REACH

PROFESSIONAL PA SYSTEM

OWNER'S MANUAL

MACKIE®

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

PORTABLE CART WARNING

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or beer glasses, shall be placed on the apparatus.
16. Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
17. This apparatus has been designed with Class-I construction and must be connected to a mains socket outlet with a protective earthing connection (the third grounding prong).
18. This apparatus has been equipped with a rocker-style AC mains power switch. This switch is located on the rear panel and should remain readily accessible to the user.
19. The MAINS plug or an appliance coupler is used as the disconnect device, so the disconnect device shall remain readily operable.

CAUTION

RISK OF ELECTRIC SHOCK! DO NOT OPEN!

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the prescence of uninsulated "dangerous voltage" within the product's enclosure, that may be of significant magnitude to constitute a risk of electric shock to persons.

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

WARNING — To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

CAUTION — To prevent electric shock hazard, do not connect to mains power supply while grille is removed.

Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.

Apparatet må tilkoples jordet stikkontakt.

Apparaten skall anslutas till jordat uttag.

20. NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
    - Reorient or relocate the receiving antenna.
    - Increase the separation between the equipment and the receiver.
    - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
    - Consult the dealer or an experienced radio/TV technician for help.

    CAUTION: Changes or modifications to this device not expressly approved by LOUD Technologies Inc. could void the user's authority to operate the equipment under FCC rules.
21. This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 20cm between the radiator & your body.
22. This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION — *Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le réglement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.*

23. *This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:*
    (1) this device may not cause interference, and
    (2) this device must accept any interference, including interference that may cause undesired operation of the device.
    Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
    (1) l'appareil ne doit pas produire de brouillage, et
    (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
24. Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a period of time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible noise level exposures shown in the following chart.
    According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels use hearing protectors while the equipment is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating the equipment in order to prevent permanent hearing loss if exposure is in excess of the limits set forth here:

Duration, per day in hours	Sound Level dBA, Slow Response	Typical Example
8	90	Duo in small club
6	92	
4	95	Subway Train
3	97	
2	100	Very loud classical music
1.5	102	
1	105	John screaming at Troy about deadlines
0.5	110	
0.25 or less	115	Loudest parts at a rock concert

Correct Disposal of this product: This symbol indicates that this product should not be disposed of with your household waste, according to the WEEE Directive (2012/19/EU) and your national law. This product should be handed over to an authorized collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, or your household waste disposal service.

Contents

Please write your serial number here for future reference (i.e., insurance claims, tech support, return authorization, make dad proud, etc.)

Purchased at:

Date of purchase:

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Features

The Ultimate All-In-One Portable Professional PA

- 720W professional PA system with ultra-wide coverage, built-in personal monitoring and wireless streaming and control

- Mackie ARC™ (Amplified Radial Curve) array technology utilizes a unique angled waveguide structure to provide 150-degrees of horizontal coverage to reach each and every audience member
  - Three 1" dome HF compression drivers
  - Dual 6.5" high-output mid/low drivers

- Mackie EarShot™ personal monitoring system allows performers to hear themselves better on stage
  - Built-in personal monitoring with separate volume control allows for maximum monitoring flexibility
  - Separate speakers on each side of Reach allow for monitoring from either side of the PA
  - Also great for extending side stage coverage (up to 250-degrees total horizontal coverage)

- Wireless streaming and control over integrated 6-channel digital mixer
  - Complete wireless mixing control via the Mackie Connect™ app for iOS[1] and Android[2] devices
  - Stream music via Bluetooth® and integrate into your live mix
  - All the right connections for your small band, solo act or presentation
    - 4 x XLR combo inputs for vocal mics, guitars, keyboards, etc.
    - 1/8" aux input for connected music playback from laptop or other music playback device
    - 1/4" headphone output and silent practice mode
    - Footswitch jack for instant control over FX mute
    - Link out to connect another Reach for additional power and more inputs
  - Loaded with professional sound tools to optimize your sound
    - 16 great-sounding digital effects like vocal reverbs and delays
    - 3-band EQ per channel for tonal control
    - Perform fearlessly with the built-in Feedback Destroyer
    - Choice of speaker modes ensures amazing sound for any application with the touch of a button
    - Setup in familiar venues quickly with 3 user-definable system presets to instantly recall your settings.
    - Intuitive, on-product hardware interface allows for control over most mixing features without the need for a smartphone

- Durable carry bag for easy transportation and protection (available separately)

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[1] Requires iOS 8.0 and later. Supports iPhone 6S Plus, iPhone 6S, iPhone 6 Plus, iPhone 6, iPhone 5S, iPhone 5C, iPhone 5, iPad (4th generation), iPad (3rd generation), iPad 2, iPad Air 2, iPad Air, iPad mini 4, iPad mini 3, iPad mini 2 and iPad mini, iPod Touch (5th generation).

[2] Officially supports Android versions 4.1-4.4, or 5.0 and greater. Officially supported/recommended devices include: Google Nexus 6, Samsung Galaxy S6, Samsung Galaxy S5, Samsung S5 Mini, Samsung S4 Mini, Samsung Note 4, Samsung Note 3, LG G Flex, LG G3, HTC One M9, HTC One M8, Moto G, Moto E, Sony Xperia Z3. All other Android devices are not officially supported, but anticipated to function as desired.

iPhone and iPod are registered trademarks of Apple Inc., registered in the U.S. and other countries.
Android is a trademark of Google Inc.

Introduction

Reach™ is the ultimate all-in-one professional PA system. The advanced ARC™ (Amplified Radial Curve) array technology delivers clear, high-fidelity sound to your entire audience, and with the EarShot™ personal monitoring system, Reach™ provides an incredibly flexible built-in stage monitoring solution as well.

Plus, with wireless streaming and control over the built-in 6-channel digital mixer via the Mackie Connect™ app for iOS and Android devices, you get wireless freedom to control everything from levels and EQ to sound-enhancing tools like a feedback destroyer for amazing sound in any situation.

How to Use This Manual:

After this introduction, a getting started guide will help you get things set up fast. The hookup diagrams show some typical setups, while the remaining sections provide details of Reach.

This icon marks information that is critically important or unique to Reach. For your own good, read and remember them.

This icon draws attention to certain features and functions relating to the usage of Reach.

Things to Remember:

• Never listen to loud music for prolonged periods. Please see the Safety Instructions on page 2 for information on hearing protection.

• As a general guide, Reach should be turned on last, after any mixer or other signal source. As such, it should also be turned off first. This will reduce the possibility of any turn-on or turn-off thumps and other noises generated by any upstream equipment from coming out of the speakers.

• Save the shipping box and packing materials! You may need them someday. Besides, the cats will love playing in them and jumping out at you unexpectedly. Remember to pretend like you are surprised!

• Save your sales receipt in a safe place.

Getting Started

The following steps will help you set up Reach quickly.

NOTE These startup instructions are intended for the hardware only. Once proven that Reach performs as desired, then pair it with a smart device and control it via the Mackie Connect app (as detailed on page 11).

1. Make all initial connections with the power switch OFF.

2. Plug signal sources into Reach, such as:

  • Microphones plugged into the mic inputs.
  • Instrument level sources, such as acoustic guitars w/ active pickups into the instrument inputs
  • Line-level sources such as keyboards, drum machines, or MP3 players plugged into the line-level inputs.
  • Smart device paired and connected via Bluetooth.

3. Push the line cord securely into the IEC connector and plug the other end into a grounded AC outlet.

4. Turn Reach on.

5. Be sure that the volume of the input is the same as it would be during normal use by selecting the input channel on the rear panel and turning the encoder to the right.

6. Slowly bring up the main output level to a comfortable listening level by selecting the main output on the rear panel and slowly turning the encoder to the right.

