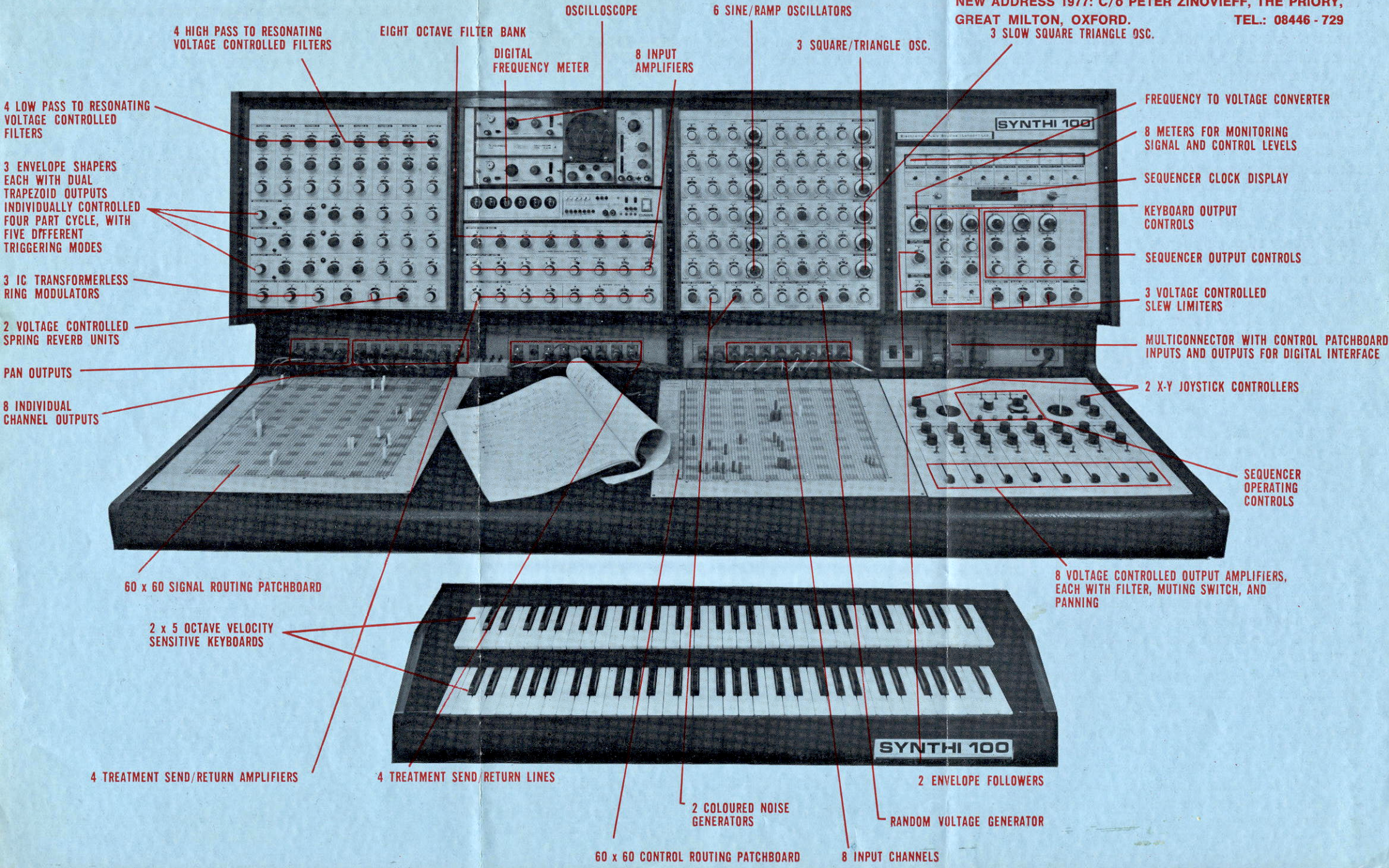


SYNTHI 100

EMS

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NEW ADDRESS 1977: C/o PETER ZINOVIEFF, THE PRIORY,
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4 HIGH PASS TO RESONATING VOLTAGE CONTROLLED FILTERS

