

AS-801 / AS-161

AUDIO SELECTOR
8/16 STEREO BALANCED INPUTS TO
DUAL STEREO BALANCED OUTPUTS.

OWNERS MANUAL

Versión 19J12



AUDIO ELECTRONICS DESIGN

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PACKING LIST:

- THIS OWNERS MANUAL
- 1x AS801/161 AUDIO SELECTOR
- 20x TERMINAL BLOCK PLUGS (3.5mm)
- 1x MAINS PLUG EURO OR UK MODELS
- 4x RUBBER FEET



1. INTRODUCTION

Congratulations on your purchase of the **ALTAIR** Audio Selector AS-801/AS161. There are a lot the specifications that make of the Audio Selector devices one of the most highlighted in the A/V professional market, some are enumerated here:

- 8/16 Stereo balanced inputs. Connections by Phoenix ® type 3.5mm terminal blocks.
- One splitted Stereo balanced outputs. Connections by Phoenix ® type 3.5mm terminal blocks.
- The device is composed of two units: the process unit and the remote control unit. Both units are wired by industry standard cat-5 cable leads.
- The remote control unit incorporates 8/16 illuminated key switches among other controls. This unit can be installed on the process unit or in any place around it allowing installation flexibility.
- Audio selector is made around a 2x16/2x32 analogue switches matrix, stereo VCA, input and output signal conditioning plus level detectors for the pre-fader level monitoring.
- As a bonus, the unit incorporates Volume and Balance TRIM for every input helping to accommodate the gain between different sources. An automatic selector mode AUTO is included to reduce the operator keystrokes in many operating situations.

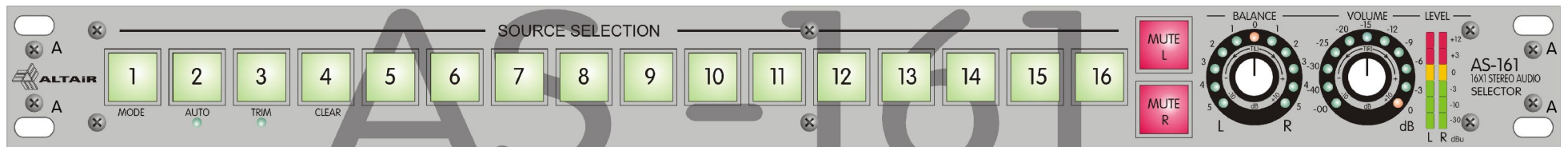
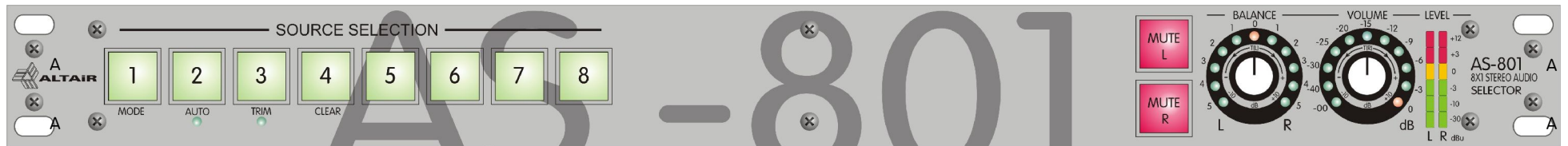
It is important to read this manual before using the selector. This manual will help you to install and use your new audio selector. For your security, it is very important to read it carefully, specially the paragraphs marked as NOTE, PRECAUTION and DANGER.