7. Read the rest of this manual and the Mackie Connect app manual for more details!

Hookup Diagrams
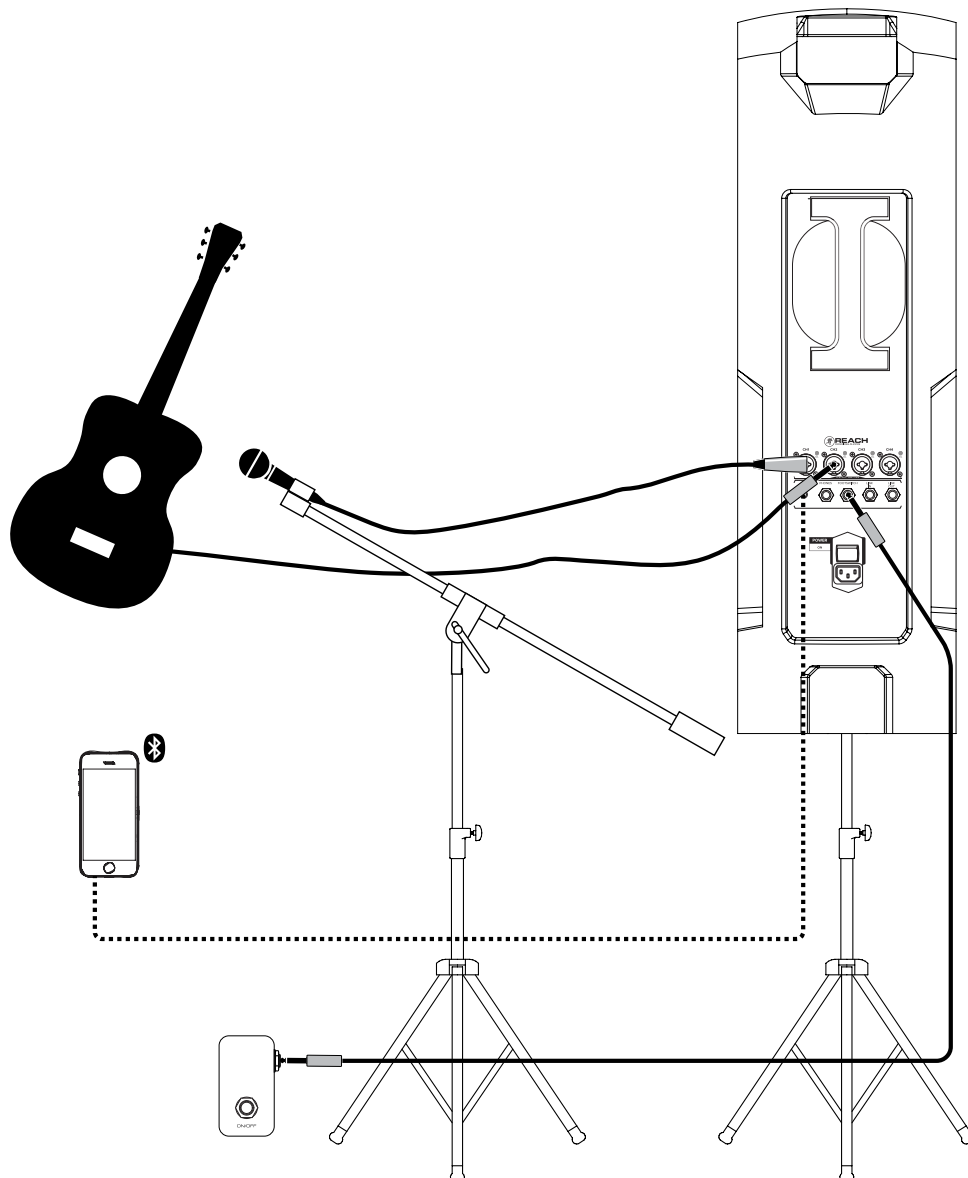
Reach is the perfect tool for singer-songwriters who need an all-in-one highly portable BYOS [Bring Your Own Sound] PA to play coffee houses, breweries, wineries and rentable event spaces.

Along with Reach, bring your acoustic and mic, footswitch, cables and power cords. And your smart phone, too...don't forget that! With it, you're able to announce tour dates via social media. More importantly, you can connect to Reach via Bluetooth (or 1/8" input) and jam along to the backing tracks you added to your device.

In this example, a mic is connected to the channel 1 input. Adjust the level as described on page 14. Now grab your guitar and plug it directly into the channel 2 input. Adjust the level for the guitar now. You may add color to the sound with FX. Simply press and hold the channel button you want to add FX to followed by adjusting the FX level to taste. More information may be found on pages 13-14.

For the output, you will want to set an EQ mode, described in detail on page 14. For this type of setup, solo mode works well. It has a nice low cut and a brilliant high end. Additionally, you can utilize the Reach's feedback destroyer [page 14] so it automatically kills any feedback while playing.

Singer-Songwriter Setup

Hookup Diagrams continued...
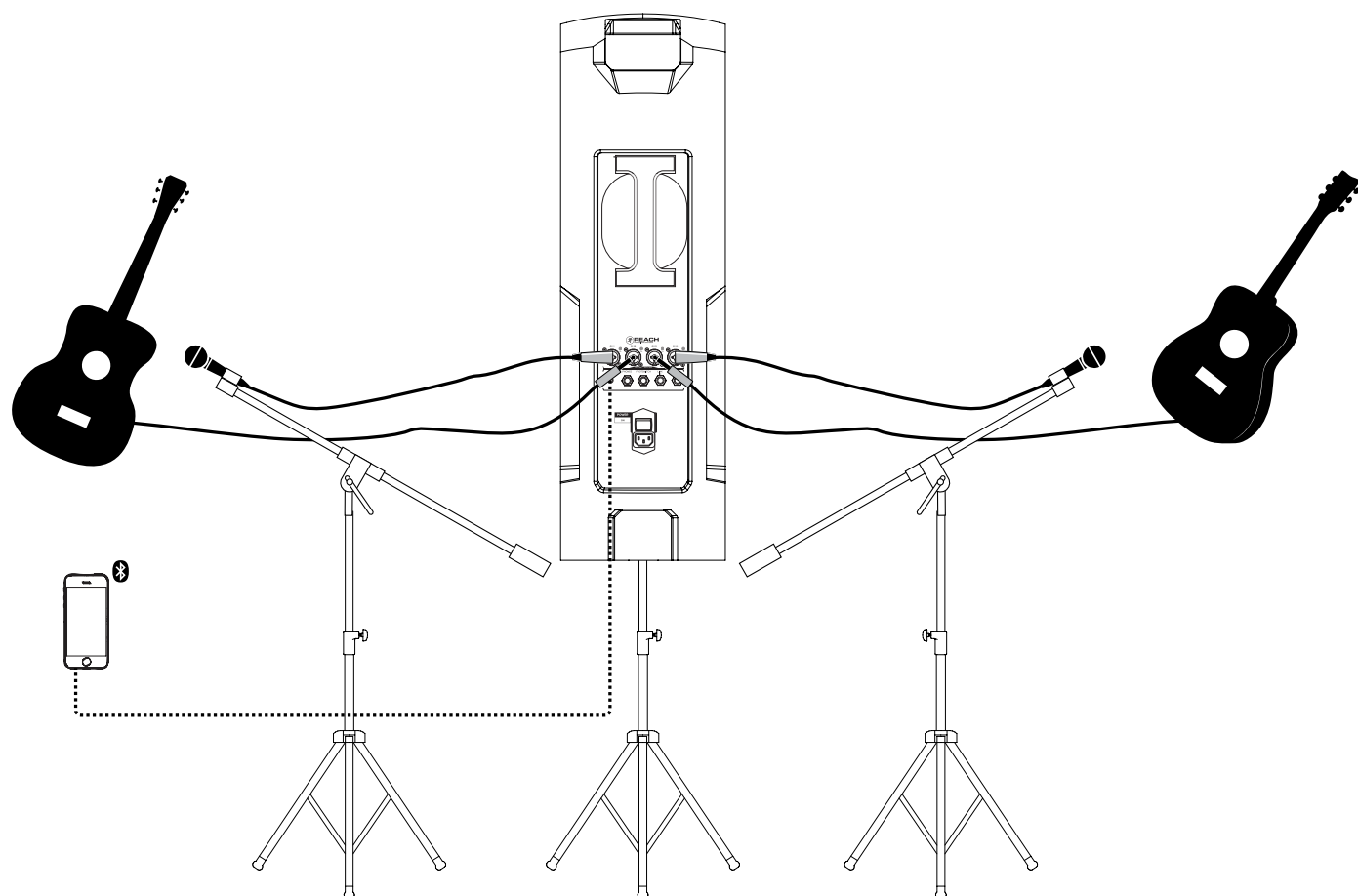
The acoustic duo setup is similar to the solo singer-songwriter setup except there is now an additional guitar and mic connected to channels 3 and 4.

Like the singer-songwriter setup, bring your acoustic guitars, mics, cables, power cords and smart phone, too, to connect to Reach via Bluetooth (or 1/8" input).

Adjust the levels for both guitars and both mics as described on page 14. You may add color to the sound with FX. Simply press and hold the channel button you want to add FX to followed by adjusting the FX level to taste. More information may be found on pages 13-14.

For this type of setup, solo EQ mode works well for the output. It has a nice low cut and a brilliant high end. Additionally, you can utilize the Reach's feedback destroyer [page 14] so it automatically kills any feedback while playing.

