

Speak & Glitch GND-1T midi reference

(Rev 1.05, Jan. 9, 2025)

Table 1 MIDI CC functions

| CC | Function | Range | Comments |
|----|---|----------------------|--|
| 0 | Bank select | 0-9 | |
| 2 | Breath control | 0-127 | |
| 3 | Plasma | 0-127 | Modifies the effect of Gravity |
| 4 | DRIFT depth | 0-127 | * N.B. GLOBAL not patch specific * |
| 5 | Portamento | 0-127 | |
| 6 | NRPN data MSB | | |
| 7 | POST FILTER Volume (sets synth volume) | 0-127 | Synth & AUX are always routed through Post Filter, drum and USB PF sends are optional |
| 9 | Amplitude ADSR depth | 0-127 | Mixer between rectangular and ENV |
| 10 | Expanded XP param select Use instead of CC11 for parameters not accessed via MIDI CC 0-127 | 0-15 | See table 5 |
| 11 | Expression param select | 0-127 | MIDI CC of any continuous parameter in this list. If omitted, the last edited parameter is used. <u>Altering or selecting any parameter sets it as the current one being mapped</u> |
| 12 | Expression controller Select | 0-4 | 0=modheel 1=velocity 2=breath 3=aftertouch 4=XPLFO |
| 13 | Expression scaler value | 0-127 <u>bipolar</u> | 0=max neg, 64=0, 127 = max pos |
| 14 | Attack | 0-127 | |
| 15 | Hold | 0-127 | |
| 16 | Decay | 0-127 | |
| 17 | Sustain | 0-127 | |
| 18 | Release | 0-127 | |
| 19 | Tempo (speech rate) | 0-127 | |

| | | | |
|----|------------------------|-------------|---|
| 20 | LFO1 rate | 0-127 | |
| 21 | LFO2 rate | 0-127 | |
| 22 | Attack/Decay mod | 0-127 | Uses Pitch mod mix waveform |
| 23 | Cross mod LFO1+2+SLFO | 0-127 | |
| 24 | SLFO Slow LFO rate | 0-127 | |
| 25 | CLFO Chaos LFO rate | 0-127 | |
| 26 | XPLFO mix | 0-127 | |
| 27 | XPLFO mod wav1 | 0-nummodwav | |
| 28 | Osc Waveshape | 0 – 80 | 16 steps cross fading between consecutive wavs vox, saw, sqr, pnz, pwm, sqr-oct (table 3) |
| 29 | Osc Brightness | 0-127 | |
| 30 | Brightness mod Dep | 0-127 | Additive with folding |
| 31 | Brightness mod Mix | 0-127 | From Filter mod block |
| 32 | LFO 1+2 mod depth | 0-127 | Uses BENDS mix waveform |
| 33 | Pitch | 0-117 | MIDI note values |
| 34 | Pitch mod depth | 0-127 | Additive |
| 35 | Pitch mod mix | 0-127 | |
| 36 | Pitch mod wav1 | 0-nummodwav | See Table 2 for revised numbering |
| 37 | Pitch mod wav2 | 0-nummodwav | See Table 2 |
| 38 | NRPN DATA LSB | | |
| 39 | Plasma bend mod depth | 0-127 | Additive |
| 40 | Filter | 0-127 | (see also CC 73) |
| 41 | Filter mod depth | 0-127 | Additive with folding |
| 42 | Filter mod mix | 0-127 | |
| 43 | Filter mod wav1 | 0-nummodwav | See Table 2 |
| 44 | Filter mod wav2 | 0-nummodwav | See Table 2 |
| 45 | Speech ROM “loop blur” | 0-127 | 0=no effect,127=max blur |
| 46 | Loop length | 0-127 | |
| 47 | LP leng mod depth | 0-127 | Multiplicative or/ Additive |
| 48 | LP leng mod mix | 0-127 | |
| 49 | Lp leng mod wav1 | 0-nummodwav | See Table 2 |
| 50 | Lp leng mod wav2 | 0-nummodwav | See Table 2 |
| 51 | Echo Delay Time | 0-127 | |
| 52 | Glitch | 0-127 | |
| 53 | Glitch bend mod depth | 0-127 | Additive with folding |
| 54 | Gravity | 0-127 | |
| 55 | Gravity bend mod depth | 0-127 | Additive with folding |
| 56 | Flux | 0-127 | |
| 57 | Flux bend mod depth | 0-127 | Additive with folding |
| 58 | Warp | 0-127 | |
| 59 | Drums Overdrive | 0-127 | *** new in firmware 241103 (was Warp Bend previously) |
| 60 | Bend mod mix | 0-127 | |
| 61 | Bend mod wav1 | 0-nummodwav | See Table 2 |
| 62 | Bend mod wav2 | 0-nummodwav | See Table 2 |
| 63 | Unvoiced Speech Energy | 0-127 | 0 = unvoiced signals off |

