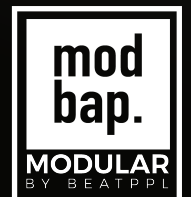
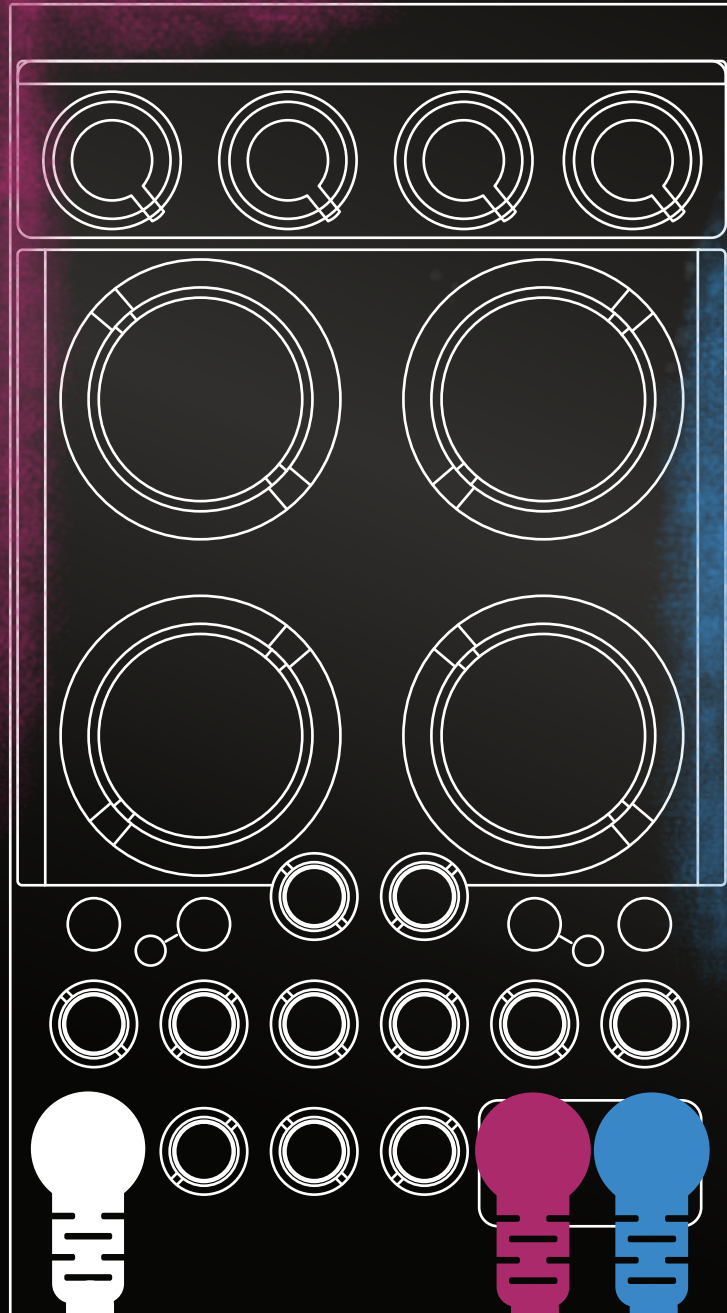

PER4MER

QUAD PERFORMANCE FX UNIT







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About Us

MODBAP MODULAR BY BEATPPL

Modbap Modular is a line of eurorack modular synthesizers and electronic music instruments by Beatppl. Founded by Corry Banks (Bboytech), Modbap Modular was born of the Modbap Movement with a simple mission to dev tools for beat driven hiphop leaning modular artists. It is our goal to develop eurorack modules from the beatmaker's perspective while adding value for music makers of all genres.

It's almost impossible to explain Modbap Modular without answering the questions; "So, what is ModBap?" MODBAP is the fusion of modular synthesis and boom-bap (or any form of hiphop) music production. The term was created by BBoyTech as a denotation of his experiments with modular synthesis and boombap music production. From that point forward, a movement was born where like minded creatives built a community around idea of Modbap. Modbap Modular is in effect, the result of that movement in a space where we'd previously not existed.

**BUILT FOR EURORACK
DOPE ENOUGH FOR BOOMBAP!**

www.modbap.com





Overview

PER4MER

Per4mer is a quad performance FX module consisting of delay, reverb, glitch and tape stop effects triggered by the four dedicated arcade buttons which can be manually operated or triggered from external gate inputs. Each effect has a set of FX parameters that can be controlled using the four rotary knobs or by the CV inputs. Compression and a color processing effect with multiple presets are featured along with sidechain and tap tempo options. External sidechain and clock can be connected to interface with other gear. Per4mer packs a punch in a 14HP stereo FX eurorack module form and is inspired by beatmaker/DJ performance styles. Per4mer makes quick, fun, and easy work of engaging and performing with smooth no click action arcade buttons.

WHAT'S IN THE BOX?

The Per4mer package comes with the following items included:-

- Per4mer module.
- Eurorack IDC power ribbon cable
- 4 x 3m mounting screws.
- Quick reference guide.
- Sticker.

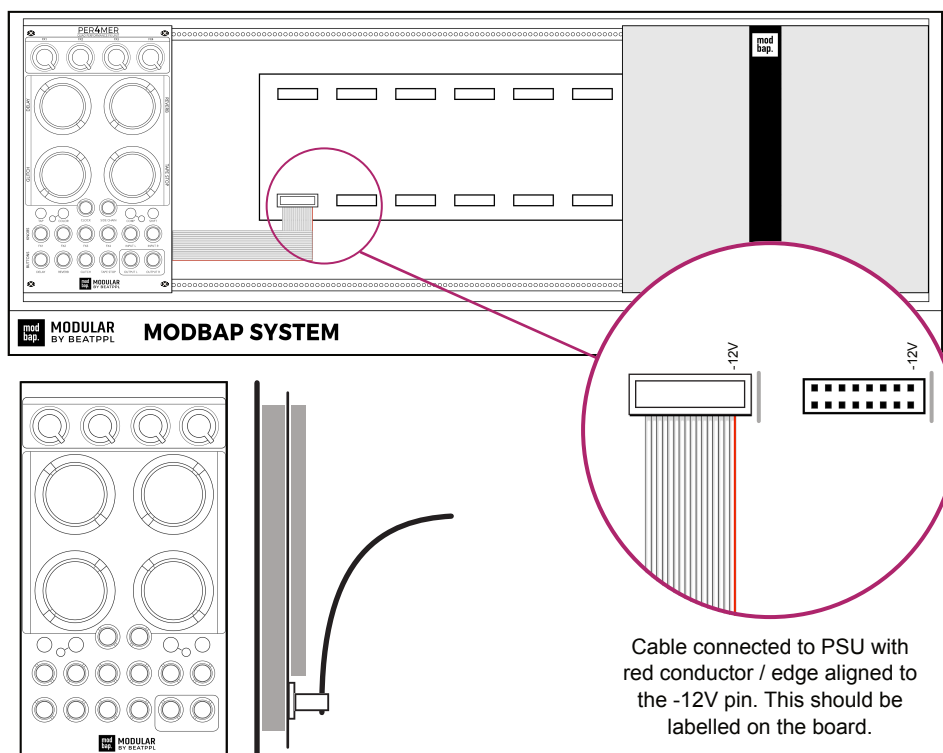
SPECIFICATION AND CORE FEATURES

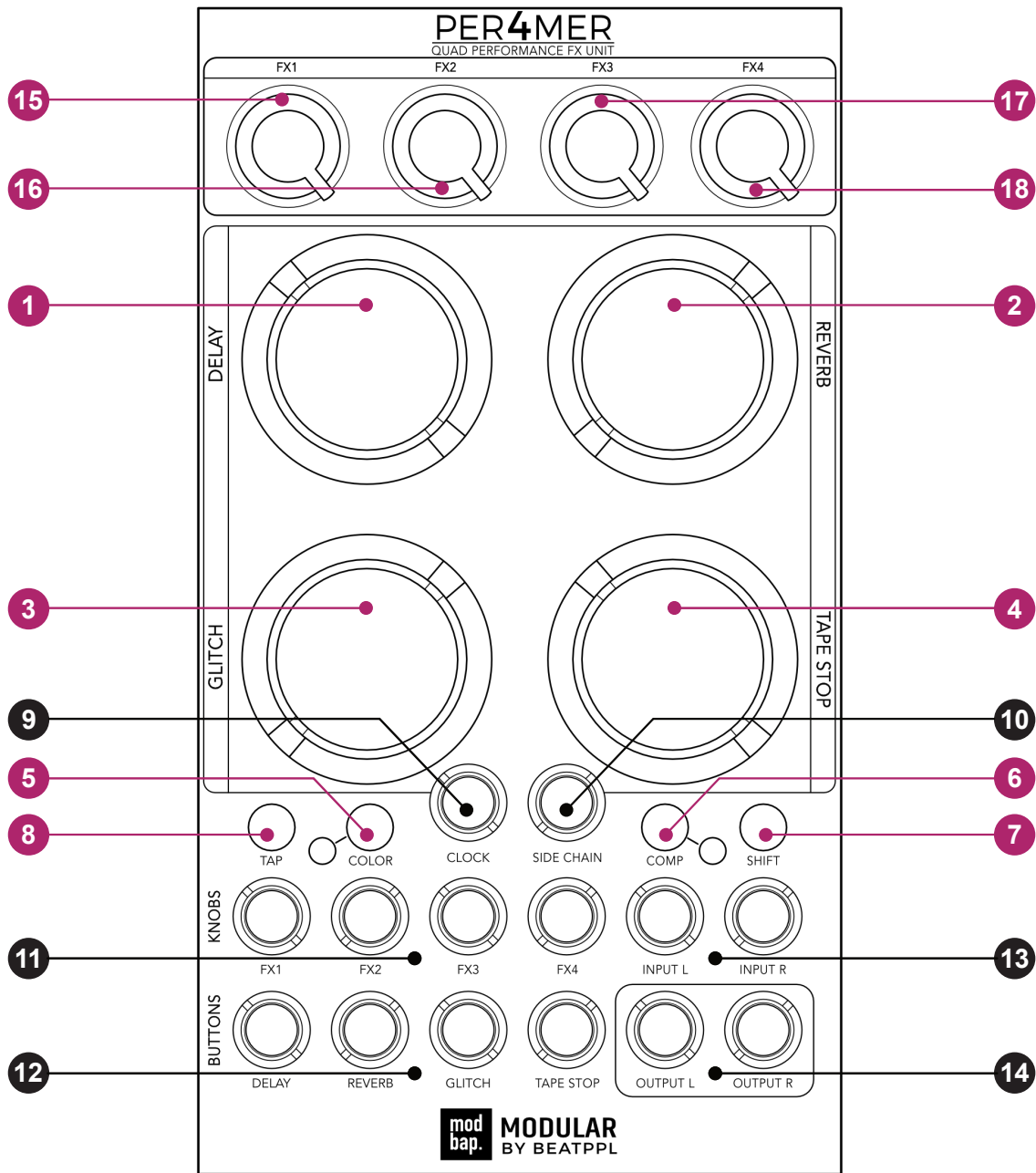
- Module size. 3U, 14 HP, Depth 25mm
- +12V current demand 50mA.
- -12V current demand 50mA
- +5V current demand 0mA
- 4 Arcade buttons rated at 10 million presses.
- 4 knobs
- 4 performance effects (delay, reverb, glitch and tape stop)
- 2 processing effects (compression and color)
- 8 fixed color presets (classic, lofi, saturation, wax1, wax2, HP Fixed, LP Fixed, white noise plus adjustable dry/wet mix control)
- Side chain input
- Tap tempo
- CV control over the FX knobs included CV targeting to performance effects
- Gate inputs for triggering and engaging the arcade FX buttons
- Reverse polarity protection on the power input.