Save the original packing, you can re-use it to transport the unit. **NEVER SHIP THE ALTAIR AS-801/AS-161 WITHOUT ITS ORIGINAL PACKAGING.**



2. SWITCHES, CONTROLS, INDICATORS AND CONNECTORS

2.1 REMOTE CONTROL FRONT PANEL



Input selector switches



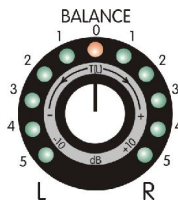
Mode AUTO led indicator



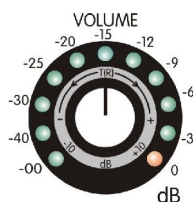
Mode TRIM led indicator



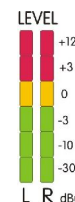
L/R Mute Switches



Output Balance encoder and position indicators

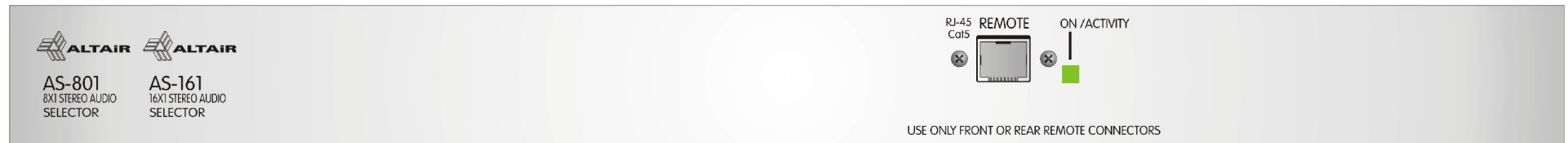


Output Volume encoder and position indicators



Input level bargraph indicator

2.2 PROCESS UNIT FRONT PANEL



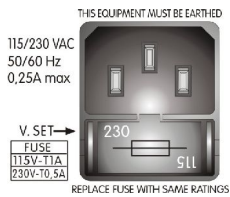
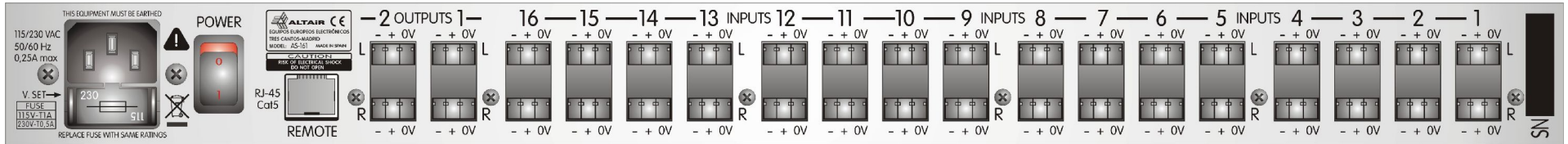
Remote to process unit front panel connector link (RJ-45).



Power-On and activity indicator



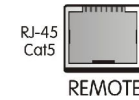
2.3 PROCESS UNIT REAR PANEL



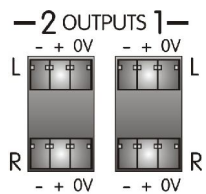
IEC mains connector, fuse holder and voltage selector,



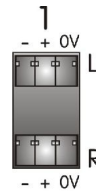
Power On switch



Remote to process unit rear panel connector link (RJ-45).



Output connectors Phoenix ® (3.5mm) (2xL, 2xR).



Input connector Phoenix ® (3.5mm) (8/16xL, 8/16xR).

3. WORKING PRECAUTIONS

The manufacturer is not responsible of any damage that can possibly happens to the Audio Selector outside the limits of the warranty or those produced by not taking care with the working precautions.

Mains voltage must be between the limits of the admitted power supply (90-130 VAC at 115V setting or 190-245VAC at 230V setting, 50-60 Hz) and the fuse must be the appropriate slow blow types: 1A (T1A for 115V setting) or 0.5A (T.5A for 230V setting). Damage caused by connection to improper AC voltage is not covered by any warranty.

DANGER: *Inside the unit there are high voltages, do not open it. The unit does not contain elements that could be repaired by the user. Whenever the Audio Selector is connected to the mains, it carries elements with high voltages. In order to disconnect the unit completely, you must disconnect it from the mains.*



CAUTION: *Protect the unit from the rain and moisture. Ensure that no objects or liquids enter it. If liquid is spilled into the unit, disconnect it from the mains and consult a qualified service technician.*



Do not place the unit close to heat sources.