| | | | |
|----|---|----------------|--|
| | Reduction | | 127 = unmodified speech levels |
| 64 | Freeze & Looper Control *in looper mode, set up Echo vol and delay time first. Recommend setting Global Drums and RUN off while creating loops from multiple patches | 0/127, and 1-8 | 127 = punch in if <u>echoFreeze ON</u> 0 = punch out if <u>echoFreeze ON</u> 1= LPfreeze off, 2= LPfreeze on 3=modFreeze off, 4=modFreeze on 5=echoFreeze off, 6=echoFreeze on 7=punch mode overwrite 8=punch mode dub |
| 65 | PStereo (phase) | 0-127 | |
| 66 | FStereo (filter) | 0-127 | |
| 67 | BStereo (bend) | 0-127 | |
| 68 | BStereo Mod (bendmod) | 0-127 | Multiplicative |
| 69 | Drum src mix | 0-127 | 0 = speech ROM updates 127= synth audio |
| 70 | Drum volume | 0-127 | |
| 71 | Drum vel out variation | 0-127 | |
| 72 | DRUM MUTE | 0-1 | 0 = drums on (mute off) 1 = drums off * See also CC 102 |
| 73 | Filter DeResonance | 0-127 | Lowers speech filter resonances At max, filter-allpass |
| 74 | Drum trigger sensitivity | 0-127 | |
| 75 | Drum trig sens mod | 0-127 | Additive |
| 76 | Drum trig sens mod mix | 0-127 | |
| 77 | Drum rate | 0-127 | |
| 78 | Drum rate mod | 0-127 | Additive |
| 79 | Drum pattern | 0-127 | |
| 80 | Drum pattern mod | 0-127 | Additive with folding |
| 81 | Drum rate+pat mod mix | 0-127 | |
| 82 | Drum mod wav1 | 0-nummodwavs | Table 2 |
| 83 | Drum mod wav2 | 0-nummodwavs | Table 2 |
| 84 | Drum improv/rand | 0-127 | Randomizes timing |
| 85 | Drum map mod depth | 0-127 | |
| 86 | XPLFO mod wav2 | 0-nummodwav | |
| 87 | XPlfoScaler | 0-127 | |
| 88 | Tune | 0-127 | |
| 89 | Post Filter mod wav1 | 0-nummodwav | |
| 90 | Post Filter mod wav2 | 0-nummodwav | |
| 91 | Echo Repeats | 0-127 | |
| 92 | Post Filter cutoff | 0-127 | |
| 93 | Post Filter mod depth | 0-127 | |
| 94 | Post Filter resonance/Q | 0-127 | |
| 95 | Post Filter mod mix | 0-127 | |
| 96 | Xpression Freeze Thresh | 0-127 | |
| 97 | Post Filter Overdrive | 0-127 | |

| | | | |
|-----|---------------------------|--|---|
| 98 | NRPN param low byte | | |
| 99 | NRPN param high byte | | |
| 100 | Osc Drive (pre filter) | 0-127 | 64=unity gain re speech ROM data |
| 101 | Tempo mod | 0 -127 | uses LPleng mod mix signal |
| 102 | RUN / STOP | 0= STOP 1 or 127 = RUN 2 = D-RUN off 3 = D-RUN on* 4 = STOP ALL audio with fades 5 = PANIC STOP | *D RUN (run drums only) is only effective when in STOP state. MIDI notes can be played while this is active. In STOP, activating D RUN turns off drumMute. Stop all audio immediately, Clear all MIDI notes |
| 103 | DRIFT control | 0=off, 1/127=on, 2 =clear, 3= load temp 4= save temp 5= load perm 6= save perm 7= delete perm | 0 halt drift, retain current values 2 clear drift buffer 3 load-from / 4 save-to temp drift buffer 5 load / 6 save / 7 delete, current permanent buffer (select buffer 0-127 using NRPN CC 98=64, CC 6 = buffer #) |
| 104 | DRIFT rate | 0-127 | |
| 105 | Revert / Reload patch | any non-0 value | sets new loop restore vals |
| 106 | Randomize Commands | 0-7, 127 | 0 = (no effect) 1 = rand Loop/Word + Synth params 2 = rand Loop/Word: sets new loop restore vals if speak on (CC109) 3 = rand Synth params 4 = rand Drums (but not Kits) 5 = undo (rand / drift) 6 = rand internal Drum kits 7= restore Loop/Word 127 = rand All |
| | | | CC 6 = 1, 3, or 127 always sets new loop restore vals |
| 107 | Word Bank select | 0-4 | See Table 7 (sets loop restore vals) |
| 108 | Word index (in bank) | 0-59 | See Table 7 (sets loop restore vals) |
| 109 | Play mode | 0-5 | 0 = LOOP reFILT off 1 = LOOP reFILT on resets filter each LOOP cycle 2 =Speak off: Loops, not Words 3= Speak on, multiword 4= Speak on, single word 5= Speak on, babble (random words) |
| 110 | Tempo clk PPQN scaler | 0-127 | 24=unity @120bpm (1=24x, 0=48x) |
| 111 | LFO clk PPQN scaler | 0-127 | |
| 112 | LP length clk PPQN scaler | 0-127 | |
| 113 | Drum rate clk PPQN scaler | 0-127 | |
| 114 | MFO rate | 0-127 | |
| 115 | MFO fine tune | 0-127 | |
| 116 | MFO offset | 0-127 | |
| 117 | MFO Amp mod | 0-127 | |

| | | | |
|-----|-------------------|-----------|-----------------------|
| 118 | MFO Pitch mod | 0-127 | |
| 119 | MFO Filter mod | 0-127 | |
| 120 | Stop all sound | Any value | |
| 121 | <u>Not used</u> | | |
| 122 | MFO mod depth mod | 0-127 | Multiplicative |
| 123 | All notes off | | |
| 126 | MFO mod mix | 0-127 | From LPleng mod block |
| 127 | Echo Volume | 0-127 | |

Outputs on MIDI channel 16: * see NRPN for additional outputs

| | |
|--------|--------------------|
| CC 115 | LFO1 CC OUTPUT |
| CC 116 | LFO2 CC OUTPUT |
| CC 117 | SLFO 1 CC OUTPUT |
| CC 118 | CLFO 1 CC OUTPUT |
| CC 119 | AHDSR / ENV OUTPUT |

