GWELLAN-160

HYBRID PORTABLE PA SYSTEM

User's Manual

Hybrid
RECHARGEABLE
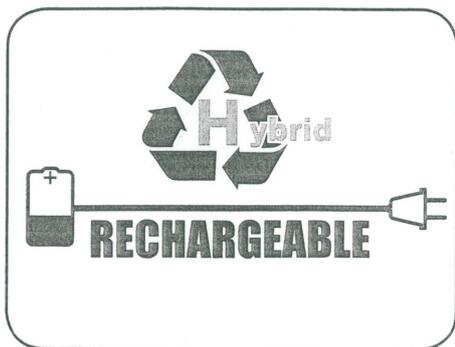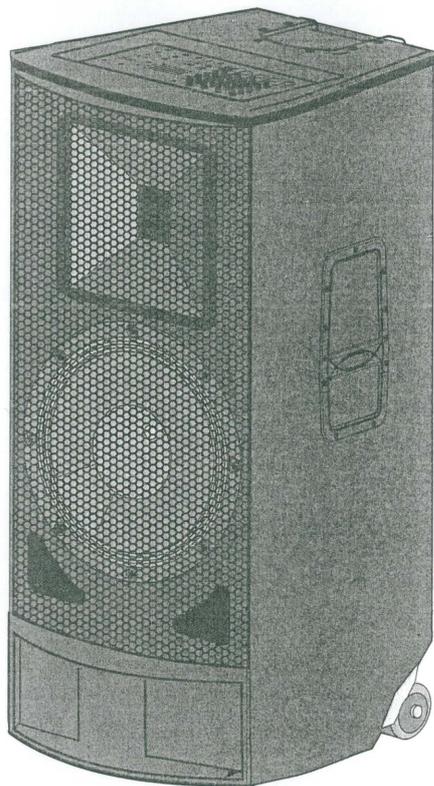
KOOL SOUND ™

Safety Related Symbols

⚡	CAUTION	⚠
	RISK OF ELECTRIC SHOCK DO NOT OPEN	

This symbol, wherever used, alerts you to the presence of uninsulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.

This symbol, wherever used, alerts you to important operating and maintenance instructions.

Please read.

Protective Ground Terminal

AC mains (Alternating Current)

AC mains (Alternating Current)

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

WARNING
Describes precautions that should be observed to prevent the possibility of death or injury to the user.

CAUTION
Describes precautions that should be observed to prevent damage to the product.Disposing of this product should not be placed in municipal waste but rather in a separate collection.

WARNING Power Supply
Ensure that them a inssource voltage (AC outlet) matches the voltage rating of the product. Failure to do so could result in damage to the product and possibly the user. Unplug the product before electrical storms occur and when unused for long periods of time to reduce the risk of electric shock or fire.

External Connection
Always use proper ready-made insulated mains cabling (power cord). Failure to do so could result in shock/ death or fire. If in doubt, seek advice from a registered electrician.

Do Not Remove Any Covers
Within the product are areas where high voltages may present. To reduce the risk of electric shock do not remove any covers unless the AC mains power cord is removed. Covers should be removed by qualified service personnel only.
No user serviceable parts inside.

Fuse
To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

Protective Ground
Before turning the unit ON, make sure that it is connected to Ground. This is to prevent the risk of electric shock.Never cut internal or external Ground wires. Like wise, never remove Ground wiring from the Protective Ground Terminal.

Operating Conditions
Always install in accordance with the manufacturer 'sinstructions.To avoid the risk of electric shock and damage, do notsubject this product to any liquid/rain or moisture.Do not use this product when in close proximity to water.Do not install this product near any direct heat source.Do not block areas of ventilation. Failure to do so could result in fire.Keep product away from naked flames.

IMPORTANT SAFETY INSTRUCTIONS
Read these instructionsFollow all instructions Keep these instructions. Do not discard.Heed all warnings. Only use attachments / accessories specified by themanufacturer.

Power Cord and Plug
Do not tamper with the power cord or plug. These redesigned for your safety.Do not remove Ground connections! If the plug does not fit your AC out let seek advicefrom a qualified electrician.Protect the power cord and plug from any physical stress to avoid risk of electric shock.Do not place heavy objects on the power cord. This could cause electric shock or fire.

Cleaning
When required, either blow off dust from the productor use a dry cloth.Do not use any solvents such as Benzol or Alcohol.For safety, keep product clean and free from dust.

Servicing
Refer all servicing to qualified service personnel only. Do not perform any servicing other than those instructions contained within the User's Manual. PORTABLECarts and stands - The component should be used

CART WARNING
only with a cart or stand that is recommended by the manufacturer. A component and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the component and cart combination to overturn.

