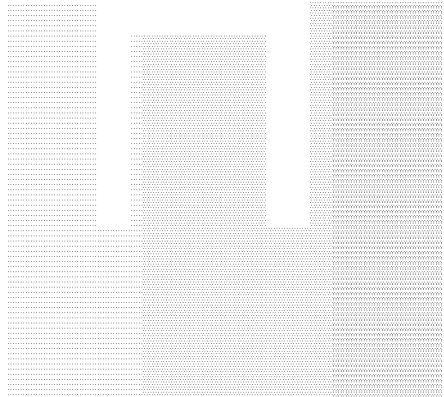
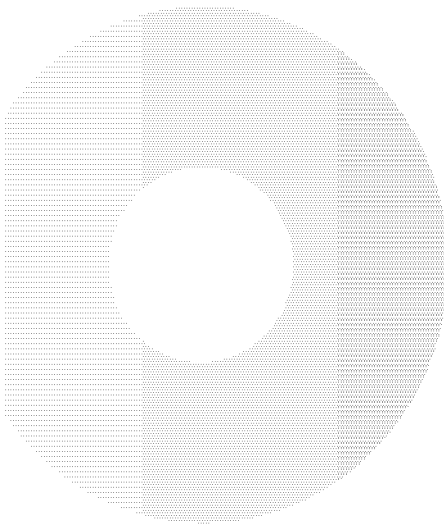
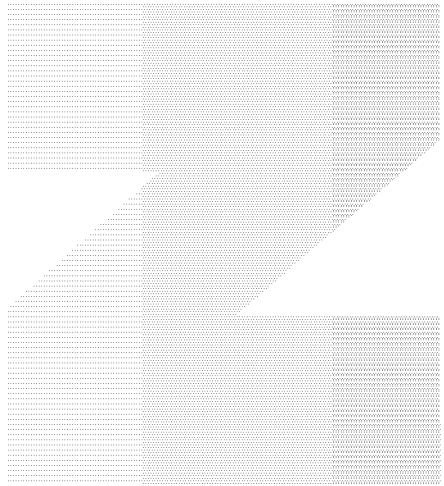


EON[®]G2

GENERATION 2

EON15 G2 System User's Guide





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Welcome

Welcome to the family of discerning sound equipment users who have selected JBL Professional products. Your EON System is a creation of JBL, the world leader in sound reinforcement. JBL sound systems are used in some of the world's most famous arenas, concert halls and clubs. In fact, JBL speakers are the premier choice for today's hottest touring acts and artists. You just can't make a more professional choice.

This User's Guide contains important information that will help you get the most from your JBL EON sound system so please take a moment to read it and be sure to keep it in a safe place for future reference.

Congratulations and thanks from all of us at JBL Professional. You have invested in the best portable performance system available.

PACKAGE CONTENTS

Your EON15 G2 System should include the following:

- 1 EON MusicMix 16 Mixer
- 1 PSU (Power Supply Unit for mixer)
- 2 EON15 G2 Speakers
- 1 EON15 G2 User's Guide
- 1 EON15 G2 System User's Guide
- 2 10' (3mm) IEC Power Cable
- 2 M50S Microphones
- 4 x 25' (7.6 Meter) XLR/M to XLR/F Cables

AGENCY APPROVALS AND CERTIFICATIONS

This EON G2 System complies with all International Safety Requirements for Mains Operated Professional audio equipment under IEC65, and electromagnetic compatibility, radio interference, emissions and immunity requirements.

BEFORE YOU BEGIN - IMPORTANT INFORMATION

The EON MusicMix 16 mixer must only be connected through the Power Supply Unit (PSU) supplied. Use of any other PSU will void your warranty.

Like any electrical appliances, neither the EON MusicMix 16 or the EON15 G2 speakers should be used in water or when wet.

The EON MusicMix 16 and the EON15 G2 speakers contain no user serviceable parts. Refer servicing to an authorized JBL service agency.

TECHNICAL SPECIFICATIONS

EON MusicMix 16

Noise

Mic E.I.N. @ max. gain	-129dBu
20Hz - 20kHz, 150W source impedance	
Aux, Mix & Masters at max., 10 inputs routed, faders down	< 85dBu

Crosstalk (@1kHz)

Channel Mute	>96dB
Fader Cut-off (at unity gain)	>96dB
Aux Sends Pots (CCW-off)	>89dB

Frequency Response

Mic/Line Input to any output, 20Hz - 30kHz	<1dB
--	------

THD

Mic sens. -30dBu to +20dBu at all outputs @1kHz	<0.006%
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Input & Output Impedance

Mic Input	1.8k Ω
Line Input	10k Ω
Stereo Input (Unbalanced RCA Phono)	12k Ω
Stereo Input (Balanced Jack)	10k Ω
Main & Aux Outputs, Insert Sends	75 Ω
Insert Returns	>10k Ω

Input & Output Levels

Mic Input (max. level)	+22dBu
Line Input (max. level)	>30dBu
Stereo Input (max. level)	>30dBu
Headphones (@200 Ω)	150mW

Weight

Excluding power supply	3.4 kg/7.5 lbs.
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EON15 G2

See the 'EON15 G2 User's Guide' included with your system.

M50S Microphone

Type	Dynamic pressure gradient
Polar Pattern	Cardioid
Frequency Range	70Hz – 15kHz
Magnet System	Ferrite
Impedance at 1,000Hz	500 Ω
Environment	-10°C to 55°C, R.H @ 40°C 95%
Connector	3-Pin XLR/M; Pin 1 ground, Pin 2 audio (+ve), Pin 3 audio



