CHIAYO

Operation manual

APEX EVO

Multifunctional Wireless Mixer Amplifier

9001:2015

CHIAYO ELECTRONICS CO., LTD.

Important safety instructions

- Read all of the instructions before the product is operated.
- Keep these instructions well for future reference.
- Follow all of the warnings and instructions when installing, setting up and using the product.
- Only clean the product when it is not connected to the power supply system. Clean only with a dry cloth.
- Keep ventilation openings unblocked and follow with the manufacturer's instructions for installation.
- Do not immerse product in any liquid or expose to heat or moisture
- Keep the complete polarized or grounding type plug without any modification. 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 wider 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.
- Power supply cords should be well routed to prevent from being walked on or pinched by items placed upon or against them, particularly at plugs, convenience receptacles, and the point where they exit from the product.
- Use only manufacturer authorized or recommended accessories.
- Use only with a cart, stand, tripod or accessories specified or provided by Chiayo. Be careful when using a cart to avoid injury from tip-over.
- Unplug the product during an electrical storm or when unused for long periods of time.
- Never disassemble, modify or service the product. Any unauthorized modifications may result in personal injury and/or product failure. Additionally, your warranty will be void.
- Operation Temperature: 35 Degree Celsius Maximum.

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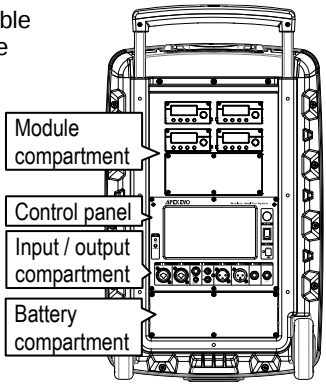
1. Instruction

Congratulations and thank you for purchasing this all-in-one portable sound system. To ensure a trouble-free operation, please read the manual thoroughly to fully understand its controls and functions.

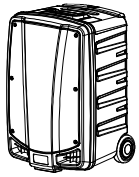


The rear panel of these portable sound systems is divided into 3 sections:

1. Module compartment
2. Control panel
3. Input / output compartment
4. Battery compartment

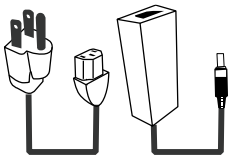
The Modules Compartment can be user configurable and user can access the battery compartment to change battery.

1-1 In the box

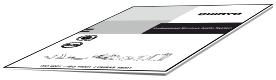


APEX EVO amplifier

0-4 handheld / beltpack transmitters (optional)



switching power supply
(plug varies from country to country)



operation manual

1-2 Optional related products

Modules & transmitters

SDR-8200M IrDA	Ture diversity receiver module	**SQ-6100 IrDA** **SQ-5100 IrDA**	Handheld microphone
SDR-8100M IrDA	Diversity receiver module	**SM-7100 IrDA** **SM-6100 IrDA**	Belt-pack transmitter
DWR-5410M	2.4G digital receiver module	**DH-5400**	Handheld digital microphone
		DB-5400	Belt-pack digital transmitter
RP-5100M	Repeater module	**DPR-500m**	MP3 recorder module

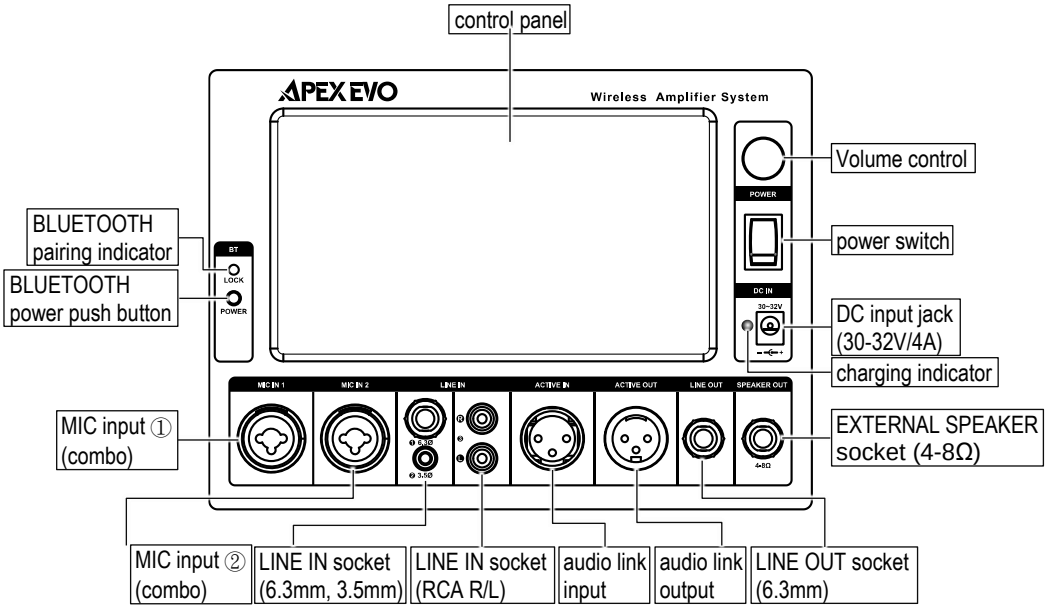
Speakers

APEX SLAVE	Active companion powered speaker	**APEX SP**	Passive companion speaker

Accessories

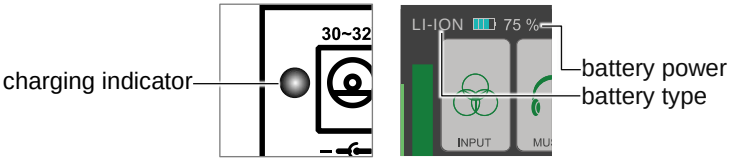
ST-50	Tripod stand: standard	**ST-51**	Tripod stand: height adjustable
DC-55	Weather proof dust cover	**DM-series**	Wired microphone, please refer to **CHIAYO website.**

1-3 Parts and functions



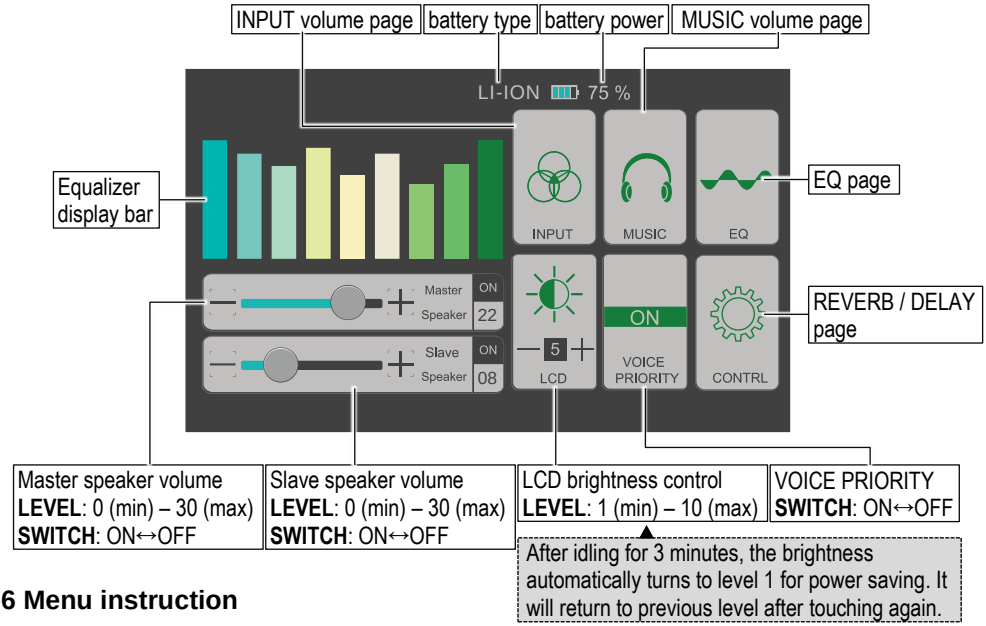
1-4 Charging the battery

This amplifier uses either two lead-acid batteries or one lithium battery which can be identified by LEAD-ACID and LI-ION on the panel top. The battery power can be identified by the meter after the battery type. If the meter reads below 25%, the battery might not be sustainable for long operation and need recharging.



