YAMAHA

ZV75780 EN

POWER AMPLIFIER

MA2030a
PA2030a

Owner's Manual

First, please carefully read the "IMPORTANT SAFETY INSTRUCTIONS" in the "Technical Specifications."

Thank you for your purchase of the Yamaha MA2030a/PA2030a power amplifier. This power amplifier was designed for background music and public address applications in places such as stores, commercial spaces, and so on. This manual contains installation and setting up information for installers, and operation instructions for users. Please read through this manual carefully before beginning use, so that you will be able to take full advantage of the device's various functions. After you have read the manual, keep it in a safe place.

- The illustrations as shown in this manual are for instructional purposes only.
- The company names and product names in this manual are the trademarks or registered trademarks of their respective companies.
- Software may be revised and updated without prior notice.
- In this manual, the MA mark indicates content that is unique to the MA2030a, and PA indicates content unique to the PA2030a. Contents that are common to both have no marks.
- Amplifier illustrations are mainly from the MA2030a. Where necessary, illustrations of the PA2030a are also shown.

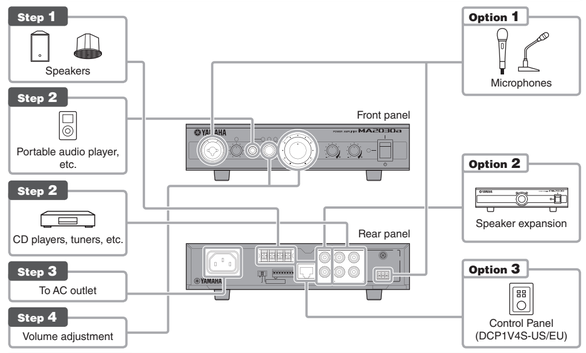
Features

- Supports both kinds of speaker connection: high-impedance connection and low-impedance connection.
- Equipped with digital processor (Feedback Suppressor, Ducker, Leveler). MA
- Optional PA2030a expansion amplifier enables connection of additional speakers. MA

Included items

- Power cord (2.0m)
- Euroblock plugs (3-pin, 3.50mm pitch) x 1 MA, x 2 PA
- Technical Specifications: includes block diagram, dimensions, and input/output specifications.
- Owner's Manual (this sheet)

Setup



Step 1 Connecting Speakers

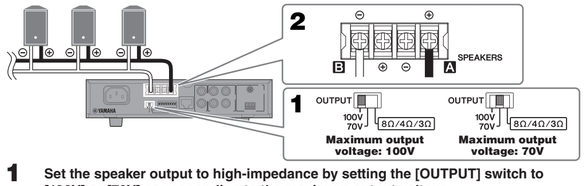
Change the setting depending on the speaker connection (high- or low-impedance connection), the kind of speakers, and the installation location of the speakers. Refer to "Connecting Speaker Cables" at the right bottom on this page and the explanation of high-impedance connection, etc. at the following URL.

Yamaha Pro Audio site: "Better Sound for Commercial Installations":
http://www.yamahaproaudio.com/global/en/training_support/better_sound/

⚠ CAUTION
- Before connecting speakers, make sure that the power of the device is turned off. If the power is on, there is a risk of electrical shock.

NOTICE
- Match the impedance settings of this device and the connected speakers. Use in which the impedance does not match may cause damage to the device or speakers.
- Ensure that load is not applied to the speaker cable.
- In a high-impedance installation, make sure that the sum of the power input ratings of the speakers to be connected does not exceed 60W.
- In a low-impedance installation, make sure that the total impedance of speakers to be connected is at least 3 ohms.
- Connectable cable gauges: AWG20 (0.5mm²) to AWG16 (1.3mm²)

High-impedance Connections (60W x 1 channel)



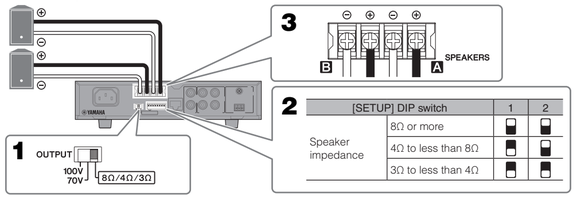
1 Set the speaker output to high-impedance by setting the [OUTPUT] switch to [100V] or [70V] corresponding to the maximum output voltage.

2 Use speaker cables to connect the [SPEAKERS A] ⊕ terminal to the positive "+" terminals of the speakers, and the [SPEAKERS B] ⊖ terminal to the negative "-" terminals.

In case of high-impedance connection, the [SPEAKERS A] ⊖ and [SPEAKERS B] ⊕ terminals are not used. Do not connect to the terminals.

Note In high-impedance settings, the speaker output is processed through a high pass filter (80Hz, 18dB/oct.).

