

Multifilter 2 User's Guide (draft)

Getting Started

Inside the box, your module is neatly packed in a corrugated cardboard sleeve. Please open carefully! Inside you will find a ribbon power cable. Connect the small end of the power cable **RED STRIPE to “-12V”** as indicated on the PCB of the module. We recommend only using the power cable provided. Find 12HP with adequate rear clearance of free space in your case and install the Multifilter while POWERED OFF. Connect one of the outputs to your monitoring setup and patch a signal into input “A”, pan the MIX control over CCW, and turn the LEVEL knob up. Make sure the FREQ control is tuned to around noon. You should have signal, congratulations, your module is healthy.

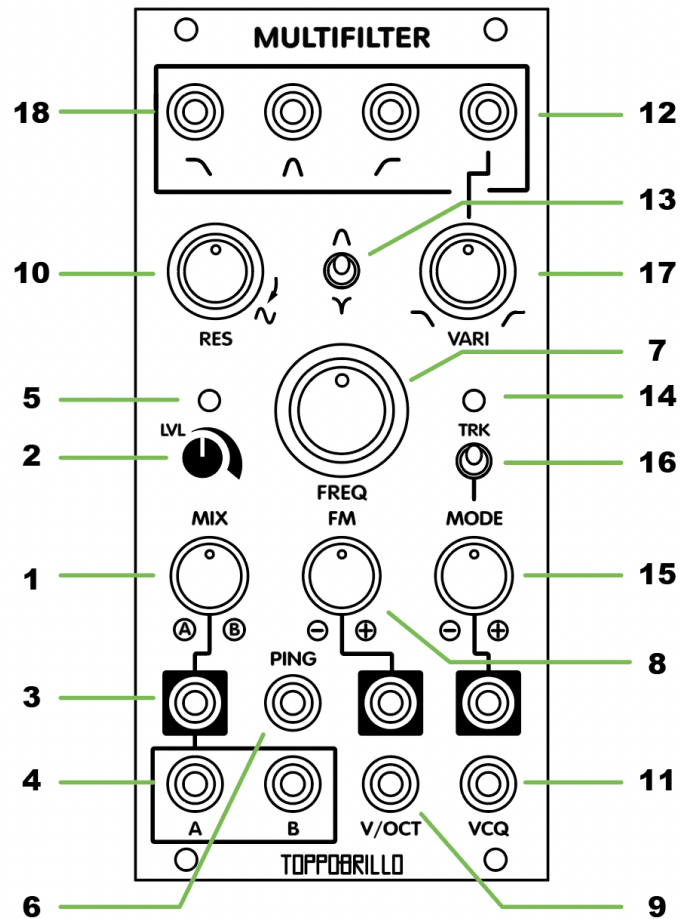
Feeding and Care

The Multifilter's average current draw is around **+/-45mA @ +/-12V**. Be sure your case has plenty of juice. Powering the module on anything more or less than +/-12V is not recommended and may damage the module. Feeding any of the inputs (or outputs for that matter) with sources outside a +/-12V range may damage the module. This type of damage is not covered under warranty. The module is reverse-polarity protected. Please use only the provided power cable. The low-profile construction of the Multifilter is slick and efficient, but note that it leaves electro-static sensitive electronic guts exposed on the rear of the module. As such- please observe basic anti-stat protocol (like you would if you were installing a new SSD or RAM stick in your computer, say) **Avoid touching the electronics and do not set, store or pack in regular plastic bags or bubble wrap..** If you need to store the module or ship it, please use only specifically anti-static/ static dissipative materials. Paper/ cardboard works just fine too.

Power PSA

Toppobrillo modules are designed to work in Eurorack systems and expect reasonably clean, reasonably stable **+/-12V** power to operate optimally. With myriad subpar power solutions out there, it is impossible for us to plan for a worst-case scenario with regards to possible performance degradation due to low quality power. Do not expect a 30\$ “cheese-grater” to offer optimal performance. These are not designed, nor are they suited, for audio work , and while, anecdotally, they may work “just fine”, they are not doing your system any favors, and are likely, in fact, significantly degrading signal fidelity in your system. Do not cheap out on power. Thank you for listening.

