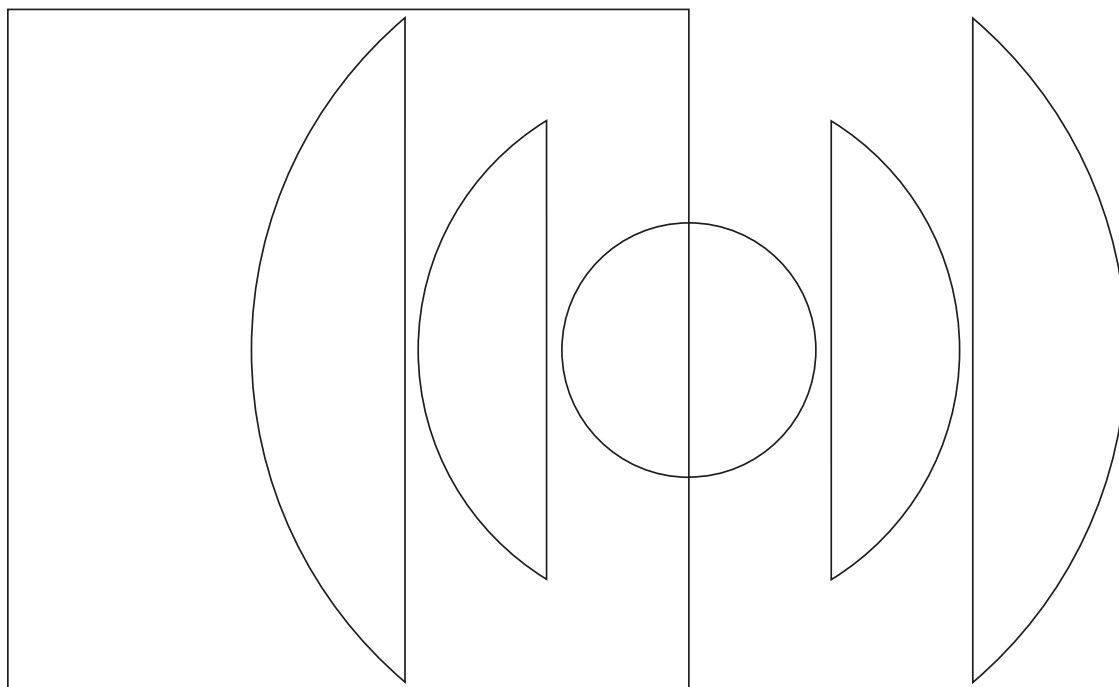




# NM250A

2-WAY, BI-AMPLIFIED,  
ACTIVE LOUDSPEAKER SYSTEM



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Manuale istruzioni   **Instruction manual**   Bedienungsanleitung   Manuel d'instructions   Manual de instrucciones

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**Montarbo**





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Il lampo con la freccia inserito in un triangolo equilatero avvisa l'utilizzatore della presenza di tensione pericolosa, senza isolamento, all'interno dell'apparecchio che potrebbe essere sufficientemente alta da generare il rischio di scossa elettrica.



Il punto esclamativo inserito in un triangolo equilatero avvisa l'utilizzatore della presenza di importanti istruzioni per l'utilizzo e per la manutenzione.

## IMPORTANTE ! Norme di sicurezza

### ATTENZIONE

**Nell'interesse della propria e della altrui sicurezza, e per non invalidare la garanzia, si raccomanda una attenta lettura di questa sezione prima di utilizzare il prodotto.**

- Questo apparecchio è stato progettato e costruito per venire utilizzato come sistema di altoparlanti con amplificatore nel contesto tipico di un sistema di amplificazione sonora e/o di un sistema di registrazione sonora. L'utilizzo per scopi diversi da questi non è contemplato dal costruttore, ed avviene pertanto sotto la diretta responsabilità dell'utilizzatore/installatore.

- Questo apparecchio è conforme alla Classe di isolamento 1 (è necessario il collegamento alla terra di protezione).

### PER EVITARE IL RISCHIO DI INCENDIO E/O DI FOLGORAZIONE:

- Non esporre il prodotto alla pioggia, non utilizzarlo in presenza di elevata umidità o vicino all'acqua. Non lasciare penetrare all'interno dell'apparecchio alcun liquido, né alcun oggetto solido. In caso ciò avvenga, scollegare immediatamente l'apparecchio dalla rete elettrica e rivolgersi ad un servizio di assistenza qualificato prima di adoperarlo nuovamente. Non appoggiare candele accese od altre sorgenti di fiamma nuda sopra l'apparecchio.
- Prima di collegare l'apparecchio alla rete elettrica assicurarsi che la tensione corrisponda a quella indicata sull'apparecchio stesso.
- Collegare questo apparecchio esclusivamente ad una presa di corrente dotata di contatto di terra, rispondente alle norme di sicurezza vigenti, tramite il cavo di alimentazione in dotazione. Nel caso in cui il cavo necessiti di sostituzione, utilizzare esclusivamente un cavo di identiche caratteristiche.
- L'apparecchio è collegato alla rete anche quando l'interruttore di rete è in posizione '0' (spento) e la spia luminosa è spenta. All'interno sono presenti potenziali elettrici pericolosi. Prima di qualunque intervento di manutenzione, scollegare il cavo di alimentazione dalla presa di rete.
- Non appoggiare alcun oggetto sul cavo di alimentazione. Non posarlo dove possa costituire intralcio e causare inciampo. Non schiacciarlo e non calpestarlo.
- Installare questo apparecchio prevedendo ampio spazio circostante per un'abbondante circolazione d'aria, necessaria al raffreddamento. Non ostruire le aperture o le prese d'aria presenti sull'apparecchio. Lasciare spazio sufficiente per accedere alla presa di alimentazione elettrica e al connettore di rete sul pannello posteriore.
- In caso di sostituzione del fusibile esterno, utilizzare esclusivamente un fusibile di caratteristiche identiche, come riportato sull'apparecchio.
- Prima di effettuare qualsiasi operazione di collegamento, assicurarsi che l'interruttore di accensione dell'apparecchio sia in posizione '0'.
- Prima di effettuare qualsiasi spostamento del prodotto già installato o in funzione, rimuovere tutti i cavi di collegamento.
- Per scollegare l'apparecchio dalla rete elettrica, non tirare mai lungo il cavo, ma afferrarlo sempre per il connettore.

### ATTENZIONE!

**Questo apparecchio non contiene parti interne destinate all'intervento diretto da parte dell'utilizzatore. Per evitare il rischio di incendio e/o folgorazione, non smontarlo e non rimuovere il pannello posteriore. Per qualsiasi intervento di manutenzione o riparazione, rivolgetevi alla Elettronica Montarbo srl e/o a personale altamente qualificato specificamente segnalato da questa.**

- Nel predisporre l'apparecchio all'utilizzo, assicurarsi che la forma e la portata della superficie di appoggio siano idonee a sostenerlo. Nel caso si desideri installare la cassa su di un'asta di supporto, utilizzarne una di portata adeguata al peso del prodotto, inserendola nell'apposito adattatore. Nel caso si sovrappongano due casse, assicurarsi che la stabilità sia garantita dall'incastro tra i piedini della cassa superiore e gli incavi di quella inferiore.

- Per evitare urti, calci, inciampi, riservare come luogo per l'installazione del prodotto un'area protetta inaccessibile a personale non qualificato. Qualora l'apparecchio venga utilizzato in presenza di bambini e animali, si rende necessaria una strettissima sorveglianza.

- Questo prodotto è in grado di generare pressioni acustiche molto elevate, pericolose per la salute del sistema uditivo. Evitarne quindi l'utilizzo ad elevati livelli acustici se il pubblico si trova eccessivamente vicino al prodotto.

*Non esporre i bambini a forti sorgenti sonore.*

# ITALIANO

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Sistema attivo biamplificato NM250A

Cavo di alimentazione

Manuale istruzioni

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# Introduzione

NM250A è un sistema di altoparlanti attivo, biamplificato, ad elevate prestazioni acustiche che unisce la potenza e la pressione sonora tipiche dei sistemi professionali di peso e dimensioni superiori, alla compattezza ed alla facilità d'uso. Progettato per l'utilizzo in piccoli spettacoli, presentazioni editoriali, conferenze stampa, dibattiti o congressi, NM250A è ideale anche nell'Home Recording, per la riproduzione di sorgenti MIDI e per il monitoraggio personale in sala prove.

La forma del cabinet ne permette l'installazione verticale (anche su asta, utilizzando l'adattatore incorporato) o orizzontale in spazi ridotti, aumentandone così la flessibilità di utilizzo.

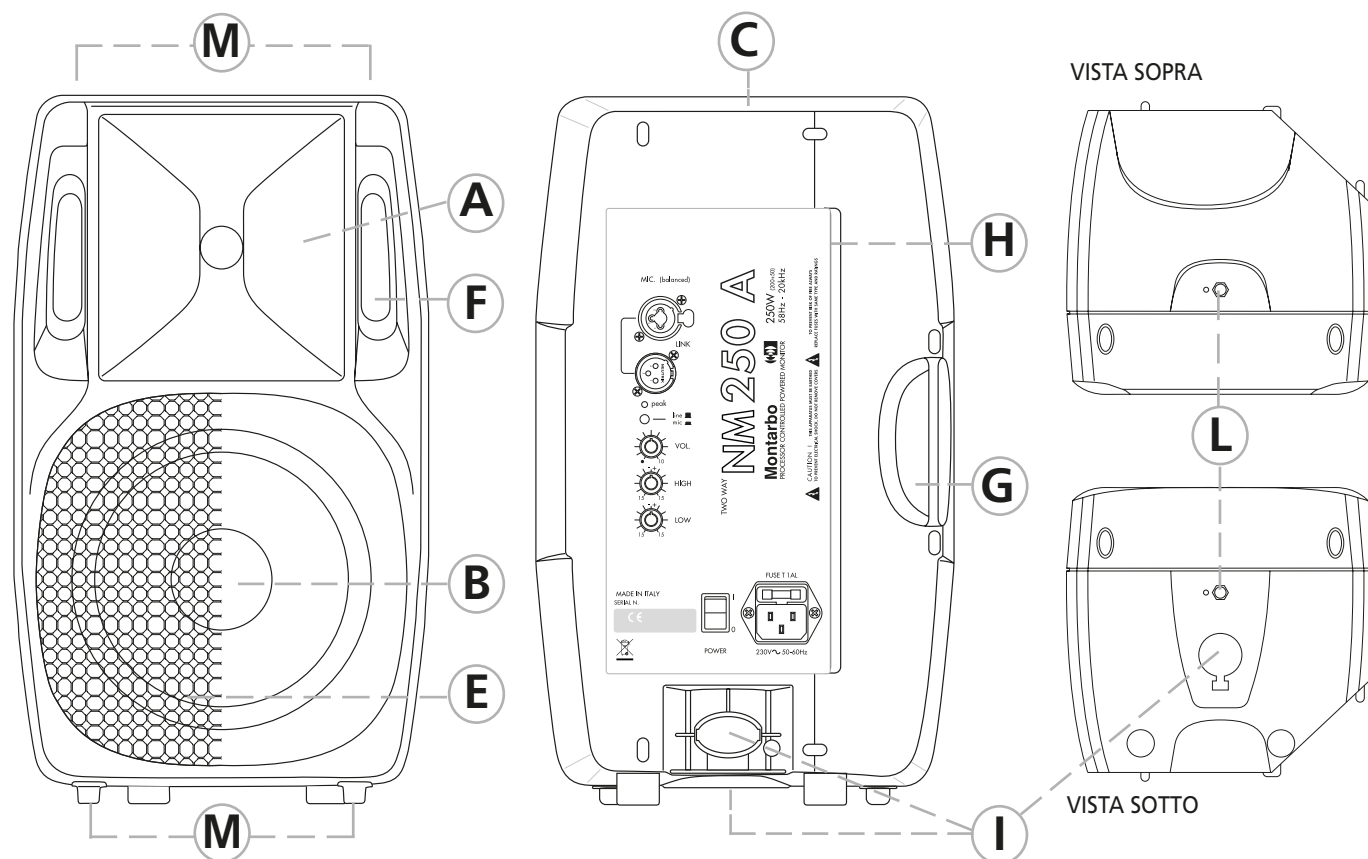
componenti di alta qualità costruiti su nostre specifiche:

- *woofer da 8" ad alta efficienza,*
- *driver a compressione da 1" caricato a tromba.*

2 amplificatori MosFet in classe AB (200 + 50 W)

Ognuno dei due amplificatori è dotato di un esclusivo circuito di protezione dei trasduttori ed è controllato da un processore dinamico indipendente che ottimizza la linearità della risposta in frequenza ed il rendimento del sistema.

# Descrizione



**A** Driver a compressione da **1"** caricato a tromba (dispersione 90° H x 60° V).

**B** Woofer da **8"** ad alta efficienza.

**C** Cabinet in polipropilene stampato ad iniezione.

**E** Griglia in acciaio.

**F** Tubi di accordo.

**G** Maniglia laterale per il trasporto.

**H** Pannello controlli e connessioni.

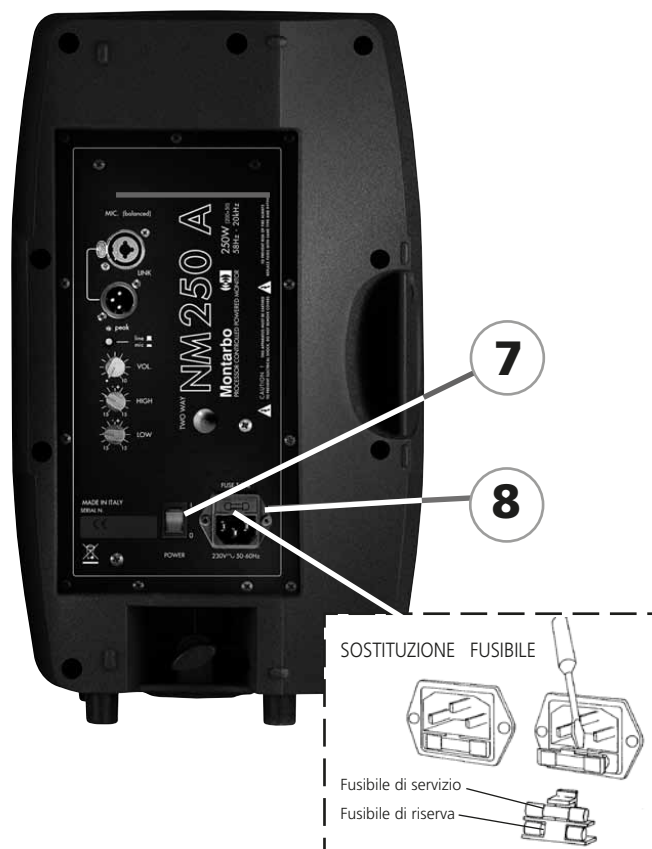
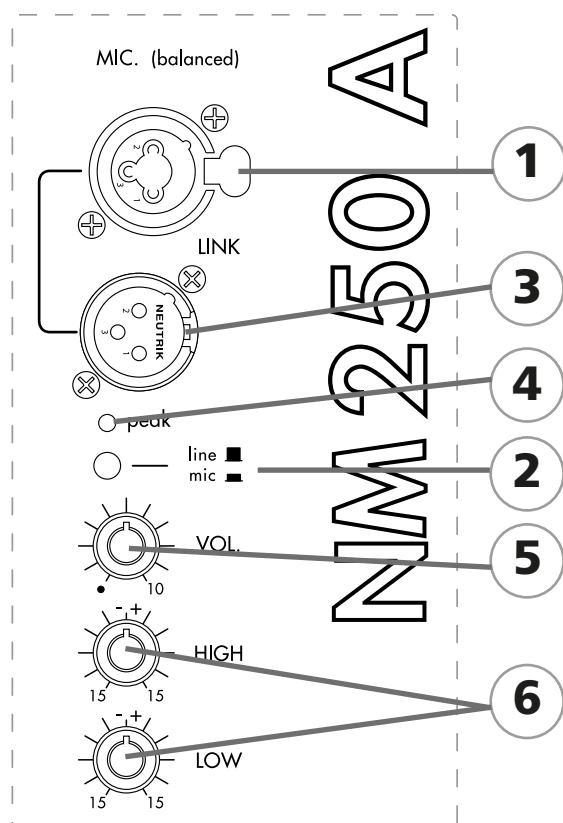
**I** Adattatore per supporto asta con fermo di sicurezza.

**L** Inserti filettati (M8) per fissaggio di supporti.

**M** Piedini ed incavi per impilare le casse con la massima stabilità.

I materiali e la costruzione rispettano i più alti standard professionali per assicurare la massima affidabilità.

# Pannello controlli e connessioni



**1** MIC: ingresso bilanciato, selezionabile per microfono (-40dBu / 2kOhm) o linea (-10dBu / 20kOhm), dotato di presa Neutrik Combo® che accetta sia connettori Jack che XLR.

*Vedere 'connettori' e 'collegamenti' alle pagine 25 e 26 e 'applicazioni' alle pagine 27, 28 e 29.*

**2** LINE/MIC: selettore della sensibilità d'ingresso.

La cassa esce di fabbrica con il pulsante sollevato in posizione 'line' per le condizioni di impiego più frequenti (per collegamento ad un mixer, ad altri sistemi attivi...). Dovrà perciò essere premuto nella posizione 'mic' nel caso in cui si colleghi un microfono all'ingresso (in tal caso, poichè l'ingresso e l'uscita della NM250A sono in parallelo e portano il medesimo segnale, se all'uscita viene collegata un'altra NM250A, ricordatevi di premere anche il selettore Line/Mic di quest'ultima).

**3** LINK: uscita bilanciata (in parallelo all'ingresso) su connettore XLR a 3 poli. Permette il collegamento in parallelo di più NM250A o altri sistemi.

*Vedere 'connettori' e 'collegamenti' alle pagine 25 e 26 e 'applicazioni' alle pagine 27, 28 e 29.*

**4** Indicatore LED di picco.

È di grande aiuto per avere un'idea del livello di uscita:

- se non lampeggia mai significa che si è ancora al di sotto dei limiti in potenza del sistema.
- se lampeggia sporadicamente è la condizione di impiego vicina al massimo, fermo restando che rimane sempre l'orecchio e la sensibilità del musicista il giudice migliore della qualità del segnale.

**5** VOL: volume generale. Permette di regolare i livelli di ingresso dei 2 canali di potenza incorporati, per adattarli al livello di uscita del mixer. Permette inoltre di regolare il volume della cassa nel caso di utilizzo insieme ad altri sistemi di altoparlanti. La posizione tipica di impiego è al massimo (sensibilità -10dBu). Va regolato a seconda del volume desiderato nel caso in cui all'ingresso sia collegato un microfono.

**6** HIGH / LOW: equalizzazione a 2 bande.

Permette di variare la curva di risposta ed ottenere così una resa ottimale in funzione delle diverse esigenze di impiego. Questo significa che potrete ottimizzare il comportamento della NM250A per una sala conferenze, per il monitoraggio nell'ambito di un complesso musicale o per altre utilizzazioni.

**N.B:** per una risposta lineare del sistema consigliamo di regolare entrambi i potenziometri in posizione centrale.

**7** POWER / 0 - I: Interruttore di rete.

**8** Connettore di alimentazione elettrica (con fusibile incorporato) per cavo di alimentazione. Utilizzare solamente il cavo di alimentazione fornito con l'apparecchio o un altro dotato di contatto di terra e riportante i marchi di sicurezza applicabili nel paese di impiego. Nell'installazione, accertarsi che sia possibile accedere facilmente a questo connettore e alla presa di alimentazione elettrica.



# Importante !



## Cura e manutenzione del prodotto

- Posizionare la cassa lontano da fonti di calore (caloriferi o qualsiasi altro oggetto che produca calore).
- Non porre sulla cassa sorgenti di fiamme nude, quali candele accese.
- Evitare di esporre la cassa alla radiazione solare diretta, ad eccessive vibrazioni e ad urti violenti.
- Evitare l'uso ed il deposito dell'apparecchio in ambienti polverosi o umidi: si eviteranno così cattivi funzionamenti e deterioramento anticipato delle prestazioni.
- Evitare l'uso dell'apparecchio vicino a fonti di interferenze elettromagnetiche (monitor video, cavi elettrici di alta potenza). Ciò potrebbe compromettere la qualità audio.
- Nel caso in cui il sistema venga utilizzato all'aperto fare attenzione a proteggerlo dalla pioggia.
- Proteggere l'apparecchio dal rovesciamento accidentale di liquidi o sostanze di qualsiasi tipo. In particolare nelle condizioni di utilizzo tipiche, prestare la massima attenzione alla collocazione dell'apparecchio onde evitare che il pubblico, i musicisti, i tecnici o chiechessia possa poggiarvi sopra bicchieri, tazze, contenitori di cibo o di bevande, posacenere o sigarette accese.
- Non rimuovere la griglia di protezione dalla cassa.
- Per rimuovere la polvere usare un pennello o un soffio d'aria, non usare mai detergenti, solventi o alcool.
- Avere cura dei cavi di collegamento, avvolgerli evitando nodi e torsioni.
- Non forzare i connettori ed i comandi.
- Accertarsi che l'interruttore di rete sia in posizione '0' (spento) prima di effettuare qualsiasi collegamento.
- All'interno dell'apparecchio possono essere presenti potenziali elettrici pericolosi anche quando l'interruttore di rete è in posizione '0' (spento) e la spia luminosa è spenta. Prima di qualunque intervento di manutenzione, scollegare il cavo di alimentazione dalla presa di rete.



## Collegamento alla rete:

- Accertarsi che l'interruttore di rete sia in posizione "0".
- Accertarsi che la tensione di alimentazione corrisponda a quella indicata sul pannello (sotto la presa per il cavo di alimentazione).
- Collegare il cavo di alimentazione ad una presa di corrente dotata di contatto di terra di sicura efficienza. Utilizzare solamente il cavo di alimentazione fornito con l'apparecchio o un altro dotato di contatto di terra e riportante i marchi di sicurezza applicabili nel paese di impiego.
- Lasciare spazio sufficiente per accedere alla presa di alimentazione elettrica e al connettore di rete sul pannello posteriore. All'interno dell'apparecchio possono essere presenti potenziali elettrici pericolosi anche quando l'interruttore di rete è in posizione '0' (spento) e la spia luminosa è spenta. Prima di qualunque intervento di manutenzione, scollegare il cavo di alimentazione dalla presa di rete.



## Collegamento al mixer:

- Utilizzare sempre solo cavi SCHERMATI (cavi di segnale) di adeguata sezione e di buona qualità.
- Prima di effettuare i collegamenti tra casse attive e mixer accertarsi che tutti gli interruttori di rete siano spenti (0). In tal modo si eviteranno fastidiosi rumori e picchi di segnale

talvolta pericolosi per le casse stesse.

- Verificare che il tasto 'Line/mic' sia sollevato.
- Se il mixer ha uscite bilanciate XLR: utilizzare dei normali connettori XLR bilanciati.
- Se il mixer ha uscite sbilanciate XLR e non è un Montarbo: è bene accertarsi che le uscite XLR del mixer siano sbilanciate a norme IEC 268 e cioè: 1 = massa (GND), 2 = caldo (HOT), 3 = massa (GND).
- Se il mixer ha uscite JACK bilanciate (Jack stereo): è possibile utilizzare cavi Jack stereo-Jack stereo, oppure adattatori Jack stereo-XLR bilanciati, a norme IEC 268 e cioè: pin 1 = massa, pin 2 = punta, pin 3 = anello.
- Se il mixer ha uscite JACK sbilanciate (Jack mono): è possibile utilizzare cavi Jack-Jack, oppure adattatori Jack-XLR maschio sbilanciati a norme IEC 268 e cioè: pin 1 = massa, pin 2 = punta, pin 3 = massa.

*Verdere connettori alla pagina 25.*



## Collegamento in parallelo di più sistemi:

Utilizzare sempre cavi SCHERMATI di adeguata sezione e di buona qualità. Collegare l'uscita (LINK OUT) della prima NM250A all'ingresso (MIC) della seconda (mantenendo il pulsante MIC / LINE sollevato), l'uscita della seconda all'ingresso della terza.

*Verdere l'esempio di collegamento a pagina 26.*

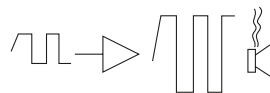


## Sensibilità e clipping. Come evitare il clipping

Un sistema amplificatore-altoparlante è caratterizzato da una sensibilità di ingresso. La sensibilità è definita come il valore del segnale di ingresso all'amplificatore che produce la massima potenza in uscita. Aumentando il segnale oltre tale valore, infatti, non si ottiene una maggiore potenza di uscita, ma soltanto un fenomeno di distorsione detto 'clipping' (saturazione).



In questa situazione l'altoparlante lavora in modo improprio. Si hanno delle sovraescursioni e una dissipazione anomala nella bobina mobile, che si surriscalda e può rompersi. I processori attivi possono evitare solo parzialmente il clipping, abbassando il guadagno dell'amplificatore. È possibile, in casi estremi, oltrepassare anche questo tipo di protezione. Ciò che il processore non può modificare è un'onda che arrivi già distorta in ingresso all'amplificatore.



Gli effetti di un segnale di questo tipo sono gli stessi descritti sopra.

## Come evitare il clipping

Il metodo più semplice sta nel controllare i livelli della catena del segnale. Partendo dal canale del mixer bisogna impostare i controlli (gain ed equalizzatori) in modo tale che il VU-meter del PFL non oltrepassi mai (o solo occasionalmente) gli 0dB o, in mixer più semplici, che la spia 'clip' o 'peak' non si accenda mai (o solo occasionalmente). Se si oltrepassano tali livelli occorre diminuire il gain del canale. Una volta impostato il giusto mix, bisogna fare attenzione ad impostare il livello di uscita in modo tale che il VU-meter non oltrepassi mai il livello della sensibilità di ingresso della cassa amplificata o del finale di potenza. Nel caso del modello NM250A la sensibilità di ingresso è -10dBu.



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated 'dangerous voltage' within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The exclamation point within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions.

## IMPORTANT ! SAFETY INSTRUCTIONS

### WARNING

**In order to protect your own and others' safety and to avoid invalidation of the warranty of this product, please read this section carefully before operating this product.**

- This product has been designed and manufactured for being operated as active speaker system in the applications typical of a sound reinforcement system or of a sound recording system. Operation for purposes and applications other than these has not been covered by the manufacturer in the design of the product, and is therefore to be undertaken at end user's and/or installer's sole risk and responsibility.

- This unit conforms to Class 1 insulation, and for safe use it is required that the protective earth contact is connected to a grounded (earthed) outlet.

### TO AVOID THE RISK OF FIRE AND/OR ELECTRIC SHOCK:

- Never expose this product to rain or moisture, never use it in proximity of water or on a wet surface. Never let any liquid, as well as any object, enter the product. In case, immediately disconnect it from the mains supply and refer to servicing before operating it again. Never place burning candles or other sources of open flame on top of the device.
- Before connecting this product to the mains supply, always make sure that the voltage on the mains outlet corresponds to that stated on the product.
- This product must be connected only to a grounded mains outlet complying to the safety regulations in force via the supplied power cable. In case the power cable needs to be substituted, use exclusively a cable of the same type and characteristics.
- This device is connected to the power line even when the mains switch is in the O (off) position and the power indicator is off. As long as it is plugged in there are potentially dangerous electrical potentials inside the device, so, before undertaking any sort of maintenance work etc., always make sure it has been unplugged from the mains socket.
- Never place any object on the power cable. Never lay the power cable on a walkway where one could trip over it. Never press or pinch it.
- Never install the product without providing adequate airflow to cool it. Never obstruct the air intake openings on it. Leave enough room to get to the mains power socket and the mains connector on the back panel.
- In case the external fuse needs replacement, substitute it only with one of the same type and rating, as stated on the product.
- Always make sure the Power switch is in its '0' (= off) position before doing any operation on the connections of the product.
- Before attempting to move the product after it has been installed, remove all the connections.
- To disconnect the power cable of this product from the mains supply never pull the cable directly. Hold the body of the plug firmly and pull it gently from the mains supply outlet.

### CAUTION!

**This product does not contain user serviceable parts. To prevent fire and/or electrical shock, never disassemble it or remove the rear panel. For maintenance and servicing always refer to the official Montarbo Distributor in your Country or to qualified personnel specifically authorised by the Distributor.**

- Before placing the product on a surface of any kind, make sure that its shape and load rating safely match the product size and weight. When installing the speaker system on a stand, use a stable stand that will fit in the adapter and may carry the loudspeaker weight. When two loudspeakers are laid one upon the other, make sure that stability is guaranteed by matching the upper loudspeaker feet to the lower loudspeaker cavities.

- To avoid shocks, kicks, or whatever action, always reserve a protected area with no access to unqualified personnel as installation site of the product.

In case the product is used near children and animals closest supervision is necessary.

- This product can generate very high acoustic pressures which are dangerous for the hearing system. Always avoid operation at loud levels if anyone is excessively near to the product (at least 1 m of distance).

*Never expose children to high sound sources.*

# ENGLISH

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Bi-amplified, active loudspeaker system  
NM250A

Power supply cable

Owner's manual

Warranty certificate

CE declaration of conformity

# Introduction

NM250A is an active bi-amplified high performance system which combines the high power and sound pressure levels typical of much bigger and heavier professional systems with the sonic accuracy and precision of hi-fi systems in a compact package incredibly easy to transport and fast to set-up. Designed for small concerts, press conferences, talk-shows, NM250 gives you the fidelity, the dynamics and the versatility you ask to a reference monitor system for your home studio.

The cabinet's shape allows for vertical (also mounted on a speaker stand) or horizontal placement even in restricted spaces enhancing further its great flexibility of use.

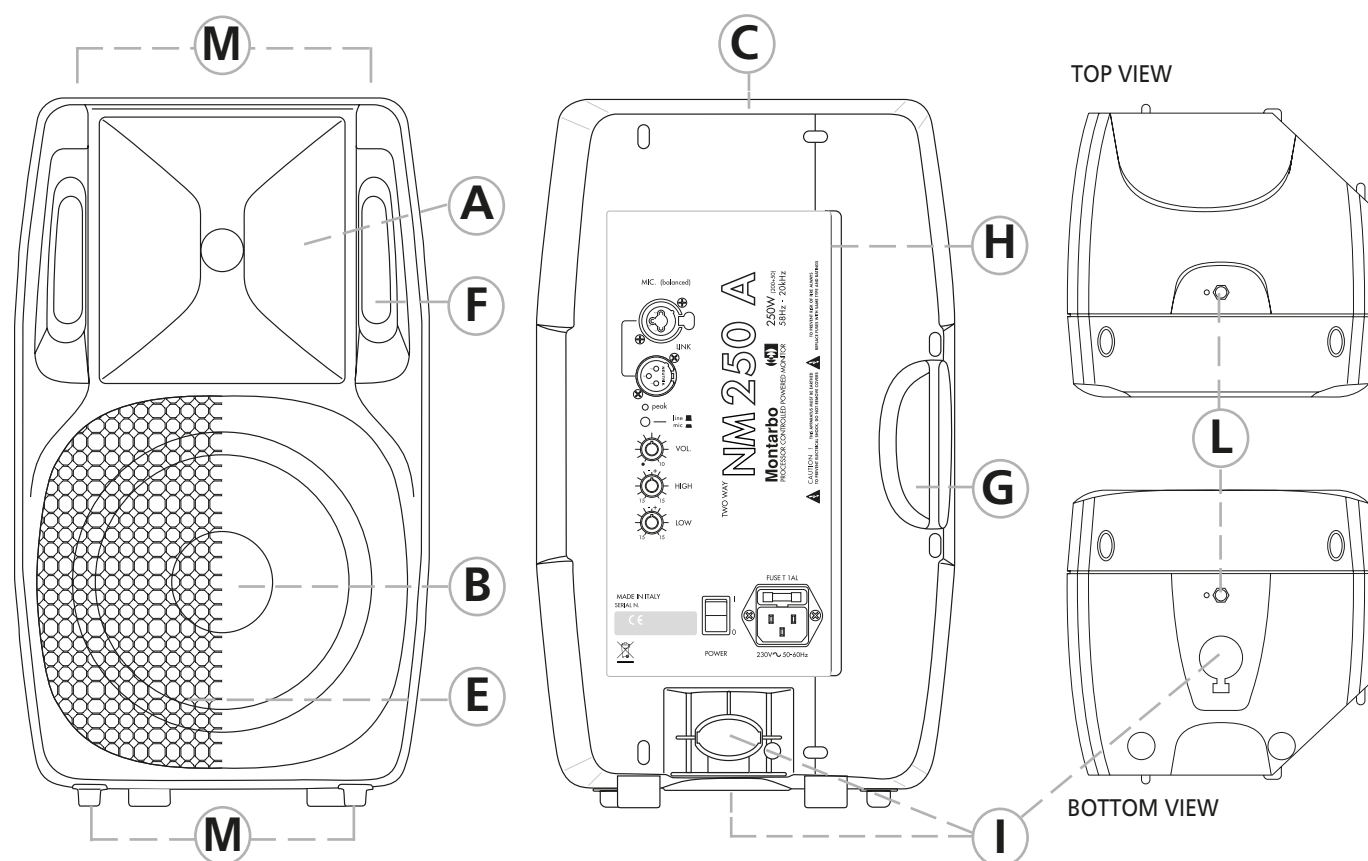
high quality components, custom designed on our specifications:

- 8" high efficiency woofer,
- 1" compression driver loaded by a 90° H x 60° V horn (integrated in the cabinet's body).

