AMSynths

AM8105 Super JX Filter & VCA

User Manual

24dB Low Pass VCF, HPF and VCA

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1 Welcome

Thank you for purchasing an AMSynths product.

The AM8105 analog filter and VCA module has been designed and hand built in the UK to exacting quality standards. The module uses high quality electronic components and particular attention has been paid to the quality of the audio signal path, stability of the control circuits and the long term life of the product.

This user manual explains the basic functions of the module, as well the historic background to its development, how to install the module and the warranty and support.

AMSynths modules are produced in low volumes, with each module having a unique holographic serial number and a certificate of ownership. You own a rare and beautiful analog synthesizer module that will provide many years of amazing sounds and musical inspiration.

This module is limited to a production run of 50x.

Rob Keeble
Owner & Designer
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January 2015

2 Front Panel

AUDIO INPUTS:
InA, InB, InC

CONTROL INPUTS:
CV1, CV2

AUDIO OUTPUTS:
Out

CONTROL POTS:
Signal A (white)
Signal B (white)
Frequency (blue)
Resonance (red)
Gain/Env (orange)
CV1 (grey)
CV2 (grey)

PUSH BUTTON:
Slope

LED:
HP2: Blue LED
HP1: Blue LED
FLAT: Green LED
BASS: Red LED

The serial number is on a small silver holographic sticker on the inside of the front panel.

3 Module Description

The AM8105 module is a clone of the 24dB Low Pass Filter, fixed High Pass Filter and VCA in the Roland Super JX10. The circuit is based around the Roland IR3R05 chip which first appeared in the MKS80 REV5 replacing the IR3109 and CEM3360, and then made its way into the JX-8P, MKS70, JX10 and Alpha Junos.

The filter and VCA was usually followed by a fixed High Pass Filter in these polyphonic analog synthesizers. The 14-pin DIL chip contains two 2-pole State Variable Filters configured as a 4-pole Low Pass filter only.

The chip has external VCF capacitors with two internal VCA's; one for voltage controlled Resonance and one as the final VCA in the signal chain – with both Exponential and Linear voltage control. The IR3R05 implementation in Roland synths does not go into self oscillation at high Resonance levels, as they wanted to avoid the self oscillation distortion from SVF's and provide a smoother sound.

We have implemented Resonance into self oscillation, so you get the best of both worlds! This module is limited to a production run of 50x.

The AM8105 module uses an original and new Roland IR3R05 chip, which delivers a 4-pole voltage controlled low pass filter, with a smooth and controlled resonance. There is a linear VCA input for connecting an external ADSR, the VCA exponential input is not used. The VCA is followed by a fixed single pole High Pass Filter which has 2x HP modes and a wicked Bass Boost. These modes are selected by a momentary push button, with LED indicators for all 4 modes (blue, blue, green and red).

4 Connections

The two uppermost jack sockets INA and INB are for connecting audio signals into the input side of the filter, these signals are mixed together. The level of each audio signal can be varied from nil to maximum using the front panel rotary potentiometers SignalA and SignalB.

The middle jack sockets CV1 and CV2 are for connecting modulation control voltages into the filter. These signals vary the cut off frequency of the filter, with the front panel rotary potentiometers adjusting the amount of modulation.

The ENV jack socket is for connecting a modulation CV into the VCA, typically a positive 0 to +10V envelope generator signal is used.

The lowest jack socket marked OUT is the audio signal output of the filter and VCA.

The front panel has rotary pots for Frequency Cutoff (FREQ) and two frequency modulation pots; CV1 and CV2. The VCA gain is controlled by the GAIN potentiometer, which doubles as ENV level amount when an ADSR with a 0V to +10V signal is connected to the ENV input.

