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SYNTHESIZERS

The Moog Philosophy

"If you're into synthesizers, you have a lot in common with us. We're concerned, and maybe you are too, about some of the hype that's been going around on synthesizer design. It's the kind of hype that places too much importance on gimmicks that don't have any real musical purpose.

Musicians Like You Help Design Moog Synthesizers

Fads, gimmicks and basically unmusical electronic features don't make a synthesizer a musical instrument. Feel, sound and playability do. That's why Moog has always designed its instruments in close collaboration with working musicians — people like Rick Wakeman, Jon Lord, Chick Corea, Jan Hammer, — some of the most creative and talented performers of our time.

At Moog, literally thousands of hours are spent every year talking (and listening carefully) to our musician friends. We visit recording studios. Go on tour with major groups. Sometimes, even participate in live performances. All this teaches us a great deal about what you, the players, need and want in a synthesizer.

From Moog "Musical Engineering", The Very Best Sound and Performance

Formulas and specs are critical, but without the taste and insight of Moog's "musical engineers", our synthesizers would just be sound generators and not the versatile musical instruments they are. For example, part of the famous Moog "fat sound" comes from the patented Moog filter. But the total sound of the instrument is the result of dozens of individual design features meticulously proportioned to give just the right sound and feel.

The spirit of "musical engineering" is behind Moog's many exclusive performance controls, too. Take our Pitch and Modulation Wheels and our Ribbon Controller. They enable the player to easily control pitch bend, vibrato and other nuances so vital to brilliant solo performance. These are the features that make the difference between a "one note organ" sound and the soaring, fluid Moog lines you hear in the best contemporary electronic music.

The Truth About Sliders Versus Rotary Pots

Take a look at any recording console. You'll see that the faders are sliders, because the recording engineer has to manipulate many of them simultaneously, especially during a mix. But just about all the other controls on the console are rotaries, because they're so much easier to set precisely. Moog's answer? Use both. . . rotaries where precision is critical, sliders where speed is the thing (or where space is limited). But to say that there's only one right way, well again, that's just hype. Just try to accurately tune an all-slider instrument!

The point of all this is that if you're into synthesizers, you really ought to know the difference between electronic gimmickry and solid musical engineering. We're convinced that Moog offers equipment that gives you the most quality, playability and musical control over sound.

If you visit your Authorised Moog dealer he will be able to give you all the answers you're looking for . . . technical specifications, a demonstration and explanation, and a chance to try the Moog Products.

Once you've tried a Moog Synthesizer you'll understand the Moog Philosophy".

Rick Wakeman

Multimoog

Multimoog is the synthesizer for the composer in you and the keyboard for the performer in you. The force-sensitive keyboard extends Moog's musical engineering to let you phrase, bend pitch, and introduce vibrato, trill, tremolo — even sample and hold — with a *single* hand.

While your right hand plays two hands worth of music, your left hand can play the Moog Pitch Ribbon and Performance Wheel for added expression. Multimoog puts control where it belongs — in your *hands*.

Variable control and Moog's *open system* input/output panel make the Multimoog a powerful synthesizer as well as an expressive keyboard.

Whether you're a performer, a synthesist — or both — check out the one-hand/two-hand punch of the versatile one-MULTIMOOG.

Features

- Two temperature-regulated ultra stable audio oscillators (heated chip technology)
- Separate modulation oscillator
- Filter can produce sine wave
- Controlled filter emphasis to prevent accidental oscillation
- Continuously variable voltage controlled waveshapes
- One or two suboctave doubling also blendable
- Octave "click" switching-32' to 2'
- Wide Frequency knob can sweep oscillator pitch continuously over 8 octave range
- Modulation section features quick source-destination orientation
- Dual mode Sample and Hold — synchronous triggering or control output only
- Force sensitive keyboard — touch can take the place of the modulation wheel
- Patented Moog voltage controlled low pass filter, 24 dB per octave
- Reversible filter contours to create a whole new class of sounds
- Separate contour generators for VCF and VCA
- Ribbon "return to center" pitch bender — zero intertia playing
- "Open systen" — Input/output capacity make it compatible with other Moog synthesizers, accessories, and audio sources such as the guitar
- Glide (variable) switchable from panel or footswitch

Power Requirements
VAC or 180—260 VAC
50/60 Hz. 18 Watts
Detachable international power cord

Micromoog

The Micromoog is a compact musical instrument. It is designed to be fast and easy to play.

