malletKAT PRO 5.0/4.1 Guide
Version 5.0

INTRODUCTION

Once again, we are proud to announce our newest software upgrade, the malletKAT 5.0-4.1 software chip and guide. This new software chip is a bold statement in software development, as it is a departure in philosophy from our "normal" feature updates.

Although you will find many new mallet performance enhancements in this software upgrade, the malletKAT's new software addresses the needs of the "DJ" performer, who desires instant access to multiple controller number events, as well as the ability to turn on and off a large number of individual loops.

The idea behind all this is that you can use a software audio program such as "Reason®" or "Live®", turn on individual loops, manipulate the sound of the loop by modifying parameters like the resonant filters, pitch bend, etc., all in real time. The new twist is that the malletKAT acts as multiple real time control knobs (the black keys define what knob, and the white keys sends out discrete values). One can perform all of these things while continuing to play the malletKAT in the normal way, producing melodies, harmonies and rhythms all on different midi channels and program sends!

As always...let us know how you like the new software and if there are any other features you would like to see implemented, please let us know! Enjoy.

New 4.1 Software Features and the modifications to existing ones.

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General New Modifications

Kit Dump

The incoming kit dump must now be directed to a slot after a kit dump is received.

MODIFIED CHAIN MODE

It is now possible to link chains together with the NEXT CHAIN parameter, located after setup 128. This will allow you to automatically go to the next chain by hitting the footswitch (advance) or function keys in play mode. Multiple Chains can be set up this way. Set the last Chain Setup position to Loop. The malletKAT will return to the first Chain setup.

MODIFIED REASSIGNMENT DEFAULTS

The following is a listing of default values of the reassignment numbers Set for a Five Octave MalletKAT

Reassignment # 1	C-2 to C2
Reassignment # 2	C-1 to C3
Reassignment # 3	C-0 to C4
Reassignment # 4	C 1 to C5
Reassignment # 5	C 2 to C6
Reassignment # 6	C 3 to C7
Reassignment #7-14	All keys set to OFF

MODIFIED GLOBAL PAD TRAINING

Global pad training has now been augmented. Each octave of the malletKAT can be trained separately. Training is performed by hitting the lowest C on each octave of the malletKAT.

C0 is the lowest C on a three octave malletKAT. C2 is the lowest C on the "master" octave (second to highest C). On a four octave malletKAT, the lowest C is C-1. On a five octave malletKAT, the lowest C is C-2.

Each octave is assigned a GROUP Letter. After training, you can look at the values from each Group. Groups are assigned from Group A=C-1 up to Group E=C+2.

On Global Screen #79, the malletKAT asks you to hit any pad to train the octave groups. After striking any pad, a Group letter appears along with the appropriate "C" note to train. If you want to train a different Group, tap the function key until the Group letter that you want to train appears.

The malletKAT will ask you to play a soft hit and then a hard hit on the "C" of the octave that you choose. After the malletKAT finishes calculating the results, it automatically moves to the next Group and asks you to hit the next C for training. This process will continue repeatedly until you hit the footswitch to stop the training process.

The malletKAT will ask to train ALL five octaves. Skip that Group if you only have a three or four octave malletKAT.

The malletKAT is capable of "seeing" 255 levels of dynamics. When you train the "soft hit", a number value is placed on Global Screen # 80. This represents what the malletKAT "saw" when you played soft. The same is for the hard hit. You can manually alter these values if you want to tweak to get a different dynamic response. By changing these numbers, you can offset your overall dynamic levels of each octave.

(NOTE: It is possible to use the F# key instead of the C key in each octave).

Trust your ears and your playing dynamic. The values may look different from octave to octave, but the response can be the same. This is because there is a different sensor on each octave (and a different section of circuitry controlling it). By training each octave separately, the 128 midi velocity levels should be about the same. This new feature dramatically increases the evenness across the entire malletKAT.

We have also included the ability to train up to sixteen individual pads. These pads training values are stored in "Indiv Pad Train A,B,C....H". Tap Global Screen #79, keep the footswitch down, and use the right function pad to scroll through these 16 INV PAD TRAIN Letters. Pick a letter for storage, then tap the pad that you want to train. The malletKAT will ask you to hit the pad soft, then hard. These values will be stored in that INV PAD Letter for the mallet pad that you just played. Go to Global Screen #80 and use the function pad to find the training values in the PAD Letter. The name of the pad(the key) that has been individually trained is now displayed in that Pad slot.

If the same pad is trained in more than one slot, only the training data from the last slot is used.

