Innovative Solutions for Live Sound

The term "live sound" covers a lot of ground, and no two applications are exactly alike. You might only need to amplify a single microphone for a business meeting, or mix many sources and deliver several kilowatts of power at an outdoor concert. For both these scenarios, and everything in between, Yamaha has the gear you need to get the job done with maximum quality, efficiency and ease.

When choosing equipment for your application, you’ll need to consider the following points:

1. Scale
How big is your audience? How big is the venue or area you need to cover? For larger setups, you will need to have enough speakers and power to cover the area. Smaller venues with space limitations require equipment that can provide the required functionality and performance without getting in the way.

2. Sources
Do you only need one or two microphones for speech or vocals? Will you be supporting live music using numerous microphones and line-level inputs? Do you need to handle recorded sound effects or background music? All these factors will determine the size and type of mixer you’ll need, as well as monitoring and output equipment (equalizers, power amplifiers, and speakers).

3. Indoors or Outdoors
The requirements for indoor and outdoor sound can be quite different. While power, coverage and sound quality are relatively easy to handle indoors, these factors often require extra care outdoors where there are no room reflections to reinforce the sound and your audience may be spread out over a large area. You also have nature to deal with when working outdoors, so you need a setup that can withstand less-than-favorable weather conditions.
**Good Reasons For Choosing Yamaha**

4 (C112V) speakers. In this system a pair of powered EMX5016CF features 16 input channels and delivers that will comfortably handle multiple sources – full Rehearsals in larger rooms with many musicians a couple of good microphones is ideal. BR12 speakers, a SM10V (CM10V) for monitoring, and make the vocal sound stand out. This simple system will be used on stage. Compression can also help to microphones and amplified sound if amplification for well-balanced, productive rehearsals. Even if the volume may be low, but vocalists need solid monitor sound to deliver their best performance. Compression can be a real advantage, too. In this example, an EMX512SC powered mixer delivers the house sound via a pair of S112V (C112V) speakers, while a single SM12V (CM12V) provides quality monitor sound.

### Band Rehearsal 1

**If you rehearse with real drums and other instruments at realistic levels, you’ll need some vocal amplification for well-balanced, productive rehearsals. Even if the band is relatively quiet, vocalists need to practice with microphones and amplified sound if amplification will be used on stage. Compression can also help to make the vocal sound stand out.**

Simple system featuring the EMX312SC powered mixer, a pair of BR12 speakers, a SM10V (CM10V) for monitoring, and a couple of good microphones is ideal.

**System Chart**

- Mic: 1 – 8 channels
- Line: Four stereo
- Scale: Rehearsal studio, approx. 30 square meters
- Audience: 5 – 8 people

**Equipment List**

- Powered Mixer EMX5016CF 1
- Main Speaker S112V (C112V) 4
- Monitor Speaker SM10V (CM10V) 1

**Sample Application**

A small-scale setup that excels in compactness and portability

**Source**

- Mixers EMX312SC
- Keyboard
- Phone Cable
- Speaker Phone Cable

**EMX312SC**

- All-in-one model with superior portability.
- Eight microphone inputs.
- Push-in power connector for easy setup.
- Dual-band compression for smooth, up-front voice sounds.
- Built-in effects add polish to the mix.
- Separate equalization for main and monitor speakers.

**BR12**

- Compact and lightweight with high power output.
- Small 10-inch woofers chosen to ensure coverage, and supply clear monitor sound to performers.

**SM10V (CM10V)**

- Small vocal monitor takes up minimum stage space.
- Durable carpet finish takes rough handling in stride.
- Compact and lightweight with high power output.

**S112V (C112V)**

- 400W total, bi-amplified output power (Max).
- Powerful powered speaker that won’t get drowned out by the cheers of the audience.
- Remarkably compact and lightweight.
- Optional BMS-10A Mic Stand Adaptor allows microphone stand mounting for easy placement and access.

### Band Rehearsal 2

**Rehearsals in larger rooms with many musicians require substantial sound support. Here’s a system that will comfortably handle multiple sources – full drum-set mic setups, brass sections, and more – while powering four main speakers and two monitors.**

The EMX5016CF features 16 input channels and delivers a healthy 500 watts per stereo channel to four S112V (C112V) speakers. In this system a pair of powered MSR400 speakers are used for monitoring.

**System Chart**

- Mic: 1 – 12 channels
- Line: Four stereo
- Scale: Four-car garage
- Audience: 10 – 15 people

**Equipment List**

- Powered Mixer EMX5016CF 1
- Main Speaker S112V (C112V) 8
- Monitor Speaker MSR400 (Powered) 2

**Sample Application**

A compact setup with serious microphone mixing and one-take recording capability

**Source**

- Mixers EMX5016CF
- XLR Phone Cable

**EMX5016CF**

- 500W total with 500 watts power output with pre-class mixing capability.
- Advanced one-knob compression for rehearsal mixes.
- YS Processing.

**S112V (C112V)**

- Compact and lightweight with high power output.
- An all-dual mix for monitors featuring YS Processing.
- Guaranteed design allows multiple placement options.
- Powered speakers with direct volume control for monitor applications.

### Sports Bar

**There’s no denying that while much of the impact of a sports event is visual, sound plays a huge role as well. Sports bars that show live or recorded sports on 50” or larger screens have the visual aspect pretty much covered, now here’s a sound system that can really bring the action to life.**

And when it’s not sports time, it serves as an outstanding BGM system as well. An MG102C handles the required inputs with room to spare, and a pair of MSR400 powered speakers deliver big, dynamic sound.

**System Chart**

- Mic: 1 – 4 channels
- Line: Four stereo
- Scale: Sports bar with TV, TV, projector TV
- Audience: 30 – 50 people

**Equipment List**

- Mixer MG102C 1
- Powered Speaker MSR400 2

**Sample Application**

A compact system with plenty of stereo inputs

**Source**

- Mixer MG102C
- XLR Phone Cable

**MG102C**

- Balanced channel compression for smooth mixes.
- 16-channel system including reliable Neutrik XLR connectors.
- Remarkably compact and lightweight.
- Optional BMS-10A Mic Stand Adaptor allows microphone stand mounting for easy placement and access.

**MSR400**

- Powerful powered speaker that won’t get drowned out by the cheers of the audience.
- 400W total. Uncompressed output power (Max).

**Sports Bar**

Here’s a system that’s ideal for small venues hosting musical entertainment ranging from solo pianists to jazz trios with a vocalist. The volume may be low, but vocalists need solid monitor sound to deliver their best performance. Compression can be a real advantage, too. In this example, an EMX512SC powered mixer delivers the house sound via a pair of S112V (C112V) speakers, while a single SM12V (CM12V) provides quality monitor sound.

**System Chart**

- Mic: 1 – 8 channels
- Line: Four stereo
- Scale: Jazz club with small stage
- Audience: 30 – 50 people

**Equipment List**

- Mixer EMX512SC 1
- Main Speaker S112V (C112V) 2
- Monitor Speaker SM12V (CM12V) 1

**Sample Application**

A small, easy-to-handle system delivering high sound quality

**Source**

- Mixer EMX512SC
- Speaker Phone Cable

**EMX512SC**

- Dual-16-channel digital signal processing makes it easy to achieve a full, rich vocal sound even in small piano plus vocal settings. Stereo graphic EQ provides precise level shaping capability.
- Up to eight microphone inputs. A benefit in jazz clubs with limited stage space.
- A Knox mount kit is available for even further space savings. Minimum space requirements, but serious 500 x 500 watt output (Max).
- Compression helps maintain ideal vocal balance with the band.
- EQs helps to keep feedback in check even when the vocalist moves around.
- Up to 8 microphone inputs can handle multiple acoustic instruments.

**S112V (C112V)**

- Dual-16-channel digital signal processing makes it easy to achieve a full, rich vocal sound even in small piano plus vocal settings. Stereo graphic EQ provides precise level shaping capability.
- Up to eight microphone inputs. A benefit in jazz clubs with limited stage space.
- A Knox mount kit is available for even further space savings. Minimum space requirements, but serious 500 x 500 watt output (Max).
- Compression helps maintain ideal vocal balance with the band.
- EQs helps to keep feedback in check even when the vocalist moves around.
- Up to 8 microphone inputs can handle multiple acoustic instruments.

**SM12V (CM12V)**

- Small vocal monitor takes up minimum stage space.
Small Stage

This small-but-serious system will cover small to medium-sized live venues with thoroughly professional quality and versatility. The MG24/14FX mixer offers plenty of input capacity plus dual high-performance signal processors built-in. FOH sound is delivered by P5000S and P7000S power amplifiers driving S115V (C115V) full-range speakers and SW118V (CW118V) subwoofers, respectively. For monitoring, a pair of SM15Vs (CM15V) is powered by a P5000S amplifier with a Q2031B equalizer for feedback control. An SPX2000 professional multi-effect processor could be added for additional vocal processing.

