ZENDRUM LT
DIGITAL MIDI CONTROLLER

Owner's Manual

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Welcome

Thank you for purchasing your Zendrum LT. The future of electronic drumming is at hand. The Zendrum is a MIDI controller that was designed and built by drummers to allow musicians to find new avenues of expression and creativity and eliminate many of the physical limitations of the conventional drumset, while taking full advantage of the multitude of sounds available with MIDI devices, thus creating a whole new instrument. Transportation and set-up cease to be a time consuming chore, recording projects can be performed in the studio control room through the monitor speakers, and the Zendrummer can now move to the front of the stage!

Please take the time to read this manual. We have made every effort to design a user-friendly instrument. Because it is a MIDI device, there are certain rules that will need to be understood to avoid "user-error" and frustration. KNOW THIS- We, the inventors, are drummers. We would rather play than program or read manuals. We'll do our best to make the instructions short and to the point, and get you up and running with the least amount of "gear fear". You can help by looking over this manual as you get started. If you're a first time electronic musician, read ALL of the manual. It's not long, and we'll try to give you tips while you're learning so it will make logical sense.

We recommend reading the "Getting Started" section for anyone. It's to your advantage to understand the basics as you unpack your instrument and cable up for the first time. The goal is to get you safely and surely playing as soon as possible without a lot of head scratching or guessing. Any tech support questions can be directed to:

www.zendrum.com
zendrum@mindspring.com
404/352-1646

Keep your sales receipt, the shipping box, and manual.
For your future reference:

SERIAL NUMBER: _____
DATE OF PURCHASE: _____

What's New

We are currently shipping chip version 31. This new version includes a pair of significant improvements:

Bank Select Function

A <u>Bank Select Function</u> is now included as part of the global <u>System Functions</u>.
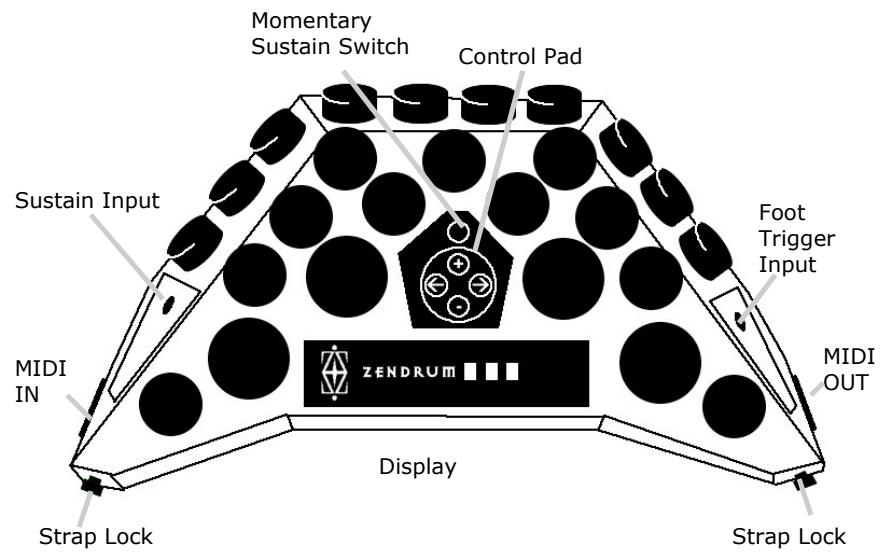
Momentary Sustain Switch

Because of this additional melodic capability, all new Zendrums now include a push button momentary sustain switch to the left of the 4-way cursor on the back panel. This switch can be easily accessed with your left thumb to sustain notes. It is wired in parallel with the 1/4" sustain pedal input on the left wing, enabling the <u>Polarity Function</u> to toggle it between "sustain" or "all notes off".

Safety Instructions

1. Read and understand all instructions
2. Follow all warnings and instructions marked on the product.
3. Unplug this product before cleaning. Do not spray or pour cleaners directly on the product, use rubbing alcohol to clean fingerprints with a clean, soft cloth.
4. Do not use this product near water, for example in the bathtub.
5. Do not place this product where it may fall.
6. Do not attempt to replace the 12 volt DC transformer provided.
7. Do not allow anything to rest on the Power or MIDI cords.
8. Do not attempt to open the backplate without qualified technical assistance from Zendrum Technical Support.
9. Never use a strap without straplocks.

