Magellan User Manual

For version 3.0

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What's New in Version 3.0

• Inter-App Audio: use Magellan 3.0 as an instrument plugin with Inter-App Audio compatible hosts
• Completely updated & tested for iOS 7!

New, more powerful MIDI framework we designed from ground up, with features including:
• Faster MIDI I/O handling
• Inter-App Audio MIDI support
• Keyboard splitting with settable split in channel, left/right out note ranges, learn & invert
• Improved MIDI-UI interaction
• Import/Export Magellan MIDI CC Maps
• Individual MIDI Out channels for the synth engines
• Individual MIDI In on/off toggles for the synth engines

Many improvements and new features, including:
• Master FX mix
• Increased max polyphony to 10 per-engine for iPad 2 and newer
• Envelope curve selection for VCA and FM envelopes
• Extended octave range for Osc 3 with key tracking off
• Direct one-touch access to either synth engine's control panels, arp, or chordmaker
• Continuously settable filters tracking
• 59 new modulation outlets for the XY-pad and the modwheels
• Presets now save BPM data
• BPM Lock feature: specifies if you want BPM data to be loaded with a preset
• Bounce whole sequences or individual patterns to audio via Song Library -> Export
• Adjustable touch-velocity sensitivity
• Preset & Bank renaming
• A new free preset bank ("Boleskine")
• Target-foreground-synth mode for the XY-pad
• One-touch waveform selection
• Continuously adjustable knob response: set to "Fine" to make precise adjustments to a knob-controlled parameter

Introducing In-App Purchasing (iOS 6 or later):
• New professional preset packs available for purchase within Magellan's Store
• Atlantic - 65 new presets from Yonac Inc.
• The Explorer Series from Sunsine Audio - available as individual 64 preset packs or one bundle of 192 presets
• Updates to latest Audiobus & Sonoma SDKs
• Many other improvements

1. Operation of Dual Synths

Editor's Note: Magellan is the first synthesizer on the mobile platform to provide two independent synth engines running at the same time. There are presumably a large number of interesting uses for such a setup. Some examples are: to use one synth engine to provide a lead sound, while the other one provides a rhythmic or "pad" accompaniment; to use the arpeggiator on one synth engine on, for example, a bass preset while the other one is used for a keyboard solo; to perhaps use both synths' arpeggiators in tandem for exploratory effects; to use a sequenced passage on one or both synths while using the other synth engine for live expression; to "couple" the same or a similar sound to one keyboard to achieve a really "fat" synth sound, for example by either pitch-shifting the secondary engine, or configuring its sound generators or filters differently. In this last mode, it is possible to have all the 6 oscillators, 4 filters and 4 LFOs running simultaneously! Happy tweaking….

Use FG SYNTH toggle on the Magellan menu to foreground a synth engine. When Synth 1 is foregrounded, the lower manual / touch control are used to control Synth 1, whereas the upper manual / touch control is used to control Synth 2. When Synth 2 is foregrounded, the lower keyboard controls Synth 2, whereas the upper manual controls Synth 1.

You can show or hide the upper manual / touch control via the KB2 switch.

Use the FX SOURCE toggle to load the audio effects setting from Synth 1 or 2. The effects settings are found under the FX panels.

Use the SYN COUPLE toggle to couple the control of Synths 1 and 2 to a single control source. When turned on, touching a note in either the upper or lower keyboard will trigger both synths simultaneously. [However, the POLY, LEGATO and HOLD switches on the keyboard settings area are not coupled in this setting so as to allow greater range of control over performance parameters.]

2. Synthesizer

A. OSCILLATORS

Each synth engine in Magellan has three independent real-time oscillators. Use one-touch waveform selector to designate the waveform generated by the oscillators. Use the OCT knob to set the oscillator's output octave, and SEMI and CENT knobs to fine-tune oscillators 2 & 3.

Use oscillator 1 and 2 DEPTH and DRIFT knobs to alter the timbre of the generated signal. When PWM is the selected waveform, use the PW knob to specify the duty-cycle of the output pulse wave.

Use the RING knob to specify the amount of ring modulation of the oscillator 1 signal by the oscillator 2 signal.

The KB TRACK toggle is used to couple oscillator 3 to the keyboard/controller input. In the OFF position, oscillator 3 is decoupled and operates as an audible LFO or drone. In the ON position, oscillator 3 works like oscillators 1 and 2. The red numbers shown are for the OFF position, while the white numbers are for the ON position.

Use the VOL knobs next to each oscillator to blend the output of the oscillators together. The SYNC toggle allows phase-syncing oscillator 2 to oscillator 1. The PHASE RESET toggle is used to force oscillators' phases to reset upon each note trigger. In the OFF position, the oscillators run continuously. The "ON" toggle next to oscillator 3 is used to turn that oscillator on or off.

B. OSC UNISON

The OSC Unison module multiplies the output signal from the oscillators in order to provide a "super-wave" effect. You can specify the pitch difference among the multiple signals to varying effect. Use the toggle to turn OSC Unison on or off. Use DETUNE and WIDTH to specify the amount of pitch difference among the generated signals to obtain different unison effects.

C. GLIDE and NOISE

Use the GLIDE knob to specify the length of glissando between two notes. When set in "0" position, glissando is turned off.

Use the VOL knob to blend in signal from Magellan's noise generator with the output from oscillators and FM. Use TONE to adjust the noise color.

D. AMP

Use the settings on this module to modify the amplitude characteristics of the generated sound. The ATTK (attack) fader is used to set the length of time that the sound triggered by the keyboard or other controller to rise from zero to full amplitude. The DCY (decay) fader specifies the amount of time that the sound takes to reach the level specified by SUS (sustain) fader. The REL (release) fader determines how fast or slowly the sound disappears once its associated note has been released.

The CURVE toggle is used to specify whether the ADSR curve is linear or exponential.

E. FM

The FM module in Magellan is designed as an additional signal generator over the three oscillators and unison generator. This module allows you to obtain tones that result from a sound formation technique called "Frequency Modulation Synthesis". The FM module user interface in Magellan is configured to behave similarly to that of a subtractive filter to help user intuition.

The O1>2 FM knob specifies the amount of frequency modulation imposed on Oscillator 1 (carrier signal) by Oscillator 2 (modulator signal). The higher this knob is set, the more the characteristics of the modulator signal will be imparted on the carrier.

