EM Pro Quick Start Guide

Introduction

Congratulations on your new Pearl EM Pro malletSTATION! You're now the proud owner of one of the most versatile and innovative electronic mallet instruments available. Whether you're a seasoned professional or just starting your musical journey, the Pearl EM Pro malletSTATION is designed to inspire creativity and elevate your performances. Here are some tips to help you get started:

1. **Explore the Controls**: Familiarize yourself with the programmable backlit touch-sensitive buttons and control sliders. These features allow you to customize your playing experience and access various settings quickly.

2. **Utilize Connectivity Options**: The malletSTATION EMC offers both USB and 5-pin MIDI connectivity, making it easy to integrate with your existing MIDI setup or connect to a computer for expanded functionality.

3. **Expand Your Instrument**: Take advantage of the expandable design by adding up to three EMX Expansion Modules. This allows you to create a 3, 4, or even a full 5-octave instrument, perfect for more complex compositions.

4. **Personalize your EM Pro Experience**: The Muse Kinetics Smart Fabric Sensors provide increased bar precision and dynamic range, ensuring your performance is both expressive and accurate. A wide range of preset and feature controls are available to adjust the responsiveness and performance of the EM Pro to match your unique playing style.

5. **Stay Updated**: Keep an eye on firmware updates and new features released by Pearl to ensure your malletSTATION remains at the cutting edge of electronic percussion technology.

Dive into the world of endless musical possibilities and enjoy the seamless integration, customizable features, and exceptional sound quality that the malletSTATION offers. Welcome to the Pearl family, and happy playing!

What’s in the Box:

EMC 2.0 Oct EM Pro Controller

- EMC 2.0 Oct EM Pro Controller
- Power Supply w/ USA, EU, and JP connection pigtails
- Set of 4 EM Pro Gap Caps
- USB C - USB A Communication Cable
- Quick Start Guide QR Code Link (printed Sheet)

Optional Add Ons

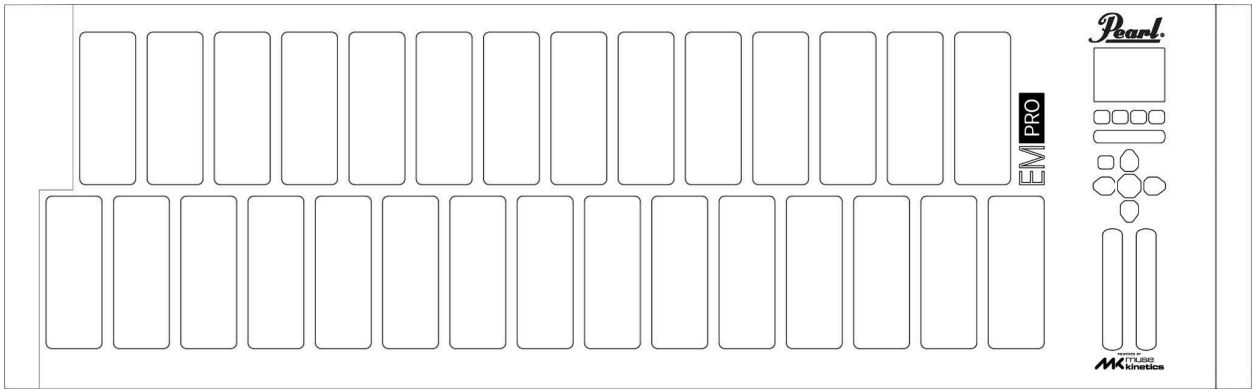
- EMX
- EMSC
- Keyboard Stand
- Pedals

Connecting malletSTATION EM Pro

<Connection Diagram>

- Computer / USB
- Synthesizer / MIDI
- Some generic audio system (mixer, audio interface, speakers, headphones)
- Pedals
- Power
- EMX (optional, with link to section)

malletSTATION EM Pro Hardware



The malletSTATION EM Pro is a professional, expandable 29-bar electronic mallet percussion instrument and MIDI controller.

Bars

The malletSTATION EM Pro Control unit has 29 pressure and velocity sensitive bars featuring Muse Kinetics Smart Fabric Sensors. This range can be expanded to 71 bars by connecting up to 3 EMX Expander Modules to the EMC Controller.

Dampening and Aftertouch

The malletSTATION EM Pro bars respond to traditional bar dampening technique. If you apply gentle pressure to a bar that is “ringing”, the note will cease.

The bars can also respond to this pressure to send Aftertouch messages.

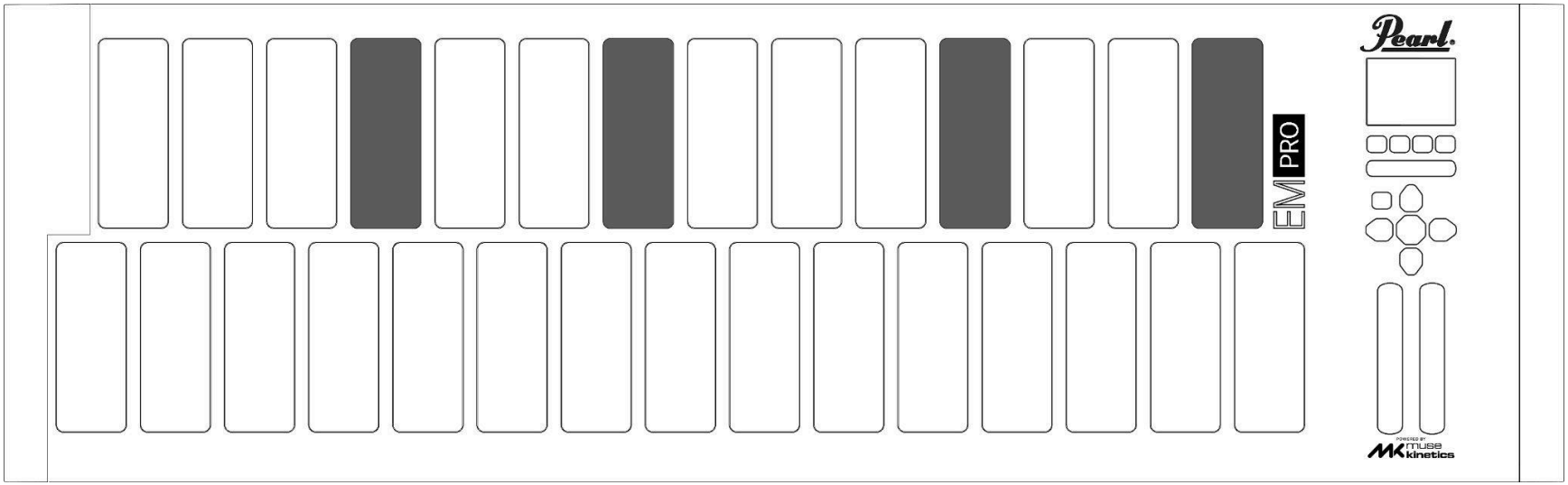
You can easily check if features like Gap Caps, Dampening, and Aftertouch are enabled from the information on the Home Screen.

Settings for bar Dampening and Aftertouch can be found in the Preset Edit menu.

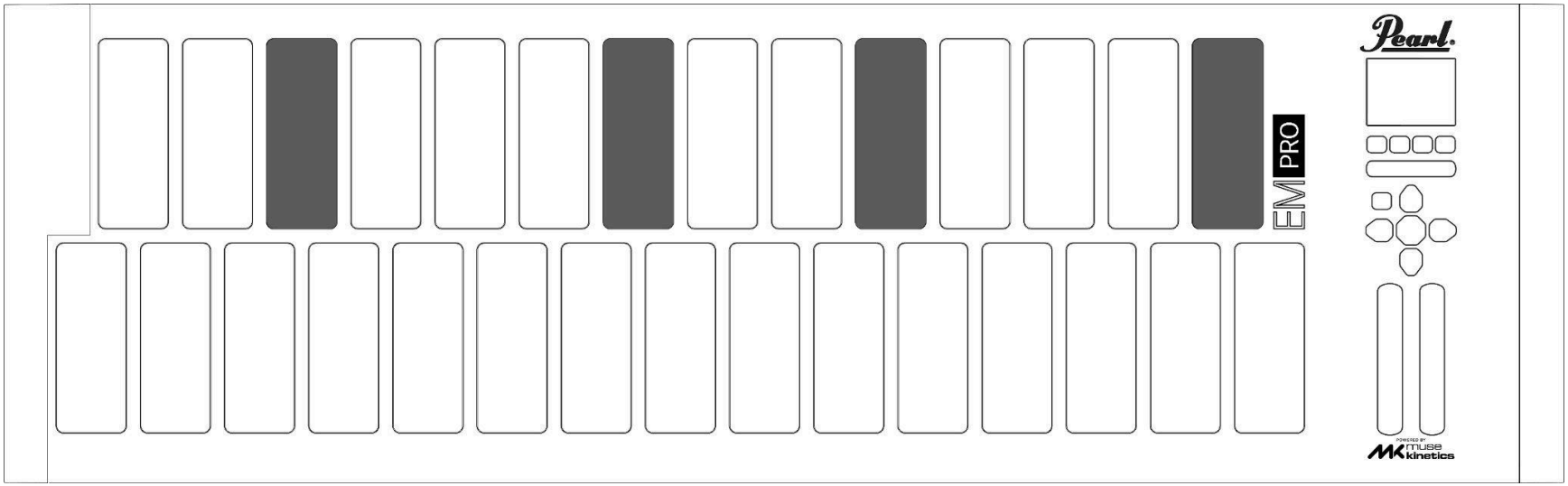
Transposing Bars and Gap Caps

The malletSTATION EM Pro is a transposable electronic mallet percussion instrument. This means that you can change the note of the lowest bar to achieve different ranges on the instrument. “Gap Caps” are removable silicone caps that you apply to the bars that are not part of the layout for a particular transposition.

By default, the malletSTATION EM Pro boots up with a low bar of F. The Gap Cap placement for this transposition is:



If you were to transpose the malletSTATION down to a low bar of C, the gap cap placement would be:



Adjusting Bar Sensitivity

The EMC and EMX bars can be adjusted to match your playing style. These settings can be found in the **Bars Menu.**

Implements

The malletSTATION EM Pro was designed to be able to be played with a multitude of implements, including most keyboard percussion mallets as well as drumsticks. Please keep in mind that it is still an electronic instrument, and should not be played with excessively heavy implements or anything that could damage the unit. Standard mallets and sticks work great on malletSTATION EM Pro.

EMX Expander Modules

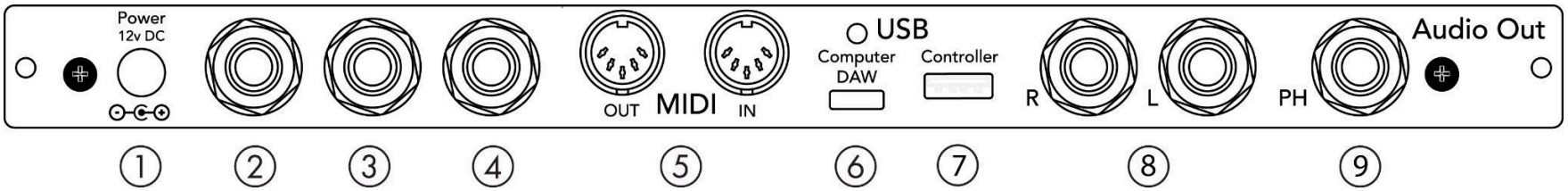
The EMX Expander Modules augment the range of the EMC Controller. Each expander adds an additional 14 bars. Up to 3 EMX Expander Modules can be connected to an EMC Controller for up to 71 bars total. For more information about connecting the EMX Expander Module, visit the **[EMX Expander Module]** section at the end of the guide.

EMSC Sound Card (optional add on)

With the Pearl Electronic Mallet Sound Card (EMSC) installed, your malletSTATION Pro (EMC 2-octave controller with up to three EMX octave expanders) is transformed from a world class MIDI controller into a full fledged Synthesizer workhorse. At the core of the EMSC is a sample based playback engine loaded with some of the most detailed and best sounding mallet instrument libraries ever made, including brand new recordings of contemporary marimba and vibraphone instruments from Adams, as well as a vintage set of vibraphone bars from the 1960s. Also included are modern synth, keyboard, percussion, and orchestral solo and ensemble instruments. With a total of 126 best in class sample sets and variations, your malletSTATION Pro is now a self contained instrument ready for the gig, no computer or external sound generator required.

The EMSC sample engine is bi-timbral, supporting two simultaneous instruments (“layers”), allowing you to create splits and stacks with the malletSTATION Pro bars, or in combination with an external MIDI controller connected to the USB Controller port, 5pin DIN, or a DAW connected to USB-C. For Example: Load a bass in the lowest octave to supplement another instrument, or to mix in a subtle layer of acoustic guitar to augment your marimba.

Rear Panel



[1] Power

Plug in the included power supply to power the EM Pro. The EM Pro is not a bus powered instrument

[2] Expression Pedal Input

Plug an expression pedal (not included) into this jack. You can change the CC, MIDI Channel, and adjust the Table in the Pedals section of the Preset Controls Edit menu. There are many different expression pedals on the market available in a range of different resistance ratings and taper profiles. We recommend using a model with a 10k linear potentiometer and TRS plug like those found in the M-Audio EXP and Boss EV5 expression pedals. NOTE: a volume pedal will not work as a substitute for an expression pedal.