INSTALLATION

Follow the installation instructions carefully to avoid module or rack damage.

1. Ensure the power connection is disconnected before installing the device.
2. Identify a location in the rack to install the module. This needs 14HP of free space.
3. Connect the 10 pin connector from the IDC ribbon power cable to the header on the rear side of the module. Ensure that the pins are aligned correctly with the red stripe on the ribbon conductor closest to the -12V pin on the header.
4. Insert the cable through the rack and connect the 16 pin side of the IDC ribbon cable to the rack power supply header. Ensure that the pins are aligned correctly with the red stripe on the ribbon conductor closest to the -12V pin on the header.
5. Mount and position the module into the dedicated rack position.
6. Attach the 4 x M3 screws by screwing into the 4 locator holes and the rack mount. Do not over tighten.
7. Power up the rack and observe the module start up.





Press or Turn

Plug and Patch



- 1 Delay performance effect selection arcade activation button.
- 2 Reverb performance effect selection arcade activation button.
- 3 Glitch performance effect selection arcade activation button.
- 4 Tape stop performance effect selection arcade activation button.

- 5 Color selection button. Eight fixed presets with LED selection indicator.
- 6 Compressor selection button.
- 7 Shift button. Access to secondary functions.
- 8 Tap tempo button. Tap several times to register an internal tempo BPM.

- 9 Clock input. External clock
- 10 Sidechain CV input for the compressor.

- 11 CV Inputs. Control the FX by CV Targeting which locks the CV input to the effect.
- 12 Gate Inputs. Activates each of the performance effects.
- 13 Audio Left / Right Inputs. Eurorack or line level.
- 14 Audio Left / Right Outputs. Eurorack or line level.

- 15 FX1 - Function is dependant on the selected performance effect.
- 16 FX2 - Function is dependant on the selected performance effect.
- 17 FX3- Function is dependant on the selected performance effect.
- 18 FX4 - Function is dependant on the selected performance effect.

PERFORMANCE EFFECTS

DELAY

1

FX1 - Wet / Dry	FX2 - Time	FX3 - Feedback	FX4 - Filter Cutoff
Mix between the original dry signal and the effect when delay mode is active.	Adjusts the delay time when delay mode is active.	Adjusts the delay feedback amount when delay is active.	Feedback delay. Low pass filter left of rotary (0-50%) and high pass on the right of rotary (>50%)
SHIFT + FX1 - Attack Adjusts the attack time of the delay envelope between 5ms - 5sec	SHIFT + FX2 - Release Adjusts the release time of the delay envelope between 5ms - 5sec		

REVERB

2

FX1 - Wet / Dry	FX2 - Time	FX3 - Decay	FX4 - Pre-delay
Mix between the original dry signal and the effect when reverb mode is active.	Adjusts the reverb time when reverb mode is active.	Adjusts the reverb decay time when reverb is active.	Adjusts the reverb pre-delay time when reverb is active.
SHIFT + FX1 - Attack Adjusts the attack time of the reverb envelope between 5ms - 5sec	SHIFT + FX2 - Release Adjusts the release time of the reverb envelope between 5ms - 5sec		

GLITCH

3

FX1 - Wet / Dry	FX2 - Size	FX3 - Pitch	FX4 - Reverse
Mix between the original dry signal and the effect when glitch mode is active.	Adjusts the time division of the repeated slice when glitch mode is active.	Adjusts the pitch +/- 2 octaves, centre neutral when in glitch mode.	Changes between forward (normal) - rotary position <50% and reversed audio - rotary position >50%.
SHIFT + FX1 - Attack Adjusts the attack time of the glitch envelope between 5ms - 5sec	SHIFT + FX2 - Release Adjusts the release time of the glitch envelope between 5ms - 5sec		

TAPE STOP

4

FX1 - Wet / Dry	FX2 - Time	FX3 - Slope	FX4 - Filter
Mix between the original dry signal and the effect when tape stop mode is active.	Adjusts the tape speed and pitch rate when tape stop is active. Max 5 Sec.	Adjusts the shape of the tape stop curve. Sweeps from exponential to cubic.	Adjusts the low pass filter cutoff frequency for tape stop.
SHIFT + FX1 - Attack Adjusts the attack time of the tape stop envelope between 5ms - 5sec	SHIFT + FX2 - Release Adjusts the release time of the tape stop envelope between 5ms - 5sec		

PROCESSING EFFECTS

COLOR

5

Press COLOR to select on and off and SHIFT + COLOR to cycle presets.

Classic	LoFi	Saturation	Wax 1
<p>Classic mode. Classic 12-bit reduction, 16kHz sample rate.</p> <p>Purple LED indicator</p>	<p>LoFi Mode. Dirty 8-bit reduction, 6kHz sample rate.</p> <p>Teal LED indicator</p>	<p>Saturation. Introduces soft clipping and rolls off highs to create warmth. Adds punch and mid-low boost.</p> <p>Orange LED indicator</p>	<p>Wax. Adds noise, clicks, warble and hiss and delivers a dusty vibe reminiscent of vinyl.</p> <p>Blue LED indicator</p>
Wax 2	HP Fixed	LP Fixed	White Noise
<p>Wax. A more subtle noise, clicks, prominent warble and hiss.</p> <p>Pink LED indicator</p>	<p>HP Fixed. A fixed 500Hz cutoff high pass filter.</p> <p>Green LED indicator</p>	<p>LP Fixed. A fixed 500Hz cutoff low pass filter.</p> <p>Red LED indicator</p>	<p>White Noise. Adds white noise into the audio path.</p> <p>White LED indicator</p>
COLOR + FX1 - Color Mix			
<p>Mix (dry/wet) adjustment for the color effect. Wet - Fully clockwise 100%, Dry - Fully counter clockwise 100%</p>			

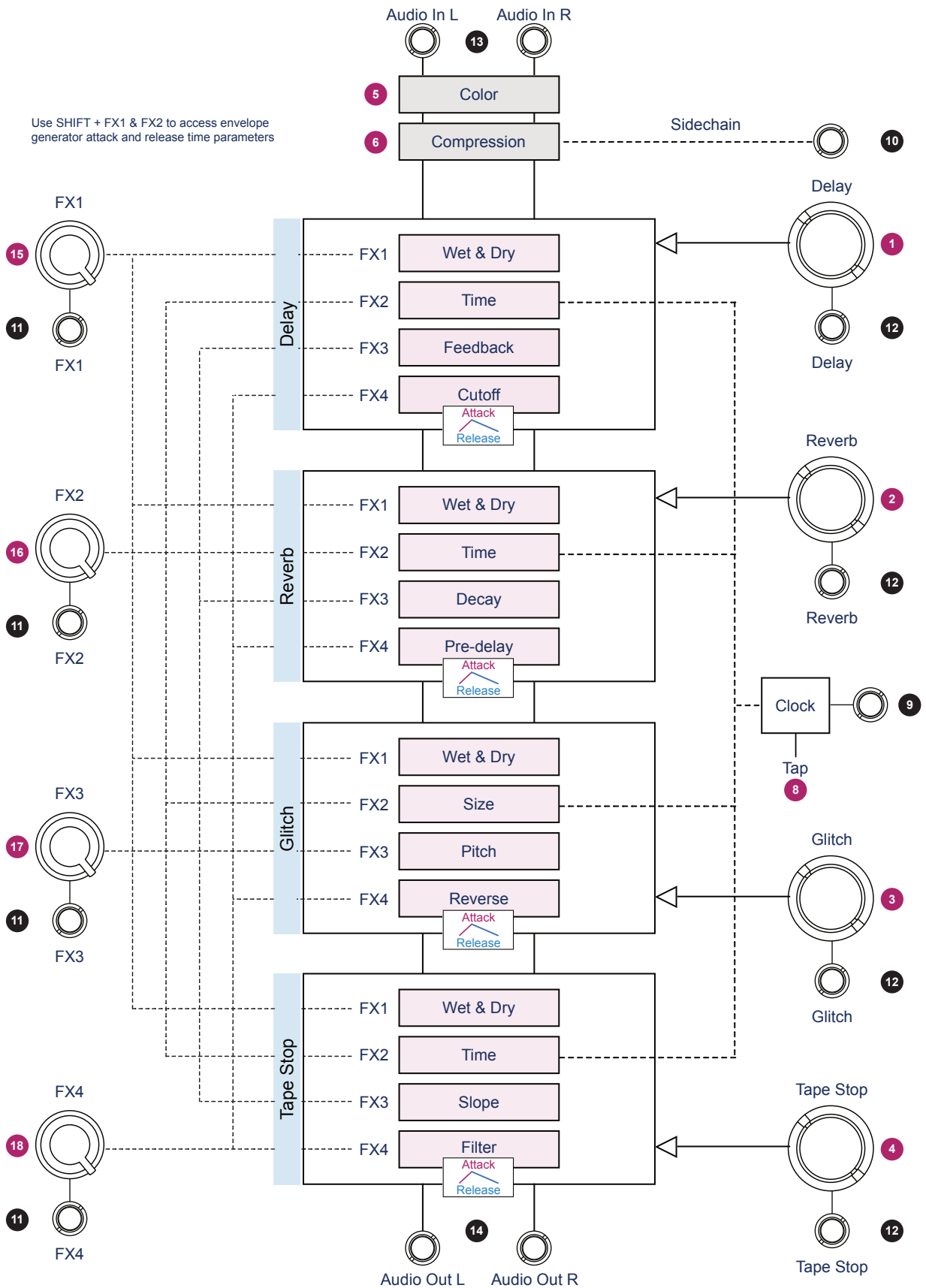
COMPRESSOR

6

Press COMP + Turn the FX rotary for the desired setting. SHIFT + COMP for sidechain input