Large Outdoor Stage

Outdoor sound poses some unique problems, and power and speaker coverage are of prime importance. The system shown here delivers three kilowatts to FOH via three P5000S power amplifiers and a combination of S215V (C215V) full-range speakers and SW218V (CW218V) subwoofers. An additional 2.8 kilowatts is allotted for monitoring via four P5000S and SM15V (CM15V) monitor speakers. The MG32/14FX console handles the wide range of inputs and signal processing often required at outdoor music events.
Compact Digital Solution for 2-Band Events

Large music events featuring two or more bands can involve a large amount of sound reinforcement gear. Here’s a compact digital system that can handle up to 80 input channels in all while allowing easy switching between completely different band setups. The pair of 01V96V2 digital consoles used provide all the effects and dynamics processing you’ll need built-in, so you won’t even need outboard processor racks.

Digital Live Recording

01V96V2 provides an ideal solution for high performance digital live recording system. Onboard ADAT in/out allows high quality connection to computer via audio interface which has ADAT in/out port. You can record 24-bits at 96 kHz for pro-quality sound, and all the effects an processing you need are built right into the console so you won’t be overloading the computer’s CPU with processing tasks. The same system can be used for mixdown after the tracks have been recorded.

Good Reasons For Choosing Yamaha

- **01V96V2**
  - On the addition of an MY16 expansion card, two 01V96V2 consoles can be cascaded to provide up to 83 simultaneous inputs.
  - Scene memory allows instant changes for different bands or even different songs.
  - Compression provided on all channels.
  - MY card slot allows flexible I/O expansion and selection.

- **Q2031B**
  - Feedback control and monitor EQ.

- **MSR400**
  - Powerful 400-watt output and outstanding sound quality from compact, lightweight powered speakers. Ideal for front-of-house sound as well as monitoring.

- **S115V (C115V)**
  - A perfect sonic and visual match for the MSR400, the S115V delivers up to 800 watts of power.

- **Power Amp**
  - These speakers cover the entire service area from four points on the temporary stage. 15-inch woofers are chosen to ensure solid coverage.

- **MSR800W**
  - Powerful 400-watt output and outstanding sound quality from compact, lightweight powered speakers. Ideal for front-of-house sound as well as monitoring.

---

**System Chart**

- **Mixer 01V96V2**
- **Audio Interface GO46**
- **Power Amp P5000S**
- **Speaker S115V (C115V)**
- **Monitor Speaker MSR400**

**Great Reasons For Choosing Yamaha**

- **01V96V2**
  - Onboard ADAT in/out allows high quality connection to computer via audio interface.
  - Professional 24-bit/96-kHz recording capability.
  - Top-quality internal effects and signal processing minimizes load on the computer’s CPU.
  - Compression provided on all channels.
  - Scene recall capability for quick on-the-fly changes.

- **Q2031B**
  - Feedback control and monitor EQ.

- **MSR400**
  - Powerful 400-watt output and outstanding sound quality from compact, lightweight powered speakers. Ideal for front-of-house sound as well as monitoring.

- **S115V (C115V)**
  - A perfect sonic and visual match for the MSR400, the S115V delivers up to 800 watts of power.

**Digital Live Recording**

- **Mixer**
  - Onboard ADAT in/out allows high quality connection to computer via audio interface.
  - Professional 24-bit/96-kHz recording capability.
  - Top-quality internal effects and signal processing minimizes load on the computer’s CPU.
  - Compression provided on all channels.
  - Scene recall capability for quick on-the-fly changes.

- **Audio Interface**
  - Optical Cable
  - FireWire Cable
  - XLR Cable
  - Phone Cable
  - MIDI and Signals

- **power Amp**
  - The PA005 is used to power the main speakers. YS Processing delivers optimum performance from the Club Series speakers.

- **Speaker**
  - S115V (C115V)

**Equipment List**

- **Mixer 01V96V2**
- **Audio Interface GO46**
- **Power Amp P5000S**
- **Speaker S115V (C115V)**
- **Monitor Speaker MSR400**
- **Graphic EQ Q2031B**
- **Subwoofer MSR800W**
- **Graphic EQ Q2031B**
- **Subwoofer MSR800W**
- **Graphic EQ Q2031B**
- **Subwoofer MSR800W**
**Festival**

This system is designed for optimum sound coverage from a central stage surrounded by the audience. Special attention must be paid to monitoring in this type of situation, so each performer is provided with his or her own monitor speaker. The MG16/6FX console provides ample mixing and signal-processing capability, while dual P5000S power amplifiers driving four S115V (C115V) speakers on stands effectively cover the required area.

For Speech

- Compact 12-inch monitors supply clear monitor sound.
- Two dual-woofer S215V (C215V) speakers ensure that the program is heard clearly.
- Delivering efficient power to the Club V series speakers are the P5000S, P3500S.
- Internal digital SPX signal processing offers versatile effect options.

For Music

- The P5000S is used to power the main speakers, and the P3500S drives the small stage monitors.
- A plentiful complement of inputs and outputs.
- Pro-class mixing capability with three-band mid-sweep channel EQ.
- Four stereo inputs.

**County Fair**

County fair type events combine announcements with competitions and music, requiring substantial sound-reinforcement capability. And since the area to be serviced can be quite large, ample power and coverage are essential. In this system, FOH power is supplied by P5000S amplifiers feeding dual-driver speaker systems for high efficiency. A solid 2.8 kilowatts is provided for monitoring via four SM12V (CM12V) monitor speakers. The MG32/14FX console can easily handle the wide range of sources this type of event can entail.

For Speech

- A large-scale system to handle everything from announcements to live bands.
- An ideal setup for continuous use.
-能满足从公告到现场乐队的所有需求的大型系统。
- MG16/6FX
  - An ideal setup for continuous use.
  - Pro-class mixing capability with three-band mid-sweep channel EQ.
  - Internal digital SPX signal processing offers versatile effect options.
- MG32/14FX
  - A plentiful complement of inputs and outputs.
  - Internal digital SPX signal processing offers versatile effect options.

For Music

- Two dual-woofer S215V (C215V) speakers ensure that the program reaches the entire audience in the outdoor application.
- Compact 12-inch monitors put out focused stage monitor sound.
- S115V (C115V)
  - Two dual-woofer S215V (C215V) speakers ensure that the program reaches the entire audience in the outdoor application.
  - Compact 12-inch monitors put out focused stage monitor sound.

---

**Sample Application**

**Festival**

<table>
<thead>
<tr>
<th>Source</th>
<th>MICS 1~8</th>
<th>Guitar Amp</th>
<th>Bass Amp</th>
<th>Drums</th>
<th>CD Player etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixer</td>
<td>MG16/6FX</td>
<td>P5000S</td>
<td>P5000S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal Processor</td>
<td>Q2031B</td>
<td>XLR Cable</td>
<td>Phone Cable</td>
<td>Speakon Cable</td>
<td></td>
</tr>
<tr>
<td>Power Amp</td>
<td>P5000S</td>
<td>SM12V</td>
<td>SM12V</td>
<td>Q2031B</td>
<td></td>
</tr>
<tr>
<td>Speaker</td>
<td>S115V</td>
<td>S115V</td>
<td>S115V</td>
<td>S115V</td>
<td></td>
</tr>
</tbody>
</table>

**County Fair**

<table>
<thead>
<tr>
<th>Source</th>
<th>MICS 1~24</th>
<th>Guitar Amp</th>
<th>Bass Amp</th>
<th>Drums</th>
<th>CD Player etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixer</td>
<td>MG32/14FX</td>
<td>P5000S</td>
<td>P5000S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal Processor</td>
<td>Q2031B</td>
<td>XLR Cable</td>
<td>Phone Cable</td>
<td>Speakon Cable</td>
<td></td>
</tr>
<tr>
<td>Power Amp</td>
<td>P5000S</td>
<td>SM12V</td>
<td>SM12V</td>
<td>Q2031B</td>
<td></td>
</tr>
<tr>
<td>Speaker</td>
<td>S115V</td>
<td>S115V</td>
<td>S115V</td>
<td>S115V</td>
<td></td>
</tr>
</tbody>
</table>

---

**Equipment List**

**Festival**

- Mixer: MG16/6FX
- Power Amp: P5000S
- Monitor Speaker: SM12V (CM12V)
- Graphic EQ: Q2031B

**County Fair**

- Mixer: MG32/14FX
- Power Amp: P5000S
- Monitor Speaker: SM12V (CM12V)
- Graphic EQ: Q2031B

---

**Good Reasons For Choosing Yamaha**

**Festival**

- Compact 12-inch monitors supply clear monitor sound.
- Two dual-woofer S215V (C215V) speakers ensure that the program is heard clearly.
- Delivering efficient power to the Club V series speakers are the P5000S, P3500S.
- Internal digital SPX signal processing offers versatile effect options.