An individually trained pad will revert to the octave training results if the user releases footswitch #2 before striking the pad to select it for individual training AND the pad that is struck is the pad assigned to the slot currently displayed on the training screen. If the pad that is struck is NOT the pad assigned to the slot currently displayed on the training screen AND footswitch #2 is not pressed, training will be aborted. To select a pad for individual training, the footswitch MUST be held while striking the pad. The user should release the footswitch once the pad has been selected for training so it is not pressed when the actual training is performed.

If an individual slot has not been assigned a pad, the training results will display '---'.

It is still possible to train once for the entire instrument. Global Screen #07 will train the entire instrument. Note that if this train is performed, all Groups and Inv Pad trains are trained to this Global value.

General Information

There is one chip for both the malletKAT and the malletKAT WS versions. The software now "reads" the hardware to determine which model is used. As a result, the positions of the screen functions have moved. This is also true if you turn on KIT NAMES (the channel info for each controller is replaced by the kit name).

The LAST Controller value sent by the malletKAT is displayed on the screen in real time. This augments the volume number display on the fourth line. If a controller number is sent out, the value and the controller's number will be displayed on the fourth line, replacing the volume number previously displayed on older versions of software.

ADDITIONAL SYS EX DUMP

There is an additional Sys Ex Dump called **Chains & Reassigns**. This information is currently stored in the GLOBAL and ALL MEMORY Dumps. We have included this extra Dump so that this information can be stored seperately without affecting the Global Training or ALL MEMORY Data.

Note: Data dumps for chains and individual kits must be made between instruments using the same version of software.

FACTORY DATA

The USER KITS in version 4.0 are preprogrammed to automatically work with the Kurzweil PC2R purchased from Alternate Mode. The PC2R has a special data dump that is programmed at our factory. If you did not purchase a PC2R with the orchestra expansion card from us or if you purchased this instrument prior to our 4.0 release, you will need to download this sys ex file from our website. Downloading this sys ex file is really a good thing to do. This will make your malletKAT and PC2R work in tandem with matching KIT names on the Kurzweil and malletKAT.

Chains **One** to **Six** are also programmed for the Kurzweil. See the Appendix for the Kit and Chain Listings. Starting from Chain **Seven,** the kit setups are programmed in sequence. They will also advance to the next setup at the end of the chain.

The FACTORY KITs have been modified. These factory kits still use the General MIDI program numbers and names for each kit, but the following has changed in each kit.

* The pressure mode is set to NORMAL in all kits.
* Dampen Mode II is selected for all kits.
* Roll Mode is turned off in all kits.
* Mono note overlap is disabled in all kits.

ASSIGNMENT LAYER BANK SELECT

> The Bank Select MSB may now be selected along with the LSB for the reassignment layers. The LSB is on Kit Auxiliary screen #38 (as before) and the MSB is on screen #61.

Foot & Breath Controller Assignments

The range of controller numbers that can be assigned on the foot and breath controllers are now from 0 –127.

It is also possible to use the foot controller pedal and breath controller as a dual function controller when the "with sustain" function is selected. This means that if "Pitch Bend with Sustain" is selected for controller one, the pedal will function first as a sustain pedal, but when the pedal is pushed all the way down, the pitch bend control function will also be activated. Each controller is also assigned a channel, range, and curve.

The controller function with sustain is not available for all controller numbers. The available CC# are listed on the display.

Expanded Data Dumps

A new data dump called CHAINS and REASSIGNS has been added. Only Chain data and reassignment data is dumped. This dump will not work on a 3.6 version of software. You must load in your 3.6 ALL KITS dump into the malletKAT with 4.o. Then you can export a Chains Dump.

Programmable Kit Names

User Kit Names on the malletKAT can now be named. There is a Global Setting (screen64), that allows for three types of displays on the screen. Select KIT NAMES to display the names that you program for each kit. There are a total of 12 character slots available for each kit. The KIT NAME is the same for both controllers

Select INSTRUMENT NAMES if you want the General MIDI sound map. These are the names that are displayed on the Factory Kits as well. . If you do not have sounds in the malletKAT, but are using a General MIDI sound source, having this screen enabled can be very useful..

Select NONE, for NO string naming on the display. Selecting NONE allows for more KIT information to be displayed such as channel information, etc. If you are using an external sound source, and look at it's display for the sound name, selecting NONE allows information about both controllers to be displayed. Selecting "NONE" has no effect on Factory Kits. These non programmable factory kits automatically display the General MIDI program names.

The screen to edit the KIT Names is accessed by hitting the KIT AUXILIARY pad followed by the hitting the "0" pad twice.

The characters that make up the Kit Name string can be changed using the Increment or Decrement pads. The Forward and Backward pads select which character location to change. Hitting the number pads ("1" through "0") provide quick access to ten different characters as follows.

