

# MIDX Boss Katana™ V4 Bridge - MIDI Implementation

Version: Jan 12 2020 – V2.12

Text in **RED** indicate features not available with BOSS Tone Studio

Text in **BLUE** indicate features only suitable for **Katana V2.x**

Text in **GREEN** indicate features only suitable for **Katana V3.x**

Text in **MAGENTA** indicate features only suitable for **Katana V4.x**

## PC#00 - PC#08 - Change Amplifier Patch Number (# of available patches = panel+8)

Virtual patches: These programs first select patch 0-8, and then if the patch does not comply with requested FX chain (see table), the new FX chain will be written to the patch. If the “modify/write” step is required, a short drop-out will occur. To avoid further drop-outs, step through the patches once after Katana power-on.

PC#	Name	1	2	3	4	5	6	7	8	9	10	11	12
10-18	'Asle1'	EQ	FVOL	FX	MOD	BOST	NS	DLY	DLY2	RVB	AMP	GEQ	S/R
20-28	'Asle2'	EQ	FVOL	FX	MOD	BOST	NS	AMP	S/R	DLY	DLY2	RVB	GEQ
30-38	'Asle3'	EQ	FVOL	MOD	BOST	S/R	AMP	NS	FX	DLY	DLY2	RVB	GEQ
40-48	'Asle4'	EQ	MOD	FX	BOST	DLY	AMP	NS	FVOL	DLY2	RVB	GEQ	S/R
50-58	'Hirsch'	BOST	MOD	AMP	EQ	NS	FX	DLY	FVOL	DLY2	RVB	S/R	GEQ
60-68	'Elantric surf'	RVB	BOST	MOD	AMP	EQ	NS	FVOL	S/R	DLY	FX	DLY2	GEQ
70-78	'Flipped1'	AMP	NS	FVOL	EQ	S/R	MOD	BOST	FX	DLY	DLY2	RVB	GEQ
80-88	'Flipped2'	MOD	BOST	AMP	NS	FVOL	EQ	S/R	FX	DLY	DLY2	RVB	GEQ
90-98	'Flipped3'	MOD	BOST	FX	DLY	AMP	NS	FVOL	EQ	S/R	DLY2	RVB	GEQ

### Internal Boss Katana CC#

FX1 (BOOSTER(A)+MOD(B)) BYPASS = CC# 16 (0-63 OFF, 64-127 ON)  
 FX2 ((DELAY(A)+FX(B)) BYPASS = CC# 17 (0-63 OFF, 64-127 ON)  
 FX3 (REVERB & DELAY2) BYPASS = CC# 18 (0-63 OFF, 64-127 ON)  
 EFFECT LOOP SW = CC# 19 (0-63 OFF, 64-127 ON)

### Miscellaneous CC's

GLOBAL VOLUME = CC# 7 (0-127)  
 STORE TO CURRENT PRESET = CC# 8 (value=127)  
 STORE TO PRESET = CC# 9 (1-8)  
 TAP TEMPO = CC# 14 (Measures ms. between each CC.)  
 TAP TEMPO2 = CC# 41 (Measures ms. between each CC.)  
 BOTH TAP TEMPO & TAP TEMPO2 = CC# 42

ALL FX BYPASS = CC# 15 (0-63 OFF, 64-127 ON)  
 EFFECT CHAIN ORDER = CC# 25 (0-2)  
 LINE OUT AIR FEEL = CC #104 (0=REC, 1=LIVE, 2=BLEND)  
 CAB. RESON. = CC#105 (0=VINTAGE, 1=MODERN, 2=DEEP)

### PEDAL FX CC's

PEDAL FX SW = CC#22 (0-63 OFF, 64-127 ON)  
 PEDAL FX POS = CC# 23 (0-127)  
 PEDAL FX TYPE = CC# 24  
 0=Cry Wah, 1=VO Wah, 2=Fat Wah, 3=Light Wah, 4=Pedal Bend, 5=Wah 95E

