

POWERED MIXER



EMX SERIES

EMX5016CF/EMX5014C

EMX512SC/EMX312SC/EMX212S



For details please contact:

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Serious Live Sound Capability Plus Innovative Digital Features

The EMX5016CF delivers 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 this much capability, but offers performance and reliability that will satisfy the discerning professional user either on the road or in installed applications. And thanks to leading Yamaha digital technology, the EMX5016CF 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 EMX5016CF goes considerably beyond the standard definition of “powered mixer,” entering the realm of serious sound reinforcement.

EMX5016CF POWERED MIXER

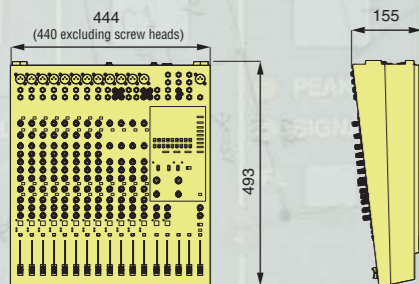
- Up To 12 Mics, 16 Inputs Total
- 4 Stereo inputs
- 500 W + 500 W (4Ω)
- Input Gain Trim and Pads
- LPF
- 3-band Mid-sweep Channel EQ
- One-knob Compression
- PFL and AFL Monitoring
- Dual AUX Sends
- Dual SPX Processors
- Feedback Suppressor
- 9-band Digital Graphic EQ
- FRC System
- Multi-band Maximizer
- Maximum Power Switch
- Standby Mode
- Power Amp Mode Switch
- YAMAHA Speaker Processing
- Lightweight Design
- Lightweight Design (11kg)
- Rack Mountable
- Lamp Connector

*Optional RK5014

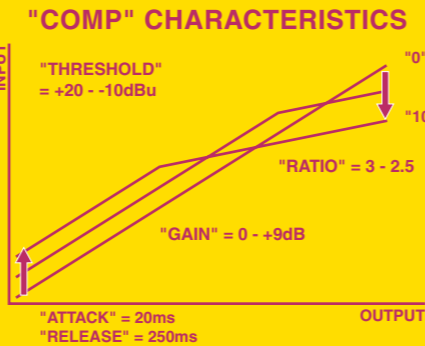
*Optional Standard gooseneck lamp

Dimensions

unit: mm



Rear Panel



Versatile 16-Input Configuration Adapts to Varied Source Requirements

The EMX5016CF has a total of 16 input channels – eight for monaural microphone or line input plus four stereo pairs. The stereo channel pairs can function either as monaural microphone inputs or stereo line inputs. This system gives you extra microphone inputs if your sources are mostly microphones, or if you need to handle more stereo sources the EMX5016CF will comfortably handle four pairs in addition to eight monaural microphone or line inputs. Switchable phantom power is provided for all microphone inputs.

Advanced Channel EQ

3-band EQ is available on all input channels, but extra versatility is provided on the eight mono channels with mid-frequency sweep controls. The mid EQ center frequency can be continuously swept from 250 Hz through 5 kHz so you can precisely pinpoint frequencies in the critical midrange that require compensation, providing significantly enhanced equalization potential.

Ample I/O for Expansion and Integration

All you need to create a powerful, high-performance live sound system is the EMX5016CF, a pair of speakers or two, and your sources. But it does feature a range of inputs and outputs that allow it to be expanded with external gear or integrated into larger systems. Insert patch points on the mono input channels, for example, let you add outboard signal processing to individual input channels. And although you have all the monitor power and effects you're likely to need built in, external AUX and EFFECT sends allow you to route the mixer's signals to external signal processing and/or monitor systems as required. Stereo out, stereo sub-out, and record outputs are also provided.

One-knob Compression On Mono Channels

The EMX5016CF features compressors on all monaural microphone/line channels that can help to make vocals ride the mix better, give you that smooth compressed guitar sound, deliver more punchy bass, and generally refine your mixes in a multitude of ways. These unique one-knob compressors are surprisingly simple to use. There are no multiple attack, threshold, gain, and other controls – just set the COMP control to the amount of compression you need.

9-band Digital Graphic EQ with Presets & Memory

This advanced digital 9-band stereo graphic equalizer goes way beyond conventional analog types with a refined control interface, instant-recall presets, and user memory locations. It also works with the console's innovative Frequency Response Correction system (see below) for unprecedented response-shaping control. Of course you can manually adjust each band as required from scratch, but you can also use one of the presets – VOCAL, DANCE, or SPEECH – as a starting point and edit from there. You also have three user memories into which you can store your own EQ curves for instant recall whenever needed.

FRC (Frequency Response Correction) System

Setting a live sound system's output equalizer to optimally match room response is normally a complicated process requiring noise generators, calibrated microphones, real-time analyzers, and a great deal of time and experience. The EMX5016CF handles the entire process automatically, using either pink noise or a recorded music source you supply. To precisely match the system's response to the room you're in all you need to do is set up a microphone in an appropriate location, connect it to channel 1, press MEASURE/CORRECT once to make the measurement, and then again to automatically set the graphic equalizer for optimized response. The EQ setting can then be stored in one of the user memories for later recall if needed.