Charging indicator	Condition
Flashes RED	During recharging
Solid GREEN	Fully charged
Solid YELLOW	Error or no battery detected

1-5 Control panel

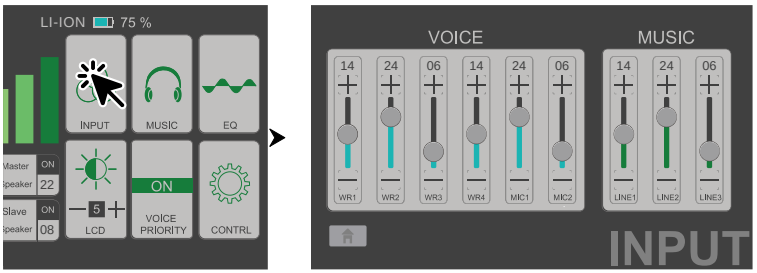


1-6 Menu instruction

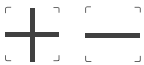
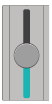
1-6-1 INPUT volume page

1. Press **INPUT** to enter the volume control for wireless / wired microphones and line inputs.

Category	**VOICE**		**MUSIC**		
Tab	WR1 ~ WR4	MIC 1 ~ MIC 2	LINE IN ❶	LINE IN ❷	LINE IN ❸
Input	Wireless mic 1 ~ 4	Wired mic 1 ~ 2	6.3mm	3.5mm	RCA R/L



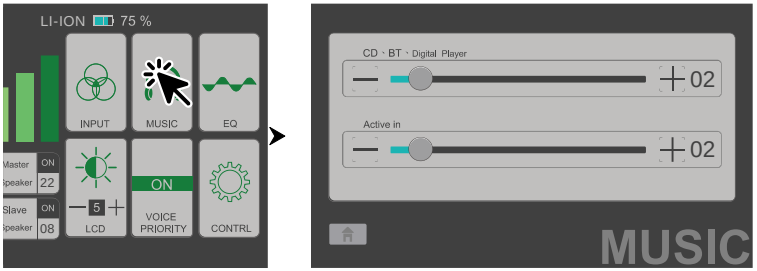
2. These audio sources can be individually adjusted from 0 (min) to 30 (max) by either of below methods.

		
Press “＋” and “－” buttons	Slide granular bar	Select target audio and rotate jog wheel knob

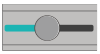
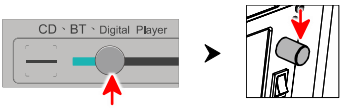
1-6-2 MUSIC volume page

1. Press **MUSIC** to enter the volume control for CD / DVD player, BLUETOOTH and companion powered speaker (ACTIVE IN).

Tab	CD、BT、Digital Player	Active in
Input	CD, BLUETOOTH, MP3	companion powered speaker



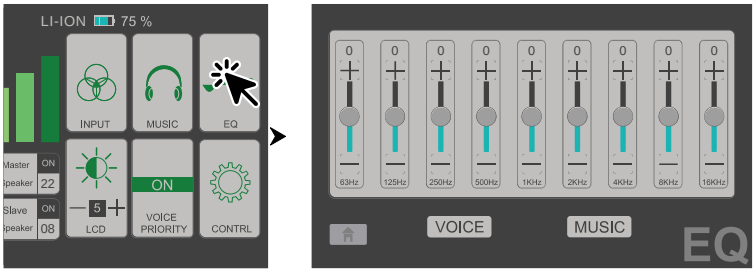
2. These audio sources can be individually adjusted from 0 (min) to 30 (max) by either of below methods.

		
Press “＋” and “－” buttons	Slide granular bar	Select target audio and rotate jog wheel knob

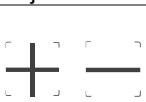
1-6-3 EQUALIZER page

1. Press **EQ** to enter the EQUALIZER control for wireless / wired microphones and line inputs.

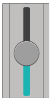
Category	VOICE		MUSIC				
Input	Wireless mic 1 ~ 4	Wired mic 1 ~ 2	LINE IN ❶ (6.3mm)	LINE IN ❷ (3.5mm)	LINE IN ❸ (RCA R/L)	CD, BLUETOOTH, MP3	ACTIVE IN



2. There are nine individual controls for frequency bands ranging from 63 Hz to 16 KHz. Each can be adjusted from -12 (min) to 12 (max) by either of below methods.



Press "＋" and "—" buttons



Slide granular bar

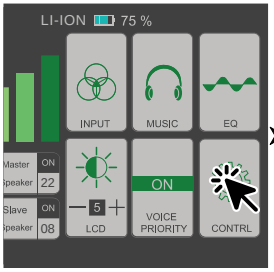
Select target audio and rotate jog wheel knob

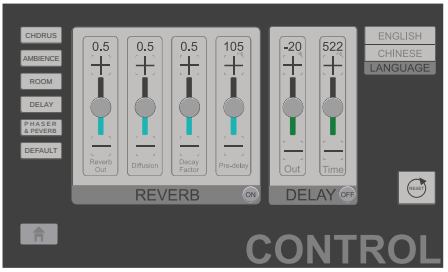
3. Equalized audio only goes to master speaker, slave speaker (from SPEAKER OUT jack) and active speaker (from ACTIVE OUT jack). It won't apply to:
(1). Output from LINE OUT ❶~❸ to the amplifier or mixer.
(2). Recording via DPR-500m module.
(3). Interlinking via RP-5100m module to the active speaker.

1-6-4 EFFECT and language page

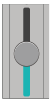
1. Press **CONTROL** to enter the RREVERB and DELAY control for wireless / wired microphones and language setting.

Category	**REVERB**				**DELAY**	
Sector	Reverb out	Diffusion	Decay factor	Pre-delay	Out	Time

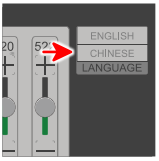




2. There are four child effects for REVERB and two for DELAY. Each can be adjusted by either of below methods.

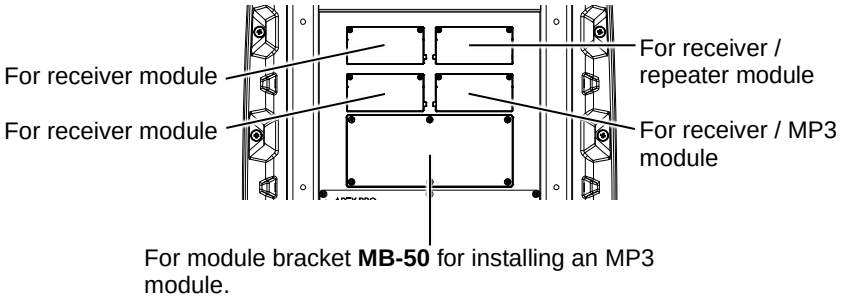
		
Press “＋” and “—” buttons	Slide granular bar	Select target audio and rotate jog wheel knob

3. This system includes two languages of control panel interface for selection, English (default) and traditional Chinese. The options are located at top-right of the screen.

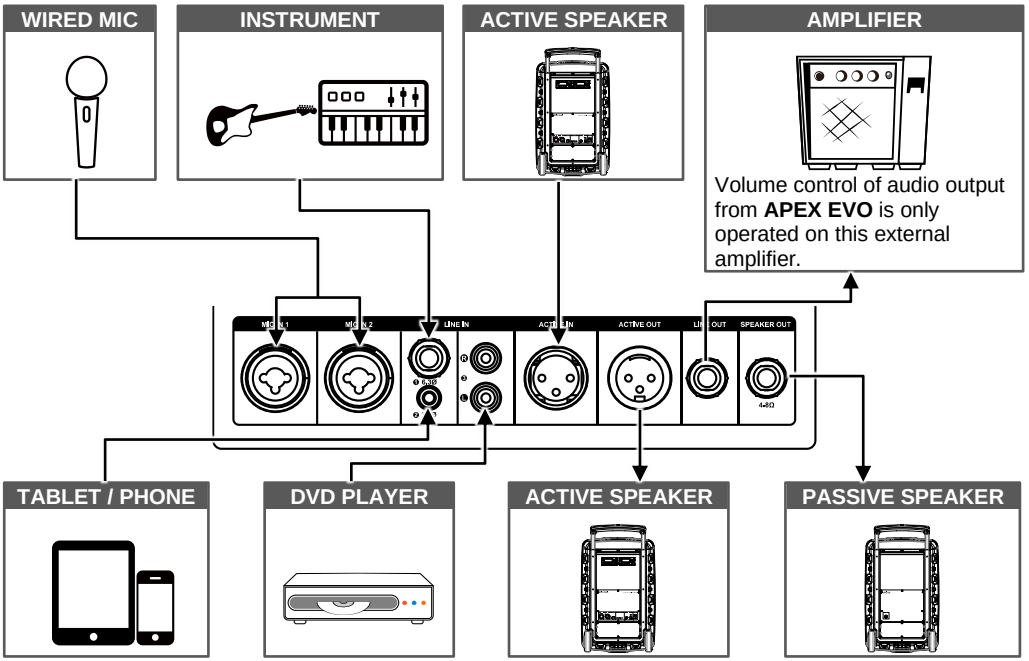


4. Reset: After pressing RESET till the screen flashes once, all settings will return to default.

1-7 Module compartment



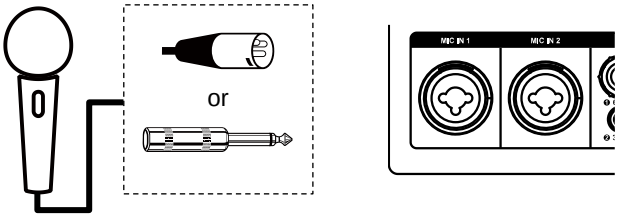
1-8 Connection with external audio sources