Table 2. GND-1T internal drum kits set via NRPN CC 98 = 47, 48, or 49
 (custom kits were recorded specifically for the GND-1T) CC 6 =

| | | |
|----|---------|--|
| 0 | off* | *setting the main kit to 0 also turns off m1 and m2 mod kits |
| 1 | ACE | Rhythm Ace drum machine |
| 2 | VNTGE | vintage drumbox |
| 3 | CR78a | CR 78 drum machine |
| 4 | CR78b | CR 78 drum machine |
| 5 | 8000a | CR 8000 drum machine |
| 6 | 8000b | CR 8000 drum machine |
| 7 | SYN1 | custom Synth Kit 1 |
| 8 | SYN2 | custom Synth Kit 2 |
| 9 | SYN3 | custom Synth Kit 3 |
| 10 | GAME | custom Synth/Game Kit |
| 11 | ELECTRO | custom retro Electro kit |
| 12 | ELEC 1 | custom Electronic kit 1 |
| 13 | ELEC 2 | custom Electronic kit 2 |
| 14 | ELEC 3 | custom Electronic kit 3 |
| 15 | ELEC 4 | custom Electronic kit 4 |
| 16 | 808a | 808 drum machine |
| 17 | 808b | 808 drum machine |
| 18 | 909a | 909 drum machine |
| 19 | 909b | 909 drum machine |
| 20 | CLUB a | custom club kit |
| 21 | CLUB b | custom club kit |
| 22 | MIX a | custom MIX kit |
| 23 | MIX b | custom MIX kit |
| 24 | ACST a | custom Acoustic kit |
| 25 | ACST b | custom Acoustic kit |
| 26 | ACST c | custom Acoustic kit |
| 27 | ACST d | custom Acoustic kit |
| 28 | HARD a | Hard acoustic kit |
| 29 | HARD b | Hard acoustic kit |
| 30 | TAIKO | Taiko drums |
| 31 | DAX a | custom daxophone kit |

| | | |
|----|-------|--|
| 32 | DAX b | custom daxophone kit |
| 33 | DAX c | custom daxophone kit |
| 34 | PERC | custom percussion kit |
| 35 | PICA | custom found sound kit |
| 36 | EPIC | Epic sound kit |
| 37 | TABLA | Tabla kit |
| 38 | WOOD | Log drum kit |
| 39 | BALI | custom Balinese tingklik xylophone |
| 40 | RAND | random kit (0-39) for each drum note (excludes DAX c) |
| 41 | RAND2 | random kit (0-37) excludes tonal kits WOOD and BALI, and DAX c |
| 42 | USER1 | user defined Kit 1 (see NRPN CC 98 = 110) |
| 43 | USER2 | user defined Kit 2 (see NRPN CC 98 = 111) |
| 44 | USER3 | user defined Kit 3 (see NRPN CC 98 = 112) |

Table 3. GND-1T waveshape values (OSCW, modblock W1/W2, MFO)

Voiced Oscillator waveform values (set using CC 28)

| | |
|----|--|
| 0 | Vocal glottal pulse (from Speak & Spell) |
| 16 | Saw |
| 32 | Square |
| 48 | PWM |
| 64 | Pitched Noise |
| 80 | Square octave up |

Setting values between these causes cross fading between the two flanking waveforms

(LFO) Modulator waveform values (set using mod W1/W2 CC #)

Setting W1 shapes uses LFO1, SLFO1, and CLFO1 rates, and setting W2 uses LFO2, SLFO2, and CLFO2 rates

LFO 1 / 2 rate waveforms

| | |
|----|--------------------------------------|
| 0 | Triangle |
| 1 | Square |
| 2 | Pulse 75% high |
| 3 | Pulse 25% high |
| 4 | Falling Exponential |
| 5 | Rising Exponential |
| 6 | Quantized PWM (3 PW steps per cycle) |
| 7 | Quantized PWM (4 PW steps) |
| 8 | Quantized PWM (5 PW steps) |
| 9 | RND RANDOM value each LFO cycle |
| 10 | 8 RD 8-step RAND |
| 11 | 6 RD 6-step RAND |
| 12 | SRD smoothed RAND |

ENV based waveforms

- 13 ENV AHDSR envelope
- 14 INV inverse envelope

SLFO and CLFO rate waveforms

- 15 SLFO slow LFO 1 / 2
- 16 SLFO 10 thresholded to produce 10% high PW
- 17 SLFO 25 thresholded to produce 25% high PW
- 18 SLFO 50 thresholded to produce 50% high PW
- 19 SLFO 90 thresholded to produce 90% high PW
- 20 SLFO RP random pulse width on each SLFO cycle
- 21 SLFO R random value on each SLFO cycle
- 22 CLFO chaotic LFO 1 / 2
- 23 CLFO 10 thresholded to produce 10% high PW
- 24 CLFO 25 thresholded to produce 25% high PW
- 25 CLFO 50 thresholded to produce 50% high PW
- 26 CLFO 90 thresholded to produce 90% high PW
- 27 CLFO R random value on each SLFO cycle

LOOP rate waveforms

- 28 LP 10 10% high PW
- 29 LP 50 50% high PW
- 30 LP RND random values at LOOP rate

Other waveforms

- 31 OSCENV follows current OSCENV value (raw ROM levels if OSCENV is off)
- 32 DRUM follows current drum note(0-7), 8 steps of 1/7 spanning 0 → 1.0
- 33 reverse order DRUM notes
- 34 FINE semitone sized constant ~0.059
- 35 DC = 1 max mod constant
- 36 SFO 1x2 multiplication of SLFO 1 and SLFO 2
- 37 SFO1x2T multiplication of SLFO 1 x SLFO 2 thresholded at 0.5 max range
- 38 lfo.mfo Rungler style shift register waveform with lfo 1 or 2=clock, mfo=data (new in FW 241211)

Table 3 (continued)

MFO waveforms (set using NRPN CC 98 = 33)

| Waveform # | Label | Description |
|------------|-------|--|
| 0 | SIN | Sinusoid (default) |
| 1 | SIN^3 | Sinusoid raised to the power 3 (narrow lobes) |
| 2 | BROK | Broken Sinusoid (negative part shifted positive, positive part shifted negative) resulting in a sharp transient where sin 0-crossings normally occur |
| 3 | FALL | Ramp down |
| 4 | RISE | Ramp up |
| 5 | P 5 | Pulse 5% high |
| 6 | P20 | Pulse 20 % high |
| 7 | P 80 | Pulse 80% high |
| 8 | P 95 | Pulse 95% high |
| 9 | SQR | Square 50% high |
| 10 | PWM10 | 10% PWM re SQR at XPIfo rate |
| 11 | PWM20 | 20% PWM re SQR at XPIfo rate |
| 12 | PWM40 | 40% PWM re SQR at XPIfo rate |
| 13 | PWM60 | 60% PWM re SQR at XPIfo rate |
| 14 | PWM80 | 80% PWM re SQR at XPIfo rate |
| 15 | PWM | 100% PWM re SQR at XPIfo rate |