FX1 - Threshold	FX2 - Ratio	FX3 - Attack Time	FX4 - Release Time
<p>Compressor threshold level when in compressor mode.</p>	<p>Sets the compressor ratio 2:1, 3:1, 4:1, 8:1 12:1 when in compressor mode.</p>	<p>Adjusts the compressor attack time.</p>	<p>Adjusts the compressor release time.</p>
SHIFT + COMP + FX1 - Make Up Gain			
<p>Adjust the compressor make up gain level by holding Shift + Comp + Turn FX1.</p>			

Save / Load	Factory Reset	CV Targeting	FX Mix Mode
<p>Press Shift + Tap. This will save the current configuration. Hold (> 2 seconds) Shift + Tap to reload the previously saved configuration.</p>	<p>Hold (> 2 seconds) Tap + Color + Comp + Shift. This will reset Per4mer to the factory defaults.</p>	<p>Keep hold of Shift + Color. Press the arcade button to select (lit) or deselect (unlit) for targeting. The CV input will be 'locked' to the performance effect FX targeted.</p>	<p>Hold (>2 seconds) Shift + Comp to enter / exit mix mode. This will allow the four FX controls to operate as a Dry/Wet mix controls for the performance effects.</p>



INPUT / OUTPUT ASSIGNMENT

CV and Gate are applied to the FX controls and the performance effect buttons respectively. Dual mono audio inputs and outputs are provided which can accept Eurorack and line level audio signals.

	Delay	Reverb	Glitch	Tape Stop
Gate	>1V	>1V	>1V	>1V
	FX1	FX2	FX3	FX4
CV	+/-5V	+/-5V	+/-5V	+/-5V

Each FX Knob is assigned the specific parameter of the last selected effect. The CV targeting can be locked to an effect by holding Shift + Color and pressing the desired effect arcade button.

	Audio L	Audio R
Input	Mono *	Mono
Output	Mono	Mono

* A single input connected to the left channel will normalise audio to the right input.



Manual Control

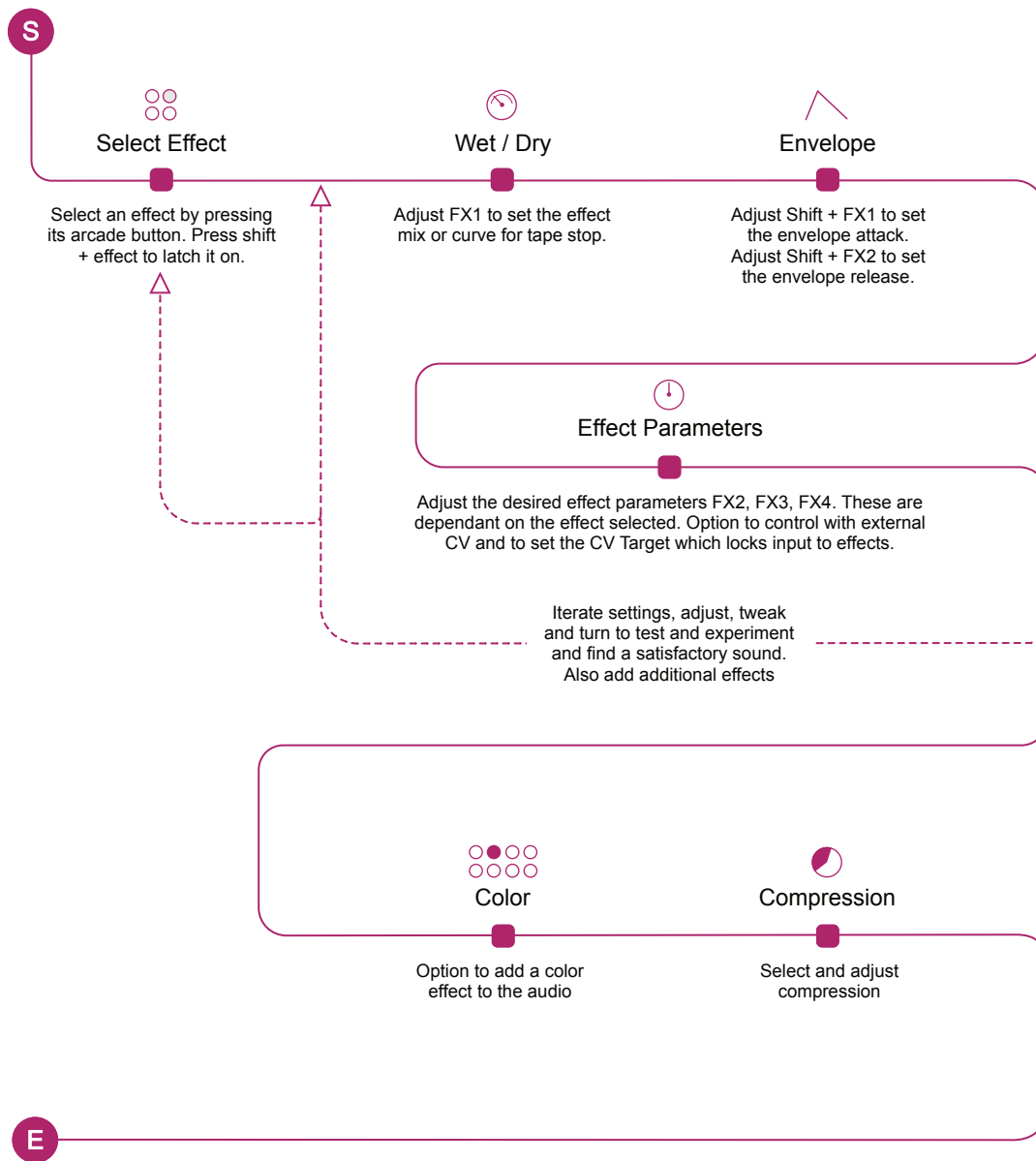
PER4MER

Per4mer has four performance effects which can be engaged individually or simultaneously using the large front panel arcade buttons. Four rotary knobs, FX1 - FX4 provide control over each of the four performance effects parameters. The parameter set is unique to each effect and are applied to the knobs based on the last effect selected. The design is aimed at live performance and improvisation with endless and unique on the fly sounds and rhythmic dynamics. Audio inputs and outputs are provided as mono connections paired for stereo. Per4mer not only delivers a series of great effects and sound design possibilities, but it also brings the creative, classic and well served techniques used by beat makers and DJs to be applied in the world of eurorack modular especially using the manual control options.

GETTING STARTED

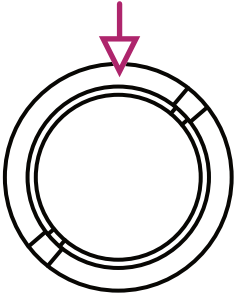
The basic principle of Per4mer is to feed in an audio input and to trigger on-the-fly effects, bringing DJ style live improvisation to a modular environment. Effects can be triggered simultaneously or individually where an inspiring effect palette combines to generate unique creative beats and melodies.

Basic Operation Workflow



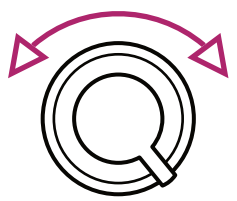
Basic Operation.

Performance effect arcade buttons.



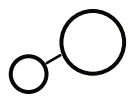
- PRESS - Trigger the effect momentarily.
- HOLD - Trigger the effect continuously.
- SHIFT + PRESS - Latch the effect on / off.
- Trigger can be applied using an external gate.

Performance / Processing FX controls.



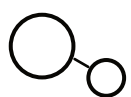
- TURN - Adjust a selected effects primary parameter.
- SHIFT + TURN - Adjust the secondary parameter.
- Control can be applied using an external CV.

Color processing effects



- PRESS - Color on (LED on), off (LED Off).
- SHIFT + PRESS - Cycle through multiple color presets.
- COLOR + FX1 for Dry / Wet Mix.