2 class AB MosFet power amplifiers (200 + 50 W)

Each one of the two power amplifiers is controlled by an active processor, designed to optimize the linearity of the frequency response as well as the working performance of the systems and is fitted with our exclusive transducers protection circuitry.

# Description



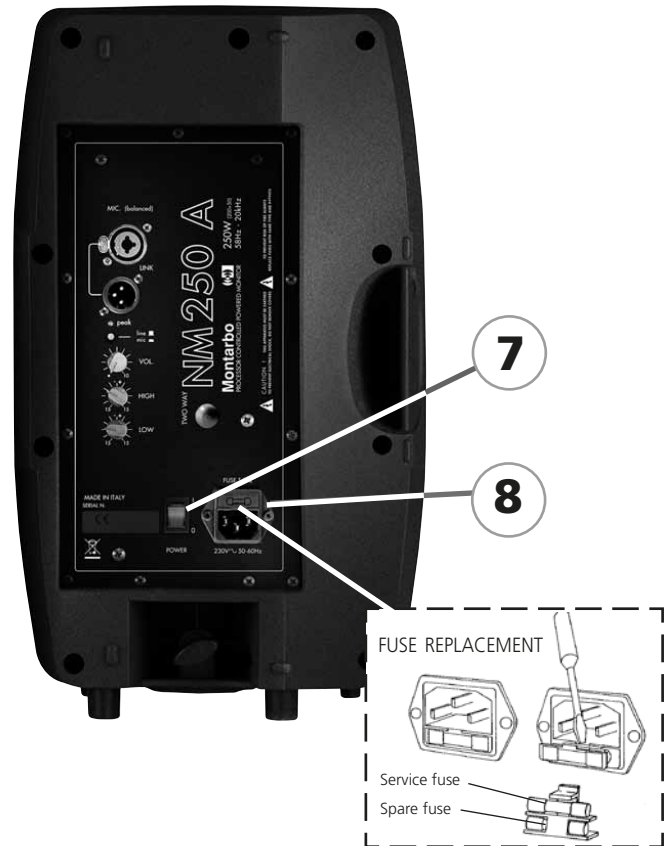
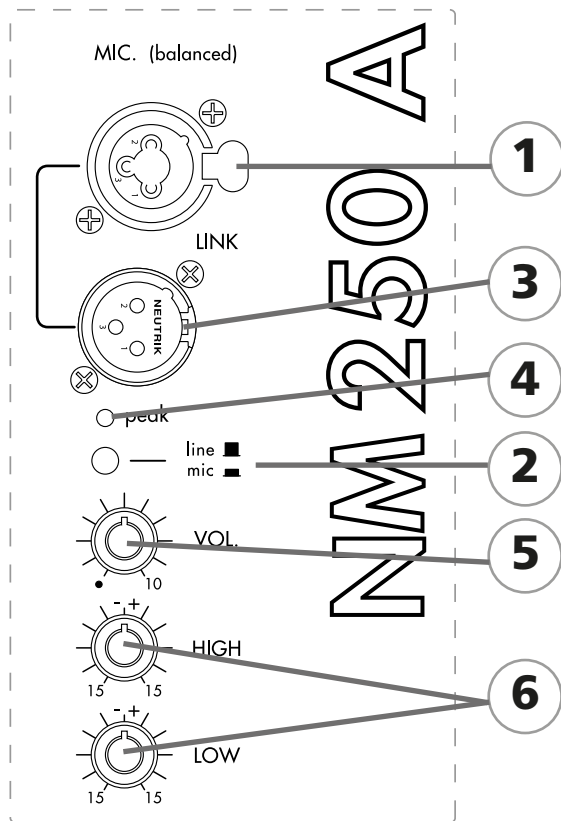
- A** 1" compression driver loaded by a 90° x 60° horn.
- B** 8" high efficiency woofer.
- C** Injection moulded polypropylene cabinet.
- E** Perforated steel grid.
- F** Tuning ports.
- G** Transport handle.

- H** Control and connection panel.
- I** Speaker stand adaptor with safety lock.
- L** Internal threaded inserts (M8) for brackets.
- M** Mating feet and cavities for cabinet stacking.

Construction and components conform to the highest professional standards for maximum reliability.



# Control and connection panel



**1** MIC: balanced input, with adjustable sensitivity (microphone -40dBu / 2kOhms or line -10dBu / 20kOhm), fitted with a Neutrik Combo® connector which accepts both 3 pin XLR and jack plugs.

See 'connectors' and 'connections' at pages 25 and 26, and 'applications' at pages 27, 28 and 29.

**2** LINE/MIC: input sensitivity switch (mic when pushed in). The switch is factory set in the 'line' position (button up) for the most common applications (connection to a mixer or to other active systems). If you want to connect a microphone directly to the input you must push the button to 'mic' (as input and output of the NM250A are connected in parallel and carry the same signal, should the output be connected to another NM250A the line/mic switch of the latter should also be set in the same way of the other).

**3** LINK: balanced output, (in parallel with the input), using a 3 pin XLR connector. It allows for easy parallel connection of other NM250A or active systems.

See 'connectors' and 'connections' at pages 25 and 26, and 'applications' at pages 27, 28 and 29.

**4** Peak led indicator. The PEAK indicator is of great help to get an idea of the output level:

- if it never blinks, this means that the system is still below its power limits.
- occasional blinking of this LED indicates that the working condition is near to the maximum level, yet the musician's experienced ear still continues to be the best judge of the signal quality.

**5** VOL: it is the master volume control.

Adjusts the input levels of the 2 built-in power amplifiers to adapt them to the output level of the mixer. It also allows to adjust the speaker volume when this system is used in parallel with others. Typical operating setting is on maximum position (sensitivity -10dBu). When a microphone is connected to the input this control must be adjusted to reach the desired volume.

**6** HIGH / LOW: 2-band equalizer. It allows changing the response curve of the system depending on the requirements of each different application. This enables optimizing the NM250A's working condition for each specific requirement whether it is used for example in a conference hall, on stage for monitoring and many other situations.

**Note:** to obtain a flat response it is advisable to set both the HIGH and the LOW controls to their mid settings.

**7** POWER /O - I: Mains power on/off switch.

**8** Mains power cord socket (with built-in fuse). Use only the factory supplied mains cable or a suitable cable with a ground connection and marked with the safety approvals valid in the country of use. When installing make sure that it is easy to get to this connector and to the mains plug.

# Important !

## **Product care and maintenance:**

- Never expose the enclosure to heat sources (heaters or other products that produce heat).
- Never place burning candles or other sources of open flame on top of the device.
- Never expose the enclosure to direct sunlight, excessive vibrations or mechanical shocks.
- Avoid operating and storing the enclosure in damp or dusty places: this may lead to malfunctions and premature degrading of specifications.
- Avoid using the enclosure close to strong sources of electromagnetic interferences (e.g. video monitors, high power electrical cabling). This may lead to degradation of audio quality.
- When setting up the system up outdoors, be sure to protect it against rain.
- Care should be taken so that objects do not fall and liquid is not spilled onto the enclosure. In public event don't let people, musicians, technicians or anyone put glasses, cups, ashtrays or cigarettes on the enclosure.
- Always leave the protective grid mounted on the enclosure.
- Use a soft brush or a jet of air to clean the enclosure. Do not use alcohol, solvents or detergents.
- Take care of your connector cables. Make sure that they are not damaged, knotted or twisted.
- Do not force connectors and controls.
- Make sure the mains power switch is off ('0') before starting any connection.
- As long as it is plugged in there can be potentially dangerous electrical potentials inside the device, so, before undertaking any sort of maintenance work etc., always make sure it has been unplugged from the mains socket.

## **Power supply connection:**

- Make sure the mains power switch is off ('0').
  - Check that mains voltage corresponds to the voltage indicated on the panel, under the mains socket.
  - Use only the factory supplied mains cable or, if a different plug style is needed, a suitable cable with a ground connection and marked with the safety approvals valid in the country of use.
  - Leave enough room to get to the mains power socket and the mains connector on the back panel.
- As long as it is plugged in there can be potentially dangerous electrical potentials inside the device, even when the mains switch is in the '0' (off) position and the power indicator is off so, before undertaking any sort of maintenance work etc., always make sure it has been unplugged from the mains socket.

## **Connection to the mixer:**

- Always use only heavy gauge, high quality **SHIELDED** cables (signal cables).
  - Always make sure that the mixer and the powered enclosures are switched off before connecting them.
- This will to avoid annoying noises and signal peaks, which can also be dangerous for the enclosures themselves.

- Always make sure that the 'Line/mic' switch is up.
  - **If the mixer has XLR balanced outputs:** use standard balanced XLR connectors.
  - **If the mixer has XLR unbalanced outputs:** in this case, unless using a Montarbo mixer, make sure that the XLR outputs on the mixer are unbalanced to IEC 268 standard: 1 = GND, 2 = HOT, 3 = GND.
  - **If the mixer has JACK balanced outputs (stereo jacks):** it is possible to use stereo Jack-stereo Jack cables or stereo jack-XLR adapters, wired according to IEC 268: pin 1 = ground (sleeve), pin 2 = tip, pin 3 = ring.
  - **If the mixer has JACK unbalanced outputs (mono jacks):** use suitable Jack-XLR male adapters unbalanced according to IEC 268: pin 1 = ground, pin 2 = tip, pin 3 = ground
- See 'connectors' at page 25.

## **Parallel connection of two or more systems:**

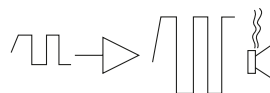
- Always make sure to use only heavy gauge, high quality **SHIELDED** cables. Connect the LINK OUT of the first NM250A to the input (MIC) the second one (make sure that the 'Line/mic' switch is up) the LINK OUT of the second system to the input of the third one and so on.
- See 'connection example' at page 26.

## **Input sensitivity and clipping.**

Every amplified speaker system is characterized by a value of input sensitivity. The sensitivity is defined as the value of the amplifier's input signal that will result in maximum power output. An increase in input signal over that threshold will result, not in increased power, but in a distortion phenomenon called 'clipping' (output stage saturation).



In this condition, the speaker will operate improperly. The diaphragm will exceed its excursion limits, and the voice coil will overheat beyond its thermal limits, resulting in overheating and premature failure. The active processors will help in avoiding clipping, by reducing the amplifier gain and thus the input sensitivity, but this type of protections may be overridden in very extreme conditions. What the active processor cannot modify is a signal that is distorted before getting to the active speaker's input.



The effects of this type of signal are the same as described above.

### **How to avoid clipping**

The simplest way to avoid clipping is to check each level in the signal's chain. Start from each input channel of the mixer and adjust the gain control and the equalizer's controls so that the PFL meter will never (or only occasionally) indicate more than 0dB. In simpler mixers, check that the 'clip' or 'peak' indicator is always off, or blinks only occasionally.

If these levels are exceeded, reduce the channel's input gain. Once the desired mix is obtained, adjust the output level so that it never exceeds the active speaker's or the power amplifier's input sensitivity, as displayed on the master output VU-meter. In model NM250A the input sensitivity is -10dBu.



Das Blitzsymbol mit Pfeilspitze innerhalb eines gleichschenkligen Dreiecks warnt den Benutzer vor dem Vorhandensein nicht-isolierter 'gefährlicher Netzspannungen' im inneren des Produkts, die so stark sein können, daß für Menschen die Gefahr eines Stromschlags besteht.



Das Ausrufezeichen innerhalb eines gleichschenkligen Dreiecks macht den Benutzer auf das Vorhandensein wichtiger Betriebs- und Wartungsanleitungen aufmerksam.

## WICHTIG ! Sicherheitsvorschriften

### ACHTUNG

**Im Interesse Ihrer eigenen Sicherheit und der Sicherheit anderer und um die Garantie nicht zu gefährden, sollte der vorliegende Abschnitt vor Gebrauch des Produkts aufmerksam gelesen werden.**

- Dieses Gerät wurde für den Gebrauch als Aktivlautsprechersystem im Rahmen typischer Anwendungen von Verstärkungssystemen und/oder Tonaufnahmesystemen entwickelt und hergestellt. Der Gebrauch zu anderen als den genannten Zwecken ist vom Hersteller nicht vorgesehen und erfolgt somit unter direkter Verantwortung des Benutzers/Installateurs.

- Dieses Gerät entspricht der Isolierungsklasse 1 (Schutzerdung ist unbedingt erforderlich).

### Zur Vermeidung der Gefahr von Bränden oder elektrischen Schlägen:

- Dieses Produkt nicht Regen oder Feuchtigkeit aussetzen und nicht in der Nähe von Wasser betreiben. Verhindern, dass in das Gerät Flüssigkeiten oder Gegenstände eindringen. Sollte dies dennoch geschehen, unverzüglich das Gerät vom Stromnetz abnehmen und vor der erneuten Inbetriebnahme durch einen qualifizierten Servicetechniker überprüfen lassen. Stellen Sie keine offenen Flammen, beispielsweise angezündete Kerzen, auf das Gerät.
- Vor dem Anschluss an das Stromnetz sicherstellen, dass die Netzspannung mit der auf dem Gerät angegebenen Nennspannung übereinstimmt.
- Das Gerät ausschließlich mit dem mitgelieferten Netzkabel an eine Steckdose mit Schutzkontakt anschließen, die den geltenden Sicherheitsvorschriften entspricht. Muss das Netzkabel ersetzt werden, ausschließlich ein Netzkabel mit identischen Eigenschaften verwenden.
- Selbst wenn der Netzschalter sich in der Stellung '0' (aus) befindet, ist das Gerät nicht vollständig vom Netz getrennt und kann gefährliche elektrische Potentiale aussenden. Vor jedem Wartungseingriff ist das Gerät vom Stromnetz zu trennen (Netzkabel ausstecken)
- Zum Ausstecken des Netzkabels aus der Steckdose keinesfalls am Netzkabel ziehen, sondern das Kabel stets direkt am Stecker anfassen.
- Keine Gegenstände auf dem Netzkabel abstellen. Das Netzkabel so verlegen, dass es kein Hindernis darstellt und keine Stolpergefahr besteht. Das Netzkabel nicht quetschen und nicht darauf treten.
- Bei der Installation genug freien Raum um das Gerät lassen, um eine ausreichende Luftzirkulation für die Kühlung zu gewährleisten. Die Lüftungs- und Ansaugöffnungen nicht verdecken. Genug freien Raum lassen um die Steckdose und den Netzstecker auf der Rückseite zu erreichen.
- Muss die externe Sicherung ausgetauscht werden, ausschließlich eine Sicherung mit identischen Eigenschaften gemäß den Angaben auf dem Gerät verwenden.
- Vor dem Anschluss des Geräts sicherstellen, dass sich der Ein/Aus-Schalter in Schaltstellung '0' befindet.
- Vor dem Transport des bereits installierten oder bereits in Betrieb befindlichen Geräts zunächst alle Anschlusskabel abnehmen.

### ACHTUNG!

**Dieses Gerät enthält keine Teile, bei denen ein direkter Eingriff seitens des Benutzers vorgesehen ist. Das Gerät keinesfalls auseinanderbauen oder die Rückwand abnehmen, um die Gefahr von Bränden und elektrischen Schlägen zu vermeiden. Für Wartungs- und Reparatüreingriffe aller Art wenden Sie sich stets an das Unternehmen Elettronica Montarbo srl und/oder qualifizierte Fachtechniker, die vom Unternehmen genannt werden.**

- Bei der Vorbereitung des Geräts auf den Betrieb sollte sichergestellt werden, dass die Form und die Tragfähigkeit der Auflagefläche für die Aufstellung desselben geeignet sind. Sollte die Lautsprecherbox auf einem Stativ installiert werden, so sollte dieses hinsichtlich der Tragfähigkeit dem Gewicht des Produktes entsprechend ausgelegt sein, und in den hierfür vorgesehenen Adapter eingesteckt werden. Werden zwei Lautsprecherboxen übereinander aufgestellt, so ist zu gewährleisten, daß die Stabilität durch das Einstecken der Füße der oberen Box in die entsprechenden Vertiefungen der unteren Box gegeben ist.

- Zur Vermeidung von Stößen, Tritten und sonstigen gewaltsamen Einwirkungen das Gerät nur an einem geschützten und Unbefugten nicht zugänglichen Ort aufstellen. Wenn das Gerät in Gegenwart von Kindern oder Haustieren betrieben wird, ist eine strikte Überwachung erforderlich.

- Dieses Gerät kann sehr hohe Schalldruckwerte erzeugen, die zu Gehörschäden führen können. Daher sind hohe Lautstärkepegel zu vermeiden, wenn sich das Publikum in großer Nähe zum Gerät befindet. Sicherstellen, dass ein Abstand von mindestens 1m zwischen Gerät und Publikum gewährleistet ist.

**Niemals Kinder starken Schallemissionen aussetzen !**

# DEUTSCH

## INHALTSVERZEICHNIS

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## PACKUNGSGEHALT

Aktiv-Lautsprechersystem NM250A  
 Netzkabel  
 Bedienungsanleitung  
 Garantiebescheinigung  
 EG-Konformitätserklärung

# Vorstellung

Das aktive Bi-Amp Hochleistungslautsprechersystem NM250A verbindet die Leistung und den Schalldruck, wie sie sonst nur viel größere und schwerere Systeme bieten, mit Kompaktheit und einfacher Benutzung die bei schnellen Aufbauzeiten und kleinen Räumen unentbehrlich sind.

Speziell für kleine Auftritte, Konferenzen, Vorträge entwickelt, ist NM250A ideal auch für Ihr Heimstudio oder als Referenz-Monitorsystem. Im Freien wie in Innenräumen, in Clubs, Restaurants und allen kleinen bis mittelgroßen Sälen besticht der NM250A durch Klangqualität und Anwenderfreundlichkeit.

Die Form des Gehäuses ermöglicht eine vertikale Installation bzw. eine horizontale Installation als Bühnenmonitor.

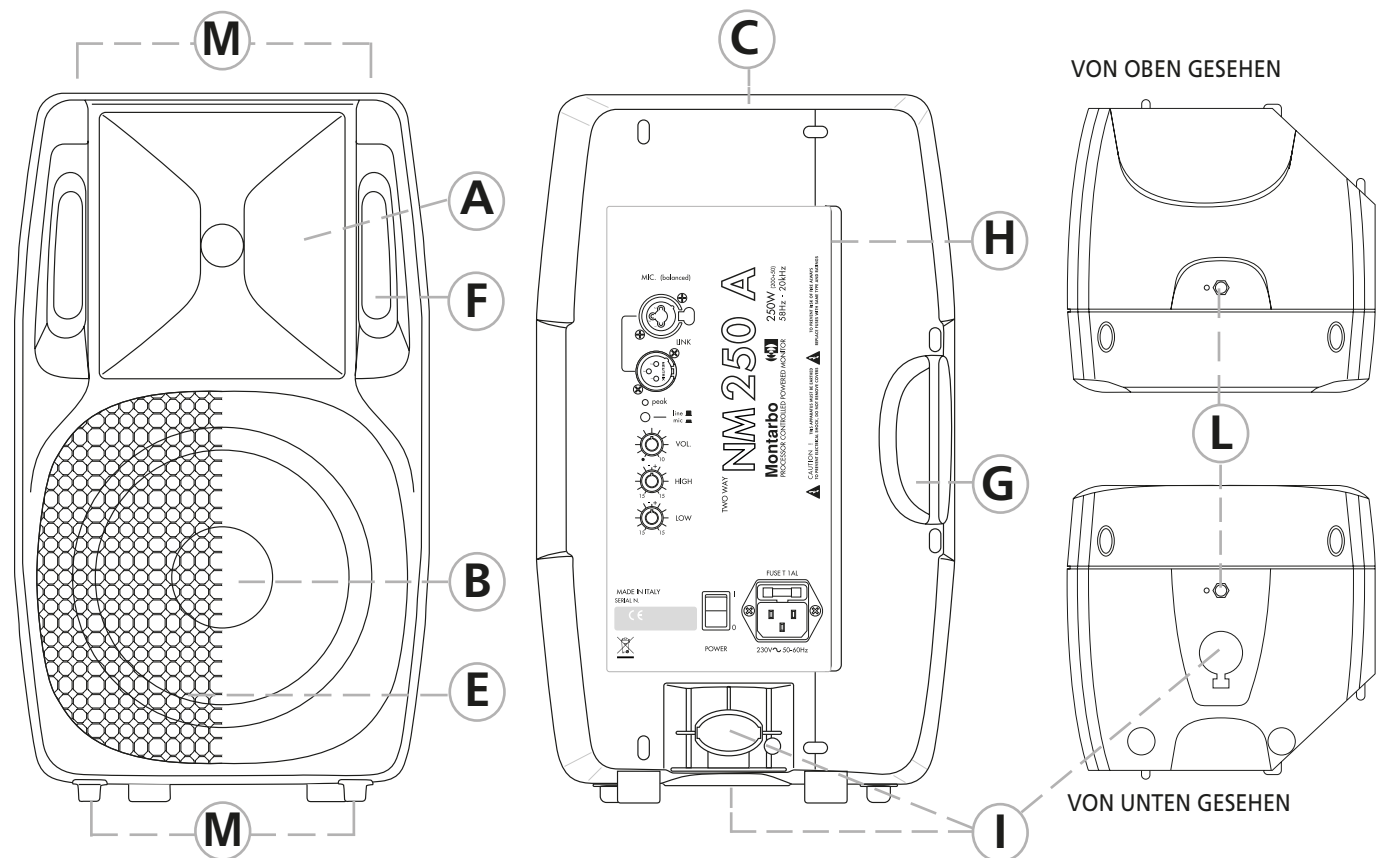
Nach Montarbo-Angaben speziell gefertigte:

- 8" Hochleistungs-Tieftöner,
- 1" Kompressionsdriver mit Horn (Abstrahlwinkel 90°H x 60°V).

2 MosFet-Verstärker in der Klasse AB (200 + 50 W)

Die eingebauten Verstärker sind MosFet-Einheiten in der Klasse AB (200 + 50 W). Sie liefern sowohl höchste Leistung als auch absolute Klangtreue. Jeder ist mit einem exklusiven Aktivschutzkreis der Wandler bestückt und wird von einem unabhängigen dynamischen Prozessor gesteuert, der die Linearität des Frequenzgangs und die Leistung des Systems in jeder Situation optimiert.

# Beschreibung



**A** 1" Kompressionsdriver mit Horn (Abstrahlwinkel 90°H x 60°V).

**B** 8" Hochleistungslautsprecher.

**C** Gehäuse aus Polypropylen (Spritzguß).

**E** Schutzgitter aus Stahl.

**F** Reflexöffnungen.

**G** Tragegriff.

**H** Bedien- und Anschlußfeld.

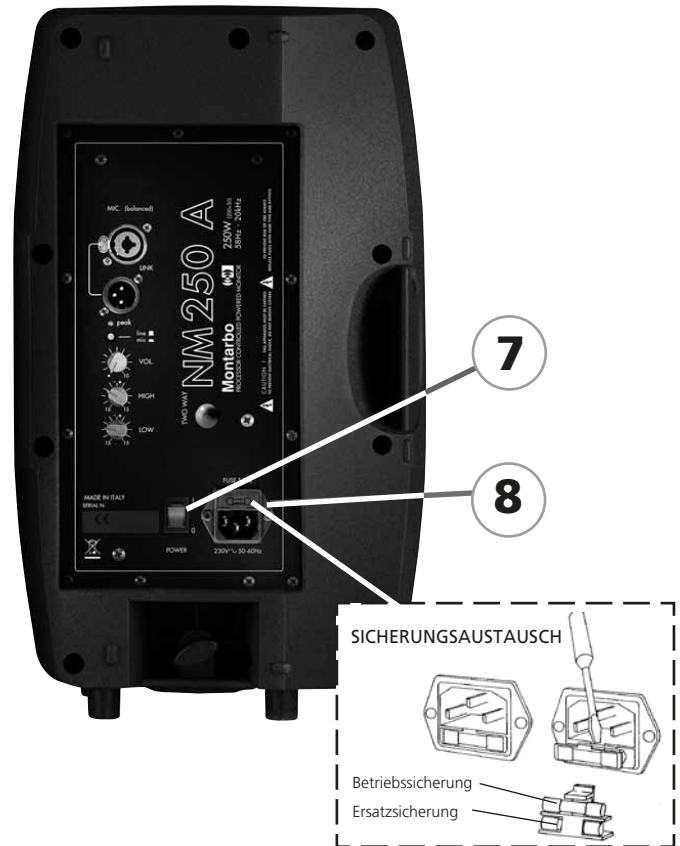
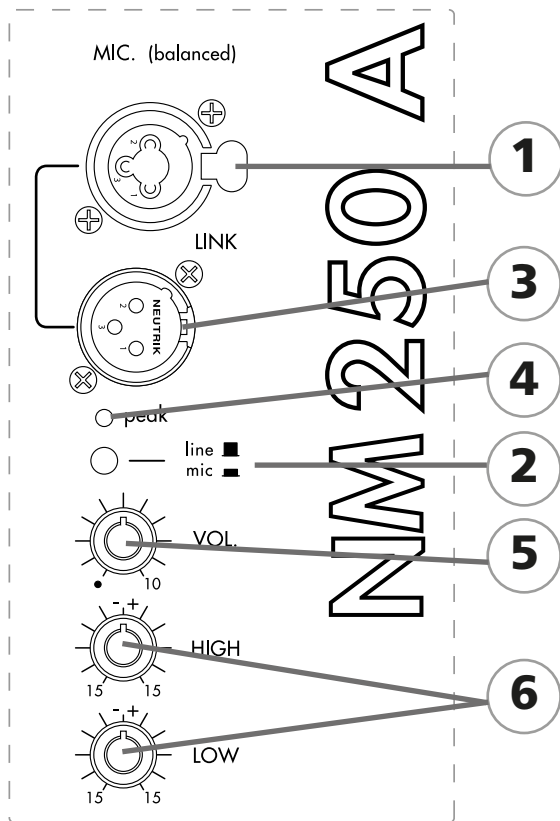
**I** Adapter für Stativ, mit Sicherheitshalter.

**L** Eingebaute Schraubgewinde (M8) für Halteklammern.

**M** Füße und entsprechende Vertiefungen (im oberen Teil der Box) sorgen für Stabilität beim Stapeln von mehreren Boxen.

Bauteile und Konstruktion erfüllen höchste professionelle Standards und garantieren maximale Zuverlässigkeit.

# Bedien- und Anschlußfeld



**1** MIC: symmetrischer Eingang, wählbar für Mikrofon (-40dBu / 2 kOhm) oder Line (-10dBu / 20kOhm), mit Neutrik Combo® Buchse, die sowohl für Klinken- als auch für XLR-Stecker geeignet ist.

*Siehe 'Stecker' und 'Anschlüsse' auf den Seiten 25 und 26 sowie 'Anwendungsbeispiele' auf den Seiten 27, 28 und 29.*

**2** LINE/MIC: Wahlschalter der Eingangsempfindlichkeit. Beim Verlassen des Werks befindet sich der Schalter in der angehobenen Position 'Line', da diese Einstellung normalerweise häufiger zur Anwendung kommt (für Anschlüsse an Mischanlagen, an andere aktive Systeme, ...). Schließt man ein Mikrofon an den Eingang an, so muß der Schalter in Stellung 'MIC' gedrückt werden (ist ein zweiter NM250A an den Ausgang angeschlossen, muß auch dessen Line/Mic Schalter gedrückt werden, weil der Ein- und Ausgang des NM250A parallelgeschaltet sind und dasselbe Signal tragen).

**3** LINK: symmetrischer Ausgang (parallel zum Eingang) auf dreipoligem XLR-Stecker. Damit können mehrere NM250A oder andere Systeme parallelgeschaltet werden.

*Siehe 'Stecker' und 'Anschlüsse' auf den Seiten 25 und 26 sowie 'Anwendungsbeispiele' auf den Seiten 27, 28 und 29.*

**4** Übersteuerungs-LED-Anzeige (PEAK). Sehr hilfreich für das Einstellen des richtigen Ausgangspegels:

- blinkt die Anzeige nie, arbeitet das System unterhalb seiner Leistungsgrenze.
- gelegentliches Aufleuchten der LED zeigt an, daß der Monitor mit nahezu maximaler Leistung arbeitet
- das erfahrene Ohr des Musikers beurteilt die Qualität des Signals freilich immer noch am besten.

**5** VOL: Lautstärkeregler. Ermöglicht die Eingangsempfindlichkeit der integrierten Leistungsendstufen an den Ausgangspegel des Mischpults anzupassen. Außerdem kann damit die Lautstärke der Box eingestellt werden, wenn sie gleichzeitig mit anderen Lautsprechersystemen verwendet wird. Im allgemeinen stellt man den Regler auf Maximum (Empfindlichkeit -10dBu).

Wird ein Mikrofon an den Eingang angeschlossen, stellt man mit dem Regler die gewünschte Lautstärke ein.

**6** HIGH / LOW: 2-Band Klangregelung. Damit kann die Kurve des Frequenzgangs variiert werden, um je nach den verschiedenen Einsatzbedürfnissen bestmögliche Leistungen zu erzielen. Dies bedeutet, daß das Verhalten des NM250A für den Einsatz in Konferenzräumen, für die Überwachung im Bereich einer Musikergruppe oder für andere Einsätze optimiert werden kann.

**Anmerkung.: Um einen flachen Frequenzgang zu erzielen ist es empfehlenswert beide Regler in Mittelstellung zu drehen**

**7** POWER / O - I: Netzschalter.

**8** Buchse für Netzkabel. Nur jenes Netzkabel verwenden, das zusammen mit dem Gerät geliefert wurde, ansonsten muß ein Kabel mit Erdungsleiter verwendet werden, das die im jeweiligen Einsatzland geltenden Sicherheitskennzeichnungen aufweist. Bei der Installation darauf achten, dass sowohl der Netzverbinder als auch die Steckdose leicht erreichbar sind.



# Wichtig !



## Pflege und Wartung des Geräts:

- Die Lautsprecherbox ist entfernt von Wärmequellen (Heizkörpern oder jedem anderen Gerät, das Wärme produziert) aufzustellen.
- Stellen Sie keine offenen Flammen, beispielsweise angezündete Kerzen, auf das Gerät.
- Setzen Sie das Gerät nicht für längere Zeit direkter Sonneneinstrahlung aus. Vermeiden Sie starke Vibrationen und Stöße.
- Die Lautsprecherbox darf nicht in feuchter oder staubiger Umgebung betrieben oder gelagert werden. Sie darf niemals Regen ausgesetzt werden. Somit vermeiden Sie Störungen und eine vorzeitige Verschlechterung der Leistungen oder gar elektrische Stromschläge bzw. Brand.
- Achten Sie beim Einsatz im Freien darauf, dass Ihr System vor Regen geschützt aufgestellt wird.
- Vermeiden Sie den Betrieb des Systems in der Nähe von elektromagnetischen Störquellen (wie Video-Monitoren, Starkstromkabel etc.). Dies könnte die Tonqualität beeinträchtigen.
- Keine Gegenstände auf die Lautsprecherbox fallen lassen. Keine Flüssigkeiten auf die Lautsprecherbox stellen. Achten Sie besonders darauf, dass keine Gläser, Tassen, Aschenbecher und Zigaretten auf die Lautsprecherbox gelegt werden.
- Zum Säubern sollte eine weiche Bürste oder Druckluft verwendet werden. Benutzen Sie keine Reinigungs- oder Lösungsmittel oder Alkohol.
- Schutzgitter keinesfalls entfernen.
- Vergewissern Sie sich stets, dass die Kabel intakt sind und vermeiden Sie das Knoten und Knicken von Kabeln.
- Vermeiden Sie das Anstoßen an die Bedienelemente.
- Vor dem Anschluss sicherstellen, dass sich der Netzschalter des Systems in Schaltstellung '0' (aus) befindet.
- Selbst wenn der Netzschalter sich in der Stellung '0' (aus) befindet, ist das Gerät nicht vollständig vom Netz getrennt und kann gefährliche elektrische Potentiale aussenden. Vor jedem Wartungseingriff ist das Gerät vom Stromnetz zu trennen (Netzkabel ausstecken)



## Netzanschluss:

- Überprüfen, ob die Netzspannung mit der auf dem Bedienfeld angegebenen Spannung übereinstimmt.
- Das Netzkabel mit einer Steckdose verbinden, deren Erdung sicher gewährleistet ist. Nur jenes Kabel verwenden, das zusammen mit dem Gerät geliefert wurde, ansonsten muß ein Kabel mit Erdungsleiter verwendet werden, das die im jeweiligen Einsatzland geltenden Sicherheitskennzeichnungen aufweist.
- Genug freien Raum hinter der Box lassen um die Steckdose und den Netzstecker auf der Rückseite zu erreichen. Selbst wenn der Netzschalter sich in der Stellung '0' (aus) befindet, ist das Gerät nicht vollständig vom Netz getrennt und kann gefährliche elektrische Potentiale aussenden. Vor jedem Wartungseingriff ist das Gerät vom Stromnetz zu trennen (Netzkabel ausstecken).



## Anschluss ans Mischpult:

- Stets ausschließlich **ABGESCHIRMTE Kabel** (Signal-Kabel) mit ausreichendem Querschnitt und von guter Qualität benutzen.
- Versichern Sie sich, daß alle Netzschalter in Stellung '0' (aus) sind, bevor sie anschließen. Auf diese Weise vermeidet man unangenehme Geräusche sowie Signalübersteuerungen, die für die Boxen selbst gefährlich sein können.

