

LINEAR ACOUSTIC® AERO.2000

Audio/Loudness Manager

Quick Start Guide (V3.19.85)



INTRODUCTION

Congratulations on your purchase of the Linear Acoustic AERO.2000.

AERO.2000 delivers the high-quality television loudness control, 2-channel to 5-channel upmixing, and flexible signal routing expected in a Linear Acoustic processor for both PCM and Dolby®-coded audio with available Nielsen® watermark encoding.

Like all other AERO-series products, it uses the industry-standard AEROMAX® and UPMAX®-II algorithms to ensure a consistent and compliant output level for main channel and SAP audio without compromising audio quality. LKFS/LUFS loudness metering and logging is provided for each program.

AERO.2000 is available with one or two AMX processing instances. Each instance can be of one of the following configurations:

- **AMX5.1 (5.1+2+2)** - 5.1-channel processing for main program audio with upmixing, 2-channel processing for SAP audio and/or a downmix of the main program audio, and a second 2-channel processor for an additional program and/or main program downmix
- **AMX2.0 (2+2+2)** – 2-channel processing for main program audio including downmixing for native 5.1-channel content, 2-channel processing for SAP audio and/or a duplicate of the main program audio, and a second 2-channel processor for an additional program

Both configurations allow local audio insertion from an outside source, typically for EAS alerts or TTS (text-to-speech) audio.

The first processing engine of any AMX instance can be optionally configured to include Dolby® Digital/Dolby Digital plus transcoding. This provides decoding of Dolby Digital/Dolby Digital Plus content to PCM for loudness processing, and encoding to Dolby Digital/Dolby Digital Plus for transmission.

Nielsen watermark encoding is optionally available for all program outputs of a given instance including N2, N6, and CBET.

I/O includes one HD/SD-SDI input and output with access to all eight audio pairs and eight pairs of AES-3 I/O.

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AERO.2000 Front Panel

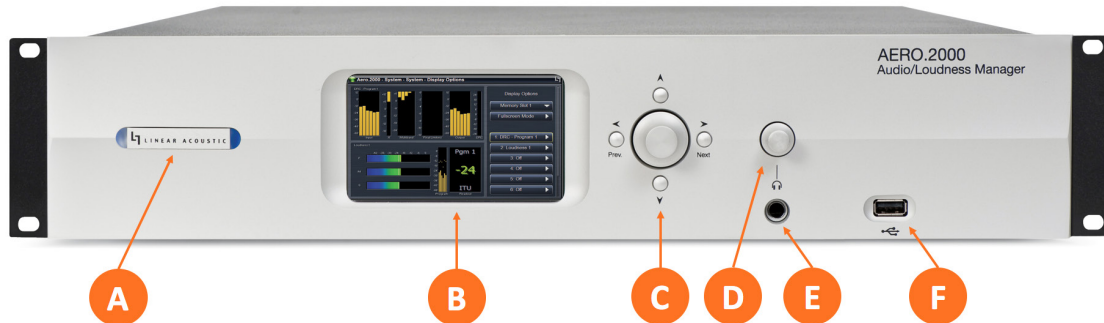


Figure 1: Front panel

AERO.2000 front panel features include:

- **Power LED (A)** behind the Linear Acoustic logo indicating the unit is receiving power from one or both power supplies
- **Customizable color front panel display (B)** showing input and output meters, processing activity, loudness meters, and other available parameters along with the various menus
- **Rotary encoder and arrow navigation cluster (C)** used for front panel setup and configuration
- **Headphone volume control (D)** and **1/4" headphone output jack (E)** for monitoring audio
- **USB port (F)** for performing software updates and downloading loudness logs if the unit is not connected to a network