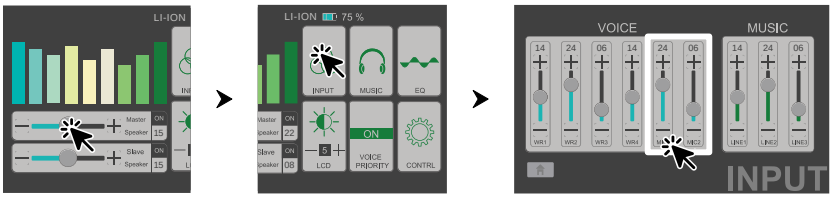
2. Settings and Operations

2-1 Using the wired microphone (MIC 1, MIC 2)

1 Plug a wired microphone with a 6.3mm or XLR connector to **MIC 1** or **MIC 2**.

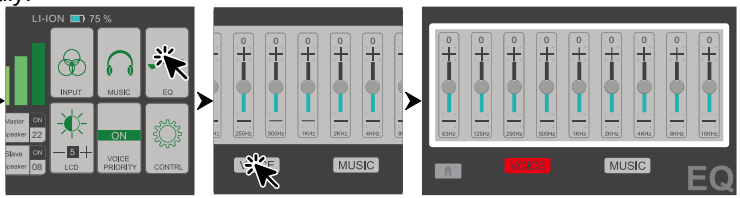


2 Turn on master POWER and adjust Master Speaker volume to 15, and then adjust **MIC 1** or **MIC 2** volume to a desired level.

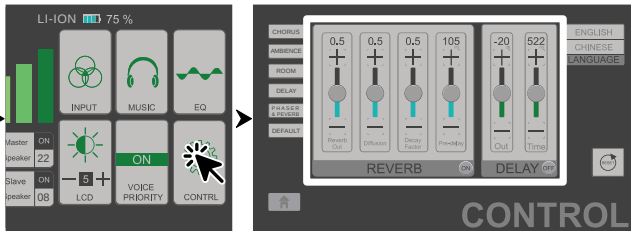


3 EQUALIZER (refer to P.18) and REVERB / DELAY (refer to P.19) levels can be adjusted individually.

EQUALIZER

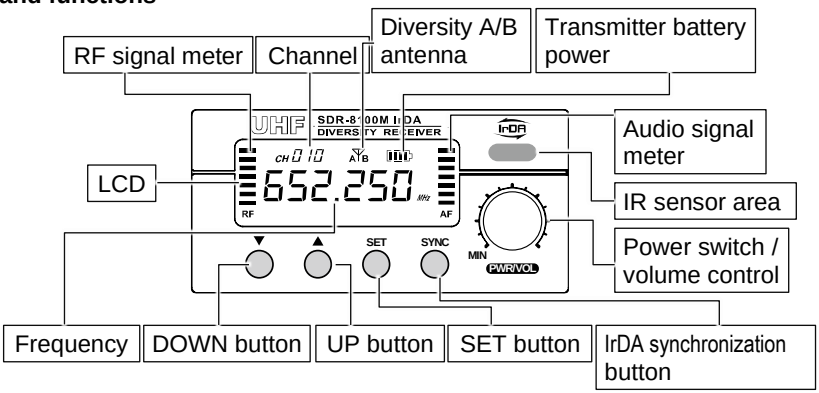


REVERB / DELAY

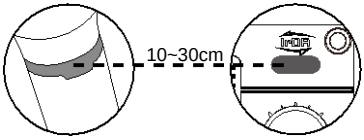


2-2 Using the wireless microphone

2-2-1 Parts and functions



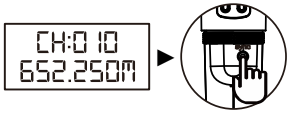
2-2-2 Channel synchronization of the receiver and transmitter



Align infrared areas of the receiver and transmitter within 10~30cm.

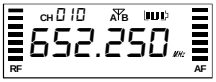
■ Changing receiver's channel

1 Press the synchronization button of the transmitter.



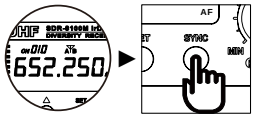
2 The transmitter's LED will grow to denote synchronization signal transmitted.

3 The channel number on the receiver's LED will become the same as the transmitter's, which means the receiver has been successfully synchronized.



■ Changing transmitter's channel

1 Press the SYNC button of the receiver.



2 The transmitter's LED will grow to denote synchronization signal received.

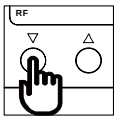
3 The channel number on the transmitter's LCD will become the same as the receiver's, which means the transmitter has been successfully synchronized.

If it doesn't work check that you have the IR sensor panels aligned, that they are facing each other, devices are within 10~30cm of each other, and try again.

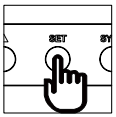
2-2-3 Channel scanning

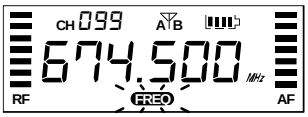
For an interference- free operation, a cleaner channel might be necessary if the current one receives too much interference. To operate the scanning:

1 Press ▼(down) or ▲(up) button to make the frequency icon FREQ appear on the bottom.

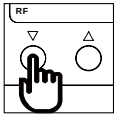


2 Hold **SET** button until this icon FREQ flashes to denote readiness for setting.

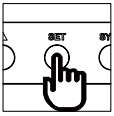




3 Press ▼(down) or ▲(up) button to find and locate a clear, interference- free channel.



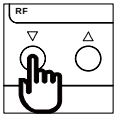
4 After a channel is chosen, press **SET** button or wait 5 seconds to store the setting.

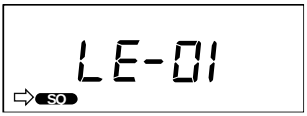


2-2-4 Squelch (SQ) setting

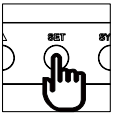
When interference is encountered try reducing the sensitivity of the receiver, thus less susceptible to interference. To operate the squelch setting:

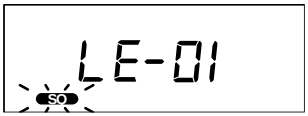
1 Press ▼(down) or ▲(up) button to turn to the squelch setting page.



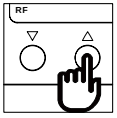


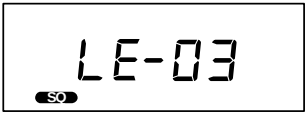
2 Hold **SET** button until this icon SQ flashes to denote readiness for setting.



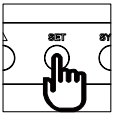


3 Press ▼(down) or ▲(up) button to select a new squelch level between **01** and **10**. The default level is **01**.





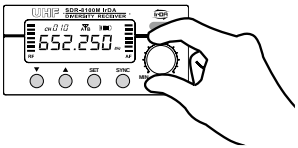
4 After a level is chosen, press **SET** button or wait 5 seconds to store the setting.



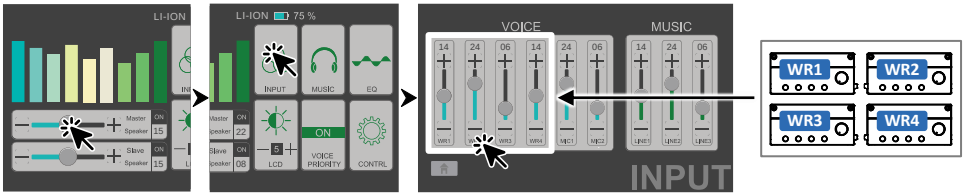
Since increasing the squelch level will also reduce the reception distance, it's recommended to choose the lowest level that can eliminate the interference.
If this still does not solve the problem it means this frequency is not suitable. Adjust the squelch back to its default level (**LE-01**) and use the scan function to locate a clear, interference-free channel.

