FONT

Quick guide

Thank you for choosing the FONT Filter for your Eurorack System.

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Powering up

1. Turn off the power of your modular synthesizer.

2. Double check the power cord polarity. If you plug the module backwards you might damage its electronic circuits.

RED ▬ ▬ RED

If you flip over your FONT filter, you will find the "RED" mark at the PCB power connector, which must match the colored line on the ribbon cable.

3. Once you have checked all the connections, you can turn on your modular system.

4. If you notice any anomalies, turn your system off right away and check again your connections.

Description

FONT is a voltage-controlled filter.

The filtering is achieved by a high-quality V2164 IC. An OTA in the filter feedback path brings the resonance under voltage control, and also serves as a soft-limiter to ensure a clean self oscillation.
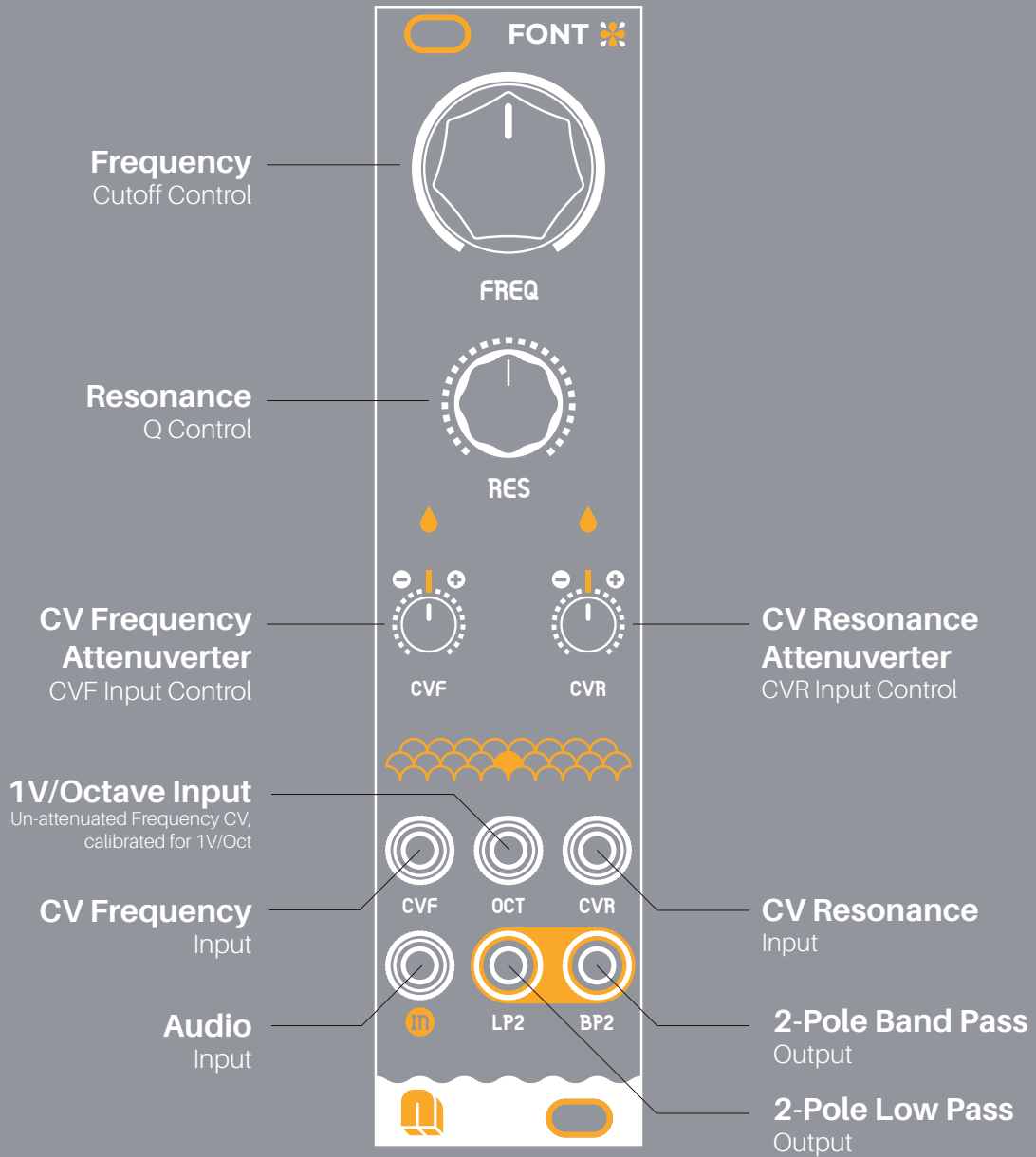
It features two **simultaneous** outputs:

• **2-pole Low Pass**
• **2-pole Band Pass**

This filter tracks 1 V/octave pitch input over a wide range and can be used as a low-distortion sine VCO when self-resonating. It responds very well to frequency modulation and the small size makes it an ideal choice for a smaller system.

