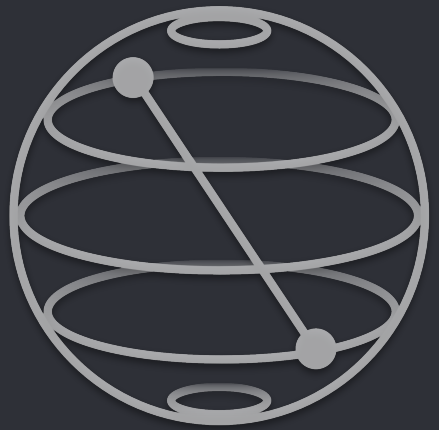


Quantum Synthesizer

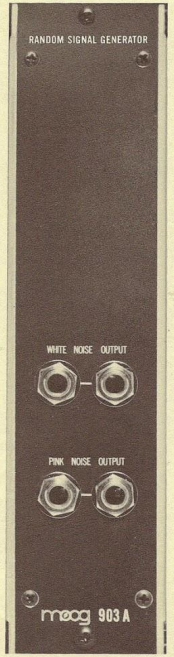
“mommy”

903A RANDOM SIGNAL GENERATOR

Musical Applications:

Random noise is commonly used to simulate natural sounds such as “surf” or wind noises. In such applications, it is usually processed by a filter, which passes only the desired portion of the frequency spectrum. If that filter has resonance capabilities, either “white” or “pink” noise can produce an apparent, but indefinite, pitched sound similar to many percussion instruments. Further processing, such as amplitude modulation or reverberation, can produce sounds similar to a steam engine or thunder, as well as a variety of new timbral effects.

In control signal applications, random noise imparts a “fuzzy” or “hazy” quality to audio signals, either by frequency or amplitude modulation. A random noise signal processed to eliminate all but the very lowest frequency components provides a control signal for the creation of slow random pitch, amplitude, or timbre changes. Further processing through a 912 Envelope Follower produces randomly timed triggers.



Control Panel Features:
Dual White Noise and Pink Noise Outputs.

Electrical Specifications:

White Noise Output:	
Nominal Output Impedance:	600 ohms
Average Output Level:	−10 dBm (30-20 kHz)
Peak-to-Peak Voltage Excursion at Output:	5 volts
Accuracy of Equal Energy Per Unit Bandwidth Distribution:	±1 dB (30-20 kHz)
Pink Noise Output:	
Nominal Output Impedance:	600 ohms
Average Output Level:	−4 dBm
Peak-to-Peak Voltage Excursion at Output:	5 volts
Accuracy of Equal Energy Per Octave Bandwidth Distribution:	±1 dB (25-20 kHz)

General Specifications:

Panel Size:	8¾″ high x 2⅛″ wide
Depth Behind Panel:	6¼″ (not counting connectors)
Rear Connector:	Printed circuit card fingers 3.359″ wide. Mates with 22 pin connector (0.156″ centers)

Pin Number	Function:
1	+12 volts ±0.1% (30 ma)
2	Power Supply Ground
3	−6 volts ±0.1% (30 ma)
19	White Noise Output
20	Ground for Shielding White Noise Lead
21	Pink Noise Output
22	Ground for Shielding Pink Noise Lead

moog SYNTHESIZERS
Another Quality Product from Norlin
7373 No. Cicero Avenue, Lincolnwood Illinois 60646
Norlin
850428RD ©1976
PRINTED IN U.S.A.

Idea

Subtractive Synth

- Filtering white noise with band pass filter
- Each filter amplitude defined by states probability