Automatic Feedback Suppression

Although the graphic equalizer can be used for feedback control, the EMX5016CF provides a Feedback Suppressor system that is dedicated to the job. The Feedback Suppressor works by detecting feedback frequencies on the stereo bus and applying precise notch filters to eliminate the feedback. The Feedback Suppressor has an AUTO mode that automatically keeps track of and attenuates feedback frequencies for you, and a sensitive manual mode that lets you pinpoint and attenuate feedback points one by one.

Multi-band “Maximizer”

The EMX5016CF “Maximizer” is an advanced 3-band compressor that can be applied to the stereo bus for a more punchy “up-front” overall sound. Simply press the MAXIMIZE switch to instantly give the mix more presence and impact without sacrificing musical subtlety.

Dual Yamaha SPX Effect Processors

The EMX5016CF includes not one but two top-performance Yamaha SPX digital effect processors built in! You might only need ambience effects such as reverb and delay for live sound applications – and the EMX5016CF includes some of the finest reverb and delay effects available – but if you need other effects as well they're right at your fingertips, and you can use two different effects simultaneously. Each effect processor offers a selection of 16 top-quality effects including reverb, echo, chorus, flanger, phaser, and even distortion, with editable parameters that allow you to customize each effect.



Dual AUX Sends

AUX 1 and AUX 2 send controls with pre/post fader switching adjust the level of the channel signal sent to the auxiliary buses for monitoring or external effects send. The availability of two AUX sends provides considerable flexibility for effect and monitor routing. You could, for example, use the channel EFFECT controls to control send level to the internal SPX effect processor while using AUX 2 to feed an external effects unit, and AUX 1 to feed a stage monitor system.

Other Pro-class Features

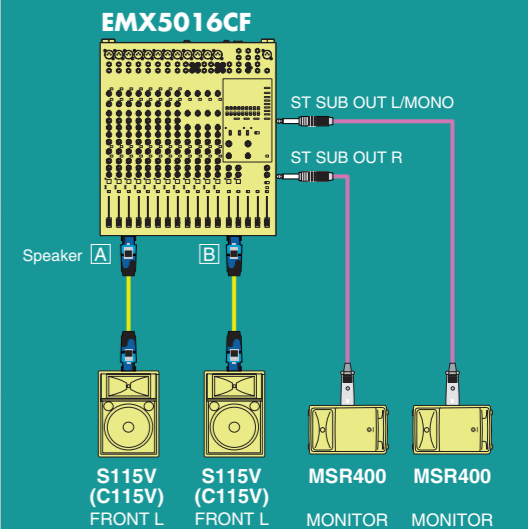
- Gain controls and 26-dB pad switches allow optimum level matching with just about any source.
- 80-Hz high pass filters for elimination of unwanted low-frequency noise and rumble.
- Channel ON switches let you switch individual channels into or out of the mix.
- Pan control adjusts the position of mono channel signals in the stereo sound field, while balance controls on stereo channels control the balance of the stereo image.
- High-quality linear faders individually adjust the level of each channel.
- PFL (pre-fader listen) switches allow isolated monitoring of individual channels.
- All input channels feature signal and peak indicators for visual signal monitoring.
- Linear AUX 1, AUX 2, EFF1 RTN and EFF2 RTN faders with PFL (pre-fader listen) switches on the effect returns and AFL (after-fader listen) monitor switches on the auxiliary returns.
- Stereo master fader with both PFL and AFL monitor switches.
- Yamaha Speaker Processing delivers enhanced lows and high-end smoothness with Yamaha Club-series speakers.
- Limiter indicators tell you when the internal limiter circuitry has been activated due to power amplifier overload.
- Power Amp mode selector allows two-channel power amplifier to be quickly configured for Main + Main, Mono + Aux 1, or Aux 1 + Aux 2 operation.
- Power amplifier output selector allows selection of 500, 200, or 75 watt output per channel.
- Stand-by switch instantly mutes all mono inputs.
- Precise 12-segment stereo level meter.
- Phones jack with independent level control.
- High-quality SPEAKON speaker connectors for fast, reliable connection.
- Rack mountable with the optional RK5014 rack-mount kit.
- Console lamp connector accepts standard 3-pin XLR-connector gooseneck lamp (12 volts DC, 5 watts max.).



System Example

500-watt Mains and Dual Monitors

In this basic system the EMX5016CF speaker outputs drive S115V speakers for solid front-of-house sound, while the sub-stereo outputs are connected to MSR400 powered speakers for stage monitoring.



