

ULTRANOVA PROGRAM PARAMETER MIDI ASSIGNMENTS

MIDI CONTROLLER LIST

PARAMETER	CC	PACKED DATA DETAIL (standard midi use)
(Standard Midi)	0	(bank msb)
(Standard Midi)	1	(modwheel msb)
(Standard Midi)	2	(breath msb)
Polyphony Mode	3	
(Standard Midi)	4	(foot controller)
Portamento Rate	5	(portamento time)
(Standard Midi)	6	(data entry msb)
(Standard Midi)	7	(channel volume msb)
Dry:Wet Balance	8	(balance)
Pre-Glide	9	
Pan Position	10	(pan)
(Standard Midi)	11	(expression)
Portamento expo/linear	12	
Keyboard Octave Offset	13	
Unison Count	14	
Unison Detune	15	
Osc123 Drift	16	
Osc123 Start Phase	17	
Osc123 Fixed Note	18	
Osc1 Waveform/WT/Audio	19	
Osc1 Wavetable Interpolate	20	
Osc1 Pulsewidth/WTindex	21	
Osc1 Sync Depth	22	
Osc1 Hardness	23	
Osc1 Density	24	
Osc1 Density Detune	25	
Osc1 Semitone Offset	26	
Osc1 Cents Offset	27	
Osc1 Bendwheel>Pitch	28	
Osc2 Waveform/WT/Audio	29	
Osc2 Wavetable Interpolate	30	
Osc2 Pulsewidth/WTindex	31	
(Standard Midi)	32	(bank lsb)
Osc2 Sync Depth	33	
Osc2 Hardness	34	
Osc2 Density	35	
Osc2 Density Detune	36	
Osc2 Semitone Offset	37	
(Standard Midi)	38	(data entry lsb)
Osc2 Cents Offset	39	
Osc2 Bendwheel>Pitch	40	

PARAMETER	CC	PACKED DATA DETAIL (standard midi use)
Osc3 Waveform/WT/Audio	41	
Osc3 Wavetable Interpolate	42	
Osc3 Pulsewidth/WTindex	43	
Osc3 Sync Depth	44	
Osc3 Hardness	45	
Osc3 Density	46	
Osc3 Density Detune	47	
Osc3 Semitone Offset	48	
Osc3 Cents Offset	49	
Osc3 Bendwheel>Pitch	50	
Osc1 Mix Level	51	
Osc2 Mix Level	52	
Osc3 Mix Level	53	
Osc13 Ringmod Mix Level	54	
Osc23 Ringmod Mix Level	55	
Noise Mix Level	56	
Noise Type	57	
Pre-FX Level	57	
Post-FX Level	59	
Filter Configuration	60	
Filter Balance	61	
Filter Packed Data	62	Bits 1:Res-Link 0:Freq-Link
Filter1 Drive	63	
(Standard Midi)	64	(sustain pedal)
Filter1 Drive Type	65	
(Standard Midi)	66	(sostenuto pedal)
(Standard Midi)	67	(soft pedal)
Filter1 Type	68	
Filter1 Track	69	
AmpEnv Sustain Level	70	
Filter1 Resonance	71	(harmonic quality)
AmpEnv Release	72	(release time)
AmpEnv Attack	73	(attack time)
Filter1 Frequency	74	(brightness)
AmpEnv Decay	75	(GM2 decay time)
Easy Vibrato Rate	76	(GM2 vibrato rate)
Easy Vibrato Depth	77	(GM2 vibrato depth)
Filter1 Q-normalise	78	
FiltEnv>Filter1 Freq	79	
Filter2 Drive	80	
Filter2 Drive Type	81	
Filter2 Type	82	
Filter2 Frequency	83	
Filter2 Track	84	
Filter2 Resonance	85	
Filter2 Q-normalise	86	

