

# The Orban 245E Stereo Synthesizer

Convincing pseudo-stereo  
from mono sources



# Performance Highlights

- Creates a convincing pseudo-stereo effect from any mono source
- Total mono/stereo compatibility for FM broadcast applications
- Patented design offers seductive space and depth enhancement
- Saves tracks in multi-track recording situations
- Allows for stereo cart transfers with no phasing problems
- Creates special effects by continually varying controls
- Simple and easy-to-use

## Description

The Orban Model 245E Stereo Synthesizer has been designed to take any mono signal and create lifelike pseudo-stereo. Unlike many other techniques, the patented Orban stereo synthesis technique causes no change in spectral balance, does not blur the transient definition, and adds not the slightest audible noise or distortion to the mono original. The stereo output sums back to the original mono for total mono/stereo compatibility. And the simple controls adjust in seconds to create an optimum stereo effect from any mono original.

## How it works

The Orban Stereo Synthesizer creates a stereo effect by dividing the mono source signal into five frequency bands. Three of these bands are placed in one stereo output channel; the remaining two are placed in the other channel. The filters are synthesized so that the sum of the two output channels is identical to the mono input. In addition, the sum of the powers in the left and right output channels is equal to the power in the mono input signal, guaranteeing that the stereo will have the same perceived frequency balance as the mono source.

The bandcenters and bandwidths of the midrange bands are adjustable by means of two **dimension** controls, one controlling lower midrange and the other controlling upper midrange. These controls act like frequency-band panpots, and are used to get good left-right channel balance for a given piece of mono source material. With practice, adjustment takes no more than five or ten seconds for a given mono source.

Also provided is a **separation** control which adjusts the level of the stereo difference signal anywhere from zero to the same level as the sum signal. The control is useful for adjusting the audible separation, and also controls the vertical component on a stereo disc or the subchannel modulation (and therefore the stereo and mono loudness) in FM stereo broadcasting. All controls can be adjusted freely throughout their range without fear of losing stereo/mono compatibility.

## Recording studio applications: reissuing old mono material

The most obvious application for the Orban Stereo Synthesizer in the recording studio is the reissuing of old mono masters in pseudo-stereo. Because of mono compatibility, this can be done without offending those purists who have been turned off by some of the more bizarre and tasteless pseudo-stereo efforts of the past.

In cutting discs from mono masters, there is no need to go through an added tape

generation—the disc can be cut directly through the Stereo Synthesizer. A second Stereo Synthesizer for the preview channel is ordinarily called for, but the lowered cost of the Model 245E makes this economically practical.

## Dimensionally spreading single tracks in multi-track mixdowns

No matter how many tracks are available on a multi-track recorder, there never seem to be enough. And the first thing to be sacrificed is usually stereo recording of material like drums, strings and horns. All is not lost—mono tracks can be spread in space in the mixdown through the use of the Stereo Synthesizer. Electric or electronic instruments like synthesizer, guitar and organ can be given a sense of space and depth. And the mono input of an echo chamber or artificial reverb generator can be spread in a lifelike way.

## Phasing and filtering effects

By taking only one input of the Stereo Synthesizer, and constantly varying the dimension controls, a "phasing" or "flanging" effect is obtained. A single output can also be used for other special filter effects.

## FM broadcast applications: reducing stereo cart phase cancellation

Ever since the advent of the stereo tape cartridge machine, FM stereo broadcasters have been plagued with mono signal degradation due to phase shifts between the two stereo channels. The Orban Stereo Synthesizer can greatly alleviate this problem.

The phase cancellation problem arises because there are usually several frequencies in the high-frequency audio band where the left and right outputs from the stereo cart machine are 180° (or odd multiples thereof) out of phase. At these frequencies, material having equal level on the left and right channels will totally cancel, and at frequencies close to the 180° frequencies, the mono sum will be greatly attenuated.

Because of its filters, the Stereo Synthesizer places most frequencies on the left and right channels with unequal levels. Therefore, even at frequencies where the cart machine is 180° out of phase, cancellation is greatly reduced and the mono sound is notably improved.

The 245E can either be used at the output of a mono cart machine to create a pseudo-stereo effect, or it can be used when transferring material to a stereo cart to reduce phase cancellation due to cart phase problems. In either case, the result is a convincing pseudo-stereo effect with no mono signal degradation.

## Stereolizing old mono material, announce mikes, etc.

The Stereo Synthesizer is an ideal way to create a "total stereo" format that includes old LP's, "golden oldies" 45's, and commercials. This material can be recorded on automation tapes without danger of mono phase cancellation. And DJ announcements, live or recorded, can be processed, eliminating the gross inconvenience of stereo-miking the announcer.

## Installation

The 245E Stereo Synthesizer mounts in a standard 19" rack and requires 1¾" of space. Input and outputs are unbalanced and appear on barrier strips on the rear apron of the chassis. A 115/230 volt 50-60 Hz power transformer is standard. Up to 9 dB of gain is available, and internal noise levels are so low that the 245E can be operated in either line-level or medium level circuits without modification.