Low-impedance Connections (30W x 2 channels)



[SETUP] DIP switch		1	2
Speaker impedance	8Ω or more		
	4Ω to less than 8Ω	■	
	3Ω to less than 4Ω	■	■

1 Set the speaker output to low-impedance connection by setting the [OUTPUT] switch to [8Ω/4Ω/3Ω].

2 Set the [SETUP] DIP switch 1/2 corresponding to the specifications of the speakers to be connected.

3 Connect the [SPEAKERS A] ⊕/⊖ terminals to the "+"/"-" terminals of the first speaker, and the [SPEAKERS B] ⊕/⊖ terminals to the "+"/"-" terminals of the second speaker.

Configuration of Speaker Output Signal

Connecting Yamaha Speakers [SETUP] DIP switch 5/6 MA

Setting the [SETUP] DIP switches optimizes the output signal to match Yamaha VXS/VXC speakers designed for commercial installations.

[SETUP] DIP switch	5	6
Yamaha VXS series (surface mount-type)		
Yamaha VXC series (ceiling-type)		
High-pass filter (150Hz)	■	
Off		■

For information on the speaker output settings of the PA2030a, refer to "Controls and functions."

Setting mono/stereo output [SETUP] DIP switch 8

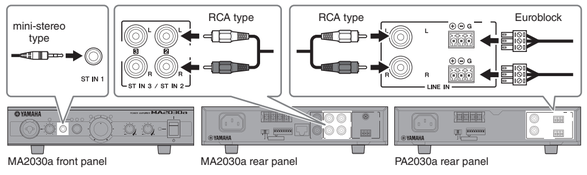
In a low-impedance installation, if speakers are placed in a stereo arrangement, set to stereo output.

[SETUP] DIP switch	8	
High-impedance connections	—	Mono output
Low-impedance connections	■	Mono output
		Stereo output (*1)

—: Setting is not required. (Either up or down can be used.)

*1: When stereo audio is output, the left channel signal is output from the [SPEAKERS A] terminals and the right channel signal is output from the [SPEAKERS B] terminals.

Step 2 Connecting External Devices



Connect a BGM (background music) tuner, a CD player, a portable audio player, etc. to the stereo input jacks of this device.

Note Refer to "Attaching Euroblock Plugs" for Euroblock plug installation.

1 Make sure that this device and all devices to be connected are turned off.

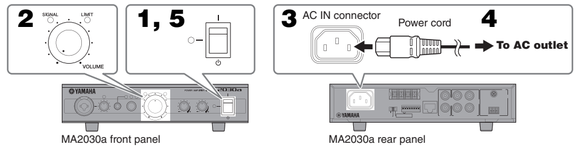
2 Connect this device and any external devices with appropriate cables.

Leveler (suppressing wide playback volume variations) [SETUP] DIP switch 7 MA

The Leveler function automatically suppresses and corrects for large changes in the playback volume from external devices for a more consistent sound, such as when reproducing BGM (background music).

[SETUP] DIP switch	7
Leveler disabled	
Leveler enabled	■

Step 3 Connecting Power Cord and Turning On



1 Make sure power switches of this device and devices connected to this device are turned off (in ⏻ position).

2 Turn the [VOLUME] knob all the way to the left.

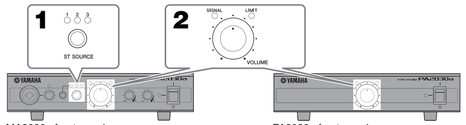
3 Connect the supplied power cord to the AC IN connector.

4 Insert the power cord plug into an appropriate outlet.

5 After turning on the connected devices (portable audio players, CD players, etc.), turn on this device.

Note
- Before turning on the power, please check that there are no problems with the cabling, connections, and so on.
- When turning the system off, turn off this device, and then connected devices.

Step 4 Adjusting Volume



1 Select a stereo input by rotating the [ST SOURCE] knob. MA

The [ST SOURCE] indicator corresponding to the selected input signal lights.

2 Input audio signal from the external device, and rotate the [VOLUME] knob.

Make sure that the [VOLUME SIGNAL] indicator lights according to the sound input and that sound comes from the speakers.

Matching the volume levels of external devices (including microphones) MA

When connecting two or more external devices, you can lower the volume of the louder devices (or microphones) to match the level of the faintest device. If you are using microphones, follow the instructions in "Option 1 Using Microphones" to adjust the volume level of microphones before executing the operation below.

1 Select the stereo input with the loudest sound by rotating the [ST SOURCE] knob.

2 Press and hold the [ST SOURCE] knob until the [ST SOURCE] indicator flashes.

3 Rotate the [ST SOURCE] knob to the left until the volume decreases to the point that lowers as loud as that of the faintest sounding stereo input (or microphones).