Amplifier CC's								
Noise Gate Threshold = CC# 38 (0-127) Noise Gate Release = CC# 39 (0-127) Noise Gate On/Off = CC# 40 (0-63=On, 64-127=Off)								
CC# 30 Amp Type	CC# 31 0-127	CC# 32 0-127	CC# 33 0-127	CC# 34 0-127	CC# 35 0-127	CC# 36 0-127	CC# 37 0-63 Off >64 On	
Acoustic = 0	Gain	Volume	Bass	Mid	Treble	Presence	-	
Clean = 1	Gain	Volume	Bass	Mid	Treble	Presence	Bright	
Crunch = 2	Gain	Volume	Bass	Mid	Treble	Presence	Bright	
Lead = 3	Gain	Volume	Bass	Mid	Treble	Presence	-	
Brown = 4	Gain	Volume	Bass	Mid	Treble	Presence	-	
<b>AMP LED</b>	<b>'Sneaky Amps', not present in Boss Tone Studio &amp; Amp knob</b>							
Clean	Natural Clean = 5	Gain	Volume	Bass	Mid	Treble	Presence	-
Clean	Clean Twin = 6	Gain	Volume	Bass	Mid	Treble	Presence	Bright
Crunch	Combo Crunch = 7	Gain	Volume	Bass	Mid	Treble	Presence	Bright
Crunch	Stack Crunch = 8	Gain	Volume	Bass	Mid	Treble	Presence	-
Crunch	Pro Crunch = 9	Gain	Volume	Bass	Mid	Treble	Presence	Bright
Crunch	Deluxe Crunch = 10	Gain	Volume	Bass	Mid	Treble	Presence	-
Crunch	VO Drive = 11	Gain	Volume	Bass	Mid	Treble	Presence	-
Crunch	VO Lead = 12	Gain	Volume	Bass	Mid	Treble	Presence	-
Crunch	Match Drive = 13	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	Hi gain Stack = 14	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	Extreme Lead = 15	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	Core Metal = 16	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	BG Lead = 17	Gain	Volume	Bass	Mid	Treble	Presence	Bright
Lead	BG Drive = 18	Gain	Volume	Bass	Mid	Treble	Presence	Bright
Lead	MS1959 I = 19	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	MS1959 I+II = 20	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	R-Fire Vintage = 21	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	R-Fire Modern = 22	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	T-Amp Lead = 23	Gain	Volume	Bass	Mid	Treble	Presence	-
Lead	BG NR UB = 24	Gain	Volume	Bass	Mid	Treble	Presence	-
Brown	Power Drive = 25	Gain	Volume	Bass	Mid	Treble	Presence	-
Brown	Orange RB = 26	Gain	Volume	Bass	Mid	Treble	Presence	-
Acoustic	Custom = 27	Gain	Volume	Bass	Mid	Treble	Presence	-

## BOOSTER/MOD CC's (FX1)

**SELECT BOOSTER OR MOD = CC# 43**

BOOSTER = (0-63)

MOD = (64-127)

BOOST/MOD KNOB = CC# 44 (0-127)

BOOST/MOD COLOR ASSIGN = CC# 45 (see CC# 50 in Booster or CC#60 in Mod table)

BOOST/MOD DIRECT COLOR SELECT = CC# 46 (0=Green, 1=Red, 2=Yellow)

BOOST/MOD CYCLE COLOR (i.e. press button) = CC# 47 (0)

**BOOSTER ON/OFF = CC# 48 (0-63 OFF, 64-127 ON)**

**MOD ON/OFF = CC# 49 (0-63 OFF, 64-127 ON)**

## Booster CC's

CC# 50 Booster Effects	CC# 51 0-127	CC# 52 0-127 (63=Mid)	CC# 53 0-127	CC# 54 0-127 (63=Mid)	CC# 55 0-127	CC# 56 0-127	CC# 57 0-63 Off 64-127 On	Un-impl. params
Clean boost = 0	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Treble boost = 1	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Mid boost = 2	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Crunch OD = 3	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Blues drive = 4	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Overdrive = 5	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Natural OD = 6	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Warm OD = 7	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Turbo OD = 8	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
T-Scream = 9	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Distortion = 10	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Fat DS = 11	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
DST+ = 12	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
GUV DS = 13	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
RAT = 14	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Metal Zone = 15	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Metal DS = 16	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
'60s Fuzz = 17	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
MUFF Fuzz = 18	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
OCT Fuzz = 19	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Lead DS = 20	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	-
Custom = 22	Effect Level	Drive	Dir.mix	Tone	Bottom	Solo Lvl	Solo SW	Yes