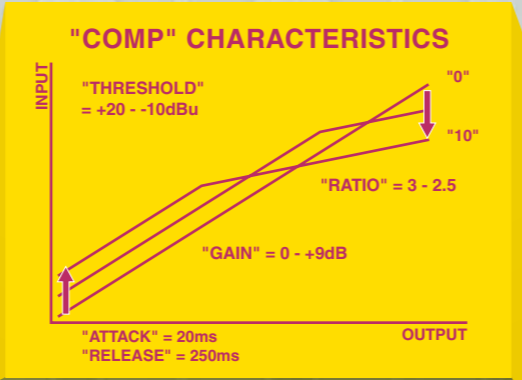
A Console-format Powered Mixer for Advanced Live Applications

More sources? Bigger venues? If your sound reinforcement requirements are getting serious, but you still want the convenience and reliable performance of a Yamaha powered mixer, check out the console-style EMX5014C. Here's an all-in-one solution that will appeal to bands and venue operators alike. The EMX5014C transports and sets up with the ease of systems built around the smaller EMX-series powered mixers, but will also prove it's worth in more permanent installations. It can even be rack-mounted for vertical or angled operation, and real space savings! But 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.

EMX5014C POWERED MIXER

- Up To 8 Mics, 14 Inputs Total
- 4 Stereo inputs
- 500 W + 500 W (4Ω)
- Input Gain Trim
- One-knob Compression
- 3-band Mid-sweep Channel EQ
- LPF
- FCL System
- Dual AUX Sends
- SPX Digital Effects
- 9-band Stereo Graphic EQ
- PFL and AFL Monitoring
- Power Select Switch
- Standby Mode
- Power Amp Mode Switch
- YAMAHA Speaker Processing
- Lightweight Design (10.5kg)
- Rack Mountable

*Optional RK5014



Console Controllability and Versatility

With the many features and control functions provided by the EMX5014C, console style is the only way to go. It's still compact enough to be placed in the stage area and controlled by the performers – especially if rack mounted – but its console configuration also makes it an ideal choice for front-of-house type operation by a sound engineer. Linear faders are another advantage of the console layout, providing precise level control as well as graphic representation of relative channel levels.

Expanded EQ Capability

Like the other EMX-series mixers, the EMX5014C features 3-band EQ on all input channels, but goes a step further on the six mono channels with mid-frequency sweep controls. The mid EQ center frequency can be continuously swept from 250 Hz through 5 kHz so you can precisely pinpoint frequencies in the critical midrange that require compensation or enhancement, providing significantly greater enhanced tailoring potential. The stereo graphic equalizer has also been expanded with 9 bands that can be used for more effective room voicing or feedback control.

One-knob Compression on Mono Channels

Built-in channel dynamics is normally a feature reserved for much larger (and more expensive) mixers. But in the EMX5014C you get compressors on all six monaural mic/line channels. Judicious application of compression can help to make vocals ride the mix better, give you that smooth compressed guitar sound, deliver more punchy bass, and generally refine your mixes in a multitude of ways. Yamaha's unique one-knob compressors are simple to use, too. There's no need to juggle multiple attack, threshold, makeup gain, and other controls – just set the COMP control to the amount of compression you need.

Feedback Channel Locating (FCL) System

FCL System indicator LEDs at the top of each channel light if the corresponding channel goes into feedback. So if and when feedback occurs you'll be able to locate the channel(s) in which it is occurring immediately and rectify the problem without delay.

Versatile 14-Input Configuration

The EMX5014C has a total of 14 input channels – six for monaural microphone or line input, plus four stereo pairs. Two of the stereo channels can function either as monaural microphone inputs or stereo line inputs. Switchable phantom power is provided for all microphone inputs. This system lets you use up to eight microphone channels plus two stereo inputs if your sources are mostly microphones. Or if you need to handle more stereo sources – say, Background Music, from a DJ mixer, and two stereo keyboards – the EMX5014C will comfortably handle all of these in addition to six monaural microphone or line inputs.

Comprehensive I/O

Although the EMX5014C and a pair of speakers or two are all you need to create a powerful, high-performance live sound system, it features a range of inputs and outputs that allow it to be integrated into larger systems. Insert patch points on the mono input channels, for example, let you add onboard signal processing to individual input channels. And although you have all the effects you're likely to need built in, and monitor power, external AUX and EFFECT sends allow you to route the mixer's signals to external signal processing and/or monitor systems as required. Stereo out, stereo sub-out, and record outputs are also provided.

SPX Digital Effects

Normally you'll only need ambience effects such as reverb and delay for live sound applications – and the EMX5014C includes some of the finest reverb and delay effects available built right in – but if you need other effects as well they're right at your fingertips. You can dial up a selection of 16 top-quality Yamaha SPX effects – including reverb, echo, chorus, flanger, phaser, and even distortion. Yamaha SPX digital effects are widely recognized as being some of the finest available, and the effects provided in the EMX mixers live up to that reputation.



Dual AUX Sends

AUX 1 and AUX 2 send controls, with pre/post fader switching for AUX 2, adjust the level of the channel signal sent to the auxiliary buses for monitoring or effects send. The availability of two AUX sends provides considerable flexibility for effect and monitor routing. You could, for example, use the channel EFFECT controls to control send level to the internal SPX effect processor while using AUX 2 to feed an external effects unit, and AUX 1 to feed a stage monitor system.