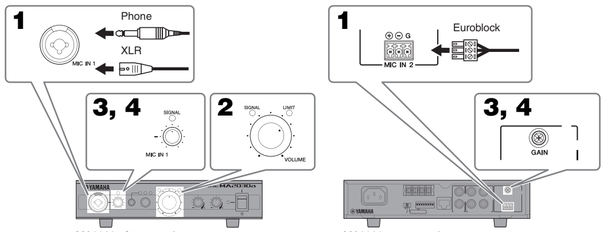
As the volume becomes fainter, the flashing rate of the [ST SOURCE] indicator becomes slower.

4 Push the [ST SOURCE] knob to complete the adjustment.

The [ST SOURCE] indicator lights.

Note Adjustable range: -18dB – 0dB, -9dB as the default setting

Option 1 Using Microphones MA



1 Turn the [MIC IN 1] knob or the [MIC IN 2 GAIN] trimmer all the way to the left, and connect a microphone to the [MIC IN 1] jack or the [MIC IN 2] connector.

2 Set the [VOLUME] knob to roughly a 2:00 position.

3 Loudly speak into the microphone, and turn the [MIC IN 1] knob or the [MIC IN 2 GAIN] trimmer to the right until the output signal is not distorted.

If you input a loud voice but the output is small, raise the volume with the [VOLUME] knob.
If the sound out of the speakers is too loud, lower the volume with the [MIC IN 1] knob or the [MIC IN 2 GAIN] trimmer.

4 Make sure the input from external devices matches the volume levels of the microphones and the external devices.

Refer to "Matching the volume levels of external devices (including microphones)" in "Step 4 Adjusting Volume" for instructions.

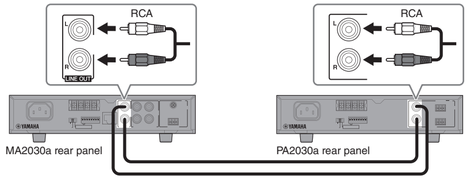
Note
- To adjust the [MIC IN 2 GAIN] trimmer, use a slotted screw driver.
- Refer to "Attaching Euroblock Plugs" for installation of Euroblock plugs.
- The input signal is always processed through a high pass filter (120Hz, 12dB/oct.) to cut off low frequency signals as well as a Feedback Suppressor to suppress howling.

Ducker (lowering the volume of the other channels automatically when a microphone signal is input) [SETUP] DIP switch 3/4

Jack/connector	[MIC IN 1]	[MIC IN 2]
[SETUP] DIP switch	3	4
Ducker disabled		
Ducker enabled	■	■

Note
- If both Duckers of the [MIC IN 1] jack and the [MIC IN 2] jack are enabled, the Ducker for the [MIC IN 1] takes priority.
- Activating the Ducker lowers the output volume of the stereo inputs by 24dB and mutes that of the other microphone input.

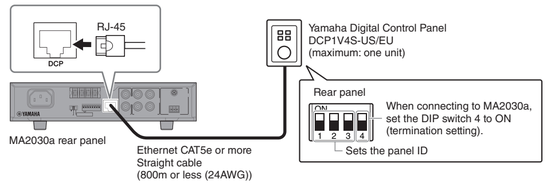
Option 2 Expanding Speakers MA



Connecting the MA2030a and PA2030a lets you increase the number of driven speakers. Connect the [LINE OUT] jacks of MA2030a and the [LINE IN] jacks of PA2030a.

Option 3 Operating with Control Panel MA

Connecting Yamaha Digital Control Panel DCP1V4S-US/EU to MA2030a enables you to control the volume, to switch inputs, etc. remotely.



The functions of the knob and the switches of DCP1V4S-US/EU can be configured with DIP switches at the back of DCP1V4S-US/EU.

Panel ID	DIP switch 1 2 3 4	Knob	Switch 1	Switch 2	Switch 3	Switch 4
0	■■■■	Volume	—	—	—	—
1	■■■■		Stereo 1	Stereo 2	Stereo 3	Mic. 1/2
2	■■■■		Mic. 1 ♪	Mic. 2 ♪	Mic. 1	Mic. 2
3	■■■■		Mic. 1 ♪	Mic. 2 ♪	Mic. 1	Mic. 2
4	■■■■		Mic. 1 ♪	—	Mic. 1	—
5	■■■■		Mic. 2 ♪	—	Mic. 2	—
6	■■■■		Mic. 1	Mic. 2	—	—
7	■■■■		Mic. 1	Mic. 2	—	—

Volume: Adjusts the volume output to the [SPEAKERS] terminals and the [LINE OUT] jacks.

Stereo 1/2/3: Switches to stereo input 1/2/3.

Mic. 1/2: Turns on/off microphone input 1/2. When a microphone is on, the switch indicator of the control panel lights and the stereo input is muted.
- If the panel ID is set to 3, the stereo input is not muted even though the microphone is on.
- If the panel ID is set to 7, the microphone stays on while holding the switch.

♪: A chime sounds when the microphone is turned on/off

—: Does not work. (No function is assigned.)

Note Refer to "DCP1V4S-US/DCP1V4S-EU Owner's Manual" for DCP1V4S-US/EU installation.