PARAMETER	CC	PACKED DATA DETAIL (standard midi use)
FiltEnv>Filter2 Freq	87	
Pan Mod Rate	88	
Pan Mod Rate Sync	89	
Pan Mod Depth	90	
FxSlot1 Level	91	(reverb send)
FxSlot2 Level	92	(tremolo depth)
FxSlot3 Level	93	(chorus send)
FxSlot4 Level	94	(celeste detune)
FxSlot5 Level	95	(phaser depth)
(Standard Midi)	96	(data inc)
(Standard Midi)	97	(data dec)
(Standard Midi)	98	(nrpn lsb)
(Standard Midi)	99	(nrpn msb)
(Standard Midi)	100	(rpn lsb)
(Standard Midi)	101	(rpn msb)
Pan L/R Phase Offset	102	
L/R Width Enhance	103	
Pan Spare	104	
Env Packed MonoMulti Triggers	105	Bits 5:E6 4:E5 3:E4 2:E3 1:F 0:A
Env Level Track Centre	106	
Drum Time	107	
AmpEnv Velocity	108	
AmpEnv Sustain Rate	109	
AmpEnv Sustain Time	110	
AmpEnv A/D Repeats	111	
AmpEnv Attack Track	112	
AmpEnv Decay Track	113	
AmpEnv Level Track	114	
AmpEnv Attack Slope	115	
AmpEnv Decay Slope	116	
AmpEnv Touch Trigger	117	
Free for future use	118	
Free for future use	119	
(Standard Midi)	120	(channel mode: All Sounds Off)
(Standard Midi)	121	(channel mode: Reset All Controllers)
(Standard Midi)	122	(channel mode: Local Control)
(Standard Midi)	123	(channel mode: All Notes Off)
(Standard Midi)	124	(channel mode: Omni Mode Off)
(Standard Midi)	125	(channel mode: Omni Mode On)
(Standard Midi)	126	(channel mode: Mono Mode On)
(Standard Midi)	127	(channel mode: Poly Mode On)

MIDI NRPN LIST

START OF NRPN MSB=0

PARAMETER	NRPN PACKED DATA DETAIL (standard midi)
FiltEnv Velocity	0:0
FiltEnv Attack	0:1
FiltEnv Decay	0:2
FiltEnv Sustain Level	0:3
FiltEnv Release	0:4
FiltEnv Sustain Rate	0:5
FiltEnv Sustain Time	0:6
FiltEnv A/D Repeats	0:7
FiltEnv Attack Track	0:8
FiltEnv Decay Track	0:9
FiltEnv Level Track	0:10
FiltEnv Attack Slope	0:11
FiltEnv Decay Slope	0:12
FiltEnv Touch Trigger	0:13
Env3 Delay	0:14
Env3 Attack	0:15
Env3 Decay	0:16
Env3 Sustain Level	0:17
Env3 Release	0:18
Env3 Sustain Rate	0:19
Env3 Sustain Time	0:20
Env3 A/D Repeats	0:21
Env3 Attack Track	0:22
Env3 Decay Track	0:23
Env3 Level Track	0:24
Env3 Attack Slope	0:25
Env3 Decay Slope	0:26
Env3 Touch Trigger	0:27
Env4 Delay	0:28
Env4 Attack	0:29
Env4 Decay	0:30
Env4 Sustain Level	0:31
Env4 Release	0:32
Env4 Sustain Rate	0:33
Env4 Sustain Time	0:34
Env4 A/D Repeats	0:35
Env4 Attack Track	0:36
Env4 Decay Track	0:37
Env4 Level Track	0:38
Env4 Attack Slope	0:39
Env4 Decay Slope	0:40