**County Fair**

- A large-scale system to handle everything from announcements to live bands.
- An ideal setup for continuous use.
-能满足从公告到现场乐队的所有需求的大型系统。
- MG16/6FX
  - An ideal setup for continuous use.
  - Pro-class mixing capability with three-band mid-sweep channel EQ.
  - Internal digital SPX signal processing offers versatile effect options.
- MG32/14FX
  - A plentiful complement of inputs and outputs.
  - Internal digital SPX signal processing offers versatile effect options.

---

**Scale**

- **Small**: 100 ~ 500 people
- **Big**: 500 ~ 1,000 people

**Line**

- **1 ~ 10 channels**
- **1 ~ 24 channels**

**Mic**

- **1 ~ 24 channels**
- **1 ~ 24 channels**

---

**Technical Specifications**

**Festival**

- **100 ~ 500 people**
- **Central outdoor stage**
- **Four stereo inputs**
- **Graphic EQ Q2031B**

**County Fair**

- **500 ~ 1,000 people**
- **Temporary outdoor stage**
- **Four stereo inputs**
- **Graphic EQ Q2031B**
Small Church

Designed primarily for background music and speech, this compact, easy-to-handle system is ideal for small houses of worship. It’s portable and easily re-configurable, so it can be easily adapted to a variety of programs, indoors or out. An MG124C mixer offers advanced mixing potential and versatility in a space-saving package, and a P5000S power amplifier delivers more than enough ultra-clean power to make the most of the S112V (C112V) house speakers.

- **System Chart**
  - **Mic:** 1 – 6 channels
  - **Line:** Four stereo
  - **Scale:** Small town church
  - **Audience:** Approximately 50 people

- **Equipment List**
  - **Mixers:** MG124C
  - **Power Amps:** P5000S
  - **Speakers:** S112V (C112V)

**Sample Application**

A small-scale system that takes advantage of the room’s natural ambience

<table>
<thead>
<tr>
<th>Source</th>
<th>Speaker Cable</th>
<th>XLR-Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixer</td>
<td>MG124C</td>
<td>Speaker Cable</td>
</tr>
<tr>
<td>Power Amp</td>
<td>P5000S</td>
<td>XLR-Cable</td>
</tr>
</tbody>
</table>

Good Reasons For Choosing Yamaha

- **MG124C**
  - Built-in channel compression delivers enhanced mix quality.
  - Illuminated switches provide visual status feedback.
  - Top-quality parts throughout, including reliable Neutrik connectors.

- **Power Amp P5000S**
  - Ampule power for small-scale applications:
    - An ideal match for Club V series speakers.

Mid-sized Church

A system like this is an excellent starting point for worship programs that involve live music as well as the spoken word. An MG16/4 or larger MG-series console provides outstanding sonic quality and mixing flexibility. And an output chain consisting of P5000S power amplifiers driving CW118V (S115V) full-range speakers and CW118V (S115V) subwoofers will get the most of the S112V (C112V) house speakers.

- **System Chart**
  - **Mic:** 1 – 10 channels
  - **Line:** Four stereo
  - **Scale:** Mid-sized church
  - **Audience:** Approximately 100 people

- **Equipment List**
  - **Mixers:** MG102C
  - **Power Amps:** P3500S
  - **Speakers:** C115V, CW118V (S115V, SW118V)

**Sample Application**

Mid-sized church installation

<table>
<thead>
<tr>
<th>Source</th>
<th>Speaker Cable</th>
<th>XLR-Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixer</td>
<td>MG102C</td>
<td>Speaker Cable</td>
</tr>
<tr>
<td>Power Amp</td>
<td>P3500S</td>
<td>XLR-Cable</td>
</tr>
</tbody>
</table>

Good Reasons For Choosing Yamaha

- **MG102C**
  - The MG102C provides up to 10 microphone inputs that can be used to handle a variety of changing situations — organ, choir, church, worship groups and more.

- **Power Amp P3500S**
  - This configuration provides plenty of power to deliver maximum impact from all types of speakers used in an assembly or church, thanks to its 100W RMS rating.

- **Speakers C115V, CW118V (S115V, SW118V)**
  - An ideal match for VR series microphones.

Tips 1

The term “PA” traditionally stands for “Public Address,” and a “PA System” refers to an electronic system for amplifying the voice of a speaker addressing a large crowd or people distributed throughout a large building. These days the term is often applied to the main amplification system at events and concerts as well, although such systems are sometimes called “sound reinforcement systems,” or simply “sound systems.”

The main functions of a PA or sound reinforcement system are summarized below:

- **Input**
  - The signal from acoustic sound sources such as speech or singing, drums, pianos, acoustic guitars and electric-acoustic guitars, microphones, or other line-level devices can be connected to the stereo line inputs.
  - Microphone signals are much lower in level than line-level devices, electric-acoustic guitars and other line-level devices can be connected to the LINE inputs. Both mono and stereo line inputs are available to accommodate all types of input devices, electric-acoustic guitars and other line-level devices can be connected to the LINE inputs.

- **Mixer**
  - The balanced program created by the mixer is sent to a power amplifier which delivers the appropriate level of power to drive the system’s speakers.
  - Although separate power amplifiers can be used to drive any applications, microphones and line-level devices can be handled with a single mixer and powered speakers are often a better choice when extremely variable system amplification and portability are required.

Mixer Essentials

The mixer is the core of any sound system. The basic elements of a mixer are described below, using the simple MG102C mixer as an example.

- **Input**
  - These are the mixer’s main stereo program outputs. These are the main level controls for each channel.
  - In addition to the main stereo program outputs, the mixer has built-in level controls for each channel. These controls are provided for each channel.

- **Output**
  - The mixer is used to mix the program signal from the input devices to be processed into the final program that is delivered to the audience. The type and number of speakers required will depend on the size and configuration of the venue as well as the type of event being held.

- **Control**
  - The output from the power amplifier (whether separate or built-in) drives the speakers that actually deliver audible sound to the audience. The type and number of speakers required will depend on the size and configuration of the venue as well as the type of event being held.

- **Delivery**
  - The output from the power amplifier (whether separate or built-in) drives the speakers that actually deliver audible sound to the audience. The type and number of speakers required will depend on the size and configuration of the venue as well as the type of event being held.

- **Gain**
  - The gain control on the channel strip provides the channel’s signal from the input device to the mixer. These faders facilitate precise level adjustment.

- **Pan**
  - Pan control provides the corresponding speaker’s signal from the mixer to a speaker. The speaker’s signal is fed to the proper speaker via its speaker output.

- **Monitor**
  - This controls the signal level metered via an input metering of the speaker’s signal from the mixer.

- **Levels**
  - These are the main level controls for each of the mixer’s channels. The mixer uses level controls to adjust the signals in each output to listeners’ needs.

- **Power Amp**
  - The power amp delivers the appropriate level of power to drive the system’s speakers.

- **XLR Cable**
  - This is a balanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.

- **Speakon Cable**
  - This is a unbalanced cable for connecting to the speaker output.
**Live Music at Home**

Here’s a system that will be appreciated by individuals or families who enjoy live music at home. Although an electronic keyboard and just a couple of microphones are shown, this setup can handle quite a bit more. The MG124CX console will handle up to 12 inputs with top-quality effect processing built-in, and a pair of MS100 powered speakers put out more than adequate for all but the most spacious living rooms.

**Wedding Ceremony**

Two elements essential to any wedding (in addition to the bride and groom) are speech and music. This system is ideal when the joyous mood of the moment needs to be conveyed to a fairly large group of guests. In most cases, just a couple of microphones are sufficient, and an electronic keyboard such as one of Yamaha’s superlative MOTIF series can function as pipe organ, most cases, just a couple of microphones are sufficient, to be conveyed to a fairly large group of guests. In is ideal when the joyous mood of the moment needs to be conveyed to a fairly large group of guests. In

**Sample Application**

The perfect setup for solo performances at home

**System Chart**

- **Mic**: 1-6 channels
- **Line**: Four stereo
- **Scale**: Living room
- **Audience**: 10-15 people

**Equipment List**

- **Power Mixer**: EMX312SC
- **Powered Speaker**: S115V (C115V) 2

**Sample Application**

A mid-size system to complement important celebrations

**System Chart**

- **Mic**: 1-6 channels
- **Line**: Four stereo
- **Scale**: Wedding chapel with central aisle
- **Audience**: 20-30 people

**Equipment List**

- **Power Mixer**: EMX312SC
- **Powered Speaker**: S115V (C115V) 2

**Tips 2**

Although a PA system’s mixer, amplifiers and speakers are indispensable, so are the cables and connectors that get the system’s signals from one place to another. In fact, choosing the right cables for the various system connections is of the utmost importance. Here’s a brief overview of the main types of cables and connectors you are likely to encounter.