Connecting Speaker Cables

The [SPEAKERS] output connectors on the rear panel are barrier strip type connectors. The connections are described below for two methods: using a spade lug and using a bare conductor.

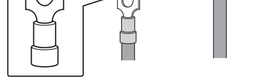
NOTICE

Ensure that load is not applied to the speaker cable.

Note Connect the cables so that the amplifier's "+" and "-" symbols match those of the speaker. If they are reversed, the phase will be reversed and the sound will not be output correctly.

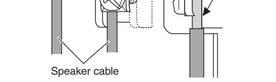
When using a spade lug

Loosen the screw, insert the spade lug all the way from below, and tighten the screw.

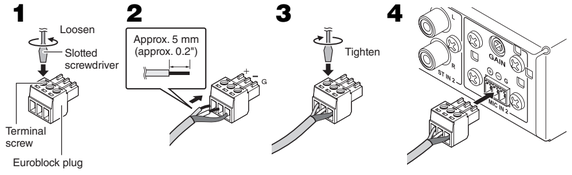


When using a bare conductor

Loosen the screw, wrap the conductor wire around the barrier strip terminal, and tighten the screw. Be sure that the bare wire does not touch the chassis.



Attaching Euroblock Plugs



Note
- You must use the supplied Euroblock plugs. If the plugs have been lost, please contact your Yamaha dealer.
- Recommended cable gauges for the Euroblock plug: AWG26 (0.13mm²) to AWG16 (1.3mm²)
- To prepare the cable for attachment to a Euroblock connector, strip the wire as shown in the illustration using stranded wire to make connections. With a Euroblock connection, stranded wires may be prone to breakage because of metal fatigue due to the weight of the cable or due to vibration. When rack mounting your device, use a lacing bar when possible to bundle and fasten the cables.
- Do not tin (solder) the exposed end.

1 Loosen terminal screws.

2 Insert cables.

3 Securely tighten terminal screws.

4 Insert the Euroblock plug into the [MIC IN 2] terminal of MA2030a or the [LINE IN] terminal of PA2030a.

Switching the panel lock on/off MA

Changes by several knobs can be locked, so that the settings of the device are not affected by accidental touch or unauthorized operation. The [ST SOURCE], [SOURCE EQ BASS] and [SOURCE EQ TREBLE] knobs can be locked.

1 Adjust the [ST SOURCE], [SOURCE EQ BASS] and [SOURCE EQ TREBLE] knobs to the desired fixed settings.

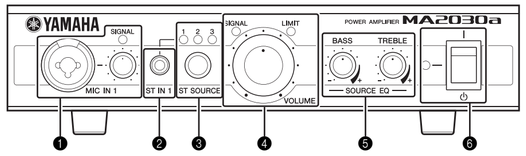
2 Press the [ST SOURCE] knob three times within a second.

3 To set the panel lock off, press the [ST SOURCE] knob three times within a second again.

Controls and Connectors

Front panel

MA2030a (PA2030a has only ❹ and ❻)



❶ [MIC IN 1] jack MA
Combo input jack that accepts both phone-type and XLR-type. Connect dynamic microphones mainly. Input signal is always processed through high pass filter (120Hz, 12dB/oct.) to cut off low frequency signal and Feedback Suppressor to suppress howling.

[MIC IN 1 SIGNAL] indicator MA
Lights when signal is input to the [MIC IN 1] jack.

[MIC IN 1] knob MA
Adjusts the volume of the microphone connected to the [MIC IN 1] jack. Turning to the right increases the volume.

❷ [ST IN 1] jack MA
Input jack of mini-stereo type (unbalanced input).
Connect a stereo audio source such as portable audio players.

❸ [ST SOURCE] indicator 1/2/3 MA
Selecting input signal from the [ST IN 1] jack lights indicator 1, the [ST IN 2] jacks lights indicator 2, and the [ST IN 3] jacks lights indicator 3.

[ST SOURCE] knob MA
Rotating this switches among the stereo input signals.
Pressing and holding this lets you adjust the volume balance of stereo inputs.
Refer to "Matching the volume levels of external devices (including microphones)" in "Step 4 Adjusting Volume" for instructions.

❹ [VOLUME SIGNAL] indicator
Lights when signal output to speakers exceeds a certain level.

[VOLUME LIMIT] indicator
Lights if signal output to the speakers exceeds the limit value, causing the limiter to activate, or if the internal temperature of the device increases abnormally. If the limiter activates, turn the [VOLUME] knob to the left so the indicator light goes out. If the device internal temperature increases, leave the device without turning on the power until the internal temperature goes down.

Setting		Signal level for which each indicator turns on
		[VOLUME SIGNAL]
Low-impedance connections	[3Ω]	-18.2 dBu or more
	[4Ω]	-17.0 dBu or more
	[8Ω]	-14.0 dBu or more
High-impedance connections	[70V]	-0.8 dBu or more
	[100V]	2.2 dBu or more

[VOLUME] knob
Adjusts the volume output to the speakers. Turning to the right increases the volume. Turning all the way to the left mutes the sound.