Acoustic Duo Setup

Hookup Diagrams continued...
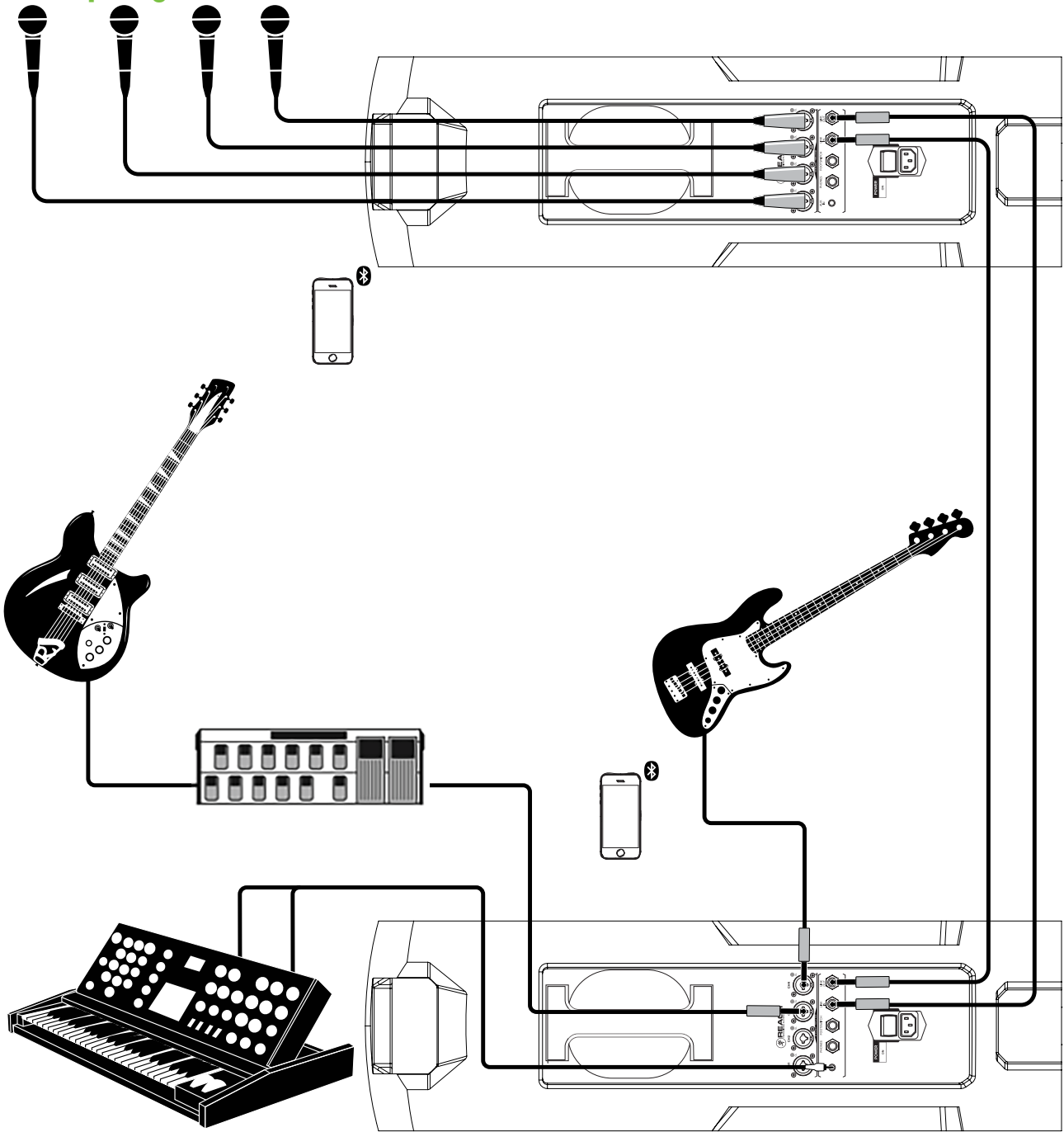
One slick feature of Reach is the ability to link them utilizing the link in and link out jacks, so we'll start there. Using two 1/4" TRS cables, feed the link input of each Reach from the link output of each Reach.

This quartet features one member on keys [stereo input, 1/8" aux connection], another on guitar [channel 3 input via processor / pedalboard] and a bassist [channel 4 input] all on one Reach. The fourth member (who always thinks he's the first (and best) member)) is the vocalist. His mic is connected to the channel 1 input of the second Reach, as are three additional mics on channels 2-4 for backup vocals. Setting levels is described on page 14. Two smart devices are here setting levels, EQ, FX, etc. using the Mackie Connect app.

For each Reach output, you will want to set an EQ mode, described in detail on page 14. For this type of setup, solo mode works well so the vocals and guitar cut through.

Don't forget to utilize Reach's feedback destroyer [page 14] to automatically kill any feedback.

Small Band Setup

Hookup Diagrams continued...
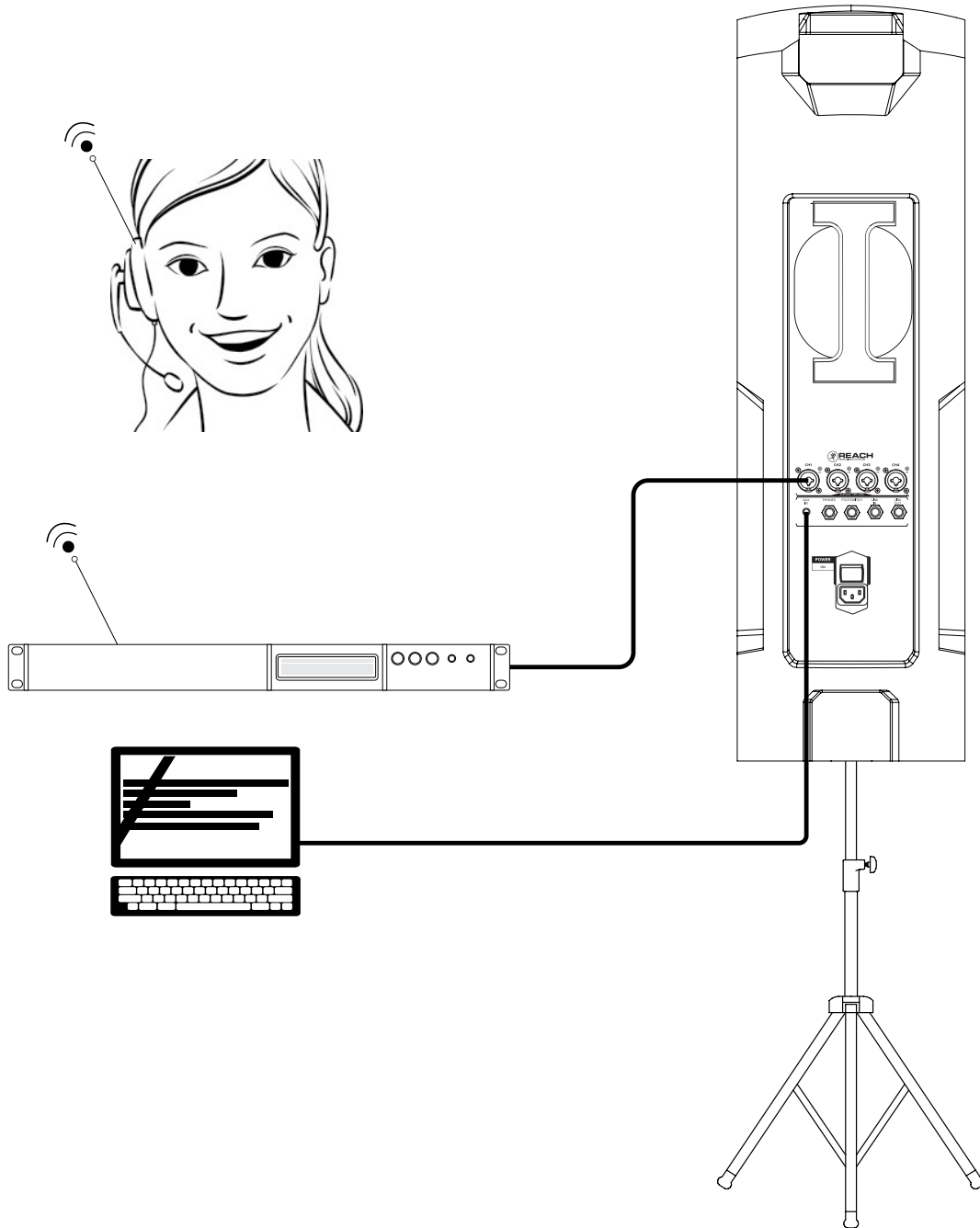
Reach is the perfect sound system for presentations, as well! Here, the presenter connected her wireless headset to the Reach, allowing her to wander the stage and work the audience, presenting all of the benefits of Reach simultaneously.

Additionally, a laptop is connected to the aux input for the stereo audio / video portion of the presentation. Be sure to adjust the levels as described on page 14.

For the output, you will want to set an EQ mode, described in detail on page 14. Because speech is the primary audio source, the voice EQ mode works well. It provides clear and precise intelligibility by featuring a low frequency roll-off to get rid of unwanted thumps. Additionally, it adds boost and sparkle to the mid-range and high frequencies which is critical for speech applications.