[3] Switch and [4] Sustain Pedal Inputs

Plug a Pearl MS130 sustain pedal (not included), or similar pedal, into these jacks. You can change the pedal parameters like mode, inversion, MIDI CC and Channel in the Pedals section of the Preset Controls Edit menu.

[5] MIDI In/Out

Connect to external MIDI hardware via 5 pin MIDI cables using the MIDI In and Out jacks.

[6] USB C (Computer DAW)

Connect to a computer to send MIDI over USB using the USB-C jack.

[7] USB Controller (EMSC Only)

Connect to an external USB MIDI controller (Pearl EM1, keyboard, drum pad, etc) via USB-A. This controller can be routed to the host device connected to the Computer DAW USB-C jack, the 5 pin MIDI out, and either or both of the EMSC instrument layers.

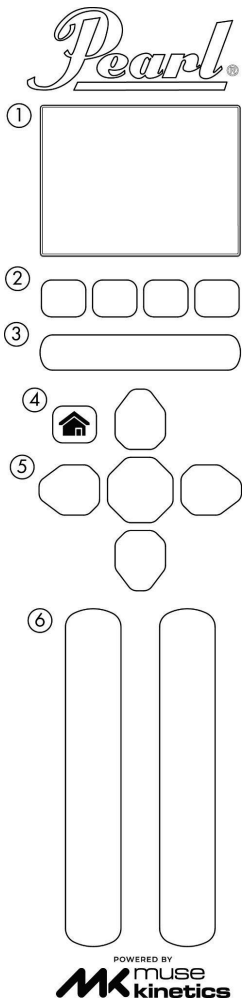
[8] Main Audio Out (EMSC Only)

Balanced Left and Right Main audio output.

[9] Headphone Out (EMSC Only)

Headphone audio output.

Control Panel



[1] Display

The LCD display has a polycarbonate lens with an anti-scratch coating. The display shows the EM Pro menu and user interface, allowing you to quickly adjust parameters using the silicone control buttons.
Note: The display is not a touch screen.

[2] Menu Tab Buttons

The Menu Tab buttons below the display select the various tabs in the active menu. Pressing a tab button will enter the selected tab, and pressing the tab button again will scroll through the pages in a multi-page tab.

[3] Horizontal Slider

The Horizontal Slider is helpful for quickly selecting or adjusting values for the highlighted parameter.

[4] Home Button

Pressing the Home Button will return you to the Home screen. Holding the Home Button for 5 seconds will open the Power Off dialog. If the current preset has unsaved changes, you will be prompted to discard or save them before powering off.

[5] Direction and Select Buttons

The Up and Down direction buttons select the highlighted parameter and navigate the menus on the display.

The Left and Right direction buttons increase or decrease the highlighted parameter value, or can toggle selected switches on and off. In some menus, the Left and Right direction buttons will navigate between the left and right columns shown in the menu layout.

Pressing the select button will activate the highlighted parameter, toggle highlighted switches, and open Name Edit or dropdown menu fields, depending on what parameter is selected. Holding the Select Button for two seconds reverts the highlighted parameter to the Factory Default value.

[6] Vertical Sliders

The Left Vertical Slider is a Mod Wheel slider mapped to CC1

The Right Vertical Slider controls Pitch Bend. This slider will return to zero when released.

Menu Functions

[1] Menu Title
[2] Layout
[3] Tabs
[4] Parameters
[5] Scroll Bar

The menu system consists of multiple menus, with each menu having up to four tabs, with each tab organized into layouts that present controls or information relevant to their respective functions. Some tabs will contain multiple pages of layouts, which can be accessed by navigating up and down with the direction arrows, or by pressing the tab button multiple times. Some menus will have tabs that are actually links to other menus.

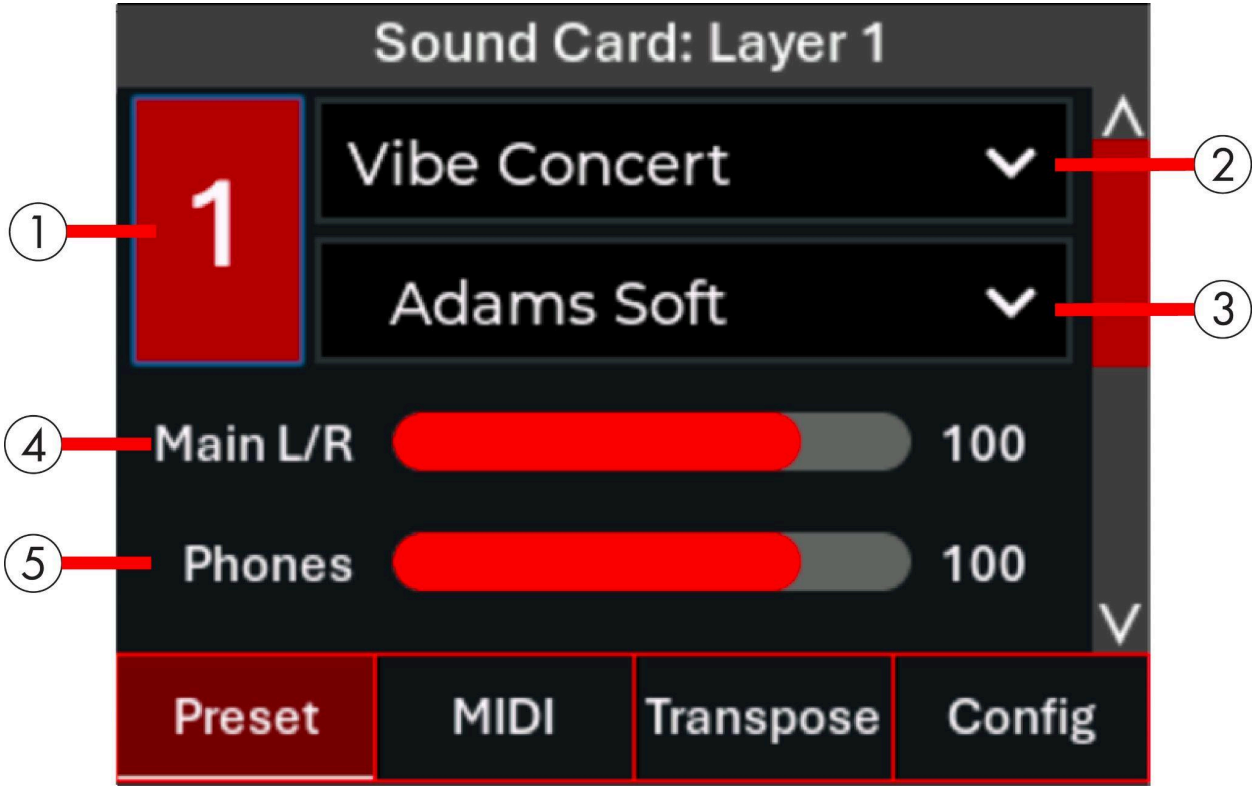
Home Menu

The Home Menu acts as the central hub for quick access to the most commonly used preset parameters like EMSC Layer controls, soft MIDI sliders and buttons, octave and low note transposition, and quick program change messages. The Home Menu also contains the Config tab, which links to the **[Global Configuration Menu]** where you can perform factory resets, edit global parameters like screen brightness, and adjust playability and bar sensitivity.

EMSC Layers 1 and 2 (EMSC Only)

The EMSC home screen gives you quick access to controls for selecting virtual instruments and adjusting the Main L/R and Headphone volume outputs.

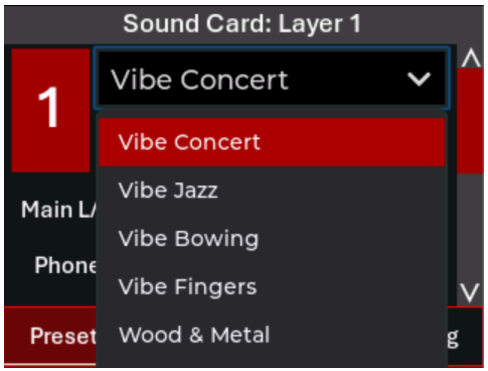
Use the direction and select buttons to navigate. By default the Horizontal Slider controls the Main L/R volume. When Phones is selected, the Horizontal Slider controls the headphone volume.

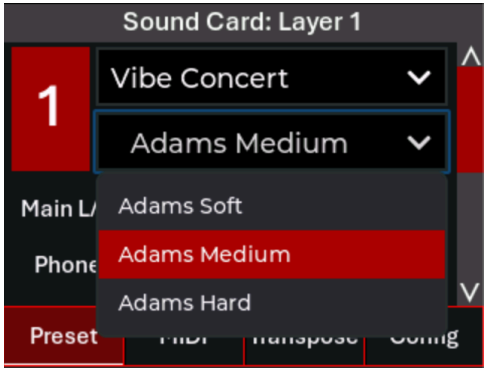


1. Layer Selection - Switch between Sound Card Layer screens.
2. Category Dropdown - Select instrument category
3. Instrument Dropdown - Select instrument
4. Main L/R Volume - Adjust the Main Output volume
5. Headphone Volume - Adjust the Headphone Output volume

EMSC Categories and Instruments

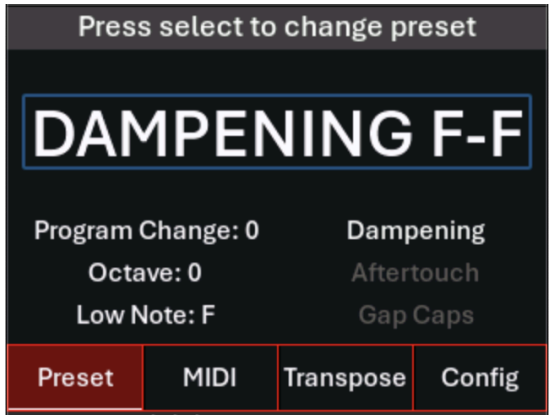
The virtual instruments in the EMSC are organized by instrument category. Select the upper drop-down menu to access the list of instrument categories. Select an instrument from the lower drop-down menu to load that virtual instrument.





Preset Tab

The Preset Tab displays information about the active preset, such as the low note (gap cap) setting, and if Dampening, Aftertouch, and Gap Caps are enabled (white) or disabled (grey).



Controls:

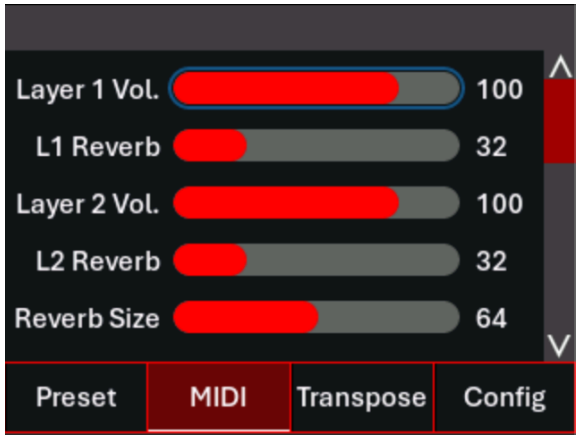
- Use the up/down direction arrows to change the octave
- Use the left/right direction arrows to send program change messages to the USB host
- Press select to load the **[Preset Edit Menu]**.

MIDI Tab

The MIDI tab provides access to EMSC Layer volume and reverb controls, as well as user-configurable MIDI control sliders and buttons. These sliders and buttons can be programmed in the Preset Edit menu.

EMSC Volume/ Reverb Controls (EMSC Only)

Set the volume for Layers 1 and 2, as well as the reverb level and size.



Layer Volume

Set the volume for each EMSC layer.

Layer Reverb Send

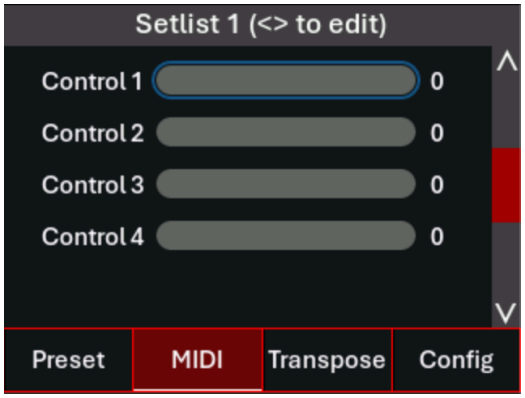
EMSC includes an on-board reverb engine with a send for each layer. The send is “post fader” relative to the Layer Volume, allowing you to set the relative amount of reverb while still controlling the overall level with Layer Volume.

