



Hand-selected FETs eliminate audible noise

48 microprocessor-controlled optical resistors assure perfect signal balance

Unprecedented mechanical and electrical isolation for exceptional signal purity

Elegant Pyxis wireless system controller augments flexibility and convenience

The most advanced construction ever realized in a line-level audio component

Our dream team of the world's best audio engineers and industrial designers has a simple mission: combine revolutionary engineering with impeccable execution to deliver sound quality no competing product can approach. Nowhere is this philosophy more evident than in the Altair line stage.

Gone are the archaic analog controls on which most high-end preamps rely. We have replaced these components with optically controlled resistors that deliver vastly superior performance and reliability. The result is musicality, detail, dynamics, and depth that are impossible to achieve using traditional components—all delivered with incomparable convenience thanks to our Pyxis wireless system controller.

The Circuit

We based the Altair on our Line Stage Gain Module, a fully balanced preamp circuit sheathed in its own machined aluminum shield. The circuit is actually two mirror-imaged amplifiers, with one amplifying the positive half of the signal and the other amplifying the negative half. Through the use of hand-selected FETs (field-effect transistors) and servo circuits, we achieve an essentially perfect balance between the positive and negative halves of the signal.

The FETs we chose for the Altair have the lowest noise we have ever encountered. These FETs are no longer made, but fortunately we acquired a substantial inventory of them before they were

discontinued.

Instead of the mechanical potentiometer found in most high-end preamps, the Altair uses optically controlled resistors that can be adjusted to an accuracy of 0.1 dB. To maintain the Altair's perfect positive/negative signal balance and left/right channel balance in all operating conditions, we use 48 of these resistors—an expensive but undeniably superior design. A thermal tracking circuit monitors the Altair's operating temperature and adjusts the settings of the resistors to compensate.

The Construction

Like a raft floating on a calm lake on a windless day, the Altair's dual-mono



circuit boards hover undisturbed on an elastomeric suspension that damps external vibrations. The top and bottom halves of the “raft” are isolated from each other by a massive panel that sandwiches a thick sheet of polymer between heavy stainless steel sheets.

The tops of the circuit boards host the Line Stage Gain Modules. The bottom halves hold the control circuits. Shields machined from solid aluminum billet protect each Line Stage Gain Module from interference, while a formed aluminum shield provides shielding for the other circuits.

The Altair's chassis cannot resonate because we machine it from a solid block of billet aluminum. The chassis' thick 8.2mm walls shield the circuitry from 50/60-Hertz interference caused by household electrical circuits.

The outcome is nothing short of dramatic: a line stage that reproduces all the musical subtleties of high-resolution sources such as vinyl and SACD, with a warmth and depth reminiscent of the best tube preamps, and dynamics that

make other line stages seem uninvolved and banal.

The Controller

The primary user interface is our Pyxis wireless system controller. The controller's rotary volume and source controls provide a traditional feel, while its full-color 432- x 230-pixel touchscreen display provides user information and feedback.

Because of the Pyxis, the Altair can provide extraordinary functionality. For each input, it remembers the volume and balance settings last used. Minimum and maximum gain may be set for each input, and inputs can be renamed. The resolution of the volume control can be set to 0.1 dB for the greatest precision, 1 dB for fastest operation, or 0.5 dB for a balance between speed and precision.

A set of buttons mounted under the front panel provides access to basic functions such as volume and source selection.

The Connections

The Altair provides four unbalanced RCA inputs on Cardas Rhodium jacks, and four XLR balanced inputs using select Neutrik connectors. Balanced and unbalanced recording outputs are also provided.

Two balanced and two unbalanced line outputs allow connection to practically

any power amplifier as well as spare outputs for biamplication or a sub-woofer. The balanced outputs form the Constellation Link, a perfectly balanced connection for use with our Hercules and Pegasus amplifiers.

The Power Supply

In order to prevent the energy of the power supply from interfering with the audio circuitry, we have isolated the supply in a separate enclosure. A trio of three-conductor PCOCC cables interfaces the two components. The cable is terminated with ultra-low-impedance Hypertronics connectors originally developed for aerospace applications.

The Altair's power supply is actually three separate supplies—one each for left channel, right channel, and control circuitry. Each supply has its own R-core transformer, making it impossible for one channel's operation to affect the other.

The Result

The Altair's revolutionary circuitry and incomparable construction quality give it a musicality no other preamplifier can match. The sonic detail is compelling, the dynamics breathtaking, the silence between notes almost haunting. Yet all of this performance is delivered with convenience that audiophiles will find surprising—and long overdue. Stating that the Altair outperforms its competitors would be inaccurate because truly, it has no competitors.

Constellation reserves the right to change designs, and / or specifications

SPECIFICATIONS

Altair Line Stage

Gain, B & UB (Balanced & Unbalanced)26 dB
THD+N, RI > 10K	< 0.001% 20 Hz – 20 kHz @ 2V out < 0.1% 20 Hz – 20 kHz @ 10V out
Frequency response+/- 0.5 dB 10 Hz – 200 kHz
Output noise	< 20 uV 20 Hz – 20 kHz bandwidth -100 dB re 2V output
Input impedance	
UB 100K
B200K
Output impedance, B & UB< 50 ohm
Weightline stage: 84 lbs/38.2kg power supply: 25 lbs/11.4 kg
Dimensionsline stage: 5.53"/140.4mm x 17.50"/444.5mm x 14.82/376.4mm (hwd) power supply: 2.82"/71.50mm x 17.50"/444.5mm x 14.50"/383.3mm (hwd)


Simply, Light Years Ahead.

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