

3. Set up your MIDI master device to control MIDI CC #24. CC #24 controls the RATE slider on the 8-STEP.
4. Send out a range of values on CC #24 from 0 to 127. As the values increase, the RATE will increase on the 8-STEP.
5. Now set your MIDI device to output MIDI Program Change #100, this may be #101 on some devices.
6. Send MIDI PC #100. When you do the 8-STEP will immediately begin playback, as if you had pressed the PLAY FSW on the unit. Send PC #100 again to pause playback.
7. Check the MIDI chart at the end of this manual for a complete list of all of the MIDI command assignments and the parameters they control on the 8-STEP.

### Changing the 8-STEP's MIDI Channel

1. Press and hold the RESET FSW. After 3 seconds you will see the GL and SL LEDs blink, while the DIR LED is off. At this point the current MIDI channel is displayed on the digit display.
2. While continuing to hold down the RESET FSW, turn the MODE knob clockwise to increment the MIDI channel and counter-clockwise to decrement the MIDI channel.
3. The range of available channels is 1 through 16 plus a setting displayed as **A** where all MIDI channels are recognized. Since there is only one digit available on the display, the digit's decimal LED lights up to indicate the tens placeholder. So Channel 12 is shown by displaying the number 2 plus the decimal LED: **(2.)**. Channel 2 would be shown by displaying only the number 2 **(2)**.
4. To enable all MIDI channels, turn MODE clockwise past Channel 16. An **A** will be displayed on the digit, now all MIDI channels are recognized.
5. Once you have selected your chosen MIDI channel, release the RESET FSW. The MIDI channel selection remains in memory even after power cycling.
6. The MIDI channel is a global parameter; it is not saved with presets.

### - CONTROLS, INDICATORS & I/O-

The following descriptions detail all of the sliders, knob, switches, LEDs (lights) and I/O jacks on the 8-STEP PROGRAM:

#### STEP 1-8 SLIDERS & LEDS

8-STEP's sequences are composed of up to 8 Steps. Each step has its own independent slider for setting the expression or CV level. As you push a step slider upward, its output level increases. When used as an expression pedal replacement, the maximum and minimum range of each step is equal to the toe (maximum) and heel (minimum) range of an expression pedal. When the 8-STEP is used as a CV sequencer, the output range is 0V (minimum) to 5V (maximum).

# electro-harmonix



## 8-STEP PROGRAM

### Analog Expression/CV Sequencer

Congratulations on your purchase of the Electro-Harmonix 8-STEP PROGRAM. The 8-STEP is an analog sequencer that connects to the expression pedal input of many different types of effects pedals, keyboards and other devices. Think of the 8-STEP as replacing your expression pedal, controlling parameters in a sequential fashion rather than continuously as you normally do with an expression pedal. Additionally, the 8-STEP can be connected to devices that have Control Voltage (CV) inputs.

Special Features of the 8-STEP PROGRAM:

- Sequence length is selectable between 1 and 8 steps
- Four available Direction Modes: Forward, Reverse, Bounce and Random
- Depth and Glide of the sequence output is encoder adjustable
- Tap Tempo Footswitch allows you to set the tempo with your foot and can be divided down for faster tempos from the same tap tempo
- Three available Play Modes: Loop, 1-Shot and Step-Thru (Manual)
- Reset Footswitch instantly resets the sequence back to its beginning
- Expression In allows external control over Rate, Depth, Glide or Sequence Length
- Expression In doubles as an External CV Clock input allowing the 8-STEP to be synced to an external clock
- MIDI IN jack allows the 8-STEP tempo to be synced to MIDI Clock
- Full MIDI control over every parameter on the 8-STEP
- Comes supplied with a TRS cable for expression control. Use a standard ¼" TS instrument cable for CV control (0-5V)
- Save and load up to 10 presets. Add the optional 8-STEP FOOT CONTROLLER to save and load up to 100 presets

**WARNING: Your 8-STEP PROGRAM comes equipped with an Electro-Harmonix 9.6DC-200BI power supply (same as used by Boss® & Ibanez®: 9.6 Volts DC 200mA). The 8-STEP requires 100mA at 9VDC with a center negative plug. The 8-STEP does not take batteries. Using the wrong adapter may damage your unit and void the warranty.**

## - QUICK START GUIDE -

### Basic Sequence Using Forward and Loop Mode

1. Plug the TRS cable into the EXP/CV OUT on the left side of the 8-Step. Use a TS cable for CV control.
2. Connect the other end of the TRS (or TS) cable into the expression (or CV) input on an external device.
3. Connect the output plug from the supplied AC Adapter to the 9V jack at the top of the 8-STEP. Plug the AC Adapter into a wall outlet.
4. Push the RATE slider on the 8-STEP to the 50% setting.
5. Move the step sliders, labeled 1 through 8, to wherever you like. **Tip:** To start out, try every other slider at their minimum and maximum positions.
6. Make sure no other plugs are inserted to the other 3 inputs on the 8-STEP.
7. Press the PLAY FSW. You should see the step LEDs above the sliders moving to the right in sequential order. After Step 8, the sequence starts over with Step 1.
8. If you see no movement at all in the step LEDs, the sequence length could be set to 1: press and release the MODE knob until only the SL LED is lit. Turn the MODE knob clockwise until the digit display, directly below the three mode LEDs, shows 8.
9. If the sequence plays all the steps just once and then stops, then you are in 1-Shot mode. If the sequence advances one step with each press of the PLAY FSW you are in Step-Thru mode. To get back to Loop mode press and hold the PLAY FSW for 3 seconds. After 3 seconds the digit display momentarily displays its new mode (either L: loop, 1: 1-Shot or t: Step Thru). Release the PLAY FSW and repeat this procedure until it flashes an L.
10. If the sequence is moving but not in sequential order from step 1 to step 8, change the Direction setting to Forward: press and release the MODE knob until only the DIR LED is lit. Turn the MODE knob counter-clockwise until the digit display shows F.

### TAP in a Tempo and Divide your Tapped Tempo

1. Make sure no Tap Divide LEDs are lit; this is quarter note mode, which yields a sequence tempo equal to the tempo you tap. If one or more of the TAP DIVIDE LEDs is lit, press and release the TAP DIVIDE button until all of its associated LEDs are off.
2. Press and release the TAP FSW at least twice. After the second tap, the sequence will change to the new tempo. **Tip:** We recommend three or more taps on the TAP FSW for improved accuracy.
3. Press the TAP DIVIDE button to increase the sequencer's tempo. The 8-STEP always assumes you tap in quarter notes. The note graphics next to the LEDs indicate the timing of each sequencer step with relation to the quarter note you tapped in. **Tip:** When all TAP DIVIDE LEDs are lit, it is a 32<sup>nd</sup> note.

The digit display blinks rapidly while a preset is waiting in the Preset Cue.