NRPN parameters (CC 99, 98, 6, 38)

Extended control is available using MIDI NRPN commands. To use NRPNs with the GND-1 issue the following CC commands (in this order):

(1) CC 99 (NRPN PARAM MSB) (2) CC 98 (NRPN PARAM LSB):

Together these determine the GND-1 NRPN function / parameter (table 3)

(3) optionally CC 38 (LSB) (4) CC 6 NRPN data (MSB)

e.g. To save or delete a patch:

1. Specify the BANK number (CC99=0, CC98=0, CC6=bank 0-9)
2. Specify the PATCH number within the BANK (CC99=0, CC98=1, CC6=patch 0-99)
3. Issue the delete or save command (CC99=0, CC98=2, CC6: 0=delete, otherwise save)

Parameters only need to be resent when they change. As an example of NRPN use, the following sequence will save the currently active patch to bank 1/ patch 4

CC 99=0

CC 98=0, CC6=1

CC 98=1, CC6=4

CC 98=2, CC6=1 (save rather than delete)

On power up, the GND-1 initializes CC 99 to 0, so setting CC 99 to 0 can often be omitted unless it has been changed via external control.

Table 4. GND-1T NRPN functions listing

| CC 99 | CC 98 | function | CC 6 data (+CC 38 if specified) | Comments |
|-------|-------|---|---|--|
| 0 | 0 | Bank number (for delete or save) | 0-9 | Save sets new loop restore values |
| 0 | 1 | Patch number (for delete or save) | 0-99 | |
| 0 | 2 | Save/ delete specified patch | 0=delete, else save | |
| 0 | 3 | Save/delete current patch | 0=delete, 1= save, 2=save to Template | Template serves as 'blank patch' configuration |
| 0 | 4 | Apply / null multi mods | 0=null. else apply & then null | |
| 0 | 5 | Clear expression matrix or part thereof | 0 = all, 1=modwheel, 2=velocity, 3=breath, 4=aftertouch, 5=XPLFO | |
| 0 | 6 | CC output control ¹ | 0 = all off 1 = all out 2 = LFO 1 out off 3 = LFO 1 out to CC 115 4 = LFO 2 off 5 = LFO 2 out to CC 116 6 = SLFO1 off 7 = SLFO1 out to CC 117 8 = CLFO1 off 9 = CLFO1 out to CC 118 10 = AHDSR off 11 = AHDSR out to CC 119 12 = loop sync note out off 13 = loop sync note out on 14 = morphing note out off 15 = morphing note out on 16 = Status Out off 17 = Status Out On Status out messages are CC or NRPN commands that mirror those sent to the GND-1T, except on channel 16 | <p><u>All sent on midi CH 16</u></p> <p>Note # 60</p> <p>Note # 48</p> <p><u>Status out</u> messages from the GND-1 include: patch changes, run/stop, revert, rand (and undo), blockmorph, morph, manual, STPon, drift, Loop/Mod/Echo/Drift freeze, speak mode, loop-reFILTER, drum mute, INIT</p> |

| | | | | |
|---|----|--|--|--|
| 0 | 7 | ABS/REL CC mode | 0=absolute (default) else relative | Relative mode is only available for unipolar 0-127 continuous parameters |
| 0 | 8 | Morph time | 0 = fastest morph (immediate) 127 = slowest morph (minutes) | Applies to single morphed patch changes, and block-morphing |
| 0 | 9 | Wait Time | 0 = negligible 127 = minutes | 'patch hold' between morph transitions in Block morphs |
| 0 | 10 | Morph Block size | 0-99 | Number of patches in the morphing block: 0-99 0 = single patch self-randomizing each cycle |
| 0 | 11 | Morph mode | 0-3 | 0=sequential 1=random 2=sequential no drum morphs or randomization 3=random no drum morphs or randomization |
| 0 | 12 | Morph control | 0-7 | 0 = single morph off 1= single morph on 2= block morph off 3= block morph on 4= manual morph off 5= manual morph on 6=inhibit PPQN morph 7=allow PPQN morph (default) |
| 0 | 13 | MIDI drum map | 0-2 | |
| 0 | 14 | Loop mode control *additive LP mod mode disables mod quantize, and causes LFO rates to be absolute (LPsnc override) | 0-5 | 0 = multiplicative mod (allows Q) 1= additive mod (turns off Quant) 2= quantize off 3= quantize on (sets multipic) 4= disable FILTER reset LPcycle 5=reset FILTER each loop cycle |
| 0 | 15 | Bipolar PostFilter mod | 0-1 | 0=unipolar,1=bipolar |
| 0 | 16 | Multi exclude | 0 -5 | 0 = include pitch and drum mods 1 = exclude pitch and drum mods 2 = include pitch |

| | | | | |
|---|----|---|---|--|
| | | | | <p>3 = exclude pitch 4 = include drum mods 5 = exclude drum mods * drum mods = drate/dtrig here</p> |
| 0 | 17 | Patch increment or decrement | 1=increment 127=decrement | Applies to instant and morphed patch changes |
| 0 | 18 | Soft bends, FLIP, and Invert Plasma | 0-5 | <p>0 = soft bends off 1=soft bends on (applies to Gravity and Plasma curves) 2=Flip off, 3= on 4=invert-Plasma off, 5= on</p> |
| 0 | 19 | Inhibit DIN SysEx (speeds up USB sysex) | 0 (default)= send SysEx to DIN else inhibit DIN SysEx. | Not accessible from GND-1T in S/A |
| 0 | 20 | LFO 1 and 2 modes | 0-9 | <p>0 both absolute 1 both Loop scaled 2 LFO 1 absolute 3 LFO 1 Loop scaled 4 LFO 2 absolute 5 LFO 2 Loop scaled 6 LFOs restart on key or run 7 LFOs free 8 pulsar off 9 pulsar on</p> |
| 0 | 21 | USB Audio out MODE | 0 = off 1 = synth + drums 2 = drums | If usb out mode = drums, drums are removed from analog mix output |
| 0 | 22 | Steady Pitch | 0 = use varying speech ROM pitch contour else use steady pitch | In steady pitch mode, setting Pitch=80, and Tune=64 causes Midi note on events sent to the GND-1 to play in tune re A-440Hz tuning regardless of the selected word or ROM loop address. |
| 0 | 23 | Speech Filter Soft-clip and mod-invert | 0-3 | 0=soft clip off, 1=soft clip on, 2=invert mod off, 3=invert mod on |
| 0 | 24 | MORPH and WAIT progress output control (NRPN output to chan 16) | 0 = disabled (default) else progress updates are at this param's value x50ms. E.g. "1" = 50ms updates, "10" = 500ms updates. | When enabled, MORPH progress (0-127) is sent out on chan 16, CC98=8. And WAIT updates (0-127) are sent to CC98=9. |