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GWELLAN-160

Table of Contents

1. Introduction

Thank you for purchasing the **GWELLAN-160** 2-way vented powered speaker system. This unique system was designed to be an all-in one portable solution with built-in High Power amplifier, 4 channels mixer with 3-band EQ and 24-bit DSP effects. The **GWELLAN-160** combines practicality with top design concepts achieved over many years of manufacturing quality products. Please read this manual carefully so you can take advantages of all the features of the **GWELLAN-160**.

2. Features

- Portable plywood painted cabinet with wheel
- 1 x 12" woofer and 1 x 1" throat compression driver
- 4 channels mixer with a total of 4 inputs, Balanced XLR & TRS inputs
- 7-band graphic EQ
- Ultra low noise discrete MIC pre-amps with +15V phantom power
- 3-band EQ on all input channels
- Independent level controls on each channel
- High headroom for excellent dynamic range
- On-stage monitor mix
- DSP/FX send for built-in or external effects
- Tape In/Out
- 24-bit DSP effects with 100 presets
- USB-MP3 function
- Mini plug input for portable players with level control

3. Control Elements

3.1 MIXER SECTION

1. MONO INPUT Channels

CH1 through CH4, come with balanced MIC IN and LINE INconnectors. Use the XLR (MIC IN) socket to connect a lowimpedance microphone or low level signal, which also features +15V phantom power allowing you to connect a condensermicrophone.Use the 1/4" TRS (LINE IN) jack to connect either a microphone or aline level instrument such as synthesizers,drum machines, effect processors or any other line level signal.

Note: <u>You shall never connect an unbalanced microphone to XLR socket if you do not want to damage both the microphone andunit.</u>

2. +15V PHANTOM POWER Switch

This switch will apply +15 Volt phantom power only to the 4 XLRinput sockets. When these XLR sockets are connected with devices that do not require phantom power, please make sure the phantom power is turned off, otherwise, this may damage thedevice and monitor.

3. Channel LEVEL Control

This control isused to adjust the overall level of volume for respective channel. The adjustable range goes from -∞ to +10dB.

4. DSP/FX AUX1 POST Control

This control is configured as a POST-FADER, so the audio signalwill be affected by the channel level control. Via the FX SEND jack,the AUX1 signal can be sent to an external
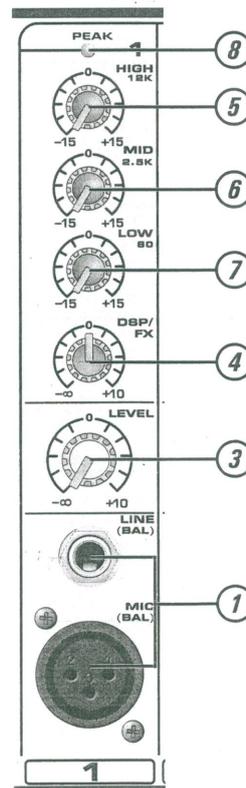
effect device.

QUALIZER

The GWELLAN-160 features a 3-band equalizer which allows you to adjust the high, mid and low frequencies separately on each mono channel.

5. HIGH

This is the treble control. You can use it to get rid of high frequency noises or to boost the sound of cymbals or the high harmonics of the human voice. The gain range goes from -15 dB to +15dB with a center frequency of 12kHz.

6. MID

This is the mid range control. It can affect most fundamental frequencies of all musical instruments and human voice. An attentive use of this control will give you a very wide panorama of sound effects. The gain range goes from -12dB to +12dB with a center frequency of 2.5kHz.

7. LOW

This is the bass control. It is used to boost male voice or kick-drum and bass guitar. Your system will sound much bigger than what it is.The gain range goes from -15dB to +15dB and the center frequency is 80Hz.

8. PEAK LED

This LED will illuminate red when the signal nears clipping.

9. LEVEL Control

This control is used to adjust the level of TAPE IN and 3.5 Φ jack signal simultaneously. The adjustable range goes from -∞ to +10dB.

10. 3.5 Φ Jack

This insert can be used to connect with a Computer, MP3, MP4 or CD players.

11. TAPE IN

The GWELLAN-160 features dual RCA jacks (left and right). If you wish to listen to your monitor from a tape recorder, DAT or cassette, please use these tape input jacks.

12. REC OUT

Via these jacks, you can route the main out signal into a tape recorder or DAT for recording.

13. MONITOR Control

This control is used to adjust the level of monitor output.

