

Sonoclast MAFD Luxe User Manual v1.1

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Introduction

The MAFD Luxe MIDI-to-CV Eurorack Module provides MIDI control of the individual steps of up to two DFAMs along with many MIDI-to-CV functions. Play a DFAM or two with a pad controller,

a keyboard, an electronic drum set, a MIDI sequencer (hardware or in your DAW), or any other controller that sends MIDI notes.

The MAFD Luxe can receive MIDI via the standard DIN or as a USB host (i.e., plug in a USB MIDI device like a pad controller, or use a powered USB hub to connect up to four devices). Incoming MIDI except for SysEx messages is echoed out of the MIDI Thru DIN. This means the MAFD Luxe can be used as a USB host to MIDI DIN converter.

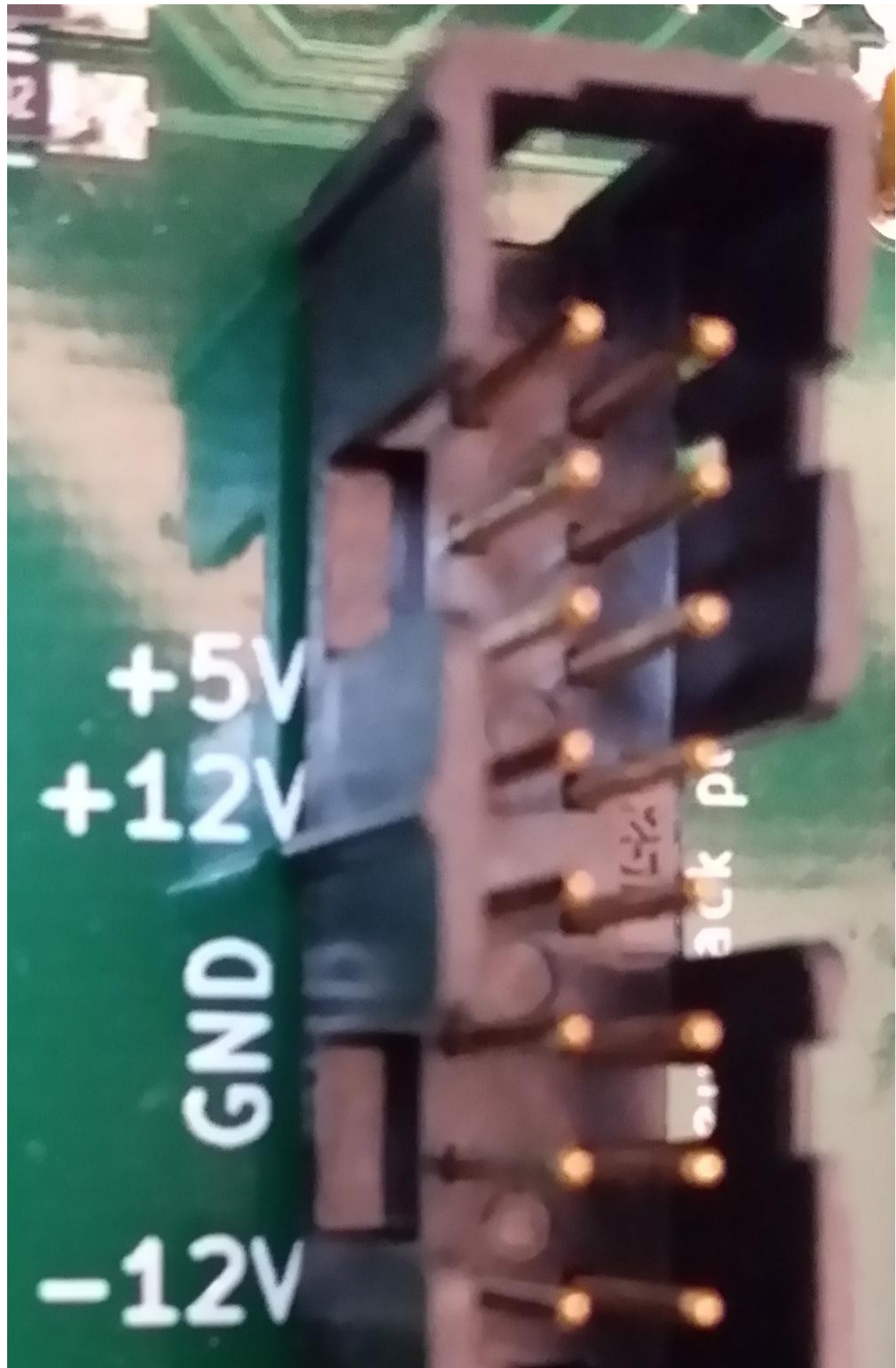
Other MIDI-to-CV functions include 1V/Oct pitch with +/-2 semitones pitch bend range, velocity, pressure (aka aftertouch - channel and/or poly), gate, trigger, and CCs 14-17. Also, four MIDI-to-clock trigger patterns are provided: straight eighth notes, half-swing eighth notes, (full) swing eighth notes, and dotted eighth note followed by a sixteenth.