The MIX knob allows you to blend in as much of the FM signal as you would like with the rest of Magellan's sound generators. This feature allows you to set other customary FM parameters, and blend in the FM signal during performance or statically to obtain unusual overtones or timbral variety, resulting in a form of hybrid sound synthesis.

The FM module has its own ADSR envelope, in addition to a CONTOUR setting. Use these parameters together for changing the frequency modulation effect on a synth voice: the O2>1 FM knob specifies the initial modulation amount upon note attack, the ATTK parameter specifies the amount of time it takes to reach the modulation level specified by the CONTOUR knob. The DCY fader determines the time it takes to reach from the contour level to the level specified by SUS slider. The REL slider additionally determines the time it takes for the modulation amount to reach the initial level specified by O2>1.

When CONTOUR is set to 0, the envelope becomes disengaged to provide a flat response.

The CURVE toggle is used to specify whether the ADSR curve is linear or exponential

F. FILTERS

Each synth engine in Magellan has two filter banks that can run simultaneously. As of the writing of this document, each bank is able to receive one of 11 unique filter types that are specially designed to modify the bare signal provided by the sound generators talked about in the previous sections. In addition, each bank is able to perform in a true-bypass mode.

The filter banks are operable in series or parallel. In the serial mode, the signal output by FILTER 1 is input to FILTER 2. In the parallel mode, the signal from generators is input to both banks simultaneously. In this parallel mode, the BALANCE knob is used to specify how much of the signal from Filter 1 vs. Filter 2 is sent to the final audio output. In addition, each banks is provided with its own ADSR contoured envelope with frequency tracking and curve selection.

Use the drop-down Filter Selection Menu to choose the filter operator for each bank. Currently available filter types are:

- Magellan LP
- Victor LP

- Victor HP
- Victor BP
- Formant
- Comb
- Voyvoda LP
- Voyvoda HP
- Voyvoda BP
- All-Pass
- Notch
- Bypass

Use the CUTOFF knob to specify the filter cutoff or center frequency for each bank. Use the RESO/Q knob to specify the amount of resonance in Magellan and Victor type filters, or the frequency coverage on the Voyvoda, Comb, Allpass or Notch type filters.

Use the CONTOUR and ADSR controls to specify the envelope cutoff curve of the filter. Negative contour values will cause the filter to reach cutoff values lower than that specified by CUTOFF at the end of the attack stage, whereas positive values will result in an attack peak higher than the CUTOFF value. With CONTOUR set to 0, the envelope is disengaged and the filter is always set to the CUTOFF value.

The TRACK selector specifies the amount of filter tracking applied. At 0 position, no tracking is applied and all sound is filtered equally. At 1 position, the filter is fully set to filter each sound according to its frequency to provide a consistent sound perception along the musical notes. The ½ position is a balance between the two.

The CURVE toggle is used to specify whether the ADSR curve is linear or exponential.

The parallel/series behavior of the filters is specified by the FLOW toggle. The BALANCE knob is active only when the parallel configuration is selected, and is used to blend the sound output from Filter 1 against that from Filter 2.

G. LFOs

Each synth engine in Magellan is provided with two independent Low Frequency Oscillators. The LFOs are used to modulate certain sound parameters so as to add change or variation to the nature of the final signal.

Each LFO can receive up to four destinations, with their individual modulation amounts. You can assign a destination to an LFO using the ARROW buttons to the right of each slot. You can use the AMP knob to specify how much modulation is applied to a given destination. To select which destination's "AMP" to adjust, just highlight it by touching its name.

Use the RATE knob to specify how fast the LFO “runs”. Turn on the BPM SYNC to sync the LFO RATE with the BPM. The BPM SYNC gives you 16 note values to choose from, including dotted and triplet notes. Use the one-touch waveform selector to choose among various modulating waveforms, including “hard random” and “soft random” waveforms, which are randomly generated for added expressiveness.

Use the PHASE knob to change the locus of the waveform. Use the TRIG selector to cycle among various LFO trigger modes: in the CONT mode, the LFO runs continuously. In the TRIG mode, the LFO phase is reset each time a new note is played. In the SHOT mode, the LFO is engaged for only one full cycle of the waveform when a note is played.

The DELAY knob is operational in TRIG and SHOT modes to specify how much time it passes from when a note is played and the LFO fully kicks in.

The KB TRACK is used to force the LFO to follow the frequency of the latest played musical note. In the OFF position, the LFO is disengaged from the keyboard or controller and runs at the same speed. In the ON position, the LFO “speeds up” or “slows down” according to the frequency of the latest audible note.

3. Arpeggiator

Each synth engine in Magellan is provided with its own fully-configurable arpeggiator module. You can view each synth's arpeggiator by touching the ARP switch on the left-hand main control panel.

Use the ON switch to activate the arpeggiator. Use the MODE toggle to select the arpeggiator's operation mode. The modes operate as follows,

In the PERF mode, the arpeggiated notes are input via the on-screen or external keyboard. For example, holding the notes C, E and G on the keyboard will arpeggiate those notes. When the HOLD switch on the keyboard control area is off, letting go of the notes will cause the arpeggiator to stop. When the HOLD switch is on, the C, E and G will stay arpeggiated until touched again.

In the TRIG mode, touching a key on the keyboard will cause a pre-programmed arpeggio to be started. If the HOLD switch is off, letting go of the key will stop the arpeggio. When the arpeggio is turned on and set in TRIG mode, a programming strip is automatically displayed over the keyboard. You can use the selectors on the strip to input notes into the arpeggio: touch a note in red to include it in the arpeggio. Touch again to remove from arpeggio. Use the OCT +/- buttons to scroll through available octaves.

You can select among arpeggio algorithms by using the arrow buttons next to the FLOW screen. Use the VALUE knob to specify the note value. The GATE knob is used

to set the notes' sustain. The SWING knob is used to specify the amount of "swing" in the pattern: 50% corresponds to no swing, 66% percent corresponds to "medium shuffle", and so on.

Use OCT and OCT RPT to specify the octave range of the arpeggio and the number of times each octave is repeated. Use NOTE RPT to specify how many times each note is repeated.

When you save a preset, the arpeggio notes and settings are also saved.

