empress effects

Reverb



user manual

version 3.01

INTRODUCTION

We're stoked you've chosen to make the Empress Reverb part of your sound! We've worked really hard to provide beautiful realistic studio-quality reverbs, as well as many creative new modes. You'll soon discover the tone palette is deep and diverse.

It was important for us to create a pedal that's tweakable but fast to dial in. We wanted all the functions at your finger tips and accessible with your toes. The many advanced configuration options let you customize the pedal to meet your needs, so be sure to check those out.

If any section of this manual is unclear, check our tutorial videos online - sometimes a moving picture with sound is worth a million words.

The Empress Reverb firmware can be updated via an SD card. If you want a say in what features we add to future firmware revisions, sign up for our voting forum at www.empresseffects.com/votingforum

Now go make some music!



Jason Fee - Designer

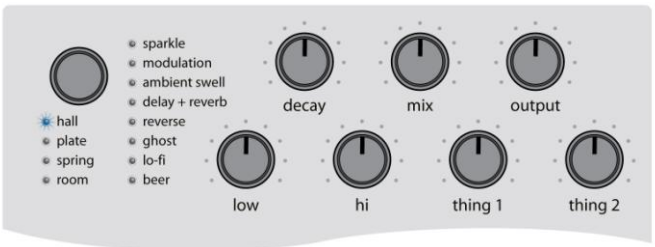


Steve Bragg - Designer

QUICKSTART

All modes are designed to sound good with all knobs at 12 o'clock. Start there and then tweak to taste.

Concert Hall



Modulated

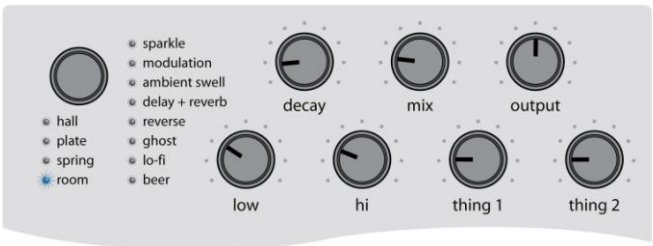


Ghost



QUICKSTART

Room



Delay + Reverb



Reverse



MODE REFERENCE CHART

Mode	Description	Thing 1	Thing 2
Hall			
Concert Hall	Classic large hall sound, very warm, slow build, with long smooth decay.	Modulation	Early Reflection Level
Modern Hall	Hall that's very smooth and warm without any modulation.	Pre Delay Time	Early Reflection Level
Plate			
Classic Plate	Modeled after a vintage plate, works at both short and long decays.	Pre Delay Time	Bright Early Decay
Studio Plate	Very smooth decay, no modulation.	Pre Delay Time	Early Reflection Level
Spring			
Bright Spring	In the Fender Twin Reverb realm.	Rattle Decay	Rattle Level
Dark Spring	In the Fender Deluxe realm.	Rattle Decay	Rattle Level
Overdriven Spring	Dirty 60's Surf Sound.	Rattle Decay and Level	Break-up amount
Room			
L.A. Studio	Very Realistic room with dense early reflections. Great at short decays.	Pre-Delay Time	Early Reflection Level
Sparkle			
Sparkle	Adds smooth octaves and long decays.	Sparkle Level	Sparkle Length
Glummer	Octave down and up	Octave down blend	Octave up amount
Modulation			
Modulated	Very smooth and adds lots of thickness, width and airiness to the sound.	Modulation Rate	Modulation Depth

Chorused Reverb	Similar to *Modulated* but a more muted sound in the mid range frequencies.	Modulation Rate	Modulation Depth
Flanged Reverb	Has a wide-sweeping flanger type effect on the output.	Modulation Rate	Modulation Depth
Tremolo Reverb	Tremolo is applied after a smooth hall reverb.	Tremolo Rate	Tremolo Depth

Ambient Swell

Triggered Swell	Detects pick attacks and fades in the notes, eliminating attack in the reverb line.	Swell Time	Modulation
Gate Swell with Octave	Has a gate that then feeds a dense set of delays with octave. It will fade in your playing to create smooth swells.	Gate Attack	Octave Up volume

