

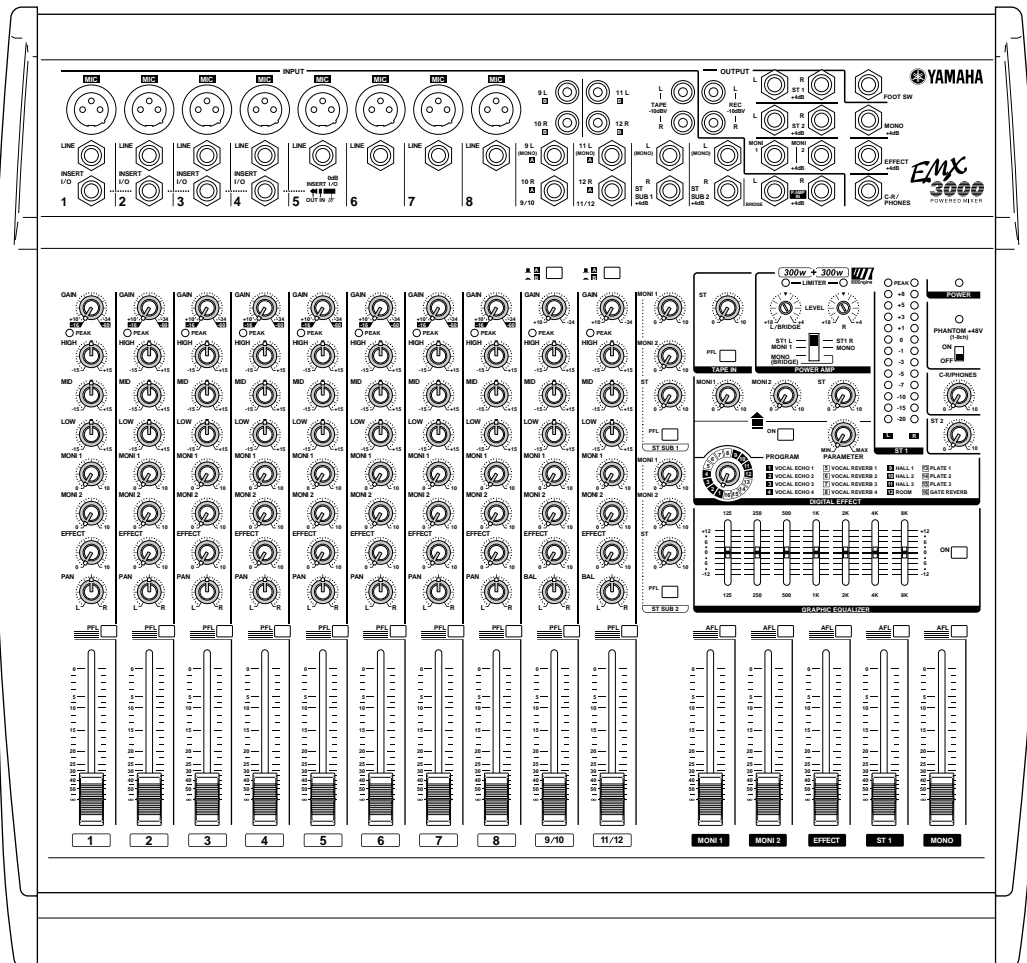


YAMAHA

EMX 3000

POWERED MIXER

Owner's Manual



Keep This Manual For Future Reference.



FCC INFORMATION (U.S.A.)

1. **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!** This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.
2. **IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.
3. **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures: Relocate either this product or the device that is being affected by the interference. Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s. In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable. If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA 90620

The above statements apply **ONLY** to those products distributed by Yamaha Corporation of America or its subsidiaries.


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 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.

* This applies only to products distributed by YAMAHA KEMBLE MUSIC (U.K.) LTD.

Introduction

Thank you for purchasing the Yamaha EMX3000 Powered Mixer. In order to take full advantage of the EMX3000 and enjoy long, trouble-free performance, please read this owner's manual carefully, and keep it in a safe place for future reference.

Precautions

■ Warnings

- Do not place a container with liquid or small metal objects on top of this unit. Liquid or metal objects inside this unit are a fire and electrical shock hazard.
- Do not allow water to enter this unit or allow the unit to become wet. Fire or electrical shock may result.
- Connect this unit's power cord only to an AC outlet of the type stated in this Owner's Manual or as marked on the unit. Failure to do so is a fire and electrical shock hazard.
- Do not scratch, bend, twist, pull, or heat the power cord. A damaged power cord is a fire and electrical shock hazard.
- Do not place heavy objects, including this unit, on top of the power cord. A damaged power cord is a fire and electrical shock hazard. In particular, be careful not to place heavy objects on a power cord covered by a carpet.
- If you notice any abnormality, such as smoke, odor, or noise, or if a foreign object or liquid gets inside the unit, turn it off immediately. Remove the power cord from the AC outlet. Consult your dealer for repair. Using the unit in this condition is a fire and electrical shock hazard.
- Should this unit be dropped or the cabinet be damaged, turn the power switch off, remove the power plug from the AC outlet, and contact your dealer. If you continue using the unit without heeding this instruction, fire or electrical shock may result.
- If the power cord is damaged (i.e., cut or a bare wire is exposed), ask your dealer for a replacement. Using the unit with a damaged power cord is a fire and electrical shock hazard.
- Do not remove the unit's cover. You could receive an electrical shock. If you think internal inspection, maintenance, or repair is necessary, contact your dealer.
- Do not modify the unit. Doing so is a fire and electrical shock hazard.
- If lightning begins to occur, turn off the power switch of the unit as soon as possible, and unplug the power cable plug from the electrical outlet.
- If there is a possibility of lightning, do not touch the power cable plug if it is still connected. Doing so may be an electrical shock hazard.

■ Cautions

- Keep this unit away from the following locations:
 - Locations exposed to oil splashes or steam, such as near cooking stoves, humidifiers, etc.
 - Unstable surfaces, such as a wobbly table or slope.
 - Locations exposed to excessive heat, such as inside a car with all the windows closed, or places that receive direct sunlight.
 - Locations subject to excessive humidity or dust accumulation.
- This unit has ventilation holes at the rear, and the right to prevent the internal temperature rising too high. Do not block them. Blocked ventilation holes are a fire hazard.
- To relocate the unit, turn the power switch off, remove the power plug from the AC outlet, and remove all connecting cables. Damaged cables may cause fire or electrical shock.
- Turn off all musical instruments, audio equipment, and speakers when connecting to this unit. Use the correct connecting cables and connect as specified.
- Always lower the volume control to minimum before turning on the power to this unit. A sudden blast of sound may damage your hearing.
- Clean the contacts of the phone plug before connecting it to the SPEAKERS jack of this unit. Dirty contacts may generate heat.
- Use only speaker cables when connecting speakers to amplifier outputs. Using other types of cables is a fire hazard.
- Hold the power cord plug when disconnecting it from an AC outlet. Never pull the cord. A damaged power cord is a potential fire and electrical shock hazard.
- Do not touch the power plug with wet hands. Doing so is a potential electrical shock hazard.
- The inside of the unit should be cleaned periodically. Dust accumulation inside the unit may cause malfunction and is a potential fire hazard. Consult your dealer for information about cleaning.
- To prevent electrical shock when cleaning the unit, remove the power plug from the AC outlet.
- If you know you will not use this unit for a long period of time, such as when going on vacation,

remove the power plug from the AC outlet. Leaving it connected is a potential fire hazard.

- Do not touch the heatsink when this apparatus is in use. It can get very hot.

■ Operating Notes

- The digital circuits of this unit may induce a slight noise into nearby radios and TVs. If noise occurs, relocate the affected equipment.
- Using a mobile telephone near this unit may induce noise. If noise occurs, use the telephone away from the unit.
- XLR-type connectors are wired as follows: pin 1: ground, pin 2: hot (+), and pin 3: cold (–).
- Insert TRS phone jacks are wired as follows: sleeve: ground, tip: send, and ring: return.
- Do not set all equalizer controls and faders to maximum. Doing so may cause oscillation depending on the condition of the connected unit and speakers, and may damage the speakers.
- The performance of components with moving contacts, such switches, rotary controls, faders, and connectors, deteriorates over time. The rate of deterioration depends on the operating environment and is unavoidable. Consult your dealer about replacing defective components.

Features

- ◆ The EMX3000 provides versatile inputs, such as two stereo input channels and two stereo sub inputs, as well as eight monaural input channels compatible with mic/line signals. The mixer also has ample power, with a maximum output of 300 W+300 W (600 W with bridge connection), and is suitable for a wide range of applications from installed systems to small-scale PA systems.
- ◆ A two-channel power amp is built-in. The signals output to speakers can be selected as stereo (ST1 L-R), monitor+monaural (MONI 1- MONO), or monaural (bridge connection).
 - ◇ **Stereo**
The main stereo mix signal is output from speaker output jacks L and R of the EMX3000. You can connect one or two speakers to each speaker output jack.
 - ◇ **Monitor+monaural**
The main monaural mix signal is output from speaker output jack R, and the monitor signal from speaker output jack L. You can connect one or two speakers to each speaker output jack.
 - ◇ **Monaural (bridge connection)**
The two-channel power amp is bridge-connected, and the main monaural mix signal is output from BRIDGE jack. You can connect only one speaker for a

much louder sound.

