

10 15

08

Install Connectors

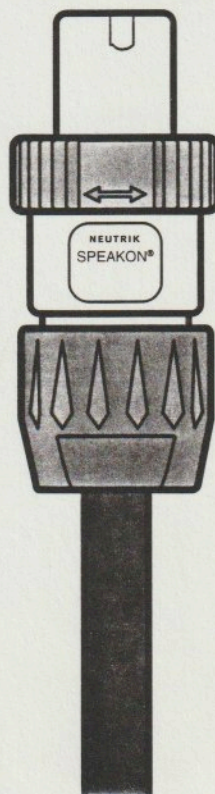
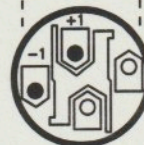
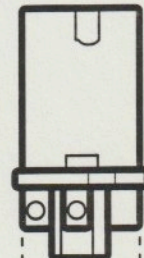
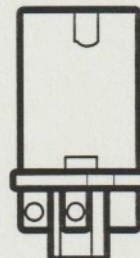
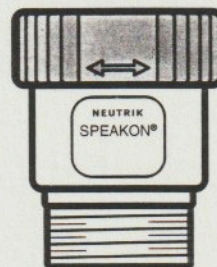
1 The EON10 and EON15 accept only cables with Neutrik Speakon Connectors. Follow these diagrams to attach the included Speakon Connectors to an existing cable.

FRA Les EON10 et EON15 n'acceptent que les connecteurs Neutrik Speakon. Suivez les schémas pour le branchement d'un connecteur Speakon sur un câble existant.

ESP La EON10 y EON15 aceptan únicamente cables con conectores Neutrik Speakon. Siga estos dibujos para conectar los conectores Speakon, que se incluyen, a su cable actual.

DEU EON10 und EON15 sind nur mit NF-Kabeln mit Neutrik „Speakon“-Steckverbindungen zu verwenden. Schließen Sie die beigefügten Speakon-Steckverbindungen anhand der gezeigten Diagramme an bestehende Kabel an.

CHN EON10 和 EON15 是用 Neutrik Speakon 頭來接線的，以下圖解是包括有 Neutrik Speakon 接頭和接線。

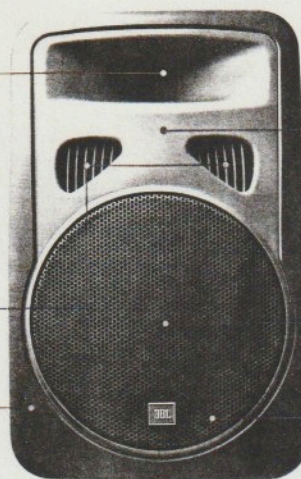


Features

High-frequency horn with compression driver:
1" (2.5 cm, EON10);
1.75" (4.5 cm, EON15)
• Pavillon d'aigus avec moteur à chambre de compression: 1" (2.5 cm, EON10);
1.75" (4.5 cm, EON15)
• Bocina de alta frecuencia con motor de compresión de 1" (2.5 cm, EON10);
1.75" (4.5 cm, EON15)
• Hochtöner mit 1" (2.5 cm, EON10)
Druckkammertrieb; 1.75" (4.5 cm, EON15)
• 高频号角 1 吋壓縮式驅動器
(Power 10) 1.75 吋壓縮式驅動器
(Power 15)

Low-frequency ports
Events d'accord bass-reflex
Tubos de sintonía
Bassreflex-Öffnungen
低頻聲音孔

Front baffle bumper guard
Protection de la face avant
Baffle frontal anti-bolladuras
Schutz für die Schallwand
前面板防撞邊



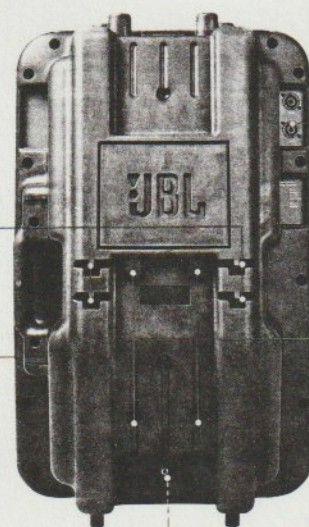
Die-cast aluminum baffle
façade en aluminium moulé
Baffle de aluminio fundido
Schallwand aus Aluminium-Druckguß
鑄鋁障板

Woofer: 10" (25 cm, EON10) with Neodymium magnet; 15" (38 cm, EON15)
• Haut-parleur grave de 10" (25 cm, EON10) à aimant néodyme; de 15" (38 cm, EON15)
• Woofer de 10" (25 cm, EON10) con imán de neodimio; de 15" (38 cm, EON15)
• 10" (25 cm, EON10) Tieftöner mit Neodym-Magnet; 15" (38 cm, EON15)
• 10 吋鐵磁低音單元 (Power 10)
15 吋鐵磁低音單元 (Power 15)

Heavy-duty protective metal speaker grill
• Grille de protection du haut-parleur en métal
• Rejilla del altavoz metálica de alta protección
• Hochbelastbares Lautsprecher-Schutzgitter aus Metall
• 極耐用音箱金屬保護網

Cable management slots
Rangement des câbles
Sistema de manipulación del cable
Kabel-Management-System
纜線管理系统

Ergonomic carrying handle
Poignée de transport ergonomique
Asa ergonómica para transporte
Ergonomischer Tragegriff
設計合意之搬運手柄



Paralleled Neutrik NL4MP Speakon Input Connectors
• Connecteurs d'entrée/sortie Neutrik Speakon NL4MP
• Conectores de entrada Neutrik NL4MP
• Paralel Speakon-Eingangs-Steckverbindungen NL4MP
• 平衡的 Neutrik NL 4MP Speakon 輸入插座