- c. At this point if you turn the MODE knob to a different preset number, the number blinks indicating that a different preset number is loaded.
- d. Additionally, at this point if you move a slider or change a parameter, the decimal point will blink indicating that a preset has been loaded but edited from what was initially loaded.

### Saving Presets on the 8-STEP

1. Ensure you are in preset mode
2. **To save a preset:**
  - a. Whether a preset is currently loaded or not, turn the MODE knob to the number you want to save the preset into.
  - b. Press and hold the MODE knob for two seconds. After two seconds, the three MODE LEDs and the digit display will blink rapidly indicating that the preset has been saved. You can release the MODE knob once the LEDs begin blinking.

### Syncing to MIDI Clock

1. Connect the MIDI output of your master device to the MIDI IN connector on the 8-STEP.
2. Set the 8-STEP's TAP DIVIDE setting to the dotted 1/8<sup>th</sup> note LED. When synced to MIDI clock, the dotted 1/8<sup>th</sup> note is actually the quarter note divide, giving you a 1:1 ratio with the MIDI tempo.
3. Press Play on the master device. The 8-STEP senses the presence of MIDI Clock and the PLAY command and then automatically resets the sequence and begins playback of the sequence from its first step.
4. Press Stop on the master device to stop the 8-STEP's sequence.
5. Feel free to try the different TAP DIVIDE modes to change the speed of the 8-STEP's tempo in relation to the tempo of the MIDI master. **Tip:** For best results, change the TAP DIVIDE setting on the 8-STEP while playback is stopped on the MIDI master rather than while in the middle of playback. The 8-STEP's position in the sequence will line up better with the MIDI master.

### Using MIDI Commands to Control the 8-STEP

Just about every parameter on the face of the 8-STEP can be controlled via MIDI Control Change (CC) and Program Change (PC) messages. For this example we will adjust the 8-STEP's Rate and engage the Play FSW.

1. Connect the MIDI output of your master device to the MIDI IN connector on the 8-STEP.
2. From the factory, the 8-STEP's default MIDI channel is Channel 1. Set your MIDI master device to Channel 1.

5. Move the currently active slider to the position where you would like your toe setting to be.
6. Begin using the expression pedal.

### Using External CV Clock

1. Connect the external clock source to the EXP IN jack on the right side of the 8-STEP using a TS (mono) ¼" instrument cable.
2. The clock signal must be between 0V and 5V. If the clock signal goes below 0V, the 8-STEP may not be able to properly read the external clock signal.
3. The maximum frequency for the external clock is 50Hz. There is no minimum frequency.
4. Enter External Clock mode by pressing and holding the EXP. MODE button. After approximately three seconds, all four EXP. MODE LEDs will light up. Once you see the LEDs light, release the button, you are now in External Clock mode. **When all four EXP. MODE LEDs are lit, you are in External Clock mode.**
5. Press the PLAY FSW and begin the external clock, the sequence will advance in sync with the external clock.
6. To exit External Clock mode, press and release the EXP. MODE button once.

### Entering/Exiting Preset Mode on the 8-STEP

1. Press and hold the MODE knob until you see a P on the digit display, the hold is approximately 2 seconds. Once you see the P, release the MODE knob.
2. After displaying the P for 1.5 seconds, the digit will then show the current preset number. If you happen to have the 8-STEP FOOT CONTROLLER attached to the FC jack, the display will not show the preset number but instead displays an F for Foot Controller.
3. While in preset mode, all three MODE LEDs are off.
4. To exit Preset mode, turn the MODE knob clockwise until the digit displays an E, standing for exit. Now press and release the MODE knob. The 8-STEP exits Preset mode and displays the last MODE you were in.

### Loading Presets on the 8-STEP

1. You can save and load 10 presets on the 8-STEP main unit when no optional Foot Controller is attached.
2. Make sure you are in Preset mode, using the steps outlined above.
3. **To load a preset:**
  - a. Turn the MODE knob until you see the desired preset number displayed. The available presets are 0 through 9.
  - b. Press and release the MODE knob. The decimal point next to the number will light, indicating that a preset is loaded. If the sequence is running at the time you load the preset, it cues the new preset to load after the current sequence plays out to its end and then loads the new preset.

### Reverse, Bounce and Random Direction Sequences

1. With the sequence running, press and release the MODE knob until only the DIR LED is lit. The mode LEDs are located directly under the MODE knob.
2. All of the displayed parameters in the Direction mode are displayed with letters: F = Forward, r = Reverse, b = Bounce, R = Random on the digit display located directly below the three mode LEDs.
3. Turn the MODE knob until you see the lower case r, for Reverse mode. Now you should see the sequence counting backwards from Step 8 to Step 1 and then jumping back to Step 8 again to repeat the sequence.
4. Now turn the MODE knob clockwise one click, you should see a lower case b, for Bounce mode. In Bounce mode, the sequence counts up sequentially from Step 1 and then down sequentially from Step 8.
5. Again turn the MODE knob clockwise one click, you should see the upper case R, for Random mode. In Random mode, each sequence step is chosen at random between Step 1 and the setting for Sequence Length. Sometimes the 8-Step will randomly choose the same step two or three times in a row, this is normal.

### Changing Sequence Length

The Sequence Length parameter sets the maximum step for the sequence. Forward and Bounce Sequences always start with Step 1 and run up to the step specified by Sequence Length. Reverse sequences start with the maximum step and countdown to Step 1. Sequence Length can be set to any integer between 1 and 8.

1. With the sequence running, press and release the MODE knob until only the SL LED is lit. You will see a number between 1 and 8 on the digit display.
2. Try turning the MODE knob until the number 4 is displayed. You will see the sequence travelling between Step 1 and Step 4.
3. Go ahead and try any other number you like for the maximum step setting.

### Adjusting the Glide Parameter

Glide determines the time it takes to change from one step's slider position to the next step's slider position. A Glide setting of 0 yields the fastest change between steps. A setting of 9 is the slowest Glide setting.

1. Ensure that you hear the 8-Step sequencing an external device. You will only notice the change in the Glide parameter if you hear the sequencer acting on another device.
2. Press and release the MODE knob until only the GL LED is lit.
3. You should see a number between 0 and 9 displayed on the digit. Turn the MODE knob clockwise to increase this number, counter-clockwise decreases the number.
4. As you change the GL setting you should hear the speed of the sequence change from one step to the next.

**Please Note:** When the 8-Step is set to fast tempos, a high setting for the GLIDE parameter may yield a sequence that does not change very much from one step to the next. How GLIDE reacts can depend on the tempo of the sequence.

### Adjusting the Depth Parameter

The Depth parameter adjusts the total output level of the sequence from 0 (no output) to 9 (maximum output). An output setting of 8 is equivalent to 100% Depth. A setting of 9 is 110% but it will not increase the output from sliders set to the maximum level any further, it will only increase the output of sliders set below maximum.