Yamaha Speaker Processing

You'll undoubtedly want to use at least one pair of Yamaha Club-series speakers with the EMX5014C for the superior sound and projection they provide. If you do you'll really appreciate the enhanced low-end output and high-end smoothness provided by built-in Yamaha speaker processing.

Rack Mountable

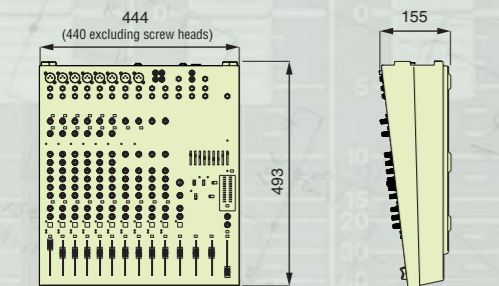
With the optional RK5014 rack-mount kit, the EMX5014C can be conveniently mounted in a portable or installed rack. This has been made possible by a combination of the mixer's configuration and a highly efficient fan cooling system that ensures reliable, stable operation.

Other Pro-class Features

- Gain controls and 26-dB pad switches allow optimum level matching with just about any source.
- 80-Hz high pass filters for elimination of unwanted low-frequency noise and rumble.
- Channel ON switches let you switch individual channels into or out of the mix.
- Pan control adjusts the position of mono channel signals in the stereo sound field, while balance controls on stereo channels control the balance of the stereo image.
- High-quality linear faders individually adjust the level of each channel.
- PFL (pre-fader listen) switches allow isolated monitoring of individual channels.
- All input channels feature signal and peak indicators for visual signal monitoring.
- Linear AUX 1, AUX 2, and EFFECT RTN faders with AFL (after-fader listen) monitor switches.
- Stereo master fader with both PFL and AFL monitor switches.
- Limiter indicators tell you when the internal limiter circuitry has been activated due to power amplifier overload.
- Power Amp mode selector allows two-channel power amplifier to be quickly configured for Main + Main, Mono + Aux 1, or Aux 1 + Aux 2 operation.
- Power amplifier output selector allows selection of 500, 200, or 75 watt output per channel.
- Stand-by switch instantly mutes all mono inputs.
- Precise 12-segment stereo level meter.
- Phones jack with independent level control.
- High-quality SPEAKON speaker connectors for fast, reliable connection. Phone jack connectors are also provided.



Dimensions



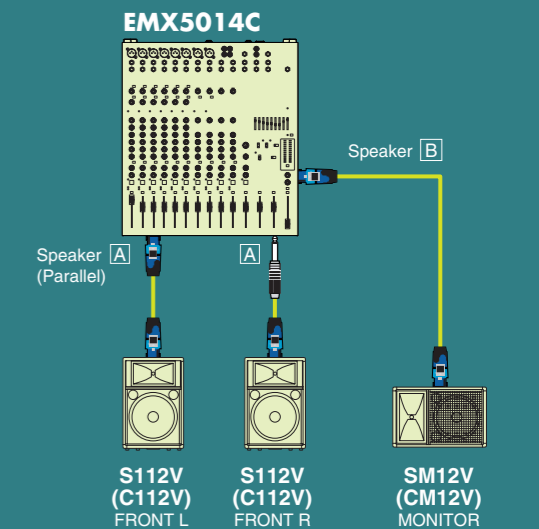
Rear Panel



System Example

500-watt Mains and Monitor

In this basic system the EMX5014C Speaker A output is driving a pair of parallel-connected S112V speakers for solid front-of-house sound, while an SM12V driven by the Speaker B output serves as a stage monitor.



Integrated Solutions for Superior Live Sound

Experienced musicians, performers, speakers, and club operators know the importance of a high-quality sound system with the right features and performance to deliver their sound. Where portability and convenience are 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 unrivalled Yamaha sound.



Angled Cabinet for Easy Access

This thoughtful feature makes the control panel easy to see and access when the unit is placed on the floor.

EMX512SC POWERED MIXER

For larger venues and audiences, or if you plan to use it for outdoor sound, the EMX512SC with a pair of whopping 500-watt amplifiers to ensure that your music or message comes across with full impact.

- Up To 8 Mics, 12 Inputs Total
- 2 Stereo inputs
- 500 W + 500 W (4Ω)
- 3-band Channel EQ
- 7-band Stereo Graphic EQ
- One-knob Compression
- FCL System
- SPX Digital Effects
- Power Select Switch
- Standby Mode
- YAMAHA Speaker Processing
- Lightweight Design
- Angled Cabinet
- Rack Mountable

*Optional RK512



EMX312SC POWERED MIXER

If you need a little more power – 300 watts + 300 watts – and the added advantage of one-knob compression on mono channels, the EMX312SC may be the model you need.