| | | | | |
|---|----|---|---|---|
| 0 | 25 | MORPH STEP MODE ENABLE (STPon) | 0 = off 1=on 2=onSync (restart loops) 3=keyStep (MIDI note on) 4=KeySync | In STEP modes instant patch changes in block-morph occur at STEP RATE(or key trig), rather than Morph time & Wait time |
| 0 | 26 | STEP RATE Used when MORPH STEP MODE is active | 0 -127 0=slowest 127=fastest | |
| 0 | 27 | RELEASE PARAMETER EXCLUDE (from morphing, rand, drift) | GND-1 CC of parameter to re-enable | Manual parameter adjustments exclude the param from morphing, randomization, and drift. Use CC6 to send the CC of the specific param to re-enable, or send 121 to re-enable all params. |
| 0 | 28 | SAVE GLOBAL PARAMETERS Morph & Drift params, PBend ranges, USB IN & PF, Audio User Kits | Any value | Also saves XP vals for parameters that are mappable/assignable |
| 0 | 29 | STEP MODE SWING (alternating step interval duty cycle) Used when MORPH STEP MODE is active | 0 -127 64=equal duty cycle (all intervals same length) 0 = shortest first interval (33%) 127=longest first interval (167%) | |
| 0 | 30 | Manual morph control value | 0-127 | If MANUAL morph is enabled |
| 0 | 31 | Manual morphing expression control | 0-8 | 0=off 1,5=modw (5=modw matrix off) 2,6=velocity (6=vel matrix off) 3,7=breath (7= breath matrix off) 4,8=aftertouch (8=after matrix off) |
| 0 | 32 | MFO mode | 0-6 | 0=pitch track off 1=pitch track on 2=AM turbo off 3=AM turbo on 4=MFO-mod affects MFO depth 5=MFO-mod affects MFO rate 6=MFO-mod affects both |
| 0 | 33 | MFO mod wav | 0-15 | see table 2 |
| 0 | 34 | High Clock Rate | 0-1 | 0=off, else on |
| 0 | 35 | OscEnv: apply Env (AHD) to OSC Energy | 0-6 | 0=off, 1=AHD,2=AHD->0, 3=2+LPfrz, 4=2+modFrz, 5=AHDcycle, 6= 5+LPfrz |

| | | | | |
|---|----|---|------|--|
| 0 | 36 | Drum rate mod, and improv, quantization | 0-5 | 0=both off, 1=both on 2=Dratemod-Q off, 3=on 4=Improv-Q off, 5= on |
| 0 | 37 | ADSR retrigger source | 0-12 | 0 = all off 1 = Loop (tempo) off 2 = Loop (tempo) on 3 = LFO1 off 4 = LFO1 on 5 = LFO2 off 6 = LFO2 on 7 = SLFO off 8 = SLFO on 9 = CFO off 10 = CLFO on 11=RunEnv off 12=RunEnv on (trigger env on RUN: allows 'live' sustain control) |
| 0 | 38 | XP freeze mode * Note that when mod frz is selected, the XPLFO is not included in the threshold calculation to avoid XP freeze lock-up | 0-3 | 0=XP Loop frz 1=XP mod frz 2=XP echoFrz (looper mode) 3=XP Drift |
| 0 | 39 | KeyDown Retrigger Events "key+" indicates additional keydown events when there is already a key down | 0-8 | 0 = no Loop or Env restart 1 = Both on, Attack from last val 2 = key+ restarts Loop = off 3 = key+ restarts Loop = on 4 = key+ no AHDSR ENV retrigger 5 = key+ ENV retrigger from last env val 6 = key+ ENV restart from 0 7= any key restarts MFO off 8= any key restarts MFO |
| 0 | 40 | Pitch mod modes | 0-3 | 0= unipolar non-inverted + 1= unipolar inverted - 2 = bipolar non inverted +/- 3 = bipolar inverted -/+ |
| 0 | 41 | Pitch add Fifth | 0-3 | 0=off,1=down,2=up,3=modulate between off/down/up using Pmix waveform (depth=max) |
| 0 | 42 | Pitch bend up range | 0-48 | Semitones (applies to all patches) |
| 0 | 43 | Pitch bend down range | 0-48 | Semitones (applies to all patches) |
| 0 | 44 | MIDI Clock Sync Enable | 0-9 | 0 = all off 1 = all on 2 = Tempo PPQN scaling off 3 = Tempo on 4 = LFO1+2 off 5 = LFO1+2 on |

