

ES-200

DUAL CHANNEL DESK STATION
E-200 SERIES INTERCOM SYSTEM

OWNERS MANUAL

AUDIO ELECTRONICS DESIGN



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1. INTRODUCTION

Congratulations for your purchase of the **ALTAIR** dual channel desk station **ES-200** of the **E-200** series intercom system. There are a lot of characteristics that make of the **ALTAIR E-200** series one of the most highlighted in the audio professional market, some are enumerated here:

- The new **ALTAIR E-200** SERIES add more features to our popular Espiral E-100 series, maintaining compatibility. All the components in the system incorporate a microcontroller to implement different tasks as Mic Killer, Remote all Buzzer switch-off, Mic Switch Latch or Push To Talk, Program Interrupt, etc.
- Remote All Mic switch-off helps the operator to maintain a lower noise conversation in noisy environments. Also implemented is the remote All Buzzers switch-off feature to avoid undesired audible CALL signalling during performances.
- The Master Station unit **ALTAIR EF-200** powers all the System components and incorporates new special features as System Expandability or Battery Operation.
- System Expandability permits creating a multichannel (4, 6, or more channels) Intercom System by using more Master Stations in a daisy chain arrangement. This feature enables freedom in the System design and in-site future upgrades. Rental companies can benefit from lower component inventories.
- Our new internal Battery operation permits short-time communications in difficult situations (= no Power) of emergency.
- The **ALTAIR EF-200** unit incorporates an internal worldwide voltage operation power supply that powers all the system. In case of a short circuit on any point of the line, the unit shuts down with automatic and instantaneous reset.

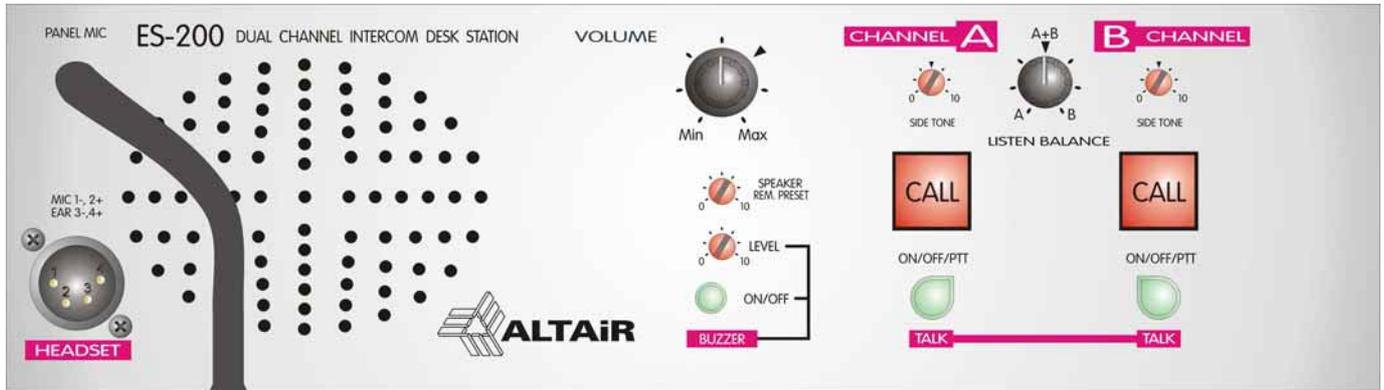
Before beginning it is important to read this manual. This manual will help you to install and use your new intercom desk station. It is very important to read it carefully, mainly the paragraphs marked as NOTE, PRECAUTION and DANGER, for your security.

Save the original packing, you can re-use it to transport the unit. **NEVER SHIP THE ALTAIR ES-200 WITHOUT ITS ORIGINAL PACKING.**