4. INSTALLATION

4.1 UNPACKING

Before leaving the factory, each Audio Selector has been carefully inspected and tested. Unpack and inspect the unit for any damage that may have occurred during shipment. If any damage is found, does not connect the unit to the mains; notify the salesperson immediately; a qualified service technician should inspect the unit.

Save the original packaging, you could use if you need to transport the unit. **SHIP THE AUDIO SELECTOR WITH ITS ORIGINAL CASE OR INSTEAD USE A SIMILAR PACKAGING BOX.**

4.2 MOUNTING

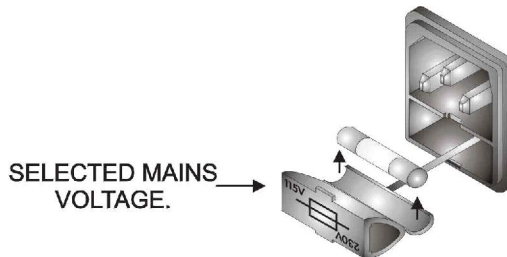
It is always recommended to mount the unit in a rack, either for mobile or fixed installations, for protection, safety, aesthetics, etc.

The ALTAIR AS-801/AS-161 are designed for standard 19" rack mounting, and takes up 1U high rack space.

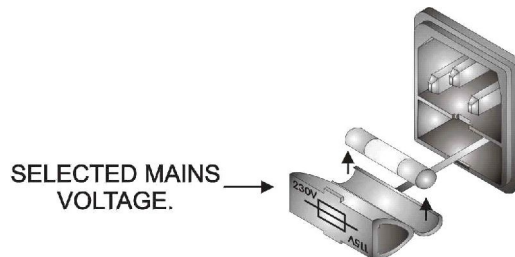
4.3 CHANGING THE OPERATING VOLTAGE AND THE FUSE

- The Audio Selector unit is set to operate at 230V, 50-60Hz and at 115V, 50-60Hz.
- Make sure that the unit is disconnected from the mains.
- In the unit rear panel is placed the mains connector, the mains selector and the fuse holder. The box bellow this mains connector is called fuse holder + mains selector. Take out the fuse holder + mains selector.
- Upon extracting the fuse holder, the fuse will appear, take out it and change for the new one
- Insert the fuse holder into the mains connector again, without spin it (make sure that the voltage to which it is going to connect the unit remains indicated in normal position, not inverted), if you only wants to change the fuse. If what you want are change the mains voltage, rotate the fuseholder until remains the mains voltage to which it is going to connect the unit in normal position, not inverted.

Audio Selector set up to 115 V.



Audio Selector set up to 230v



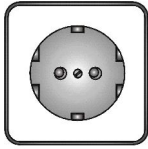
Make sure that the fuse is the right one for the selected voltage:

FUSE (230V. 50-60 Hz)	FUSE (115V. 50-60 Hz)
T0,5A.	T1A.

NOTE: The fuseholder provide a place for spare fuses.

CAUTION: Always make sure upon changing the fuse, that this is the adequate for the selected mains voltage (T1A for 115V and T0,5A for 230V).

4.4 CONNECTING TO THE MAINS



- The connection of the Audio Selector power supply to the mains takes place by a standard cord included in the box.
- Make sure that the unit power switch is at 0 position (turned off).
- Insert the female I.E.C. connector of the tripolar cable into the unit power supply male connector, placed at the rear panel.
- Insert the male connector of the tripolar cable into the mains plug.
- Turn on the unit power switch situated on the rear panel. In that moment the front panel leds will run a checking routine. Unit power on is shown by the Selector and encoder position leds.



CAUTION: Make sure that the mains voltage is the correct as well as their fuse is the adequate.

4.5 MOUNTING/REMOVING REMOTE UNIT FROM PROCESS UNIT

When shipped, the remote control unit is installed on the process unit chassis by 4x M3 screw and both units are wired with a short cat-5 lead. Remove these screws when you need to install the remote control in another site around the main unit-maximum 50 meter apart-

Keep the cat-5 lead and the screw kit to allow re-installing the remote control over the main unit.