PLEASE USE COMMON SENSE! The Zendrum is an electrical device.
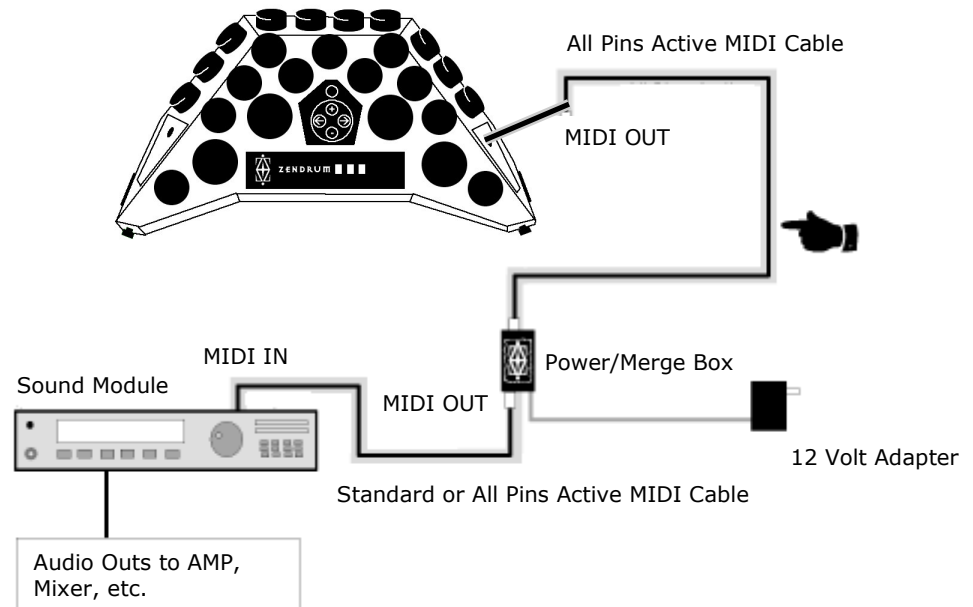
Getting Started

Momentary
Sustain Switch

Control Pad

Sustain Input

Foot
Trigger
Input

MIDI
IN

MIDI
OUT

Display

Strap Lock

Strap Lock

Note:

For a list of MIDI note assignments, see the Controls and Functions section.

Setting up the Zendrum

1. Plug the 15' all-pins-active MIDI cable from the Zendrum MIDI OUT into the MIDI IN of the power/merge box.
2. Plug the power/merge box into a standard wall outlet or power strip.
3. Plug the standard MIDI cable from the MIDI OUT of the power/ merge box into the MIDI IN of a sound module, drum machine, sampler, etc.
4. Connect your sound module to an amplifier, headphone, or mixer.

All Pins Active MIDI Cable

MIDI OUT

MIDI IN

Sound Module

Power/Merge Box

MIDI OUT

12 Volt Adapter

Standard or All Pins Active MIDI Cable

Audio Outs to AMP, Mixer, etc.

Important Note:

Turn on your sound module and amplifier before turning on the Zendrum controller or the module may not function properly.

Note:

The total length of your MIDI path, including merge box, should not exceed 50'.

A Brief Overview of the Zendrum

The Zendrum is a MIDI (Musical Instrument Digital Interface) triggering controller designed by drummers to allow musicians to express their creativity in rhythmic and intuitive ways. However, the Zendrum can trigger ANY sound via MIDI, so it is much more than drums yet as easy to play as tapping your desk with your fingers. Unlike a keyboard, there are no moving parts to break or wear out. Anyone can enjoy it, but it's not a toy. It is a real instrument carved and handcrafted from fine woods, assembled and tested by the inventors. Each Zendrum is a work of art, manufactured with careful attention to detail and high quality.

