
FOUR SEAS
WAVETABLE
SMOOTH

FERRY ISLAND
MODULAR

FOUR SEAS

FOUR-DIMENSIONAL WAVETABLE OSCILLATOR

Thank you for purchasing Four Seas, the debut module of Ferry Island Modular. We are glad you are here.

HELSINKI · FINLAND

Contents of this user guide:

Overview

Four Seas is a four-dimensional wavetable oscillator in Eurorack format. Its four related outputs inspire fun, creative patching, and happy accidents.

Four Seas has no screens, no presets, and minimal modes, making it an intuitive and playable instrument. Less RTFM and more music.

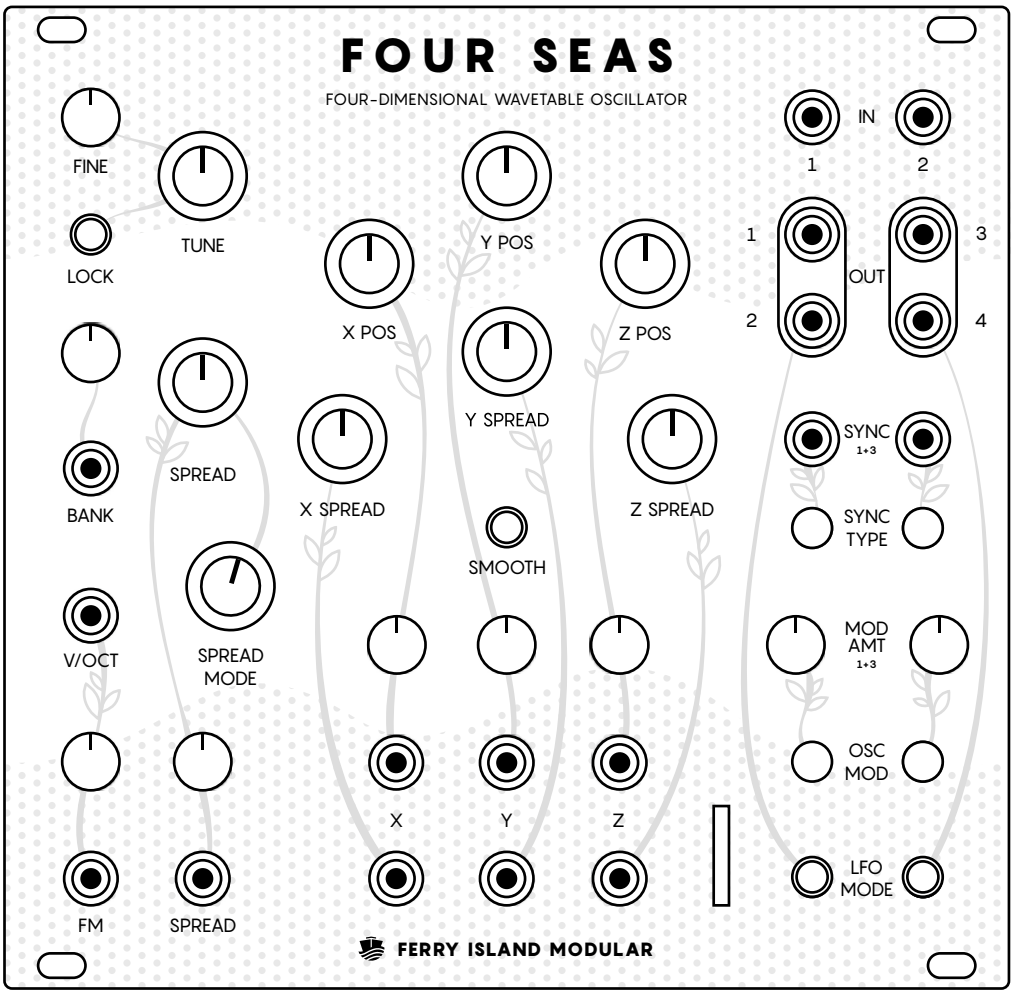
Width
26 HP

Depth
30 mm with power cable

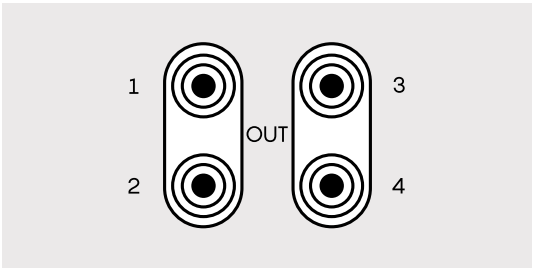
Power
+12 V 230 mA, -12 V 50 mA

Expandability
Audio output expansion port
i2c input and output ports
Open source firmware
User wavetables

Visit ferryislandmodular.com for more information.