2. SWITCHES, CONTROLS, ADJUSTMENTS AND CONNECTORS

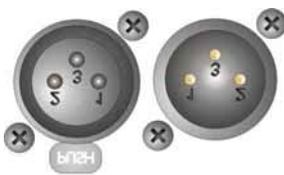
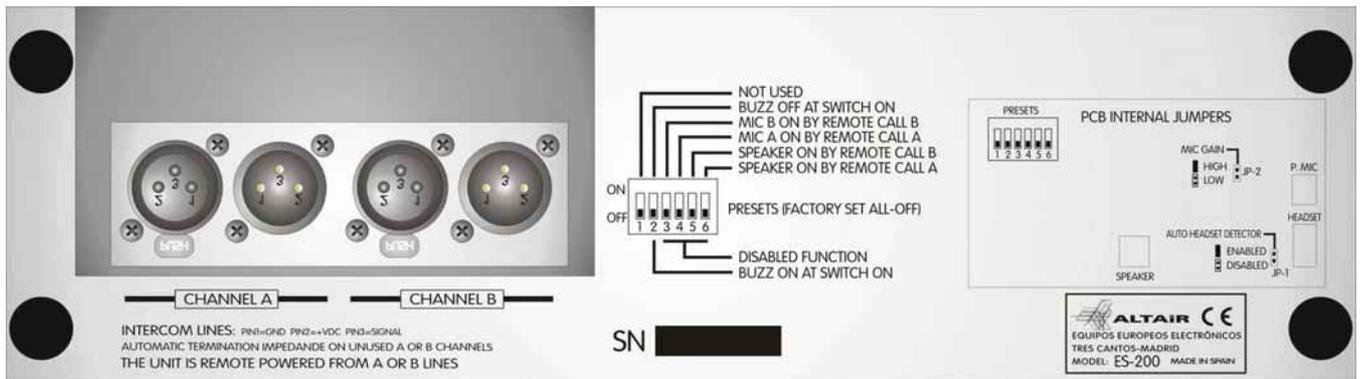
These are the switches, controls, adjustments and connectors that you can find in your ALTAIR intercom desk station. The description and explanation of each one will be found in the corresponding section.

FRONT PANEL

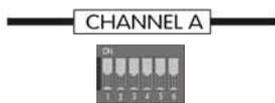


<p>HEADSET CONNECTOR.</p>	<p>HEADSET AND SPEAKER VOLUME CONTROL.</p> <p>SPEAKER REMOTE PRESET LEVEL CONTROL.</p>
<p>MICROPHONE.</p>	<p>BUZZER LEVEL CONTROL.</p> <p>BUZZER ON/OFF SWITCH.</p>
<p>SPEAKER.</p>	<p>SIDETONE CONTROL.</p> <p>LINE A AND B LISTEN BALANCE CONTROL.</p> <p>CALL SWITCH.</p> <p>MIC ON/OFF/PUSH TO TALK SWITCH.</p>

REAR PANEL



INTERCOM LINE CONNECTORS XLR-3-31 AND XLR-3-32.



SET UP DIP-SWITCH.

3. WORKING PRECAUTIONS

- The manufacturer is not responsible of any damage that can possibly happen to the intercom desk station outside the limits of the warranty or those produced by not taking care of the working precautions.
- The intercom line DC voltage must be between the limits of the admitted power supply (12-30 VDC). The damage caused by a connection to an improper line DC 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 intercom master station is connected to the intercom lines, it carries elements with high voltages. In order to disconnect the unit completely, you must disconnect it from the intercom lines.
- **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

UNPACKING

Before leaving the factory, each intercom desk station has been carefully inspected and tested. You can 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 packing, you could use if you need to transport the unit. **NEVER SHIP THE INTERCOM DESK STATION WITHOUT ITS ORIGINAL PACKING.**

MOUNTING

The desk station ALTAIR ES-200 is designed in order to could choose two inclinations in desk format desk by means of their L brackets:

- 10° inclination (factory set up):



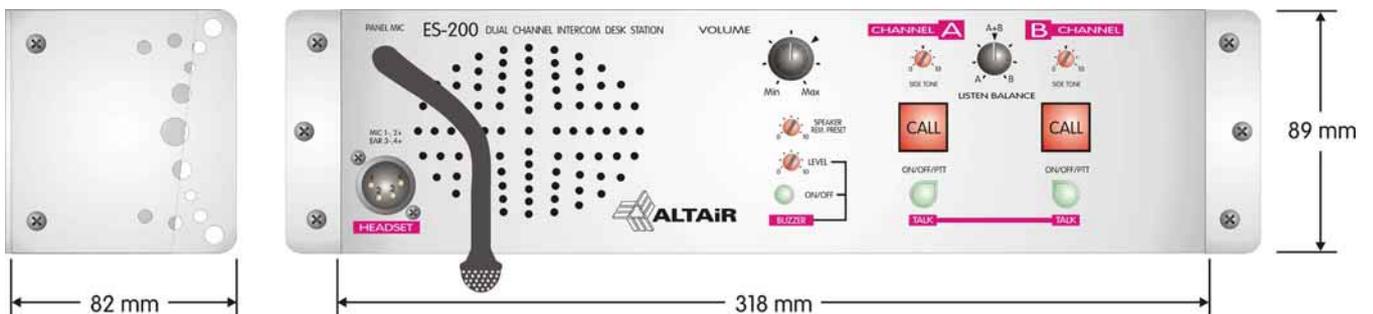
- 18° inclination:



