

**The Grand Canyon,
a concert hall, and
two reverb plates,**

**are just
a push button away.**



The 8X32 DIGITAL REVERBERATOR

The Four Master Programs

The 8X32's four basic programs are designed to simulate a variety of acoustic environments, ranging from tight, boxy sounds to a large, echoing space. Each program can be modified by the panel controls to achieve virtually unlimited effects.

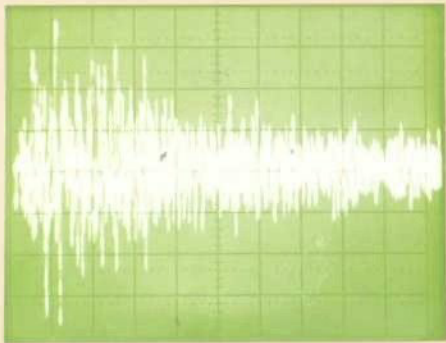


Plate I, like a high-quality plate reverberator, produces bright, highly diffuse reverberation patterns. Plate I is especially suited for drums, staccato brass sections, vocals and other instruments that call for explosive reverberation that is fully fused with the original sound. Because Plate I almost instantly diffuses short transients into dense, "fattening" reverberation, it essentially eliminates distracting early reflections, even with percussion instruments.

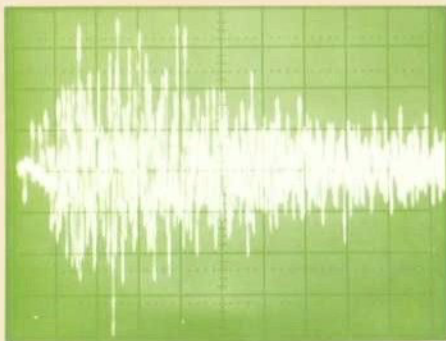
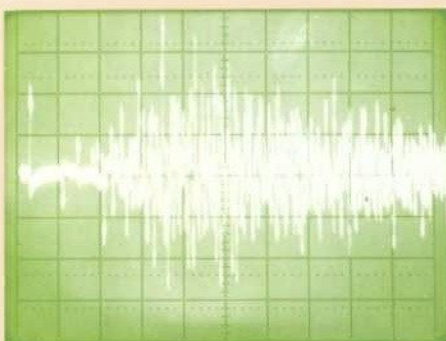


Plate II is a program that offers almost the same fast diffusion as Plate I, but with slower build-up and longer decay values. The result is a more spacious, open environment that is a good choice with fast-changing pop vocals, choruses and "busy" instruments whose rapidly changing waveforms call for fast, dense reverberation, but which still need a little breathing room for maximum clarity.



Hall is scaled and balanced to behave like a good medium-sized concert hall, which will give more leisurely vocals and slower-changing instruments a very full, spacious, open-sounding environment. Ideal for classical music and much pop material, the Hall program can also be extensively modified to simulate a variety of acoustic spaces, from warm chamber music settings and intimate club environments to large, empty auditoriums.



Space pulls out all the stops to create a surprisingly large, echoing, long-decaying acoustic environment. Space is superb with legato sounds, such as lush string sections, organs, synthesizers, or even vocals set against a shimmering background of sound. With the Space program, early reflections can be made to echo and ricochet with great clarity, and a maximum decay setting of 20 seconds lets sound linger in the air almost indefinitely.

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URSA MAJOR, I



SPECIFICATIONS:

Early reflection and initial delay times: adjustable from 0 to 96ms in 16 steps. This delay adds to inherent base delays in each program.

Early reflection and initial delay levels: 8 steps covering 18dB range.

Decay times: 15 values, ranging from 0.0 to 20.0 seconds, depending on program selection.

LF decay: four low frequency corners, from 20Hz to 200 Hz to reduce low frequency decay times.

HF decay: four high frequency corners, from 2kHz to 8kHz to reduce high frequency decay time.

Bandwidth: 8kHz; sampling rate 19.5kHz.

Dynamic range: 80dB theoretical, from peak output to 20-20kHz band-limited noise in absence of signal. Better than 70dB under condition of maximum decay time and level settings.

Size and weight: Standard rack mount width, 19 x 3.5 x 15 inches (48.3 x 9.3 x 38.1 centimeters). Approximately 15 pounds (6.8kg) fully boxed for shipment.

Environment: 10-50 degrees C operating, 0-70 degrees C storage, RH up to 95% non-condensing.