- Up To 8 Mics, 12 Inputs Total
- 2 Stereo inputs
- 300 W + 300 W (4Ω)
- 3-band Channel EQ
- 7-band Stereo Graphic EQ
- One-knob Compression
- FCL System
- SPX Digital Effects
- Power Select Switch
- Standby Mode
- YAMAHA Speaker Processing
- Lightweight Design
- Angled Cabinet
- Rack Mountable

*Optional RK512

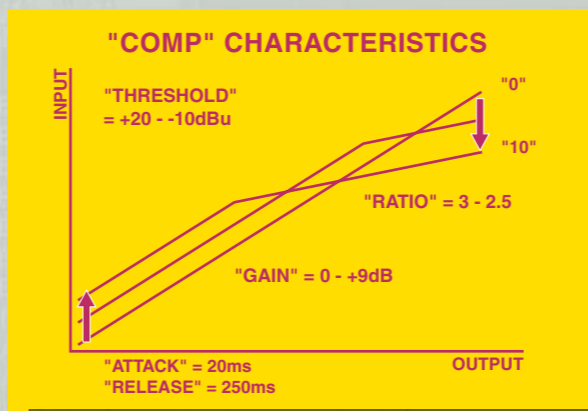


EMX212s POWERED MIXER

The lowest-powered model in the series offers a pair of 220-watt amplifiers per channel that should be more than sufficient for small-to-medium size venues.

- Up To 8 Mics, 12 Inputs Total
- 2 Stereo inputs
- 220 W + 220 W (4Ω)
- 3-band Channel EQ
- 7-band Stereo Graphic EQ
- SPX Digital Effects
- Power Select Switch
- Standby Mode
- YAMAHA Speaker Processing
- Lightweight Design
- Angled Cabinet
- Rack Mountable

*Optional RK512



Features For Superior Sound and Convenience

Great Yamaha Sound

Yamaha is a leader in the field of professional live sound for a very good reason: we deliver the sound and performance that the pros demand. The EMX-series powered mixers are no exception. They're built at the same standards of sonic performance and rugged reliability that makes Yamaha the first choice for live sound applications from schools to stadiums around the globe.

One-knob Compression on Mono Channels (EMX512SC & EMX312SC)

All four mono mic/line channels on the EMX512SC and EMX312SC feature built-in compressors that can help to bring vocals to the front of the mix, give your guitars extra smoothness and presence, deliver a more punchy bass sound, and generally refine your mixes in a multitude of ways. These one-knob compressors are simple to use, too. There's no need to juggle multiple attack, threshold, makeup gain, and other controls – just set the COMP control to the amount of compression you need.

Feedback Channel Locating (FCL) System

FCL System indicator LEDs at the top of each channel light if the corresponding channel goes into feedback, so you won't have to fumble around searching for the channel that needs adjustment.

12 Inputs

All three mixers in this series offer a total of 12 input channels – four for mono microphone (incl. Phantom Power) or line input, plus four pairs that can function either as mono microphone inputs or stereo line inputs – providing you with a versatile mix of input capabilities for a wide range of applications. If you need only microphone inputs you can use up to eight mic channels. Or if, for example, you want to play recorded background music during breaks (that's one stereo channel), and you have a keyboard player with a stereo-output keyboard (that's one more stereo channel), you still have six mic/line inputs. If you use all four stereo pairs to handle stereo line sources you have four channels available for mono mic or line input. This is a very versatile system that can adapt to your needs.

High Power For Main and Monitor Speakers

These powered mixers certainly don't skimp on power. From the EMX212S with 200 watts per channel to the EMX512SC with a solid 500 watts per channel, there's a power configuration to suit any application and venue. All models also feature a power mode switch that lets you use the two power channels as a stereo amplifier, or you can use one of the channels for the main speaker(s) and the other to drive monitors with a separate monitor mix set up via the channel MONITOR controls.



SPX Digital Effects

The EMX212S, EMX312SC, and EMX512SC all feature a selection of 16 top-quality Yamaha SPX effects – including reverb, echo, chorus, flanger, phaser, and even distortion – that can add the final touch to your live presentation. Yamaha SPX digital effects are widely recognized as being some of the finest available, and the effects provided in the EMX mixers live up to that reputation.

Built-in Graphic EQ

Graphic equalizers are provided for both the main and monitor channels, so you can effectively control feedback or tailor the sound to the match the room and program material.

Stand-by Mode

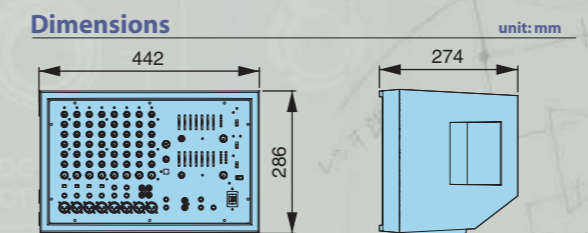
When you're done with a set, simply engage the stand-by mode to mute all mono channels while leaving the 2-track inputs active for background music playback while you're taking your break.

