

THANK YOU FOR ORDERING ERICA FUSION VCO MODULE!

The Erica Synths Fusion series modules are designed combining vacuum tubes and semiconductors therefore they bring warm, powerful sound and overdrive possibilities of vacuum tubes into your modular system. Erica Fusion series consist of range of modules used in sound shaping circuit – VCO, Mixer, real Ringmodulator using audio transformers and germanium diode ring, VCF, VCA and Analogue Delay/Chorus.

Conventional wisdom says that vacuum tubes have nonlinear characteristics, and therefore VCOs based on vacuum tubes need special tuning for each note.

Erica Synths Fusion VCO is special kind of VCO – it fuses good tuning of digital VCO with warm, unique sound of vacuum tubes that work in suboscillator circuit. The module has to vacuum tube based suboscillators: -1 and -2 octaves with plenty of mixing opportunities for amazing sonic results. If you wish to go really low frequencies and have a sound that sets your modular system apart from mass – this is exactly module, you need!

FEATURES:

- 3 basic waveforms with VC morphing
- Good 1V/oct tuning
- Vacuum tube based suboscillators -1 and -2 oct
- Manually and CV controlled -1/-2 oct mixing
- Adjustable suboscillator waveshape
- Dry/Wet (VCO/suboscillators) mixing
- Passive Lowpass filter for extreme subbass sound
- Audio input

Use waveshape potentiometer to morph/adjust waveforms. 12 'o'clock setting gives you waveform, selected by the switch, and then morphing is applied:

- Sine morphs from logarithmic wave to overdriven sine
- Triangle morphs from ramp to sawtooth
- Pulse has adjustable PW – from 5% to 95%

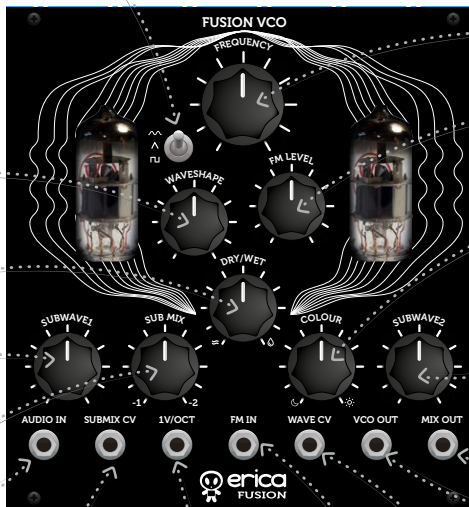
Dry/Wet potentiometer provides smooth mix between pure VCO and pure tube suboscillator sound

Adjust -1 octave suboscillator waveform from more harmonic rich CW to almost sine CCW

Adjust a mix between -1 octave and -2 octaves suboscillators

Patch external VCO (simple waveforms will work best) to route it to suboscillator circuit. Internal VCO will be automatically disconnected

Choose one of principal waveforms of VCO



Set the VCO frequency manually

Adjust FM level with this potentiometer

Use COLOUR potentiometer to filter off higher harmonics for extreme bass sound and almost pure sine waveform on the output. Full CCW setting works best at really low frequencies – C1 and below

Adjust -2 octave suboscillator waveform from more harmonic rich CW to almost sine CCW

This is master output. Get that fat tube sound here

This is dry VCO output, no suboscillator is added

Apply CV to fade between -1oct and -2oct mix

Connect 1V/oct signal to control VCO frequency

Patch FM CV here

Apply wave morphing CV here. It will be added to waveshape potentiometer setting

TECHNICAL SPECIFICATIONS:

| | |
|--------------------------------------|---|
| Audio input level: | up to 20V ptp |
| VCO range: | C1 – C8 |
| Max Output level: | 10V ptp |
| Panel width: | 24HP |
| Module depth: | 35mm |
| Power supply: | bipolar +12V , eurorack standard and/or Erica Synths 6VAC PSU |
| Power consumption: | |
| Tube heater PSU configuration: | 60mA@+12V, 30mA@-12V, 300mA@6VAC |
| Eurorack PSU configuration: | 215mA@+12V, 185mA@-12V |
| | (NB – start-up power consumption for few seconds is +-250mA) |

You can configure Erica Fusion modules for two PSU options.