1. Ensure that you hear the 8-Step sequencing an external device. Adjusting the DEPTH parameter is only apparent when you hear the sequencer acting on another device.
2. Press and release the MODE knob until all three mode LEDs are lit. When all three mode LEDs are lit, the 8-STEP is set to DEPTH mode.
3. Turn the MODE knob to change the DEPTH setting. Turning MODE Counter-clockwise will decrease the DEPTH setting, turning clockwise increases the DEPTH setting.

### Changing Play Modes: Loop, 1-Shot and Step-Thru

There are three available Play modes: **Loop** mode continuously loops the sequence from beginning to end and back to the beginning again. **1-Shot** mode goes through the entire sequence one time with each press of the PLAY FSW. **Step-Thru** mode removes the 8-STEP's internal tempo and goes through the sequence, one step at a time, each time you press the PLAY FSW. In Step-Thru mode, the sequence loops back to the beginning when you come to the end of the sequence.

1. Play mode is changed by pressing and holding the PLAY FSW for three seconds.
2. After three seconds of holding the PLAY FSW, the display will temporarily display the mode that it just changed to. It displays **L** for Loop, **1** for 1-Shot and **t** for Step-Thru. It will show the new Play Mode for 1.5 seconds, and then go back to whatever it was previously displaying.
3. After the PLAY mode has changed, release the PLAY FSW. To change the PLAY mode again, press and hold the PLAY FSW for another 3 seconds.
4. You must release the PLAY FSW between PLAY mode changes before you can change the PLAY mode again.

### Using the RESET Footswitch

1. Each time you press the RESET FSW, the sequence starts over with its first step.
2. If Direction is set to Forward or Bounce, pressing the RESET FSW will cause the sequence to jump to Step 1.
3. If Direction is set to Reverse, pressing the RESET FSW will cause the sequence to jump to the maximum step set by the Sequence Length parameter. For example,

when Direction equals Reverse and Sequence Length is set to 8, pressing the RESET FSW forces the sequence to jump to Step 8.

4. Pressing the RESET FSW while the sequence is currently playing back does not pause the sequence, it forces the sequence to start over and then keeps going.
5. Pressing the RESET FSW while the sequence is paused, forces the current step to jump back to the start of the sequence but it does not begin playing the sequence back.
6. If the 8-STEP is playing its sequence and is synced to either MIDI Clock or External CV Clock, when you press the RESET FSW it will not immediately restart the sequence, instead it waits for its current step to finish and then restarts the sequence on the next step, doing this helps the 8-STEP remain in sync with the external tempo control.

### Using an Expression Pedal with the 8-STEP

1. Connect the plug from your Expression pedal into the jack labeled EXP IN on the right side of the 8-STEP. A list of acceptable expression pedals include: Electro-Harmonix Expression Pedal, Boss® FV-500L, M-Audio® EX-P, Moog® EP-2, Roland® EV-5 or another 8-STEP PROGRAM. You may also connect Control Voltage to the EXP IN jack with a TS cable, the acceptable control voltage range is 0V to 5V.
2. The EXP. MODE button, located between the RESET and PLAY FSWs, selects the function for the expression pedal to modulate. The functions include: RATE, DEPTH, GLIDE, SEQUENCE LENGTH and off (no LEDs lit). External CV Clock may also be selected with the EXP. MODE button but we will talk more about this in a later section.
3. For this example, choose RATE, which is the tempo of the expression pedal. Each time you press and release the EXP. MODE button, the 8-Step will select the next mode, then cycle back to RATE.
4. Moving the expression pedal from the heel to toe position will increase the rate of the tempo. The heel position is a slow rate, the toe position is equal to the setting of the RATE slider.
5. If you have tapped in a tempo, your tap tempo will be at the heel of the expression pedal. As you move the pedal forward the tempo increases.
6. Now press the EXP. MODE button to modulate DEPTH. As you move the expression pedal, the overall amplitude of the sequence changes. Toe yields the largest amplitude.

### Using the 8-STEP as an Expression Pedal Thru

1. Connect the plug from your Expression pedal into the jack labeled EXP IN on the right side of the 8-STEP.
2. Stop the sequence by pressing the PLAY FSW.
3. Reset the sequence by pressing the RESET FSW.
4. Press and release the EXP. MODE button until the DEPTH setting is selected.

connections: **TIP** = potentiometer wiper or output signal, **RING** = Toe position and **SLEEVE** = Heel position. This is the standard polarity for the TRS plug of an expression pedal that many in the industry follow including all EHX products as well as Boss®/Roland®, Moog®, Nord® etc. **Tip:** To work properly with devices that accept 3.3V as their maximum, such as Eventide® products, set DEPTH to 5.

### **EXP IN Jack**

Connect an expression pedal with a TRS plug to this jack to control the following parameters with your foot: RATE, DEPTH, GLIDE and SEQUENCE LENGTH. Additionally the EXP IN jack can be connected to a CV source using a TS plug; the acceptable range for the control voltage is 0V to 5V. Some suggested Expression Pedals: EHX Expression Pedal, M-Audio® EX-P, Moog® EP-2, Roland® EV-5 or Boss® FV-500L. The polarity of the expression pedal's plug must have the Sleeve connected to the heel position (usually GND), Ring connected to the toe position and the Tip connected to the wiper. The nominal expression pedal impedance is 10k though most other values also work fine.

### **FC Jack**

Connect the FC jack to the 8-STEP's optional 8-STEP FOOT CONTROLLER to expand the number of available presets from 10 to 100. Use a standard ¼" mono/TS instrument cable to attach the 8-STEP main unit to its FOOT CONTROLLER. The 8-STEP FOOT CONTROLLER not only expands the number of available presets from 10 to 100 but also allows for easier access for loading and saving all of the presets. Another advantage to using the Foot Controller is that the 8-STEP main unit does not need to enter PRESET mode in order to load or save presets thus making preset editing and creation faster. **Please Note:** All 100 presets are saved inside the 8-STEP main unit, not inside the 8-STEP FOOT CONTROLLER. The FOOT CONTROLLER acts like a remote.

### **MIDI IN Jack**

Connect the MIDI output of your EHX® 45000, drum machine, MIDI controller, keyboard, computer or other MIDI device to the MIDI IN jack on the 8-STEP. See the **MIDI** section near the end of this manual for in-depth descriptions of the 8-STEP's MIDI capabilities.

### **9V Power Jack**

Plug the output of the 8-STEP PROGRAM's supplied AC Adapter into the 9V power jack located at the top of the 8-STEP. The 8-STEP requires 9 - 9.6VDC at 100mA with a center negative plug. The 8-STEP accepts most BOSS® style AC Adapters.

## **- PRESETS & FACTORY RESTORE -**

The 8-STEP PROGRAM holds up to 100 presets in its internal flash memory. The first 10 presets, numbered 0 through 9 are accessible on the 8-STEP's top panel. The remaining presets are only accessible when using either the optional 8-STEP PROGRAM FOOT CONTROLLER or via MIDI.