Yamaha Speaker Processing

Yamaha Club-series speakers are fine performers in their own right, but with Yamaha Speaker Processing you get extra-smooth highs and enhanced low-frequency output.

Durable, Lightweight Design

The EMX powered mixers offer the ideal combination of outstanding sound performance and easy handling. They're lightweight – only 8 kilograms (17.6 lbs.) – and feature conveniently located handles for maximum carrying comfort. They're also built tough to withstand the rigors of use on the road.





P.T. Yamaha Music manufacturing Asia

—Manufacturing the electronic instruments and PA products
 From the initial design to final production processes for the Yamaha EMX series Powered Mixers are performed entirely inside the company.
 Moreover, every product that comes off our production line must pass strict quality controls using the sophisticated test instruments. Thus, all of this enables us to deliver the highest quality products to you.

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. Compression is indispensable in almost all professional recording and live-sound applications, but we believe that this is the first time it has been built into an analog live mixer.
- Most "box type" mixers have no insert connectors, so there has really been no convenient way to use compression with them. As a result, many users of this type of powered mixer have never used compression, but we wanted them to have that option in the new EMX series.
- Although compression is used in most pro audio applications, it has been a bit too difficult for beginners to take full advantage of. That's why we've streamlined it down to the essentials and made it very easy to use.
- Another important new feature is FCL (Feedback Channel Location). This system detects feedback and shows you which channel is causing the problem. Some mixers from other manufacturers have indicators in the graphic equalizer section that show the feedback frequency, but indicating the problem channel allows the feedback to be more effectively controlled using channel EQ.
- If you try to control feedback using the EMX graphic equalizer, for example, you end up changing the sound of the entire program. For this reason it is far more effective to control it at the input, thus avoiding degradation of the overall sound.

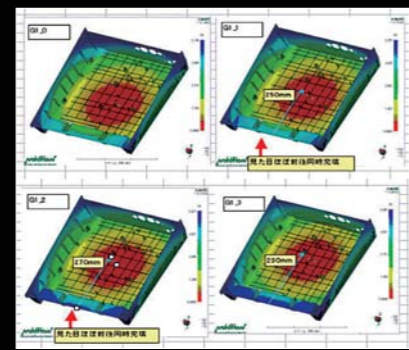
The Battle Against Heat

- Tell us about how you avoided heat problems in such compact enclosures.
 Heat and high power output unavoidably go hand-in-hand. In this case we were also determined to reduce weight, so the design, hardware, and mechanics teams joined forces to pursue this goal. Changing even a single component can alter the heat profile enough to require a change in heat sink design, and that change can cause a change in sound quality, so the design process involves a lot of trial and error.
- In this particular case, the fact that we were able to use internal heat-flow simulation and analysis was a huge advantage. We were able to define an enclosure shape on the computer, and then by analyzing the heat flow while refining the heat sink configuration we were able to come to within 80% or 90% of the ideal final design. The final stages using physical prototypes still relied on trial and error.

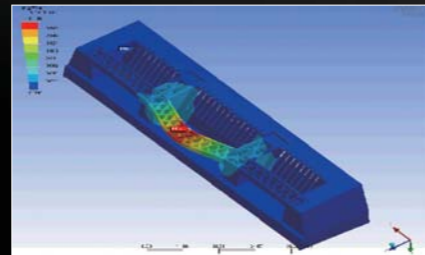
- In the box-type 212C, 312SC, and 512SC, it was easy to mount the fan away from the circuit board to minimize degradation of the audio signal. But in the console-type EMX5016CF and EMX5014C finding the ideal fan location was extremely difficult. Since the fan must be located near the input circuitry, special measures have been taken to ensure that electronic and mechanical noise from the fan do not affect sound quality, while at the same time ensuring maximum heat extraction.
- The hardware team wanted to increase the size of the body by 30 millimeters, but our goals for a streamlined, compact design were important enough that we decided to find other ways to achieve the desired performance.

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-type 5016CF and 5014C. We wanted to consolidate the mixer controls, so the utility control section has been clearly separated. We didn't even want any handles to be visible.
- An important idea implemented in the box-type models is that they can be set at an angle like monitor speakers. The integral handles are also an important design feature, and achieving the required strength was a constant problem.
- Achieving the ideal blend of size, weight, and durability is quite difficult. As usual, demands from the sales team continue to escalate while the hardware and mechanics teams try to turn them into reality ... without ever reducing or compromising features or performance. Computer simulation was called into play once again, providing an accurate preview of the mold-flow characteristics of the resin used for the box-type housings.
- The final strength of the molded housings depends to a large degree on how the molten resin is introduced in the mold, and how it flows within the mold.



- The strength of the integral handles was also predicted using computer simulation, and as a result, we have achieved strength comparable to that of aluminum.



