

EM-203

TUBECOM

SINGLE CHANNEL BELTPACK
E-200 SERIES INTERCOM SYSTEM



OWNERS MANUAL

Issue 15JUN18



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PACKING LIST:

1x EM-203 Intercom Beltpack
1x OWNERS MANUAL

1. INTRODUCTION

Congratulations on your purchase of the **ALTAIR** single channel cable based beltpack **EM_203** of the **E-200** series intercom system. There are a lot of characteristics that makes **ALTAIR EM-203** one step further in the wired intercom beltpack industry, some are enumerated here:

- # Miniature form factor design, cased in steel durable box. Tube like “**TUBECOM**” beltpack.
- # Dual Hands Free/Headset mode supported.
- # DSP based audio chain for easy and repeatable settings.
- # Automatic headset detection.
- # Beltpack compatible with most party line intercom systems.
- # Due to the small size and internal speaker/mic combination this novel beltpack can be used in many different ways: as a desk station, with the belt clip, placed on a shirt pocket and can also be used by holding it with a hand like a telephone during conversations in very loud environments.

The new **ALTAIR E-200** SERIES add more features to our legacy series 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 signaling during performances.

For operating the beltpack a Master Station unit as the **ALTAIR EF-20x/WBS-20x/PS-200** is necessary to power the system components and setting the operating level.

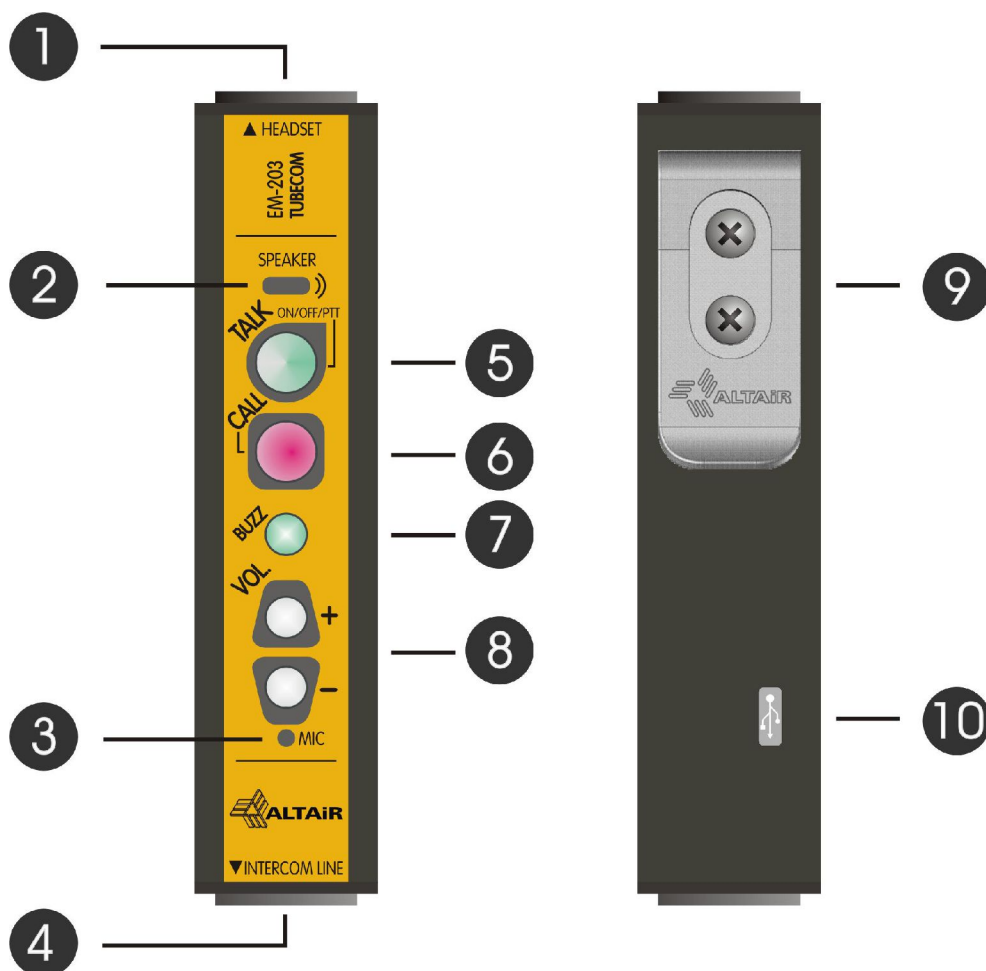
Before beginning it is important to read this manual. This manual will help you to install and use your new intercom desk station. It is very important to read it carefully, mainly the paragraphs marked as NOTE, PRECAUTION and DANGER, for your security.