2-2-5 Volume and other settings

1 Turn on master POWER and then adjust the volume control on the module to max level.

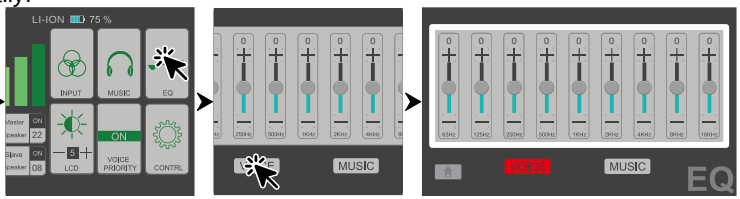


2 Adjust Master Speaker volume to 15, and then adjust its individual volume control to a desired level.

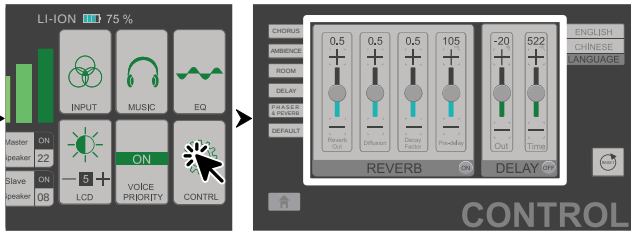


3 EQUALIZER (refer to P.18) and REVERB / DELAY (refer to P.19) levels can be adjusted individually.

EEQUALIZER

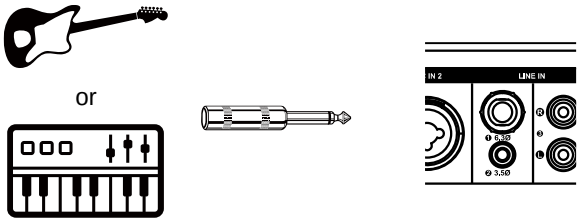


REVERB / DELAY

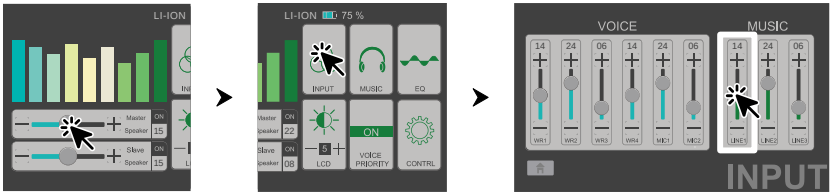


2-3 Using the electronic instrument (LINE IN ❶)

1 Plug an electronic guitar / keyboard with a 6.3mm connector to the **LINE IN ❶ 6.3Ø** jack.

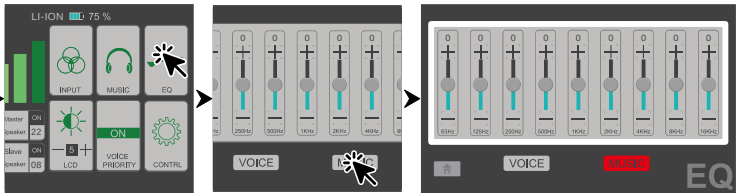


2 Turn on master POWER and adjust Master Speaker volume to 15, and then adjust **LINE 1** volume to a desired level.



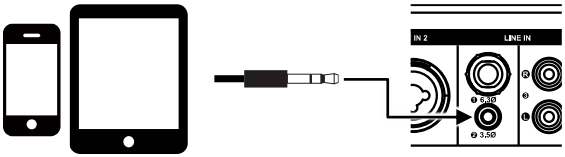
3 EQUALIZER levels can be adjusted individually. (refer to P.18)

EQUALIZER

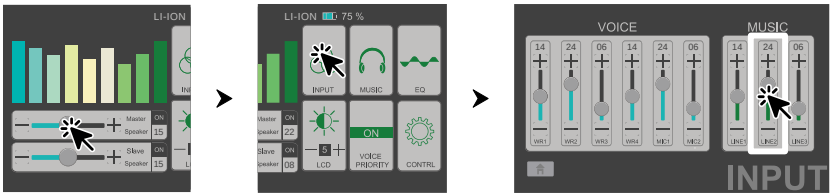


2-4 Music audio input (LINE IN ❷) - Smart phone / tablet / MP3 player

1 Connect your device to the **LINE IN ❷ 3.5Ø** jack with a 3.5mm **3-pole stereo** audio cable.

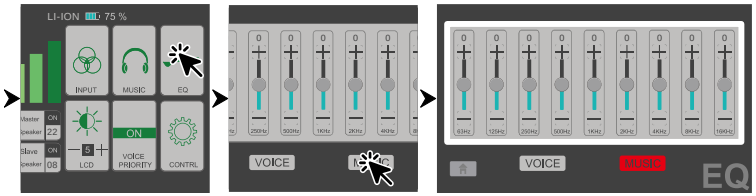


2 Turn on master POWER and adjust Master Speaker volume to 15, and then adjust **LINE 2** volume to a desired level.



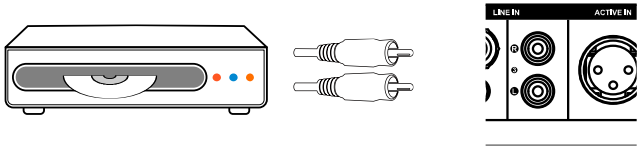
3 EQUALIZER levels can be adjusted individually. (refer to P.18)

EQUALIZER

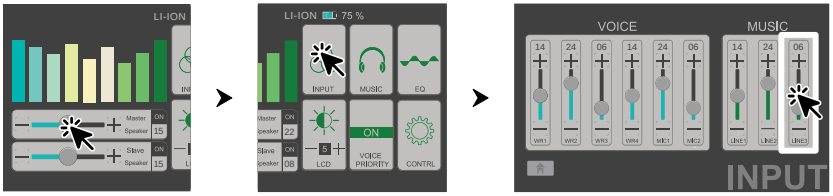


2-5 Music audio input (LINE IN ❸) - *DVD player*

1 Plug the audio cable with RCA R/L plugs to the **LINE IN ❸ ⓇⓁ** jacks.

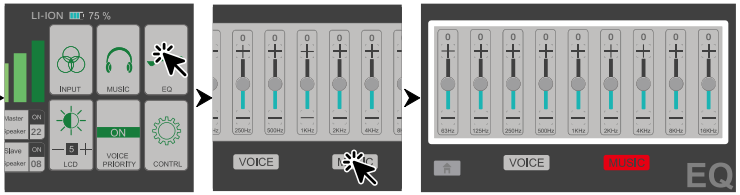


2 Turn on master POWER and adjust Master Speaker volume to 15, and then adjust **LINE 3** volume to a desired level.



3 EQUALIZER levels can be adjusted individually. (refer to P.18)

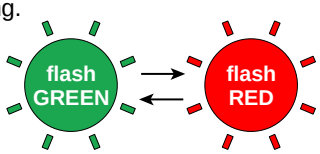
EQUALIZER



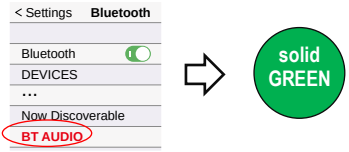
2-6 Operating BLUETOOTH receiver (BT)

1 Turn on master POWER and then press the **SWITCH** button 3 seconds to turn on the BLUETOOTH receiver. The pairing indicator will flash green.

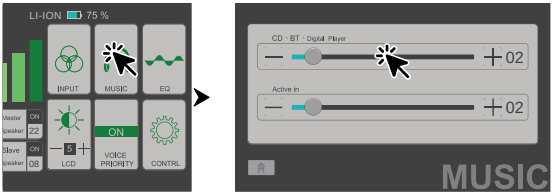
Approximately 9 seconds later, the pairing indicator flashes green and red, which means it is ready for pairing.



2 Activate BLUETOOTH on your device (phone, tablet, PC., etc) and pair with external BLUETOOTH device named "**BT AUDIO**". After successful linking, the pairing indicator will be solid green and you can play your music on **APEX EVO**.

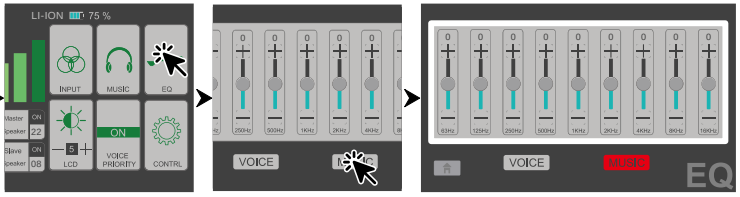


3 Turn on master POWER and then adjust **CD**、**BT**、**Digital Player** volume control to a desired level.



4 EQUALIZER levels can be adjusted individually. (refer to P.18)

EQUALIZER



Important

- The BLUETOOTH automatically turns off after no pairing for 5 minutes.
- Press **SWITCH** button for disconnection and getting ready for new pairing.
- The BLUETOOTH can memorize and automatically connect to last-paired device.