Each step has its own LED that illuminates when the associated step is currently active. For example, if the LED above Step 3 is lit, then Step 3 is the active step at the moment. Only one step is active at a time, therefore only one Step LED will be lit at a time.

### **RATE SLIDER**

The RATE slider is one of two ways of setting the internal tempo of the 8-STEP, the other method being the TAP FSW. As you push the RATE slider upward, the tempo, or speed, of the sequence increases. The total range of the RATE slider is 3.5 Seconds (17 BPM) at its minimum setting to 50 Hz (3,000 BPM) at its maximum setting. The BPM values are assuming that each step is a quarter note.

If you tap a tempo or load a preset, the location of the RATE slider will no longer reflect the actual tempo of the sequencer. When the Tap FSW or Preset sets the tempo, moving the RATE slider will cancel the TAP or Preset tempo and take over the sequencer tempo.

### **MODE KNOB, MODE LEDS & DIGIT DISPLAY**

The MODE knob is a rotary encoder with push switch. The three MODE LEDs below the knob and the digit display below the MODE LEDs all work together to allow musicians to edit and display multiple parameters.

Push and release the MODE knob to cycle through four parameter modes:

**DEPTH:** all 3 MODE LEDs are lit solid. The DEPTH parameter controls the maximum amplitude of the expression or CV output. The available range is 0 to 9. When set to **8**, Depth is at 100%. When set to **9**, Depth is at 110% but it does not increase the maximum setting of the sliders, only slider settings below maximum. At the setting of **0**, there will be no output. Turning the MODE knob clockwise increases the DEPTH value.

**GL (Glide):** Sets the time it takes to go from the current step's slider setting to the following step's slider setting. The available range is 0 to 9. The Glide parameter slows as you increase its value. Turning the MODE knob clockwise increases the Glide value. **Please Note:** high values of GLIDE with fast tempos will reduce the sequencer's output amplitude.

**DIR (Direction):** Selects between four settings for the sequencer's playback direction. Turning the MODE knob clockwise presents the choices in the following order:

**F (Forward):** The sequence counts up from Step 1 to the maximum step set by the Sequence Length (SL) parameter, and then jumps back to Step 1 again.

**r (Reverse):** The sequence counts down from the maximum step set by the SL parameter to Step 1, then jumps back to the maximum step.

**b (Bounce):** Combines the Forward and Reverse Direction modes. The sequence starts at Step 1, counts up to the maximum step, and then counts back down to the Step 1.

**R (Random):** The sequence randomly selects each step between Step 1 and the maximum step value set by SL. Since each step is random, it is possible that the same step could be repeated two or more times in a row.

**SL (Sequence Length):** Sets the maximum step of the sequence. The available range is 1 Step to 8 Steps. Each sequence always includes Step 1, the number you set SL to indicates the maximum step of the sequence. For example, if you want a 6 step sequence set SL to 6. If you want the full sequence range, set SL to 8. As you turn the MODE knob clockwise SL's value increases.

### PRESETS AND THE MODE KNOB

Push and hold the MODE knob for more than 2 seconds to enter PRESETS mode. Once in PRESETS mode push and hold MODE for more than 1.5 seconds to save a preset.

**ENTER PRESETS MODE:** To enter PRESETS mode, push and hold the MODE knob for more than 2 seconds. After 2 seconds, the digit display will flash a P for about 1.5 seconds; this indicates that you are now in PRESETS mode. Additionally, when in PRESETS mode, all three MODE LEDs are off.

**CHOOSING & LOADING A PRESET:** Once in PRESETS mode, turn the MODE knob to go up or down through the presets. As you turn the MODE knob clockwise, the preset number increases. When you arrive at the preset you want to load, push and release the MODE knob to load the preset. Upon loading a preset, the decimal in the digit display lights solid. To unload a preset go back to the preset number that is currently loaded then press and release the MODE knob.

If you turn the MODE knob while a preset is loaded and you are in PRESETS mode, the digit display will blink the preset number. A blinking number in the display indicates that it is displaying a different preset number from the preset that is actually loaded. At this point you can press and release the MODE knob to load the blinking preset number into the Preset Cue.

**PRESET CUE:** If you load a preset while a sequence is running the 8-STEP does not immediately load the preset but instead cues up the preset and then waits for the current sequence to end. Once the current sequence comes to an end, the preset in the cue loads immediately and the 8-STEP continues playback with the new preset without missing a beat. While a preset is waiting in the cue, the digit display rapidly blinks the preset number, indicating the preset will be loaded when the current sequence finishes its run. **Please Note:** Presets will load immediately if the 8-STEP is paused or if you press the RESET FSW while a preset is waiting the Preset Cue.

	TAP Tempo	Tapped In Tempo plus TAP DIVIDE setting	Very fast multiple of the TAP Tempo
	MIDI Clock*	1/8x the MIDI master tempo	24x the MIDI master tempo
	<p>*When sweeping the expression pedal while MIDI Clock is the tempo master, the tempo changes in 8 discrete multiples of the MIDI Clock master tempo: 1/8x, 1/4x, 1/2x, 1x, 2x, 4x, 8x, 24x.</p> <p>If the 8-STEP is in <b>Step-Thru</b> mode, the expression pedal can be used to increment the sequence: each time you move the pedal from heel to toe, the sequence increments.</p>		
DEPTH	Allows smooth external control over the sequencer's Depth. In this mode, the heel position will yield a DEPTH of 0, the toe position equals the current DEPTH setting. Stop the sequence to sweep current step.		
GLIDE	Allows smooth external control over the sequencer's Glide parameter. In this mode, the heel position yields a <b>fast</b> Glide setting while the toe position equals the current GLIDE setting.		
SEQUENCE LENGTH	<p>Allows external control of Sequence Length. The heel position gives a SEQ Length of 1, the toe position gives a SEQ Length of 8. The range for external SEQ Length control does not change with the current setting of SEQ Length, it is always 1 to 8 steps.</p> <p>If the 8-STEP is in <b>Step-Thru</b> mode, the expression pedal can be used to manually step-thru the sequence: the heel position will be Step 1, the toe position is the maximum step of the sequence. The Direction setting will not change the sequence in this special case except for Random mode where as you move the expression pedal, the sequence jumps to random steps.</p>		
External CV Clock	Press and hold the EXP. MODE button until all EXP. MODE LEDs are lit. When all LEDs are lit you are in External CV Clock mode. The optimal range for the External Clock signal is 0V to 5V. Each time the external clock changes from 0V to 5V, the sequencer advances a step (if set to the 1/1 Tap Divide).		