> "1" pad: " A "
> "2" pad: " M "
> "3" pad: " a "
> "4" pad: " m "
> "5" pad: " 0 "
> "6" pad: "   " (space)
> "7" pad: " *"
> "8" pad: " : "
> "9" pad: " ["
> "0" pad: " { "

Auto Gate Control

This mode truncates the gate time automatically by how fast you are playing. The gate time of these notes will be shortened proportional to how fast the notes are played. This mode can be found on Kit Aux Screen # 59.

The OVERLAP setting on this screen is the amount of time the shortened note will play before being turned off, measured from when the last note was hit.

Loop Latch Performance Mode

This mode is operational when the gate time of a layer is set to **LATCH**.

The Screen changes from Normal to LATCH. The keys of the malletKAT do NOT play normally. The "black" keys turn on notes, while the "white" keys below the black ones turn OFF the black notes.

In other words...

F# turns on the F# with no gate time. This starts the loop on F#

F below the F# turns off that F#. Notice that F does not make a sound (does not play the note F, but shuts off F#).

G# turns of G# with no gate time. This starts the loop on G#

G below G# turns off that G#. Notice that G does not make a sound (does not play the note G, but shuts off G#).

A# turns of A# with no gate time. This starts the loop on A#

A below A# turns off that A#. Notice that A does not make a sound (does not

play the note A, but shuts off A#).

In POLY Mode, it is possible to turn on 20 loops at once. (The Black Keys). If you gliss on the white keys, they will all shut off. A better way is to hit the HI C on the malletKAT. This will shut off ALL NOTES (LOOPS) that are on (the Black Keys).

In MONO Mode, hitting a black key after one black key is on, will shut off the first note allowing successive loops to be played. The last note can be shut off by hitting the HI C or by hitting its corresponding white key.

Pitchbend Sensitivity and Find Tuning Commands

(originally available only for the WITH SOUNDS version)

Pitchbend Sensitivity Command

A channel may now be assigned for this command (KIT AUX screen #41). The Pitch bend range is also set on this screen from OFF to 01-12 semitones.

This command may now be routed to INTernal MIDI port, the EXTernal MIDI port, BTH MIDI ports or NEITHER MIDI ports (kit aux screen #42)

Fine Tuning Command

A channel may now be assigned for this command (Global Aux Screen # 66)

This command may now be routed to the INTernal MIDI port, the EXTernal MIDI port, BTH MIDI ports or NEITHER MIDI port. (Global Aux screen # 65)

Melody Chord Mode

This mode tells the malletKAT what sound to play depending on how many notes are being played simultaneously. It gives one the ability to play one sound as a melody line, and another as an accompaniment sound simply by playing individual notes or chords.

This concept was first conceived on the Marimba Lumina, developed by programmer Mark Goldstein. Mark being the gentleman that he is, a true friend and lover for the advancement of electronic percussion, has allowed me to take this concept and use it on the malletKAT. Thank you again, Mark!

The malletKAT has three versions of this mode, each handling the issues of melody/chord functions with slight variations.

MELODY CHORD MODE

Striking the Hang pad twice is Edit Mode Activates the Melody Chord Mode. Continue hitting the Hang pad while the edit footswitch is down, and the malletKAT will display Chord Mode 1, Chord Mode 2 and Chord Mode 3. To get back to Hang Mode, Exit Edit Mode and re strike the Hang Pad Once. In Play Mode, the first line of the display will reveal the status of the Hang Pad (Hang, Mel1, Mel2, Mel3).

This mode may be assigned for each kit separately. It affects the both controllers. This mode is turned off when Double, Split or RTC Modes are selected.

This is how the malletKAT works in this mode. The instrument constantly looks at the keyboard to see how many notes you are playing at once. If one note at a time is played, the malletKAT assigns this note to controller layer one.   If two or more notes are played at once, the malletKAT splits up the notes between Controller Layers one and two (depending on which Mel Mode you are in).

A Sensitivity Control is provided in Global Screen #77. This parameter determines how close together a pair of notes must be to be considered part of a chord. The lower the number, the lower the latency because the malletKAT has to wait until the programmed time has elapsed to determine if you are playing a single note or chord.

There are three variations of Melody Chord Mode.

In **Mode 1**, if a chord is detected (two notes are played within the time set in Global Screen #77) the first note of the chord is played on both layers.

Example...

You have marimba on layer one and vibes on layer two. You start playing, and you will hear the marimba sound. You suddenly hit a c chord (the high C is the first note struck on that chord). The malletKAT will play the Hi C on both the vibes and marimba sound, and the rest of the chord is played on the marimba sound only.

In **Mode 2**, if a chord is detected, all notes are played on both layers. The malletKAT temporarily jumps to double mode. As soon as a single note is played, only the first layer will play.