Power: 115/230VAC, 50 or 60Hz, 50 watts nominal. Detachable standard IEC 3-wire cord set. Regulated supplies retain regulation down to 95VAC for international use. Consult with factory for 100/200VAC units on special order.

Power-supply safeguards: internal fuses on each side of mains; +5V fuse and crowbar protected; all supplies current-limited.

Input: Active differential inputs, 11k ohms high pin, 21k ohms low pin. XLR-3 connector. Sensitivity at 1kHz for 0 dB LED adjustable from -5 to +20dBV with rear panel screwdriver control. Two input provided, internally summed and fed to reverberator. Pin 3 high, 2 low, & 1 ground.

Outputs: Balanced, not floating, from active differential output stage. Source impedance 51 ohms each side, pin 3 high, 2 low, & 1 ground. Maximum output +18dBV. Two outputs, left and right reverberation, XLR-3 connectors.

Computer interface: Hardware is ready for RS-232C serial link to auto-mixdown or other remote computer for control of functions. Internal 8X32 uP software will be written if demand warrants.

Internal diagnostics: Special codes access test routines for panel displays and buttons. User registers checked at power up for checksum agreement.

Non-volatile storage registers: 64 registers. Battery back-up CMOS RAM, lithium battery with nominal 5 year capacity. Special code allows setting "Recall Only" mode, preventing unauthorized tampering with stored registers.

Input Mute control: Latch on-latch off front panel control disconnects input audio source from reverberator, allowing normal decay of reverberation for special effects.

Reverb Clear control: Special momentary front panel control forces 0.2 second decay time regardless of decay time setting to clear out reverberant energy for special effects use. Also automatically invoked by internal software as a glitch mute when changing programs.

Temporary Recall control: Recall button allows A-B comparisons of panel settings and displayed register when held down for one second or more. A light tap accomplishes normal register recall and discards panel settings.

Optional remote console: 5.75 x 9 x 1.25 inches (14.6 x 22.9 x 3.2 centimeters). Standard 25 foot (7.6 meter) cable. Capacity is at least 100 feet (30.5 meters). Cable is 4 conductor, double-shield, flexible wire.

- System configurations:**
1. 8X32—basic unit with display front panel and remote console.
 2. 8x32—basic unit with blank front panel and remote console.
 3. 8X32—basic unit with display front panel, no remote console.
 4. Remote console only.

PROGRAMS: Standard unit holds four programs. Later, capacity will be expanded to eight programs, at no cost to unit owners.

Plate I (PO620A): Build-Up: Explosive—achieves high density within 30-50ms.

Decay: Quite uniform, smooth, highest density of EA-1 programs.

Coloration: Moderate—short delays result in "small", slightly colored sound.

Early Echo Density: Very high—no clicking or discrete reflections audible even with very short test impulses.

Available Decay Times: 0, .2, .4, .6, .8, 1, 1.4, 1.7, 2.1, 2.5, 3, 3.5, 4, 5, 6 (sec).

Early Reflection Delay: 23ms left, 5ms right (base delay)

Initial Reverberation Delay: 10ms (approximate base delay to cluster midpoint).

Plate II (QO620A): Build-Up: Moderately explosive—achieves high density within 50-100ms.

Decay: Quite uniform; smooth, high density.

Coloration: Moderate—less than Plate I, but greater than Hall or Space.

Early Echo Density: Low in first 50ms, increasing rapidly thereafter.

Available Decay Times: 0, .2, .6, 1, 1.4, 1.7, 2.1, 2.5, 3, 3.5, 4, 5, 6, 7, 8.

Early Reflection Delay: 31ms left, 14ms right (base delay).

Initial Reverberation Delay: 22ms (approximate base delay to cluster midpoint).

Hall (HO620A): Build-Up: Uneven, gradual, softer attack beginning after 70-100ms.

Decay: Overall uniform, but with more variation in fine structure and local echo density. Lower ultimate density than the Plates.

Coloration: Very slight.

Early Echo Density: Low in first 80ms—possible to hear clicking with sharp transients.

Available Decay Times: 0, .2, .6, 1, 1.4, 1.7, 2.1, 2.5, 3, 3.5, 4, 5, 6, 8, 10.

Early Reflection Delay: 25ms left, 10ms right (base delay).

Initial Reverberation Delay: 65ms (approximate base delay to cluster midpoint).

Space (SO620A): Build-Up: Very slow, open and uneven for first 100-150ms.