- In the two previous configurations, the L brackets can be placed the other way around (in reverse), it means that the salient inferior remains towards outside the unit and it could screw on a table:



The same L brackets are used to embed the unit in panels or walls:



If you want to install the unit in a 19" rack (2U), the L brackets should be placed according to the following diagram:



INTERCOM LINE CONNECTION

The intercom line connection is carried through twin-lead shielded cable and XLR-3-31/XLR-3-32 connectors. Each desk station channel provides one XLR-3-31 connector and a XLR-3-32 connector wired internally in parallel mode.

The next list shows the signal distribution in the pin XLR connectors.

XLR-3-31/XLR-3-32 – INTERCOM LINE	
PIN 1	0 V
PIN 2	+VCC
PIN 3	SIGNAL

Certain rules have to be followed when installing the cables of an intercom system. This is to avoid ground loops and to minimize the power loss and the possible effect of electromagnetic fields.

- Do not connect the XLR pin 1 to the XLR metal housing or to metal wall boxes to avoid ground loops. The ground loop could increase notably the system background noise.
- Do not close the intercom line connection (avoid closed loops). Each intercom line leaves from the master station towards the remote stations, but it does not return to the master station. If the connection is closed, a ground loop with the increase from the system noise will take place.
- Use high quality cables and minimize its longitude. The DC resistance of a low quality cable or very long affects to the power consumption, the channels crosstalk and the system frequency response.
- Place the master station the closest possible to the maximum consumption zone; that is to say to the zone in which more external units are placed.

5. OPERATION

The E-200 intercom system series are designed to allow maximum easy communication operations between the different control areas in music or theatre live performances, television, cinema, conference halls, and whatever broad events where multiple and fast communications are required, with its simultaneous listening-speaking operation system.

The E-200 system desk station provides two independent intercom channels. Each channel provides a CALL switch, a MIC on/off switch (TALK), a listen balance control allows to listen to the channels independently, or a mix between the two channels.



The dual channel wall station, incorporates a non-detachable panel microphone. Remote listening function with presettable level enables priority emergency calls.

In the Intercom Monitor Station a panel mic and an internal loudspeaker makes the unit a perfect companion for the Master Station in hands free operation.

HEADSET CONNECTION

A XLR-4 type connector (XLR-4-32) allows to connect a headset and a microphone to the desk station. The headset impedance must be 200 Ω or higher (up to 2 KΩ) and the microphone must be dynamic type.

When the headset is connected, the speaker and the microphone incorporated will be disabled automatically. The desk station unit could configure so that the speaker and the microphone incorporated will not be disabled automatically when the headset is connected (in order to obtain more information consult the special operations section).

The microphone preamplifier gain can be configured with an internal jumper in +30 or +40 dB. (In the factory set-up the microphone preamplifier gain is adjusted to +40 dB). In order to obtain more information, consult the special operation section.

The next list shows the XLR pins correspondence:



HEADSET - XLR-4-32	
PIN 1	0 V (MICROPHONE)
PIN 2	SIGNAL (MICROPHONE)
PIN 3	0 V (HEADPHONES)
PIN 4	SIGNAL (HEADPHONES)

NOTE: Headphones can be with a double or single muff. In case of using a double muff headphone, the two speakers should be wired in parallel mode.

MICROPHONE

The incorporated microphone allows to talk with the intercom lines connected to the desk station.