In **Mode 3**, When a chord is detected, the first note of the chord will be played on Melody Layer One. All subsequent notes of the chord will play only on Layer Two.

Modified Bank Select & Program Change System

Throughout the years, manufacturers have dealt with bank changes and program changes differently. Some have used program numbers 0-127 while others used numbers 1-128 for program changes. Bank changes have also been an issue. Some manufactures only displayed part of the bank change command (the LSB) while others displayed both the LSB and MSB combination. To further complicate matters, some used the 0-127 while others used 1-128 numbering system for bank changes as well.

The malletKAT 4.1 has changed its format to comply with what most other sound manufacturers are using now. We now use the 0-127 system for both bank and program changes. We also display both LSB and MSB bank change commands.

This means that when you insert the new 4.0 chip into your malletKAT and import your old kits, all of the program change and bank change numbers will be off by one. To help remedy this situation, we have included another chip that will automatically "Fix" the problem and re number all of your program and bank change commands.

USING THE PATCH CHIP (v1.0)

The patch chip has been created that will modify the program change and bank select values of the USER Kits created by the prior versions of the malletKAT. When updating from a prior release to the malletKAT 4.x, the user will need to use the following steps in order to modify the program change and bank select values in any saved user kits.

Save the USER KITS (ALL KIT DUMP) by sending a data dump to a sequencer or data filer using your existing software release.

- Install the new malletKAT 4.x chip.
- Reinitialize the malletKAT.
- Load the Saved User Kits back into the malletKAT.
- Install the PATCH CHIP and power up the instrument.
- Shut off instrument, reinstall the malletKAT 4.x chip.

All of your kits will now work the same, but the display will show the program and bank numbers to be one count lower.

OTHER MODIFICATIONS TO BANK SELECT

The malletKAT will now accept the LSB or MSB Bank Select commands separately or together in any order via the MIDI IN port.

The MSB and/or LSB values may be set to OFF. No Bank Select command with a value of OFF will originate from the malletKAT.

A Bank Select massage arriving at the MIDI IN port of the malletKAT will no longer have any effect on the malletKAT unless Program Change/ Received is enabled for the channel included in the Bank Select command. Note that the Bank Select will also have no effect if neither malletKAT layer is set to the channel included in the Bank Select command.

PTW Mode

The Pitch Wheel on the malletKAT turns controller layer 2 into a massive pitch wheel. Unlike RTC, the value of the white key returns to zero when the note is released. (this simulates using a pitch wheel on a synthesizer). This mode is intended to be used in conjunction with layer one, the actual sound, while layer two imposes the pitch wheel effect on layer one.

Layer #2 (only) can be set to PTW mode by hitting the MONO key four times with the EDIT footswitch depressed. The PTW functionality is accessed by pressing FSW #2 (HANG pedal) and striking or pressing the keys.

The Master Octave is reserved for Special Functions

> **F#3** (slew speed)
>
> **G#3** (portamento mode)
>
> **A#3** (reset)
>
> **C#3** decrement key
>
> **D#3** increment key

When the F#3 (slew speed) pad is struck (with Hang Pedal Down), the slew value is displayed, and remains there until the F#3 pad is struck again. This acts like a toggle. The idea here is that after you strike the F#3 pad, you will then use the C#3 and D#3 pads to program your slew rate. Once you have finished, hit the F#3 pad again to begin playing.

The white keys are each assigned a Pitch Wheel controller value from 0-127 in the following manner.

> **C0 = 0** (min. controller value)
>
> **F1 = 64** (neutral controller value)
>
> **G1 = 64** (neutral controller value)
>
> **C3 = 127** (max controller value)

Keys positioned between those described above are assigned intermediate values.

If Portamento is OFF, striking a key will immediately send the controller value assigned to that key. The neutral Pitch Wheel value is sent when both the pad and the HANG pedal are released.

If Portamento mode is ON, striking or holding a key will slew up or down to the value assigned to that key for as long as the key is pressed OR until the Gate Time Value has expired. If the key pressure is released or when the gate time ends, the controller values will slew back to the neutral value.

When a white key is struck with the mallet, the malletKAT holds that pad that down as determined by the GATE TIME. After the gate time has expired, the slew returns back to "0" at the determined slew rate when the HANG pedal is released. If the HANG pedal is still pressed when the max/min value is reached, the return slew sequence will not occur until it is released. Whenever the HANG pedal is released, the slew sequence returns to the neutral value (determined by gate time)

PTW TIPS

> In order to hear the sustain sound, you must have sustain one pedal down. When you release the Hang pedal, the slew sequence returns to the neutral value at a duration of the programmed gate time of controller 2. Make the gate time settings small so that when you release the Hang Pedal, you will have normal pitches being played on controller one.
>
> If you continue to press on a white key after releasing the HANG PEDAL, the pitch bend continues until that key is released.

