Q111 Pan/Fade

Aug 2014

The Q111 Pan/Fade module can pan an input signal between two outputs, or fade an output signal between two inputs. For example: Pan mode would allow a single input signal to be routed to one of two different speakers. Fade mode allows an output to fade from one of two input signals. Both Pan and Fade modes allow both manual and voltage control.

Controls and Connectors

Initial Control
Allows manual control of the Pan or Fade action.

Mode Switch
Selects between Pan or Fade mode.

Control Connector
Voltage control of Pan or Fade action.
This signal is mixed with the manual Initial control setting.

Input Connectors
Input signal(s) to be Panned or Faded. See drawing below.

Output Connectors
Output signal(s) to be Panned or Faded. See drawing below.

Specifications

Panel Size: Single width 2.125"w x 8.75"h.
Signal Levels: 10V PP maximum
Power: +15V@30ma, -15V@30ma

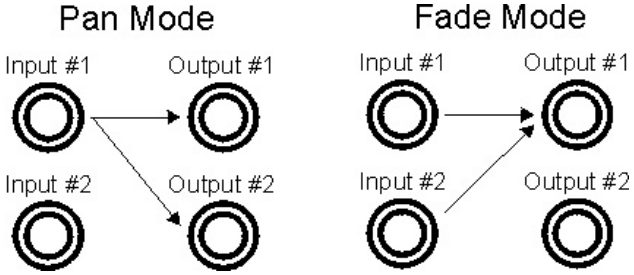
Usage and Patch Tips

Pan Mode Basics
Input #2 is not used in Pan mode. Put an input signal into the Input #1 connector. The combination of the control voltage input and the Initial Control setting will determine how much of the input signal will be routed to each of the outputs. To pan a signal back and forth between the outputs, set the Initial Control to 0, and patch a +/-5volt sine wave from an oscillator to the Control Input connector.

Fade Mode Basics
Output #2 is not used in Fade mode. Put signals into both input connectors. The combination of the control voltage input and the Initial Control setting will determine how much of which input signal will be routed to the output. To fade a signal back and forth between the inputs, set the Initial Control to 0, and patch a +/-5volt sine wave from an oscillator to the Control Input connector.

Switching
By using a square wave as the control signal, a voltage controlled switch can be created.

Signal Polarity
In Pan mode, Output #2 is inverted. In Fade mode, Input #2 is inverted. This may or may not be an issue depending on your use. Use a Q125 signal processor to invert the signal back to its original polarity if needed.



Q111 Pan/Fade

Aug 2014

Selects mode →

This control and the control input jack are summed together to create a voltage that controls panning and fading. →

In Pan mode, Input #1 is the single audio source that will be panned to Output #1 or Output #2. →

In Fade mode, both inputs are used and faded to Output #1. →

← In Fade mode, only output #1 is used. Input #1 or #2 are routed to Output #1 depending upon the control setting.

← In Pan mode, both outputs are used. The signal at Input #1 is routed to Output #1 or Output #2 depending upon the control setting.

Q111 Pan/Fade

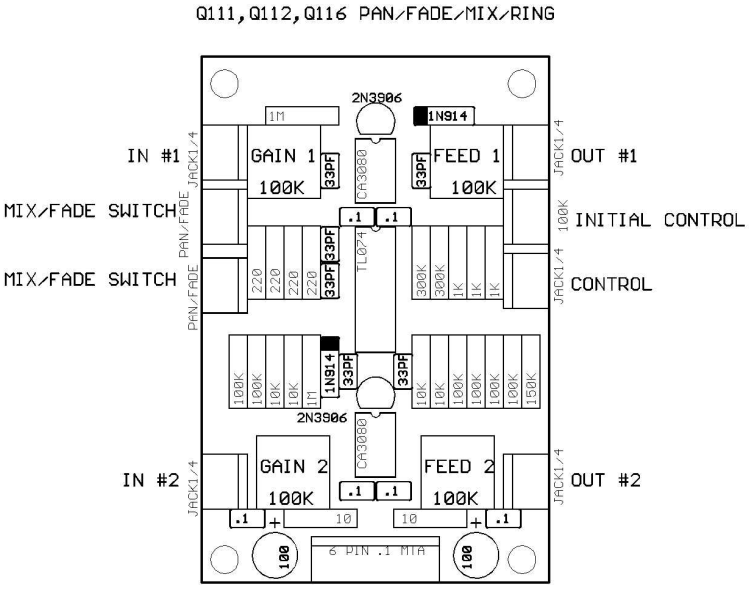
Aug 2014

Calibration and Testing

Calibration is accomplished with 4 trim pots.

1. Center all 4 trim pots and remove connector for the Initial Control pot.
2. Set mode to Pan and set Initial Control to 0.
3. Apply a 1Khz +5v triangle waveform to the control input.
4. While viewing output #1 on an oscilloscope (50mv scale), adjust the feedthru #1 trim pot for 0 output.
5. While viewing output #2 on an oscilloscope (50mv scale), adjust the feedthru #2 trim pot for 0 output.
6. Reattach the connector for the Initial Control pot and apply +5 volts to input #1.
7. Turn Initial Control full counter clockwise (#1 full on)
8. Adjust gain #1 trim pot for 5v at output #1
9. Turn Initial Control full clockwise (#2 full on)
10. Adjust gain #2 trim pot for 5v at output #2
11. Set mode to Fade.
12. View Output #1 on an oscilloscope.
13. Apply a +/-5 volt waveform to Input #1 and verify that the Initial Control will adjust the level.
14. Apply a +/-5 volt waveform to Input #2 and verify that the Initial Control will adjust the level.
15. Apply a voltage to the Control input connector and verify it adjusts the level.

PC Board Layout



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.