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Orban Associates Inc.  
645 Bryant Street  
San Francisco, CA 94107  
(415) 957-1067

## SPECIFICATIONS:

**Frequency response of the stereo sum signal (re mono input):** ± 1 dB, 20-20,000 Hz.

**Frequency response of the sum of the stereo powers (re mono input power):** ± 1 dB, 20-20,000 Hz.

**Total Harmonic Distortion, +19 dBm, 20-20,000 Hz:** 0.3% max; less than 0.1% typical.

**Noise (unweighted, 30-18,000 Hz):** -78 dBm max; -80 dBm typical

**Available gain:** 9 dB

**Input:** 25,000 ohms unbalanced bridging.

**Output:** 1 ohm unbalanced. Will drive +21 dBm typical (+19 dBm minimum, 20-20,000 Hz) into 500 ohms or higher load impedance. Short-circuit protected

**Input/Output Connector:** 140-Y barrier strip

**Power Requirements:** 115-230 volt 50-60 Hz AC, ± 10%, 2 watts. Supplied with "U-ground" 3-conductor plug to United States standards.

**Mounting:** requires 1¾" of vertical space in a standard 19" rack

**Shipping weight:** 7 pounds

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## ORDERING GUIDE & SUGGESTED LIST PRICES

Professional Audio  
Products

Revision 15; Effective 1 February 1986  
Changes: Add 275A, 275A/RC  
No price changes  
Change Security Cover from "GY" to "WH"

<u>Model</u>	<u>Description</u>	<u>Suggested List</u>
111B/1	Spring Reverberation (2 channels)	\$899.00
245F	Stereo Synthesizer	\$399.00
275A	Automatic Stereo Synthesizer	\$1,895.00
275A/RC	Remote Control for 275A	\$295.00
412A	Compressor/Limiter (1 channel)	\$425.00
414A	Compressor/Limiter (2 channels)	\$799.00
418A	Stereo Compressor/Limiter	\$899.00
422A	Gated Compressor/Limiter/De-Esser (1 channel)	\$629.00
424A	Gated Compressor/Limiter/De-Esser (2 channels)	\$989.00
536A	Dynamic Sibilance Controller (2 channels)	\$539.00
622A	Parametric Equalizer (1 channel)	\$569.00
622B	Parametric Equalizer (2 channels)	\$879.00
672A	Mono Graphic Parametric Equalizer	\$689.00
674A	Stereo Graphic Parametric Equalizer	\$1,299.00

Prices are domestic U.S. only; F.O.B. San Francisco. Prices based on Buyer's acceptance of Orban Standard Terms & Conditions of Sale are subject to change without notice. All units are supplied for 115V, 50/60 Hz operation unless otherwise specified.

See reverse side for accessories.

PROFESSIONAL AUDIO PRODUCTS ACCESSORIES

ACRYLIC SECURITY COVERS

All security covers are 19" wide. Add suffix in place of xx to specify color. Screws supplied. Fits most EIA-standard panels. 1 1/4" maximum protrusion.

CL Clear  
BL Blue transparent  
WH Opaque White

Suggested List

ACC-11xx	1 3/4" panel (1 rack space)	\$43.00
ACC-12xx	3" panel (2 rack spaces)	\$45.00
ACC-13xx	5 1/4" panel (3 rack spaces)	\$47.00
ACC-14xx	7" panel (4 rack spaces)	\$49.00

ACCESSORIES FOR 622A/622B

RET-05 Balanced output transformer. Order one per output. \$16.00

ACCESSORIES FOR 672A

RET-06 Balanced output transformer. Order one per output. \$16.00  
RET-21 XLR connectors for input and both outputs. \$18.00

ACCESSORIES FOR 674A

ACC-03 Plexiglass security cover for filter section controls. \$9.00  
RET-07 Balanced output transformers (2) for main outputs. \$32.00  
RET-08 Balanced output transformers (4) for both outputs. \$64.00  
RET-10 TRS phone jacks for inputs & all outputs. \$13.00  
RET-12 XLR connectors for inputs & all outputs. \$30.00

ACCESSORIES FOR 422A/424A

RET-14 XLR connectors for input and output. (422A) \$12.00  
RET-15 XLR connectors for both inputs and both outputs. (424A) \$24.00

ACCESSORIES FOR 245F

RET-19 Balanced output transformers (2) for both outputs. \$32.00

ACCESSORIES FOR 536A

RET-22 XLR connectors for both inputs and both outputs. \$24.00  
RET-23 Balanced output transformers (2) for both outputs. \$32.00

ACCESSORIES FOR 412A/414A

RET-28A XLR connectors for input and output. (412A) \$12.00  
RET-28B XLR connectors for both inputs and both outputs. (414A) \$24.00