AERO.2000 Rear Panel

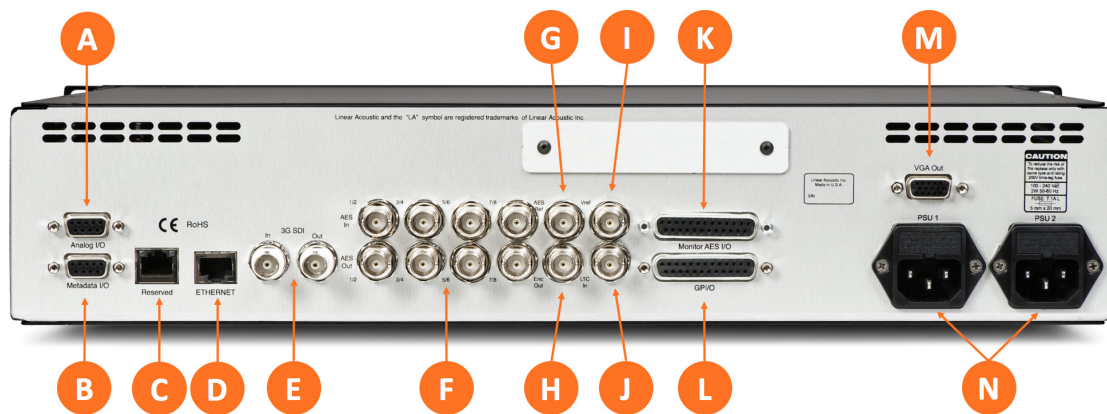


Figure 2: Rear panel

The rear panel of the AERO.2000 contains the following connections:

- **Analog I/O DB-9 connector (A)**, not currently used
- **Metadata DB-9 connector (B)**, not currently used
- **Reserved Ethernet port (C)**, not currently used
- **Ethernet port (D)** used to connect the unit to a network for remote setup, control, monitoring, and logging
- Auto-sensing **HD/SD-SDI input and output BNC connectors (E)**, providing access to all eight channels of an applied SDI signal including de-embedding and pair shuffling at the input and re-embedding and pair shuffling at the output
- **AES-3 input and output BNC connectors (F)** for up to eight input and output channels
- **AES Reference Input (G)** for providing an external AES (dark) reference
- Dedicated **Encoder output BNC (H)**
- **Vref BNC (I)**
- **LTC timecode input (J)**, not currently used
- **Monitor AES I/O DB-25 connector (K)** to access eight additional AES-3 input and output channels
- **GPI/O DB-25 connector (L)**
- **VGA Output (M)** for duplicating the front panel display on an external monitor
- **IEC power inlets (N)**

Installation

AERO.2000 is a 2RU product intended to be permanently installed in a standard 19 ½" equipment rack and secured with four standard rack screws. It is fan cooled with air intakes and exhausts located on the side of the unit just behind the front panel, but whenever possible, it is recommended to leave 1RU of empty space above and below the unit.

Power

There is no on/off switch. AERO.2000 will power up when power is applied to either power supply. To power down, simply remove power from both supplies.

Each of the supplied IEC power cords should be connected to different mains power sources. Remember that while redundant supplies do protect against the unit losing power in the event of a PSU failure, the loss of mains supply voltage is a bigger concern. Accordingly, each supply should be fed from a different circuit equipped with adequate surge protection and fitted with an uninterruptable power supply (UPS).

Front Panel Operation

The front panel of AERO.2000 includes a rotary encoder and four navigational arrow buttons which operates as follows:

- **Left Button:** "Escape"; moves one step backward in the menu structure towards the main menu
- **Right Button:** "Enter"; moves right into the selected sub-menu
- **Up Button:** Moves up through the menu tree
- **Down Button:** Moves down through the menu tree
- **Rotary Encoder:** Adjusts parameters

When AERO.2000 powers up, the front panel will be locked. To unlock the unit:

- The "Password" field is normally highlighted on powering up; if it isn't, press the *up* or *down* arrows to highlight it, then press the *right* arrow to select
- An on-screen keyboard will appear; use the rotary encoder to highlight the numeric keypad ("123"), then press the *right* arrow
- Use the rotary encoder to navigate to each character in the password and press the *right* arrow after each selection; the factory preset is **1234**
- Use the rotary encoder to highlight "OK", then press the *right* arrow to select
- Press the *down* arrow to highlight "Unlock", then press the *right* arrow to select

Once the unit is unlocked, the main screen will be displayed. By default, most of the display is devoted to various meters and a relatively small portion is reserved for the menus. For normal operation, this layout works well but for the initial setup process, making the menu section larger will make navigating the menu easier. To do so:

- Press the *up* and *down* arrows to highlight “Menu Options” at the bottom of the menu and press the *right* arrow to select
- Use the rotary encoder to maximize the size of the menu area

Once the initial setup is complete, feel free to return to “Menu Options” to minimize the menus and allot more screen space to the various displays.