Presenter Setup

Hookup Diagrams continued...
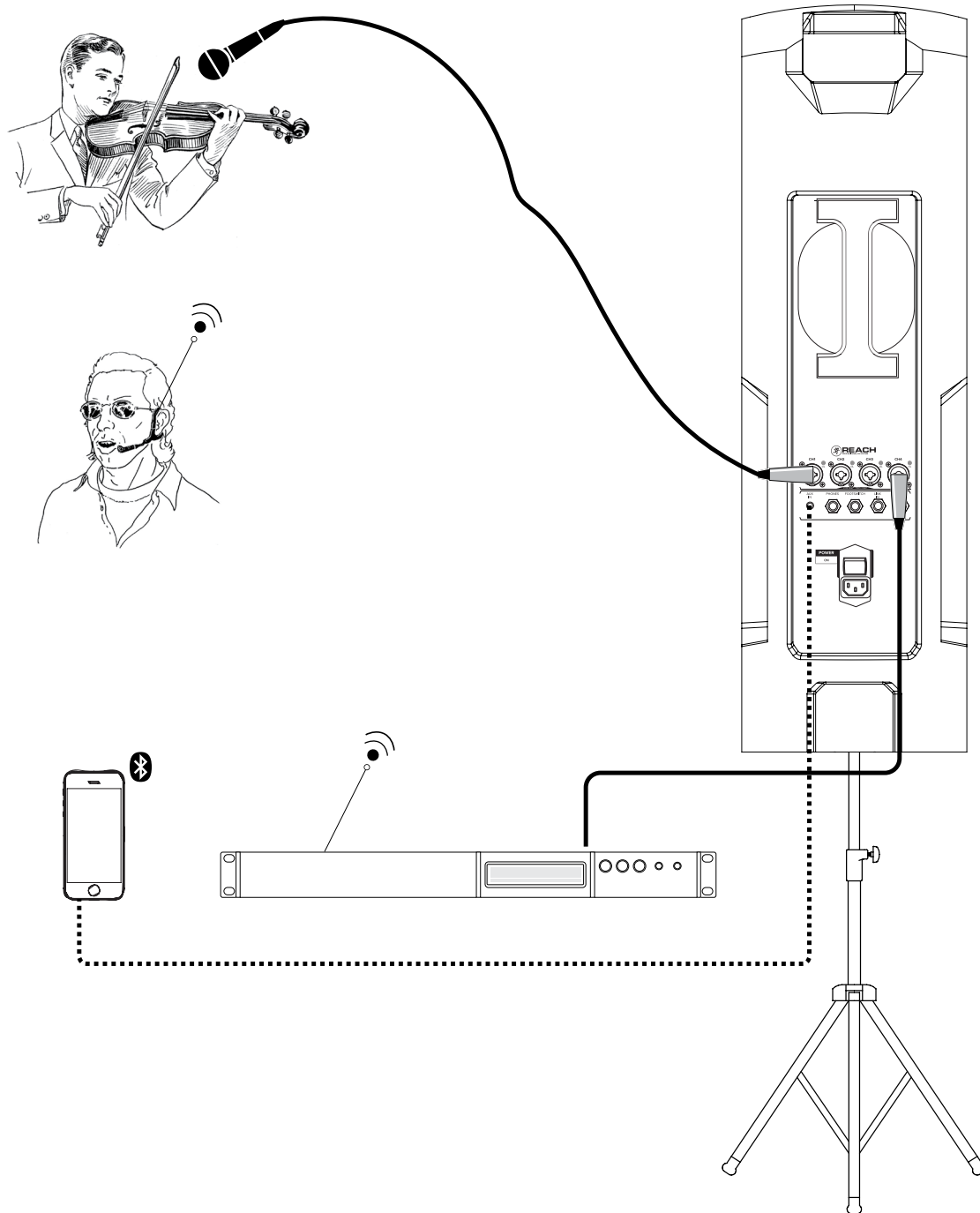
Are you in need of a portable, all-in-one sound system for a wedding ceremony? Reach is the answer! Here, the mic'd violinist [Ch. 1 input] is playing the entry procession music. Next up is the wedding officiate who is utilizing a wireless mic with the wireless receiver connected to the channel 4 input. A device is connected to Reach via Bluetooth (or 1/8" input) playing music as the wedding party and guests leave the premises. Be sure to adjust all levels as described on page 14.

Guess what? Reach can now be used at the wedding reception, too!

For the output, you will want to set an EQ mode, described in detail on page 14. Solo mode works well for the violinist, voice EQ mode for the officiating, then back to solo mode for the exit procession music. Finally, you will want to set Reach to the DJ EQ mode for the reception.

Don't forget to utilize Reach's feedback destroyer [page 14] to automatically kill any feedback.

Wedding Ceremony Setup

Reach: Rear Panel Features
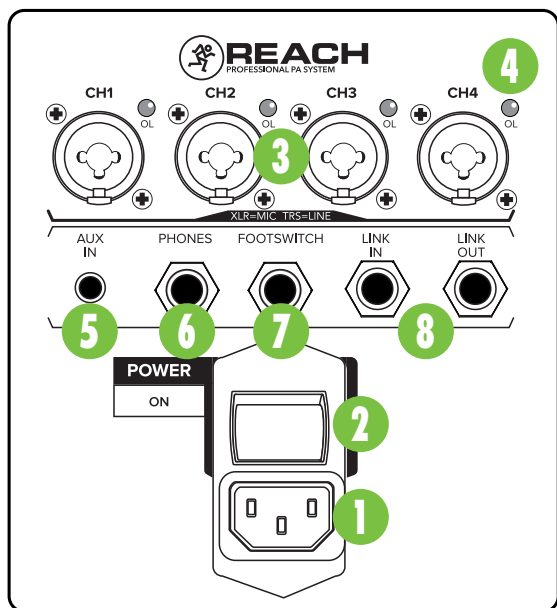
Mackie Connect App

Reach is designed to be used in conjunction with the Mackie Connect App. With it, all of the hardware features listed here – and more! – may be controlled remotely via Bluetooth connection. The only thing the Mackie Connect App can't do is turn the unit on and off or pair a Bluetooth device.

More information about the Mackie Connect App may be found by visiting the Mackie Connect App Reference Guide.

1. Power Connector

This is a standard 3-prong IEC power connector. Connect the detachable linecord (included in the box) to the power receptacle, and plug the other end of the linecord into an AC outlet. .

Warning: Disconnecting the plug's ground pin is dangerous. Don't do it.

2. Power Switch

Press the top of this rocker switch inwards to turn Reach on. The front panel Running Man logo will glow with happiness...or at least it will if Reach is plugged into a suitable live AC mains supply.

Press the bottom of this rocker switch inwards to put Reach into standby mode. It will not function, but some circuits are still live. To remove AC power, either turn off the AC mains supply, or unplug the power cord from Reach and the AC mains supply.

3. XLR and 1/4" Combo Inputs

The four input channels may accept a balanced mic signal using an XLR connector. They are wired as follows, according to standards specified by the AES (Audio Engineering Society).

XLR Balanced Wiring:
Pin 1 = Shield (ground)
Pin 2 = Positive (+ or hot)
Pin 3 = Negative (– or cold)
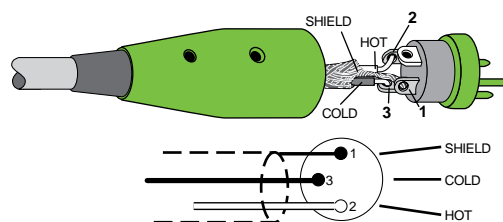
In addition to accepting a balanced mic signal using an XLR connector, these input channels may also accept 1/4" line-level signals driven by balanced or unbalanced sources.

Additionally, all four input channels may accept Hi-Z sources (such as guitars) via the 1/4" input without the need for a separate DI box.

To connect balanced lines to these inputs, use a 1/4" Tip-Ring-Sleeve (TRS) plug. "TRS" stands for Tip-Ring-Sleeve, the three connection points available on a stereo 1/4" or balanced phone jack or plug. TRS jacks and plugs are used for balanced signals and are wired as follows:

1/4" TRS Balanced Mono Wiring:
Sleeve = Shield
Tip = Hot (+)
Ring = Cold (–)
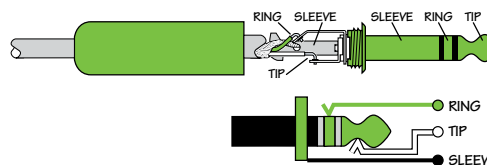
To connect unbalanced lines to these inputs, use a 1/4" mono (TS) phone plug, wired as follows:

1/4" TS Unbalanced Mono Wiring:
Sleeve = Shield
Tip = Hot (+)

NEVER connect the output of an amplifier directly to a Reach's input jack. This could damage the input circuitry!

Reach: Rear Panel Features continued...

4. OL LEDs

This LED will illuminate red when the channel's input signal is too high, indicating a signal overload. This should be avoided, as distortion will occur. If the OL LED comes on regularly, check that the level is set correctly for the input device. The signal is at −2 dBu before hard clip begins.

5. Bluetooth / Aux In

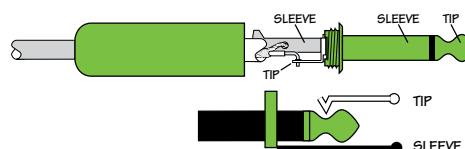The Bluetooth / Aux input channel may accept an 1/8" line-level or Bluetooth [stereo audio streaming] signal from a smartphone, MP3 player, or other signal source. This input level may be raised or lowered via Reach's endless rotary level knob or Mackie Connect.

VERY IMPORTANT The Bluetooth may disconnect when affected by Electrostatic Discharge [ESD] or electrical fast transients (EFT). If this occurs, manually reconnect the Bluetooth connection.

VERY IMPORTANT NEVER connect the output of an amplifier directly to a Reach's input jack. This could damage the input circuitry.

VERY IMPORTANT A Bluetooth connection and 1/8" line-level connection may NOT be used simultaneously. If there is a physical connection to the aux input, it will take priority over any Bluetooth connection. For example, if you are playing a song from a device (connected via Bluetooth) and connect an MP3 player to the 1/8" jack, the device's song will be interrupted and the MP3 player now takes precedence.

6. Phones

This 1/4" TRS connector supplies the output to stereo headphones. Headphones are selected with the Main button and the level may be adjusted with the endless rotary knob. By default, all speakers are muted when headphones are plugged in, but this may be changed via the Mackie Connect app.