Delay+Reverb

Single Tap Delay	Adds a delay to the warm hall setting, very cool for lead parts.	Delay Time	Delay Feedback
Blend-able Delay	Delay time is set with select stompswitch.	Blend of delay vs reverb	Delay Feedback
Filtered Feedback Delay	The Hi and Low knobs filter the delay feedback.	Delay Time	Delay Feedback

Reverse

Reverse with Decay	Reverse Reverb with a nice smooth decay.	Reverse Swell Time	Reverse Modulation
Reverse and Stop	Reverse Reverb with no decay.	Pre Delay	Diffusion
Reversed Delay	Reverse Delay with ability to add Reverb.	Reverse Delay Length	Amount of Reverb added to the reverse delay

Ghost

Resonant	It's a spooky sounding decay because of aggressive resonances in the response.	Mod Rate	Resonance (aka spookiness)
Casper	A Friendlier, less spooky ghost	Modulation	Diffusion

Lo-Fi

50's Radio	Grainy, filtered lo-fi sound with an AM radio quality to it.	Delay Level	Dirtiness
Warble	Distorted and wobbly delay lo-fi sounds.	Warble	Dirtiness

Beer

Glitch	The reverb tail is fed into a filter that randomly changes between low-pass and high-pass.	Glitch Speed	Glitch Tone - determines the time spent on HPF vs. LPF
Gated Reverb	When you stop playing, a gate mutes the wet signal.	Gate Threshold	Gate Release (10ms - 1sec)
Destroyer Pad	For sternly communicating with household appliances	Robot screams	Pitch shift

This manual only lists modes that were available at the time of printing.

For the most up-to-date firmware and manual refer to empresseffects.com

FIRMWARE UPDATES

This pedal has firmware that can be updated with an SD card.

Performing A Firmware Update

1) download the firmware file off the website
   www.empresseffects.com/reverb-firmware
2) copy the file to the root directory of the SD card
   (a high-capacity SD card that's been formatted FAT32)
3) insert the SD card then power on the pedal.
4) The preset LEDs should marquee yellow for a bit, then all
   turn green when the update is complete.
5) remove SD card, cycle the pedal's power, and you're good!

SD Card Constraints

There should only be one partition on the SD card because the pedal only looks at the first partition on the disk. SD card must be V2 high speed. Nowadays this is the most common type.

Firmware Update Error Codes

The preset LEDs will blink to signal an error:

1. unusable card
2. V1 card
3. V2 standard card
4. unable to read disk
5. valid FAT volume not found on SD card.

PRESETS

The Reverb has two types of preset systems: the **scrolling preset system**, and the **bank preset system**. Read about each preset system to find which one will work best for you. Select which preset system to use in *Advanced Configuration.*

SCROLLING PRESET SYSTEM

Preset Organization

In *Advanced Configuration* you can select the number of presets you wish to use. The presets are represented by a series of 5 LEDs located just below the knobs. Press the **scroll** stompswitch to scroll through the presets. The preset LEDs will blink. When cycling through the presets after every 5 presets, the preset LED colors will change to another color to indicate you're in the next bank and will start counting again from left to right.

When cycling through the presets you will notice that after your final preset, all the preset LEDs will flash very quickly. This represents the manual preset. If you recall this preset, the Reverb will get its settings from the current knob positions. In the manual preset, no preset LEDs are lit.

You can scroll backwards through the presets by pressing the **select** and **scroll** stompswitches simultaneously.

Saving a Preset

To save the current settings to a preset, press the **scroll** stompswitch until you reach the preset location you want to write to. While the lights are flashing, hold down the **save** button and press the **scroll** stompswitch. Your preset is now saved.

Recalling a Preset

To recall a preset simply press the **scroll** stompswitch until the preset you'd like to recall is flashing, then press the **select** stompswitch to load the preset. The presets LEDs should now be solid and bright.

