ECHO 2

User Guide
Important Safety Instructions

Please read the following safety instructions completely. It is very important to heed all warnings and follow all instructions while operating the Echo 2.

Do not use the Echo 2 near water or any heat sources such as heaters, stoves, or amplifiers.

Protect the power cord from being damaged in any way.

Only use attachments/accessories specified by Echo.

Unplug the Echo 2 during lightning storms and when not being used for long periods of time.

If the Echo 2 requires servicing for any reason, please contact Echo customer service.

Please protect your hearing by avoiding excessive volume from the headphones/earphones connected to the Echo 2.
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Introduction

Thank you for choosing the Echo 2. The Echo 2 raises the bar for high-quality digital audio in the smallest package possible. We think you'll find it to be an extremely flexible, high-performance tool in the studio or performing live. This User Guide will show you how to connect and use the Echo 2 to get the most of what it has to offer.

We encourage you to register your product online at:


Registering gives us key information so that we may handle problems faster and inform you about upgrades and other news. Thank you in advance for registering. We hope you enjoy your Echo 2.

Package Contents

When you opened the box, you should have found the following:

- The Echo 2 device
- A universal power adapter
- A high-speed USB 2.0 cable
- Two 28" TRS to XLR female adapter cables
- A microphone stand bracket
Echo 2 Connections

Audio connections are made using the four jacks on the rear of the Echo 2:

![Echo 2 Connections Diagram]

**Inputs**

The Echo 2 has two ¼” TRS (Tip-Ring-Shield) balanced input jacks labeled “IN1” and “IN2”. You can connect virtually any type of analog signal to these jacks, such as guitars, keyboards, microphones, line level signals, or mixer boards. Each input has a built-in acoustically transparent, quiet, studio-grade preamp.

You can plug a microphone directly into the Echo 2 without using an external preamp. The Echo 2 can provide phantom power. If your microphone has an XLR connector, you can use the included adapter cable.

You can also connect guitars, keyboards, or other equipment using ¼” cables. Whenever possible, use balanced, shielded cables to limit external interference. Unbalanced signals such as those from RCA connectors and guitars should be connected using cables with mono plugs.

Once you have connected the inputs, set the appropriate mode for the input using the touch panel. This will set up the internal preamp to match the incoming signal.

If you prefer to use an external preamp, simply connect the preamp directly to the Echo 2’s input, and set it for line level with unity gain. This will preserve any unique sonic coloration or nuance.
Main Outputs

There are two output jacks labeled “OUT L” and “OUT R”. These are standard low impedance, balanced outputs that can be connected directly to a mixer board or powered speaker.

Headphone Output

A high quality stereo headphone output is provided by the front jack:

You can set the headphone volume using the touch panel.

For more information on operating the touch panel, please refer to that section of this user guide.
Power

The Echo 2 may be powered either from a computer over the USB cable, or from the included power adapter. The adapter plugs into the DC power jack on the right side as shown below:

Phantom power (+48V) can require more power than your computer’s USB port can deliver. Late-model Macintosh computers or PCs with USB 3.0 ports may provide more power. Echo recommends using the external AC adapter whenever phantom power is switched on.

USB power can be noisy, resulting in audible ground hum, or decreased audio performance. If you are experiencing these problems, try using the external power adapter.

USB

When used for digital audio recording and playback, the Echo 2 connects to a computer using the USB mini-B jack on the rear of the case. The Echo 2 requires a cable that has been certified for USB 2.0 high-speed operation.
Touch Panel

The touch panel gives easy access to virtually all of Echo 2’s functionality. The panel uses capacitive touch technology to sense the touch of a finger. A light touch is all that is needed; the panel can’t differentiate between a light or hard press. The active area for each touch control is in the center of the rounded gray rectangle to the right of the LED indicator. For the slider, the active area is directly beneath the horizontal gray lines.

To avoid accidental activation, each control must be touched for approximately half a second before the touch will be recognized. Some functions, such as EZ trim, are activated by a “long” touch of approximately two seconds.