Holding the pad down has the same effect as holding the HANG pedal down.

Real Time Controller Mode and RTC+Velocity Mode

Real Time Controller Mode

Real Time Controller Mode turns the malletKAT into a massive knob turning machine. Each black key on the lower two octaves of the malletKAT is assigned a channel, controller number, minimum value, maximum value, and reset value. Once a black key is struck, the white keys act as individual values (like the position of a fader or knob on your synth). The lowest C is the minimum value, and the highest C is the maximum value. As you play on the "white key" pads of the malletKAT, the malletKAT instantly translates your last hit to the controller "knob" of your synth. The knob turning can be instantaneous, or can slide "slew" to the next value. This can create some incredible interesting effects that are not possible with real time knob tweaking. Complex rhythms can be imposed on any controller number.

Entering and leaving a black key can also create an effect. When you leave a black key (by striking another black key), one has the option of resetting the last value and/or presetting the new value of the black key just struck.

The last (highest) octave of the malletKAT's black keys are reserved for special functions. C# and D# are "slew" pads that automatically send continuous data in one direction. (C# slews down, and D# slews up).

The Real Time Control Mode also has a variation mode called RTC+Velocity

The RTC mode is selected by striking the MONO pad TWICE while the Edit Footswitch is pressed.

RTC Mode

The RTC mode is selected by striking the MONO pad (F1 on the malletKAT, second octave) TWICE.. Normally the first strike of the MONO pad with the edit footswitch down is MONO, meaning that the active controller is in MONO mode. Hitting the pad twice, turns the malletKAT into RTC Mode. The display now reads RTC. To return to MONO Mode, release the edit footswitch and start the process again.

Three modes are available for controller one (MONO, RTC, and RTC + velocity). Controller two has another mode named PTW. This is activated by striking the MONO pad four times when controller 2 is displayed.

With the exception of the PTW mode, both controllers can select any of these modes simultaneously, so that a KIT can use these modes in Normal, Split or Double Mode.

Assigning Controller Numbers

Controller Number assignments to the black keys in RTC Mode is a Global Assignment, meaning that there is only ONE RTC assignment in the malletKAT.

There are four screens for data entry. Global Edit Screens (67,68, & 69) will all take you to the first screen.

#67 = KEY#. This represents which black key on the malletKAT you are working on. On a three octave malletKAT, a screen display of C# represents your lowest C# on the instrument. Change the value by hitting the increment, decrement keys. Your options are C#,D#, F#, G# and A#. If a second value is present, i.e C#+1, this represents the second C# on the instrument. C#-1 is the lowest note on a four octave malletKAT, and C#-2 is the lowest note on a five octave malletKAT. Notice that the highest octave is not available. That is because the "master" octave's black keys are reserved for special functions.

Screen #68 = is the channel that you want to assign the the black keys assignment.

Screen #69 = is where you assign the controller number. Choices are NO, 0-128. Number 128 is a Pitch wheel assignment. The last line on the display will show the name of the controller number assigned.

The second page, Global Edit Screens (**70,71,** and **72**) is where you assign the MIN VALUE, MAXIMUM VALUE and RESET values.

Setting the Min and Max values gives the range of the "white key" pads on the malletKAT. Since there are 127 controller values available, and only 21 "white pads" on a three octave instrument, the malletKAT averages the total value of the assigned range over these pads. The min and max settings affect the total range of controller values that are averaged across the white pads.

The RESET value is the controller value sent when the RESET PAD is struck or when Exiting and Entering a new controller pad (see below).

Notice that the top line of the display is not editable. It is for your reference to remind you of what black key you are working on.

Screens 73/74 are for editing the RESET Value. When you enter (strike a black key) or leave (strike another black key), the controller's value can be reset to the value set in the RESET parameter on the previous page. This parameter can also be set to NONE, which means that the controller number will not be changed when entering or leaving a "black" key setting. It is also possible to set this parameter to LAST, meaning that the value from this black key will be remembered when you enter it again.

"Prev Ctrl Value" means the Control Number value of the last black key or the control function that you are leaving from.

"Next Ctrl Value" means the Control Number value of the black key that you are going to.

Here are some examples of settings and the results.

Example One:

Prev Ctrl Value: RESET

Next Ctrl Value: NONE

This means that when a black key is hit, the reset value for the last controller command will be sent. If you are striking a black key for the first time, no controller value will be sent until you hit a white key. If you have been "working" this controller, then decide to move to another black key, the original black keys controller value will be reset as you leave this controller. When you enter the new controller number, no initial value will be sent until you hit a white key.