Changing a Preset

If you change the position of a knob or switch after a preset is loaded, the preset LEDs will dim to indicate that the preset has been modified, but not saved. If you move the knob or switch back to the position it was in when the preset was saved, the preset's LED indicators will brighten again. This lets you find the positions of all the knobs and switches when the preset was saved.

BANK PRESET SYSTEM

Preset Organization

In *Advanced Configuration* you'll select the number of banks you wish to use. The preset LEDs display which bank is selected by changing color. Each stompswitch represents a preset. So there are 3 presets per bank.

Recalling a Preset and Bypassing the Pedal

To recall a preset, press on a stompswitch. The light above that stompswitch and the bypass LED will illuminate. To load another preset, simply press one of the other stompswitches. To bypass the pedal, press the stompswitch corresponding to the active preset, and the bypass LED will turn off. The pedal is now bypassed.

Changing Banks

To bank up, press the right and middle stompswitches simultaneously. To bank down press the left and middle stompswitches simultaneously. The LEDs will flash indicating the target bank, then you can press any of the stompswitches to load a preset within that bank.

Saving a Preset

To save a preset, set the knobs to the sound you would like to save. Then navigate to the target bank. While the lights are blinking, press and hold the **save** button and select the target preset location by pressing the corresponding stompswitch.

mode selector: selects which mode is active. Each mode can have many submodes which are indicated by different color LEDs.

low and hi: controls the reverb tone through EQ and damping.

select: used to engage a preset that has been scrolled to with the scroll stompstwitch.

- also used as a tap switch or infinite hold when not scrolling through presets.



to save a preset:
- create the sound you want to save
- scroll to the preset location to which you would like to save.
- press and hold the save button
- press the scroll stompswitch
- release save and scroll

to assign expression pedal:
- move knob(s) to desired setting(s) for heel position
- press and hold save button
- move knobs to desired setting(s) for toe position
- release save button

select + scroll together: will scroll backwards through presets.

t a Glance

decay: controls how long the reverb tail takes to decay.

mix: sets the ratio of wet signal (reverb) to dry signal (unaffected). Counterclockwise is 100% dry, clockwise is 100% wet, with 50/50 being somewhere around 2 o'clock.



output: controls the overall output volume for the pedal. 12 o'clock is unity.

thing 1 & thing 2: these two controls take on different functions depending on the mode. They control things like modulation, early reflections, pre-delay, sparkle, octave level, delay time and feedback. Check the ***mode reference chart*** to see which function they perform in a given mode.

scroll: press to scroll through presets, then engage the preset with the select switch.

bypass: engage or bypass the pedal. Can be set for true bypass or buffered bypass in advanced configuration.

CONTROL PORT

The control port jack allows the Empress Reverb to be controlled by a multitude of devices. The pedal ships configured to accept an expression pedal. Please see the *Advanced Configuration* section on how to configure the control port for the device you plan to use.

EXPRESSION PEDAL

Each parameter, with the exception of the **mode** knob, can be controlled simultaneously via the expression pedal.

To control a parameter with the expression pedal, move the parameter's knob to the desired heel setting, then hold down the **save** button and move the knob to the desired toe setting, then release the **save** button. Multiple parameters can assigned for expression pedal control simultaneously by repeating this process for each parameter to be assigned. Each parameter can be set with independent heel and toe settings.

To release a parameter from the expression pedal's control, move the knob that controls that parameter.

Any expression pedal used with the Empress Reverb should have the following pinout: tip to signal, ring to power, and sleeve to ground.

CONTROL VOLTAGE (CV)

With CV control, the Empress Reverb responds to CV signals from 0 to 5 volts. Otherwise, the CV configuration works exactly like the expression pedal configuration.

EXTERNAL TAP SWITCH

The Empress Reverb can be used with either a normally-open or a normally-closed external switch. This switch operates like the **select** stompswitch, with the exception of loading presets.

MIDI

All the parameters of the Empress Reverb can be controlled via control change messages. Its presets can be selected with program change messages, and its tempo can be controlled with MIDI clock messages.