4. Sequencer

The Magellan built-in polyphonic sequencer is inspired by revered analog sequencers, and is geared towards live use. You can employ the sequencer as a performance or accompaniment device by directly using the sequencer interface, or you can create stand-alone pieces by pre-composing patterns and placing them in the sequencer TIMELINE.

The sequencer is able to program 16 steps per pattern in 8 track polyphony, or 32 steps per pattern in 4 track polyphony.

Create a New Song

Touch the Composition Display to reveal the Song Library. Touch NEW SONG on the lower left and follow the onscreen instructions to create a blank song.

Sequence a Pattern

Select the pattern to be programmed on the Patterns number pad. Make sure the TIMELINE EDIT toggle is turned off, so you can view the sequencer panel.

Use the knobs on each sequencer step to specify a note, note octave, note gate, or velocity. You can use the two selector buttons on the lower left of sequencer panel to specify what each row of knobs does:

PITCH:	Specifies the note.
OCTAVE:	Changes the octave of the note.
GATE:	Adjusts the gate, or the duration, of the note within its step.
VELOCITY:	Changes the velocity of the note from softer to louder

To CLEAR a step, turn its pitch knob all the way to left.

Use one of the END toggles to specify the end step of the pattern. Use the SKIP toggles to specify whether the note on that step is played.

Use the DIV knob to specify step division for the pattern. When set to 1, each step is equal to a quarter note; when set to 2, each step is an eighth note, and so on.

Use the FLOW knob to specify the sequence algorithm for the pattern. Algorithms include Up, Down, Up Skip, Down Skip, Alternate Ends and Random.

Touch one of the LEDs in the SELECT TRACK area to select a track to edit. A pattern can have up to 8 tracks, resulting in a maximum of 8-voice polyphony. For each track, you can select the sequencer output to be Synth 1 or Synth 2 by touching the TRK OUT switch.

Use the LINK toggle to switch between 8-track, 16-step programming and 4-track, 32-step programming. In the latter mode, tracks 1 & 2 are coupled as one track, with track 1 containing steps 1-16 and track 2 containing steps 17-32, tracks 3 & 4 are coupled as another track, and so on.

You can also enter a note into the sequencer steps using the virtual or an external keyboard. Touch the switches on one or more target steps so that the led on the upper right corner lights up. Press the desired note on the controller to load that note on the selected steps. If you wish to cancel without keyboard-entry, press the switches again.

Use the COPY button in the left-hand patterns area to copy the selected pattern. Use the PASTE button to paste a copied pattern. Use the CLEAR button to clear all tracks in the selected pattern.

Pattern Playback

Select a pattern and turn the sequencer on by touching the ON toggle. Make sure the TIMELINE PLAY switch is not turned on. The selected pattern will now start looping. You can select a different pattern to play at any time by using the patterns number pad.

Use the TIMELOCK toggle to specify whether pattern changes occur immediately or are scheduled. If TIMELOCK is on, the newly selected pattern will not start playing until the current pattern has finished.

Timeline

You can compose extended pieces by entering patterns from the Pattern Bank into the positions in the TIMELINE. To view the timeline, touch the TIMELINE EDIT button.

To assign a pattern to timeline positions, touch the switches for the desired positions. The pattern bank number pad will start flashing. Select a pattern to assign, or cancel the assignment by touching the switches again, or pressing the STOP EDIT MODE button. In addition, you can assign a STOP or a LOOP command to any timeline position.

You can browse the timeline positions by using the arrow buttons on the lower right.

To PLAY the timeline, select the TIMELINE PLAY toggle, and turn the sequencer on. While the sequencer is running, you can make live "splices" to the program by touching a pattern button on the number pad. This will play the selected pattern, return back to the timeline once the pattern is finished, and not make changes to the timeline layout.

Save and Share Songs

You can save changes to a song file or save a copy of the file by using the buttons on the Song Library screen. To save a sequence as an audio file, choose EXPORT and then BOUNCE TO AUDIO. The song will record an audio file that can be found in the TAPEDECK. In addition, you can email the selected song file. To import a song file via email, touch its file icon in the Apple Mail app and select "Open In…" or "Open in Magellan".

Use the EDIT button on the upper right to delete song files.

5. Chordmaker

Each synth engine in Magellan is provided with its own Chordmaker module. The Chordmaker module is used to play chords containing up to four voices by touching a single note. In addition, Chordmaker can be coupled with the sequencer or arpeggiator for added effect.

You can configure Chordmaker by navigating to the CHORDS panel through the upper menu. Use the ON switch to turn Chordmaker on or off.

Browse and select the factory or user-generated Chordmaker configurations on the PROGRESSION LIBRARY table.

You can edit the selected progression via the configuration matrix found on the right. Touch one of the cells on the ROOT column to specify the key for the progression. Touch the cells in the INTERVAL matrix to specify chord components for the tonic of that row. You can also touch the cells on the CHORD column to cycle through common chord formulas such as minor, major, 4th, etc.

You can save or delete configuration files via the buttons found under the Progression Library table.