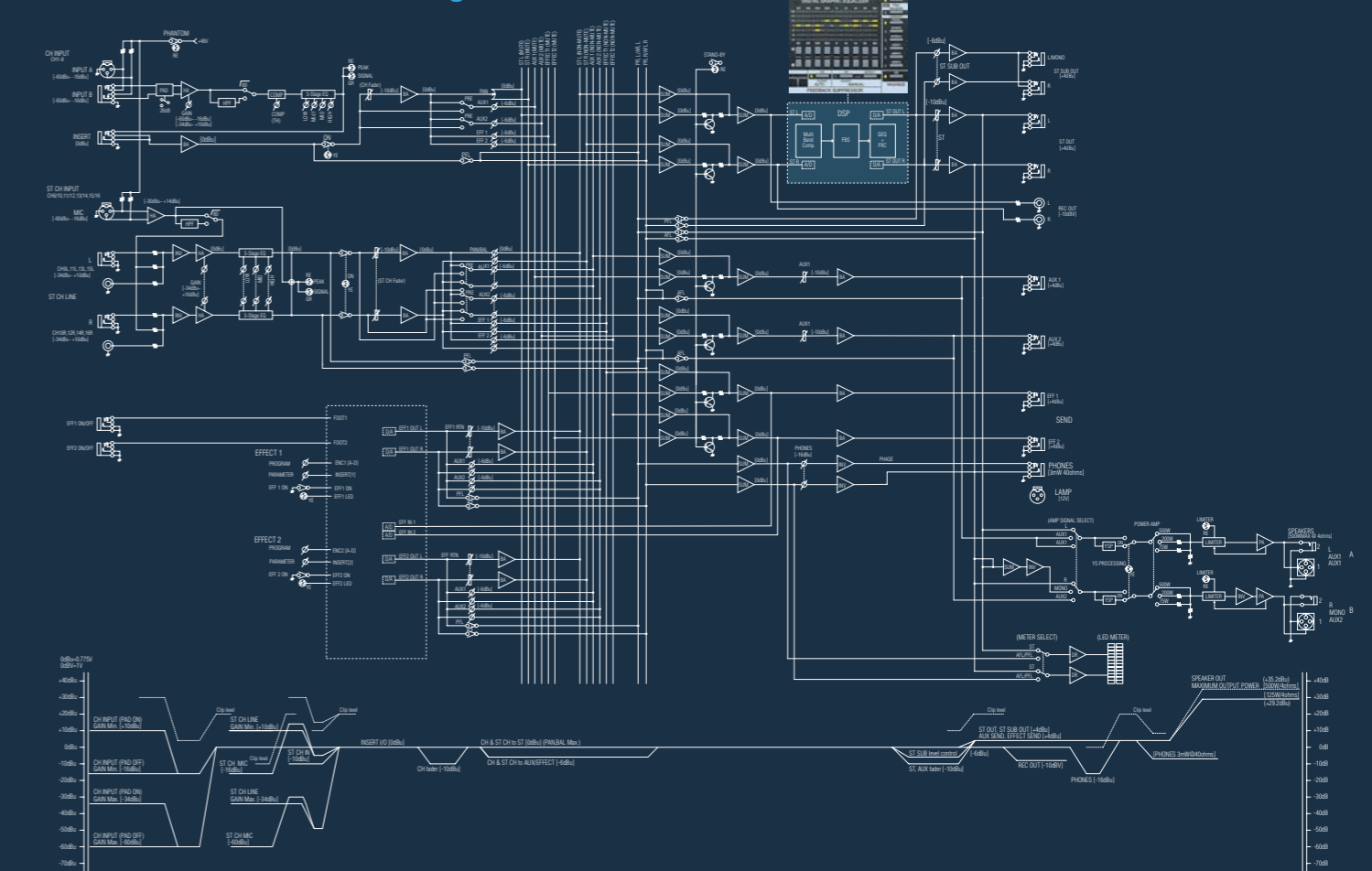
Achieving Pure Sound Quality

- What measures have been taken to ensure optimum sound quality?
 Of course sound quality is first and foremost in the design of any model. Achieving the lowest possible noise and hum when changing components is always a challenge. There's influence from vibration, from the current flowing through the components themselves, and a simple op-amp IC change can precipitate a large change in sound. We often find ourselves using the best components we can find rather than compromise on sound quality. Even the FCL system has an effect on the sound, and we were able to achieve a dramatic improvement by simply eliminating a single component from the circuit. Once again, the final design depends on trial-and-error listening tests while changing components.
- With SPX effects in all models in this EMX series, plus compression and FCL, you can rely on a single EMX powered mixer to deliver outstanding live sound, especially in applications that use mostly microphones.

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

- Simplicity. Standard compression controls can be very difficult to set quickly and accurately, but we've managed to provide well-balanced threshold and ratio settings that can be controlled by a single knob. By focusing primarily on microphone applications in which compression is applied to vocals, acoustic guitar, or similar sources, great-sounding compression can be dialed in quickly and easily.
- There's a good description of compression and its uses in the owner's manual. We hope that our users will take advantage of this very useful feature.