### 1. Cable Types

**Microphone/Line Cables**

These are the cables used to connect microphones and electronic instruments to the mixer’s inputs, and connect the line-level signal from the mixer’s outputs to the system’s power amplifier(s). These types of cables are shielded to minimize noise pickup.

**Unbalanced Cables**

Unbalanced cables have just two conductors—generally a core and shield. This type is good for guitar and amplifiers, and most types of electronic instrument cables have this type of construction. Cables of this type are convenient to use and offer good noise rejection, but are inferior to balanced cable when it comes to noise rejection with very low-level signals or long cable runs.

**Balanced Cables**

Balanced cables have three conductors—two core conductors surrounded by a shield. This type is the standard for hi-fi use, and was intended to overcome the noise pickup problems commonly encountered with unbalanced connectors, and is the type used in most professional sound equipment. This type of cable can only be used with balanced connectors.

**Speaker Cables**

Speaker cable is specifically designed to transfer the amplified signal from the power amplifier’s outputs to the speaker’s inputs. Speaker cables feature heavy-duty conductors designed to handle the high-power signal delivered by the power amplifier, and because of the much higher signal levels no shield is required.

### 2. Connector Types

**Phone Connectors**

The name “phone connector” (phone plugs and jacks) comes from the fact that these connectors were originally used in telephone switchboards. Phone connectors come in mono and stereo types. The stereo type is also sometimes referred to as a “TS9” (Tip, Ring, Sleeve) phone connector, and these types can be used for headphones and other stereo signal connections, input/output insert patching, and balanced signals. Mono types are only used for unbalanced connections, and are commonly used for guitar and instrument cables.

**RCA Pin Connectors**

Most home-cinema and audio-video equipment use this type of unbalanced connector. The connectors are often color-coded according to the type of signal they carry: white for the left audio channel, and red for the right audio channel.

**XLR-type Connectors**

These connectors are primarily used for balanced connections. These are the connectors of choice for most professional applications because connectors themselves are extremely durable and reliable, and some feature a locking mechanism to prevent accidental disconnection. Normally “male” connectors are used for inputs and “female” connectors are used for outputs.

**Speakon Connectors**

This is a relatively new type of connector that is becoming widely used for speaker connections in professional applications. This type of connector features easy connection as well as high-reliability.

---

*For Speech For Music System Chart

- **Source**: Mixer, Power Mixer
- **Speakers and Mic**: EMX312SC driving a pair of S115V (C115V) speakers for piano… just about any instrumentation you need. An superlative MOTIF series can function as pipe organ, most cases, just a couple of microphones are sufficient, to be conveyed to a fairly large group of guests. In is ideal when the joyous mood of the moment needs to be conveyed to a fairly large group of guests. In

---

*sample application

The perfect setup for solo performances at home

**System Chart**

- **Mic**: 1-6 channels
- **Line**: Four stereo
- **Scale**: Living room
- **Audience**: 10-15 people

**Equipment List**

- **Power Mixer**: EMX312SC
- **Powered Speaker**: S115V (C115V) 2

---

*sample application

A mid-size system to complement important celebrations

**System Chart**

- **Mic**: 1-6 channels
- **Line**: Four stereo
- **Scale**: Wedding chapel with central aisle
- **Audience**: 20-30 people

**Equipment List**

- **Power Mixer**: EMX312SC
- **Powered Speaker**: S115V (C115V) 2

---

*Good Reasons For Choosing Yamaha

- **EMX312SC**: This powered mixer ensures that speakers, background music, and keyboard are heard loudly and clearly.
- **Graphic EQ**: This helps to keep feedback in check even when the M.C moves around.
- **FCL**: Helps to keep feedback in check, even when the M.C moves around.
- **2.0 stereo power amplifier**: Provides a powerful drive to the speakers.
- **S115V**: The large-diameter 15” Club V series provides excellent projection and presence, even in naturally reverberant spaces.
- **MSR100**: Compact 100-watt powered speaker that can be quickly set up when needed.
Dinner Presentation
For formal or informal gatherings that require only a few microphones for speech and an electronic musical instrument or two, a system like the one shown here should be more than sufficient. An EMX212S supplies the mixing and output power, and the sound is delivered to the crowd via a pair of BR15 speakers.

Outdoor Dance Event
This relatively large system is designed to deliver dynamic full-spectrum sound that will keep dancers and revelers on the floor. The high-capacity MG32/14FX console comfortably handles a wide range of sources and signal-processing, while four P5000S power amplifiers driving four S215V (C215V) speakers and SW118V (CM12V) subwoofers lay down sound the dancers will delight in. Monitor sound is delivered via P3500S amps and SM12V (CM12V) monitor speakers, and graphic EQ for feedback control.

Simple Steps to Better Sound
Gain is the key to level control
The role of a sound system is basically to mix and amplify multiple sources to the required level. Learning to set appropriate levels is vitally important to achieving the best possible sound quality.

1. The most important level adjustment is gain control. For the best mix and sound, the gain of individual channels should be as high as possible without distorting or clipping the signal. Some basic levels are given in the chart below.
2. Set the master fader about three-quarters of the way toward its maximum setting.
3. Use the channel faders to set the balance between the input sources. Watch the level meters while doing this, and try to set the overall mix so that the meters just reach peak level on the highest peaks that will be encountered during the program.

Gain Setting Guide

<table>
<thead>
<tr>
<th>Source</th>
<th>Microphone: Speech</th>
<th>Microphone: Soft Vocal</th>
<th>Microphone: Loud Vocal</th>
<th>Cuesheet/SPK</th>
<th>CD/CDM</th>
<th>DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICS 1-8</td>
<td>50 dB</td>
<td>60 dB</td>
<td>70 dB</td>
<td>-10 dB</td>
<td>-20 dB</td>
<td>-30 dB</td>
</tr>
</tbody>
</table>

Power Amps
Turn the amplifier’s attenuator or volume control up to the required level. The important thing to remember is that you should not move the mixer’s master fader at this point. Use the power amplifier controls to set the overall level. In powered mixers, however, the master fader doubles as the power amp attenuator, and can be used to set the overall volume.

1. Use both channels for feedback control and to deliver the optimum monitor sound.
2. Two built-in digital SPX signal processing stages provide plenty of signal processing versatility.
3. Four monitors on the stage provide solid monitor sound.
4. "Four monitors on the stage provide solid monitor sound that won’t be drowned out by the excitement going on all around."

Good Reasons For Choosing Yamaha

- P Series power amplifiers provide ample high-quality power to deliver authoritative bass and drive multiple large speakers. The P5000S drives the main speakers surrounding the dance area, and the P3500S drives the subwoofer system that reinforces the low end, as well as the SM12V (CM12V) stage monitors.
- The MG32/14FX has room equalization to cut noise and adjust the sound quality.
- Sensors and a robust 800-watt bass management system ensures solid performance without sound distortion.
- "Four monitors on the stage provide solid monitor sound that won’t be drowned out by the excitement going on all around."
Acoustic Music

Acoustic instruments often need amplification to be heard and appreciated by more than a handful of people. Here’s a little system that is ideal for such applications, with room to spare. Plug your electric-acoustic guitars and microphones into an EMX212S powered mixer that directly drives a pair of BR10 speakers.

Conference Room

The system shown here can deliver both optimum speech intelligibility for meetings as well as quality music reproduction for breaks. The compact MS102C mixer is a perfect choice for this type of application, with enough capacity and control features to cover just about any conceivable situation. The MSR100 powered speakers deliver superb sound quality and will directly accept a microphone input when a mixer isn’t necessary.

Gymnasium

In addition to sports events, the “gym” also serves as a venue for gatherings, meetings, and even movies and concerts. Plenty of PA power and mix capacity is required to cover all possibilities. Here’s a system that will do the job nicely without being excessive: an EMX5014C powered mixer driving a pair of BR15 speakers. Superb quality and useful capacity without a lot of extra equipment.

Lecture Hall

Lecture hall sound systems require a surprising degree of functionality – in addition to microphones, there are tape and disc audio sources, audio from a video projector, and computer sound output for OHP presentations. The MG82CX mixer shown in this example is large and versatile enough to handle all of the above and more. And a pair of MSR400 powered speakers delivers enough power and quality to project the sound to the highest tier in the room.
### Simple Steps To Better Sound

#### Connection and power switching order

Although simple, the following points will help you to keep your speakers and sound gear in top condition for as long as possible. 