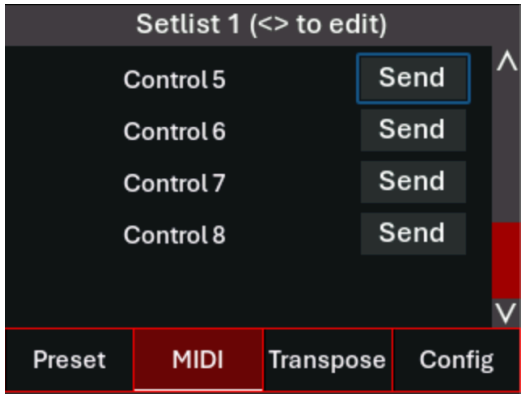
Reverb Size

Set the decay time of the reverb engine. Lower settings will sound more like a room and can give your sound subtle resonance and body. Higher settings will sound more like a hall or chamber, with dark decays and longer tails around 3-4 seconds long.

MIDI Soft Controls

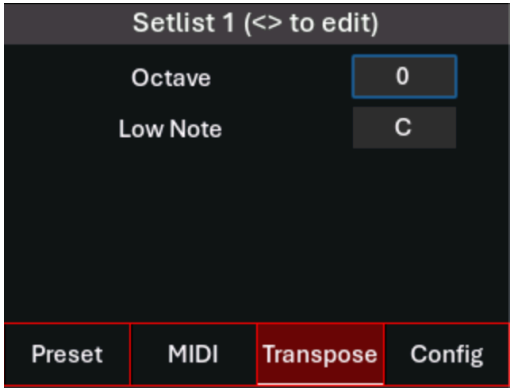
The MIDI Tab offers quick access to user configurable sliders and buttons, which can be named and mapped to control MIDI notes and CCs.





Transpose Tab

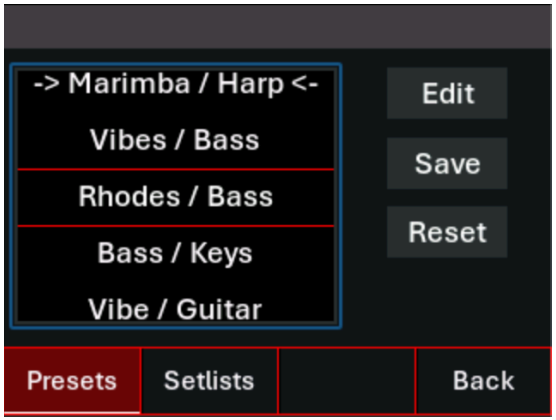
The Transpose tab provides access to Octave and Low Note transposition.



Config Tab

The Config Tab is a link to the **[Global Configuration Menu]**.

Preset Management



Loading Presets

The Preset Roller is displayed on the left side of the screen, listing all 16 available Presets. The active preset will be indicated with arrows -> LIKE THIS <-. When the roller is selected you can use the Up and Down direction buttons to scroll through the presets. Pressing the Select button will load the highlighted preset into active memory. You can use the Left and Right direction buttons to navigate between the Preset Roller and the Edit, Save, and Reset buttons.

Edit Presets

Pressing this button enters the Preset Edit Menu. Details of how to edit the EM Pro preset parameters can be found in the **EMC user manual**.

Save Presets

If there are unsaved changes to the current preset, you will see an asterisk in the Preset Name field. From the Preset Menu window, press the “Save” button to save changes made to the preset. If there are unsaved changes when you try to load a new preset, you will be prompted to save or discard your changes.

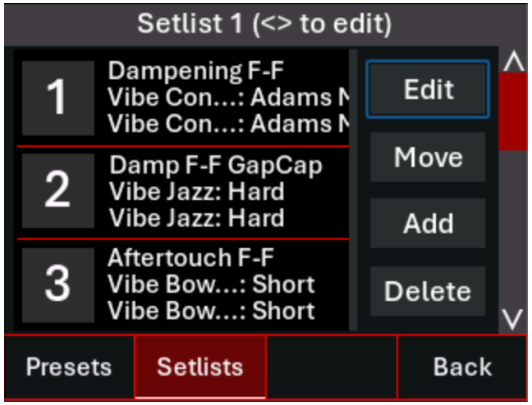
Reset Presets

You can use this button to reset the loaded preset to its default settings. To reset all of the presets to factory defaults, see the **[Config -> System]** tab.

Setlists

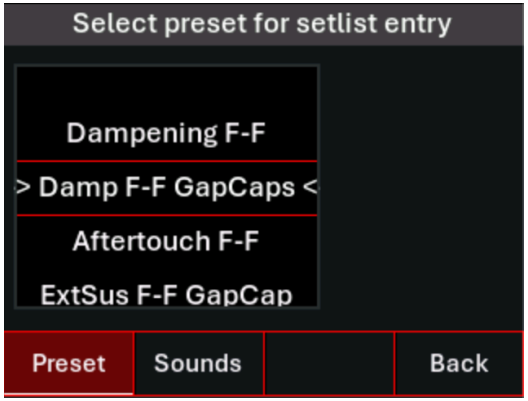
Setlists allow you to organize the EMC presets and EMSC instruments into lists for easy recall. Create up to 10 setlists, each with up to 25 entries. Each setlist entry lets you select an EMC preset and two EMSC instruments that override the instruments assigned to the EMC preset.

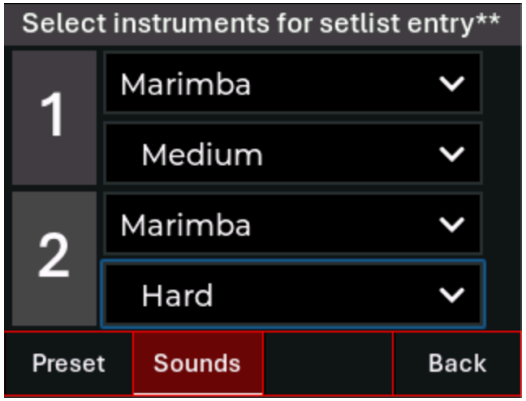
This allows you to set common EMC preset settings like low bar / root note, gap caps, zones, pedal settings, etc., and pair those settings with different instrument variations. A setlist could be a collection of your favorite instruments, or it could be a step-by-step script for a musical theatre performance, or simply a collection of instruments for a specific gig.



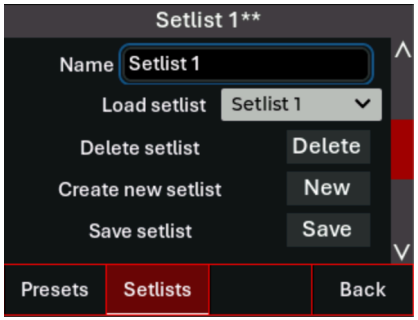
Select a setlist slot and press the left or right buttons to access the Setlist menu. From the Setlist menu you can “Add” or “Delete” combinations from the Setlist, “Move” combinations to change the Setlist order, or “Edit” the combination to select the preset and instruments for that slot.

From the Setlist Edit menu you can choose a controller preset and virtual instruments for layers 1 and 2.

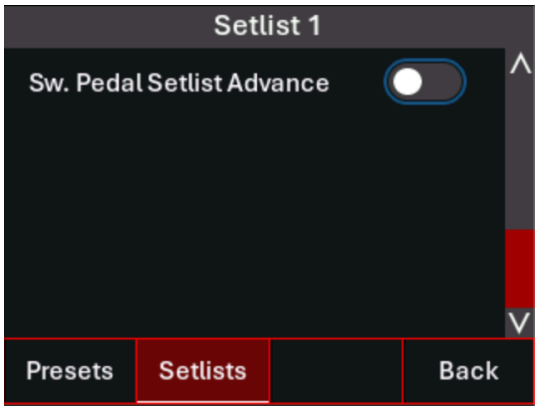




Page 2 of the Setlist menu lets you select and manage each of the setlists. From here you can rename, add, and delete setlists.



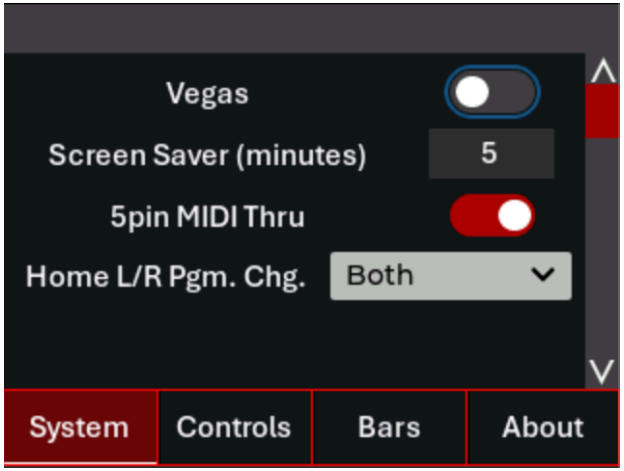
Page 3 of the Setlist menu lets you assign the “switch” pedal to “setlist advance” mode, which allows you to increment the current setlist position with an attached momentary footswitch.



Global Configuration Menu

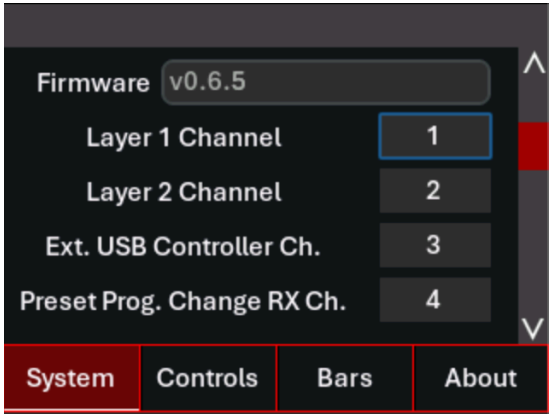
The Global Configuration Menu lets you adjust global settings, and perform functions such as factory reset, bar regulation, and adjust bar sensitivity. Changes made to these settings are saved in real time, and will persist after the system is power cycled.

Vegas Mode and Screensaver Settings



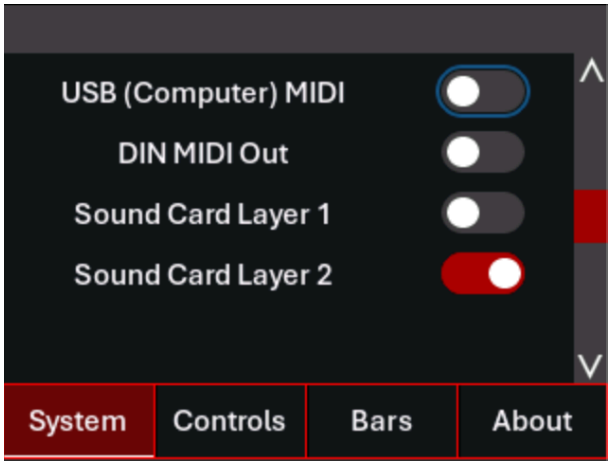
- Vegas mode - Toggles a LED light show
- Screen Saver (minutes) - Sets the time before the screen saver engages
- 5 pin MIDI Thru - Toggle the hardware MIDI Thru on-off. When on, all messages received at the MIDI input will be echoed to the output.
- Home L/R Pgm Chg. - Selects whether the left/right buttons on the home page control program changes for USB, 5 pin MIDI, or both.

EMSC MIDI Channel Configuration



- Firmware - Displays the current EMSC firmware
- Layer 1 Channel - Set the MIDI TX/RX Channel for Layer 1 (default 1)
- Layer 2 Channel - Set the MIDI TX/RX Channel for Layer 2 (default 2)
- Ext. USB Controller Ch. - Set the MIDI TX/RX Channel for any external USB MIDI controller connected to the EMSC (default 3)
- Preset Prog. Change RX Ch. - Set the MIDI channel on which EMSC receives Program Change messages (default 4)

External USB Controller Routing

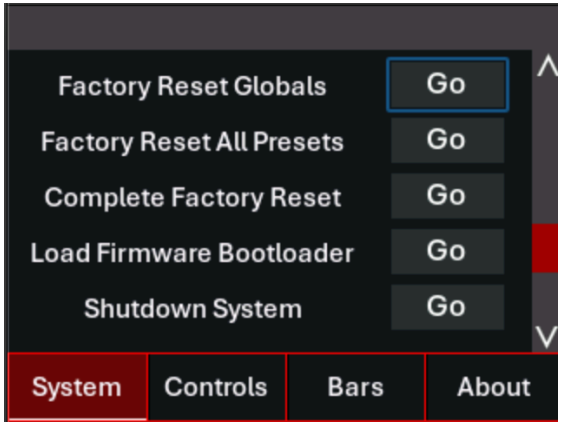


Select the routing destinations for a USB MIDI controller connected to the USB Controller USB-A jack. All MIDI channels received from the controller are merged to the “Ext. USB Controller Ch.” (selected on the Sound Card Configuration page) before being routed to the USB and DIN MIDI destinations.