Front Panel Key



1- MIX knob

2- LEVEL knob

3- VCG input

4- INPUTS A and B

5- OVERDRIVE LED

6- PING input

7- FREQUENCY knob

8- FM CV and attenuator

9- V/OCT CV input

10- RESONANCE knob

11- VCQ input

12- VARI MODE output

13- MODE switch

14- MODE LED

15- MODE CV and attenuator

16- TRACK switch

17- MODE select control

18- Fixed-response outputs

PANEL I/O in more detail

Input Mixer

The two DC-coupled main inputs to the filter labeled “A” and “B” are selectable/ mixable and adjustable via MIX(1), LEVEL(2), and the VCG(3) input. The resulting mix is then fed through a VCA and subsequent soft-saturation stage, with up to 20dB of gain available.

MIX

crossfades between input sources “A” and “B”(4).

LEVEL/ VCG

The LEVEL knob sets the initial level of the input mix- by default, this control takes the mix from zero to unity. The “O/D” jumper at the module’s rear, when set, opens the control up, allowing the LEVEL knob to manually take the input mix into warm and heavy soft-saturation starting just past 12 o’ clock. The VCG input adds voltage-control.

This parameter has a tailored logarithmic response curve and is designed such that, depending on the CV source and the LEVEL knob’s setting, you will find a place along the curve that allows you to dial in anything from clean VCA behavior to heavily distorted accents with relative ease.

The orange LED(5) will begin to light just before saturation, if you want to keep the mix clean, it’s easy to back the LEVEL knob off a bit.

Tip: Taking a mix of two sources into saturation can give the filter alot more to chew on and enhance your listening pleasure immensely :)

PING

The third input is the PING(6) input. PING takes any input source with a relatively fast rising edge (falling ramps, pulses, clocks, etc) and extracts a narrow pulse that can be used to excite/ percuss the filter in a controlled and consistent fashion (This effect is most pronounced with the resonance dialed up a bit). The pulse responds to rising edges only , and ignores falling edges or in between states.

Tip: The PING input sounds great when used with an audio source, patch one in and dial up the resonance a bit for oscillator-sync and vocal timbres.

FREQUENCY, FM and V/OCT

The FREQ knob(7) Sets the initial cutoff frequency of the filter. It spans between ~12Hz and 12KHz, and you’ll find 500Hz around noon. Sums with the FM CV input(8) and V/OCT(9),

FM

The FM input and attenuverter are the main CV input to control the filter’s cutoff frequency.

V/OCT

Scaled Volt-per octave CV input. The Multifilter is trimmed to track about 4 octaves, with the most accurate range between ~120Hz and 2KHz.

Tip: Multifilter makes a great audio source. Multiple feedback and waveshaping options can be found by patching outputs back into the FM and MODE CV inputs. Experiment.

RESONANCE

The RES knob(**10**) Sets the resonance, or “Q” of the filter. The Multifilter will self-oscillate once pushed past 3 o’ clock.

VCQ

The VCQ input(**11**) provides voltage-controlled resonance of the filter. Adds with the RES control. This input is useful for automating some variation in a patch.

Tip: use the VCQ input to gate oscillation on and off.

VARI MODE OUTPUT

The VARI mode output(**12**) is continuously-variable from either LP (Low pass) - BP (band pass) - HP (high pass) **or** LP - NP (notch) - HP. A switch(**13**) sets which response is located at knob-center. The R/G LED(**14**) roughly indicates the mode state- with OFF being LP, GREEN- NP/BP, and RED- HP. The VARI knob(**17**) sets the initial filter response.

MODE CV

The VARI-MODE output’s response is voltage-controllable via the MODE CV input(**15**). This input is normalled to the TRK toggle(**16**) (see below). CV input sensitivity is 8V.

TRK SWITCH

TRK or “track” switch is a unique feature that, when enabled, sets the variable MODE to follow cutoff frequency to a degree set by the MODE CV attenuverter. This feature is defeated when a source is patched to the MODE CV input.

Tip: when not CV’ing the VARI MODE output’s response- experiment with the TRK switch/ MODE CV control for variation in a patch- for instance- by inverting the MODE CV control and dialing up the VARI control towards HP, a positive-going CV to the cutoff frequency will sweep the filters response towards LP- creating interesting timbral effects like ‘frequency ducking’.

FIXED RESPONSE OUTPUTS

In addition to the variable-output, phase-correct and buffered LP/BP/HP outputs(**18**) are available.

Tip: The fixed-response outputs are phase-correct, while the VARI-MODE output is inverted. Mixing phase can yield some interesting effects in the stereo field.