1. Turn on the mixer
2. Turn on any graphic equalizers
3. Turn on the mixer
4. Turn on the power ampli

Reverse this procedure when turning the system off.

See “Simple Steps To Better Sound – 2” for information on preventing speaker overload and “Simple Steps To Better Sound – 3” for feedback control hints.

#### Feedback control

Piercing squeals of feedback can put a damper on even the finest performance. Feedback control is a vitally important part of live sound.

1. Check the relative positions of microphones and speakers - feedback is caused by sound from the speakers being picked up again by the microphones and “re-circulated”. In many cases, feedback can be eliminated simply by adjusting the positions of the speakers and microphones. Hand-held microphones require extra care so that the performer doesn’t move into the “feedback zone”.

2. Use graphic EQ. If speaker and microphone positioning doesn’t solve the problem, use some graphic equalization. Begin by bringing the mixer levels up to a level just before feedback begins - raise the microphone-input channel faders and then raise the master fader until feedback begins, then back off a bit. Start with the graphic EQ controls flat (at “0”) and, starting with the lowest frequency, raise each control a few dB. If no feedback occurs, return the controls to “0” as you test each frequency. If feedback occurs when you boost one frequency, cut that frequency by a few dB, and continue testing the remaining frequency bands. This procedure can be effective in preventing feedback in situations in which the microphones and monitor speakers must be used in close proximity.

---

### Equipment List

#### Powered Speaker MSR100 or MS101 III

- Mic: 1 ~ 8 channels
- Line: Four stereo
- Scale: Large room or restaurant with dinner tables
- Audience: Approximately 50 people

---

**System Chart**

- **Mic:** 1~4
- **Keyboard**
- **Speaker Cable (Supplied)**

---

**Sample Application**

- **Small, simple, and portable for point-of-sale use**

---

**Good Reasons For Choosing Yamaha**

- Perfect for public speaking, vocalists, guitarists... just about any performance or event requiring portability and convenience combined with superior sound and versatility.
- Eight-channel powered mixer with four microphone and two stereo line inputs, 150W + 150W power, and digital reverb.
- High-performance two-way bass-reflex speakers double as convenient storage for mixer and cables... with enough room left over for microphones and other accessories you might need.
- The powered mixer can be operated while mounted in the speaker cabinet, or separated for versatility and easy access.
- Optional BMS10A Mic Stand Adaptor allows the mixer to be mounted on a mic stand.

---

**Equipment List**

- **Powered Speaker MSR100 or MS101 III**

---

**System Chart**

- **Mic:** 1~4
- **Keyboard**
- **Speaker Cable (Supplied)**

---

**Sample Application**

- **A complete PA system designed from the start for portability and convenience**

---

**STAGEPAS 300**

- **Portability and convenience:**
  - 150W + 150W powered mixer
  - Eight-channel mixer
  - High performance two-way bass-reflex speakers
  - Five-meter speaker cables included

---

**Extra Power and Capacity for Larger Venues**

**STAGEPAS 500**

- **Dual 250-watt power amplifier can fill surprisingly large clubs or rooms, or project your sound over a considerable distance outdoors. Class-D power delivers superior sound quality as well as reliability in a remarkably compact unit.**
- 10 input channels in all: four mono microphone/line inputs and three stereo line inputs. Swivellable phantom power is provided for high-performance phantom-powered condenser microphones, and top-quality Yamaha SPX reverb is built in.
- Channels 1 and 2 feature LIMIT/COMP switches that let you apply either limiting or compression to those channels.
- STAGEPAS 500 speakers can be stand-mounted without standard adaptors.

---

**Equipment List**

- **Portable PA System STAGEPAS 500**
Product Line Up

The Yamaha pro audio lineup includes everything you need to achieve professional sound in applications ranging from small events to large concerts. For serious power and system versatility, there is an excellent selection of independent components — mixers, amplifiers, equalizers, speakers. But when convenience and ease are the main criteria, there’s a good range of powered mixers and speakers to choose from as well. Whatever your live sound needs, Yamaha has the solution.

Tips 3

Selecting PA Equipment

The term “PA system” can be applied to an extremely wide range of equipment used to provide sound for an endless variety of applications. Here’s a quick guide for selecting the right equipment for your application.

How Many Microphone Inputs?

• Meetings, lectures, and other speech-based applications may only require a small mixer with a few microphone inputs. Live concerts, on the other hand, may involve microphones for vocals, chorus, and a multitude of musical instruments. The number of microphone inputs you need is the first requirement you should consider when choosing a mixer.

Reverb for Vocals

• If your application involves singing, you’ll probably want to add some reverb and/or delay to the vocal sound. You could use external signal processing, but it might be more convenient to have this capability built right into the mixer. The EMX-series powered mixers and MG-series mixers such as the MG16FX feature a range of top-quality built-in effects.

Built-in Power

• Mixers with built-in power amplification are often simply referred to as “powered mixers.” The benefits of this type of mixer include easier setup and greater portability (you don’t have to carry and connect an external power amplifier). Powered mixes are recommended for applications such as meeting rooms or other situations in which the size of the room and audience remains constant.

Feedback Control

• Although you might think of graphic equalizers as precision sound-shaping tools (and they are), one of their main uses in live-sound applications is to combat feedback. Feedback occurs when the audio spectrum inside a feedback loop is resonant and the system is driven into oscillation. Feedback can be prevented by reducing the level of the frequencies at which it is likely to occur. MG-series mixers feature built-in graphic EQ.

Speaker Efficiency

• The standard level for inputs and outputs on mixers and most professional audio gear is +4 dBu. Most electronic musical instruments and home audio gear have a standard output level of -10 dBu. Microphone levels vary over a wide range, depending on the source. Average speech is about -90 dBu, the choicing of a bird might be less than -50 dBu, and drums at close range can be as high as +5 dBu.

The Meaning of “dB”

If the smallest sound that can be heard by the human ear is given an arbitrary value of 1, then the loudest sound that can be heard is approximately 1,000,000 (one million) times louder. That’s too many digits to deal with for practical calculations, and so the more convenient “decibel” (dB) unit was created for sound-related measurements. In this system the difference between the softest and loudest sounds that can be heard is 120 dB. This is a non-linear scale, and a difference of 3 dB actually results in a doubling or halving of the loudness.

Ratio

<table>
<thead>
<tr>
<th>Gain</th>
<th>0 dB</th>
<th>3 dB</th>
<th>6 dB</th>
<th>9 dB</th>
<th>12 dB</th>
<th>15 dB</th>
<th>18 dB</th>
<th>21 dB</th>
<th>24 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>dB</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>15</td>
<td>18</td>
<td>21</td>
<td>24</td>
</tr>
</tbody>
</table>

* The decibel scale is a relative scale based on an arbitrarily chosen “0” value. In most audio equipment dB corresponds to a signal voltage of 0.775 V.
**Product Line UP—Mixers**

**MG Series**

**Mixing Consoles**

The new additions to the MG series feature the same compact, lightweight design as the original models, and incorporate the latest generation of specially selected components for further refined performance and audio precision. They also now feature Yamaha’s innovative one-knob compressor for built-in dynamics control that further eliminates the need for external equipment.

**Superior Sound & Control In Any Application**

If you need a high-performance analog mixer for music production or sound reinforcement, the Yamaha MG Series may be the only place you need to look. Featuring eight models ranging in size from small 8- to 16-channel/2-bus units through mid-size 12- or 16-channel/4- or 6-bus models right up to very flexible 24- and 32-channel/14-bus types with an impressive selection of built-in effects, the MG series offers a console for any size application. There have been no compromises. These mixers are built for great sound, total control, and superior reliability. In fact, they undergo the same rigorous quality and reliability tests as our world-class PM-series mixing consoles. But, by taking full advantage of the latest Yamaha technology and manufacturing techniques, we have been able to pack these superlative mixers with more value than you’ll find anywhere else. In short, they offer extraordinary performance and mixing power at remarkable prices.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of Channels</th>
<th>Input Connectors</th>
<th>Output Connectors</th>
<th>Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG102C</td>
<td>10</td>
<td>5 (MIC), 6 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>MG16/4</td>
<td>16</td>
<td>8 (MIC), 8 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>MG16/6FX</td>
<td>16</td>
<td>8 (MIC), 8 (LINE)</td>
<td>2 (EXT EFFECTS), 1 (MAIN OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>MG24/14FX</td>
<td>24</td>
<td>16 (MIC), 16 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>MG32/14FX</td>
<td>32</td>
<td>24 (MIC), 24 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>EMX212S</td>
<td>12</td>
<td>8 (MIC), 8 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>EMX512SC</td>
<td>32</td>
<td>24 (MIC), 24 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
</tbody>
</table>

