

The Q105 Slew Limiter is used to limit the change in a signal. The amount of limitation is set by a front panel control. This function is sometimes referred to as 'Glide', 'Glissando', 'Lag processing', or 'Portamento'. The operator has the ability to select the rising edge of a signal, the falling edge, or both with a front panel switch. A manual push button allows the operator to disable the module's function and a jack provides a way to enable/disable using an external signal or a foot switch (useful for portamento control). An LED indicator shows enabled/disabled status. Use the Slew Limiter as a portamento control by routing the keyboard's pitch control voltage through the Limiter then to an oscillator. Use the Slew Limiter as an 'AR' (Attack, Release) envelope generator by routing a square wave from the keyboard gate, oscillator, or sequencer to an amplifier or filter.

## Specifications

**Panel Size:** Single width 2.125"w x 8.75"h.

**Slew/Glide Time:** 10ms to 2 seconds.

**Output Levels:** 10V PP maximum

**Power:** +15V@15ma, -15V@15ma.

## Controls and Connectors

### Amount Control

Sets the amount of slew limiting.

0=short time, 10=long time.

### Direction Switch

Select limiting of signals going up, down, or both.

### Control Connector

Allows on/off control from an external source or foot switch.

### Control LED

Shows on/off status.

### Control Push Button

Allows manual on/off control of slew limiting.

### Input Connector

Input signal.

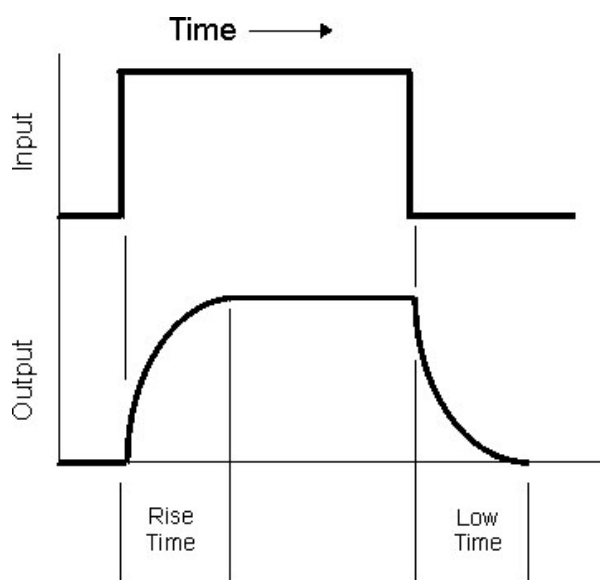
### Output Connector

Slew limited output signal



## Waveforms

The following waveform image shows the input and the output which has been slew limited. As the 'Amount' control is turned up, the slew time will be increased. In this example the 'Direction' switch is in the 'Both' position. If the direction switch was in the 'Up' position then only the first part of the waveform would be slew limited and the last part would be unchanged. The reverse is true for the 'Down' position.



## Usage and Patch Tips

### Basics

The most common use of the Slew Limiter is to create portamento for your keyboard. This is a gradual sliding from one note to the next. Do this by patching the pitch control voltage from your keyboard into the input on the slew limiter module then patch the output to your oscillators as normal. Start with a very low amount and adjust to get the effect you want. Usually the direction control will be in the 'both' position, but the 'up' and 'down' positions will provide portamento just for notes that go in that direction. A foot switch can be added to the control input if needed.

### As an Envelope Generator

Another use for the Slew Limiter is to provide a simple envelope generator. Simply patch the gate output from the keyboard controller to the input of the slew limiter, and the output to an amplifier, filter, oscillator, etc. The amount control will set the Attack time and the Release time. The direction switch can be used to turn off the Attack or Release phase. An external signal can be used to turn it on and off.

### As a Low Pass Filter

A slew limiter is basically a lowpass filter. By running a signal with harmonics through the slew limiter you can attenuate the high frequencies by adjusting the Amount control.

### As a Gate Delay

The Q105 slew limiter can also be used to delay and/or extend gate signals to create multi-stage envelopes, delayed modulation, and unusual keyboard responses. Simply connect a gate signal to the input jack. Setting the direction to Up will let the Amount control adjust the delay of the beginning of the output gate. Setting the direction to Down will let the Amount control adjust the extension of the output gate. Setting the direction to Both will let the Amount control adjust both the beginning delay and the extension resulting in a shifting of the entire gate signal.

# Q105 Slew Limiter

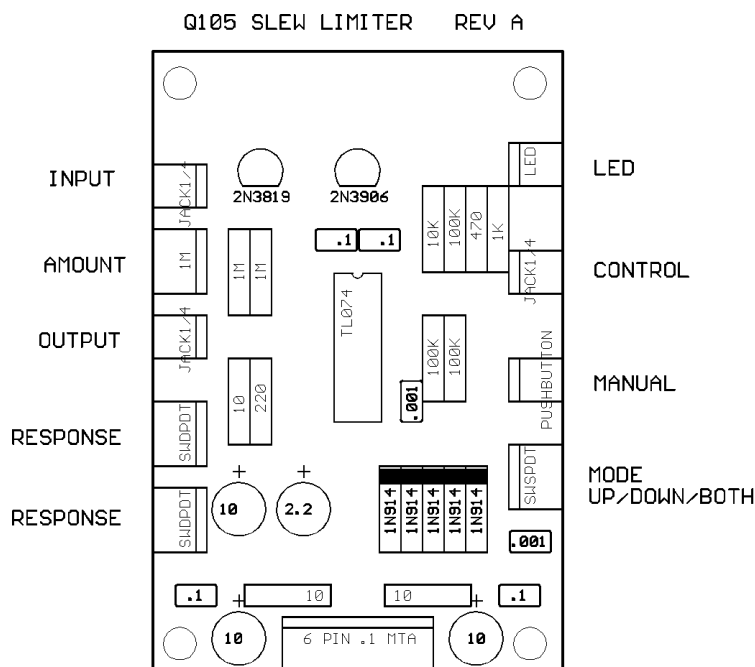
Apr 2003

## Calibration and Testing

No calibration is required for this module.

1. Apply a 50hz square wave to the input connector.
2. Observe the output on an oscilloscope and view the slew limiting as the amount control is adjusted.
3. Choose Up/Down/Both positions for proper limiting of the selected part of the waveform
4. Verify that pressing the manual push button turns off the LED and disables the slew limiting function.
5. Connect a foot switch or a slow square wave (1hz) to the control jack and verify operation.

## PC Board Layout



Response is factory jumpered to Exponential.  
Move both jumpers to other position for linear response.

## Power Connector

6 pin .1" MTA type connector made by AMP. Available from Mouser Electronics or Digi-Key. Modules have a male PCB mount connector and cable harnesses have a female.

### Part Numbers:

Female cable mount: #6404416  
Male PCB mount: #6404566

### Pinout:

- 1 = +15v
- 2 = key (pin removed)
- 3 = +5v
- 4 = gnd
- 5 = -15v

Not all voltages are used on all modules.