Example Two:

Prev Ctrl Value: NONE
Next Ctrl Value: RESET

This means that when a black key is hit, the reset value for this newly selected controller command will be sent. When you first enter this controller number by striking a black key, the RESET value is sent out. When you leave this controller number by hitting another black key, the original black keys value is NOT RESET, but if you strike another black key, the new controllers value will automatically sent out the RESET value.

Example Three:

Prev Ctrl Value: NONE
Next Ctrl Value: LAST

This means that when a black key is hit, the value that is sent is the value that was sent the last time a value was sent for this black key. If the last value was due to a reset operation, the reset value is not sent. Only the last value sent as a result of striking a white key. This means that the malletKAT remembers what was the last value this particular black key sent out, and returns to this value when this black key is struck again.

SPECIAL FUNCTION BLACK KEYS

The five black keys on the Master (top) octave has been reserved for special functions that effect all of the Controller Black keys. It is possible to SLEW from one value to another in RTC mode. This means that when you strike a white key, then another, you have a choice of instantly going from one value to another or allowing a "portamento" effect to take place between these values. Portamento or slewing means that the value from one white key gradually changes to the next value. The time that it takes to get from one value to another can be set using these keys.

When in RTC mode, strike the F#3 pad. The screen displays the Slew Speed in Milliseconds. This is the time it takes to get from one value to the other. This pad is a toggle. Re-strike F#3 to leave this mode.

To change the time of the slew effect, first strike F#3, then use the C#3 and D#3 pads (INC+DEC pads) to increase or decrease the values. Re-strike the F#-3 pad to return to Play Mode.

When Increasing the Slew Rate, (the numbers get higher) it means that the effect is slower. The higher the value, the longer it takes to get from value to value.

A value of 255 is about 1/4 of a second.   By decreasing the value to 125, it means that it will get from value to value faster, twice as fast as the 255 setting.

The G#3 pad is the PORTAMENTO ON AND OFF Key. Strike this pad while in RTC mode and in PLAY mode. The screen will "burst" a message of being on or off, then resume back to PLAY mode. It is a toggle pad. Re-strike the pad to activate or de-activate this feature. Having PORTAMENTO OFF means that the values will instantaneously switch to whatever white key value is struck.

The A#3 pad is the RESET PAD. When this pad is struck in PLAY mode, it will RESET the value of the active controller to whatever value was set in the GLOBAL screen.

EXTRAS

The Pitch Wheel has been added as a 128th "controller" and the A# pad will reset it to the neutral value. There is also a special mode, Pitch Wheel Mode, PTW MODE, described later.

RTC+ VELOCITY MODE

This is a special mode that allows for two controller numbers to be manipulated simultaneously. RTC is a horizontal control, meaning that values of a controller are affected by using the white keys, left to right.

Adding VELOCITY to this mode means that your dynamics, or vertical approach changes values to a controller. Playing soft or loud is interpreted as small or large controller values.

This mode is analogous to turning TWO knobs of a synth module at the same time. By thinking left to right and soft to loud at the same time, incredible effects can happen in real time, with just two sticks in your hands.

In order to properly activate this mode, the basic controller settings must first be set in the GLOBAL AUX Screens. Global Screen numbers 75 and 76.

Global Screen #75 is where you set the MIDI Channel and Controller Number that will be affected by the velocity or the playing dynamic. Use Global Screen #76 to set the reset value. There are not min/max settings for this mode because the extremes are determined by the min/max velocity settings.

SLEW DATA STRIP RATE

When using the RTC Mode, there is lots of control data being sent to the sound module. In the Kir Screen Aux (Screen #43), a screen has been provided that strips or thins out some of the data. Raising the value (between 1 and 127) decreases the amount of data being sent.

Reassignment Loop Mode/ Auto Assignments Quick Copy/ Special Note Number Assignments / Added Reassignments

REASSIGNMENT LOOP MODE

It is now possible to assign the notes in the Reassignment Layer Mode to function as a LATCH, where the first strike sends a note on, and a second strike on the same pad shuts it off. If the Reassignment is set to Monophonic Mode, only one loop will play at a time. If the Reassignment is set to Polyphonic Mode, it is possible to independently control multiple loops. The Hi C on the malletKAT is reserved to shut off ALL active Loops in the Reassignment.

Set the Forced Gate to LATCH in the Kit Auxiliary Reassignment screen and the notes played by the assignment layer will toggle (i.e. 1st time a pad is hit, A NOTE ON will be sent and the 2nd time a pad is hit, a NOTE OFF will be sent). The reassignment layer will operate in polyphonic and monophonic modes. If a note is assigned to reassignment pad #61 (hi C), striking this pad will send a NOTE OFF for all pads for which no NOTE OFF has been sent. It will not send a NOTE ON for this pad. If note number 128 (OFF) has been reassigned to reassignment pad #61 (hi C), this pad will not play a reassignment note (normal) BUT will also NOT turn off notes for the other reassignment pads. This gives the user the ability to decide if one pad is capable of controlling all reassignment note offs and also allows HI C to be a playable note in COMBINE mode, without turning off all active reassignment pads.