The phones output follows standard conventions:
        Tip = Left channel
        Ring = Right channel
        Sleeve = Common ground

VERY IMPORTANT **WARNING:** The headphone amp is loud and can cause permanent hearing damage. Even intermediate levels may be painfully loud with some headphones. BE CAREFUL! Always turn the phones level control all the way down before connecting headphones or pressing a solo switch, or doing anything new that may affect the headphone volume. Then turn it up slowly as you listen carefully.

7. FX Footswitch

This 1/4" TRS connector is where to connect your favorite footswitch. This allows you to easily mute or un-mute the internal effects at will. Reach accepts a latching footswitch by default. This is a typical guitar channel switch, for example. Momentary switches may be used instead, but you will need to change the footswitch type via the Mackie Connect app.
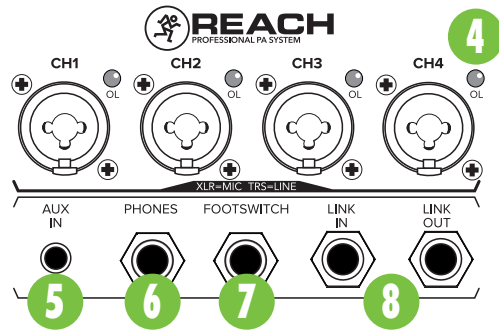
8. Link In / Link Out

Link out provides a mono sum of channels 1-4 and the right only of the Bluetooth / Aux and FX, creating a nice stereo PA system for linked units.

NOTE Ideally, the link out jack will be connected to the link in jack of another Reach, but the link out jack may be connected to the input jack of a powered loudspeaker or subwoofer.

These signals are post main fader, meaning that devices fed by the link in / out will experience the same volume changes that Reach does (whether controlled from the hardware interface, or from the Mackie Connect app.).

Reach: Side Panel Features

9. LED Indicator

The 15-segment bi-color LED ladder is used to gauge the input, FX and output level settings, as well as the main output metering.

These LEDs illuminate to indicate the level of the currently selected input or output level [white for channel level setting and green for FX send level setting].

This is easily changed by selecting the input or output level you want to update followed by turning the level knob up (clockwise) or down (counter-clockwise).

If you are simply metering – after 5-second timeout to Main – they will reflect output metering.
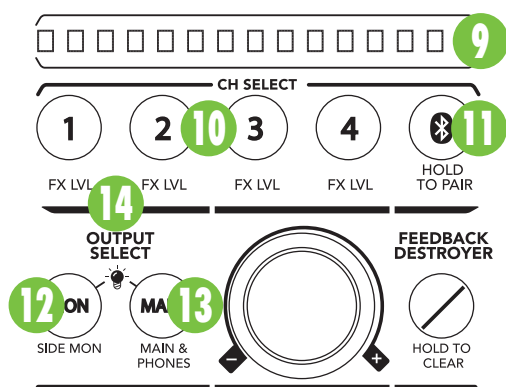
10. Ch 1-4 Buttons

Press a channel button to select it. It will illuminate white when selected. Once a channel is selected, be sure to raise or lower that channel's input level using the endless rotary level knob. The input level will be represented in the meters with white LEDs. After five seconds of inactivity, the selection changes back to the default "Main".

Press and hold a channel button to select and adjust that channel's FX send level. It will illuminate green when selected. Once a channel is selected, be sure to raise or lower that channel's FX send level using the endless rotary level knob. The FX send level will be represented in the meters with green LEDs. After five seconds of inactivity, the selection changes back to the default "Main".

11. BT / Aux

Press the BT / Aux button to select it. It will illuminate white when selected (whether a device is paired or not). Once selected, be sure to raise or lower the Bluetooth/Aux input level using the endless rotary level knob or Mackie Connect. The input level will be represented in the meters with white LEDs. After five seconds of inactivity, the selection changes back to the default "Main".

VERY IMPORTANT To enter pairing mode, press and hold the BT / Aux button. The button LED will illuminate and flash white while in pairing mode. While Reach is in pairing mode, simultaneously scan for Bluetooth devices on your device. You should see Reach appear in the "available devices" list. From there, your device should indicate that it is successfully connected. If it does not, start the pairing process again, and make sure that Reach and your device are both in pairing mode at the same time.

VERY IMPORTANT The Bluetooth may disconnect when affected by Electrostatic Discharge [ESD] or electrical fast transients (EFT). If this occurs, manually reconnect the Bluetooth connection.

NOTE If no device is paired and a smart phone or MP3 player is plugged into the aux input, the Bluetooth channel controls the level for this input.

12. Mon Button

Press the Mon button to select it. It will illuminate white when selected. Once mon is selected, be sure to raise or lower the selected mon output level using the endless rotary level knob or Mackie Connect. The mon output level will be represented in the meters with white LEDs.

The side monitor speakers may be selected by pressing the mon button [19].

The main button is the default, so it will revert back to main after five seconds of inactivity.

13. Main Button

Press the Main button to select it. It will illuminate white when selected. Once main is selected, be sure to raise or lower the main / phones output level using the endless rotary level knob or Mackie Connect. The main / phones output level will be represented in the meters with white LEDs.

The main button is the default, so if any other button has been selected, it will revert back to main after five seconds of inactivity.

Reach: Side Panel Features continued...

14. Running Man Logo On / Off

The Running Man logo on the front of the Reach illuminates when the "Mon" and "Main" buttons are pressed simultaneously. Follow the same steps to turn the Running Man logo off.
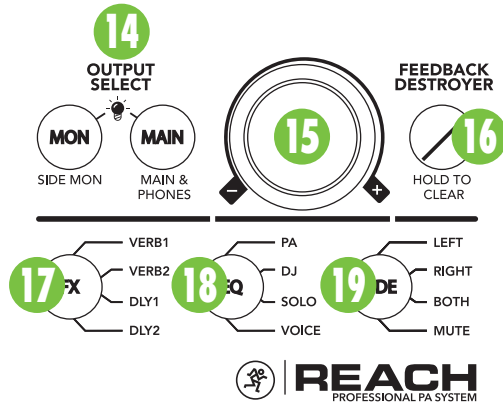
15. Level

This endless rotary knob serves multiple purposes, as it adjusts the input levels, FX send levels and mon, main and phones output levels, depending on which input or output is currently selected.

> **NOTE** The default selection is "Main & Phones". If another button is pressed, be sure to raise or lower the level within five seconds. After five seconds of inactivity, the selection changes back to the default "Main & Phones".

16. Feedback desTROYer

The multi-band Feedback Destroyer hunts down offending feedback frequencies and applies notch filters automatically to destroy feedback and maximize gain prior to feedback.

There are two Feedback Destroyer settings to choose from: off and on.

Off [Default] – The Feedback Destroyer is not engaged. Additionally, all filters clear when the Feedback Destroyer is turned off.

On – When the automatic Feedback Destroyer is turned on, scanning occurs continuously. The filters will engage sequentially when feedback is present until all are used and then it will be locked. If feedback is identified on an existing filter, the notch will deepen to further destroy the offending feedback frequency.

> **NOTE** Note that the Feedback Eliminator does not "store frequencies", so it resets every time it is turned off.

After five seconds of inactivity, the selection changes back to the default "Main & Phones".

17. FX

Reach includes 16 "gig ready" effects, including various reverbs, delays, choruses and combinations of these, as well.

On the Reach, there are four preset effects to choose from, including Verb 1, Verb 2, Delay 1, or Delay 2. Simply press the FX button repeatedly until the FX you want illuminates green. After five seconds of inactivity, the selection changes back to the default "Main".

Additional effects may be selected via Mackie Connect. The app also adds control over the master FX return level. More information may be found in the Mackie Connect Reference Guide.

Be sure to check out a more detailed description of each effect in Appendix C, page 24.

18. EQ Mode

Here you are able to change the Reach's EQ mode to tailor it to best suit your particular application.

On the Reach, there are four preset modes to choose from, including PA, DJ, Soloist and Voice. Simply press the EQ button repeatedly until the EQ mode you want illuminates white.

Flat EQ Mode – This mode is full range, but focuses on mid-range clarity where vocals often reside.

DJ EQ Mode – This mode bumps the lows and highs, perfect for music playback.

Solo EQ Mode – This mode features a low frequency roll-off to get rid of unwanted thumps and adds boost and sparkle to mid-range and high frequencies. This mode is perfect for plug-and-play singer-songwriters.

Voice EQ Mode – This mode features a significant low frequency roll-off to get rid of unwanted thumps. It also adds boost and sparkle to mid-range and high frequencies, critical for speech applications. This plug-and-play mode is perfect for larger venue applications where speech is the primary audio source in need of clear and precise intelligibility.

Additionally, Reach features 3-band EQ per channel, accessible via the Mackie Connect app. More information may be found in the Mackie Connect Reference Guide.
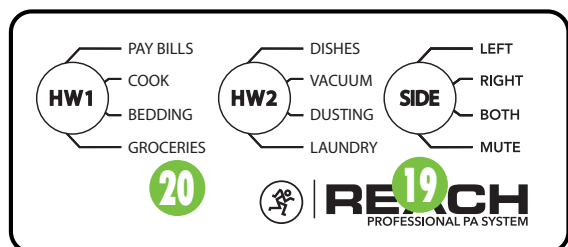
After five seconds of inactivity, the selection changes back to the default "Main & Phones".