Control over performance.
It is constructed to be durable but light. The controls and keyboard are protected by its casing.

Control over handling.
It is an example of musical engineering.
The intuitive centre-return ribbon controller and performance wheel introduce musical feeling into electronic music.

Control over sound.
There are a minimum number of controls but a great deal of functions. The open system design allows extended input/output capability.

Control over price.

Features

- Temperature regulated ultra stable audio oscillator (heated chip technology)
- Separate modulating oscillator
- Filter can produce pure sine wave
- Controlled filter emphasis to prevent accidental oscillation
- Controlled filter emphasis to prevent accidental oscillation
- Continuously variable voltage controlled waveshape
- One or two suboctave doubling — blendable
- Octave "click" switching — 32', 16', 8', 4', 2'.

Power Requirements
180 — 260 VAC. 50/60 Hz. 5 watts.

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Minimoog

with new Drift Free circuitry

Minimoog introduced synthesizers to the performing musician — it is the classic lead-line performance synthesizer. What the player needs is a logically built controllable musical instrument, that sounds great. The Minimoog is such a musical instrument. Moog's musically engineered left hand controllers let you bend pitch intuitively and vary modulations such as vibrato with musical feeling.

Try out the sound — control over sound — find out what makes a classic synthesizer — MINIMOOG.

Features

- Ultra stable oscillators
- Logical control panel layout with signal progressing from left to right.
- Three tone oscillators, each with separate octave clickers, waveform selectors, volume controls, on/off switches. Oscillators 2 and 3 have separate tuning controls. (Oscillator 1 is tuned with master tune control).

Power Requirements: 200 — 260 volts, 50 — 60 Hz., 10 watts maximum. Specifications subject to change.

Keith Emerson

Polypedal Controller Functions

- Volume
- Filter and/or Pitch
- Sustain
- Trigger Mode Selector and Touch Switch
- Pitch Selector Tuneable from 0 over 1 octave

Taurus Pedal

The Moog Taurus Pedal Synthesizer lets you make music with your feet while your hands are busy playing keyboard, guitar, or drums. The Taurus has three programmed voices and a voice that ***you*** can program completely. In performance you can select a Moog voice or your voice instantly. The Taurus is a variable synthesizer that features two audio oscillators to create phasing effects, parallel intervals, and rich percussive sounds. In addition functions like glide, decay, and pedalboard octave may be switched by foot during performance. And its five octave range makes Taurus more than a bass instrument.

Add another dimension to your control over sound — add a Moog Taurus pedal synthesizer.

Taurus Features

Three pre-programmed synthesizer voices: Bass, Tuba and Taurus

- One fully programmable voice. You create the sound and pre-set it yourself.
- Five octave range — 32', 16', 8', 4', 2'.
- Foot sliders for loudness and tone color variation.
- Ultra stable oscillator design: less than one cent (0.06%) short term drift, less than two cents (0.18%) long term drift.
- Electronic preset selectors. Presets never have to be cancelled.

Polymoog Synthesizer

The Polymoog synthesizer. The instrument that re-designed the world of synthesis.

No other instrument offers the variety of sound, and control over sound, present at the Polymoog control panel. The fully polyphonic, touch responsive keyboard gives the Polymoog instant-play capabilities. Eight pre-programmed voices and a user-programmable voice give it instant-change capabilities. At any time, the pre-programmed voices can be altered with the variable controls, allowing limitless creation of new sounds. The versatility of a Polyphonic synthesizer. The expression of a performing keyboard. Get it all with the Polymoog Synthesizer.