Connections

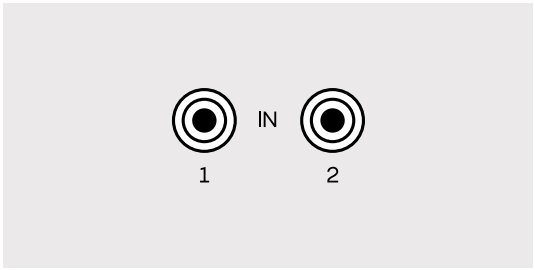


Audio outputs
Four Seas has four independent audio outputs, arranged in pairs of 1-2 and 3-4. Each pair can be used as an audio rate or LFO rate pair of outputs.

Please refer to page 9 for more information on LFO mode.

CV inputs
Four Seas has 12 CV inputs for controlling its features with control voltage. You can read more about each under their respective features.

Power
Four Seas has a 10-pin Eurorack power slot. Make sure to align -12 V according to the keyed power header, with the red stripe of the cable pointing down.

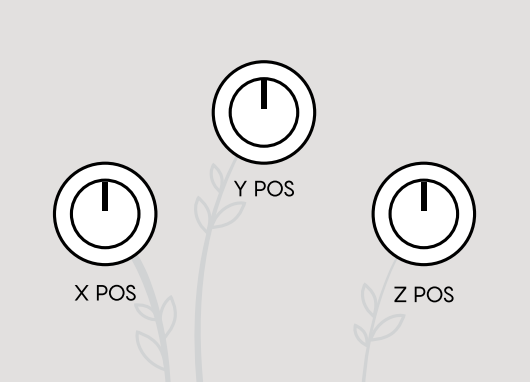


Audio inputs
Four Seas has two audio inputs for oscillator modulation purposes.

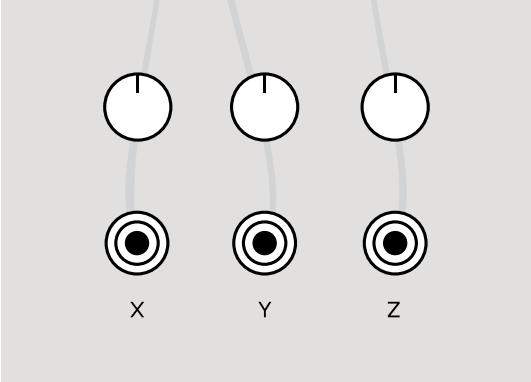
Please refer to page 8 for more information on oscillator modulation.

Expansion ports
Four Seas has an audio output expansion port on the back of the module. It is meant for a future expansion module, but feel free to use it for your own explorations. Four Seas also has i2c input and output ports on the back of the module for interfacing with other i2c-compatible modules, enabled in a future firmware update.

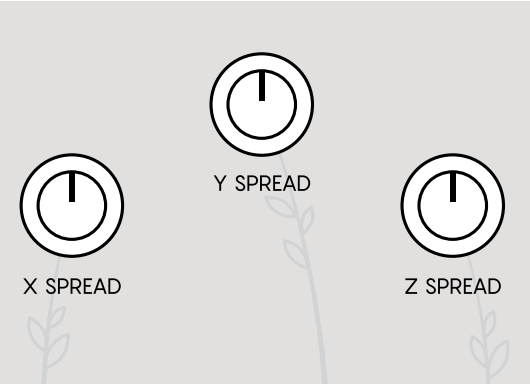
Navigating the wavetable



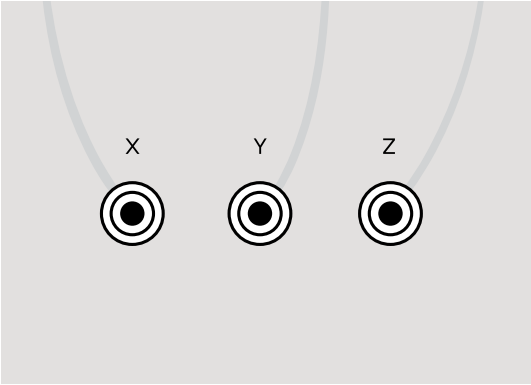
Wavetable position
X POS, Y POS, and Z POS define a position inside a three-dimensional wavetable space, in a coordinate cube of 8*8*8. These act as offsets to incoming CV values.



CV control over position
X POS, Y POS, and Z POS have corresponding CV inputs with attenuverters. The resulting CV values are visualized with LEDs and added to the X POS, Y POS, and Z POS knob values.

