

FUTURE RETRO



semi-modular analog synthesizer

The XS is a true semi-modular analog synthesizer with a universe of sonic possibilities just waiting to be discovered. Our versatile design allows it to be used as either a rack mount or desktop instrument, and its compact size makes it ideal for musicians on the go. In its simplest form the XS is an extremely powerful monophonic synthesizer including 46 controls with internal signal routings pre-wired in a way which allow the unit to act similar to traditional synthesizers. The unit also provides 7 inputs and 11 outputs which can be connected in various ways to override the pre-wired signal routings, and interface the unit with other instruments in a modular fashion, and even process external audio. The XS can be controlled by both MIDI and CV/Gate control signals simultaneously in a variety of ways. And can also act as a MIDI to CV/Gate converter with outputs including CV/Gate/Mod Wheel/Velocity signals for controlling other analog instruments. With a single unit you can easily create bass lines, leads, drones, percussion, and sound effects. Connect multiple units together to form larger systems and the possibilities are endless.

The XS provides 2 ultra stable wide range voltage controlled oscillators, each capable of covering a range of 0.5 Hz to 100 kHz. Oscillator A generates saw tooth, and square waveforms. Oscillator B generates sine, triangle, saw tooth, pulse width/square waveforms, and its own sub oscillator waveform which can be 1/2, 1/4, 1/8, the frequency of the main waveform. The pulse width shape of oscillator B can be set manually or modulated with an internal or external control voltage, and oscillator B can also sync its frequency to oscillator A. Each oscillator can be frequency modulated independently by both internal and external signals to create more complex waveforms. The XS also provides a white noise source, and ring modulator which can be used on the internal oscillators or an external source. Dedicated outputs are provided for the waveform select controls A, B, and C.

A dedicated LFO generates triangle, saw tooth, square, and random waveforms, to modulate internal parameters, or external circuits as well with its dedicated output. The LFO can act in a free-running mode, or sync its rate to divisions of an external MIDI clock. When synced to an external MIDI clock, the LFO can be used to generate analog clock signals at various synced rates for stepping analog sequencers or arpeggiators in time with modern sequencers.

The mixer section sets the levels of the oscillator waveforms, sub oscillator waveforms, white noise source, ring modulator, or any external audio signal to be sent to the input of the filter.

The 2-pole multimode filter provides 4 filter types including low pass, band pass, high pass, and notch settings, each capable of covering a range from 5 Hz to 18 kHz. With high resonance settings the filter will self oscillate allowing it to act as an additional audio source. The cutoff frequency can be modulated by both internal and external signals. And the filter's input and output can be overdriven independently giving it unique tone characteristics. A dedicated output for the filter is also provided.

The XS includes our unique velocity sensitive ADSR type envelope with additional attack and decay time settings for accented envelopes. It's like having two envelopes in one, and capable of some truly funky sounds. This is the main modulation envelope internally routed to the modify the oscillators and filter. The envelope can be triggered by internal or external logic signals. Both normal and inverted polarity envelopes are available at the output.

And finally a voltage controlled amplifier is provided to process the amplitude of signals. The amplifier normally affects the filter's output but can also be used to process external audio signals. The amplifier has it's own dedicated envelope with 4 selectable shapes, velocity sensitive amplitude, and independent accent times. The amplifier also has a volume control for attenuating signals sent to the main output.

A universal power supply is also included, which allows the unit to be used in all countries.

For more information please visit us online at: www.future-retro.com / Email: info@future-retro.com / Phone: 785.827.9278

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MIDI

Channel: 1-16

MIDI Messages Recognized: Pitch C2 to C7, Note On/Off, Pitch Bend +/- 2 semitones, Velocity, Mod Wheel, MIDI Clock

LFO

Waveshapes: triangle, saw, square, random

Free-running Rate: (MIDI SYNC Off) 4 seconds to 18 Hz

MIDI Clock Divisions: (MIDI SYNC On) 8 bars, 4 bars, 2 bars, 1 bar; 1/2, 3/8, 1/3, 1/4, 3/16, 1/6, 1/8, 3/32, 1/12, 1/16, 1/24, 1/32

OSCILLATOR A

Total Frequency Range: 0.5 Hz to 100 kHz

Octave Control Range: 6 octaves

Fine Tune Control Range: -6 to +6 cents (master fine tuning for both oscillators)