ALTAVOZ

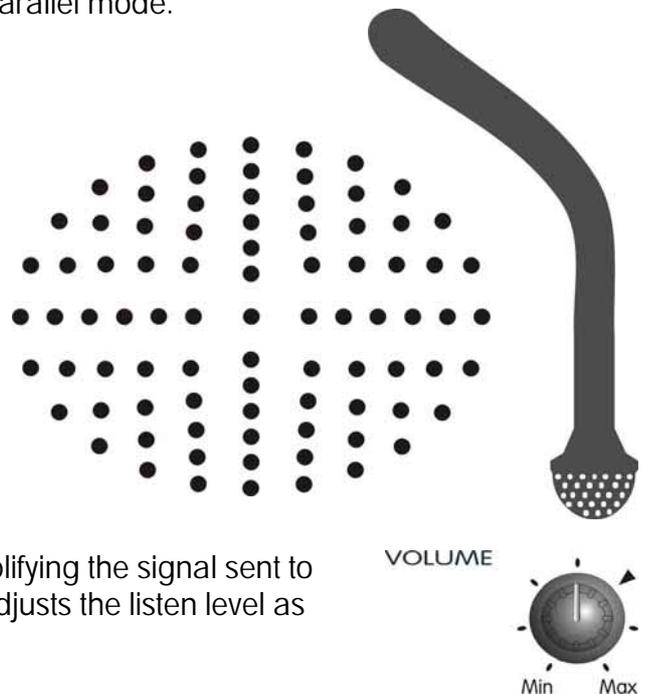
The incorporated speaker allows to listen the intercom lines connected to the desk station.

HEADSET AND SPEAKER VOLUME CONTROL

The volume control allows attenuating or amplifying the signal sent to the speaker and/or the headphones. This control adjusts the listen level as you wish.

SPEAKER REMOTE PRESET LEVEL CONTROL

The speaker remote preset level control is associated with the positions 5 and 6 of the set up DIP-SWITCH (SPEAKER ON BY REMOTE CALL B/A).





When an external call in an intercom line takes place, and the function SPEAKER ON BY REMOTE CALL of that intercom line is enabled, the speaker sound level will stop depending on the headphones and speaker volume control and it will depend after that on the speaker remote preset level control. With this function is enabled, the system has two speaker sound levels, in normal way and when an external call takes place.

BUZZER LEVEL CONTROL

This control adjust the buzzer sound level.



BUZZER ON/OFF SWITCH

This switch enables/disables the buzzer sound when the unit receives a call. When this switch is pressed, and the buzzer is enabled, it will be disabled, and the LED indicator will turn off. On the other hand, if the buzzer was disabled, it will be enabled and the LED indicator will lighten up.



The buzzer sound is different when a call from the channel A is received that when it is received from the channel B, as well as when a simultaneous call from both channels takes place.

The buzzer also sounds when any switch is pressed, emitting a short hoot, whose level is higher when it is enabled than when it is disabled.

The buzzer sound level can be configured with the associated buzzer level control.

SIDETONE CONTROL

The sidetone control adjusts the level of your own voice as you hear it in the speaker and/or the headphones. It is designed to make approximately at the potentiometer halfway travelling the maximum cancellation of your own voice (you won't hear your voice through the speaker and/or the headphones), totally to the right or to the left giving the maximum voice level, passing through all the intermediates level positions.



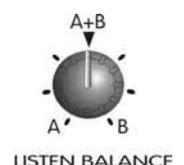
The desk station unit has two sidetone controls, one for each channel. It is necessary to adjust each sidetone control independently, disabling a channel and adjusting the other and vice versa.

The sidetone adjustment must be done when the whole intercom system is installed, since it depends on the state of the intercom line. Care must be taken when other desk station units are nearby since they can affect to acoustic feedbacks.

This adjustment is especially important in the desk station units, in order to avoid feedbacks between the speaker and the microphone. We recommend you to follow the next procedure: With the speaker and headphones level control (VOLUME) to the maximum, and the line A and B listen balance control totally to the left, adjust the channel A sidetone control until the system stops coupling. Move the line A and B listen balance control totally to the right and adjust the channel B sidetone control until the system stops coupling. Move the line A and B listen balance control to the central position and to intermediate positions in order to find another possible feedbacks. If the system continues coupling, you should alter the sidetone controls of both channels or change the position (inclination angle) of the incorporated microphone.

LINE A AND B LISTEN BALANCE CONTROL

The listen balance control between lines A and B allows to adjust the signal mix of both channels that appears in the speaker of the desk station. Totally to the left, the signal that appears in the speaker is only the channel A signal, totally to the right, the signal that appears in the speaker is only the channel B signal, centered it





appears a mix between both channels and in intermediate positions, it adjusts the level that we want to listen from each channel.