- USB (Computer) MIDI - routes MIDI from the external controller (USB-A) to the computer/host (USB-C).
- DIN MIDI Out - routes MIDI from the external controller to external 5 pin DIN MIDI devices

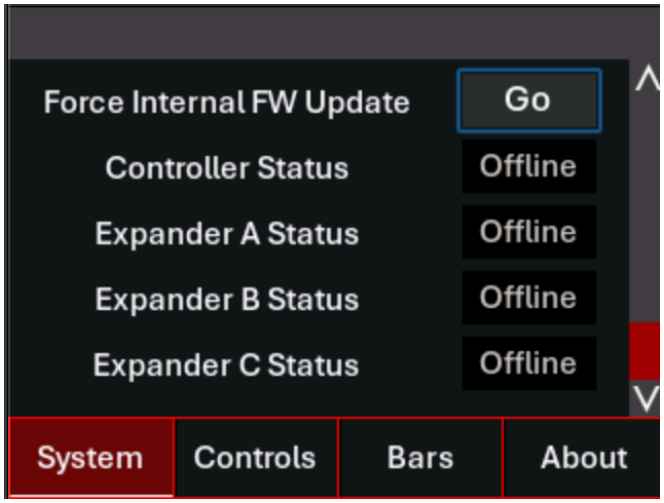
- Sound Card Layer 1 and 2 - routes MIDI from the external controller to either or both of the EMSC instrument layers. All MIDI channels received from the controller are merged before being routed to the Sound Card layers.

Factory Reset



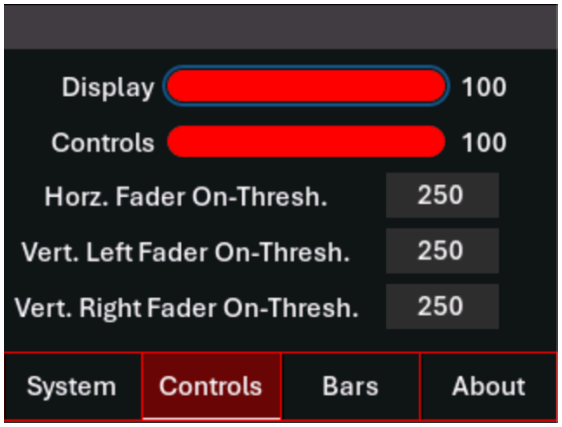
- Factory Reset Globals - Resets all of the config menu settings to defaults
- Factory Reset All Presets - Resets all presets to default
- Complete Factory Preset - Resets globals, presets
- Load Firmware Bootloader - Puts the EMC into bootloader mode to receive firmware updates.
- Shutdown System - Prompts to save changes before powering down the EMC.

Controller and Expander Status



- Force Internal FW Update - The EMC controller and each attached EMX expander have internal microprocessors that scan the bars. The EMC will automatically update the internal firmware when necessary, so you should only need to do a manual update when instructed by support.
- Controller and Expander Status - Attached EMX octaves should always read as “Online”.

Controls Settings

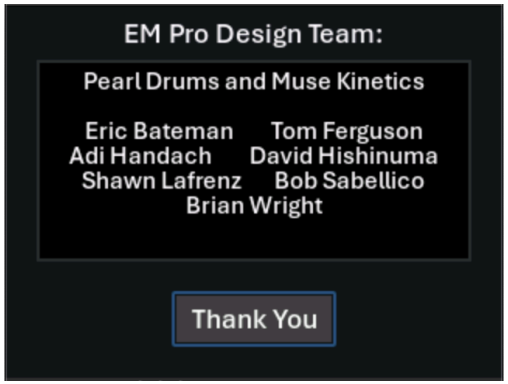


The Controls tab provides access to controls for adjusting the brightness of the Display and Slider LEDs, and for setting the On Threshold of the Horizontal and Vertical sliders.

Config Bars

The Bars Tab is a link to the **[Bars Menu]**, which provides comprehensive controls for managing the sensitivity, thresholds and gain of global and individual bar configurations.

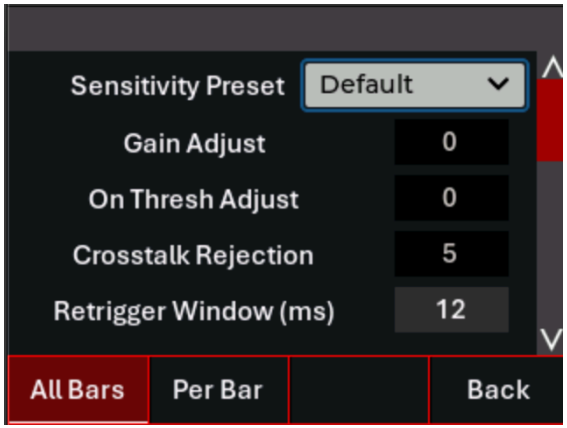
About



Thank you from us who worked hard to make EM Pro, the mallet controller of your dreams, a reality.

Bars Menu

Bars - All Bars Tab, Page 1



The All Bars Tab Page 1 lets you adjust the sensitivity settings.

The easiest way to adjust these settings is to use the dropdown to select from the Default, Low, and High presets. When a preset is selected, the settings are greyed out and can not be adjusted. Selecting Custom will enable the settings to be adjusted.

- Gain - Higher values increase bar sensitivity, lower values make it harder to achieve full volume (MIDI velocity 127).
- On Threshold - adjusts the minimum threshold for a bar to activate. A lower value makes the bars more sensitive to softer strikes. Higher values will improve dampening, help prevent double triggering/muting, crosstalk, and unintended notes from triggering.
- Crosstalk Rejection - a higher value will prevent unintended notes caused by hard strikes, but may filter some notes when playing chords.
- Retrigger Window (ms) - a higher value prevents double triggering when hard striking a bar, which sometimes can cause a note to self cancel. A lower value allows for faster playing techniques, including buzz rolls.

Note: The EM Pro crosstalk algorithm applies more crosstalk (+2) to bars that are adjacent (+/- one whole step) to the bar currently being struck.

The maximum amount of crosstalk that can be applied to any bar is 8, and the crosstalk value for any bar is:

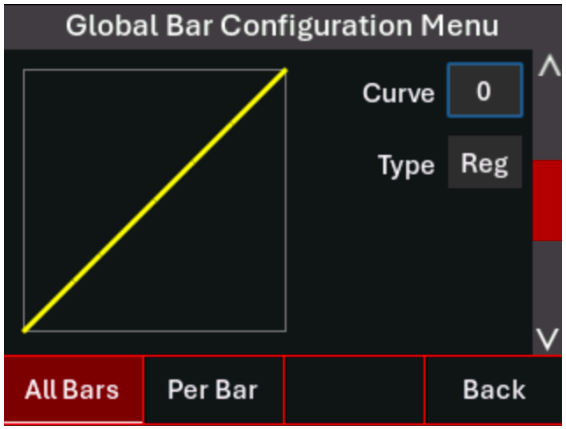
[All Bars setting] + [Per Bar setting] + [+2 if the bar is adjacent]

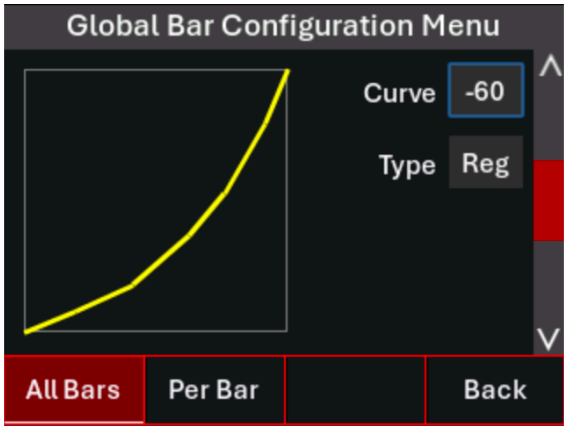
Bars - All Bars Tab, Page 2

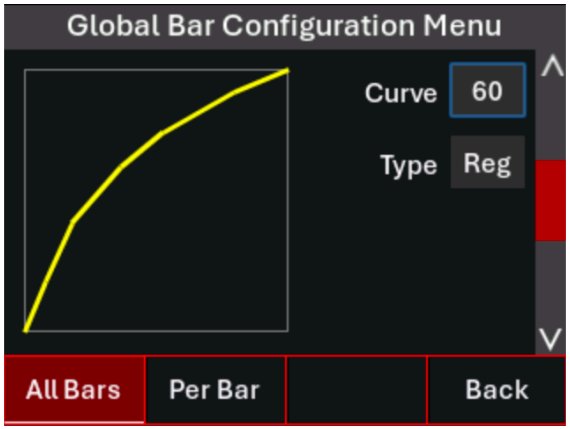
The All Bars Tab Page 2 is where you apply a sensitivity curve. This is a global setting that provides an easy way to adjust the dynamic range of the bars. A positive curve will make softer strikes louder, and a negative curve will make harder strikes quieter. You can think of the curve as an X/Y graph, where the X axis is the input value, and the Y axis is the output value.

There are two types of curves, regular “Reg” and “S”.

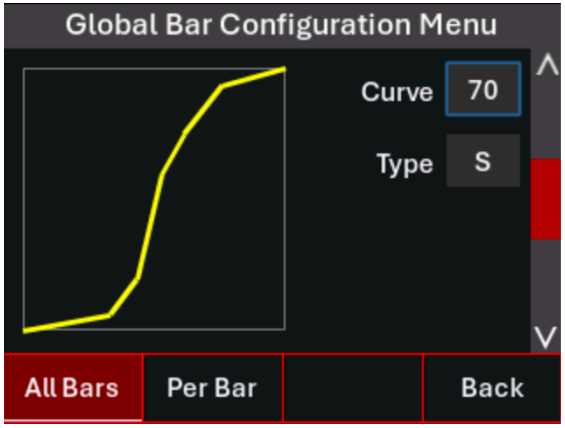
The Reg curve is a simple exponential or logarithmic function. To adjust the degree of the curve, use the horizontal fader to make large value adjustments or the Left/Right arrows for incremental value changes.

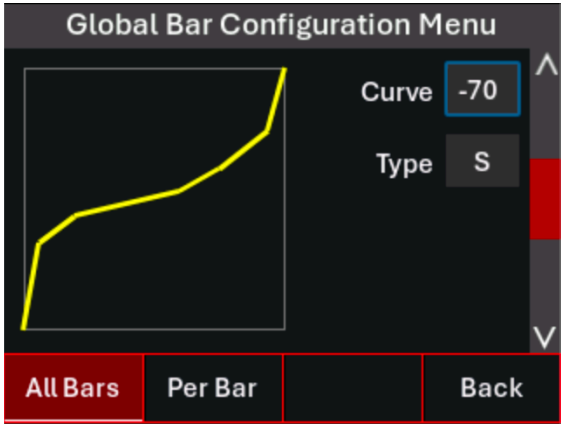






The S curve lets you achieve more advanced functions, a positive value will make most notes very quiet until you hit a threshold that makes them very loud, and a negative value will make most notes play at a middle volume.





Bars - All Bars Tab, Page 3

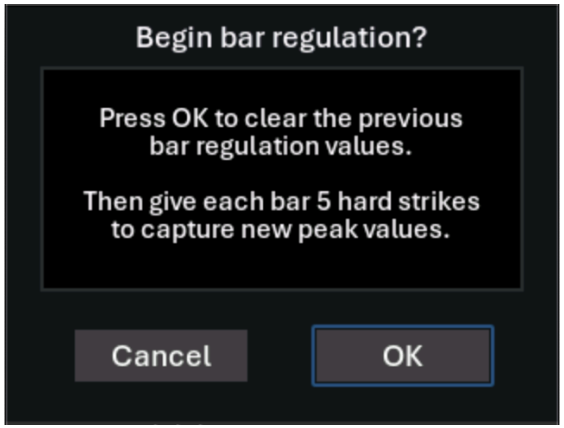
The All Bars Tab Page 3 is where you access the Bar Regulation function, load the Factory Calibration or turn on the Debug Messaging feature to assist in the event you need technical support services.

Bar Regulation

The malletSTATION is factory calibrated with default gain settings for each bar. The All Bars and Per Bar “Gain” values are +/- adjustments applied to these calibrated settings.

Bar Regulation allows you to override the factory gain settings with your own hard strikes.

Before bar regulating, set the All Bars “On Threshold” and “Crosstalk” settings to their highest values. This ensures that your hard strikes only affect the intended bars. Then select the Bar Regulation “Go” button. A dialog will appear, selecting “OK” will begin regulation.



Play a chromatic/sequential scale starting at the lowest bar, playing all the way to the highest bar. Use hard strikes that represent the typical upper end of the dynamic range of your playing. Don’t skip the gap cap bars. Repeat this process 5 times, playing from lowest to highest bar.

For each bar, the values of the 5 hard strikes will be averaged together, and the average will be stored as the new calibrated Gain setting for that bar. This value can still be adjusted with the All Bars and Per Bar setting, so once you have performed bar regulation, you should not need to repeat the process.

To restore the factory calibrated values you must perform a “Complete Factory Reset” from the **[Global Configuration Menu - Config System]** layout.

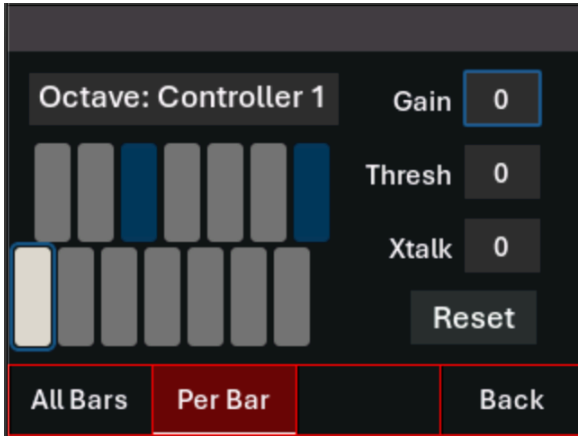
Load Factory Calibration

This option will clear the bar regulation values and restore the factory calibration settings.