Setting an IP Address

AERO.2000 ships with DHCP enabled and will automatically retrieve an IP address when connected to a network with a DHCP server. In most applications, a static IP address will be preferred.

To set a static IP address:

- Press the *left* arrow repeatedly to navigate back to the main menu
- Press the *up* and *down* arrows to highlight “System”, then press the *right* arrow to select
- Within the “System” menu, press the *up* and *down* arrows to highlight “Network Access”, then press the *right* arrow to select
- Press the *up* and *down* arrows to highlight “IP Configuration”, then press the *right* arrow to select
- Press the *up* and *down* arrows to highlight “Use DHCP”, then press the *right* arrow to de-select (no checkmark)
- Press the *up* and *down* arrows to highlight “IP”, then press the *right* arrow to select; the on-screen keyboard will appear
- Use the rotary encoder to select the numeric keyboard (“123”), then press the *right* arrow to select
- Use the rotary encoder to select each numeral and decimal point in the IP address, pressing the *right* arrow after each character is selected, just as you did when entering the password
- Once the address has been entered, use the rotary encoder to highlight “OK”, then press the *right* arrow to select
- Repeat this process for the Subnet Mask, Gateway, and DNS fields as applicable; you may also enter a “friendly” name for the unit in the “Location” field
- Once all entries are complete, press the *up* and *down* arrows to highlight “Apply”, then press the *right* arrow to select
- A warning message will appear asking if you are sure you want to make the change
- Click down through the message to highlight “Yes”, then press the *right* arrow to select
- Press the *left* arrow repeatedly to navigate back to the main menu

Connecting Inputs and Outputs

Connect inputs and outputs as required for your particular installation. AERO.2000 can access any of the eight audio pairs carried on an incoming HD- or SD-SDI stream and provide de-embedding and pair shuffling at its input. Audio can also be received using the AES-3 inputs. Detailed instructions on audio routing are provided in the full AERO.2000 user manual.

Remote Connection via NfRemote Software

The NfRemote client software allows AERO.2000 to be set up, configured, adjusted, and monitored remotely on nearly any Windows computer or tablet. AERO.2000 is designed to remain connected to your local network at all times, ready to accept an incoming remote connection.

As mentioned earlier it is possible to perform nearly all of these same functions via the front panel controls, but the larger size (with correspondingly large menus, controls, and displays), full color support, and display customization options offered by NfRemote make for a much nicer experience. Plus, the detailed instructions in the full user manual presume the use of and make reference to NfRemote.

The latest version of NfRemote as well as the full user manual are available for download from the Telos Alliance website on the AERO.2000 product page at:
<https://www.telosalliance.com/Linear/AERO2000>.

After downloading NfRemote, double-click on the application and follow the on-screen instructions for installation. Once installed, enter the IP address of the AERO.2000 and the default password of "1234". If you like, you can add a "friendly" name in the "Comment" field, a useful feature for quickly identifying multiple units.

Connect to the unit by clicking the "Connect" button. Optionally, clicking "Add" adds the unit to the quick recall list in the bottom portion of the window. Keep in mind that anyone with access to the host PC will be able to connect to the AERO.2000 if you do so.

NfRemote can be used to connect to any Telos Alliance product that utilizes the client, and an almost infinite number of connections can be stored within a single NfRemote installation.

At this point, we refer you to the full user manual for complete detailed instructions and documentation on further configuration, setup, and operation of your AERO.2000.

SPECIFICATIONS

Power

- Dual internal redundant auto-ranging power supplies, each rated at 100-264VAC, 50/60Hz, 175 Watts maximum

Dimensions and Weight

- 19" W x 17" D x 3.5" H (approximately 48,3 x 43,2 x 8,9 cm)
- Net weight: Approximately 13 lbs (5,9 kg)
- Shipping weight: Approximately 18 lbs (8,2 kg)

Environmental

- Operating: 0 to 50 degrees C
- Non-Operating: -20 to 70 degrees C

Intended Location

- Telecommunications center or dedicated computer/machine room

Regulatory

- North America – FCC and CE tested and compliant with UL-approved power supplies
- Europe – Complies with European Union Directive 2002/95/EC on the restriction of use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended by Commission Decisions 2005/618/EC, 2005/717/EC, 2005/747/EC (RoHS directive), and WEEE

Warranty

- Standard Telos Alliance 2-year limited parts and labor

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