CALL SWITCH

The ES-200 desk station unit is provided with two call switches, one per intercom channel. When one of these switches is pressed a call signal is sent to the corresponding intercom channel. The call signal makes the LED associated with the switch start blinking; if the buzzer is enabled (consult buzzer on/off section for more information) an intermittent sound takes place during three seconds (the LED blinking, as well as the buzzer sound is different if the call takes place in the channel A or B), the same as in all the units (beltpacks, desk stations, master stations, etc.), connected to the same intercom channel.



If the CALL switch is pressed continuously, the duration of the call signal will be higher (the time that the switch is pressed, and approximately 3 seconds more).

If a call signal is generated in an external unit (beltpacks, desk stations, master stations, etc.), the LED associated to the CALL switch of the channel in which the call signal is received, will start blinking and if the buzzer is enabled (see buzzer on/off section for more information) an intermittent sound will take place during about three seconds.

MIC ON/OFF/PUSH TO TALK SWITCH

The ES-200 desk station unit is provided with two talk switches, one per intercom channel. The TALK switch allows to enable/disable the microphone; that way, we can speak with other units connected to the same intercom channel. If the channel A microphone isn't activated (for example), and the channel B microphone is activated, we will speak with the stations connected to the channel B, but the connected stations to the channel won't hear us.



If the microphone is activated, its associated LED will light up, and on the other hand, if it is disabled, its associated LED will turn off.

The TALK switches have two operation modes. When this switch is pressed quickly, the microphone changes its state; if it was enabled, being pressed it gets disabled and turns off the associated LED, and if it was disabled, being pressed it gets enabled and turns on the associated LED.

When the TALK switches are pressed and held, the unit will enter in the special function PUSH TO TALK; this means that the microphone will be enabled until the switch is released.

The unit provides a MIC-KILL (turns off the MIC) system, so that when the mic is enabled it is possible to muted it by the MIC-KILL function of the master station ALTAIR EF-200. This MIC-KILL system is compatible with other intercom systems of the market.

SET UP DIP-SWITCH

The set up DIP-SWITCH placed at the rear panel of the unit permits the configuration of several operation parameters of the unit:

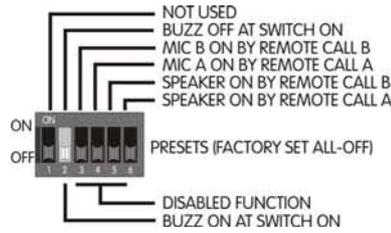


BUZZER ON/OFF AT SWITCH ON:

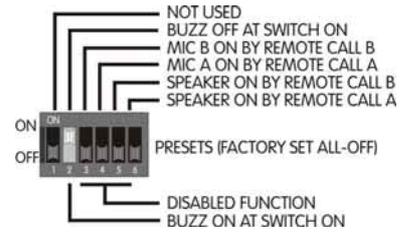
The buzzer can be configured with the position 2 of the set up DIP-SWITCH, so when the desk station unit is turned on it remains enabled or disabled. With the position 2 of the set up DIP-SWITCH in OFF, the buzzer will remain disabled when the desk station unit is turned on, and with the position 2 of the set up DIP-SWITCH in ON the buzzer will remain enabled when the desk station unit is turned on.



BUZZER ON AT SWITCH ON.



BUZZER OFF AT SWITCH ON.

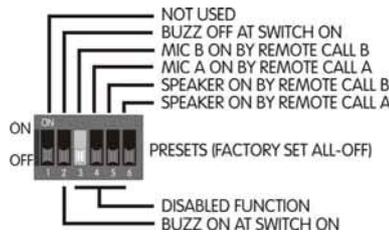


MIC ON BY REMOTE CALL:

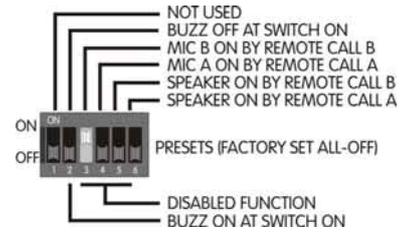
The desk station unit can be configured so that upon taking place an external call in an intercom line, the microphone corresponding to that intercom line automatically turn on. Once the call in the line has been disabled, the microphone will return to its previous configuration. This configuration is useful in order to listen what it is happening in the vicinity of the desk station unit, without having to displace.