Decay: Lowest echo density of four programs—clicks with short transients. Some undulation may be audible.

Coloration: Very slight.

Early Echo Density: Low, although increased levels of Early Reflection and Initial Reverberation controls will fill the first 150 ms with un-colored discrete reflections.

Available Decay Times: 0, .2, 1, 1.7, 2.1, 2.5, 3, 4, 5, 6, 8, 10, 12, 15, 20.

Early Reflection Delay: 10ms left, 25ms right (base delay).

Initial Reverberation Delay: 125ms (approximate base delay to cluster midpoint).

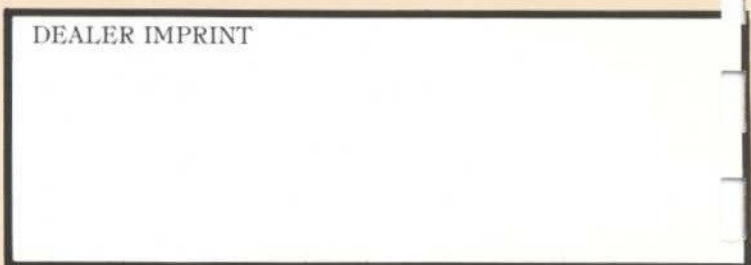
WARRANTY AND TERMS:

Limited warranty: Parts and labor are guaranteed under normal use for one year after shipment. For detailed warranty information, consult Owner's Manual.

In accordance with a policy of product improvement and development, we reserve the right to modify or change design or price without prior notice. Manufactured in the USA under U.S. patent.

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the 8X32 solves with a combination of elegant digital technology and sophisticated software. The result is a quality of sound that is virtually without coloration, high in echo density, and smooth throughout the decay period. Even when you process sounds that most reverb systems don't handle well, such as clicks, pure tones and pink noise, the 8X32 achieves superb sound qualities.

THE 8X32 PROGRAMS:

The 8X32 lets you place dry, non-reverberant sound into any of four separate acoustic environments, each carefully constructed to enhance vocal and musical values in distinct ways.

The programs that simulate these spaces include fast and slow mechanical plate effects, a medium-sized concert hall, and a large, echoing space (see "The Four Master Programs"). Each program can be fine-tuned virtually without limit. Like a set of architect's blueprints, the four programs define basic spaces, then allow you to fill in and move the walls at will. You can modify the absorptive and reflective characteristics of these spaces, introduce realistic stereophonic qualities, and even make your sound

sources appear to move from point to point within each space.

THE 8X32 CONTROLS: With the system's microprocessor-based controls, you separately adjust seven reverberation

parameters, ranging from early reflections through a 20-second "tail" of decay. And control is **always** quick and easy. The front panel is logically laid out, the LED and numerical displays continuously and simultaneously present all the current control settings.

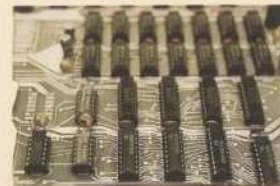
In addition, there are several special controls. Input Mute and Reverb Clear interrupt the normal reverb process in ways that are useful during live performances. And an instant recall feature lets you switch back and forth between two alternative settings to make comparisons.

THE 8X32 MEMORY: Whenever you find a combination of settings you'd like to save, the 8X32 has a convenient and spacious memory large enough to store 64 separate program modifications. And the memory holds its contents even after you turn off the power.

This memory makes set-ups almost instantaneous. Simply punch in a register number, and the controls are set

automatically. Editing is equally easy. Recall a set-up, make any changes you want, and send it back to the memory for future use.

THE 8X32 REMOTE: Especially for those occasions where nearby rack space is limited, or when you want to adjust reverb settings from an optimum listening point, the 8X32 offers an optional remote control console. This unit, small enough to be hand-held, has a full set of panel controls and displays, and can be used more than 100 feet away from the master console.



At Ursa Major, developing superior reverberation technology is our basic mission. This technology, and intimate experience with recording, broadcast and live reverb applications, makes the 8X32 a sound processing tool of exceptional versatility.

