



midi2cv8

## v2.0 Firmware Operating Modes

**Low-Key Transpose** - Most digital keyboards assign the midi note number 36 to their lowest key. To the midi2cv8, note 36 corresponds to 3 octaves above the lowest key, so it produces a 3 Volt Pitch CV. To most analog keyboards, 3V. corresponds to the key 3 octaves above the lowest (0V.) key. Consequently, oscillators pitched for use with an analog keyboard will play three octaves higher on a digital keyboard. The midi2cv8 has a Low Key Transpose feature that transposes the lowest key on any keyboard to key #0 for a 0V. output.

Activate this feature by turning on the midi keyboard and holding down it's lowest key WHILE the midi2cv8 is turned on or reset. Releasing the key then sets it as the lowest note. After setting Low-Key Transpose you must next do some action that will send a midi Status Byte so the midi2cv8 can know the correct Running Status. Usually rolling the pitch wheel or sending a program change is the easiest way, but in some cases the keyboard controller must be reset by turning it off and back on again.

**NOTE:** When the V/Hz option is installed, the lowest key defaults to key 36 so Low-Key Transpose will not usually be necessary.

**Running Status** is a technique used by most controllers to conserve precious midi bandwidth. But if the midi2cv8 was off when the Status Byte came by - or has been reset since the last one - confusion results. If you reset the midi2cv8 and it is suddenly nonresponsive, turn the keyboard or controller off and back on again or otherwise reset its Running Status. If this gets things to respond but the keyboard is suddenly "folded", it means that the midi2cv8 had previously misinterpreted an implicit Note-Off - "no" status (actually the midi2cv8 has forgotten it) and a zero second byte - as a Set Low-Key request. Reset the midi2cv8 to clear the Low-Key Transpose, which is producing the higher pitches for keys below the faux "Low-Key". Then also reset the controller again or you will be right back where you started.

**Mono/Multi** - The midi2cv8 defaults to Mono (Multi disabled). Multi is enabled by sending a Program #0 command (piano in General MIDI) on the Basic Channel and is disabled by resetting the midi2cv8. When Multi is enabled, notes on the Basic Channel are assigned to the first output group (Pitch, Gate, etc.), notes on the next channel above the Basic Channel route to output group 2 and so on as output groups are available. For example, in Two Voice Mode with Multi enabled a midi2cv8 set to Basic Channel 4 will route notes on midi channel 4 to output group 1 and notes on midi channel 5 will go to output group 2.

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### MODES



Provides complete control of a single synth voice. The Gate signal is high as long as any key is down. The 5 ms. Re-trigger pulse occurs each time a new note is played whether the previous key was released or not. Release velocity is assigned only on notes explicitly turned off with a Note Off Status.

#### ***Mono (all from Basic Channel)***

- output 1 = Pitch
- output 2 = Attack Velocity
- output 3 = Gate
- output 4 = Trigger Pulse
- output 5 = Pitch Wheel
- output 6 = Mod Wheel
- output 7 = Aftertouch
- output 8 = Release Velocity

#### ***Multi***

No Multi Enabled functions



Mode 2  
2 voice

Provides Pitch, Velocity and Gate control of two synth voices. Gates are legato (Gate signal does not go low when a new note is assigned to a currently assigned output) and notes are always assigned. Orphan note-offs are ignored (see mode 3). Mod Wheel and Pitch Wheel or two Pitch Wheel outputs are also provided.

**Mono**

output 1 = Basic Channel Pitch 1  
output 2 = Basic Channel Velocity 1  
output 3 = Basic Channel Gate 1  
output 4 = Basic Channel Pitch 2  
output 5 = Basic Channel Velocity 2  
output 6 = Basic Channel Gate 2  
output 7 = Basic Channel Pitch Wheel  
output 8 = Basic Channel Mod Wheel

**Multi**

output 1 = Basic Channel Pitch  
output 2 = Basic Channel Vel.  
output 3 = Basic Channel Gate  
output 4 = BC+1 Pitch  
output 5 = BC+1 Velocity  
output 6 = BC+1 Gate  
output 7 = BC Pitch Wheel  
output 8 = BC+1 Pitch Wheel



Mode 3  
4 voice

Pitch and Gate control of four synth voices. Gates are legato and new notes are always assigned. Orphan Note-Offs (when a note is to be turned off on an output that has already been reassigned) are ignored.