Specifications

- 16 hp x 32 mm deep Eurorack module with a standard 16 pin power connector
- MIDI inputs: USB host (supports a single USB device or up to four USB devices via a powered USB hub) and standard DIN
- MIDI Thru output: standard DIN
- MAFD MIDI-to-CV outputs (x2): To Adv/Clock, Velocity, Inverse Velocity, Pressure, Inverse Pressure
- MIDI note-to-CV outputs: 1 Volt/Octave, Gate, Trigger, Velocity, Inverse Velocity, Pressure, Inverse Pressure
- MIDI CC-to-CV outputs: CC 14, CC 15, CC 16, CC 17
- MIDI clock-to-trigger outputs: 1:1 is straight 1/8th notes, 7:5 is half-swing 1/8th notes, 2:1 is (full) swing 1/8th notes, and 3:1 is a dotted 1/8th note followed by a 1/16th note
- The On/Off button enables/disables the Clock outputs, and the Reset button resets the internal clock count to zero (the start of a measure) and resets your DFAM step to play the first step.
- The trigger button outputs triggers for To Adv/Clock (x2), Trigger, and the clock outputs.

Powering your MAFD Luxe

Use a standard 16-pin Eurorack power cable. Mind the polarity marked on the PCB.



+5V
+12V

GND

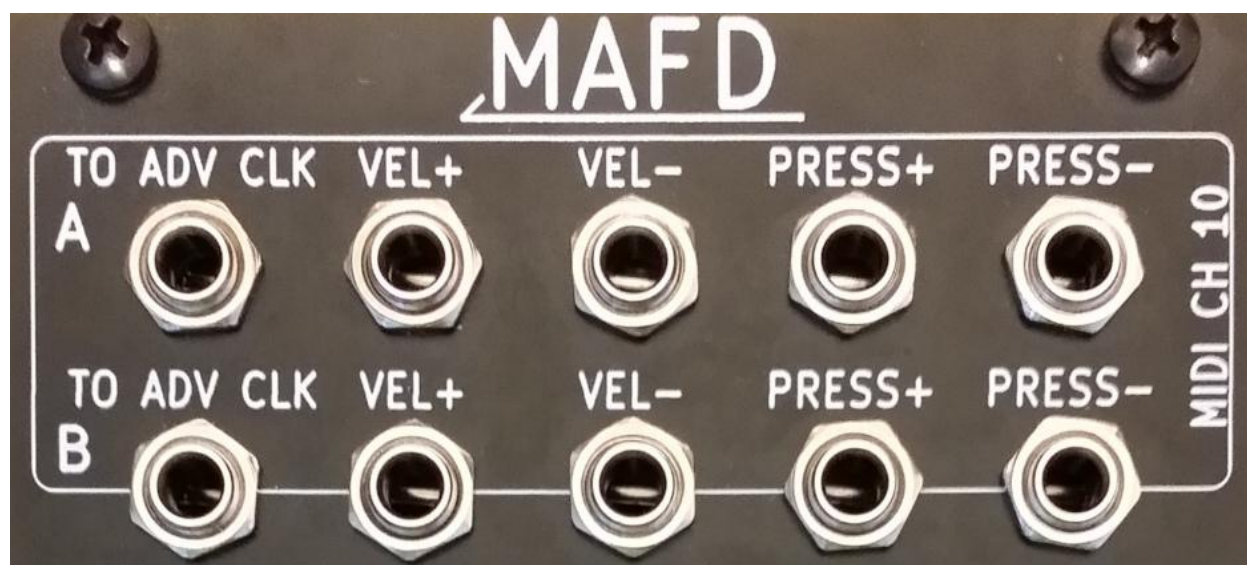
-12V

ack po

Setup Instructions for DFAM MIDI sequencing

1. Each of the two top rows of jacks correspond to sequencing the steps of a single DFAM. Patch "TO ADV/CLOCK" jack to the ADV/CLOCK jack on your DFAM. Row A jacks would be connected to one DFAM, and Row B jacks to another.