**EMX512SC/312SC/212S Powered Mixers**

With portability and convenience being important criteria, a system based on a high-performance Yamaha EMX-series powered mixer is definitely the way to go. In one integrated, portable unit you have a mixer to combine and balance your microphone, instrument, and line sources, effects to refine and polish your sound, and power to drive the main speakers and even monitor speakers as well. But that’s nowhere near the whole story — Yamaha EMX-series Powered Mixers offer a range of features that let you mix, process, and deliver your sound with maximum quality and creative control — and, of course, that unrivaled Yamaha sound.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Power Output</th>
<th>Input Connectors</th>
<th>Output Connectors</th>
<th>Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMX512SC</td>
<td>190W+190W/8ohms</td>
<td>16 (MIC), 16 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>EMX312SC</td>
<td>190W+190W/8ohms</td>
<td>16 (MIC), 16 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
<tr>
<td>EMX212S</td>
<td>190W+190W/8ohms</td>
<td>16 (MIC), 16 (LINE)</td>
<td>1 (MAIN OUT), 1 (MONITOR OUT)</td>
<td>240V AC 50Hz 270W</td>
</tr>
</tbody>
</table>

**Product Line UP—Mixers**

**EMX512SC**

**EMX312SC**

**EMX212S**
EMX5014C
POWERED MIXERS

The EMX5014C combines the convenience of an integrated powered mixer with input capacity, flexible features, and solid sound that critical live sound applications demand. It is remarkably compact and portable for a live sound system with much this capability, but offers performance and reliability that will satisfy the discriminating professional user either on the road or in installed applications. Thanks to leading Yamaha digital technology the EMX5014C also includes a number of innovations that make it easier than ever to achieve top-class sound in just about any venue. An impressive power output of 500 watts per channel means it can handle fairly large audiences, indoors or out. The EMX5014C goes considerably beyond the standard definition of “powered mixer,” entering the realm of serious sound reinforcement.

EMX5016CF
POWERED MIXERS

An Interview with the EMX Design Team

Built-in Compression Adds Live-sound Versatility to the new EMX-series Powered Mixers

New Features

• What is the main difference compared to previous EMX-series mixers?
  - The main difference is built-in compression. Originally, there was almost no compression for the entire program, but the latest model has compression for each channel. If you have self-feedback problems, you can turn down the compression for that channel and raise the level to make the sound louder. Setting the compression for each channel is the difference.

• Although compression is used in most professional audio equipment, I've never used it on my live mixers.
  - The main difference is built-in compression.

• The main difference is that this is the first time it has been built into an analog mixer.
  - The main difference is built-in compression.

Achieving Pure Sound Quality

• Of course sound quality is first and foremost in the design of any model. Achieving the lowest possible low noise and hum when changing components is always a challenge. There’s no challenge from vibration, from which the EMX-series mixers are completely free from vibration, but it does affect sound quality, where at the same time it may cause a change in sound quality, so the design focuses on minimizing that effect.

Reliability Without Compromising Performance

• The simplicity and aesthetic appeal of the designs are quite impressive. Tell us about the design concept.
  - Simplicity was the main goal, particularly in the console-style EMX5014C. Here's an all-in-one solution that will appeal to bands and serious users alike. The EMX5014C transports and sets up with the ease of systems built around the smaller EMX-series powered mixers, but will also prove its worth in more permanent installations. It can even be rack-mounted for vertical or angled operation, and real space savings! Of course the EMX5014C offers much more than just convenience. It provides a surprising palette of features and versatile signal routing options that can take your live sound to the next level. And it’s a Yamaha, so you know it’s going to sound great.

• Achieving the strength of the integral handle was also critical, utilizing computer simulations, as a result we have achieved strength to that of a single board.

Other Areas:

74dB CH INPUT (CH1-12) to MONITOR OUT (via STEREO BUS) @ STEREO fader at nominal level and all CH INPUT faders at minimum level. STEREO OUT off.

106dB typ. AD+DA (to STEREO OUT) @fs=96kHz
106dB typ. AD+DA (to STEREO OUT) @fs=48kHz

@fs = 96kHz Less than 0.05%, 20Hz to 40kHz @+14dB into 600ohms

Maximum Output Power

220 – 240V AC 50Hz 500W
120V AC 60Hz 500W,

44.1kHz, 48kHz, 88.2kHz, 96kHz

Specifications

Specifications

Power Amp. Mode
Digital Effects
Graphic Equalizer
Phantom Power

Power Amp. Mode
Digital Effects
Graphic Equalizer

01V96V2
DIGITAL MIXING CONSOLE

S
sound, reliability, operability... Yamaha digital mixing consoles have become standards throughout the world because they deliver all of the above with no compromise: the PM5D, PM5D, and MG16, for sound reinforcement and broadcast applications; the DM2000, DM1000, and DSR700, for sound reinforcement and broadcast applications. The 01V96V2 brings you the same performance and reliability in a compact, affordable format that's perfect for the home or smaller professional production studio. It may be small, but it has a maximum 40-channel input capacity and can be expanded for applications that demand more. And, of course, 24-bit/96KHz operation is standard. Mixer functions and effects are all inherited from the top-of-the-line DM2000, so you know you're getting the best. And the Version 2 upgrade features a number of improvements and enhancements in both functions and operation. The 01V96V2 brings cutting-edge digital mixing and processing performance within easy reach.

P.T. Yamaha Music manufacturing Asia

In the design of the new EMX-series powered mixers, Yamaha has rethought virtually every component, from the signal processing circuits to the final manufacturing. All production processes for the Yamaha EMX-series powered mixers are performed entirely inside the Yamaha Sound Reinforcement Factory, ensuring the highest quality products to you.

Topic

Achieving Pure Sound Quality

• Of course sound quality is first and foremost in the design of any model. Achieving the lowest possible low noise and hum when changing components is always a challenge. There’s no challenge from vibration, from which the EMX-series mixers are completely free from vibration, but it does affect sound quality, where at the same time it may cause a change in sound quality, so the design focuses on minimizing that effect.

• Achieving the ideal blend of size, weight, and durability was a constant problem.
  - Achieving the ideal blend of size, weight, and durability was a constant problem.

• Most compressors have at least two controls, what is the idea behind having just one control?
  - Most compressors have at least two controls, what is the idea behind having just one control?

• Achieving the strength of the integral handle was also critical, utilizing computer simulations, as a result we have achieved strength comparable to that of a single board.
The SPX90, SPX90II, SPX50D and SPX90II SPX50D processors are the first members of our SPX90 series, which have been designed specifically to deliver big, clean power output that will take full advantage of the quality and power handling capabilities of Yamaha speakers. These processors are equipped with YS Pre-Processing (Yamaha Speaker Processing) to deliver a signal that is optimally matched to those speakers as well. All models feature both XLR and 1/4-inch TRS inputs, and Neutrik Speakon, phone plug, and five-way binding post outputs to make connections quick and easy.

Other features include Yamaha’s exclusive EffetOne technology which delivers high performance with exceptional efficiency, sweepable high- and low-pass filters for optimizing output to any loudspeakers, compact and durable 2U chassis, and variable speed cooling fans.

**P Series**

- **POWER AMPS**
  - P7000S
  - P5000S
  - P3500S
  - P2500S

**Q2031B**

- **GRAPHIC EQUALIZER**

Yamaha Graphic Equalizers offer features and performance that meet today’s equalization needs whether they be in sound reinforcement, recording, A/V production, electronic musical instruments, broadcasting, music listening, or any other applications where precise sound tailoring is essential.

- **SPX90**
  - 1st generation: REV1
  - 2nd generation: REV7

- **SPX90II**
  - 1st generation: REV1
  - 2nd generation: REV7

- **SPX50D**
  - 1st generation: REV1
  - 2nd generation: REV7

- **REV-X**
  - 0dB=0.775V
  - half power=1/2 output power

**Great Sound To Go**

The Club V Series features full-featured built-in capabilities for processing, such as the YSP (Yamaha Speaker Processing) system, which is designed to deliver a clear, crisp and full-range sound that is perfectly matched to the Club V speakers. The Club V Series also includes a built-in crossover network, which is designed to protect the speakers and provide the best possible sound quality.