EIGHT OCTAVE FILTER BANK

OSCILLOSCOPE

6 SINE/RAMP OSCILLATORS

DIGITAL FREQUENCY METER

8 INPUT AMPLIFIERS

3 SQUARE/TRIANGLE OSC.

4 LOW PASS TO RESONATING VOLTAGE CONTROLLED FILTERS

3 ENVELOPE SHAPERS EACH WITH DUAL TRAPEZOID OUTPUTS INDIVIDUALLY CONTROLLED FOUR PART CYCLE, WITH FIVE DIFFERENT TRIGGERING MODES

3 IC TRANSFORMERLESS RING MODULATORS

2 VOLTAGE CONTROLLED SPRING REVERB UNITS

PAN OUTPUTS

8 INDIVIDUAL CHANNEL OUTPUTS

FREQUENCY TO VOLTAGE CONVERTER

8 METERS FOR MONITORING SIGNAL AND CONTROL LEVELS

SEQUENCER CLOCK DISPLAY

KEYBOARD OUTPUT CONTROLS

SEQUENCER OUTPUT CONTROLS

3 VOLTAGE CONTROLLED SLEW LIMITERS

MULTICONNECTOR WITH CONTROL PATCHBOARD INPUTS AND OUTPUTS FOR DIGITAL INTERFACE

2 X-Y JOYSTICK CONTROLLERS

SEQUENCER OPERATING CONTROLS

60 x 60 SIGNAL ROUTING PATCHBOARD

2 x 5 OCTAVE VELOCITY SENSITIVE KEYBOARDS

8 VOLTAGE CONTROLLED OUTPUT AMPLIFIERS, EACH WITH FILTER, MUTING SWITCH, AND PANNING

4 TREATMENT SEND/RETURN AMPLIFIERS

4 TREATMENT SEND/RETURN LINES

2 COLOURED NOISE GENERATORS

2 ENVELOPE FOLLOWERS

RANDOM VOLTAGE GENERATOR

60 x 60 CONTROL ROUTING PATCHBOARD

8 INPUT CHANNELS

SYNTHI 100

The SYNTHI 100 is the most formidable electronic music system ever devised. It has as its heart a digital sequencer, which is in fact a small special purpose computer, complete with analog-to-digital and digital-to-analog converters. This device enables the operator to load, in his own time, up to six independent tracks of control voltage data, plus attack and switching pulses, then hear it played back, forwards or in reverse, at any speed. All events can be individually examined by stopping the clock, and edited or erased. This sequencer is years ahead of its time.

The SYNTHI 100 is easy to set up (two pin matrixes, each 60 x 60 way), and the large amount of varied hardware at the disposal of the user means that in the assembly of complex sounds compromises are unnecessary. There are features like output level controls on all signal producing devices to facilitate accurate balancing, and phase locking on all oscillators for additive as well as subtractive 'filter synthesis'. A frequency-to-voltage converter and envelope followers provide control voltages from signals, slew limiters will integrate stepped voltages, and nine filters, eight of them voltage controlled, make possible amazingly subtle timbre manipulation.

The SYNTHI 100 is designed to match your other studio equipment, using eight voltage controlled line output channels, eight line input channels, as well as four send and return lines for treatments outside the synthesiser. This astounding machine can also be operated entirely automatically by a computer. The system, known as the COMPUTER SYNTHI, can store, process and deliver all the control voltage information which manipulates the various devices. At its simplest it is a vast multilayer, highly intelligent sequencer. This opens up the

whole field of sound synthesis to new levels of precision control. A further extension is to make the SYNTHI VOCODER an integral part of the system.

The SYNTHI 100 is already used by many COMPUTER SYNTHI and SYNTHI electronic music studios, universities and radio stations. A list of users is available separately, together with details of the VOCODER.

ABRIDGED SPECIFICATION

NB: All devices have output level controls, but to save space this is not mentioned in the following descriptions of each item.

TWELVE OSCILLATORS:

Six Sine and Ramp Audio Generators
Frequency Range: 1Hz-10KHz (manual — greater when v-controlled).
Voltage Control: 0.5V/Octave.
Sine shaper for even harmonic control.
Synchronising input.