PARAMETER	NRPN PACKED DATA DETAIL (standard midi)
Env4 Touch Trigger	0:41
Env5 Delay	0:42
Env5 Attack	0:43
Env5 Decay	0:44
Env5 Sustain Level	0:45
Env5 Release	0:46
Env5 Sustain Rate	0:47
Env5 Sustain Time	0:48
Env5 A/D Repeats	0:49
Env5 Attack Track	0:50
Env5 Decay Track	0:51
Env5 Level Track	0:52
Env5 Attack Slope	0:53
Env5 Decay Slope	0:54
Env5 Touch Trigger	0:55
Env6 Delay	0:56
Env6 Attack	0:57
Env6 Decay	0:58
Env6 Sustain Level	0:59
Env6 Release	0:60
Env6 Sustain Rate	0:61
Env6 Sustain Time	0:62
Env6 A/D Repeats	0:63
Env6 Attack Track	0:64
Env6 Decay Track	0:65
Env6 Level Track	0:66
Env6 Attack Slope	0:67
Env6 Decay Slope	0:68
Env6 Touch Trigger	0:69
Lfo1 Waveform	0:70
Lfo1 Phase Offset	0:71
Lfo1 Slew Rate	0:72
Lfo1 Shape	0:73
Lfo1 Delay	0:74
Lfo1 Delay Sync	0:75
Lfo1 Rate	0:76
Lfo1 Rate Sync	0:77
Lfo1 Packed Data	0:78
	Bits 4:Fade 3:DelayMulti 2:Common 1:KeySync 0:OneShot
Lfo2 Waveform	0:79
Lfo2 Phase Offset	0:80
Lfo2 Slew Rate	0:81
Lfo2 Shape	0:82
Lfo2 Delay	0:83
Lfo2 Delay Sync	0:84
Lfo2 Rate	0:85
Lfo2 Rate Sync	0:86

PARAMETER**NRPN PACKED DATA DETAIL (standard midi)**

Lfo2 Packed Data	0:87	Bits 4:Fade 3:DelayMulti 2:Common 1:KeySync 0:OneShot
Lfo3 Waveform	0:88	
Lfo3 Phase Offset	0:89	
Lfo3 Slew Rate	0:90	
Lfo3 Shape	0:91	
Lfo3 Delay	0:92	
Lfo3 Delay Sync	0:93	
Lfo3 Rate	0:94	
Lfo3 Rate Sync	0:95	
Lfo3 Packed Data	0:96	Bits 4:Fade 3:DelayMulti 2:Common 1:KeySync 0:OneShot
Fx Configuration	0:97	
Fx Feedback	0:98	
Fx Slot1 Effect Select	0:99	
Fx Slot2 Effect Select	0:100	
Fx Slot3 Effect Select	0:101	
Fx Slot4 Effect Select	0:102	
Fx Slot5 Effect Select	0:103	
Bass EQ Frequency	0:104	
Bass EQ Level	0:105	
Mid EQ Frequency	0:106	
Mid EQ Level	0:107	
Treble EQ Frequency	0:108	
Treble EQ Level	0:109	
Compress1 Ratio	0:110	
Compress1 Threshold	0:111	
Compress1 Attack	0:112	
Compress1 Release	0:113	
Compress1 Hold	0:114	
Compress1 Auto-Gain	0:115	
Compress2 Ratio	0:116	
Compress2 Threshold	0:117	
Compress2 Attack	0:118	
Compress2 Release	0:119	
Compress2 Hold	0:120	
Compress2 Auto-Gain	0:121	
1-Bit packed parameter special	0:122	
2-Bit packed parameter special	0:123	
3-Bit packed parameter special	0:124	
4-Bit packed parameter special	0:125	
5-Bit packed parameter special	0:126	
6-Bit packed parameter special	0:127	

START OF NRPN MSB=1

PARAMETER	NRPN PACKED DATA DETAIL (standard midi)
Distort1 Type	1:0
Distort1 Compensation	1:1
Distort1 Output Level	1:2
Distort2 Type	1:3
Distort2 Compensation	1:4
Distort2 Outut Level	1:5
Delay1 Time	1:6
Delay1 Sync Time	1:7
Delay1 Feedback	1:8
Delay1 Width	1:9
Delay1 L/R Ratio	1:10
Delay1 Slew Rate	1:11
Delay2 Time	1:12
Delay2 Sync Time	1:13
Delay2 Feedback	1:14
Delay2 Width	1:15
Delay2 L/R Ratio	1:16
Delay2 Slew Rate	1:17
Reverb1 Type	1:18
Reverb1 Decay	1:19
Reverb1 Damping	1:20
Reverb2 Type	1:21
Reverb2 Decay	1:22
Reverb2 Damping	1:23
Phaser/Chorus1 Type	1:24
Phaser/Chorus1 Rate	1:25
Phaser/Chorus1 Rate Sync	1:26
Phaser/Chorus1 Feedback	1:27
Phaser/Chorus1 Mod Depth	1:28
Phaser/Chorus1 Delay	1:29
Phaser/Chorus2 Type	1:30
Phaser/Chorus2 Rate	1:31
Phaser/Chorus2 Rate Sync	1:32
Phaser/Chorus2 Feedback	1:33
Phaser/Chorus2 Mod Depth	1:34
Phaser/Chorus2 Delay	1:35
Phaser/Chorus3 Type	1:36
Phaser/Chorus3 Rate	1:37
Phaser/Chorus3 Rate Sync	1:38