**Specifications**

- **Type**: 15” Bass Reflex
- **Dimensions (W x H x D mm)**: 1.85 x 1.1 x 1.0
- **Finish**: Carpet
- **Nominal Impedance**: 8 ohms
- **Frequency Range**: 30Hz – 2kHz (-10dB)
- **Power Capacity**: 175 watts (NOISE)*
- **Net Weight**: 21.8 kg

- **Type**: 12” Bass Reflex
- **Dimensions (W x H x D mm)**: 1.85 x 1.1 x 1.0
- **Finish**: Carpet
- **Nominal Impedance**: 8 ohms
- **Frequency Range**: 30Hz – 2kHz (-10dB)
- **Power Capacity**: 125 watts (NOISE)*
- **Net Weight**: 12.9 kg
**BR-Series Speakers**

**Great Sound and Easy handling**

Whether you’re playing to a rock’n’roll, jazz, or classic croon, or delivering an important spoken message, Yamaha BR-Series speakers will ensure that you’re heard clearly. With the right powered mixer, or standard mixer and power amplifiers, these units can pack a heck of a wallop — make that a “high-quality wallop.” But when the show is done and it’s time to tear down the system and go home, you’ll appreciate these speakers a second time — they’re compact, remarkably light for their power and performance, and are designed for easy handling.

### Specifications

<table>
<thead>
<tr>
<th>BR</th>
<th>BR12</th>
<th>BR10</th>
<th>BR12M</th>
<th>BR15M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Capacity</td>
<td>250 watts (PGM)</td>
<td>300 watts (PGM)</td>
<td>400 watts (PGM)</td>
<td>200 watts (NOISE)</td>
</tr>
<tr>
<td>LF Driver</td>
<td>12&quot; cone</td>
<td>12&quot; 2 way bass reflex</td>
<td>15&quot; cone</td>
<td>15&quot; 2 way bass reflex</td>
</tr>
<tr>
<td>HF Driver</td>
<td>1&quot; vc, Titanium Horn</td>
<td>1&quot; vc, Titanium Horn</td>
<td>1.75&quot;V.C, Compression Driver</td>
<td>1.75&quot;V.C, Compression Driver</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>97dB</td>
<td>98dB</td>
<td>96dB</td>
<td>122dB (1m)</td>
</tr>
<tr>
<td>Dimensions (W x H x D mm)</td>
<td>403 x 569 x 335</td>
<td>406 x 667 x 351</td>
<td>600 x 521 x 534</td>
<td>652 x 487 x 365</td>
</tr>
<tr>
<td>Weight</td>
<td>16 kg</td>
<td>15.6 kg</td>
<td>21.3 kg</td>
<td>45 kg</td>
</tr>
<tr>
<td>Finish</td>
<td>Carpet</td>
<td>Carpet</td>
<td>Carpet</td>
<td>Carpet</td>
</tr>
<tr>
<td>Input Connectors</td>
<td>1/4&quot; Phone x 2</td>
<td>1/4&quot; Phone x 2</td>
<td>1/4&quot; Phone x 2</td>
<td>1/4&quot; Phone x 2</td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Sensitivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Output Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Output Level (SPL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Response</td>
<td>60Hz - 20kHz (-10dB)</td>
<td>60Hz - 20kHz (-10dB)</td>
<td>60Hz - 20kHz (-10dB)</td>
<td>60Hz - 20kHz (-10dB)</td>
</tr>
<tr>
<td>Power Handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Amplified 2 way bass reflex powered speaker</td>
<td>Amplified 2 way bass reflex powered speaker</td>
<td>Amplified 2 way bass reflex powered speaker</td>
<td>Amplified 2 way bass reflex powered speaker</td>
</tr>
<tr>
<td>Amplifier</td>
<td>15&quot; cone</td>
<td>12&quot; 2 way bass reflex</td>
<td>15&quot; cone</td>
<td>15&quot; 2 way bass reflex</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>60Hz – 20kHz (-10dB)</td>
<td>60Hz – 20kHz (-10dB)</td>
<td>60Hz – 20kHz (-10dB)</td>
<td>60Hz – 20kHz (-10dB)</td>
</tr>
<tr>
<td>Amplifier Power</td>
<td>1500W</td>
<td>800 watts (MAX)</td>
<td>1500W</td>
<td>1500W</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>92dB</td>
<td>96dB</td>
<td>97dB</td>
<td>121dB (1m)</td>
</tr>
<tr>
<td>Impedance</td>
<td>8 ohms</td>
<td>8 ohms</td>
<td>8 ohms</td>
<td>8 ohms</td>
</tr>
<tr>
<td>Mic Inputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLUG-IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THRU Out (ch-A &amp; B): XLR-3-32 balanced</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: PHONE balanced</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: XLR-3-31 (balanced)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Input</td>
<td>110W</td>
<td>110W</td>
<td>110W</td>
<td>110W</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>60Hz – 20kHz (-10dB)</td>
<td>60Hz – 20kHz (-10dB)</td>
<td>60Hz – 20kHz (-10dB)</td>
<td>60Hz – 20kHz (-10dB)</td>
</tr>
<tr>
<td>Power Handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Why use monitor speakers?**

While the purpose of the main or “FOH” (Front Of House) speakers is to deliver the sound to the audience, monitor speakers are necessary to provide a sound reference to the speakers or musicians performing on stage. This was sometimes also known as “foldback”. A monitor system allows performers to clearly hear what they are saying, singing, or playing so that they can perform with confidence and provide performances of the highest quality. It may not be an exaggeration to say that a good monitor system is the key to a successful concert or event.

---

**Simple Steps To Better Sound**

### Why use monitor speakers?

While the purpose of the main or “FOH” (Front Of House) speakers is to deliver the sound to the audience, monitor speakers are necessary to provide a sound reference to the speakers or musicians performing on stage. This was sometimes also known as “foldback”. A monitor system allows performers to clearly hear what they are saying, singing, or playing so that they can perform with confidence and provide performances of the highest quality. It may not be an exaggeration to say that a good monitor system is the key to a successful concert or event.

---

**Simple Steps To Better Sound**

**Boosting system power**

If the people in the back row aren’t hearing the performance with the intended impact, you can add speakers to boost the system’s output. The first thing to try would be adding an extra set of speakers parallel-connected to the main front speakers. In this case, it is important to add the same type of speakers as the originals. If you use speakers with different sensitivity, only the louder speakers will be heard. Another option is to add a subwoofer to beef up the low end. By reinforcing the lows you effectively boost overall output. This is a good strategy for improving the sound in outdoor setups. If you’re using Yamaha Club Series speakers, you can easily add a subwoofer adding an electronic crossover, or use the filters provided in the P-Series amplifiers.
**STAGEPAS series**  
**PORTABLE PA SYSTEM**  

Yamaha now offers two ways to take your music to new places ... and how!  

**STAGEPAS 300**  

- **Max Output Power**: 100W at 1kHz  
- **THD**: 1% @1kHz  
- **Power Consumption**: 30W  
- **Dimensions (W x H x D mm)**: 330 x 12 x 175 (Mixer)  
- **Net Weight**: 11 kg  

**STAGEPAS 500**  

- **Max Output Power**: 200W at 1kHz  
- **THD**: 1% @1kHz  
- **Power Consumption**: 55W  
- **Dimensions (W x H x D mm)**: 445 x 12 x 255 (Speaker x 1)  
- **Net Weight**: 14 kg  

---

**STAGEPAS 500**  

**POWERED SPEAKER**  

With the STAGEPAS 500’s built-in three-channel line mixer and power amplifier, you can actually use it as an all-in-one PA system. The built-in mixer has independent gain controls on each of the three channels, as well as master level and master low and high EQ controls, a link out jack so you can connect to another STAGEPAS, and a clip indicator. But the STAGEPAS 500 also makes a great 100-watt powered speaker for use with a small mixer. STAGEPAS 500’s can be pole-mounted, wall-mounted, suspended, or stacked – anywhere you need them. You can even lay them on their side for monitor service. The STAGEPAS 100 is a serious contender in the sound category, too, with a top-performance 100-watt amplifier perfectly matched to a two-way speaker system consisting of a custom 8” woofer and 1” titanium diaphragm compression driver feeding a 20° x 40° horn. A durable molded enclosure with integral handle makes this one of the most portable, convenient speaker systems available.

---

**MSR100**  

**POWERED SPEAKER**  

Nothing beats these small powered monitors for performance and utility. The 10-watt MS101III is an equally fine choice for your desktop studio or point-of-sale sound in a small store. The MS101III can plug directly into the front-panel mic jack when you want to grab your customers’ attention. MS101III can be wall- or ceiling-mounted, or conveniently mounted on a microphone stand.

---

**MS100III**  

**POWERED MONITOR SPEAKER SYSTEM**  

Nothing beats these small powered monitors for performance and utility. The 10-watt MS101III is an equally fine choice for your desktop studio or point-of-sale sound in a small store. The MS101III can plug directly into the front-panel mic jack when you want to grab your customers’ attention. MS101III can be wall- or ceiling-mounted, or conveniently mounted on a microphone stand.