Layout

This image will clarify the function of each of the elements of the module.

Frequency
Cutoff Control

Resonance
Q Control

CV Frequency Attenuverter
CVF Input Control

CV Resonance Attenuverter
CVR Input Control

1V/Octave Input
Un-attenuated Frequency CV,
calibrated for 1V/Oct

CV Frequency
Input

CV Resonance
Input

Audio
Input

2-Pole Band Pass
Output

2-Pole Low Pass
Output

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FREQ

RES

CVF

CVR

CVF OCT CVR

LP2 BP2

Controls

• Frequency (FREQ)

With this control you adjust the Cut-Off Frequency **fc**, above which the filter attenuates all frequencies. At **maximum level,** the filter is fully open. The more you turn down this control, the more the high frequencies are filtered.

The sound becomes mellower and less bright (see Fig. 1) until at minimum level the filter is completely shut, and there will be no output signal at all.

/CVF
Frequency attenuverter. Adjusts the amount and polarity of frequency modulation from the CVF input.
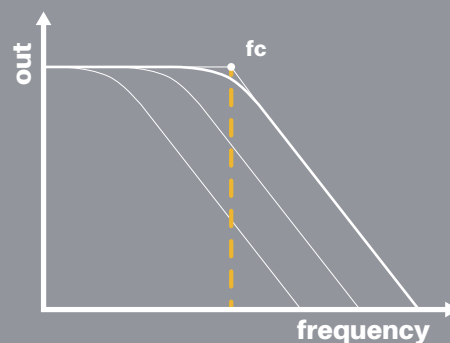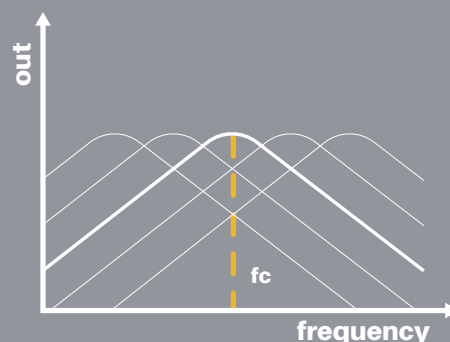
Fig.1 Low Pass Filter

Fig. 2 Band Pass Filter

• Resonance (RES)

With this control you adjust the filter's resonance (emphasis) - the parameter which emphasises the frequencies around the cut-off point fC (see Fig. 2 on p.4).

Close to its maximum setting, the filter becomes so resonant that it goes into self-oscillation, and starts behaving like a sine wave. Self-oscillation occurs at about 80% of the course of this potentiometer. You can take advantage of this effect, and use the VCF as an additional oscillator.

/CVR
Resonance attenuverter. Adjusts the amount and polarity of resonance modulation from the CVR input.
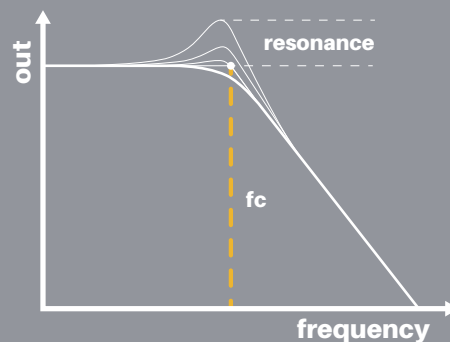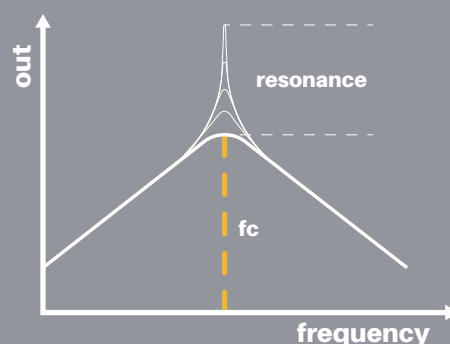
Fig.3 Low Pass Filter

Fig. 4 Band Pass Filter

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Inputs & Outputs

• Inputs

/CVF
Cutoff frequency control voltage. This signal is attenuated and polarized by the corresponding knob.