6. FX

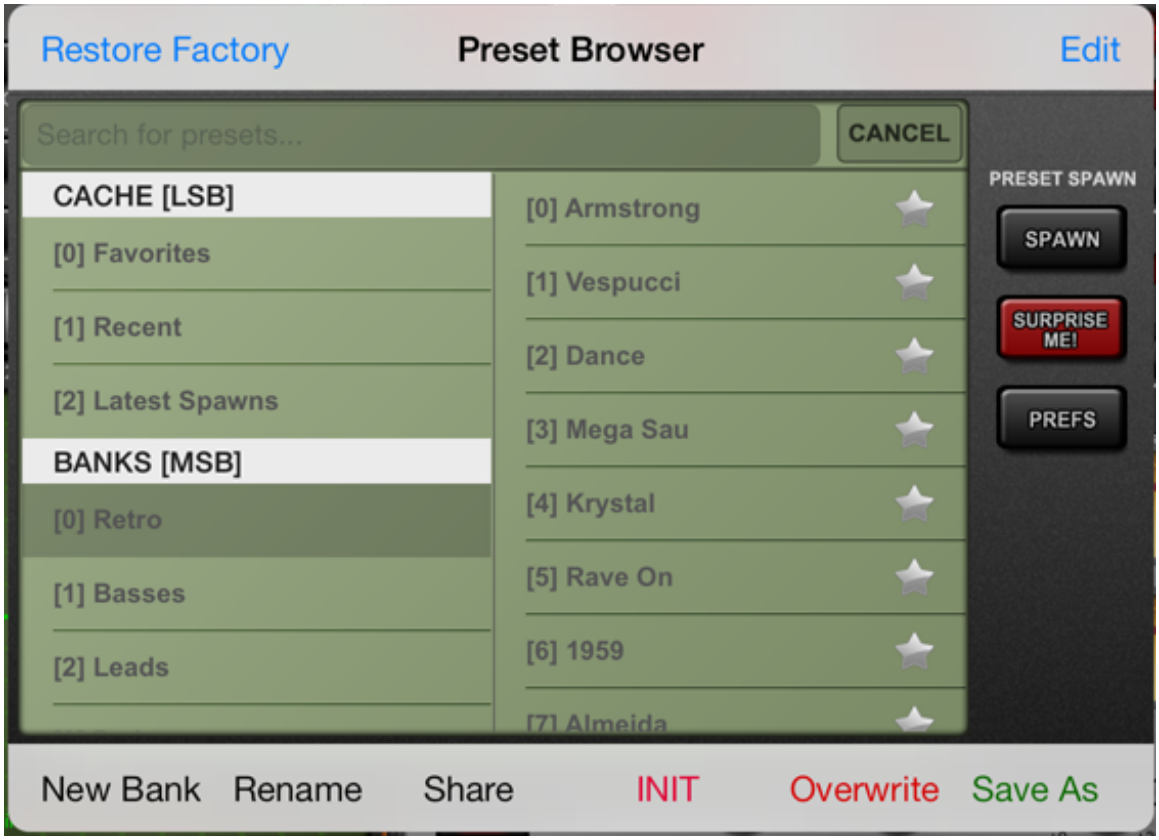
Magellan has a built-in audio effects racks complete with delay, reverb, and multiple modulation and waveshaping effects. You can access the effects rack by touching the FX button on the upper menu.

The effects in the rack include,

A. PURPLEBoost waveshaper/distortion
B. Bit Mistress bitcrusher
C. XPANDER sonic enhancer
D. Flanger Danger flanger
E. Phased n Confuzed Multi-Parameter Phaser
F. ChorusStar chorus
G. Echoplasm DLX stereo delay
H. Big Be-Verb reverb
I. HEQEq 6-channel parametric equalizer
J. VC-93 compressor
K. FX Signal Flow Map: Drag-n-drop to rearrange the order of the effects.

Use the FX SIGNAL FLOW to experiment with any possible linear ordering! Tap the RESET button to return to the default.

Use the FX SOURCE switch in the upper menu to toggle between the effects settings of Synth 1 and 2. On the PREFS page, you can select the FX SOURCE LATCH. NEWEST PRESET will load the FX of the most recently selected preset. FG SYNTH will always keep the FX of the foregrounded synth. FIXED will keep the FX stationary.



7. Presets

You can access banks and presets for each synth engine by touching the Preset Display on the main upper menu or on the KB2 panel. The active preset for the foregrounded synth engine is shown and selected from the main upper menu. The active preset for the backgrounded synth engine is shown and selected on the KB2 panel.

The left-hand table on the preset browser displays the available banks. Select a bank to display its contents on the right-hand presets table. Load a preset by selecting its name.

Select INIT to clear all the synth parameters and start programming a new synth preset from scratch.

Save a preset into the selected bank by touching either OVERWRITE or SAVE AS. OVERWRITE will automatically write over your current preset, without asking you to re-type the name. SAVE AS will save your changes as a new preset and prompt you to enter a name. You can delete or re-order banks and presets by touching the EDIT button on the upper right. When finished, pressed done to get back to browsing mode.

Use RESTORE FACTORY to re-install all the original factory banks that come with Magellan. This function will overwrite any changes you have made to factory presets. It will not affect any non-factory banks you have created.

You can import and export Magellan presets through email or iTunes File Sharing. To export a bank or a preset, start by selecting it on the Preset Browser and then touch SHARE. Choose the desired export method on the displayed dialog.

When exporting via iTunes File Sharing, the selected bank or preset file is saved into the application's root Documents directory. You can download the file by connecting your device to iTunes and navigating to the "Apps" section of your device within iTunes. Below your list of apps, you will find the "File Sharing" section. Select Magellan, and then save the exported bank or preset files to your computer. Bank files have the extension "YBAN", whereas preset files have the extension "YPAT".

To import via iTunes, upload a YBAN or YPAT file to the Magellan root directory shown in the iTunes app file-sharing section. When finished, launch Magellan on your device and open the presets browser. Press SHARE" on the lower bar and choose "iTunes: Import Files" and follow the instructions. Any compatible files found on the Magellan root directory will be automatically added to the preset system.

You can also email the selected preset file. To import a preset file via email, touch its file icon in the Apple Mail app and select "Open In…" or "Open in Magellan". Note that an email should contain only one YBAN or YPAT file.

SPAWN

SPAWN (Smart Preset Aggregation with Windowed raNdomization) uses specially designed artificial intelligence algorithms to generate new presets on-the-fly. To create a SPAWN preset, use the tonality sliders to mix different preset classifications (Bass, Lead, Pad, or Weird). Selecting the button below a slider, will set that sliders to 100% of that selected tonality. To also use the arpeggiator, select the "SPAWNS ARP" option. The default scale for the arpeggiator is random ("RAND"), but you can select any scale from the list. The "SURPRISE ME" button randomizes these tonalities and sometimes also creates arpeggios with the arpeggiator.

The 16 most recent SPAWNs are saved under the Cache Bank "Recent Spawns." To save a Spawn, just select "SAVE AS" from the main preset browser.

8. Keyboards, Touchpads, and Other Controls

Use the KB2 toggle to show/hide the upper manual. The lower manual controls the "foreground" synth engine specified by the FG SYNTH switch on the overhead menu (see the previous sections for more information). The upper manual controls the "background" synth engine.

Use the "KB LOCK" switch to allow scrolling the keyboard. When done, put the switch in the locked state.