Reach: Side Panel Features continued...

19. Speaker Selection (Side Button)

Here you are able to select which side monitor speakers (if any) will output sound. There are four choices to choose from, but only one may be selected at a time: only the left, only the right, both or neither (mute). Simply press the side button repeatedly until the monitor(s) you want to output sound illuminates white. Even easier, use the Mackie Connect app!

The selected side output level may be adjusted after the mon output button [12] is pressed.

```
┌─────────────────────────────────────────────┐
│   PAY BILLS        DISHES         LEFT       │
│   COOK      ⬤HW1   VACUUM  ⬤HW2   RIGHT ⬤SIDE│
│   BEDDING          DUSTING        BOTH       │
│   GROCERIES        LAUNDRY        MUTE       │
│      ⓿              🏃 | RE⑲CH              │
│     ②⓪             PROFESSIONAL PA SYSTEM   │
└─────────────────────────────────────────────┘
```

20. Chores (HW1 / HW2 Buttons)

What is "HW1" and "HW2" and what do they have to do with Reach? Well, "HW" is short for "Housework". That's right, your Reach Professional PA System will do your housework, leaving you plenty of time to dabble in other (much more important) activities!

Tired of doing the dishes? Don't feel like going grocery shopping? Paying bills is not really high on your priority list? Cooking...who wants to do that after a long day grind? Reach will do all of those (and more) for you! Simply press the HW1 or HW2 button repeatedly until the chore you want Reach to do for you illuminates white, then off you go!

| NOTE | While we realize that this list is far from complete, it is a start. We're looking at adding HW3 and HW4 buttons for Reach V2.0. A few things have come up – mostly "taking care |

of the kids"-type stuff, but if you have any suggestions, please send them to: yeahthisisjustajoke_sorry@gottadoyourownchores.com

Factory Reset (aka Vulcan Mind Meld)

Since settings may be changed via Mackie Connect, it may be necessary to reset the Reach Professional PA to its factory settings.

Please keep in mind that this erases all settings, including any levels, EQs, etc. that may have been set. Be sure to power down any amps and/or powered speakers before resetting Reach.

Simply press and hold the Mon, Channel 2 and Channel 4 buttons simultaneously to reset the Reach Professional PA to its factory settings. The LEDs flash when it has reset.

| VERY IMPORTANT | If you use the factory default key combination, you are also wiping the Reach's memory of previously paired |

devices. To remedy this, on your smartphone, tablet or other Bluetooth device, you will need to 'forget device' in the Bluetooth settings, then re-pair in order to regain communication and functionality.

Placement

WARNING: Installation should only be done by an experienced technician. Improper installation may result in damage to the equipment, injury or death. Make sure that Reach is installed in a stable and secure way in order to avoid any conditions that may be dangerous for persons or structures.

Reach is designed to be pole-mounted via the built-in socket located on the bottom. Be sure the pole is capable of supporting the weight of Reach. The SPM200 is a great option if using a subwoofer.

Check to make sure that the support surface (e.g. floor, etc.) has the necessary mechanical characteristics to support the weight of Reach.

When pole-mounting, be sure that the Reach is stabilized and secured from falling over or being accidentally pushed over. Failure to follow these precautions may result in damage to the equipment, personal injury, or death.

As with any powered components, protect them from moisture. Avoid installing the loudspeaker in places exposed to harsh weather conditions. If you are setting them up outdoors, make sure they are under cover if you expect rain.

Room Acoustics

Reach is designed to sound fantastic in nearly every application.

But, room acoustics play a crucial role in the overall performance of a sound system. However, the wide high-frequency dispersion of Reach helps to minimize the problems that typically arise.

Here are some additional placement tips to help overcome some typical room problems that might arise:

- Placing Reach in the corner of a room increases the low frequency output and can cause the sound to be muddy and indistinct.

- Placing Reach against a wall increases the low frequency output, though not as much as corner placement. However, this is a good way to reinforce the low frequencies, if so desired.

- Avoid placing Reach directly on a hollow stage floor. A hollow stage can resonate at certain frequencies, causing peaks and dips in the frequency response of the room. It is better to place it on a sturdy stand designed to handle the weight.

- Position Reach so the high-frequency drivers are two to four feet above ear level for the audience (making allowances for an audience that may be standing/dancing in the aisles). High frequencies are highly directional and tend to be absorbed much easier than lower frequencies. By providing direct line-of-sight from the loudspeakers to the audience, you increase the overall brightness and intelligibility of the sound system.

- Highly reverberant rooms, like many gymnasiums and auditoriums, are a nightmare for sound system intelligibility. Multiple reflections off the hard walls, ceiling, and floor play havoc with the sound. Depending on the situation, you may be able to take some steps to minimize the reflections, such as putting carpeting on the floors, closing draperies to cover large glass windows, or hanging tapestries or other materials on the walls to absorb some of the sound.

  However, in most cases, these remedies are not possible or practical. So what do you do? Making the sound system louder generally doesn't work because the reflections become louder, too. The best approach is to provide as much direct sound coverage to the audience as possible. The farther away you are from the speaker, the more prominent will be the reflected sound.

  Use more Reach Professional PA Systems strategically placed so they are closer to the back of the audience. If the distance between the front and back speakers is more than about 100 feet, you should use a delay processor to time-align the sound. (Since sound travels about 1 foot per millisecond, it takes about 1/10 of a second to travel 100 feet.)

Keep in mind that the EQ mode and feedback destroyer are two great ways to compensate for some of these issues. See page 14 for more information [18, 16].

Smart Protect

There are advanced DSP protection mechanisms designed into Reach to safeguard the speakers and amplifiers from inadvertent damage.

[VERY IMPORTANT] The protection circuits are designed to protect the speakers under reasonable and sensible conditions. Should you choose to ignore the warning signs [e.g. excessive distortion], you can still damage the speaker by overdriving it past the point of amplifier clipping. Such damage is beyond the scope of the warranty.

Limiting

Each driver has its own compression circuit which helps protect it from damaging transient peaks. The compressor is designed to be transparent and is not noticeable under normal operating conditions.

Overexcursion Protection

A 12 dB/octave high-pass filter just prior to the low-frequency amplifier prevents very low frequencies from being amplified. Excessive low-frequency energy can damage the woofer by causing it to "bottom out," also know as overexcursion, which is equivalent to a mechanical form of clipping.

Thermal Protection

All amplifiers produce heat. Reach is designed to be efficient both electrically and thermally.

In the unlikely event of the amplifier overheating, a built-in thermal switch will activate, muting the signal.

When the amplifier has cooled down to a safe operating temperature, the thermal switch resets itself, and Reach resumes normal operation.

If the thermal switch activates, try turning down the level control a notch or two on the mixing console (or the back of Reach) to avoid overheating the amplifier. Be aware that direct sunlight and/or hot stage lights may be the culprit of an amplifier overheating.

AC Power

Be sure Reach is plugged into an outlet that is able to supply the correct voltage. It will continue to operate at lower voltages, but will not reach full power.

Be sure the electrical service can supply enough amperage for all the components connected to it.

We recommend that a stiff (robust) supply of AC power be used because the amplifiers place high current demands on the AC line. The more power that is available on the line, the louder the speakers will play and the more peak output power will be available for a cleaner, punchier bass. A suspected problem of "poor bass performance" is often caused by a weak AC supply to the amplifiers.

[VERY IMPORTANT] Never remove the ground pin on the power cord or any other component of Reach. This is very dangerous.

Care and Maintenance

Reach will provide many years of reliable service if you follow these guidelines:

- Avoid exposing it to moisture. If it's set up outdoors, be sure it's under cover if rain is expected.
- Avoid exposure to extreme cold (below freezing temperatures). If you must operate Reach in a cold environment, warm up the voice coils slowly by sending a low-level signal through them for about 15 minutes prior to high-power operation.
- Use a dry cloth to clean Reach. Only do this when the power is turned off. Avoid getting moisture into any of the openings.

Appendix A: Service Information

If you think your Reach has a problem, please check out the following troubleshooting tips and do your best to confirm the problem. Visit the Support section of our website (www.mackie.com/support) where you will find lots of useful information such as FAQs and other documentation. You may find the answer to the problem without having to send your Reach away.

Troubleshooting

No power

- Our favorite question: Is it plugged in? Make sure the AC outlet is live [check with a tester or lamp].

- Our next favorite question: Is the power switch on? If not, try turning it on.

- The internal AC line fuse may be blown. This is not a user serviceable part. If you suspect the AC line fuse is blown, please see the "Repair" section next.

No sound

- Is the input level control for the input source turned all the way down? Verify that all the level controls in the system are properly adjusted. Look at the level meter to ensure that the Reach is receiving a signal.

- Is the signal source working? Make sure the connecting cables are in good repair and securely connected at both ends. Make sure the output level control of the source is turned up sufficiently.

- Make sure the source(s) are not turned off or muted. If you find something like this, make sure the level is turned down before disengaging the offending switch.

Poor bass performance

- Poor bass performance may be the result of bad AC power. See the section titled 'AC Power' on the previous page for further details.

Poor sound

- Is it loud and distorted? Make sure that you're not overdriving a stage in the signal chain. Verify that all level controls are set properly.

- Is the input connector plugged completely into the jack? Be sure all connections are secure.