/OCT
1 V/Oct cutoff frequency control. This input is very helpful for getting the filter frequency to track the keyboard note.
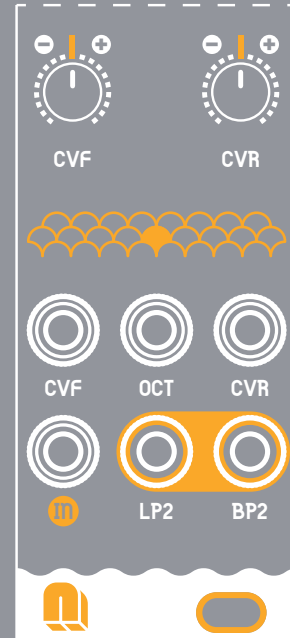Notice that when resonance is set to its maximum value, with no input signal, FONT behaves like a sine wave oscillator.

/CVR
Resonance control voltage. A voltage of +4V starts bringing the filter to self-oscillation.

/IN
Signal input. This input is DC-coupled.

• Outputs

/LP2 | 2-pole 12 dB/octave
Passes low-frequency signals and attenuates high-frequency signals

/BP2 | 2-pole 12 dB/octave
Passes frequencies within a certain range and attenuates frequencies outside that range.

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V/Oct Calibration

FONT comes pre-calibrated.

When the **RES** knob is set to its maximum position, the filter starts to behave as an **sine wave oscillator**. The filter is designed to track well over 5 octaves. In order to track properly the notes from a controller, these are the steps you should follow:

1. Set the FREQ knob to 9 o'clock. Set the RES knob to its maximum position. Disconnect any input signal or FM modulation CV.

2. Connect the note CV output of a well-calibrated keyboard interface or MIDI-CV converter to the OCT input.

3. Listen to the tone at the LP2 output.

4. Using a screwdriver, adjust the **trimmer resistor at the back of the circuit board** until the musical intervals played on the keyboard are correctly reproduced.

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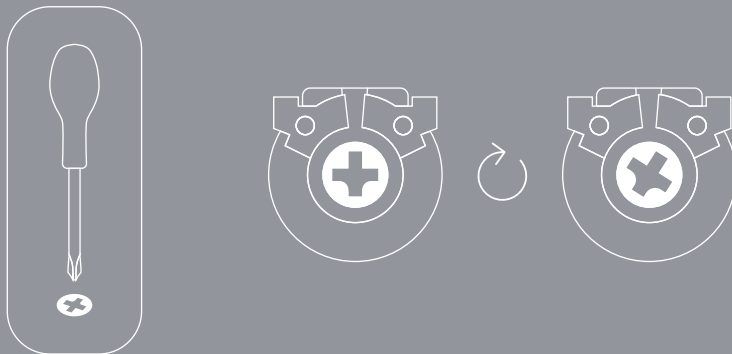
Compliance

This device complies to the **EU guidelines** and is manufactured **RoHS** conforming without use of led, mercury, cadmium and chrome. Nevertheless, this device is special waste and disposal in household waste is not recommended.

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

• **EMC: 2014/30/EU**
• **EN 55032.** Electromagnetic compatibility of multimedia equipment.
• **EN 55103-2.** Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use.

• **EN 61000-3-2.** Limits for harmonic current emissions.
• **EN 61000-3-3.** Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.

• **EN 62311.** Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields.

• **RoHS2: 2011/65/EU**
• **WEEE: 2012/19/EU**

Guarantee

This product is covered by **2 years of guarantee** on purchased goods, which begins when you receive your package.

• This guarantee covers

Any defect in the manufacturing of this product.
Replacement or repair, as decided by NANO Modules.

• This guarantee does not cover

Any damage or malfunction caused by incorrect use , such as, but not limited to:
- Power cables connected backwards.
- Excessive voltage levels.
- Unauthorized mods.
- Exposure to extreme temperature or moisture levels.

Please contact our customer service - jorge@nanomodul.es - for a return authorization before sending the module. The cost of sending a module back for servicing is paid for by the customer.

Technical Specifications

Dimensions 6HP 30x128,5mm
Current 22 mA +12V / 25 mA -12V / 0 mA +5V
Input & Output Signals between ±10V
Impedance Input 100k - Output 1k
Materials PCB and Panel - FR4 1,6mm
Depth 20mm - Skiff friendly

Modules are designed and assembled in València.

Contact

Bravo!
You have learned the basic fundamentals of your FONT Module.

If you have any doubts, please feel free to contact us.
nanomodul.es/contact

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