With the positions 3 and 4 of the set up DIP-SWITCH in OFF, the microphone won't be enabled upon receiving a call in the B and A intercom lines respectively, and with the positions 3 and 4 of the set up DIP-SWITCH in ON the microphones of the B and A intercom lines will be enabled when an external call takes place.

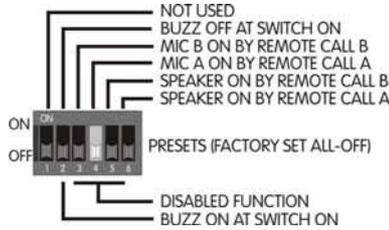
MIC B ON BY REMOTE CALL B DISABLED.



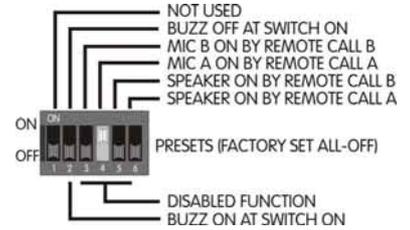
MIC B ON BY REMOTE CALL B ENABLED.



MIC A ON BY REMOTE CALL A DISABLED.



MIC A ON BY REMOTE CALL A ENABLED.

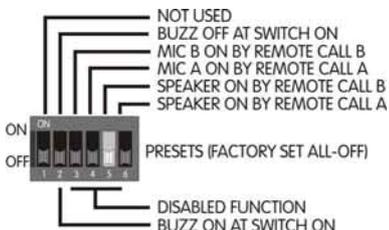


SPEAKER ON BY REMOTE CALL:

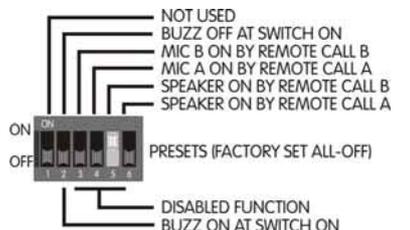
The desk station unit can be configured so that upon taking place an external call in an intercom line, the speaker sound level depends on the speaker remote preset level control, and stop depending on the speaker and headset level control. Once the call in the line has been disabled, the speaker sound level will depend on the speaker and headset level control again. This configuration is useful in order to have two speaker sound levels and to send emergency messages.

With the positions 5 and 6 of the set up DIP-SWITCH OFF, the speaker won't change the sound level while receiving a call in the B and A intercom lines respectively, and with the positions 5 and 6 of the set up DIP-SWITCH ON the speaker will change the sound level while receiving a call in the B and A intercom lines respectively.

SPEAKER ON BY REMOTE CALL B DISABLED.

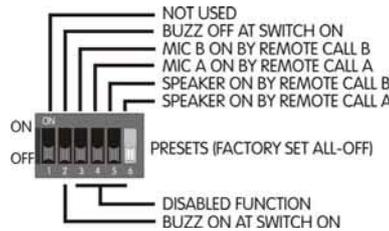


SPEAKER ON BY REMOTE CALL B ENABLED.

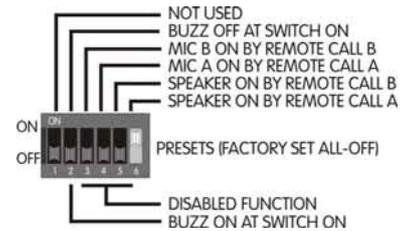




SPEAKER ON BY REMOTE CALL A DISABLED.



SPEAKER ON BY REMOTE CALL A ENABLED.



6. SPECIAL OPERATIONS

In order to set-up some of the desk station possibilities, the unit must be opened removing the four screws of the L brackets and the four screws of the unit bottom cover.

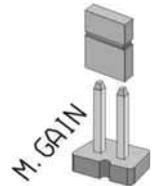
NOTE: This type of operations takes place when the unit is opened; the best thing should be to carry it out by a qualified technician.

DANGER: Before opening the unit, disconnect it from the intercom lines. It is important to indicate that although the unit is connected to the intercom lines there are different parts of the unit that are subjected to high voltage.

CAUTION: Protect the desk station from the rain and moisture, mostly if it is open. If liquid is spilled into the unit, disconnect it from the mains and consult a qualified service technician.