- ◆ In addition to the speaker output jacks, two stereo output channels for line-level signals, two monitor output channels, one effect output, and one monaural output are provided. You can easily expand the system by adding a power amplifier or powered speakers.
- ◆ The EMX3000 also has a C-R/PHONES jack, which is very useful for checking the sound. You can monitor only a specific channel or bus signal through the headphones.
- ◆ Two limiter circuits are built-in to prevent excessive input levels to the amp.
- ◆ A digital effect with sixteen selectable effect types is built-in. A variety of effects can be applied to add reverberation or ambience to vocals or instrumental sounds.
- ◆ The EMX3000 has implemented “EEEngine”, Yamaha’s epochal amp drive technology to create an unrivaled high-efficiency drive. The EEEngine’s energy-saver/low-heat-generation design has reduced power consumption to 50% or less, and reduced heat generation to 35% or less (in field applications, compared to Yamaha’s previous models), and has led to a reduction in energy cost and to less-restrictive installation requirements related to heat generation.

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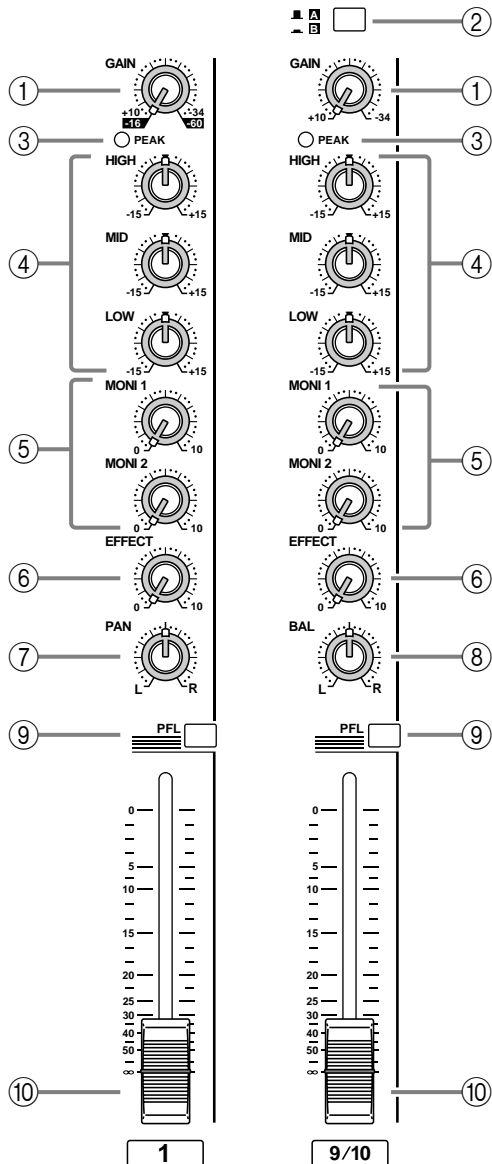
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Front and rear panel

Control panel

■ Channel control section

In this section, you can adjust equalization (frequency response), volume level, effect and monitor output levels for the input signal of each channel.



① GAIN control

Use this knob to adjust the sensitivity according to the input signal level, so that the input level is appropriate.

For the best balance of S/N ratio and dynamic range, adjust this knob so that the peak indicator

③ lights occasionally.

② A/B switch (Channels 9/10~11/12 only)

This switch selects channel 9/10~11/12 input jacks.

When the switch is up, the signal will be input from jacks A (phone jacks on the input/output panel ③).

When the switch is pressed in, the signal will be input from jacks B (phono jacks on the input/output panel ③).

③ PEAK indicator

The indicator will light 3 dB before clipping, warning that clipping level is near.

④ Equalizer controls (HIGH, MID, LOW)

This is a 3-band equalizer that adjusts the high frequency range, mid frequency range, and low frequency range of each channel. Response is flat when the knobs are in the “▼” position. Rotating it toward the right will boost the corresponding frequency band, and rotating it toward the left will cut it.

The base frequency (or center frequency), range of boost or cut, and equalizer type of each band are as follows:

HIGH: 10kHz, ± 15 dB, shelving type

MID: 2.5kHz, ± 15 dB, peaking type

LOW: 100Hz, ± 15 dB, shelving type

⑤ Monitor 1/2 controls (MONI 1/2)

For each channel, this controls the amount of signal that is sent to the MONITOR 1/2 buses.

The signal of the MONITOR 1 bus is sent to the MONI 1 jack (input/output panel ⑨). If the power amp select switch ③② is in the MONI 1-MONO position, the signal is also sent to the speakers connected to the SPEAKERS L/MONI1 1/2 jacks.

The signal of the MONITOR 2 bus is sent to the MONI 2 jack (input/output panel ⑨).

Note: The signal sent to the MONITOR 1/2 buses does not pass through the channel fader ⑩ (pre-fader send). This means that it will not be affected by the setting of the channel fader.

⑥ **Effect control (EFFECT)**

For each channel, this controls the amount of signal that is sent to the EFFECT bus.

The signal of the EFFECT bus is sent to the EFFECT jack (input/output panel ⑪). It is also sent to the built-in effect when the ON switch ⑳ in the digital effect section is turned on.

Note: The amount of signal that is sent to the EFFECT bus from each channel will be affected not only by the setting of the EFFECT control, but also by the setting of the channel fader ⑩ (post-fader send).

⑦ **PAN (panpot) control (Channels 1~8)**

The PAN knobs set the stereo position of the signal that is sent to the STEREO bus.

⑧ **BAL (balance) control (Channels 9/10~11/12)**

The BAL knobs set the balance between the left and right channels, and assign the signals received at inputs 9/10~11/12 to the STEREO bus.

⑨ **PFL (pre-fader listen) switch**

Channels for which this switch is on will send a signal from a post-EQ pre-fader location to the C-R/PHONES jack (input/output panel ⑫). Use this when you wish to use the headphones to monitor only a specific channel.

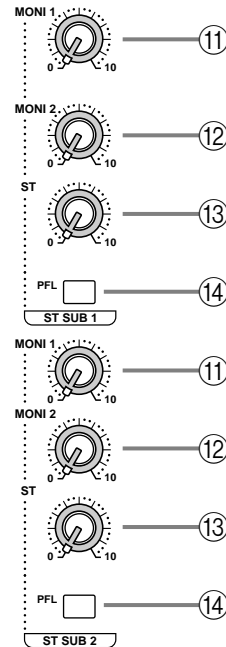
Note: You can monitor the signal through the headphones even if the fader of the corresponding channel is set to the lowest level. The switch operation does not affect the signal sent to the STEREO bus, MONITOR 1/2 buses, or the EFFECT bus.

⑩ **Channel fader**

This controls the output level of the input channel signal.

■ **Stereo sub input section**

In this section, you can adjust the input level of external equipment connected to the ST SUB 1/2 jacks on the input/output panel.



⑪ **MONI 1 (monitor 1) control**

The MONI 1 knob adjusts the amount of the signal sent from the ST SUB 1 and 2 jacks (input/output panel ④) to the MONITOR 1 bus.

⑫ **MONI 2 (monitor 2) control**

The MONI 2 knob adjusts the amount of the signal sent from the ST SUB 1 and 2 jacks to the MONITOR 2 bus.

⑬ **ST (stereo) control**

The ST knob adjusts the amount of stereo signal sent from the ST SUB 1 and 2 jacks to the STEREO bus.

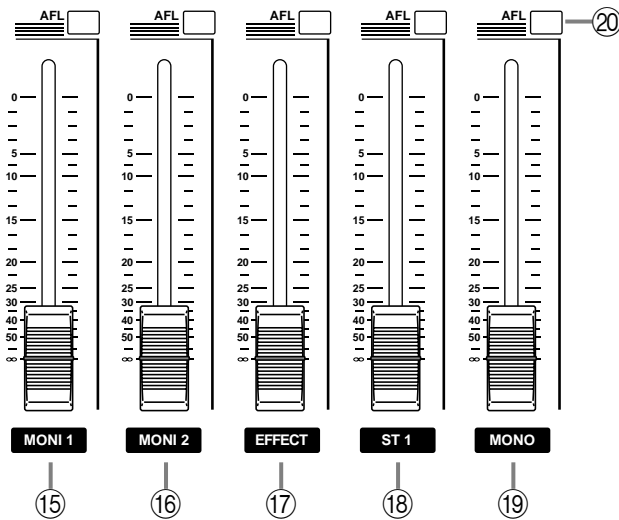
Note: The ST control setting does not affect the level of the signal sent to the MONITOR 1/2 buses (pre-fader send).

⑭ **PFL (pre-fader listen) switch**

When this switch is turned on, the signal at the point before the ST control knob ⑬ is sent to the C-R/PHONES jack (input/output panel ⑫).

■ Master control section

In this section, you can adjust the final level of the outputs.



⑮ MONI 1 (monitor 1) fader

The MONI 1 fader adjusts the final level of the signal sent from the MONITOR 1 bus to the MONI 1 jack (input/output panel ⑨). If the Power amp select switch ⑳ is set to MONI 1-MONO, using this fader enables you to adjust the level of the signal sent from the SPEAKER L/MONI 1/2 jacks to the speakers.