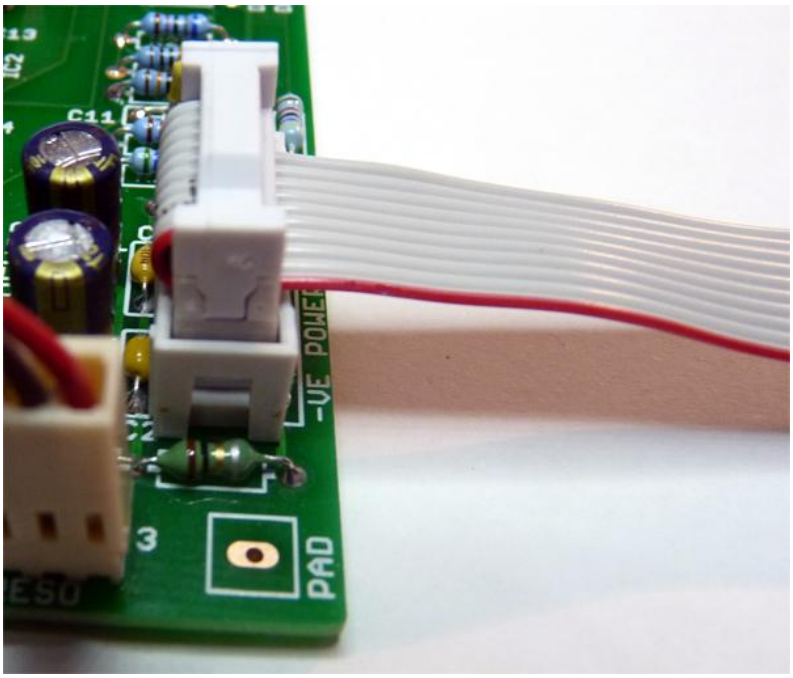
A Resonance potentiometer enables increased Q factors into the start of self oscillation and then into full oscillation. The VCF does distort a little at full self oscillation, like most SVF's, but the journey of resonance provides some really useful and creative sounds.

There are 2x signal inputs with level controls (SIGNALA and SIGNALB). This module has a really nice smooth and laid back filter, with the added benefits of an onboard VCA and a fixed filter to cut or boost the output. Just connect one of our dual ADSR's and a dual VCO and you have a complete synthesizer.

5 Configuration

The AM8105 module occupies 14HP of EuroRack space and is fully compatible with various Euro Rack cases, especially Doepfer. The height of the panel is 128.5 mm and there are four mounting holes at each corner of the module. Four 3mm diameter mounting screws are included with the AM8105 to enable you to securely mount the module into your rack.

The module should be connected to the 12V Doepfer style power bus within your case using the included AMSynths multi-way power cable. Ensure the power is OFF before connecting the module and BE VERY CAREFUL to ensure that the power connector to the bus is connected with the red stripe of the cable lined up with -12V (negative 12V). This is standard Euro Rack power connection but be VERY CAREFUL to get this right! Damaged modules will not be replaced under warranty when the power has been misconnected. The power socket on the AMSynths module is keyed so that the cable can only be inserted the correct way.



6 Warranty & Support

Repairs resulting from a defect of the module or its construction process are covered by a one year warranty, with the customer paying transit costs to AMSynths in the UK.

Damage to the module resulting from incorrect power supply voltages, backwards power cable connection, abusive usage, fluid encroachment or out-of specification voltage input are not covered by the warranty and normal service rates apply.

AMSynths implies and accepts no responsibility for undesirable harm to a person or apparatus caused through operation of this device.

If you have questions regarding the use of this module or you need technical support please contact AMSynths via email at sales@amsynths.co.uk.

7 Specifications

Power Supply:
+12V, GND and -12V standard Doepfer 10 pin connector
RED stripe on power cable is -12V (NEGATIVE 12V)

Current consumption:
TBD

Dimensions:
128.5mm (Height) x 70.8 mm (Width)

Euro Rack Size:
14HP/TE

Panel:
2mm machined aluminum with colour photographic print.

Frequency
20 Hz to 20 kHz

Resonance
0 to self oscillation

Output Impedance:
1k ohm

Input Impedance:
100k ohm