### EXP/CV OUT Jack

The 8-STEP's sequence is output through this jack. When connecting to the Expression input on an external pedal or other device, normally you will want to connect the TRS cable that came supplied with the 8-STEP to the 8-STEP's EXP/CV jack. If you are connecting the 8-STEP to a CV input, use a standard 1/4" mono/TS instrument cable instead, the same type of cable you would plug into a guitar. When a TRS cable is plugged into the EXP/CV OUT jack, the 8-STEP works as a replacement for a typical expression pedal with the following

settings for each tempo source. For the given tempo and clock period results, each tempo source is providing the tempo given in the greyed 1/1 ratio block:

TAP DIVIDE LEDS	TAP TEMPO BEAT DIVIDE RATIO (TEMPO RESULT)	MIDI CLOCK BEAT DIVIDE RATIO (TEMPO RESULT)	EXTERNAL CV CLOCK RATIO (PERIOD RESULT)
All LEDs OFF	= 1/1 (100 BPM)	= 2/1 (50 BPM)	1/1 (100 mS)
ON	= 3/4 (133 BPM)	= 1/1 (100 BPM)	2/1 (200 mS)
ON	= 2/3 (150 BPM)	= 2/3 (150 BPM)	3/1 (300 mS)
ON	= 1/2 (200 BPM)	= 1/2 (200 BPM)	4/1 (400 mS)
ON	= 1/3 (300 BPM)	= 1/3 (300 BPM)	6/1 (600 mS)
ON	= 1/4 (400 BPM)	= 1/4 (400 BPM)	8/1 (800 mS)
All LEDs ON	= 1/8 (800 BPM)	= 1/8 (800 BPM)	16/1 (1600 mS)

### EXP. MODE BUTTON & LEDS

Located between the RESET and PLAY FSWs, the EXP. MODE button chooses the destination parameter for an external expression pedal or control-voltage to modulate. The lit LED indicates the selected mode. Each time you push and release the EXP. MODE button it cycles through the four modes printed on the 8-STEP. To enter External CV Clock mode, press and hold the EXP. MODE button until you see all four LEDs light up, this button hold is approximately 3 seconds. Once all LEDs are lit, release the button, the 8-STEP remains in External CV Clock mode. To exit External CV Clock mode, press and release the EXP. MODE button once. **Please Note:** In the following table, the expression pedal's heel position relates to 0V from the CV source, the expression pedal's toe position relates to 5V from the CV source.

EXP. MODE	EXP. MODE Description						
RATE	Allows external control over the 8-STEP's internal tempo whether the tempo master is the RATE slider, TAP Tempo or MIDI Clock.						
	<table border="1"> <thead> <tr> <th>TEMPO MASTER</th> <th>HEEL POSITION</th> <th>TOE POSITION</th> </tr> </thead> <tbody> <tr> <td>RATE Slider</td> <td>RATE Slider's minimum position</td> <td>RATE Slider's current position</td> </tr> </tbody> </table>	TEMPO MASTER	HEEL POSITION	TOE POSITION	RATE Slider	RATE Slider's minimum position	RATE Slider's current position
TEMPO MASTER	HEEL POSITION	TOE POSITION					
RATE Slider	RATE Slider's minimum position	RATE Slider's current position					

**PRESET LOADED INDICATION:** When a preset is loaded in the 8-STEP, the decimal next to the digit in the display lights up solid. If you load a preset and then change a parameter, for example move one of the Step sliders, the decimal LED blinks to indicate that a preset is loaded but one or more parameters have changed since loading the preset. If you move the parameter back to the same setting as in the preset, the decimal LED stops blinking.

**SAVING A PRESET:** To save a preset on the 8-STEP, first make sure you are in PRESETS mode. Then turn the MODE knob to the preset number you want to save in. Now press and hold the MODE knob for approximately 1.5 seconds, until you see the three MODE LEDs and the digit blink, indicating that the preset is saving. After you see the LEDs blink you can release the MODE knob.

**SAVING AN EDITED PRESET:** Once you load a preset, if you decide to edit it you can then save it to a new preset location. For example, load Preset 1. Now change the position of the RATE slider, you should see the decimal LED blinking. Turn the MODE knob to a different preset number, say Preset 2. Now you should see both the decimal and the digit blinking. Press and hold the MODE knob for than 1.5 seconds, once you see the three MODE LEDs blink, the preset is being saved in the new location and you can release the MODE knob.

**EXITING PRESETS MODE:** To exit PRESETS mode, turn the MODE knob clockwise until you see an **E** displayed on the digit. The **E** appears after Preset 9. Once the **E** is displayed, press and release the MODE knob to exit PRESETS mode; the 8-STEP will take you back to the last mode you were in. If you loaded a preset before exiting, the preset remains loaded after you exit.

### PLAY FOOTSWITCH & LED

The main function of the PLAY FSW is to start and stop the sequencer. Press and release PLAY to toggle between sequence playback and stop. If a sequence is stopped, when you press PLAY, it will start the sequence immediately, from whatever step you were on. For example if the sequence is paused on Step 4, when you press the PLAY FSW, the sequence starts with Step 4. If the sequence is playing, when you press the PLAY FSW, the sequence will stop on whatever step was active at the time of pressing PLAY. If you want to begin the sequence with Step 1, press the RESET FSW before pressing PLAY.

The green PLAY LED, located above the PLAY FSW, lights up when the sequence is playing back and turns off when the sequence is stopped.

**CHANGING PLAY MODES:** The secondary function of the PLAY FSW is to change the 8-STEP's Play mode. There are three available modes: LOOP, 1-SHOT and STEP-THRU. See below for more information on each Play mode. To change the Play mode, press and hold the PLAY FSW until you see the LED display blink the newly entered mode digit, you will need to hold for approximately 3 seconds. For LOOP mode it blinks an **L**, for 1-SHOT it blinks

a **1**, for STEP-THRU it blinks a **t**. Once you see the new mode displayed, you can release the PLAY FSW. **Please Note:** To continue changing the Play mode, you must release the PLAY FSW and then press and hold again.

**L (LOOP):** In LOOP mode the sequence plays continually from the first step to the last step and then jumps back to the first step to start the sequence over again. When Direction is set to Forward or Bounce, the sequence starts at Step 1 increments up to the maximum step indicated in the Sequence Length parameter and then starts over again with Step 1. When set to Reverse, the sequence starts at the maximum step, decrements down to Step 1 and then starts over again with the maximum step. In Random mode, the 8-STEP continuously picks random sliders between Step 1 and the maximum step setting.

**1 (1-SHOT):** In 1-SHOT mode the 8-STEP plays the entire sequence just one time. It follows the Direction setting, the same as in Loop mode, but stops the sequence after it completes the sequence.

**t (STEP-THRU):** STEP-THRU mode allows the musician to manually advance the sequence. The 8-STEP ignores the tempo setting, advancing the sequence when you press and release the PLAY FSW. The Direction and Sequence Length settings work the same as in Loop mode. When you come to the sequence end, it will loop back to the beginning of the sequence with the next press of the PLAY FSW.

