

# μVCF

State Variable Filter

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## COMPLIANCE



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Intellijel Designs, Inc. could void the user's authority to operate the equipment.

Any digital equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.



This device meets the requirements of the following standards and directives:

EMC: 2014/30/EU

EN55032:2015 ; EN55103-2:2009 (EN55024) ; EN61000-3-2 ;  
EN61000-3-3

Low Voltage: 2014/35/EU

EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011

RoHS2: 2011/65/EU

WEEE: 2012/19/EU

## INSTALLATION

Intellijel Eurorack modules are designed to be used with a Eurorack-compatible case and power supply. We recommend you use Intellijel cases and power supplies.

Before installing a new module in your case, you must ensure your power supply has a free power header and sufficient available capacity to power the module:

- Sum up the specified +12V current draw for all modules, including the new one. Do the same for the -12 V and +5V current draw. The current draw will be specified in the manufacturer's technical specifications for each module.
- Compare each of the sums to specifications for your case's power supply.
- Only proceed with installation if none of the values exceeds the power supply's specifications. Otherwise you must remove modules to free up capacity or upgrade your power supply.

You will also need to ensure your case has enough free space (hp) to fit the new module. To prevent screws or other debris from falling into the case and shorting any electrical contacts, not leave gaps between adjacent modules, and cover all unused areas with blank panels. Similarly, do not use open frames or any other enclosure that exposes the backside of any module or the power distribution board.

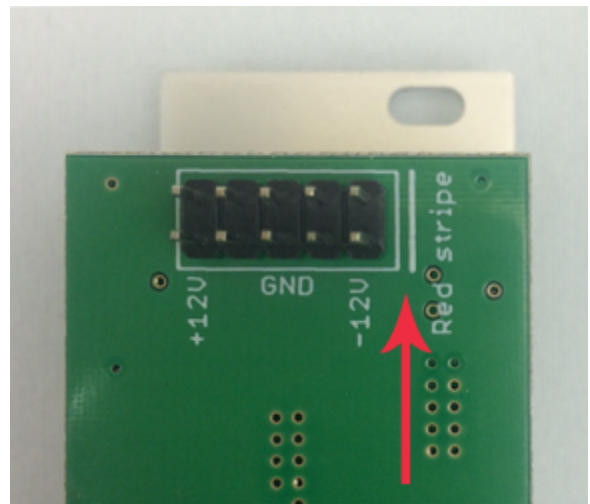
You can use a tool like [ModularGrid](#) to assist in your planning. Failure to adequately power your modules may result in damage to your modules or power supply. If you are unsure, please [contact us](#) before proceeding.

### Installing Your Module

When installing or removing a module from your case always turn off the power to the case and disconnect the power cable. Failure to do so may result in serious injury or equipment damage.

Ensure the 10-pin connector on the power cable is connected correctly to the module before proceeding. The red stripe on the cable must line up with the -12V pins on the module's power connector. The pins are indicated with the label -12V, a white stripe next to the connector, the words "red stripe", or some combination of those indicators.

Most modules will come with the cable already connected but it is good to double check the

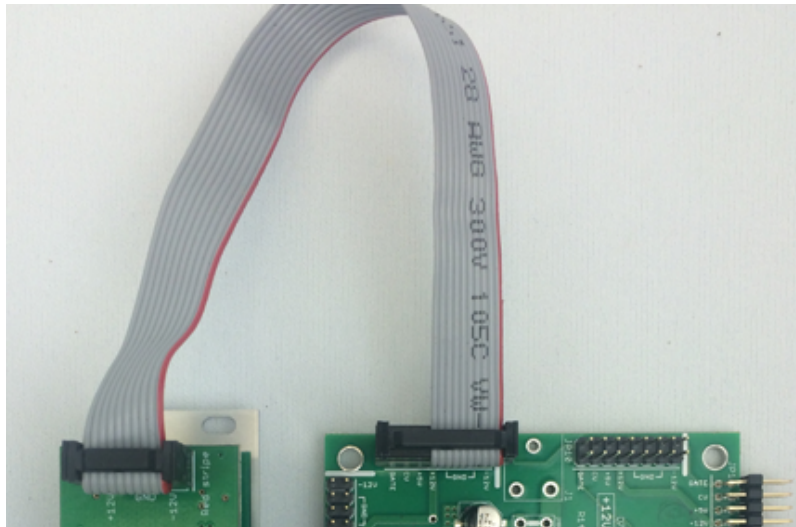
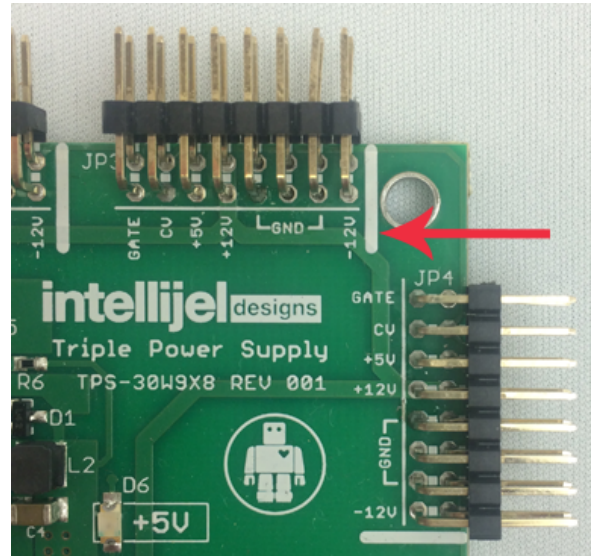


orientation. Be aware that some modules may have headers that serve other purposes so ensure the cable is connected to the right one.