Remote unit can be installed on a 19" rack unit, embedded onto a desk fascia or simply mounted over the console. Two M3 lateral holes facilitates mounting.

4.6 REMOTE UNIT TO PROCESS UNIT WIRING LINK

Connection of both remote and main unit is accomplished by 8 pin RJ-45 leads made of cat-5 industry standard cable. Those cable links are very common in the computer network stores. Wiring is pin to pin connection, not crossing. Maximum allowed cable length is up to 50 meter.

Connection is made from remote control rear panel RJ45 to any of the RJ45 connectors on the process control unit. You can use the front or rear depending of your convenience.

An included 50 cm lead is assembled into both units for stand alone operation.

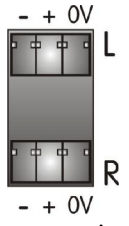
When the link is not made or fails, an activity led situated on the process unit front panel will blink helping the installer maintenance. When the link is properly made, the led is steady unless some command is made and transmitted between units.

4.7 INPUT CONNECTIONS

The Audio Selector input signals are carried out through 8 (AS-801) / (16) (AS-161) dual row Phoenix ® type Terminal Blocks. Upper rows corresponds to the (L) Left channel and lower rows corresponds to the (R) Right channel.

Signal arrangement is depicted on the next drawing. For unbalanced signals the HOT+ connection is made on the positive (+) terminal and the ground must be connected on the 0V. The negative (-) terminal on the connector side must be connected to the 0V terminal. Ground terminal 0V could be left unterminated to solve some unexpected ground loops in the input side devices. Moreover, the design of the AS series makes very unlikely the presence of such a loops.

Input impedance is 20 K ohm in balanced operation.

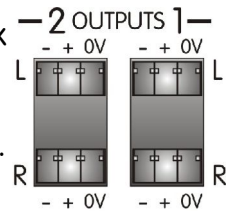


4.8 OUTPUT CONNECTIONS

The Audio Selector output signals are carried out through 2 dual row Phoenix ® type Terminal Blocks. Upper rows corresponds to the (L) Left channel and lower rows corresponds to the (R) Right channel.

Both outputs OUT 1 and OUT 2 are the same signal and are interchangeable. Each output incorporates its own electronics meaning a short-circuit in one does not induces to the other. Also one output could drive in balanced mode and the other in unbalanced mode without any interaction.

Signal arrangement is depicted on the next drawing. For driving unbalanced equipments the HOT+ connection is made on the positive (+) terminal and the ground must be connected on the 0V. The negative (-) terminal on the connector side must be connected to the 0V terminal. Output impedance is 100 Ω nominal.



5. OPERATION

The Altair AS-801/AS-161 allows for a quick stereo (L, R) signal selection form 8 (AS-801) / 16 (AS-161) stereo input signals by using 8/16 illuminated key switches.

Selected input could be individually (L, R) muted and volume/balance controlled.

The unit incorporates a Vu-meter indicator for each L and R channel showing the level of the selected input prior to the mute, volume and trim controls.

Each individual input could be trimmed (from -10 to +10 dB), so the selected input would not change the output level depending of the source player differences, cable attenuation, etc. Trim function is not necessary for operation and can be activated or not depending of the personal preferences.

An automated input channel selection is incorporated for operators convenience in some scenarios. When activated, the unit would select the input following the operator sequence of STOP/PLAY between sources, so relaxing the number of keystroke operations.

All the internal parameters (volume, balance, trim, selected modes) are stored allowing instant recall to the same status after switch-on again the unit.



5.1 UNIT SWITCH-ON

In order to avoid transients it is advised to switching on the unit prior to switch on the speaker amplifiers. Switch off process is cycled inverted. First unit to switch off is the amplifier and then the other elements. Power amps rule is: LAST TO SWITCH-ON and FIRST TO SWITCH-OFF.