Compressor processing effects



- PRESS - Compressor on (LED on), off (LED Off).
- SHIFT + PRESS - Cycle the sidechain input options.
- HOLD + TURN FX to adjust compressor settings.
- SHIFT + COMP + FX1 - Make Up Gain

General buttons

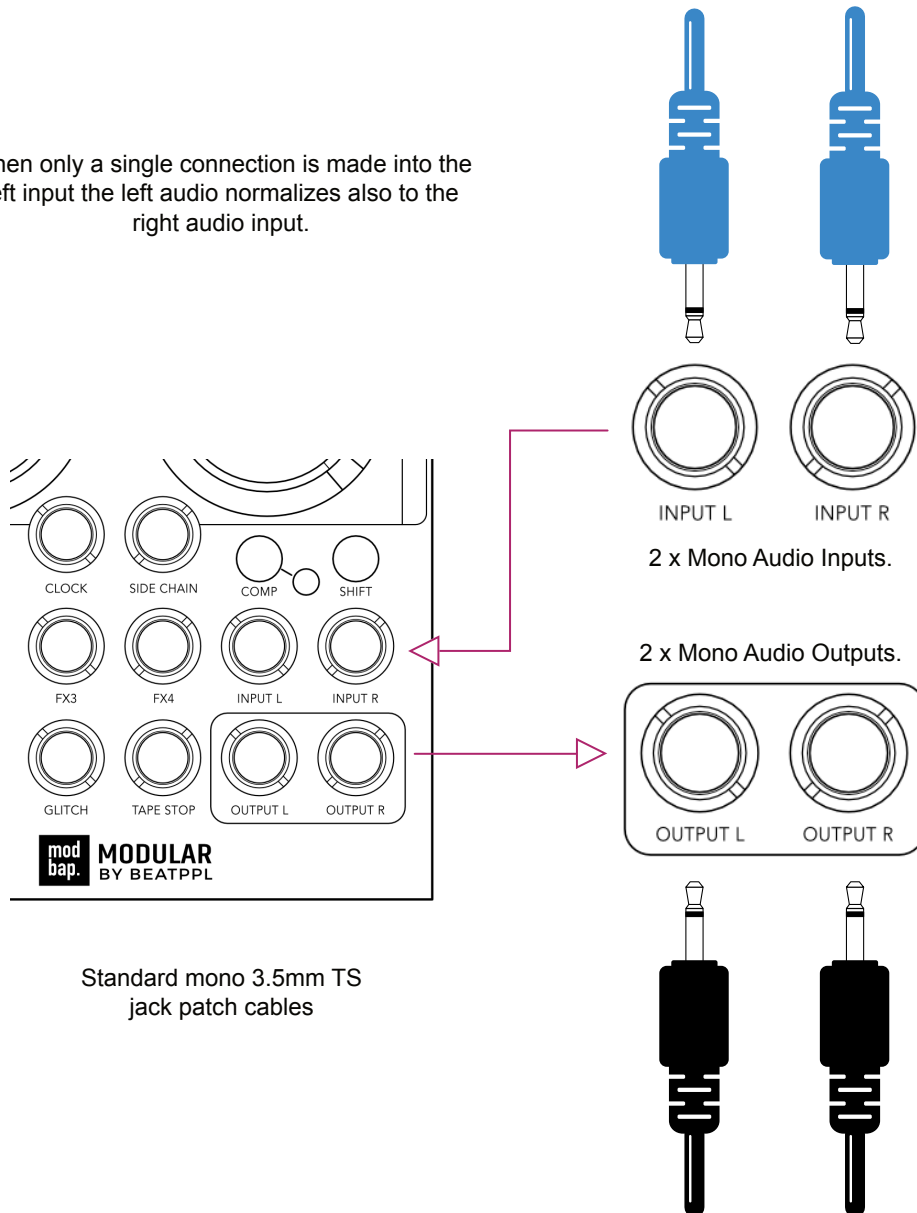


- Tap button. Tap (twice minimum) to set a BPM.
- Shift Button. Hold along with another button for secondary options.

AUDIO INPUTS AND OUTPUTS

Per4mer has stereo functionality provided by 2 mono audio inputs which are the source for the left and right audio signal to be processed. The processed signal is fed to the audio left and right outputs. Both input and output connections take 3.5mm / 1/8th Inch TS (Tip & Sleeve) audio jack plugs.

When only a single connection is made into the left input the left audio normalizes also to the right audio input.

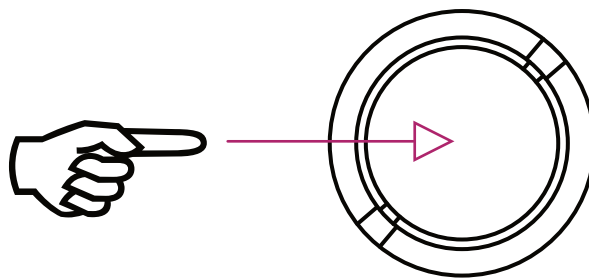


Standard mono 3.5mm TS jack patch cables

Note: Per4mer operates with both Line or Eurorack Level audio signals

TRIGGERING ONE OR MORE PERFORMANCE EFFECTS

1. Connect the audio inputs of the audio to process. If using only a single input is connected to the left channel, audio will also normalize to the right input for stereo processing. Inputs are typically from another module which acts as the sound source.
2. Connect the audio outputs to the next module audio inputs or to an audio amplifier or speaker.
3. Tap or hold one or more performance effect arcade buttons to trigger its effect. These are momentary triggers and the effect is released when the button is released.
4. Hold Shift + Press the performance arcade button to latch the effect to on. Press the arcade button again to release.

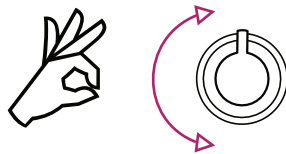


SETTING THE DEVICE TEMPO

1. Tap the 'tap' tempo button several times (> 2 taps) to set an internal Per4mer BPM at the tapped rate.
2. The color button LED will flash as a visual indicator of the tempo set.
3. If an external clock is connected it will override the manual setting although tap tempo can be momentarily applied to change BPM as an effect.

ADJUSTING A PERFORMANCE EFFECT PARAMETER MANUALLY

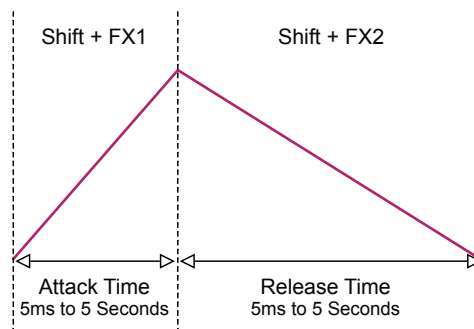
1. Press an arcade button to trigger the effect. The FX controls are assigned to the last effect applied whether still active or not.
2. Turn the desired effect FX1 - FX4 to adjust the desired parameter. FX1 to FX4 are context sensitive meaning that a specific parameter set is assigned to each effect. Therefore the dedicated parameters for the effect are assigned to FX1-FX4 when each effect is selected. CV Control (if applied) will also affect the parameter.
3. To reselect a latched effect to be in focus for parameter adjustment without unlatching it, Press Shift + Press the desired effect arcade button.



ADJUSTING A PERFORMANCE EFFECT ENVELOPE

1. Press an arcade button for the effect to adjust. The FX controls are assigned to the last effect applied whether still active or not
2. Hold Shift + Turn FX1 to adjust the selected effect envelope attack time.
3. Hold Shift + Turn FX2 to adjust the selected effect envelope release time.

Performance Effect Envelopes



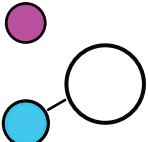
SETTING THE COLOR PROCESSING EFFECT

1. Press the color button to select the effect to ON (LED illuminated) or OFF (LED is off). The previously selected effect will be selected when switching it on.
2. Shift + Press the color button to cycle through and to select one of the eight available presets. The selected preset is identified by the LED color.
3. The effect is off when the LED is unlit. The Color LED will also flash at the BPM rate of the clock or manually set tempo.
4. To adjust the dry / wet mix of the color effect, hold Color + turn FX1

Off - LED off.



Purple - Classic



Color control. Tap to set on / off.

Teal - LoFi.

Color preset. Shift + Color to select.

Orange - Saturation



Blue - Wax 1



Pink - Wax 2



Green - HP Fixed Filter



Red - LP Fixed Filter



White - White Noise



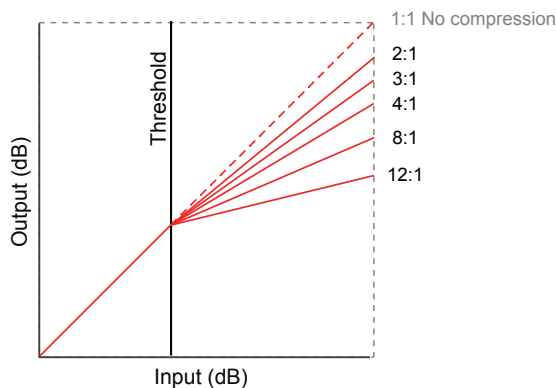
Flashes in time with tempo



SELECTING THE COMPRESSOR PROCESSING EFFECT

1. Press the comp button to select compression ON (LED illuminated) or OFF (LED is off).
2. To adjust a compressor setting hold Comp + turn the FX control FX1 - FX4
 - FX1 - Threshold
 - FX2 - Ratio
 - FX3 - Attack time of compressor
 - FX4 - Release time of compressor
3. To adjust the compressor make up gain hold Shift + Comp + turn FX1.
4. A typical workflow when setting the compressor is to start with a low ratio setting then reduce the threshold to enable the compressor to kick in. Iterate small parameter adjustments along with attack and release and increase ratio to find a desirable setting. Adjust the make up gain to restore the adequate overall level after compression is applied. Adjustments to the sidechain ducking can be made with the envelope attack and release.

Compression Settings



FX2 Compression ratio options are 2:1, 3:1, 4:1, 8:1, 12:1

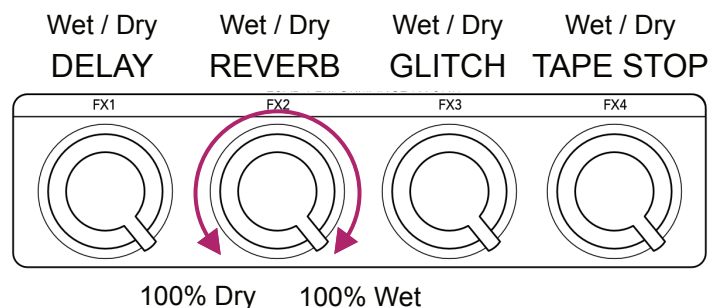
USING THE MIX MODE

Mix Mode gives the performer an alternative way to control effects by dialling in as much or as little of each effect as desired. Used in combination with latching and momentarily engaging the effects buttons, Mix Mode allows an entirely different way to interact with the performance effects.

Mix Mode presents the FX knobs as four wet/dry controls (one for each effect) accessible in one 'page'. Arcade buttons still need to be engaged either momentarily or latched at which point they will be illuminated brighter to indicate that the effect is engaged.

Effect parameters that are set to outside of Mix Mode will remain unchanged in Mix Mode with the exception of wet/dry. The wet/dry for each effect can be controlled within mix mode collectively, also individually out of Mix Mode.