<b>Delay/FX CC's (FX2)</b>	
<b>SELECT DELAY OR FX = CC# 73</b> DELAY = (0-63) FX = (64-127) DELAY/FX KNOB = CC# 74 (0-127) DELAY/FX COLOR ASSIGN = CC#75 (see CC# 80 in Delay or CC#90 in FX table) DELAY/FX DIRECT COLOR SELECT = CC# 76 (0=Green, 1=Red, 2=Yellow) DELAY/FX CYCLE COLOR (i.e. press button) = CC# 77 (0) <b>DELAY ON/OFF = CC# 78 (0-63 OFF, 64-127 ON)</b> <b>FX ON/OFF = CC# 79 (0-63 OFF, 64-127 ON)</b>	

<b>Delay CC's</b>									
CC# 80 Delay Effects	CC# 81 0-127	CC# 82 0-127	CC# 83 0-127	CC# 84 0-127 (127=flat)	CC# 85 0-127	CC# 86 0-127	CC# 87 0-127	CC# 88 0-127	Un-impl. params
Digital = 0	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		-
Analog = 1	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		-
Tape Echo = 2	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		-
Reverse = 3	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		-
Modulate = 4	Level	Delay Time	Dir. Mix	High cut	Feedback	Mod. rate	Mod. depth		-
Pan = 5	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		Yes
Stereo = 6	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		Yes
Dual-S = 7	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		Yes
Dual-P = 8	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		Yes
Dual L/R = 9	Level	Delay Time	Dir. Mix	High cut	Feedback	-	-		Yes
(*) SDE-3000 = 10	Level	Delay Time	Dir. Mix	-	Feedback	Mod. rate	Mod. depth	Mod. Sw.	Yes

SDE-3000 Page 2: Filter, Range, Delay phase, Feedback phase not implemented.

<b>Reverb CC's (FX3)</b>								
REVERB KNOB = CC# 106 (0-127) REVERB COLOR ASSIGN = CC# 107 (0-4 see cc# 110) DIRECT COLOR SELECT = CC# 108 (0=Green, 1=Red, 2=Yellow) CYCLE COLOR (i.e. press button) = CC# 109 (0)								
CC# 110 Reverb	CC# 111 0-127	CC# 112 0-127= 0-10s	CC# 113 0-127	CC# 114 0-127= 0-500ms	CC# 115 0-127= 0-800Hz	CC# 116 0-127= 630-12.5kHz	CC#117 0-127	CC#118 0-127
Room = 0	Level	Time	Dir.mix	Pre delay	Low cut	Hi cut	Density	-
Hall (2) = 1	Level	Time	Dir.mix	Pre delay	Low cut	Hi cut	Density	-
Plate = 2	Level	Time	Dir.mix	Pre delay	Low cut	Hi cut	Density	-
Spring = 3	Level	Time	Dir.mix	Pre delay	Low cut	Hi cut	Density	Spring dens
Modulate = 4	Level	Time	Dir.mix	Pre delay	Low cut	Hi cut	Density	-
Ambience = 5	Level	Time	Dir.mix	Pre delay	Low cut	Hi cut	Density	-
Hall 1 = 6	Level	Time	Dir.mix	Pre delay	Low cut	Hi cut	Density	-