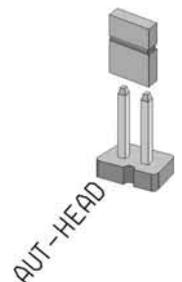
CHANGING THE MIC GAIN

The microphone preamplifier gain could configure with an internal jumper (M.GAIN) in 30 or 40 dB. With this jumper removed, the gain of the microphone preamplifier is 30 dB, and with this jumper placed the gain is 40 dB (factory set up).



HEADSET PRIORITY CONFIGURATION

With the internal jumper (AUT-HEAD) placed, when a headset is connected the speaker and the microphone incorporated will be disabled automatically (factory set up). With the internal jumper removed, when a headset is connected the speaker and the microphone incorporated won't be disabled automatically.





7. TECHNICAL SPECIFICATIONS		
SYSTEM SPECIFICATIONS	VOLTAGE OPERATION:	<ul style="list-style-type: none"> +12 to +30 VDC.
	DC CURRENT:	<ul style="list-style-type: none"> 40 mA. / 120 mA.
	DYNAMIC RANGE:	<ul style="list-style-type: none"> 80 dB.
	BRINGING IMPEDANCE @ 1KHz:	<ul style="list-style-type: none"> > 20 KΩ.
	SIDE-TONE CANCELLATION:	<ul style="list-style-type: none"> Adjustable 0-30 dB @ 1Khz
	MICROPHONE LIMITER:	<ul style="list-style-type: none"> Range: 28 dB.
	MAXIMUM CABLE LENGTH:	<ul style="list-style-type: none"> 500-2.000 mts. Depends on installation.
	RECOMMENDED WIRE TYPE:	<ul style="list-style-type: none"> Shielded mic cable: 2x0,30 mm²
	CALL SIGNAL:	<ul style="list-style-type: none"> +2,8 mA/11 VDC.
	CALL THRESHOLD:	<ul style="list-style-type: none"> 3 VDC.
PREAMPLIFIER	MICROPHONE TYPE:	<ul style="list-style-type: none"> Dynamic.
	MIC INPUT IMPEDANCE:	<ul style="list-style-type: none"> 4K7.
	NOMINAL/MAXIMUM LEVEL:	<ul style="list-style-type: none"> -45 dBu (H)/-20 dBu(L).
	LIMITER RANGE:	<ul style="list-style-type: none"> 28 dB.
	PRESENCE FILTER:	<ul style="list-style-type: none"> +6 dB @ 4700 Hz.
HEADSET AMPLIFIER	IMPEDANCE:	<ul style="list-style-type: none"> 200 Ω (nominal), 2KΩ (maximum).
	MAXIMUM LEVEL:	<ul style="list-style-type: none"> 20 Vpp (200 Ω).
	OUTPUT POWER:	<ul style="list-style-type: none"> 250 mW (200 Ω).
	FREQUENCY RESPONSE:	<ul style="list-style-type: none"> 250 Hz - 15 KHz.
	RESIDUAL NOISE:	<ul style="list-style-type: none"> -100 dBu (all mic-off).
LOUDSPEAKER AMPLIFIER	IMPEDANCE:	<ul style="list-style-type: none"> 16 Ω.
	OUTPUT POWER:	<ul style="list-style-type: none"> 1,25 W.
	LOUDSPEAKER SELECTION:	<ul style="list-style-type: none"> Automatic, headset priority.
DIMENSIONS		<ul style="list-style-type: none"> 2U X 19", 310x89x70 mm.
WEIGHT		<ul style="list-style-type: none"> 1,6 Kg. Net.

NOTE: Technical specifications are subject to variation without previous 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 one year, 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. 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

AUDIO ELECTRONICS DESIGN



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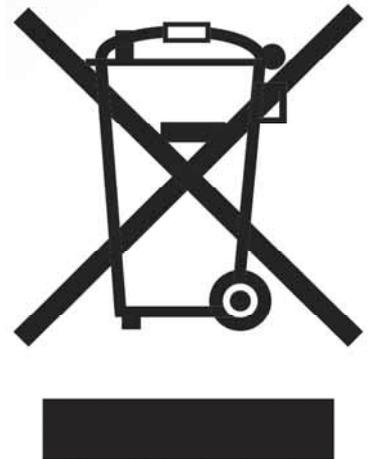
European Union Waste Electronics Information Unión Europea Información sobre residuos electrónicos

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

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