Specifications

Outputs: Output Levels (5 outputs)OdBm nominal
Output Impedances (5 outputs) 600 ohms
Output Coupling: Mix output, single ended or balanced (XLR). Direct, VCF MODE, RES; single ended
Keyboard Voltage: Adjustable from 0.9 to 1.2 volts/octave
Strig: Single or multiple negative trigger; retrig 20msec.
Inputs: Filter 0.64 volts/octave
Pitch: 0.9 volts/octave
Sell (Loudness): 5 volts for 30 dB change
Mod Amount: 0-5 volt range
Ext syn, trig mode, sustain, glide, on/off, Switch closure.
VCF, RES, AUX: OdBm
Power Requirements: 200-260 VAC; 0.5A/0.25A

Polymoog Keyboard

The Polymoog Keyboard is musically engineered to give you the tonal variety and breadth of expression of a ***primary*** keyboard. Fourteen programmed voices give you a variety of characteristic sounds from one keyboard.

The Polymoog Keyboard is ***velocity sensitive.*** It allows the same kind of intuitive touch sensitivity as the piano. An individual voltage controlled filter and voltage controlled amplifier for each key lets you play without triggering problems.

Polymoog polyphony is not restricted — either by the number of notes playable simultaneously, or by the size of the 71 note keyboard.

Synthesizer tonal variety goes right down to voltage controlled oscillators.

Primary keyboard musicality is a keyboard that feels your fingers. Get them both together in the Polymoog Keyboard.

Features

- 14 pre-programmed voices: Vox Humana, Strings I, Strings II, Electric Piano, Grand Piano, Honky Tonk Piano, Clavinet, Harpsichord, Brass Solo, Brass Chorus, Pipe Organ, Rock Organ, Vibes, Funk.
- Multi-oscillator output for chorus effects
- Totally polyphonic touch sensitive keyboard
- Studio quality signal/noise ratio
- Monophonic synthesizer interface connections
- Stereo output configuration
- Variable modulation rate and amount controls
- Variable attack time
- Filtered lower keyboard output with level and frequency controls
- Foot control of pitch, sustain, trigger mode, and volume with optional Polypedal

Specifications

Sound Sources	
Number of oscillators	— 2 (71 pitch ranks; slaved to precision VCO)
Articulators	— 142 (VCA and VCF for each key)
Frequency range	— E_1-D_7, 71 note keyboard. Pitch ribbon and external frequency control give maximum of ±½ octave pitch control
Pitch stability	— ±0.0r% (±1/3 cent)
Pitch ribbon range	— ±7 semintones minimum
Fine tune range	— ±1 semitone
Beat tone range	— ±¼ semitone
Voices	
Number	— 14 programmed
Voice modification controls	— modulation rate and amount, octave balance (3), attack (sustaining voices)
Bass	— 14 programmed: variable cutoff frequency and separate gain controls
Main	— Nominal output level OdBm (0.7 volts) output impedance — less than 3K
Bass	— Nominal output level OdBm (0.7 volts) output impedance less than 3K (plugging into bass output automatically isolates bass signal from main output)
Control Outputs	
Keyboard control	— Scale adjustable from 0.9 to 1.1 volts / octave with rear panel scale pot: range adjustable ±1½ semitones
Trigger	— S trig (+15 to O.OVAC): single / multiple determined by trig mode switch or foot-switch
Keyboard control voltage	— 30 db control with 0 to 5 VAC input impedance — 200 K
Filter	— 0.5 volts / octave input impedance — 1 mag (for BRASS voices)
Trigger	— Switch to ground gives single trigger mode with trig switch in multiple position
Pitch	— 0.7 volts / octave
Sustain	— Switch to ground gives sustain
Accessory Power Outputs	— ±15, +5VDC at 100 ma available for each supply voltage

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SYNTHESIZERS

Signal Processors

Vocoder

The Moog Vocoder is an instrument which continuously analyzes the timbral characteristics of one sound (program) and impresses these timbral characteristics upon a second signal (carrier). The most familiar use of this type of instrument is to impose vocal characteristics onto instrumental sounds. As a musical instrument, a large variety of musical effects are possible by applying different types of signals to the two audio inputs called the program input and the carrier input.

