

EM-202

DUAL CHANNEL BELTPACK
E-200 SERIES INTERCOM SYSTEM

OWNERS MANUAL

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AUDIO ELECTRONICS DESIGN



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1. INTRODUCTION.....	3
2. SWITCHES, CONTROLS, ADJUSTMENTS AND CONNECTORS	4
FRONT PANEL.....	4
REAR PANEL - COMMON.....	4
REAR PANEL – EM-202-3P VERSION.....	4
REAR PANEL – EM-202-5P VERSION.....	5
3. WORKING PRECAUTIONS.....	5
4. INSTALLATION.....	5
UNPACKING.....	5
INTERCOM LINE CONNECTION.....	5
5. OPERATION.....	6
HEADSET CONNECTION.....	7
MIC ON/OFF/PUSH TO TALK SWITCH.....	7
BUZZER ON/OFF SWITCH	7
LINE A AND B LISTEN BALANCE CONTROL	8
CALL SWITCH.....	8
VOLUME CONTROL	8
AJUSTE DE MONITORIZACIÓN DE MICRÓFONO.....	8
DIP-SWITCH DE CONFIGURACIÓN	8
ACTIVACIÓN/DESACTIVACIÓN DEL BUZZER.....	8
CAMBIO DE LA GANANCIA DEL MICRÓFONO.....	9
ACTIVACIÓN/DESACTIVACIÓN DEL LIMITADOR DEL MICRÓFONO.....	9
ACTIVACIÓN/DESCTIVACIÓN DE LA ALIMENTACIÓN PHANTOM PARA EL MICRÓFONO.....	9
6. OPERACIONES ESPECIALES	9
CAMBIO DEL NIVEL DEL BUZZER.....	9
7. ESPECIFICACIONES TÉCNICAS.....	10
8. GARANTÍA.....	11



1. INTRODUCTION

Congratulations on your purchase of the ALTAIR E-200 SERIES intercom system, dual channel beltpack EM-202.

There are many characteristics that makes of the **ALTAIR EM-202** one of the most highlighted in the audio professional market, some are enumerated here:

- Dual channel beltpack with A, B & A+B listen balance.
- Metallic (Aluminium) low weight box. Oval shape. Plastic Belt Clip.
- Mic On/Off push switch (push to Talk / latching action) with led indication.
- Remote Mic-Off (Mic-Kill) operation.
- Buzzer on Call with On/Off push switch and indication led lamp.
- Remote Buzzer-Off (Buzz-Kill) operation.
- Large Call On/Off switch with high visibility light.
- Microphone compressor-Limiter.
- DIP-SWITCH external configuration: Mic gain, phantom, limiter, etc.

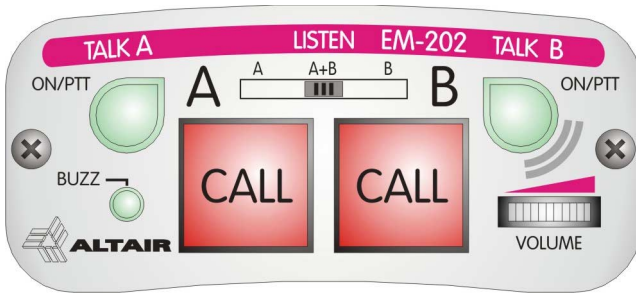
Before beginning it is important to read this manual. This manual will help you to install and use your new dual channel beltpack. It is very important to read it carefully, mainly the paragraphs marked as NOTE, PRECAUTION and DANGER, for your security.

Save the original packing, you can re-use it to transport the unit. **NEVER SHIP THE ALTAIR WBS-202 WITHOUT ITS ORIGINAL PACKING.**

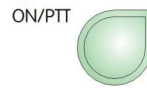
2. SWITCHES, CONTROLS, ADJUSTMENTS AND CONNECTORS

These are the switches, controls, adjustments and connectors that you can find in your ALTAIR dual channel beltpack. The description and explanation of each one will be found in the corresponding section. There are two different versions depending on the XLR LINE rear connectors of 3 or 5-pin, so the rear panel are divided into common elements and elements belonging to each version.

