

# MINIMOD

## Glide + Noise User Guide

Thank you for purchasing the AJH Synth MiniMod Glide, Hold & Noise module ,which like all AJH Synth Modules, has been designed and handbuilt in the UK from the very highest quality components. We hope that it will help and inspire you towards creating some great music and soundscapes!

The MiniMod Glide, Hold & Noise module brings the keyboard glide and random noise generation circuitry of the legendary Model D synthesiser to Eurorack Modular format, and also adds considerable extra functionality.

The Glide circuitry uses a discrete transistor differential amplifier, followed by a dual fet transistor sample and hold circuit that has the ability to gate the glide effect. Glide is only active when the Hold CV input is high, so if the hold input is connected to the gate output of a Midi/CV convertor then the glide will be active only while a key is actually depressed, emulating the exact behaviour of the original Model D synthesiser. With the glide control turned to zero it can also be used as a sample and hold module for voltages in the range 0 to +6 Volts.

We have also increased the versatility of the Glide module by adding Glide Up only and Glide Down only modes in addition to the standard Glide Up /Down mode of the original circuit.

The Random Noise Generator is completely separate from the Glide circuitry. There are three outputs offering White Noise, Pink Noise and Red Noise. The noise source itself is all analogue and uses a specially selected transistor in avalanche mode which is amplified and filtered by discrete transistor based circuitry.

Module width is 6 HP of Eurorack space and it is compatible with standard Eurorack cases. The height of the panel is 128.5mm, and depth is 54mm . There are four mounting holes at the corners of the module and we provide 4 of M3 rack fixing screws along with a Eurorack compatible power cable. Current consumption is 35mA from the +12V supply rail and 35mA from the -12V supply rail.

All AJHSynth modules are covered by a one year guarantee against manufacturing defects.

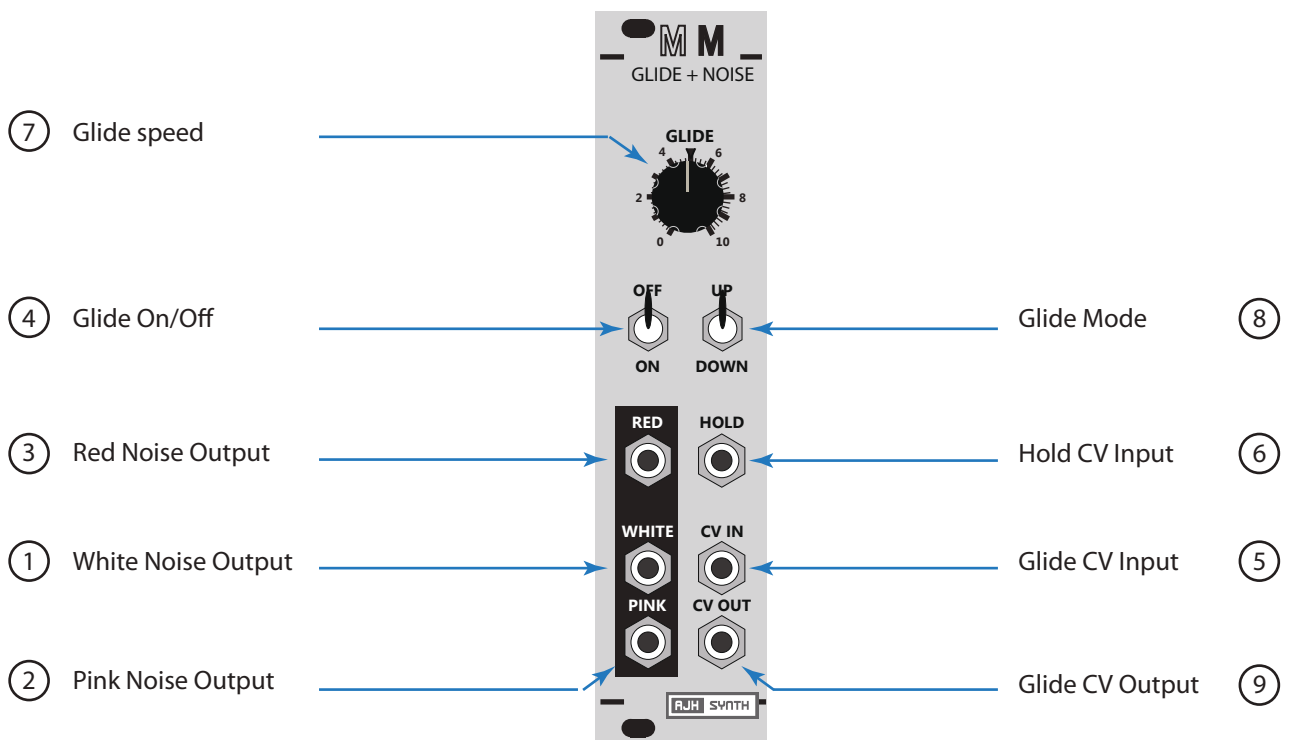
*Note:*

*It is very important that the power supply ribbon cable is connected correctly, see the "adjustment and calibration" section for an illustration of the correct orientation.*



