



synthesis technology  
MOTM analog modular synthesizers

## MOTM-1490 Moog Lowpass VCF Frac Rack Edition

### Controls

**FREQ:** initial cutoff frequency  
**RES:** resonance (feedback) amount  
**FM:** reversing attenuation for filter modulation  
**Gain1/Gain 2:** input signal level *into* the filter

### Jacks

**IN1/IN2:** Audio signal inputs (internally summed)  
**1V/OCT:** fixed 1 volt per octave control voltage input  
**FM IN:** control voltage input  
**OUT:** dual (parallel) signal output (monophonic)

### Connecting power to the module

The MOTM-1490 comes with a 20in, 4-conductor power cable. This power cable is compatible with Blacet, PAiA and other Frac Rack power supplies. The module requires +15VDC at 20ma. The power cord has a red wire (-15V), 2 black wires (ground) and a white wire (+15V). Insert the power cord onto the 4 pins of the white pc board power connector. Be absolutely sure the white wire is on the +15V pin (it is clearly marked on the pc board) and the red wire is on the -15V pin (near the ribbon cable). Press firmly on the cable until it is all the way down.

### Using the MOTM-1490

This module is a faithful recreation of the Moog modular 904B -24dB lowpass “ladder” filter. The filter will self-resonate at frequencies *above* 150Hz. The output amplitude of Moog ladder filters will be lower than other filters in your system, and is just part of the “Moog sound”. You can use the GAIN knobs to set the amount of drive signal the VCF receives. As the drive level increases, the resonance will decrease. Again, this is all part of what makes the Moog circuit distinctive.

You can process any audio with this module: drum machines, other synths, etc. To modulate the cutoff frequency of the VCF, connect a control voltage source (EG, LFO, keyboard CV) into either the 1V/OCT input or the FM IN. The reversing attenuator will adjust the amount of filter modulation. The cutoff can decrease (- scale) or increase (+ scale) as the control voltage increases.

### Calibration

There are 2 factory trims: 1V/OCT (TP2) and the RANGE trimmer (TP1). The RANGE trimmer is factory set so that the ‘5’ tick mark on the FREQ control is ~440Hz at self-resonance. This will also set the maximum cutoff frequency to be ~14Khz. You can adjust this over a wide range.