PARAMETER	NRPN PACKED DATA DETAIL (standard midi)	
Phaser/Chorus3 Feedback	1:39	
Phaser/Chorus3 Mod Depth	1:40	
Phaser/Chorus3 Delay	1:41	
Phaser/Chorus4 Type	1:42	
Phaser/Chorus4 Rate	1:43	
Phaser/Chorus4 Rate Sync	1:44	
Phaser/Chorus4 Feedback	1:45	
Phaser/Chorus4 Mod Depth	1:46	
Phaser/Chorus4 Delay	1:47	
Gator Packed Data	1:48	Bits 2:Latch 1:KeySync 0:On
Gator Rate Sync	1:49	
Gator Mode	1:50	
Gator Level	1:51	
Gator Edge Slew	1:52	
Gator Decay	1:53	
Gator Delay	1:54	
Vocoder Packed Data	1:55	Bits 1:SibType 0:On
Vocoder Balance	1:56	
Vocoder Width	1:57	
Vocoder Sibilance	1:58	
Vocoder Spectrum Shift	1:59	
Vocoder Spectrum Magnify	1:60	
Arpeggiator Packed Data	1:61	Bits 6-5:OutputMode 2:Latch 1:KeySync 0:On
Arpeggiator Octaves	1:62	
Arpeggiator Rate Sync	1:63	
Arpeggiator Gate Time	1:64	
Arpeggiator Mode	1:65	
Arpeggiator Pattern	1:66	
Arpeggiator Velocity	1:67	
Arpeggiator Sequence	1:69	
Arpeggiator Quantise	1:70	
Chord Transpose	1:78	
Chord Spare	1:79	
ModMatrix Velocity Slew Rate	1:80	
ModMatrix Touch Slew Rate	1:81	
ModMatrix Select	1:82	
ModMatrix1 Source1	1:83	
ModMatrix1 Source2	1:84	
ModMatrix1 Touch Enable	1:85	
ModMatrix1 Depth	1:86	
ModMatrix1 Destination	1:87	

PARAMETER	NRPN PACKED DATA DETAIL (standard midi)
ModMatrix2 Source1	1:88
ModMatrix2 Source2	1:89
ModMatrix2 Touch Enable	1:90
ModMatrix2 Depth	1:91
ModMatrix2 Destination	1:92
ModMatrix3 Source1	1:93
ModMatrix3 Source2	1:94
ModMatrix3 Touch Enable	1:95
ModMatrix3 Depth	1:96
ModMatrix3 Destination	1:97
ModMatrix4 Source1	1:98
ModMatrix4 Source2	1:99
ModMatrix4 Touch Enable	1:100
ModMatrix4 Depth	1:101
ModMatrix4 Destination	1:102
ModMatrix5 Source1	1:103
ModMatrix5 Source2	1:104
ModMatrix5 Touch Enable	1:105
ModMatrix5 Depth	1:106
ModMatrix5 Destination	1:107
ModMatrix6 Source1	1:108
ModMatrix6 Source2	1:109
ModMatrix6 Touch Enable	1:110
ModMatrix6 Depth	1:111
ModMatrix6 Destination	1:112
ModMatrix7 Source1	1:113
ModMatrix7 Source2	1:114
ModMatrix7 Touch Enable	1:115
ModMatrix7 Depth	1:116
ModMatrix7 Destination	1:117
ModMatrix8 Source1	1:118
ModMatrix8 Source2	1:119
ModMatrix8 Touch Enable	1:120
ModMatrix8 Depth	1:121
ModMatrix8 Destination	1:122
ModMatrix9 Source1	1:123
ModMatrix9 Source2	1:124
ModMatrix9 Touch Enable	1:125
ModMatrix9 Depth	1:126
ModMatrix9 Destination	1:127

