JX3P Tauntek Firmware CC and misc information R. Grieb April 6, 2021
(numbers are decimal, except as noted)

Function	CC #	CC Range	Parm Value
DCO LFO Depth	01	0-127	0-127
(MIDI Mod wheel CC, also sets LFO delay to 0)			
(Note that the maximum depth using the mod wheel is half of what can be obtained using the DCO LFO depth parameter. This matches the MKS-30)			
DCO2 Fine Tune	14	0-127	0-254
DCO2 Tune	15	0-127	0-254
DCO Envelope Depth	16	0-127	0-254
DCO LFO Depth	17	0-127	0-254
Source Mix	18	0-127	0-254
HP Filter Cutoff	19	0-127	0-254
Filter Resonance	20	0-127	0-254
Filter Cutoff	21	0-127	0-254
Filter Envelope Depth	22	0-127	0-254
Filter LFO Depth	23	0-127	0-254
Filter KeyTrack Amt	24	0-127	0-254
VCA Level	25	0-127	0-254
LFO Rate	26	0-127	0-254
LFO Delay	27	0-127	0-254
Env Attack	28	0-127	0-254
Env Decay	29	0-127	0-254
Env Sustain	30	0-127	0-254
Env Release	31	0-127	0-254
DCO1 Octave	32	0-41	0: 16'
		42-83	1: 8'
		84-127	2: 4'
DCO1 Waveform	33	0-41	0: Saw
		42-83	1: Pulse
		84-127	2: Square
DCO2 Octave	34	0-127	0-2 (see DCO1)
DCO2 Waveform	35	0-31	0: Saw
		32-63	1: Pulse
		64-95	2: Square
		96-127	3: Noise
DCO Cross Mod	36	0-41	0: Off
		42-83	1: Sync
		84-127	2: Metal
VCF Envelope Polarity	37	0-63	0: Negative
		64-127	1: Positive
VCA Mode	38	0-63	0: Gate
		64-127	1: Envelope

DCO1 Env Freq Mod	39	0-63	0: Disable
		64-127	1: Enable
DCO1 LFO Freq Mod	40	0-63	0: Disable
		64-127	1: Enable
DCO2 Env Freq Mod	41	0-63	0: Disable
		64-127	1: Enable
DCO2 LFO Freq Mod	42	0-63	0: Disable
		64-127	1: Enable
LFO Waveform	43	0-41	0: Sine
		42-83	1: Square
		84-127	2: Random
DCO Envelope Polarity	44	0-63	0: Negative
		64-127	1: Positive
Chorus Enable	45	0-63	0: Off
		64-127	1: On
Velocity Setting	46	0-31	0: Off
		32-63	1: VCF env amount only
		64-95	2: VCA level only
		96-127	3: both VCF and VCA
Key Assign Mode	47	0-41	0: SemiRotary (Poly I)
		42-83	1: Rotary
		84-127	2: NonRotary (Poly II)

New functions accessed using the Key Transpose switch:

Press and hold Key Transpose, then press and release Preset number switch 1-16

1: Select MIDI channel 1, OMNI off, voice display off
2: Select MIDI channel 2, OMNI off, voice display off
3: Select MIDI channel 3, OMNI off, voice display off
4: Select MIDI channel 4, OMNI off, voice display off
5: Select MIDI channel 5, OMNI off, voice display off
6: Select MIDI channel 6, OMNI off, voice display off
7: Select MIDI channel 7, OMNI off, voice display off
8: Select MIDI channel 8, OMNI off, voice display off

9: Disable MIDI velocity usage
10: MIDI velocity scales VCF envelope amount setting
11: MIDI velocity scales VCA level setting
12: MIDI velocity affects VCF and VCA
13: Select normal (semi-rotary) key assign mode (Poly I)
14: Select non-rotary key assign mode (Poly II)
15: Enable voice display (LEDs flicker, only for testing voices)
16: Enable OMNI mode

Velocity setting is saved in the patch.

MIDI channel/Omni mode is saved when power is off.
MIDI channel defaults to 1 until you set it the first time.

If VCF velocity sensitivity is enabled, the velocity value
is used to scale the current VCF envelope depth setting to
between 25% (1/4) of its value and 100% (all) of its value.
So higher settings of envelope depth will give more velocity
response.

If VCA velocity sensitivity is enabled, the velocity value
is used to scale the current VCA level setting to between
25% (1/4) of its value and 100% (all) of its value.
So higher settings of VCA level will give more velocity
response.

Velocity will only work if the Protect switch has been
modified to not protect memory in the MIDI position.

Internal keys are given a velocity value of 40H, or 64 decimal.
This matches what a keyboard without velocity would send.

When setting the MIDI channel, make sure memory is not protected.

User patches will be dumped as sysex when you initiate a tape patch save
operation. After the sysex file is sent, the normal tape patch save
will be performed, which will take a little while to complete. To load
the patches, just send the sysex file to the JX3P with memory unprotected.
The sysex file size should be 1351 bytes.

Sequencer data will be dumped as sysex when you initiate a tape sequence save
operation. After the sysex file is sent, the normal tape sequencer data save
will be performed, which will take a little while to complete. To load the
sequencer data, just send the file to the JX3P with memory unprotected.
The sysex file size should be 1799 bytes.

To make room for the velocity variables, the sequencer maximum number of steps
has been reduced to 112.

If you load a sequencer data wave file made with earlier firmware, it should play
properly until MIDI notes are received. It may be OK after that if the number of steps
is less than 112. I have not tested this.

Tape save and load operations should work as before.

The velocity value scales the VCF envelope depth parameter to 25-100% of its setting.
In the Roland JX3P firmware without velocity, this parameter would simply be used with
no scaling (100%). This would correspond to a note with maximum velocity. In the
MKS-30, if VCF velocity is disabled, the parameter would be scaled to 50% of the setting.
The internal presets were adjusted to compensate for this difference. Since the JX3P
internal presets were created assuming no velocity scaling would be applied, some of
them will not sound correct if velocity is enabled. Since the velocity setting is
stored in the patch, and none of the internal presets have it enabled, selecting an
internal preset will automatically shut off velocity response.

In the Roland JX3P firmware, when LFO trigger was pressed, it immediately reset the DCO1 and DCO2 LFO modulation enable bits in the patch. LFO modulation of both DCO's was forced on as long as the switch was held. So if a patch had DCO1 and DCO2 LFO modulation enabled, after the switch was pressed, they would no longer be enabled. In the new firmware, this has been changed. When LFO trigger is held down, LFO mod of DCO1 and 2 is enabled, controlled by the LFO depth setting. But pressing the switch does not reset the patch bits.

The patch sysex files for the MKS-30 and the JX3P are compatible. If you dump patches on the JX3P, only the 32 RAM/user patches are saved. This file could then be loaded into the MKS-30, and would fill the first 32 slots. If you dump patches on the MKS-30, all 64 patches will be saved. Loading this into the JX3P would load the first 32 MKS-30 patches into the RAM patches of the JX3P.

The JX3P code does not check for invalid switch presses when editing parameters. If you select a parameter that can either be ON or OFF, and then press C or D (instead of A or B), another bit in the patch will be changed. Pressing A after this will not clear the bit that was changed incorrectly. I added code to fix this issue. If you select a parameter that has only two states and then press C or D, those switches will light, but the parameter will not be changed.