- Versichern Sie sich das der 'Line/Mic' Schalter 'hoch' (= Line) ist.
- Verfügt das Mischpult über **symmetrische XLR-Ausgänge**, werden normale Kabel mit symmetrischen XLR-Steckern benutzt.
- Verfügt das Mischpult über **unsymmetrische XLR-Ausgänge** und stammt nicht aus dem Haus Montarbo, prüfen Sie vorher, ob die Ausgänge gemäß der IEC-Norm 268 unsymmetriert sind, d.h.: 1 = Masse (GND), 2 = heiß (HOT), 3 = Masse (GND).
- Verfügt das Mischpult über **symmetrische Klinken-Ausgänge** werden Kabel mit Stereo-Klinkensteckern oder Kabel mit Adapter-Klinken symmetrischer XLR benutzt, die gemäß der IEC-Norm 268 symmetriert sind, und zwar: Pin 1=Masse, Pin 2=Spitze, Pin 3=Ring.
- Verfügt das Mischpult über **unsymmetrische Klinken-Ausgänge** werden Klinken-Klinken-Kabel oder Kabel mit Klinken-XLR-Adapter verwendet, die gemäß der IEC-Norm 268 unsymmetriert sind, und zwar: pin 1 = Masse, pin 2 = Spitze, pin 3 = Masse.

*Siehe Anschlüsse auf Seite 25*



## Parallel-Anschluß mehrerer Systeme:

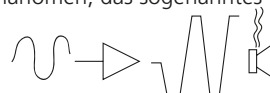
Stets ausschließlich **ABGESCHIRMTE Kabel** (Signal-Kabel) mit ausreichendem Querschnitt und von guter Qualität benutzen. Den Ausgang (LINK) des ersten NM250A an den Eingang (MIC) des zweiten anschließen ('Line/mic' Schalter hoch = 'line'), den Ausgang des zweiten an den Eingang des dritten usw.

*Siehe Anschlussbeispiel auf Seite 26*

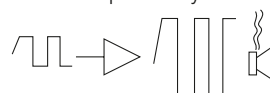


## Empfindlichkeit und Clipping (Übersteuerung)

Jedes Aktiv-System ist durch einen Eingangsempfindlichkeitwert gekennzeichnet. Die Empfindlichkeit ist definiert als den Eingangssignalwert des Verstärkers, der die maximale Ausgangsleistung erzeugt. Eine Steigerung des Eingangssignals über diesen Wert, führt zu keiner höheren Ausgangsleistung sondern zu einem Verzerrungsphänomen, das sogenannte Clipping (Übersteuerung)



Unter dieser Bedingung wird der Lautsprecher falsch arbeiten. Die Membran wird stark überschwingen und die Spule wird überhitzt und kaputt gehen. Die integrierte Aktiv-Prozessoren können das Clipping nur teilweise verhindern, durch Verminderung des Gains (und daher der Eingangsempfindlichkeit) des Verstärkers. In extreme Fälle wird jedoch auch dieser Typ von Schutz überschritten. Was der Prozessor nicht ändern kann ist eine verzerrte Welle am Eingang des im Lautsprechersystems eingebauten Verstärkers.



Die Wirkungen eines solchen Signals sind dieselbe wie die oben beschrieben.

## Tipps zur Vermeidung von Clipping.

Die einfachste Weise um das Clipping zu verhindern ist alle Pegel der Signalkette zu kontrollieren. Auf allen Kanälen des Mischpults, jeweils nur ein Kanal, Gain und Klangregelungen so einstellen, daß der VU-meter des PFL nie oder nur gelegentlich 0dB überschreitet, oder bei einfachere Mischpulte, daß die Peak (oder Clip)-LED nie oder nur gelegentlich aufleuchtet. Werden solche Pegelgrenzen überschritten, soll man den Gain des Kanals zurückdrehen. Nachdem man den gewünschten Mix erreicht hat muß man den Ausgangspegel des Mischpults so einstellen, daß der VU-Meter den Pegel der Eingangsempfindlichkeit des Aktiv-Lautsprechers nie überschreitet. Beim Aktiv-System NM250A ist die Eingangsempfindlichkeit -10dBu.



Le symbole représentant un éclair se terminant par une flèche dans un triangle équilatéral indique la présence dans le boîtier d'un 'voltage dangereux' non isolé, suffisamment important pour constituer un risque d'électrocution pour les personnes.



Le symbole représentant un point d'exclamation dans un triangle équilatéral renvoie l'utilisateur à des instructions importantes relatives au fonctionnement et à l'entretien de l'appareil.

## IMPORTANT ! Consignes de sécurité

### ATTENTION

**Dans l'intérêt de la sécurité personnelle et d'autrui, et pour ne pas invalider la garantie, nous recommandons de lire attentivement ces normes avant d'utiliser le produit.**

- Cet appareil a été conçu et construit pour être utilisé en tant que système de haut-parleurs avec amplificateur dans le contexte typique d'un système d'amplification sonore et/ou d'un système d'enregistrement sonore. L'utilisation pour des objectifs différents de ceux-ci n'est pas garantie par le constructeur et s'effectue par conséquent sous la responsabilité directe de l'utilisateur/installateur.  
- Cet appareil est classifié de Classe 1 d'isolement (appareil relié à une terre de protection).

### POUR EVITER LE RISQUE D'INCENDIE ET/OU D'ÉLECTROCUTION:

- Ne pas exposer le produit à la pluie, ne pas l'utiliser en présence d'humidité élevée ou près de l'eau. Ne pas laisser pénétrer de liquide à l'intérieur de l'appareil, ni aucun autre objet solide. Dans le cas contraire débrancher immédiatement l'appareil et s'adresser à un service d'assistance qualifié avant de le réutiliser. Ne pas déposer des bougies allumées et autres sources de flamme sur l'appareil.
- Avant de brancher l'appareil au secteur, s'assurer que la tension correspond à celle indiquée sur l'appareil.
- Brancher cet appareil exclusivement sur une prise de courant dotée de contact de terre, répondant aux normes de sécurité en vigueur, au moyen du câble d'alimentation fourni. Au cas où le câble devrait être remplacé, utiliser exclusivement un câble possédant les mêmes caractéristiques.
- L'appareil est branché au réseau électrique même quand l'interrupteur est en position O (éteint) et le voyant lumineux éteint. A l'intérieur sont présents des potentiels électriques dangereux. Avant toute intervention, débrancher le câble d'alimentation de la prise.
- Ne poser aucun objet sur le câble d'alimentation. Ne pas le positionner dans des lieux où il pourrait entraver les déplacements ou provoquer une chute. Ne pas l'écraser ni le piétiner.
- Installer cet appareil en prévoyant un espace suffisamment grand pour la circulation de l'air nécessaire au refroidissement. Ne pas obstruer les ouvertures ou les prises d'air présentes sur l'appareil. Laisser un espace suffisant pour accéder à la prise d'alimentation et au connecteur d'alimentation sur le panneau arrière de l'appareil.
- En cas de remplacement du fusible extérieur, utiliser exclusivement un fusible de caractéristiques identiques, comme indiqué sur l'appareil.
- Avant d'effectuer toute opération de branchement, s'assurer que l'interrupteur d'allumage de l'appareil est sur 'Off' (éteint).
- Avant d'effectuer tout déplacement du produit déjà installé ou en service, enlever tous les câbles de branchement.
- Pour déconnecter l'appareil, ne jamais tirer le câble mais le saisir par le connecteur.

### ATTENTION!

**Cet appareil ne contient pas de pièces destinées à l'intervention directe de la part de l'utilisateur. Pour éviter le risque d'incendie et/ou d'électrocution, ne pas l'ouvrir. Pour toute intervention d'entretien ou de réparation, s'adresser au distributeur Montarbo du pays concerné et/ou à du personnel hautement qualifié, spécifiquement signalé par le distributeur.**

- Au moment d'installer l'appareil, s'assurer que la forme et la surface d'appui en constituent un support idéal. Si vous souhaitez installer l'enceinte sur une tige de support, vérifiez que sa portée convient au poids du produit et l'introduire dans l'adaptateur prévu à cet effet. Si vous deviez superposer deux enceintes, assurez-vous que la stabilité est bien garantie par l'encastrement des pieds de l'enceinte supérieure dans les cavités de l'enceinte inférieure.

- Pour éviter les chocs, les coups de pied, ou toute autre action, utiliser pour l'installation du produit un lieu sûr comme une zone protégée dont l'accès est interdit au personnel non qualifié. Au cas où l'appareil serait utilisé en présence d'enfants et d'animaux, une surveillance étroite est nécessaire.

- Ce produit est en mesure de générer des pressions acoustiques très élevées et dangereuses pour l'appareil auditif. Par conséquent, éviter de l'utiliser à des niveaux acoustiques élevés si le public se trouve trop près du produit.

**Ne pas exposer les enfants à des sources sonores trop élevées !**

# FRANÇAIS

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## CONTENU DE L'EMBALLAGE

Système actif biamplifié NM250A  
Câble d'alimentation  
Manuel d'instructions  
Certificat de garantie  
Déclaration de conformité CE

# Presentation

NM250A est un système de haut-parleurs actif bi amplifié qui combine la puissance et la pression acoustique typique des systèmes professionnels du poids et dimensions beaucoup supérieurs, à un encombrement rigoureusement contenu et a une facilité d'utilisation, de transport et d'installation incomparable. Réalisé pour amplifier des petits spectacles, des présentations éditoriales, des conférences de presse, des débats ou des congrès NM250A est également idéal en tant que systèmes d'écoute pour le home studio, ou le monitor personnel dans les salles d'essai.

La ligne du baffle permet de l'installer verticalement (même sur stand en utilisant l'adaptateur incorporé) ou horizontalement dans des espaces réduits, ce qui augmente sa grande flexibilité d'exploitation.

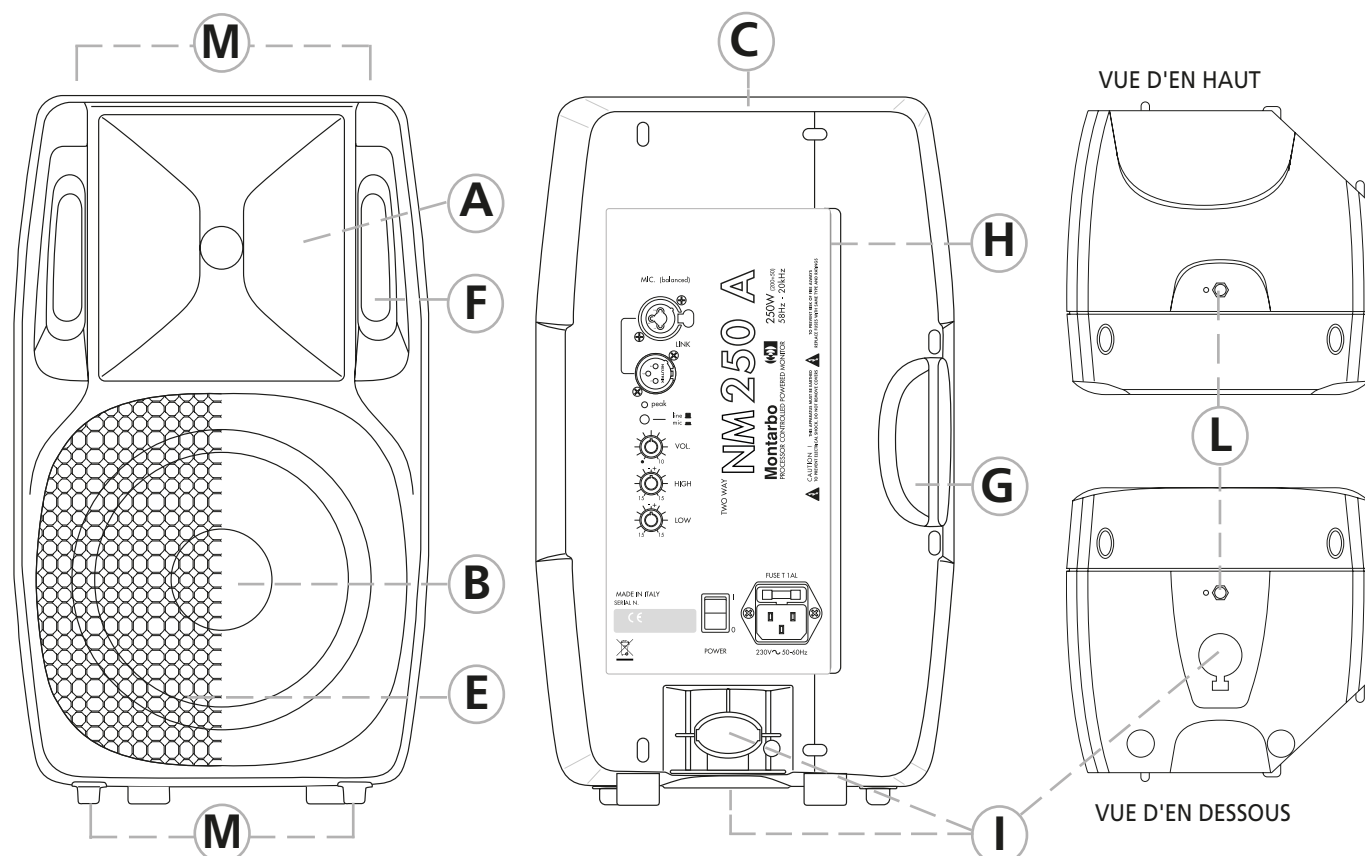
composants fabriqués selon nos spécifications:

- woofer de 8" à haute efficacité,
- driver à compression de 1" accouplé à un pavillon.

deux amplificateurs à MosFet de classe A-B (200 + 50 W)

Chaque amplificateur est contrôlé par un processeur dynamique indépendant et par une électronique de supervision qui assure des performances extraordinaires en optimisant les caractéristiques des composants et en les protégeant de toute surcharge dans les conditions les plus difficiles.

# Description

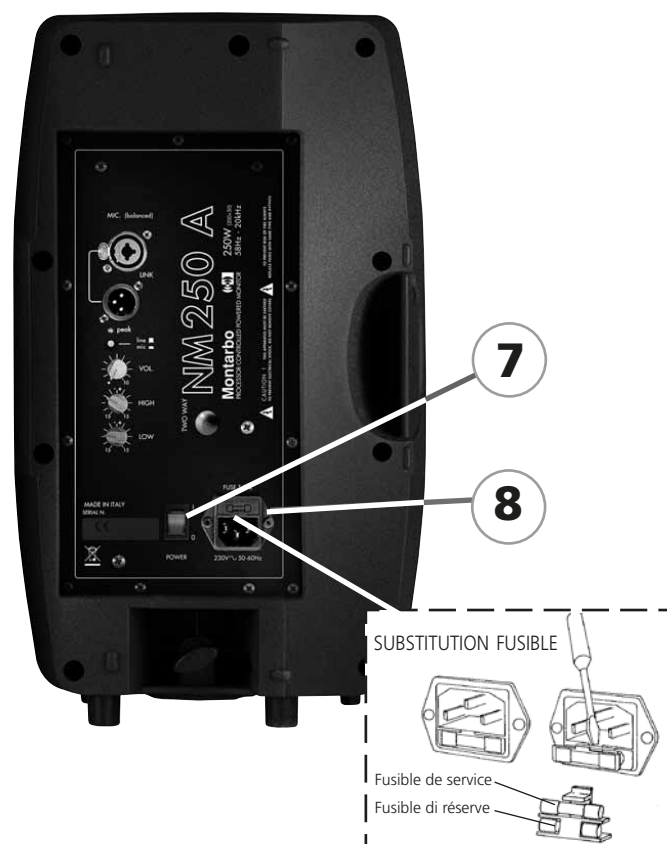
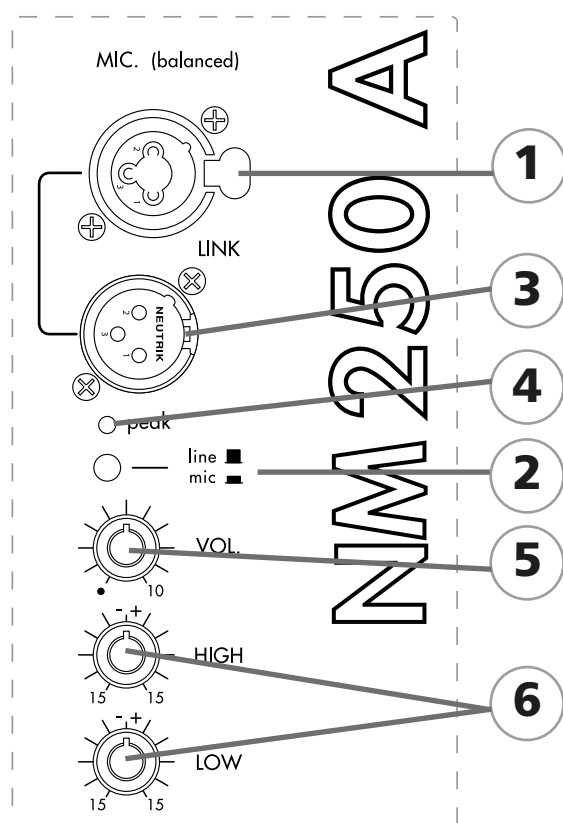


- A** Driver à compression de 1" à pavillon (dispersion 90°H x 60°V).
- B** Woofer de 8" à haute efficacité.
- C** Baffle en polypropylène moulé par injection.
- E** Grille de protection en acier.
- F** Events d'accord.
- G** Poignée de transport.

- H** Panneau de contrôle et connexions.
- I** Adaptateur pour le support du baffle, avec bloc de sécurité.
- L** Vis internes filetées (M8) pour fixation des supports.
- M** Pieds et cavités permettent d'empiler les enceintes de façon absolument stable.

Les matériels et la construction respectent les standards professionnels les plus élevés pour assurer une fiabilité maximum.

# Panneau contrôles et connexions



**1** MIC: entrée symétrique, sélection pour micro (-40dBu / 2kOhms) ou ligne (-10dBu / 20kOhm), dotée de prise Neutrik Combo® utilisable soit en XLR, soit en Jack.

Voir 'connecteurs' et 'connexions' aux pages 25 et 26 et 'applications' aux pages 27, 28 et 29.

**2** LINE/MIC: sélecteur de la sensibilité d'entrée.

L'enceinte sort de la fabrique avec le bouton soulevé en position 'line' pour les conditions d'emploi les plus fréquentes (connexion à un mixeur, à d'autres systèmes actifs ...). Pour raccorder un micro à l'entrée, il faudra donc enfoncer le bouton dans la position 'mic' (dans ce cas, puisque l'entrée et la sortie de la NM250A sont parallèles et portent le même signal, si on raccorde un autre NM250A à la sortie, il faut se rappeler d'enfoncer aussi le sélecteur Line/Mic de ce dernier.

**3** LINK: sortie symétrique (en parallèle à l'entrée) sur connecteur XLR à 3 pôles. Il permet la connexion en parallèle de plusieurs NM250A ou d'autres systèmes.

Voir 'connecteurs' et 'connexions' aux pages 25 et 26 et 'applications' aux pages 27, 28 et 29.

**4** Indicateur LED crête-mètre. Est d'une grande aide pour avoir une idée du niveau de sortie:

- si le voyant ne s'allume jamais cela signifie que vous êtes au dessus de la limite de puissance du système.
- si le voyant s'allume de temps en temps cela signifie que l'utilisation est proche de son maximum, tout en n'oubliant pas que l'oreille et la sensibilité du musicien reste les meilleurs juges de la qualité du signal.

**5** VOL: Volume général. Permet de régler et d'adapter la sensibilité d'entrée des deux amplis incorporés au niveau de la sortie du mixeur. Il permet en outre de régler le volume de l'enceinte en cas d'utilisation avec d'autres systèmes de haut-parleurs. La position choisie par les utilisateurs est généralement sur le maximum (sensibilité -10dBu). Il doit être réglé selon le volume désiré si un micro est branché à l'entrée.

**6** HIGH / LOW: égalisation à 2 bandes. Il permet de varier la courbe de réponse et d'obtenir ainsi un fonctionnement optimal selon les différentes exigences d'emploi. Cela veut dire qu'il est possible d'optimiser le comportement du NM250A pour une salle de conférences, pour le monitoring en présence d'un groupe musical ou pour d'autres utilisations.

**N.B:** pour une réponse linéaire du système réglez les deux contrôles High et Low en position central.

**7** POWER /0 - I: Interrupteur secteur.

**8** Connecteur pour câble d'alimentation (avec fusible incorporé). Il ne faut se servir que du câble d'alimentation fourni avec l'appareil ou d'un autre câble, pourvu qu'il soit équipé de mise à terre et estampillé avec les marques de sécurité en vigueur dans le pays d'utilisation. Pendant l'installation, s'assurer qu'il soit possible d'accéder facilement à ce connecteur et à la prise d'alimentation électrique.

# Important !

## **Soin et entretien:**

- Positionner l'enceinte loin de toute source de chaleur (radiateurs ou tout autre objet produisant de la chaleur).
- Ne pas déposer des bougies allumées et autres sources de flamme sur l'appareil.
- Éviter d'exposer l'enceinte directement aux rayons du soleil, à des vibrations excessives et à des coups violents.
- Éviter toute utilisation ou stockage dans les milieux poussiéreux ou humides: on évitera ainsi tout mauvais fonctionnement ou détérioration prématurée des performances.
- Éviter toute utilisation près de fortes sources de radiations électromagnétiques ce qui peut réduire la qualité du son (écran, câbles électriques à haute puissance).
- En cas d'utilisation à l'extérieur, veiller à ce que le système soit bien protégé contre la pluie et les intempéries.
- Protéger l'appareil de façon à ce qu'aucun liquide ou autre substance ne soit renversé sur ce dernier. Faire très attention à son positionnement, en particulier lors des conditions d'utilisation pour lesquelles l'appareil est prévu, de façon à ce que le public, les musiciens, les techniciens ou autres ne puissent y poser des verres, des boissons, des cendriers ou des cigarettes allumées.
- Ne pas enlever la grille de protection.
- Pour épousseter les enceintes, utiliser un pinceau ou de l'air comprimé. Ne jamais utiliser d'alcool, de détergents ni de solvants.
- Utiliser des câbles et des connecteurs de qualité. Vérifier le bon état des câbles. S'assurer qu'ils ne sont pas dénudés et qu'il n'y a pas de noeuds ni de torsades.
- Ne forcer ni les connecteurs ni les commandes.
- Avant d'effectuer toute opération de branchement, s'assurer que l'interrupteur d'allumage soit en position '0' (éteint).
- A l'intérieur de l'appareil peuvent être présents des potentiels électriques dangereux même quand l'interrupteur est en position '0' (éteint) et le voyant lumineux éteint. Avant toute intervention, débrancher le câble d'alimentation de la prise.

## **Branchement sur secteur:**

- S'assurer que la tension du réseau correspond bien à celui indiqué sur le panneau.
- Brancher le câble d'alimentation sur une prise de courant équipée d'une mise à la terre vraiment efficace. N'utiliser que le câble d'alimentation fourni avec l'appareil ou un autre fil pourvu qu'il soit équipé de mise à terre et estampillé avec les marques de sécurité en vigueur dans le pays d'utilisation.
- Laisser un espace suffisant pour accéder à la prise d'alimentation et au connecteur de d'alimentation sur le panneau arrière de l'appareil. A l'intérieur de l'appareil peuvent être présents des potentiels électriques dangereux même quand l'interrupteur est en position '0' (éteint) et le voyant lumineux éteint. Avant toute intervention, débrancher le câble d'alimentation de la prise.

## **Branchement au mixeur:**

- Utiliser toujours uniquement des câbles BLINDÉS (câbles de signal) ayant une section adéquate et de haute qualité.
- Avant d'effectuer les branchements des enceintes actives au mixeur s'assurer que tous les interrupteurs soient en position '0' (éteints). Vous éviterez bruits et crêtes de signal quelquefois dangereux pour les enceintes.

- S'assurer que le bouton 'Line/mic' soit soulevé.
- Si les **sorties** du mixeur sont en **XLR symétriques**: utiliser des connecteurs XLR symétriques.
- Si les **sorties** du mixeur sont en **XLR asymétriques**: dans ce cas, s'il ne s'agit pas d'un mixeur Montarbo, il convient de vérifier si les sorties XLR du mixeur sont asymétriques selon les normes IEC 268: 1 = GND, 2 = HOT, 3 = GND..
- Si les **sorties** du mixeur sont en **JACK symétriques (jack stéréo)**: il est possible d'utiliser des câbles jack stéréo-jack stéréo ou des adaptateurs symétriques jack stéréo-XLR, selon IEC 268: broche 1 = masse, broche 2 = pointe, broche 3 = bague.
- Si les **sorties** du mixeur sont en **JACK asymétriques (jack mono)**: utiliser des adaptateurs Jack-XLR mâles asymétriques, selon les normes IEC 268: broche 1=masse, broche 2=pointe, broche 3=masse.

Voir 'connecteurs' page 25.

## **Branchement en parallèle de plusieurs systemes:**

- Utiliser toujours des câbles BLINDÉS (câbles de signal) de section adaptée et de haute qualité. Raccordez la sortie (LINK) du premier NM250A à l'entrée (MIC) du deuxième (bouton 'Line/mic' soulevé), la sortie du second à l'entrée du troisième, etc..

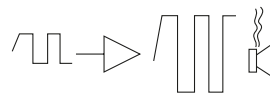
Voir 'exemple de branchement' page 26.

## **Sensibilité d'entrée et 'clipping'**

Chaque enceinte amplifiée est caractérisée par une valeur de sensibilité d'entrée. La sensibilité est définie comme la valeur du signal d'entrée à l'amplificateur qui aboutira à la puissance de sortie maximale. Une augmentation du signal d'entrée sur cette valeur ne résultera pas à une puissance accrue, mais dans un phénomène de distorsion appelé 'clipping' (la saturation d'étage de sortie).



Dans cette condition, l'haut-parleur fonctionnera dans un mode incorrect. Le diaphragme excédera ses limites d'excursion et la bobine mobile surchauffera au-delà de ses limites thermales, aboutissant au sur chauffage et échec prématuré. Les processeurs actifs aideront dans la fuite du 'clipping', en réduisant le gain de l'amplificateur et ainsi la sensibilité d'entrée, mais ce type de protection peut être surmontée dans des conditions très extrêmes. Ce que le processeur actif ne peut pas modifier est un signal ou la distorsion est déjà présent avant l'arrivée à l'entrée de l'enceinte amplifiée.



Les effets de ce type de signal sont les mêmes décrits ci-dessus.

### **Comment éviter le 'clipping'**

La méthode la plus simple d'éviter le 'clipping' est de vérifier chaque niveau dans la chaîne du signal. Sur chaque canal d'entrée du mixer il faut ajuster le gain et les commandes de l'égaliseur pour que le mètre de PFL n'indiquent jamais (ou seulement de temps en temps) plus de 0dB. Dans des mixers plus simples, vérifiez que l'indicateur 'clip' ou 'peak' soit toujours éteint, ou clignotant seulement de temps en temps. Si ce niveau est excédé, il faut réduire le gain d'entrée du canal. Une fois que le mélange désirable est obtenu, ajuster le niveau de sortie pour qu'il n'excède jamais la sensibilité d'entrée de l'enceinte amplifiée ou de l'amplificateur de puissance, comme indiqué sur le VU-mètre de la sortie master. La sensibilité d'entrée du mod. NM250A est -10dBu.





El rayo con la punta de flecha dentro de un triángulo equilátero sirve para avisar al usuario de la presencia de 'voltajes peligrosos' sin aislamiento dentro de la caja del producto, que pueden ser de magnitud suficiente para constituir un riesgo de descargas eléctricas para los seres humanos.



El signo de exclamación dentro de un triángulo equilátero sirve para avisar al usuario de la existencia de importantes instrucciones de operación y mantenimiento (servicio).

## ¡ IMPORTANTE ! Normas de seguridad

### ¡ATENCIÓN!

**En defensa de la seguridad propia y ajena, y para no invalidar la garantía, se recomienda leer atentamente esta sección antes de utilizar el producto.**

- El presente aparato ha sido proyectado y realizado para utilizarse como sistema de altavoces con amplificador, en el ámbito típico de un equipo de amplificación y/o grabación sonora. El uso para fines distintos de los mencionados no está previsto por el fabricante, por lo cual quedará bajo la responsabilidad directa del usuario/instalador.

- El presente aparato corresponde a la clase de protección 1 (toma de tierra protegida)

### PARA EVITAR RIESGOS DE INCENDIO Y/O DESCARGAS ELÉCTRICAS

- No exponer el producto a la lluvia, ni utilizarlo en presencia de elevada humedad o cerca del agua. No dejar penetrar en el interior del aparato ningún líquido ni objeto sólido. Si ello sucediera, desconectarlo inmediatamente de la red eléctrica y dirigirse a un servicio de asistencia calificado antes de utilizarlo nuevamente. No deben colocarse sobre el aparato fuentes de llamas desnudas, como velas encendidas.

- Antes de hacer la conexión a la red de electricidad, cerciorarse de que la tensión disponible sea igual a la indicada en el aparato.

- Conectar el aparato exclusivamente a una toma de corriente dotada de contacto de tierra conforme a las normas de seguridad vigentes, mediante el cable de alimentación que se entrega de serie. Si fuera necesario sustituir el cable, utilizar únicamente otro de características idénticas.

- Este aparato está conectado a la red eléctrica también cuando el interruptor de alimentación está en posición '0' (apagado) y el led luminoso está apagado. En su interior este aparato contiene potenciales eléctricos peligrosos. Antes de cualquier intervención desenchufar el cable de alimentación.

- No apoyar ningún objeto sobre el cable de alimentación.

- No pasarlo donde moleste o pueda causar tropezones. No aplastarlo ni pisarlo.

- Instalar el aparato dejando un amplio espacio entorno para asegurar una abundante circulación de aire, necesaria para el enfriamiento. No obstruir las aberturas ni los pasos de aire practicados en el mismo.

Al instalar el equipo asegúrese de tener fácil acceso al enchufe de red y al conector para el cable de alimentación en el panel posterior.

- En caso de sustitución del fusible externo, emplear exclusivamente otro de características idénticas, según las indicaciones que figuran en el aparato.

- Antes de realizar cualquier operación de conexión, asegurarse de que el interruptor de encendido del aparato esté en la posición '0' (apagado).

- Antes de efectuar cualquier desplazamiento del producto ya instalado o en funcionamiento, quitar todos los cables de conexión.

- Para desconectar el aparato de la red de electricidad, no tirar nunca del cable, sino del conector.

### ¡ATENCIÓN!

**Este aparato no contiene partes internas destinadas a la intervención directa del usuario. Para evitar riesgos de incendio y/o de descargas eléctricas, no abrirlo. Para cualquier operación de mantenimiento o de reparación, dirigirse al Distribuidor oficial Montarbo de su país o a personal altamente calificado indicado por el distribuidor.**

- Al preparar el aparato para su utilización, asegurarse de que la forma y la capacidad de la superficie de apoyo sean adecuadas para soportar su peso. Si se desea instalar el altavoz sobre un soporte, utilizar uno cuya capacidad sea adecuada para el peso del producto, introduciéndolo en el adaptador correspondiente. Si se apilan dos altavoces, asegurarse de que los pies del altavoz superior se encajen en las muescas del altavoz inferior, garantizando su estabilidad.

- A fin de evitar golpes, puntapiés o cualquier otra acción perjudicial, instalar el producto en un área protegida e inaccesible al personal no calificado. Si el aparato debiera utilizarse en presencia de niños o de animales, mantenerlo estrictamente vigilado.

- Este producto puede generar presiones acústicas muy elevadas, peligrosas para la salud del aparato auditivo. Por esta razón, no emplearlo a niveles acústicos muy altos si el público se encuentra excesivamente cerca (controlar que haya una distancia no inferior a 1m).

**No exponer los niños a fuentes sonoras intensas.**

# ESPAÑOL

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## CONTENIDO DEL EMBALAJE

Sistema activo biamplificado NM250A

Cable de alimentación

Manual de instrucciones

Certificado de garantía

Declaración de Conformidad CE

# Introducción

NM250A es un sistema de altavoces activo bi-amplificado de altas prestaciones dotado de una potencia y una presión sonora típica de los sistemas profesionales de peso y dimensiones muy superiores. NM250A es pequeño, compacto, ligero y, por tanto, facilísimo de transportar y rápido de instalar. Diseñado para amplificar pequeños espectáculos, presentaciones editoriales, ruedas de prensa, debates o congresos, NM250A es también el sistema de audición ideal para el estudio casero o la monitorización personal en salas de ensayo.

La forma multi-angular de la caja permite la instalación vertical (también en soporte, utilizando el adaptador incorporado) u horizontal en espacios reducidos, aumentando de esta manera su gran flexibilidad de utilizzo.