⑯ MONI 2 (monitor 2) fader

The MONI 2 fader adjusts the final level of the signal output from the MONITOR 2 bus to the MONI 2 jack (input/output panel ⑨).

⑰ EFFECT fader

The EFFECT fader adjusts the final level of the signal output from the EFFECT bus to the EFFECT jack (input/output panel ⑪).

Note: The setting of this fader does not affect the level of the signal sent from the EFFECT bus to the built-in effect.

⑱ ST 1 (stereo 1) fader

The ST 1 fader adjusts the final level of the signal sent from the STEREO bus to the ST 1 jacks (input/output panel ⑧). If the Power amp select switch ⑳ is set to ST1 L-ST1 R, this fader also adjusts the level of the signal sent to the SPEAKERS jacks (rear panel ①).

Note: The setting of this fader does not affect the signal output from the STEREO bus to the ST 2 jacks.

⑲ MONO (monaural) fader

The MONO fader adjusts the final level of the monaural signal output from the STEREO bus to the MONO jack (input/output panel ⑩).

If the Power amp select switch ⑳ is set to MONI 1-MONO, this fader also adjusts the level of the signal sent from the SPEAKERS R/MONO 1/2 jacks to the speakers.

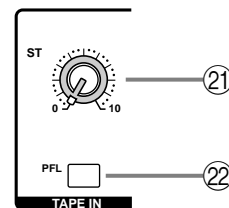
If the Power amp select switch ⑳ is set to MONO (BRIDGE), this fader adjusts the level of the signal sent from the SPEAKERS BRIDGE jack to the speaker.

⑳ AFL (after fader listen)

When this switch is on, the output signal that passes through the corresponding fader is sent to the C-R/PHONES jack (input/output panel ⑫). Use these switches when you wish to monitor a particular output signal through the headphones.

■ Tape in section

In this section, you can adjust the input level of a cassette deck or a CD player that is connected to the TAPE jacks (input/output panel ⑤).



⑳ ST (stereo) control

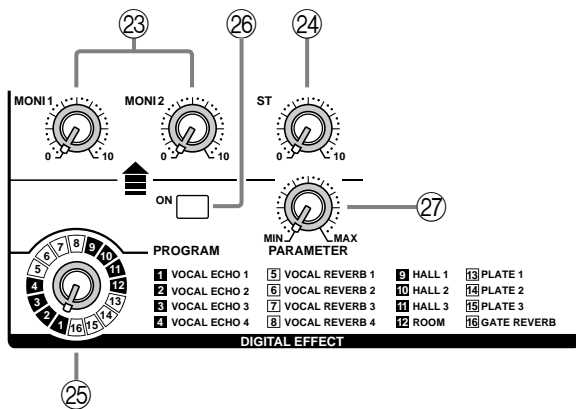
This knob adjusts the level of the signal sent from the TAPE jacks to the STEREO bus.

㉑ PFL (pre-fader listen) switch

When this switch is on, the signal input from the TAPE jacks is routed at the point before the ST control ⑳ to the C-R/PHONES jack (input/output panel ⑫).

■ Digital effect section

This section enables you to turn the built-in digital effect on/off and select the effect type.

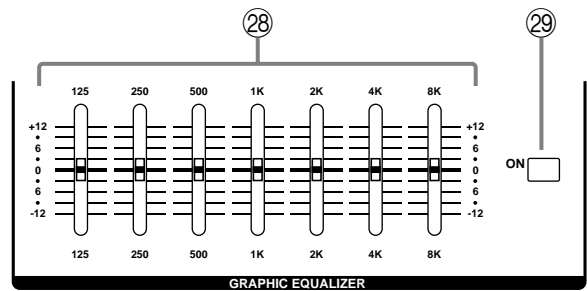


- ②③ **MONI 1/2 (monitor 1/2) control**
This knob adjusts the level of the return signal that is sent from the built-in digital effect to the MONITOR 1/2 buses.
- ②④ **ST (stereo) control**
This knob adjusts the level of the return signal that is sent from the built-in digital effect to the STEREO bus.
- ②⑤ **PROGRAM selector**
This knob selects the effect type for the internal digital effect.
- ②⑥ **ON switch**
This switch turns the internal digital effect on/off.
- ②⑦ **PARAMETER control**
This knob adjusts the time parameter of the internal digital effect.

Note: The master EFFECT fader setting does not affect the internal digital effect signal.

■ Graphic equalizer section

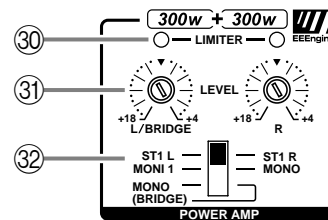
This section enables you to adjust the tone of the STEREO bus signal.



- ②⑧ **Graphic equalizer**
This is a 7-band graphic equalizer that allows you to adjust the frequency response of the STEREO bus signal, providing a maximum of ± 12 dB of cut/boost for each frequency band.
This graphic equalizer affects both the STEREO bus signal that is output to the speakers and the line level signal that is output from the ST 1/2 jacks (input/output panel ⑧), and MONO jack (input/output panel ⑩).
- ②⑨ **ON switch**
This switch turns the graphic equalizer on/off.

■ Power amp section

This section allows you to select the signals that will be sent to the built-in two-channel power amplifier.



- ③⑩ **LIMITER indicator**
This indicator lights up when the level of the signal output from the power amp section reaches the maximum and the limiter is activated. Adjust the LEVEL control ③① and appropriate fader so that the indicator lights up for only a short while when the signal reaches the maximum level.

Note: The indicator lights up or flashes for a longer duration if the power amp section is significantly overloaded, which could result in malfunction. Avoid such a situation.

③① LEVEL controls

These knobs enable you to adjust the level of the signals input from the mixer section to the power amp section. Rotating the knob clockwise will raise the level of the input signal. Use a screwdriver of a width of 3mm or less to adjust the knob.

If an external piece of equipment is connected to the P.AMP IN jacks (input/output panel ⑥), these knobs adjust the input sensitivity of the power amp (the input level that will provide the maximum output level in the power amp section). The sensitivity range is +18 dB~+4 dB, and rotating the knobs clockwise raises the input sensitivity.

Note: If the Power amp select switch ③② is set to MONO (BRIDGE), only the L/BRIDGE LEVEL control becomes effective.

③② Power amp select switch

Select one of the following three settings to specify the signals to be routed to the corresponding jacks according to the speaker connection at the SPEAKER jacks ① on the rear panel.

• ST1 L-ST1 R

The STEREO bus signals are output from the SPEAKERS L/MONI1 1/2 jacks and the SPEAKERS R/MONO 1/2 jacks. The final level of these signals is adjusted by the master ST 1 fader.

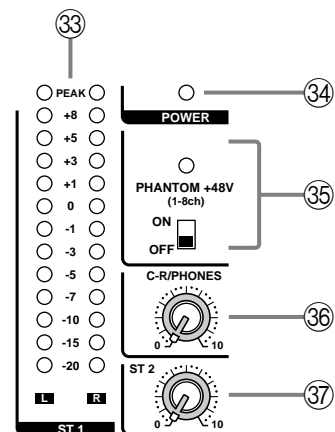
• MONI 1-MONO

The MONITOR 1 bus signals are output from the SPEAKERS L/MONI1 1/2 jacks, and a monaural signal that is a mix of the STEREO bus signals is output from the SPEAKERS R/MONO 1/2 jacks. The final level of these signals is adjusted by the master MONI 1 fader and the MONO fader.

• MONO (BRIDGE)

The monaural signal that is a mix of the STEREO bus is output from the BRIDGE jack. The final level of this signal is adjusted by the master MONO fader. Set the switch to this position when you connect only one speaker to play a loud sound.

■ Other indicators and controls



③③ Peak level indicator

This indicator allows you to monitor the level of the signal output from the ST 1 jacks. The “0” indicator lights up when the output level reaches +4 dB.

③④ POWER indicator

This indicator will light up when the power of the EMX3000 is turned on.

③⑤ PHANTOM (+48V) switch and indicator

This switch turns the phantom power supply on/off for the MIC input jacks for channels 1~8. When this switch is on, the indicator lights up.

③⑥ C-R/PHONES (control room/headphones) control

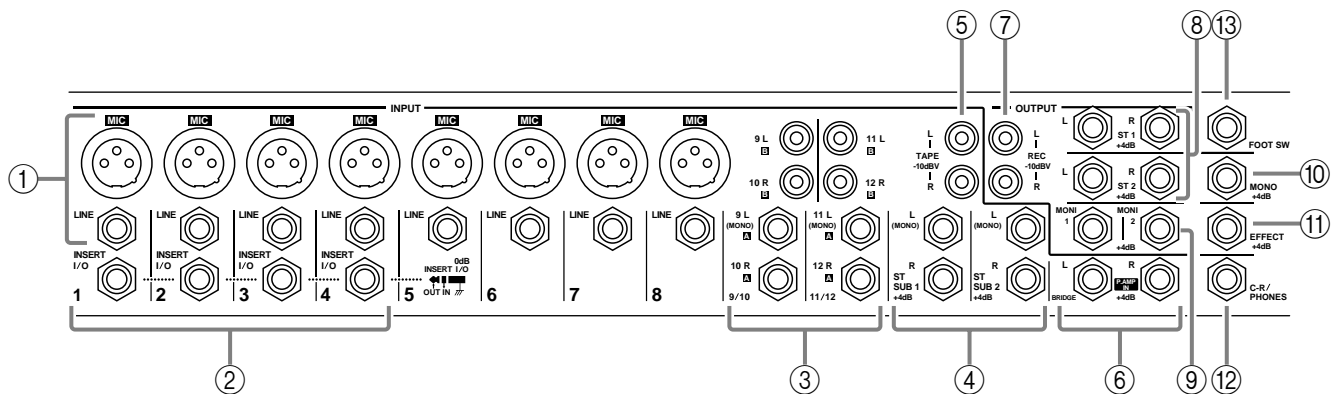
This knob adjusts the level of the signal monitored via the C-R/PHONES jack (input/output panel ⑫).