Technical Specifications

Body	Solid rock maple and exotic hardwoods in satin or high gloss and clear wood stains
Triggers	25 velocity-sensitive, shock mounted
Note Maps	16-user-definable set-ups
Operating System	4-way Cursor Switch Momentary Sustain Switch
Display	3-digit, 7-segment LED
Global Parameters	MIDI Volume: 0-127 MIDI Channels: global 1-16 Program Change: 0-127 Noise Floor: 0-127 System Exclusive Receive (MIDI IN) System Exclusive Send (DUMP) Copy Set-up: 1-16 Restore Defaults: 1-16 Trigger Velocity Scope VU Meter Variable Velocity Response Curves: 1-7 Bank Select
Trigger Parameters	Note Number: 0-127 4-way Crossfade Notes: 0-127
MIDI	Transmits on each of 16 MIDI channels, one channel per global set-up
Ports	MIDI IN MIDI OUT Sustain Pedal IN External Trigger IN
Power	12vDC power/merge box sends power to Zendrum via 5-pin active MIDI cable (supplied)

Overview (cont'd)

Sounds

There are virtually thousands of sounds available through MIDI, and many sound modules, drum machines and samplers to choose from to play these sounds with the Zendrum. Everyone has their favorites, but the best advice is to use your ears and decide what YOU like and what YOU want to do with your Zendrum.
Some of the manufacturers are Akai, Alesis, Emu, Korg, Kurzweil, Roland, Yamaha, and Zoom. In addition, if a computer is equipped with a MIDI port and a soundcard, it can be controlled with a Zendrum and used in conjunction with music writing, sequencing and scoring software programs for a formidable music composition system.

Programming

The Zendrum was designed by drummers to access the vast array of MIDI sounds. To maximize the compatibility with other manufacturers' MIDI devices, a certain number of user definable parameters were necessary.

The most basic is the MIDI Channel Select, Matching the transmitting channel of the Zendrum to the receiving channel of the sound module is what makes it possible for them to communicate with each other.

The other most basic programming function is MIDI Note Select. Each trigger can have a MIDI note number between 0 and 127 for each of the 16 Set-up/note maps. This can be used to designate chord changes or change the position of drum sounds. Most drum sound modules have a range of 61 notes, or drums per drumset, that may be assigned to the individual triggers as you wish.
By using the Note Function of the Zendrum, you tap the trigger you want to change and scroll the + or – cursor switches until the drum sound you want is heard. The same easy steps apply to setting melodic intervals to the triggers. Each trigger can have its assigned note stored in the set-up/notemap memory; using the cursor switch you toggle between the 16 set-ups to change chords. Of course, the sounds available are dependent on which sound module you are using.

The Noise Floor Function allows the user to set the lightest touch that will trigger a sound intentionally while setting a threshold so that stray vibration, sound pressure or false body blows will not cause unwanted sounds to occur.

Overview (cont'd)

Programming (cont'd)

The <u>MIDI Volume Function</u> allows the user to set the maximum velocity sent by the Zendrum. The combination of this parameter with the Noise Floor function sets the Zendrum's Dynamic Range from soft to loud. The best dynamics occur when the Volume is wide open at 127 and the noise floor is at 3 or 4. That puts the widest touch control under the musician's hands. MIDI range of touch control is from 0 to 127.

The <u>Variable Velocity Response Curve Function</u>
allows the musician to tailor the touch response of the triggers to their personal preferences and strength. It is also used to optimize the sound module's response.

Controls and Functions

When first powered up, the Zendrum's internal computer runs through a series of checks and selected values of all functions resting on the Program Function.

Each trigger in the Zendrum LT is user programmable. The diagram below indicates the default MIDI note number assignment based upon the C Pentatonic scale (as used in the default factory setup 1). The sound assignments indicate what we consider the basic drum map. Of course you are encouraged to design your own.