To use MIDI with your Empress Reverb, you'll have to:

1. Connect the Empress Midibox (not included with the Reverb) using a ¼" patch cable to the **control port**. A TRS cable is required to send MIDI out messages if you're using the reverb to control other pedals.
2. Configure the pedal for MIDI control and set the MIDI channel. See *Advanced Configuration* for instructions. Choose a MIDI channel that won't conflict with other devices in your MIDI rig.

Recalling a preset via MIDI (Program Change Messages)

You can activate a preset by sending a MIDI program change message. For example, sending a program change message of 7 activates preset 7.

Midi with Preset Out

The Reverb can send out MIDI program changes on the ring of the control port jack whenever a preset is loaded on the Reverb. The Reverb will send out these program changes on the 4 channels above the Reverb's current MIDI channel.

> For example, if the Reverb is set to MIDI channel 5 and preset 3 is loaded, the Reverb will send out MIDI program change 3 on MIDI channels 6, 7, 8 & 9.

Midi Beat Clock

Modes that accept a tap tempo input will respond to MIDI clock messages. MIDI clock specifies quarter notes, subdivided into 24 MIDI messages. The Reverb's delay time gets set to a quarter note.

Midi Control Changes

The Empress Reverb can be controlled with MIDI control change messages. Opposite is a table that shows which MIDI control change number controls each Reverb parameter.

MIDI CONTROL CHANGE MESSAGES REFERENCE

Reverb Parameter	CC #:	Note:
Modes	20	The modes and sub-modes are numbered starting from 0 (Hall = 0, Plate = 1, etc.) To translate the modes and sub-mode to a single number you apply the following equation: MIDI message value = (mode x 8) + sub-mode Example: To load the 2nd plate mode, you'd send a value of 9 with the CC message. (1x8) + 1.
Decay Time	21	Sending a value 0 would be equivalent to the knob completely counterclockwise, sending 127 is equivalent to fully clockwise.
Mix	22	
Volume	23	
Low Damp	24	
Hi Damp	25	
Thing 1	26	
Thing 2	27	
Left Stompswitch - Select	35	Sending a value of 64 simulates a quick tap. Sending a value of 127 simulates the switch being pressed and held until a value of zero is sent, simulating releasing the switch.
Middle Stompswitch - Scroll	36	
Right Stompswitch - Bypass	37	
Save Button	38	
MIDI Clock Listener	51	Sending a value of 0 causes the pedal to ignore MIDI clock messages. Sending a value of 127 causes the pedal to listen for MIDI clock messages. (by default, the pedal listens for MIDI clock messages)

Additional MIDI Control Change Notes

- MIDI switching cannot be done while in A*dvanced Configuration*.
- the manual preset cannot be used while using the bank preset system.

POWERING THE REVERB

Go to www.empresseffects.com/power for a full list of compatible power supplies.

Please Note: The Empress Reverb requires at least 300mA of current to function properly. Any power supply rated at 9V DC, supplying negative tip polarity () and at least 300mA of current should work.

ADVANCED CONFIGURATION

The advanced configuration customizes how your pedal operates. The options are listed in the table that follows.

Entering Advanced Configuration

While holding down the **select** and **bypass** stompswitches, press the **save** button. All the preset LEDs will blink yellow twice to confirm you're in.

While in Advanced Configuration

Each mode LED represents a different configuration item you can change. Look up the item you'd like to change from the table on the right, then turn the **mode** rotary knob to select it.

Turn the **decay** knob to modify the value of the advanced configuration setting. The preset LEDs will illuminate to show you the current value. For example, if the hall mode light is lit and the 2nd preset LED is lit, you've configured the pedal for buffered bypass operation.

Exiting Advanced Configuration

Hold down **select** and **bypass** stompswitches while in advanced configuration. Preset LEDs will blink yellow twice and the pedal will reboot.