**Mono**

output 1 = Basic Channel Pitch 1  
output 2 = Basic Channel Gate 1  
output 3 = Basic Channel Pitch 2  
output 4 = Basic Channel Gate 2  
output 5 = Basic Channel Pitch 3  
output 6 = Basic Channel Gate 3  
output 7 = Basic Channel Pitch 4  
output 8 = Basic Channel Gate 4

**Multi**

out 1 = BC Pitch  
out 2 = BC Gate  
out 3 = BC+1 Pitch  
out 4 = BC+1 Gate  
out 5 = BC+2 Pitch  
out 6 = BC+2 Gate  
out 7 = BC+3 Pitch  
out 8 = BC+3 Gate



Mode 4  
control change

Converts MIDI Control Change messages for cc0 to cc7 to CVs.

**Mono**

output 1 = Basic Channel cc 0  
output 2 = Basic Channel cc 1  
output 3 = Basic Channel cc 2  
output 4 = Basic Channel cc 3  
output 5 = Basic Channel cc 4  
output 6 = Basic Channel cc 5  
output 7 = Basic Channel cc 6  
output 8 = Basic Channel cc 7

**Multi**

output 1 = BC cc 0  
output 2 = BC + 1 cc 0  
output 3 = BC + 2 cc 0  
output 4 = BC + 3 cc 0  
output 5 = BC + 4 cc 0  
output 6 = BC + 5 cc 0  
output 8 = BC + 6 cc 0  
output 9 = BC + 7 cc 0



Mode 5  
analog drum

This mode provides for control of devices that use variable amplitude pulses for triggering, such as analog drum circuits. Each output corresponds to a key and the each key activation produces a 5ms pulse with amplitude proportional to velocity

**Mono**

output 1 = Note 24h  
output 2 = Note 25h  
output 3 = Note 26h  
output 4 = Note 27h  
output 5 = Note 28h  
output 6 = Note 29h  
output 7 = Note 2ah  
output 8 = Note 2bh

**Multi**

No Multi Enabled Functions



Mode 6  
din sync

This mode converts MIDI Real Time messages into useful electrical control lines. The 24 ppq clock pulses and run/stop line are as required by DIN-Sync protocols. The 5ms. reset pulse is provided for control of analog sequencers and other applications where a distinction is made between MIDI Start and Continue commands.

**Mono**

out 1 = Basic Channel pitch  
out 2 = " velocity  
out 3 = " gate  
out 4 = " re-trigger  
out 5 = " pitch wheel  
out 6 = DIN start reset pulse  
out 7 = DIN run/stop  
out 8 = DIN 24 ppq 1mS pulses

**Multi**

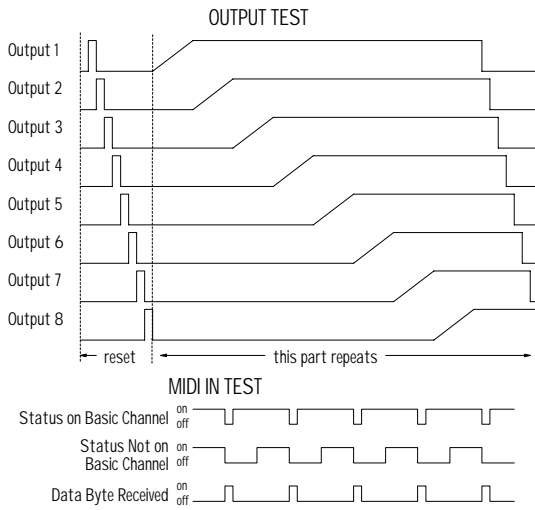
out 1 = Basic Channel pitch  
out 2 = Basic Channel vel.  
out 3 = Basic Channel gate  
out 4 = BC + 1 pitch  
out 5 = BC + 1 velocity  
out 6 = BC + 1 gate  
out 7 = DIN run/reset  
out 8 = DIN 24 ppq



Mode 8  
Self-Test

**Output Test -** On power-up or reset this test first strobes the eight outputs in sequence, holding each high for 1 second before turning it off and stepping to the next. When all eight outputs have been turned on and off the test next sequentially ramps each output high over a 5 second period and leaves the output high when done. This part of the test loops continuously until midi data is received.

**MIDI In Test -** When MIDI data is received, the output test is interrupted and the MIDI In LED flashes brightly and regularly to indicate the kind of data that was received as shown at right. Reset to start the test again



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