On the lower manual, you can display the KB SETTINGS strip by touching and dragging the button on the upper left. Use the KEY / STEP SIZE buttons to change the size of the keys or steps on the visible controller. Use the TOUCHPAD toggle to show or hide the touch controller.

The OCTAVING switch turns vertical octaving on the touch controller on or off. In the on position, moving your finger up or down will cause the octave of the played note to change. The PARAM switch turns vertical voice parameter control on the touch controller on or off. You can select the vertical voice parameter for each synth under the PREFS panel.

Use the SCALE drop down menu to select the musical scale and key for the touch controller. Use the STEP arrow buttons to scroll the touch controller up or down.

Use the GLIDE slider to specify the amount of glissando / note-snapping when moving from one step to another on the touchpad. At "NONE" position, all the notes are discrete and no glide is applied. At "FULL", the pitch change is continuous. (Note: glissando effect works best when the LEGATO toggle on the Magellan Jr. main screen is in ON position.)

Use the POLY switch to choose between polyphonic or monophonic operation for that manual's synth engine. Similarly, use the LEGATO switch to enable legato operation. Use the HOLD toggle to let the synth sustain a triggered note after the touch or key has been released.

Use the PITCH WHEEL on the left to apply pitch bending. You can set the step range of the pitch bend wheel under the PREFS panel. Use the MOD WHEEL to control its assigned synth parameter. You can also browse and assign mod wheel parameters under the PREFS menu.

Use the MODULATION TOUCH MATRIX on the left to manipulate the synth parameters specified on screen. You can browse and assign parameters to each axis by going to the PREFS panel. Additionally, you can specify whether the touch matrix controls Synth 1, Synth 2, both synths, or the foregrounded synth. On the iPad 2 and

later devices, the touch matrix also features a real-time oscilloscope that displays the signal being generated by the synth engines.

Use the MASTER BPM tap control to tap the master tempo for the system. You can also use the arrow buttons on the right to change the BPM at increments of 1 (touch) or 10 (touch down and hold). When BPM lock is ON, the BPM will remain the same, regardless of the preset you load. When BPM lock is OFF, the BPM that is saved with the preset will be loaded.

Use the PANIC button to reset the synth system. When touched, this button will clear all audible notes and reset the audio engines.

The CPU bargraph displays the current CPU usage by the synth system. For more information about CPU use, please refer to the Tips section further along this document.

The FX MIX knob specifies the mix of the wet signal from the FX modules versus the dry signal from the synth.

The VOL knob is used to control the master output volume for the synth engine. Use this knob to set the optimal output volume in accordance with the active synth patches. Turn down this volume control (rather than the device's physical volume control) sufficiently if a given patch is too loud and audio distortion is perceived.

Other Synthesizer Settings

You can access additional synthesizer settings by navigating to the PREFS panel. Here, use the A4, SEMI and CENT selectors for each synth to specify the synth's basic tuning. Use the MAX POLY selectors to specify the maximum number of voices for each synth when it is in polyphonic operation mode. Use PITCH BEND RANGE to specify the range of the pitch bend wheel in semitones.

Use the UNISON area for each synth to enable Magellan's Voice Unison feature. The Voice Unison feature works by adding slightly detuned copies of each synth voice to the final mix to create a fuller, thicker tone. Use UNISON DETUNE sliders to specify how the amount of pitch shift among the voice duplicates. Turn up the SPREAD sliders to widen the stereo spread of the unison voices.

Use the PAN sliders to change the location of a synth's output in the stereo field. Use the VOL sliders to balance the output of each synth engine.

On the Prefs panel, you can also specify parametric assignments to the modulation wheels, the touch screen controllers as well as the modulation touch matrix.

Use the HARDWARE BUFFER SIZE option to set the hardware buffer size for your device. The default value is 512. **NOTE: On older devices you may experience**

audio “stutter” due to the extra CPU load caused by small hardware buffer sizes. Suggested minimum buffer size for these devices is 512 samples. [However, you can still balance CPU use by following guidelines about resource usage in the troubleshooting section below.]

When turned on, VELOCITY SENSE allows the keyboard to sense if you are hitting the keys softly or hard and produces the appropriate velocity response. Use the TOUCH VEL. SENSITIVITY sensor to adjust the sensitivity of the keyboard. Because this feature uses the accelerometer, if you are not getting sufficient results, try holding the device or putting something underneath it instead of laying it flat on a table.

9. Recording, Sharing, and Metronome

To start an audio recording, simply touch the REC switch on the upper menu. The switch will glow red, indicating that the recorder is on. Touch again to stop. The recording will automatically be saved to a file.

To browse, play or share recordings or to access the built-in metronome, press the TAPEDECK button on the upper right corner.

You can browse and select recordings on the table on the left. Press the NAME, SIZE or DATE cells to sort recordings by that parameter, either ascending or descending. To play an audio file, select it on the table; its name will appear on the screen below the table. To rename the selected audio file, touch its name on the lower screen area.

To change the position of the selected audio, use the “scrub” below the recording’s title. Use the LOOP switch to specify whether the audio loops or stops when its end is reached. Use the VOL knob to set the output volume of the playback.

Use the EXPORT and IMPORT buttons to display audio file sharing options. As of the writing of this document, Magellan is able to share your recordings via email, WiFi, SoundCloud (SoundCloud user account required), Intua Audio Copy/Paste, and Sonoma Audio Copy/Paste.

You can access the metronome settings on the right-hand of the Tapedeck. The metronome BPM is set using the MASTER BPM tempo control on the main Magellan screen. Use the BEAT COUNT and BEAT VALUE to specify a time signature, and the

VOL fader to set the metronome volume. Use AUTOSTART METRONOME to have the metronome automatically turn on when you hit the REC button. With the START REC ON FIRST TOUCH button, when you hit the REC button, it will not start recording until you select your first note. Use the REC COUNT-IN switch to enable metronome count-in when a recording has been started. When enabled, the recording will automatically start after the metronome goes through a full measure, and will stay on throughout the recording unless manually turned off. Use the FIXED LENGTH switch to only record for the specified number of measures. This is especially useful when you want to loop your recording.

10. MIDI, Inter-App Audio, Audiobus, and WIST

You can control Magellan using CoreMIDI compatible external devices, such as a MIDI keyboard controller. In addition, you can use other Virtual MIDI capable apps to control Magellan.