FRONT PANEL



TALK



- MIC ON/OFF/PUSH TO TALK SWITCH.

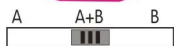


- BUZZER ON/OFF SWITCH.



- CALL SWITCH.

LISTEN



- LINE A AND B LISTEN BALANCE CONTROL.



- VOLUME CONTROL.

REAR PANEL - COMMON

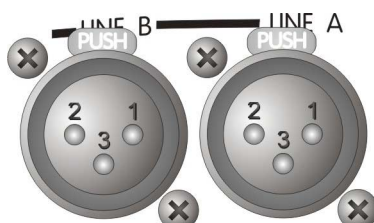
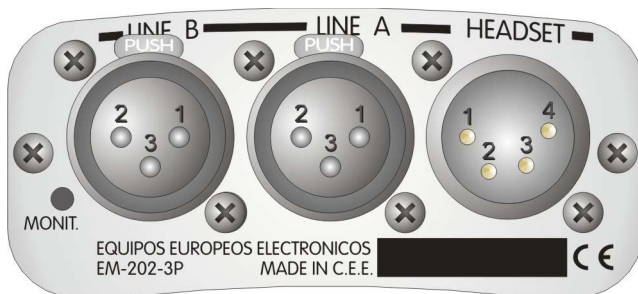


- HEADSET CONNECTOR.



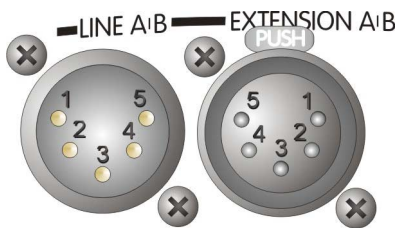
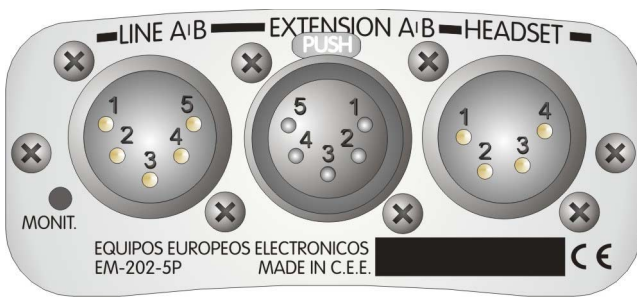
- MIC MONITOR CONTROL CONTROL.

REAR PANEL – EM-202-3P VERSION



- FEMALE XLR 3-PIN INTERCOM LINE CONNECTORS .

REAR PANEL – EM-202-5P VERSION



- MALE & FEMALE XLR 5-PIN INTERCOM LINE CONNECTORS .

3. WORKING PRECAUTIONS

- The manufacturer is not responsible of any damage that can possibly happen to the dual channel beltpack 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 dual channel beltpack 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 dual channel beltpack 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 intercom line; 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 DUAL CHANNEL BELTPACK WITHOUT ITS ORIGINAL PACKING.**

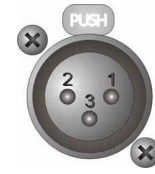
INTERCOM LINE CONNECTION

The intercom line connection in the dual channel beltpack model EM-202-3P is carried through twin-lead shielded cable and male or female XLR 3 pin connectors. The dual channel beltpack provides one female XLR 3 pin connector (LINE A) and a male XLR 3 pin connector (LINE B), wired

each connector to a different intercom LINE A and B. The next list shows the signal distribution in the pin XLR connectors.



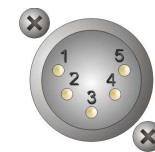
XLR	INTERCOM LINE
PIN 1	0 V
PIN 2	+VCC
PIN 3	SIGNAL



The intercom line connection in the dual channel beltpack model EM-202-5P is carried through STAR QUAD® shielded cable and male or female XLR 5 pin connectors. The dual channel beltpack provides one male and one female XLR 5 pin connectors, wired internally in parallel mode. The next list shows the signal distribution in the pin XLR connectors.