Save the original packing, you can re-use it to transport the unit. **NEVER SHIP THE ALTAIR EM-203 WITHOUT ITS ORIGINAL PACKING.**

2. SWITCHES, CONTROLS, ADJUSTMENTS AND CONNECTORS

Find the switches, controls, adjustments, and connectors located in your ALTAIR intercom beltpack station.

2.1. FRONT and REAR face.



1 **HEADSET CONNECTOR**. XLR-4M

2 **SPEAKER**. DISABLED WHEN HEADSET PRESENCE OR DURING PANEL MIC TALK

3 **PANEL MIC**. DISABLED WHEN HEADSET PRESENCE. MOMENTARY/LATCH OPERATION

4 **INTERCOM LINE CONNECTOR**. XLR-3M

5 **TALK KEY**. HOLD FOR MIC GAIN SETTINGS WITH VOL+/VOL-

6 **CALL SWITCH CIRCUIT**. WITH LIGHT AND BUZZER CALL RECEIVE CIRCUITS

7 **BUZZER SWITCH**. HOLD FOR SIDETONE SETTINGS WITH VOL+/VOL-

8 **LEVEL CONTROLS**. LISTEN VOLUME AND OTHER SETTINGS.

9 BELT CLIP. WITH CONVENIENT SLOT FOR HANGING.

10 **USB CONNECTOR**. USED FOR FIRMWARE UPDATES.

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 (12-32 VDC). Damage caused by a connection to an improper line DC voltage is not covered by any warranty.

DANGER: Inside the unit there are components at high temperature. Do not open it. The unit does not contain elements that could be repaired by the user. Whenever the intercom beltpack is connected to the intercom lines, it carries elements with moderate voltages. In order to disconnect the unit completely, you must disconnect it from the intercom line.

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 the intercom system from the line 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 intercom 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 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 BELTPACK WITHOUT ITS ORIGINAL PACKING.*

4.2. WEARING THE UNIT

The ALTAIR EM-203 beltpack station is designed to be used on different ways depending on the application environment.

DESK STATION

Unit can be used as a desk station for listen only and infrequent talking. The incorporated speaker system would operate in moderate ambient noise areas.

The angled clip would facilitate an adequate angled positioning over the desk. The incorporated mic and push to talk mic key can be used if needing a talk.



BELTPACK

The unit incorporates a headset detector for automated changeover to headset mode. Simply insert an standard headset and operate the unit normally as a beltpack intercom unit. Panel speaker and mic will be disabled.

TELEPHONE LIKE.

By holding the unit with the right or left hand, It is possible to maintain a conversation by the use of the internal speaker/mic combination. On this mode the mic key must be operated each time you talk in a PTT (push to talk) way.

CAUTION. Adjust conveniently the listening level to avoid ear damage.

Set BUZZ switched off when beltpack is in close proximity to you.



SHIRT POCKET POSITION

The low size and weight of the unit makes it possible to hold the beltpack on a shirt pocket when a permanent listening is needed. By adjusting the listening level conveniently, conversations can be done in a near privacy case as the speaker is very close to the ears. Large listening sessions would benefit with more comfort than wearing standard headsets.