REASSIGNMENT QUICK COPY

A fast copy function has been added to the reassignment mode so that the user can either auto increment or copy the value of one reassignment pad to the next right adjacent pad.

Copying the data from one reassignment pad to the next adjacent pad...

While in the Global Reassignment Edit Screen, Hold down the edit footswitch AND the Sustain ONE footswitch together, use the RIGHT (forward) function pad to copy the existing assignment to the next. The malletKAT will copy the existing data to the adjacent pad.

Auto incrementing the data from one reassignment pad to the next adjacent pad...

While in the Global Reassignment Edit Screen, Hold down the edit footswitch and AND the Sustain ONE footswitch together. Use the LEFT function pads to AUTO INCREMENT the existing assignment to the next. The malletKAT will copy the existing data to the adjacent pad AND add that value by one.

MODIFIED REASSIGNMENT NOTE ASSIGNMENTS

Midi Note 128 is now an OFF pad. When this is assigned to a pad, no sound will be produced. This allows the ability to assign only the notes you want to sound. This is especially useful in COMBINE mode when both the Reassignment and Controllers One, Two or Both are also active. The default note is NO NOTE.

Using Midi Note 128 on the Hi C in the reassignment layer prevents that pad to perform an ALL LOOP OFF function for that layer. No sound will play on that

pad.

ADDED REASSIGNMENTS

The malletKAT 4.1 Software chip has expanded the reassignments from 8 to 14. These are Global Assignments that can be used in any Kit.

The reassignment notes are now initialized so that the first pad of a 3 octave malletKAT is automatically assigned to CO in reassignment #1. In re-assignment #2, the first pad of a three octave malletKAT is assigned to C1, etc.

WARP MODE

In version 3.6 of the malletKAT, we created a MIDI ECHO mode. This gave the malletKAT the ability to repeat the whatever was played on the malletKAT. The amount of repeats is controllable, along with the tempo.

We now have added **WARP** to the MIDI ECHO. This means that instead of the echo being the same note repeated, you can change the pitch of each of the echo's by plus or minus 12 semitones. This means that each note stuck can create a musical sequence.

To make this even more interesting, instead of just playing the notes back evenly, we have added 5 rhythm choices that superimpose over the real notes played.

The results can be very interesting!

Kit Auxiliary Screen #26 (previously ECHO Mode) has now been replaced with WARP MODE. The second Line is for programming the amount of REPEATS. The third line is for tuning the echo's, Pitch Channel One, Two and Three. Each Pitch Channel can be tuned up or down 12 semitones. (Kit Aux Screens #55 & #56). All three pitch offsets are used on repeating patterns for cycling effects.

The fourth line is for setting the Patterns (Aux Screen #57). The original Echo Volume (Aux Screen #27) is also set on this line.

The patterns are as follows:

1: Straight eight notes in groupings of two *
2: Quarter followed by 2 eights
3: Two eights followed by a quarter
4: Eight, Quarter, Eight
5: Eight Note Triplets
6-8 Various Patterns

*A repeat count of 1 plays two notes, a repeat count of 2 plays 4 notes, etc.

If in Double Mode, only layer one Warp Mode will operate. Reassignments do not respond to Warp Mode.

Velocity Shift Mode

- A new mode, Velocity Shift Mode has been added. This mode is added to the HANG / SPLIT/ DOUBLE category and displays in their place "VelS" when selected. This mode is selected by hitting the "Layer" pad twice with the FSW2 pressed.
- A velocity setpoint is provide In Kit Aux Screen #63. A velocity above the point plays layer #2 and one below or equal plays layer one. Setting it to 127 effectively turns off the mode.

Bug Fixes

- The Velocity and Infinite strings did not blink properly in the Gate Time Settings.

- When 6.2 sec was displayed in the Gate Time, the actual time employed was INFINITE. The display now shows INFINITE when appropriate.

- The ALL NOTES OFF function has been modified so that when a malletKAT without sounds instrument is equipped with a software for a malletKAT WS, the ALL NOTES OFF function will operate properly.

The malletKAT 5.0 Software and the malletKAT Express

The malletKAT Express

The malletKAT Express shares the same functions as the malletKAT Pro. Because the malletKAT Pro uses the third octave for functions, the Express has to simulate the third octave. Pressing on footswitches 1 & 2 (sustain one and edit), simultaneously allows the lower octave of the 2 octave malletKAT Express to operate like the lower octave of the 3 octave malletKAT when entering EDIT MODE from PLAY MODE. Footswitch 1 (sustain one) should be released once in EDIT MODE.