14. GRAPHIC EQ

Your GWELLAN-160 is equipped with a graphic EQ, which provides 7-band fader controls. Via these faders, you can boost or attenuate the selected frequency by 15dB at a preset band width.When all faders are at the center position, the output of the equalizer is at the flat response. They are used to modify the frequency "contour" of a

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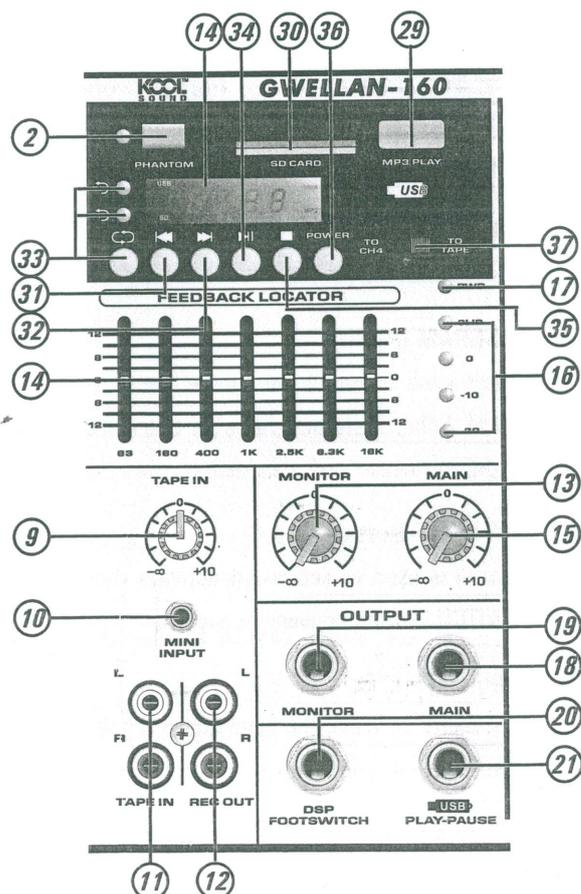
sound. The EQ function will be activated automatically as soon as you operate your **GWELLAN-160** .

15. MAIN MIX LEVEL Control

This control is used to adjust the overall volume of the main mix output. The adjustable range goes from -∞ to + 10dB.

16. OUTPUT LEVEL LED

The 4-segment LED meter is used to indicate the output level.

17. POWER LED

This LED lights up when the unit is powered on.

18. MAIN OUT Jack

This jack is used to output the main mix signal to an external unit.

19. MONITOR OUT Jack

This jack is used to connect the input signal of an external monitor amplifier or active monitor speaker.

20. FOOTSWITCH

You can connect an external footswitch to turn the onboard effect module on/off, via the 1/4" phone jack.

21. USB PLAY-PAUSE

You can connect an external footswitch to control MP3 player to play or pause.

22. FX SEND Jack

This jack is used to sent out the signal from AUX bus.

23. FX RETURN Jack

This jack is used to return the sound of an effect unit to the main mix. You can also use it as an extra auxiliary input.

3.2 DSP Section with 24-Bit Digital Effects

Your **GWELLAN-160** features a special 100-preset digital effect, for further details please refer to the following content.

24. DISPLAY

Displays the selected preset.

25. PROGRAM (PUSH)

Adjust this knob to select the right effect you wish to perform. There are total 100 options for you: Vocal, Echo, Plate and versatile two-effect combination. When you are satisfied with the chosen preset, please push this knob to store this preset.

26. DSP MUTE Button

This button is used to activate/deactivate the effect facility. Sometimes, you can also use the FOOTSWITCH jack for convenient operation.

27. CLIP/MUTE LED

This LED lights up when the input signal is too strong. In case of the digital effect module being muted, this LED also lights up.

28. AUX/DFX RET Control

This control is used to adjust the volume of FX RETURN and MAIN OUTPUT effect.
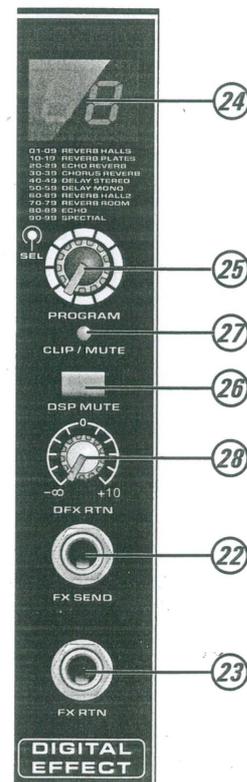
3.3. USB-MP3 player section

29. USB PORT

For connecting with USB memory.

30. SD CARD PORT

For connecting with SD CARD memory.

31. PRE

In pause state, press this button it will go to the previous song and keep in pause state. In play+ state, press this button it will go to the previous song and start playing.