❺ [SOURCE EQ BASS] knob MA
Adjust the volume of the low frequency (around 125Hz) stereo signal from -10dB to +10dB. At the center position, the sound is flat; turning to the left lowers the low frequency signal and turning to the right increases the low frequency signal. Turning to the right 90 degrees or more from the center activates the Enhancer to further emphasize the low frequency signal.

[SOURCE EQ TREBLE] knob MA
Adjust the volume of the high frequency (6 kHz or more) stereo signal from -10dB to +10dB. At the center position, the sound is flat; turning to the left lowers the high frequency signal and turning to the right increases the high frequency signal. Turning to the right 90 degrees or more from the center activates the Enhancer to further emphasize the high frequency signal.

Note If the sound distorts when using EQ, turn the knob to the left until the sound is not distorted or lower the volume of the stereo source.

❻ Power indicator
Turns on when the power is on.
If flashing continues for 10 seconds or more, the internal temperature of the device is extremely high. Turn off the power once, and turn on again several minutes later.

Power switch
Turn on/off the power.

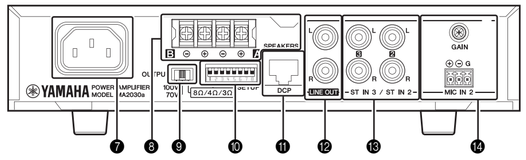
⚠ WARNING
- To ensure that high-volume noise is not output from the speakers, power on the connected device first and then turn on this device. When turning the system off, turn off this device, and then the connected devices.
- After turning the power switch off, wait for about five seconds before turning it on again. Rapidly turning the power switch on and off in succession can cause the unit to malfunction.

⚠ CAUTION
- Even when the switch is in the off position, a small amount of electricity is still flowing to the unit. If it will not be used for an extended period of time, therefore, be sure to unplug the power cord from the wall AC outlet.

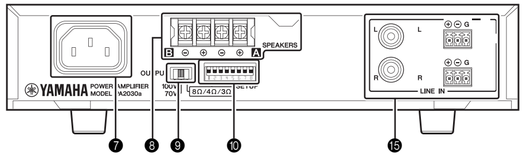
Note Do not turn off the power switch three seconds or less after executing an operation. If you do, some setting information may not be saved.

Rear panel

MA2030a



PA2030a



❼ AC IN connector
Connect the supplied power cord.

⚠ CAUTION
- When connecting the power cord, connect the power cord to the connector and then plug it into an appropriate AC power outlet.
- Before connecting or disconnecting the power cord, make sure that the power to the device is turned off.

❽ [SPEAKERS] output terminals
Barrier strip type speaker output connectors. Refer to "Connecting Speaker Cables" for the installation instructions.

❾ [OUTPUT] switch
Sets the output type of amplifier: high-impedance connection ([100V], [70V]) or low-impedance connection ([8Ω/4Ω/3Ω]). The setting change will be reflected after turning on again.

❿ [SETUP] DIP switches
Set the following functions of the device. The setting change will be applied after carrying out a power cycle by the Power switch on the front panel.

DIP switches 1/2: Speaker impedance setting
Sets the speaker impedance if the [OUTPUT] switch is set to [8Ω/4Ω/3Ω] (low-impedance connection).

1	2	Setting
■	■	8Ω or more
□	■	4Ω to less than 8Ω
□	□	3Ω to less than 4Ω

DIP switches 3/4: Ducker MA
Configure the settings for the Ducker function. This can mute the microphone input of other channels, and lower the volume of line input when signals are input to [MIC IN 1] or [MIC IN 2].

3	4	Setting
■	■	Ducker off
■	□	Ducker on when signals are input to [MIC IN 2].
□	■	Ducker on when signals are input to [MIC IN 1].
□	□	Ducker on when signals are input to [MIC IN 1] or [MIC IN 2]. If signals are input to both of them, [MIC IN 1] is given precedence.

DIP switches 5/6: Speaker EQ MA
Sets the speaker EQ that corrects the output signal to match the type of speakers that are connected.

5	6	Setting
■	■	Off
■	□	High pass filter 150Hz
□	■	Frequency correction tailored for Yamaha VXS series (Surface mount-type) speakers
□	□	Frequency correction tailored for Yamaha VXC series (Ceiling-type) speakers

DIP switches 5/6/7: Speaker EQ PA

5	6	7	Setting
■	■	■	Off
■	■	□	High pass filter 150Hz
■	□	■	Low pass filter 150Hz
■	□	□	Low pass filter 200Hz
□	■	■	Frequency correction tailored for Yamaha VXS series (Surface mount-type) speakers
□	■	□	Frequency correction tailored for the Yamaha VXS10S/VXS10ST subwoofer (45–150Hz)
□	□	■	Frequency correction tailored for Yamaha VXC series (Ceiling-type) speakers

DIP switch 7: Leveler MA
Use the Leveler function to automatically adjust the volume to a relatively constant range if the input signals vary significantly in volume.