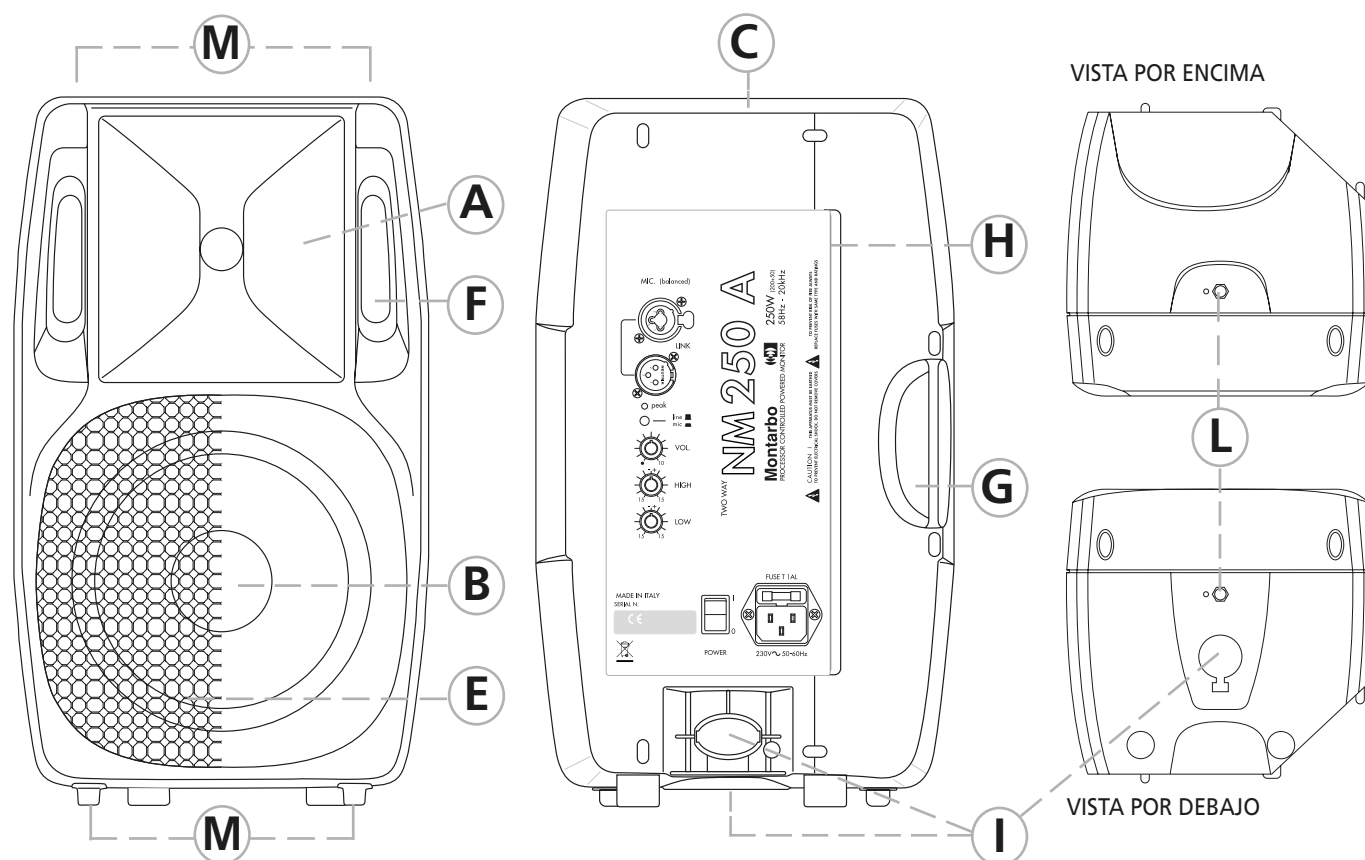
componentes contruidos en base a las especificaciones de Montarbo:

- un woofer de 8" de alta eficiencia,
- un driver de compresión de 1" acoplado a una bocina de directividad constante (dispersión 90° H x 60° V) integrada en el molde del recinto.

2 amplificadores de MosFet en clase AB AB (200 + 50 W)

Cada amplificador está controlado por un procesador dedicado que optimiza la dinamica y la respuesta en frecuencia y está dotado de un circuito exclusivo de protección activa de los transductores.

## Descripción

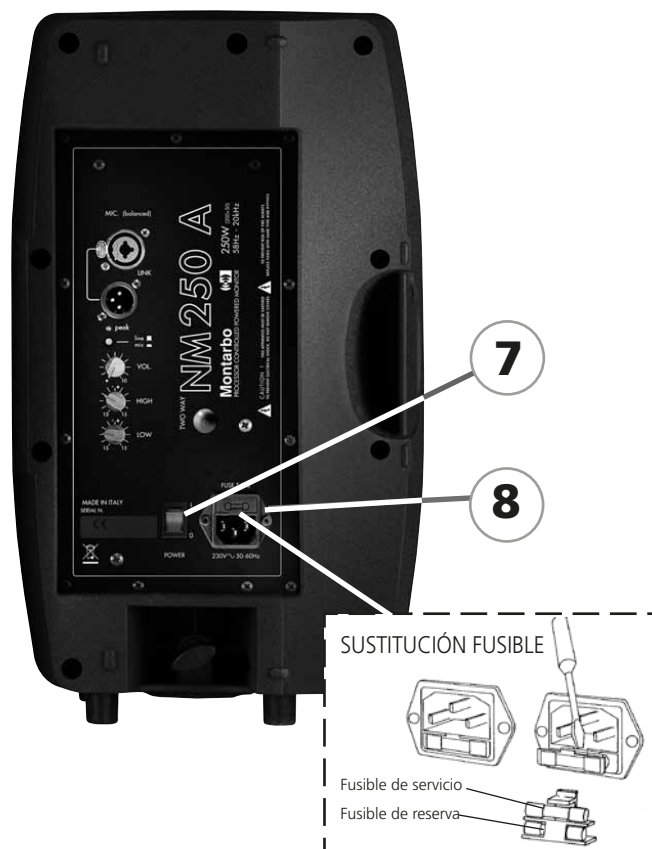
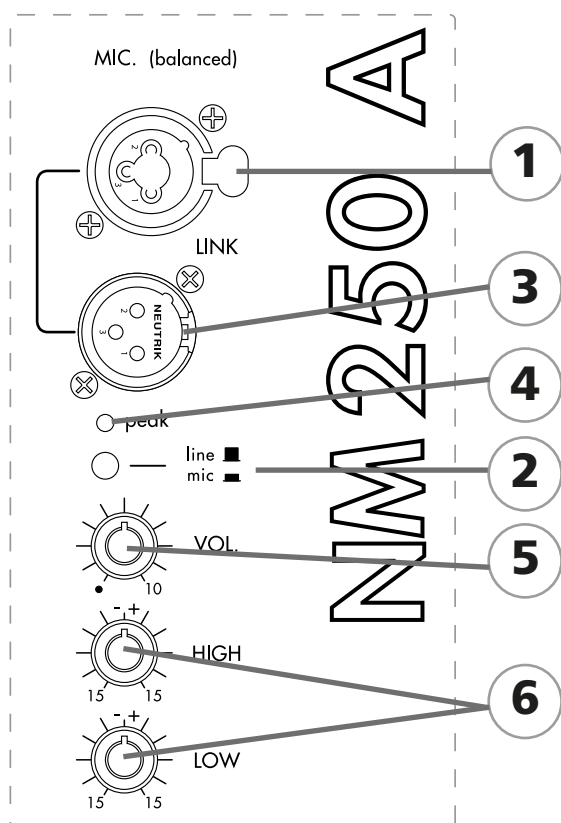


- A** Driver de compresión de 1" con bocina (dispersion 90°H x 60°V)
- B** Woofer de 8" de alta eficiencia.
- C** Caja en polypropylene estampada a inyección
- E** Rejilla en acero.
- F** Tubos de compensación.
- G** Manija lateral para el trasporte.

- H** Panel de controles y conexiones.
- I** Adaptador para soporte caja, con retén de seguridad.
- L** Prisoneros roscados (M8) para fijación de soportes.
- M** Pies y muescas (en la parte superior) permiten apilarlas con gran estabilidad.

Los materiales y la construcción respetan los más elevados estándares profesionales para asegurar la máxima fiabilidad.

# Panel de controles y conexiones



**1** MIC: entrada balanceada, puede ser seleccionada para micrófono (-40dBu / 2kOhms) o línea (-10dBu / 20kOhm), dotada de toma Neutrik Combo® que recibe sea conectores Jack que XLR.

Ver 'conectores' y 'conexiones' en las páginas 25 y 26 y 'aplicaciones' en las páginas 27, 28 y 29.

**2** LINE/MIC: selector de la sensibilidad de entrada. El altavoz sale de fábrica con el pulsador levantado en posición 'line' que corresponde a las condiciones de uso más frecuentes (para conectarlo a otros sistemas activos o a un mezclador). Por lo tanto deberá estar en la posición 'mic' si se conecta un micrófono a la entrada (en tal caso, considerando que la entrada y la salida del NM250A están en paralelo y llevan la misma señal, si a la salida se conecta otro NM250A, recuerden de apretar también el selector Line/Mic de éste último).

**3** LINK: salida balanceada (en paralelo a la entrada) en conector XLR de 3 polos. Permite la conexión en paralelo de varios NM250A u otros sistemas.

Ver 'conectores' y 'conexiones' en las páginas 25 y 26 y 'aplicaciones' en las páginas 27, 28 y 29.

**4** Indicador LED de pico. Es de gran ayuda para tener una idea del nivel de salida:

- si no centellea, significa que se está aún por debajo de los límites de potencia del sistema;
- si centellea esporádicamente indica la condición de empleo próxima al límite (aunque el oído y la sensibilidad del músico siguen siendo el mejor juez de la calidad de la señal).

**5** VOL: volumen general. Permite reglar los niveles de entrada de los amplificadores de potencia incorporados, para adaptarlos al nivel de salida de la mesa mezcladora. Además permite regular el volumen del altavoz si se usan con otros sistemas de altavoces. La posición típica de uso es al máximo (sensibilidad -10dBu). Se regula según el volumen deseado si hay un micrófono conectado a la entrada.

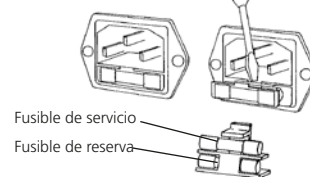
**6** HIGH / LOW: ecualización de 2 bandas. Permite variar la curva de respuesta y obtener un óptimo rendimiento en función de las varias exigencias de uso. Esto significa que podrán optimizar el comportamiento del NM250A para una sala de conferencias, para la monitorización en el ámbito de un conjunto musical o para otros usos.

**N.B:** para conseguir una respuesta lineal aconsejamos de reglar ambos estos volúmenes en posición central.

**7** POWER / 0 - I: interruptor de la red.

**8** Conector para cable de alimentación (con fusible incorporado). Utilizar solamente el cable de alimentación suministrado con el aparato u otro cable dotado de contacto de tierra con la indicación de las marcas de seguridad aplicadas en el país de instalación. Al instalar el equipo asegúrese de tener fácil acceso al enchufe de alimentación.

## SUSTITUCIÓN FUSIBLE



# ¡ Importante !



## Mantenimiento del aparato:

- Colocar el sistema alejado de fuentes de calor (radiadores o cualquier otro objeto que produzca calor).
- No deben colocarse sobre el aparato fuentes de llamas desnudas, como velas encendidas.
- No exponer el sistema a radiación solar directa, vibraciones excesivas ni golpes violentos.
- No utilizar, ni guardar el sistema en sitios excesivamente polvorientos o húmedos a fin de evitar defectos de funcionamiento, disminución anticipada de las prestaciones y riesgos de descargas eléctricas y de incendio.
- No utilizar el sistema cerca de fuentes de radiaciones electromagnéticas (pantalla del monitor, cables eléctricos de alta potencia) ya que pueden provocar una disminución de la calidad del sonido.
- Si se utiliza el sistema al aire libre, asegurarse de que se instala protegido de la lluvia.
- Proteger el sistema del derrame accidental de líquidos o sustancias de cualquier tipo. En particular en las condiciones típicas de utilización, poner mucha atención a la colocación del aparato a fin de evitar que el público, los músicos, los técnicos puedan apoyar vasos, tazas, bebidas, ceniceros o cigarrillos encendidos encima del aparato.
- No remover la rejilla de protección.
- Para quitar el polvo utilizar un pincel o un chorro de aire. No emplear detergentes, alcohol ni disolventes.
- Comprobar siempre que los cables no estén dañados anudados ni retorcidos.
- No forzar los conectores y los mandos.
- Antes de realizar cualquier conexión, controlar que el interruptor de alimentación esté en posición '0' (apagado).
- El aparato está conectado a la red eléctrica aunque el interruptor de alimentación esté en posición '0' (apagado) y el led luminoso esté apagado y puede contener en su interior potenciales eléctricos peligrosos. Antes de cualquier intervención desconectar el cable de alimentación.



## Conexión a la red:

- Controlar que el interruptor de la red sea en posición '0'.
- Controlar que la tensión de alimentación tenga el mismo valor que se indica en el panel.
- Conectar el cable de alimentación a una toma de corriente dotada de contacto de tierra completamente seguro. Utilizar solamente el cable de alimentación suministrado con el aparato u otro dotado de contacto de tierra y conforme a las normas de seguridad que se aplican en el país donde se lleva a cabo la instalación.
- Dejar bastante espacio para acceder al enchufe de red eléctrica y al conector para el cable de alimentación en el panel posterior. El aparato está conectado a la red de alimentación aunque el interruptor de alimentación esté en posición '0' (apagado) y el led luminoso esté apagado y puede contener en su interior potenciales eléctricos peligrosos. Antes de cualquier intervención desconectar el cable de alimentación.



## Conexión a la mesa de mezcla:

- Utilizar siempre cables APANTALLADOS (cables de señal) de adecuada sección y de calidad.
- Antes de conectar los altavoces activos a una mesa de mezcla asegurarse de que todos los interruptores de la red estén en la

posición '0' (apagado). De esta manera se pueden evitar molestos ruidos y picos de señal peligrosos para los altavoces.

- El pulsador 'Line/mic' deberá estar levantado.
- Si la mesa de mezcla tiene salidas XLR balanceadas: utilizar conectores XLR balanceados.
- Si la mesa de mezcla tiene salidas XLR desbalanceadas y no es Montarbo: asegurarse de que las salidas XLR de la mesa de mezcla estén desbalanceadas según las normas IEC 268: 1 = GND, 2 = HOT, 3 = GND.
- Si la mesa de mezcla tiene salidas JACK balanceadas (Jack estéreo): utilizar cables Jack estéreo-Jack estéreo, o adaptadores Jack estéreo-XLR balanceados, según normas IEC 268: pin 1 = masa, pin 2 = punta, pin 3 = anillo.
- Si la mesa de mezcla tiene salidas JACK desbalanceadas (Jack mono): utilizar cables Jack-Jack o adaptadores Jack-XLR macho desbalanceados según normas IEC 268: pin 1=masa, pin 2= punta, pin 3=masa.

Ver página 25.



## Conexión de varios sistemas en paralelo:

- Utilizar siempre cables APANTALLADOS (cables de señal) de adecuada sección y de calidad. Conectar la salida (LINK) del primer sistema a la entrada (MIC) del segundo (pulsador 'Line/mic' levantado), la salida del segundo a la entrada del tercero, etc.

Ver página 26.



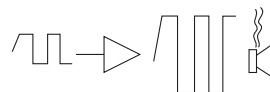
## Sensibilidad y 'clipping'

Cada sistema de altavoces autoamplificado está caracterizado por una sensibilidad de entrada. La sensibilidad es el valor de la señal de entrada en el amplificador que produce la máxima potencia de salida. Si se aumenta la señal más allá de este valor, en realidad, no se obtiene una mayor potencia de salida, pero solo una distorsión y se llega el fenómeno del 'clipping' (saturación).



En esta condición el altavoz trabaja incorrectamente. El diafragma del altavoz sobrepasa los límites de su excursión y la bobina móvil se recalienta más allá de sus límites térmicos, lo que causa un sobrecalentamiento y una rotura prematura.

Los procesadores activos pueden evitar, limitadamente, el fenómeno del clipping, reduciendo la ganancia del amplificador (y por eso la sensibilidad de entrada), pero el procesador no puede modificar una señal que llega a la entrada del amplificador ya distorsionada.



Los efectos de este tipo de señal son los mismos descritos antes.

### Como evitar el clipping:

El modo más simple es controlar los niveles de la cadena de la señal. En el canal de la mesa mezcladora regular los controles 'gain' y los 'ecualizadores' de manera que el VU-meter del PFL no llega 0dB (o sólo ocasionalmente). En las mesas de mezcla mas simples procurarse que los indicadores 'clip' o 'peak' no queden encendidos de forma permanente. Si se pasan estos niveles baje la ganancia del canal. Cuando se obtiene el mix que se desea ajuste el nivel de salida en manera que el VU-meter no supere el nivel de la sensibilidad de entrada de la caja amplificada o del amplificador. La sensibilidad de entrada en el sistema NM250A es de -10dBu.

# APPENDIX

|                                                                                         |                |
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# Specifications

## Speaker system

- Components
- bass frequencies
- Nominal diameter
- Nominal impedance
- Power capacity
- high frequencies

Throat diameter:  
Nominal impedance:  
Voice coil diameter:

- Impedance
- Frequency response
- bass
- mid/high
- Electronic crossover
- Sensitivity
- Max SPL

2-way bass reflex, low turbulence ports  
custom designed

8" high efficiency woofer

8"  
8 ohms  
200 Watts

1" compression driver loaded by a  
90° x 60° horn

1"  
8 ohms  
25 mm

8 ohms  
58 Hz ÷ 20 kHz ± 3dB

58Hz ÷ 3300Hz

3300Hz ÷ 20kHz

3300 Hz, 24 dB/oct

98 dB SPL @ 1W/1m on axis

121 dB

## Built-in power amplifier

- Max. output power
- bass
- mid/high
- Frequency response
- Input impedance
- Input sensitivity
- Noise referred to input
- Power supply

2 MosFet, class AB, dedicated power units  
with 2 independent dynamic processors;  
self-diagnostic circuit

250 Watts

200 W (8 ohms / 0.1% THD)

50 W (8 ohms / 0.1% THD)

10Hz ÷ 40kHz ±1dB

line: 22kOhms - micro: 2 kOhms

line: -10dB - micro: -40dB

-118dB (A weighted)

230 V.A.C. 50÷60Hz - Fuse: T 1AL

on request: 117 V.A.C. 50÷60Hz, fuse T 2A

## Connections

combined XLR and jack socket  
(Neutrik Combo®) for the balanced input  
(mic/line switchable);  
balanced XLR output (link)

## Construction

Injection moulded polypropylene  
cabinet. Steel protection grille.  
Stand adaptor. Threaded inserts (8M)

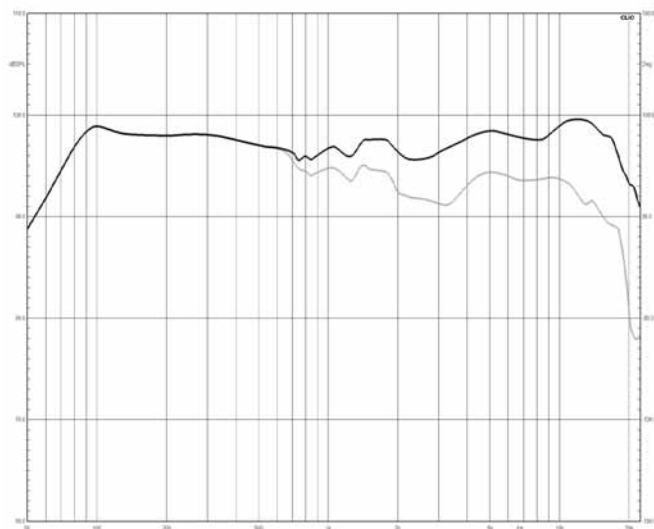
## Dimensions (w x h x d):

25 x 42,5 x 23 cm

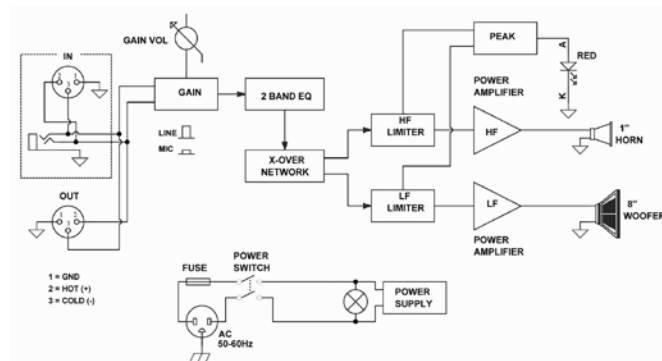
## Weight:

9 Kg

# Response curve



# Block diagram



**1 GND** Ground  
**2 +** Hot  
**3 -** Cold  
 (IEC 268 standard)

**BALANCED XLR MALE CONNECTOR**

**BALANCED JACK CONNECTOR**

**BALANCED XLR + JACK SOCKET**

**BALANCED XLR MALE SOCKET**

**BALANCED XLR FEMALE CONNECTOR**

**NM 250 A**

MIC. (balanced)

LINK

NEUTRIK

○ peak  
 ○ — line  
 ○ — mic

VOL.

10

HIGH

15 15

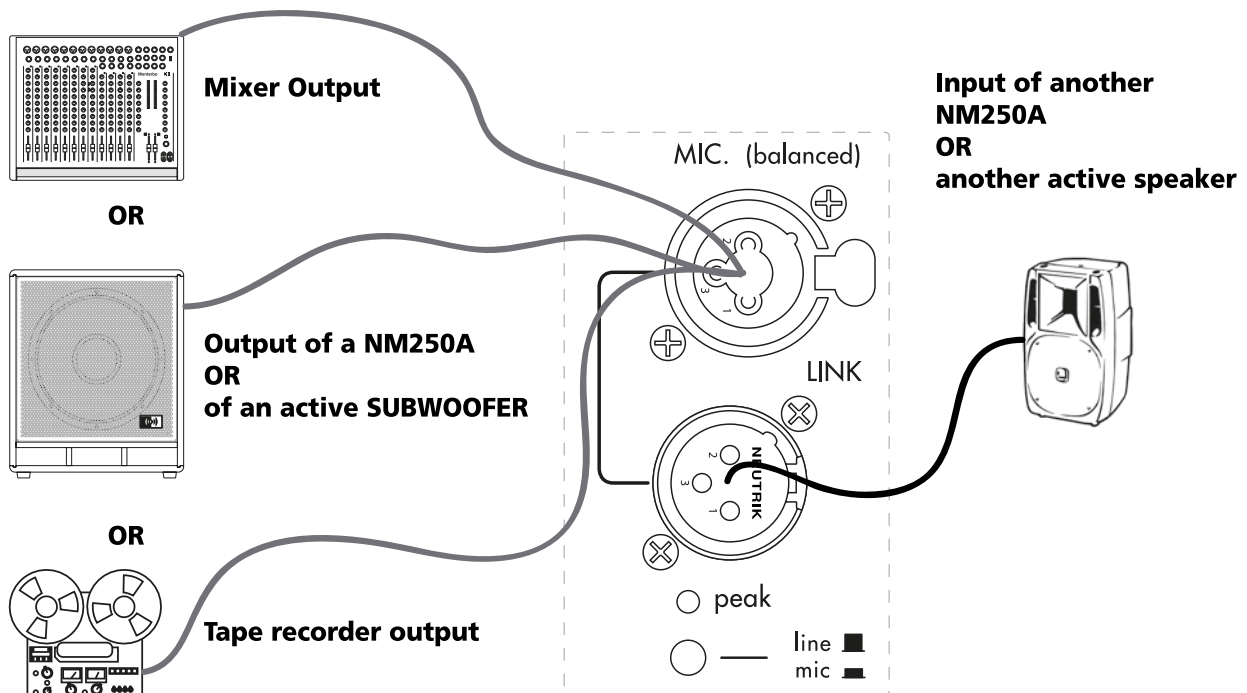
LOW

15 15

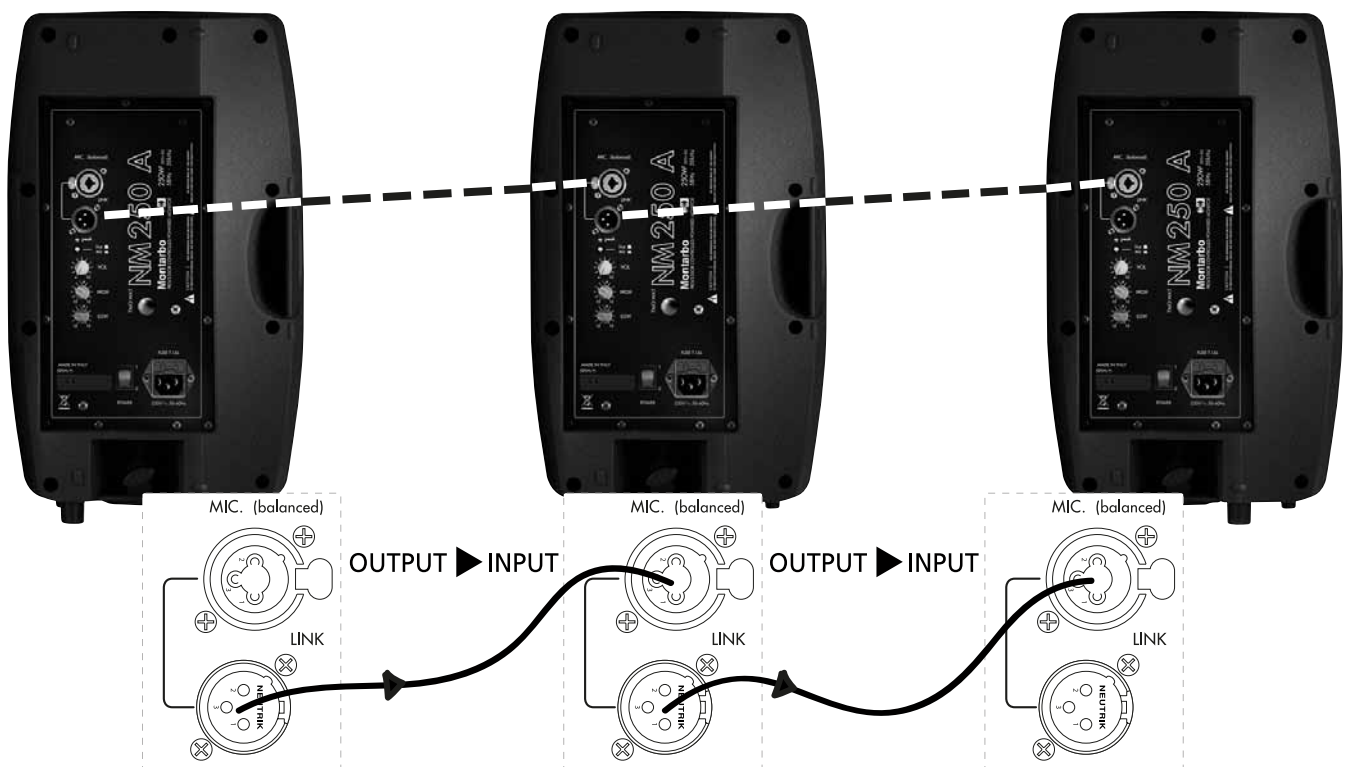
**Note:** the balanced input can accept also unbalanced connectors (automatic unbalancing)