Additive Synth

- Wavetable where each value is defined by the states probability

Circuits

BellStateGenerationTwoQubits

ChooseEqualSuperposition

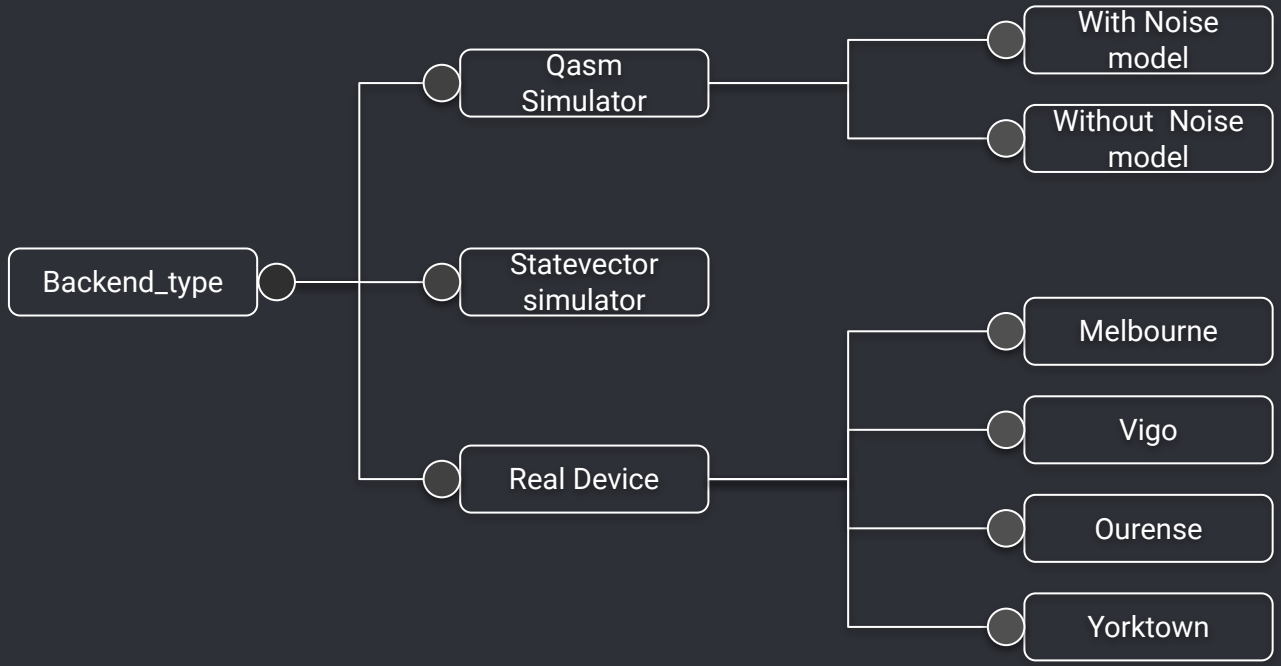
Hadamard

Square wave

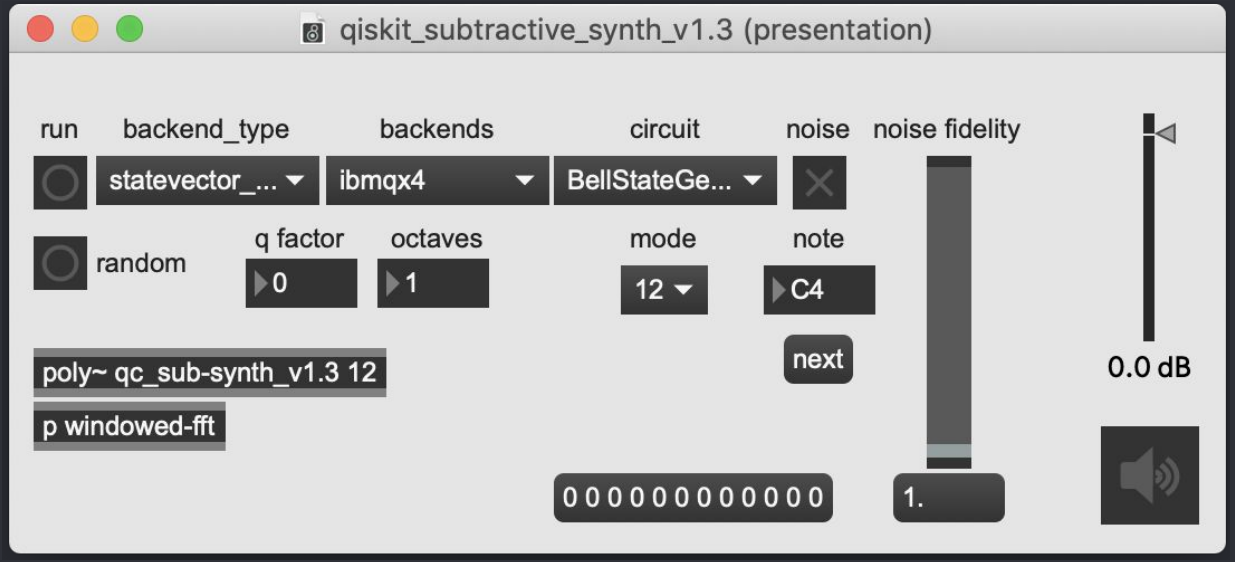
Grover's note search

- Starting from all notes playing, we gradually converge to the desired note in 4 steps
- Teaching purpose

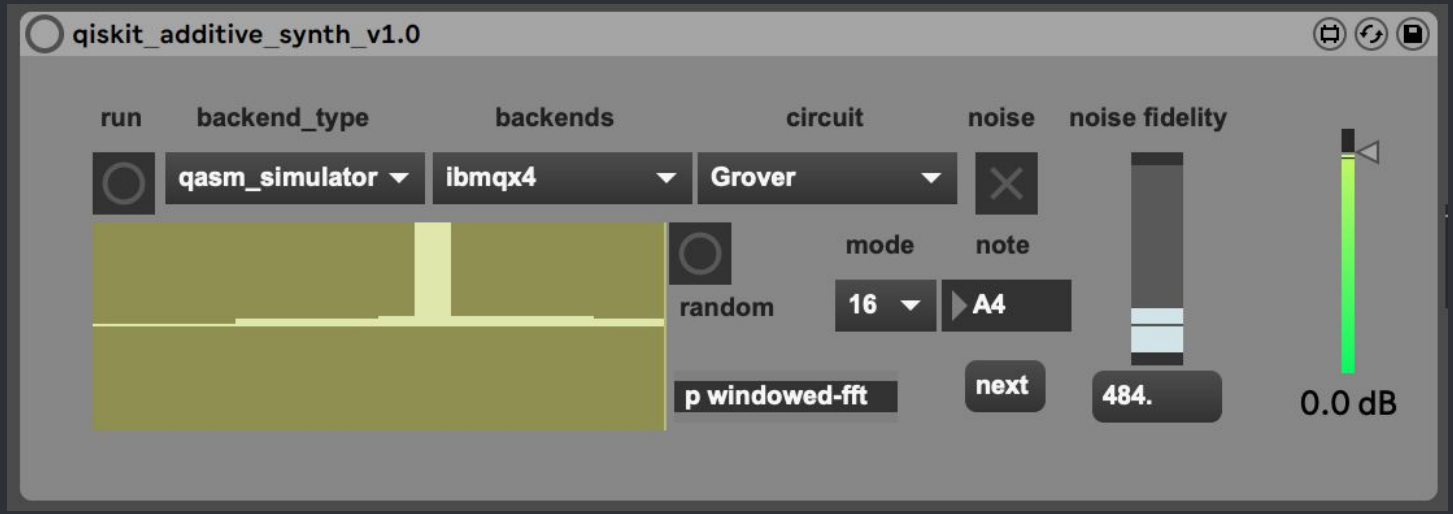
Backend usage



Subtractive Synth



Additive Synth - Demo



Thank you!