4.3. INTERCOM LINE CONNECTION **4**

The intercom line connection is carried through standard microphone double conductor shielded cable using XLR3-F connector. Beltpack provides one XLR3-M so when looping to another intercom units is desired, an Y shape XLR3-F to XLR3-M // XLR3-F bifurcator cable lead must be ordered.

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

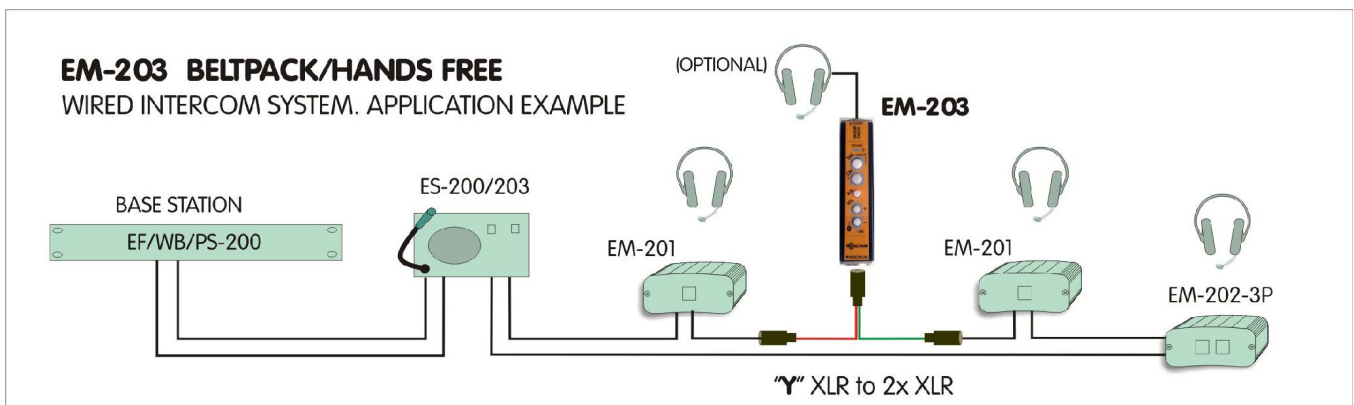
XLR-3M	INTERCOM LINE
PIN 1	OV (GND)
PIN 2	+VCC (nom +24Vdc)
PIN 3	SIGNAL

Certain rules have to be followed when installing the cables of an intercom system 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. The ground loop created 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 length. The increased DC resistance of a low quality or very long cable affects the stability, noise, the channels crosstalk and affects all the intercom equipment connected to this branch.



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 Single Channel Beltpack EM-203 unit was designed for intensive use in portable applications. An unbreakable plastic belt clip enables easy and secure suitability. Call signaling is dual: visual and audible for improving adaptability.

The unit can accommodate dynamic or electret microphones enabling the use of different types of headsets and hands-free earpieces in the market.

The EM-203 is designed for its connection to an intercom channel line and is provided with a CALL switch, a MIC on/off switch, BUZZER on/off switch, listening volume control, side-tone control and connectors to its connection to the intercom line.

Dual mode mic/speaker and headset mode allows for many different applications. Each mode has its own talk and listening settings to facilitate automatic adaptation. Both remote MIC KILL and BUZZER KILL functions are incorporated on the unit.

5.0 OPERATION MODES

- PANEL MIC/SPEAKER:

This mode is automatically selected when no headset is detected. To avoid strong coupling (feedback) between the mic and the speaker, the speaker is automatically disabled when talking. In this mode, the TALK key only operates in PTT mode so it is not possible to lock it, always operating as momentary.

Panel mic gain and speaker level settings are stored in memory so it is not necessary to adjust each time the mode is changed.

- HEADSET:

This mode is automatically set when a headset is detected. The panel mic and the speaker are disabled. Talk key reverts to ON/OFF/PTT normal operation.