Listen to the 8X32 soon. Hear for yourself the quality of sound it produces, experiment with the controls, and compare prices. And see why the 8X32 is now the standard against which all other digital reverberators should be compared.

input
display
Peak
Reverberation
display

Four master programs:

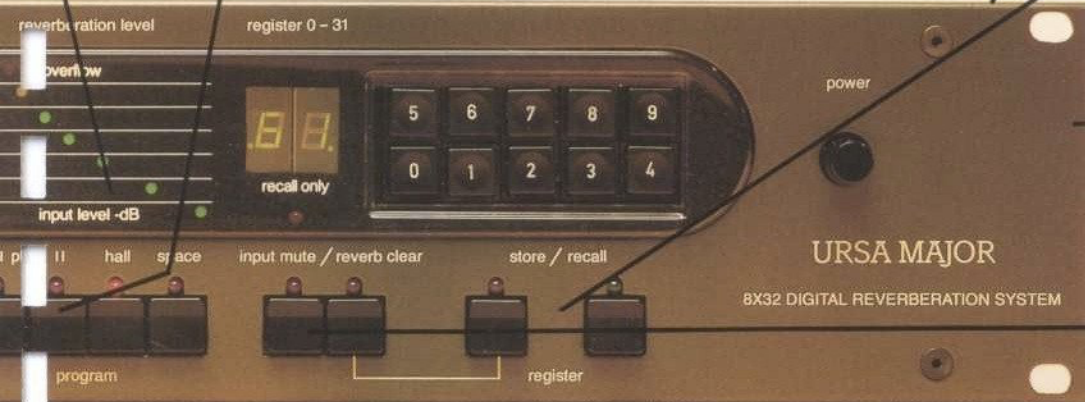
Plate I: fast-diffusing, bright; great for percussion
Plate II: softer, good for vocals, general use
Hall: warm, natural concert-hall ambience
Space: large, echoing effects; up to 20s decay

Compact,
rack-mountable
(3 1/2" x 19")

64
non-volatile
storage
registers

0.2-20s decay time

Input Mute and Reverb
Clear provide extra
control over long
decay times



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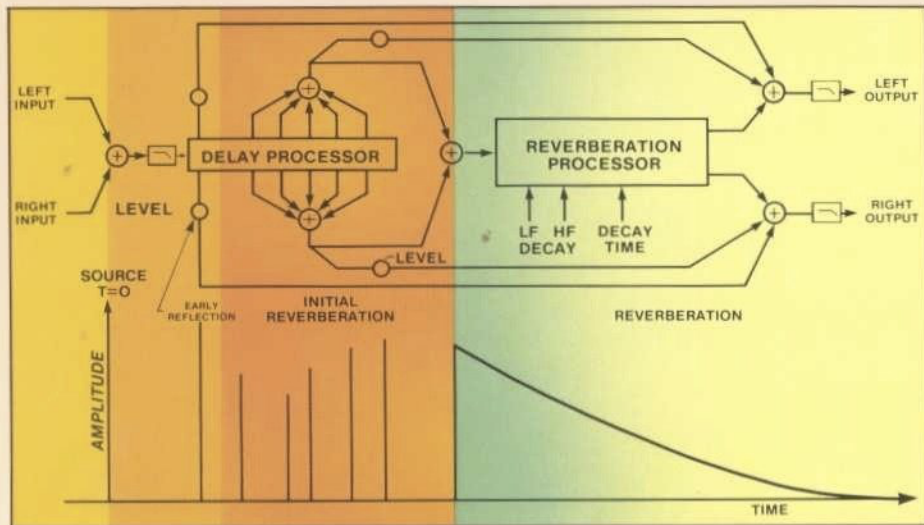
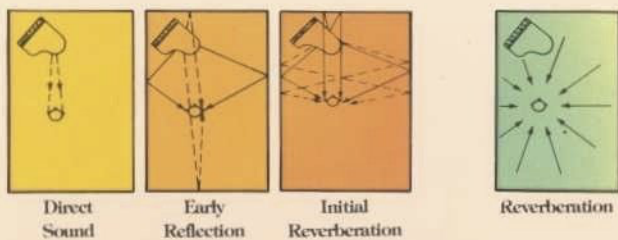
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HOW THE 8X32 WORKS



In a naturally reverberant space, direct sound impulses reflect off boundary walls and then quickly diffuse throughout the space. The 8X32 simulates this effect with three independently-controlled processing stages. When direct sound is fed into the unit, early reflections are first generated, to lend body to the sound and help define the size of the simulated space. Then a second cluster of distinct reflections emerges, producing initial reverberant effects. Finally, a dense, incoherent reverberation pattern is created, which can be modified to provide varying degrees of warmth or brightness. In actual practice, the three stages overlap, as they would in a real acoustic space.

**Optional
remote
control
unit**