START OF NRPN MSB=2

PARAMETER	NRPN PACKED DATA DETAIL (standard midi)
ModMatrix10 Source1	2:0
ModMatrix10 Source2	2:1
ModMatrix10 Touch Enable	2:2
ModMatrix10 Depth	2:3
ModMatrix10 Destination	2:4
ModMatrix11 Source1	2:5
ModMatrix11 Source2	2:6
ModMatrix11 Touch Enable	2:7
ModMatrix11 Depth	2:8
ModMatrix11 Destination	2:9
ModMatrix12 Source1	2:10
ModMatrix12 Source2	2:11
ModMatrix12 Touch Enable	2:12
ModMatrix12 Depth	2:13
ModMatrix12 Destination	2:14
ModMatrix13 Source1	2:15
ModMatrix13 Source2	2:16
ModMatrix13 Touch Enable	2:17
ModMatrix13 Depth	2:18
ModMatrix13 Destination	2:19
ModMatrix14 Source1	2:20
ModMatrix14 Source2	2:21
ModMatrix14 Touch Enable	2:22
ModMatrix14 Depth	2:23
ModMatrix14 Destination	2:24
ModMatrix15 Source1	2:25
ModMatrix15 Source2	2:26
ModMatrix15 Touch Enable	2:27
ModMatrix15 Depth	2:28
ModMatrix15 Destination	2:29
ModMatrix16 Source1	2:30
ModMatrix16 Source2	2:31
ModMatrix16 Touch Enable	2:32
ModMatrix16 Depth	2:33
ModMatrix16 Destination	2:34
ModMatrix17 Source1	2:35
ModMatrix17 Source2	2:36
ModMatrix17 Touch Enable	2:37
ModMatrix17 Depth	2:38
ModMatrix17 Destination	2:39

ModMatrix18 Source1	2:40
ModMatrix18 Source2	2:41
ModMatrix18 Touch Enable	2:42
ModMatrix18 Depth	2:43
ModMatrix18 Destination	2:44
ModMatrix19 Source1	2:45
ModMatrix19 Source2	2:46
ModMatrix19 Touch Enable	2:47
ModMatrix19 Depth	2:48
ModMatrix19 Destination	2:49
ModMatrix20 Source1	2:50
ModMatrix20 Source2	2:51
ModMatrix20 Touch Enable	2:52
ModMatrix20 Depth	2:53
ModMatrix20 Destination	2:54
Program Spare1	2:55
Program Spare2	2:56
Program Spare3	2:57
Program Spare4	2:58
Program Spare5	2:59
Program Spare6	2:60
Program Spare7	2:61
Program Spare8	2:62
ClockBPM	2:63

ClockBPM uses dataMSB:dataLSB to form a 14-bit word (see notes below about high resolution parameters)

START OF NRPN MSB=5

Gator Data: each time-slot level has range 0..7

Gator Level L1	5:00
Gator Level L2	5:01
.	.
.	.
Gator Level L16	5:15
Gator Level R1	5:16
.	.
.	.
Gator Level R16	5:31

START OF NRPN MSB=6

SYSTEM ITEMS

START OF NRPN MSB=60

Touch Control: 8 touch performance controls
Ultranova transmits 0=off, 127=touched
Ultranova receives 0..63=off, 64..127=touched

Touch1	60:00
Touch2	60:01
Touch3	60:02
Touch4	60:03
Touch5	60:04
Touch6	60:05
Touch7	60:06
Touch8	60:07