[www.ajhsynth.com](http://www.ajhsynth.com)

# Controls, Inputs and Outputs



- ① White Noise Out : This is the White Noise Output and signal level is +/-5 Volts peak to peak. Pure white noise is a sound that contains every frequency within the audio range (generally from 20 hertz to 20 kHz) in equal amounts. This white noise is generated by using a specially selected transistor in avalanche mode and using the exact circuitry from the Model D synthesiser, so it is a vintage analogue approximation of pure white noise.
- ② Pink Noise Out : This is the Pink Noise Output and signal level is +/-5 Volts peak to peak. Pure pink noise is white noise that has been filtered to reduce the volume of each increasing octave, which compensates for the increase in the number of frequencies per octave. Each octave is reduced by 3 decibels, resulting in a noise signature that has equal energy at every octave. This pink noise is generated using the same discrete transistor circuitry as the vintage Model D synthesiser and is an analogue approximation of pure pink noise.
- ③ Red Noise Out : This is the Red Noise Output and signal level is +/-5 Volts peak to peak. Red (or Brownian) noise is more heavily filtered than pink noise, at the rate of 6db/octave or more, so that it has a much lower high frequency content. It is most commonly used as a random control voltage rather than an audio signal.
- ④ Glide On/Off : This switch turns the Glide effect on/off. It is NOT a bypass switch, its function is the same as turning the Glide Speed control fully counter clockwise.
- ⑤ Glide CV Input : This is the Control Voltage (CV) Input to the Glide module. The acceptable input voltage range is +/- 10 Volts. However only positive voltages (0 to +6 Volts) are processed, negative voltages are ignored and voltages between +6V and +10v are limited to +6v. The most common application would be to feed in a 1V/Oct signal from a Midi/CV converter, however it's use is not limited to this and the module can be used for many different up/down slew effects.

- ⑥ Hold CV Input : A Gate Control Voltage (Of +2 Volts to +10 Volts) applied to this input turns on the Glide effect. If the gate voltage is zero (Low) then "Hold" mode is active and the Glide Output is held at the last voltage received irrespective of changes to the Glide CV Input.
- If no patch lead is connected to this Input then the Hold action is controlled by the "normalising" function through the jack socket switch contact. In this case the onboard jumper (JP1) comes into play. If the jumper is set to the "On" position then the Glide function will be permanently active. If the jumper is set to the "Bus" position then the module responds to Gate signals over the Power Distribution Bus. So for example if a Midi/CV converter is connected then Glide mode will be active when a key is depressed and hold mode will be active when all keys are released.
- ⑦ Glide Speed : This controls the slew speed of the glide effect. Turning the control clockwise slows down the Glide (or slew) rate. One of the "features" of the original Model D glide circuit is that it is asymmetric - it glides up considerably faster than it glides down and we have emulated this behaviour.
- ⑧ Glide Mode : This three way switch selects the Glide mode. In the centre position Glide is active on both rising and falling input voltages. With the switch in the "up" position the glide effect is only active on rising input voltages, it will drop instantly and track falling input voltages. With the switch set to "down" the opposite is true, the module will glide down at the rate set on by the Glide speed control, but will rise instantly and track rising input voltages.
- ⑨ Glide CV Output: This is the Glide CV Output from the Glide Module. It has an output impedance of approximately 500 Ohms and the voltage output will be in the range of 0 to +6 Volts.