32. NEXT

In pause state, press this button it will go to the next song and keep in pause state. In play state, press this button it will go to the next song and start playing.

33. REPEAT

Press this button the player will change between the following four modes. REP ALL means to repeat all songs in the memory, the mark on the LED is ALL. REP1 means to repeat one song, the mark on the LED is 1. Play in order means to play the songs according to the order, the mark on the screen is blank. Random play means to play the songs at random, the mark on the screen is A.

34. PLAY/PAUSE

In play state, press PLAY/PAUSE button to pause the player. In pause state, press PLAY/PAUSE button to start playing.

35. STOP

In play state, press STOP button to stop playing and the whole quantity of MP3 songs in the USB memory will display on the screen. In stop state, press the PRE/NEXT button or press the STOP button again to go to the first song and the player will keep in pause state, then press down the PLAY/PAUSE button to play it.

36. POWER

When the unit is off, press this button hold for about 2 or 3 seconds to turn on the power supply of the player. Repeat the above operation, you can turn off the power supply of the player.

37. USB OUTPUT

With this switch, the signal of USB can be selected to input in to CH4 or to TAPE.

3.4 REAR PANEL

38. POWER ON/OFF Switch

This switch is used to turn the unit on/off.

39. AC INPUT

Standard IEC receptacle, connect your **GWELLAN-160** to the main electrical outlet with the supplied power cord.

40. VOLTAGE SELECTOR

There are two kinds of voltages for your operation from this switch, you can select the voltage at 115V or 230V.

41. DC POWER Switch

Connect the AC supply and turn the DC power switch on, the battery can be charged.

42. BATTERY

These LEDs are used to indicate the power of the battery.

43. EXT. DC 12V

When the AC and battery are out of power, you can use the EXT. DC 12V supply to the unit.

44. POWER AMP. Switch

Turn the Power AMP switch on "OFF" position, the EXT. DC output will be cut off, and the battery will store the power; this switch on "ON" position, the EXT. DC supply will work on normal condition.

45. SPEAKON Connector

This connector is used to connect with the passive speakers. It is configured with a speakon connector. You can determine the signal that is out put to this jack.

NOTE: In order to avoid damaging your built-in amplifier, please pay more attention to the impedance of speaker. Lower load impedances are not permitted.

46. CLIP LED

When the output signal distortion exceeds 0.5%, then the red LED (Clip) indicator will blink. It will warn you that the levels of the input signal are too high and may cause distortion. Please attenuate the level of the input signal.

47. TO MIXER

Put the Mixer on the bracket to adjust the volume, you can insert the connector into the TO MIX jack, and the unit can work on normal condition.
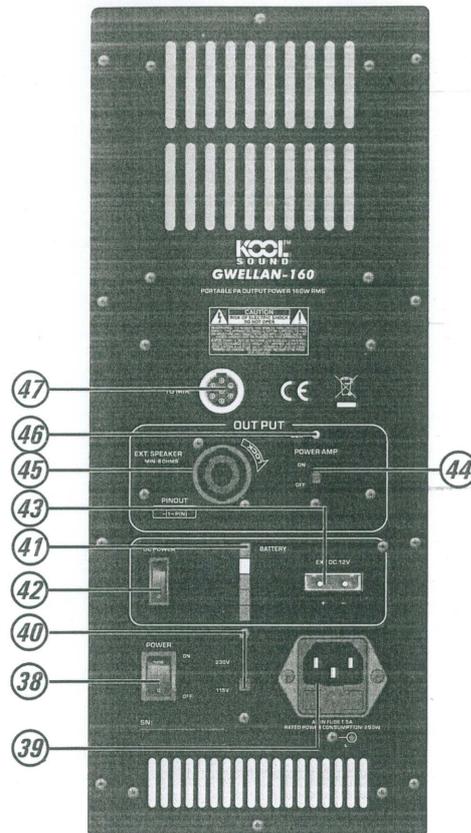
3.5 WIRELESS MICROPHONE SYSYTEM

Diversity Receiver

48. Antenna

The antenna receives signal from transmitter. Make sure the antenna is fully extended vertically for receiving best effect. Fold both antennas inward for the convenience of transporting.

49. AF-LEVEL Indicator

These LEDs indicate the incoming status of the audio signal. The four green LEDs light up indicate normal condition. When the audio signal from microphone approaches clipping level the red LED indicator lights up, If no LED lights up, there is little or even no signal being received.

50. MIC. ON & Diversity Signal Indicator

These indicators light up during standby. When microphone signal is received, the A or B signal indicator lights up to indicate the reception of microphone.