START OF NRPN MSB=61

Solo Control: 6 solo performance controls
Ultranova transmits 0=off, 127=on
Ultranova receives 0..63=off, 64..127=on

Solo Osc1	61:00
Solo Osc2	61:01
Solo Osc3	61:02
Solo Ringmod 1*3	61:03
Solo Ringmod 2*3	61:04
Solo Noise	61:05

START OF NRPN MSB=64

Global / Audio Setup Data Structure (Version 0.0.34 onwards)

Protect	64:0
Spare1	64:1
Power-up Bank	64:2
Power-up Patch	64:3
Global Midi Channel	64:4
Spare2	64:5
Master Tune Cents	64:6
Master Transpose Semitones	64:7
Keyboard Velocity Curve	64:8
Synth Engine Velocity Response	64:9
Spare3	64:10
Midi Clock Source	64:11
Spare4	64:12

Spare5	64:13
Footswitch Mode	64:14
Touch Filter Lock	64:15
Midi In Socket Function	64:16
Midi Out Socket Function	64:17
Usb-disconnected Sample Rate	64:18
Patch Find Method	64:19
Spare6	64:20
Spare7	64:21
Spare8	64:22
Spare9	64:23
Spare10	64:24
Spare11	64:25
Spare12	64:26
Spare13	64:27
Input1 Gain dB	64:28
Input2 Gain dB	64:29
Input1 to Fx	64:30
Input2 to Fx	64:31
Inputs 1/2 Link	64:32
Synth to Outputs 1/2	64:33
Input1 to Outputs 1/2	64:34
Input2 to Outputs 1/2	64:35
Record Mode	64:36
Synth to Outputs 3/4	64:37
Input1 to Outputs 3/4	64:38
Input2 to Outputs 3/4	64:39
Outputs 3/4 Level	64:40
Outputs 3/4 Balance	64:41
Phones Level Mode	64:42
Phones Level (levbal mode)	64:43
Phones Balance (levbal mode)	64:44
Spares	64:45-127
Spares	65:0-109

NOTES ABOUT NRPNs

It is not necessary to send nrpnMSB=0 as this is a default.

On power-up or after receiving data entry msb (CC6) in any NRPN sequence, nrpnMSB is internally set to 0.

This allows the first 128 NRPNs to be delivered with 2 controller messages instead of 3.

Further, when NRPN 0:xxx parameters are edited on the control panel, nrpnMSB is not transmitted.

Interacting software should therefore assume that nrpnMSB=0 unless specifically set prior to the nrpnLSB or CC6 data message.

NOTES ABOUT HIGH RESOLUTION PARAMETERS

Data resolution above 7 bits is needed in a few noted cases (ie Tweak Data and ClockBPM)

NRPN dataMSB:dataLSB is used to form 14-bit words.

For these parameters only, the following applies:-

Ultranova transmission:-

4 controller messages are sent in this order:- nrpnMSB:nrpnLSB:dataMSB:dataLSB

Ultranova reception:-

All 4 controller messages (nrpnMSB:nrpnLSB:dataMSB:dataLSB) must be received in that order, otherwise response is not guaranteed.

The 14-bit value formed from dataMSB:dataLSB is applied only after dataLSB is received in this sequence.

Subsequent dataLSB messages will be ignored. (many intervening messages such as voice, system, real-time & most other CCs will not disrupt the sequence)

NOTES ABOUT PACKED PARAMETERS

6 NRPNs are dedicated to packed parameter transmission:-

NRPN 0:122 handles up to 64 1-Bit packed values

NRPN 0:123 handles up to 32 2-Bit packed values

NRPN 0:124 handles up to 16 3-Bit packed values

NRPN 0:125 handles up to 8 4-Bit packed values

NRPN 0:126 handles up to 4 5-Bit packed values

NRPN 0:127 handles up to 2 6-Bit packed values

The purpose of this function is to convey specific bit-fields in a packed byte without knowledge of other fields.

If all fields are known, the packed byte can be transmitted in the normal way, using it's own CC or NRPN.

See "PACKED BYTE DETAILS" in the Patch & Global spec section.