The 16-channel Moog Vocoder has a variety of features especially developed and engineered for musical performance. These features make the instrument a powerful sound modifier for both live performance and for studio work.

Features

- Sixteen channels plus a special high frequency channel which operates either in the "direct" mode or in a "switched" mode which is activated by the presence of very high frequency sounds.
- Fast six millisecond response time especially useful for percussive sounds.
- Full external patching between the analyzer and synthesizer sections.
- Patch select control allows quick switching from the "normal" to the pre-selected patched configuration.
- A bypass control switches the Vocoder in and out rapidly.
- Foot switch jacks provide for live performance control of sample hold, patch select and Vocoder bypass.
- Rugged Moog Signal Processor chassis with reversible end plates for rack mounting or free standing use.
- 110/220 VAC, 50-60 Hz line voltage for world wide use.
- Overload indicators for indicating optimum signal-to-noise settings on the program and carrier inputs.

Specifications

Program Input	
Nominal level	
Line	0dBm (0.7 volts)
Mic	40Bm (0.007 volts)
Input Impedance	
Line	20K ohms
Mic	30K ohms
Carrier Input	
Nominal Level	0dBm (0.7 volts)
Input impedance	100K ohms
Output	
Level	+10dBM (2.2 volts)
Output	1 ohm
Effective Signal/Noise Ratio	60dB
Frequency Range	
Overall	50 – 15,000 Hz
Vocoder	50 – 5,080 Hz
Called or bypassed	5,080 – 15,000 Hz

Parametric and Graphic Equalizers

Bringing the studio closer to home.

Now, with Moog's Ten Band Graphic Equalizer and Three Band Parametric Equalizer you have the answer. Engineered for the studio technician and built for the stage musician. In fact, Moog's Signal Processors are ready veterans in recording studios – among producers, engineers and musicians alike. That says a lot for units that were built to handle the road.

Moog Signal Processors were designed to meet the wide range demands of keyboard instruments – to handle a very wide dynamic range and extended frequency response. The controls on Moog's Signal Processors have a smooth, quiet action for precision adjustments. The Graphic Equalizer's sliders are protected from dust entering their mechanisms, so they stay smooth and quiet. The slider centre points are detented for fast easy reference you can feel. You can bypass the Graphic or Parametric by flipping the Status Switch for fast sound changes. And the Drive control lets you adjust the level of the Equalizer's internal signal to match the input signal. It lets you maintain a high signal-to-noise ratio with low output instruments and guards against overload from high output instruments. You can also use Moog's Signal Processors as line drivers for long cords stretching across the stage. Moog's Signal Processors are designed for the studio and the road, right down to the two way chassis. In one position the carrying handles also protect the front panel, extending beyond the controls. In the other positions there are two flanges, complete with screwholes, for mounting in a standard 19" rack space.

Tony Banks

Accessories

1125 Sample & Hold
(Usable with Micromoog, Minimoog, Polymoog, Modular systems)
You've heard Moog's Sample & Hold creating a lot of extra special effects on a lot of today's hit recordings. It delivers a steady, rhythmic pattern of notes climbing up the scale, over again, or down the scale, or just jumping all around the scale at random. The glide control gives your music "animation" like vibrato. The Sample & Hold is like a drummer playing notes, so it's great accompaniment for drum solos. It'll put new life in the band's "rhythm breaks." And it's a show stopper too with its extra special sound effects.