Suspension hardware mounting points
• Points d'accrochage
• Puntos de montaje de los anclajes para suspensión
• Montage-Vorrichtungen für die Aufhängung
• 懸掛用途裝嵌點

Pole mount
Montage sur pied
Vase invertido para tripoda
Montage-Traverse für Stativ
座地用途裝嵌點

Technical Specifications

EON10

EON15

Transducer Specifications

1. Low-Frequency Transducer		
a. Diameter	10" (25.5 cm)	15" (38 cm)
b. Sensitivity: (1W, 1m)	95-96 dB SPL	99-100 dB SPL
c. Nominal impedance	8 ohms	8 ohms
d. Power Handling	125 watts	250 watts
e. Frequency Range	65 Hz to 3 kHz	50 Hz to 2 kHz
2. High-Frequency Driver & Horn		
a. Sensitivity	106-109 dB SPL	106-109 dB
b. Nominal impedance	8 ohms	8 ohms
c. Power Handling	25 watts	50 watts
d. Frequency Range	2.5 kHz to 15 kHz	1.5 kHz to 15 kHz
e. Dispersion Angle (horizontal by vertical)	90° x 60°	90° x 60°
3. System Frequency Response		
	70 to 15 kHz	60 to 15 kHz
4. Overall System Sensitivity		
	96 dB SPL	100 dB SPL
5. Rated System Impedance		
	8 ohms	8 ohms
6. Power Handling		
	125 watts	250 watts

Physical Properties

1. Height	19.4" (49.3 cm)	27.0" (68.5 cm)
2. Width	14.0" (35.5 cm)	17.5" (44.5 cm)
3. Depth	12.1" (30.7 cm)	16.6" (42.0 cm)
4. Internal Volume	1 ft ³ (28.3 L)	1.8 ft ³ (51.0 L)
5. Weight	20 lbs (9.0 kg)	34 lbs (15.5 kg)
6. Front Baffle	Die Cast Aluminum	Die Cast Aluminum
7. Enclosure	UL 94HB Polypropylene	UL 94HB Polypropylene
8. Enclosure Geometry	Semi-Trapezoidal with Side Flanges	Semi-Trapezoidal with Side Flanges
9. Mounting Surfaces	All	All

Safety Precautions and Power Handling



The EON10 is recommended for use with power amplifiers with a specified rating of up to 300 watts into a rated load of 4 ohms. The EON15 is recommended for use with power amplifiers with a specified rating of up to 500 watts into a rated load of 4 ohms. Under these conditions, your EON loudspeakers should perform exceptionally if reasonable care is taken in its operation. "Reasonable care" means that if you do not hear any audible distortion, you will be operating your EON loudspeakers well inside of their power-handling capacity.

The size of your amplifier should be based on how many speakers you're using and the power needs of the entire speaker system. The more speakers you use, the larger amplifier you'll need. To determine the maximum number of EON10s and/or EON15s that can be wired to each channel of your power amplifier, divide 8 by the ohm rating number of your amplifier (e.g., 8 / 4 ohms = 2 speakers per channel).

Le modèle EON10 peut être utilisé avec un amplificateur d'une puissance jusqu'à 300 watts sous une charge de 4 ohms. Le modèle EON15 peut être utilisé avec un amplificateur d'une puissance jusqu'à 500 watts sous une charge de 4 ohms. Dans ces conditions, les enceintes EON offriront un niveau de qualité exceptionnelle si l'exploitation est raisonnable; « Raisonnable » signifie que si vous n'entendez pas de distortion audible, les enceintes EON sont alors exploitées au mieux de leur capacité en puissance.

Le choix de l'amplificateur dépend du nombre d'enceintes utilisées, et de la puissance nécessaire pour la totalité du système. Plus le nombre d'enceinte est élevé, plus puissant doit être l'amplificateur.

Afin de déterminer le nombre maximum d'enceintes EON10 ou EON15 pouvant être reliées à un canal de votre amplificateur, divisez 8 par la valeur la plus basse spécifiée (par ex. 8 / 4 = 2 enceintes par canal).

Las EON10 se recomienda su uso con etapas de potencia que tengan una potencia especificada de hasta 300 W a 4 Ohms. La EON15 está recomendada para uso con etapas de potencia con un valor especificado de hasta 500 W a 4 Ohms. Bajo estas condiciones, sus altavoces EON deberían funcionar magníficamente, si se proporciona un cuidado razonable durante su funcionamiento. Por "cuidados razonables" se ha de entender que si Ud. no detecta ninguna distorsión audible, Ud. estará haciendo funcionar sus altavoces EON bien dentro de su capacidad de manejo de potencia.

El tamaño de su amplificador debería estar basado en el número de altavoces que están Ud. utilizando y las necesidades de potencia del sistema de altavoces completo. Cuantos más altavoces utilice, mayor habrá de ser el amplificador que Ud. necesite.

Para determinar el número máximo de EON10 y/o EON15 que pueden ser conectadas a cada canal de su etapa de potencia, divida 8 por el número de Ohms de impedancia de carga de su amplificador (Ej.: 8 ÷ 4 Ohms = 2 altavoces por canal).

Für den EON10 werden Verstärker empfohlen, die eine Dauertonleistung von 300 Watt an eine Nenn-Lastimpedanz von 4 Ohm liefern können. Beim EON15 empfehlen wir eine Verstärkerleistung von bis zu 500 Watt an eine Nenn-Lastimpedanz von 4 Ohm. Unter den vorgenannten Bedingungen werden Ihre EON-Lautsprecher hervorragende Ergebnisse liefern, sofern auch bei deren Einstellung und Betrieb die entsprechende Sorgfalt angewendet wird, d.h. wenn keine hörbaren Verzerrungen auftreten, arbeiten Ihre EON-Lautsprecher im Bereich Ihrer vorgesehen Nennbelastbarkeit.