| | | | | |
|---|----|---|--|---|
| | | | | 6 = LP leng off 7 = LP leng on 8 = Drum rate off 9 = Drum rate on |
| 0 | 45 | Post LPF type | 0-2 | 0= Hicut (1 st order) 1= LPF ladder (4 th order) 2= LPF State Variable (2 nd order) |
| 0 | 46 | Post Filter Keytrack | 0-1 | 0=off 1=on |
| 0 | 47 | Internal Drum map | 0 – num kits | 0=off, see table 2 |
| 0 | 48 | I-Drum map mod1 | 0 – num kits | 0=off, see table 2 |
| 0 | 49 | I-Drum map mod2 | 0 – num kits | 0=off, see table 2 |
| 0 | 50 | Drums -> PF send | 0 – 127 | Internal drums send to post filter |
| 0 | 51 | USB audio in level | 0 – 127 | |
| 0 | 52 | USB audio in -> PF send | 0 – 127 | USB audio input send to post filter |
| 0 | 53 | USB audio out select | 0-2 | 0=off, 1=mix, 2=I-Drums* * I-drums are not sent to analog output for mode 2 |
| 0 | 54 | Echo Select input: PostFilter, Drums, USB | 0-6 | 0=PF, 1= Drums, 2=PF+D, 3=usb, 4=usb+PF, 5=usb+D, 6=All |
| 0 | 55 | Global echo and drums (prevents change on patch loads or morphing) | 0-3 | 0=off 1=only Echo params are global 2=only Drums are global 3= both echo and drums global |
| 0 | 56 | DRIFT mode | 0-2 | 0=synth, 1=drums, 2=both |
| 0 | 57 | NULL BENDS* 1/2 (and Bend mods) | Any value | *Nulls target bend params if morphing |
| 0 | 58 | TOUCH RELEASE TIME (sensor response time) | 0 = fastest 127=slowest | |
| 0 | 59 | TOUCH ATTACK TIME (sensor response time) | 0 = fastest 127=slowest | |
| 0 | 60 | DRUM DECAY SCALER | 0 = shortest decay 127=unaltered | When < 127, this shortens all drum sounds in the current patch |
| 0 | 61 | DRUM OUTPUT MODE SELECT | 0-2 | 0=MIDI, 1=internal, 2=both |
| 0 | 62 | Dsrc=0 select | 0-3 | 0=ROM,1=Lfo1, 2=Lfo2, 3=MIDI clock (trigger every 6 clocks) |
| 0 | 63 | Individual Drum Note Mutes | 0, 1 or 127, 10-17, 20-27 All mutes are ineffective if MUTES is off/inactive (CC 6 = 0) | 0 = Drum note mutes inactive 1, 127 = Drum note mutes active 10 =Kick mute off, 20 = mute on 11 =Snare mute off, 21 = mute on 12 =CHat mute off, 22 = mute on 13 =OHat mute off, 23 = mute on 14 =Ltom mute off, 24 = mute on 15 =Htom mute off, 25 = mute on 16 =Clap mute off, 26 = mute on 17 =Rim mute off, 27 = mute on |
| 0 | 64 | Perm Drift Buffer select | 0-127 | Load /Save using CC 103 |
| 0 | 65 | Scene select | 0-127 | Load /Save using CC 98=66 |

| | | | | |
|---|-----|--|---|--|
| 0 | 66 | Scene Load/Save/Delete | Load=1, Save=2, Delete=3 | |
| 0 | 67 | Erode Bend | 0=off, else on | Erosion rate varies with Tempo parameter (new in FW 241103) |
| 0 | 68 | Note XP mode | 0-5 | 0=off, 1=mWL 2=Brth, 3= AfterT, 4= patch, 5 = pitched patch (4&5 are new in FW 241211) |
| 0 | 69 | Touch XP mode | 0-9 | 0=off, 1=mWL 2=Brth, 3= AfterT, 4= PbandUp, 5 =PbandDn, 6=EnvTrig, 7=Env+Breath, 8=NoteTrig, 9=Note+Breath |
| 0 | 70 | Enc XP mode | 0-6 | 0=mWL 1=Brth, 2= AfterT, 3= DriftBuffer, 4=mWL+[XP]DrftBuf, 5 =Brth+[XP]DrftBuf, 6=AfterT+[XP]DrftBuf |
| 0 | 100 | High Resolution expression map scaler values in the range -127 to +127 | CC 38 = scaler sign (0 = pos, else neg) CC6 = absolute value of the scaler | Set CC11 and 12 in the usual way first, then send NRPN CCs 99=0, 98=100, 38 (sign), and CC6 (abs val), in that order |
| 0 | 101 | High Resolution multi-mod DEPTH the range -99 to +99 | CC 38 = sign (0 = positive) CC6 = 0-99 | |
| 0 | 102 | High Resolution multi-mod MIX in the range -99 to +99 | CC 38 = sign (0 = positive) CC6 = 0-99 | |
| 0 | 103 | High Resolution multi-mod W1 in the range -99 to +99 | CC 38 = sign (0 = positive) CC6 = 0-99 | |
| 0 | 104 | High Resolution multi-mod W2 in the range -99 to +99 | CC 38 = sign (0 = positive) CC6 = 0-99 | |
| 0 | 105 | High Resolution multi-LFO in the range -99 to +99 | CC 38 = sign (0 = positive) CC6 = 0-99 | Affects LFOs, SLFO, CLFO |
| 0 | 106 | High resolution FILTER (10 bits) | CC 38 = fraction step 0-7 CC6 = 0-127 | fractions steps are 0.125, e.g. 7 = 0.875, CC6 value same as CC 40 |
| 0 | 107 | High resolution POST FILTER (10 bits) | CC 38 = fraction 0-7 CC6 = 0-127 | fractions steps are 0.125 each CC6 value same as CC 92 |
| 0 | 108 | High resolution PITCH (11 bits) | CC 38 = fraction 0-15 CC6 = 0-127 (semitones) | fractions steps 0.0625, e.g. 15 = 0.9375, CC6 value same as CC 33 |
| 0 | 109 | High resolution TEMPO (10 bits) | CC 38 = fraction 0-7 CC6 = 0-127 (semitones) | fractions steps are 0.125 each CC6 value same as CC 92 |
| 0 | 110 | User1 kit define | CC 38 = drum number CC6 = kit 0 - 41 (table2) | 0=kick, 1=snare, 2=chat, 3=ohat, 4=ltom, 5=htom, 6=clap, 7=rim Save using Save Global Params |
| 0 | 111 | User2 kit define | As above | Save using Save Global Params |
| 0 | 112 | User3 kit define | As above | Save using Save Global Params |
| 0 | 113 | Revert user kit | User kit (1-3) | Revert to last (global) saved |
| 0 | 114 | MIDI Dmap0 define | CC 38 = drum number: CC6 = MIDI note 0-127 | 0=kick, 1=snare, 2=chat, 3=ohat, 4=ltom, 5=htom, 6=clap, 7=rim |

| | | | | |
|---|----------|--|---|--|
| 0 | 115 | MIDI Dmap1 define | As above | |
| 0 | 116 | MIDI Dmap2 define | As above | |
| 0 | 121 | INIT Initialize GND-1T param for words | Any value | *See next page |
| 1 | Param CC | XP mapping shortcut | CC 38 =controller CC 6 = bipolar depth (64=0) | Single command shortcut for XP mapping. CC 98 sets the parameter via its MIDI CC |