Think of this function like a shift key. The functions of the third octave are written ABOVE the "white" keys on the Express The normal functions are written below the "white" keys on the second octave. Again, the normal EDIT functions are accessed via Footswitch 2, and third octaves functions are accessed by holding down footswitches 1 and 2.

Modified Warp Mode

The sound echo volumes in Warp Mode are no longer affected by the minimum velocity settings of the kit. Instead, they are allowed to go down to "one".

Come check us out on-line @ www.alternatemode.com

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Kit Names

The Kit Names Screens are Now part of the Regular Kit Auxiliary Screens.

On the malletKAT Pro, accessing Kit Names is achieved by hitting the Edit Footswitch, then hitting pads 0,0.   On the malletKAT Express, these editing screens are located within the Kit Aux Screens.

Alternate Note Mode

The malletKAT and Express now can alternate between two sounds with

every consecutive hit.   This ALTERNATING Mode is activated by hitting the "LAYER" pad THREE times in a row in EDIT MODE. In Play mode, ALT is displayed on the screen. The notes that are played will alternate between the notes of Controller 1 and Controller 2.

Virtual Control Wheel A, B & C

The Virtual Control Wheel on the malletKAT turns controller layer 2 into a Programmable Control wheel. Unlike RTC, the value of the white key returns to zero when the note is released. (this simulates using a pitch wheel on a synthesizer). This mode is intended to be used in conjunction with layer one, the actual sound, while layer two imposes the Controller effect on layer one.

Layer #2 (only) can be set to CTLC mode by hitting the MONO key FIVE times with the EDIT footswitch depressed. The CTLC functionality is accessed by pressing FSW #2 (HANG pedal) and striking or pressing the keys.

The Master Octave is reserved for Special Functions

F#3 (slew speed)

G#3 (portamento mode)

A#3 (reset)

C#3 decrement key

D#3 increment key

When the F#3 (slew speed) pad is struck (with Hang Pedal Down), the slew value is displayed, and remains there until the F#3 pad is struck again. This acts like a toggle.   The idea here is that after you strike the F#3 pad, you will then use the C#3 and D#3 pads to program your slew rate. Once you have finished, hit the F#3 pad again to begin playing.

The white keys are each assigned a Controller controller value from 0-127 in the following manner.

> **C0 = 0** (min. controller value)
>
> **F1 = 64** (neutral controller value)
>
> **G1 = 64** (neutral controller value)
>
> **C3 = 127** (max controller value)

Keys positioned between those described above are assigned intermediate values.

If Portamento is OFF, striking a key will immediately send the controller value assigned to that key. The neutral Pitch Wheel value is sent when both the pad and the HANG pedal are released.

If Portamento mode is ON, striking or holding a key will slew up or down to the value assigned to that key for as long as the key is pressed OR until the Gate Time Value has expired. If the key pressure is released or when the gate time ends, the controller values will slew back to the neutral value.

When a white key is struck with the mallet, the malletKAT holds that pad that down as determined by the GATE TIME. After the gate time has expired, the slew returns back to "0" at the determined slew rate when the HANG pedal is released. If the HANG pedal is still pressed when the max/min value is reached, the return slew sequence will not occur until it is released. Whenever the HANG pedal is released, the slew sequence returns to the neutral value (determined by gate time)

CTLC TIPS

In order to hear the sustain sound, you must have sustain one pedal down. When you release the Hang pedal, the slew sequence returns to the neutral value at a duration of the programmed gate time of controller 2. Make the gate time settings small so that when you release the Hang Pedal, you will have normal pitches being played on controller one.

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Assigning the Virtual Control Wheel

Virtual Control Wheel

> There are three Virtual Control Wheels (besides Pitch Bend) that can be assigned GLOBALLY. These are Control Wheels A, B and C. In the Global Screens, you assign what controller number (1-127) you want to assign onto the Virtual Wheel.

> Every Kit in the malletKAT can use ONE of these three assigned wheels In Controller Two. After striking the mono Key 5 times in Edit mode on Layer Two (controller 2), the layer turns into CTLC mode. When the sustain two footswitch is depressed, the Virtual Wheel is activated. The Virtual Wheel assumes the MIDI Channel of Layer Two.

Augmented Metronome Grooves

Added Grooves

> The malletKAT now enjoys new GM drums grooves (channel 10). Unlike version 4.0, these grooves do not have a preset tempo. Each called up groove will remember the tempo that has been set via the Tap Tempo Pad.

> These grooves work on both INTernal and EXTernal Sound Modules.

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