XLR	INTERCOM LINE
PIN 1	0 V
PIN 2	+VCC LINE A
PIN 3	SIGNAL LINE A
PIN 4	+VCC LINE B
PIN 5	SIGNAL LINE B



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 dual channel beltpack 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 Beltpack EM-202 unit was designed for intensive use in portable applications. An unbreakable plastic belt clip enables easy and secure suitability. Call signalling is Dual, visual and audible for improving adaptability. The unit can be configured for dynamic or electret microphones enabling the use of different types of headsets and hands-free earpieces in the market.

HEADSET CONNECTION


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

For the electret microphone type is necessary to enable the could enable the phantom power of 9 VDC with a dip-switch placed near the plastic belt clip. In order to obtain more information, consult the special operation section.

The microphone preamplifier gain can be configured with a dip-switch placed near the plastic belt clip 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:

MIC 1-, 2+
EAR 3-, 4+

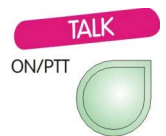


HEADSET XLR	
PIN 1	0 V (MICROPHONE)
PIN 2	SIGNAL (MICROPHONE)
PIN 3	0 V (HEADPHONES)
PIN 4	SIGNAL (HEADPHONES)

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.

MIC ON/OFF/PUSH TO TALK SWITCH

The ES-200 dual channel belt pack 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.

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.

The unit provides a BUZZER-KILL (turns off the BUZZER) system, so that when the buzzer is enabled it is possible to muted it by the BUZZER-KILL function of the master station ALTAIR EF-200.

The BUZZER could be disabled with a dip-switch placed near the plastic belt clip and it is possible to change its sound level with an internal preset, consult the special operation section.

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 headset of the dual channel beltpack. Totally to the left, the signal that appears in the headset is only the channel A signal, totally to the right, the signal that appears in the headset 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 dual channel beltpack 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.

VOLUME CONTROL

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



MIC MONITOR CONTROL

The microphone monitor control allow hear the microphone signal in the headsets even if the TALK switches are in the off position, and regardless of the lines sidetone controls. Totally to the left, the microphone signal is not hear in the headsets, totally to the right, the microphone signal that appears in the headsets has the highest level, and in intermediate positions, it adjust the microphone level that we want to listen in the headset.

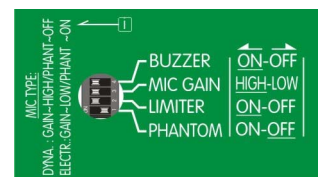


SET UP DIP-SWITCH

The set up DIP-SWITCH placed at the rear side of the unit, near the belt clip, permits the configuration of several operation parameters of the unit:

BUZZER ON/OFF

The buzzer can be configured with the position 4 of the set up DIP-SWITCH, so remains always turned off or turned on/off depending on the front panel buzzer on/off switch. With the position 4 of the set up DIP-SWITCH in OFF, the buzzer will remain always turned off, and with the position 4 of the set up DIP-SWITCH in ON the buzzer will turn on/off depending on the front panel buzzer on/off switch.



Disabling the buzzer guarantees no CALL sounds in any circumstance, as desired in theatre or any other public performance.

FACTORY SET UP: ON.

CHANGING THE MIC GAIN

The microphone preamplifier gain could configure by means of position 3 of the set up DIP-SWITCH in 30 or 40 dB. With the position 3 of the set up DIP-SWITCH in LOW (OFF), the gain of the microphone preamplifier is 30 dB, and with the position 3 of the set up DIP-SWITCH in HIGH (ON) the gain is 40 dB.

FACTORY SET UP: 40 dB (HIGH - ON).

MICROPHONE LIMITER ON/OFF

The dual channel beltpack microphone has a limiter that can be enabled / disabled with the position 2 of the set up DIP-SWITCH. With the position 2 of the set up DIP-SWITCH in OFF, the limiter is disabled, and with the position 2 of the set up DIP-SWITCH in ON, the limiter is enabled.

FACTORY SET UP: ON.

MICROPHONE PHANTOM POWER ON/OFF

The microphone PHANTOM power could be enabled or disabled with the position 1 of the set up DIP-SWITCH. With the position 2 of the set up DIP-SWITCH in OFF, the phantom power is disabled and with the position 2 of the set up DIP-SWITCH in ON, the phantom power is enabled.