③⑦ ST 2 (stereo 2) control

This knob adjusts the final level of the signal sent from the STEREO bus to the ST 2 jacks (input/output panel ⑧).

Note: The setting of this control does not affect signals that are sent from the STEREO bus to the ST 1 jacks and the SPEAKERS jacks.

Input/output panel



① Channel input jacks (MIC, LINE) 1~8

These are the input jacks for channels 1~8.

By using the GAIN control (control panel ①) you can connect any of the jacks to a wide range of sources, from mics to line-level devices (including synthesizers and rhythm machines). The MIC jacks can provide +48V phantom power, allowing you to use condenser microphones.

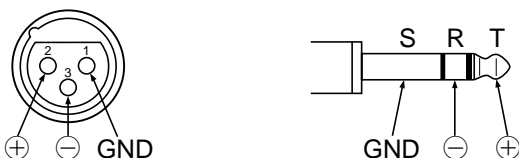
Both MIC and LINE are balanced.

They are compatible with microphones of output impedance 50~600Ω or line level devices of 600Ω. The nominal input level is -34 dB~+10 dB for the LINE jacks, and -60 dB~-16 dB for the MIC jacks.

Pin connections for the MIC and LINE jacks are as follows:

MIC jacks (XLR type)	LINE jacks (TRS phone jacks) *
Pin 1: ground	Sleeve: ground
Pin 2: hot (+)	Tip: hot (+)
Pin 3: cold (-)	RIng: cold (-)

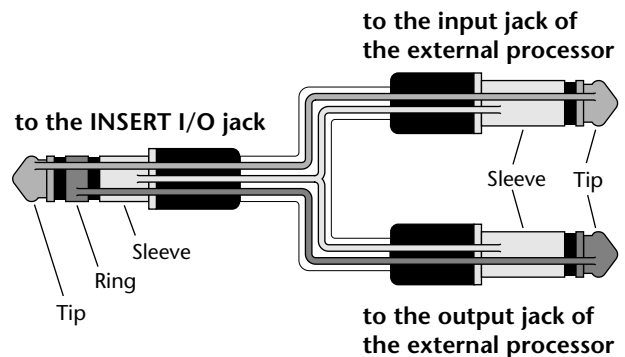
* You can also connect a normal unbalanced phone plug.



Note: It is not possible to simultaneously use both the MIC and LINE inputs of a given channel. For each channel, use only one of the inputs as appropriate for the input source. Phantom power is switched on/off simultaneously for channels 1~8. For this reason, devices (in particular, unbalanced devices) other than condenser microphones must be connected to the LINE input jacks of channels 1~8 or channel 9/10~11/12 input jacks if the PHANTOM +48V switch (control panel ⑳) is on.

② INSERT I/O (insert) jacks 1~4

These are TRS phone jacks that enable you to insert an external effect processor, such as a compressor/limiter, between the equalizer and fader of input channels 1~4. These connections require a special “Y” cable, such as shown in the following diagram. The nominal input/output levels are 0 dB.



③ **Channel input jacks 9~12A**
Channel input jacks 9~12B

These are the input jacks for channels 9/10~11/12 and are used to connect to the stereo output jacks of electronic instruments, cassette decks, or CD players.

Use the A/B switch (control panel ②) to select phone jacks (A) or phono jacks (B). The nominal input level $-34\text{ dB}\sim+10\text{ dB}$.

Note: Use only the L phone (A) jacks to connect a monaural device that has phone jacks.

④ **ST SUB 1 (stereo sub 1) jacks**
ST SUB 2 (stereo sub 2) jacks

These phone jacks are used to connect stereo outputs of a sub mixer. The signal input here can be routed to the MONITOR 1 bus, MONITOR 2 bus, and STEREO bus. The nominal input level is $+4\text{ dB}$.

Note: Use only the L jack to connect a monaural output device.

⑤ **TAPE jacks**

These are input jacks that allow the signal from an external device, such as a cassette deck and CD player, to be added to the STEREO bus. The nominal input level is -10 dBV .

⑥ **P.AMP IN (power amp input) jacks**

These phone jacks are used to input line-level signals to the two-channel built-in power amplifier. Connect an external mixer output here. The nominal input level is $+4\text{ dB}$.

Note: If you insert a plug into this jack, the corresponding channel of the power amplifier will be isolated, and no signals will be sent from the mixer section. Use the LEVEL control (control panel ③) to adjust the level of the signal input to the power amplifier.

⑦ **REC (record) jacks**

These phono jacks are used to connect to the inputs of a recording device, such as a cassette deck, to record the signal from the STEREO bus. The nominal output level is -10 dBV .

Note: The setting of the graphic equalizer or LEVEL control on the control panel does not affect the signals output from these jacks. Adjust the recording level on the recording device.

⑧ **ST 1 (stereo 1) jacks**
ST 2 (stereo 2) jacks

These phone jacks output the line-level signals of the STEREO bus. Connect an external mixer or additional PA system to these jacks.

Use the ST 1 fader (control panel ⑱) to adjust the final output level at the ST 1 jacks, and use the ST 2 control (control panel ⑳) to adjust the final output level at the ST 2 jacks. The nominal output level is $+4\text{ dB}$.

⑨ **MONI 1 (monitor 1) jack**
MONI 2 (monitor 2) jack

These phone jacks output the line-level signals of the MONITOR 1/2 buses. Connect stage-monitoring amplifiers or powered speakers here. Use the MONI 1 fader (control panel ⑮) and the MONI 2 fader (control panel ⑯) respectively to adjust the final level of the signals output from these jacks. The nominal output level is $+4\text{ dB}$.

⑩ **MONO (monaural) jack**

This phone jack mixes the STEREO bus signals and output a monaural signal. Connect an additional PA system here. Use the MONO fader (control panel ⑲) to adjust the final level of the signal output from this jack. The nominal output level is $+4\text{ dB}$.

⑪ **EFFECT jack**

The input of an external effect unit such as a delay or echo can be connected to this jack.

The signal adjusted by the EFFECT control of each channel will be sent to the EFFECT bus, its level adjusted by the EFFECT fader (control panel ⑰), and output from this jack.

The nominal output level is $+4\text{ dB}$.

⑫ **C-R/PHONES (control room/headphones) jack**

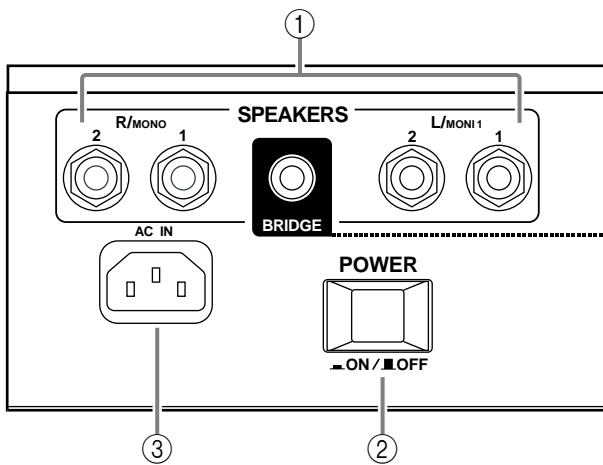
This is a stereo phone type output jack, and is used to monitor the channels selected by the PFL switches on the front panel and the buses selected by the AFL switches. Connect the headphones here, or use a “Y” cable to connect to a monitor system.

The nominal output is 3 mW when headphones are connected, and $+4\text{ dB}$ when a line-level device of a monitor system is connected.

⑬ **FOOT SW (foot switch) jack**

A separately sold Yamaha FC5 foot switch can be connected to this jack so you can use your foot to switch the built-in digital effect on/off. The digital effect ON switch on the front panel must be set to ON in order to use a foot switch.

Rear panel



① SPEAKERS (speaker output) jacks

Speakers can be connected to these jacks.

The type of signals output, the number of speakers you can connect, and acceptable impedance differ depending on the setting of the Power amp select switch (control panel ⑩).

■ When the Power amp select switch is set to ST1 L-ST1 R or MONI 1-MONO:

• Two-channel connection

You can connect one or two speakers to each of the L/MONI1 and R/MONO jacks.

When the Power amp select switch is set to ST1 L-ST1 R, the speakers connected to the L/MONI1 and R/MONO jacks will output the ST1 L and ST1 R bus signals. When the switch is set to MONI 1-MONO, the speakers will output the MONITOR 1 signal and the MONO signal respectively.