#### **Notes on using longer glide times:**

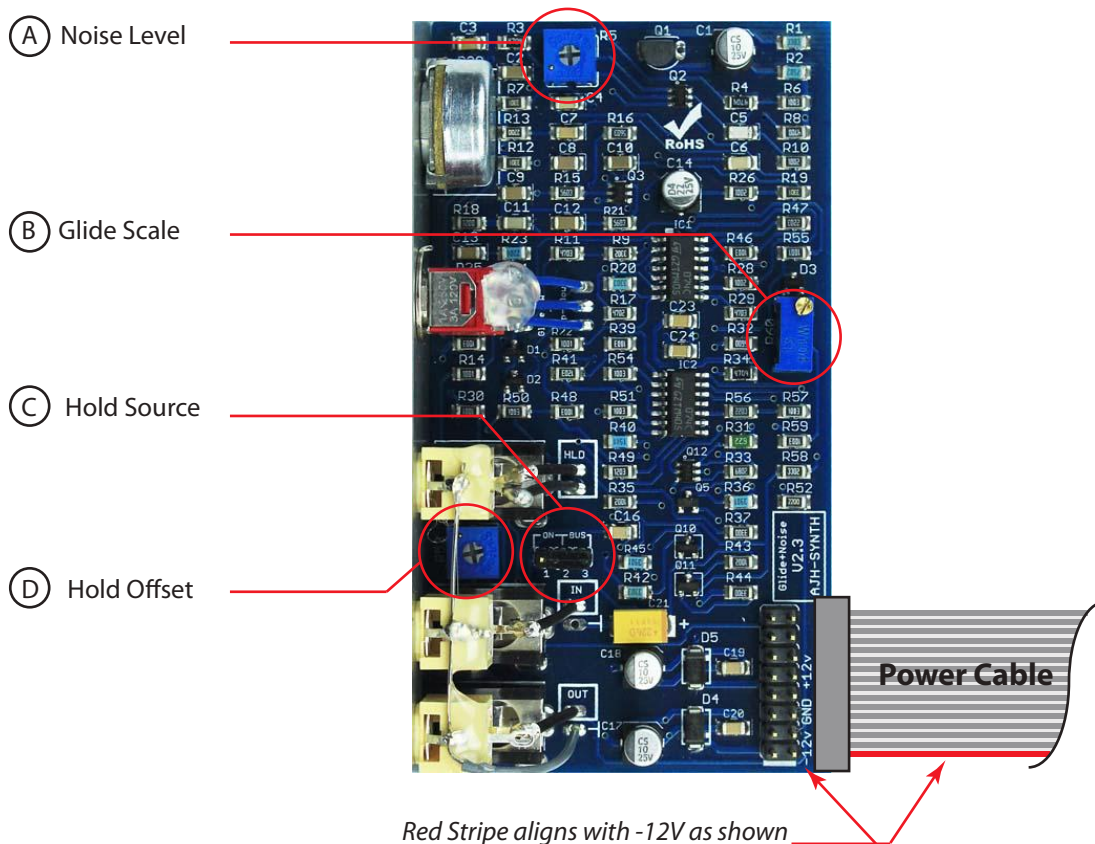
The original Model D keyboard glide circuit only had an effective range of four octaves, however by careful selection of components we have managed to increase this range to 6 octaves (0 to +6 Volts) for short and medium length glides, and 5 octaves (+1 volt to +6 Volt) for long duration glides.

So, if very slow glides are used (four seconds or longer) then take care to keep the Glide CV Input voltage between +1 Volt and +6 Volts. If the input voltage goes down to zero the output it will not glide right down to zero but instead will level out somewhere between 0 and 1 volt, dependent upon the Glide Speed setting.

## Adjustment and Calibration

**Note:**

This information is given for completeness, the MiniMod Glide + Noise module is calibrated after manufacture and under normal circumstances should not require any user adjustment.



- (A) Noise level : Sets the output level of the White, Pink and Red Noise. This should be set to +/- 5 Volts peak to peak, however higher or lower levels can be set if desired by adjusting this trimmer.
- (B) Glide Scale : Sets the scaling of the Glide Output, it should be adjusted so that the Output tracks at exactly 1 Volt per Octave. Note that there is a very slight offset between the Glide Input and the Glide Output voltage, with the output being of the order of 10 to 25mv lower than the Input. This is a function of the glide circuit design and can easily be compensated for by adjusting the fine tune of any VCO's which are connected to the Glide CV Output.
- (C) Hold Source (J1) : J1 selects the Hold Source voltage that is normalised to the Hold CV Input if no patch lead is connected to that Input.  
**Jumper connected to 1 & 2:** Glide effect on at all times  
**Jumper connected to 2 & 3:** Glide / Hold controlled by Gate CV signals on the Eurorack Bus  
**Jumper removed:** Hold effect on at all times, Glide inactive and Output voltage held.
- (D) Hold offset: **FOR MANUFACTURER ADJUSTMENT ONLY.** Specialist test equipment is needed to calibrate this trimmer correctly.

If you need any help using this module or have any technical questions please feel free to contact us at [support@ajhsynth.com](mailto:support@ajhsynth.com)