Waveforms: saw, square, white noise, external audio

OSCILLATOR B

Total Frequency Range: 0.5 Hz to 100 kHz

Oscillator Sync: on/off (syncs to Oscillator A)

Octave Control Range: 12 octaves

Frequency Control Range: -9 to +9 semitones

Waveforms: sine, triangle, saw, square/pulse width

Pulse Width Modulation Amount: typically 50% to 3%

Pulse Width Modulation Sources: external source, LFO, Mod Wheel, manual adjust, Velocity, Envelope 1

WAVE C

Waveforms: 1/8, 1/4, 1/2 Oscillator B sub oscillator divisions, ring modulator, white noise source, external audio

OSCILLATOR MODULATION

Modulation Sources for Oscillator A: external source, LFO, LFO controlled by Mod Wheel, Mod Wheel, Waveform B, Waveform B controlled by Envelope 1, Envelope 1 (positive and negative polarity)

Modulation Sources for Oscillator B: external source, LFO, LFO controlled by Mod Wheel, Mod Wheel, Velocity, Waveform A, Waveform A controlled by Envelope 1, Waveform C, and Envelope 1 positive polarity

MIXER

Controls: level A, level B, level C (all capable of overdriving filter input)

FILTER

Filter Types: (12 dB) lowpass, bandpass, highpass, notch

Filter Frequency Range: 5 Hz to 18 kHz

Resonance: 0 to self oscillation

Overdrive: clean to fully crunched

FILTER MODULATION

Key Follow: 0 to 100%

Velocity: amplitude sensitivity control for Envelope 1

Modulation Sources: external source, LFO, LFO controlled by Mod Wheel, Mod Wheel, Waveform B, Waveform B controlled by Mod Wheel, Waveform B controlled by Envelope 1, Waveform C

Envelope 1: negative and positive polarity covering 10 octaves

ACCENT

Sensitivity: 0 to +10 volts

Attack Time: 0.5 milliseconds to 4 seconds

Decay Time: 2 milliseconds to 10 seconds

ENVELOPE 1

Key Sync: on/off (envelope retriggering)

Attack Time: 0.5 milliseconds to 4 seconds

Decay Time: 2 milliseconds to 10 seconds

Sustain Level: 0 to 100% (+10 volts max)

Release Time: 1 millisecond to 10 seconds

ENVELOPE 2

Attack Time: 1 millisecond to 4 seconds

Decay Time: 3 milliseconds to 7 seconds

Sustain Level: 100%

Release Time: 3 milliseconds to 7 seconds

AMPLIFIER

Velocity: 0 to 100%

Envelope Shapes for Control: attack/decay, attack/sustain/release, accented decay/sustain/release, accented decay/normal decay

INPUTS/OUTPUTS

Pitch CV In: 1 V/Oct standard, typically 0 to +5 volts (+15 volts max)

Pitch CV Out: 1 V/Oct standard, 0 to +5 volts

Mod Wheel Out: 0 to +10 volts

Velocity Out: 0 to +10 volts

LFO Out: -5 to +5 volts

Oscillator Modulation In: typically -10 to +10 volts (+/-15 volts max)

Waveform A: -5 to +5 volts

Waveform B: -5 to +5 volts

Waveform C: 0 to +15 volts (for sub oscillator waves), -5 to +5 volts (for ring modulator and white noise)

Audio In: accepts line-level audio signals

Filter Modulation In: typically -10 to +10 volts (+/-15 volts max)

Velocity In: typically 0 to +10 volts (+/-15 volts max)

Gate In: gate-on equals +1.5 volts or higher, gate-off equals 0 volts

Gate Out: 0 to +14 volts

Envelope 1 Out +/-: 0 to +10 volts

Filter Out/Amp In Range: -15 to +15 volts max

Main Out Range: 11 volts peak/peak max

POWER

Universal Power Supply: +15 and -15 volts DC, can be used with power main voltages ranging from 90-260 volts AC

DIMENSIONS

Rackmount: 19" standard rack width, 4 verticle rack spaces, 2.75" deep

Desktop: 17.5" width, 7.5" depth, 3" height

WEIGHT

4 Lbs