1. Hold Shift + Comp for 2 seconds to switch the four FX controls into Mix Mode. Arcade buttons will be dimly lit to indicate Mix Mode.
2. Adjust the control FX1 - FX4 for Dry / Wet of each selected performance effect
 - FX1 - Delay
 - FX2 - Reverb
 - FX3 - Glitch
 - FX4 - Tape Stop
3. Fully counter clockwise (7 O'clock) will be the fully dry signal. Turned fully clockwise (5 O'clock) will be 100% wet, i.e. the fully effected signal. This will be heard on triggered or latched effects.
4. To exit Mix Mode the effects arcade buttons must be disengaged. Once all arcade buttons are disengaged (dimly lit) hold Shift + Comp for 2 seconds again to exit Mix Mode.



SAVING AND LOADING A PRESET STATE

1. The current parameter settings can be saved for later recall. These include;
 - FX Controls and mix levels.
 - Envelope settings.
 - CV targeting.
 - Compressor state.
 - Compressor parameters.
 - Sidechain input selected.
 - Color state.
 - Color mode.
2. To Save, press Shift + Tap. This will save current state.
3. To Reload, hold Shift + Tap for more than 2 seconds. This will reload the previously saved configuration.

FACTORY RESET

1. This resets the parameters to a factory default state
2. Hold Tap + Color + Comp + Shift for longer than 2 seconds.
3. The buttons will flash.
4. Per4mer will reset to the original default settings.

CONTROL QUICK REFERENCE

Function	Action	Command
Performance effect	Manual Trigger	Press Arcade Button for Delay, reverb, glitch, tape stop
Performance effect	Latch Trigger	Shift + Press Arcade Button
Performance effect	Delay parameters	FX-1 Wet/Dry, FX2 - Delay Time, FX3 - Feedback, FX4 - Filter Cutoff
Performance effect	Reverb parameters	FX-1 Wet/Dry, FX2 - Reverb Time, FX3 - decay, FX4 - Pre-delay
Performance effect	Glitch parameters	FX-1 Wet/Dry, FX2 - Size, FX3 - Pitch (+/-2 Oct), FX4 - Low Pass Filter.
Performance effect	Tape Stop params	FX-1 Wet/Dry, FX2 - Time, FX3 - Slope / Curve, FX4 - Pre-delay
Performance effect	CV Targeting	Keep held Shift + Color + Press Arcade button to select / deselect the target effect for the CV inputs.
Performance effect	FX adjustment	Adjust FX1 - FX2 for desired effect parameter. Changes the parameter of the last selected / targeted effect.
Performance effect	Envelope	Shift + FX1 (Attack) or Shift + FX2 (Release)
Tempo	Tap Tempo	Press Tap for >3 taps to set manual tempo BPM
Color	On/Off	Press Color Button
Color	Change Preset	Press Shift + Color to cycle presets
Color	Dry / Wet Mix	Color + Turn FX1
Compressor	On/Off	Press Comp Button
Compressor	Sidechain Input	Shift + Comp to cycle the sidechain input options
Compressor	Parameters	Hold Comp + Turn FX1 - FX4
Compressor	Make Up Gain	Shift + Comp + Turn FX1
Mix Mode	On/Off	Hold Shift + Comp (>2 Sec). FX1 - FX4 now represent all the dry / wet mix for all of the delay, reverb, glitch and tape stop effects.
Save	Current Config	Shift + Tap to save current configuration
Reload	Saved Config	Hold Shift + Tap (> 2 Sec) to restore saved config
Factory reset	Restore Original	Hold Tap + Color + Comp + Shift (>2 Sec)



4

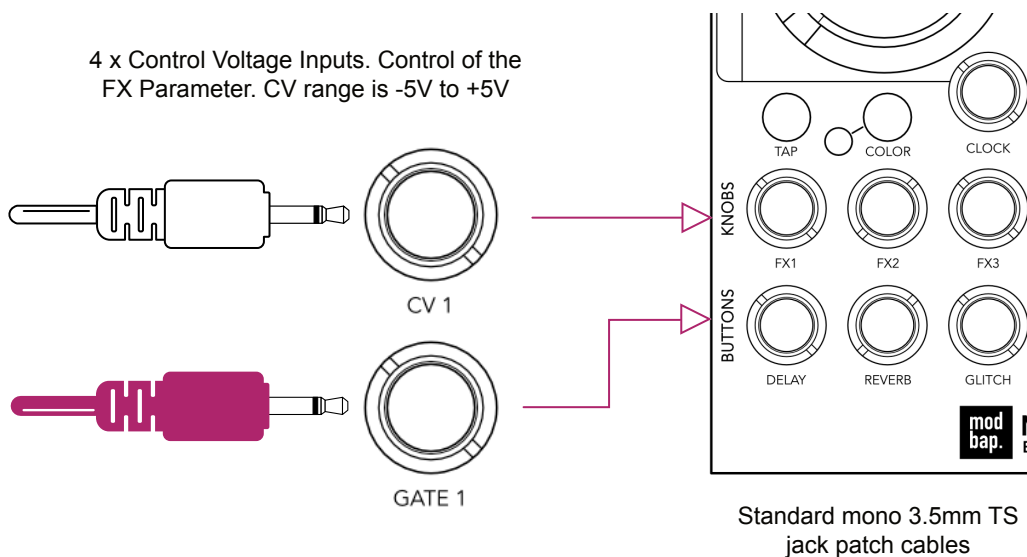
External Control

PER4MER

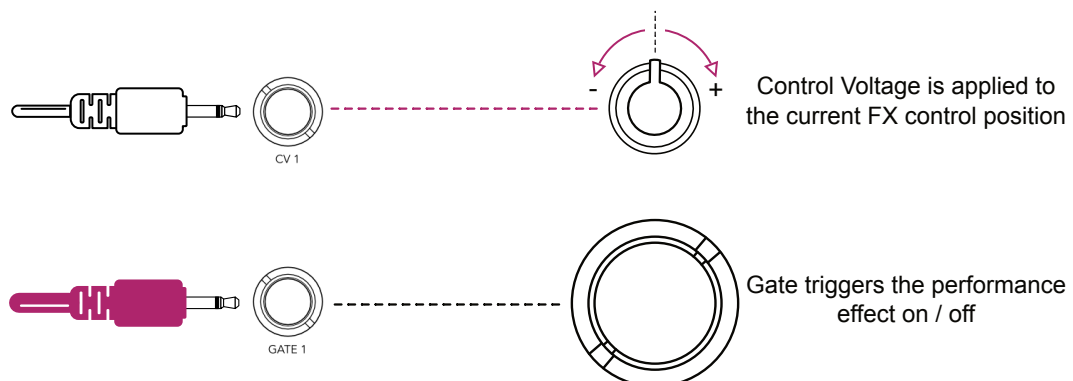
All four effect arcade buttons and the associated FX controls can be controlled with the gate and CV control inputs respectively. Also an external clock can be connected as well as an external sidechain input to control the compressor. Adding modulation control over the Per4mer effects brings even more creativity and automated control to almost all of its features inspiring new ideas and experimentation. CV Inputs can be CV targeted to selected effects, locking the input control to the selected effect and providing direct CV control.

CONTROL INPUTS

Per4mer provides voltage control over the FX rotary controls using the CV inputs. These will control the selected FX and associated parameters. Gate inputs allow other modular and external gear to control the four performance effect buttons, triggering the effects on and off. Input connections are 3.5mm / 1/8th Inch TS (Tip & Sleeve) jack plugs.



4 x Gate Inputs. Representing performance effect buttons. Gates are triggered above 1V

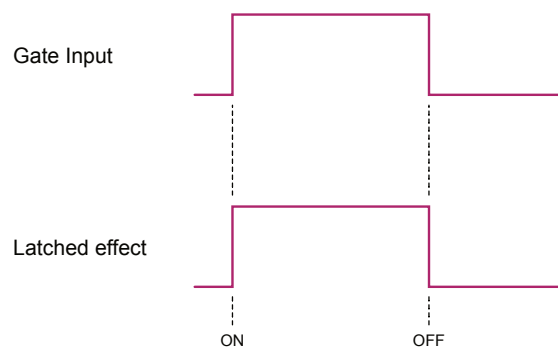


CONNECTING AN EXTERNAL CLOCK

1. Connect an external clock to the clock input. Per4mer will pick up on the external tempo BPM.
2. The internally set tempo is overridden by the external clock when connected.
3. Tap tempo can still be applied for momentary BPM effects.

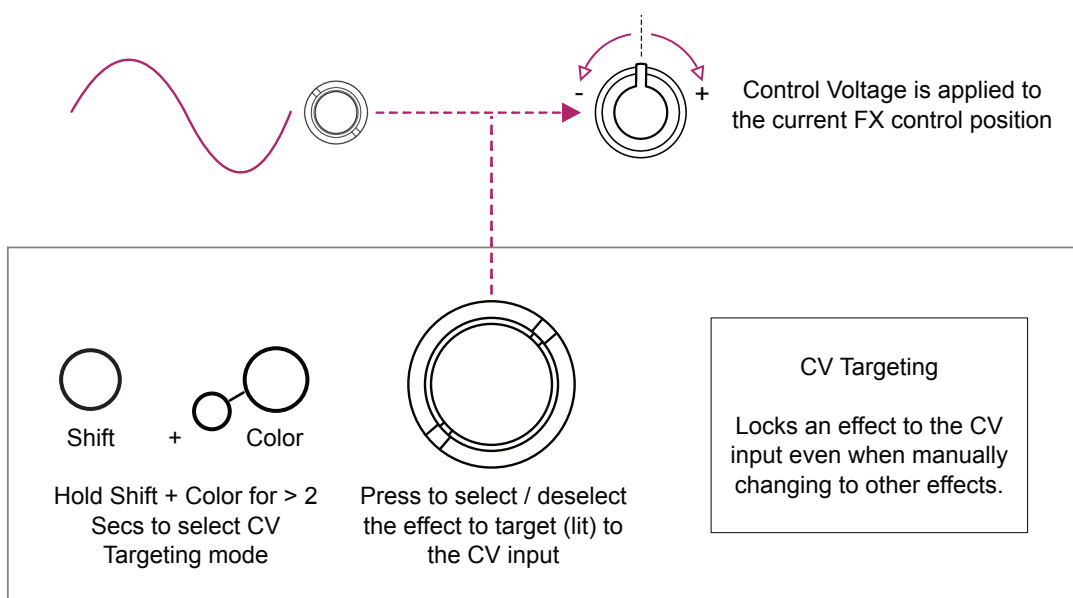
GATE TRIGGERING ONE OR MORE PERFORMANCE EFFECTS

1. Connect a gate input to trigger the associated performance effect. This can be triggered by another modulation device such as a clock or sequencer.
 - Delay gate 1 will trigger the delay effect
 - Reverb gate 2 will trigger the reverb effect
 - Glitch gate 3 will trigger the glitch effect
 - Tape Stop gate 4 will trigger the tape stop effect.
2. A gate level above 1V input will latch the arcade button performance effect to on and will switch off when the gate falls below the 1V threshold.