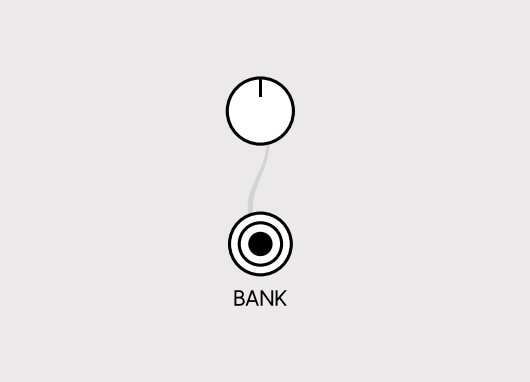


Wavetable spread
X SPREAD, Y SPREAD, and Z SPREAD control the spreading of wavetable position. This gives three additional wavetable positions relative to the main position. All four positions are then sent to their individual outputs.



CV control over spread
X SPREAD, Y SPREAD, and Z SPREAD have corresponding CV inputs. The CV values of the inputs are visualized with LEDs and added to the X SPREAD, Y SPREAD, and Z SPREAD knob values.

Selecting wavetables



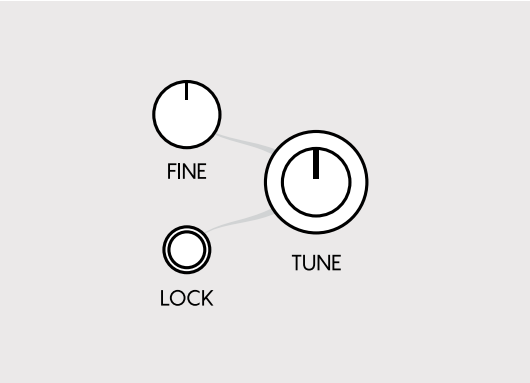
Wavetable banks
BANK selects from up to twelve banks of wavetables i.e. twelve three-dimensional wavetable spaces.

CV control over bank
BANK has a corresponding unipolar CV input. The CV value is added to the BANK knob value.

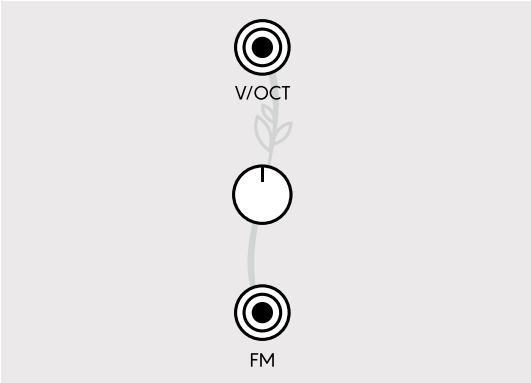
Wavetables
Several wavetable sets can be downloaded from the Ferry Island Modular web page. Users can also create their own wavetable sets.

Visit ferryislandmodular.com for more information on wavetable specifications.

Tuning, pitch, and FM



Tuning
Four Seas has controls for coarse and fine tuning of the main pitch of the oscillator. Tuning can be locked with the LOCK button, to prevent unwanted adventures in pitch.



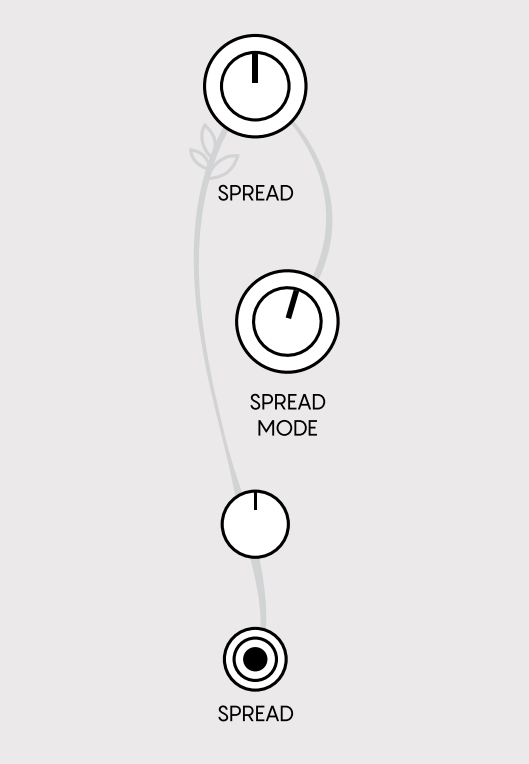
Pitch and FM
Four Seas has a V/OCT input for 1 volt per octave pitch control, tracking 10 octaves. The linear FM input sends incoming CV or audio through an attenuverter into the pitch of the oscillator for frequency modulation.