Case Material
 Finish
 Size
 Weight

Zinc, diecast
 Matte black
 171mm x 54mm
 320g

Available Accessories

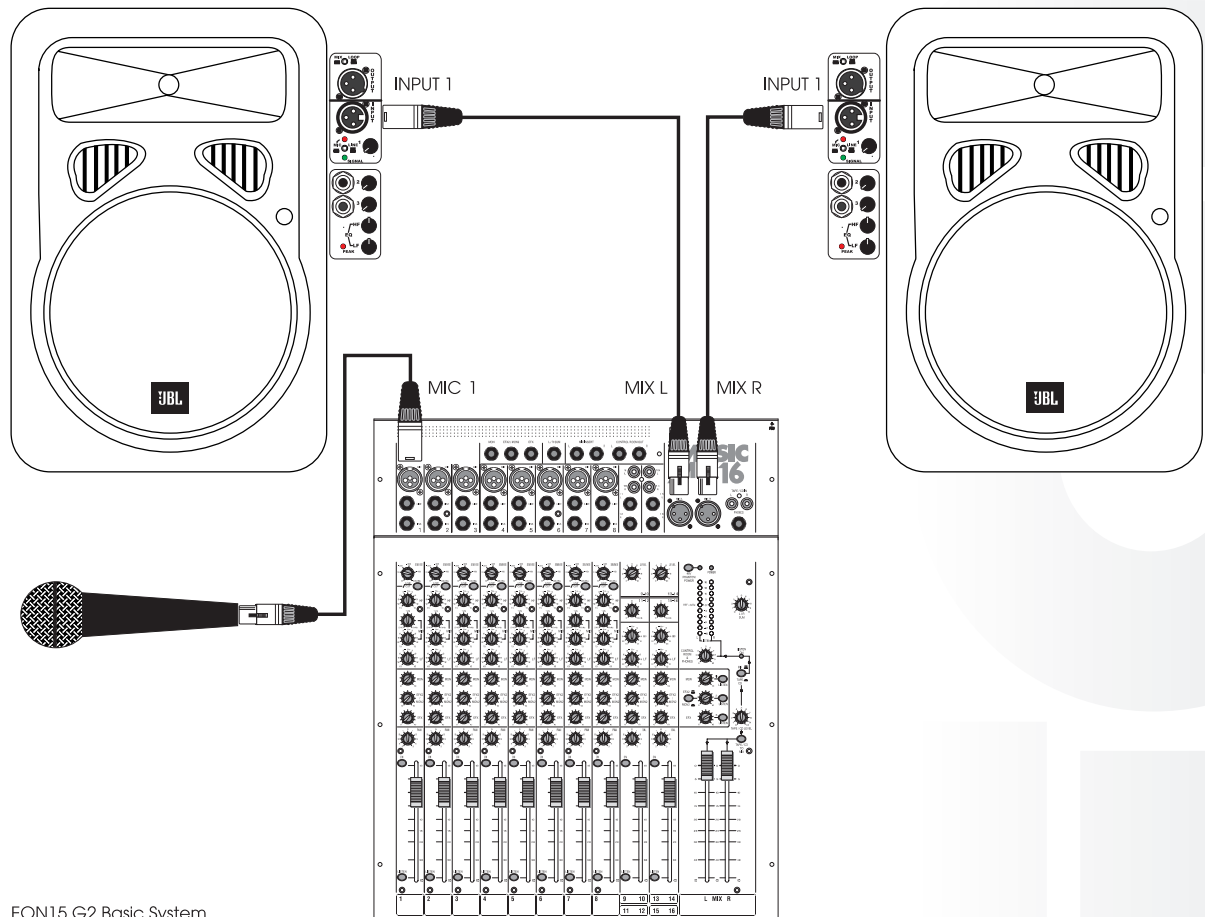
- EONMM16 BAG Zippered, plush-lined Cordura® carrying bag for the EON MusicMix 16
- SS2-BK Tripod Stand
- ESK15 Suspension Kit for EON15” models (except EON1500)
- BRK15 Bracket, adapts EON15” models to OmniMount® brackets
- EON15WB Zippered, plush-lined Cordura® bag with wheels for EON15” models
- EON15 BAG Zippered, plush-lined Cordura® carrying bag for EON15” models

About This Guide

This User’s Guide will cover the operation of your EON15 G2 System and your EON MusicMix 16 mixer. Additional details about your EON15 G2 speakers may be found in the EON15 G2 User’s Guide.

Quick Start

This section of the User’s Guide will give you step by step instructions for setting up and operating a basic EON System. Refer to the illustration.



EON15 G2 Basic System

EON15 G2 Settings and Connections

1. Be sure that the POWER switches on the EON15 G2 speakers are in the OFF position.
2. Turn the INPUT 1, LINE 2, and LINE 3 controls fully counter clockwise.
3. Set the MIC/LINE switch to the LINE position (disengaged).
4. Set the EQ HF and LF controls to their center detented position.
5. Plug the power cable into a properly grounded 3-wire AC power.
6. Repeat this procedure on the other speaker.

MusicMix 16 Settings and Connections

7. Using an XLR/F to XLR/M cable connect the MusicMix 16 MIX L connector to the INPUT 1 connector of the left EON15 G2. Connect the MusicMix 16 MIX R connector to the INPUT 1 connector of the right EON15 G2.
8. Using an XLR/F to XLR/M cable connect a microphone to MIC 1 of the MusicMix 16. Set the switch on the mic to the ON position (orange dot visible).
9. “Zero” the MusicMix 16. (To “zero” a mixer means to set all the controls to a basic starting position.)
 - All SENS controls fully CCW (counter clockwise)
 - All LOW CUT switches disengaged (up position)
 - All HF, MID, and LF controls centered (12:00 o'clock position)
 - All MON, EFX2 / MON2, and EFX controls fully CCW (counter clockwise)
 - All PAN and BALANCE controls centered (12:00 o'clock position)
 - All ON switches disengaged (up position)
 - All LISTEN switches disengaged (up position)
 - LEVEL 9-10 and LEVEL 13-14 fully CCW (counter clockwise)
 - All FADERS all the way down
 - 48V PHANTOM POWER off (switch in the up position)
 - MIX TAPE/CD switch in the up position
 - L/R SUM control fully CCW (counter clockwise)
 - CONTROL ROOM & PHONES control fully CCW (counter clockwise)

Power-up Procedure

You are now ready to power up the system. Be sure to do so in the sequence outlined below.

10. If any effects processors, electronic instruments, tape recorders or CD players are connected to the mixer, switch them on.
11. Connect the mixer's Power Supply Unit (PSU) to the mixer and to AC power. Note that the POWER light on the mixer illuminates. Also note the locking tab - you will need to press it to release the connector when disconnecting the PSU.
12. Switch on the power to the EON15 G2s. The green LED on the front baffle will illuminate.
13. Reverse this process when shutting down your system.

Set Levels

14. On the EON15 G2s bring the INPUT 1 LEVEL control to the 10:00 o'clock position.
15. On input channel 1 of the mixer engage the ON switch.
16. On input channel 1 of the mixer engage the LISTEN switch. This will allow you to observe the signal level on the mixer's meters. Note the LISTEN ON LED illuminates.
17. Speak or sing into the microphone connected to channel 1 (or ask the performer to do so). Make sure that the performer holds the microphone and speaks or sings as they will during the actual performance.
18. Slowly rotate the channel 1 SENS control CW (clockwise) until you see the following indications on the meter...
 - When the performer is at their “normal” performance level, the meter should indicate “0”.
 - When the performer is at their loudest you should see the meter reaching to “10”.
 - An occasional flickering of the top LED on the meter during the loudest passages is OK. If this light illuminates steadily, reduce the SENS control setting by turning it CCW.

19. Bring the channel 1 FADER up to the “0” position.
20. With the performer speaking / singing, slowly bring the MIX L and MIX R faders up until the desired level is reached. Listen carefully for the onset of feedback and be prepared to bring the MIX L and MIX R faders down.
21. Set the PAN control to position the sound in the stereo field. With this control centered the sound will be heard equally in both speakers.
22. Disengage the channel 1 LISTEN switch.
23. Repeat steps 15 thru 22 for all other channels that are in use.

Congratulations – you’ve successfully set-up your system. Now let’s fine tune the mix.

Setting Channel EQ

The term “EQ” is shorthand for Equalization. The tone control on your radio or stereo is a most basic form of EQ. Sound reinforcement equipment offers more comprehensive control over tonal balance. Here is a table describing undesired tonal characteristics and how to handle them.

Sound Quality	EQ Adjustment
<ul style="list-style-type: none"> • Too dark, lacks brilliance, seems muddy • Speech is not clear, vocals don’t project 	<ul style="list-style-type: none"> • Turn up the HF (High Frequency) • Increase the MF (Mid Frequency) level • Rotate the MF frequency control to locate the desired frequency
<ul style="list-style-type: none"> • Not enough bass, sound is thin, lacks power and authority • Sound is brittle, “S” sounds are too hissy, very high-frequency feedback is heard 	<ul style="list-style-type: none"> • Turn up the LF (Low Frequency) • Disengage the LOW CUT control • Turn down the HF
<ul style="list-style-type: none"> • Sound is honky or nasal sounding 	<ul style="list-style-type: none"> • Turn down the MF EQ • Rotate the MF frequency control until the sound quality improves
<ul style="list-style-type: none"> • Sound is boomy or rumbling, feedback is heard at very low frequencies • With a lavalier mic, speech has too much low mid content 	<ul style="list-style-type: none"> • Turn down the LF • Engage the LOW CUT control • Turn down the MF LEVEL and set the MF frequency control between 300 and 500

Fine Tuning the Mix

Adjust the channel FADERS until the desired blend is achieved.