Die Gesamtleistung Ihres Verstärkers sollte auf die Anzahl der zu versorgenden Lautsprecher, bzw. auf das gesamte Lautsprechersystem abgestimmt sein. Je mehr Lautsprecher Sie einsetzen, um so höher wird die geforderte Verstärkerleistung sein.

Zur Bestimmung der maximalen Anzahl von EON10- und/oder EON15-Lautsprechern, die an jeden Kanal Ihres Verstärkers angeschlossen werden können, teilen Sie 8 durch die Nenn-Lastimpedanz (in Ohm) Ihres Verstärkers (z.B. 8 geteilt durch 4 Ohm = 2 Lautsprecher pro Kanal).

EON10 適用於 300 瓦特、4 歐姆輸出特性的功放。過人不推。而 EON15 則推薦在 500 瓦特、4 歐姆輸出之功放。在此條件下，若小必使用，你的 EON 揚聲器應有特殊表現，"小必使用"是指如果你沒有聽到失真聲音，那你的 EON 音箱便在可承受功率範圍內使用。

你使用的功放器是因應你並聯多少隻揚聲器及所需系統功率而定的，多接一些音箱，你便需要更大一些之功放器。

去決定功放器每通道能接上多少隻 EON10 或 EON15，用 8 除功放的負載阻抗 (例如：8 ÷ 4 歐姆 = 2 每通道能接之音箱數量)

Connecting your speaker/monitor

Cable

2

Connect the cable to your amplifier.

If your amplifier has screw-type connectors, the white wire attaches to the positive (+) connector and the black wire attaches to the negative (-) connector on the amplifier.

FRA

Reliez le câble à la sortie de l'amplificateur.

Si votre amplificateur est équipée de bornes, le conducteur blanc doit être relié à la borne positive (+, généralement rouge), et le conducteur noir à la borne négative (-, généralement noir).

ESP

Conectar el cable a su amplificador.

Si su amplificador tiene conectores tipo tornillo, el conductor blanco se une al conector positivo (+) y el hilo negro se une al conector negativo (-) de dicho amplificador.

DEU

Verbinden Sie das Kabel mit Ihrem Verstärker.

Besitzt Ihr Verstärker Schraub- oder Klemmanschlüsse, wird die weiße Kabelader mit dem positiven (+) Anschluß und die schwarze Kabelader mit dem negativen (-) Anschluß des Verstärkers verbunden.

中文

連接音箱到功放上。

如果你的功放器是用螺絲接線端的，白色的導線應接往正點(+)，黑色的接往負點(-)。

Insert Connector

3

Insert the Speakon connector fully into the receptor on the loudspeaker. Rotate the connector 1/8 of a turn clockwise.

Insérez le connecteur Speakon dans l'embase, puis tournez d'un huitième de tour vers le droite.

Insertar el conector Speakon completamente dentro del sistema de conexión del altavoz. Girar el conector 1/8 de vuelta en dirección de las agujas del reloj.

Führen Sie die Speakon-Steckverbindung korrekt in die entsprechende Lautsprecher-Buchse ein. Abschließend den Stecker durch eine achte Umdrehung nach rechts arretieren.

將 Neutrik Speakon 連接頭完全插入音箱的插座上，將接頭向順時針方向旋轉 1/8 周。

Secure Connector

4

Turn the outside ring clockwise to secure the connector to the loudspeaker.

Neutrik Speakon Connectors engage the electrical contacts only when the BODY of the connector is inserted fully and rotated 1/8 of a turn clockwise. Turning the outside ring "locks" the connector to the speaker, but does not engage the connector.

Tournez la bague de serrage vers le droite pour effectuer le verrouillage.

Le contact électrique des connecteurs Neutrik Speakon n'est obtenu qu'à partir du moment où le corps du connecteur est totalement inséré dans l'embase ET tourné d'un huitième de tour vers la droite. La bague de serrage n'effectue que le verrouillage, mais ne permet pas son insertion.

Girar el anillo exterior en dirección de las agujas del reloj, para fijar el conector al altavoz.