Debug Messaging

This enables debug messages, and is only necessary when working directly with the Muse Kinetics Support team. Otherwise leave this turned off.

Bars - Per Bar Tab



The Per Bar tab allows you to adjust each bar individually. The Per Bar parameters are the same as the All Bars parameters:

- Gain = Gain
- On Thresh = On Threshold
- Xtalk = Crosstalk Rejection

Per Bar and All Bars settings are combined with either the factory calibration or the bar regulation values, allowing you to quickly tune the bars to match your playing style.

To select a bar simply strike it with a mallet or your fingers. This will update the “Bar View” display, indicating which octave and bar is currently selected, and what the selected bar parameters are set to.

Common Adjustments

- A bar is too sensitive and plays too loud - turn down the Per Bar Gain
- A bar is insensitive and can’t reach maximum volume - turn up the Per Bar Gain
- An unstruck bar is triggering when another bar is struck (crosstalk) - turn up the unstruck bar’s Xtalk adjustment
- A bar is triggering when no bars are being played (noise) - turn down that bar’s Thresh adjustment (this behaves like a noise gate)
- Striking a bar produces no sound but produces two MIDI notes: one at 127 velocity and one at 0 - increase the All Bars **Retrigger Window** and **On Threshold**

Reset

Use this to restore all of the per-bar settings to default (0).

Editing Presets

Main Preset Edit Menu

Naming Presets

Press the Select button to edit the Name field. The Preset Name can be a maximum of 19 characters long. Pressing select again will back out of Name field editing.

Controls:

- Left and Right buttons navigate through the Name
- Up and Down buttons step through the available alphanumeric characters
- Horizontal Slider quickly scrolls through the available alphanumeric characters

Editing Bar Settings

Dampening

Toggles Bar Dampening on/off. If engaged, the note will stop when you apply gentle pressure to a bar that is “ringing”.

Note Duration

Sets the duration that the note will “ring” after a bar is struck. Measured in milliseconds between the Note On and Note Off messages.

Channel Aftertouch

Toggles Channel Aftertouch on/off. When enabled, bars with Gap Caps send Channel Aftertouch messages.

Gap Caps

Toggle Gap Caps on/off. When enabled, bars with Gap Caps can send MIDI Note or CC messages. See “Controls > Gap Caps” for more information.

EMSC Layers

Each preset has two assigned instruments for the EMSC Layers. Instruments are sorted by category. For a full list of categories and instruments see the **Presets section.**

Preset Program Change Settings

EM Pro can send Program Change messages to connected hardware when a new preset is loaded. This Program Change message is sent by USB MIDI and 5 pin MIDI (see Rear Panel MIDI In/Out). Set the Program Change number and the MIDI Channel it is sent on with the “USB” and “5pin MIDI” number boxes.

If your malletSTATION Pro has a Sound Card attached, you can send Program Change messages to the internal Card Layers when a new preset is loaded. Set the Program Change number with the appropriate number box.

Zones Menu

Each preset in malletSTATION Pro has three “Zones” or layers of MIDI information (Zones A, B and C). From the Zones Menu you can toggle the Zone on/off, set the Start and End bars of each Zone, and set the MIDI Channel the information is sent on.

You can enable or disable output to the USB MIDI and 5 pin MIDI ports. If a Sound Card is connected, you can toggle if the internal Sound Card Layers 1 and 2 are engaged.

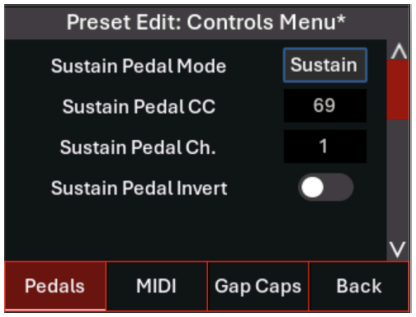
Adjusting the Zone curve will modify the dynamic response of the velocity of the notes in the Zone.

Controls Menu

Pedals

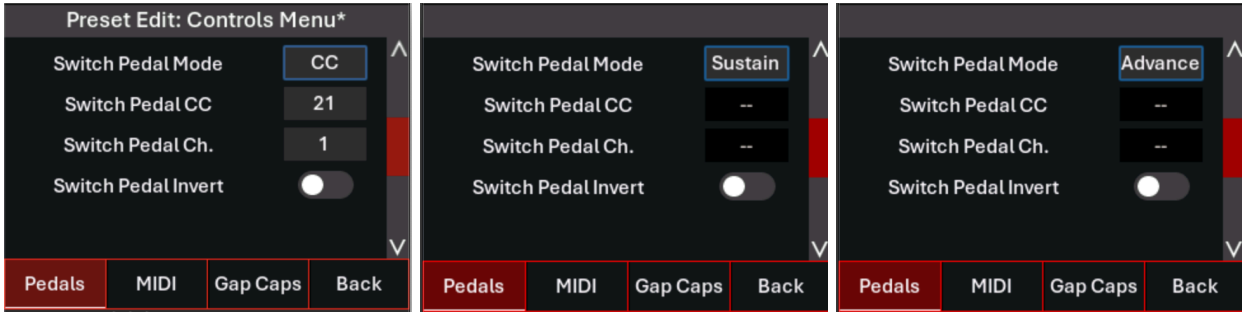
You can connect Sustain, Footswitch and Expression pedals to the malletSTATION Pro at the Rear Control Panel. See the Rear Control Panel section for more information.

Sustain Pedal Settings



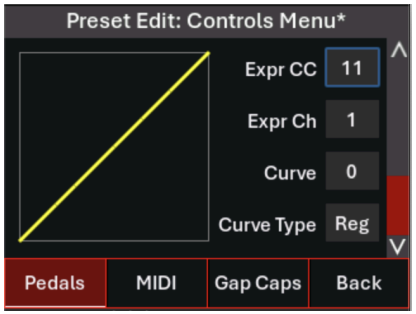
Sustain Pedal Mode sets whether a Sustain pedal plugged in triggers an internal sustain (Note Off not sent until the pedal is released) or sends a MIDI message to control the sustain of the note. Set the CC number and MIDI Channel with the number boxes. Toggle the Pedal Invert switch to change between Normally Open and Normally Closed.

Switch Pedal Settings



Switch Pedal Mode sets whether the Switch pedal plugged in acts as a sustain pedal, sends a MIDI CC message, or advances to the next entry in the Setlist. Set the CC number and MIDI Channel with the number boxes. Toggle the Pedal Invert switch to change between Normally Open and Normally Closed.

Expression Pedal Settings



An expression pedal plugged in can control a MIDI CC. Set the CC number and MIDI Channel with the number boxes. Apply a curve to the position of the expression pedal. The Reg curve is a simple exponential or logarithmic function. The S curve lets you achieve a more advanced S-shaped function. To adjust the degree of the curve, use the horizontal fader to make large value adjustments or the Left/Right arrows for incremental value changes.

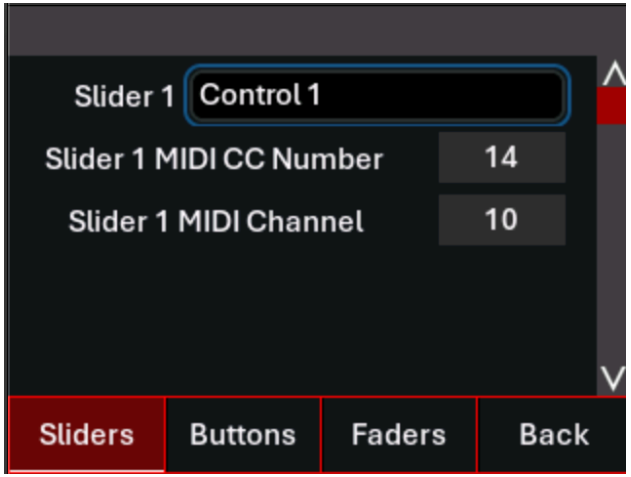
Soft MIDI Controller Settings

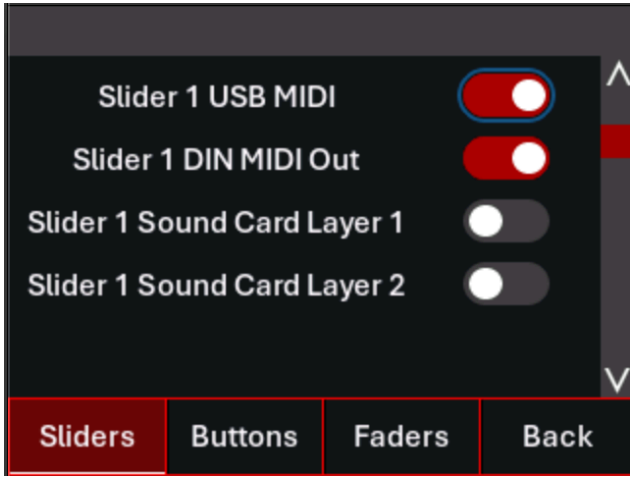
Pressing the button for the MIDI Tab from the Home Screen will bring you to the Soft MIDI Controls. The parameters of these soft sliders and buttons are set in the Soft Controls Menu.

Sliders

Each soft slider has its own set of parameters.

- Set the Name displayed for the soft slider with the slider's Name field.
- Set the MIDI CC# and Channel that the data will be sent on with the number boxes.
- Toggle whether or not the soft slider is sent on the USB or 5 pin MIDI ports.
- Toggle if the slider is sent to Card Layers 1 or 2 (only if Sound Card is connected).

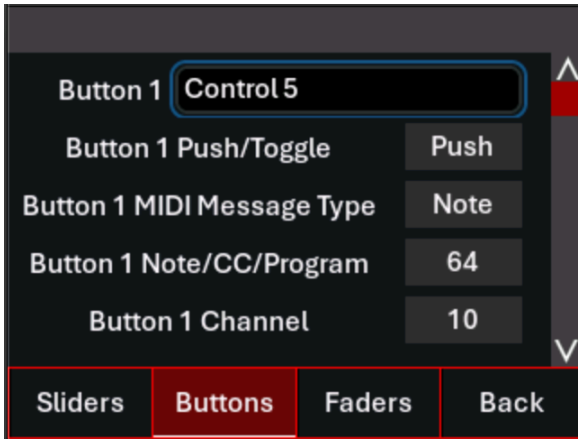


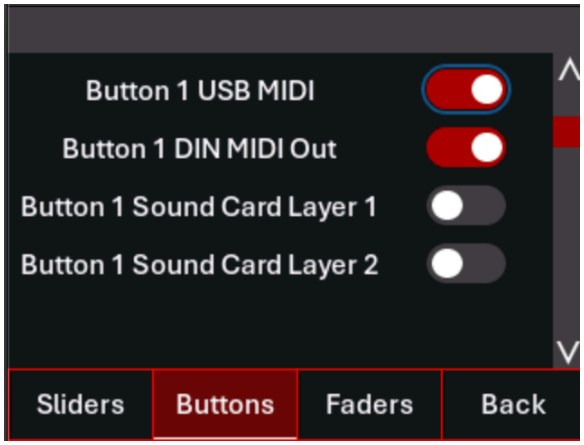


Buttons

Each soft button has its own set of parameters.

- Set the Name displayed for the soft button with the button's Name field.
- Set whether the button is a momentary push button or a toggle switch.
- Set if the button will send a MIDI CC, Note or Program Change message.
- Set the MIDI Note, CC or Program Change and Channel with the number boxes
- Toggle whether or not the soft button is sent on the USB or 5 pin MIDI ports.
- Toggle if the soft button is sent to Sound Card Layers 1 or 2 (if card connected).

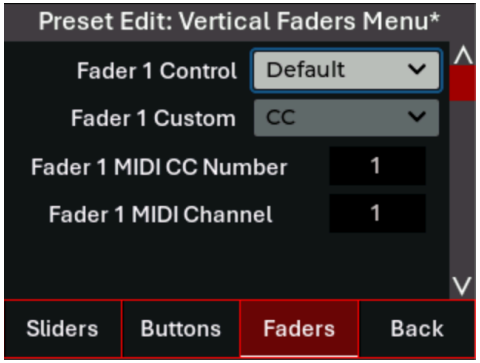




Faders

MIDI Controls

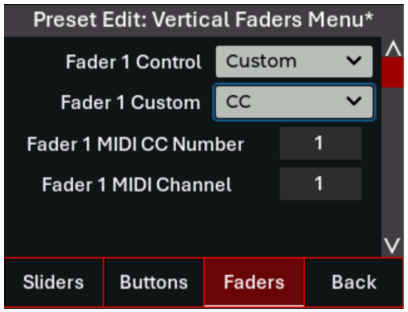
The two Vertical Faders can be configured to send MIDI messages to the Sound Card Layers, as well as the USB and 5-Pin Din MIDI outputs.

