

GMS-214MU MULTIMODE FILTER

PRELIMINARY OPERATION MANUAL

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INTRODUCTION

This multimode filter has two signal inputs mixed at unity gain and allows selection of one of fifteen possible filter configurations from front panel switches. If the resonance control is set high enough, the filter will start to oscillate. The filter is based on a reissue of the Curtis CEM-3320 4 pole low pass filter circuit and used a matrix of resistors and analog switches to achieve multimode operation.

FILTER MODE CHART

POLES	MODE	+1P LP
1P	Lowpass	
1P	Highpass	
2P	Lowpass	
2P	Bandpass	
2P	Band Notch	
2P	Band Notch	+1PLP
2P	Highpass	
2P	Highpass	+1PLP
3P	Lowpass	
3P	Highpass	
3P	Highpass	+1PLP
3P	Allpass	
3P	Allpass	+1PLP
4P	Lowpass	
4P	Bandpass	

FEATURES

- Two signal inputs mixed at unity gain
- Frequency range – 30 Hz to 19 KHz
- Sine wave oscillator at high resonance settings

ADDITIONAL FEATURES

Three CV inputs are provided. A 1V/Octave input controls the filter cutoff frequency in conjunction with the panel frequency control. A second frequency CV input has a level control, the resulting voltage being added to or subtracted from the base cutoff frequency resulting from the panel frequency control and 1V/Oct inputs. A resonance CV input followed by an attenuverter is combined with the panel resonance control to determine the amount of resonance that will occur. If the resonance control is turned past about 80, the filter will start to oscillate with a clean sine waveform.

TECHNICAL SPECIFICATIONS GMS-214MU

Filter topology	Multimode 1 to 4 poles Lowpass, Bandpass, Highpass, All Pass, Band Notch
Frequency Range	22Hz - 20KHz
Typical Input Impedance - each input	100K Ohms
Typical Output Impedance	1K Ohms (short circuit protection)
Frequency control inputs	2 - Input 1 fixed 1V/Octave, Input 2 with level control
Resonance control input	1 - Input with attenuverter
Module Power	+15 Volts 35 mA. -15 Volts 25 mA. +5 Volts 100 mA.
Module Size	Panel height - 8.75 inches (222 mm) Panel width - 2.125 inches (54 mm) Depth (behind panel) 2.1 inches (53 mm)

MODULE PROGRAMMING OPTIONS



INSTALLING PROGRAM UPDATES

The process for installing program files in the GMS-742a MIDI to CV module using the Microchip HID bootloader client is described below:

1. Move the entire folder called "usb_bootloader_client_win" to the host machine. It is not necessary to install the bootloader client.
2. The module must be powered and the miniB USB connector on the module main board must be accessible.
3. Move the jumper block on pin 8 of the 8pin MTA-100 connector in the upper left corner of the main board so that pins 7 and 8 are connected. This enables the on-board programming mode.
4. Power up the module. The LED D3 should light steadily to indicate the module is ready to communicate with the HID bootloader client.
5. Open the bootloader client folder and find the file HIDBootloader. Double click this file to run it.
6. Connect a USB type A cable from the host computer and plug the miniB end of the cable into the USB connector on the module. There may be some preliminary communication and installation of drivers. Eventually, a message should appear on the status window of the bootloader client indicating that a device has been detected and is ready to install files. The LED D3 on the module will flash periodically to indicate that it is ready.
7. Click on the file menu tab and select Import Hex file option.
8. When a file dialog window opens, navigate to the location of the module hex file to be loaded.
9. Once the file is successfully imported, click on the Program tab and select the Erase, Program, Verify option.
10. Status messages indicating the progress of the transfer should appear.
11. Once the transfer is completed, power down the module.
12. Move the jumper from pins 7 and 8 to pin 8.
13. Power up the module and the new program version should start running.