Setups 15 and 16 are general MIDI maps with this instrument layout that correspond to a large number of sound module defaults and computer sound card interfaces.
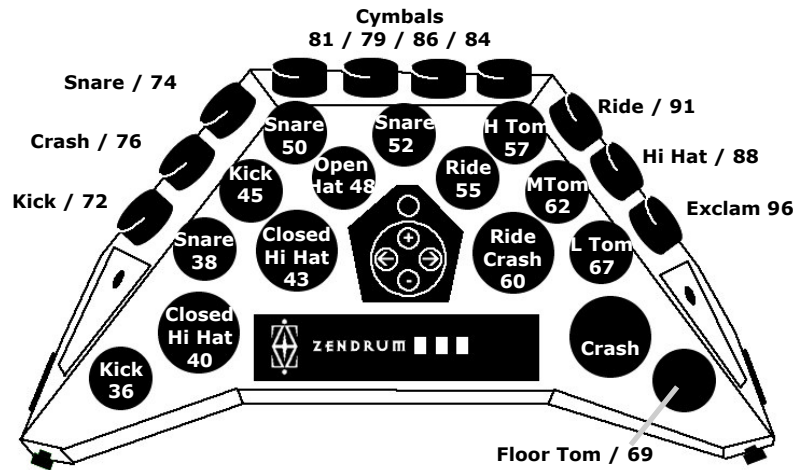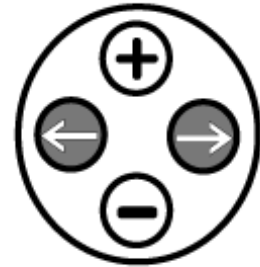
Control Pad and Function Display

All functions are controlled by the control pad and shown on the function display. The following pages describe each function and the method used to edit each function.
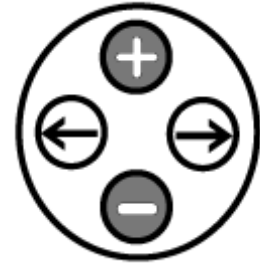
Selecting Functions

Press either the left (<) or right (>) control button to scroll through the functions listed below.

Editing Functions

Press either the increment (+) or decrement (-) button to see the current value for the selected function.

Note:

After making any numeric edits, select a new function. This will ensure the edits remain saved if power is switched off accidentally.

Program Functions

Set Up Note Map Select (UP)

Select Set Up 1-16 using either increment (+) or decrement (-). Each of the 16 Set Ups consist of: a note map, program change, maximum volume, noise floor, and MIDI channel. Scrolling through the numbers 1-16 will change ONLY the note maps without sending the other commands. Pressing either left (>) or right (<) will send all set up parameters.

Program Change (Pr)

Select sound program 0-127 using either increment (+) or decrement (-).

A MIDI program change message is sent as the value is changed. The number will correspond with the program/patch number of your sound module. The Zendrum sends the true number (number 0-127). For example: The Alesis D4/DM5 has 21 programs; the Zendrum will change from 0-20. However as the Zendrum sends 21 and higher, the Alesis modules will repeat 0-20.

Volume (UL)

Select MIDI velocity ceiling 0-127 using either increment (+) or decrement (-). Maximum volume is 127.

Noise Floor (FL)

Select value 0-127 using either increment (+) or decrement (-). Determines minimum force needed to play triggers. For maximum dynamic range, leave as low as possible. Default is 4.

MIDI Channel (CH)

Select value 1-16 using either increment (+) or decrement (-). Program change MIDI messages are sent whenever changing channels. Most drum modules default to channel 10, as does the Zendrum.

MIDI Note Number (no)

Assigns MIDI note number (sounds) for each of the 24 triggers. Tap the trigger to view current note number, select new value using either increment (+) or decrement (-) or listen for the sound you wish to put there.

Program Functions (cont'd)

Variable Velocity Curve (rC)

Select Velocity Curve 0-7 using increment (+) or decrement (-). This function allows the musician to tailor the touch response to suit their personal playing style and get the best dynamic range from their particular sound source. Each MIDI device will have a certain "feel" to its dynamics. We encourage you to experiment with all the seven different curves to find what makes your sound source interact to your liking with the Zendrum triggers.

0 Unaffected
1 A little harder to max out the dynamics.
2 Slightly harder than 1.
3 Requires the most force
4 Easier than 0 to max (accelerated)
5 Slightly hotter than 4
6 Requires the least force but still has variable dynamics.
7 All hits MAX velocity 127. (Good for setting mixer input levels)

Force Display Function (Fd)

Activate the "VU" for viewing trigger dynamics by pressing increment (+). Tap triggers to see relative force displayed. Useful for programming velocity splits in some sound modules.