Whichever way the switch is set to, connect 4~8Ω speakers if you use one speaker per channel. The maximum output is 300W+300W with two 4Ω speakers.

• Two-channel parallel connection

If you wish to use two speakers per channel, use 8~16Ω speakers. The maximum output is 300W+300W with 8Ω impedance.

■ When the Power amp select switch is set to MONO (BRIDGE):

• Bridge connection

If you are connecting a single speaker to the BRIDGE jack, use a 8~16Ω speaker. The speaker outputs the MONO bus signal, and the maximum output is 600W with 8Ω impedance.

Caution:

When using a two-channel connection or two-channel parallel connection, do not connect a speaker to the BRIDGE jack.

When using a bridge connection, do not connect a speaker to either the L/MONI1 or R/MONO jacks.

The BRIDGE jack is covered by a protective cap to prevent you from accidentally connecting a speaker to it when using a two-channel or two-channel parallel connection. Remove this cap if you are using a bridge connection.

If you wish to input the signal from the P.AMP IN jack, input it from the P.AMP IN L jack.

② POWER switch

This switch turns on/off the power to the EMX3000.

Note: Before you turn the power of the EMX3000 on or off, the faders and controls in the master section of the control panel must be lowered to the minimum position.

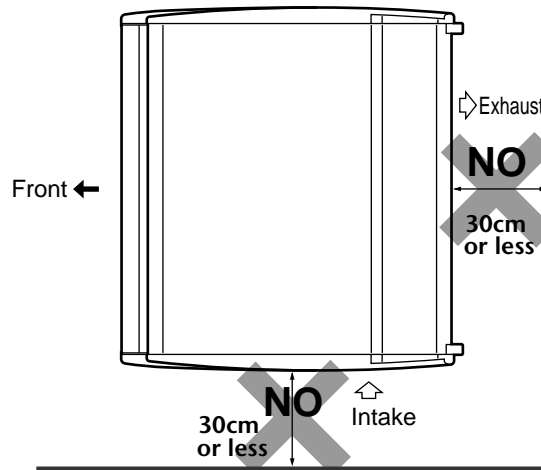
③ AC inlet

Connect the socket end of the included AC cable to this inlet. Connect the plug end of the cable to an AC outlet of the voltage printed below the inlet.

Installation/Connections

Installation

The EMX3000 uses a forced cooling system with air intake on the right side and exhaust on the rear. When placing the unit, make sure that the cooling ports are not obstructed.



Connection

When connecting various devices, you must use cables and plugs of the appropriate standard.

When connecting the speaker jacks to speakers, you must use only cables that are designed for connecting speakers.

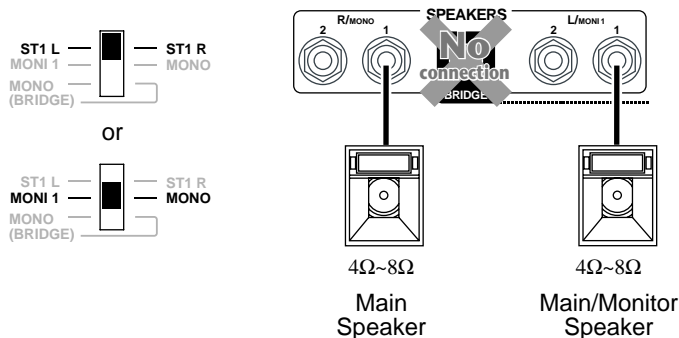
■ Connecting speakers

There are three ways in which speakers can be connected to the EMX3000.

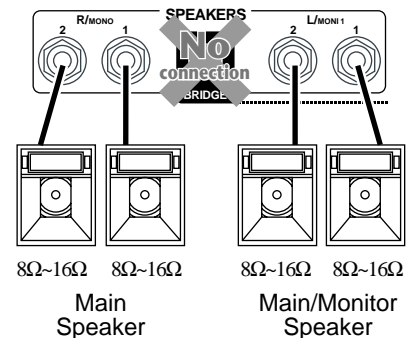
- ① **Two-channel connection** — A single speaker each can be connected to either jack 1 or jack 2 of SPEAKERS L/MONI1 and of SPEAKERS R/MONO.
- ② **Two-channel parallel connection** — Two speakers can be connected in parallel to both jack 1 and jack 2 of SPEAKERS L/MONI1 and SPEAKERS R/MONO.
- ③ **Bridge connection** — A single speaker can be connected to the BRIDGE jack.

For each of these, the required speaker impedance will differ. Refer to the following diagram, and make sure that the speaker impedance is not less than the specified value.

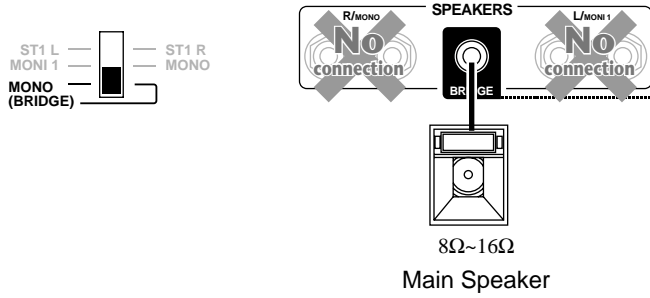
• Two-channel connection



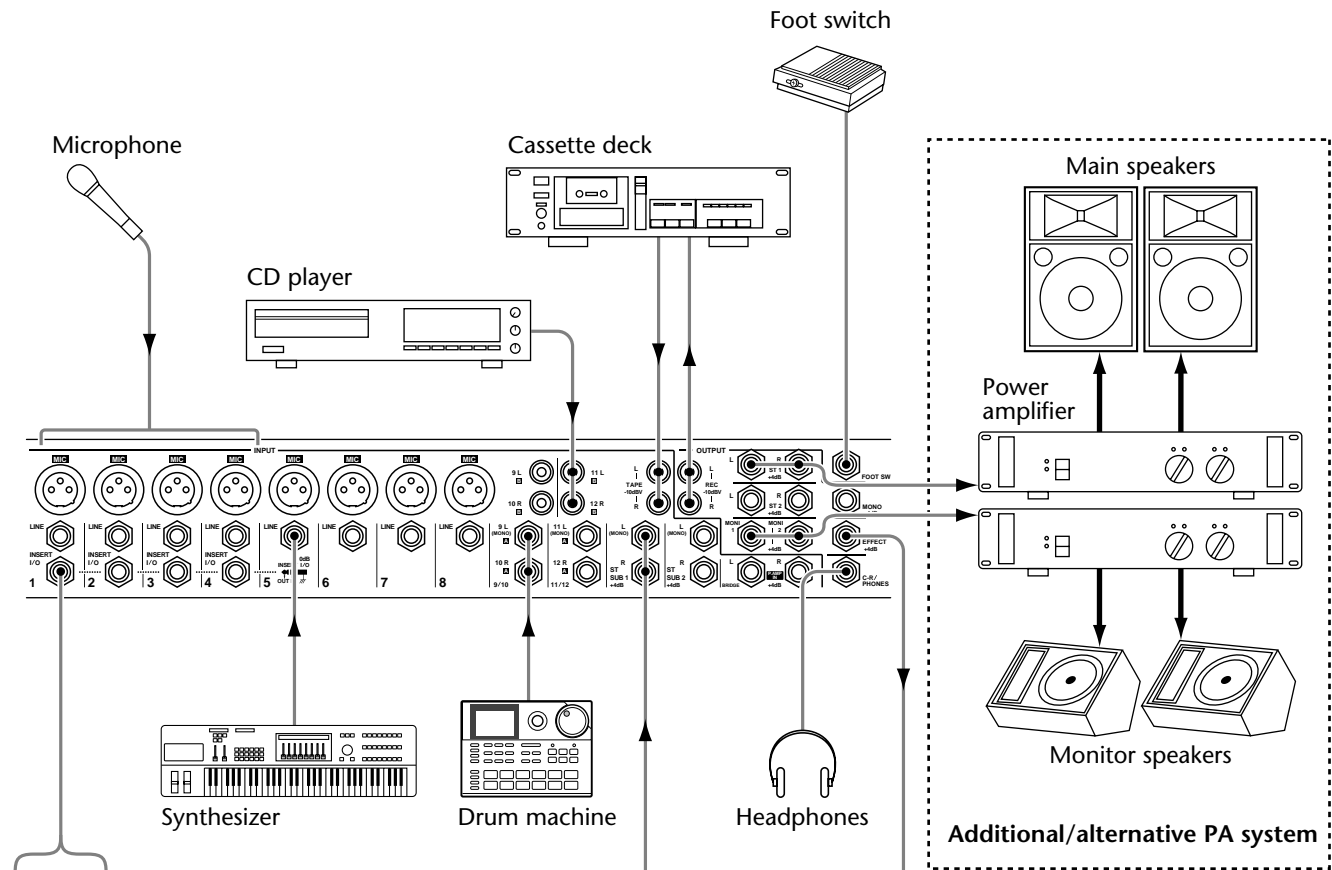
• Two-channel parallel connection



• Bridge connection



Connecting input/output equipment



Normally, connect speakers to the jacks on the rear panel. If more speaker outputs are needed, use the OUTPUT ST 1 jacks for stereo output and the OUTPUT MONI jack for monaural output.