Headset mic gain and earset level settings are stored in memory so it is not necessary to adjust each time the mode is changed.

5.1 HEADSET CONNECTION 1

A XLR-4 type male (XLR-4-32) allows connecting a headset with microphone (not included) to the beltpack. The headset impedance must be 200 Ω or higher (up to 2 K Ω) and the microphone can be dynamic or electret type.

When the headset is connected, the speaker and the incorporated panel microphone will be disabled automatically to allow for private conversations.

The unit allows for the use of electret microphones. It is not necessary to set the powering as it is automatic setting by default. Setting the gain is important as the electret mics needs lower gains and can otherwise saturate the preamp.

DYNAMIC MICS. Set the mic gain normally at maximum setting.

ELECTRET MICS. Set the mic gain normally five steps lower than maximum setting.

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

NOTE:

Headphones can be ordered with a double or single muff earpiece. In case of using a double muff headphones, the two speakers should be wired in parallel.

5.2 SPEAKER **2**

The incorporated speaker allows listening the intercom channel. Set desired volume with the level control keys Vol+/Vol- in 10 steps.

CAUTION: In case of needing a quick disconnection, hold down the Vol-. The speaker would shut-off in just a second.

5.3. PANEL MICROPHONE **3**

The incorporated microphone allows talking with the intercom line connected to the unit.

In order to avoid feedback, the speaker is disconnected as long as TALK key is depressed. It is not possible to lock this key.

Gain setting. Holding down the mic key, adjust gain by Vol+/Vol- keys in 10 steps.

Panel mic gain setting is stored on memory.

Panel mic is disabled automatically when a headset is connected.

5.4. TALK (MIC) button **5**

The EM-203 beltpack station unit is provided with a TALK switch. The TALK switch allows to open the microphone used; that way, we can speak with other units connected to the intercom line.

The TALK switch have two operation modes. When this switch is pressed quickly, the microphone changes its state; if it was enabled it gets disabled and turns off the associated LED, and if it was disabled 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. Use this mode as preferred to reduce the global noise on the system.

When using the panel mic (headset not connected) the unit only permits this mode to avoid feedback on the speaker.

The unit provides a MIC-KILL (turns off the MIC) system, so that when the mic is enabled it is possible to be remote muted by the MIC-KILL function from any ALTAIR EF/PS/WBS base stations. This MIC-KILL system is proprietary so is not compatible with other intercom brands.

5.5 CALL SWITCH **6**

The EM-203 beltpack station is provided with a CALL switch and operates over the intercom line. The CALL switch allows generating a call signaling sent to all the participants on this 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 on the desk station and to 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, the call indicator light 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.

5.6 BUZZER ON/OFF **7**

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 also sounds when any switch is pressed, emitting a short beep.

The buzzer can be disabled/enabled by holding down the key for 2. Led indicator flashes quickly.

NOTE: THIS FUNCTION IS NOT YET OPERATING ON THIS UNIT

Remote buzz kill generated from the base unit would disable the buzzer. Led indicator flashes indicating remote buzz kill function is in operation.

Normally the buzzer and the mic key initializes with the same state as when the beltpack was switched off, i.e. it remembers last state.

5.7 SIDE-TONE SETTINGS **7**

It is possible to adjust the level of your own voice on the headsets. To do so, hold the BUZZ key and at the same time adjust it by the Vol+/Vol- keys.

Some side tone level is recommended when the headset used are of the double muff type.

The unit comes from factory with a initial setting but is necessary to set up in the final installation as the calibration depends on the characteristics of the cable used and the number of units connected on the line.

SET UP. This is an adjustment with all the equipment connected and running.

Connect a headset and find the desired side tone listening depending on the headsets used and personal needs.

5.8 LEVEL CONTROLS (VOL+/VOL-) **8**

The volume control allows attenuating or amplifying the signal sent to the speaker and to the headphones. You can adjust the level in a step by step basis or quickly by holding down the key. **NOTE: THIS FUNCTION IS NOT YET OPERATING ON THIS UNIT**

Speaker level and headset ear level are stored separately so to avoid unnecessary adjustments. Level is done by Vol+/Vol- keys in 10 steps.