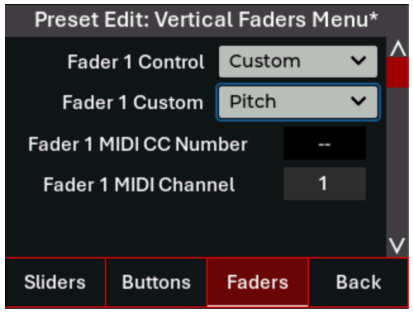


In **Default Mode**, MIDI messages are configured automatically to best compliment the instrument assigned to the active sound card layer (the currently selected layer on the home screen). For most instruments, this means that the left Vertical Fader will send MIDI CC#1 (Mod Wheel), and the right Vertical Fader will send Pitch Bend.

For some instruments like Vibraphones, the Vertical Faders will control the Vibraphone Motor. The Vibraphone Motor is a special effect that simulates the sound of paddles spinning inside of the vibraphone resonators. This effect is a customized low frequency oscillator that controls dynamic EQ bands centered around the fundamental frequencies of the vibe bars, and adds just a bit of resonance in the upper harmonics.

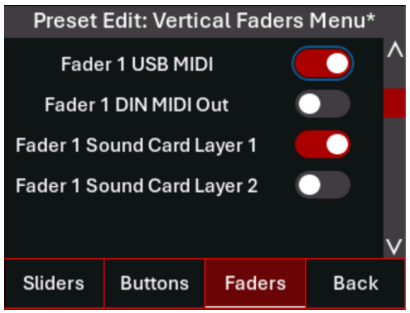
When the Vibraphone Motor is active the faders will change color, and the left Vertical Fader controls the motor intensity, while the right Vertical Fader will control the motor speed.



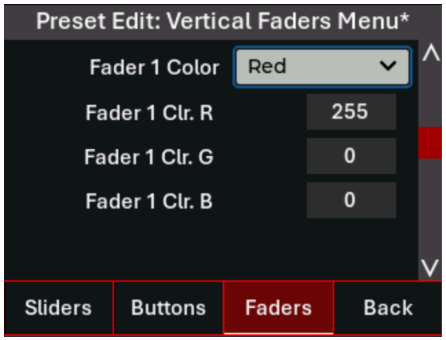


In **Custom Mode**, each Vertical Fader can be configured to output either Continuous Control (CC) or Pitchbend MIDI data. Select “Custom” from the dropdown menu and select CC or Pitch to choose your own MIDI assignment, and the MIDI Channel it sends on.

MIDI Destinations



Select which MIDI destinations are enabled to receive data from the vertical faders (USB MIDI, Din MIDI, and EMSC Layers 1 & 2).

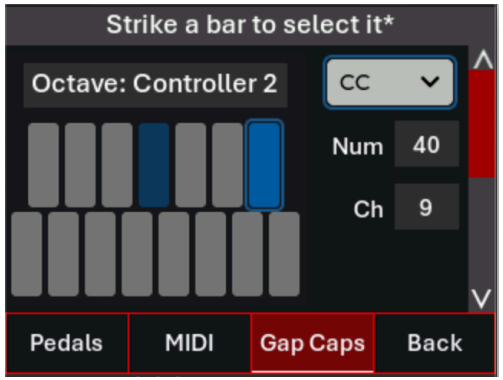


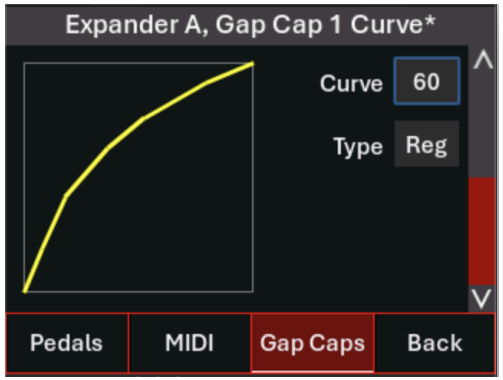
Choose the color of each Vertical Fader by selecting a color from the menu, or mix your own color by adjusting the RGB values.

Gap Caps

“Gap Cap” bars are bars that are not included in the keyboard octave based on the layout of the current transposition (based on Lowest Note).

While not used to send MIDI Notes in the traditional layout, Gap Cap bars can be programmed to send their own MIDI message. Set the message type with the dropdown; then set the message number and MIDI channel with the number boxes. Adjusting the curve will modify the dynamic response of the data generated when you activate the gap cap.





EMX Expander Module

Connecting an Expander Module

<include pictures and/or diagrams with the below copy>

- Lay the EMC and EMX face down on a flat working surface. Use a towel or blanket to protect the faces of the EMC and EMX.
- Locate the male ribbon connector on the right side of the EMC. It should be connected internally to the EMC PCB.
- Locate the female ribbon connector on the left side of the EMX. It should be connected internally to the EMX PCB.
- Align the EMX 20mm slip fit tubes to the matching openings of the EMC.
- Partially insert the EMX into the EMC until there is approximately 4 inches of space between them.
- Connect the two ribbon connectors, noting their tab and slot orientation.
- Place the connectors inside either the EMC or EMX cavities so that they do not prevent the gap between the EMC and EMX from being closed
- Slowly insert the EMX the rest of the way, being careful to route the ribbon cable inside of the metal enclosure so that it does not become pinched.
- Use the four included mounting bolts to secure the EMX and EMC frames. Be careful not to strip or over tighten the bolts.

Installing EMSC

DANGER! PLEASE READ THIS SECTION BEFORE ATTEMPTING TO INSTALL THE EMSC. FAILURE TO READ THIS SECTION MAY RESULT IN DAMAGE TO YOUR EM PRO.

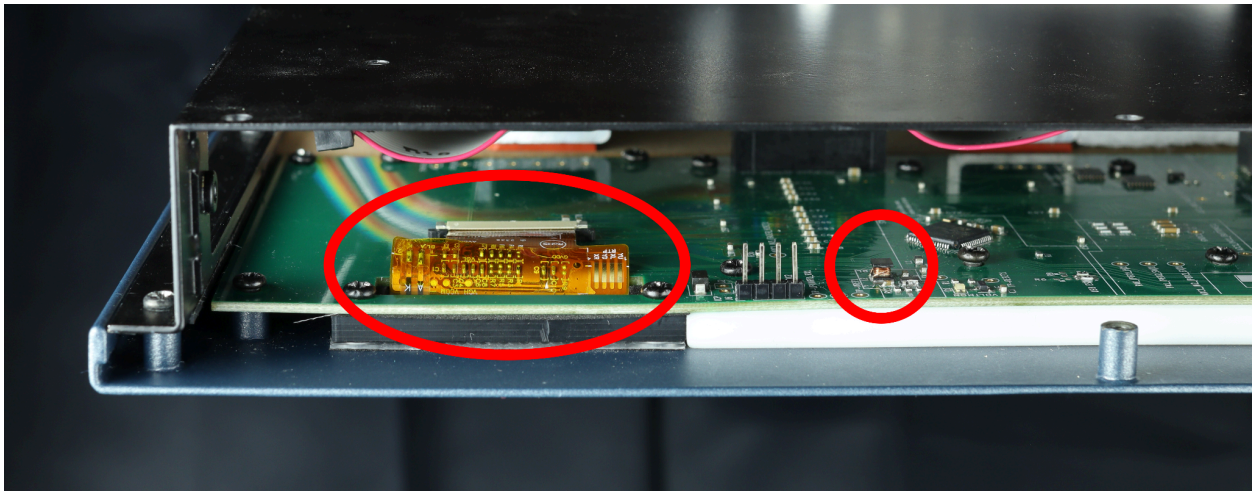
For the purposes of photographing the steps we have put the malletSTATION on a stand, but we recommend installing the EMSC card with the EM Pro resting keys-down on a table.

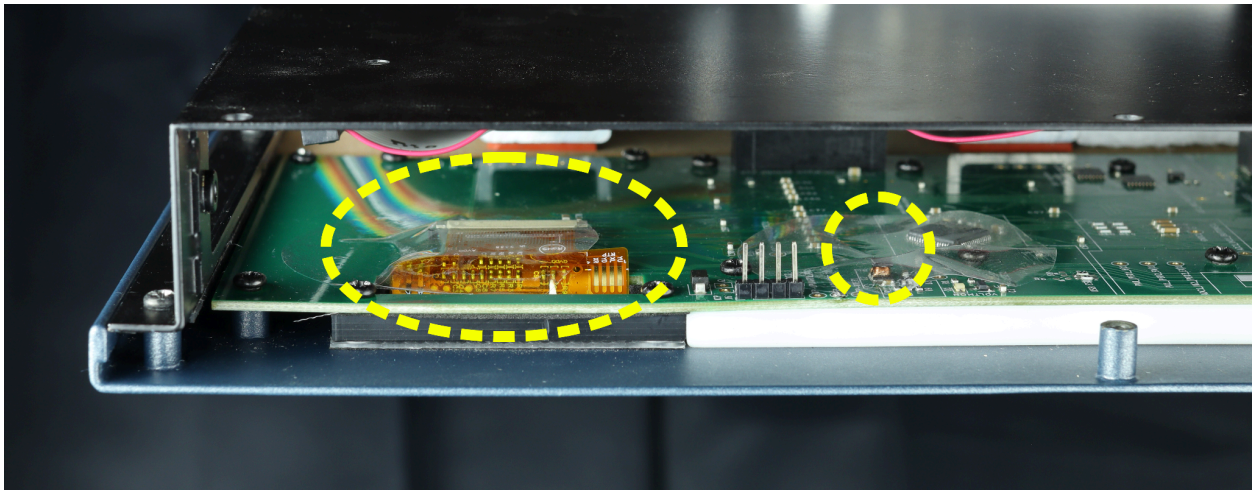
1. Remove side panel
    a. Three screws secure the side panel to the chassis. Remove and save these screws.

2. Remove EM-Pro MIDI Card
    a. Three screws secure the EM-Pro MIDI Card to the chassis. Remove these screws.

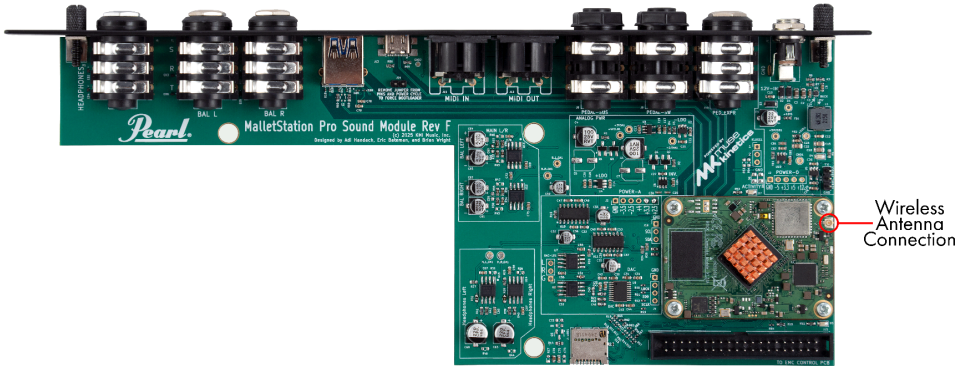
    b. The MIDI Card is connected to the EM Pro with a ribbon cable. Carefully disconnect the ribbon cable from the MIDI card.

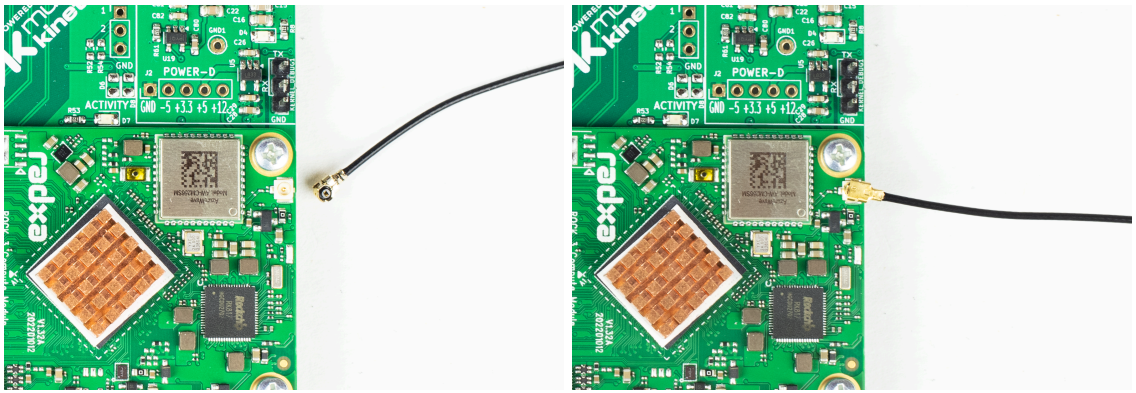
3. Install the included protective stickers over the display ribbon cable and L2 inductor.