7	Setting
■	Off
□	On

DIP switch 8: Mixer
In low-impedance installation of speakers, this sets the speaker output to stereo or mono.

8	Setting
■	MONO
□	STEREO

Note
- When the device is shipped from the factory, the DIP switches are all in the up position.
- The output of the [LINE OUT] jacks does not reflect the stereo/mono setting in [SETUP] DIP switch 8 (MIXER).

⓫ [DCP] connector MA
Connect one Yamaha Digital Control Panel DCP1V4S-US/EU. Refer to "Option 3 Operating with Control Panel" for connection method.

⓬ [LINE OUT] jacks MA
RCA type stereo output jack (unbalanced output). Outputs to the [LINE IN] jacks of PA2030a and line input jacks of other external devices. Outputs a mixed signal of the selected stereo input, the [MIC IN 1] jack input and the [MIC IN 2] jack input.

⓭ [ST IN 2] jacks/[ST IN 3] jacks MA
RCA type stereo input jack (unbalanced output). Connect external devices such as CD player, etc. Select input jacks with the [ST SOURCE] knob on the front panel.

⓮ [MIC IN 2] connector MA
Euroblock 3-pin connector for microphone audio input (balanced). Refer to "Attaching Euroblock Plugs" for Euroblock plug installation. The input signal is always processed through a high pass filter (120Hz, 12dB/oct.) to cut off low frequency signals as well as a Feedback Suppressor to suppress howling.

[MIC IN 2 GAIN] trimmer MA
Adjust the volume of microphone that is connected to the [MIC IN 2] connector. Adjust with a slotted driver of the correct size.

⓯ [LINE IN] jacks/connectors PA
RCA type and Euroblock 3-pin stereo input jacks/connectors (RCA: unbalanced; Euroblock 3-pin: balanced). Connect to the [LINE OUT] jacks of the MA2030a or output jacks of other external devices. The signals input from the RCA type jacks and Euroblock connector will be mixed to the output.

Troubleshooting

Symptom	Cause	Solution
The power does not turn on.	The power cord is disconnected.	Connect the power cord.
	The protection function of the device has been activated.	Turn off the power switch and make sure the connection is secure. Wait several minutes, and then turn on the power again.
No sound is heard.	The sound is lowered too much with the [VOLUME] knob.	Turn the [VOLUME] knob to the right.
	No audio signal is being input.	Make sure that this device is properly connected to external devices.
		Make sure that the external device outputs audio signal.
	The input is not selected.	Turn the [ST SOURCE] to select input jacks connected to an external device.
	The connected microphone is a condenser type.	Use a dynamic type microphone or supply phantom power to the condenser microphone.
The sound distorts.	The input level from microphones or external devices is too high.	Turn the [MIC IN 1] knob/the [MIC IN 2 GAIN] trimmer to the left to lower the volume of the microphones. Lower the input volume from the external devices.
	The EQ level is too high.	Turn the [SOURCE EQ BASS]/[SOURCE EQ TREBLE] knob to the left to lower the EQ.
The setting does not change even when turning a knob.	The panel is locked. When the panel is locked, even when turning the [ST SOURCE] knob, [SOURCE EQ BASS] knob or [SOURCE EQ TREBLE] knob, the setting of the device does not change.	Set the panel lock to off. (Press the [ST SOURCE] knob three times within a second.)
The sound is weak.	The device is set to low-impedance connection; however, speakers with high-impedance input have been connected.	Match the impedance settings of this device and the connected speakers.
The sound drops out and the power indicator flashes three times.	The device is set to high-impedance connection; however, speakers with low-impedance input have been connected or too many speakers are connected.	Match the impedance setting and the input rating setting of this device and the speakers.
	When the device is set to low-impedance connection, the total impedance of the connected speakers is less than the impedance setting of this device.	Match the impedance settings of this device and the speakers.
	The speaker cable is shorted.	Inspect the connection of the speaker cables.
The power indicator continues flashing. The sound goes off.	The internal temperature of the device is extremely high because heat dissipation slits are covered or the device is placed in a confined place with poor ventilation.	Turn off the power, leave the device at a well-ventilated place, and turn on the device several minutes later.
	The device settings do not match speaker impedance.	Match the impedance settings of this device and the connected speakers.

- Refer also to the Yamaha Pro Audio website that provides a FAQ (a list of frequently asked questions, with answers). http://www.yamahaproaudio.com/
- If taking the above steps does not solve the problem, contact your Yamaha dealer for repair.