CONTROLLING A PERFORMANCE EFFECT PARAMETER BY CV

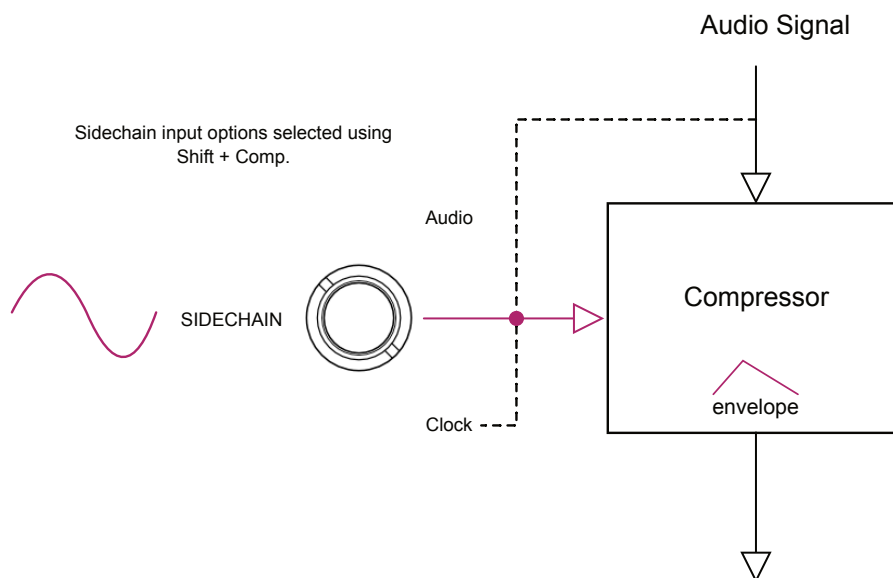
1. Connect a CV control from a modulation source to the respective CV input to control.
 - FX1 - CV1 will control FX1
 - FX2 - CV2 will control FX2
 - FX3 - CV3 will control FX3
 - FX4 - CV4 will control FX4
2. Hold Shift + Color for 2 seconds and keep held throughout. This will activate CV targeting for the arcade buttons which locks the CV input to the targeted arcade button effect parameters. The targeted arcade buttons will show lit when CV Targeted to the inputs while effects which are not controlled by CV will have unlit arcade buttons.
3. With Shift + Color still held, press the arcade buttons select (lit) or deselect (unlit). The buttons represent each effect and when on (lit) will lock the FX parameters to the CV input. In this mode manually changing between arcade effects does not change the assigned CV controls when CV target locked. Press a lit arcade button to unlock the effect CV control.
4. Release the Shift + Color buttons when complete to exit.
5. The control will be applied to the FX setting using a +/- 5V CV input.



SETTING UP THE COMPRESSOR SIDECHAIN

Side chain is applied into the compressor audio engine to create a ducking / pumping modulation effect into the audio path. It can be driven by a number of sources.

1. Press Shift + Comp button to cycle the side chain source options. The sidechain sources available are:-
 - Audio input - White Comp LED
 - Sidechain CV Input - Teal Comp LED
 - Clock Input - Purple Comp LED
2. If using the dedicated external sidechain CV input, connect a modulation source to the sidechain input. This will be used to drive the compressor and offers more dynamic options.
3. Select audio as the sidechain source to use the audio input to drive the compression.
4. Any external clock connected to the clock input can also be selected to drive the compression. This is used where a more digital / cyclic control of the compressor is required.
5. Changing the compressor envelope attack (FX3) and release (FX4), the strength / depth of sidechain ducking can be adjusted





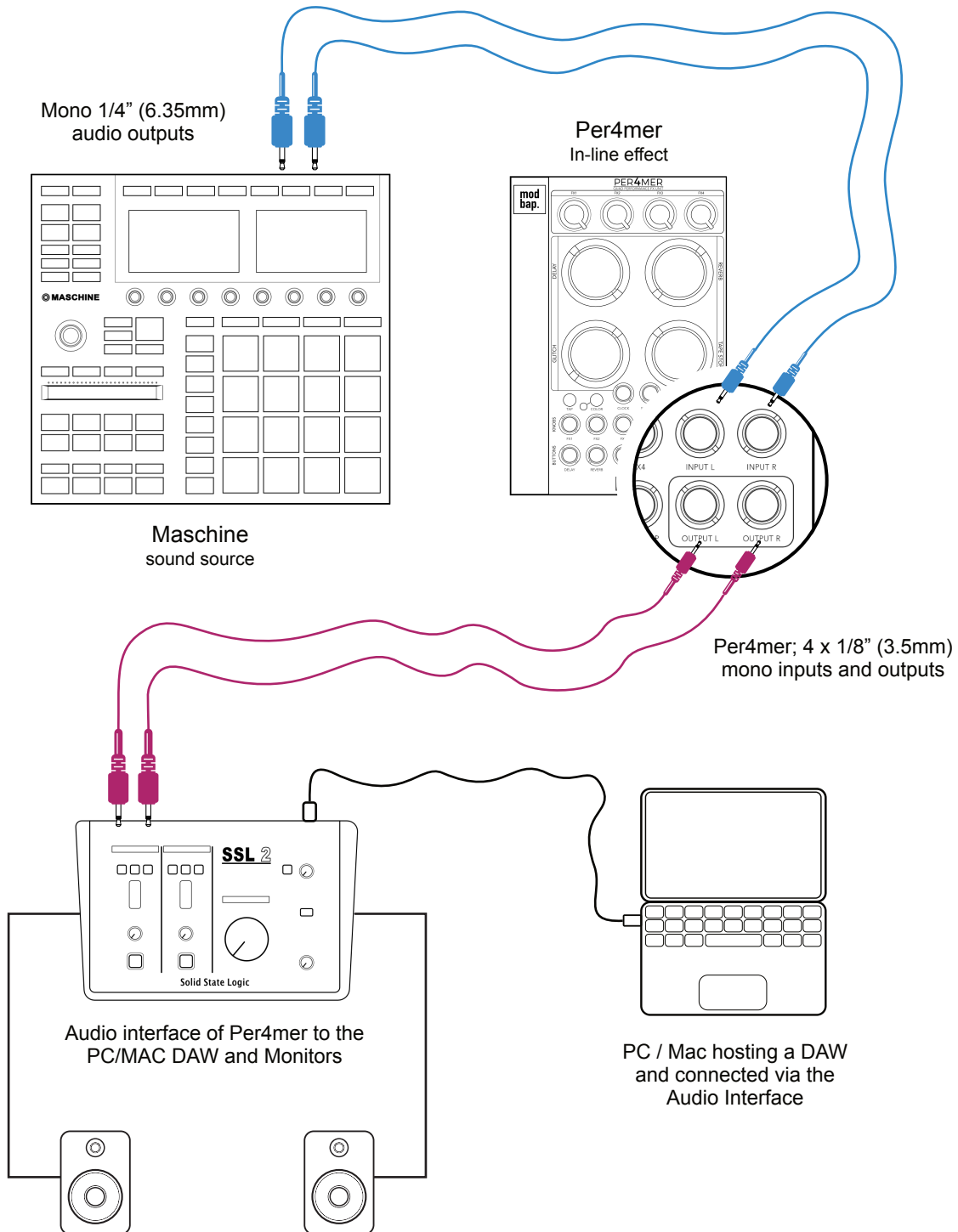
Desktop Effect

PER4MER

The Eurorack format typically concentrates on a series of modules assembled into a rack and patched together to create a synth voice, effect chain, modulation or sequence functions and much more. However the ability to use Per4mer as a stand alone effect which can be used with a variety of desktop hardware as well as PC/Mac based tools should not be overlooked. Per4mer has the ability to work with both Eurorack and line level audio signals making the routing of audio within a desktop environment an easy and useful option. Things to consider in this arrangement start with the hosting of the module. A small rack or pod such as the 4ms Pod series will enable Per4mer to be used as a desktop powered effect and also make it portable. Secondly the cables are standard eurorack mono, 1/8" (3.5mm) mini jacks. Most desktop hardware gear uses 1/4" (6.35mm) standard jacks. Cables are readily available as mono 1/4" to 1/8" format. The final consideration is that while most desktop gear communicates by MIDI, some have the functionality to also operate with Eurorack CV, Gate/Trig voltage control standards. For example Synthstrom Deluge and Akai MPC One have CV/Gate output functions built in. It is also possible to host a MIDI to CV module alongside Per4mer to interface MIDI gear to the Eurorack format.