Basic operation

Connecting microphones and instruments

① Before connecting mics or instruments, make sure that the power of all equipment (where applicable) is turned off. Also make sure that each channel fader and the faders in the master section are turned down. Check to see if the Power amp select switch on the control panel is set to ST1 L-ST1 R.

② Connect cables to your mics and instrument, and insert the other end of the cables firmly into the appropriate MIC/LINE jacks (channels 1~8) or the 9~12 jacks (channels 9/10~11/12).

Note: You cannot use channel 1~8 MIC and LINE jacks at the same time.

③ Turn on the power to the peripheral devices, then turn on the power to the EMX3000.

Note: When turning the power off, reverse this sequence.

④ While speaking into the mic (or while playing the instrument), adjust the channel GAIN control so that the channel PEAK indicator lights occasionally at the maximum volume.

⑤ Raise the ST1 fader in the master section to the "10" position, and while speaking into the mic (or while playing the instrument), adjust the channel fader so that the 0 LED of the peak level indicator lights occasionally. Use the LEVEL control to adjust the maximum level of the speakers.

⑥ If you wish to adjust the tone of each channel, rotate the equalizer controls as desired.

⑦ Use the graphic equalizer and the ST fader in the master section to adjust the overall volume and tone.

Note: The volume level is affected by the settings of the channel equalizers and the graphic equalizer. When you set the equalizers, check the peak level indicator and adjust the ST fader if necessary.

Using the digital effect

The EMX3000 has a built-in digital effect, allowing reverberation or ambiance to be added to vocals or instrumental sounds.

① Connect a mic or instrument to the desired channels, and adjust the volume and tone.

② Press the ON switch of the digital effect section.

③ Use the PROGRAM selector to select the type of effect you wish to apply.

VOCAL ECHO 1~4 Echo appropriate for vocals.

VOCAL REVERB 1~4.... Reverb appropriate for vocals.

HALL 1~3..... Reverb typical of a large hall.

ROOM..... Reverb typical of a small room.

PLATE 1~3 Plate echo-like reverberation

GATE REVERB ... Special effect of truncating reverberation

④ Raise the EFFECT control of the channels to which you wish to apply the digital effect.

⑤ Use the ST control of the digital effect section to adjust the level of the effect sound.

Note: You can send the effect sound to the MONITOR 1/2 bus by raising the MONI 1/2 control in the digital effect section. If the effect sound is distorted even though the ST control and the MONI 1/2 controls in the digital effect section are turned all the way down, lower the EFFECT controls of the digital effect section.

⑥ Adjust the PARAMETER control of the digital effect section to the desired level.

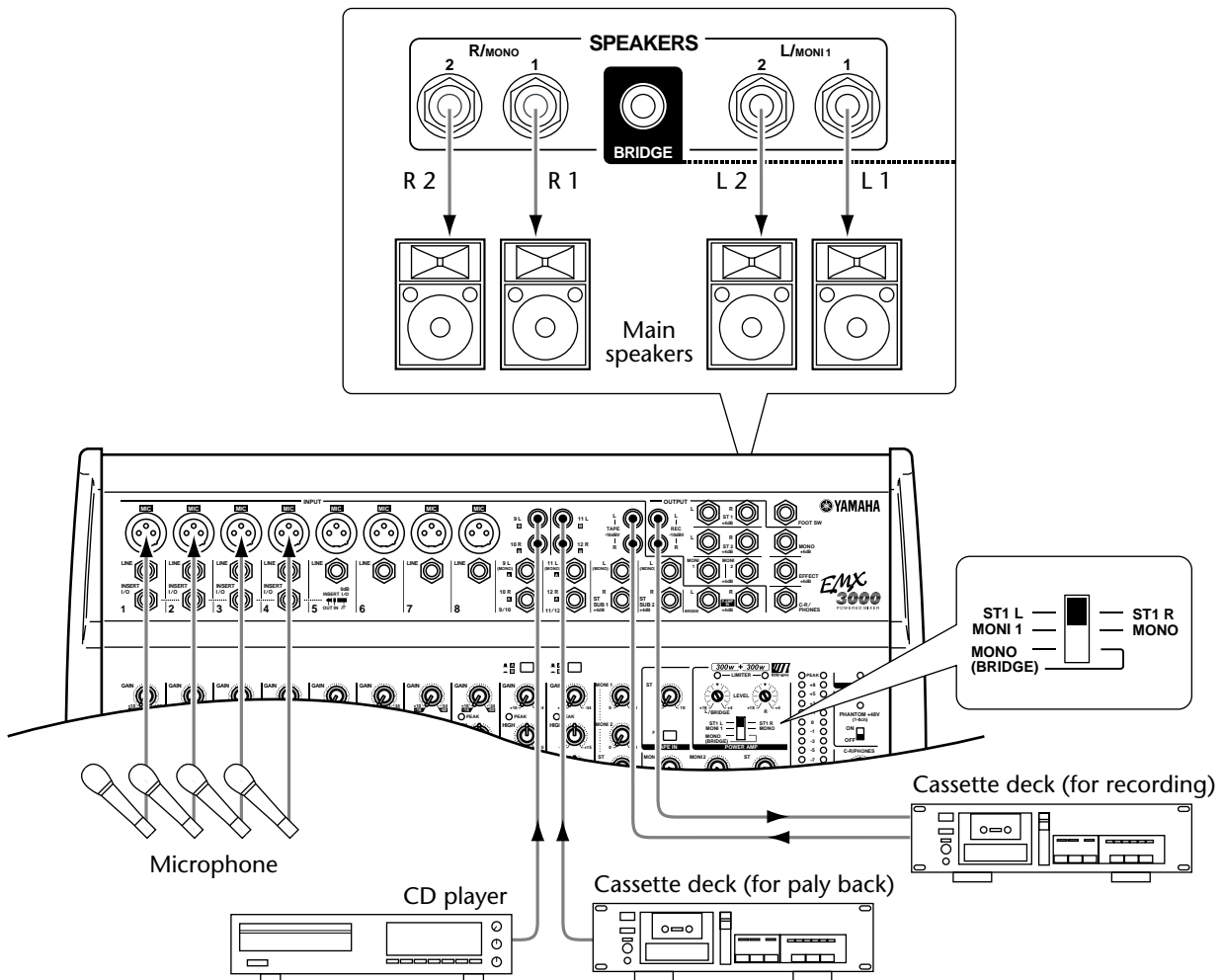
Note: The setting of the EFFECT fader in the master section does not affect the internal effect.

Example setups

This section provides some ways in which the EMX3000 can be used, and explains connections and operation.

As a conference/entertainment hall sound system

Here is an example of using the EMX3000 as a conference or entertainment hall sound system.



■ Connections

- Connect mics to channel inputs 1~8.
- A CD player/LD player/cassette deck can also be connected to the input jacks of channels 9/10 and 11/12.
- To record a meeting or a party, connect the REC jacks of the EMX3000 to the input jack of a recording cassette deck, and to monitor the recording on the EMX3000, connect the TAPE jacks of the EMX3000 to the output of the recording cassette deck.
- Connect the main speakers to the SPEAKERS L/MONI 1 1/2 jacks and the SPEAKERS R/MONO

1/2 jacks, and set the Power amp select switch to ST1 L-ST1 R.

■ Playing back a CD player

- ① Turn on the power to the peripheral devices, then to the EMX3000.
- ② Start playback on the CD player. Use the GAIN control of channel 9/10 so that the PEAK indicator below the GAIN control will light occasionally. Then, raise the ST 1 fader to the "10" position, and adjust the channel 9/10 fader so that the 0 LED of the peak indicator will light occasionally.