2-7 EQUALIZER for WIRED and WIRELESS MICROPHONE and MUSIC

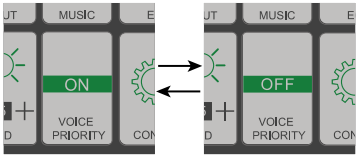
EQUALIZER adjustment is actually used to increase or reduce the high (4KHz｜8KHz｜16KHz) / medium (500Hz｜1KHz｜2KHz) / low frequency (63Hz｜125Hz｜250Hz) component of the sound. It is so-called raising or attenuating TREBLE / MIDDLE / BASS to improve human voices or make musical instruments' sound more prominent. According to the scale marks on the panel, sliding up is to increase and boost and opposite direction to decrease and attenuate. Adjust the level of high frequency (4KHz｜8KHz｜16KHz), middle frequency (500Hz｜1KHz｜2KHz), and low frequency (63Hz｜125Hz｜250Hz) respectively. All signals have been balanced by the high and low sounds after entering the amplifier so it is not necessary to adjust the EQUALIZER during the output to the speaker. It is recommended to maintain the position of all frequency bands at 0.

	BASS			**MIDDLE**			**TREBLE**		
Frequency	**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**	**16K**
FUNCTION	increase or reduce the low frequency component of the sound			increase or reduce the medium frequency component of the sound			increase or reduce the high frequency component of the sound		
RANGE	-12 dB ~ +12 dB								
DEFAULT	0								

Adjustment reference:

- **BASS**: It is the basic part of the sound. It accounts for 70% of the entire audio energy and is an important component to display the music style. When appropriate, the BASS is relaxed and the sound is full and soft. If you feel the sound is thin, you can moderately increase the BASS. If you feel the sound is muffled, not clear, or too nasal, you can moderately reduce the BASS.
- **MIDDLE**: Containing the low harmonics and overtones of most musical instruments. It is the characteristic sound of snare drums and percussion instruments. The sound is clear and bright when appropriate. If you feel the sound is blurred, you can moderately increase the MIDDLE. If a phone-like sound appears, you can moderately reduce the MIDDLE.
- **TREBLE**: It's the frequency that affects the sound layering. If you feel that the sounds of instruments such as Piccolo and Flute are too prominent, or the tooth sound of the voice is too heavy and the tone is sharp, you can moderately reduce the TREBLE.

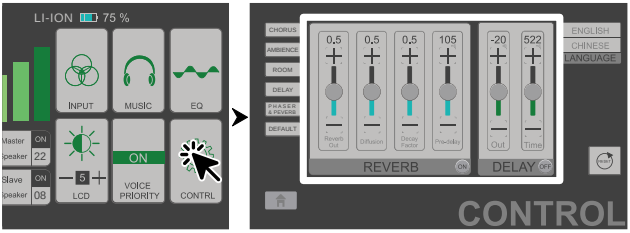
2-8 VOICE PRIORITY



Voice Priority operation is only necessary when CD/USB/MP3 is playing.
When the Voice Priority switch is ON, the ducking function will be activated. While the music is playing, a voice input from either a **WIRED or WIRELESS MICROPHONE** will temporarily override and lower the volume of the background music and voice could be heard more clearly. Background music will return to its original setting when no audio input is entering the microphone after certain seconds. However, if the microphone is not switch off, the reentering of music into the microphone will also activate the voice priority function.

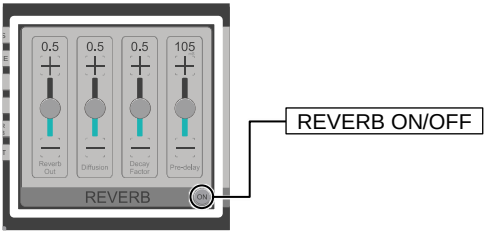
2-9 CONTROL for vocal effect

APEX EVO has two major sound effects especially for **WIRED and WIRELESS** microphones, **REVERB** and **DELAY**. After entering the CONTROL page, you will see six factory-preset modes on the left for selection. Each mode comprises of specific values of **REVERB** and **DELAY** and is not changeable. The DEFAULT mode sets both **REVERB** and **DELAY** at OFF status.
For advanced setting, REVERB has four child effects and DELAY has two that may be adjusted to match expected effects.



2-9-1 REVERB

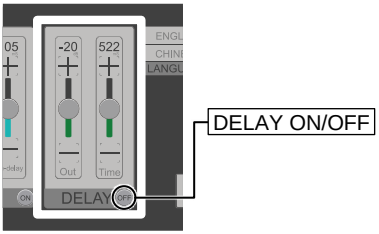
This function can add extra depth to the sound of **WIRED or WIRELESS** microphones to create a realistic acoustic ambience. You can control the reverb on the REVERB area which includes four child effects for adjustment. REVERB can be turned on / off by the ON/OFF button.



Effect	Function	Adjustment
Reverb Out	Controls the comprehensive output volume of Diffusion, Decay Factor and Pre-delay effects.	▪ Min level “0”: No REVERB effect (Diffusion, Decay Factor and Pre-delay) output. ▪ Max level “1”: Max comprehensive REVERB effect (Diffusion, Decay Factor and Pre-delay) output. ▪ Adjustment: 0.1 / step
Diffusion	The number of directions in which the reverb travels once it hits the reflective surface.	▪ Min level “0”: No diffusion effect. A low diffusion can result in the reverb reflections sounding much more distinct. ▪ Max level “1”: A high diffusion results in a thicker reverb sound, with all of the reflections blending together. ▪ Adjustment: 0.1 / step
Decay Factor	The time reverb takes from fade-in to fade-out.	▪ Min level “0”: No decay effect. ▪ Max level “1”: The max period reverb can last. ▪ Adjustment: 0.1 / step
Pre-delay	The time between the first fade-in and the source signal.	▪ Min level “0”: No pre-delay effect. The fade-in occurs as soon as the original sound. ▪ Max level “175”: The fade-in occurs 175 mS after the original sound. ▪ Adjustment: 7 mS / step

2-9-2 DELAY

Delay is an effect for **WIRED or WIRELESS** microphones. It repeats the input signal one or more times after a certain period of time. You can control the DELAY on the DELAY area which includes two child effects for adjustment. DELAY can be turned on / off by the ON/OFF button.



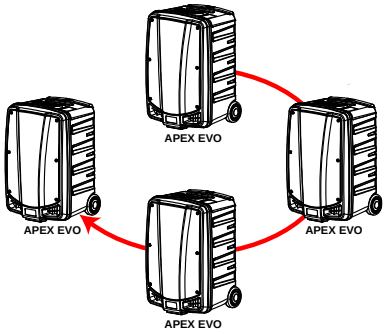
Effect	Function	Adjustment
Out	The strength loss, measured in dB, of the echo relative to the source signal.	▪ Min level “-30”: Each echo decreases by 30 dB to the source signal. ▪ Max level “0”: Min strength loss. Each echo decreases by 3 dB to the source signal. ▪ Adjustment: 1 dB / step
Time	The time, measured in mS (millisecond), between the source signal and its echo.	▪ Min ”174”：The echo occurs 174 mS after its source signal. ▪ Max “1044”：The echo occurs 1044 mS after its source signal. ▪ Adjustment: 34-35 mS / step

3. Application

3-1 Active audio link: APEX EVO to APEX EVO

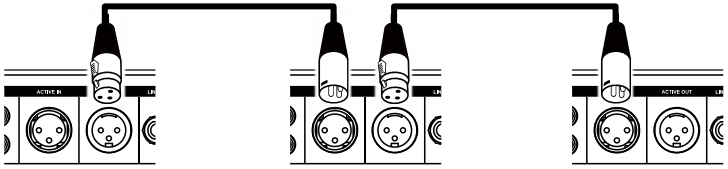
APEX EVO operates as the MASTER as well as companion unit in an audio link (wired) configuration.

1 Connect one APEX EVO after the other via the **ACTIVE IN** and **ACTIVE OUT** jacks.



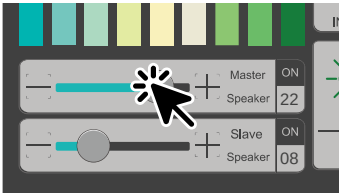
Important

- Max cable length: ≤ 20m
- Recommended linking no more than 5 units. Too many units may result in audio delay.

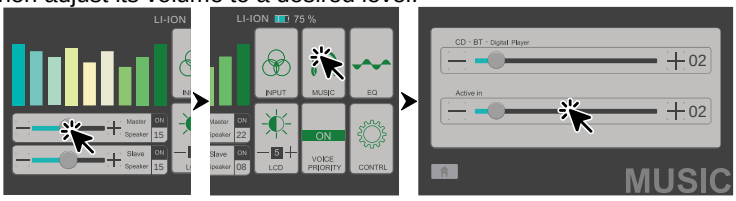


1ST **APEX EVO** 2ND **APEX EVO** 3RD **APEX EVO**

2 Turn on the POWER of master **APEX EVO** and then adjust its volume to a desired level.

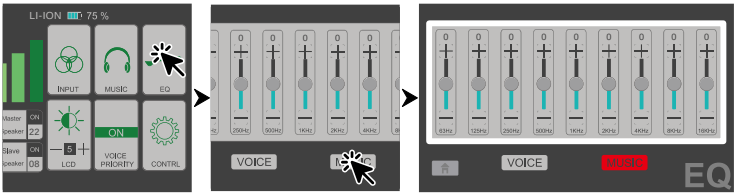


3 Turn on the POWER of companion **APEX EVO** and adjust Master Speaker volume to 15, and then adjust its volume to a desired level.