6. TROUBLESHOOTING GUIDE

TROUBLESHOOTING GUIDE	
WHEN	POSSIBLE CAUSE and SOLUTIONS
1 Buzz does not work.	Buzz indicator intermittent: A remote BUZZ KIL action has been done at the base station.
2-Headset mic level too low or too high saturating the intercom line.	Set the mic preamp gain to adapt to the capsule used> Holding TALK key press Vol+/Vol-
3-Panel mic does not work	-Remove the headset or boom microphone.
4-TALK key does not engage.	The TALK key is forced to operate in PTT mode when the panel mic is in use (no headset used)
5-Mic is remotely mutes	-A remote MIK KILL action has been done at the base station.
6-Excessive return from microphone.	-Reduce the sidetone level>Holding BUZZ key press Vol+/Vol- to desired level.

7. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS		
INTERCOM LINE	NUMBER OF CHANNELS	SINGLE CHANNEL station
	IMPEDANCE:	220 ohm AC/4700 ohm DC.
	NOMINAL/MAXIMUM LEVEL:	-10 dBu / 0 dBu.
	FREQUENCY RESPONSE:	100 Hz – 10 KHz (-3 dB).
SYSTEM SPECIFICATIONS	POWER REQUIREMENT:	+12 to +32 VDC / 35 mA (50 mA max)
	DYNAMIC RANGE:	80 dB.
	BRINGING IMPEDANCE @ 1KHz:	> 10 K ohm
	SIDE-TONE CANCELLATION:	Adjustable from 0 to 30 dB @ 1khz
	MICROPHONE LIMITER:	Range: N/D
	MAXIMUM CABLE LENGTH:	500-2.000 m. Depends on cable type and installation.
	RECOMMENDED WIRE TYPE:	Shielded mic cable 2 x 0,22 mm ²
	CALL SIGNAL:	+2,8 mA/11 VDC.
	CALL THRESHOLD:	3 VDC.
	REMOTE MIC-OFF:	Power pulse.
PREAMPLIFIER	MICROPHONE TYPE (headset):	Dynamic or electret.
	PANEL MICROPHONE:	Electret type
	INPUT IMPEDANCE:	4K7.
	GAIN/INPUT LEVEL:	38dB max /-25 dBu max
	LIMITER RANGE:	N/D
	PRESENCE FILTER:	N/D
	PHANTOM VOLTAGE:	+3 VDC / 3mA
EARSET AMPLIFIER	IMPEDANCE:	200 ohm (nom), 4K ohm (max).
	MAXIMUM LEVEL:	20 Vpp (200 ohm).
	OUTPUT POWER:	250 mW (200 ohm).
	FREQUENCY RESPONSE:	250 Hz - 15 KHz.
	RESIDUAL NOISE:	-90 dBu (all mics off).
SPEAKER SECTION	BANDWIDTH:	300-10KHz (+-6dB)
	MAX OUPTPUT S.P.L.	75 dB SPL@1 m
	POWER:	1.3 WATT
ACCESSORIES	HEADSETS	REF: AM100 Series
	"Y" XLR BIFURCATOR	REF: 3FFM-200 (1xF to 1xF // 1xM)
DIMENSIONS		31x26x130 mm (LxWxH)
WEIGHT		220 g. (Net weight)

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

Extract of the Declaration of Conformity (DoC)

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

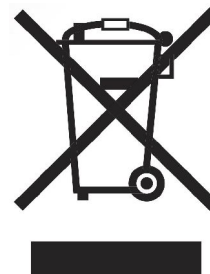
The Declaration of Conformity (DoC) has been signed. In case of needing a copy of the original DoC, it can be made available via the internet direction: <http://www.altiraudio.com/DoC>

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