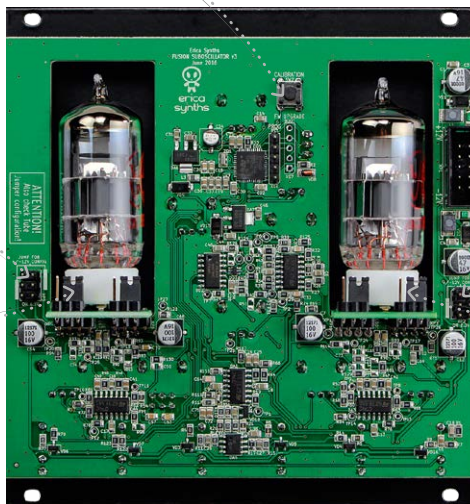
1. When used with easy to install 6VAC Erica Tube heater PSU, Fusion modules have 60mA@+12V and 30mA@-12V power consumption from eurorack PSU. Erica Fusion 6VAC PSU is designed to power up to 7 Erica Fusion modules, but your eurorack case needs 220VAC or 110VAC routed inside the case (this is typical for most Doepfer cases and some other producers that use switching PSU). Latest Erica Synths cases have Fusion tube heater connectors on integrated PSU boards. For Tube heater PSU connection refer next page.
2. When configured to work with standard +-12V eurorack PSU, power consumption is 215mA@+12V and 185mA@-12V, and you do not need to install Fusion PSU. This configuration is the best for Make Noise and similar PSU systems that route only +12V in the case and use switching ICs to generate +-12V.

ERICA FUSION VCO MODULE comes 1V/oct calibrated, but PSUs on modular synths are so different, therefore, if needed, you can perform the calibration procedure specifically for your modular setup. We have introduced two step calibration where you will need precise 5,000V and 1,000V CV source (you can use midi-cv keyboard with 5 octaves range). To perform a calibration procedure, follow these steps:

1. Disconnect your Fusion VCO from the PSU.
2. Connect a patch cable to the CV source and make sure, you get 1,000V (exactly ONE VOLT) on the output – you can play C1 on the midi-cv keyboard.
3. Turn both WAVE and TUNE knobs all way clockwise and flip both switches up (BANK1 and VCO position). Then connect the VCO to the PSU on your modular! Output LED will light on.
4. Connect 1,000V patch cable to 1V/oct input of the Fusion VCO!
5. Flip VCO/LFO switch down to LFO position to initiate the calibration step !!
6. Now set the CV source to 5,000V (exactly five volts) – you can play C5 on the midi-cv keyboard.
7. Flip VCO/LFO switch up to VCO position to initiate the calibration step 2!
8. Output LED will blink once, and this means that you have successfully calibrated the VCO!


For +-12V operation install 2 jumpers on the Fusion PSU connector on the left side as shown on the silkscreen.

For 6VAC operation from the Fusion PSU, install jumpers on the right side. Also, you can refer to small 12V or 6V notes next to jumpers.

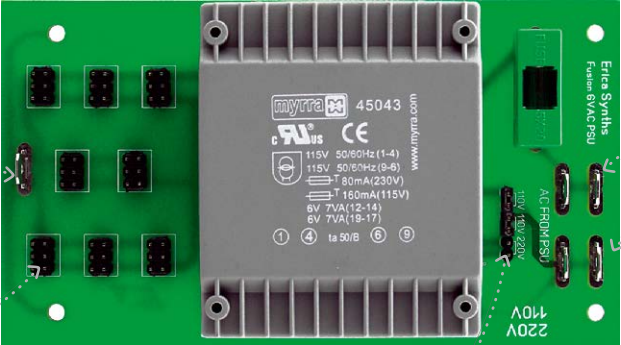


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For 6VAC operation from the Fusion PSU, install jumpers on the right side. Also, you can refer to small 12V or 6V notes next to jumpers.

 It is advised that installation is performed by person, who has experience working with 220/110V voltages. Before installing the PSU, make sure your modular system is turned off and disconnected from wall power socket.

Follow simple instructions below, and you will not go wrong with the installation!



Connect this lug to the GND of your system!

Use ribbon cable supplied with Fusion modules to connect tube heaters here!