4 EQUALIZER levels can be adjusted individually. (refer to P.18)

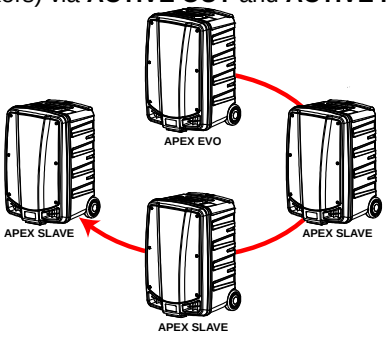
EQUALIZER



3-2 Active audio link: APEX EVO to APEX SLAVE

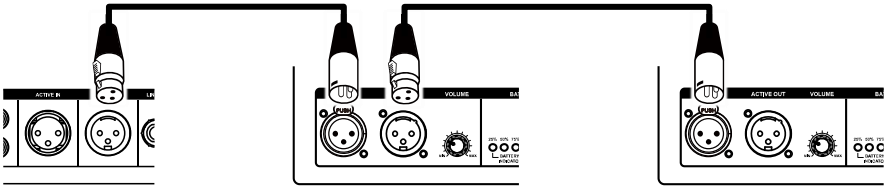
APEX EVO operates as the MASTER unit in an audio link (wired) configuration with active companion powered speakers **APEX SLAVE**.

1 Connect the APEX EVO (master unit) and APEX SLAVE (active companion powered speakers) via **ACTIVE OUT** and **ACTIVE IN** jacks.

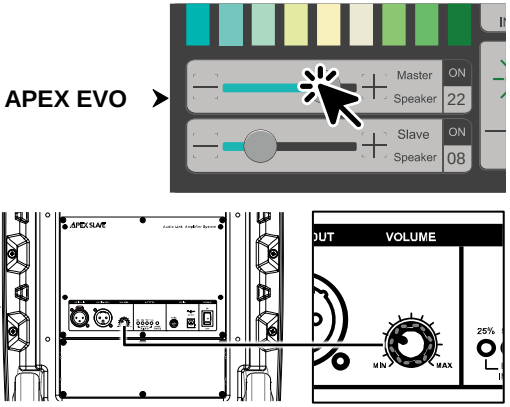


Important

- Max cable length: ≤ 20m
- Recommended linking no more than 5 units. Too many units may result in audio delay.

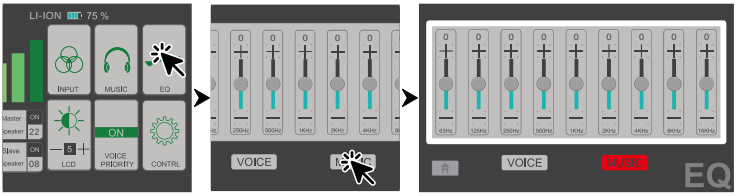


2 Turn on master POWER of **APEX EVO** and **EACH APEX SLAVE** and then adjust master volume control to a desired level. Turn on power of **EACH APEX SLAVE** and then adjust the volume control to a desired level.



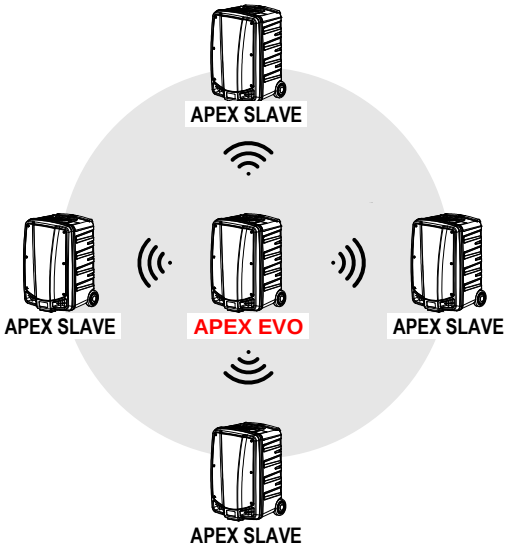
3 EQUALIZER levels can be adjusted individually. (refer to P.18)

EQUALIZER

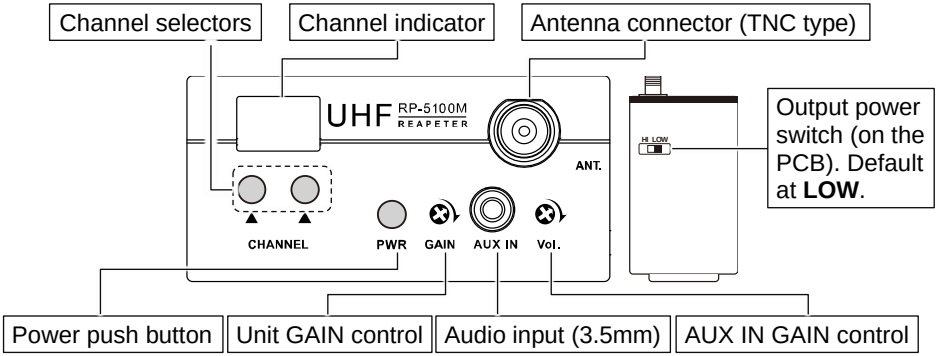


3-3 Wireless audio link: repeat all audio to linked APEX EVO / APEX SLAVE

APEX EVO operates as the MASTER unit in a wireless audio link with other **APEX EVO** or active companion powered speakers **APEX SLAVE**.
The repeater module **RP-5100M** of master **APEX EVO** can transmit all audio signals, including wired/wireless microphone, music, instrument etc., to other units installed with receiver module.

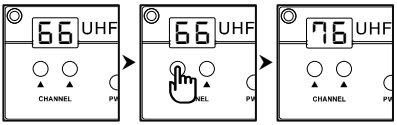


3-3-1 Parts and functions of RP-5100M

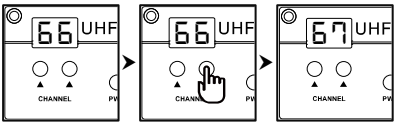


3-3-2 Changing channels

Press LEFT ▲ button to increase the TENS-digit channel number.

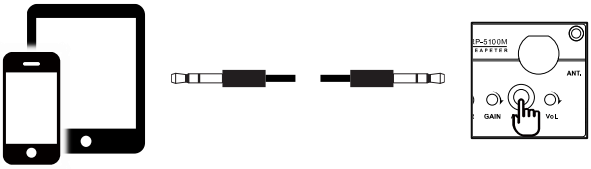


Press RIGHT ▲ button to increase the UNIT-digit channel number.

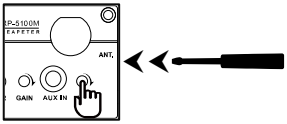


3-3-3 Music audio input (AUX IN)- Smart phone / tablet / MP3 player

1 Connect your device to the 3.5mm jack of **AUX IN** with a 3.5mm **3-pole stereo** audio cable.

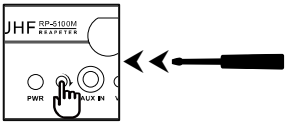


2 Use a mini screw driver to adjust the volume of the input audio.



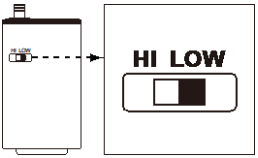
3-3-4 Adjust internal audio gain level

Use a mini screw driver to adjust the volume of audio sources in the master unit.

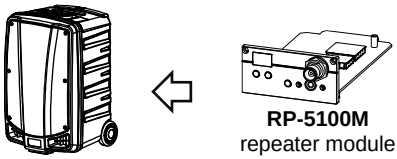


3-3-5 Output power setting

- **LOW** position (default) for low output power and **HI** for high output power.
- Low output power will reduce the RF transmission distance and high output power will extend the possible RF transmission distance.
- If the module is installed on battery-powered amplifiers, remember HIGH output power places slightly more load on the battery and will reduce operating duration faster than LOW output power.



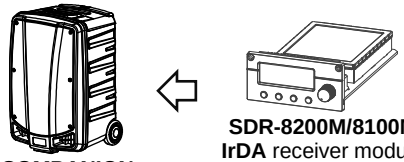
1 Install a repeater module **RP-5100M** on the master **APEX EVO**. Set the channel/frequency on the repeater module which will be used to transmit signals to other units. The channel/frequency must be different from other modules on all master and companion units.