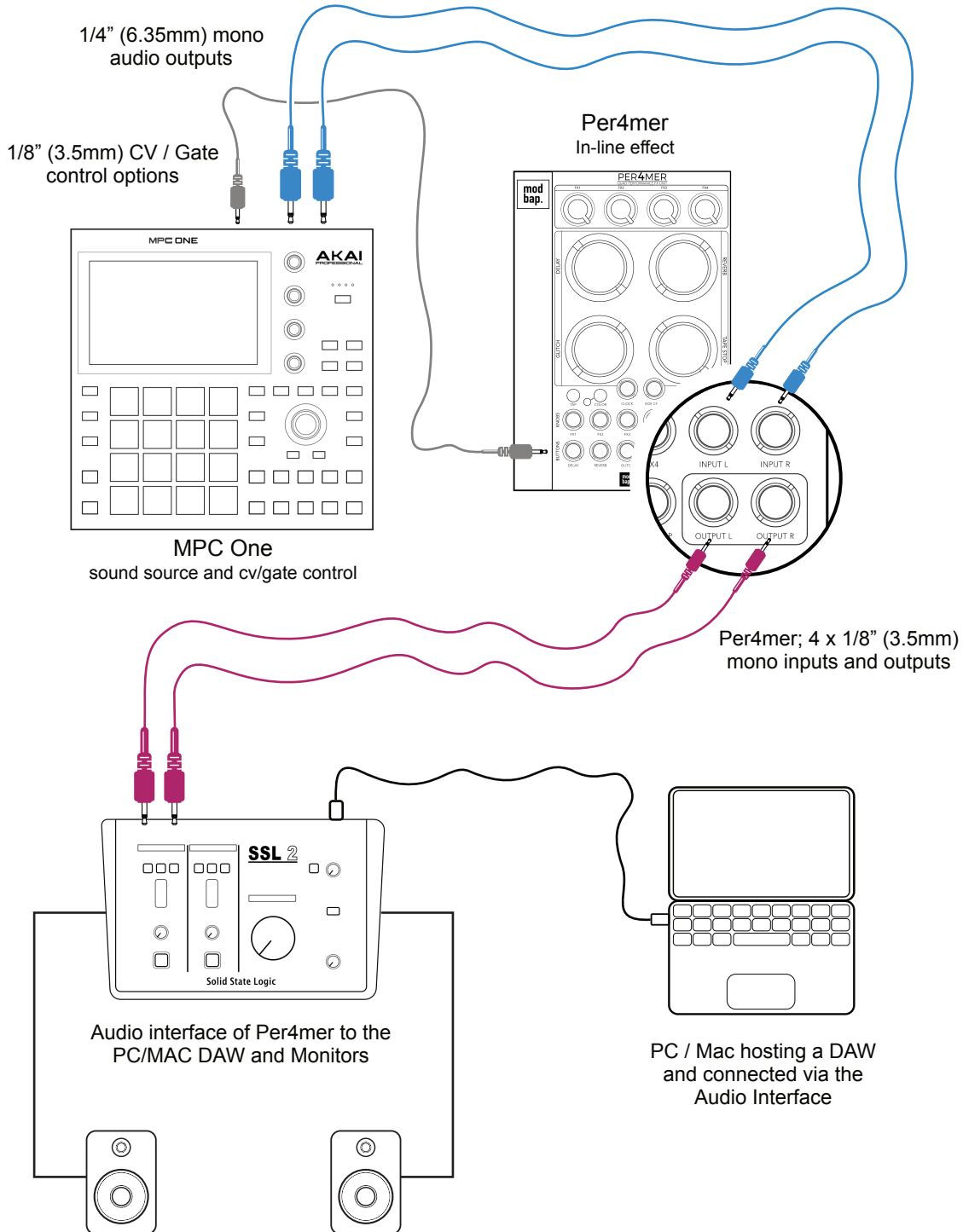
USING PER4MER WITH NI MASCHINE AUDIO

Per4mer can be powered in a small rack or pod to allow it to be used alongside desktop gear. In this example Maschine feeds audio through Per4mer and its output through the audio interface to the PC/Mac hosted DAW (and monitors).



USING PER4MER WITH AKAI MPC ONE

Per4mer can be powered in a small rack or pod to allow it to be used alongside desktop gear. In this example the Akai MPC One feeds audio through Per4mer and its output through the audio interface to the PC/Mac hosted DAW. Also CV and Gate can be controlled by the MPC and applied to Per4mer.

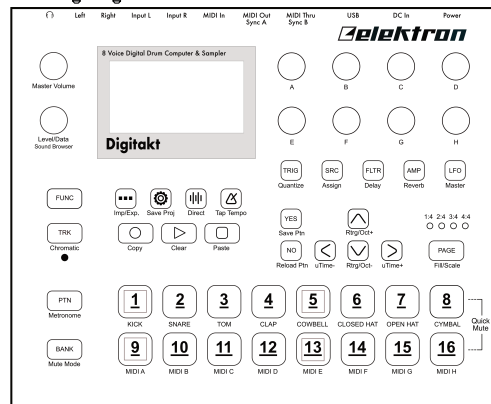
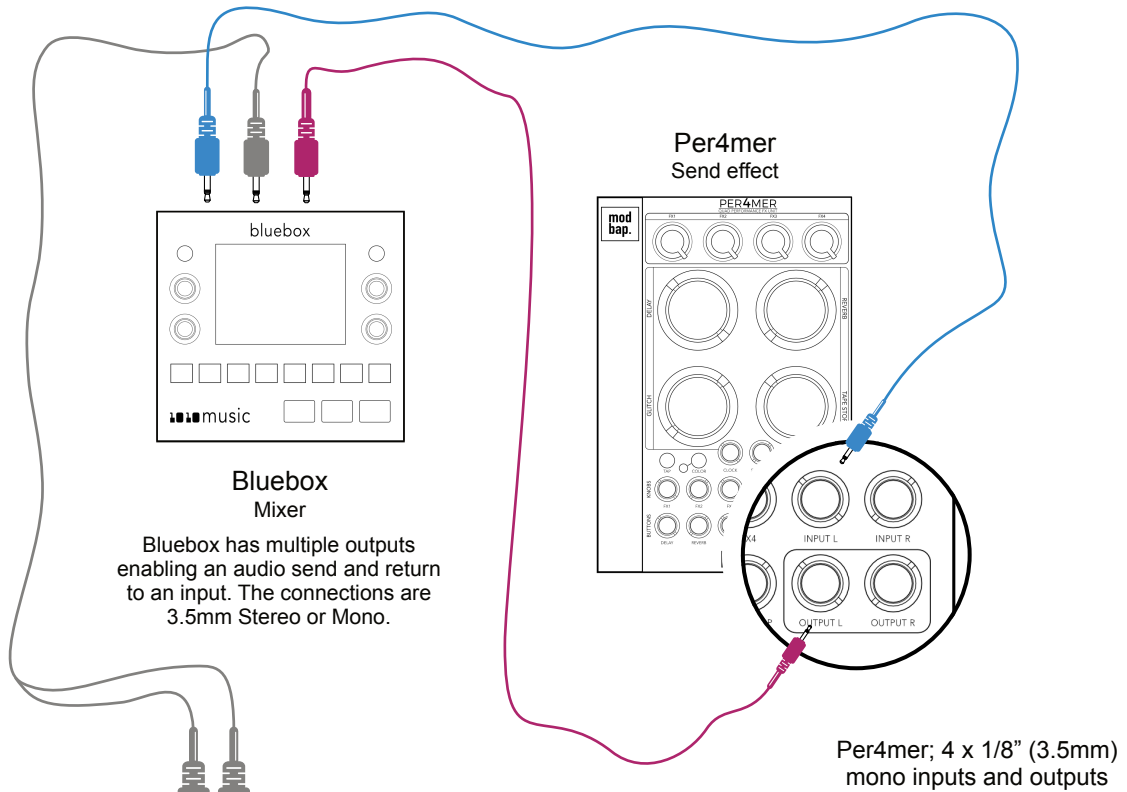


USING PER4MER AS SEND EFFECT WITH 1010 BLUEBOX

In this example Per4mer is used as a mono send effect. This is managed with 1010Music's Bluebox mixer where output 2 is sent to Per4mer and audio returned to a Bluebox audio input channel.

Mono 1/8" (3.5mm)
audio output #2 (send)

Mono 1/8" (3.5mm)
audio input (return)

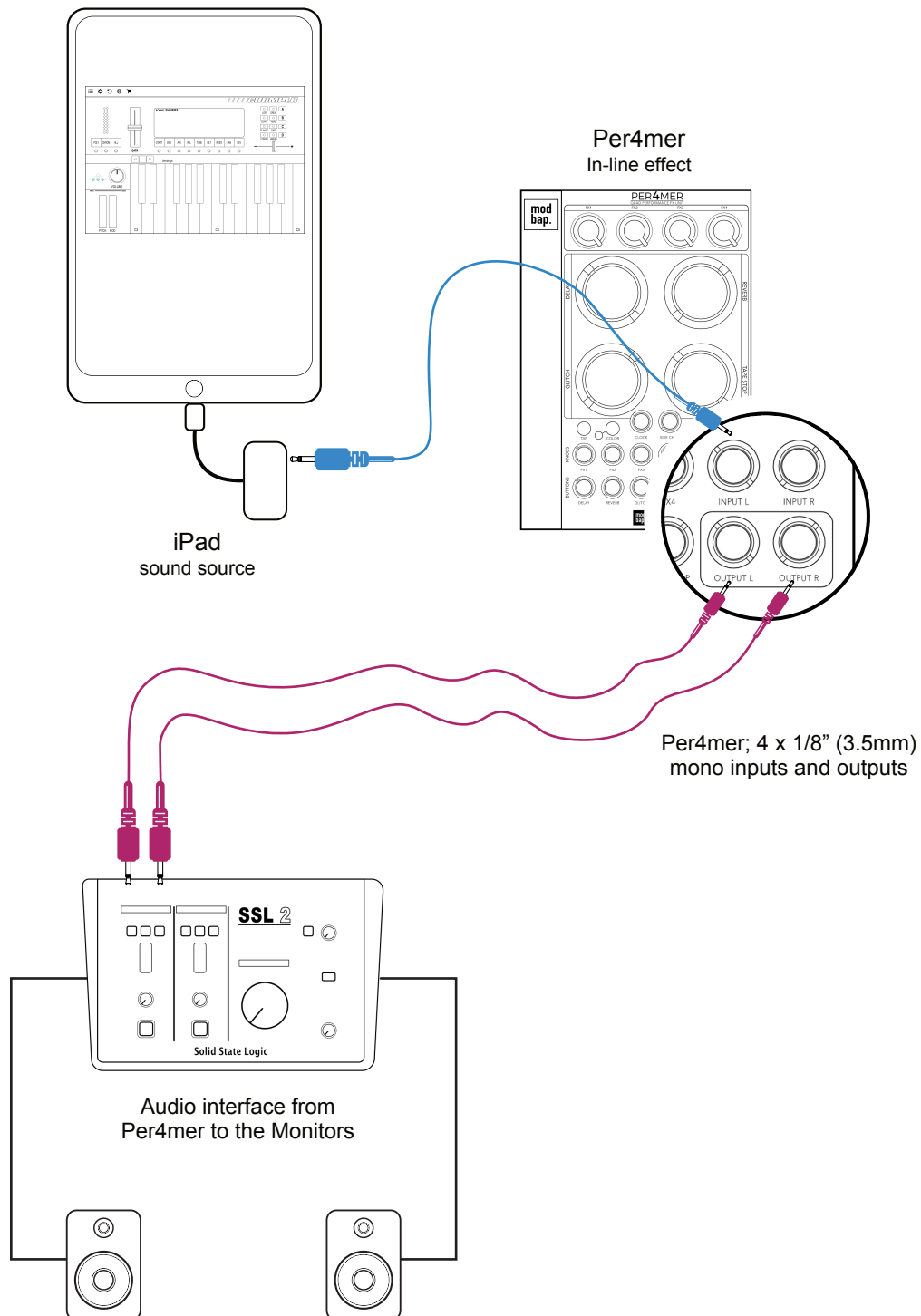


Digitakt
Sound Source

Digitakt has 2 x Mono 1/4" / 6.35mm
audio left and right outputs.