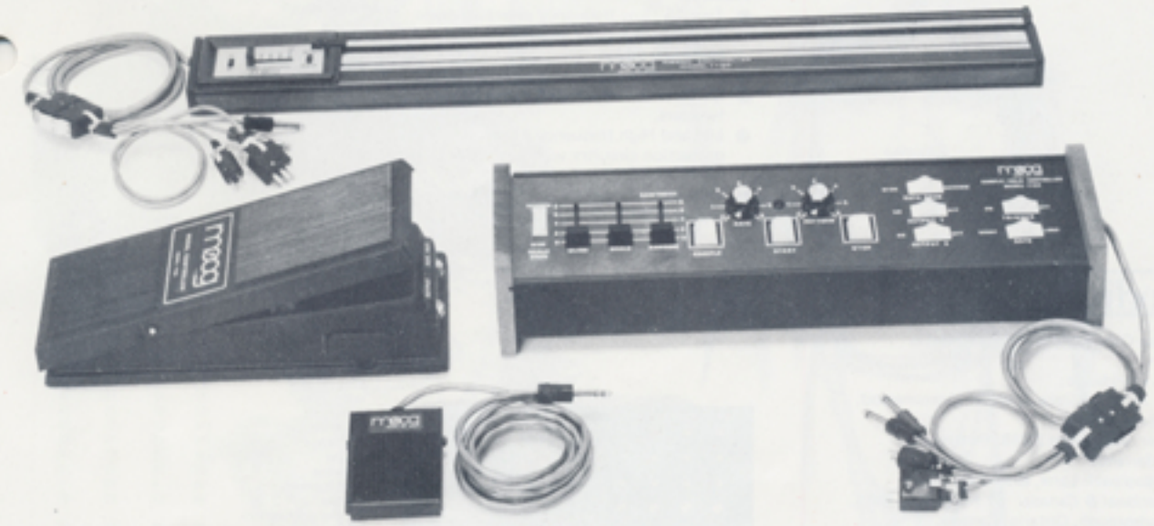
1150 Ribbon Controller
(Usable with Micromoog, Minimoog, Modular Systems) One of Moog's most popular accessories, the Ribbon Controller, is a whole new group of instruments in itself. You can use it as a Hawaiian guitar, theremin, "musical saw," and a lot of instruments you never heard of. The Ribbon Controller is a fretless fingerboard you play by just touching the ribbon. As you slide your finger to the right, the pitch rises. You can adjust the Ribbon Controller so that it spans ten or more octaves, or so its range and length correspond to that of a keyboard. Another slide control lets you "filter" the high frequencies. You can also use the Ribbon Controller as a loudness control, or even as a percussive instrument, tapping the ribbon to trigger a sound.

1121 Glide/Decay Footswitch
(Usable with Micromoog, Minimoog, Polymoog) A lot of professional musicians know how dramatic it is to switch sounds instantly in the middle of a tune. But, if both your hands are busy playing, even flipping one little function switch is impossible. That's why the 1121 Footswitch is so valuable. It lets you turn either the glide or decay on the MINIMOOG (or both with 2 bootswitches)on or off at the tap of your foot. On MICROMOOG it lets you turn modulation on or off.

1130 Percussion Controller
(Usable with Micromoog, Minimoog, Modular systems)
Everybody talks about having a "new beat". But, Moog's Percussion Controller is no idle talk. It's a "touch sensitive" drum that can control the pitch of the synthesizer, the filter, or both simultaneously. When you hit it harder the pitch rises and/or the filter opens. You can control the "sensitivity" of the drum (how hard you have to hit it to get a response) and the "scale" (how much it responds when you hit it). Now the drummer can play chords, wah wah, repeating patterns and so much more, he can't even be called a "drummer" anymore.

1120 Foot Pedal Controller
(Usable with Micromoog, Minimoog, Polymoog, Modular Systems)
Like the 1121 Footswitch, the 1120 Foot Pedal Controller gives the musician a third hand – or rather a foot. It's a variable control that lets you control the pitch bend, cutoff frequency (for wah wah or tone color) or loudness (for "expression") with your foot. The Foot Pedal Controller can even operate two or more synthesizer functions simultaneously.