MASTER

RP-5100M
repeater module

2 Install a receiver module **SDR-8200M/8100M IrDA** on companion **APEX EVO** or **APEX SLAVE**. Set the channel/frequency on the receiver module which will be used to receive signals from the master **APEX EVO**. Both repeater and receiver module must be the same channel/frequency.

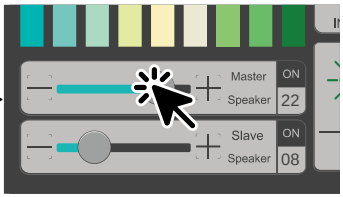


COMPANION

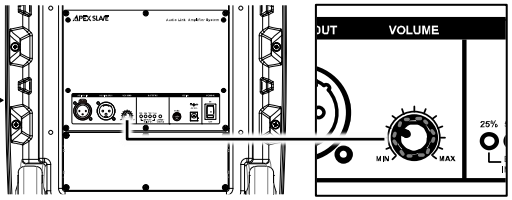
SDR-8200M/8100M
IrDA receiver module

3 Turn on master POWER of **APEX EVO** and **EACH APEX SLAVE** and then adjust master volume control to a desired level. Turn on power of **EACH APEX SLAVE** and then adjust the volume control to a desired level.

APEX EVO

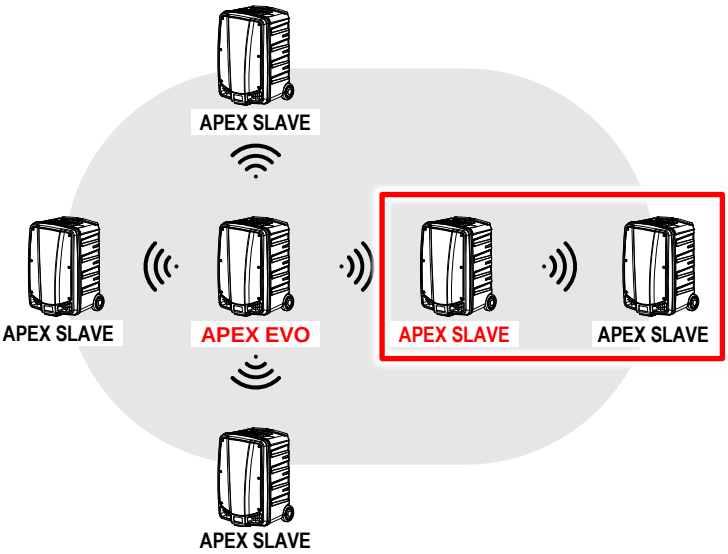


APEX SLAVE

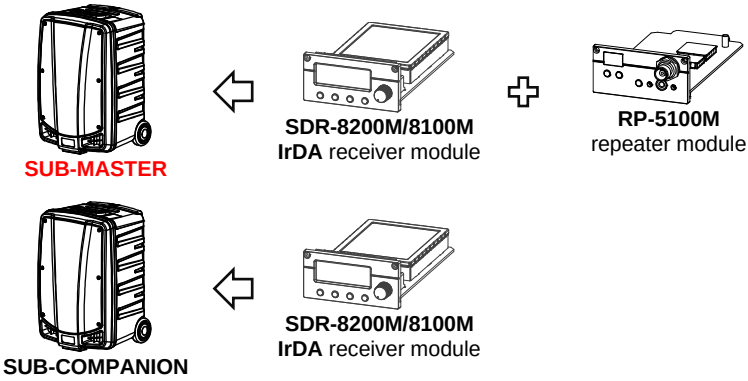


3-4 More extension

To reach wider coverage, the companion unit **APEX EVO** / **APEX SLAVE** can serve as SUB-MASTER to transmit signals to SUB-COMPANION units.
Important: Please do not set the SUB-COMPANION as next MASTER in order to guarantee best sound quality.

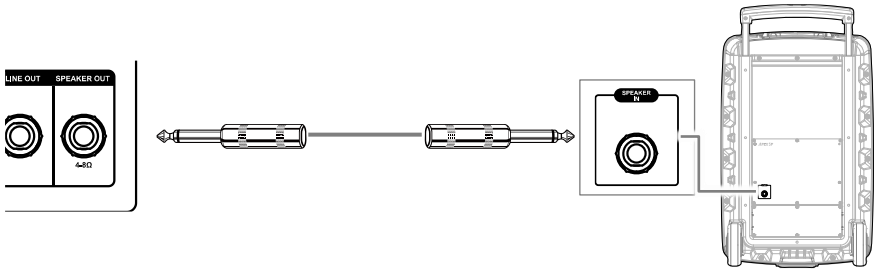


For this purpose, please install a repeater module on the SUB-MASTER unit and a receiver module on SUB-COMPANION units (same procedures as STEP 1 & 2). Both repeater and receiver module must be the same channel and same frequency which must be different from former repeater and receiver module.

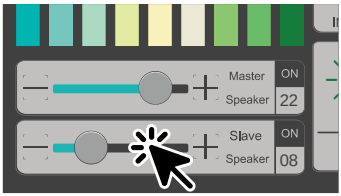


3-5 Connecting a passive companion speaker

1 Plug the passive companion speaker's audio cable with a 6.3mm connector to the speaker input socket of **APEX SP** or another 4~8Ω load speaker. Max cable length less than 20m.

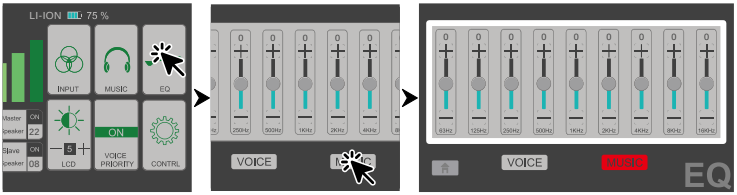


2 Turn on master POWER and then adjust its individual volume control to a desired level.



3 EQUALIZER levels can be adjusted individually. (refer to P.18)

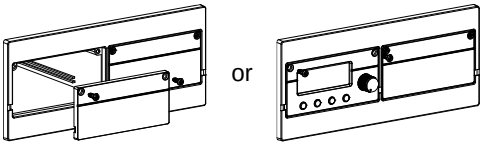
EQUALIZER



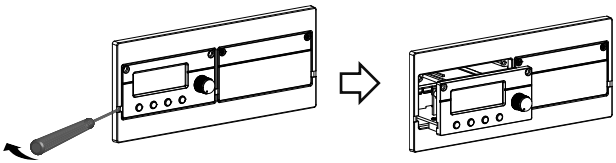
4. Installing or replacing a receiver/repeater/MP3 module

There are four slots above the control panel and two on **MB-50** module bracket for installing optional modules which includes receiver, repeater and MP3 recorder modules.

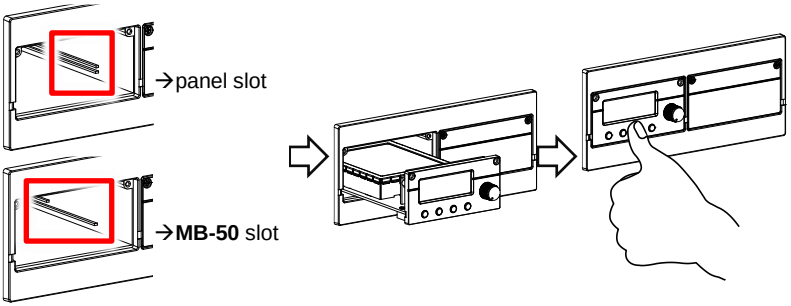
1 Use a Phillips-head screwdriver (not included) to remove the screws of the blank cover panel or current module's panel.



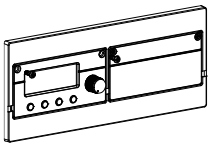
2 To replace module, use a mini flat-head screw driver (not included) to pry up the current module's panel and remove the module.



3 Gently insert the module into the slot by aligning its edges to the guide rails. Then push the panel to make sure it's been firmly connected.

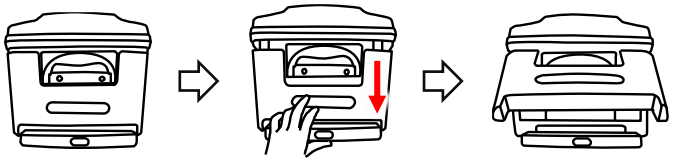


4 Tighten up the screws.

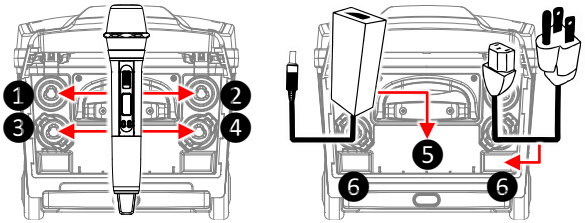


5. Operation of the storage for transmitters and accessories

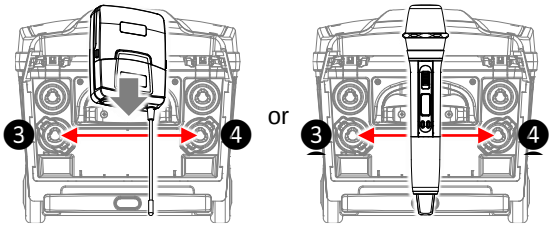
1 Open the lid. Be careful of the gap between the trolley handle and the lid.