The following modules are all able to transmit MIDI Out messages: On-screen keyboards, on-screen touch pads, arpeggiators, chordmaker, and sequencer.

MIDI preferences are conveniently grouped under the PREFS panel. Here, you can specify the input and output MIDI channels for each of Magellan's synth engines, as well as configure such parameters as external clock syncing, MIDI keyboard splitting, and also access the MIDI Learn screen.

Basic Operation Using External Controllers

Use Apple's Camera Connection Kit to connect a CoreMIDI compatible USB MIDI controller to your iPad's dock connector, or use an iOS compatible MIDI interface to connect a MIDI controller that uses a standard MIDI cable connection. (NOTE: some USB MIDI controllers may require a power adaptor to work with iPad).

Once connected, go to the MIDI preferences screen on Magellan to specify the input channel for the synth engine you wish to control. You can choose any of the 16 MIDI channels, or select the "OMNI" setting to receive input from all channels. If you specify a particular channel, make sure your external controller is also set to transmit on that channel.

If your external controller is equipped with a pitch wheel, you can use it to apply pitch bending. If equipped with a modulation wheel, it will work on the same parameter that is assigned to the on-screen modulation wheel.

If your external controller is able to transmit Control Code ("CC") messages, you can use this feature to control Magellan synth parameters. Please refer to Midi Learn below for more information.

Controlling Magellan using CoreMIDI Networking

Magellan is capable of being controlled via a networked CoreMIDI session. Please refer to Apple's documentation on Audio MIDI Setup to configure a network session on your Mac to connect to your iOS device.

Using Magellan with other Virtual MIDI Apps

To control Magellan using another Virtual MIDI app on the same device, follow these steps,

1) Turn on the BG AUDIO switch on the Magellan main control area. **CAUTION: when Magellan will not be used for a long time period, make sure to turn off the BG AUDIO feature to conserve device battery!**
2) Navigate to a Virtual MIDI compatible app that you wish to use to control Magellan. Make sure the app has a virtual MIDI Out port.
3) Refer to the app's user manual for connecting to Magellan's MIDI IN port.
4) Return to Magellan if necessary to specify Synth 1 and 2 MIDI input channels. Additionally, you can see a list of currently available Virtual MIDI or networked input ports detected by Magellan by touching the INPUTS arrow button.

Using Magellan to Control Other MIDI Apps or Devices

Configure the Virtual MIDI target app as indicated in its user manual, or connect an external MIDI-capable device using the appropriate adapter. If the app or device is connected correctly, you will see it listed in the MIDI OUTPUTS table accessible though the OUTPUTS arrow button. Select the desired app or device on this table: when connected, a checkmark will appear next to its name.

Set the MIDI channel that you wish Magellan to send MIDI messages on by using the OUT CH buttons, or select OMNI to broadcast on all MIDI channels. Enable MIDI OUT feature by turning on the MIDI OUT toggle and start using the Magellan keyboards or touch controllers to control the target app or device.

External MIDI Clock Syncing

You can use an external MIDI clock to synchronize the sequencer and arpeggiator modules in Magellan with another Virtual MIDI app or a physical device that is able to send standard MIDI clock messages. When enabled, Magellan will perform at the BPM specified by the "master" clock.

Please refer to the user manual of the master app or device to set up clock messages to be sent to Magellan. Once ready, put the CLOCK toggle in the Magellan MIDI preferences area to EXT to start receiving clock messages.

NOTE: To start or stop the arpeggiator or the sequencer via an external clock, those modules should be left in the ON state.

MIDI Learn

Magellan has an extensive number of synthesizer parameters which you can control using an external device or app that is able to send MIDI control messages. You can configure this feature by accessing the MIDI Learn / CC Map screen through the LEARN arrow button in the Magellan MIDI preferences area.

Start by selecting the module you wish to configure for MIDI Control: you can do this using the GROUP selector.

Make sure your MIDI controller is correctly connected to your iOS device. Turn on MIDI Learn by touching the LEARN toggle. Choose the target Magellan module by selecting one of the toggles at the top. Select the parameter to control on the CC MAP table. Manipulate a control element on the MIDI device to assign it to the selected synth parameter. If recognized, the second column on the CC MAP table will display the MIDI out channel of the device, and the final column will display the Control Code of the device element. When finished, touch LEARN again to stop the MIDI learn session. You are now able to control the selected parameter using the device element on the specified MIDI channel.

You can change the channel assignment for a parameter at any time by selecting it and using the CHANNEL SELECT arrow buttons. Aside from MIDI Channel 1-16, you are able to specify “OM” (for OMNI) to receive the control change message on any MIDI Channel, or “IN” (for “Input Channel,” available in selected modules) to receive the control message on the same input channel as the one specified for that synth engine on the main Magellan MIDI preferences screen.

You can also enter a Control Change code manually by selecting a parameter and using the provided number pad. When finished, touch SET to finalize code entry.

Magellan comes with a default MIDI CC MAP. You can save a CC MAP configuration for later use. Touch the SAVE AS PROFILE button to save the CC MAP to file. To browse and load a CC MAP, touch the arrow button next to ACTIVE PROFILE display. To export a CC Map via email, choose the SHARE option. To import a CC Map, select the attachment in the email and choose “Open in Magellan.”

MIDI Program & Bank Changes

Magellan is able to handle MIDI Program and MSB Bank change messages broadcast on the MIDI channel as specified on the MIDI Learn / CC Map. Use MSB Bank messages to select a bank. Use LSB Bank messages (0-2) to select a cache bank. Use Program Change messages to select a preset in the currently active bank.

Inter-App Audio (iOS 7 and later only)

You can use Magellan as an instrument plug-in with Inter-App Audio (IAA) host apps. In this scheme, the host app (typically a DAW) will receive the audio output from Magellan. Additionally, you can control Magellan through the host app if the host is capable of sending IAA MIDI or Virtual MIDI messages. Inter-App Audio is available in iOS 7 and later.

Use the host app's interface to establish an IAA connection with Magellan. Use the instance entitled "Yonac: Magellan" if you wish your host app to control Magellan via IAA MIDI. If you do not wish to establish an IAA MIDI connection, use "Yonac: Magellan (Generator)". The generator instance still produces audio output, but will not process IAA MIDI messages (however, it will still process Virtual or CoreMIDI messages).