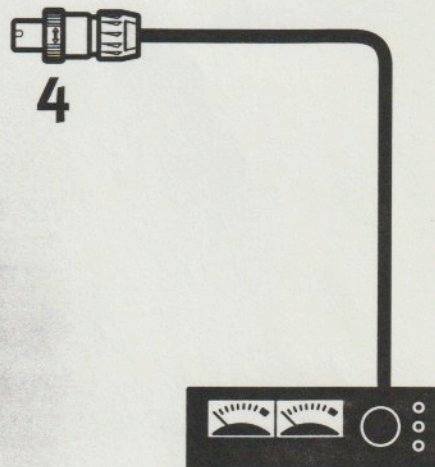
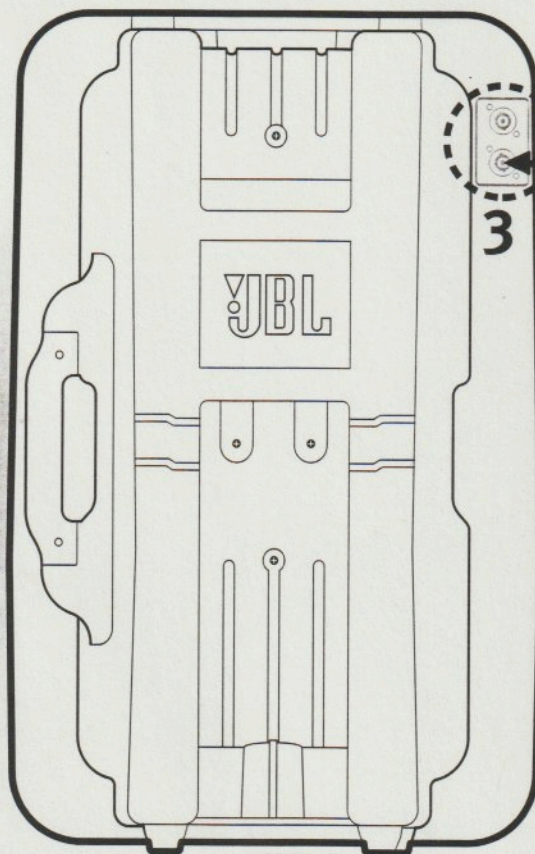
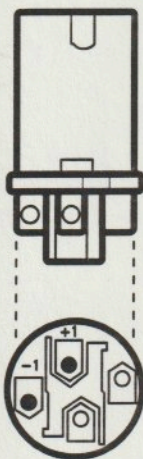
Los conectores Neutrik Speakon se enganchan en los contactos eléctricos únicamente cuando el CUERPO del conector es insertado totalmente y girado 1/8 de vuelta en dirección de las agujas del reloj. Girando el anillo exterior "bloquea" el conector al altavoz, pero no engancha el conector.

Den äußeren Arretierungsring nach rechts drehen, um den Stecker mechanisch sicher mit dem Lautsprecher zu verbinden.

Neutrik-Speakon-Steckverbindungen stellen die korrekten elektrischen Verbindungen nur dann her, wenn der Körper des Steckers bis zum Anschlag eingesteckt ist und eine achte Umdrehung nach rechts gedreht wird. Das Anschrauben des äußeren Sicherungsringes sorgt für die sichere mechanische Stabilität zwischen Stecker und Gehäuse, dient aber nicht der Kontaktgabe.

順時針旋轉連接頭的鎖定外圈以固定在音箱上的接點。

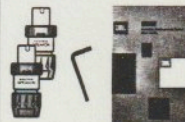
Neutrik Speakon 連接頭只有完全插入插座及向順時針旋轉 1/8 周後才可以接上接觸點，旋轉外圈是鎖上連接頭於音箱上，但不能接上接觸點。



2

Package contents

- 2 - Neutrik NL4FC Speakon Connectors
- 1 - Allen wrench
- 1 - EON User Guide
- 1 - Warranty card



Wiring and Cabling

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Placement and Mounting

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Troubleshooting

page 24

Wiring and Cabling

Balanced and Unbalanced

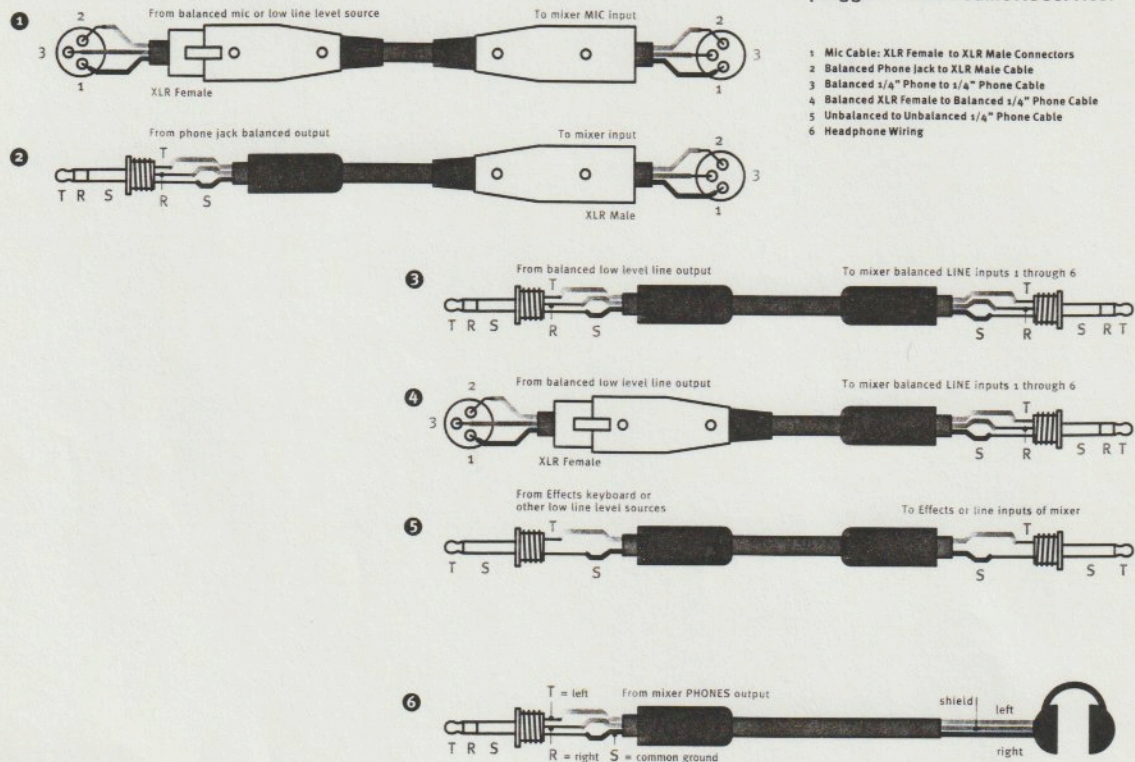
There are two basic types of audio system interconnections for very low to medium level audio signals: the balanced line and the unbalanced line.