51. MIC. ON

The LEDs indicate the reception of microphone 1 and microphone 2 alone.

52. POWER ON Indicator

When the unit powered on, this blue LED will lights up. It indicates the receiver is on.

53. SQUELCH Control

This control is SQ noisy controlled adjustment. The job of squelch circuit is to reduce audible noise. It eliminates noise during pause in the audio signal by muting the receiver. Before you turn on the receiver, please adjust SQ control until the jamming signal has disappeared. (Clockwise)

54. VOLUME Control

This knob sets the output audio signal level. Turn the knob fully clockwise for the maximum volume; and turn the knob fully counterclockwise for the minimum volume.

55. TO CH1 & TO MAIN Switch

From this switch you can choose the microphone signal sent to CH1 or to MAIN. Switching it to "TO CH1"position, the signal will come through CH1, after it is adjusted by the 3-band EQ and DSP/FX control, then sent to main channel, you can also adjust the signal by using the 7-band graphic EQ and the DSP processor, then sent to the MAIN OUT. Switching it to "TO MAIN" position, the signal will only go to the main channel, after adjusted by the 7-band graphic EQ and the DSP processor, then sent to MAIN OUT.

56. MIC1 TO CH1/MIC2 TO CH2 & TO MAIN Switch

From this switch you can choose the microphone signal sent to CH1/CH2 or to MAIN. Switching it to "MIC1 TO CH1/MIC2 TO CH2"position, the signal will come through CH1/CH2, after it is adjusted by the 3-band EQ and DSP/FX control, then sent to main channel, you can also adjust the signal by using the 7-band graphic EQ and the DSP processor, then sent to the MAIN OUT. Switching it to "TO MAIN" position, the signal will only go to the main channel, after adjusted by the 7-band graphic EQ and the DSP processor, then sent to MAIN OUT.
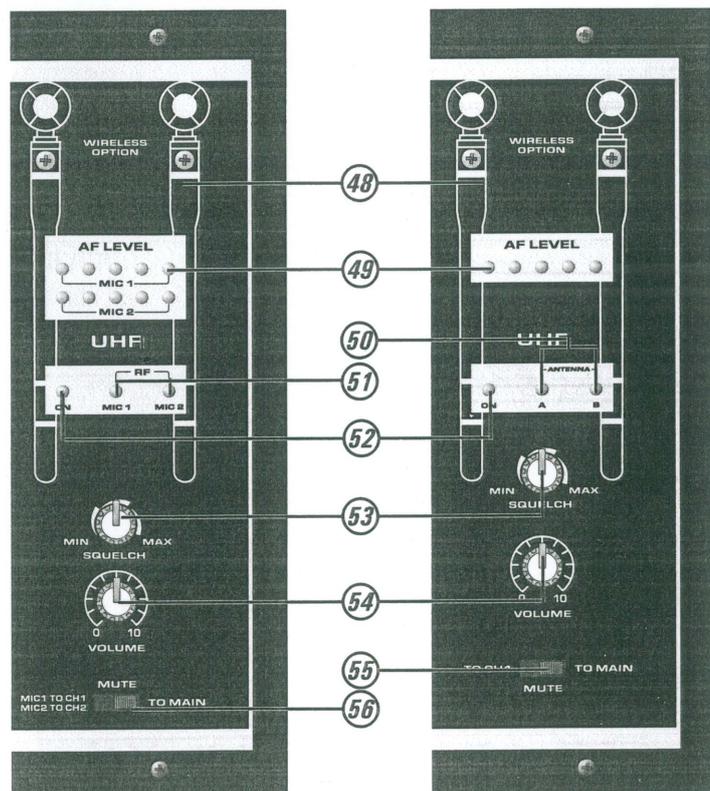
With two microphone   With one microphone

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4. Installation Tips

1- Speakers should be placed in a position that allows for unobstructe sound projection. In many instances is beneficial for speakers to be elevated on tripod stands to achieve maximum dispersion and reach.

2- Use professional advice or service when hanging and installing speakers. Please take precautions to secure them to prevent them from falling and hurting someone. Care should be taken as to not damage the cabinet or its components. Please comply with all pertinent Regulations.

3- Use quality cables. Using quality cables will ensure the best possible sound.

4- For best results match the speakers to a good amplifier that matches the wattage and impedance of your speakers. Proper amplification power results in good quality audio and longer component life. Check out the power requirement for your cabinet.

5- Avoid pointing a microphone directly at an amplified speaker doing so, could cause feedback possibly damaging speaker components and your hearing.

Enjoy the sound!