The IAA framework allows only one instance of Magellan to be connected at a given time. You cannot use Magellan with more than one host simultaneously. To use Magellan with a new host, first make sure you have disconnected Magellan from the previous host.

When an IAA host is running on your device, Magellan has to use the same hardware buffer size specified by the host. Use the host app's buffer size preference to change the master buffer size for your device, and consequently for Magellan.

Audiobus

Audiobus is an excellent tool that allows you to stream audio directly from Magellan to other Audiobus-compatible apps. Magellan can also be used as an FX processor in Audiobus. To download Audiobus, please visit http://audiob.us .

Open the Audiobus app. Select "INPUT" on the left. Select Magellan from the pop-up list of all the Audiobus-compatible input apps you own on your device. You can also select any effects apps or an output app you would like to connect to. One selected, you can tap Magellan from the Audiobus screen to go directly to Magellan. The Audiobus dashboard will appear in Magellan, allowing you to easily stream audio to other Audiobus-compatible applications without leaving the Magellan screen.

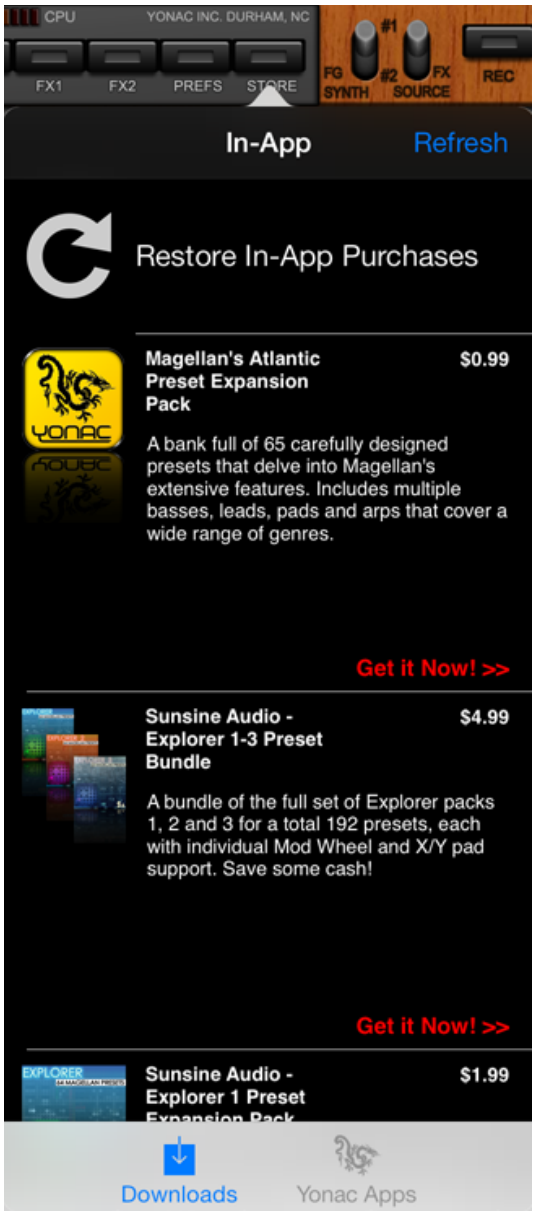
WIST

Korg's WIST technology allows you to sync Magellan's sequencer, Synth 1 arpeggiator, or Synth 2 arpeggiator with another WIST-capable application. Magellan's WIST button can be found in the MIDI section on the PREFS screen. You can make a connection with Magellan as either "slave" or "master."

Slave: When the "master" app is started, each of Magellan's selected targets will also start. **Arpeggiators can only be started if they are in PERF mode.**

Master: Turning on Magellan's selected source on or off should also cause the "slave" app to start or stop. Turning a selected source on or off will also simultaneously toggle all the other selected sources in Magellan. **Arpeggiators can be started or stopped only in PERF mode.**

WIST is a trademark and software of KORG INC. For more information, please visit http://www.korguser.net/wist/



11. **Magellan Store**

Select the STORE button to access available In App Purchases (IAPs) for Magellan. For sound samples or more information regarding the content of the IAPs, please visit www.yonac.com. Check back frequently for new preset packs!

12. **Tips and Troubleshooting**

Tips

1) CPU Usage

Due to the vast number of modules and parameters available in Magellan, Magellan is designed to operate "on-demand" to save CPU power and make sure the maximum amount of resources are available for clear and continuous sound generation. To ensure the optimal use of the CPU, make sure all unused features or effects are turned off. If you observe that the built-in CPU meter is nearing the 100% mark, turn off any unused effects, Oscillator Unison or Voice Unison modules and remove any unused LFO destinations and filters. You can additionally reduce MAX POLYPHONY by going to the PREFS panel, if a lower voice polyphony is sufficient.

2) Master Volume

Use the Master Volume knob on the Magellan main control area to find the optimal output level for the system output. The optimal output level may depend on the active synth preset. When you perceive that the output is suffering from distortion, reduce the Master Volume until distortion disappears.

Troubleshooting

No Sound

1) Make sure the iOS device is not on mute, and that the device volume is turned up
2) Make sure that the Magellan Master Volume is not turned all the way down
3) Make sure that the synth engines' own volume is not turned off by going to the PREFS panel
4) If using filters, effects or LFOs, make sure that they are all set correctly so as to not silence the synth output. Also, make sure that not all the oscillator volumes are set to 0.
5) Make sure that if the arpeggiator is on and set in TRIG mode, there are programmed notes entered in the arpeggiator.
6) If the silence is caused by a sudden overload, press the PANIC button on the upper left corner to reset the audio system. Following this, go to the presets browser, first select a different preset, and then select the preset you wish to use.
7) If the above procedure does not work, exit and completely shut down the app by going to the iOS task bar. You can access the task bar from your iOS home screen by double-clicking the device home button.
8) In some cases, reboot your iOS device.

Stuttering Audio

Depending on the generation of your iOS device, a high load on the CPU may cause the audio output to “stutter” or sound “glitchy”. To address this, turn off any unused audio effects, filters, LFO destinations and unison modules. Also, completely shut down any other apps you are no longer using by going to the iOS taskbar. Please refer to “CPU Use” in the Tips section for more information.