Specifications (MA2030a/PA2030a)

Output Power (20 msec burst, THD+N=1%)	8Ω/4Ω/3Ω	30 W x 2 ch
	70 V/100 V	60 W x 1 ch
Amplifier Type	(Output circuitry)	Class D
THD+N	Stereo in → Speaker out, 1 kHz, 15 W, 8Ω/4Ω/3Ω	≤ 0.1%
	Stereo in → Speaker out, 1 kHz, 30 W, 70 V/100 V	≤ 0.2%
Frequency Response	Line in → Line out, 20 Hz–20 kHz	0 dB, -2.5 dB, +1.0 dB
	Line in → Speaker out, 50 Hz–20 kHz, 1 W, 8Ω/4Ω/3Ω	0 dB, -3.0 dB, +1.0 dB
	Line in → Speaker out, 90 Hz–20 kHz, 1 W, 70 V/100 V	0 dB, -3.0 dB, +1.0 dB
Crosstalk (MA2030a only)	Stereo in to other Stereo in	≤ -70 dB
AC Power Requirement		100 V/120 V/230 V-240 V, 50 Hz/60 Hz
Power Consumption (3Ω, AC 100 V)	1/8 max. power, pink noise at all channel,	30 W
	Idle	25 W
Operating Temperature		0°C–+40°C
Storage Temperature		-20°C–+60°C
Dimensions	(W x H x D, including knob)	215 x 54 x 288 mm (8.5 x 2.1 x 11.4 inch)
Net Weight		1.8 kg (4.0 lbs)
Optional Accessories		Rack-mount Accessory RKH1 Digital Control Panel DCP1V4S-US/EU

* The contents of this manual apply to the latest specifications as of the publishing date. To obtain the latest manual, access the Yamaha website then download the manual file.

European Models
Purchaser/User Information specified in EN55103-2:2009.
Conforms to Environments: E1, E2, E3 and E4

PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

Please keep this manual in a safe place for future reference.

⚠ WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

Power supply/power cord
- Do not place the power cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.
- Only use the voltage specified as correct for the device. The required voltage is printed on the name plate of the device.
- Use only the supplied power cord. If you intend to use the device in an area other than in the one you purchased, the included power cord may not be compatible. Please check with your Yamaha dealer.
- Check the electric plug periodically and remove any dirt or dust which may have accumulated on it.
- When setting up the device, make sure that the AC outlet you are using is easily accessible. If some trouble or malfunction occurs, immediately turn off the power switch and disconnect the plug from the outlet. Even when the power switch is turned off, as long as the power cord is not unplugged from the wall AC outlet, the device will not be disconnected from the power source.
- Remove the electric plug from the outlet when the device is not to be used for extended periods of time, or during electrical storms.
- Be sure to connect to an appropriate outlet with a protective grounding connection.

Do not open
- This device contains no user-serviceable parts. Do not open the device or attempt to disassemble the internal parts or modify them in any way. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified Yamaha service personnel.

Water warning
- Do not expose the device to rain, use it near water or in damp or wet conditions, or place on it any containers (such as vases, bottles or glasses) containing liquids which might spill into any openings. If any liquid such as water seeps into the device, turn off the power immediately and unplug the power cord from the AC outlet. Then have the device inspected by qualified Yamaha service personnel.
- Never insert or remove an electric plug with wet hands.

Hearing loss
- Avoid setting volume controls to their maximum. Depending on the condition of the connected devices, doing so may result in feedback that can cause hearing loss and damage the speakers.
- Do not use speakers for a long period of time at a high or uncomfortable volume level, since this can cause permanent hearing loss. If you experience any hearing loss or ringing in the ears, consult a physician.
- When turning on the AC power in your audio system, always turn on the device LAST, to avoid hearing loss and speaker damage. When turning the power off, the device should be turned off FIRST for the same reason.

Fire warning
- Do not place any burning items or open flames near the device, since they may cause a fire.

If you notice any abnormality
- If any of the following problems occur, immediately turn off the power switch and disconnect the electric plug from the outlet.
  – The power cord or plug becomes frayed or damaged.
  – Unusual smells or smoke are emitted.
  – Some object has been dropped into the device.
  – There is a sudden loss of sound during use of the device.
  – Cracks or other visible damage appear on the device.
  Then have the device inspected or repaired by qualified Yamaha service personnel.
- If this device should be dropped or damaged, immediately turn off the power switch, disconnect the electric plug from the outlet, and have the device inspected by qualified Yamaha service personnel.

⚠ CAUTION

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the device or other property. These precautions include, but are not limited to, the following:

Power supply/power cord
- When removing the electric plug from the device or an outlet, always hold the plug itself and not the cord. Pulling by the cord can damage it.