Noise

- Make sure all connections to the Reach are good and sound.

- Make sure none of the signal cables are routed near AC cables, power transformers, or other EMI-inducing devices.

- Is there a light dimmer or other SCR-based device on the same AC circuit as the Reach? Use an AC line filter or plug the Reach into a different AC circuit.

Hum

- Try disconnecting the cable connected to the main input jack. If the noise disappears, it could be a "ground loop," rather than a problem with the Reach. Try some of the following troubleshooting ideas:

- Use balanced connections throughout your system for the best noise rejection.

- Whenever possible, plug all the audio equipment's line cords into outlets which share a common ground. The distance between the outlets and the common ground should be as short as possible.

Bluetooth Issues

- Please email or call Technical Support if you are having Bluetooth connection issues:
    - techmail@loudtechinc.com
    - 1-800-898-3211

Repair

For warranty service, refer to the warranty information on page 25.

Non-warranty service for Reach is available at a factory-authorized service center. To locate the nearest service center, visit www.mackie.com/support. Service for a Reach living outside the United States can be obtained through local dealers or distributors.

If you do not have access to our website, you may call the Tech Support department at 1-800-898-3211, Monday-Friday, during normal business hours, Pacific Time, to explain the problem. Tech Support will tell you where the nearest factory-authorized service center is located in your area.

Appendix B: Technical Information

Reach Specifications

Acoustic Performance:

Frequency Response (–10 dB)	50 Hz – 20 kHz
Frequency Response (–3 dB)	55 Hz – 17 kHz
Max peak SPL (@ 1m calculated)[1]	126 dB
Crossover Point	2.6 kHz
Dispersion	150° x 50° (H x V)

High-Frequency Section

Tweeter Array:

Voice Coil / Horn Entry Diameter	3x 1.0 in / 25 mm
Diaphragm Material	Polyethylene Naphthalate (PEN)
Magnet Material	Ferrite

Full Range Side Fills:

Woofer Diameter	2x 4.0 in / 102 mm
Voice Coil Diameter	1.0 in / 25 mm
Diaphragm Material	Pulp Composite
Magnet Material	Ferrite

Low-Frequency Section

Woofer Diameter	2x 6.5 in / 165 mm
Voice Coil Diameter	1.3 in / 33 mm
Diaphragm Material	Pulp Composite
Magnet Material	Ferrite

Power Amplifiers

System Power Amplification

Rated Power	360 watts rms
	720 watts peak

Low Frequency Power Amplifier

Rated Power	2x 100 watts rms
	2x 200 watts peak
Rated THD	10%
Cooling	Convection
Design	Class D

High Frequency Power Amplifier

Rated Power	60 watts rms
	120 watts peak
Rated THD	10%
Cooling	Convection
Design	Class D

Side Fill Power Amplifier

Rated Power	2x 50 watts rms
	2x 100 watts peak
Rated THD	10%
Cooling	Convection
Design	Class D

System Processing

Channel EQ	3-band
Main EQ	4 voicing modes
FX	16 presets
Feedback Destroyer	On / Off

Equalization

Low Shelving	±12 dB @ 80 Hz
Mid-Peaking	±12 dB @ 2.5 kHz
High Shelving	±12 dB @ 5 kHz
Increments	±3 dB

Input / Output

XLR	10 kΩ balanced
1/4" TRS	>100 kΩ balanced
1/4" TS	>400 kΩ unbalanced
1/8"	10 kΩ
Link In	10 kΩ
Link Out	100 Ω
Headphone Out	10 Ω

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[1] Calculated from driver sensitivity and amplifier power.

Reach Specifications continued...

Power

Line cord	100 – 120 V~, 50 – 60 Hz, 100W
	200 – 240 V~, 50 – 60 Hz, 100W
Operating Temperature	0 to 40 ˚C
[extended ambient temperature]	32 to 104 ˚F

Safety Features

Input Protection	Peak and RMS limiting, power supply and amplifier thermal protection
Display LEDs	Defeatable front power ON, Rear OL (Overload)
Status Info	Input and output levels, FX on/off and level, Feedback Destroyer on/off, EQ speaker voicing on/off

Bluetooth Information

Bluetooth Protocol	3.0
Bluetooth Function	Audio Streaming and User Interface Control

Construction Features

Cabinet	PC-ABS
Finish	High durability black paint
Handles	One on top, one in back
Grille	Powder-coated 18 gauge steel

Physical Properties

Height	28.0 in / 711 mm
Width	8.6 in / 218 mm
Depth	9.5 in / 241 mm
Weight	31.4 lb / 14.2 kg

Options

|	
Reach Bag	P/N 2036809-31

Disclaimer

Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at any time without notice.

The "Running Man" figure is a registered trademark of LOUD Technologies Inc.

All other brand names mentioned are trademarks or registered trademarks of their respective holders, and are hereby acknowledged.

Reach Dimensions

WEIGHT
31.4 lb
14.2 kg

9.5 in
241 mm

28.0 in
711 mm

8.6 in
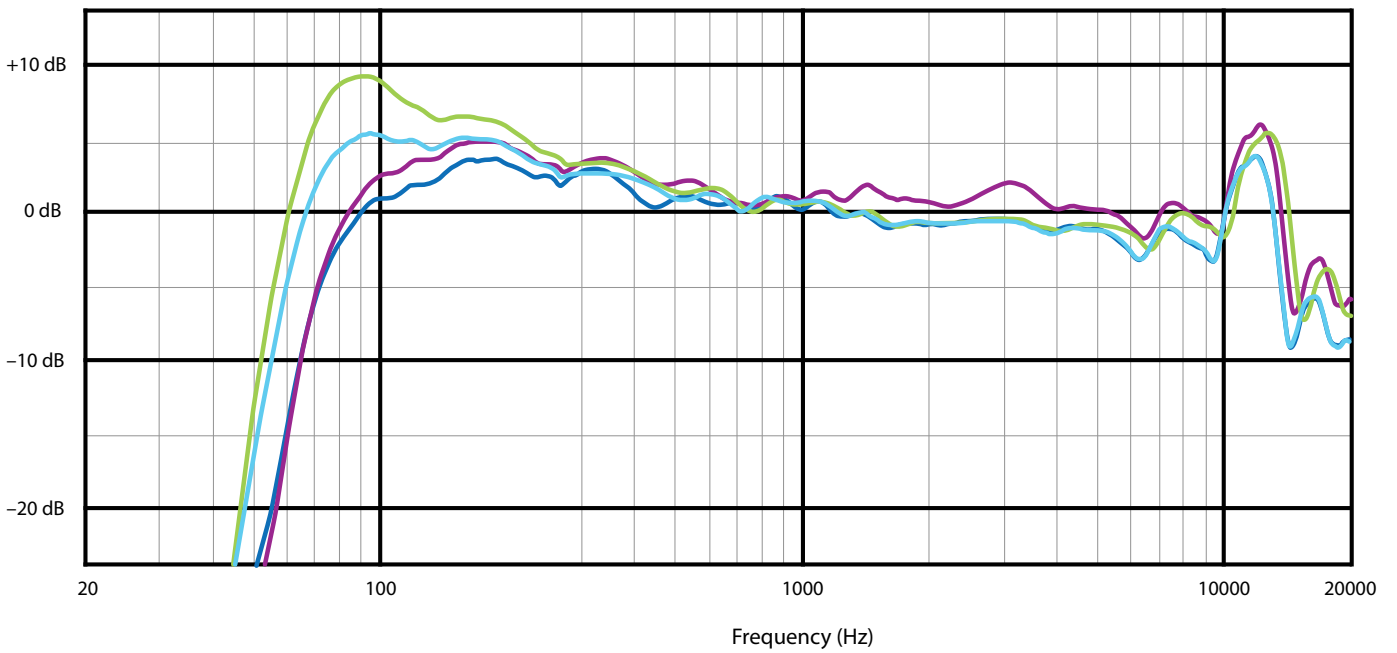218 mm
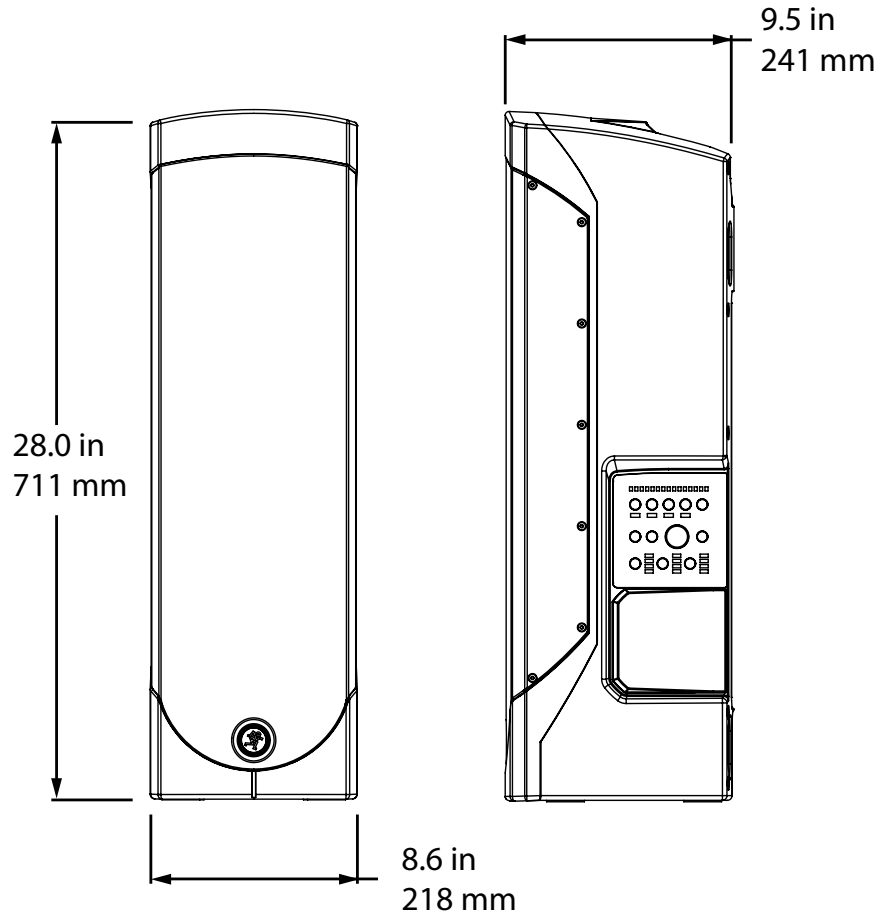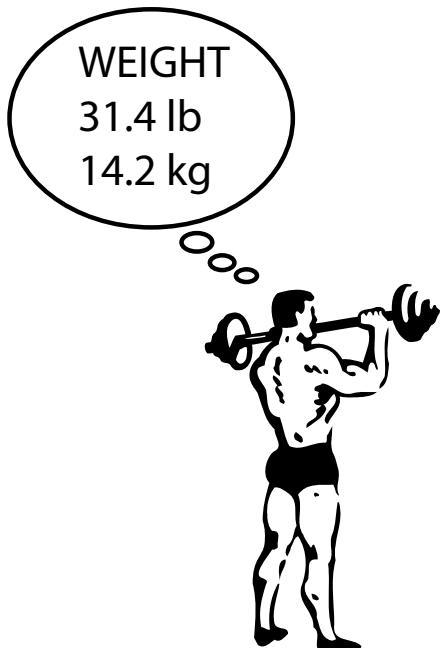
Reach Frequency Response Legend