5.2 INPUT SELECTOR SWITCHES

Front remote panel includes 8x (AS-801) or 16x (AS-161) illuminated pushbutton switches for input channel selection. A short keystroke select the correspondent input. The input selection channel is exclusive so only a unique input channel is to be selected, not allowing summing. The selected input channel pushbutton illuminates.

Transients in the selection are fully eliminated by using special VCA smoothing techniques. First four pushbutton switches allows for special functions detailed on next paragraphs.

5.3 AUTOMATIC CHANNEL SELECTION INDICATOR. AUTO MODE

AUTO led will show you the automatic selection mode has been activated.

When the automatic channel selection is activated the unit will select the last input channel with signal content with the condition that no one of the channels connected to the unit has signal content. It means that you have to stop the actual playing channel and then by start playing a new channel, the selector will follow it, so reducing the keystrokes needed to operate selection.

When occurring the condition that there are two or more channels with signal content, you can select manually the channel needed between them, but the unit will discard a manual selection on channels not having signal content and the unit will select the channel with a lower number between them by default.

5.4 INPUT TRIM INDICATOR. TRIM

Each input channel can be trimmed in a range of -10 to +10 dB separately for the Left and Right channels and on every input channel. The trim mode is used to correct level differences between audio sources, type of media, type of device, etc.

When this led is lighted, the unit has activated the trim mode, so you can edit the trim and use the trim corrections. When not activated, the unit does not permit editing trim values and the trim parameters does not modify nothing so the trim values are fully bypassed, set to 0dB. Values are stored on the unit for future use.

When activated, each time you depress a channel selection pushbutton the unit will show for a while, the actual trim adjustments on the encoder led indicators. The Balance encoder will show the trim value set on the L channel and the Volume the R channel. Following the indication the unit will revert to show the actual global set of the Balance and Volume settings.

5.5 OUTPUT MUTE SWITCHES.

The unit incorporates a separate Mute switch per each output channel L and R. When lighted, the channel is muted. Mute switch incorporates smooth VCA techniques to cancel out any switching transient artefacts.

5.6 OUTPUT BALANCE ADJUSTMENT

This encoder allows the Balance or relative level adjustment between Left and Right channels of the selected input channel.

The balance is carried out by one central point giving 50% L+50%R and 10 points each side. Fully right the unit cancels out the left channel and fully left the right channel.

Balance indication is followed by a circular led indicator ring. Yellow only indicator represents the midpoint position L+R and any other combination is done by green indicators. Intermediate positions are represented by two leds on at a time.

The unit maintains constant the acoustic sound pressure level SPL of the summed L and R output channels independent of the position of the Balance.

5.7 OUTPUT VOLUME ADJUSTMENT

This encoder allows the control level of the L, R Out1 and Out2 outputs. The resolution is 1 dB per step from 0dB to -59 dB and $-\infty$ dB. Last position is mute, no signal.

Volume indication is followed by a circular led indicator ring. Yellow only indicator represents the 0dB or no attenuation position (maximum level). Other positions are represented by green leds. Intermediate positions are represented by two led on at a time.

5.8 INPUT LEVEL BARGRAPH INDICATOR

The unit front panel includes an stereo bar-graph level indicator (L and R) allowing an absolute level readout of the selected input. Reading point is just taken on the input selector switches so it is pre-trim, pre-balance, pre-volume and pre-mute. Reading reference 0dBV_u = 0dB_u

6. SPECIAL OPERATIONS

6.1 OPERATING MODE SETUP. MODE KEY(1)

Input channel keys 1 to 4 allows for special operations.

Operating mode set up is accomplished by press and hold the MODE key (Input 1) during 8 seconds and then by pressing the desired mode. Entering in mode setput will blink the 1 to 4 input channel keys and the balance and volume ring indicators.

The possible options are AUTO mode (input 2 key), TRIM mode (input 3 key) and CLEAR mode (input 4 key).

The selected mode is indicated by the corresponding led.

To abandon the operating mode setup, simply press again the MODE key (input 1) or wait until 12 seconds to resume selection.