**Nota:** la entrada balanceada puede aceptar también conectores no balanceados (desbalanceo automático).

# Connections

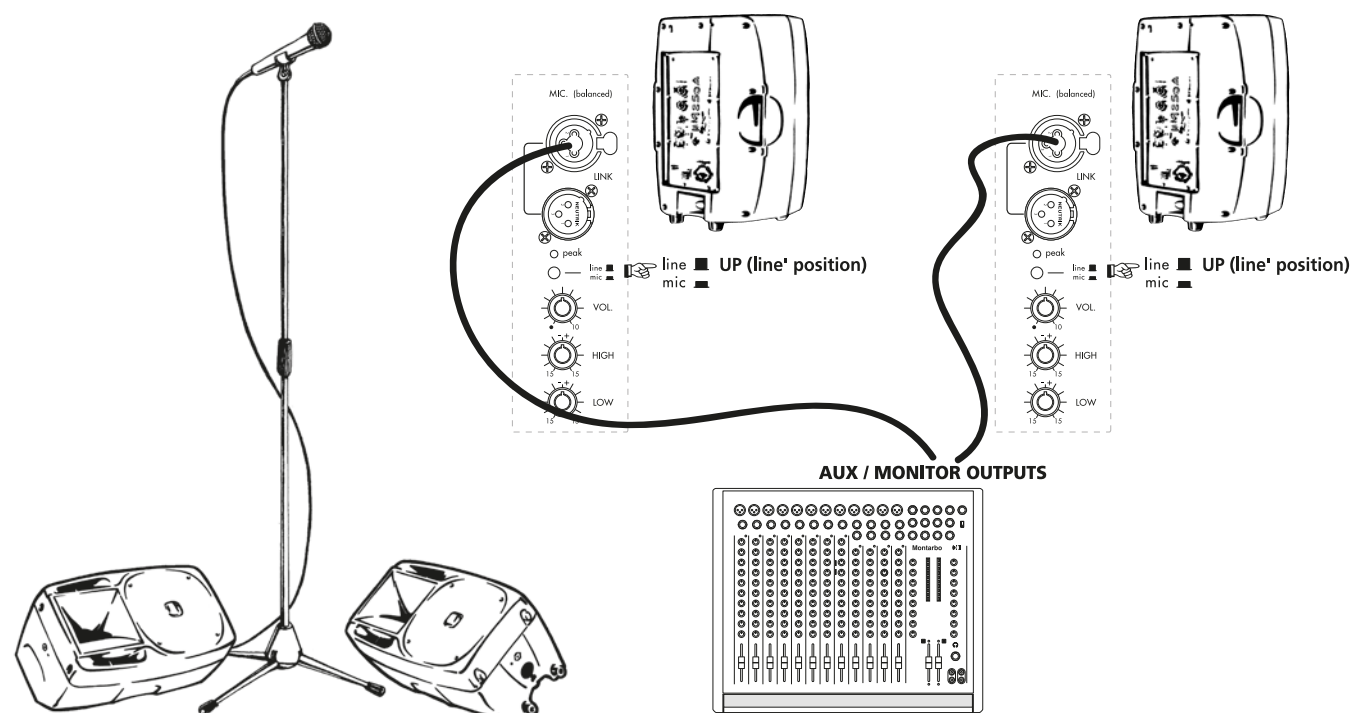


## Parallel connection

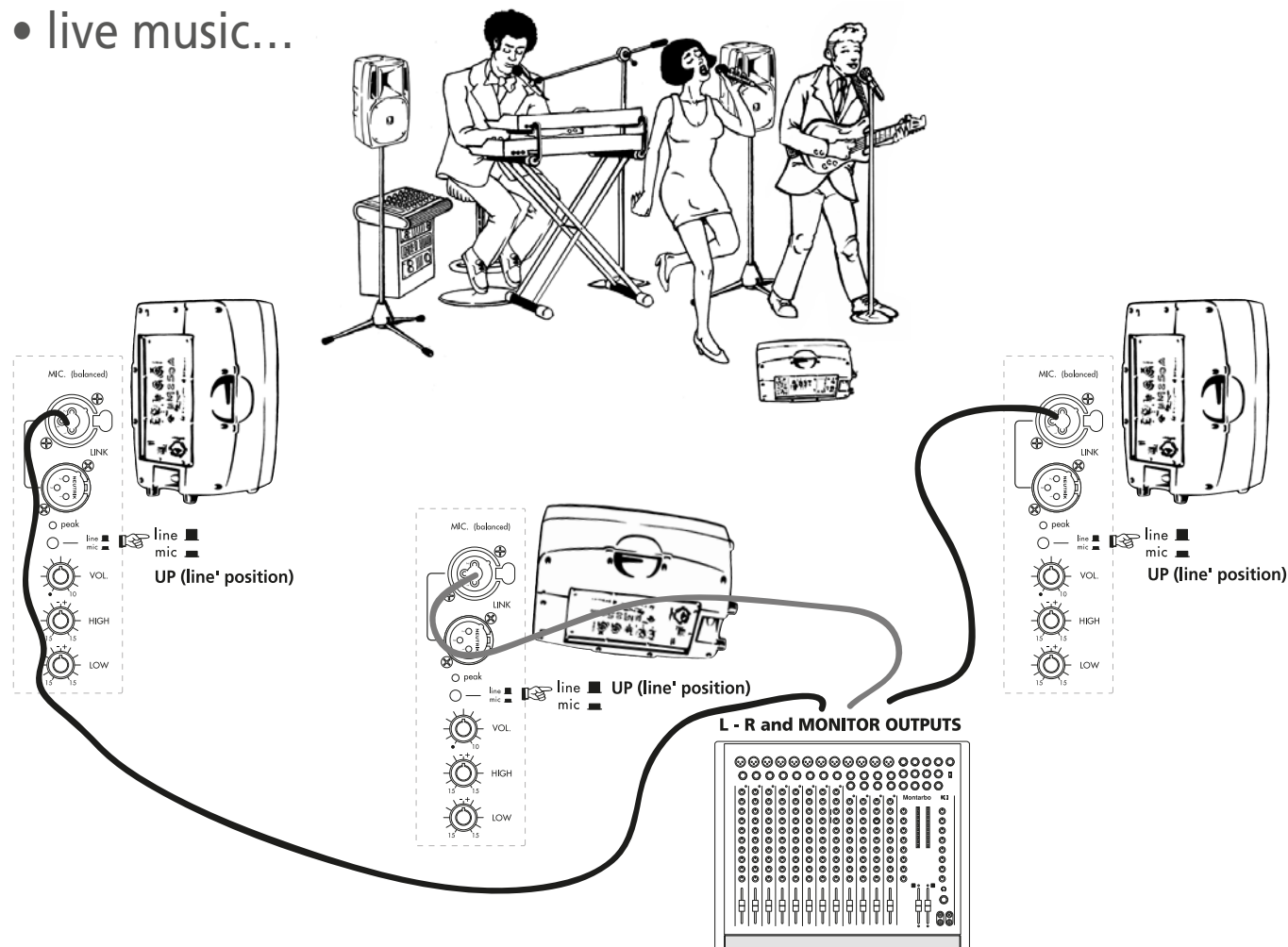


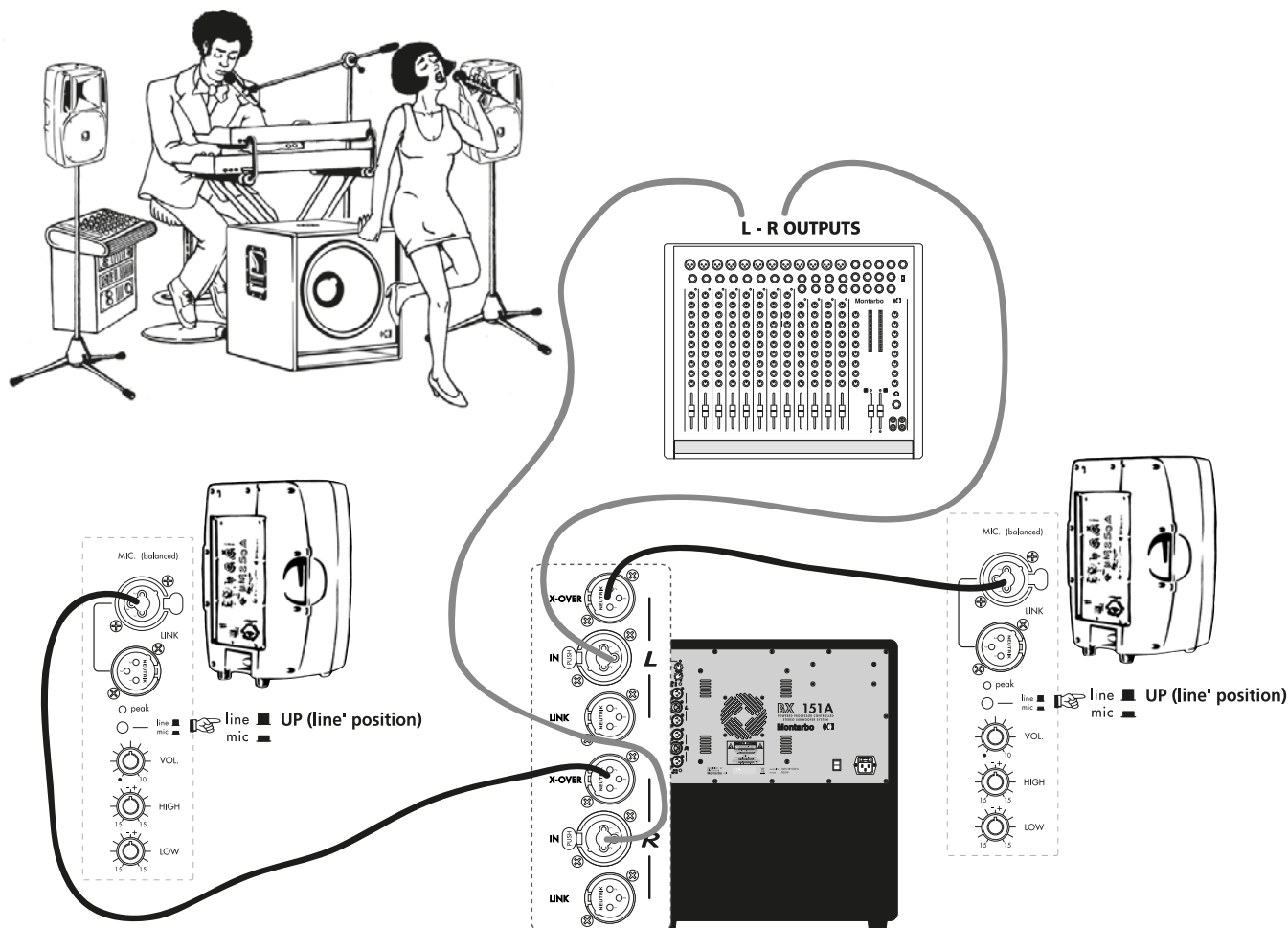
# Applications

## • personal monitor...



## • live music...

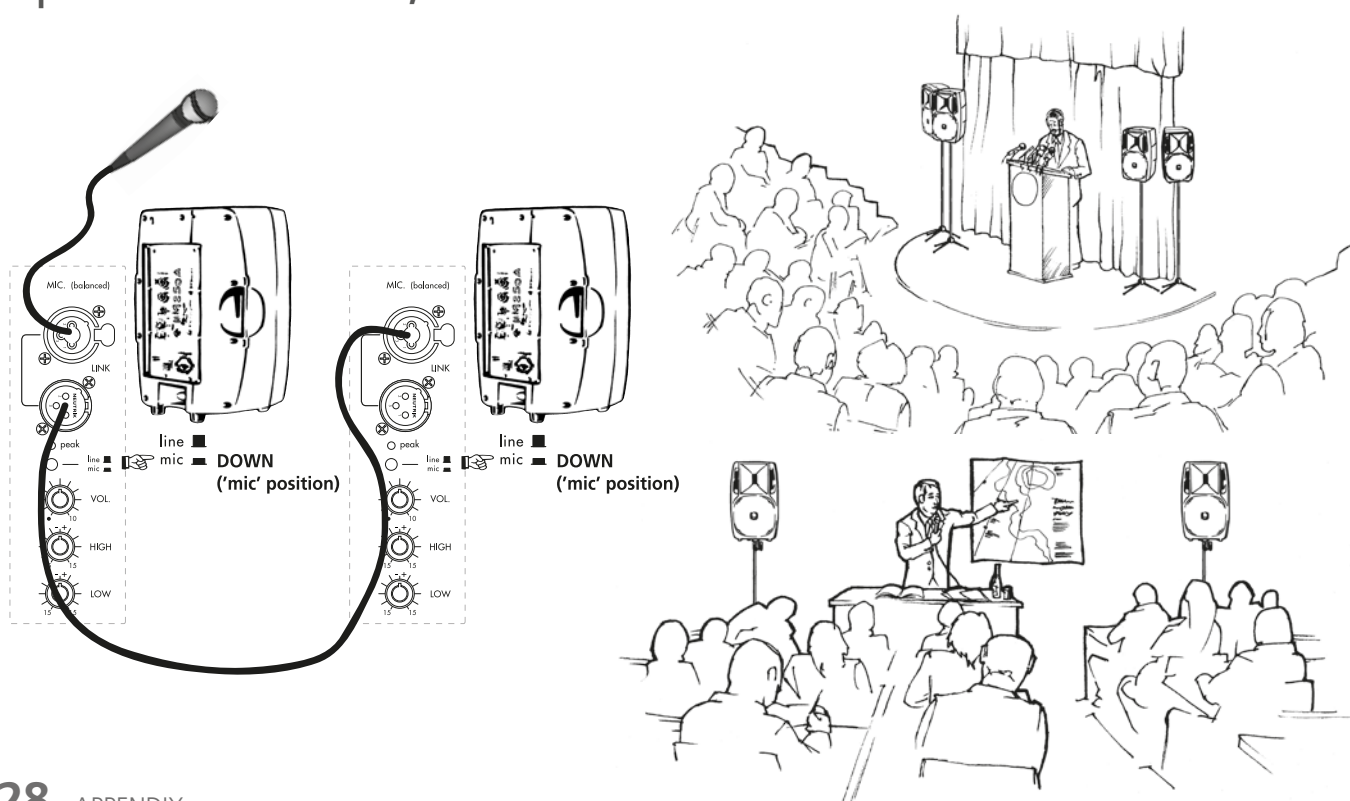




- In the applications requiring an extension of the low frequency range, NM250A combines perfectly with the selfpowered subwoofers BX151A and SW540 (each one with built-in stereo electronic crossover).
- Nelle situazioni di utilizzo che richiedono un rinforzo della gamma grave il complemento ideale sono i subwoofer autoamplificati BX151A e SW540 (entrambi con crossover elettronico stereo incorporato).

- Bei Anwendungen die eine weitere Verstärkung des Tiefenbereichs fordern, ist die Kombination mit den Aktiv-Subwoofern BX151A und SW540 (je mit eingebauter Stereo Frequenzweiche) ideal.
- Pour renforcer ultérieurement la gamme des graves, les compléments idéaux sont les subwoofers actifs BX151A et SW540 (les deux avec crossover électronique stéréo incorporé).
- En las aplicaciones que necesitan reforzamiento de la gama grave la combinación optimal es con los subwoofers activos autoamplificados BX151A and SW540 (todos los dos con crossover electrónico stereo incorporado).

## • press conference, lectures....



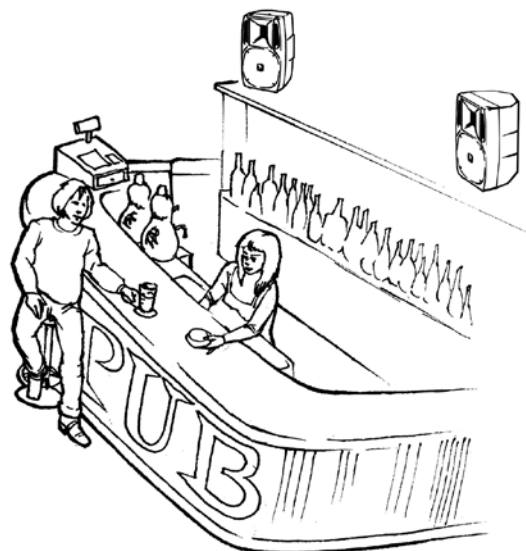


# Applications

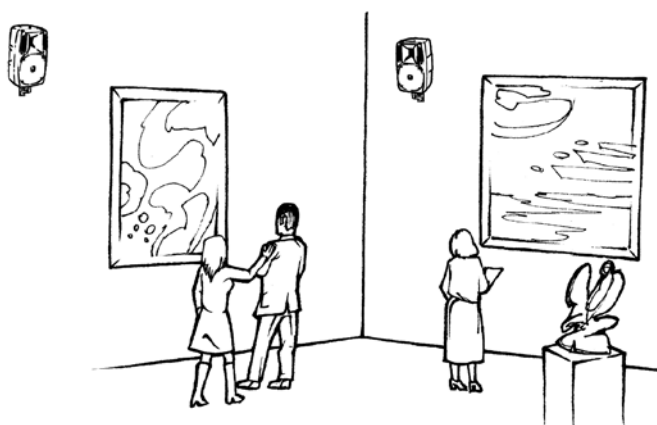
## • hotels...



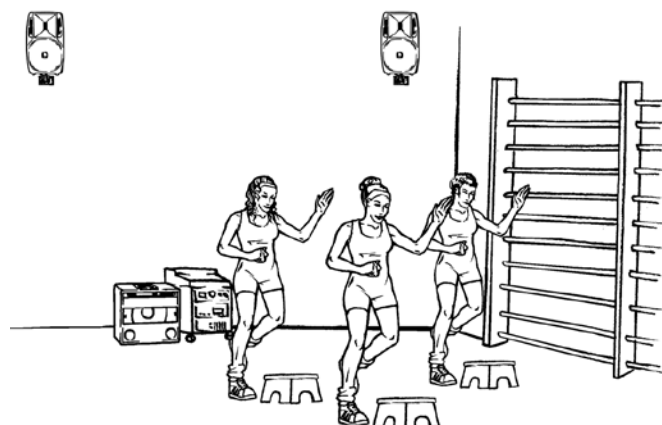
## • pubs, restaurants.....



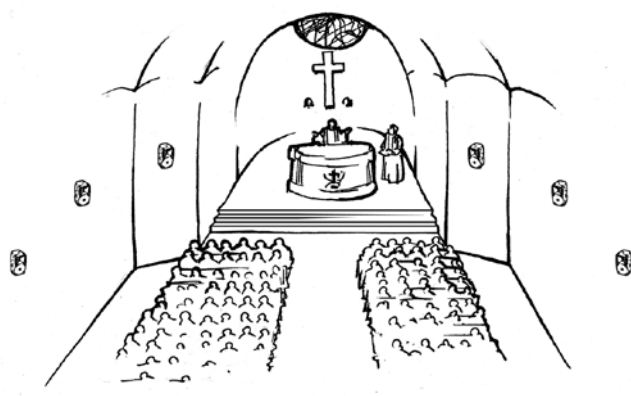
## • museums



## • gymnasium



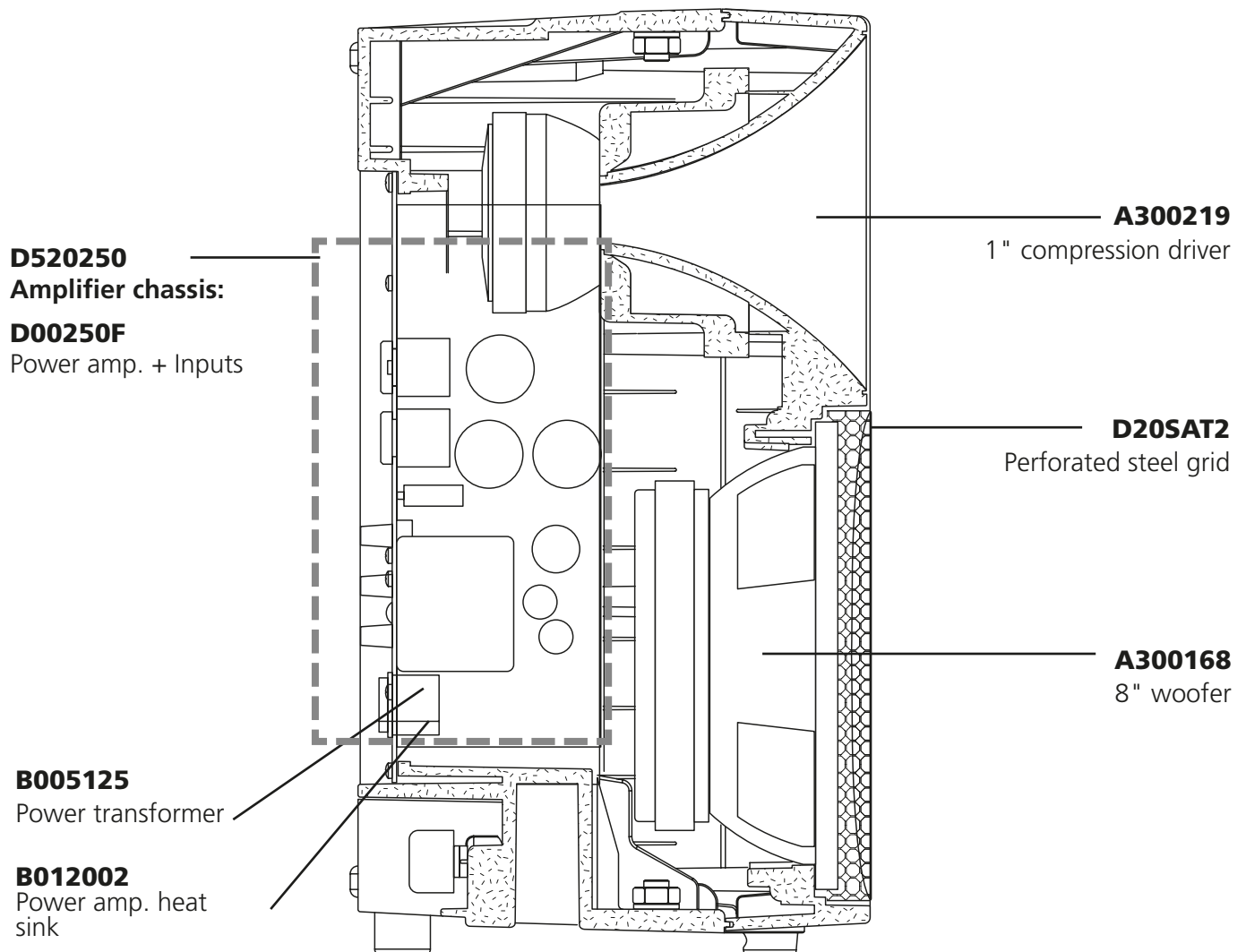
## • places of worship...



## • stations, airports.....



# Spare parts



Parti di Ricambio, Ersatzteile, Piezas de Repuesto, Pièces de rechange:

## **A300219**

Driver a compressione da 1" / 1" Kompressionsdriver  
Driver de compresión de 1" / Driver de compression de 1"

## **A300168:**

Altoparlante 8" / 8" Lautsprecher / Haut-parleur de 8"  
Woofer de 8".

## **D20SAT2:**

Griglia in acciaio perforato / Stahlgitter / Rejilla de acero  
Grille en acier perforée

## **D520250:**

Telaio amplificatore / Verstärkerchassis / Châssis d'amplificateur  
Caja del amplificador

## **D00250F:**

Amplificatore di potenza + Ingressi / Leistungsverstärker + Eingänge  
Amplificateur de puissance + Entrées / Amplificador de potencia + Entradas

## **B012001:**

Radiatore / Leistungsverstärker Kühlblock  
Dissipateur de chaleur / Disipador de calor

## **B005B20:**

Trasformatore di potenza / Leistungstransformator  
Transformateur de puissance / Transformador de potencia

## هام! التعليمات الخاصة بالسلامة والعناية

## IMPORTANT SAFETY INSTRUCTIONS

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## إنذار!

## تحذير!

هذا المنتج لا يحوي قطع غيار خاصة بتفيد المستخدم. من أجل تفادي حدوث أي صدمة كهربائية للمنتج يرجى عدم فتح هذا المنتج أو أزاحه الجزء الخلفي. ومن أجل الصيانة والخدمة يرجى الرجوع إلى وكيل مونتاربو الرئيسي في بلدك وإحضار المنتج إلى الأشخاص المخولين بالصيانة عن طريق الوكيل الرئيسي.

قبل تثبيت المنتج على أي سطح من أي نوع تأكد من الشكل والحجم وقوة التحمل أن تكون مطابقة لحجم ووزن المنتج عن طريق سلسلة، كذلك يرجى بأي حال من الأحوال عدم تعليق المنتج على مكان معين إلا إذا كان ينصح به من قبل المصنع مثل (الحبال، السلاسل، الأحزمة أو المقبض المحمولة المتوسطة الحجم، كذلك البراغي، المنجل أو غيره). وفي حالة إذا كان المنتج مزود من المصنع بمتراش (للتثبيت) على الحائط، يجب دائما التأكد قبل التركيب ومعاينة قوة تحمل هذا الجزء الصلب أثناء الحمل أو تعليق المنتج على سطح معين بحيث أن يكون مطابق لمواصفات السلامة من حيث الوزن والنسبة الموضوعة من قبل الشركة المصنعة.

من أجل تجنب أي صدمات أو ركلات أو أي تأثير على المنتج دائما قم بتوفير مكان خاص لحفظ المنتج وكذلك عدم السماح لأشخاص غير مؤهلين لتركيب المنتج، وفي حالة استخدام المنتج بالقرب من دواليب الأطفال والحيوانات فأن المراقبة والإشراف هنالك مطلوب.

يمكن أن يصدر هذا المنتج ضغط صوتي عالي والذي يشكل خطر على النظام السمعي، دائما تجنب التشغيل لمستويات عالية وفي حالة إذا كان أي شخص قريب للمنتج (يجب أن تكون هنالك مسافة متر على الأقل).

يرجى عدم تعريض الأطفال لمصدر ذو صوت عالي.

من أجل حمايتك أنت والآخرين ومن أجل عدم حدوث إلغاء لشهادة الضمان الخاصة بهذا المنتج، يرجى قراءة هذا الجزء من دليل الاستخدام بعناية قبل الشروع بتشغيل هذا المنتج.

لقد تم تصنيع وتصميم هذا المنتج بعناية فائقة ليتم استخدامه كنظام سماعات فعال في التطبيقات النموذجية الذي يقوم بتعزيز نظام الصوت أو نظام التسجيل الصوتي. إن عملية الاستخدام لأغراض وتطبيقات أخرى لم يتم التنويه عنها عن طريق الشركة الصانعة حتى الآن والتي تتعلق بتصميم هذا المنتج، ولذلك تقع المسؤولية على عاتق المستخدم أو على الشخص الذي قام بتركيب نظام السماعات.

## من أجل تفادي الحرائق أو التعرض لصدمة كهربائية:

لا يجوز أن يتعرض الجهاز للتقطير أو الرش أو أية أشياء مبللة بالسوائل، مثل المزهريات، التي توضع على الجهاز. ولا تدع أي سائل يمكن أن يتسرب داخل المنتج. وفي حالة تسرب أي سائل، قم على الفور بفصل التيار الكهربائي، وارجع إلى التعليمات الخاصة بالصيانة قبل عملية التشغيل مرة أخرى.

هذا المنتج مطابق إلى درجة ١ من العزل، وللاستخدام الآمن ننصح بتوصيل الجزء المحمي (الأرضي) مع المخرج الأرضي.

يرجى عدم وضع أي شمع مشتعل على سطح هذا المنتج أو أي مصادر أخرى.

قبل القيام بتوصيل هذا المنتج إلى التيار الرئيسي تأكد من الفولتية الموجود على المخرج الرئيسي هو المطابق والمحدد على المنتج.

يجب أن يكون هذا المنتج موصول في مخرج أرضي متوافق مع شروط السلامة من خلال كيبيل الكهرباء المرفق.

عند الحاجة إلى استبدال كيبيل الكهرباء يرجى استخدام نفس النوعية حصريا بالمواصفات والخصائص.

يعتبر هذا المنتج موصول مع منفذ الكهرباء حتى لو كان المفتاح الكهربائي الرئيسي في حالة توقف ومؤشر الطاقة في حالة توقف، مادام المنتج موصول بالكهرباء فهذا يعني بان هناك خطر كامن بالجهد الكهربائي للمنتج، ولذلك وقبل البدء بأية صيانة يرجى التأكد من فصل الكيبيل من المفتاح الرئيسي للتيار.

يرجى عدم وضع أي شيء على كيبيل الكهرباء مطلقا، كذلك عدم وضع كيبيل الكهرباء في الطريق حتى لا يتعثّر به الناس عند المرور من فوقه، كذلك عدم الضغط عليه مطلقا.

يرجى التأكد من توفير مصدر للهواء من أجل تبريد المنتج قبل البدء بالتركيب. يرجى عدم إغلاق مصدر الهواء للمنتج مطلقا وكذلك إبقاء مساحة كافية للوصول إلى مفتاح الطاقة الرئيسي وكذلك الرابط الرئيسي في الجزء الخلفي.

عند الحاجة إلى استبدال أي فيوز خارجي، استبدله فقط بنفس النوع الأصلي والتصنيف كما هو مذكور على المنتج.

دائما تأكد بأن مفتاح التشغيل في حالة توقف قبل الشروع في أي خطوة بتوصيل المنتج بالتيار الكهربائي.

قبل المحاولة بتحريك المنتج وبعد تركيبه يرجى فصل جميع التوصيلات. قبل القيام بفصل كيبيل الكهرباء للمنتج، يرجى عدم سحب الكيبيل مباشرة، قم بتثبيت جسم القابس أولا ومن ثم سحبه ببطء من مخرج التيار الكهربائي الرئيسي.

# IMPORTANT SAFETY INSTRUCTIONS

English

## WARNING!

In order to protect your own and other's safety and to avoid invalidation of the warranty of this product, please read this section carefully before operating this product.

This product has been designed and manufactured for being operated as active speaker system in the applications typical of a sound reinforcement system or a sound recording system. Operation for purposes and in applications other than these has not been covered by the manufacturer in the design of the product, and is therefore to be undertaken at end user's and/or installer's sole risk and responsibility.

## TO AVOID THE RISK OF FIRE AND/OR ELECTRIC SHOCK:

The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus. Never let any liquid, as well as any object, enter the product. In case, immediately disconnect it from the mains supply and refer to servicing before operating it again.

This unit conforms to CLASS I insulation, and for safe use it is required that the protective earth contact is connected to a grounded (earthed) outlet.

Never place burning candles or other sources of open flame on top of the device.

Before connecting this product to the mains supply, always make sure that the voltage on the mains outlet corresponds to that stated on the product. This product must be connected only to a grounded mains outlet complying to the safety regulations in force via the supplied power cable.

In case the power cable needs to be substituted, use exclusively a cable of the same type and characteristics.

This device is connected to the power line even when the mains switch is in the 'O' (=off) position and the power indicator is off. As long as it is plugged in there are dangerous electrical potentials inside the device, so, before undertaking any sort of maintenance work etc., always make sure it has been unplugged from the mains socket.

Never place any object on the power cable. Never lay the power cable on a walkway where one could trip over it. Never press or pinch it.

Never install the product without providing adequate air flow to cool it.

Never obstruct the air intake openings on it. Leave enough room to get to the mains power socket and the mains connector on the back panel.

In case the external fuse needs replacement, substitute it only with one of the same type and rating, as stated on the product.

Always make sure the Power switch is in its 'O' (=off) position before doing any operation on the connections of the product.

Before attempting to move the product after it has been installed, remove all the connections.

To disconnect the power cable of this product from the mains supply never pull the cable directly. Hold the body of the plug firmly and pull it gently from the mains supply outlet.

## CAUTION!

**This product does not contain user serviceable parts.**

**To prevent fire and/or electrical shock, never disassemble it or remove the rear panel. For maintenance and servicing always refer to the official Montarbo Distributor in your Country or to qualified personnel specifically authorized by the Distributor.**

Before placing the product on a surface of any kind, make sure that its shape and load rating safely match the product size and weight. Never attempt to hang the product by any means not expressly provided or approved by the manufacturer (i.e. ropes, chains, belts or whatever medium, through carrying handles, bolts, hooks or whatever). In case the product is factory-fitted with specific mounting hardware, always verify before installation that the lifting and/or hanging system you intend to use is of a proper type and can carry the product weight with the safety ratio required by the regulations in force.

To avoid shocks, kicks, or whatever action, always reserve a protected area with no access to unqualified personnel as installation site of the product. In case the product is used near children and animals, closest supervision is necessary.

This product can generate very high acoustic pressures which are dangerous for the hearing system. Always avoid operation at loud levels if anyone is excessively near to the product (at least 1 m of distance).

**Never expose children to high sound sources.**





Note:

## Direttiva RAEE



### Attenzione !

Il prodotto è contrassegnato da questo simbolo che segnala di non smaltire le apparecchiature elettriche ed elettroniche tramite la normale procedura di smaltimento dei rifiuti domestici. Per questi prodotti è previsto un sistema di raccolta differenziato in conformità alla legislazione che richiede il trattamento, il recupero e il riciclaggio adeguato dei suddetti prodotti. Per maggiori informazioni si prega di contattare l'autorità locale competente. La barra nera sotto il simbolo indica che il prodotto è stato immesso sul mercato dopo il 13 Agosto 2005.

## INFORMAZIONI PER UN CORRETTO SMALTIMENTO

### Per gli utenti privati

**Nell'Unione europea** - Attenzione: Per smaltire il presente dispositivo, non utilizzare il normale bidone della spazzatura! Le apparecchiature elettriche ed elettroniche usate devono essere gestite a parte e in conformità alla legislazione che richiede il trattamento, il recupero e il riciclaggio adeguato dei suddetti prodotti. In seguito alle disposizioni attuate dagli Stati membri, i privati residenti nella UE possono conferire gratuitamente le apparecchiature elettriche ed elettroniche usate a centri di raccolta designati\*. In alcuni paesi (\*), anche il rivenditore locale può ritirare gratuitamente il vecchio prodotto se l'utente acquista un altro nuovo di tipologia simile. \* Per maggiori informazioni si prega di contattare l'autorità locale competente.

**In paesi che non fanno parte dell'UE:** contattare le autorità locali e informarsi sul metodo di smaltimento corretto.

**In Svizzera:** Le apparecchiature elettriche o elettroniche usate possono essere restituite gratuitamente al rivenditore, anche se non si acquista un prodotto nuovo. Altri centri di raccolta sono elencati sulle homepage di [www.swico.ch](http://www.swico.ch) o di [www.sens.ch](http://www.sens.ch).

### Per gli utenti professionali

**Nell'Unione europea:** Se il prodotto è impiegato a scopi professionali, procedere come segue per eliminarlo: contattare il proprio rivenditore Montarbo che fornirà informazioni circa il ritiro del prodotto. Potrebbero essere addebitate le spese di ritiro e riciclaggio. Prodotti piccoli (e quantitativi ridotti) potranno essere ritirati anche dai centri di raccolta locali.

**In Spagna:** contattare il sistema di raccolta ufficiale o l'ente locale preposto al ritiro dei prodotti usati.

**In paesi che non fanno parte dell'UE:** contattare le autorità locali e informarsi sul metodo di smaltimento corretto.

## Waste from Electrical and Electronic Equipment



### Attention !

The crossed out wheeled bin symbol that can be found on this product means that the product is covered by the Waste from Electrical and Electronic Equipment Directive. The symbol is intended to indicate that waste from electrical and electronic equipment must be subject to a selective collection. For more details on available collection facilities please contact your local government office or the retailer where you purchased this product. The solid bar underneath indicates that the product has been put on the market after 13th August 2005.

## INFORMATION ON PROPER DISPOSAL

### Information on Disposal for Users (private households)

**In the European Union** - Attention: If you want to dispose of this equipment, please do not use the ordinary dust bin! Used electrical and electronic equipment should not be disposed of via the normal household waste stream but must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of used electrical and electronic equipment.

Following the implementation by member states, private households within the EU states may return their used electrical and electronic equipment to designated collection facilities free of charge\*.

In some countries\* your local retailer may also take back your old product free of charge if you purchase a similar new one. \* Please contact your local authority for further details.

**In other Countries outside the EU:** If you wish to dispose of this product, please contact your local authorities and ask for the correct method of disposal.

**In Switzerland:** Used electrical or electronic equipment can be returned free of charge to the dealer, even if you don't purchase a new product. Further collection facilities are listed on the homepage of [www.swico.ch](http://www.swico.ch) or [www.sens.ch](http://www.sens.ch).

### Information on Disposal for Professional Users

**In the European Union:** If the product is used for business purposes and you want to discard it: please contact your Montarbo dealer who will inform you about the take-back of the product.

You might be charged for the costs arising from take-back and recycling. Small products (and small amounts) might be taken back by your local collection facilities.

**In Spain:** Please contact the established collection system or your local authority for takeback of your used products.

**In other Countries outside the EU:** please contact your local authorities and ask for the correct method of disposal.

## Europäische Richtlinie für Elektro- und Elektronikalt-/schrottgeräte



### Achtung !

Ihr Produkt trägt dieses Symbol. Die durch gekreuzte Mülltonne weist darauf hin, dass dieses Gerät einem getrennten Rücknahme-system zugeführt werden soll. Informationen zur Entsorgung von Elektro- und Elektronikgeräten erhalten Sie bei der Stadtverwaltung, beim Entsorgungsamt oder in dem Geschäft, wo Sie das Produkt erworben haben.

### Entsorgungsinformationen für Benutzer aus Privathaushalten

**In der Europäischen Union** - Achtung: dieses Gerät darf nicht in den normalen Hausmüll geworfen werden! Gemäß einer neuen EU-Richtlinie, die die ordnungsgemäße Rücknahme, Behandlung und Verwertung von gebrauchten Elektro- und Elektronikgeräten vorschreibt, müssen elektrische und elektronische Altgeräte getrennt vom Hausmüll über dafür staatlich vorgesehenen Stellen entsorgt werden. Nach der Einführung der Richtlinie in den EU-Mitgliedstaaten können Privathaushalte ihre gebrauchten Elektro- und Elektronikgeräte nun kostenlos an ausgewiesenen Rücknahmestellen abgeben\*. In einigen Ländern\* können Sie Altgeräte u.U. auch kostenlos bei Ihrem Fachhändler abgeben, wenn Sie ein vergleichbares neues Gerät kaufen. \*Weitere Einzelheiten erhalten Sie von Ihrer Gemeindeverwaltung.

**In anderen Ländern außerhalb der EU:** Bitte erkundigen Sie sich bei Ihrer Gemeindeverwaltung nach dem ordnungsgemäßen Verfahren zur Entsorgung dieses Geräts.

**In der Schweiz:** Gebrauchte Elektro- und Elektronikgeräte können kostenlos beim Händler abgegeben werden, auch wenn Sie kein neues Produkt kaufen. Weitere Auskünfte finden Sie auf der Homepage von [www.swico.ch](http://www.swico.ch) oder [www.sens.ch](http://www.sens.ch).

### Entsorgungsinformationen für professionelle Nutzer

**In der Europäischen Union:** Wenn Sie dieses Produkt für gewerbliche Zwecke genutzt haben und nun entsorgen möchten: bitte wenden Sie sich an Ihren Montarbo Fachhändler, der Sie über die Rücknahme des Produkts informieren kann. Möglicherweise müssen Sie die Kosten für die Rücknahme und Verwertung tragen. Kleine Produkte können möglicherweise bei Ihrer örtlichen Rücknahmestelle abgegeben werden.

**In Spanien:** Bitte wenden Sie sich an das vorhandene Rücknahmesystem oder Ihre Gemeindeverwaltung, wenn Sie Fragen zur Rücknahme Ihrer Altgeräte haben.

**In anderen Ländern außerhalb der EU:** Bitte erkundigen Sie sich bei Ihrer Gemeindeverwaltung nach dem ordnungsgemäßen Verfahren zur Entsorgung dieses Geräts.

## Directive Déchets d'équipements électriques et électroniques (DEEE)



### Attention !

Le pictogramme 'poubelle barrée' signifie que l'équipement ne peut être jeté avec les autres déchets, qu'il fait l'objet d'une collecte sélective en vue de sa valorisation, réutilisation ou recyclage. Les appareils électriques et électroniques usagés doivent être traités séparément et conformément aux lois en vigueur en matière de traitement, de récupération et de recyclage adéquats de ces appareils. Il existe un système de collecte spécifique pour ces produits. Pour plus de détails sur les sites de collecte existants, veuillez contacter l'administration locale ou le détaillant auprès. Le rectangle noir en dessous de la poubelle barrée signifie que le produit a été mis sur le marché seulement après le 13 août 2005.