Flat Speaker Mode – This mode is full range, but focuses on mid-range clarity where vocals often reside.

Solo Speaker Mode – This mode features a low frequency roll-off to get rid of unwanted thumps and adds boost and sparkle to mid-range and high frequencies. This mode is perfect for plug-and-play singer-songwriters.

DJ Speaker Mode – This mode bumps the lows and highs, perfect for music playback.

Voice Speaker Mode – This mode features a significant low frequency roll-off to get rid of unwanted thumps. It also adds boost and sparkle to mid-range and high frequencies, critical for speech applications. This plug-and-play mode is perfect for larger venue applications where speech is the primary audio source in need of clear and precise intelligibility.

Reach Frequency Response

Reach Block Diagram

Reach Block Diagram showing signal flow through User Interface, Ch 1-4, /Aux, Link In, Footswitch (FX Bypass) inputs, ADC, DSP, Speaker Processing, DAC stages, and Amp outputs.

Ch 1-4
XLR: +30 dB fixed gain
TRS: 0 dB fixed gain (Hi Z)

/ Aux
0 dB fixed gain

Link In

Footswitch
(FX Bypass)

ADC

DSP
Main
FX
User EQ
Fader
Feedback desTROYer
Voicing Mode
Effects:
Reverb
Delay
Chorus

Speaker Processing
Crossover
EQ
Limiter
Lo / Hi / Lo / Side Mon

DAC

Amp

User Interface

LINK OUT (Right Only)
PHONES

Appendix C: Table of Effects Presets

All FX listed below may be accessed via the Mackie Connect App. Descriptions and examples of the four FX that are accessed via Reach [Verb 1, Verb 2, Delay 1 and Delay 2] are noted in the *Title* column.

No FX on Reach will illuminate when an FX is selected via the Mackie Connect App.

Title	Description	Example of its use
Bright Room	This room has a bright tone with lots of scattered reflections to simulate harder, more reflective surfaces.	Useful on vocals that require a brighter reverb to cut through the mix, or for giving acoustic instruments a livelier vibe.
Warm Lounge	This preset features a medium sized room sound, with just enough enhancement of the lower mids to produce a warm tone.	Useful for vocals on songs that require a larger, more "wet" sound, or for giving dimension to bright horns without adding harshness.
Small Stage	This preset simulates the sound of a small concert stage, with a medium reverb time and reverberant space.	Useful for vocals or guitars in fast paced, high-energy songs that call for a "live" sounding reverberation.
Warm Theater [*Verb 2* on Reach]	This reverb has a warm bodied tone and medium long reverb time to simulate the live acoustics of a theater space.	Perfect for vocals, drums, acoustic and electric guitars, keyboards and more.
Warm Hall	This reverb simulates the sound of a spacious, yet cozy, heavily draped and carpeted concert hall with an especially warm tone.	Perfect for adding natural concert hall ambience to close-mic'ed orchestral instruments.
Concert Hall	This hall reverb is characterized by its large, spacious sound, long pre-delay, and vibrant tone.	Adds life to acoustic instruments and vocals from solos to full-on symphonies and choirs.
Plate Reverb [*Verb 1* on Reach]	This preset emulates vintage mechanical reverberation that was generated with a metal plate. Its sound is characterized by lots of early reflections and no pre-delay.	Perfect for thickening percussive instruments, such as a snare drum, or tight vocal arrangements.
Cathedral	This reverb emulates the extremely long tails, dense diffusion and long pre-delays and reflections that would be found in a very large, stone walled house of worship.	Gives amazing depth to choirs, wind instruments, organs and soft acoustic guitars.
Chorus	This preset provides a soft, ethereal sweeping effect that is useful for thickening and for making a particular sound pop out of the mix.	Perfect for enhancement of electric and acoustic guitar and bass, or to add a dramatic effect to vocals, particularly group harmonies and choirs.
Chorus + Reverb	This preset perfectly combines the chorus effect above with a large, roomy reverb.	This effect thickens the sound with chorus while adding warmth and spaciousness thanks to the smooth reverb.
Doubler	This effect simulates the sound of a vocal or instrument being recorded twice (double-tracked) on a multi-track recorder.	Provides a vibe that is similar to chorus without the subtle swirl.
Tape Slap [*Delay 1* on Reach]	This effect provides a single, relatively rapid delay of the original signal, with the added warmth that vintage tape-based echo units provided.	Often used on vocals for a 1950's era feel, or on guitars for a surf-type tone. Often used by people whose favorite number is 13.
Delay 1 [*Delay 2* on Reach]	This preset provides 300 ms delay. The smaller the delay time, the faster the delay.	This FX works best with full, up-beat music like rock where the delay needs to cut through the mix.
Delay 2	This preset provides 380 ms delay. The smaller the delay time, the faster the delay.	This FX works best with full, up-beat music like rock where the delay needs to cut through the mix.
Delay 3	This preset provides 480 ms delay. The smaller the delay time, the faster the delay.	This FX works best with full, up-beat music like rock where the delay needs to cut through the mix.
Reverb + Delay	This effect combines the Warm Theater reverb effect with the echoes of the 3-repeat delay effect.	Perfect for thickening vocals while adding dimensions, it can also be used as a spacey effect on electric guitars.

Limited Warranty

Please keep your sales receipt in a safe place.

This Limited Product Warranty ("Product Warranty") is provided by LOUD Technologies Inc. ("LOUD") and is applicable to products purchased in the United States or Canada through a LOUD-authorized reseller or dealer. The Product Warranty will not extend to anyone other than the original purchaser of the product (hereinafter, "Customer," "you" or "your").

For products purchased outside the U.S. or Canada, please visit www.mackie.com/support to find contact information for your local distributor, and information on any warranty coverage provided by the distributor in your local market.

LOUD warrants to Customer that the product will be free from defects in materials and workmanship under normal use during the Warranty Period. If the product fails to conform to the warranty then LOUD or its authorized service representative will at its option, either repair or replace any such nonconforming product, provided that Customer gives notice of the noncompliance within the Warranty Period to the Company at: www.mackie.com/support or by calling LOUD technical support at 1.800.898.3211 (toll-free in the U.S. and Canada) during normal business hours Pacific Time, excluding weekends or LOUD holidays. Please retain the original dated sales receipt as evidence of the date of purchase. You will need it to obtain any warranty service.

For full terms and conditions, as well as the specific duration of the Warranty for this product, please visit www.mackie.com/support.

The Product Warranty, together with your invoice or receipt, and the terms and conditions located at www.mackie.com/support constitutes the entire agreement, and supersedes any and all prior agreements between LOUD and Customer related to the subject matter hereof. No amendment, modification or waiver of any of the provisions of this Product Warranty will be valid unless set forth in a written instrument signed by the party to be bound thereby.

Need help with Reach?

- **Visit www.mackie.com/support to find FAQs, manuals, addendums, and other documents.**

- **Email us at: techmail@loudtechinc.com.**

- **Telephone 1-800-898-3211 to speak with one of our splendid technical support chaps (Monday through Friday, normal business hours, Pacific Time).**

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MACKIE.