6.1.1 AUTOMATIC INPUT CHANNEL SELECTION. AUTO KEY (2)

This mode allows for an automatic input channel selection. See next paragraphs for proper operation.

Press MODE (8sg) → KEY 2

6.1.2 INPUT LEVEL TRIM. TRIM KEY (3)

This mode allows for a independent L and R trim (balance and volume calibration) of any input. See next paragraphs for proper operation.

Press Mode (8sg) → KEY 3



6.1.3 MEMORY CLEAR. CLEAR KEY (4)

This mode clears all the Audio Selector parameters and restore it to the factory default:

Selected Channel → Set to channel 1

AUTO mode → disabled

TRIM mode → disabled

Mute L and R → disabled

Balance → 0, mid point

Volume → 0 dB, maximum level

Trim all channels → 0dB (L and R)

Press Mode (8sg) → KEY 4

6.2 USING THE AUTO MODE

The AUTO mode, or automatic input channel selection, allows the reduction of keystrokes when you are working in checking and monitoring the quality of various audio sources.

In order to accomplish the operation with easy, the idea it to activate only one source by tapping the PLAY (ON) button. Later, you will de-activate that source by tapping the STOP (OFF) button and then by tapping another source PLAY (ON) the unit will follow automatically the selection of that source.

The AUTO mode operation needs a minimum level on the input sources for proper operation. The selector detects the signal presence, absence and a new presence to follow the auto selection. This cadence must be observed for a clear operation of the selector.

6.3 INPUT CHANNEL TRIM PROCEDURE

Trim operation is only possible when the TRIM mode led is active. For activation refer to 6.1 paragraphs.

Trim of an input channel is made by press and hold the desired channel selection key by 8 seconds. At this time, the selected channel and both encoder indicators will blink indicating you are to trim that input. To do so, simply made the necessary correction on the L channel by using the Balance encoder or on the R channel by using the Volume encoder. Balance trims are made by adjusting only a channel referred to the other. Volume trims are made by adjusting both encoders with the same amount of trim, positive or negative.

Each channel L or R admits a trim correction between -10 to +10 dB in 1 dB steps, so 21 positions on each encoder. Mid point on each encoder means no trim correction. Fully right position corresponds to maximum correction (+10dB) and fully left position correspond to minimum correction (-10dB). Each encoder includes an internal black colour layout ring indicating trim correspondence.

Trim parameters are shown briefly when any input is selected. The ring led indicators will show the trim values and later, it will revert to normal Balance and Volume indication.

To abandon the operating trim setup, simply press again the selected input channel key (blinking) or wait until 12 seconds to resume operation.

