího odpadu, jak je určeno pro každý region. Výrobky nesoucí tento symbol se nesmí vyhazovat spolu s domácím odpadem.

SK Tento symbol vyjadruje, že v krajinách EÚ sa musí zber tohto produktu vykonávať oddelene od domového odpadu, podľa nariadení platných v konkrétnej krajine. Produkty s týmto symbolom sa nesmú vyhadzovať spolu s domovým odpadom.

EE See sümbol näitab, et EL-i maades tuleb see toode olemprügist eraldi koguda, nii nagu on igas piirkonnas määratletud. Selle sümboliga märgitud tooteid ei tohi ära visata koos olmeprügiga.

LT Šis simbolis rodo, kad ES šalyse šis produktas turi būti surenkamas atskirai nuo buitinių atliekų, kaip nustatyta kiekviename regione. Šiuo simboliu paženklinti produktai neturi būti išmetami kartu su buitinėmis atliekomis.

LV Šis simbols norāda, ka ES valstīs šo produktu jāievāc atsevišķi no mājsaimniecības atkritumiem, kā noteikts katrā reģionā. Produktus ar šo simbolu nedrīkst izmest kopā ar mājsaimniecības atkritumiem.

SI Ta simbol označuje, da je treba proizvod v državah EU zbirati ločeno od gospodinjskih odpadkov, tako kot je določeno v vsaki regiji. Proizvoda s tem znakom ni dovoljeno odlagati skupaj z gospodinjskimi odpadki.

GR Το σύμβολο αυτό υποδηλώνει ότι στις χώρες της Ε.Ε. το συγκεκριμένο προϊόν πρέπει να συλλέγεται χωριστά από τα υπόλοιπα οικιακά απορρίμματα, σύμφωνα με όσα προβλέπονται σε κάθε περιοχή. Τα προϊόντα που φέρουν το συγκεκριμένο σύμβολο δεν πρέπει να απορρίπτονται μαζί με τα οικιακά απορρίμματα.

For China

有关产品中所含有害物质的说明

本资料就本公司产品中所含的特定有害物质及其安全性予以说明。

本资料适用于 2007 年 3 月 1 日以后本公司所制造的产品。

环保使用期限

此标志适用于在中国国内销售的电子信息产品，表示环保使用期限的年数。所谓环保使用期限是指在自制造日起的规定期限内，产品中所含的有害物质不致引起环境污染，不会对人身、财产造成严重的不良影响。

环保使用期限仅在遵照产品使用说明书，正确使用产品的条件下才有效。

不当的使用，将会导致有害物质泄漏的危险。

产品中有毒有害物质或元素的名称及含量

部件名称	有毒有害物质或元素					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
外壳（壳体）	×	○	○	○	○	○
电子部件（印刷电路板等）	×	○	×	○	○	○
附件（电源线、交流适配器等）	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

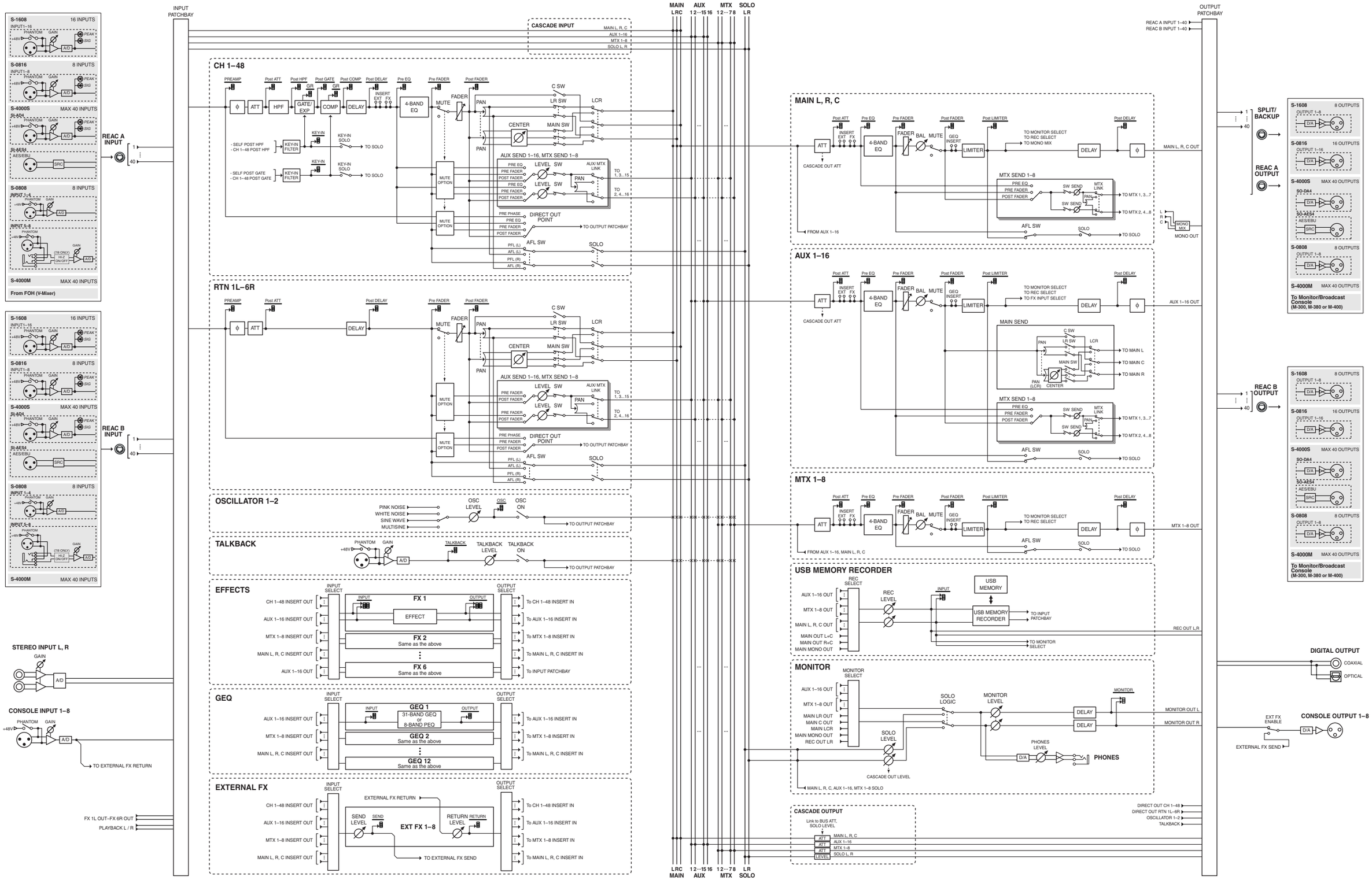
因根据现有的技术水平，还没有什么物质能够代替它。

For EU Countries

CE

This product is intended for use in the following Electromagnetic environments:
E1: residential, E2: commercial and light industrial, E3: urban outdoors, E4: controlled EMC environment, ex. recording studio (broadcasting studio) which are specified in EN55103-1 and EN55103-2.

Block Diagram



Apparatus containing Lithium batteries

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Discard used batteries according to the manufacturer's instructions.

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL
Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruks joner.

VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

For EU Countries

CE

This product complies with the requirements of EMCD 2004/108/EC and LVD 2006/95/EC.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

To assure continued FCC emission limit compliance, use only shielded interface cables when connecting to other device.
Any unauthorized changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For Canada

NOTICE

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For C.A. US (Proposition 65)

WARNING

This product contains chemicals known to cause cancer, birth defects and other reproductive harm, including lead.

LIVE MIXING CONSOLE M-480 (V)