¹ Note that in addition to the status output (NRPN CC6 = 6) the GND-1 outputs midi active sensing at 250ms intervals when mid output (e.g. drums) is inactive.

* NRPN CC 98 = 121 "Initialize" reset state (INIT)

Issuing the initialize command sets most GND-1T parameters to 0, with the following exceptions:

| | | | |
|----------------|---------------------|------------------|------------------|
| Tempo = 75 | Loop = 90 | Word index = 1 | Repeats = 40 |
| Delay = 44 | XPlfo scaler = 127 | Pitch = 80 | Tune = 64 |
| LFO1 rate = 64 | LFO2 rate = 64 | Drum rate = 64 | Drum trig = 64 |
| Drum src = 40 | Drum vol = 127 | Drum Decay = 127 | DrumVelVar = 100 |
| SLFO rate = 64 | CLFO rate = 64 | Brightness = 64 | PostFilter = 127 |
| Unvoiced = 127 | PF(synth) Vol = 127 | (env) Hold = 10 | Decay = 60 |
| Sustain = 127 | Release = 40 | OscGain = 64 | |

All morphing and Freeze modes are switched off

In addition, all clock sync PPQN scalars are set to 24, resulting in unity scaling at 120 BPM. Furthermore, the pitch parameter expression matrix value linked to breath control is initialized to negative 0.25 of the full range. If the GND-1T touch sensor is mapped to the breath controller, as is the factory default, INIT causes the patch to be initialized with the touch sensor producing a downward pitch shift.

Table 5. Expanded XPparams (via CC10)

Use CC10 instead of CC11 for expression mapping of these parameters:

| <u>CC 10 value</u> | <u>Parameter</u> |
|--------------------|-------------------------------|
| 0 | MULTIMOD |
| 1 | MULTIMIX |
| 2 | MULTIWAV1 |
| 3 | MULTIWAV2 |
| 4 | MULTILFO |
| 5 | MFOWAV |
| 6 | DRUMPF |
| 7 | IDRUMMAP (internal kit) |
| 8 | DRUMMOD1 (internal mod kit1) |
| 9 | IDRUMMOD2 (internal mod kit2) |
| 10 | USBLEVELIN |
| 11 | USBMIX |
| 12 | PBENDUP |
| 13 | PBENDDOWN |
| 14 | ECHOSELECT |
| 15 | (MIDI) DRUMMAP |
| 16 | TOUCH SENSOR RELEASE |
| 17 | TOUCH SENSOR ATTACK |
| 18 | DRUM_DECAY |
| 19 | OSCENV |
| 20 | STEP (MORPH) RATE |

Note that adjusting any continuous parameter value via MIDI, or selecting or adjusting it on a GND-1T itself, will set that parameter as the one subsequently being expression mapped

GND-1T Sysex patch data format (hex values)

Each patch is described by 6 consecutive blocks: 1 parameter block, followed by 5 expression matrix blocks. All sysex blocks are delineated by a starting byte F0 and closing byte F7. Following F0, the GND-1T identifier is always 07 07 07. Following that is the block function descriptor:

7F = main parameter block (contains patch + bank + main parameters)

7E=modw expression matrix

7D=velocity matrix

7C=breath matrix

7B=aftertouch matrix

7A=XPIfo matrix

*** When sending a sysex patch to the GND1, the order must be: 1. Param block (block type 7F), 2. XP blocks for modw – aftertouch (7E - 7B), and lastly 3. XP block for XPIfo (7A). Upon receiving the XPIfo block, the GND-1T saves the complete patch to SD, and assumes the previous blocks have already been received.

NOTE: (1) To be able to receive SysEx from a host, the GND-1T must have SysEx Receive Enabled via its MIDI setup page(factory default is on). (2) upon receiving the initial main parameter block, the GND-1T mutes the audio until the corresponding XPIfo block has been received.

GND-1T Sysex requests

The GND-1T responds to sysex patch data requests in the following format:

F0 07 07 07 command patch bank F7

GND-1T patches 0 - 999 over MIDI are split into bank (100s digit) and patch (remainder 0-99).

Command specifies which blocks in the patch/bank are requested:

all blocks = 0x64

param block = 0x6F

Xp modw = 0x6E

Xp vel = 0x6D

Xp breath = 0x6C

Xp after = 0x6B

Xp XPIfo = 0x6A

To check if a patch (in MIDI bank/patch format) exists in the GND-1T send it the following sequence:

F0 07 07 07 37 patch bank F7

It will respond with a message indicating whether the patch exists (0=no, 1=yes), and if so, whether drums are muted for that patch (0 no, 1 yes, 2 invalid patch)

F0 07 07 07 37 patch bank exists drum-mute F7

It is also possible to request

- (1) The saved preset parameters for the patch number the GND-1T is currently set to
- (2) The currently active patch parameters

The sequence in this case requires no patch/bank number:

F0 07 07 07 command F7

In each case the returned bank and patch numbers in the response sysex block(s) inform you of the patch number the GND-1T is set to.