Serial Number Function (Er)

To access the serial number, press the right (>) cursor until the **Er** function page appears. Continue pressing the right (>) cursor approximately 35 more times until a series of double digits flash.
The first two are the circuit board version   = **3.0**
The second two digits are the processor chip = **31**
The next **four pairs of digits** are your serial number

System Functions

Default Initialize (dF)

Defaults settings to the factory presets for the currently selected set up. Press and hold increment (+) for 5 seconds.

Copy Set Up (CP)

Copies the currently selected set up to a new location. Select new location using increment (+) or decrement (-). Press left (<) or right (>) to activate the copy function. If you don't want to perform the copy, press increment (+) or decrement (-) to get back to the original set up, then left (<) or right (>) to cancel it.

Pedal Polarity (PL)

To change the sustain pedal or backplate sustain switch polarity, select either up or down using increment (+) or decrement (-). This allows the pedal or switch to act as either "sustain" (0) or "all notes off" (1).

Exclusive Dump (Ed)

Sends current settings to another Zendrum or storage device. Press increment (+) to send.

Note: The Zendrum SYSEX I.D. is 0X69.

Exclusive Receive (Er)

Receives memory from another Zendrum or memory storage device. Press increment (+) to engage. The Zendrum will listen until it detects an incoming SYSEX message and then return to the function OR until you press left (<) or right (>).

Bank Select Function (bC)

Select value 0-127 with increment (+) or decrement (-) then, select desired program from that bank. Return to bC screen to activate selection.

System Functions (cont'd)

Fail-safe Lock Out (· Pr)

This prevents anyone else from changing your settings (Volume, MIDI Note, Channel, Noise Floor) but will send program change messages. Press and hold both the left (<) and right (>) arrows for 5 seconds to lock or unlock. Lit LED indicates the Zendrum is locked.

Initialize All Presets

Press and hold both increment (+) and decrement (-) for 5 seconds as you switch on the power.

Changing MIDI Notes

1. Press left (<) or right (>) until the display shows the MIDI Note page (no)
2. Press increment (+) once to see the "which trigger?" brackets. [ ]
3. Tap each trigger to view the current setting for each.
4. Press either increment (+) or decrement (-) while tapping a trigger until you hear the sound you want to assign to that trigger.
5. Tap another trigger you wish to program and repeat the process until you have re-mapped all triggers to your liking.
6. When finished, be sure to step to another function before turning off the Zendrum otherwise you'll lose your edits.

Note:

While you are tapping the trigger you will hear the note/sound change as you scroll through the MIDI numbers. It is advisable to turn the <u>Noise Floor</u> up when you are changing the note number. This will insure you are getting the correct MIDI Note number in the display for each trigger being edited. Any accidental triggering caused by bumping the body, etc., could cause you to erroneously change note numbers of triggers you did not intend to change.

If the Function Display shows a lighted LED in front of the display while in the MIDI Note page, you are in the <u>Advanced Program Mode</u> (see Advanced Program section). To enter this mode, dial past 127 until the large LED lights up. To get out of the <u>Advanced Program Mode</u>, turn down past 0.

Advanced Programming/Velocity Crossfades

The Advanced Program Function is included for the drummer who wants the most realistic and expressive instrument possible, and to accommodate sound modules that do not have internal crossfading capabilities. This is a more complicated programming function, but experimentation is encouraged.

When the lit LED is shown before the note number, the Zendrum computer sends out four MIDI note numbers in a sequential crossfade low to high velocity. This allows more realistic nuance control of complex instrument sounds such as the hi hat. In the normal programming mode, the mid hi hat trigger has a default of note number 43.

If you change the note number for this trigger to 41 while in this mode, you will hear note numbers 41, 42, 43, and 44, depending upon how hard the trigger is hit.

As you can see, this offers many possibilities. For example, a single snare trigger can range from a light brush to an auditorium rim shot. A single cymbal trigger might crossfade from a light jazz ride to a flanged crash.