7. TECHNICAL SPECIFICATIONS

BOTH CHANNELS L - R	
INPUT CONNECTIONS	<ul style="list-style-type: none"> Phoenix™ 3.5" Type.
INPUT IMPEDANCE	<ul style="list-style-type: none"> 20 KΩ. electronically balanced.
INPUT LEVEL	<ul style="list-style-type: none"> 0 dBu nominal / +22 dBu maximum.
OUTPUT CONNECTIONS	<ul style="list-style-type: none"> Phoenix™ 3.5" Type.
OUTPUT IMPEDANCE	<ul style="list-style-type: none"> 100Ω. Balanced floating
OUTPUT LEVEL	<ul style="list-style-type: none"> 0 dBu nominal / +22 dBu maximum.
FREQUENCY RESPONSE	<ul style="list-style-type: none"> 25 Hz to 50 KHz (+0, -0.5 dB).
DISTORTION	<ul style="list-style-type: none"> THD+N < 0,03% @ 0 dBu (25Hz- 50KHz).
CROSSTALK L/R:	<ul style="list-style-type: none"> Better than 90 dB at 1KHz. (>75 dB from 20 Hz to 20 KHz).
SELECTED INPUT vs UNSELECTED INPUT CROSSTALK	<ul style="list-style-type: none"> Better than 90 dB at 1KHz. (>80 dB from 20 Hz to 20 KHz).
C.M.R.R.	<ul style="list-style-type: none"> Typical value: Better than 65 dB at 1KHz.
SIGNAL NOISE S/N RATIO	<ul style="list-style-type: none"> Better than 110 dB, un-weighted (U/W 20Hz-20KHz).
MUTE ATTENUATION	<ul style="list-style-type: none"> Better than 103 dB at 1KHz. 90 dB at 10KHz
GAIN	<ul style="list-style-type: none"> -6 dB volume at 0 dB, balance at 50%. 0 dB volume at 0 dB, balance at 100%.
OUTPUT LEVEL	<ul style="list-style-type: none"> Adjustable from 0 dB to -59 dB and -∞ dB.
INPUT SIGNAL THRESHOLD LEVEL FOR AUTO MODE	<ul style="list-style-type: none"> Better than 140 mV (-15 dBu). Lower signals requires manual selection
TRIM RANGE	<ul style="list-style-type: none"> -10, to +10 dB each channel, each input.
LINE POWER	<ul style="list-style-type: none"> Selectable 115/230 VAC ±12%, 50-60 Hz.
POWER COMPSUMPTION:	<ul style="list-style-type: none"> 20 V.A.
DIMENSIONS:	<ul style="list-style-type: none"> MAIN UNIT 483x44x220 mm. (19" x 1U). FRONT PANEL UNIT 483X44X35 mm. (19" x 1U).

NOTE: Specifications subject to change without notice.



8. WARRANTY

This unit is warranted by Equipos Europeos Electrónicos to the original user, against flaws in the manufacturing and in the materials, for a period of two years (one year depending on some countries), starting from the date of sale.

Flaws due to wrong use of the unit, internal modifications or accidents, are not covered by this warranty.

There is no other warranty expressed or implicit.

Any faulty unit must be sent to the dealer or the manufacturer, previous an RMA authorisation. Carry it or ship prepaid in an adequate box. The serial number of the unit must be included for any request to the technical service.

Equipos Europeos Electrónicos reserves the right to modify the prices or the technical specifications without further notice.

SERIAL NUMBER

Extract of the Declaration of Conformity (DoC)

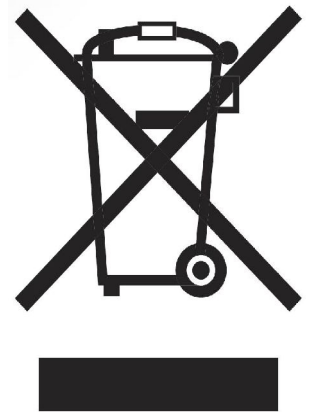
"We, Equipos Europeos Electrónicos, S.A.L., declare, that the above mentioned product is manufactured according to our Full Quality Assurance System in compliance with ANNEX V of the R&TTE-Directive 99/5/EC. The presumption of conformity with the essential requirements regarding Council Directive 99/5/EC is ensured."

The Declaration of Conformity (DoC) has been signed. In case of needing a copy of the original DoC, it can be made available via the internet direction: <http://www.altairaudio.com/DoC>

European Union Waste Electronics Information Unión Europea Información sobre residuos electrónicos

Waste from Electrical and Electronic Equipment (WEEE) directive

The WEEE logo signifies specific recycling programs and procedures for electronic products in countries of the European Union. We encourage the recycling of our products. If you have further questions about recycling, contact your local sales office.



Directiva sobre Residuos de Aparatos Eléctricos y Electrónicos (RAEE)

El logotipo de la Directiva RAEE se refiere a los programas y procedimientos específicos de reciclaje para aparatos electrónicos de países de la Unión Europea. Recomendamos el reciclaje de nuestros productos. Si tiene alguna consulta, póngase en contacto con su Distribuidor.

Information based on European Union WEEE Directive 2002/96/EC
Información basada en la Directiva de la unión europea RAEE 2002/96/EC y el Real Decreto 208/2005

AUDIO ELECTRONICS DESIGN

EQUIPOS EUROPEOS ELECTRÓNICOS, S.A.L

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