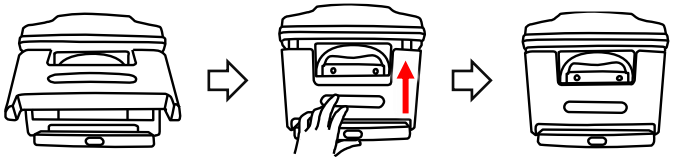
2 Slots ❶~❹ for handheld transmitters. Please make the handheld's power switch face the amplifier's handle and then insert. Slot ❺ for switching power supply. Slots ❻ for power cable.



3 Slots ❸~❹ also for beltpack transmitters. Before inserting a beltpack transmitter, please make it UPSIDE DOWN and turn 45° to insert the antenna first.



4 After everything is correctly placed, return and close the lid. Please be noted that the lid will be unable to recover if anything inside the container is misplaced.



6. FAQ & useful operation tips

1 How to adjust the best volume?

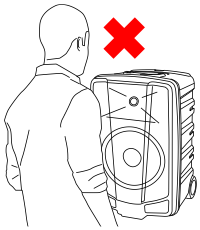
For CHIAYO PA system with a master volume control, turn the master volume to 12 o'clock and then gradually adjust the volume of audio inputs (microphone, CD, MP3, etc.) from minimum to an appropriate level. Then adjust master volume on demand of application. CHIAYO PA systems have volume distortion indicators that prevent distortion even at maximum volume.

2 Is it possible to play music storing on external devices via wireless amplifier?

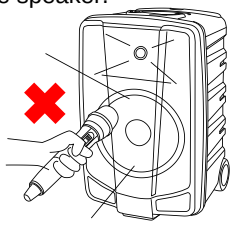
Yes. CHIAYO's wireless amplifiers have auxiliary audio input(s) LINE IN (or AUX IN) for connection with external devices such as notebook, mobile phones or tablets. (Medium and larger-sized wireless amplifiers (**APEX**, **STAGE** and **FOCUS** series) can also be installed with MP3 recorder modules and equipped with remote control for more versatile functionality.) Music streaming from mobile phone / tablet / notebook is available via built-in BLUETOOTH receiver.

3 How to avoid or reduce feedback?

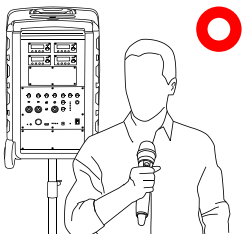
▌Do not stand in front of the speaker when using the microphone.



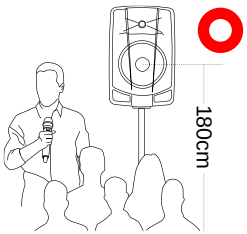
▌Do not point the wireless microphone towards the speaker.



▌Use the microphone behind the speaker as possible.



▌Locate the wireless amplifier between the speaker and the audience with the speaker facing the crowd. Place the wireless amplifier on a tripod stand and above the head of audience (about 180cm).



▌Turn down the volume if necessary.

4 Is it possible to record the sound of Microphone or external devices when using APEX EVO?

Yes. Install **an MP3 recorder player (DPR-500m) on APEX EVO to obtain recording function.**

5 Does a wireless amplifier need to be installed with a tripod? What is the ideal height for Amplifier above the ground?

Higher position of a wireless PA will be helpful for signal reception. It can be mounted on the tripod and above the ear or head of the audience. If the tripod is not allowed on site, you can also raise it on a table or a flat object while the amplifier leaves the ground by 1 meter or more.

6 Will wireless amplifier automatically power off once it is fully charged? Do I need to unplug the power cord?

Yes. Since all CHIAYO amplifiers have an overcharge protection circuit that automatically power off at full charge and prevent damage to the system. However, please unplug the power cord after fully charging to ensure the safety.

7 How to charge and maintain the battery of wireless amplifier?

After plugging the power cable of the wireless amplifier into a standard outlet, the charging LED will glow or flash indicative of charging status. The wireless amplifier can be charged whether in use or power off.

Lead-acid batteries/lithium batteries have no memory effect. Please charge them up immediately after each use, no matter how much power they left. If the battery is not charged for a long time, it may cause the battery to be over-discharged and damaged, shortening the battery life or even making it impossible to charge normally.

Lithium battery should be fully charged at least once every 6 months. Lead-acid battery should be fully charged at least once every 3 months.

If the battery is fully charged after usage without over-discharging, the battery life can reach about 2 years.

8 Is it possible that APEX EVO can work as amplifier only? Can I use only one or more microphones? How many wireless microphones can be used at most?

The wireless receiver, transmitter and MP3 recorder player (DPR-500m) for **APEX EVO** are modular products which can be installed optionally according to application and requirement.

Maximum 4 wireless microphones can be used simultaneously.

9 What is the difference between lead-acid batteries and lithium batteries?

Lithium battery: light weight, electronic circuit protection, long life and more expensive.
Lead-acid battery: heavy weight, short life and more affordable.

7. Maintenance-free Lead-acid and Lithium batteries

Cautions when using the battery

1. Lead-acid batteries/lithium batteries have no memory effect. Please charge them up immediately after each use, no matter how much power they left. If the battery is not charged for a long time, it may cause the battery to be over-discharged and damaged, shortening the battery life or even making it impossible to charge normally.
2. Usage temperature can't be lower than -10°C nor higher than 50°C.
3. It's strictly forbidden to let the battery contact with any liquid. Do not immerse the battery in water or get it wet. After the battery is exposed to water, a decomposition reaction may occur, which may cause battery self-ignition or even cause an explosion.
4. It is forbidden to use the battery when it has swelled, leaked, or the packaging is damaged.
5. It is forbidden to disassemble the battery in any way or pierce the battery with a sharp object, so as not to cause the battery to catch fire or even cause an explosion.
6. The liquid inside the battery is highly corrosive. If it leaks, please do not touch it. If the internal liquid splashes on human skin or eyes, please immediately rinse with clean water for at least 15 minutes before seeking medical attention.
7. It is forbidden to use wires or other metal objects to short-circuit the positive and negative electrodes of the battery.

Cautions when charging the battery

1. Lead-acid batteries/lithium batteries have no memory effect. Please charge them up immediately after each use, no matter how much power they left. If the battery is not charged for a long time, it may cause the battery to be over-discharged and damaged, shortening the battery life or even making it impossible to charge normally.
2. Please use the power supply specified by CHIAYO for charging.
3. The CHIAYO amplifier has a protection circuit to prevent overcharging. However, it's recommended that the charging time not exceed 12 hours. Please disconnect the power supply when fully charged.
4. Charging temperature can't be lower than 0°C nor higher than 40°C.
5. When charging, please place it on the hard ground, such as cement, and there should be no flammable or combustible materials around. Please pay attention to the charging process to prevent accidents.
6. It will automatically stop charging when fully charged. After the battery is fully charged, it is recommended to disconnect the amplifier from the power supply.
7. When the power supply is not disconnected and the amplifier is not in use, if the battery is fully charged and then recharged again soon after, it means that the battery is aging and cannot store power. Please replace the battery to ensure enough time for operation.

Cautions when storing the battery

1. Lead-acid batteries/lithium batteries have no memory effect. Please charge them up immediately after each use, no matter how much power they left. If the battery is not charged for a long time, it may cause the battery to be over-discharged and damaged, shortening the battery life or even making it impossible to charge normally.
2. Lithium batteries will automatically discharge in storage. If they are not charged for a long time, they will over discharge that causes a decrease in capacity and damage to the batteries that can no longer be charged normally. It should be fully charged at least once every 6 months.
3. Lead-acid batteries will automatically discharge in storage. If they are not charged for a long time, they will over discharge that causes a decrease in capacity and damage to the batteries that can no longer be charged normally. It should be fully charged at least once every 3 months.
4. Storage temperature can't be lower than -10°C nor higher than 40°C.

Disposing the battery

Be sure to completely discharge the battery before placing it in the designated battery recycling bin. Batteries contain dangerous chemicals. When disposing of old batteries, be sure to follow the local battery recycling and disposal regulations, and it is strictly forbidden to put them in a trash can.

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