## INFORMATIONS SUR LA CORRECTE MISE AU REBUT

### Pour les utilisateurs privés

**Pays de l'Union européenne** - Attention: si vous souhaitez mettre cet appareil au rebut, ne le jetez pas dans une poubelle ordinaire ! Les appareils électriques et électroniques usagés doivent être traités séparément et conformément aux lois en vigueur en matière de traitement, de récupération et de recyclage adéquats de ces appareils. Suite à la mise en oeuvre de ces dispositions dans les Etats membres, les ménages résidant au sein de l'Union européenne peuvent désormais ramener gratuitement\* leurs appareils électriques et électroniques usagés sur des sites de collecte désignés. Dans certains pays\*, votre détaillant reprendra également gratuitement votre ancien produit si vous achetez un produit neuf similaire. \*Veuillez contacter votre administration locale pour plus de renseignements.

**Pays hors de l'Union européenne:** veuillez contacter votre administration locale qui vous renseignera sur la méthode d'élimination correcte de cet appareil.

**Suisse:** les équipements électriques ou électroniques usagés peuvent être ramenés gratuitement au détaillant, même si vous n'achetez pas un nouvel appareil. Pour obtenir la liste des autres sites de collecte, veuillez vous reporter à la page d'accueil du site [www.swico.ch](http://www.swico.ch) ou [www.sens.ch](http://www.sens.ch).

### Pour les utilisateurs professionnels

**Pays de l'Union européenne:** si ce produit est utilisé dans le cadre des activités de votre entreprise et que vous souhaitez le mettre au rebut: veuillez contacter votre revendeur Montarbo qui vous informera des conditions de reprise du produit. Les frais de reprise et de recyclage pourront vous être facturés. Les produits de petite taille (et en petites quantités) pourront être repris par vos organisations de collecte locales.

**Espagne:** veuillez contacter l'organisation de collecte existante ou votre administration locale pour les modalités de reprise de vos produits usagés.

**Pays hors de l'Union européenne:** veuillez contacter votre administration locale qui vous renseignera sur la méthode d'élimination correcte de cet appareil.

## Directiva de la Unión Europea sobre Residuos de Aparatos Eléctricos y Electrónicos (RAEE)



### Atención:

Su producto está marcado con el símbolo especial del 'contenedor de basura tachado'. Este indica que los productos eléctricos y electrónicos usados no deberían mezclarse con los residuos domésticos generales y están sujetos al principio de recogida selectiva. Para obtener más información sobre cómo deshacerse de sus aparatos eléctricos y electrónicos viejos, póngase en contacto con su ayuntamiento, el servicio de recogida de basuras o el establecimiento donde adquirió el producto.

## INFORMACIÓN SOBRE LA CORRECTA ELIMINACIÓN

### Para usuarios particulares

**En la Unión Europea** Atención: si quiere desechar este equipo, ¡por favor no utilice el cubo de la basura habitual! Los equipos eléctricos y electrónicos usados deberían tratarse por separado de acuerdo con la legislación que requiere un tratamiento, una recuperación y un reciclaje adecuados de los equipos eléctricos y electrónicos usados. Tras la puesta en práctica por parte de los estados miembros, los hogares de particulares dentro de los estados de la Unión Europea pueden devolver sus equipos eléctricos y electrónicos a los centros de recogida designados sin coste alguno \*. En algunos países\* es posible que también su vendedor local se lleve su viejo producto sin coste alguno si Ud. compra uno nuevo similar. \*Póngase en contacto con su autoridad local para obtener más detalles.

**En otros países fuera de la Unión Europea:** Si desea desechar este producto, por favor póngase en contacto con las autoridades locales y pregunte por el método de eliminación correcto.

**En Suiza:** Los equipos eléctricos o electrónicos pueden devolverse al vendedor sin coste alguno, incluso si no compra ningún nuevo producto. Se puede encontrar una lista de otros centros de recogida en la página principal de [www.swico.ch](http://www.swico.ch) o [www.sens.ch](http://www.sens.ch).

### Para usuarios profesionales

**En la Unión Europea:** Si el producto se utiliza en una empresa y quiere desecharlo: por favor póngase en contacto con su distribuidor Montarbo, quien le informará sobre la recogida del producto.

Puede ser que le cobren los costes de recogida y reciclaje. Puede ser que los productos de tamaño pequeño sean recogidos por sus centros de recogida locales.

**En España:** póngase en contacto con el sistema de recogida establecido o con las autoridades locales para la recogida de los productos usados.

**En otros países fuera de la Unión Europea:** póngase en contacto con sus autoridades locales y pregunte por el método de eliminación correcto.

## Direttiva RAEE

### Attenzione!



Il prodotto è contrassegnato da questo simbolo che segnala di non smaltire le apparecchiature elettriche ed elettroniche tramite la normale procedura di smaltimento dei rifiuti domestici.

Per questi prodotti è previsto un sistema di raccolta differenziato in conformità alla legislazione che richiede il trattamento, il recupero e il riciclaggio adeguato dei suddetti prodotti.

Per maggiori informazioni si prega di contattare l'autorità locale competente.

La barra nera sotto il simbolo indica che il prodotto è stato immesso sul mercato dopo il 13 Agosto 2005.

## INFORMAZIONI PER UN CORRETTO SMALTIMENTO

### Per gli utenti privati

**Nell'Unione europea** | Attenzione: Per smaltire il presente dispositivo, non utilizzare il normale bidone della spazzatura! Le apparecchiature elettriche ed elettroniche usate devono essere gestite a parte e in conformità alla legislazione che richiede il trattamento, il recupero e il riciclaggio adeguato dei suddetti prodotti. In seguito alle disposizioni attuate dagli Stati membri, i privati residenti nella UE possono conferire gratuitamente le apparecchiature elettriche ed elettroniche usate a centri di raccolta designati\*. In alcuni paesi (\*), anche il rivenditore locale può ritirare gratuitamente il vecchio prodotto se l'utente acquista un altro nuovo di tipologia simile. \*Per maggiori informazioni si prega di contattare l'autorità locale competente.

**In paesi che non fanno parte dell'UE** | Contattare le autorità locali e informarsi sul metodo di smaltimento corretto.

**In Svizzera** | Le apparecchiature elettriche o elettroniche usate possono essere restituite gratuitamente al rivenditore, anche se non si acquista un prodotto nuovo. Altri centri di raccolta sono elencati sulle homepage di [www.swico.ch](http://www.swico.ch) o di [www.sens.ch](http://www.sens.ch).

### Per gli utenti professionali

**Nell'Unione europea** | Attenzione: Se il prodotto è impiegato a scopi professionali, procedere come segue per eliminarlo: contattare il proprio rivenditore Montarbo® che fornirà informazioni circa il ritiro del prodotto. Potrebbero essere addebitate le spese di ritiro e riciclaggio. Prodotti piccoli (e quantitativi ridotti) potranno essere ritirati anche dai centri di raccolta locali.

**In Spagna** | contattare il sistema di raccolta ufficiale o l'ente locale preposto al ritiro dei prodotti usati.

**In paesi che non fanno parte dell'UE** | Contattare le autorità locali e informarsi sul metodo di smaltimento corretto.

## Waste from Electrical and Electronic Equipment

### Attention!



The crossed out wheeled bin symbol that can be found on this product means that the product is covered by the Waste from Electrical and Electronic Equipment Directive.

The symbol is intended to indicate that waste from electrical and electronic equipment must be subject to a selective collection.

For more details on available collection facilities please contact your local government office or the retailer where you purchased this product.

The solid bar underneath indicates that the product has been put on the market after 13th August 2005.

## INFORMATION ON PROPER DISPOSAL

### Information on Disposal for Users (private households)

**In the European Union** | Attention: If you want to dispose of this equipment, please do not use the ordinary dust bin! Used electrical and electronic equipment should not be disposed of via the normal household waste stream but must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of used electrical and electronic equipment. Following the implementation by member states, private households within the EU states may return their used electrical and electronic equipment to designated collection facilities free of charge\*. In some countries\* your local retailer may also take back your old product free of charge if you purchase a similar new one. \*Please contact your local authority for further details.

**In other Countries outside the EU** | If you wish to dispose of this product, please contact your local authorities and ask for the correct method of disposal.

**In Switzerland** | Used electrical or electronic equipment can be returned free of charge to the dealer, even if you don't purchase a new product. Further collection facilities are listed on the homepage of [www.swico.ch](http://www.swico.ch) or [www.sens.ch](http://www.sens.ch).

### Information on Disposal for Professional Users

**In the European Union** | If the product is used for business purposes and you want to discard it: please contact your Montarbo® dealer who will inform you about the take-back of the product. You might be charged for the costs arising from take-back and recycling. Small products (and small amounts) might be taken back by your local collection facilities.

**In Spain** | Please contact the established collection system or your local authority for takeback of your used products.

**In other Countries outside the EU** | Please contact your local authorities and ask for the correct method of disposal.

Le informazioni contenute in questo manuale sono state attentamente redatte e controllate. Tuttavia non si assume alcuna responsabilità per eventuali inesattezze. Questo manuale non può contenere una risposta a tutti i singoli problemi che possono presentarsi durante l'installazione e l'uso dell'apparecchio. Siamo a vostra disposizione per fornirvi eventuali ulteriori informazioni e consigli. Elettronica Montarbo srl non può essere ritenuta responsabile per danni o incidenti a cose o persone, causati o connessi all'utilizzazione o malfunzionamento dell'apparecchio.

*The information contained in this manual have been carefully drawn up and checked. However no responsibility will be assumed for any incorrectness. This manual cannot cover all the possible contingencies which may arise during the product installation and use. Should further information be desired, please contact us or our local distributor. Elettronica Montarbo srl can not be considered responsible for damages which may be caused to people and things when using this product.*

Prodotto in Italia. Prodotto conforme alle normative della Comunità Europea.  
Made in Italy. The product is compliant with the EU legislation.



Caratteristiche e dati tecnici possono essere modificati senza preavviso.  
Specifications and features are subject to change without prior notice.

caratteristiche e dati tecnici possono essere modificati senza preavviso  
sous reserve de modifications

specifications and features are subject to change without prior notice

änderungen vorbehalten

as características y los datos técnicos pueden sufrir modificaciones sin previo aviso



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**Montarbo®**  
made in Italy





The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated 'dangerous voltage' within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The exclamation point within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions.

## IMPORTANT ! SAFETY INSTRUCTIONS

### WARNING

**In order to protect your own and others' safety and to avoid invalidation of the warranty of this product, please read this section carefully before operating this product.**

- This product has been designed and manufactured for being operated as an active speaker system in the applications typical of a sound reinforcement system or of a sound recording system. Operation for purposes and in applications other than these has not been covered by the manufacturer in the design of the product, and is therefore to be undertaken at end user's and/or installer's sole risk and responsibility.
- This unit conforms to Class 1 insulation requirements, and for safe use it is required that the protective earth contact is connected to a grounded (earthed) outlet.

### TO AVOID THE RISK OF FIRE AND/OR ELECTRIC SHOCK:

- Never expose this product to rain or moisture, never use it in proximity of water or on a wet surface. Never let any liquid, nor any object, enter the product. If this happens, immediately disconnect it from the mains supply and refer to a qualified service technician before operating it again. Never place burning candles or other sources of open flame on top of the device.
- Before connecting this product to the mains supply, always make sure that the voltage on the mains outlet corresponds to that stated on the product.
- This product must be connected to a grounded mains outlet complying with the safety regulations in force, using the supplied power cable. In case the power cable needs to be substituted, use exclusively a cable of the same type and characteristics.
- For US and CANADA only: do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- This device is connected to the power line even when the mains switch is in the '0' (off) position and the power indicator is off. As long as it is plugged in there are dangerous electrical potentials inside the device, so, before undertaking any sort of maintenance work etc, always make sure it has been unplugged from the mains socket.
- Never place any object on the power cable. Never lay the power cable on a walkway where one could trip over it. Never compress or pinch it.
- Never install the product without providing adequate airflow to cool it. Never obstruct the air intake openings. Leave enough room to get to the mains power socket and the mains connector on the back panel.
- In case the external fuse needs replacement, substitute it only with one of the same type and rating, as stated on the product.
- Always make sure the Power switch is in its '0' (off) position before doing any work on the connections of the product.
- Before attempting to move the product after it has been installed, remove all the connections.
- To disconnect the power cable of this product from the mains supply never pull the cable directly. Hold the body of the plug firmly and pull it gently from the mains supply outlet.

### CAUTION!

**This product does not contain user serviceable parts. To prevent fire and/or electrical shock, never disassemble it or remove the rear panel. For maintenance and servicing always refer to the official Montarbo Distributor in your Country or to qualified personnel specifically authorised by the Distributor.**

- Before placing the product on a surface of any kind, make sure that its shape and load rating safely match the product size and weight. Never attempt to hang the product by any means not expressly provided or approved by the manufacturer (i.e. ropes, chains, belts or whatever medium, through carrying handles, bolts, hooks or whatever). In case the product is factory-fitted with specific mounting hardware, always verify before installation that the lifting and/or hanging system you intend to use is of a proper type and can carry the product weight with the safety ratio required by the regulations in force.
- To avoid shocks, kicks, or whatever accidents, always set aside a protected area with no access to unqualified personnel as an installation site for the product. If case the product is to be used near children or animals, close supervision is necessary.
- This product can generate very high acoustic pressures which are dangerous to the hearing system. Always avoid operation at loud levels if anyone is excessively near to the product.

⚡ **Never expose children to high sound sources.**

# ENGLISH

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## PACKAGE CONTENTS

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# Introduction

*The BX series includes four models of active subwoofers:*

**BX182A** (dual 18" woofer), **BX152A** (dual 15" woofer),  
**BX181A** (single 18" woofer) and **BX151A** (single 15" woofer)

*Each of them is equipped with custom designed woofers incorporating innovative manufacturing technologies that result in greater power handling with lower moving coil temperature, thus guaranteeing large reliability margins.*

*The on-board electronics, the fruit of cutting-edge engineering, include self-diagnostics circuitry and a sophisticated speaker protection circuit that monitor the operation of the internal power amplifiers in real time. The latter, developed in the Montarbo R&D labs, is a Dynamic EQ Controller (D.E.Co.), that integrates the functions of a dynamic equalizer with those of a compressor/limiter. The operating thresholds are dynamically set, in real time, by the amplifier's available power reserve.*

*The D.E.Co. eliminates power amplifier clipping, even with very high input signals, and the dynamic equalizer controls the frequency response, thus guaranteeing a full and controlled bass response, without compromising the available dynamic range.*

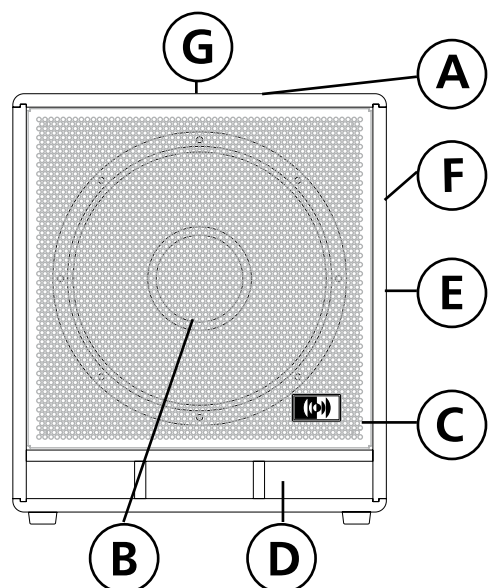
*An internal stereo electronic cross-over (that may be bypassed for wide-band use) drives the internal low frequency power amplifiers and the external active loudspeakers (or external power amplifiers) for the middle and high frequency range.*

*The internal power amplifiers (MosFet, class AB) were designed around an innovative driver stage that guarantees the lowest possible distortion, while providing excellent dynamic and tonal performance.*

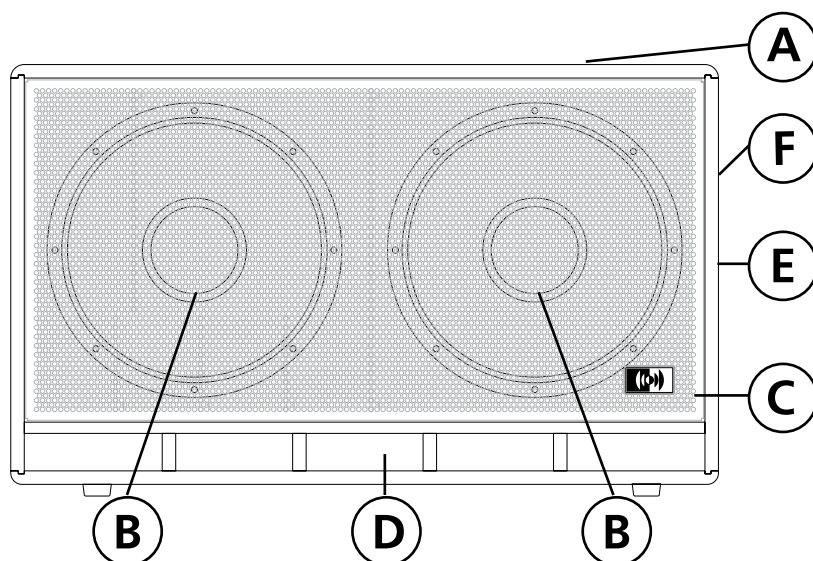


# Description

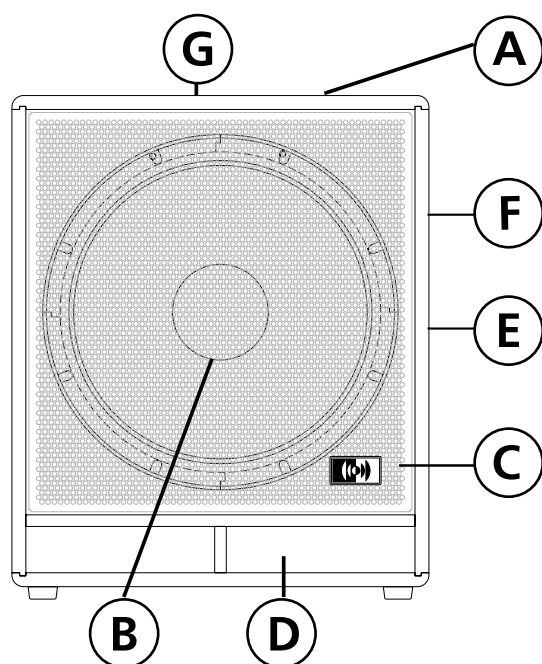
## BX151A



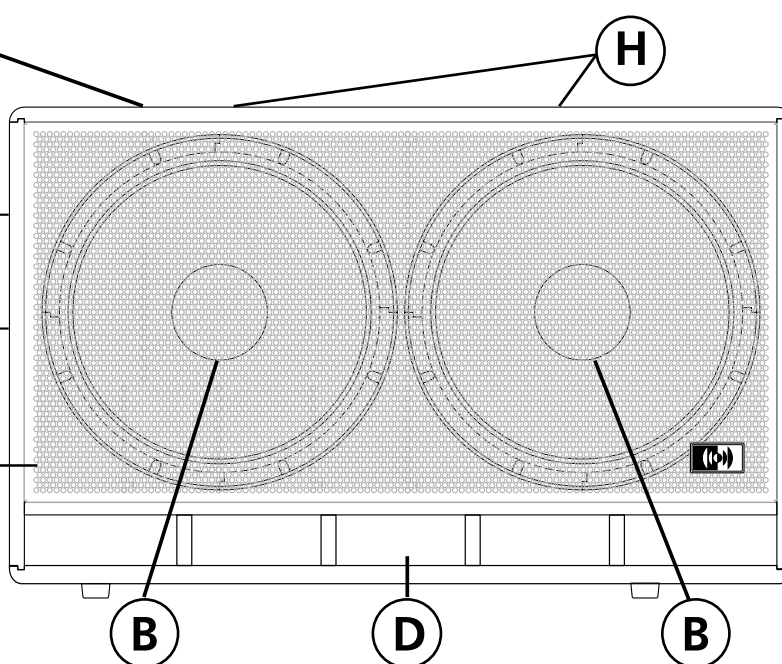
## BX152A



## BX181A



## BX182A



**A** Multiply birch enclosure with antiscratch polyurethane black paint.

**B** High quality components, custom designed to Montarbo specifications

**BX182A:** 15" extra large displacement woofer (3" voice coil)

**BX152A:** 2 x 15" extra large displacement woofers (neodymium magnet, 4" voice coil)

**BX181A:** 18" extra large displacement woofer (neodymium magnet, 4" voice coil)

**BX182A:** 2 x 18" extra large displacement woofers (neodymium magnet, 4" voice coil)

**C** Powder coated, perforated, steel protection grid.

**D** Tuning ports.

**E** Carrying handles.

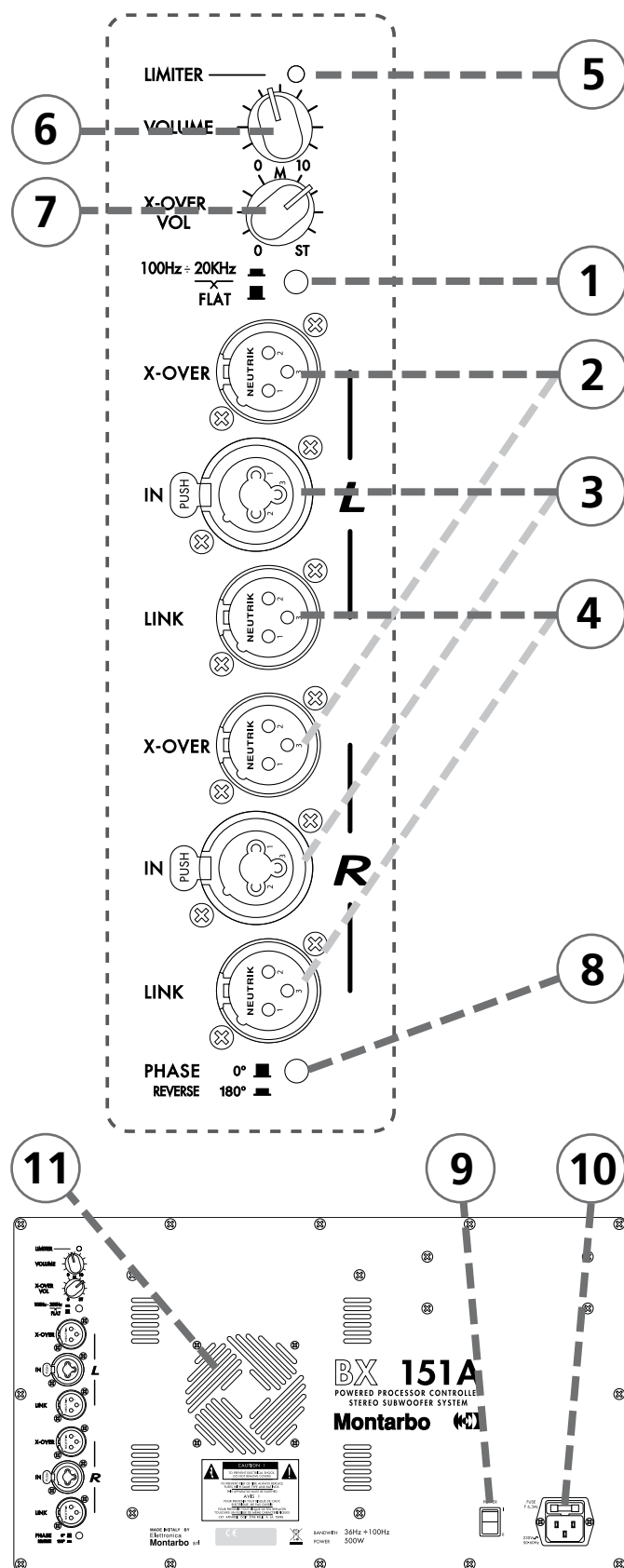
**F** Control and connection panel.

**G** On top of models **BX151A** and **BX181A**: adaptor for Montarbo **SM4** satellite supporting pole (optional).

**H** In model **BX182A**: 4 castors (100 mm) with brakes.



# Control and connection panel



**1** X-OVER (100Hz±20kHz) / FLAT switch allowing the satellite speaker systems, connected to the stereo output (2), to receive a full-range signal or the upper audio range only. In both conditions the signal is affected by the 'X-Over' volume control (7).

☐ Button up (crossover off) = 'flat' mode: the output signal is 'full bandwidth'.

☑ Button pushed (crossover on) = 'x-over mode': 100Hz±20kHz high pass filter output signal (100Hz, 24dB/oct).

**Note:** to avoid misoperation, this button is recessed. Use a pointed object (pen or pencil) to switch it.

**2** X-OVER: 2 unbalanced XLR male sockets for the stereo output.

**3** IN: 2 balanced inputs, fitted with Neutrik Combo® connectors which accept both XLR and jack plugs (connection to the mixer).

**Note:** by using a mono jack connector the signal is automatically unbalanced.

**4** LINK: 2 balanced XLR male sockets ('link') for parallel connection of active speaker systems.

☛ See 'connectors' on page 23 and 'connection examples' on pages 24 and 25.

**5** LIMITER: LED indicator. The LED lights up when the signal level is approaching the maximum (clipping) allowable level. If the LED is continuously lit, you must reduce the output level of the mixer or rotate the input level control to a lower (counter clockwise) setting.

**6** VOLUME: input level control. Allows you to set the input sensitivity of the built-in power amplifier. Turning this control fully clockwise to its maximum setting the input sensitivity is set to 0dBu.

**7** X-OVER VOL.: this allows you to set the volume of the speaker systems connected to the X-OVER output (2). This volume control is particularly useful to adapt the gain of the satellite speaker system to the gain of the subwoofer according to the different possible configurations (mono, stereo).

**8** PHASE REVERSE: by means of this switch the absolute phase of the subwoofer may be reversed, allowing for the use of satellite loudspeakers with a non-standard phasing, or for multi-subwoofer installation, thereby avoiding possible phase cancellations.

☛ See 'phase' on page 17

**9** Mains power switch.

**10** Mains power cord socket with built-in fuse in models BX151A, BX152A and BX181A; with PowerCon® connector and fuse holder in model BX182A.

Use only the factory supplied mains cable or a suitable cable with a ground connection and marked with the safety approvals valid in the country of use.

When installing make sure that it is easy to get to this connector and to the mains plug.

**11** The output stages are cooled by a forced air heat exchanger, equipped with a temperature-controlled, low-noise fan.

**Note:** in order to reduce noise and dust build-up, the thermostatically controlled fan is not activated unless the amplifier heats up to a pre-set level, and it turns off automatically when the temperature drops back down below this level.

# Connection examples

The very low frequency range reproduced by the subwoofers of the BX Series is essentially omnidirectional allowing easy installation of the enclosure. In most cases the subwoofer can be placed near to the satellite loudspeaker system, but when space or set up reason dictate it, the subwoofer can be positioned at some distance from the satellite system (e.g.: under the stage floor).

You must always consider that the extended low frequency range increases the risk of acoustic feedback, with undesired 'howls' and reduced clarity. It is thus essential to place the subwoofer on a rigid structure, that does not transmit vibrations to the microphones. Some connection examples - among the most common possible configurations - are described below and also illustrated on pages **24** and **25** of this manual.

☛ *Always make sure to use only heavy gauge, high quality shielded cables.*

## Example A: 1 BX subwoofer + 2 self-powered loudspeakers

The complex connections that other systems usually require for this configuration are made extremely simple with the subwoofers of the BX Series thanks to the L/R outputs of the built-in stereo electronic cross-over.

**Note:** It is advisable to place the subwoofer in the center, between the two self-powered loudspeakers

mixer L/R outputs → subwoofer L/R inputs  
subwoofer 'x-over' L/R outputs → inputs of the two self-powered loudspeakers

- If the self-powered loudspeakers have the same input sensitivity as the subwoofer (which is 0dB) set the control 'X-OVER VOL.' (7) to its maximum position.

☛ *See connection example A on page 24*

- Connect the L and R outputs of the mixer to the L and R inputs (3) of the subwoofer.

- Connect the X-OVER L and R outputs (2) of the subwoofer to the inputs of the 2 self-powered loudspeakers. This set-up allows them to benefit from the increase in dynamic range provided by the electronic crossover of the subwoofer.

- Make sure the X-Over / Flat button (1) is pushed.

- The output levels of the two self-powered loudspeakers are not affected by the 'VOLUME' control (6) of the subwoofer.

First set the volume controls of the self-powered loudspeakers to their maximum position, then adjust the control 'X-OVER VOL.' (7) to obtain the desired tonal balance.

## Example B: 2 BX subwoofers + 2 self-powered loudspeakers

This is the most typical configuration where each subwoofer drives one self-powered loudspeaker.

mixer L/R outputs → 'R' inputs of the two subwoofers  
x-over 'R' outputs of the two subwoofers → inputs of the two self-powered loudspeakers.

☛ *See connection example B on page 24*

- If the self-powered loudspeakers have the same input sensitivity as the subwoofer (which is 0dB) set the control 'X-OVER VOL.' (7) to its center position.

- Connect the L and R outputs of the mixer to the 'R' inputs (3) of the two subwoofers.

- Connect the X-OVER 'R' outputs (2) of the two subwoofers to the inputs of the two self-powered loudspeakers.

- Make sure the X-Over / Flat button (1) is pushed on each subwoofer.

- The output levels of the self-powered loudspeakers are not affected by the 'VOLUME' control (6) of the subwoofers. First set the volume controls of the self-powered loudspeakers to their maximum position, then adjust the control 'X-OVER VOL.' (7) to obtain the desired tonal balance.

## Example C: 1 BX subwoofer + 2 self-powered loudspeakers

This is a more complex configuration which enables selective enhancement of the low-frequencies (for example, only on drums and keyboards, not on voices or brasses).

**Note:** It is advisable to place the subwoofer in the center, between the two self-powered loudspeakers

mixer 'AUX' output → subwoofer 'R' input  
mixer L/R outputs → inputs of the two self-powered loudspeakers

☛ *See connection example C on page 25*

- Connect the AUXILIARY output of the mixer to the 'R' input (3) of the subwoofer.

- Connect the L and R outputs of the mixer to the inputs of the two self-powered loudspeakers respectively.

- This type of set-up allows you to use the subwoofer to extend the low frequency response of only those instruments that really need it (e.g. drum machines, bass, keyboards). These instruments are selected by means of the AUX send controls on the corresponding channels. The subwoofer's volume control and the mixer's AUX output level control adjust only the very low frequencies.

## Parallel connection of two or more systems

mixer L/R outputs → L/R inputs of the first subwoofer  
L/R outputs of the first subwoofer → L/R inputs of the second subwoofer

- Connect the L and R outputs of the mixer to the L and R inputs (3) of the subwoofer.

- Connect the 'LINK' L and R outputs (4) of the subwoofer to the L and R inputs (3) of the second subwoofer.

☛ *See connection example on page 25*

# Connection examples

## Connection to the mixer

- Always use only heavy gauge, high quality **SHIELDED** cables (signal cables).
- Always make sure that the mixer, the subwoofer and any other powered enclosure are switched **off** before connecting them. This is to avoid annoying noises and signal peaks, which can also be dangerous for the enclosures themselves.

If the mixer has **XLR balanced outputs**: use standard balanced XLR connectors.

If the mixer has **XLR unbalanced outputs**: unless you are using a Montarbo mixer, make sure that the XLR outputs on the mixer are unbalanced to IEC 268 standard, 1 = GND, 2 = HOT, 3 = GND.

If the mixer has **JACK balanced outputs (stereo jacks)**: use stereo jack-XLR adapters, wired according to IEC 268, pin 1 = ground (sleeve), pin 2 = tip, pin 3 = ring.