With the performers speaking or singing, observe the PEAK indicator on the EON15 G2 input panel. This indicator flashes when the loudspeaker’s on-board amplifiers are approaching maximum output. Occasional flashes are normal for very loud operation. However, if the PEAK LED stays illuminated, the sound may be distorted and it is an indication that more speakers or a lower performance volume may be required for your specific application.

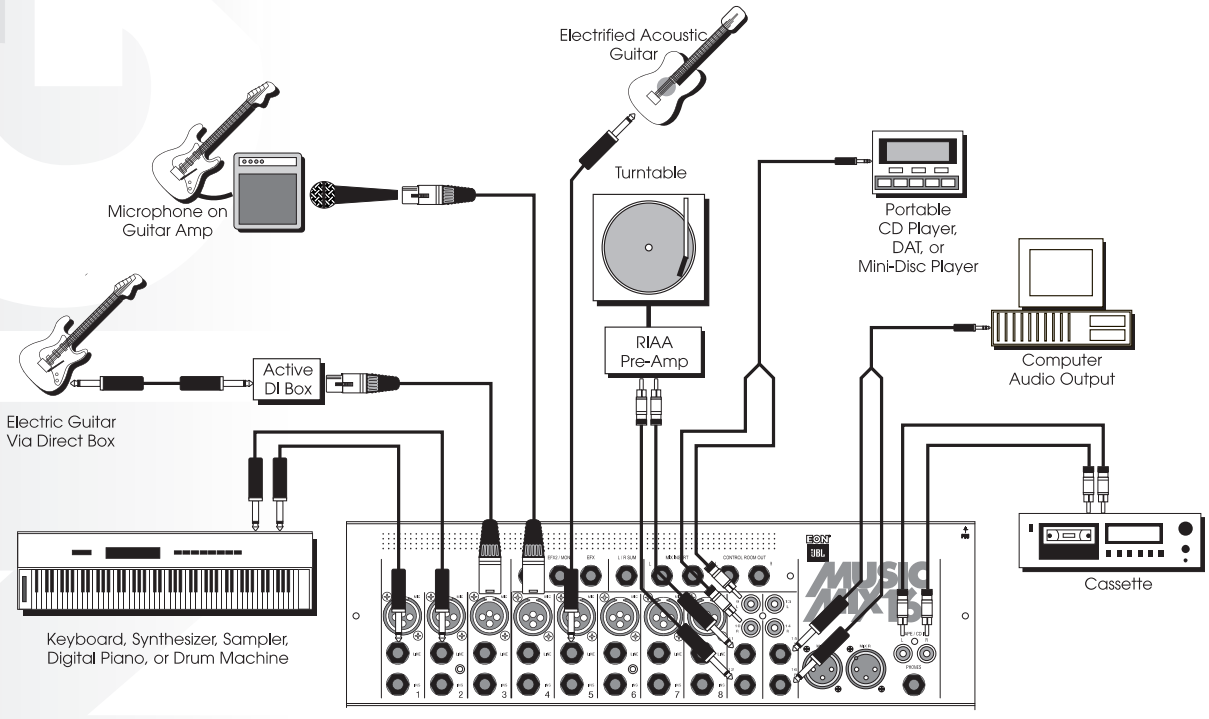
Doing More With Your System

The Quick Start section of this guide addresses a simple 2-speaker system with microphones only. This section will explain more advanced uses for your EON System.

Other Sources

In addition to microphones, your EON system will accommodate many sources. Some of these sources may require special adapters or adapter cables. See the “Connectors” section for more information.

The following illustration shows how various sources may be connected to your EON MusicMix 16 mixer.



Source Connections

Playback Sources

Any device that plays pre-recorded audio fits into this category.

- Cassette or DAT players
- CD
- Mini-Disc
- mp3 Playback Devices
- Computer audio outputs
- Video Cassette Recorders (VCRs), DVD players, Laser Disc players
- Turntables (note that turntables require a special pre-amplifier and will not work properly when connected directly to a mixer input.)

Musical Instruments

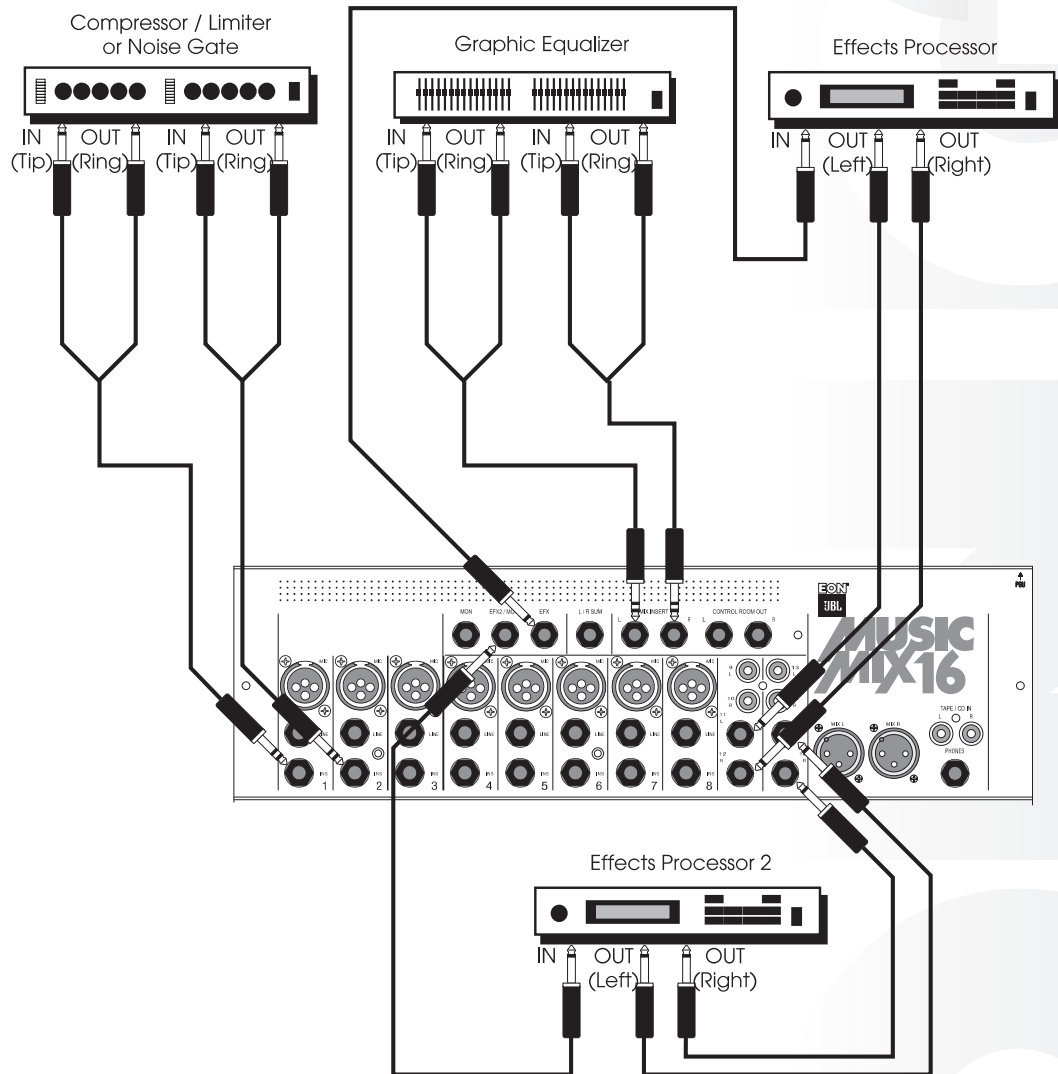
Technology has brought us an array of musical instruments that rely on digital electronics to produce their sound. In addition, many traditional acoustic instruments may have special pick-ups installed so they can be amplified without the use of microphones. Musical instrument sources include:

- Digital pianos and synthesizers.
- Digital drums and drum machines.
- Electrified acoustic guitars (acoustic guitars that have had a special pick-up installed that allows them to be amplified and retain their acoustic sound character)

Regarding electric guitars (as opposed to electrified acoustic guitars) – the tonal and distortion characteristics of the guitar amp and speaker are part of the sound of the instrument. Plugging an electric guitar directly into a sound system will usually not yield satisfactory results.