Three Square and Triangular Audio Generators

As above but shaping on both outputs, giving square — rectangular — pulse, and rising ramp — triangle — falling ramp Synchronising input.

Three Low Frequency Square and Triangular Generators

Frequency Range: 0.025Hz (40"/cycle) — 500Hz (greater with vc).
Voltage Control: 0.5V/Octave.
Shape Variation: as above.
Synchronising input.

TWO NOISE GENERATORS:

Built in filter giving dark through white to light.

DUAL OUTPUT RANDOM VOLTAGE GENERATOR:

Distribution of Chances: Rectangular.
Amplitude Variance: $2x \pm 0.2.5V$ max (5V excursion).
Mean Time between Selections: 10mS to 10S.
Time Variance: Equal periods to 100:1 variance.

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THREE ENVELOPE SHAPERS WITH DUAL TRAPEZOID OUTPUTS:

Four section trapezoid cycle: Delay, Attack, On, Decay
V-Controllable time (each section): 2mS-20S.
Five Triggering Modes: Signal Threshold, Hold On, Single Shot, Free Run, Gated Free Run.
Voltage Outputs: As well as modulating an audio signal, each shaper can produce two different control voltages.

FOUR LOW PASS TO RESONATING FILTERS:

Frequency Range: 5Hz-20KHz.
Voltage Control: 0.5V/Octave.
Maximum Q: 20.
Cut-off Rate: 12dB/Octave for first octave, then 18dB/8ve.

FOUR HIGH PASS TO RESONATING FILTERS:

As foregoing but complementary characteristic.

OCTAVE FILTER BANK:

Eight fixed narrow bandpass filters one octave apart between 62.5Hz and 8 KHz, with separate amplitude controls.

TWO SPRING REVERBERATION UNITS:

Reverberation-to-direct ratio is voltage controllable.

THREE SLEW LIMITERS:

Voltage Controllable Slew Rate: 1mS - 10S.

THREE IC TRANSFORMERLESS RING MODULATORS:

Input Rejection: 60dB.

ONE 256 EVENT, 6 SIMULTANEOUS PARAMETER DIGITAL SEQUENCER:

Storage Capacity: 10,750 bits.
For details see separate **SEQUENCER 256** leaflet.

EIGHT VOLTAGE CONTROLLED OUTPUT AMPLIFIERS:

Each with slide fader, output panning, variable first order low to high pass filter, output disconnect switch, and meter switchable to read AC or DC level.
Voltage Control: 0.5V/Octave.

TWO X-Y JOYSTICK CONTROLLERS:

Two manually controlled outputs from each stick.
Range of each output: $\pm 2VDC$.

TWO FIVE-OCTAVE PITCH AND DYNAMICALLY-PROPORTIONAL KEYBOARDS:

Each keyboard delivers three outputs, pitch, dynamic and envelope trigger.
Pitch Voltage: 0.5V/Octave (need not, of course, control pitch).
Dynamic Voltage: $\pm 1.5V$ depending on key velocity.

TWO 60 x 60 PIN MATRIX PATCHBOARDS:

One for Signals, one for Controls, with interconnections for dual purpose functions. 7,200 pin locations in all.

EIGHT AC/DC INPUT AMPLIFIERS:

Maximum Line Input: 1.8VAC (rms) or $\pm 2.5VDC$.

FREQUENCY-TO-VOLTAGE CONVERTER

Pitch Voltage: 1V/Octave.

TWO ENVELOPE FOLLOWERS:

Amplitude Voltage: 1VAC (rms) /6dB.

DOUBLE BEAM OSCILLOSCOPE: DIGITAL FREQUENCY METER/TIMER/COUNTER:

High quality specifications from other manufacturers. Latest models fitted.

FOUR EXTERNAL TREATMENT SEND AND RETURN LINES:

For interfacing with other studio equipment.

MULTIWAY PLUG FOR EXTERNAL CONNECTION OF CONTROLS

All control patch connections are available at these sockets, making possible e.g. connection to a computer. All line connections are to Cannon sockets.

DIMENSIONS:

Main Carcass: 79" (2m) wide by 37½" (950mm) deep by 33" (837mm) high.
Height from ground on special stand — 30" (760mm).

OPTIONS:

Digital Voltmeter, Sequencer free store display.