### **RESET FOOTSWITCH**

The main function of the RESET FSW is to force the sequencer to jump back to its first step. Press and release the RESET FSW to perform a sequence reset. The first step of the sequence depends on the Direction setting: for Forward and Bounce, the first step is always Step 1; for Reverse, the first step is equal to the Sequence Length setting; for Random, pressing the RESET FSW jumps to a new random step.

When the 8-STEP is running off its internal tempo, whether set by the RATE Slider or TAP FSW, pressing the RESET FSW immediately forces the sequencer to its first step. If the 8-STEP is synced to either MIDI Clock or External CV Clock, the sequence will jump to its first step when it advances past the current step rather than immediately jumping to the first step. This enables the sequence to remain in time and on beat with the external clock.

**MIDI CHANNEL DISPLAY & EDIT:** The secondary function of the RESET FSW is to display and edit the MIDI channel. To see the MIDI channel, press and hold the RESET FSW, after approximately 3 seconds the GL and SL MODE LEDs will begin blinking with a pattern of two quick blinks followed by a long blink. The display now shows the current MIDI channel. Continue to hold down the RESET FSW. Turn the MODE knob to change the MIDI channel

while continuing to hold down the RESET FSW. Channels 1 through 9 are displayed as you would expect on the digit display but channels 10 through 16 are not. Since the display has only one digit, the ones digit is displayed while the tens digit is represented by the lit decimal LED. So Channel 14 would be shown as a **4** on the display with the decimal LED lit: **(4.)**. Channel 4 is shown as a **4** on the display but no decimal LED: **(4)**. The **A** setting enables the 8-STEP to respond to all MIDI channels. Once you have set the MIDI channel to your chosen setting, release the RESET FSW. Upon release of RESET, the new MIDI channel setting is saved in internal memory and remains saved during power cycles. The MIDI channel is a global setting; it is not saved with presets.

### **TAP FOOTSWITCH & BEAT LED**

Use the TAP FSW to tap in the sequencer's tempo, overriding the RATE control's setting, a previous TAP tempo or a preset's tempo setting. To tap in a tempo, press and release the TAP FSW at least twice, though we recommend three or more taps for better accuracy. The longest acceptable tap time is approximately 4 seconds (15 BPM); the shortest tap time is approximately 0.2 seconds (300 BPM).

The 8-STEP employs TAP tempo averaging. Tap three or more times and the taps will be averaged together as long as they are within 12.5% of the first two taps. If the 8-STEP receives two new taps (**three new taps if the new tempo average is faster**) that are outside of the 12.5% tolerance, it considers this a new tap tempo and updates to the new tap tempo. The tap averaging stops 4 seconds after the last tap. After the 4-second time out, two new taps will immediately change the sequencer tempo to the new TAP tempo.

When TAP tempo sets the sequencer's tempo, it is saved in presets and during a power cycle. So if you tap in a tempo, then save the sequence into a preset, the tempo that is saved in the preset is your tap tempo. Additionally, if you tap in a tempo then power cycle, when you restart, your last tap tempo sets the sequencer's tempo. **Move the RATE slider to cancel out of tap tempo.**

The **BEAT LED**, located above the TAP FSW, always blinks at the current tempo whether the tempo is set by your TAP tempo, the RATE slider, MIDI Clock or External CV Clock.

**Please Note:** The TAP FSW is ignored when the 8-STEP is synced to MIDI Clock or External CV Clock.

### **TAP DIVIDE BUTTON & LEDS**

Located between the TAP and RESET FSWs, the TAP DIVIDE button allows you to divide down your Tap Tempo to create faster tempos in relation to what you tapped. There are 7 available TAP DIVIDE modes represented by five LEDs. In addition when synced to MIDI Clock, the TAP DIVIDE settings multiply or divide the MIDI Clock tempo for new tempos in sync with MIDI Clock. Lastly TAP DIVIDE multiplies the External CV Clock to obtain longer tempos or clock periods related to the CV Clock. The chart below details the TAP DIVIDE

- WARRANTY INFORMATION -

Please register online at <http://www.ehx.com/product-registration> or complete and return the enclosed warranty card within 10 days of purchase. Electro-Harmonix will repair or replace, at its discretion, a product that fails to operate due to defects in materials or workmanship for a period of one year from date of purchase. This applies only to original purchasers who have bought their product from an authorized Electro-Harmonix retailer. Repaired or replaced units will then be warranted for the unexpired portion of the original warranty term.

If you should need to return your unit for service within the warranty period, please contact the appropriate office listed below. Customers outside the regions listed below, please contact EHX Customer Service for information on warranty repairs at [info@ehx.com](mailto:info@ehx.com) or +1-718-937-8300. USA and Canadian customers: please obtain a **Return Authorization Number** (RA#) from EHX Customer Service before returning your product. Include with your returned unit: a written description of the problem as well as your name, address, telephone number, e-mail address, and RA#; and a copy of your receipt clearly showing the purchase date.

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This warranty gives a purchaser specific legal rights. A purchaser may have even greater rights depending upon the laws of the jurisdiction within which the product was purchased.

To hear demos on all EHX pedals visit us on the web at [www.ehx.com](http://www.ehx.com)

Email us at [info@ehx.com](mailto:info@ehx.com)

- FCC COMPLIANCE -

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. If the device is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications and void the user's authority to guarantee the equipment.*

*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.*

All user parameters are saved in presets, including the position of the expression pedal at the time you save. Two parameters that are not saved into the presets are the MIDI Clock tempo and the MIDI Channel. It is not possible for the 8-STEP to save the MIDI Clock setting though it will save the chosen TAP DIVIDE setting. If you load a preset that was saved while syncing to MIDI Clock all parameters will be restored, simply connect the MIDI master to the 8-STEP and start the master clock. The 8-STEP will respond as it did when you saved the preset.

**LOADING PRESETS**

When a preset is loaded, the decimal LED on the display lights up solid. If no preset is loaded, the decimal LED will be off. If you change a parameter after loading a preset, the decimal LED blinks to indicate a preset is loaded but has been modified since it was loaded. Return the parameter to its setting in the preset and the decimal LED stops blinking.

**PRESET CUE**

If you load a preset while the 8-STEP's sequencer is running, the presets do not load immediately, instead the preset is cued up and waits until the current sequence comes to an end at which point the new preset is loaded without missing a beat. During the time the preset is cued, its digit will blink rapidly on the display.

If you would like to bypass the Preset Cue press the RESET FSW after loading the preset into the Preset Cue. Presets load immediately if the sequence is paused.

**LOADING PRESETS ON 8-STEP MAIN UNIT**

1. Enter Preset mode by pressing and holding the MODE knob until you see a **P** flash on the digit display. Now release the knob.
2. As long as the Foot Controller is not attached, you will see a number on the display. This number represents the preset. If the Foot Controller is attached, an **F** is displayed.
3. Turn the MODE knob to change the number.
4. Press and release the MODE knob to load the preset. If the sequencer is running, the preset will be put in the Preset Cue and the number will blink rapidly on the display. If the sequencer is stopped, the preset loads immediately.
5. If you turn the MODE knob while a preset is loaded, the number in the display blinks to indicate that the preset number currently displayed is not the preset that is actually loaded.
6. You can load a different preset by pressing and releasing the MODE knob again. The new preset will be cued, awaiting the current sequence to finish.
7. To unload a preset, press and release the MODE encoder.
8. To exit Preset Mode, turn the MODE knob clockwise until an **E** is displayed. Press and release the MODE knob to exit.