Balanced lines

A shielded balanced line is a three-wire system where the two signal wires carry an equal, but opposite, voltage potential with respect to the ground wire. The ground wire acts only as a shield and does not carry any audio signal current. Outside interference is either shielded from the internal signal conductors, or if it gets into the cable, it is canceled out at the receiving end.

Unbalanced lines

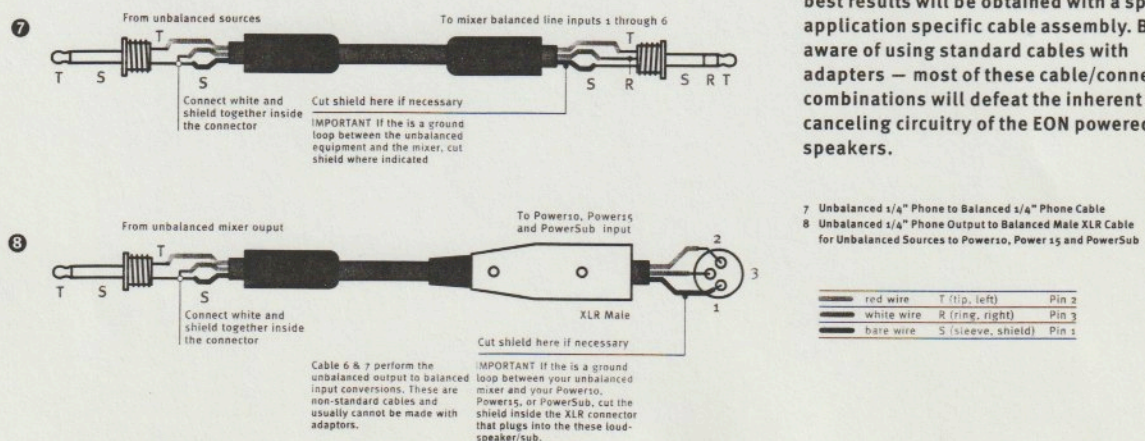
Unbalanced cable is a two-wire system where the shield (ground wire) acts as one of the current carrying signal conductors. The center conductor enclosed by the shield is commonly known as the hot conductor. Unbalanced audio cables do not have the ability to reject noise. Unbalanced lines are the typical Hi Fi types of cabling. These work well if the distance between the components is short and all the electronics used in the system are plugged into the same AC service.



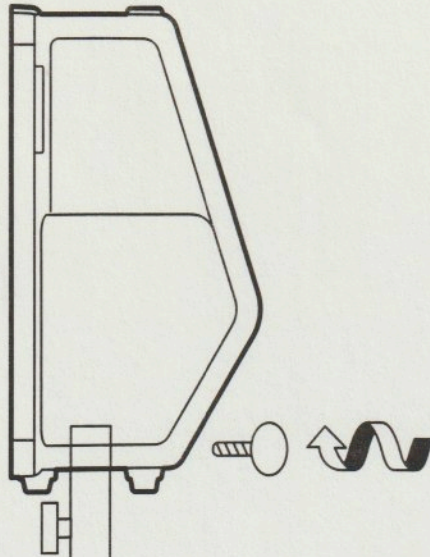
Unbalanced Sources to EON Powered Loudspeakers

A typical PA system occupies a much larger area than a home entertainment system and is often plugged into several different AC outlets which can cause grounding problems. The use of balanced cables side-steps most of the technical problems of system interconnection.

Interconnection between all electrical products (mixers and powered speakers) in the EON series uses balanced cables with XLR connectors. If you need to connect your EON speakers to a pre-existing unbalanced source, either a special unbalanced to balanced cable with an adapter must be used. The best results will be obtained with a special application specific cable assembly. Be aware of using standard cables with adapters — most of these cable/connector combinations will defeat the inherent hum canceling circuitry of the EON powered speakers.



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The following guidelines will help you achieve optimum sound wherever you use your EON loudspeakers:

Raise the speakers as high as possible. For the best results, try to get the high-frequency horn at least 2 to 4 feet above the heads of the audience. If the speakers are too low, the people in the back of the audience will not receive the best quality of sound.

Place speakers in front of microphones. Feedback occurs when microphones pick up sound from the speakers and "feed" the sound back through the system. If space is limited, point the speakers away from microphones to reduce feedback.

Locate the speakers away from turntables. Low-frequency feedback occurs when the output of the speaker is picked up by the tone arm and re-amplified. A heavy, solid turntable base can also reduce low frequency feedback in DJ applications.

Use more speakers in large or highly reverberant spaces.

Spreading speakers throughout these spaces will produce much better sound than trying to compensate with volume or equalization. For very long distances, the use of a delay is recommended.

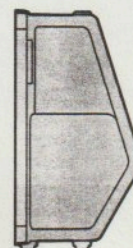
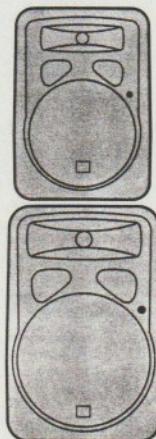
Stand speakers upright for PA; slant for stage monitor.

Upright stance provides even coverage over a wide area. EON speakers are also designed with two slanted positions for stage monitor applications (see Monitor Positions Diagram).

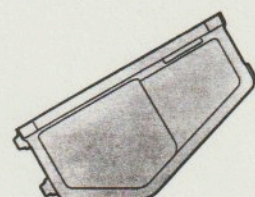
WARNING

Placement and Mounting: Do not attempt to wall-mount EON speakers without a JBL wall-mounting accessory kit. Wall-mounting accessory kits are available from your JBL dealer.