If an electret microphone is used, the PHANTOM power must be enabled and if a dynamic microphone is used, the PHANTOM power must be disabled. The microphone PHANTOM power is 9 VDC.

FACTORY SET UP: OFF.

6. SPECIAL OPERATIONS

In order to set-up some of the dual channel beltpack possibilities, the unit must be opened removing the two external screws of its rear panel.

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.

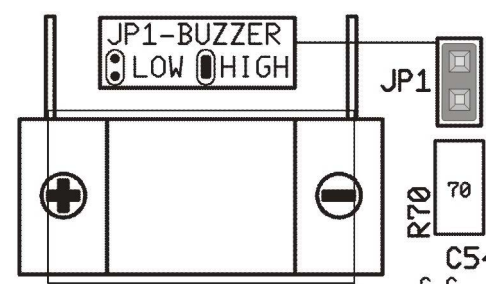
DANGER: Before opening the unit, disconnect it from the intercom lines.

CAUTION: Protect the dual channel beltpack 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 BUZZER LEVEL

The buzzer sound level could configure with an internal jumper (JP1). With the jumper removed, the buzzer sound level is lower than with the jumper placed.

The buzzer sound level should be adapted to any circumstance (environments more or less noisy).





7. TECHNICAL SPECIFICATIONS

PREAMPLIFIER	
MICROPHONE TYPE:	<ul style="list-style-type: none">• Dynamic or electret.
INPUT IMPEDANCE:	<ul style="list-style-type: none">• 4K7.
NOMINAL/MAX LEVEL:	<ul style="list-style-type: none">• -45 dBu (H)/-20 dBu(L).
PRESENCE FILTER:	<ul style="list-style-type: none">• +6 dB @ 4700 Hz.
PHANTOM VOLTAGE:	<ul style="list-style-type: none">• +9 VDC (set up dip-switch).
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 (± 3 dB).
INTERCOM LINE:	
IMPEDANCE:	<ul style="list-style-type: none">• 220Ω AC / 4700Ω DC.
NOMINAL LEVEL:	<ul style="list-style-type: none">• -10 dBu.
MAXIMUM LEVEL:	<ul style="list-style-type: none">• 3 dBu.
CALL THRESHOLD:	<ul style="list-style-type: none">• 3 VDC.
REMOTE MIC KILL:	<ul style="list-style-type: none">• Power Interruption: 100 ms..
REMOTE BUZZ KILL:	<ul style="list-style-type: none">• 100 Hz / 800 mVp.
SIDETONE CANCELLATION:	<ul style="list-style-type: none">• Adjustable: 0 – 30 dB @ 1 KHz
BUZZER:	<ul style="list-style-type: none">• 90 dBA/ 100 dBA (dip-switch).
CONTROLS:	<ul style="list-style-type: none">• Call, Volume level, Balance level, Mic On/Off/PTT, Buzzer On/Off.
INDICATORS:	<ul style="list-style-type: none">• Call, Mic On/Off, Buzz On/Off.
POWER SUPPLY:	<ul style="list-style-type: none">• 12 – 30 VDC. 24 VDC nominal.
DC CURRENT:	<ul style="list-style-type: none">• 45 mA.
DIMENSIONS:	<ul style="list-style-type: none">• 84x38x105 mm.
WEIGHT:	<ul style="list-style-type: none">• 300 gr.

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 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. 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

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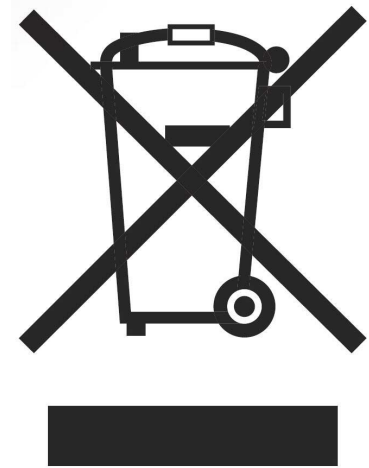
European Union Waste Electronics Information Unión Europea Información sobre residuos electrónicos

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

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