## LOADING PRESETS WITH 8-STEP FOOT CONTROLLER

1. Press and release the UP or DOWN footswitch on the 8-STEP Foot Controller. Each time you press these footswitches the preset number increments (UP Footswitch) or decrements (DOWN Footswitch) while loading the new preset into the Preset Cue at the same time. If you press and hold either of the footswitches on the 8-STEP Foot Controller, it will increment or decrement by 10.
2. An alternate method for loading presets with the 8-STEP Foot Controller is to use the SELECT knob. First turn the SELECT knob to the preset number that you want to load, then press and release the SELECT knob to load the preset.
3. Upon loading a preset, the decimal LED on the 8-STEP will light up solid. The rightmost decimal point on the 8-STEP Foot Controller will also light up indicating that the preset is loaded.
4. To unload the preset, press and release the MODE knob on the 8-STEP Foot Controller.

## LOADING PRESET WITH MIDI

### Using Program Change Messages

The 8-STEP accepts MIDI Program Change messages to load its stored presets as long as the MIDI controller is set to the 8-STEP's MIDI channel. As an example, if you want to load preset 10, send Program Change message 10 to the 8-STEP.

### Using CC Messages

The 8-STEP also loads presets upon receiving MIDI CC 118. The data value sent along with MIDI CC 118 indicates the preset number that will be loaded. For example if you want to load preset 51, send a data value of 51 along with MIDI CC 118. Sending a value above 99 will unload the currently selected preset.

## SAVING PRESETS

### SAVING PRESETS ON 8-STEP MAIN UNIT

1. Enter PRESET MODE by pressing and holding the MODE knob until you see a **P** flash on the digit display. Now release the knob.
2. Turn the MODE knob to pick the preset number to save to.
3. Press and hold the MODE knob until you see the three MODE LEDs and digit display blink. You can release the MODE knob once the LEDs begin blinking.
4. The preset is now saved.

### SAVING PRESETS WITH THE 8-STEP FOOT CONTROLLER

1. Turn the SELECT knob on the 8-STEP Foot Controller to the preset number that you want to save to. Empty preset numbers will cause the middle decimal on the Foot Controller to light up indicating the preset is empty.
2. Press and hold down the SELECT knob on the 8-STEP Foot Controller. After two seconds the digits on the 8-STEP Foot Controller will start blinking.

## MIDI PROGRAM CHANGE MESSAGES

Presets saved within the 8-STEP can be loaded using an external MIDI device through MIDI Program Change messages. The MIDI PC messages must be set to the same channel as the 8-STEP or set the 8-STEP to accept all channels. **Please Note:** This manual describes PC messages as having a range of 0 to 127; some devices use the range 1 to 128. The total range is the same; you may need to adjust the PC number by 1.

MIDI PC NUMBER	FUNCTION
0 - 99	Loads preset associated with the Program Change number. For example, Program Change 6 will load preset number 6.
100	PLAY FSW press
101	RESET FSW press
102	TAP FSW press
103	TAP DIVIDE BUTTON press
104	EXpression MODE BUTTON press
105	Preset Down Load – If no preset is loaded, loads the current preset number, otherwise decrements the preset number and loads the preset.
106	Preset Up Load – If no preset is loaded, loads the current preset number, otherwise increments the preset number and loads the preset.
107	MODE BUTTON press
108	Encoder Down - Equivalent to rotating the encoder counter-clockwise by one click.
109	Encoder up - Equivalent to rotating the encoder clockwise by one click.
110	Preset Load – Loads the current preset number.
111	Preset Un-Load – Unloads the current preset.
112	External CV Clock enable toggle – each time this PC message is received External CV Clock mode is enabled/disabled.

## - CONFIGURATION SETTINGS -

The 8-STEP automatically saves your configuration settings to its internal flash memory within 2 seconds of a change to the settings. The settings are recalled as they were before power was removed from the 8-STEP. The configuration settings that are saved are:

Latest Tap Tempo	Glide setting
Last Tempo Source (except MIDI Clock)	Direction setting
Tap Divide Mode	Sequence Length setting
Exp. Mode	Depth setting
Play Mode	Preset Number
MIDI Channel	

The 8-STEP also loads the last preset automatically upon power up if the preset was loaded at the time power was removed. If you want to restore the configuration settings to the factory default, follow the Factory Restore procedure on Page 19. **Please Note:** the Factory Restore also erases all presets and restores the 10 factory presets.

28	DEPTH	Smoothly controls the DEPTH parameter over its entire range	0...100=0% to 100% 101...127 amplify step values that are set below step slider maximum
29	TAP DIVIDE	Controls the TAP DIVIDE setting	0=off or 1/4 note 1=dotted 8th 2=1/4 note triplet 3=8th note 4=8th note triplet 5=16th note 6=32nd note
30	EXpression MODE	Controls the EXpression MODE setting	0=off 1=RATE 2=DEPTH 3=GLIDE 4=SEQ LENGTH 5=EXT. CLOCK
31	PLAY MODE	Controls the PLAY MODE setting. Whenever this setting changes, the digit display flashes the new mode.	0=LOOP 1=1-SHOT 2=STEP-THRU
33	Encoder MODE	Directly sets the Encoder MODE	0=GLide 1=DIRection 2=Seq Length 3=DEPTH 4=Preset
34	PLAY FSW	Engages PLAY function. In Step-Thru mode both 0 and 127 advance the sequence.	0=stop 127=start
35	RESET FSW	RESET FSW press	127=RESET FSW press
36	TAP FSW	TAP FSW press	127=TAP FSW press
37	TAP DIVIDE BUTTON	TAP DIVIDE Button press	127=TAP DIVIDE press
39	EXP. MODE BUTTON	EXP. MODE Button press	127=EXP. MODE press
40	ENCODER MODE BUTTON	ENCODER MODE Button press	127=MODE press
41	Sequencer Step	When the sequencer is stopped or if PLAY MODE is set to Step-Thru, this CC forces the sequencer to jump to a step immediately. If the sequencer is running, this CC is ignored	1...8 directly chooses the sequencer step
117	Save Preset	Save current 8-STEP settings to preset number specified in data field of this CC message. If the data value is above 99, the CC message is ignored.	0...99= immediately save to preset number equal to value of CC
118	Load Preset	Load or cue preset. Preset number is specified in the data field of this CC message. If the data value is above 99, the 8-STEP unloads the current preset.	0...99= load preset number equal to value of CC. 100...127= unload preset

3. The preset has been saved; you can release the SELECT knob.

#### SAVING PRESETS WITH MIDI

1. You can save the 8-STEP's current setting by sending a MIDI message using CC 117.
2. The MIDI controller must be set to the 8-STEP's current MIDI Channel.
3. The data value that is sent along with MIDI CC 117 will be the location that the preset is saved in. The 8-STEP overwrites the old preset that was at this location. For example, if you want to store your settings to preset number 3, send MIDI CC 117 with a data value equal to 3.
4. The 8-STEP can save up to 100 presets via MIDI (using values 0 through 99), any data value above 99 will be ignored.
5. When saving presets with MIDI, be careful because the preset is saved immediately upon receiving the proper MIDI message.