Effects and Signal Processors

Your MusicMix 16 mixer is designed to accommodate a variety of audio processors. The following illustration shows examples of how these devices would be connected to your mixer.



Processor Connections

Connecting and Using Digital Effects Processors

Digital signal processing (DSP) technology has produced effects processors that are low cost and packed with features and performance. These processors can enhance your performance by adding studio quality reverb and effects to your sound. Your effects processors can easily be connected to your mixer as shown. Here's how to set-up and use your effects processor with your MusicMix 16.

1. Complete the system set-up as described in the Quick Start section of this guide.
2. Connect your effects processor as shown in the illustration.
3. Determine which inputs will have the effect applied. For this discussion, let's add reverb to a vocal mic on input channel 1.
4. Bring the channel 1 EFX control to the 2:00 o'clock position.
5. Bring the EFX MASTER control to the 2:00 o'clock position.
6. Engage the LISTEN switch next to the EFX MASTER control. Note the LISTEN ON LED lights.
7. Ask the performer to speak or sing into the microphone. Observe the MusicMix16 METER and make sure that it is not being driven past the top LED. Disengage the EFX LISTEN switch.

8. Bring the INPUT LEVEL control of your effects processor up...
 - If the processor has an input meter or a clip (or peak) LED, bring the input level control up until the clip LED lights on the loudest peaks then back off slightly.
 - If the processor has no input meter or LED bring the input level control to the 2:00 or 3:00 o'clock position (see the effects processor user guide).
9. Engage the channel 11-12 LISTEN switch.
10. Slowly rotate the channel 11-12 SENS control CW (clockwise) until you see the following indications on the meter...
 - When the performer is at their "normal" performance level, the meter should indicate "0".
 - When the performer is at their loudest you should see the meter reaching "10".
 - An occasional flickering of the top LED on the meter during the loudest passages is OK. If this light illuminates steadily, reduce the SENS control setting by turning it CCW.
11. Engage the channel 11-12 ON switch.
12. Bring the channel 11-12 FADER up until the desired level of effects is heard through the speakers.
13. Disengage the LISTEN switch.

Adding a Second Effects Processor

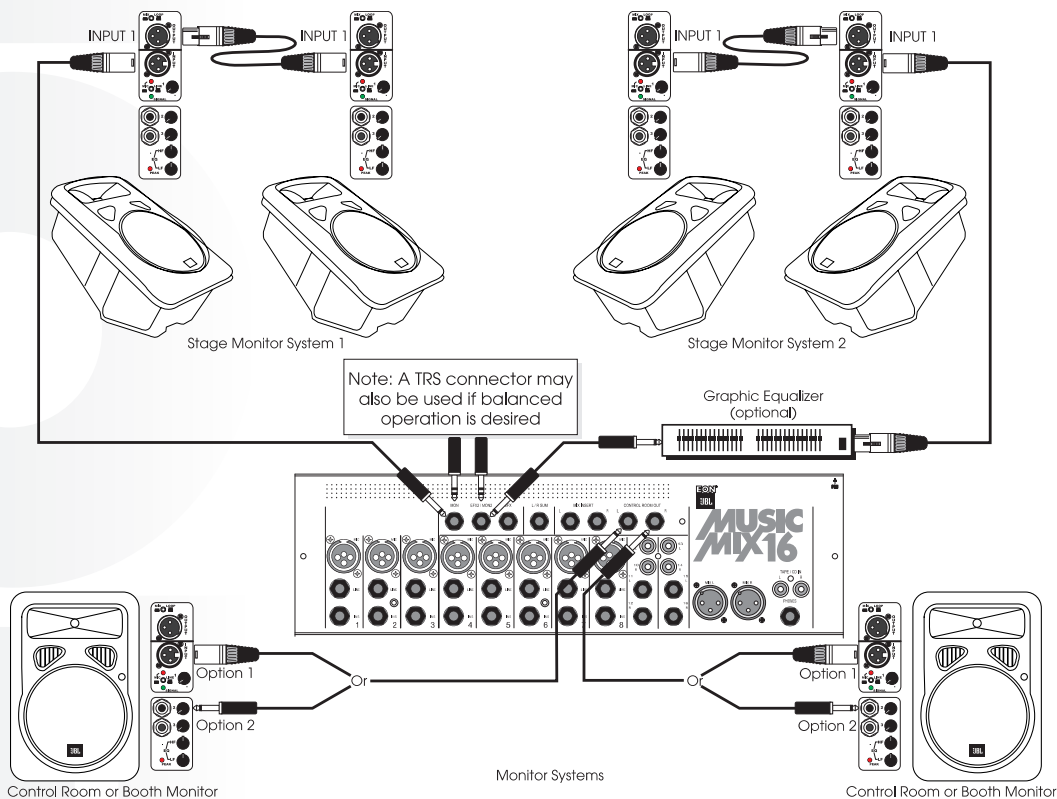
A second effects processor may be added to the system (see "Effects Processor 2" in the illustration for connection details). If a second effects processor is used, be sure to set the EFX2 / MON2 switch to the EFX2 (disengaged) position. Note that the use of a second effects processor will prevent the use of a second monitor mix (see "Adding Monitors to Your System").

Signal Processors

A signal processor is typically used to modify (rather than add to) an audio signal. This being the case, signal processors are typically connected to the "insert" point of the mixer (see the "Controls and Connections" section of this Guide).

Adding Monitors to Your System

In live sound reinforcement a monitor speaker is a speaker that is intended to be heard by someone other than the audience. There are two types of monitors that your EON MusicMix 16 mixer will support.



Stage Monitors

Stage monitors (sometimes called “foldback” speakers) are used to allow the performers to hear themselves and each other. Frequently the performers will need to hear a different blend (a “mix”) of the microphones and direct inputs than the audience is hearing. The “MON” and “MON2” sections of your MusicMix 16 allow two independent mixes to be sent to performer’s stage monitors. An additional set of EON powered speakers is a great choice for stage monitors. The illustration shows how to use EON powered speakers in a monitor application. Here’s how to operate the system.

1. Complete the system set-up as described in the Quick Start section of this guide.
2. Connect at least one EON powered speaker to the MON output of the mixer as illustrated.
3. Set the controls on the EON monitor speaker as directed in the Quick Start section of this guide.
4. Turn on the power to the EON monitor speaker.
5. Bring the EON monitor speaker’s level control to the 10:00 o’clock position.
6. On the mixer bring the MON master control to the 2:00 o’clock position.
7. Determine which channels you want to hear in the monitors and, one at a time slowly bring the MON control of those channels up until the desired level is heard.

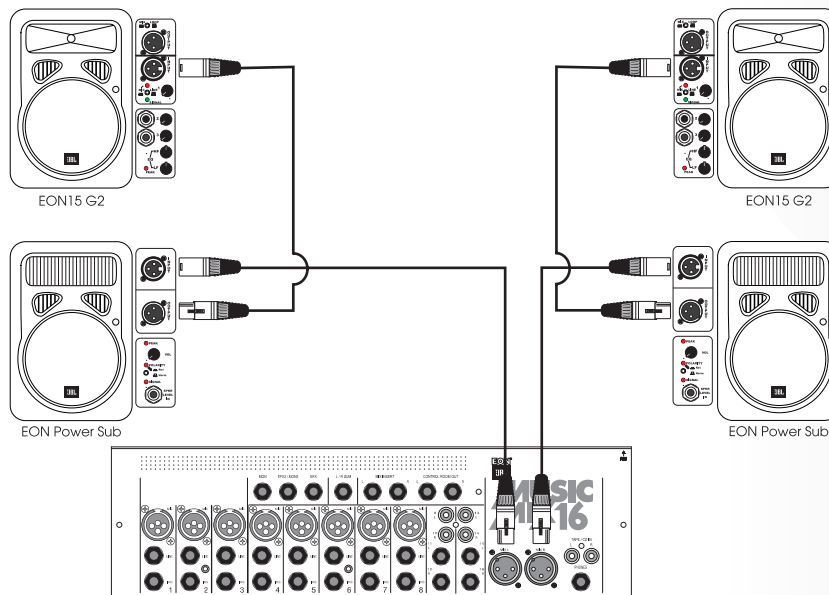
Control Room or Booth Monitors

Ideally, the person operating the mixer should be in the audience area hearing exactly what the audience hears. But sometimes the system operator has to mix from a control room or booth. The MusicMix 16 has a CONTROL ROOM OUT feature that supports the use of booth monitors. The signal that is sent to the control room monitors is identical to that which is supplied to the PHONES output.

- With the MIX / TAPE CD switch in the MIX position and with all LISTEN switches disengaged the Control Room monitors will receive the same signal as the main speakers.
- With the MIX / TAPE CD switch in the TAPE CD position and with all LISTEN switches disengaged the Control Room speakers will monitor TAPE / CD IN.
- When a LISTEN switch is engaged, the signal from the associate channel or output will replace the MIX or TAPE CD signal.
- The CONTROL ROOM & PHONES control adjusts the level of both the Control Room monitors and the headphones.

Subwoofers

Much contemporary music relies on low-frequency energy for its impact and power. Subwoofers are speakers that are especially designed to produce the frequencies below approximately 125 Hz. The EON PowerSub G2 shown in the following example is a powered subwoofer that can be easily added to your EON G2 system if you need even more low-frequency output.



Subwoofer System

Stereo Method 1

If the performance does not require the use of stage monitors you can use the MON and EFX2 / MON2 outputs to create an independent stereo mix for recording. Connect your recorder to the MON and EFX2 / MON2 outputs as shown and set the EFX2 / MON2 switch to the MON 2 position. Connect your headphones to the recorder. Bring up the MON control of a mixer input channel to record it to the left channel. Bring up the EFX2 / MON2 control of a mixer channel to record it to the right channel. To center a mixer channel, set the MON and EFX2 / MON2 controls to the same position. Note that MON and EFX2 / MON2 are not effected by the channel faders, so changes in the live sound mix will not effect the recording.

Stereo Method 2

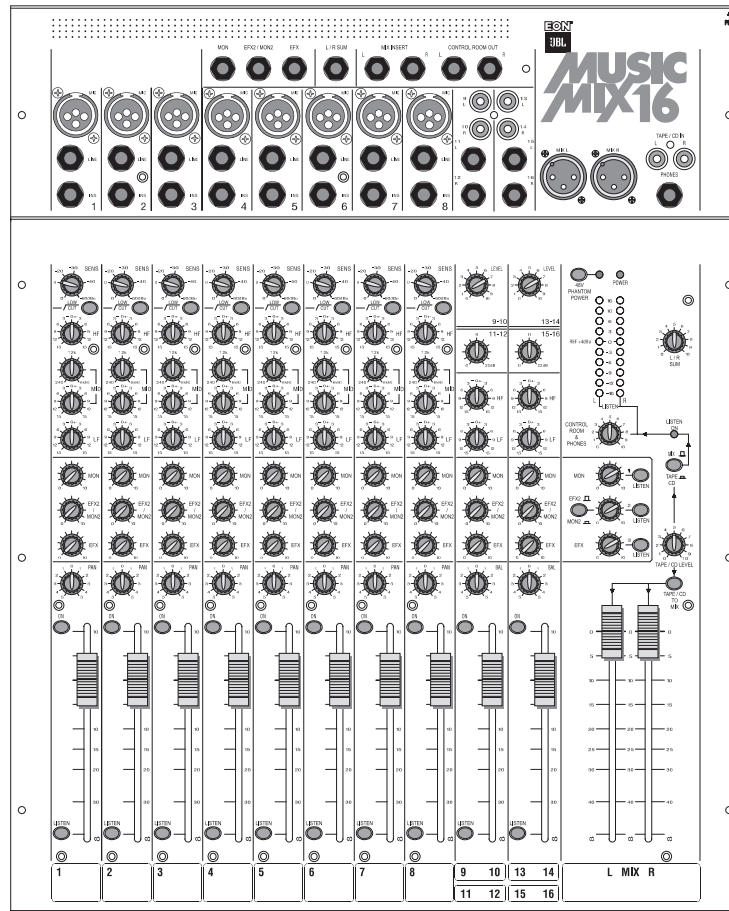
Connect your recorder to the CONTROL ROOM OUT jacks of your MusicMix 16 mixer. Disengage all LISTEN switches. Disconnect the headphones from the mixer. Set the MIX / TAPE CD switch to the MIX position (disengaged). The CONTROL ROOM & PHONES control will adjust the level of the signal going to the recorder. Note that you will not be able to use the LISTEN system while recording. You may monitor the recording by connecting headphones to the headphone jack of the recorder.

Direct to Multi-Track

Digital multi-track recorders are affordable and widely available. With the help of a simple 'Insert / Direct Out Adapter' (see the illustration) it's possible to make a multi-track recording of a performance. Over-dubs can be added in the studio and a final mix can be perfected.

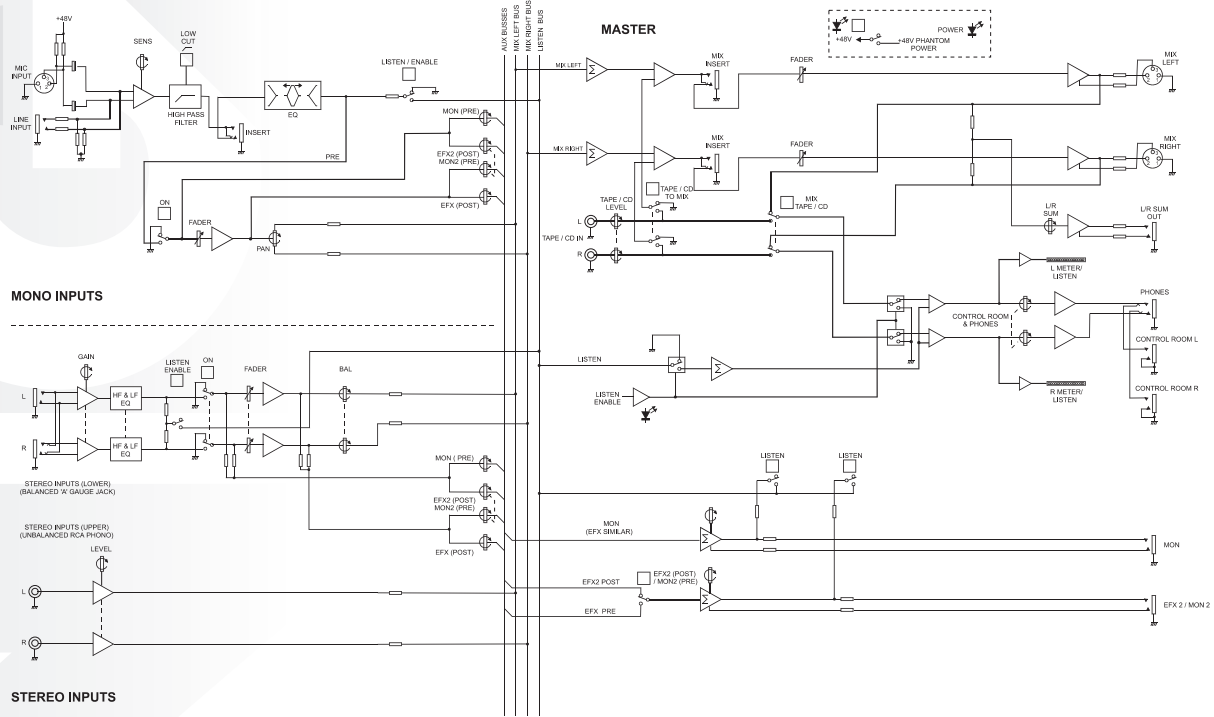
Controls and Connections

Panel Drawing



EON MusicMix 16 Panel

Block Diagram



MusicMix 16 Block Diagram

Mono Input Channel

MIC INPUT CONNECTOR

The MIC input accepts XLR-type connectors and is designed to accommodate a wide range of **BALANCED** or **UNBALANCED** signals. If you engage the **48V PHANTOM POWER** switch (top right-hand side of the mixer) the input provides a suitable powering voltage for professional condenser mics (this is also known as Phantom Power).

LINE INPUT CONNECTOR

Accepts 3-conductor Tip-Ring-Sleeve (TRS) 1/4" or 2-conductor 1/4" phone jacks. Use this input for sources other than mics, such as keyboards, drum machines, synthesizers, tape machines or guitars. When using unbalanced sources, it is best to keep cable lengths as short as possible. The MIC input and the LINE input on a single channel can not be used simultaneously.

INS CONNECTOR

The INSERT point is a break in the channel allowing limiters, compressors, special EQ or other signal processing units to be added in the signal path. The INS is a 3 conductor 1/4" phone plug. When a jack is inserted, the signal path is broken just before the EQ section and the signal is routed out of the mixer via the tip of the connector. The signal can then be processed and returned to the mixer via the ring of the TRS jack. The Send may be tapped off as an alternative pre-fade, pre-EQ direct output if required, using a lead with tip and ring shorted together so that the signal path is not interrupted.

SENS

The input **SENSITIVITY** matches the source level to the mixer. If this control is set too high the signal will distort as it overloads the channel. Too low, and the level of any background hiss will be more noticeable and you may not be able to get enough signal level to the output of the mixer. Note that the lowest number (-60 dBu) would deliver the greatest "gain" and would be used, for

example, for microphones positioned some distance from the source. The 0 dBu setting would be used when a device such as another mixer is connected to the input. The Quick Start section of this guide will provide details on properly setting this control.

LOW CUT

Pressing this switch activates a steep 100 Hz., 18dB per octave high-pass filter which reduces the level of bass frequencies. Use this in live PA situations to clean up the mix, reduce stage rumble, microphone handling noise, or reduce 'popping' from microphones. Unless the source is specifically intended to produce bass content, it is usually better to engage the Low Cut filter.

HF

HF stands for HIGH FREQUENCY EQUALIZER. Turn clockwise to boost high (treble) frequencies (12kHz and above) by up to 15dB, adding "crispness" or "sparkle" to cymbals, vocals and electronic instruments. Turn counter clockwise to cut by up to 15dB, reducing hiss or excessive sibilance which can occur with certain types of microphone. Set the knob in the center-detent position when not required.

MID

These two knobs work together to form a SWEPT MID EQ. The lower knob provides 15dB of boost and cut, just like the HF EQ knob, but the frequency at which this occurs can be set by the upper knob over a range of 240Hz to 6kHz. This allows some truly creative improvement of the signal in live situations, because this mid band covers the range of most vocals. Listen carefully as you use these controls together to find how particular characteristics of a signal can be enhanced or reduced. Set the gain (lower) knob to the center-detent position when not required. Note that when the gain knob is centered the frequency knob will have no effect. 'Q' or 'width' of the filter is set at 1.5.

LF

Turn clockwise to boost low (bass) frequencies (60Hz and below) by up to 15dB, adding warmth to vocals or extra punch to synths, guitars and drums. Turn counter clockwise to cut low frequencies by up to 15dB for reducing hum, stage rumble or to improve a mushy sound. Set the knob to the center-detent position when not required.

MON

The MON (Monitor) send is always PRE-FADE, POST-EQ (meaning that this signal will be effected by the EQ but not by the master fader) and therefore most appropriate for stage monitor (also known as "foldback") mixes.

EFX2 / MON2

This auxiliary send may be used either as a second send to an effects device such as a digital reverb or as a second monitor send.

- When the master EFX2 / MON2 switch is set to the EFX2 position (disengaged) the signal will be taken after the EQ and master fader which is ideal for feeding an effects device.
- When the master EFX2 / MON2 switch is set to MON2 position (depressed) the signal will be taken before the EQ and master fader which is ideal for feeding a stage monitor system.

EFX

The EFX (effects) send is what you will use to feed an external effects device. It is always POST-FADE, POST-EQ.

PAN

This control sets the amount of the channel signal feeding the Left and Right main output allowing you to move the source smoothly across the stereo image. When the control is turned fully right or left you are able to route the signal to either left or right outputs individually.

ON

All outputs from the channel, except inserts, are muted when the ON switch is released and enabled when the switch is down, allowing levels to be pre-set before the signal is required.

FADER

The 100mm FADER is custom designed to give smoother control of the overall signal level in the channel strip and allowing precise balancing of the various source signals being mixed to the Master Section. You get most control when the input SENSITIVITY is set up correctly, giving full travel on the fader. See the Setting Up, Gain Structuring & Troubleshooting' section for help in setting a suitable signal level.

LISTEN

When the latching LISTEN switch is pressed, the audio signal from the channel is fed to the headphones, control room output and meters, where it replaces the selected monitor source (MIX or TAPE/CD IN). The LISTEN signal is derived after the EQ but before the channel fader so it is not effected by fader level. The LISTEN LED on the Master section illuminates to warn that LISTEN is active. Engaging the LISTEN switch does not effect the signal to the MIX, MON, or EFX outputs. LISTEN allows you to hear one input at a time so you can adjust EQ or check a channel for problems without interfering with the performance.

Stereo Input Channels

The MusicMix 16 actually has 4 stereo input channels.

- Inputs 9-10 and 13-14 are very basic inputs that can only send a signal to the MIX output.
- Inputs 11-12 and 15-16 are more fully featured. This is where you would connect a stereo keyboard, or an effects processor, or a CD player with pre-recorded accompaniment tracks.

9L / 10R and 13L / 14R INPUTS

These high impedance inputs are unbalanced and use RCA "phono" connectors. This is a good place to connect a CD player for background music during breaks. If you've run out of input channels you could also connect the output of an effects processor here but you will not be able to send the effect to the stage monitors. Alternatively they may be used as simple effects returns or stereo instrument inputs. Note that turntables require special (RIAA) pre-amplifiers and will not work properly if connected directly to these inputs.

9-10 and 13-14 LEVEL

These controls adjust the level of the sources connected to inputs 9L / 10R and 13L / 14R.

11L / 12R and 15L / 16R INPUTS

These inputs accept 1/4" phone jacks and are BALANCED for low noise and top quality from professional equipment. You may also use UNBALANCED sources simply connecting 2-conductor 1/4" phone jacks. These inputs are ideal for sources such as keyboards, drum machines, synths, tape machines or effects processors. Mono sources may be used by plugging into the left jack only.

SENS 11-12 and 15-16

The input SENSITIVITY matches the source level to the mixer. If this control is set too high the signal will distort as it overloads the channel. Too low, and the level of any background hiss will be more noticeable and you may not be able to get enough signal level to the output of the mixer.

HF

Same as mono input channels.

LF

Same as mono input channels.

MON

The MON (Monitor) send is always PRE-FADE, POST-EQ (meaning that this signal will be effected by the EQ but not by the master fader) and therefore most appropriate for stage monitor (also known as "foldback") mixes. If a stereo source is connected to the channel, the left and the right signals will be summed and sent to the stage monitors.

EFX2 / MON2

This auxiliary send may be used either as a second send to an effects device such as a digital reverb or as a second monitor send.

- When the master EFX2 / MON2 switch is set to the EFX2 position (disengaged) the signal will be taken after the EQ and master fader which is ideal for feeding an effects device.
- When the master EFX2 / MON2 switch is set to MON2 position (depressed) the signal will be taken before the EQ and master fader which is ideal for feeding a stage monitor system.
- If a stereo source is connected to the channel, the left and the right signals will be summed and sent to the stage monitors or effects processor.

EFX

The EFX (effects) send is what you will use to feed an external effects device. It is always POST-FADE, POST-EQ. If a stereo source is connected to the channel, the left and the right signals will be summed and sent to the effects processor.

BALANCE

This control sets the amount of the channel signal feeding the Left and Right main outputs, allowing you to balance the source in the stereo image. When the control is turned fully right or left you feed only that side of the signal to the mix.

ON

Same as mono channels.

FADER

Same as mono channels.

LISTEN

The LISTEN function on the stereo channels is identical do that on the mono channels except that both the left and right inputs are summed to mono in the LISTEN system.

Master Section

48V Phantom Power

Many professional condenser microphones need an external powering voltage, also known as PHANTOM POWER. This is a method of sending a powering voltage down the same wires as the mic signal. Press the switch to supply the 48V Phantom Power to all of the MIC inputs. The adjacent LED illuminates when the power is active. Note that mics designed to work with lower phantom voltages will work fine with 48V Phantom Power.

DO NOT CONNECT UNBALANCED SOURCES TO THE XLR INPUTS with 48V Phantom Power switched on as the phantom power voltage may damage them. Balanced dynamic mics can normally be used with 48V Phantom Power switched on (contact your microphone manufacturer for guidance).

Mics should always be plugged in, and all output faders set to minimum before switching 48V Phantom Power ON to avoid damage to external equipment.

POWER INDICATOR

This LED illuminates to show when power is connected to the console.

BAR GRAPH METERS

The 3-color peak reading BAR GRAPH METERS normally follow the Monitor selection to show:

- The level of the MIX RIGHT and MIX LEFT outputs or...
- The TAPE/CD IN input if the TAPE/CD TO MIX switch is pressed or...
- When any LISTEN switch is pressed, the meters switch to show the selected LISTEN signal on both meters, in mono.

In typical operation, keep the average signal level around the 0 level with peaks going into the amber section (see "Set Up and Gain Structuring").

L / R SUM

The main MIX L & R signals are combined (summed) and sent to the L/R SUM output jack. Output level is set by this rotary control.

CONTROL ROOM & PHONES LEVEL

These controls set the output level to the control room LEFT & RIGHT and HEADPHONE outputs. If HEADPHONES are plugged into the PHONES jack, the Control Room outputs are cut off and the knob then sets the headphone listening level. When the PHONES are unplugged the Control Room output is restored. When any LISTEN switch is pressed, the LISTEN signal is sent to the Control Room Outputs and Headphones without interrupting the other outputs from the mixer. The LISTEN LED illuminates to show that LISTEN is the source for the monitors and meters. The original monitor source is restored when the LISTEN switches are released.

MIX TAPE/CD

Pressing the MIX TAPE/CD switch routes the TAPE/CD IN source to headphones, meters and control room monitors. The MIX output will not be heard in headphones, meters and control room monitors when this switch is in the TAPE/CD position (depressed).

TAPE/CD LEVEL

The rotary control sets the level of the TAPE/CD input.

TAPE/CD IN TO MIX

Press this switch to add the TAPE/CD IN signal to the stereo Mix, at a level set by the TAPE/CD LEVEL control. The signal is added pre-insert, pre-fader, and is an ideal way of feeding pre-show music to the mix in live applications, or could be used as an alternative effects return or line level input if required.

MON MASTER

The MON (Monitor) master control adjusts the overall level of the MON output used to feed stage monitors.

EFX2 / MON2 MASTER

This control adjusts the overall level of the EFX2 / MON2 output which may be used to feed stage monitors or effects processors.

EFX MASTER

The EFX (Effects) master control adjusts the overall level of the EFX output used to feed an effects processor.

LISTEN (MON, EFX2 / MON2, EFX)

Routes the associated output signal to the CONTROL ROOM or PHONES, replacing any existing signal. The METERS also switch from the selected source to display the LISTEN signal and the LISTEN LED lights to warn that a LISTEN switch is pressed. The level of the signal heard on the headphones or the control room monitors depends on the setting of the associated master level controls.

EFX2 / MON2

Determines if the EFX2 / MON2 send is configured for use with effects processors (EFX2) or to drive stage monitors (MON2).

- Select the MON2 position (depressed) to make all the EFX2 / MON2 sends PRE-FADE, POST-EQ. This means that they will all be unaffected by the position of the channel faders, making them ideal for foldback or monitoring.
- Select the EFX2 position (disengaged) to make all the EFX2 / MON2 sends POST-FADE, POST-EQ. This means they will fade up and down with the channel faders. This is more suitable for effects sends.

MIX L & R – Master Faders

The MIX L & R faders set the final level of the LEFT OUT and RIGHT OUT.

Output Section

MON

This 1/4" phone jack output will be used primarily to drive the stage monitor system. The MON output may be used for balanced or unbalanced operation.

EFX2 / MON2

This 1/4" phone jack output may be used to drive a second stage monitor system or a second effects processor depending on the setting of the EFX2 / MON2 switch. The EFX2 / MON2 output may be used with balanced or unbalanced input devices.

EFX

This 1/4" phone jack output may be used to drive an effects processor. The EFX2 / MON2 output may be used with balanced or unbalanced input devices.

L/R SUM

This 1/4" phone jack output delivers a combination of the MIX L & R signals. The output level is controlled by the L/R SUM knob. This output may be used to drive a subwoofer or a remote speaker system covering an overflow area. This output may be used with balanced or unbalanced devices.

MIX INSERT L & R

These 1/4" phone jacks function in the same way as the channel INS jacks and allow a signal processor to be inserted into the main stereo mix.

CONTROL ROOM OUT L & R

These 1/4" phone jacks are used to connect a control room (or booth) monitor system. This output will carry the same signal as the headphone out. The CONTROL ROOM OUT jacks may also be used to connect a recorder to record a performance. Note that if these jacks are used for recording you must disconnect the headphones from the PHONES connector. You will also not be able to use the LISTEN system while recording.

MIX L & MIX R

These balanced XLR connectors are the main stereo outputs of the mixer.

TAPE / CD IN

These RCA jacks are provided for connection of a tape, mini-disc, or CD player. The signal from these jacks is controlled by the MIX / TAPE CD switch and the TAPE / CD LEVEL control.

PHONES

This stereo phone jack is provided for connection of headphones. Connecting headphones to this jack will mute the CONTROL ROOM OUT.

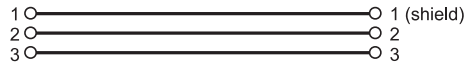
PSU

This 3-pin connector is provided for connection of the Power Supply Unit. Note the tab release on the cable connector for the PSU. This tab must be depressed to disconnect the PSU from the mixer.

Connectors

During its life a mixer will be connected to many different devices. These devices use a variety of connectors. The following illustrations and accompanying table will help you get the most from your MusicMix 16. Carrying a selection of these cables and adapters will let you be prepared for almost any audio challenge you might face.

XLR/F to XLR/M Microphone Cable



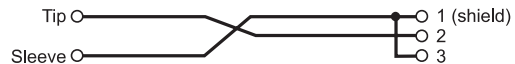
TRS (Balanced) 1/4" Phone to XLR/M Cable



TRS (Unbalanced) 1/4" Phone to XLR/M Cable



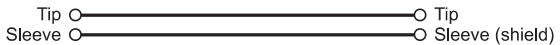
TS (Unbalanced) 1/4" Phone to XLR/M Cable



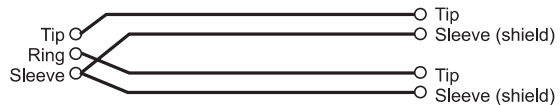
XLR/M to RCA (phono) Cable



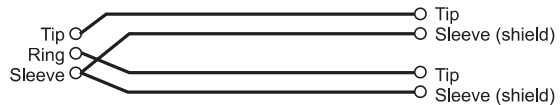
TS (Unbalanced) 1/4" Phone to RCA (phono) Cable



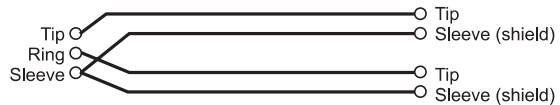
TRS 1/4" Phone to dual TS 1/4" Phone



TRS 1/8" Mini-Phone to dual TS 1/4" Phone



TRS 1/8" Mini-Phone to RCA (phono) Adapter



1/4" Phone to RCA (phono) Adapter



XLR/F to XLR/M Microphone Cable	<p>The standard cable for interconnection of microphone and line level signals in professional audio systems.</p> <ul style="list-style-type: none"> • Microphone to mixer • Microphone to EON15 G2 INPUT 1 • MusicMix 16 mixer to EON15 G2 INPUT 1 • “Daisy chaining” EON15 G2 speaker systems • Interconnection between professional audio equipment
TRS (Balanced) 1/4” Phone to XLR/M	<p>Connects sources with 1/4” balanced outputs (some mixes, amps, and signal processors) to amps, processors and powered speakers with balanced XLR/F inputs.</p>
TRS (Unbalanced) 1/4” Phone to XLR/M	<p>For connection of instruments with unbalanced outputs to a balanced XLR input.</p> <ul style="list-style-type: none"> • Sources (signal processors, electronic instruments) with 1/4” unbalanced outputs to amps, processors and powered speakers with balanced XLR/F inputs.
TS (Unbalanced) 1/4” Phone to XLR/M	<p>This cable is electrically identical to “TRS (Unbalanced) 1/4” Phone to XLR/M” above and may be used interchangeably.</p>
XLR/M to RCA (phono) cable	<ul style="list-style-type: none"> • Connects consumer audio products and some DJ mixer outputs to professional audio equipment inputs.
1/4” Phone to RCA (phono) cable	<ul style="list-style-type: none"> • Connects outputs of consumer audio equipment to unbalanced line inputs of EON15 G2 and many mixers. • Connects unbalanced line outputs of many mixers to the inputs of consumer audio recorders.
TRS 1/4” Phone to dual 1/4” Phone	<p>Splits a stereo output into separate left / right signals.</p> <ul style="list-style-type: none"> • Connects stereo electric guitar to two unbalanced audio inputs. • Connects a headphone output to two unbalanced audio inputs. • Connects signal processors to the “INS” of the MusicMix 16.
1/8” Mini-Phone to dual 1/4” Phone	<p>Connects the output of portable CD players, portable tape players and computer audio outputs to the inputs of EON15 G2 speakers and EON MusicMix 16 stereo channels.</p>
TRS 1/8” Mini-Phone to RCA (phono) Adapter	<p>Connects the output of portable CD players, portable tape players, and computer audio outputs to the inputs of consumer audio equipment.</p>
1/4” Phone to RCA (phono) Adapter	<p>Adapts standard RCA cables used on most consumer electronics to the inputs of EON15 G2 speakers and EON MusicMix 16 stereo channels.</p>

JBL Limited Warranty

The JBL Limited Warranty on professional sound products (except for loudspeaker enclosures) remains in effect for five years from the date of the first consumer purchase. JBL amplifiers are warranted for three years from the date of original purchase. Enclosures and all other JBL products are warranted for two years from the date of original purchase.

Who Is Protected by This Warranty?

Your JBL Warranty protects the original owner and all subsequent owners so long as: A.) Your JBL product has been purchased in the Continental United States, Hawaii or Alaska. (This Warranty does not apply to JBL products purchased elsewhere except for purchases by military outlets. Other purchasers should contact the local JBL distributor for warranty information.); and B.) The original dated bill of sale is presented whenever warranty service is required.

What is Covered by the JBL Warranty?

Except as specified below, your JBL Warranty covers all defects in material and workmanship. The following are not covered: Damage caused by accident, misuse, abuse, product modification or neglect; damage occurring during shipment; damage resulting from failure to follow instructions contained in your Instruction Manual; damage resulting from the performance of repairs by someone not authorized by JBL; claims based upon any misrepresentations by the seller; any JBL product on which the serial number has been defaced, modified or removed.

Who Pays for What?

JBL will pay all labor and material expenses for all repairs covered by this warranty. Please be sure to save the original shipping cartons because a charge will be made if replacement cartons are requested. Payment of shipping charges is discussed in the next section of this warranty.

How to Obtain Warranty Performance

If your JBL product ever needs service, write or telephone us at JBL Incorporated (Attn: Customer Service Department), 8500 Balboa Boulevard, PO. Box 2200, Northridge, California 91329 (818/893-8411). We may direct you to an authorized JBL Service Agency or ask you to send your unit to the factory for repair. Either way, you'll need to present the original bill of sale to establish the date of purchase. Please do not ship your JBL product to the factory without prior authorization. If transportation of your JBL product presents any unusual difficulties, please advise us and we may make special arrangements with you. Otherwise, you are responsible for transporting your product for repair or arranging for its transportation and for payment of any initial shipping charges. However, we will pay the return shipping charges if repairs are covered by the warranty.

Limitation of Implied Warranties

ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WARRANTY.

EXCLUSION OF CERTAIN DAMAGES

JBL'S LIABILITY IS LIMITED TO THE REPAIR OR REPLACEMENT, AT OUR OPTION, OF ANY DEFECTIVE PRODUCT AND SHALL NOT INCLUDE INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.



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