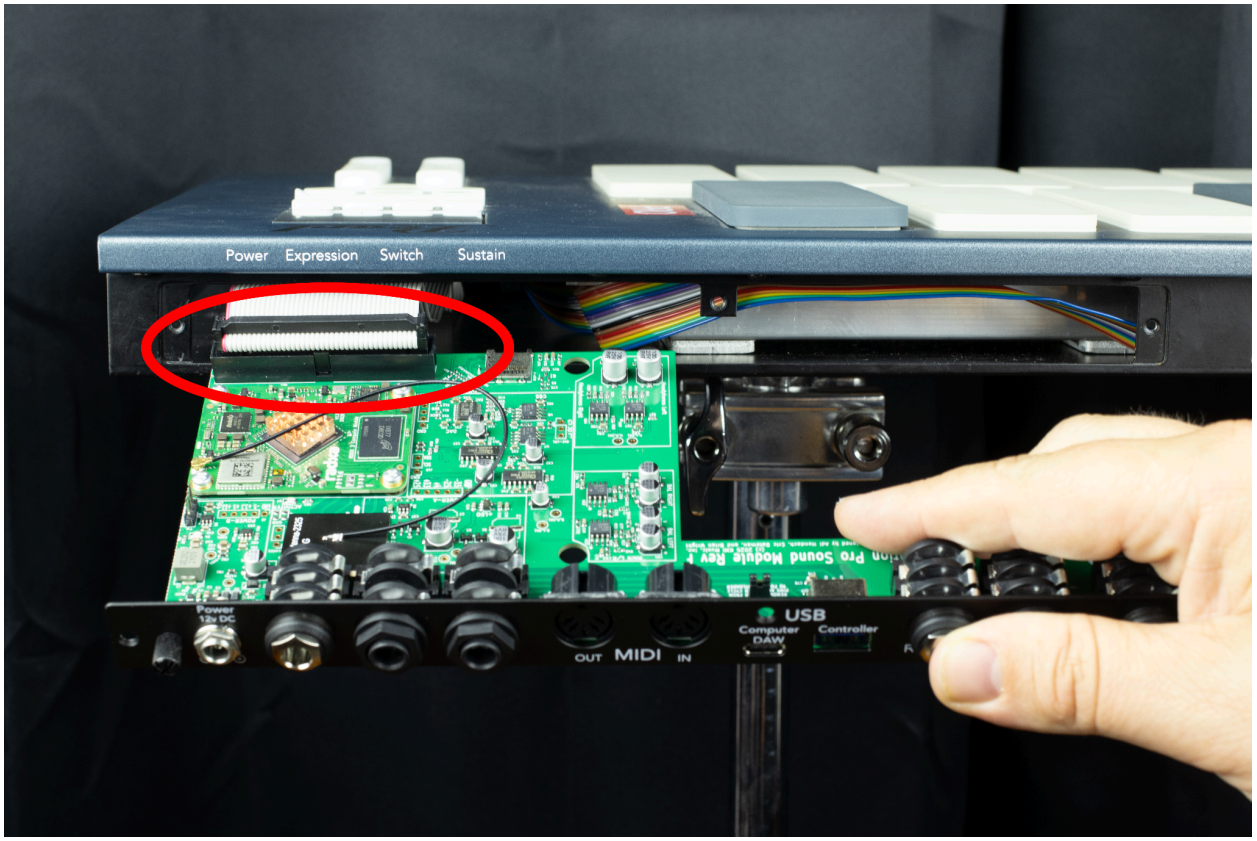
4. Attach wireless antenna to EMSC. If you prefer, you can wait to attach the wireless antenna's coaxial connector to the EMSC board until after the card is installed (Step 5).



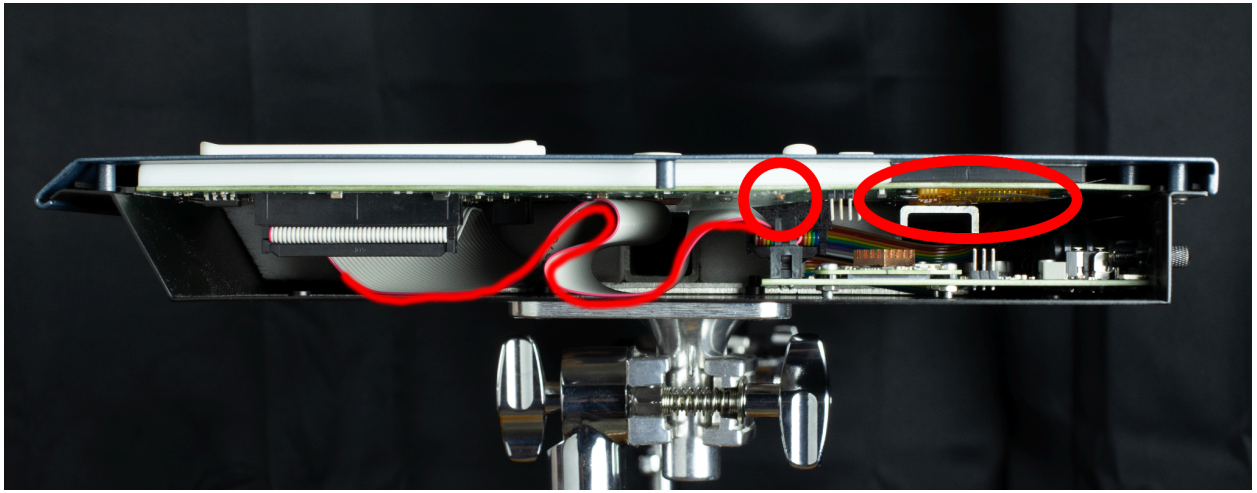


5. Install EMSC

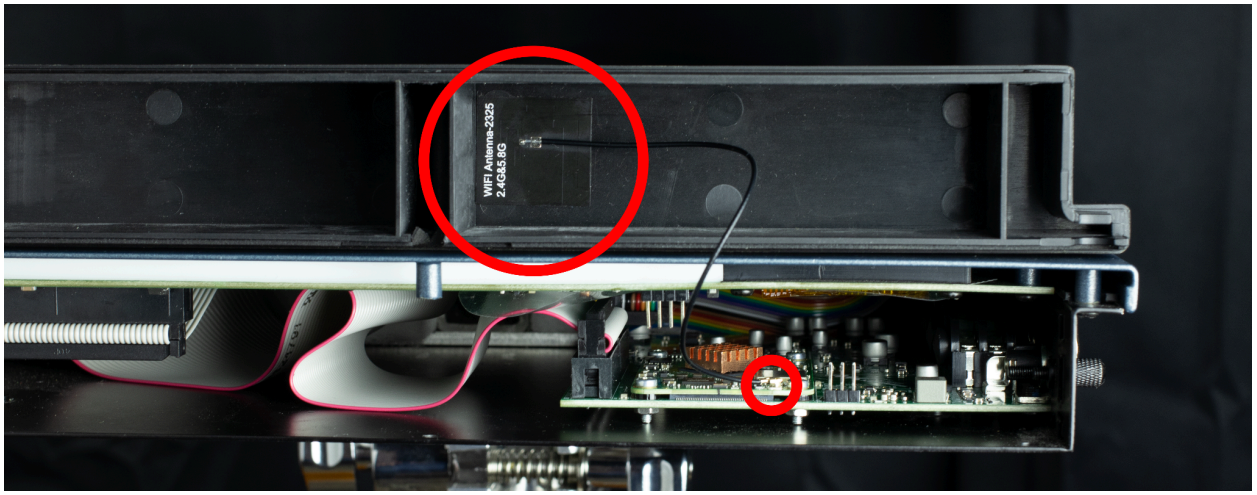
a. Connect the ribbon cable to the EMSC.



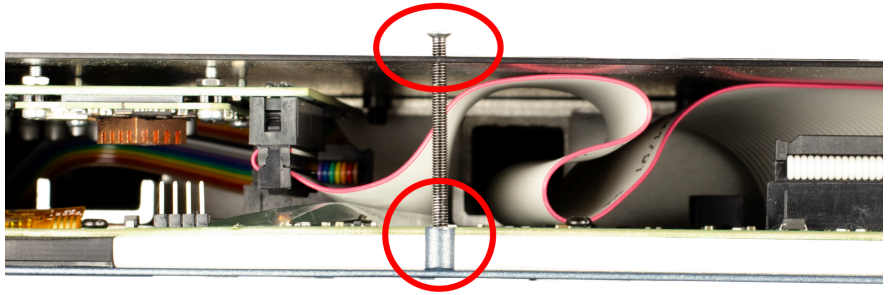
b. Carefully insert the card, making sure the ribbon cable folds up gently. Exercise caution when passing the card and ribbon connector over the display connection and L2 inductor.



6. Adhere the wireless antenna to the inside of the endcap.



7. Replace endcap and secure into place with screws.



   a. The middle screw is long, and it passes through the end cap to attach to a threaded mount on the bottom of the chassis.
   b. Make sure to apply sufficient pressure to the endcap as you seat the screw in the boss.
   c. When just seated in the boss, the screw will be raised roughly 4mm.

EMSC Sample Library

The sample libraries on the EM Pro Sound Card were created in partnership with Soundiron.

Soundiron

Soundiron is a premium developer of virtual instruments and sound libraries. They build industry-leading professional tools for songwriters, composers and musical artists, with a focus on fidelity, realistic detail, and modern sound design. From choirs, solo voices, symphonic and percussion ensembles, to guitars, synths, rare and strange instruments, you'll find a galaxy of creative options. Their instruments bring you brilliant sound, innovative features, unique sonic concepts, and uncompromising quality. Soundiron - Where the world is your orchestra.

Instruments	126
Samples	24,903
Audio Data	24 GB

Adams Alpha Marimba

Nothing looks, or sounds, quite like the Alpha. A revolution when it launched and still an icon today. In cooperation with KesselsGranger DesignWorks a new instrument has been developed that shines on every stage. The high sweeping arc of the resonators, rich wood stain finish, and polished aluminum name plate all merge seamlessly to form a visual and aural statement in modern design.

With Soft, Medium, Hard, and Rubber mallet variations, each of the 61 bars of this Adams Alpha Marimba was recorded with nine velocity layers, each velocity layer with two round robin variations, for a total of 1.8 gigabytes with 4,880 audio samples.

Adams Alpha Series (Concert) Vibraphone

The Adams Alpha series vibraphone combines advanced acoustic engineering with cutting edge design for an instrument that stands apart from the crowd both sonically and aesthetically.

Nothing looks, or sounds, quite like the Alpha. A revolution when it launched and still an icon today. In cooperation with KesselsGranger DesignWorks a new instrument has been developed that shines on every stage. The high sweeping arc of the

resonators, rich wood stain finish, and polished aluminum name plate all merge seamlessly to form a visual and aural statement in modern design.

Tuned to A=442Hz, Soundiron has included Soft, Medium, Hard, and Bowed mallets in this groundbreaking sample library. Each bar recorded with eight velocity layers (ten for the soft mallet), and two round robins per layer, this library clocks in at a massive 4.6 gigabytes with 2,646 audio samples.

Jazz Vibraphone

This historic vintage vibraphone dates back to at least the 1970s and represents the true heritage of Jazz Vibes.

Tuned to A=440Hz, these bars were sampled with Soft, Medium, and Hard mallets, each with nine velocity layers (eleven for the Medium mallets) and two round robins each, for another 4.6 gigabytes with 3,922 individual audio samples.

Survivor Roads

Recorded in Oakland, CA at Survivor Sound studios, this classic electric piano features the famous “Dyno-My-Piano” modification invented by Chuck Monte. This library features two variations: direct (DI), and a stereo mic’d vintage tube amplifier. At a modest 4 velocity layers per key variation, this library contains 1.1 gigabytes with 584 individual samples.

Bells & Chimes

A collection of eleven bells, chimes and similar samples.

Wood, Metal, Plastic

A collection of pitched percussion instruments made of wood, metal and plastic. Xylophones, tongue drums, hand pans, etc.

Percussion

Drum sets and percussion ensembles, including jazz and rock kits that follow General MIDI drum standard mapping, and Soundiron Apocalypse Percussion Ensemble instruments.

Piano & Keys

A collection of sampled piano sounds, from classic to atmospheric. Includes the Survivor Roads instrument.

Organs

A collection of sampled pipe and reed based organ tones including church organ, drawbar organ and melodica.

Brass & Woodwinds

A library of woodwind and brass ensembles and solo brass instruments.

Strings

Solo and ensemble string instruments with a variety of string techniques. These samples come from the Soundiron Hyperion Strings collection.

Vocal

Women’s, boys’ and mixed choir ensembles sampled.

Guitar & Bass

A library of plucked guitar and string bass instruments, including the Soundiron Sitarion Sitar instrument.

Synthesizers

There are 4 categories of virtual instruments sampled from synthesized sounds: Synth Keys, Synth Pad, Synth Lead and Synth Bass. For each of these instruments the vertical fader that by default controls the mod wheel instead controls filter cutoff frequency, and is purple in color.

INSTRUMENT BANK / PROGRAM LIST

Note: these Bank MSB and Program Change values are zero indexed, and index 0 is reserved. Some DAWs and music software may display these values +1 higher than shown below.