5. Connection Diagram

MATCHING WITH PASSIVE SPEAKER

Make all initial connections with all the equipment powered off, and make sure that the main volume controls are turned down completely.

1) With a high quality signal line connect a CD player or other players to the active speaker GWELLAN-160.

2) Using the speaker cable connect the INPUT of the passive speaker to the OUTPUT of GWELLAN-160.

3) Complete other connections as illustrated. And then turn the power on.

4) Turn up the volume controls of the GWELLAN-160 to about 70%.

5) Use the mixer PFL function of the GWELLAN-160 to get the proper input level, and adjust the Main Mix Level control to manipulate the output level.

Speaker Cable

PASSIVE SPEAKER

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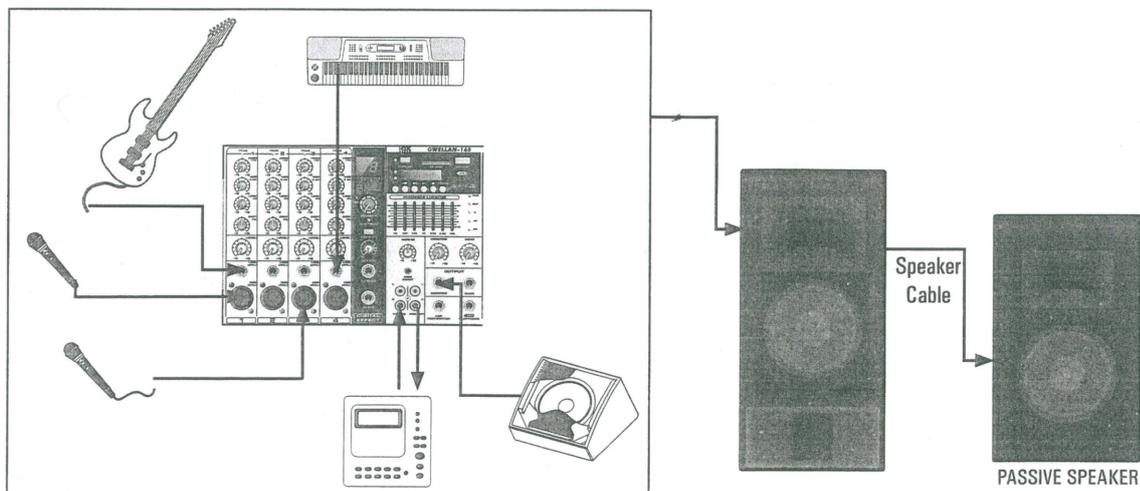
MATCHING WITH PASSIVE SPEAKER & SUBWOOFER

In this example, it connects a sub-woofer, and the woofer of this two full-range act like midwoofer.

This is very popular combination especially in small size clubs where there is no need for two sub-woofers.

Speaker
Cable

PASSIVE SPEAKER

From Monitor Out
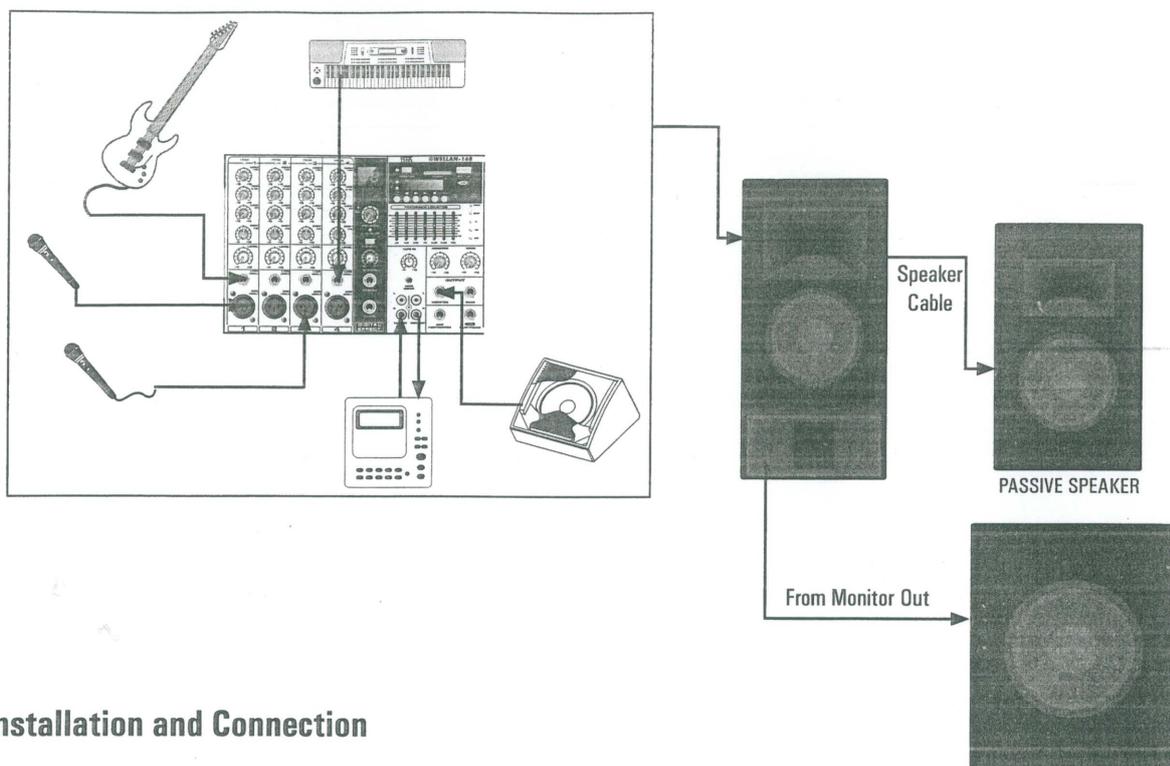
6. Installation and Connection