### PATCH EQ and GLOBAL EQ

<b>SELECT EQ FOR EDIT: CC# 1</b>	CC# 2 0-63 off 64-127 on	CC# 3 0-127	CC# 4 0-127	CC# 5 0-127	CC# 6 0-127	CC# 10 0-127	CC# 11 0-127	CC# 12 0-127	CC# 13 0-127	CC# 26 0-127	CC# 27 0-127	CC# 28 0-127	CC# 29 0-63 = Amp In 64-127 = Amp out
Global PEQ = 0	On/Off	Level	Lo gain	Lo-mid gain	Hi-mid gain	Hi gain	Low-mid freq	Lo-mid Q	High-mid freq	Hi mid Q	Low cut	High cut	Position
Patch PEQ = 1	On/Off	Level	Lo gain	Lo-mid gain	Hi-mid gain	Hi gain	Low-mid freq	Lo-mid Q	High-mid freq	Hi mid Q	Low cut	High cut	Position
Global GEQ = 2	On/Off	Level	31Hz	62Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz	Position
Patch GEQ = 3	On/Off	Level	31Hz	62Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz	Position

### Delay2 CC's

DELAY2 ON/OFF CC# 58 (0-63 OFF, 64-127 ON)

REVERB ON/OFF CC# 59 (0-63 OFF, 64-127 ON)

CURRENT COLOR MODE CC# 103 (0-2) (0=Delay2, 1=Delay2+Reverb, 2=Reverb)

CC# 119 Delay2	CC# 120 0-127	CC# 121 0-127	CC# 122 0-127	CC# 123 0-127	CC# 124 0-127	CC# 125 0-127	CC#126 0-127	CC#127 0-127
Digital = 0	Level	Delay Time	Dir.mix	High cut	Feedback	-	-	-
Analog = 1	Level	Delay Time	Dir.mix	High cut	Feedback	-	-	-
Tape echo = 2	Level	Delay Time	Dir.mix	High cut	Feedback	-	-	-
Reverse = 3	Level	Delay Time	Dir.mix	High cut	Feedback	-	-	-
Modulate = 4	Level	Delay Time	Dir.mix	High cut	Feedback	Mod. rate	Mod. depth	-
SDE-3000 = 5	Level	Delay Time	Dir.mix	High cut	Feedback	Mod. rate	Mod. depth	Mod. Sw.

SDE-3000 Page 2: Filter, Range, Delay phase, Feedback phase not implemented.

## MOD (CC# 60-72) and FX (CC# 90-102)

The MOD effects in FX1 are identical with FX effects in FX2. Hence the shared table.