#### FACTORY RESTORE

The following procedure erases all presets and configuration settings on the 8-STEP and sets them to their factory defaults.

1. Apply power to the 8-STEP PROGRAM.
2. While the 8-STEP is performing its start-up LED animation (which is approximately 4 seconds), press and hold both the TAP and PLAY FSWs. You must hold both FSWs for at least 1 second and through the end of the animation.
3. If you held both the TAP and PLAY FSWs down properly, you will see an **F** on the digit display, plus all LEDs will be off except for BEAT, PLAY and STEP 1.
4. Once you see the F on the digit display, release both FSWs.
5. The 8-STEP is now in a mode where it is waiting for its next instruction; you should see the **F** digit and the BEAT and PLAY LEDs blink at a slow rate.
6. At this point, to start the Factory Restore function, press and release the PLAY FSW. While the Factory Restore is working, the **F** digit will blink at a medium rate. The Factory Restore takes approximately 2 seconds. Once you press the PLAY FSW, there is no turning back on the Factory Restore.
7. If you want to exit instead of performing the Factory Restore, press and release the TAP FSW while the **F** digit is blinking at a slow rate. The 8-STEP immediately loads your last configuration settings.

#### - MIDI -

The 8-STEP PROGRAM can be controlled by MIDI Control Change (CC) and Program Change (PC) messages as well as sync to MIDI Clock. Every parameter on the 8-STEP's top panel can be controlled via MIDI CC as well as saving and loading all 100 presets. All buttons and footswitches can also be controlled by MIDI PC messages. MIDI PC messages can directly load all 100 presets.

### **MIDI CLOCK SYNC & PLAY, STOP, CONTINUE, SONG-POSITION MESSAGES**

The 8-STEP slaves its sequence to MIDI Clock from a master MIDI device. Simply connect the MIDI cable and press PLAY on the master device, the 8-STEP automatically switches over to MIDI Clock sync instead of its internal tempo. If you connect the 8-STEP to a device that outputs its current MIDI Clock tempo at all times, such as the EHX 45000, as soon as you connect the 8-STEP to this device it will begin following the MIDI Clock tempo.

The 8-STEP responds to MIDI PLAY, STOP and CONTINUE messages. No matter what the 8-STEP is currently doing, upon receiving a MIDI PLAY command, it resets the sequence to the beginning, starts the sequence and follows the tempo of the MIDI Clock it receives. Upon receiving a MIDI STOP command, the sequence immediately pauses the sequence on whatever step it happens to be on. If it receives a MIDI CONTINUE command after receiving the MIDI STOP command, the 8-STEP begins play where it left off.

The 8-STEP responds to MIDI Song-Position Pointer messages (SPP) by jumping to the sequence step that makes the most sense for the position within a bar the master MIDI device points to. The 8-STEP also takes into account the TAP DIVIDE setting when it receives a MIDI SPP message. Some computer programs send MIDI SPP on every bar, unfortunately this can interfere with the 8-STEP's sequence by forcing it to jump forward in the sequence. If this occurs, disable SPP in the program.

### **MIDI CHANNEL**

The 8-STEP can be set to any of the 16 MIDI channels and can even be set to respond to all channels. Here's how to display and change the 8-STEP's MIDI channel:

1. Press and hold the RESET FSW until you see the GL and SL LEDs blinking with a pattern of two quick blinks followed by a long blink. The DIR LED will be off.
2. Continue to hold the RESET FSW to view the MIDI channel and during the following steps.
3. Turn the MODE knob clockwise to increment the MIDI channel, counter-clockwise to decrement the MIDI channel.
4. To enable the 8-STEP to respond to all channels, keep turning the MODE knob clockwise until you see an **A** displayed on the digit. The **A** stands for all channels.
5. When you find the channel you are looking for, release the RESET FSW. The updated MIDI channel will be saved in memory.

MIDI channels 10 through 16 are displayed with the aid of the decimal LED in the digit display. Since the 8-STEP has only one digit available, the ones column of the number is displayed in the digit and the tens column is represented by the decimal. For example MIDI channel 15 is displayed as a **5** on the digit display **with the decimal LED lit (5.)**. MIDI channel 5 is displayed as a **5** on the digit display **but with no decimal LED lit (5)**.

The MIDI channel remains saved in flash memory during power cycles. The 8-STEP does not save the MIDI channel into its presets; MIDI channel is a global parameter for all presets and modes of operation. **The factory default is Channel 1.**

### **MIDI CC MESSAGES**

The following table lists all of the MIDI CC messages that the 8-STEP acknowledges and the function each CC controls. If you send a CC message to control a slider parameter, the slider's location will no longer represent the value that the 8-STEP is set to. If you move a slider that has received a MIDI CC command, the new slider position will take over the parameter and erase the last MIDI data that was received.

<b>MIDI CC</b>	<b>8-STEP PARAMETER</b>	<b>EXPLANATION</b>	<b>CC DATA RANGE</b>
4	EXPRESSION PEDAL	Works as expression pedal for parameter selected by the EXP. MODE LEDs.	0...127
16	STEP 1 SLIDER	Controls the setting or value for Step 1's slider.	0...127
17	STEP 2 SLIDER	Controls the setting or value for Step 2's slider.	0...127
18	STEP 3 SLIDER	Controls the setting or value for Step 3's slider.	0...127
19	STEP 4 SLIDER	Controls the setting or value for Step 4's slider.	0...127
20	STEP 5 SLIDER	Controls the setting or value for Step 5's slider.	0...127
21	STEP 6 SLIDER	Controls the setting or value for Step 6's slider.	0...127
22	STEP 7 SLIDER	Controls the setting or value for Step 7's slider.	0...127
23	STEP 8 SLIDER	Controls the setting or value for Step 8's slider.	0...127
24	RATE SLIDER	Controls the RATE slider thereby controlling the tempo of the sequencer. Sending RATE slider MIDI data is equivalent to moving the RATE slider.	0...127
25	GLide	Smoothly controls the GLIDE parameter over its entire range	0...127
26	DIRection	Controls the DIRECTION setting	0=Forward 1=Reverse 2=Bounce 3=Random
27	SEQuencer Length	Controls the SEQuencer LENGTH setting	1...8 sets maximum step