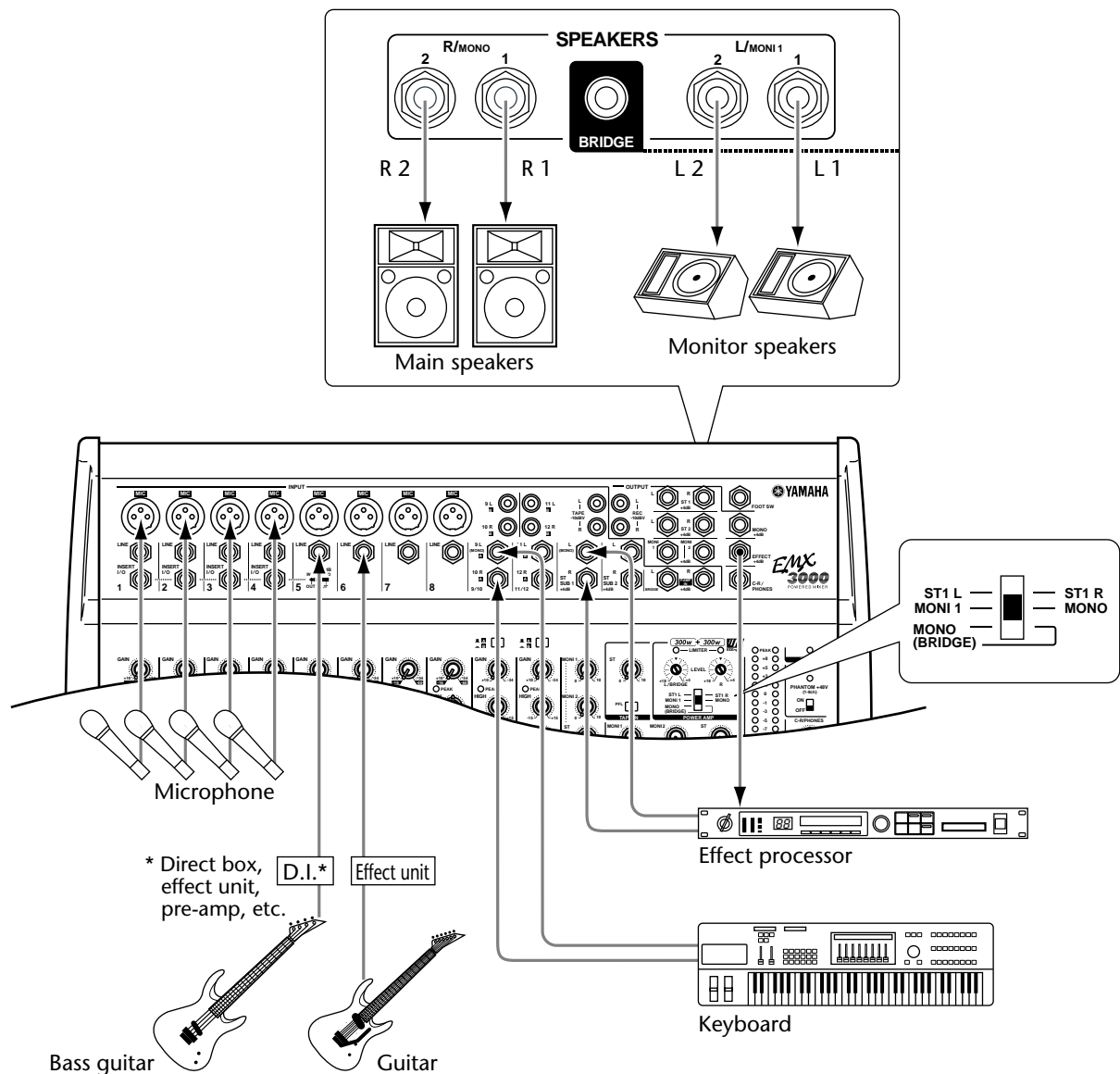
As a band PA

Here is an example of using the EMX3000 as a small PA for a band. In this example, the monitor speakers are being sent a mix that is independent of the MAIN speaker mix. An external effect such as delay or reverb is also being used.

■ Connections

- Connect mics or instruments, such as keyboards, to channel input jacks 1~12.
- Connect the main speakers to the SPEAKERS R/MONO 1/2 jacks, and connect the monitor speakers to the SPEAKERS L/MONI 1/2 jacks. Set the Power amp select switch to “MONI 1-MONO.”
- If you use an external effect such as delay or reverb, connect the EMX3000’s EFFECT jack to the input jack of the external effect, and connect the output jack of the external effect to the EMX3000’s ST SUB 1.

Note: If you are using an external effect, we recommend that you turn down all the EFFECT controls of the digital effect section. You can connect the output of an external effect to channels 9/10 and 11/12 to apply the equalizer to the effect return signal. However in this case, make sure that the EFFECT controls are turned all the way down for the channels into which the effect sound is being input. If the EFFECT controls are raised, feedback will occur, and your speakers may be damaged.



■ Sending an independent mix to the monitor speakers

- ① Set the MONI 1 fader to the “10” position.
- ② Raise the MONI 1 controls for the channels that you wish to hear from the monitor speakers.

Note: The MONI controls are not affected by the level settings of each channel. This allows you to create a mix that is independent of the main speakers.

- ③ Use the MONI 1 fader of the master section to adjust the overall volume.

■ Using an external effect processor

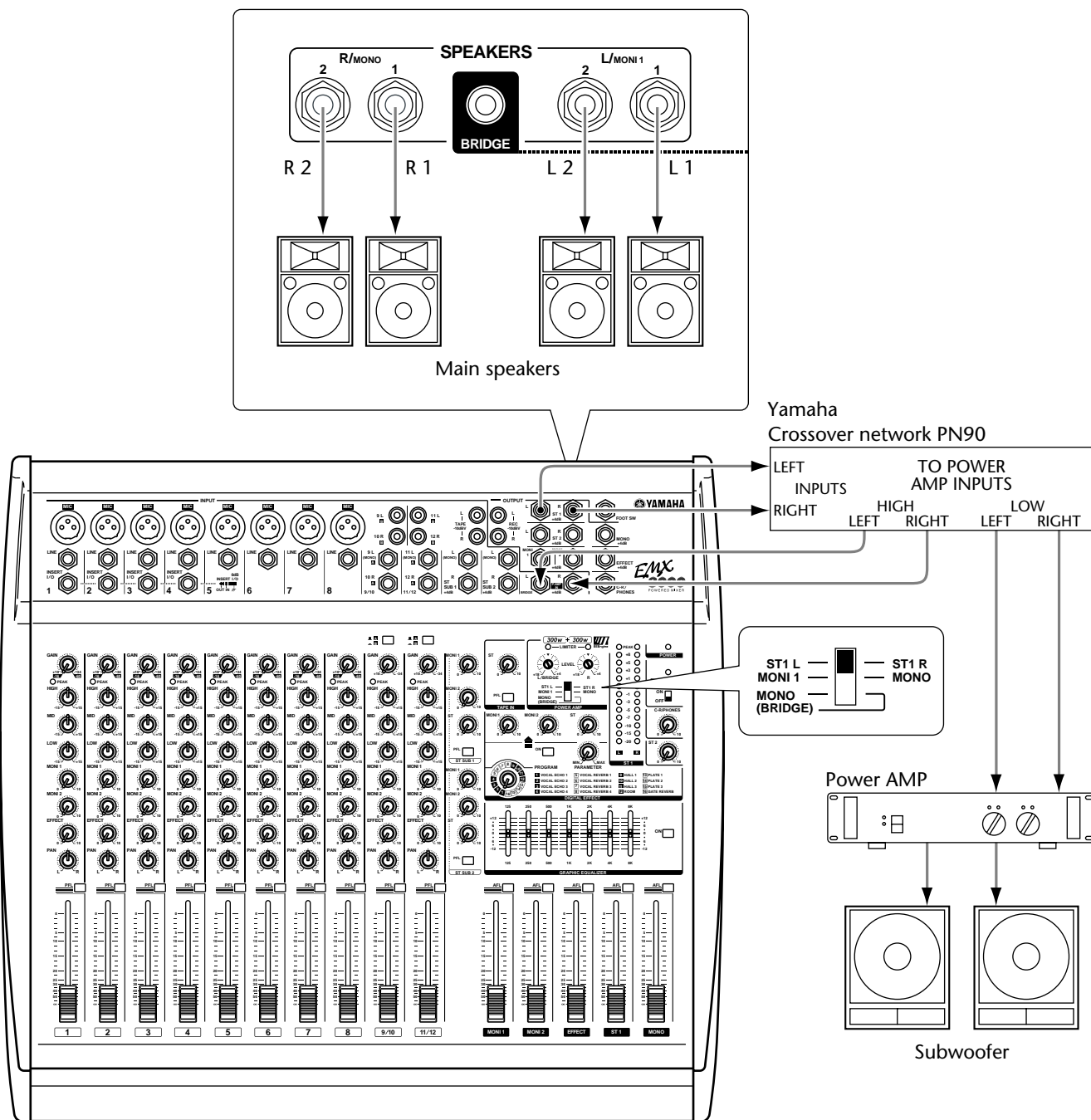
You may sometimes want to use an external effect processor, such as an echo machine or a multi-effect unit.

Follow the steps below.

- ① Set the EFFECT fader of the master section to the “10” position.
- ② Raise the EFFECT controls for the channels to which you want the external effect to be applied.
- ③ Use the EFFECT fader in the master section to adjust the level of the signal output to the external effects processor so that the sound will not be distorted at the input of the external effects processor.
- ④ Use the control of the ST SUB channel to which the processed signal is input from the external effects processor to adjust the level of the effect sound.

Using a subwoofer

Here is an example of using a subwoofer in the speaker system.