Location
- Do not place the device in an unstable position where it might accidentally fall over.
- Do not block the vents. This device has ventilation holes at the top/sides/bottom to prevent the internal temperature from becoming too high. In particular, do not place the device on its side or upside down. Inadequate ventilation can result in overheating, possibly causing damage to the device(s), or even fire.
- When installing the device and you wish to dissipate heat on it:
  – Do not cover it with any cloth.
  – Do not install it on a carpet or rug.
  – Make sure the top surface faces up; do not install on its sides or upside down.
  – Do not use the device in a confined, poorly-ventilated location.
  Inadequate ventilation can result in overheating, possibly causing damage to the device(s), or even fire.
  If this device is to be used in a small space other than EIA-standard rack, make sure that there is adequate space around the device: at least 10 cm above, 1 cm below the bottom surface, 10 cm at the sides and 10 cm behind.
- Do not place the device in a location where it may come into contact with corrosive gases or salt air. Doing so may result in malfunction.
- Before moving the device, remove all connected cables.
- If the device is mounted in an EIA standard rack, carefully read the section "Precautions for rack mounting". Inadequate ventilation can result in overheating, possibly causing damage to the device(s), malfunction, or even fire.

Connections
- Before connecting the device to other devices, turn off the power for all devices. Also, before turning the power of all devices on or off, make sure that all volume levels are set to the minimum. Failing to do so may result in electric shock, or equipment damage.
- Use only speaker cables for connecting speakers to the speaker jacks. Use of other types of cables may result in fire.

Maintenance
- Remove the power plug from the AC outlet when cleaning the device.

Handling caution
- When the surface of the device heats up, do not touch it until the panel temperature goes down. Touching the surface with its high temperature may cause burns.
- Avoid inserting or dropping foreign objects (paper, plastic, metal, etc.) into any gaps or openings on the device (vents, etc.) If this happens, turn off the power immediately and unplug the power cord from the AC outlet. Then have the device inspected by qualified Yamaha service personnel.
- Do not rest your weight on the device or place heavy objects on it. Avoid applying excessive force to the buttons, switches or connectors.
- Avoid pulling the connected cables to prevent injuries or damage to the device.

Yamaha cannot be held responsible for damage caused by improper use or modifications to the device.

NOTICE

To avoid the possibility of malfunction/ damage to the product, or damage to other property, follow the notices below.

Handling and maintenance
- Do not use the device in the vicinity of a TV, radio, stereo equipment, mobile phone, or other electric devices. Otherwise, the device, TV, or radio may generate noise.
- Do not expose the device to excessive dust or vibration, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day), in order to prevent the possibility of panel disfiguration, unstable operation, or damage to the internal components.
- Do not place vinyl, plastic or rubber objects on/under the device, since this might discolor the panel of the device or the objects placed on/under the device.
- Keep input cables of microphone, etc., devices that contain sensitive circuits, and the power cord at a distance from speaker cables and fasten the speaker cables in place. Since a large amount of current can flow in a speaker cable, a magnetic field will be generated and may produce radio interference and acoustic noise.
- When cleaning the device, use a dry and soft cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths.
- Condensation can occur in the device due to rapid, drastic changes in ambient temperature–when the device is moved from one location to another, or air conditioning is turned on or off, for example. Using the device while condensation is present can cause damage. If there is reason to believe that condensation might have occurred, leave the device for several hours without turning on the power until the condensation has completely dried out.
- Do not use this device for any purpose other than driving loudspeakers.
- If you put the device on a table or a rack, do not remove the rubber feet from the device.
- Always turn the power off when the device is not in use.

Connectors
XLR-type connectors are wired as follows (IEC60268 standard): pin 1: ground, pin 2: hot (+), and pin 3: cold (-).

Precautions for rack mounting
This unit is rated for operation at ambient temperatures ranging from 0 to 40 degrees Celsius. If the device is mounted with other devices in an EIA standard equipment rack, internal temperatures can exceed the specified upper limit, resulting in impaired performance or failure. If the device is mounted in a rack, always observe the following requirements to avoid heat buildup:
- If the device is mounted in a rack with other devices that generate a significant amount of heat, such as a power amplifier, leave more than 1U of space between the device and other devices (both above and below). Also, make sure to either leave any open spaces uncovered or install appropriate ventilating panels to minimize the possibility of heat buildup.
- To ensure sufficient airflow, leave the rear of the rack open and position it at least 10 centimeters from walls or other surfaces. If you've installed a fan kit, there may be cases in which closing the rear of the rack will produce a greater cooling effect. Refer to the rack and fan unit manual for details.

Information for users on collection and disposal of old equipment:

This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.
For proper treatment, recovery and recycling of old products, please take them to applicable collection points, in accordance with your national legislation.

By disposing of these products correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

For business users in the European Union:
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union:
This symbol is only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

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The model number, serial number, power requirements, etc., may be found on or near the name plate, which is at the bottom of the unit. You should note this serial number in the space provided below and retain this manual as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

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Yamaha Eco-Label
Yamaha Eco-Label is a mark that certifies products of high environmental performance.

Yamaha Pro Audio global website
http://www.yamahaproaudio.com/

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http://download.yamaha.com/

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