ADVANCED CONFIGURATION REFERENCE

Option	Set mode LED to:	preset LEDs indicate:
Bypass operation	Hall	1. True Hardwire Bypass 2. Buffered Bypass.* 3. Buffered Bypass with isolation transformer on right output. (Note: when transformer is engaged the pedal assumes stereo output operation)
Control port configuration	Plate	1. Expression Pedal* 2. Control Voltage Input. 3. Normally Open Switch. 4. Normally Closed Switch. 5. MIDI. 6. MIDI with Preset Out.
Input pad	Spring	1. No Pad (0dB) 2. -6dB Pad* 3. -12dB Pad
Preset system	Room	1. Scrolling Preset System* 2. Bank Preset System
Number of presets for scrolling preset system	Sparkle	As you turn from left to right the LEDs will illuminate in order to indicate the last preset.
Number of banks for the bank preset system	Modulation	As you turn from left to right the colors will indicate the last bank
MIDI channel the pedal will respond to (when control port is configured for MIDI).	Ambient Swell	As you turn from left to right the LEDs will illuminate in order to indicate the MIDI channel. (ex. If the 3rd LED is lit, it's going to listen on MIDI channel 3).
Knob Lock - lock the presets so they don't change accidentally on stage.	Delay + Reverb	1. Unlocked.* 2. Locked - knobs are locked in presets (not manual preset) so that they don't get nudged by mistake if using presets.

Cabinet Simulator puts a cabinet simulation algorithm on the output, useful if you don't have an amp.	Reverse	1. Cab sim is off.* 2. Bright 4x12 cab. 3. Dark vintage cab 4. Balanced modern cab
Signal Configuration	Ghost	1. stereo in/stereo out.* 2. wet/dry: dry out left, and wet out right.
Startup State	Lo-Fi	1. Startup Bypassed* 2. Startup Engaged and load Preset 1
Stereo Widening	Beer	1. Regular Stereo Width* 2. Stereo Width 2dB wider. 3. Stereo Width 4dB wider.

*denotes the factory default setting

FACTORY RESET



WARNING! This will overwrite your current presets and advanced config settings and replace them with the factory presets and default advanced config settings!

To restore the Reverb to its factory settings, do the following: while in the advanced configuration (see *Entering Advanced Configuration*): press and release the stompswitches in this order: **Select**, **Bypass**, **Select**, **Bypass**. Then the LEDs do a dance. Now you can exit advanced configuration (see *Exiting Advanced Configuration*).

THANK YOU

Patrick Zdunich for lending his ear and super bug hunting skills when we needed it the most.

Steve Foley for giving us so much input on the functionality and his ears on the sounds.

Dave Bignell for making his studio available to a stranger for a day of listening.

Bova Sound for sampling their wonderful EMT 140 Plate Reverb.

Young coding rock-star **Matt Cyr** for crushing it so hard on the calibration tools.

Chris 'C+++' DeVisser for making us some awesome internal tools we use every day.

Thanks to beta testers **Dan Hay**, **Jordan Craig**, and **Jeff Logan** for their valuable input when we couldn't tell the forest from the trees.

LEGAL STUFF

FCC Compliance

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 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.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules

SPECIFICATIONS

Input Impedance:	1MΩ
Output Impedance:	100Ω
Output Impedance (transformer):	600Ω
Frequency Response (-3dB, dry):	10Hz – 50kHz
Frequency Response (-3dB, wet):	10Hz – 23.4kHz
Total Harmonic Distortion (dry):	0.09%
Total Harmonic Distortion (wet):	0.22%
Dynamic Range (dry):	106.9 dBA
Dynamic Range (wet):	105.5 dBA
Input Headroom (dry):	+10.0 dBu
Input Headroom (wet, no pad):	+0.5 dBu
Input Headroom (wet, 6dB pad):	+5.7 dBu
Input Headroom (wet, 12dB pad):	+10.8 dBu
Output Headroom:	+16.2dBu
Power Voltage:	9V DC (center negative)
Power Input Connector:	2.1mm Barrel Connector
Required Current:	300mA
Height (enclosure only):	1.75”
Height (including controls):	2.25”
Length:	5.7”
Width:	3.75”
Weight:	1.5lbs