The front panel is very scratch resistant, but can be scratched by hard or sharp objects. Care should be taken to protect it. Clean only with a soft, damp cloth.
Input Selection

Each input can be switched between one of three modes. Pressing either input button will cycle between MIC, LINE, and GUITAR. The default input type is LINE. Any time a cable is unplugged from the input jack, the input will revert to this setting.

Changing the input type resets the input gain to 0 dB to avoid any potential audio feedback.

Phantom Power

Phantom power (+48V) can be turned on when one of the inputs is set to MIC. If there are two microphones connected, phantom power will be provided to both simultaneously. To protect external equipment, this phantom power is disabled whenever an input is set to LINE or GUITAR. In addition, phantom power will be turned off when the Echo 2 first powers up.

Please note that the use of phantom power may require powering your Echo 2 with the external power adapter instead of relying on computer USB power. Further details are provided in the “Power” section of the manual above.
Input set up

If you're unsure how to set up your inputs, please refer to the following table:

<table>
<thead>
<tr>
<th>Signal source</th>
<th>Echo 2 input mode</th>
<th>+48V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic microphone</td>
<td>MIC</td>
<td>Off</td>
</tr>
<tr>
<td>Condenser microphone</td>
<td>MIC</td>
<td>On</td>
</tr>
<tr>
<td>Keyboard</td>
<td>LINE</td>
<td>Off</td>
</tr>
<tr>
<td>Mixer board</td>
<td>LINE</td>
<td>Off</td>
</tr>
<tr>
<td>MP3 player/iPod</td>
<td>LINE</td>
<td>Off</td>
</tr>
<tr>
<td>Guitar with passive pickups</td>
<td>GUITAR</td>
<td>Off</td>
</tr>
<tr>
<td>Guitar with active pickups</td>
<td>LINE</td>
<td>Off</td>
</tr>
<tr>
<td>External preamp</td>
<td>LINE</td>
<td>Off</td>
</tr>
</tbody>
</table>
Levels

Input gains, monitoring, and output volumes are all controlled using the “slider” control in the middle of the touch panel. Touch one of the selector buttons to select what the slider does:

- **Input 1 gain**
- **Input 2 gain**
- **Monitor volume**
- **Main output volume**
- **Headphone volume**

Touching one of these buttons changes the slider control to show the current setting for that selection.

The LED indicators on the left side of the slider show the current position. To change it, place your finger over the horizontal gray bar next to the topmost lit LED and slide it up or down. Moving too fast may cause the level to stop moving.
The range of the slider control will change depending on your selection. The various ranges for the slider are shown below:

<table>
<thead>
<tr>
<th>Input Gain (dB)</th>
<th>Output Attenuation (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line</td>
<td>Guitar</td>
</tr>
<tr>
<td>+63</td>
<td>+69</td>
</tr>
<tr>
<td>+53</td>
<td>+59</td>
</tr>
<tr>
<td>+42</td>
<td>+48</td>
</tr>
<tr>
<td>+32</td>
<td>+38</td>
</tr>
<tr>
<td>+21</td>
<td>+27</td>
</tr>
<tr>
<td>+11</td>
<td>+17</td>
</tr>
<tr>
<td>0</td>
<td>+6</td>
</tr>
</tbody>
</table>

Main Mute

Pressing the mute button will mute the main outputs.
EZ Trim

The ideal input gain setting provides the maximum gain without clipping when the loudest signal is coming into the input. While it is possible to use the input gain slider control to set the gain while shouting into a microphone, pounding on drums, or wailing on a guitar, it’s both quicker and more accurate to let the Echo 2 do it automatically for you with EZ Trim.

To engage EZ trim, simply press and hold one of the input buttons for two seconds until the indicator starts to flash. At this point the input gain will be lowered to its lowest level and the Echo 2 will keep track of the loudest signal. Now sing or play your loudest. All it takes is a few notes or strums of the guitar. To exit easy trim and have the level set to its optimum value, simply press the input button again or wait 12 seconds from when the indicator started to flash. Pressing any other button cancels EZ Trim and the input level will be left untouched.