Category	Name	Bank MSB	Program Change
Marimba	Soft	1	1
Marimba	Medium	1	2
Marimba	Hard	1	3
Marimba	Rubber	1	4
Vibe Concert	Soft	2	1
Vibe Concert	Medium	2	2
Vibe Concert	Hard	2	3
Vibe Concert	Bow	2	4
Vibe Jazz	Soft	3	1
Vibe Jazz	Medium	3	2
Vibe Jazz	Hard	3	3
Bells & Chimes	Chimes Trinity	4	1
Bells & Chimes	Chimes Orville	4	2
Bells & Chimes	Chimes Lakeside	4	3
Bells & Chimes	Circle Bells	4	4
Bells & Chimes	Noah Bells	4	5
Bells & Chimes	Galaxy Tones	4	6
Bells & Chimes	Chromabells	4	7
Bells & Chimes	Oxygen Bells	4	8
Bells & Chimes	Spiral Tone	4	9
Bells & Chimes	Buzz Plates	4	10
Bells & Chimes	Zuburban Plates	4	11
Wood Metal Plastic	Xylophone Medium	5	1
Wood Metal Plastic	Mellow Xylo	5	2
Wood Metal Plastic	Garage Xylo	5	3
Wood Metal Plastic	LoFi Xylo	5	4

Wood Metal Plastic	Metal Tongue Drum	5	5
Wood Metal Plastic	Whale Drum	5	6
Wood Metal Plastic	Hand Pan	5	7
Wood Metal Plastic	Kalimba	5	8
Wood Metal Plastic	Mbira Duo	5	9
Wood Metal Plastic	Angklung	5	10
Wood Metal Plastic	Music Box	5	11
Wood Metal Plastic	Cylindrum	5	12
Percussion	Drum Kit Jazz	6	1
Percussion	Drum Kit Rock	6	2
Percussion	Drum Kit Metal	6	3
Percussion	Breaker Electro	6	4
Percussion	Antidrum Chaos	6	5
Percussion	Antidrum Toys	6	6
Percussion	APE Ensemble	6	7
Percussion	APE Cymbals	6	8
Percussion	APE Toms	6	9
Percussion	APE Snares	6	10
Percussion	Motor Rhythms Metal	6	11
Percussion	Rust Ensemble	6	12
Percussion	Clack Wood	6	13
Percussion	Bhangra Ensemble	6	14
Piano & Keys	Survivor Roads DI	7	1
Piano & Keys	Survivor Roads Mic	7	2
Piano & Keys	Emotional Grand	7	3
Piano & Keys	Player Piano	7	4
Piano & Keys	Struck Grand	7	5
Piano & Keys	Struck Harmonics	7	6
Piano & Keys	Clavi Twin	7	7
Piano & Keys	Harpsichord	7	8
Organs	Church	8	1

Organs	Rock	8	2
Organs	Wah-Wah Key	8	3
Organs	Drawbar	8	4
Organs	Accordion	8	5
Organs	Melodica	8	6
Brass & Woodwinds	Flute Ensemble	9	1
Brass & Woodwinds	Oboe Ensemble	9	2
Brass & Woodwinds	Clarinet Ensemble	9	3
Brass & Woodwinds	Bassoon Ensemble	9	4
Brass & Woodwinds	Trumpet Solo	9	5
Brass & Woodwinds	Trumpet Vibrato	9	6
Brass & Woodwinds	French Horn Solo	9	7
Brass & Woodwinds	Trombone Solo	9	8
Brass & Woodwinds	Tuba Solo	9	9
Brass & Woodwinds	Hyperion Brass	9	10
Brass & Woodwinds	Brass Staccato	9	11
Strings	Violin Solo	10	1
Strings	Violin Attack	10	2
Strings	Cello Solo	10	3
Strings	Twine Bass	10	4
Strings	Hyperion Ensemble	10	5
Strings	Hyperion Staccato	10	6
Strings	Hyperion Pizzicato	10	7
Strings	Hyperion Tremolo	10	8
Strings	Elysium Harp	10	9
Strings	Elysium Harp Xfade	10	10
Strings	Orchestra Hit Major	10	11
Strings	Orchestra Hit Minor	10	12
Vocal	Olympus SATB	11	1
Vocal	SATB Staccato	11	2
Vocal	Olympus Women's	11	3

Vocal	Women's Staccato	11	4
Vocal	Mercury Boys'	11	5
Vocal	Boys' Staccato	11	6
Guitar & Bass	Acoustic Guitar	12	1
Guitar & Bass	Axe Machina	12	2
Guitar & Bass	Sitarion Sitar	12	3
Guitar & Bass	Bassix Plucked	12	4
Guitar & Bass	Voltage Bass	12	5
Synth Keys	Sine	13	1
Synth Keys	Triangle	13	2
Synth Keys	Warm Organ	13	3
Synth Keys	FM Organ	13	4
Synth Keys	FM Piano	13	5
Synth Keys	Thump Grind	13	6
Synth Keys	Flute	13	7
Synth Keys	Wailing	13	8
Synth Keys	Tricap	13	9
Synth Keys	Destroyer	13	10
Synth Pad	Saw	14	1
Synth Pad	Carpenter	14	2
Synth Pad	Syrup	14	3
Synth Pad	Saturn	14	4
Synth Pad	Overtime	14	5
Synth Pad	Unstable Timeline	14	6
Synth Pad	Warm Shiver	14	7
Synth Lead	FM Bells	15	1
Synth Lead	Brass	15	2
Synth Lead	Chiptune	15	3
Synth Lead	Future Shock	15	4
Synth Lead	Pipe Scream	15	5
Synth Lead	Squares	15	6

Synth Lead	Power	15	7
Synth Lead	Replicant	15	8
Synth Bass	Voyage	16	1
Synth Bass	Funkle	16	2
Synth Bass	Pluck Shadow	16	3
Synth Bass	Swank	16	4
Synth Bass	Chameleon	16	5

MIDI Architecture and Concepts

The malletSTATION EMC controller acts as the central routing hub for all attached MIDI devices, including the EMSC sampler and External USB MIDI Controller port. In general, all external control happens over the two USB and 5 pin DIN MIDI ports.

External Control of EMSC

Refer to the “Sound Card Configuration” screen to assign MIDI channels to the Sound Card Layers, External MIDI Controller, and EMC Preset Prog. Change RX. These MIDI channels define how to route signals to the various destinations available to the EMC.

Controlling the malletSTATION from a DAW

The USB-C Computer (DAW) control port will provide two USB MIDI Ports to a connected host device. The “malletSTATION Pro MIDI 5-pin DIN” is a separate 16 channel port that maps directly to the 5-pin MIDI ports on the malletSTATION. The “malletSTATION Pro Control” port is for communication to the EMC. MIDI messages sent on the channels assigned in the “Sound Card Configuration” screen will be routed to the Sound Card layers, the External USB MIDI Controller, and the preset selection of the EMC.

Changing Presets

It is important to understand the difference between the EMC (malletSTATION) presets, and the EMSC (Sound Card) instruments.

The EMC presets are the 16 presets selectable at the Preset Selection Menu. Sending program changes 1-16 (0-15 if zero indexed) to the EMC on the “EMC Preset Prog. Change RX” channel will recall these presets. Remember that recalling an EMC preset will also load the EMSC instruments assigned to that preset.

The EMSC (Sound Card) Instruments are individually selectable using a combination of Bank Changes (MIDI Control Change #0), and Program Changes. To select an instrument, you must first send the correct Bank Change for its Instrument Category, followed by

the appropriate Program Change. When selecting from different instruments in the same category, you only need to send the Bank Change once. Bank Change LSB (MIDI Control Change #32) is ignored.

MIDI Recording

Bar strikes from the EMC/EMX bars are routed to MIDI Channels and Destinations that are defined in the EMC Preset Zones Menu. Each of the three zones can be assigned to a range of bars, and will output to different combinations of MIDI Channels, Sound Card Layers, and USB/5-pin DIN MIDI.

The first four default EMC presets have a single zone assigned to all bars that controls the first Sound Card Layer, while others presets will split the bars with one zone for each Sound Card Layer, and others will have a single zone controlling both Sound Card Layers. To properly record and play back these advanced setups, special care needs to be taken when assigning MIDI channels and destinations for each zone.

To record MIDI from the External USB Controller, verify the channel assignments in the“Sound Card Configuration” screen.

MIDI Playback

To play MIDI sequences using the EMSC Instrument Layers as a sound module, you should route MIDI Note On/Off and MIDI Control changes to the channels assigned in the “Sound Card Configuration” screen.

MIDI Implementation

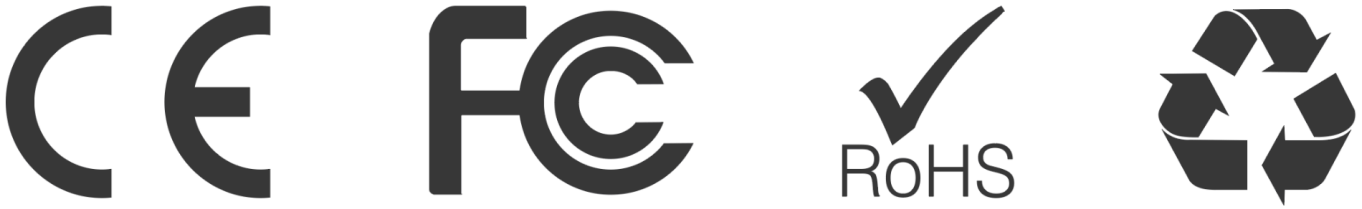
Below is a list of MIDI messages recognized by the malletSTATION EMC and EMSC.

Message type	Function	Value	TX/RX	Notes
Global MIDI Messages (must be sent to the MIDI channel matching Layer 1)				
CC	Headphones Volume	15	RX	
CC	Line Out Volume	17	RX	
CC	Reverb Size/Time	50	RX	
Instrument/Layer MIDI Messages (must be sent to the MIDI channel matching the destination Layer)				
Note On/Off	Voices (0-127)	n/a	RX	
Program Change	Preset Select (1-25)	n/a	RX	Preset 0 is reserved/disabled. Some DAWs may adjust zero-indexed midi values, in which

				case the first preset will be #2
Pitch Bend	Applied to all voices, +/- 2 semitones	14-bit	RX	
CC	Bank select (MSB)	0	RX	Bank 0 is reserved/disabled. Some DAWs may adjust zero-indexed midi values, in which case the first preset will be #2
CC	Vibraphone Motor LFO Speed	1	TX/RX	
CC	Vibraphone Motor LFO Amount	3	TX/RX	
CC	Volume	7	TX/RX	
CC	Pan	10	TX/RX	
CC	Gain (liquidsfz)	14	TX/RX	
CC	Reverb Send	19	TX/RX	
CC	Amp Vel Track	20	TX/RX	
CC	Amp Attack	21	TX/RX	
CC	Amp Hold	22	TX/RX	
CC	Amp Decay	23	TX/RX	
CC	Amp Sustain	24	TX/RX	
CC	Amp Release	25	TX/RX	
CC	Filter Cutoff	31	TX/RX	
CC	Filter Resonance	33	TX/RX	
CC	Filter Key Track	34	TX/RX	

CC	Filter Vel Track	35	TX/RX	
CC	Filter Attack	36	TX/RX	
CC	Filter Hold	37	TX/RX	
CC	Filter Decay	38	TX/RX	
CC	Filter Sustain	39	TX/RX	
CC	Filter Release	40	TX/RX	
CC	Filter Depth	41	TX/RX	
CC	Reverb Dampening (feedback filter)	51	RX	
CC	Reverb Stereo Width	52	RX	
CC	Reverb Input Filter Cutoff	53	RX	
CC	Damper pedal (sustain)	64	RX/TX	Sustain managed by the sampler (not compatible with mallet dampening)
CC	Damper pedal (Internal)	69	RX/TX	Malletstation internal sustain (compatible with mallet dampening)
CC	Panic/All notes off	123	RX	

Precautions



Medical Devices

EM Pro malletSTATION may emit electromagnetic fields. These electromagnetic fields may interfere with pacemakers or other medical devices. If you wear a pacemaker, maintain at least 6 inches (approximately 15cm) of separation between your pacemaker and EM Pro malletSTATION. If you suspect EM Pro malletSTATION is interfering with your pacemaker or any other medical device, stop using EM Pro malletSTATION and consult your physician for information specific to your medical device.

Medical Conditions

If you have any medical condition that you believe could be affected by EM Pro malletSTATION (for example, seizures, blackouts, eyestrain, or headaches), consult with your physician prior to using EM Pro malletSTATION.

Explosive Atmospheres

Do not use EM Pro malletSTATION in any area with a potentially explosive atmosphere, such as a fueling area, or in areas where the air contains chemicals or particles (such as grain, dust, or metal powders). Obey all signs and instructions.

Repetitive Motion

When you perform repetitive activities (such as hitting the EM Pro malletSTATION with sticks), you may experience occasional discomfort in your hands, arms, wrists, shoulders, neck, or other parts of your body. If you experience discomfort, stop using EM Pro EM Pro malletSTATION and consult a physician.

High-Consequence Activities

EM Pro malletSTATION is not intended for use where the failure of the device could lead to death, personal injury, or severe environmental damage.

Choking Hazard

Some EM Pro malletSTATION accessories may present a choking hazard to small children. Keep these accessories away from small children.