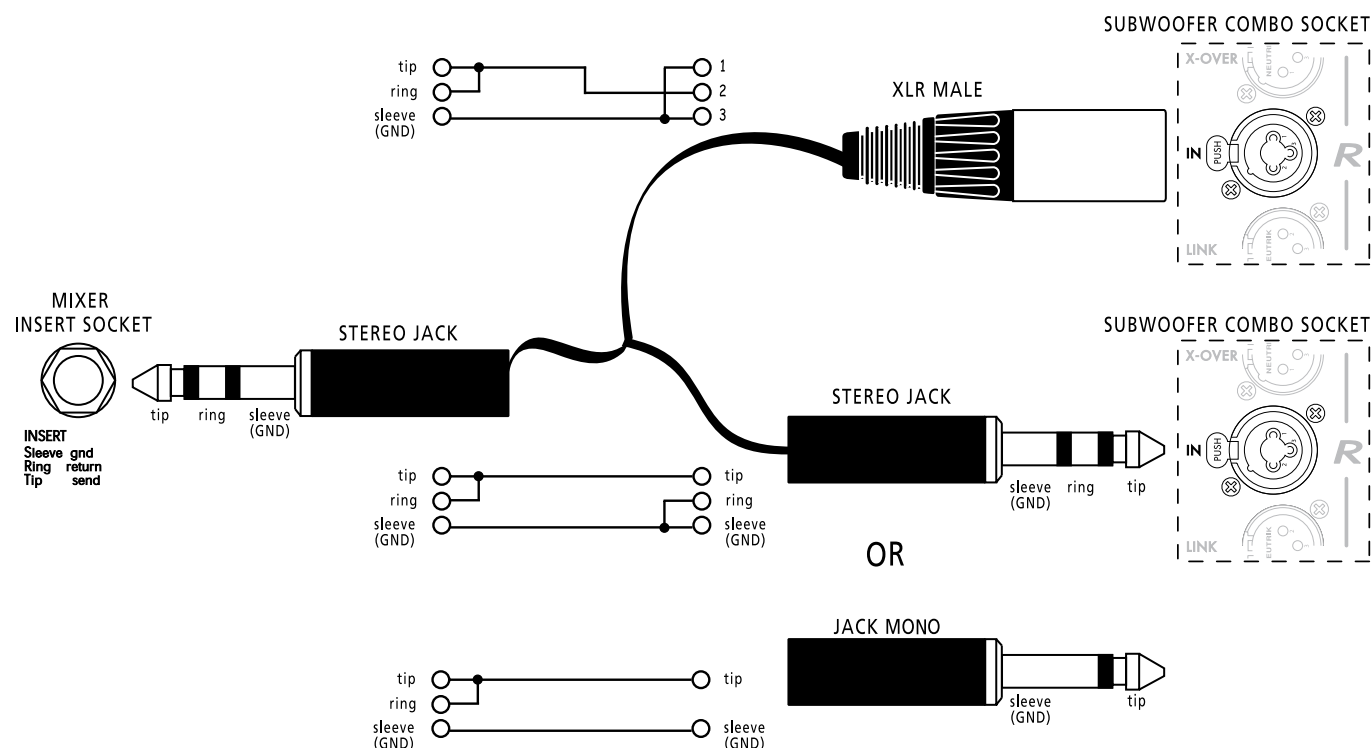
If the mixer has **JACK unbalanced outputs (mono jacks)**: use suitable Jack-XLR male adapters unbalanced according to IEC 268, pin 1 = ground, pin 2 = tip, pin 3 = ground.

☛ See 'connectors' at page 23.

## Note:

In our configuration examples we are using the L and R master outputs of the mixer, but if they are not available (as, for example, in a **powered mixer**) the **insert sockets** on main L/R outputs can be used to the same purposes.

Take the signal at the insert sockets by means of a stereo jack plug, in which you have shorted the RING and the TIP and send it to the inputs of the subwoofer by means of an XLR or a jack (see picture).



# Important !



## Product care and maintenance

- Always keep air vents unobstructed so air can circulate freely. Otherwise, electronic components may overheat and suffer damages. To ensure proper ventilation, place the subwoofer a sufficient distance away from walls and make sure it isn't covered by curtains etc... This is vital to keep the power amp cool.
- Never expose the enclosures to direct sunlight, excessive vibrations or mechanical shocks.
- Never place burning candles or other sources of open flame on top of the device. Do not expose the enclosures to heat sources (lamps, lights, high power light sources, radiators or other heat producing equipment).
- Avoid operating and storing the system in damp or dusty places: this may lead to malfunctions and premature degrading of specifications.
- Avoid using the system close to strong sources of electromagnetic interference (e.g. video monitors, high power electrical cabling). This may lead to degradation of audio quality.
- When setting up the system outdoors, be sure to protect it against rain.
- Care should be taken to prevent small objects or liquids from falling or spilling into the enclosure. In public events don't allow musicians, technicians or anyone else, put glasses, cups, ashtrays or cigarettes on the enclosures.
- Always leave the protective grid mounted on the enclosures.
- Use a soft brush or a jet of air to clean the enclosure. Do not use alcohol, solvents or detergents.
- Take care of the connecting cables. Make sure that they are not damaged, knotted or twisted.
- Do not force connectors and controls.
- As long as it is plugged in, dangerous electrical potentials may be present inside the device, so, before undertaking any sort of maintenance work etc., always make sure it has been unplugged from the mains socket.



## Power supply connection

- Make sure the mains power switch is off ('0') before starting any connection.
- Check that mains voltage corresponds to the voltage indicated on the panel.
- Use only the factory supplied mains cable or, if a different plug style is needed, a suitable cable with a ground connection and marked with the safety approvals valid in the country of use.
- Leave enough room to get to the mains power socket and the mains connector on the back panel. As long as it is plugged in, dangerous electrical potentials may be present inside the device, even when the mains switch is in the '0' (off) position and the power indicator is off so, before undertaking any sort of maintenance work etc., always make sure it has been unplugged from the mains socket.



## Phase

In any sound reinforcement system the correct phase is of fundamental importance.

Two speakers that are carrying the same musical program interact with one another and this can cause destructive interference.

This means that the sound waves, emitted by two speakers, reaching a listener's position (or a point in the auditorium) with different phase (two different points of the sound wave) may combine in the 'wrong way' and, instead of summing themselves and generating a sound wave of larger amplitude (a sound pressure 'louder' than that produced by a single speaker), will generate a lower sound pressure. In other words, the two sound waves will subtract instead of summing.

The worst condition is when the phase of the two signal is opposite (a phase shift of 180°: out of phase): this results in a mutual cancellation of the sound waves. In fact, if the first wave reaches the listener with the maximum value (positive pressure) and the second with the minimum (negative pressure), the resulting sound wave sum will be of zero value (or at least a very low value, lower than that produced by a single speaker).

Among the possible causes of these phase shifts are the listener's position in respect to the speakers, the type of acoustic loading used in the speakers, the acoustics of the location, the characteristics of the cross-over and the electronic processors.

The phase reversal button located in the BX series control panel (8, page 14) is meant to avoid the most extreme condition (out of phase: 180° phase shift), and to limit, in most cases, the phase cancellations described above.

This solution is used primarily in simple systems that do not include a separate PA speaker processor (which, in more complex and sophisticated systems, will take care of the phase alignment by adjusting the time delay between the speakers used in different audio ranges).

The most 'classical' application is in the relative phase correction of a sub woofer and a satellite speaker combination. In the cross-over region (100/120 Hz in Montarbo systems) the physical location of subwoofer and satellites (and other factors described above) may cause a phase shift between the sound waves generated by the speakers, and this will result in a 'hole' in acoustic response.

In this case, the phase inversion of the subwoofer (by pushing button 8, page 14) will minimize this effect.

It is mandatory to check that the phase is set at the same value on every subwoofer installed.

A phase inversion in one or more of them (due to the improper setting of the control), relative to the others, will result in the quasi-complete cancellation of the sound produced by them.

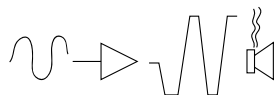
In standard installations all the subwoofer must have the same phase setting (all set to 0° or all set to 180°).

# Important !

## ! Input sensitivity and clipping.

Every amplified speaker system is characterized by a value of input sensitivity. The sensitivity is defined as the value of the amplifier's input signal that will result in maximum power output.

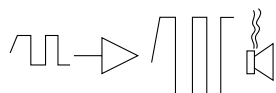
An increase in input signal over that threshold will result, not in increased power, but in a distortion phenomenon called 'clipping' (output stage saturation).



In this condition, the speaker will operate improperly. The diaphragm will exceed its excursion limits, and the voice coil will overheat beyond its thermal limits, resulting in overheating and premature failure.

The active processors will help in avoiding clipping, by reducing the amplifier gain and thus the input sensitivity, but these protections may be overridden in very extreme conditions.

What the active processor cannot modify is a signal that is distorted before getting to the active speaker's input.



The effects of this type of signal are the same as described above.

## How to avoid clipping

The simplest way to avoid clipping is to check each level in the signal's chain. Start from each input channel of the mixer and adjust the gain control and the equalizer controls so that the PFL meter will never (or only occasionally) indicate more than 0dBu. In simpler mixers, check that the 'clip' or 'peak' indicator is always off, or blinks only occasionally.

If these levels are exceeded, reduce the mixer channel's input gain. Once the desired mix is obtained, adjust the output level so that it never exceeds the active speaker's or the power amplifier's input sensitivity, as displayed on the master output VU-meter.

In models BX151A, BX152A, BX181A and BX182A the input sensitivity is 0dBu.

## ONLY FOR MODEL BX182A:

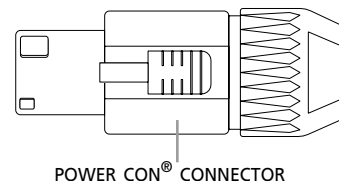
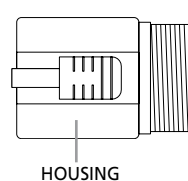
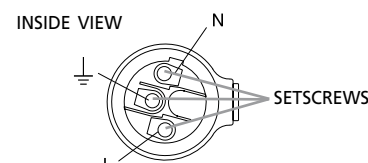
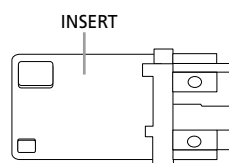
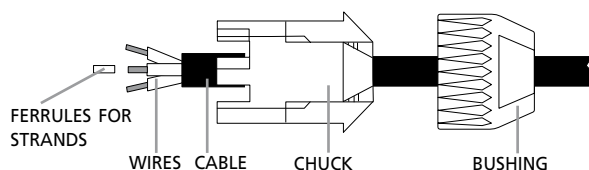
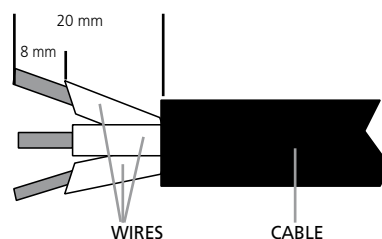
## ! Wiring of the power cable for the PowerCon® connector (supplied with the unit).

Strip the cable for 20 mm of length and strip each wire for 8 mm of length. We suggest to use a power cable with  $1,5 \div 2 \text{ mm}^2$  section wires (the insert terminals can however support a cable with wires up to a section of  $4 \text{ mm}^2/12\text{AWG}$ ).

Insert the power cable into the bushing and into the chuck (white chuck for a cable diameter of  $5 \div 11 \text{ mm}$ ; black chuck for a cable diameter of  $9.50 \div 15 \text{ mm}$ ). Fit a ferrule at the end of each wire and connect wires on the insert.

The wire ends can be clamped in or soldered to the terminal. Always paying attention to the symbols shown on the connector:  
 L (Live - corresponding to the brown wire),  
 N (Neutral - corresponding to the light blue wire) and  
 ⚬ (Ground - corresponding to the yellow and green wire).

After connecting the wires to the insert, lead the cable through the housing and screw down the bushing.





# APPENDIX

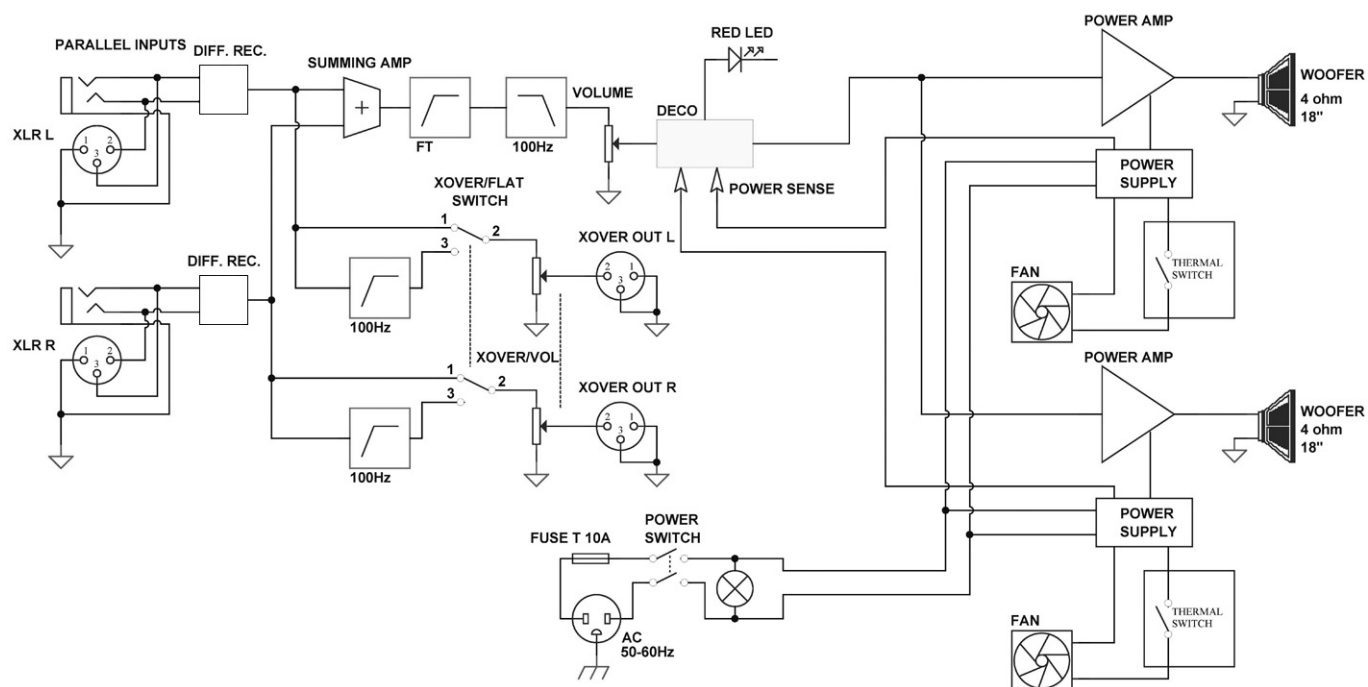
|                                     |                |
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| <b><i>Block diagram</i></b>         | <b>21 - 22</b> |
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| <b><i>Spare parts</i></b>           | <b>26 - 29</b> |
| <b><i>Combinations examples</i></b> | <b>30</b>      |

# Specifications

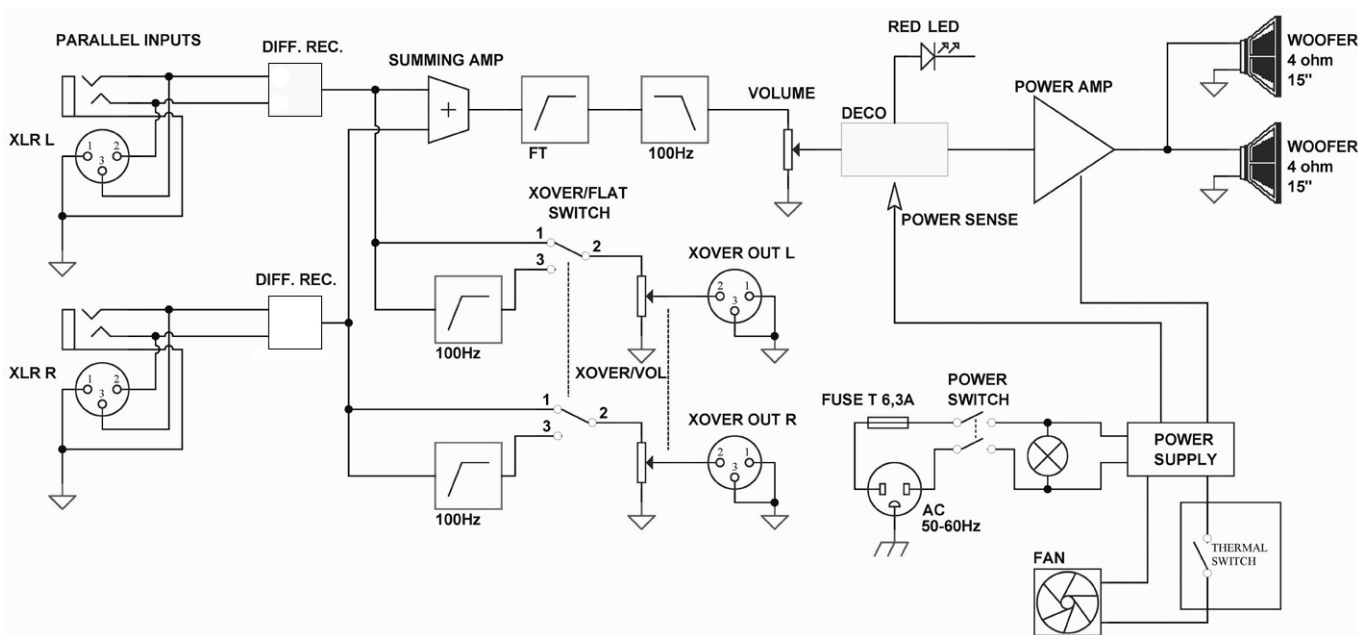
| SPECIFICATIONS             | BX182A - active dual amp                                                    | BX152A - active                                                             | BX181A - active                                                             | BX151A - active                                                             |
|----------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <b>Speaker System</b>      | compact / bass reflex                                                       | compact / bass reflex                                                       | compact / bass reflex                                                       | compact / bass reflex                                                       |
| • Impedance                | 4 Ohms                                                                      | 4 Ohms                                                                      | 4 Ohms                                                                      | 4 Ohms                                                                      |
| • Frequency response       | 30Hz ÷ 100Hz (-3dB)                                                         | 34Hz ÷ 100Hz (-3dB)                                                         | 32Hz ÷ 100Hz (-3dB)                                                         | 36Hz ÷ 100Hz (-3dB)                                                         |
| • Sensitivity (1W/1m )     | 104 dB SPL (half space)                                                     | 103 dB SPL (half space)                                                     | 101 dB SPL (half space)                                                     | 100 dB SPL (half space)                                                     |
| • Max SPL (half space)     | 139 dB                                                                      | 134 dB                                                                      | 132 dB                                                                      | 127 dB                                                                      |
| • Stereo electronic x-over | 100Hz, 24dB/oct<br>Linkwitz-Riley                                           | 100Hz, 24dB/oct<br>Linkwitz-Riley                                           | 100Hz, 24dB/oct<br>Linkwitz-Riley                                           | 100Hz, 24dB/oct<br>Linkwitz-Riley                                           |
| • Components (custom)      | 2 x 18" neodymium magnet<br>woofers (4" voice coil)                         | 2 x 15" neodymium magnet<br>woofers (4" voice coil)                         | 18" neodymium magnet<br>woofer (4" voice coil)                              | 15" woofer (3" voice coil)                                                  |
| • Connections              |                                                                             |                                                                             |                                                                             |                                                                             |
| X-over stereo input        | balanced Neutrik Combo®                                                     | balanced Neutrik Combo®                                                     | balanced Neutrik Combo®                                                     | balanced Neutrik Combo®                                                     |
| LINK output (parallel)     | balanced XLR                                                                | balanced XLR                                                                | balanced XLR                                                                | balanced XLR                                                                |
| X-over stereo output       | unbalanced XLR                                                              | unbalanced XLR                                                              | unbalanced XLR                                                              | unbalanced XLR                                                              |
| Main inlet                 | Neutrik PowerCon®                                                           | IEC C14                                                                     | IEC C14                                                                     | IEC C14                                                                     |
| • Construction             | Birch multiply; antiscratch<br>polyurethane paint;<br>steel protection grid | Birch multiply; antiscratch<br>polyurethane paint;<br>steel protection grid | Birch multiply; antiscratch<br>polyurethane paint;<br>steel protection grid | Birch multiply; antiscratch<br>polyurethane paint;<br>Steel protection grid |
| • Fittings                 | 4 x 100mm castors<br>Carring handles                                        | Carring handles                                                             | Carring handles<br>Satellite mounting pole socket                           | Carring handles<br>Satellite mounting pole socket                           |
| • Dimensions (wxhxd)       | 105 x 64 x 74 cm                                                            | 94 x 57 x 49 cm                                                             | 54 x 65 x 60 cm                                                             | 50 x 58 x 47 cm                                                             |
| • Weight                   | 85 Kg                                                                       | 63 Kg                                                                       | 45 Kg                                                                       | 38 kg                                                                       |
| <b>Built-in amplifier</b>  | 2 (MOSFET class AB)<br>Dynamic EQ Controller<br>(D.E.Co.)                   | 1 (MOSFET class AB)<br>Dynamic EQ Controller<br>(D.E.Co.)                   | 1 (MOSFET class AB)<br>Dynamic EQ Controller<br>(D.E.Co.)                   | 1 (MOSFET class AB)<br>Dynamic EQ Controller<br>(D.E.Co.)                   |
| • Max output power         | 2300 W (2 x 1150 W)                                                         | 1200 W                                                                      | 1000 W                                                                      | 500 W                                                                       |
| • Input Impedance          | 10kOhms (balanced)                                                          | 10kOhms (balanced)                                                          | 10kOhms (balanced)                                                          | 10kOhms (balanced)                                                          |
| • Input Sensitivity        | 0dBu (775mV)                                                                | 0dBu (775mV)                                                                | 0dBu (775mV)                                                                | 0dBu (775mV)                                                                |
| • Equivalent input noise   | -110dB                                                                      | -110dB                                                                      | -110dB                                                                      | -110dB                                                                      |

# Block diagrams

## BX182A

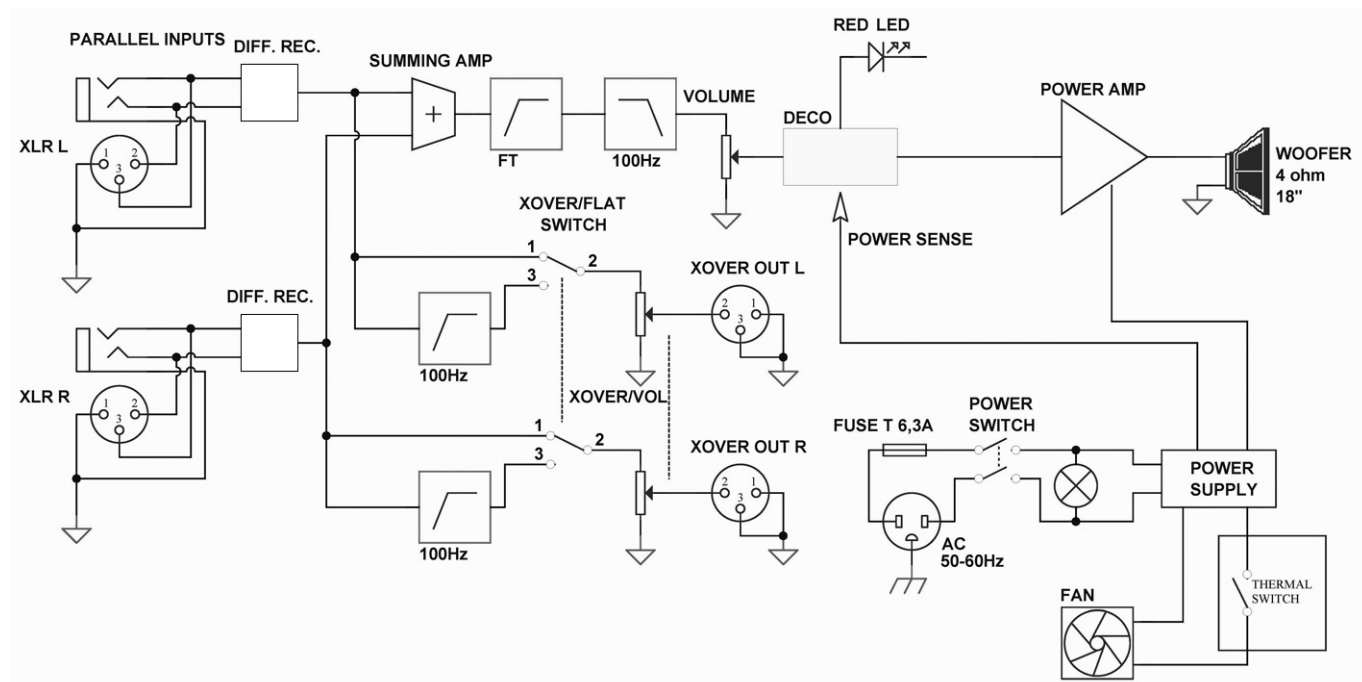


## BX152A

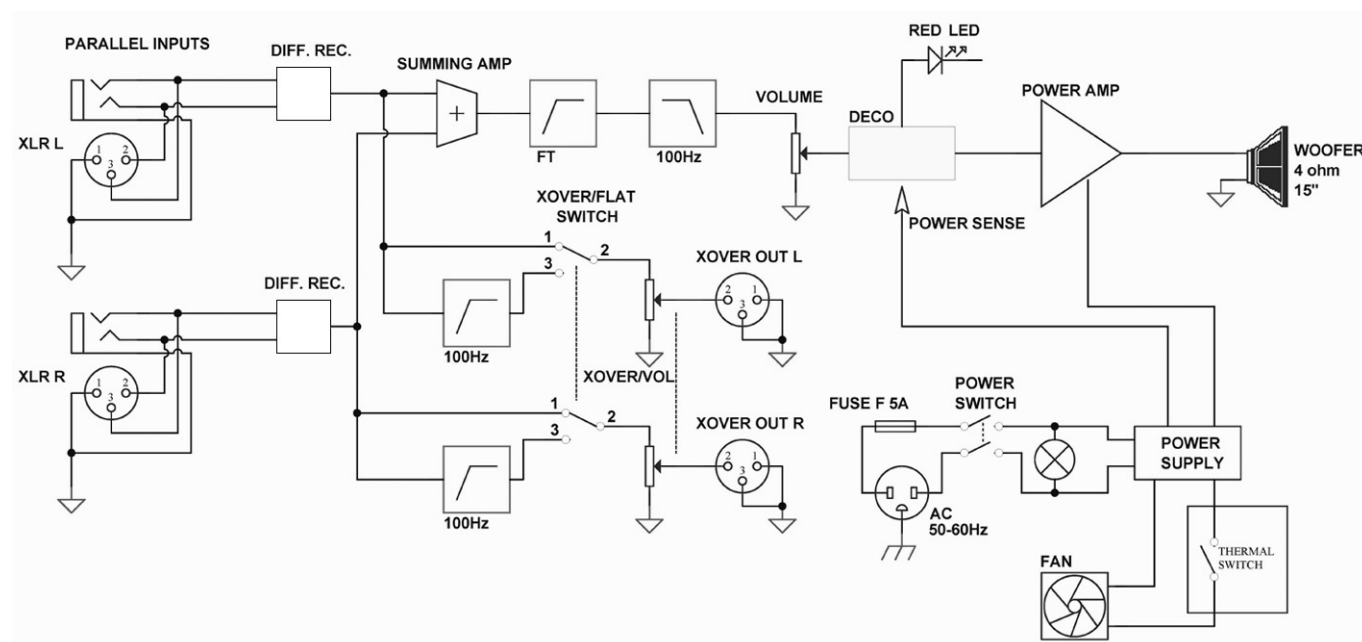


# Block diagrams

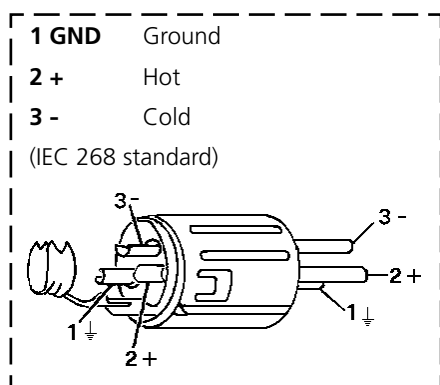
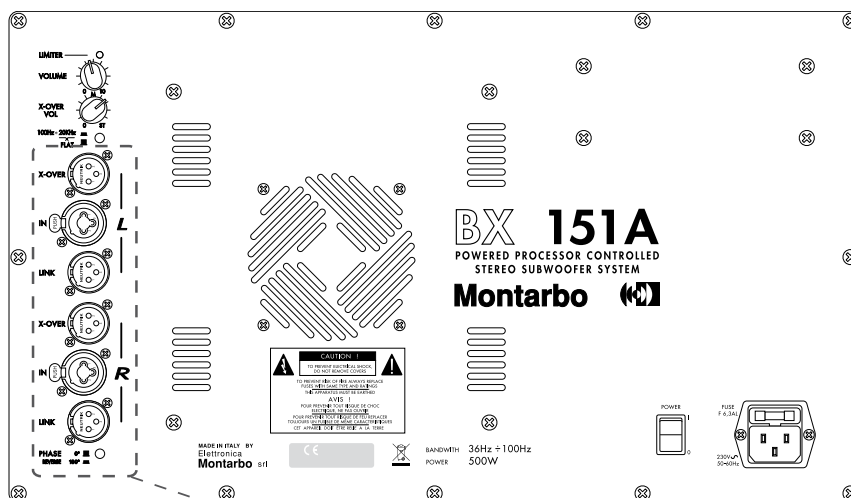
## BX181A



## BX151A

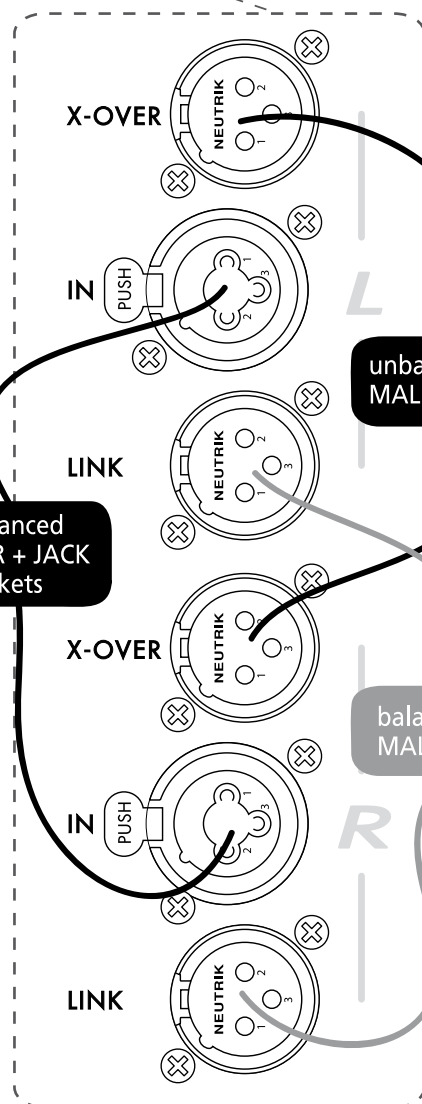
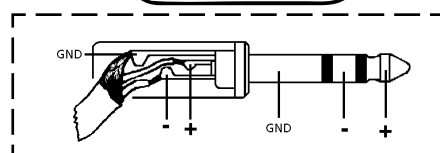