USING PER4MER WITH IPAD IOS APPS

In this example an iPad hosting iOS audio apps is the sound source. The Audio from the iPad would need an adapter for the USB-C / Lightning connection to convert to a 1/8" / 3.5mm audio connection.





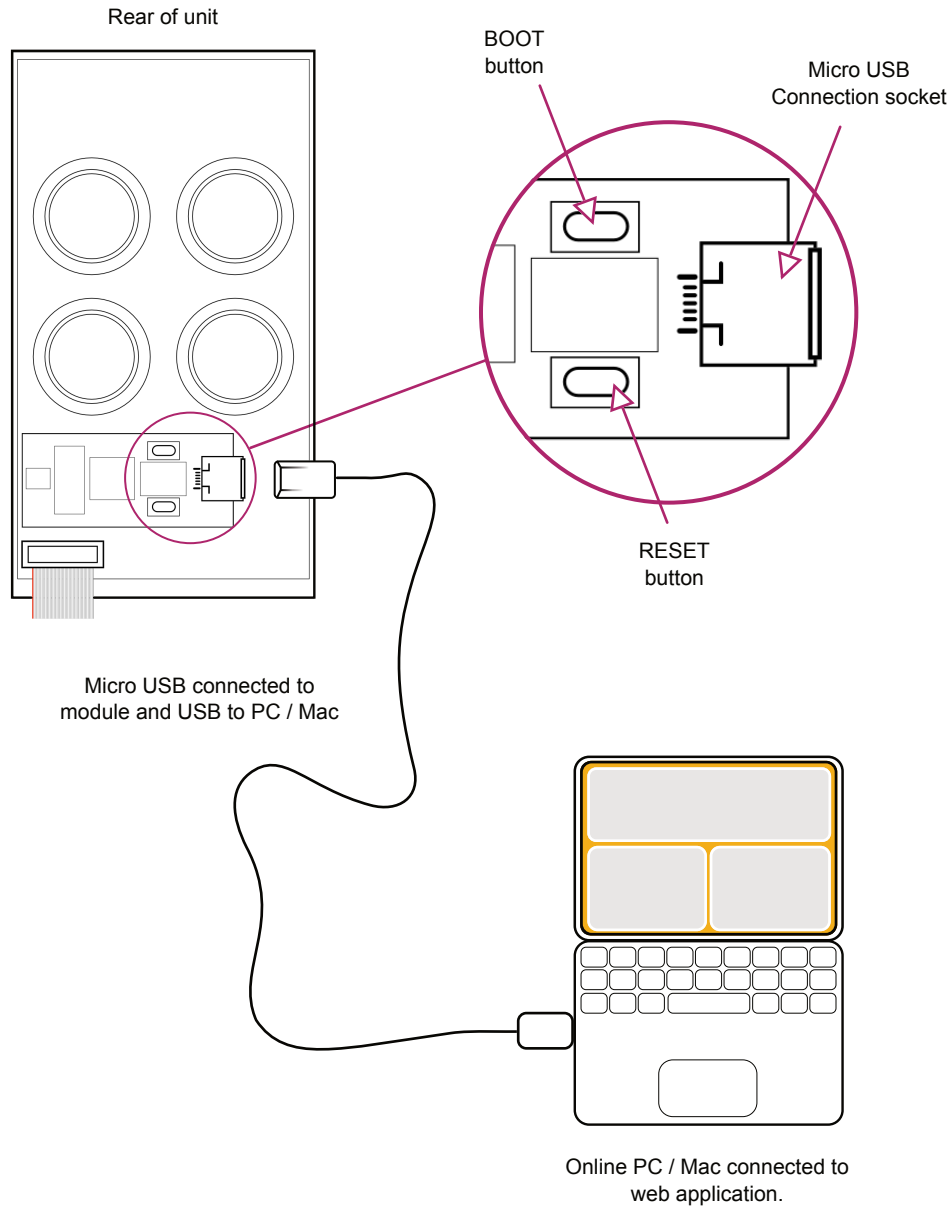
System

PER4MER

Firmware updates occasionally are made available as the module feature set develops and also to introduce system improvements. Description for the general update process is covered here but it is important to read and follow the instructions issued with each firmware update. The process described here is for general information and may be subject to change.

FIRMWARE UPDATES

Occasionally firmware updates are available. This maybe to provide improvements to the functionality, fix bugs or add new features. Updates are applied using the micro USB connector on the rear of the unit and connecting to a PC or Mac.



UPDATING THE FIRMWARE - MAC

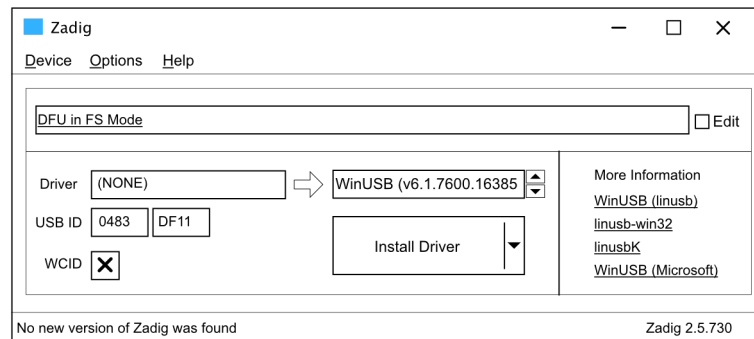
The instructions below are a guide. Always follow the instructions that are provided with each update.

1. Download the firmware update.
2. Remove the device from the rack and ensure power is disconnected.
3. Connect device using a micro usb connection to the module and USB to a mac. The module LED will illuminate. Power for the programming function is provided by the USB connection to the Mac.
4. Open the programming utility at [electro-smith github](#) within the Mac browser. It is recommended to use Chrome browser.
5. On the module, firstly hold the boot button and then press the reset button. The module will enter boot mode and the LED may appear slightly brighter.
6. On the programming page, press 'Connect'.
7. The option pop up box will open and select 'DFU in FS Mode'.
8. Click the bottom left option to select a file using the browser. Select the .bin firmware update file from the Mac.
9. Click 'program' in the bottom programming section window. The status bar indicators will show erase status followed by upload status.
10. When complete disconnect the usb connection and reinstall into the rack.
11. Power on the rack and module.

UPDATING THE FIRMWARE - PC WINDOWS

The instructions below are a guide, follow the instructions provided with each update.

1. Windows PC's may need the original WinUSB drivers installed. It is recommended to install Zadig, a utility which reinstalls windows drivers, before updating. This can be downloaded from www.zadig.akeo.ie.



1. Download the firmware update.
2. Remove the device from the rack and ensure power is disconnected.
3. Connect device using a micro usb connection to the module and USB to a PC. The module LED will illuminate. Power for the programming function is provided by the USB connection to the PC.
4. Open the programming utility at [electro-smith github](https://github.com/electro-smith) within the PC browser. It is recommended to use Chrome browser.
5. On the module, firstly hold the boot button and then press the reset button. The module will enter boot mode and the LED may appear slightly brighter.
6. On the programming page, press 'Connect'.
7. The option pop up box will open and select 'DFU in FS Mode'.
8. Click the bottom left option to select a file using the browser. Select the .bin firmware update file from the PC.
9. Click 'program' in the bottom programming section window. The status bar indicators will show erase status followed by upload status.
10. When complete disconnect the usb connection and reinstall into the rack.
11. Power on the rack and module.

TIPS WHEN UPDATING THE FIRMWARE

There are several things to consider when updating the firmware from a PC or Mac. These tips will help to avoid any problems when updating.

1. PC users may need WinUSB driver installed to use the electro-smith utility. A PC application called Zadig may help install generic windows drivers. This is available from www.zadig.akeo.ie.
2. Ensure the USB is the correct type for data use. Some devices such as mobile phones are supplied with a Micro USB cable for charging purposes. The USB cable needs to be a fully featured USB cable. Any connected device may not be recognised by the web app if the cable is incompatible.
3. Use a browser that is compatible with running scripts. Chrome is a robust browser recommended for this purposes. Safari and Explorer are less reliable for script based web applications.
4. Ensure the PC or Mac USB supply power. Most modern devices have USB powered but some older PC/Mac's may not supply power. Use a USB connection that can supply power to Per4mer.

FACTORY RESET

1. Hold Shift + Tap + Color + Comp + Shift for longer than 2 seconds.
2. The buttons will flash.
3. Per4mer will reset to the original default settings.

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Limited Warranty

Modbap Modular warrants all products to be free of manufacturing defects related to materials and/or construction for a period of one (1) year following the product's purchase date by the original owner as certified by proof of purchase (i.e. receipt or invoice).

This non-transferrable warranty does not cover any damage caused by misuse of the product, or any unauthorized modification of the product's hardware or firmware.

Modbap Modular reserves the right to determine what qualifies as misuse at their discretion and may include but is not limited to damage to the product caused by 3rd party related issues, negligence, modifications, improper handling, exposure to extreme temperatures, moisture, and excessive force.

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(Firmware Version 1.1)

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Firmware
V1.1



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