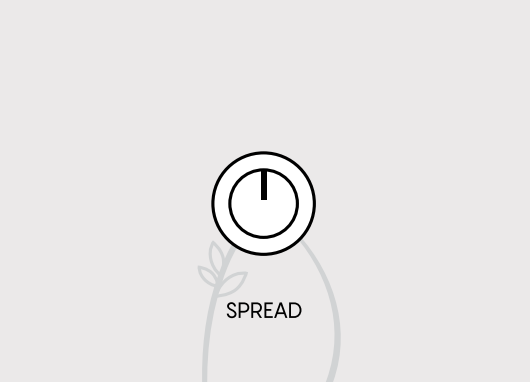
Frequency spread

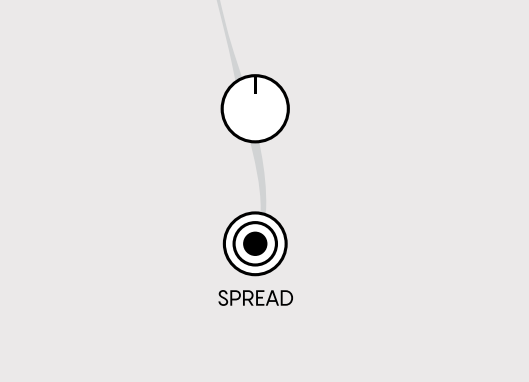
Spread mode
The pitch of the oscillator can be spread into four individual pitches, sent to the four outputs. The SPREAD MODE rotary switch selects the ratio to be used in spreading those frequencies.

Four Seas has 8 spread modes:

1. Just intonation
2. Normal (sub)harmonics
3. Pythagorean tuning (fifths)
4. Subharmonic superparticular ratios
5. Fibonacci
6. Spectral √2
7. Golden ratio
8. Bohlen-Pierce tuning



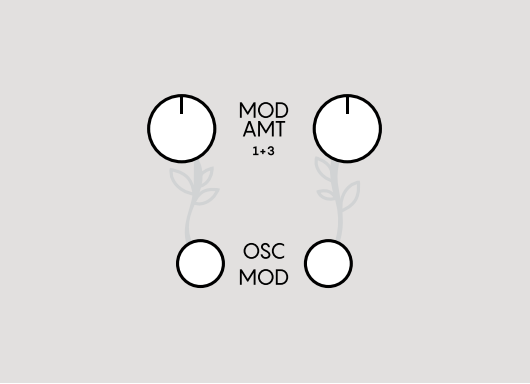




Spread
The bipolar SPREAD control sets the amount of frequency spread, based on the frequency ratio selected with SPREAD MODE. Fully counter-clockwise it gives subharmonics, around noon it introduces gentle detuning, and fully clockwise it gives upper harmonics.

CV control over spread
A CV signal sent into the SPREAD input goes through an attenuverter. The resulting signal is added to the value of the SPREAD knob and visualized by LEDs.

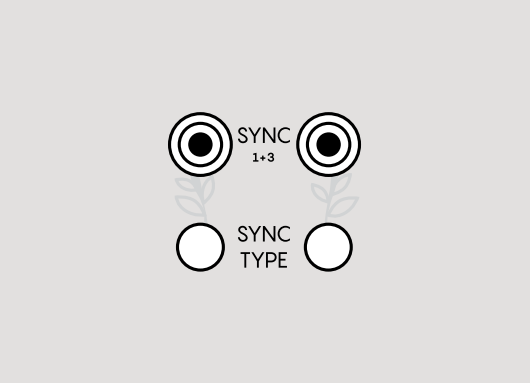
Oscillator modulation



Oscillator modulation
Four Seas has two OSC MOD buttons, controlling how the signals coming into the audio inputs modulate the oscillator phase. The left OSC MOD modulates output 1 and the right OSC MOD modulates output 3. The adjacent MOD AMT knobs control the modulation amount.

Oscillator modulation types
Blue LED color is for traditional thru-zero phase modulation. Orange LED color is for phase-distortion waveshaping. Yellow LED color is for fixed-point scalar underflow, also known as FSU mode.