6.1 Set-up

Ok, you have reached this point and you are now in the position to successfully operate your GWELLAN-160. However, we advise you to read carefully the following section to be the real master of your unit. Not paying enough attention to the input signal level, to the routing of the signal and the assignment of the signal will result in unwanted distortion, a corrupted signal or no sound at all. So you should follow this procedure for every single channel.

-Turn down all input and output controls.

-Connect phantom powered microphones before switching on the +15V phantom power switch.

-Set the output level of your GWELLAN-160 at no more than 75%.

- Now, set the MONITOR level at no more than 50%. In this way you will be able to hear later what you are doing by connecting a pair of powered monitor speakers.

-Position EQ controls on middle position.

-Now repeat the same sequence for all input channels. The main LED meter could move up into the red section. In this case you can adjust the overall output level through the OUTPUT LEVEL control.
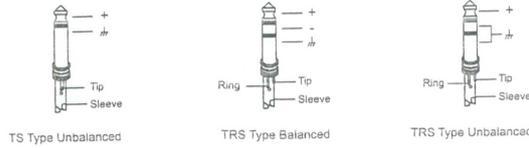
6.2 Audio Connection

The GWELLAN-160 is presented with balanced XLR sockets & 1/4" TRS jacks and unbalanced RCA connectors, and it can be interfaced in several ways to support a variety of applications without any signal loss. The unit can be used on a single instrument by connecting to a mixing console's main inserts, or a power amplifier.

-Wiring Configuration

Either the 1/4" TRS phone jack or the XLR connector can be wired in balanced and unbalanced modes, which will be determined by the actual application status, please wire your system as the following wiring examples:

For 1/4" Phone Jack

TS Type Unbalanced — Tip, Sleeve (+, ⏚)

TRS Type Balanced — Ring, Tip, Sleeve (+, -, ⏚)

TRS Type Unbalanced — Ring, Tip, Sleeve (+, ⏚)

For XLR Connector

XLR Type Unbalanced — Pin2 (+), Pin3 (-) (Linked to Pin1 manually, ⏚), Pin1 (⏚)

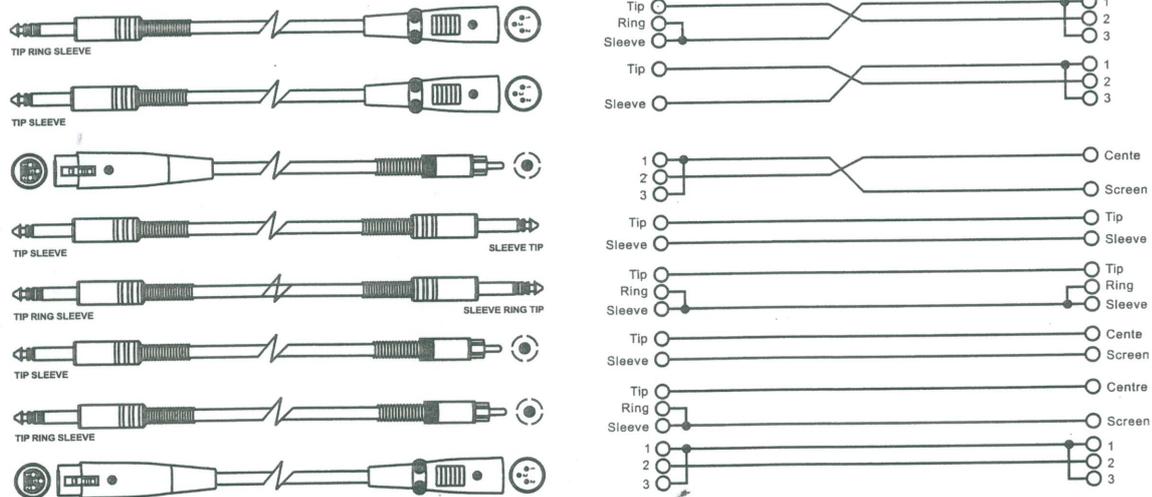**XLR Type Balanced** — Pin3 (-), Pin2 (+), Pin1 (⏚)