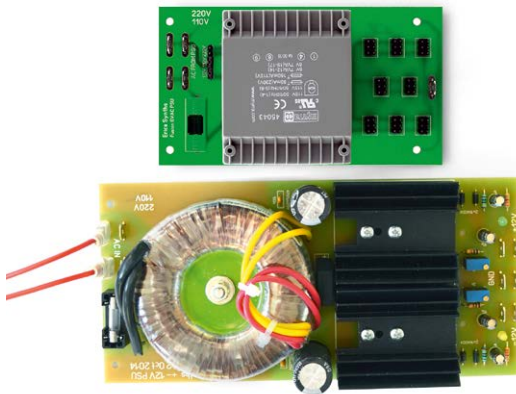
Use jumpers to configure the PSU for the voltage in your country!

Use cables supplied with Tube heater PSU to connect the module to 220/110V socket inside your modular case!

Use spacers and screws supplied with the Erica Fusion PSU kit to fix it in your modular case next to the eurack power supply unit!

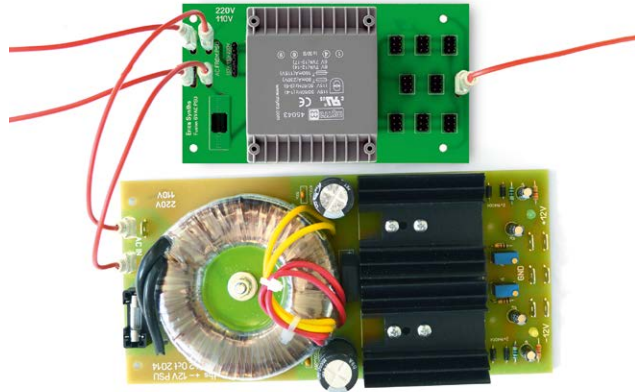
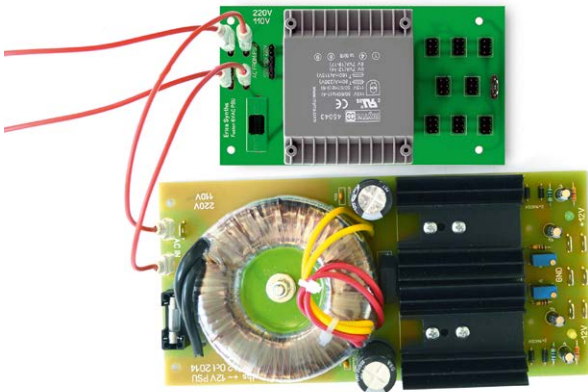
Disconnect 220V/110V wires from eurack PSU!

Connect 220V/110V wires to relevant lugs of Erica Fusion PSU!



Use wires supplied with the Erica Fusion PSU kit to connect eurorack PSU back!

One side of Erica Fusion PSU 6VAC output has to be connected to the GND of your modular system. Use the wire supplied with the kit to do so. Since 6VAC circuit is isolated, nothing wrong or critical will happen, if you connect this wire somewhere incorrectly. But that may affect quality of sound of Erica Fusion modules. Congratulations, you have completed installation of Erica Fusion 6VAC PSU! Now you can try modules!



SAFETY INSTRUCTIONS

Please follow the instructions for use of this Erica Synths module below, 'cause only this will guarantee proper operation of the module and ensure warranty from Erica Synths.

Water is lethal for most of the electric devices, unless they are made waterproof. Erica Synths module is NOT intended for use in a humid or wet environment. No liquids or other conducting substances must get into the module. Should this happen, the module should be disconnected from mains power immediately, dried, examined and cleaned by a qualified technician.



Do not expose the module to temperatures above +50°C or below -20°C.



Transport the instrument with modules installed carefully, never let it drop or fall over. Warranty does not apply to modules with visual damages.



The module has to be shipped in the original packaging only. Any module shipped to us for return, exchange and/or warranty repair has to be in its original packaging. All other deliveries will be rejected and returned to you. Make sure you keep the original packaging and technical documentation.



You will find Erica Synths terms of warranty at <http://ericasynths.lv/en/terms/>

Items for return, exchange and/or warranty repair have to be sent to: Erica Synths, Andrejostas Str.12, Riga, Latvia, LV-1045

DISPOSAL

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.

Designed and made in Latvia.
User manual by Girts Ozolins@Erica Synths.
Design by Baiba Stelle.
Copying, distribution or any commercial use in any way is prohibited and needs the written permission by Erica Synths.
Specifications are subject to change without notice.
In case of any questions feel free to contact us via e-mail info@ericasynths.lv

Check out other Erica Synths modules & devices at www.ericasynths.lv