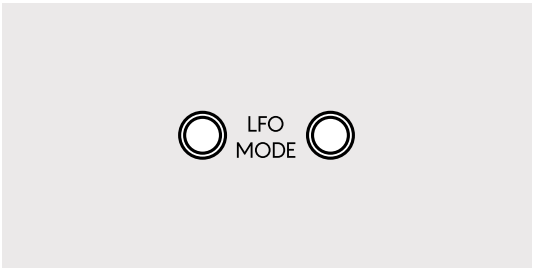
Oscillator sync



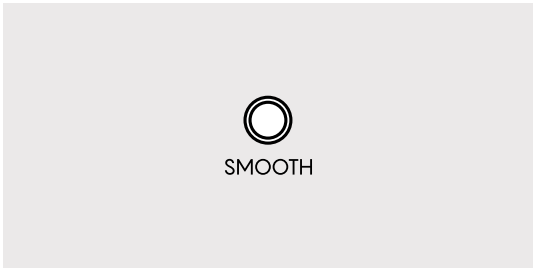
Oscillator sync
Four Seas has two SYNC TYPE buttons, controlling how the signals coming into the SYNC inputs sync the oscillator. The left SYNC input syncs output 1 and the right SYNC input syncs output 3.

Oscillator sync types
Blue LED color is for hard sync, or oscillator reset. Orange LED color is for soft sync, or phase shifting. Yellow LED color is for flip sync, or waveshape reversal.

Oscillator modes



LFO mode
Four Seas has two LFO MODE buttons, controlling whether the output pairs give audible or low frequency signals. The left LFO MODE button controls the first output pair (1 and 2) and the right LFO MODE button controls the second output pair (3 and 4). The resulting LFO signals are still the same waveforms, resulting in coherent modulation elsewhere in a patch.



Smooth
Four Seas has a SMOOTH button in the very center of the module. When it's switched on, Four Seas interpolates changes in wavetable position, resulting in waves that smoothly morph into each other. When SMOOTH is off, there is no interpolation, resulting in stepped transitions when changing position. SMOOTH does not affect BANK, which is always a stepped change.

Factory wavetable banks

Bank 1
Basic waveform building blocks..

Bank 2
Advanced harmonic structures with FM-like timbres.

Bank 3
Eight and sixteen bit inspired digital waveforms.

Bank 4
Linear feedback shift register digital tones.

Bank 5
Chaotic mathematical waveforms based on Lorenz attractors.

Bank 6
Waveforms inspired by vintage wavetable synths.

Bank 7
Waveforms spectrally derived from machinery samples.

Bank 8
Waveforms spectrally derived from vintage arcade samples.

Bank 9
Additive synthesis waveforms.

Bank 10
Waveforms optimized for wavefolding and PM.

Bank 11
Morphing waveforms.

Bank 12
Waveforms optimized for LFOs and modulation.

ⓘ *You can hot-load wavetable banks from the SD card by holding both LFO buttons for three seconds.*

Patching tips

1. Connect outputs A1 & A2 to your mixer or processing chain.
2. Use X POS, Y POS, and Z POS knobs to explore the wavetable space.
3. Patch a sequencer or keyboard volt per octave output to V/OCT
4. Try out other banks with the BANK knob.
5. Explore spread modes with SPREAD MODE rotary switch and SPREAD knob.
6. Add modulation by patching an audio signal to an audio input, choosing OSC MOD types and exploring depth with MOD AMT knobs.
7. Explore subtle variations by adjusting X SPREAD, Y SPREAD, and Z SPREAD values with small movements.
8. Use LFO toggle to generate low frequency modulation sources.
9. Try turning off SMOOTH for digital aliasing effects.
10. Experiment with different OSC MOD and SYNC TYPE choices for complex interactions.
11. Patch all outputs to individual low pass gates for quad pluck mayhem.
12. Explore feedback patching with the audio outputs and inputs.

Calibration

Your Four Seas module is factory calibrated and you should normally never need to recalibrate it. However, if you end up in a situation where recalibration is needed, visit ferryislandmodular.com for information on how to do it.

Support

Do you need help? Email your questions to support@ferryislandmodular.com

For information, downloads, and firmware updates please visit the Ferry Island Modular website at ferryislandmodular.com

Follow @ferryislandmodular on Instagram for news, patching tips and ideas.

Visit 'Ferry Island Modular' on Youtube for module tutorials, demos, and other related videos.

Limited warranty

This device is guaranteed for a period of 2 years, from its date of delivery, against any manufacturing or material defects. The guarantee is handled by the reseller, and repairs or replacements are handled at the discretion of Ferry Island Modular.

This does not apply to:

- physical damage arising from mistreating,
- damage caused by incorrect power connections,
- overexposure to heat or direct sunlight,
- damage caused by inappropriate use or misuse,
- use of incorrect or unofficial firmware.

No responsibility is implied or accepted for any harm to persons or equipment caused through the operation of this product. By using this product you agree to these terms.

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