The Sysex command values to request the saved parameters for the current GND-1T patch are:

all blocks = 0x54

param block = 0x5F

Xp modw = 0x5E

Xp vel = 0x5D

Xp breath = 0x5C

Xp after = 0x5B

Xp XPIfo = 0x5A

The Sysex command values to request the currently active patch parameters are :

all blocks command = 0x44

Param block = 0x4F

Xp modw = 0x4E

Xp vel = 0x4D

Xp breath = 0x4C

Xp after = 0x4B

Xp XPIfo = 0x4A

The current USER1, 2 and 3 audio drum kit assignments can be requested using: F0 07 07 07 3A F7

The response is of the form: F0 07 07 07 3A USER1 (8 bytes) USER2 (8 bytes) USER3 (8 bytes) F7

Where the 8 bytes for each user-kit describe the 8 drum-note kit numbers (table2) in the order Kick, Snare, Chat, Ohat, Ltom, Htom, Clap, Rim.

The current MIDI DRUM MAPS can be requested using: F0 07 07 07 3B F7

The response is of the form F0 07 07 07 3B MAP0 (8 bytes) MAP1 (8 bytes) MAP2 (8 bytes) F7

Where the 8 bytes for each map describe the 8 MIDI drum-notes in the order Kick, Snare, Chat, Ohat, Ltom, Htom, Clap, Rim.

Permanent Drift buffers (0-127) values can be requested using:

F0 07 07 07 69 buffer F7

The GND-1T will respond with a message containing the drift offsets, which can be sent to the GND-1T to set those values for that buffer, or change buffer to apply them to another buffer (0-127)

F0 07 07 07 79 buffer 00 00 00 00 00 [data] F7

Scene (0-127) data can be requested using:

F0 07 07 07 68 scene F7

It will respond with a sequence of message blocks containing the Scene information, with command values starting at 78 and going down to 70. Using your MIDI manager, save these 9 consecutive blocks as a single SysEx file, which can be sent back to the GND-1T at a later time to reinstate the Scene. Or modify the Scene number in each of the 9 blocks before sending to save the Scene data to another scene (0-127) in the GND-1T. Each block takes the form:

F0 07 07 07 78-70 scene [data] F7

To check if a scene exists:

F0 07 07 07 3C Scene F7

Responds with

F0 07 07 07 3C Scene [exists] F7

Where exists =0 means the scene doesn't exist (free slot), or 1 means it does

To check if a permanent drift buffer exists:

F0 07 07 07 3D Drift buffer F7

Responds with

F0 07 07 07 3D Drift buffer [exists] F7

Where exists =0 means the Drift buffer doesn't exist (free slot), or 1 means it does

Table 6. GND-1T WORD LISTS

| Word Bank > | 0 | 1 | 2 | 3 | 4 |
|-------------|-------------------------|-----------|-----------|-----------|----------|
| Word # | | | | | |
| 0 | tones 1 | above | abscess | achieve | against |
| 1 | tones 2 | almost | already | ancient | angel |
| 2 | tones 3 | another | answer | anxious | anything |
| 3 | tones 4 | approve | beauty | beige | believe |
| 4 | tones 5 | blood | boulder | brother | built |
| 5 | A | bulletin | bullet | bureau | bushel |
| 6 | B | business | butcher | calf | caravan |
| 7 | C | cherry | chock | child | circuit |
| 8 | D | cleanser | colour | comfort | coming |
| 9 | E | conquer | correct | corsage | couldn't |
| 10 | F | country | couple | courage | cousin |
| 11 | G | danger | discover | does | dozen |
| 12 | H | dread | dungeon | early | earnest |
| 13 | I | earth | echo | egg | enough |
| 14 | J | error | every | everyone | extra |
| 15 | K | eyebrow | feather | field | finger |
| 16 | L | fired | flood | floor | freight |
| 17 | M | front | garage | gasoline | glacier |
| 18 | N | glove | greater | guard | guess |
| 19 | O | guide | half | haste | health |
| 20 | P | healthy | heaven | heavy | heroes |
| 21 | Q | honey | honour | hostess | hygiene |
| 22 | R | improve | instead | iron | is |
| 23 | S | island | isle | jealous | journey |
| 24 | T | key | language | laugh | laughter |
| 25 | U | learn | leather | leisure | lettuce |
| 26 | V | library | liquorish | linger | lose |
| 27 | W | machine | manger | marry | meadow |
| 28 | X | meaning | measure | mechanic | mild |
| 29 | Y | minute | mirror | mistake | money |
| 30 | Z | mosquito | most | mother | movie |
| 31 | 0 | moustache | narrow | neighbour | niece |
| 32 | 1 | nuisance | ocean | once | onion |
| 33 | 2 | other | outdoor | oven | period |
| 34 | 3 | pianos | pierce | Pint | plague |
| 35 | 4 | pleasant | pleasure | plunger | plural |
| 36 | 5 | police | postage | poultry | pretty |
| 37 | 6 | priest | promise | pull | push |
| 38 | 7 | question | quiet | quotient | range |
| 39 | 8 | ranger | ready | reindeer | relief |
| 40 | 9 | relieve | remove | rhythm | rock |
| 41 | 10 | rural | sardine | says | schedule |
| 42 | wrong | school | scissors | search | serious |
| 43 | I win | shield | should | shoulder | shovel |
| 44 | now spell | sign | ski | smother | soldier |
| 45 | now try | someone | sometime | source | say it |
| 46 | perfect score | sponge | spread | squad | squash |
| 47 | Spell | squat | statue | stomach | stranger |
| 48 | that is correct | sugar | sure | surgeon | swamp |
| 49 | that is incorrect | swan | swap | sweat | sweater |
| 50 | that is right | talk | terror | today | tomorrow |
| 51 | the correct spelling of | tonne | tongue | touch | tough |
| 52 | try | toward | treasure | trouble | to wed |
| 53 | try again | uncover | union | usual | view |
| 54 | you are correct | walk | warm | was | wash |
| 55 | you are right | watch | water | wealth | weird |
| 56 | you win | welcome | wild | wolves | woman |
| 57 | as in | wonder | word | workman | world |
| 58 | here is your score | worth | yacht | yield | yolk |
| 59 | next spell | young | yourself | Youth | zeros |