-In line Connection

For these applications, the GWELLAN-160 provides 1/4" TRS connectors, XLR connectors and RCA connectors to interface with most professional audio devices easily. Follow the configuration examples below for your particular connection.
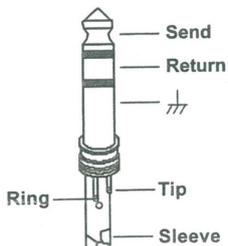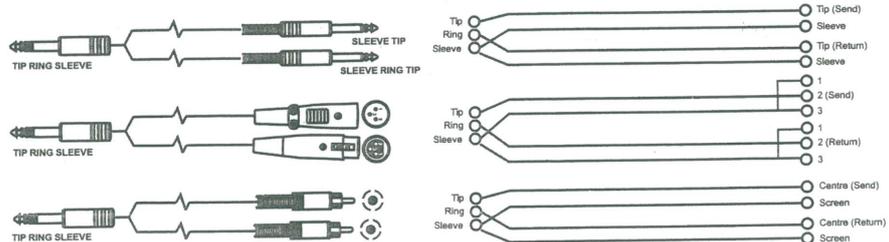
Balanced
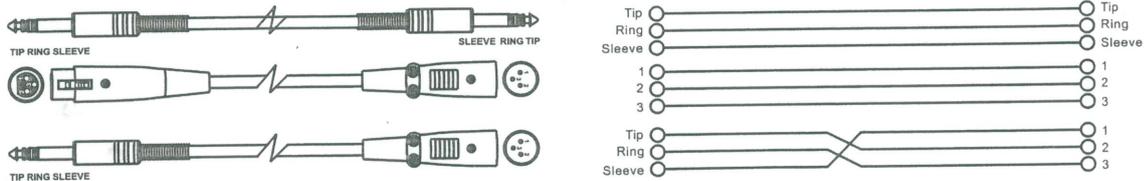
Unbalanced

-In line Connection

If you are connecting to a mixing console's main inserts, you may have single TRS jack for Send & Return. In this case, use an insert "Y" cable that configured like the example below.

1/4" TRS Insert

Send, Return, ⏚, Ring, Tip, Sleeve

Insert Leads

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7. Preset List

No.	Preset				
00 ~ 09	REVERB HALLS	30 ~ 39	CHORUS REVERB	70 ~ 79	REVERB ROOM
10 ~ 19	REVERB PLATES	40 ~ 49	DELAY STEREO	80 ~ 89	ECHO
20 ~ 29	ECHO REVERB	50 ~ 59	DELAY MONO	90 ~ 99	SPECTIAL
		60 ~ 69	REVERB HALL2		

8. Block Diagram

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9. TECHNICAL SPECIFICATIONS

SPECIFICATIONS		
		GWELLAN-160
bal Mic/Line channels in		4
Tape in		1 RCA in + 1 Mini ST in
Fx RTN in		1
Main out		1
Monitor out		1
Fx send		1
REC out		1
GAIN	MIC TO MAIN/MON	50dB
	LINE TO MAIN/MON	30dB
FREQUENCY RESPONSE(-1dB)		20Hz-20KHz
Impedance	MIC IN	2K
	LINE IN	20K
	TAPE IN	10K
	MAIN/MON OUT	1.5K
ALL MAX OUT		22dBu
S/N		> 80dB
THD		< 0.1%
CH EQ		3 band(80/2.5K/12K) +/-15dB
Main EQ		7 band EQ(63/160/400/1K/2.5K/6.3K/16K) +/-12dB
DSP (Digital Effect)		99 preset programs(24-Bit)
Phantom Power(+15V)		✓
MP3 (USB) +SD in		✓
Wireless MIC		✓
Speaker		12"Woofer + 1"Tweeter Driver
Out Power (RMS)		120W
+EXT speakers		200W
SPEAKON Connector		✓
12V Battery		✓
Battery Charge time		6H
Power Supply		120/240V AC*
		12V DC

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