Upon exiting EZ Trim, the input level will be set so that the loudest signal it received will register 2dB below full scale, or clipping. This extra headroom can be useful if you happen to play or sing a bit louder than during the sample period.

Input Monitoring

Each input may be monitored, or passed through to the outputs. The slider control sets the monitor level from muted at the bottom to full (0dB) at the top.

There are two different monitoring modes to choose from. To switch from one to the other press the MON button for two seconds. The MON indicator LED will either be on steady or slowly flash to show which monitor mode is currently being used.

**Steady LED** – “Live” mode. Each input is monitored equally through both outputs (center panned).
Flashing LED – “Studio” mode. IN 1 is monitored through OUTL (panned hard left) and IN 2 is monitored through OUTR (panned hard right).

Headphone Routing

In normal operation, the headphones have their own D/A converter and are playback channels 3 and 4. There are times, such as listening to the Windows Media Player, when it is useful to have the headphones mirror the main outputs, and playback channels 1 and 2. To put the headphone output into this mode, press and hold the headphone button for two seconds until the LED starts to flash. To return to normal operation, press and hold the headphone button for two seconds again.

   Steady LED – Headphones are output channels 3 and 4.

   Flashing LED – Headphones are output channels 1 and 2.

Saving Settings

Settings are automatically saved. The Echo 2 will wait 30 seconds after your last change and then save your settings. The panel will flash briefly during the save operation.

When you power up the Echo 2, your settings will be restored. However, phantom power will always be turned off. If an input is not connected, that input will be reset to LINE mode with 0 dB of gain.
Computer Operation
Specifications

Analog inputs

The tip connector is the Hot (+) signal while the ring connector is the Cold (-) signal. The shield is always ground.

The input characteristics change depending on which type of input is selected:

**Line**

Differential input impedance: 20K ohms, 10K ohms to ground per leg

0dB input level (gain slider at minimum): +18 dBu (6.2Vrms or 17.5V p-p)

Slider gain range: 0 dB to +63 dB

**Guitar**

Input impedance: 1 Meg ohms

0dB input level (gain slider at minimum): +12 dBu (3.1Vrms or 8.8V p-p)

Slider gain range: +6 dB to +69 dB

**Mic**

Differential input impedance: 1.8K ohms, 900 ohms to ground per leg

0dB input level (gain slider at minimum): +6 dBu (1.6Vrms or 4.4V p-p)

Slider gain range: +12 dB to +75 dB

EIN (Equivalent Input Noise): -129 dBu

When monitoring, input to output latency is XXms. FIXME

Analog outputs

The main output and headphone volumes are set using the touch panel slider with a maximum output level of 9.5 dBu (2.3 Vrms or 6.5V p-p).

Outputs are impedance balanced with an output impedance of 120 ohms on each leg, yielding the noise cancelling benefits of a balanced connection. However, only the tip has an active signal present.

DC power
Warranty
Declarations of Conformity

USA

This equipment has been tested and found to comply with the limits of 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:

1. Re-orient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a different circuit from that to which the receiver is connected.

CAUTION: Changes or modifications not expressly approved by the Echo Digital Audio could void the user’s authority to operate the equipment under FCC rules.

Canada

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

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
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
CE


RoHS Notice

Echo Digital Audio has conformed and this product conforms, where applicable, to the European Union’s Directive 2002/95/EC on Restrictions of Hazardous Substances (RoHS) as well as the following sections of California law which refer to RoHS, namely sections 25214.10, 25214.10.2, and 58012, Health and Safety Code; Section 42475.2, Public Resources Code.

REACCh

This product is compliant with the European Union Directive EC1907/206 for the Registration, Evaluation, Authorization and Restriction of chemicals (REACCh) and contains none or less than 0.1% of the chemicals listed as hazardous chemicals in the REACCh regulation.

WEEE

As with the disposal of all old electrical and electronic equipment, this product is not to be treated as regular household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment.