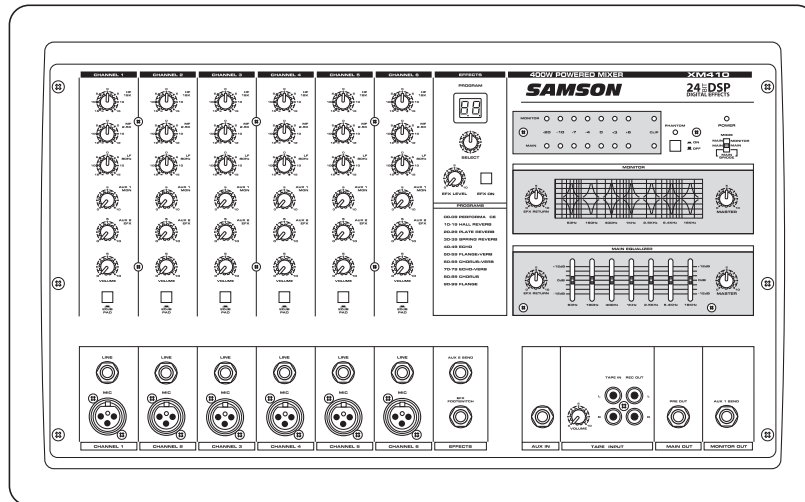


XM410

24^{BIT} DSP
DIGITAL EFFECTS

Powered Mixers



**SIX CHANNEL POWERED MIXER
WITH 24BIT DIGITAL EFFECTS**

Owners Manual

SAMSON[®]
A U D I O

Safety Instructions/Consignes de sécurité/Sicherheitsvorkehrungen/Instrucciones de seguridad



WARNING: To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture. To reduce the hazard of electrical shock, do not remove cover or back. No user serviceable parts inside. Please refer all servicing to qualified personnel. The lightning flash with an arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Important Safety Instructions

1. Please read all instructions before operating the unit.
2. Keep these instructions for future reference.
3. Please heed all safety warnings.
4. Follow manufacturers instructions.
5. Do not use this unit near water or moisture.
6. Clean only with a damp cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. When the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on and pinched particularly at plugs, convenience receptacles and at the point at which they exit from the unit.
11. Unplug this unit during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified personnel. Servicing is required when the unit has been damaged in any way, such as power supply cord or plug damage, or if liquid has been spilled or objects have fallen into the unit, the unit has been exposed to rain or moisture, does not operate normally, or has been dropped.

ACHTUNG: Um die Gefahr eines Brandes oder Stromschlags zu verringern, sollten Sie dieses Gerät weder Regen noch Feuchtigkeit aussetzen. Um die Gefahr eines Stromschlags zu verringern, sollten Sie weder Deckel noch Rückwand des Geräts entfernen. Im Innern befinden sich keine Teile, die vom Anwender gewartet werden können. Überlassen Sie die Wartung qualifiziertem Fachpersonal. Der Blitz mit Pfeilspitze im gleichseitigen Dreieck soll den Anwender vor nichtisolierter "gefährlicher Spannung" im Geräteinnern warnen. Diese Spannung kann so hoch sein, dass die Gefahr eines Stromschlags besteht. Das Ausrufezeichen im gleichseitigen Dreieck soll den Anwender auf wichtige Bedienungs- und Wartungsanleitungen aufmerksam machen, die im mitgelieferten Informationsmaterial näher beschrieben werden.

Wichtige Sicherheitsvorkehrungen

1. Lesen Sie alle Anleitungen, bevor Sie das Gerät in Betrieb nehmen.
2. Bewahren Sie diese Anleitungen für den späteren Gebrauch gut auf.
3. Bitte treffen Sie alle beschriebenen Sicherheitsvorkehrungen.
4. Befolgen Sie die Anleitungen des Herstellers.
5. Benutzen Sie das Gerät nicht in der Nähe von Wasser oder Feuchtigkeit.
6. Verwenden Sie zur Reinigung des Geräts nur ein feuchtes Tuch.
7. Blockieren Sie keine Belüftungsöffnungen. Nehmen Sie den Einbau des Geräts nur entsprechend den Anweisungen des Herstellers vor.
8. Bauen Sie das Gerät nicht in der Nähe von Wärmequellen wie Heizkörpern, Wärmeklappen, Öfen oder anderen Geräten (inklusive Verstärkern) ein, die Hitze erzeugen.
9. Setzen Sie die Sicherheitsfunktion des polarisierten oder geerdeten Steckers nicht außer Kraft. Ein polarisierter Stecker hat zwei flache, unterschiedlich breite Pole. Ein geerdeter Stecker hat zwei flache Pole und einen dritten Erdungsstift. Der breitere Pol oder der dritte Stift dient Ihrer Sicherheit. Wenn der vorhandene Stecker nicht in Ihre Steckdose passt, lassen Sie die veraltete Steckdose von einem Elektriker ersetzen.
10. Schützen Sie das Netzkabel dahingehend, dass niemand darüber laufen und es nicht geknickt werden kann. Achten Sie hierbei besonders auf Netzstecker, Mehrfachsteckdosen und den Kabelanschluss am Gerät.
11. Ziehen Sie den Netzstecker des Geräts bei Gewittern oder längeren Betriebspausen aus der Steckdose.
12. Überlassen Sie die Wartung qualifiziertem Fachpersonal. Eine Wartung ist notwendig, wenn das Gerät auf irgendeine Weise, beispielsweise am Kabel oder Netzstecker beschädigt wurde, oder wenn Flüssigkeiten oder Objekte in das Gerät gelangt sind, es Regen oder Feuchtigkeit ausgesetzt war, nicht mehr wie gewohnt betrieben werden kann oder fallen gelassen wurde.

ATTENTION: Pour éviter tout risque d'électrocution ou d'incendie, ne pas exposer cet appareil à la pluie ou à l'humidité. Pour éviter tout risque d'électrocution, ne pas ôter le couvercle ou le dos du boîtier. Cet appareil ne contient aucune pièce remplaçable par l'utilisateur. Confiez toutes les réparations à un personnel qualifié. Le signe avec un éclair dans un triangle prévient l'utilisateur de la présence d'une tension dangereuse et non isolée dans l'appareil. Cette tension constitue un risque d'électrocution. Le signe avec un point d'exclamation dans un triangle prévient l'utilisateur d'instructions importantes relatives à l'utilisation et à la maintenance du produit.

Consignes de sécurité importantes

1. Veuillez lire toutes les instructions avant d'utiliser l'appareil.
2. Conserver ces instructions pour toute lecture ultérieure.
3. Lisez avec attention toutes les consignes de sécurité.
4. Suivez les instructions du fabricant.
5. Ne pas utiliser cet appareil près d'une source liquide ou dans un lieu humide.
6. Nettoyez l'appareil uniquement avec un tissu humide.
7. Veillez à ne pas obstruer les fentes prévues pour la ventilation de l'appareil. Installez l'appareil selon les instructions du fabricant.
8. Ne pas installer près d'une source de chaleur (radiateurs, etc.) ou de tout équipement susceptible de générer de la chaleur (amplificateurs de puissance par exemple).
9. Ne pas retirer la terre du cordon secteur ou de la prise murale. Les fiches canadiennes avec polarisation (avec une lame plus large) ne doivent pas être modifiées. Si votre prise murale ne correspond pas au modèle fourni, consultez votre électricien.
10. Protégez le cordon secteur contre tous les dommages possibles (pincement, tension, torsion, etc.). Veillez à ce que le cordon secteur soit libre, en particulier à sa sortie du boîtier.
11. Déconnectez l'appareil du secteur en présence d'orage ou lors de périodes d'inutilisation prolongées.
12. Consultez un service de réparation qualifié pour tout dysfonctionnement (dommage sur le cordon secteur, baisse de performances, exposition à la pluie, projection liquide dans l'appareil, introduction d'un objet dans le boîtier, etc.).

PRECAUCION: Para reducir el riesgo de incendios o descargas, no permita que este aparato quede expuesto a la lluvia o la humedad. Para reducir el riesgo de descarga eléctrica, nunca quite la tapa ni el chasis. Dentro del aparato no hay piezas susceptibles de ser reparadas por el usuario. Dirija cualquier reparación al servicio técnico oficial. El símbolo del relámpago dentro del triángulo equilátero pretende advertir al usuario de la presencia de "voltajes peligrosos" no aislados dentro de la carcasa del producto, que pueden ser de la magnitud suficiente como para constituir un riesgo de descarga eléctrica a las personas. El símbolo de exclamación dentro del triángulo equilátero quiere advertirle de la existencia de importantes instrucciones de manejo y mantenimiento (reparaciones) en los documentos que se adjuntan con este aparato.

Instrucciones importantes de seguridad

1. Lea todo este manual de instrucciones antes de comenzar a usar la unidad.
2. Conserve estas instrucciones para cualquier consulta en el futuro.
3. Cumpla con todo lo indicado en las precauciones de seguridad.
4. Observe y siga todas las instrucciones del fabricante.
5. Nunca utilice este aparato cerca del agua o en lugares húmedos.
6. Limpie este aparato solo con un trapo suave y ligeramente humedecido.
7. No bloquee ninguna de las aberturas de ventilación. Instale este aparato de acuerdo a las instrucciones del fabricante.
8. No instale este aparato cerca de fuentes de calor como radiadores, calentadores, hornos u otros aparatos (incluyendo amplificadores) que produzcan calor.
9. No anule el sistema de seguridad del enchufe de tipo polarizado o con toma de tierra. Un enchufe polarizado tiene dos bornes, uno más ancho que el otro. Uno con toma de tierra tiene dos bornes normales y un tercero para la conexión a tierra. El borne ancho o el tercero se incluyen como medida de seguridad. Cuando el enchufe no encaje en su salida de corriente, llame a un electricista para que le cambie su salida anticuada.
10. Evite que el cable de corriente quede en una posición en la que pueda ser pisado o aplastado, especialmente en los enchufes, receptáculos y en el punto en el que salen de la unidad.
11. Desconecte de la corriente este aparato durante las tormentas eléctricas o cuando no lo vaya a usar durante un periodo de tiempo largo.
12. Dirija cualquier posible reparación solo al servicio técnico oficial. Deberá hacer que su aparato sea reparado cuando esté dañado de alguna forma, como si el cable de corriente o el enchufe están dañados, o si se han derramado líquidos o se ha introducido algún objeto dentro de la unidad, si esta ha quedado expuesta a la lluvia o la humedad, si no funciona normalmente o si ha caído al suelo.

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THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES CLASS B. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MUST NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION. SUITABLE FOR HOME OR OFFICE USE.

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Introduction

Congratulations on your purchase of the Samson XM410 powered mixer! The XM410 is a six channel, 400 Watt powered mixer with a built-in, 24 BIT DSP (Digital Signal Processor) effects. The XM410 will give you clean, clear sound reproduction thanks to the high quality, low noise microphone preamps, super clean mix bus, on-board 7-band graphic equalizer and the high output/low distortion power amplifier. For studio quality processing, you can add one of the 100 dazzling digital effects including Delays, Chorus and lush Reverbs to your voice or instruments. The XM410's ingenious Kickback enclosure allows you to tilt the unit back to see, and operate, the controls with ease. The unit is easy to transport with its compact size and oversized, sure-grip handle. The super-tough ABS construction ensures reliable, high quality sound from venue-to-venue and performance-to-performance day in, and night out. Optimized for live sound reinforcement and commercial installations, the XM410 is an ideal mixer and power amp solution offering big sound in a compact package.

In these pages, you'll find a detailed description of the features of the XM410 powered mixer, as well a description of its front and rear panels, step-by-step instructions for its setup and use, and full specifications. You'll also find a warranty card enclosed—please don't forget to fill it out and mail it in so that you can receive online technical support and so we can send you updated information about these and other Samson products in the future.

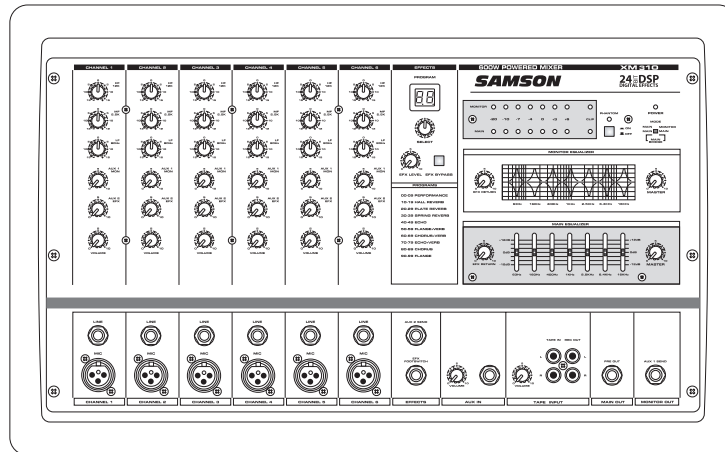
With proper care and adequate air circulation, your unit will operate trouble free for many years. We recommend you record your serial number in the space provided below for future reference.

Serial number:

Date of purchase:

Should your unit ever require servicing, a Return Authorization number (RA) must be obtained before shipping your unit to Samson. Without this number, the unit will not be accepted. Please call Samson at 1-800-3SAMSON (1-800-372-6766) for a Return Authorization number prior to shipping your unit. Please retain the original packing materials and if possible, return the unit in the original carton and packing materials.

XM410 Features

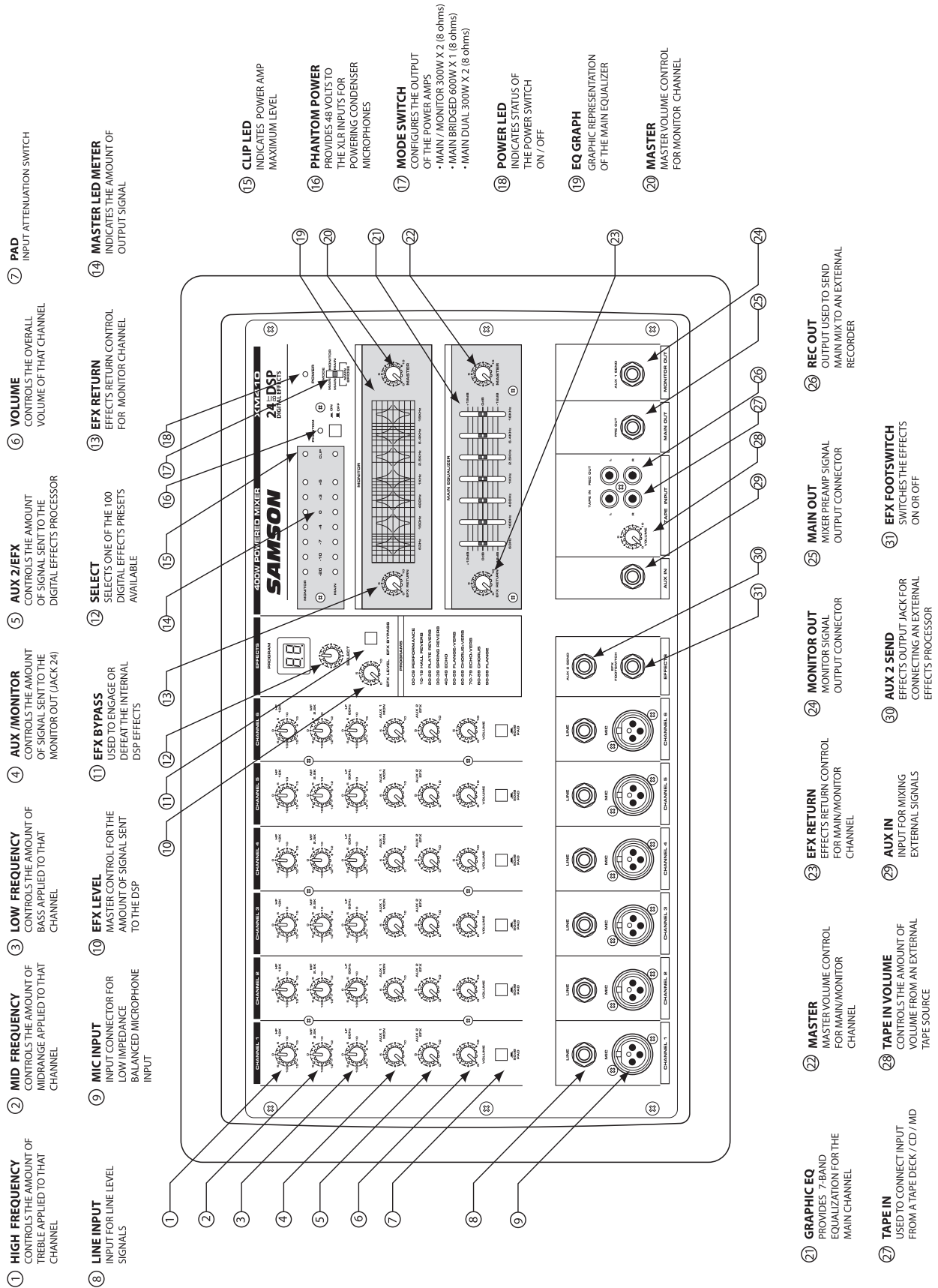


The Samson XM410 Powered Mixer is a comprehensive, all-in-one mixer / power amplifier solution for live sound applications. Here are some of its main features:

- Six channel powered mixer in ergonomically correct kickback enclosure allowing you to easily see and operate the front panel functions.
- Six Mic / Line inputs with 1/4-inch phone and XLR connectors.
- 2 x 200 Watts, or 200 Watt Main / 200 Watt Monitor, or 400 Watts Bridged power operating modes.
- A built-in, 24-bit DSP (Digital Signal Processor) with 100 selectable presets including Reverb, Delay and Chorus, offers dazzling studio quality effects.
- Dynamic or condenser microphones connect easily to the low noise mic pre-amps with available 48 Volt Phantom Power.
- The 3-Band EQ on each channel enables you to tailor the tonal response for each input.
- * Two Auxiliary sends on each channel for building an independent mix to send to the DSP effects and monitors.
- 7-band Graphic Equalizer for the Main mix, allowing the system to be set-up for maximum gain before feedback.
- A convenient Tape / CD Input is provided so you connect a stereo device for accompaniment or background music.
- Brilliant sound quality from the advanced circuit design, utilizing low noise operational amplifiers.
- Durable ABS plastic enclosure is road tough insuring reliable performance from night to night and venue to venue .
- Convenient oversize, sure grip handle make the unit easy to carry.
- Three-year extended warranty.

Controls and Functions

FRONT PANEL LAYOUT



Controls and Functions

FRONT PANEL CONTROLS

INPUT CHANNEL SECTION

The following section details each part of the XM410's INPUT CHANNELS including the 3-BAND EQ, the MONITOR and EFX sends, LEVEL and PAD controls.

1 HIGH MID LOW - Channel Equalizer

The XM410 input channels feature a 3-band equalizer allowing you to adjust the high, mid, and low frequencies independently on each channel. The channel's frequency response is flat when the knobs are in the "12:00" position. Rotating the knob towards the right will boost the corresponding frequency band by 12dB/15dB, and rotating it towards the left will cut the frequency by 12dB/15dB. The frequency centers, range of boost or cut, and equalizer type for each band are as follows:

High: 12KHz +/- 15dB shelving type

Mid: 2.5KHz +/- 12dB peaking type

Low: 80Hz +/- 15dB shelving type

2 AUX 1/MON - Monitor Send

Each of the XM410's channels include a MONITOR send which controls the amount of that channel's signal that is sent to the MONITOR bus. The Input channel's MONITOR sends are mixed together and are sent to the speakers connected to the POWER AMP 1 A/B jacks if the POWER AMP select switch is set to MAIN+MONITOR.

3 AUX 2 / EFX Effects Send

The XM410 provides high quality, 24 Bit digital effects, and the level of effects can be set independently on each channel. The channel's EFX (Effects) knob controls the amount of signal that is sent to the EFX bus. The signal of the EFX bus is routed to the DSP EFX section for on-board signal processing. The EFX signal can also be sent to an external effect device connected to the EFX OUT jacks located on the front panel.

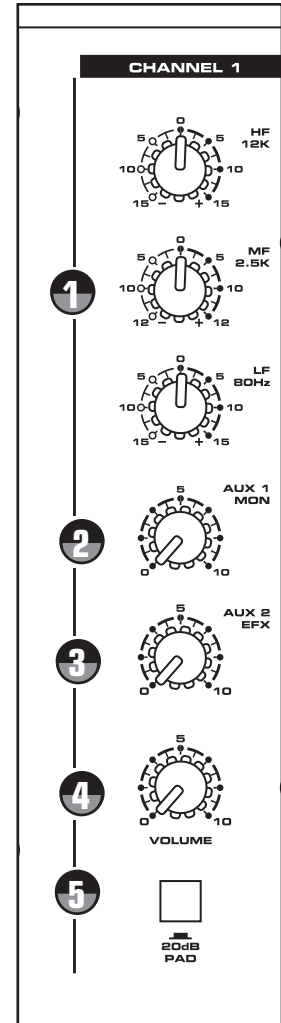
NOTE: The channel's EFX signal is sent to the EFX bus from a location in the signal path after the VOLUME control (4). This is commonly referred as a POST FADER send. This means that the amount of signal that is sent to the EFFECT bus will be affected not only by the setting of the EFX knob control, but it will also be affected by the setting of the VOLUME control.

4 VOLUME - Level Control

The VOLUME control adjusts the output volume of each channel.

5 PAD - Pad Switch

The PAD switch attenuates the input signal by 20dB. When connecting a hot signal such as a line level device to channels 1-6, or if the mic input is distorted, turn this switch on (the pressed-in position) and readjust the VOLUME control.



Controls and Functions

FRONT PANEL CONTROLS

24 BIT DIGITAL EFFECT SECTION

The XM410 features a built-in, 24 Bit Digital Effects processor with 100 high quality, studio grade effects like Delay, Chorus and Reverb. The following section describes the features of the powerful on-board digital effects section.

6 SELECT - Digital Effects Select Switch

The SELECT switch allows you to pick one of the 100 built-in digital effects. Simply rotate the SELECT to choose the effect.

Effect PROGRAM List

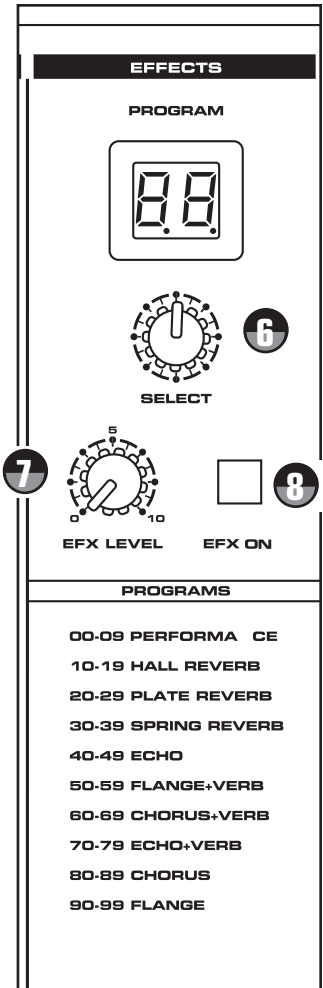
This section identifies the ten banks of built-in DSP effects presets. The first bank of 10 presets are designed for live performance, and the following banks are set up in groups by the types of effects.

7 EFX LEVEL - Master Effect Send

The EFX LEVEL control is used to send the effect mix bus to an external effect device connected to the AUX 2 SEND jack. The EFX LEVEL is also used to control the overall level sent to the internal DSP.

8 EFX ON - switch

The EFX ON control is used to turn the internal Digital Effect on and off. The effects are by-passed when the switch is in the out position and the display shows two dashes

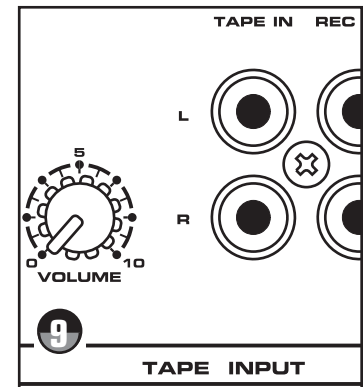


TAPE IN AND AUX IN SECTION

This allows you to adjust the level of the signal from an external device such as an MP3 , cassette, or CD player or from an external effect device.

9 VOLUME - Tape In Level Control

This adjusts the amount of signal that is sent from the TAPE IN jacks to the MAIN bus.



Controls and Functions

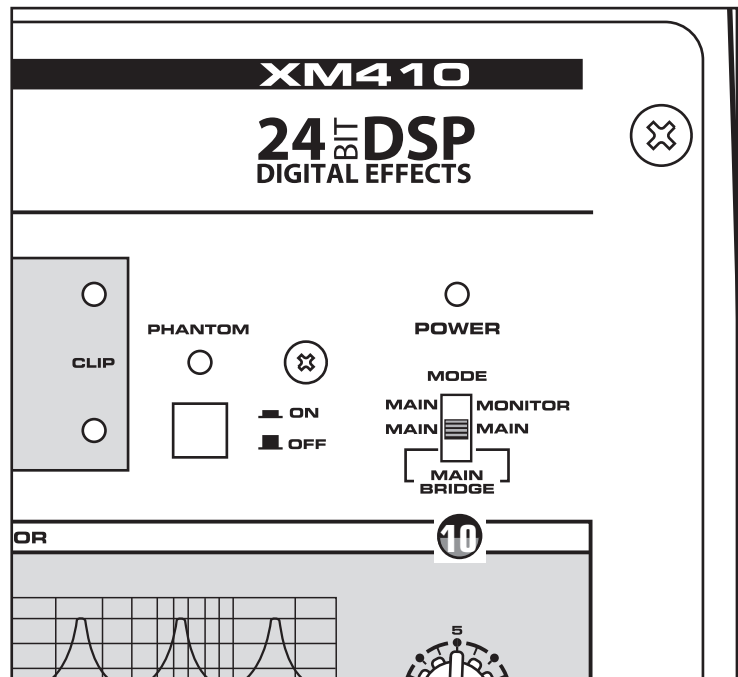
FRONT PANEL CONTROLS

POWER AMP SECTION

The XM410's power amplifier section can be configured to operate several ways depending on whether you need MAIN plus MONITOR amplifiers to power your speakers, or if you just need more power for the MAIN speakers. The section below describes the XM410 power amp modes.

Mode - Power amp Mode switch

The MODE switch is used to select one of three different operating modes, MAIN-MONITOR, MAIN-MAIN and MAIN-BRIDGE. The following is a description of each of the POWER operating modes:



CAUTION! Only change the power amp mode switch when the XM410's power is **SWITCHED OFF!**

MAIN-MONITOR

With this setting, the MAIN and MONITOR sections can be used independently. The MAIN bus signal will be sent from the POWER AMP 2 A/B jacks, and the MONITOR bus signal will be sent from the POWER AMP 1 A/B jacks.

MAIN-MAIN

With this setting, the two power amp channels can be used independently. The MAIN bus signal will be output from the POWER AMP 1 A/B jacks (Rear Panel), and also, from the POWER AMP 2 A/B jacks (Rear Panel 1).

MAIN-BRIDGE

With this setting, the two power amp channels (A and B) will be connected in bridge mode. Only the MAIN bus signal will be output from the BRIDGE jack.

Controls and Functions

FRONT PANEL CONTROLS

MAIN SECTION

The XM410 has two internal power amplifiers and depending on the power amp MODE selection switch, the amplifiers are sent the MAIN or MONITOR bus signal. The following section describes the MAIN bus operation, which allows you to adjust the over-all tone and volume, and specify the mix level of the built-in effects.



Graphic Equalizer

The XM410's 7-band Graphic Equalizer allows you to contour the frequency response of the MAIN mix bus signal, providing a maximum of 12dB of cut/boost for each frequency band. This is an especially useful tool for cutting frequencies that cause annoying feedback. The frequency response is flat when the sliders are in the center position. Moving a slider in the positive direction will boost that frequency by as much as 12dB, and moving the slider in the negative direction will cut that frequency by up to 12dB. Once you set a response curve using the Graphic Equalizer, the EQ curve is applied to both the MAIN bus signal that is output to the speakers, and the line level signal which is output from the MAIN OUT jack.



EFX RETURN - Effects Return Control

The EFX RETURN control is used to adjust the level of the effect sound being sent back from the built-in digital effect to the MAIN mix bus. This allows you to hear the DSP effects in your MAIN speakers.



MASTER - Volume Control

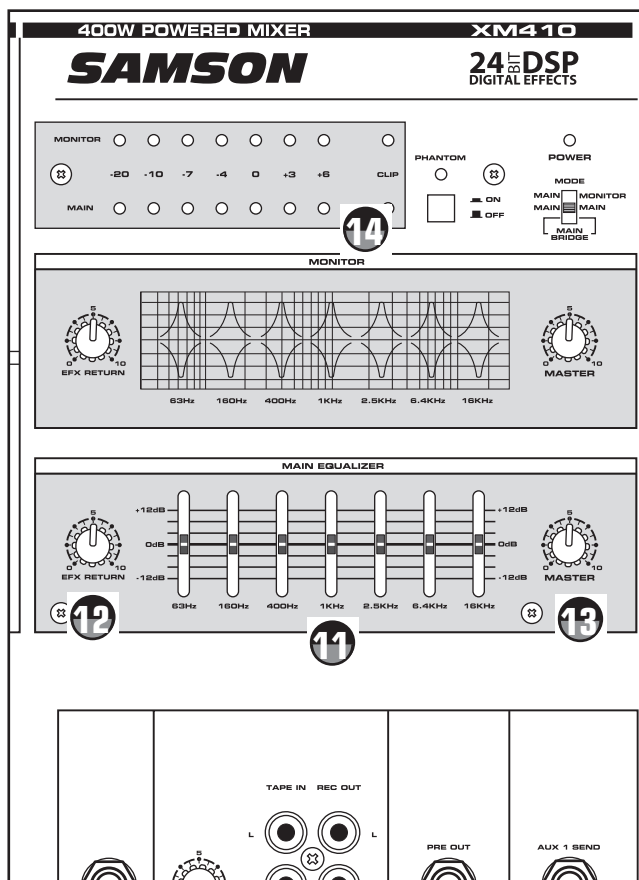
The MASTER level control is the over-all volume control for the MAIN bus. The MAIN level affects both the MAIN bus signal which is output to the speakers and the line level signal which is output from the MAIN OUT jack.



Output Level Meter

The OUTPUT LEVEL METER allows you to monitor the level of the signal which is being sent to the MAIN OUT jack (input/output panel 8).

NOTE: To avoid distortion, adjust the MASTER LEVEL control so that the 0 indicator LED lights occasionally.



Controls and Functions

FRONT PANEL CONTROLS

MONITOR SECTION

The XM410 has two internal power amplifiers and depending on the MODE selection switch, the amplifiers received their input signals from the MAIN or MONITOR bus. The following section describes the MONITOR bus operation, which allows you to adjust the overall tone and volume, and specify the mix level of the built-in effects.

15 EFX RETURN - Effects Return Control

The EFX RETURN control is used to adjust the level of the effect sound being sent back from the built-in digital effect to the MONITOR bus. This allows you to hear the DSP effects in your monitor speakers.

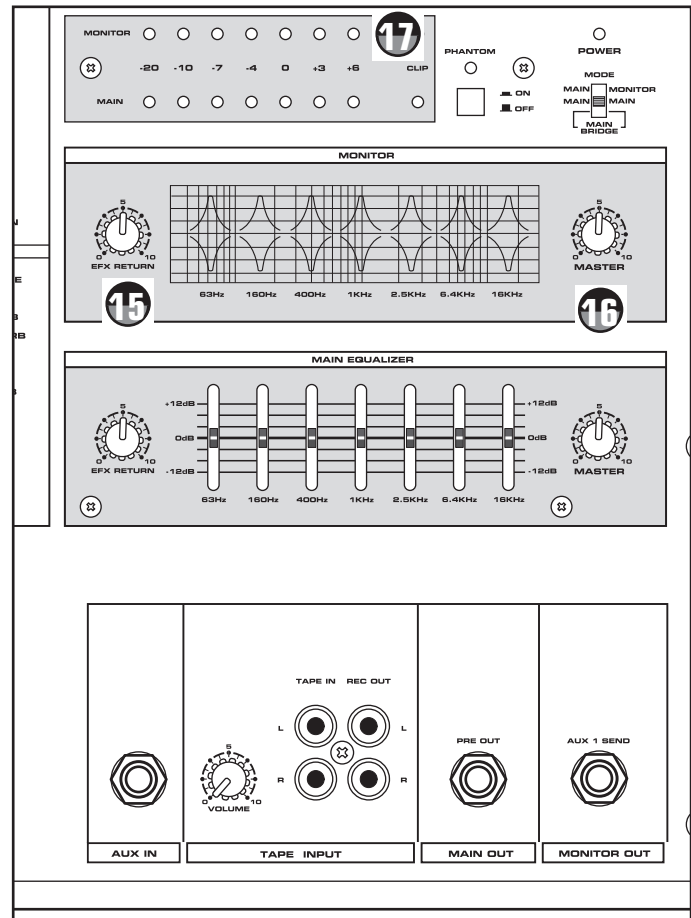
16 MASTER - Volume Control

The MASTER level control is the overall control for the MONITOR bus. The MONITOR level affects both the MONITOR bus signal which is sent to the monitor speakers and the line level signal which is sent from the MONITOR OUT jack.

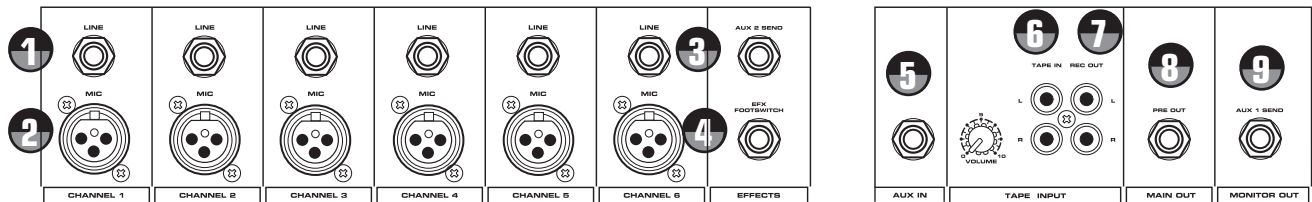
17 Output Level Meter

The OUTPUT LEVEL METER allows you to monitor the level of the signal which is being sent to the MONITOR OUT jack and MONITOR POWER AMPLIFIER.

NOTE: To avoid distortion, adjust the VOLUME level control so that the 0 indicator LED lights occasionally.



XM410 Input and Output Connections



CHANNEL 1–6 MIC and LINE INPUTS

The XM410's six input channels each have a LINE level, Hi-Z (High Impedance) input and a MIC level, Low-Z (Low impedance) input. By using the PAD switches, you can connect a variety of signal sources from microphones to line level devices such as synthesizers, drum machines and direct boxes. Both LINE and MIC inputs are balanced, with MIC inputs compatible with microphones of output impedance 50-600 Ohms and LINE inputs compatible with line level devices of 600 Ohms.

NOTE: It is not possible to simultaneously use both the LINE and MIC inputs on the same channel. For each channel, use only one of the inputs as appropriate for the input source.

1 LINE - Line Level Input

Use these inputs to connect high impedance microphones, synthesizers and drum machines. The LINE inputs have a nominal operating level of -40dBV through -10dBV.

TRS phone jacks Connector pin-out - Sleeve: Ground, Tip: Hot (+), Ring: Cold (-)

2 MIC - Microphone Input

Use these inputs to connect Low Impedance microphones and low level signals from direct boxes. The MIC inputs have a nominal operating level of -50dBV through -20dBV. The MIC inputs also feature +48V phantom power, allowing you to use condenser microphones. The Phantom Power is switched on/off simultaneously for channels 1 through 6.

XLR Connector pin-out - Pin 1: Ground, Pin 2: Hot (+), Pin 3: Cold (-)

3 AUX 2 SEND - Effects Output

The AUX 2 SEND output is used to interface an external signal processor like a delay or reverb. The signal present at the AUX 2 SEND output is sent from the EFFECTS bus, which is fed from the EFX send on the input channels and the EFFECTS LEVEL send in the Master section.

4 EFX FOOTSWITCH - Footswitch Jack

With a foot switch connected to this jack, you can turn on and off the on-board digital effects by simply pressing the switch with your foot.

EXTERNAL INPUT JACKS (AUX IN/TAPE IN)

These are input jacks that allow the signal from an external device to be added to the MAIN output.

5 AUX IN - Auxiliary Input

Used to connect monaural output devices such as external effects processors.

6 TAPE IN - Tape Input

Used to connect a stereo output device such as cassette recorder or CD player.

XM410 Input and Output Connections

EXTERNAL OUTPUT JACKS

The XM410 features several output connectors allowing you to interface a variety of external devices. A stereo recording device such as a cassette recorder can be connected to the REC OUT jacks, and additional power amplifiers can be connected to the MONITOR and MAIN output jacks.

7 REC OUT - Record Output

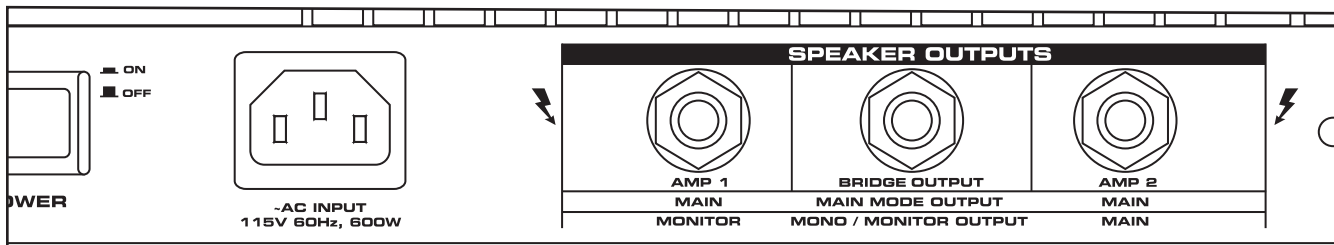
The signal present at this connector is the MAIN bus signal before it has passed through the MASTER level control and graphic equalizer. The nominal output level is -10dBV and the impedance is 100K Ohms.

8 MAIN OUT - PRE OUT MIX OUTPUT

The signal present at this connector is the MAIN bus signal, which has passed through the MAIN/ MASTER level control and the graphic equalizer. The nominal output level is +4dBu and the impedance is 100K Ohms.

9 MONITOR OUT - AUX 1 SEND

The MONITOR bus signal is present at this connector. The signal is passed through the MONITOR /MASTER level control and graphic equalizer before it reaches the MONITOR OUT connector. The nominal output level is +4dBu and the impedance is 100K Ohms.



REAR PANEL

The XM410 contains two mono power amplifiers and depending on the operating mode, the two amplifiers can be used independently (maximum output 200W + 200W) or in BRIDGE mode (maximum output 400W).

NOTE: Use the front panel MODE switch to select which signal is sent to the speaker output jacks, and to activate BRIDGE mode.

If the two power amplifiers are used for MAINS operation, two 8 ohm speakers can be "daisy-chained" together and connected to the AMP 1 jack, and two more 8 ohm speakers can be "daisy-chained" together and connected to the AMP 2 jack, for a total of four speakers. See the diagram on page 12.

The total impedance load for each amplifier must not exceed 4 Ohms, therefore in the example above, two speakers with an impedance of 8 ohms each are connected to each amp's output jacks.

If you wish to use two amplifiers independently, let's say for Main and Monitor operation, use a 4 through 8 Ohm speaker. Again, the total impedance load for each amplifier must not exceed 4 Ohm. Therefore two speakers with an impedance of 8 ohms can be "daisy-chained" together and then connected to each amp's output jacks.

If the two amplifiers are used in a BRIDGE mode, only one speaker can be connected to the BRIDGE jack. The total impedance load while operating in Bridge mode must not be less than 8 Ohms.

If you are connecting a speaker to the BRIDGE jack, use an 8 through 16 Ohm speaker.

CAUTION: When using a bridge connection, do not connect anything to the AMP 1 and AMP 2 jacks. Likewise, when using the POWER AMP 1 and POWER AMP 2 jacks, do not connect anything to the BRIDGE jack.

XM410 Input and Output Connections

SPEAKER CONNECTION

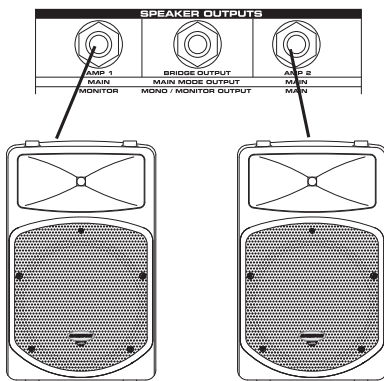
The XM410's power amplifier section can be configured to operate several ways depending on the setting of the power amp MODE switch located on the front panel. This allows you to choose whether you need MAIN plus MONITOR amplifiers to power your speakers, or if you just need more power for the MAIN speakers. For more information on the power amp MODE switch, see the section POWER AMP SECTION on page 7 of this manual.

There are three ways in which speakers can be connected to the XM410: A single speaker can be connected to the output jack of AMP 1 and AMP 2, two speakers can be connected in parallel to output jacks of AMP1 and AMP 2, or a single speaker can be connected to the BRIDGE jack (bridge connection). For each of these, the required speaker impedance will differ.

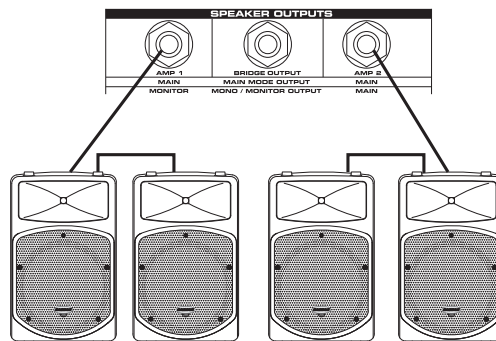
Refer to the following diagram, and make sure that the speaker impedance is not less than the specified value.

Additional, or alternative amplifiers can be connected to the MAIN OUT and MONITOR OUT jacks on the front panel.

When connecting one speaker to POWER AMP 1 and one speaker to POWER AMP 2, use speakers with a 4 – 8 ohm impedance rating.

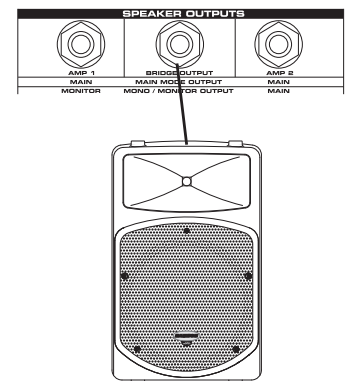


When connecting two speakers to POWER AMP 1 and two speaker to POWER AMP 2, use speakers with a 8 – 16 ohm impedance rating.



In this example, each pair of speakers is wired in Parallel or "daisy-chained" together using the speaker's Extension Output, so the total impedance when two 8 Ohm speakers are connected is 4 Ohms.

When the POWER AMPS are in BRIDGE use a speaker with a 8 – 16 ohm impedance rating.



Operating the XM410

BASIC OPERATION

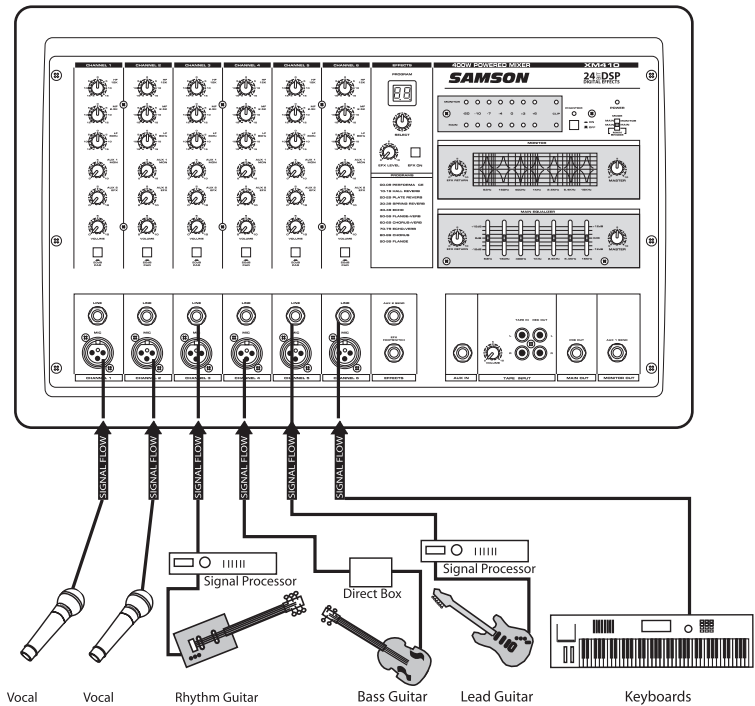
The following section explains the basic operation of the XM410.

CONNECTING MICROPHONES AND INSTRUMENTS

1. Before connecting mics or instruments, make sure that the power of all your systems components, including the XM410, is turned off. Also, make sure that the level controls of each channel of the XM410 and the VOLUME control of the MAIN section are turned all the way down.
2. Connect the cables to your microphones and instruments, and insert the other end of the cable firmly into the appropriate input on the XM410.

NOTE: When connecting a line level device to channels 1 through 6, it's a good idea to start with the pad switch on. (Note: You cannot use a channel's MIC and LINE jacks at the same time.)

3. Switch on the power of any peripheral devices, and then power up the XM410.



NOTE: Since the XM410 contains two power amplifiers, it is important to remember the Golden Rule of audio ... "LAST ON, FIRST OFF". Translated, this means that when turning on your system, you should always turn your power amplifiers on LAST, and when turning your system off, turn your power amps off FIRST. This helps avoid any loud pops caused by rush current at power up or power down, which can sometimes damage loudspeakers .

4. Set the MASTER control of the MAIN section to the "5" position.
5. While speaking into the mic (or playing the instrument), adjust the channel VOLUME control so that the "0" LED of the MAIN section peak level meter lights occasionally.
6. If you wish to adjust the tone of each channel, adjust the equalizer controls as desired. You may have to re-adjust the channel volume.
7. Use the MAIN section graphic equalizer and MASTER control to adjust the overall volume and tone.

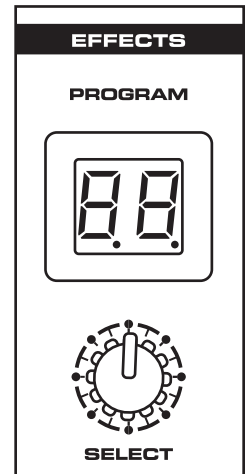
Operating the XM410

USING THE DIGITAL EFFECTS

The XM410 features a built-in, high quality, 24 BIT Digital Signal Processor offering studio grade effects. The DSP features clean Delay, lush Reverbs and multi-effects like Chorus + Delay or Chorus + Reverb. You can add a broad range of studio quality effects by simply dialing through the 100 presets. The following details the operation of the internal DSP effects:

1. Connect a mic or instrument to the desired channel, and adjust the volume and equalizer to your liking.
2. Now select the desired preset using the EFFECTS SELECT switch. Set the DSP SELECT switch to one of the following 100 effects:

0 - 9	Performance
10 - 19	Hall Reverb
20 - 29	Plate Reverb
30 - 39	Spring Reverb
40 - 49	Echo
50 - 59	Flange + Verb
60 - 69	Chorus + Verb
70 - 79	Echo + Verb
80 - 89	Chorus
90 - 99	Flange



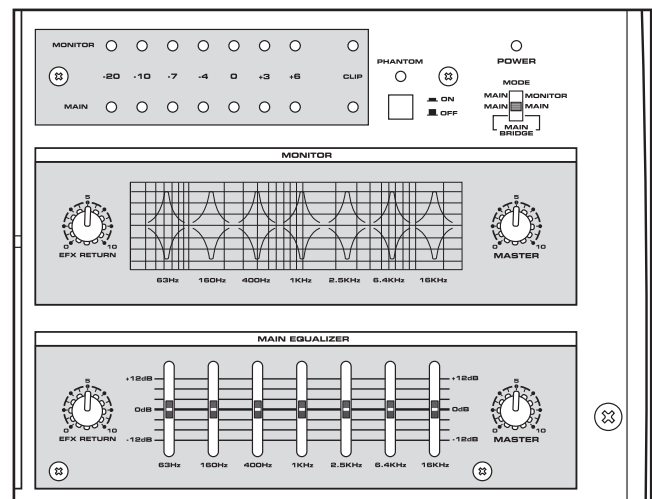
4. Once you have selected the desired effect preset, raise the EFX control on the channels you wish to apply the digital effect to.
5. Now use the EFX RTN knob in the MAIN/MONITOR section to adjust the EFFECTS Return level. The EFX control is the overall level control for the DSP effects processor. If you are not using the XM410 in MAIN/ MONITOR or BRIDGE mode, be sure to raise the EFX RTN control up on both the MAIN and MAIN/ MONITOR sections so the level of effect is the same in both speakers.

NOTE: If the effect sound is distorted even though the EFX RTN is turned all the way down, lower the EFX controls of each channel.

SENDING AN INDEPENDENT MIX TO THE MONITOR SPEAKERS

The XM410 allows you to operate the power amplifiers in a MAIN/ MONITOR mode. This lets you use one amplifier for speakers facing the audience, and the other amplifier for the monitor speaker facing the musicians.

1. Set the channel MONITOR section and VOLUME control to the "0" position.
- 2 Use the MASTER controls of the MAIN/MONITOR sections to adjust the overall volume and tone.



NOTE: The MONITOR controls are not affected by the level settings of each channel. This allows you to create a mix for the monitors that is independent of the MAIN mix.

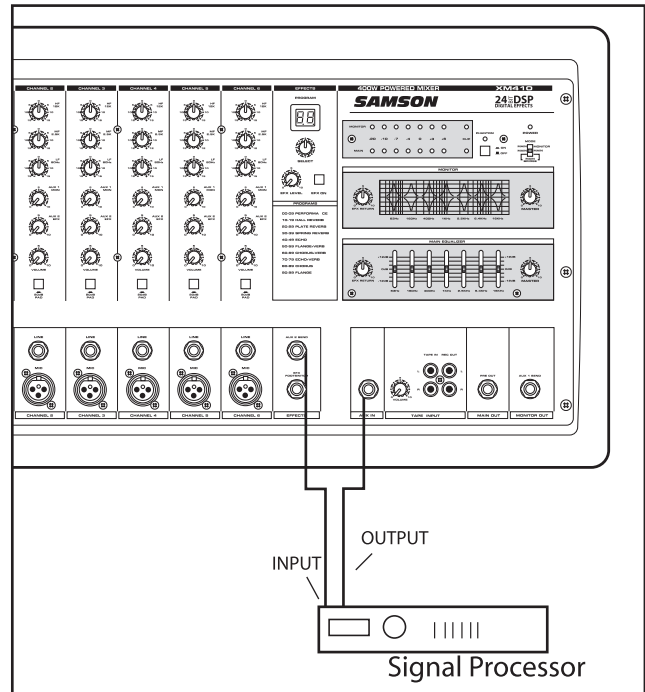
3. Raise the MONITOR controls for the channels that you wish to hear from the monitor speakers.

Operating the XM410

USING AN EXTERNAL EFFECT

If you prefer to use an external device for effects processing, you can easily connect the unit using the XM410 EFX bus. Follow the simple steps below to interface your processor:

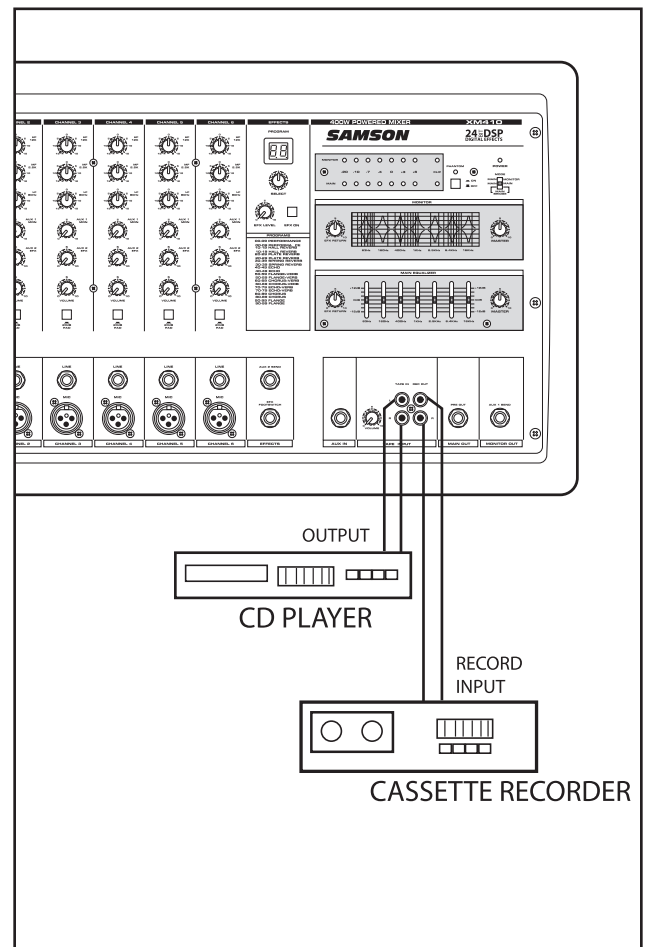
1. Set the MONITOR section VOLUME control to the "0" position.
2. Raise the EFFECT controls for the channels to which you want the external effect to be applied.
3. Now adjust the EFX LEVEL to about half way.
4. Set the input level of the external effect so that the sound is not distorted and so that the effect's input meter does not indicate a clipped signal.
5. Use the AUX IN control to adjust the level of the effects processed by the external effects device.



PLAYING BACK A CD

The XM410 has a dedicated input for playing back a CD, Tape or Mini Disk. Below is a description of how you can play back a CD, Tape or MD using the XM410's TAPE INPUT.

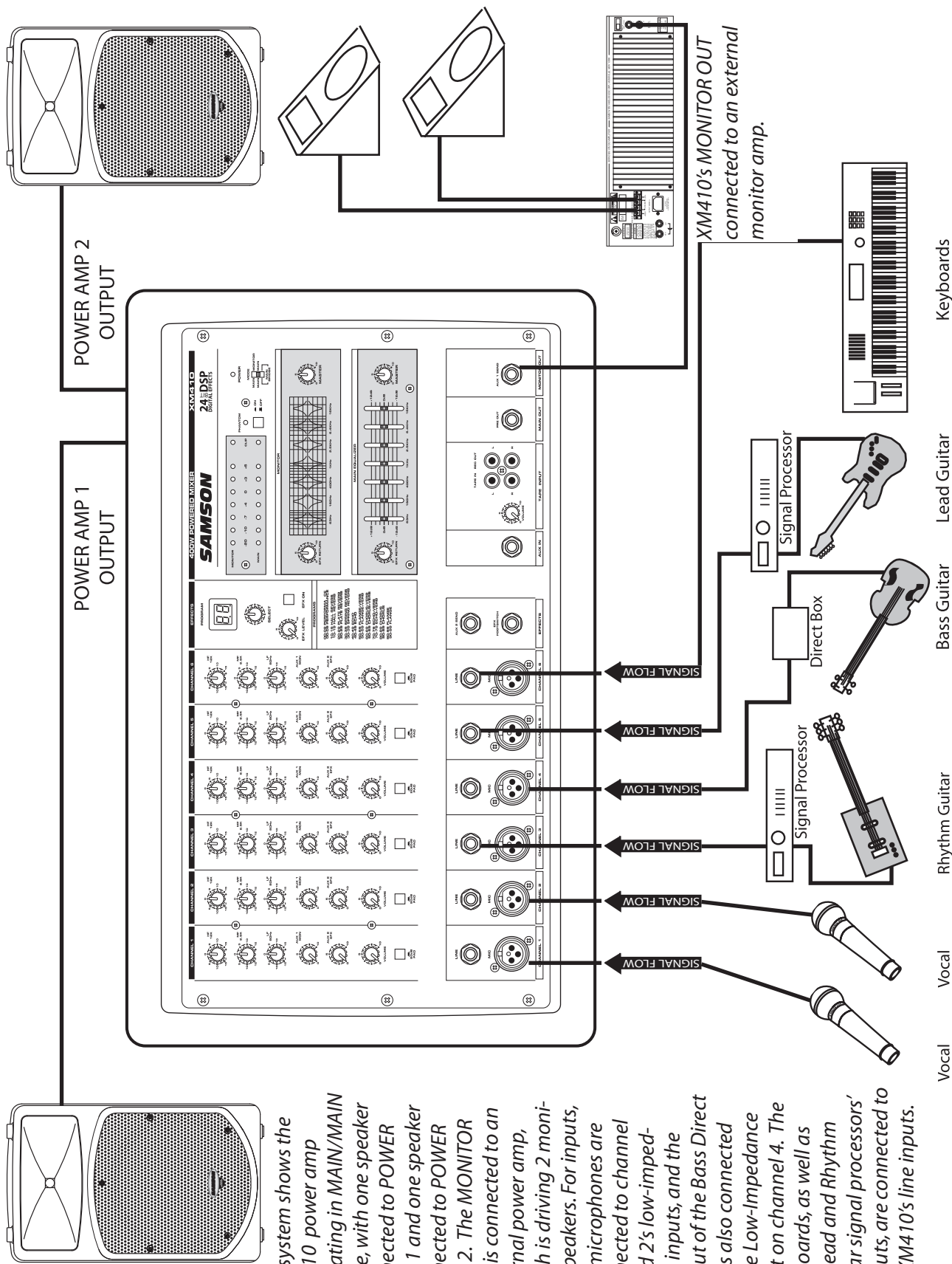
1. Turn the TAPE IN level control and the VOLUME level control all the way down.
2. Follow the "LAST ON, FIRST OFF" rule and turn on your peripheral devices and then the power on the XM410.
3. Adjust the VOLUME control of the MAIN section to the "5" position.
4. Start playback on the CD, Tape or MD player, and use the TAPE IN control to adjust the level so that the zero LED of the MAIN section peak level meter lights occasionally. Adjust the master volume control to raise the level if necessary.



RECORDING FROM THE XM410

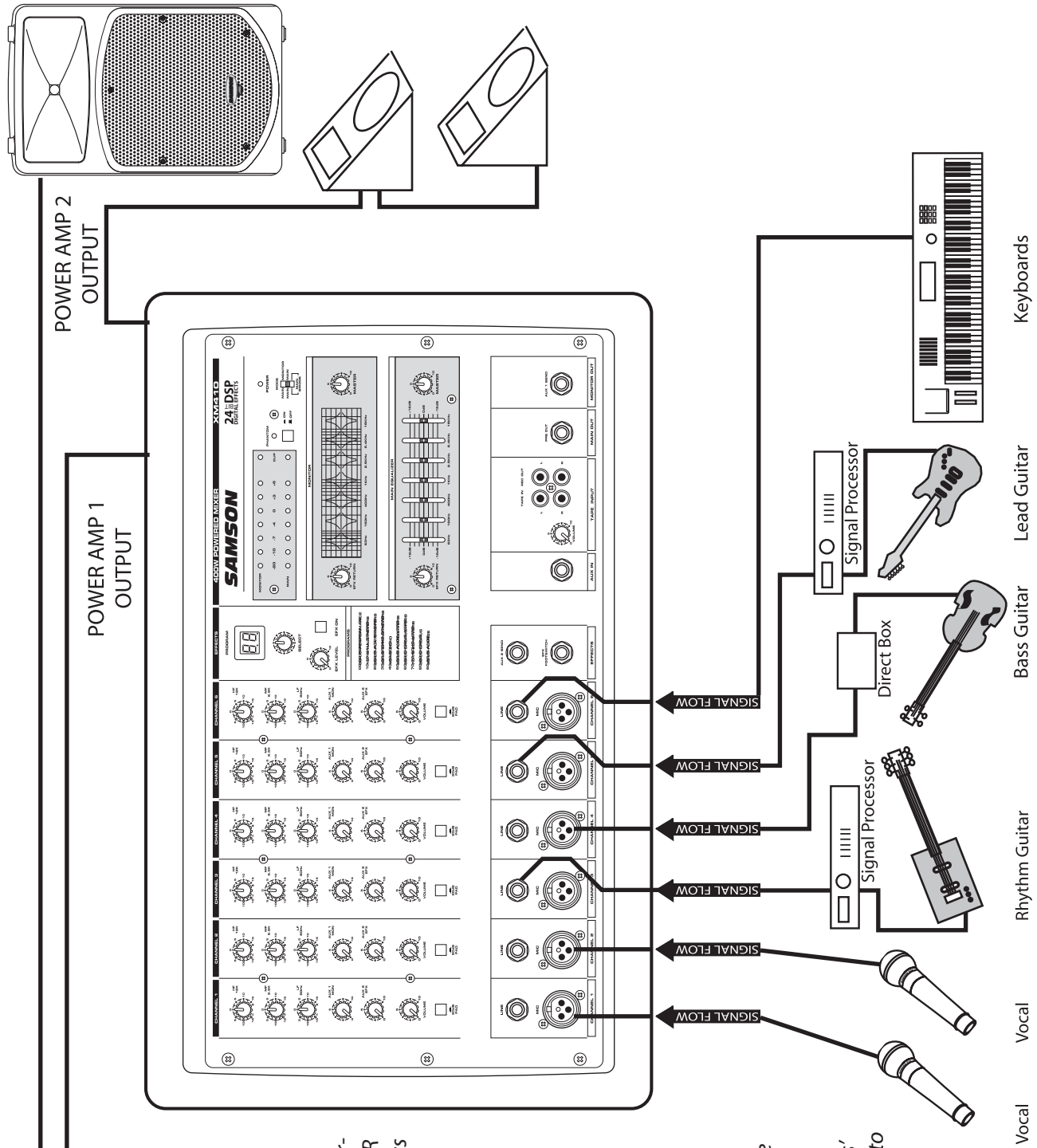
You can record the audio from the XM410's mixer section including the MIC, LINE, TAPE IN and AUX inputs to a cassette deck, MD, DAT or any other type of recorder using the RECORD outputs. Simply connect the XM410's REC OUT to the input jacks of the recorder as shown in the diagram above.

XM410 System Set-Ups



This system shows the XM410 power amp operating in MAIN/MAIN mode, with one speaker connected to POWER AMP 1 and one speaker connected to POWER AMP 2. The MONITOR OUT is connected to an external power amp, which is driving 2 monitor speakers. For inputs, two microphones are connected to channel 1 and 2's low-impedance inputs, and the output of the Bass Direct Box is also connected to the Low-Impedance input on channel 4. The Keyboard, as well as the Lead and Rhythm Guitar signal processors' outputs, are connected to the XM410's line inputs.

XM410 System Set-Ups



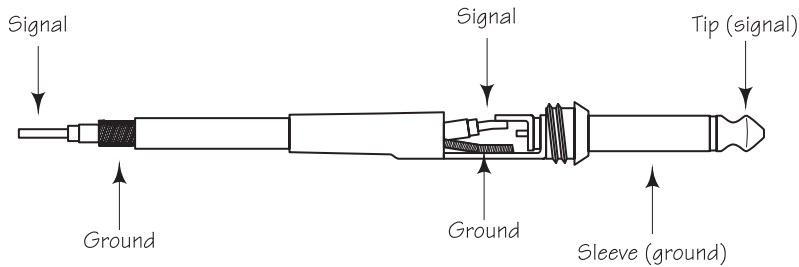
This system shows the XM410 power amp operating in MAIN/MONITOR mode, with two speakers connected to POWER AMP 2 and two monitor speakers connected to POWER AMP 1. For inputs, two microphones are connected to channel 1 and 2's low-impedance inputs, and the output of the Bass Direct Box is also connected to the Low-Impedance input on channel 4. The Keyboards, as well as the Lead and Rhythm Guitar signal processors' outputs, are connected to the XM410's line inputs.

XM410 Wiring Guide

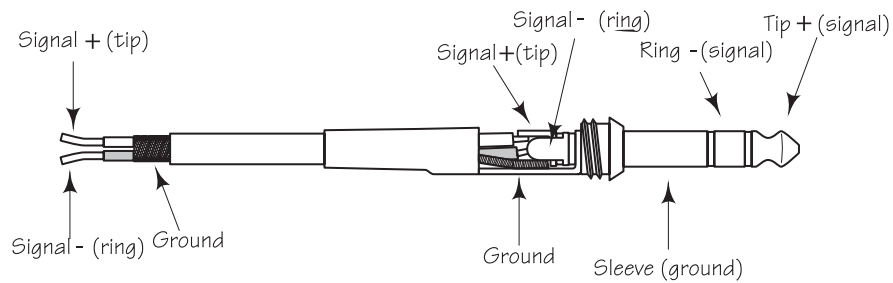
CONNECTING THE XM410

There are several ways to interface the XM410 to support a variety of applications. The XM410 features balanced inputs and outputs, so connecting balanced and unbalanced signals is possible.

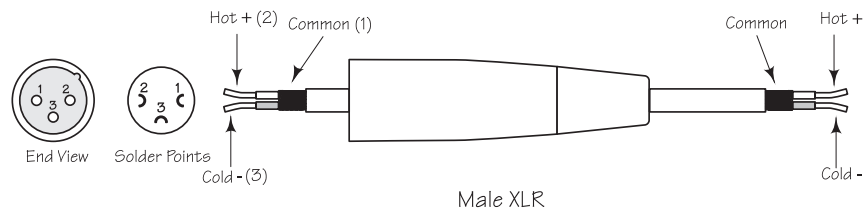
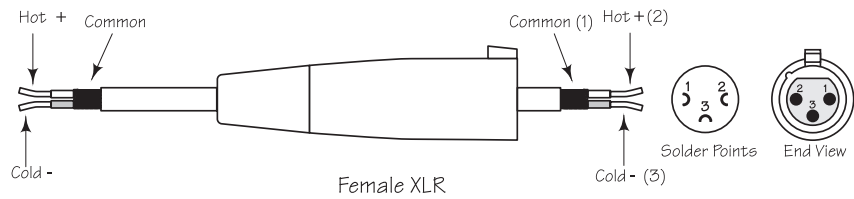
Unbalanced 1/4" Connector



Balanced TRS 1/4" Connector



XLR Balanced Wiring Guide



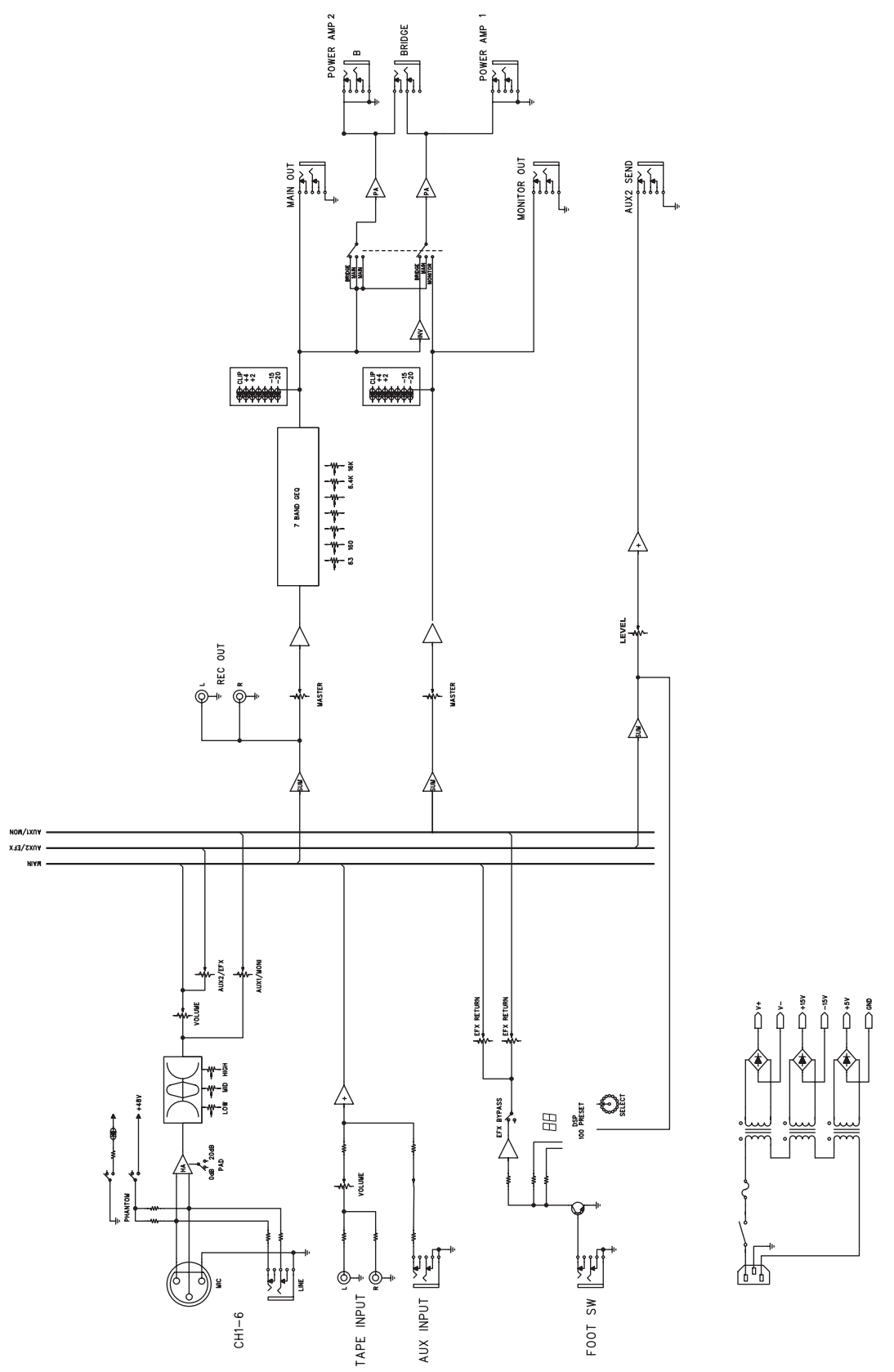
Specifications

Specifications

Rated Output power	200W/4Ω per amplifier
Frequency response	20Hz~20KHz+/-0.5dB@1W Output into 8Ω (AMP OUT) 20 Hz~20KHz+/-0.4@+4dB Output into 10kΩ (MAIN OUT, MONITOR OUT, AUX 2 SEND)
Total Harmonic Distortion	Less than 0.06%@20Hz~20KHz, 75W output into4Ω (AMP OUT) Less than 0.1%@20 Hz~20KHz+14dB output into 10KΩ (MAIN OUT, MON OUT, AUX 2 SEND) + 4dB
HUM & Noise (Average, RS+150Ω)	-121dB equivalent input noise -100dB residual output noise (MAIN OUT, MONITOR OUT, AUX 2 OUT)
(with 22Hz~22KHz BPF)	-79dB (MAIN OUT, MONITOR OUT) Master level control at maximum all channel level control at minimum. -79dB (AUX 2) Master level control at maximum all channel level controls at minimum
Maximum Voltage Gain	67dB CH IN (MIC) to AMP OUT 48dB CH IN (MIC) to MAIN OUT, MONITOR OUT 54dB CH IN (MIC) to AUX 2 OUT 30dB CH IN (MIC) to REC OUT 32dB CH IN (LINE) to MAIN OUT, MONITOR OUT 26dB AUX IN to MAIN OUT 24dB TAPE IN to MAIN OUT
Crosstalk 1KHz	70dB adjacent input, 70dB input to output
Input Channel Equalization	HIGH 12KHz shelving (+/- 15dB Maximum) MID 2.5KHz peaking (+/- 12dB Maximum) LOW 80Hz shelving (+/- 15dB Maximum)
Meters	7 POINT LED METERS (-20, -10, -7, -4, 0, +3, +6dB)
Graphic Equalizer	7 bands (63, 160, 400, 1K, 2.5K, 6.4K, 16KHz)
Internal DSP Effects	24 BIT - 10 Presets each: 1 - Performance; 2 - Hall Reverb, 3 - Plate Reverb; 4 - Spring Reverb; 5 - Echo; 6 - Flange + Verb; 7 - Chorus + Verb; 8 - Echo + Verb; 9- Chorus; 10- Flange
Phantom Power	+48V
CLIP Indicators	Turn on: THD> 0.1%
Foot Switch	DIGITAL EFFECT MUTE: ON/OFF
GENERAL	
Power Requirement	110V-240V, 50/60Hz
Power Consumption	516W 1/8 power, 800W full
Weight	40 lbs./18.2Kg
Dimensions	21" (W) x 14" (H) x 13-3/4" (D) 534mm(W) x 356mm(H) x 350mm(D)

Specifications subject to change without notice

Block Diagram



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