Care and Maintenance: Do not use powerful solvents like acetone, MEK, lacquer thinner or 1, 1, 1-Trichloro-ethane (household cleaning fluid). These solvents will dissolve the overlays and labels.



Speaker position



Monitor position

Follow individual speaker Quickstart instructions for speaker setup.

- **Powered speakers as monitors:** connect the speakers to the mixer monitor output.
- **Unpowered speakers as monitors:** connect the speakers to a dedicated monitor amplifier, then connect the monitor amplifier to the mixer monitor output.
- **Place monitors directly in front of the performer, tilted so the speaker faces the performer.** To minimize feedback, make sure that the back of the microphone is pointing at the speaker.
- **Set Monitor Fader low and adjust channel monitor controls until desired mix is achieved.** EON mixers include a separate monitor mix and output.
- **Slowly adjust the Monitor Fader (to avoid feedback) until desired volume is achieved.**

Product Care and Maintenance

EON loudspeakers are designed and manufactured for durability and reliable service. Follow these guidelines to ensure the maximum life of your EON speakers:

- **Avoid exposing speakers to direct moisture.** Even though EON speakers are made of a durable polymer, they are not waterproof.
- **Warm up speakers when they're cold.** If speakers are used under extremely cold conditions (at or below freezing), warm up the speakers by playing low volume music for one hour before playing at loud levels.
- **Keep speakers out of intense sunlight.** The loudspeaker cone can literally be baked and the suspension will prematurely dry out.
- **Keep the exterior of the speaker enclosure clean.** Use a damp rag with a general purpose household detergent. For grease and marking tape residue, use a damp cloth with isopropyl alcohol or mineral spirits and wipe dry. If the enclosure becomes badly scuffed, it can be sanded down with 200 to 400 grit sandpaper.

er Quickstart
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Mixers

Placement and Mounting

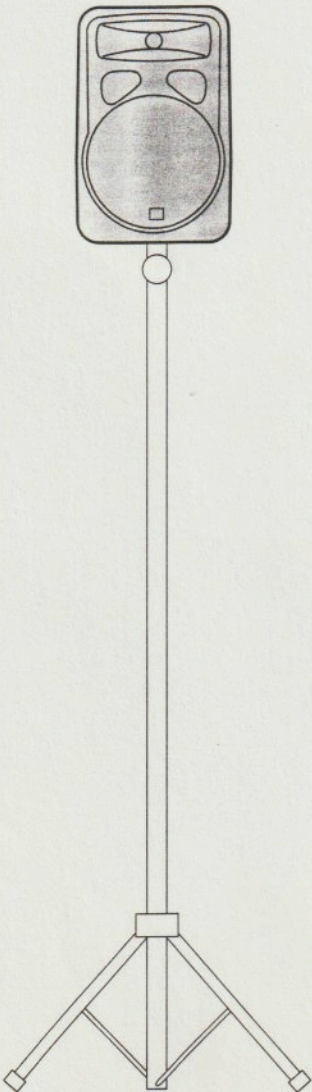
The following guidelines will help you achieve optimum performance from your EON mixer:

Place the mixer where you can see and hear the performance.
If the mixer is used for live performances, the best position is to locate the unit in the audience. If continual sound adjustment is not necessary, the mixer may be placed anywhere stable.

Locate the mixer near auxiliary equipment (effects units, tape decks, etc.). This is especially true if unbalanced signal sources (RCA cables or 1/4 inch phone cables) are used (see Wiring and Cabling section, page 21).

Using External Effects (MusicMix10 only)

- Connect the Effects Output of the MusicMix10 to the input of an external effects unit.
- Connect the output of the external effects unit to the Effects Input of the MusicMix10. The MusicMix10 will accept mono or stereo inputs from effects units. If a mono signal is plugged into either Effects Input, the MusicMix10 will automatically send the signal to both the left and right channels.
- Adjust the channel Effects controls to send the desired channel signals to the effects unit.
- Set the desired effect on the external effects unit. There are many different types of effects units with a wide range of capabilities (reverb, echo, equalization, etc.). See the effects unit owner's manual for more information.
- Adjust the Effects Return to Monitor to control the amount of the effect in the monitor output.
- Adjust the Effects Return to Main to control the amount of the effect in the left and right outputs.



JBL Limited Warranty

EON products are built and backed by JBL, the world leader in sound reinforcement. For complete EON warranty information, please refer to the warranty card enclosed with your EON product.

Troubleshooting

Problem

Potential Cause

What to Do

No Sound EON10, EON15. Equipment appears to be connected correctly. Power amplifier peak and VU meters light up.

1. Speakon Connectors in the speakers or the power amplifiers are not electrically engaged.

1. Rotate outer locking ring of the Speakon Connector fully counter-clockwise. Next, rotate the body of the connector 1/8 turn clockwise to engage the contacts. Then tighten the locking ring.

2. Defective or miss-wired speaker cable.

2. Check cable continuity with a DVM, or equivalent, to ensure the signal pair 1+ and 1- are used in the connectors.

No Sound. Power10, Power15, PowerSub Signal Present Indicator is not on.

1. Signal source is not sending a signal down the cable.

1. Check the mixer output meter to be sure an output signal is being sent to the powered speakers.

2. Defective cable.

2. Reverse the cables and channels at the mixer to determine if one of the cables is faulty. Make sure cables are wired properly.

3. Volume Control on the speaker is turned down.

3. Turn up Volume Control.

No Sound on One Side.

1. Cabling or electronics malfunction.

1. Check cable connection to speaker. Switch cables at the power amplifier or mixer. If the side in question is still silent, check all electrical connections between the power amplifier or mixer and the signal source(s).