These rows are controlled only by MIDI channel 10 messages. Row A corresponds to MIDI notes 4-11, 20-27, (C1) 36-43, (E2) 52-59, (G#3) 68-75, (C5) 84-91, 100-107, 116-123, and Row B corresponds to the other notes 12-19, 28-35, (G#1) 44-51, (C3) 60-67, (E4) 76-83, (G#5) 92-99, 108-115. This mapping is intended to line up with MIDI pad controllers such as the PreSonus Atom that don't allow the user to remap the MIDI notes. Of course, you can use any MIDI controller to trigger those MIDI notes.



2. Optionally, patch the velocity and pressure outputs to DFAM inputs of your choice. The VEL+ and PRESS+ jacks output 0-5V corresponding to MIDI velocities and (poly and channel aftertouch) pressures 0-127. The VEL- and PRESS- jacks output 0-5V corresponding to MIDI velocities and pressures 127-0 (inverted). The PRESS jacks also respond to mod wheel MIDI messages.
3. Calibration: Play the first MIDI note in a range listed above into the MAFD Luxe that you want to correspond to the first step on your DFAM. Use the DFAM's Advance button to get to the first step. (The DFAM's sequencer has to be stopped to use the Advance button when the ADV/CLOCK jack is patched.) Finally, start the DFAM's sequencer with the Run/Stop button.



4. Play your DFAM!

Additional Notes:

- The third row of output jacks plus gate (on row 4) and trigger (on row 5) respond only to MIDI channels other than 10.
- CC14, CC15, CC16, and CC17 respond to those CCs sent by any MIDI channel.
- MIDI clock does not depend on a channel, so the clock triggers respond no matter your channel settings. (There is no internal clock. Clock triggers are only generated when a MIDI clock is sent into the MAFD).
- The USB host MIDI input can support a single USB device or up to four USB devices connected via a powered USB hub. Bear in mind that plugging in a USB device will use some of your Eurorack's +5V power supply capacity.
- The MIDI input LED flashes when MIDI messages are received.
- All 3.5mm jacks output 0-5V that correspond to the MIDI messages.
- The On/Off LED shows if the CLK outputs are enabled or disabled.
- The Reset LED is lit when the CLK outputs are enabled and have been reset to play the "first" step on your DFAM. The first step is whatever step your DFAM was on when the MAFD started playing, so you may want to change the step. This can be done with the Trigger button on the MAFD while the clock is running--this sends triggers to everything connected to the clocks. Or, this can be done by stopping the MIDI clock, stopping the DFAM, and using the DFAM's Advance button.
- The 1 V/oct output can be calibrated via MIDI. A Pure Data patch to do this is available for download. The method is: 1) Send a MIDI Tuning Request, 2) Send the "tuning value"

using MIDI NRPN 314. 3) Test by playing notes an octave apart--do it by ear or measure 1 V difference with a multimeter (while connected to a VCO). 4) You have 30 seconds after the last tuning value is sent, and then the value is saved to non-volatile memory for subsequent sessions. If you take more than 30 seconds to test, you will need to send a MIDI Tuning Request again. The "tuning value" is the number of 12-bit DAC voltage steps that produce 1 volt out of 5 volts total. The factory value is 827.

Change log:

v1.1 - May 2021. Updates: 1) PRESS jacks now also respond to mod wheel messages. 2) PRESS jacks have a smoothing algorithm to better handle the large jumps in MIDI pressure values produced by some MIDI controllers. 3) The 1 V/oct output can be calibrated via MIDI.
v1.0 - January 2020 - Released.

Limited Warranty:

Sonoclast warrants the MAFD Luxe to the original owner to be free from defect or workmanship for 1 year from the date of purchase.