---

**Specifications**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>MSR100</th>
<th>MS101III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Weight</td>
<td>2 kg</td>
<td>1 kg</td>
</tr>
<tr>
<td>Dimensions (W x H x D mm)</td>
<td>330 x 12 x 175 (Mixer)</td>
<td>330 x 12 x 175</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>30W</td>
<td>10W</td>
</tr>
<tr>
<td>Input sensitivity</td>
<td>-45dB</td>
<td>-45dB</td>
</tr>
<tr>
<td>Maximum Output Power</td>
<td>20W</td>
<td>10W</td>
</tr>
<tr>
<td>Maximum Output Level (SPL)</td>
<td>112dB (1m)</td>
<td>112dB (1m)</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>75Hz to 18kHz</td>
<td>55Hz–20kHz (-10dB)</td>
</tr>
<tr>
<td>Controls</td>
<td>VOLUME, Tone (High, Low), Power switch</td>
<td>VOLUME, Tone (High, Low), Power switch</td>
</tr>
<tr>
<td>Connectors</td>
<td>Stereo Input Channel Equalization: INPUT 1: XLR-3-31 (balanced), INPUT 1: -50dB*/+4dB* (with select SW), INPUT 2&amp;3: Phone (unbalanced), LINK OUT: Phone (unbalanced)</td>
<td>Stereo Input Channel Equalization: INPUT 1: XLR-3-31 (balanced), INPUT 1: -50dB*/+4dB* (with select SW), INPUT 2&amp;3: Phone (unbalanced), LINK OUT: Phone (unbalanced)</td>
</tr>
</tbody>
</table>

---

**Specifications**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>STAGEPAS 500</th>
<th>STAGEPAS 300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Weight</td>
<td>14 kg</td>
<td>11 kg</td>
</tr>
<tr>
<td>Dimensions (W x H x D mm)</td>
<td>445 x 12 x 255 (Speaker x 1)</td>
<td>330 x 12 x 175 (Mixer)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>55W</td>
<td>30W</td>
</tr>
<tr>
<td>Input sensitivity</td>
<td>-45dB</td>
<td>-45dB</td>
</tr>
<tr>
<td>Maximum Output Power</td>
<td>200W at 1kHz</td>
<td>100W at 1kHz</td>
</tr>
<tr>
<td>Maximum Output Level (SPL)</td>
<td>112dB (1m)</td>
<td>112dB (1m)</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>75Hz to 18kHz</td>
<td>55Hz–20kHz (-10dB)</td>
</tr>
<tr>
<td>Controls</td>
<td>VOLUME, Tone (High, Low), Power switch</td>
<td>VOLUME, Tone (High, Low), Power switch</td>
</tr>
<tr>
<td>Connectors</td>
<td>Stereo Input Channel Equalization: INPUT 1: XLR-3-31 (balanced), INPUT 1: -50dB*/+4dB* (with select SW), INPUT 2&amp;3: Phone (unbalanced), LINK OUT: Phone (unbalanced)</td>
<td>Stereo Input Channel Equalization: INPUT 1: XLR-3-31 (balanced), INPUT 1: -50dB*/+4dB* (with select SW), INPUT 2&amp;3: Phone (unbalanced), LINK OUT: Phone (unbalanced)</td>
</tr>
</tbody>
</table>

---

**Accessory Compartment**  

The STAGEPAS 300/500 features a convenient storage compartment in the speaker box for packing the included power cables, speaker cables, owner’s manual and it even has space for your own microphone. Remove the rear panel of the speaker and put in the things you need.

---

**Built-in Powered Mixer**  

Built-in mixer provides easy operation and convenient portability. Can be used inside the talent or outside.
MSP STUDIO series speakers

**POWERED MONITOR SPEAKER**

Yamaha’s “STUDIO” series monitors have been designed without compromise for serious monitoring. Years of experience and development have been applied to achieve reference-quality reproduction precision that lets you hear sonic details, rather than flatten sound. These studio-class speakers carry on in the tradition of the venerable NS10M STUDIO, which was the definitive near-field monitor in an overwhelming majority of professional studios throughout the world for many years from the 80s onward. But technology has evolved dramatically right throughout the audio chain, and speakers must follow suit. The new top-of-the-line MSP STUDIO Powered Monitor Speaker is capable of delivering consistent quality and performance that you can rely on in modern production environments that handle any combination of digital and analog sources as well as stereo and surround formats, while the more compact dimensions of the MSP STUDIO make it an ideal choice for smaller project studios and DAW-based production systems. The 01V96 V2 studio subwoofer has been designed specifically for optimum matching with the MSP series speakers, and combined with either model in a stereo of surround system it can provide a seamlessly extended low-end for accurate ultra-wide-range monitoring.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Connectors</th>
<th>Output Connectors</th>
<th>Input Impedance</th>
<th>Input Sensitivity</th>
<th>Material</th>
<th>Enclosure Type</th>
<th>Weight</th>
<th>Overall Frequency Response</th>
<th>Crossover Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSP STUDIO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS50A</td>
<td>1: XLR-3-31 type (balanced)</td>
<td>8 In</td>
<td>10K</td>
<td>-10dBu</td>
<td>PP</td>
<td>MDF</td>
<td>218 x 235 x 330</td>
<td>21.8kg</td>
<td>2.5kHz, LF: 24dB/oct, HF: 24dB/oct</td>
</tr>
<tr>
<td>MS30A</td>
<td>1: XLR-3-31 type (balanced)</td>
<td>8 In</td>
<td>10K</td>
<td>-10dBu</td>
<td>PP</td>
<td>MDF</td>
<td>179 x 208 x 279</td>
<td>12.2kg</td>
<td>2.5kHz, LF: 24dB/oct, HF: 24dB/oct</td>
</tr>
</tbody>
</table>

**HS series speakers**

**POWERED MONITOR SPEAKER**

When choosing reference monitors for mixing and music production, what you really need is an honest reference for your mix rather than sound that has been tamed or colored to sound impressive at the expense of accuracy. Unlike speakers that have exaggerated bass and treble that make a good first impression but can’t be relied on for accuracy, Yamaha HS series reference monitors have been painstakingly crafted by our studio monitor engineering team to deliver exceptionally flat, accurate response that you can trust. The HS series monitors are true studio reference monitors in the tradition of the venerable NS10M STUDIO, which was the definitive near-field monitor in an overwhelming majority of professional studios throughout the world for many years. But technology has evolved dramatically right throughout the audio chain, and speakers must follow suit. Unlike speakers that have exaggerated bass and treble that make a good first impression but can’t be relied on for accuracy, Yamaha HS series reference monitors have been painstakingly crafted by our studio monitor engineering team to deliver exceptionally flat, accurate response that you can trust. The HS series monitors are true studio reference monitors in the tradition of the venerable NS10M STUDIO, which was the definitive near-field monitor in an overwhelming majority of professional studios throughout the world for many years.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Connectors</th>
<th>Output Connectors</th>
<th>Input Impedance</th>
<th>Input Sensitivity</th>
<th>Material</th>
<th>Enclosure Type</th>
<th>Weight</th>
<th>Overall Frequency Response</th>
<th>Crossover Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS50M</td>
<td>1: XLR-3-31 type (balanced)</td>
<td>8 In</td>
<td>10K</td>
<td>-10dBu</td>
<td>PP</td>
<td>MDF</td>
<td>218 x 235 x 330</td>
<td>21.8kg</td>
<td>2.5kHz, LF: 24dB/oct, HF: 24dB/oct</td>
</tr>
<tr>
<td>HS30M</td>
<td>1: XLR-3-31 type (balanced)</td>
<td>8 In</td>
<td>10K</td>
<td>-10dBu</td>
<td>PP</td>
<td>MDF</td>
<td>179 x 208 x 279</td>
<td>12.2kg</td>
<td>2.5kHz, LF: 24dB/oct, HF: 24dB/oct</td>
</tr>
</tbody>
</table>

Yamaha Sound Reinforcement 2007

**Product Line UP—Powered Monitor Speakers**

**Speaker Brackets**

- **Wall Brackets**
  - For MSP50STUDIO/STAGEMAN G20600
  - BWS50-300
  - BWS50-260
  - BWS50-200

- **Rack Mount Adapters**
  - For EMX5014C/EMX512SC/EMX212C
  - RK512
  - RK5014
  - RK-1

- **Mic Stand Adapters**
  - BMS-10A

- **Foot Switch**
  - FC4
  - FC5

- **Mini-YGDAI Compatible Cards**
  - MY8-ADDA96
  - MY8-AE96
  - MY8-AE24
  - MY8-AE64
  - MY8-AC6

- **Headphone**
  - RH-SMA

Yamaha Sound Reinforcement 2007