

# TERRA ADDITIONAL FUNCTIONS

## Firmware version 1.7




Below are the functions that were added in firmware updates and which are absent from the main manual.

### Tap tempo function for the Echo.

When Echo is on, hold the  $\Psi$  (tuning) sensor and tap the  $\mathbb{N}$  (Echo) sensor at least four times.

### Option to change mode for "Pitch down until oscillators full stop" function of the A sensor.




Press  $A+\Psi$  (tuning) sensors and use the bottom row of the Triangular Indicator-Controller to select mode:

-  - pitch down on 2 semitones.
-  - pitch down on 12 semitones.
-  - pitch down until full stop (default).




This setting affects all algorithms with "A - Pitch down until oscillators full stop" function.

### Also:

In the  algorithm:

-  - pitchbender merging all notes into the higher one.
-  - pitchbender merging all notes into the higher one.
-  - pitchbender merging all notes into the lower one (default).

In the  algorithm:

-  - pitch down on 2 semitones.
-  - pitch down on 12 semitones.
-  - pitch up on 12 semitones (default).

These settings are not saved to presets.

### "OmniChord" mode.

While setting MIDI mode ( $L+\Psi+\mathbb{H}$ ) press  $\mathbb{N}$  (ECHO) sensor to toggle "OmniChord" mode on/off.

When this mode is on it receives notes from the MIDI IN on the channel that is set as Terra MIDI channel number (see MIDI OUTPUT) and assigns it to TERRA sensors from 1 to how many keys you pressed simultaneously. This way, you can turn TERRA into a harp that changes its tuning according to the harmony of your composition. You can connect a MIDI sequencer that sends to TERRA notes of the current chord, using up to all 12 TERRA's sensors and just make a stroke across the notes sensors and TERRA will play in perfect tune with your composition.

In "OmniChord" mode, the incoming MIDI notes don't affect active voices until you retrigger them.

Exceptions are all solos with the Arpeggiator and all basses with Rhythmic LFO. So, you can put TERRA's keyboard in Hold mode and change the pitch while the Arpeggiator or LFO are running.

After powering on TERRA, the "OmniChord" mode is in off state (default).

### Creating pitch bending by tilting Terra.

By default the Gyroscope is self-balancing (relative), but it can be changed to be absolute.

To switch it to absolute, press **G** and then press **H**. It sets the current Terra position as "0" and switches on absolute tilt-to-pitch Gyroscope mode where Terra's tilt will define the playing notes pitch.

The mode is indicated by lighting the **H** LED, while you are pressing **G**. To reset the function press **G+H** again.

After powering on TERRA, the Gyroscope is self-balancing (relative) by default.

### Load a preset while preserving sensor and pitch shifter tuning.

Hold down **L+H**, choose one of the six banks on the Triangular Indicator-Controller, and press one of the sixteen sensors **A-D, 1-12**. All synthesis parameters will be changed while the note sensors and pitch shifter tuning will remain the same.

### Hold function for the Pitch Shifter.

Dial a combination on the Pitch Shifter and press Note Keyboard Hold. The Note Keyboard Hold LED will be lit and indicate activation of the function. To clear the hold function, press the Note Keyboard Hold again when nothing is pressed on the Pitch Shifter and Notes Keyboard.

## TERRA SYSEX IMPLEMENTATION

Allows to manage TERRA via MIDI SYSEX

### Messages sent to Terra:

- Frame start 0xF0
- Manu ID 0x7E - a signifier for non-real time message
- Device ID 0x54 0x45 0x52 (TER in ASCII)
- Command byte aa
- Bank number bb (0x0 - 0x5 bank numbers, 0x7f - full dump)
- Preset number cc (0x0 - 0xf preset numbers, 0x7f - live preset)
- Command byte repeat dd
- Data D0 ... Dn-1 - packed smf file with either preset, bank or full dump
- Frame end F7

### Data format:

Data bytes D0... Dn-1 contain a valid SOMA preset .smf file, which is packed for transmitting via MIDI sysex: 5 data bytes for every 4 bytes of file data, every MSB is zero and 4 MSB of the first byte are padded with zeros.

Data to be sent: b0,b1,b2,b3.

Data bytes:

[0,0,0,0, b0.7, b0.6, b0.5, b0.4],  
[0, b0.3, b0.2, b0.1, b0.0, b1.7, b1.6, b1.5],  
[0, b1.4, b1.3, b1.2, b1.1, b1.0, b2.7, b2.6],  
[0, b2.5, b2.4, b2.3, b2.2, b2.1, b2.0, b3.7],  
[0, b3.6, b3.5, b3.4, b3.3, b3.2, b3.1, b3.0].

### Command bytes:

//expected .smf file - full dump

0x00 - read full dump from TERRA

0x01 - write full dump

0x02 - read all pitchshifters (Terra returns full dump)

0x03 - write all pitchshifters

//expected .smf file - single pitchshifter  
0x04 - read single pitchshifter  
0x05 - write single pitchshifter

//expected .smf file - single preset  
0x06 - read single preset  
0x07 - write single preset  
0x08 - read sound data of a preset (Terra returns single preset)  
0x09 - write sound data to a preset  
0x0a - read scale data of a preset (Terra returns single preset)  
0x0b - write scale data to a preset

e.g. aa bb cc dd:

0x07 0x00 0x01 0x07 - send one preset to bank 1, preset B(sound + tuning)  
0x07 0x02 0x04 0x07 - send preset sound data to bank 3, preset 1  
0x0a 0xnn 0x7f 0x0a - request live scale (Terra returns live preset)  
0x00 0x7f 0xnn 0x00 - request full dump from Terra  
0x04 0x01 0x02 0x04 - request pitchshifter 3 from bank 2

\*n - do not care

\*banks numbered 1-6 starting from the lower left sensor on the triangle clockwise on Terra map to 0x0 - 0x5 in sysex, presets a-d map to 0x0-0x3, 1-12 to 0x4 - 0x0f

### **Messages sent from Terra:**

- Frame start 0xF0
- Loopback Manu ID 0x7E
- Loopback Device ID 0x54 0x45 0x52 //(TER in ASCII)
- Loopback command byte, bank and preset aa bb cc
- Acknowledgement byte dd, 0x00 - success, 0x01 - fail
- Data D0 ... Dn-1 //smp file with requested info
- Frame end F7

In case of any questions please contact bobrorama at gmail.com