The other end of the cable, with a 16-pin connector, connects to the power bus board of your Eurorack case. Ensure the red stripe on the cable lines up with the -12V pins on the bus board. On Intellijel power supplies the pins are labelled with the label “-12V” and a thick white stripe:

If you are using another manufacturer’s power supply, check their documentation for instructions.

Once connected, the cabling between the module and power supply should resemble the picture below:



Before reconnecting power and turning on your modular system, double check that the ribbon cable is fully seated on both ends and that all the pins are correctly aligned. If the pins are misaligned in any direction or the ribbon is backwards you can cause damage to your module, power supply, or other modules.

After you have confirmed all the connections, you can reconnect the power cable and turn on your modular system. You should

immediately check that all your modules have powered on and are functioning correctly. If you notice any anomalies, turn your system off right away and check your cabling again for mistakes.

## OVERVIEW

The  $\mu$ VCF state variable filter features three simultaneous filter outputs: a 2-pole 12 dB/octave low pass, a 2-pole 12 dB/octave high pass, and a 1-pole bandpass. It tracks 1 V/octave pitch input over a wide range and can be used as a low-distortion sine VCO when self-resonating. This is another great David Dixon design offering a very clean and precise filter. It responds very well to frequency modulation and the small size makes it an ideal choice for a smaller system.

### Features

- Low pass (LPF) 2-pole, high pass (HPF) 2-pole and bandpass outputs (BPF) 1-pole.
- FM1 input acts as 1V/Oct when fully clockwise. Tracks very well over 4+ octaves
- FM2 input has a bipolar attenuator
- At full Q the output produces very low distortion sine waves with a range of 2Hz to 20Khz

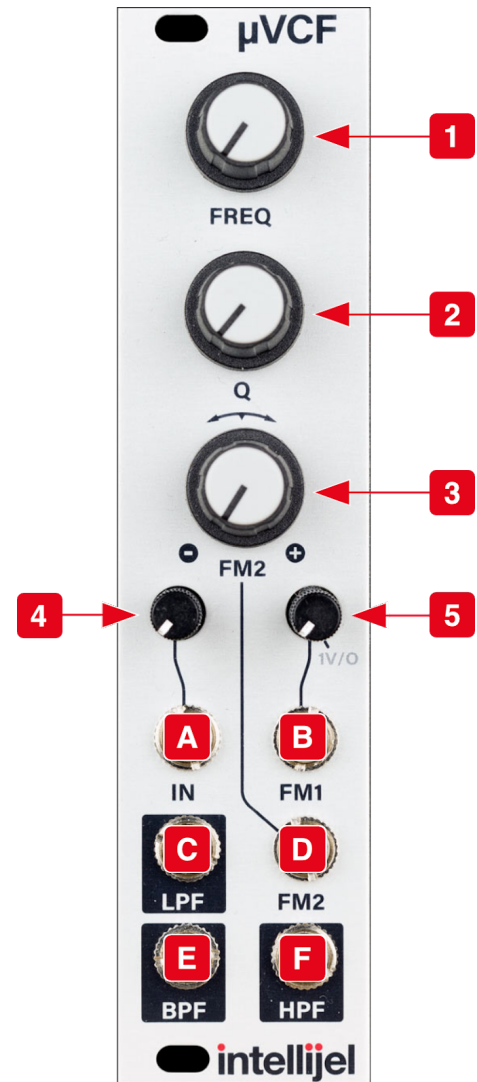
## FRONT PANEL

### Controls

- [1] **FREQ** knob - Sets the cutoff frequency of the filter. The knob position is combined with the **FM1 [B]** and **FM2 [D]** inputs.
- [2] **Q** - Sets the resonance of the filter.
- [3] **FM2** knob - Controls the amount and polarity of the **FM2** input [D]. The input passes unmodified when the knob is fully clockwise; inverted when fully counter-clockwise; and has no effect when at the 12 o'clock (noon) position.
- [4] **Input Attenuator** - Attenuates the level of the filter input signal, patched into **IN [A]**. The signal is unattenuated when the knob is fully clockwise.
- [5] **FM1 Attenuator** - Attenuates the control voltage of the **FM1** input [B]. When fully clockwise the input is unattenuated, and tracks 1V / octave.

### Inputs and Outputs

- [A] **INPUT** - Audio input to the filter.
- [B] **FM1** - CV input for the cutoff frequency. Attenuation is controlled by the **FM1 Attenuator [5]**.
- [C] **LPF** - 2-pole (12 dB / octave) lowpass filter output.
- [D] **FM2** - Another CV input for the cutoff frequency. Attenuation / inversion is controlled by the **FM2 knob [3]**.
- [E] **BPF** - 1-pole (12 dB / oct) bandpass filter output.
- [F] **HPF** - 2-pole (12 dB / oct) highpass filter output.



## INSTRUCTIONS

Start by plugging the signal that you want to be filtered into the **IN** input and turn up the **Input Attenuator** until the signal reaches the desired volume level. Then, one of the **LPF**, **BPF**, or **HPF** outputs and connect that to your VCA or main output. If you are fairly new to eurorack and filters, using a white or pink noise signal may be helpful to gain a better understanding of the different filter types and their effect.

Adjusting the **FREQ** knob will change the frequency range passed by the filter, and increasing the **Q** knob will add resonance at the **FREQ** cutoff frequency. Now try connecting a modulation source like an LFO or envelope to **FM1** and/or **FM2**. Adjust the **FM1 Attenuator** and **FM2** knob to dial in your desired amount of modulation. The **FM1** input will track melodies if the **FM1 Attenuator** is turned fully counter clockwise, and if **Q** is fully counter clockwise the  $\mu$ VCF will output a sine wave with no input connected.

## TECHNICAL SPECIFICATIONS

Width	6 hp
Maximum Depth	21 mm
Current Draw	25 mA @ +12V 24 mA @ -12V