MOD: CC# 60 FX: CC# 90 Effects	CC# 61 CC# 91 0-127	CC# 62 CC# 92 0-127	CC# 63 CC# 93 0-127	CC# 64 CC# 94 0-127	CC# 65 CC# 95 0-127	CC# 66 CC# 96 0-127	CC# 67 CC# 97 0-127	CC# 68 CC# 98 (*)	CC# 69 CC# 99 (*)	CC# 70 CC# 100 (*)	CC# 71 CC# 101 (*)	CC# 72 CC# 102 (*)
Chorus = 0	Lo level	Lo Rate	Dir mix	Lo depth	Hi lev	Hi rate	Hi depth	Lo pre del (a)	Hi pre del (a)	XO Freq (b)	-	-
Flanger = 1	Level	Rate	Dir Mix	Depth	Reso	Manual	-	Lo cut (c)	-	-	-	-
Phaser = 2	Level	Rate	Dir Mix	Depth	Reso	Manual	-	Type (d)	Step rate (e)	-	-	-
Uni-V = 3	Level	Rate	-	Depth	-	-	-	-	-	-	-	-
Tremolo = 4	Level	Rate	-	Depth	Shape	-	-	-	-	-	-	-
Vibrato = 5	Level	Rate	-	Depth	-	-	-	-	-	-	-	-
Rotary = 6	Level	Rate	-	Depth	-	-	-	-	-	-	-	-
Ring mod = 7	Level	Freq	Dir Mix	-	-	-	-	Type(aa)	-	-	-	-
Slow gear = 8	Level	Rise time	-	Sens	-	-	-	-	-	-	-	-
Slicer = 9	Level	Rate	Dir Mix	-	Trig sens	-	-	Pattern(z)	-	-	-	-
Comp = 10	Level	Sustain	-	Attack	Tone	-	-	Type (f)	-	-	-	-
Limiter = 11	Level	Ratio	-	Attack	Threshold	Release	-	Type (g)	-	-	-	-
T.Wha = 12	Level	Sens	Dir Mix	-	Freq	Peak	-	Mode (h)	Polar (i)	-	-	-
Auto Wha = 13	Level	Rate	Dir mix	Depth	Freq	Peak	-	Mode (h)	-	-	-	-
Pedal Wha = 14	Level	Ped. pos	Dir Mix	Ped. min	Ped. max	-	-	Type (j)	-	-	-	-
Graphic EQ = 15	Level	1kHz	-	31Hz	62Hz	125Hz	250Hz	500Hz	2kHz	4kHz	8kHz	16kHz
Param EQ = 16	Level	Lo mid gain	-	Lo gain	Hi mid gain	Hi gain	-	Lo mid f. (k)	Lo md Q (l)	Hi mid f. (m)	Hi mid Q (l)	-
Guitar Sim = 17	Level	Type (0-127)	-	Low	High	Body	-	Type (n)	-	-	-	-
AC. Guitar Sim = 18	Level	Body	-	Low	High	-	-	-	-	-	-	-
AC. Processor = 19	Level	Presence	-	Bass	Mid	Treb	-	Type (o)	Mid Freq (m)	-	-	-
Wave Synth = 20	Level	Reso	Dir Mix	Cutoff	Flt sens	Flt decay	Flt depth	Type(p)	-	-	-	-
Octave = 21	Level	-	Dir mix	-	-	-	-	Range (q)	-	-	-	-
Pitch shifter = 22	Ps1:Lvl	Ps2:Lvl	Dir mix	Ps1:Fine	Ps1:Pre Dly	Ps2:Fine	Ps2:PreDly	Type (r)	Ps1:ptch (s)	Ps2:ptch (s)	Ps1:mode(p)	Ps2:mode(p)
Harmonist = 23	Hr1:Lvl	Hr2:Lvl	Dir mix	Hr1:F-back	Hr1:Pre Dly	-	Hr2:PreDly	Type (t)	Hr1:Harm (u)	Hr2:Harm (u)	Mast.key (v)	-
Humanizer = 24	Level	Rate	-	Depth	Sens	Manual	-	Type (x)	Vowel1 (y)	Vowel2 (y)	-	-
Sub OD/DS = 25	Level	Drive	Dir mix	Bottom	Tone	Solo level	Solo SW	Type(od)	-	-	-	-
Tone Modify = 26	Level	Reso	-	Low	High	-	-	Type(tm)	-	-	-	-
Sound Hold = 27	Level	Hold on/off	-	Rise time	-	-	-	-	-	-	-	-
Defretter = 28	Level	Depth	Dir mix	Tone	Sens	Attack	Reso	-	-	-	-	-
Sitar Sim = 29	Level	Depth	Dir mix	Tone	Sens	Reso	Buzz	-	-	-	-	-
Sub Delay = 30	Level	Time	Dir mix	High cut	Feedback	Tap time	-	Type	-	-	-	-
Rotary 2 = 31	Level	Rate slow	Dir mix	Balance	Speed sel	Rate fast	Rise time	Fall t (0-127)	Depth(0-127)	-	-	-
Tera Echo = 32	Level	Time	-	Feedback	Tone	-	Hold	Type(te)	-	-	-	-
Overtone = 33	DirLevel	Detune	-	Tone	Upper Lvl	Lower Lvl	-	-	-	-	-	-
Phase 90E = 34	-	Speed	-	Script	-	-	-	-	-	-	-	-
Flanger 117E = 35	-	Speed	-	Manual	Width	Regen.	-	-	-	-	-	-
Wah 95E = 36	Level	Ped. pos	Dir Mix	Ped. min	Ped. max	-	-	-	-	-	-	-
DC-30 = 37	Input vol	Chorus intens.	-	Tone	Output	-	-	Type(dc)	Echo rate	Echo intensity.	Echo volume	-
Heavy Octave = 38	Oct1 lev	Oct2 level	Dir Mix	-	-	-	-	-	-	-	-	-