Specifications

■ General specifications

Maximum output power	STEREO: 300 W+300 W/4Ω @0.5% THD at 1 kHz 215 W+215 W/8Ω @0.5% THD at 1 kHz BRIDGE: 600 W/8Ω @0.5% THD at 1 kHz	
Frequency response	20 Hz~20 kHz +1 dB, -3 dB @ 1 W output into 8Ω (SPEAKER OUT)	Channel Gain control at minimum.
	20 Hz~20 kHz +1 dB, -3 dB @+4 dB output into 600Ω (ST OUT, MONO OUT, EFFECT SEND, MONITOR OUT)	Channel Gain control at minimum.
Total harmonic distortion	Less than 0.5% @20 Hz~20 kHz, 150 W output into 4Ω (SPEAKER OUT) Less than 0.3% @20 Hz~20 kHz, +14 dB output into 600Ω (ST OUT, MONO OUT, EFFECT SEND, MONITOR OUT)	
Hum & noise (Average, Rs=150Ω) (with 20 Hz~20 kHz BPF)	-128 dB equivalent input noise -63 dB residual output noise (SPEAKER OUT)	
	-95 dB residual output noise (ST OUT, MONO OUT, EFFECT SEND, MONITOR OUT)	
	-87 dB (ST OUT, MONO OUT)	ST master/MONO master fader at maximum level and all channel fader at minimum.
	-64 dB (68 dB S/N) (ST OUT, MONO OUT)	ST master/MONO master fader and 1 channel fader at maximum level. And 1 channel Gain control at maximum.
Maximum voltage gain	91 dB MIC IN to SPEAKER OUT (CH 1~8)	
	64 dB MIC IN to ST OUT (CH 1~8)	
	38 dB LINE IN to ST OUT (CH 1~8)	
	38 dB ST IN to ST OUT (CH 9/10, 11/12)	
	70 dB MIC IN to EFFECT SEND (CH 1~8)	
64 dB MIC IN to MONITOR OUT (CH 1~8)		
Crosstalk at 1 kHz	-70 dB adjacent input, -70 dB input to output	
MIC IN gain control	44 dB variable	
POWER AMP level control	14 dB variable	
Input channel equalization	HIGH 10 kHz shelving* MID 2.5 kHz peaking LOW 100 Hz shelving* * Turn over/roll off frequency of shelving: 3 dB below maximum variable level.	
Meters	13 points LED meter	
CH peak indicators	Red LED on each channel lits when POST EQ signal reaches the level -3 dB below clipping.	
Limiter	Comp. : THD≥0.5%	
LIMIT indicators	Turn on THD≥0.5%	
Graphic equalizer	7 bands (125, 250, 500, 1k, 2k, 4k, 8k Hz), ±12 dB Maximum	
Internal digital effect	16 programs, PARAMETER control	
Foot switch	Digital effect mute: on/off	
Protection circuit (Power amp)	POWER switch on/off mute, DC detection, TEMP (heatsink temp. ≥90°C)	
Fan circuit	stop — low speed (50°C) — variable — high speed (70°C)	
Phantom power	+48 V is supplied to electrically balanced inputs.	
Option	FC5 (Foot switch)	
Power requirement/ Power consumption	USA and Canada: 120 V AC 60 Hz, 250 W Europe: 230 V AC 50 Hz, 300 W Other: 240 V AC 50 Hz, 300 W	
Dimensions (WxHxD)	480×125×454 mm	
Weight	16 kg	
Accessories	Power cord, Owner's Manual	

Input specifications

Input terminals	Gain trim	Actual load impedance	For use with nominal	Input level		Connectors on mixer
				Sensitivity ¹	Max. before clip	
MIC INPUT (1–8)	MAX MIN	5 kΩ	50–600Ω Mics	–60 dB (775 μV) –16 dB (123 mV)	–40 dB (7.75 mV) +4 dB (1.23 V)	XLR-3-31 type ²
LINE INPUT (1–8)	MAX MIN	50 kΩ	600Ω Lines	–34 dB (15.5 mV) +10 dB (2.45 V)	–14 dB (155 mV) +30 dB (24.5 V)	PHONE JACK (TRS) ²
ST INPUT (9–12)	MAX MIN	10 kΩ		–34 dB (15.5 mV) +10 dB (2.45 V)	–14 dB (155 mV) +30 dB (24.5 V)	PHONE JACK ³
ST SUB IN (1, 2)				+4 dB (1.23 V)	+20 dB (7.75 V)	
TAPE IN (L, R)				–10 dBV (316 mV)	+10 dBV (3.16 V)	PHONO JACK
CH INSERT IN (1–4)				0 dB (775 mV)	+20 dB (7.75 V)	PHONE JACK (I/O) ⁴
POWER AMP IN (L, R)				+4 dB (1.23 V) ⁵	+18 dB (6.16 V) ⁵	PHONE JACK ³

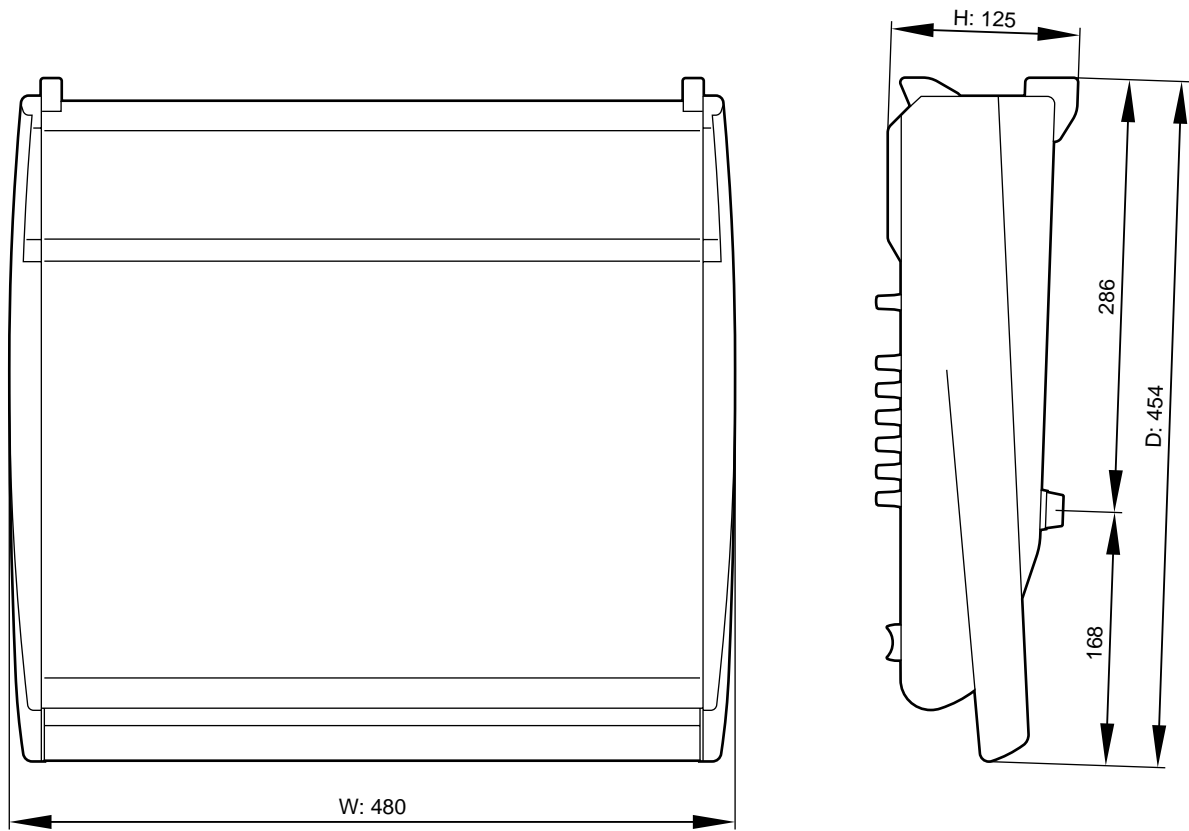
- Sensitivity is the lowest level that can produce an output of +4 dB (1.23 V) or the nominal output level when the unit is set at maximum gain. (All fader and level controls are at maximum position.)
 - Balanced. (T=HOT, R=COLD, S=GND)
 - Unbalanced.
 - Unbalanced. (T=OUT, R=IN, S=GND)
 - POWER AMP level control= maximum (+4)
- In these specifications when dB represents a specific voltage, 0 dB is referenced to 0.775 Vrms, 0 dBV is referenced to 1 Vrms.

Output specifications

Output terminals	Actual source impedance	For use with nominal	Output level		Connectors on mixer
			Nominal	Max. before clipping	
ST OUT 1, 2 (L/R)	150Ω	600Ω Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	PHONE JACK (TRS) ¹
MONO OUT					
EFFECT SEND					
MONITOR OUT 1, 2					
REC OUT (L/R)	600Ω	10 kΩ Lines	–10 dBV (316 mV)	+10 dBV (3.16 V)	PHONO JACK
CH INSERT OUT (1–4)			0 dB (775 mV)	+20 dB (7.75 V)	PHONE JACK (I/O) ²
C-R/PHONES OUT	100Ω	40Ω Phones	3 mW	100 mW	ST PHONE JACK ³
		10 kΩ Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	
SPEAKER OUT 1, 2 (L/R)	0.1Ω	4/8Ω Speaker	300 W/4Ω		PHONE JACK ⁴
BRIDGE OUT		8Ω Speaker	600 W/8Ω		PHONE JACK ⁵

- Impedance balanced. (T=HOT, R=COLD, S=GND)
 - Unbalanced. (T=OUT, R=IN, S=GND)
 - Unbalanced. (T=L, R=R, S=GND)
 - Unbalanced.
 - Balanced. (T=HOT, S=COLD)
- In these specifications when dB represents a specific voltage, 0 dB is referenced to 0.775 Vrms, 0 dBV is referenced 1 Vrms.

Dimensions



Units: mm

Specifications are subject to change without prior notice.

For European Model

Purchaser/User Information specified in EN55103-1 and EN55103-2.

Inrush Current: 85A

Conformed Environment: E1, E2, E3 and E4

Block/Level Diagram