# Connectors

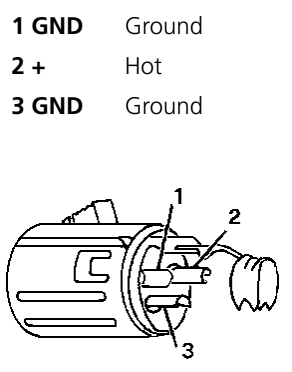


balanced XLR  
MALE connectors

balanced JACK  
connectors



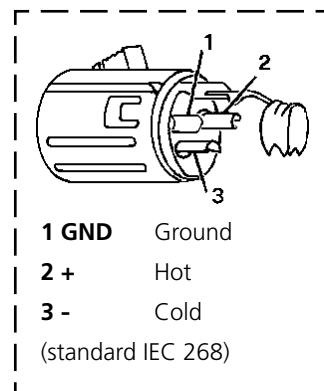
unbalanced XLR  
MALE sockets



unbalanced XLR  
FEMALE connectors

balanced XLR  
MALE sockets

balanced XLR  
FEMALE connectors

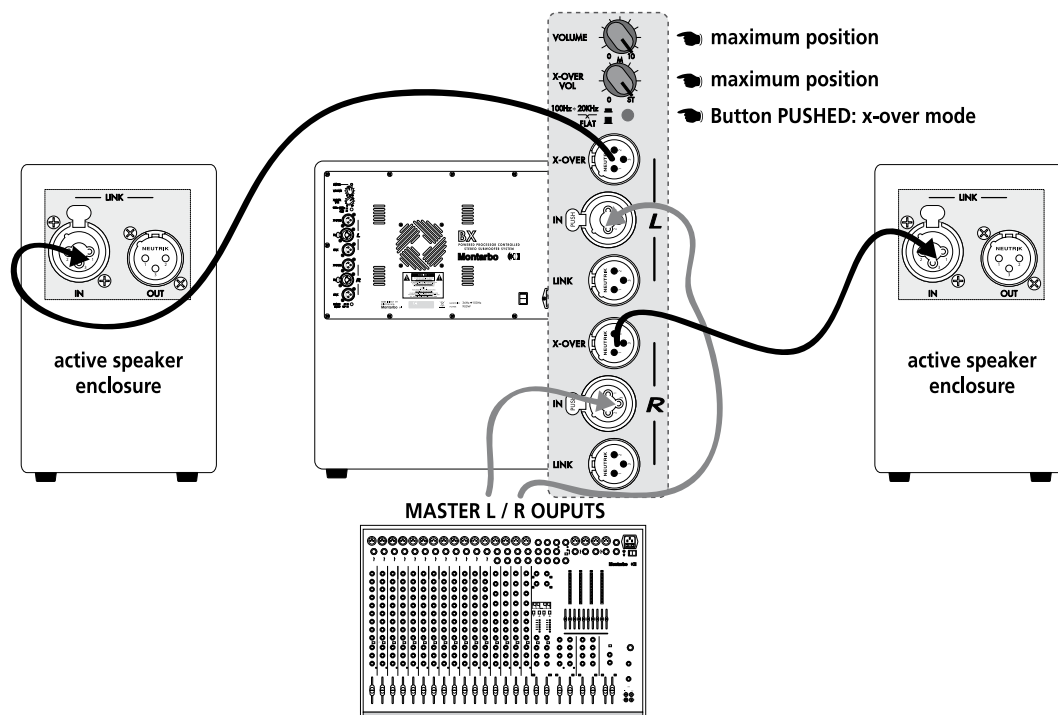




# Connection example **A**: 1 BX subwoofer + 2 self-powered loudspeakers

mixer L/R outputs → subwoofer L/R inputs

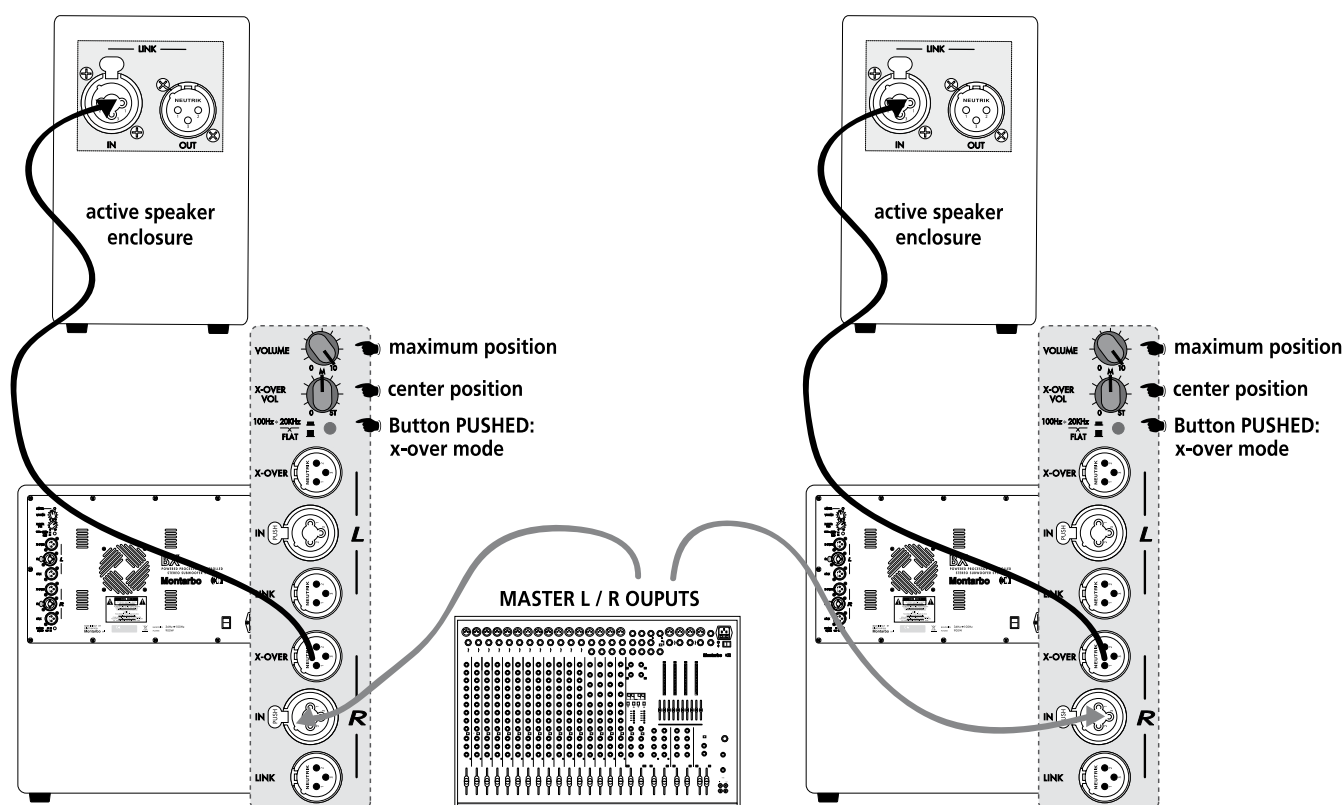
subwoofer X-OVER L/R outputs → inputs of the two self-powered loudspeakers



# Connection example **B**: 2 BX subwoofers + 2 self-powered loudspeakers

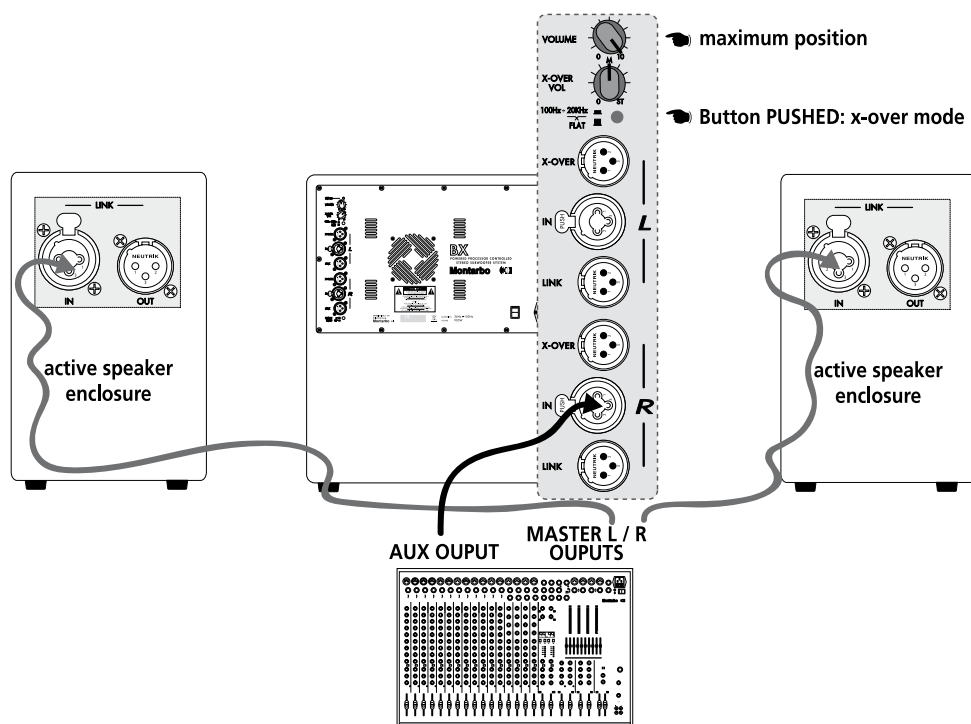
mixer L/R outputs → 'R' inputs of the two subwoofers

X-OVER 'R' outputs of the two subwoofers → inputs of the two self-powered loudspeakers.



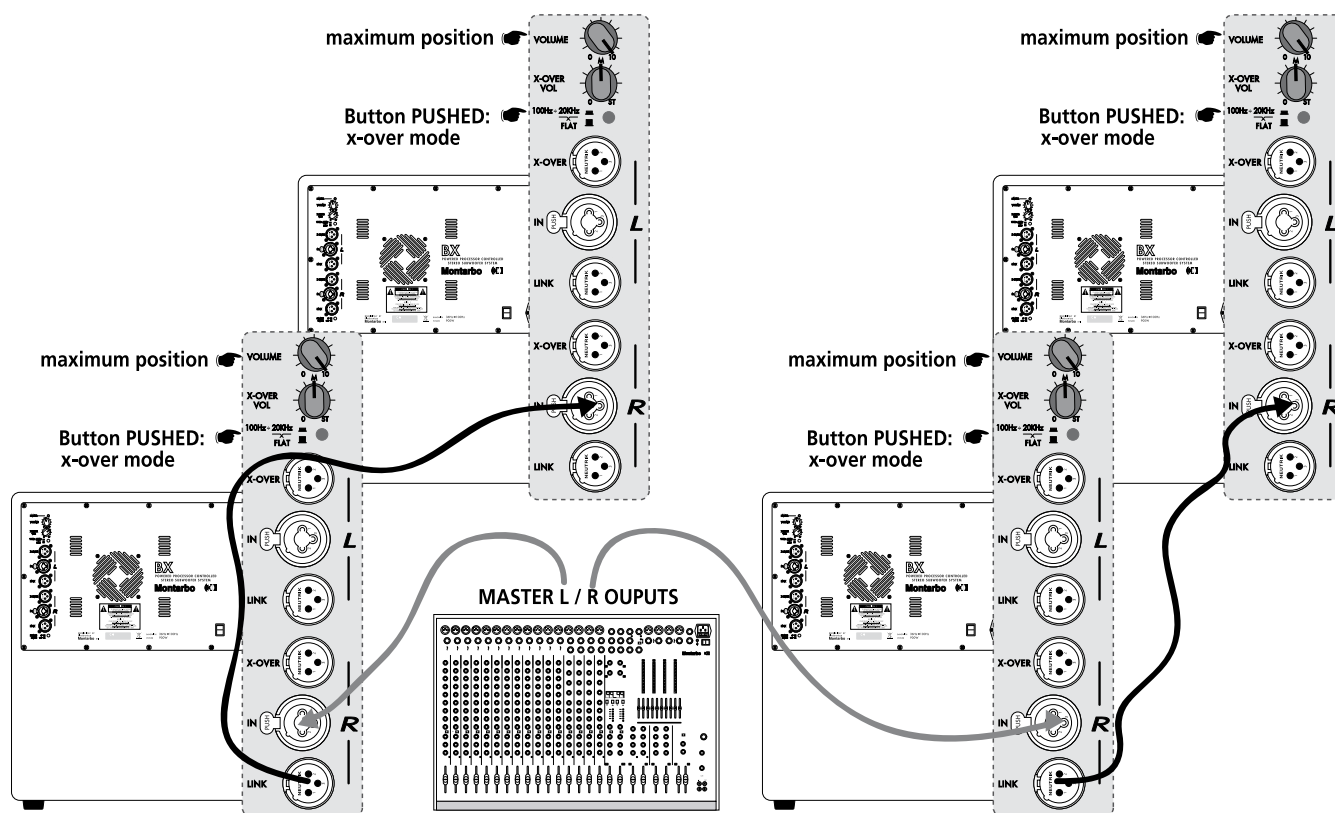
# Connection example C: 1 BX subwoofer + 2 self-powered loudspeakers

mixer 'AUX' output → subwoofer 'R' input  
 mixer L/R outputs → inputs of the two self-powered loudspeakers



## Parallel connection of two or more systems

mixer L/R outputs → L/R inputs of the first subwoofer  
 L/R outputs of the first subwoofer → L/R inputs of the second subwoofer



# Spare parts

## BX182A

**D52182A**  
Amplifier chassis 'A':

**D52BX1T**  
Power amp. heat sink

**D00BX1A**  
Power amp.

**D00BX1H**  
Power supply

**B005152**  
Power transformer

**A560112**  
Low turbulence fan

**D521822**  
Control and connection panel

**D52182B**  
Amplifier chassis 'B':

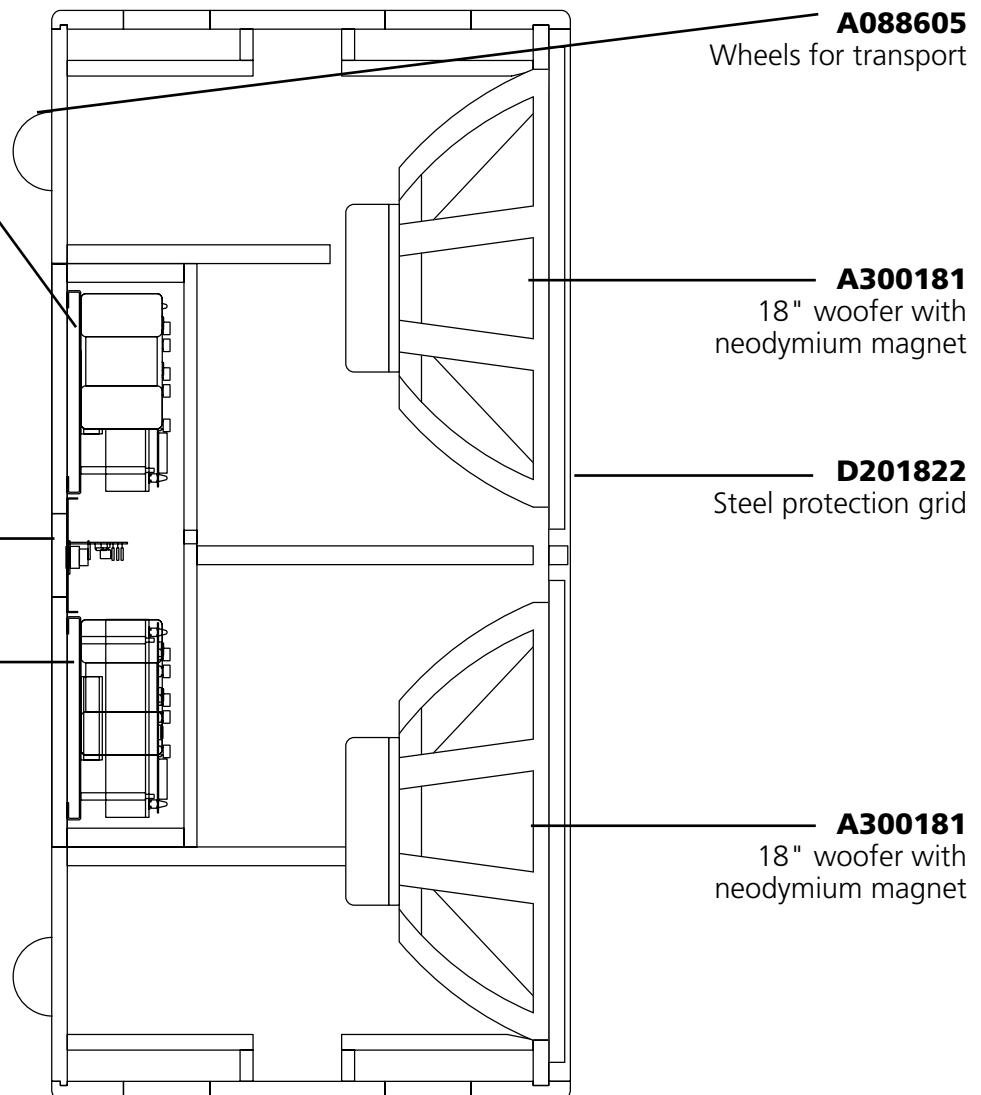
**D52BX1R**  
Power amp. heat sink

**D00BX1F**  
Power amp.

**D00BX1H**  
Power supply

**B005152**  
Power transformer

**A560112**  
Low turbulence fan



**A088605**  
Wheels for transport

**A300181**  
18" woofer with neodymium magnet

**D201822**  
Steel protection grid

**A300181**  
18" woofer with neodymium magnet

Parti di Ricambio, Ersatzteile, Pièces de rechange, Piezas de Repuesto:

**A300181:**  
Woofer da 18" (neodimio) / 18" Neodym-Woofer  
Woofer de 18" (néodyme) / Woofer de 18" (neodimio).

**D201822:**  
Griglia in acciaio / Stahlgitter / Grille en acier / Rejilla de acero.

**A088605:**  
Ruote / Rollen / Roues / Ruedas.

**D52182A:**  
Telaio amplificatore 'A' / Verstärkerchassis 'A'  
Châssis d'amplificateur 'A' / Bastidor del amplificador 'A'.

**D52BX1T:**  
Radiator / Leistungsverstärker Kühlblock /  
Dissipateur de chaleur / Disipador de calor.

**D00BX1A:**  
Amplificatore di potenza / Leistungsverstärker  
Amplificateur de puissance / Amplificador de potencia.

**D52BX1H:**  
Alimentazione / Stromversorgung  
Alimentation en courant / Alimentación.

**B005152:**  
Trasformatore di potenza / Leistungstransformator  
Transformateur de puissance / Transformador de potencia

**A560112:**  
Ventola / Lüfter / Ventilateur / Ventilador

**D52182B:**  
Telaio amplificatore 'B' / Verstärkerchassis 'B'  
Châssis d'amplificateur 'B' / Bastidor del amplificador 'B'.

**D52BX1R:**  
Radiator / Leistungsverstärker Kühlblock  
Dissipateur de chaleur / Disipador de calor.

**D00BX1F:**  
Amplificatore di potenza / Leistungsverstärker  
Amplificateur de puissance / Amplificador de potencia.

**D52BX1H:**  
Alimentazione / Stromversorgung  
Alimentation en courant / Alimentación.

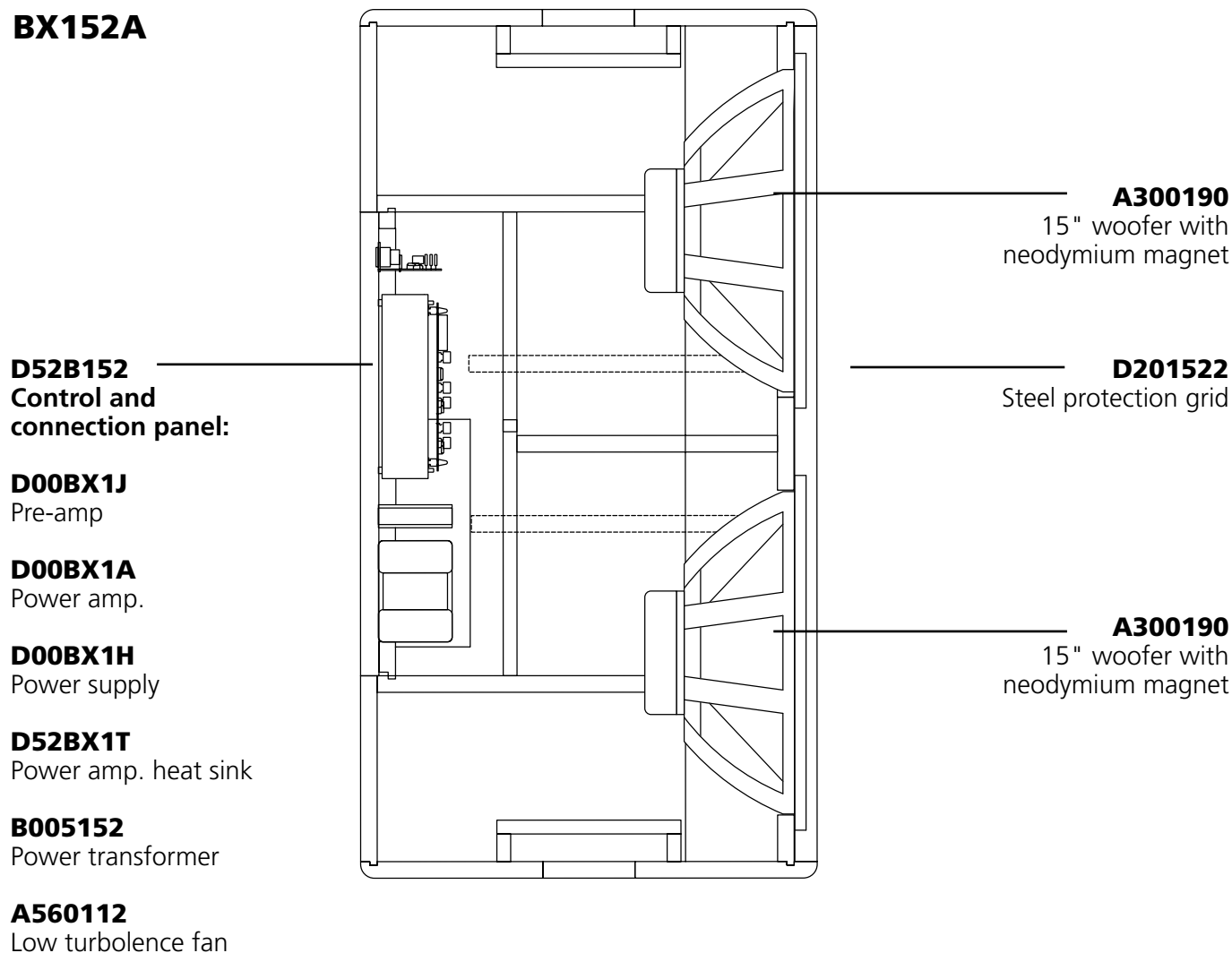
**B005152:**  
Trasformatore di potenza / Leistungstransformator  
Transformateur de puissance / Transformador de potencia.

**A560112:**  
Ventola / Lüfter / Ventilateur / Ventilador

**D521822:**  
Pannello controlli e connessioni / Bedien- und Anschlußfeld  
Panneau contrôle et connexions / Panel controles y conexiones.

# Spare parts

## BX152A



Parti di Ricambio, Ersatzteile, Pièces de rechange, Piezas de Repuesto:

### A300190:

Woofer da 15" con magnete al neodimio / 15" Neodym-Woofer  
Woofer de 15" avec aimant au néodyme / Woofer de 15" con iman de neodimio.

### D201522:

Griglia in acciaio / Stahlgitter / Grille en acier / Rejilla de acero.

### D52B152:

Pannello controlli e connessioni / Bedien- und Anschlußfeld  
Panneau de contrôle et connexions / Panel de controles y conexiones.

### D00BX1J:

Preamplificatore / Vorverstärker  
Préamplificateur / Preamplificador.

### D00BX1A:

Amplificatore di potenza / Leistungsverstärker  
Amplificateur de puissance / Amplificador de potencia.

### D00BX1H:

Alimentazione / Stromversorgung  
Alimentation en courant / Alimentación.

### D52BX1T:

Radiatore / Leistungsverstärker Kühlblock  
Dissipateur de chaleur / Disipador de calor.

### B005152:

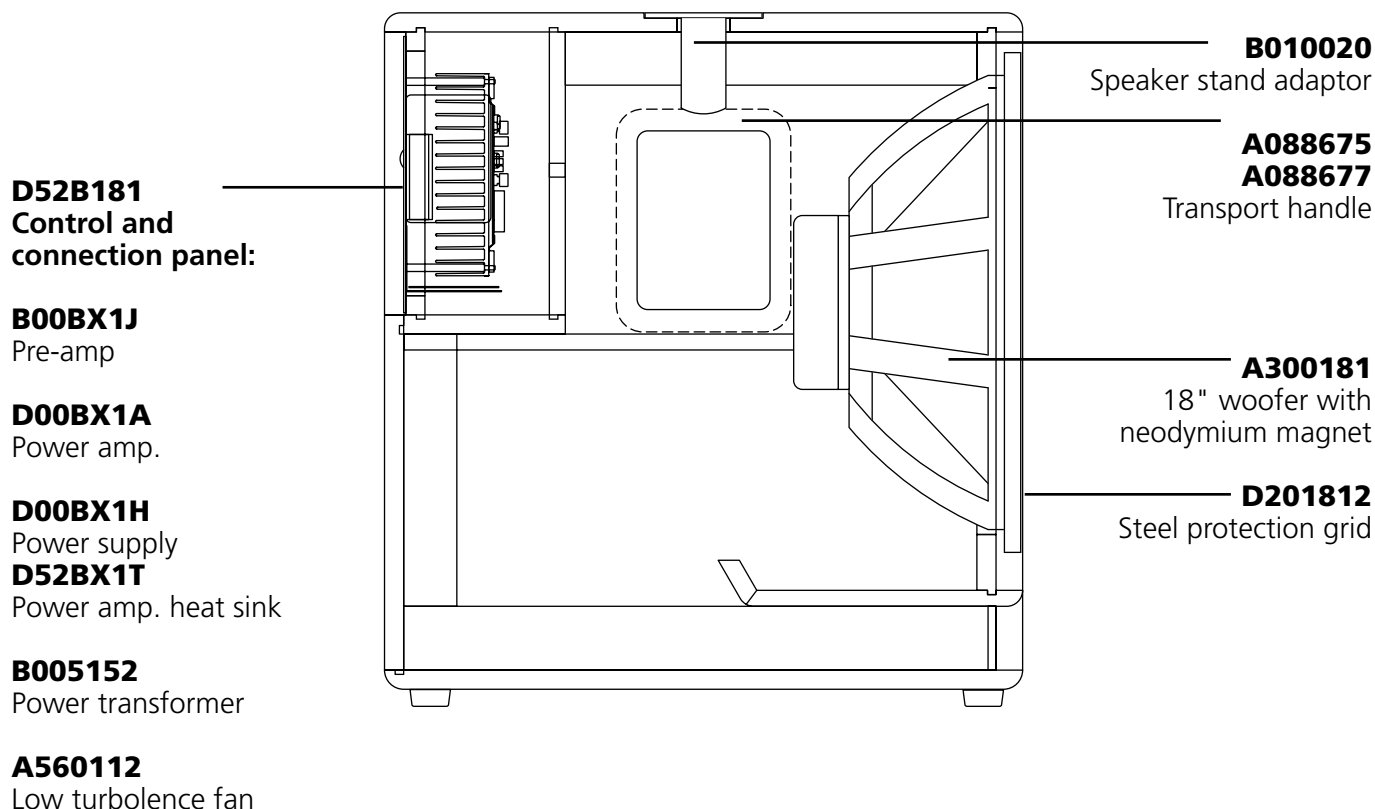
Trasformatore di potenza / Leistungstransformator  
Transformateur de puissance / Transformador de potencia

### A560112:

Ventola a bassa turbolenza / Lüfter mit geringer Turbulenz  
Ventilateur à faible turbulence / Ventilador de baja turbulencia.

# Spare parts

## BX181A



Parti di Ricambio, Ersatzteile, Pièces de rechange, Piezas de Repuesto:

### A300181:

Woofer da 18" con magnete al neodimio / 18" Neodym-Woofer  
Woofer de 18" avec aimant au néodyme / Woofer de 18" con iman de neodimio.

### D201812:

Griglia in acciaio / Stahlgitter / Grille en acier / Rejilla de acero.

### A088675 - A88677:

Maniglie per il trasporto / Tragegriff  
Poignées de transport / Manijas para el transporte.

### D52B181:

Pannello controlli e connessioni / Bedien- und Anschlußfeld  
Panneau de contrôle et connexions / Panel de controles y conexiones.

### B00BX1J:

Preamplificatore / Vorverstärker  
Préamplificateur / Preamplificador.

### D00BX1A:

Amplificatore di potenza / Leistungsverstärker  
Amplificateur de puissance / Amplificador de potencia.

### D00BX1H:

Alimentazione / Stromversorgung  
Alimentation en courant / Alimentación.

### D52BX1T:

Radiatore / Leistungsverstärker Kühlblock  
Dissipateur de chaleur / Disipador de calor.

### B005152:

Trasformatore di potenza / Leistungstransformator  
Transformateur de puissance / Transformador de potencia

### A560112:

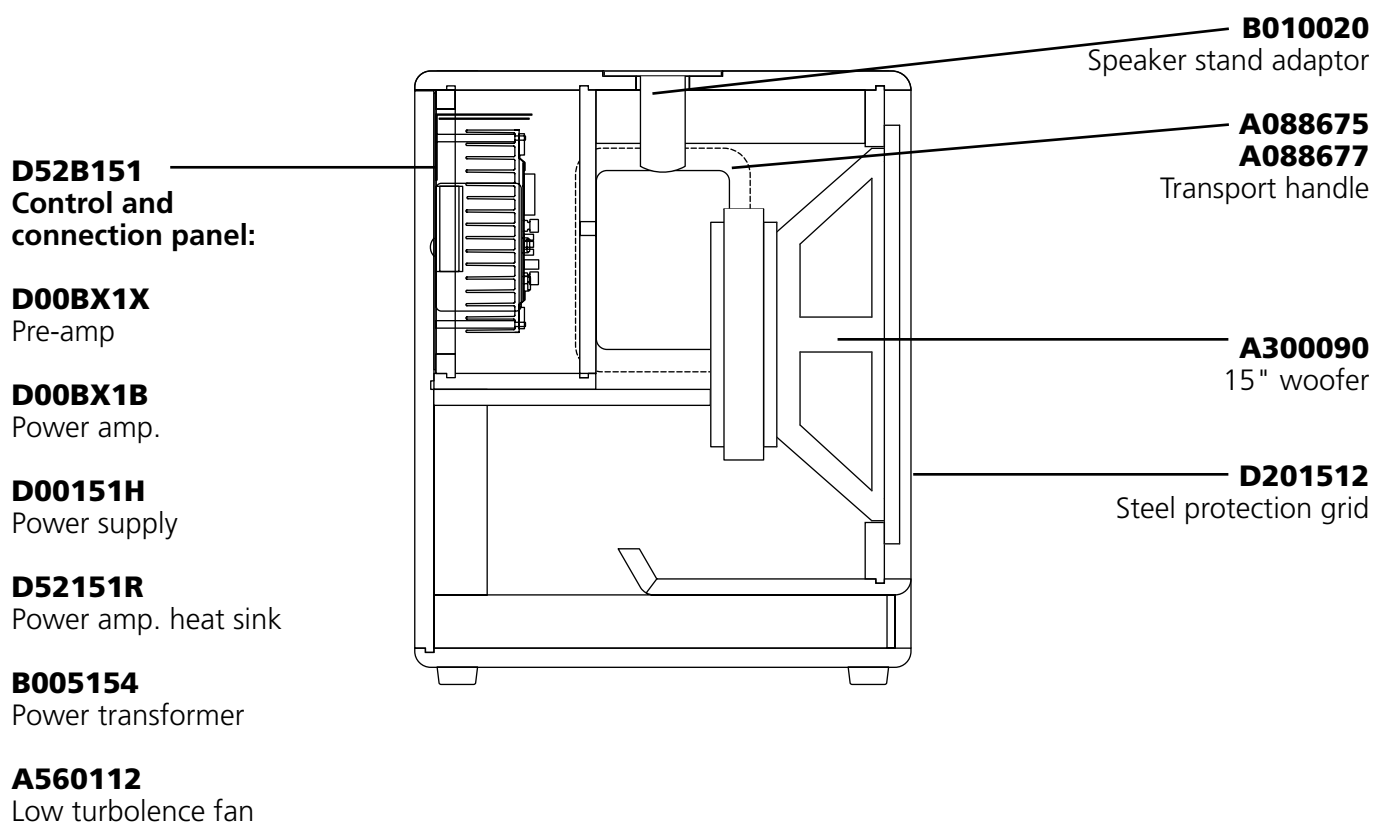
Ventola a bassa turbolenza / Lüfter mit geringer Turbulenz  
Ventilateur à faible turbulence / Ventilador de baja turbulencia.

### B010020:

Adattatore per asta / Befestigungsbereich für Hochständer  
Adaptateur pour support de l'enceinte / Adaptador para soporte caja.

# Spare parts

## BX151A



Parti di Ricambio, Ersatzteile, Pièces de rechange, Piezas de Repuesto:

**A300090:**  
Woofer da 15" / 15" Tieftöner / Woofer de 15" / Woofer de 15".

**D201512:**  
Griglia in acciaio / Stahlgitter / Grille en acier / Rejilla de acero.

**A088675 - A88677:**  
Maniglie per il trasporto / Tragegriff  
Poignées de transport / Manijas para el transporte.

**D52B151:**  
Pannello controlli e connessioni / Bedien- und Anschlußfeld  
Panneau de contrôle et connexions / Panel de controles y conexiones.

**D00BX1X:**  
Preamplificatore / Vorverstärker  
Préamplificateur / Preamplificador.

**D00BX1B:**  
Amplificatore di potenza / Leistungsverstärker  
Amplificateur de puissance / Amplificador de potencia.

**D00151H:**  
Alimentazione / Stromversorgung  
Alimentation en courant / Alimentación.

**D52151R:**  
Radiator / Leistungsverstärker Kühlblock  
Dissipateur de chaleur / Disipador de calor.

**B005154:**  
Trasformatore di potenza / Leistungstransformator  
Transformateur de puissance / Transformador de potencia

**A560112:**  
Ventola a bassa turbolenza / Lüfter mit geringer Turbulenz  
Ventilateur à faible turbulence / Ventilador de baja turbulencia.

**B010020:**  
Adattatore per asta / Befestigungsbereich für Hochständer  
Adaptateur pour support de l'enceinte / Adaptador para soporte caja.



# Combinations examples

Combinations with Montarbo self-powered loudspeaker systems.

*Abbinamenti con le casse autoamplificate Montarbo.*

Kombinationsbeispiele mit den Montarbo Aktiv-Lautsprechersystemen.

*Combinaisons avec les systèmes amplifiés Montarbo.*

Combinaciones con los altavoces autoamplificados Montarbo.

|                                                                                                       | MT200A<br> 8" 150W | NM250A<br> 8" 250W | W440A<br> 12" 400W | W14As<br> 12" 600W | W17As<br> 15" 600W | T10A<br> 10" 300W | T12A<br> 12" 500W | T15A<br> 15" 500W | W22A<br> 2 x 10" 850W | W24A<br> 2 x 12" 1050W | W28A<br> 2 x 15" 1200W |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>BX151A</b>  1 +   | 2                                                                                                   | 2                                                                                                   | 1                                                                                                   |                                                                                                     |                                                                                                     | 1                                                                                                  |                                                                                                     |                                                                                                      |                                                                                                          |                                                                                                           |                                                                                                           |
| <b>BX181A</b>  1 +   |                                                                                                     |                                                                                                     | 1 or 2                                                                                              | 1                                                                                                   | 1                                                                                                   | 2                                                                                                  | 1                                                                                                   | 1                                                                                                    |                                                                                                          |                                                                                                           |                                                                                                           |
| <b>BX152A</b>  1 +   |                                                                                                     |                                                                                                     |                                                                                                     | 2                                                                                                   | 1                                                                                                   |                                                                                                    |                                                                                                     |                                                                                                      | 1                                                                                                        |                                                                                                           |                                                                                                           |
| <b>BX182A</b>  1 + |                                                                                                     |                                                                                                     |                                                                                                     | 2                                                                                                   | 2                                                                                                   |                                                                                                    |                                                                                                     |                                                                                                      | 2                                                                                                        | 1 or 2                                                                                                    | 1                                                                                                         |

The above suggested combinations of subwoofers + active speaker systems are 'technically correct', but they do not take into consideration all the different possible situations and configurations, nor the individual requirements of power and sound distribution