A sound module can be programmed to allocate a block of 4 MIDI notes in any position to be crossfaded.

Velocity Crossfade
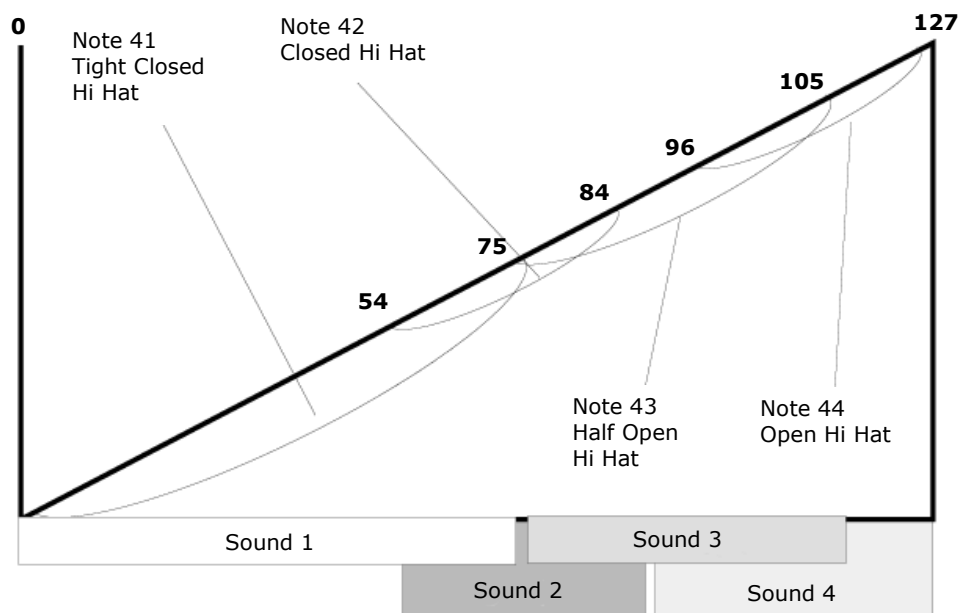
Set Up 14: Default Crossfade Drums

Note:

To operate correctly, the note assignments in your sound module must be edited to match the note assignments shown below.

Kick	36-39
Snare	40-43
Hi Hat	44-47
Hi Hat	45-48
Open Hi Hat/ Ride/Ride Bell	48-51
Bell/Crash	52-55
Tom 1	60-63
Tom 2	64-67
Tom 3	68-71
Floor Tom	72-75
Conga	76-79
Shaker	80-83
Stix & Clicks	84-87
Exclamations	88-91
Single Note	92, 93, 94, 95
Hi Hat Pedal	96

Factory Preset List

The factory preset note maps are accessd within the <u>Set Up Note Map Select</u> (UP) function. Each can be edited and any changes will be saved at power down.

1. C Pentatonic
2. C Minor
3. Ionian Major Mode
4. Dorian Mode
5. Phrygian Mode
6. Mixolydian Mode
7. Aeolian Mode (natural minor)
8. Harmonic Minor
9. Chromatic
10. Whole Tone
11. Blues
12. Minor Thirds
13. Oriental
14. Crossfade Drums (4 note velocity activated/non-melodic)
15. General MIDI Drum Map
16. General MIDI Drum and Percussion Map

Note:

All set ups default to the following values:

Program:	0
Volume:	127
Floor:	4
Channel:	10

Warranty

The Zendrum is warranted to be free from defects in workmanship provided it has not been modified or abused by the owner. It is the sole judgment of Zendrum Corporation to decide what constitutes abnormal wear and tear and to offer repair options accordingly.

This instrument is a drum designed by drummers to be played vigorously with the hands. It is not intended to be played with sticks, and doing so will ultimately void your warranty as well as damage the finish.

Zendrum is a user-friendly, personal service minded company. We personally stand behind every instrument we build, and our reputation depends upon your satisfaction. We enjoy hearing from you. We do not anticipate that you will ever experience mechanical failure, but if problems ever do occur, we will be happy to troubleshoot, tech support, and repair your instrument.

Tech Support

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