No High Frequency Sound from the HF horn of EON10 or EON15.

1. Open light bulb in driver protection circuit.

1 & 2: Refer to an JBL authorized service center or request a service manual from customer service for instructions to replace the light bulb or diaphragm yourself.

2. Open diaphragm voice coil.

Signal Sounds Distorted. Overload Indicator set-dom, if ever, flashes.

1. Mixer or other signal source is distorting.

1. Turn up the Volume Control on powered speakers until the Overload Indicator is almost always on. Then turn down the output signal level at the mixer. For distortion in unpowered speakers, turn down signal outputs on amplifier, mixer or other equipment as needed to eliminate distortion.

Signal Sounds Distorted and Very Loud. Overload Indicator is on continuously.

1. The system is being overdriven with too much input signal and has reached its maximum loudness.

1. Turn down the signal sent to the speakers as they are at their limits of producing clean sound.

Lots of Hiss Present. The speaker system seems to be overly sensitive to control settings at the mixer.

1. The Mic/Line Switch is depressed in the Mic position when a mixer, not a microphone, is the signal source.

1. Make sure the Mic/Line switch is set properly. The Mic LED lights when the switch is in the Mic position.

Hum or Buzz When Power10s, Power15s or PowerSubs are Connected To Non EON Mixers.

1. The mixers used are probably unbalanced and use 1/4" phone plug outputs. Improperly constructed unbalanced to balanced cables are being used.

1. Refer to the Cable and Wiring section of this manual for proper construction of an unbalanced (mixer end) to balanced (EON powered speaker end) cable.

2. AC wiring sequence is incorrect.

2. Plug the mixer and the powered speakers into the same AC power strip. Begin the de-bugging process by disconnecting all other equipment plugged into mixer.

Hum or Buzz when a CD, Cassette, or Keyboard is connected to the system.

1. Equipment is not plugged into the same AC power strip as the mixer.

1. First, determine if the hum and buzz follows the fader that the equipment is connected to. If so, the problem is local to the offending piece of gear. Next, follow the Connecting the Power sections of this manual.

2. Cabling is too long and is too close to the AC power cord.

2. Use a shorter cable if possible. Move audio signal cables away from AC power cord.

3. The offending equipment has a two-wire plug and the chassis is not grounded correctly.

3. If the offending component has a two-wire line cord, try connecting the case by connecting a ground wire from the metal back panel to safety ground.

4. Defective cable with an open shield.

4. Replace the cable.

Hum or Buzz in the System When Light Dimmers Are Used in the Building.

1. The sound system is plugged into the same breakers as the dimmer system.

1. Plug the sound system into separate circuit breakers from the light dimmers. You may need an electrician to help. Shut off the circuit breaker used to supply power to the sound system and see what else goes off.

2. The cables of the sound system are located too close to the lighting cables.

2. Move the audio cables away from the lighting cables. Try to determine where the buzz is actually getting into the system. Is it between the mixer and powered speakers? The signal processing equipment and the mixer? The microphones and the mixer?

Bass appears to drop in level when a PowerSub is used in the system.

1. Speaker and room acoustics may produce an "out-of-phase" acoustic condition.

1. Depress the Phase Switch on the PowerSub (the Phase LED will turn on) to see if the bass increases. Turn up the Volume Control.

Bass is Heavy and Not Intelligible with a close Miked Male Voice.

1. Microphone Proximity Effect. Bass increases dramatically as distance to the microphone decreases.

1. Turn the low frequency control on the mixer down until a more intelligible sound is heard, or change out the microphone for one which has less proximity effect.

No Sensitivity on the PowerSub. Input Volume Control is turned all the way up, yet it doesn't get very loud.

1. Incorrect input is used. Most likely the speaker input is being fed a signal from a mixer, not another speaker.

1. Use the XLR inputs for line level signals such as mixer outputs. The 1/4" Phone Jack Input is for speaker level signals, and is designed for connection across power amplifier outputs.

Power Indicator is not Lit. Power10, Power15, PowerSub.

1. Loose IEC power cable plugged in back.

1. Plug the power cable securely into the power socket in the back of the enclosure.

2. Faulty AC wiring.

2. Test the AC power with a suitable AC power tester.

Speakers Feedback and Howl When The Microphone Volume is Turned Up.

1. Microphones are pointing into speakers.

1. Move the speakers in front of the microphones.

2. Microphones are not directional enough.

2. Use high quality directional microphones known as Cardioid or Hyper-Cardioid microphones. Move performers closer to microphones and have them speak or sing louder.

3. Equalizer settings incorrect on mixer.

3. Return the equalizer settings to the "flat" position.

Glossary

:D-G

dB (Decibel)
10 times the logarithmic ratio of two quantities (watts, amps, volts, ohms). For power, dB is defined as: $\text{dB} = 10 \log(P_1/P_2)$. For voltage: $\text{dB} = 20 \log(E_1/E_2)$, where P is power, and E is voltage. The human ear can detect and tolerate sound power levels over a one trillion to one range. Expressed in dB this is a 120 dB range.

dBm
A dB referenced to 1 milliwatt (1/1000 watt of power).

dBu
A dB referenced to 0.775 volts rms.

DC
Direct Current. A direct current flows continuously in one direction in a closed circuit.

Dynamic Microphone
A microphone which is essentially a small speaker used in reverse. Any sound the microphone picks up will generate a very small voltage which follows the level and frequency of source of sound.

Effects
A generic term given to electronic devices that create new sounds not present in the original signal (e.g., a reverb etc.).

EIN
Equivalent Input Noise. The noise which appears at the input which is then amplified. In audio systems the EIN is normally specified in a 20 Hz to 20 kHz bandwidth.