(*) Range of special parameters			
Code	Description	CC Value Range	Representation
a	Pre Delay	0-80	0-40ms
b	XOver Frequency	0-16	100Hz-4kHz
c	Low cut	0-10	Flat – 800Hz
d	Phaser Type	0-3	4Stage/8Stage/12Stage/BiPhase
e	Phaser Step Rate	0-101	Off/0-100
f	Compressor Type	0-6	Boss/HiBand/Light/D-comp/Orange/Fat/Mild
g	Limiter Type	0-2	Boss/Rack 160D/VTG Rack U
h	Wah Mode	0-1	LPF/BBP
i	Wah Polarity	0-1	DOWN/UP
j	Wah Type	0-5	Cry/Vox/Fat/Light/7String/Reso
k	Lo-Mid Freq	0-27	20Hz-10kHz
l	Q	0-5	0.5/1/2/4/8/16
m	High-Mid-Freq	0-27	10kHz – 20kHz
n	Guitar Sim Type	0-7	S->H/H->S/H->HF/S->HOLLOW/H->HOLLOW/S->AC/H->AC/P->AC
o	AC Processor Type	0-3	SMALL/MEDIUM/BRIGHT/POWER
p	Wave Synth Type	0-1	SAW/SQUARE
q	Octave Range	0-3	RANGE1/RANGE2/RANGE3/RANGE4
r	Pitch Shifter Type	0-1	1VOICE/2VOICE
s	Pitch Shifter Pitch	0-49	-24 -> 0 -> +24
t	Harmonist Type	0-1	1VOICE/2VOICE
u	Harmony	0-29	-2oct, -14 <sup>th</sup> , -13 <sup>th</sup> , -12 <sup>th</sup> , -11 <sup>th</sup> , -10 <sup>th</sup> , -9 <sup>th</sup> , -1oct, -7 <sup>th</sup> , -6 <sup>th</sup> , -5 <sup>th</sup> , -4 <sup>th</sup> , -3 <sup>rd</sup> , -2 <sup>nd</sup> , Unison, +2 <sup>nd</sup> , +3 <sup>rd</sup> , +4 <sup>th</sup> , +5 <sup>th</sup> , +6 <sup>th</sup> , +7 <sup>th</sup> , +1oct, +9 <sup>th</sup> , +10 <sup>th</sup> , +11 <sup>th</sup> , +12 <sup>th</sup> , +13 <sup>th</sup> , +14 <sup>th</sup> , +2oct, User
v	Master Key	0-11	C(Am), Db(Bbm), D(Bm), Eb(Cm), E(C#m), F(Dm), F#(D#m), G(Em), Ab(Fm), A(F#m), Bb(Gm), B(G#m)
x	Humanizer Type	0-1	PICKING/AUTO
y	Vowel	0-4	A/E/I/O/U
z	Pattern	0-19	P1-P20
aa	Ring mod type	0-1	NORMAL/INTELLIGENT
od	OD/DS Type	0-15	MID BOOST/CLEAN BOOST/TREBLE BOOST/CRUNCH/NATURAL OD WARM OD/ FAT DS/LEAD DS/METAL DS/OCT FUZZ/ BLUES OD OD-1/T-SCREAM/TURBO OD/DIST/RAT/GUV DS/DST+/METAL ZONE '60S FUZZ/MUFF FUZZ/A-DIST * FX only(not MOD)
tm	Modify Type	0-7	FAT/PRESENCE/MILD/TIGHT/ENHANCE/RESONATOR1/RESONATOR2/RESONATOR3
te	Tera echo	0-2	MONO/STEREO1/STEREO2
dc	DC-30	0-1	CHORUS/ECHO