Distorting Audio

Please turn down the Master Volume on the Magellan main panel, or reduce the synth engine volume under the PREFS panel until the sound clears up. You may also want to tweak certain effects in the audio effects rack to achieve a cleaner audio.

13. **Specifications**

SYSTEM

- Dual independent Virtual-Analog simultaneously operational sound synthesis engines
- Analog-Modelling Subtractive/FM Hybrid synthesis
- 32-Bit Floating Point Digital Signal Processing
- 44100 Hz, 32-bit “Better-Than-CD” quality audio output
- Inter-App Audio & Audiobus support

AUDIO SYNTHESIS (each feature is per synth engine)

- 3 Virtual-Analog Oscillators with selectable waveforms
- Oscillator unison stage with adjustable detune and width, giving up to 12 simultaneous wave generators for super-saw type effects
- Oscillator phase reset and sync
- Realtime PWM Modulation for oscillators 1 & 2
- Depth and Drift settings for oscillators 1 & 2 for additional shaping of waveforms
- FM synthesis module with dedicated blend, ADSR envelope with selectable curve, and adjustable contour
- Oscillator 1->2 ring modulation
- Noise generator with adjustable tone
- VCA ADSR envelope with selectable curve
- Dedicated voice unison stage with settable stereo spread and detune
- Polyphonic, Monophonic, Poly or Mono Legato operation modes
- Adjustable glide
- Synth coupling to allow running both synths by a single control interface
- 20-voice combined key polyphony (8-voice combined for iPad 1)

FILTERS (each feature is per synth engine)

- Two filter banks per synth engine, configurable in series or parallel with signal blending
- Dedicated ADSR envelope for each bank with selectable envelope curve and adjustable contour
- 11 unique filter types available for each bank:
    - "Magellan" -24dB Resonant Low Pass
    - "Victor" -24dB Resonant Low, High or Band Pass
    - "Voyvoda" -12dB Low, High or Band Pass
    - Formant, Comb, All-Pass and Notch filters
- True bypass for each filter bank

MODULATION / LFOs (each feature is per synth engine)

- Dual independent LFOs
- 9 waveforms per LFO, including random hard and random soft
- Four freely assignable destinations per LFO
- LFO BPM sync, with 16 note values
- Dedicated amplitude setting for each LFO destination
- 3 phase reset modes
- Adjustable phase and delay
- Frequency tracking

SEQUENCER

- Analog inspired 16/32 step polyphonic sequencer
- 8 track polyphonic output per pattern in 16-step, 4 track poly out in 32-step "link" mode
- Track-wise selection of the target synth engine
- Settable pitch, velocity, gate, or octave per step
- Settable step division for each pattern
- 6 sequence direction algorithms for each pattern
- Pattern bank
- Timelock
- Swing
- Timeline for creating song-length sequences out of patterns
- Import/Export or bounce song files containing sequences or compositions

ARPEGGIATOR

- Dedicated arpeggiator in each synth engine
- 10 arp algorithms
- Settable note value and gate
- Dedicated swing
- 6 octaving modes, as well as settable note and octave repeats
- Trigger or Program/Perform modes

MIDI

- CoreMIDI enabled
- Inter-App Audio MIDI support
- Virtual MIDI enabled, with both vMIDI In and vMIDI Out ports available
- Audio Backgrounding
- Control Magellan using external MIDI controllers or Virtual MIDI apps
- Synth-wise MIDI In channel select

- Synth-wise MIDI Out with settable channel or omni
- MIDI keyboard splitting with selectable split in channel, left/right note out range, learn & invert
- MIDI Out from keyboards, touchpads, arpeggiators, chordmakers or sequencer
- MIDI Learn with over 380 control destinations
- Sustain Pedal support
- Default MIDI CC map, developed from General MIDI Level 2
- Save MIDI CC configurations to file for later use
- Share Magellan MIDI CC maps
- Sync with external MIDI clocks to control the sequencer or arp modules
- WIST integration

EFFECTS

- Comprehensive FX rack with:
    - Reverb
    - Stereo Delay with BPM sync
    - Phaser
    - Chorus
    - Flanger
    - 6-Band parametric EQ with 10 unique filters available for each band
    - Virtual-Tube audio compressor
    - Waveshaper / Distortion
    - Bitcrusher
    - Sonic Expander
- Master FX Mix
- Configurable FX Signal Flow

CHORDMAKER

- Dedicated Chordmaker module for each synth
- Create and save chord progressions; play a chord by pressing a single key
- Chord programming matrix
- Factory chord progressions and chord definitions included

PRESETS

- Over 300 factory presets ranging from basses to pads to arpeggios
- Two banks of presets designed by Sunsine Audio
- INIT function, to create presets from scratch
- Export or Import presets and banks via email or iTunes File Sharing
- Create and save unlimited banks and presets
- Preset SPAWN ("Smart Preset Aggregation with Windowed raNdomization"):

our proprietary artificial intelligence algorithms allow you to automatically create new presets at the touch of a button

RECORDING, FILES, and SHARING

- Built-in tape deck for recording app audio
- Metronome with optional recording count-in
- Export audio files via email, WiFi, SoundCloud, Audio Copy or Sonoma
- Import audio files via WiFi, Audio Paste or Sonoma

PERFORMANCE & CONTROLS

- Dual Onscreen Keyboards with individual pitch and modulation wheels
- Dual Touch Pad controllers with settable key and scale and individual voice parameterization
- Matrixpad modulation interface with configurable x/y destinations, synth out select, and optional snapback
- Realtime oscilloscope displaying the output signal (iPad 2 and newer)
- Tap tempo
- Built-in CPU usage meter
- On-screen touch velocity sensing with adjustable sensitivity
- Adjustable knob response for making precise adjustments to knob-controlled parameters
- Synth-wise settable A4 reference frequency, semitones and cents
- Synth-wise settable maximum polyphony
- Synth-wise volume and pan
- Synth-wise adjustable pitch wheel bend radius
- Rotary or fader-like operation for knobs
- MIDI controller velocity recognition
- Settable onscreen keyboard key size, and Touch Pad step size
- Note hold
- System panic button

SYSTEM REQUIREMENTS

- iPad or iPad Mini
- iOS 5.1 or newer