Equalizer
A device that can selectively boost or cut a range of selected frequencies.

Electronic Crossover
A frequency selective device which divides the audio spectrum into bands of frequencies before the power amplifiers.

Fader
A linear slide control used for adjusting audio levels.

Feedback
The loud howling sound which occurs when there is too much gain in the system or the microphone is brought too close to the speakers.

Flat
A condition where the frequency response is not altered by any type of equalizer.

Gain
Amplification of a signal.

Ground
In power distribution systems it is what it says, the earth. Ground also refers to the zero potential point (starting point of reference) in an electrical circuit.

Ground Loop
A phenomena in which the audio signal has one or more paths between equipment. These additional paths are contaminated with AC power line signals and cause some equipment to hum and buzz. One of the paths is the safety ground wire.

:H-O

Headroom
The available signal range, expressed in dB, above the average signal level before clipping occurs.

High Impedance
A circuit whose value is generally greater than 10,000 ohms.

Hiss
A wide band noise signal with no periodic components or pitch.

Hum
An unwanted periodic noise which occurs at the power line frequency and its harmonics.

Impedance
The amount of resistance to current flow in ohms. The larger the number, the less the current for a given voltage level.

Line Level Signals
Electrical signals from 0.1 volt to 20 volts rms. CD players and tape decks are examples of equipment that produce line level signals.

Low Impedance
A circuit whose value is less than 1000 ohms.

Low Level Signals
Electrical signals below 0.1 volt in value.

Mix Bus
A physical connection point where the signal outputs from a group of channels are combined into one signal.

Noise
An unwanted but always present random signal. The amount of noise in a system determines the lowest level signal that is usable.

Normal
An electrical connection made between two or more connectors (usually Phone Jacks) which is broken when a plug is inserted into one of the connectors.

Ohm
A unit of electrical resistance or impedance.

:P

Parallel
A circuit in which the voltage is the same across each element in the circuit.

Pan
Positioning an instrument, voice etc., between the left and right speakers.

Peak
The instantaneous maximum value of an electrical signal.

Peak-Hold
A common feature of VU Bargraphs which momentarily displays the highest peak above the average value of the display.

Peaking
A frequency response curve which is centered around a band of frequencies and is bell shaped in level vs. frequency.

Phantom Power
+9 to +48 volt power that is provided to a condenser microphone from a mixer or an external power supply via the microphone cable. Phantom Power allows the microphone cable to be used for both the power and audio signals.

Phase
The units of phase are degrees which is a measure of time displacement. In audio, the term is often confused with signal polarity.

Phone Jack
A popular connector used for audio signals. The standard phone jack is 1/4 inches in diameter and accepts 1/4 inch phone plugs.

Post-Fader
A signal source which is derived in the mixer's internal circuitry which is after the fader and therefore is affected by the fader position.

Power
The electrical term for the time rate of doing work. Measured in watts.

Preamplifier
A generic term used to describe the first amplifier a signal passes through.

Pre - Fader
A signal source which is derived in the mixer's internal circuitry which is before the fader, making it independent of the fader position.

Proximity Effect
The rise in a microphone's low frequency response as the microphone is moved closer to the sound source. This effect is greatest with directional microphones. The effect makes some male voices overly bass heavy.

:Q-Z

Resistance
Opposition to electrical current flow. Measured in ohms.

RF
Radio Frequency.

RFI
Radio Frequency Interference. The occurrence of an undesired RF signal within a system.

rms
Abbreviation for root-mean-square, a mathematical term used to describe the equivalent heating power of complex signals to that of an equal value of steady DC battery voltage or current.

Shelving
An equalizer frequency response curve which reaches a maximum or minimum value and stays there. The frequency response curve resembles a shelf.

Shielded Cable
A cable whose internal conductors is completely covered in a flexible braided or metal foil shield. The shield is not a signal carrying conductor.

Signal-to-Noise Ratio
The difference in level between the signal level and the background system noise. Expressed in dB.

Transient
A short duration high amplitude rise in signal level.

TRS Jacks
A 3-contact phone jack with Tip, Ring, and Sleeve connections.

Unbalanced Lines
A 2-wire interconnection system where the shield is a signal carrying conductor. This method does not provide the noise immunity of a balanced line, and is very susceptible to external noise pick up.

Volt
The measure of electrical force. 1 volt is required to produce a current of 1 amp through a resistance of 1 ohm.

XLR Connector
The original name given to a multiple pin audio connector developed by ITT Cannon. XLR connectors are used primarily for microphone and microphone cable connections.

:A-C

AC
Alternating Current. In AC the voltage first flows one direction, then reverses and flows the other direction. This cycle repeats continuously.

Amp
The basic unit of measurement for electrical current flow.

Amplifier
An electronic circuit that increases the strength of an electrical signal. The term is also used to identify an audio component designed specifically to amplify the audio signal.

Amplitude
The absolute level of a signal measured in volts or amps.

Balance
The relative level between two signals. Usually applied to the left and right channels of a stereo signal.

Balanced
An electrical method of signal transmission where the signal is carried by two wires and a shield which does not carry any signal. Any interference is picked up equally by the two wires and canceled out electrically.

Boost
Increasing the signal amplitude. Usually used in conjunction with some type of equalization process.

Buzz
An unwanted periodic noise in the audio signal which sounds exactly like its name.

Clipping
The onset of severe distortion in the signal path.

Current
The rate of flow of electrons. Measured in amps.

Cut
Reducing signal amplitude. Opposite of Boost.

Gain
Amplification of a signal.

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In power distribution systems it is what it says, the earth.

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