Flight Cases
To protect your Moog Synthesizer we now offer a range of flight cases for all models. These rugged cases are a must for the travelling musician.



moog®
SYNTHESIZERS

Synamp

Ask a recording engineer — violins require one mike, while guitars require another. Ask a sound reinforcement technician — one speaker suits the bass while another suits the horns. Even amps have to vary as instruments vary. That's why even the thought of creating the SynAmp was such a vast concept — because the synthesizer is such a vast instrument with so many sounds. The SynAmp was created to sound superb with every sound the synthesizer makes. And it was developed with expert help of the people who advanced the synthesizer ever since its beginnings — Moog. Synthesizers have proven to be truly outstanding instruments. And now, thanks to the SynAmp, they'll sound more outstanding than ever.

Synamp Head
Features:

- 400 watts continuous average power output. User selectable as 2 x 200 watts Biamp or 2-200 watt full range power amplifiers.
- Four input channels (capable of taking up to eight inputs with LED overload indication).
- Three band parametric equalizer for each input channel.
- 10 Band Graphic Equalizer.
- Effects Chanel for detachable reverb section, switchable to external effects source.
- Internal headphone monitor amplifier and house sound kill button for changing, checking or adjusting input levels of synthesizer patches without turning system down. Warning light indicates house sound off.
- 60dB range peak reading meter.
- Internal four pole active crossover and equalizer for Biamp use.
- Two compressors — one for each amplifier with indicator lamps.
- Clipping indicator for each power amp.
- Comprehensive back panel for various patching operations.
- Amp and Speaker test facility.

Synamp Cabinet
Features:

- Two 15" low frequency premium grade drivers in computer assisted vented enclosure design.
- Compression driver and horn mid-range.
- Compression driver wide dispersion tweeters.
- Mid and High frequency driver protection circuitry with automatic reset.
- Speaker cover panels for protection during transit.

Studio Systems

The big modular systems from Moog are what started the synthesizer revolution. There are the three basic systems in the modular range. Systems 15, 35, and 55. As the word modular implies the systems are moade up with modules which can be changed or simply added to the basic system you buy.

The biggest system, the 55, in two cabinets comprises:—

- 6 x oscillators in two banks
- 2 x oscillator drivers
- 1 x low frequency oscillator
- 1 x fixed filter bank
- 1 x voltage controlled low pass filter
- 1 x voltage controlled high pass filter
- 5 x envelope generators
- 1 x dual trigger delay
- 1 x sequencer
- 1 x attenuator panel
- 1 x multiple panel
- 1 x random noise generator
- 5 octave keyboard

A total of 36 individual modules each with a specific function in sound generation, processing or control are contained in the System 55.
Only the finest, 100% professional quality components are used in construction of the Synthesizer to provide reliable performance and durability. Careful consideration has been given to the placement of individual modules within the system, to provide convenient and logical inter-connections. The most used control connections can be internally selected by switches to reduce external patch-chord use.
Most important, these features are the culmination of more than a decade of collaboration between Moog Music and leading musicians throughout the world — to create a system providing musical control of the vast potential of electronic sound.

Moog Studio Systems are only available to special order.

Product	Length CM	Depth CM	Height CM	Weight KG
Micro	61	38	14	9.07
Mini	72	41	14	13
Taurus	62	51	21	13
Poly Synthesizer	114	57	16	33
Poly Keyboard	114	57	16	32
Vocoder	44	39	17	9
Multimoog	81	38	14	12
Signal Processors	48	9	18	4
Syn Amp	56	57	28	45
Syn Amp Low Frequency Cabinet	73	56	135	85
Syn Amp Mid-Range Cabinet	73	51	38	27

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Norlin™

Another Quality Product from Norlin

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