EMX5016CF Block and Level Diagram



EMX5016CF Specifications

GENERAL SPECIFICATION

	EMX5016CF
Maximum Output Power @ 0.5% THD at 1 kHz	500 W/4 Ω 350 W/8 Ω (UA) 320 W/8 Ω (H)
Frequency Response	-3, 0, 1 dB 20Hz-20kHz, ref to the 1kHz output level, GAIN=MIN, PAD=OFF
Total Harmonic Distortion	Less than 0.3% (THD+N) +14dBu output into 600 Ω @ 20 Hz-20 kHz
Hum & Noise	Equivalent Input Noise, -128 dBu, GAIN=MAX, 20 Hz-20 kHz, CH1-8 MIC
Crosstalk @ 1 kHz	-68 dB
Input Connectors	CH 1-8: XLR and Phone CH 9/10-15/16: XLR, Phone and Pin
CHANNEL EQ	CH 1-8: HIGH (10 k, Shelving), MID (mono: 250-5 k, st: 2.5 k, Peaking), LOW (100, Shelving) CH 9/10-15/16: HIGH (10 k, Shelving), MID (st: 2.5 k, Peaking), LOW (100, Shelving)
Phantom Voltage	48 V
Digital Graphic Equalizer	9 Band (63, 125, 250, 500, 1 k, 2 k, 4 k, 8 k, 16 kHz), Preset x 3, User preset x 3
Digital Effects	SPX Digital Multi Effector (24 bit AD/DA, 32 bit Internal Processing), 16 Programs x 2
Power Amp. Mode	L/R, AUX1/MONO, AUX1/2
Foot Switch	Effect On/Off
Dimensions (W x D x H)	444 x 493 x 155 mm (17-3/8" x 19-3/8" x 6-1/8")
Weight	11 kg (24.2 lbs.)
Power Requirements/Consumption	120 V 60 Hz, 500W 220-240 V 50 Hz, 500W

All level controls are nominal, when measured. Output impedance of signal generator: 150 Ω

INPUT CHARACTERISTICS

Input Terminals	PAD	GAIN	Actual Load Impedance	For Use With Nominal	Input Level			Connector
					Sensitivity *2	Position	Max. Before Clip	
CH INPUT A 1-8	0dB	-60 dB	3 kΩ	50-600 Ω Mics	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	XLR-3-31 type *3
		-16 dB			-38 dBu (12.3 mV)	-16 dBu (1.23 V)	+4 dBu (1.23 V)	
		+10 dB			-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	
CH INPUT B 1-8	0dB	-60 dB	10 kΩ	600 Ω Lines	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	Phone Jack *4
		-16 dB			-38 dBu (12.3 mV)	-16 dBu (1.23 V)	+4 dBu (1.23 V)	
		+10 dB			-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	
ST CH MIC INPUT 9/10-15/16	-	-60 dB	3 kΩ	50-600 Ω Mics	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	XLR-3-31 type *3
		-16 dB			-38 dBu (12.3 mV)	-16 dBu (1.23 V)	+4 dBu (1.23 V)	
ST CH LINE INPUT 9/10-15/16	-	-34 dB	10 kΩ	600 Ω Lines	-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	Phone Jack *5
		+10 dB			-10 dBu (245 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)	
CH INSERT IN (1-8)	-	-	10 kΩ	600 Ω Lines	-20 dBu (0.775 V)	0 dBu (7.75 V)	+20 dBu (7.75 V)	Phone Jack *5 (1-8)
		-			-	-	-	

*1 0 dBu is referenced to 0.775 Vrms.
 *2 Sensitivity is the lowest level that will produce an output of +4 dBu (1.23 V), or the nominal output level when the unit is set to maximum level. (All level controls are at maximum position.)
 *3 XLR-3-31 type connectors are balanced. (1-GND, 2-HOT, 3-COLD)
 *4 Phone Jacks are balanced. (Tip=HOT, Ring=COLD, Sleeve=GND)
 *5 Phone Jacks are unbalanced.

OUTPUT CHARACTERISTICS

Output Terminals	Actual Source Impedance	For Use With Nominal	Output Level		Connector
			Nominal	Max. Before Clip	
ST OUT [L, R]	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
ST SUB OUT [L, R]	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
AUX SEND 1, 2	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
EFF SEND 1, 2	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
CH INSERT OUT 1-8	600 Ω	10 kΩ Lines	0 dBu (0.775 V)	+20 dBu (7.75 V)	Phone Jack *2
REC OUT [L, R]	600 Ω	10 kΩ Lines	-10 dBV (316 mV)	+10 dBV (3.16 V)	RCA Pin Jack
PHONES [L, R]	100 Ω	40 Ω Lines	3mW	75mW	Phone Jack (TRS)
SPEAKERS	0.1 Ω	4 Ω Speakers	125W	500W	SPEAKON Phone Jack *2

*1 0 dBu is referenced to 0.775 Vrms. 0 dBV is referenced to 1 Vrms.
 *2 Phone Jacks are unbalanced.

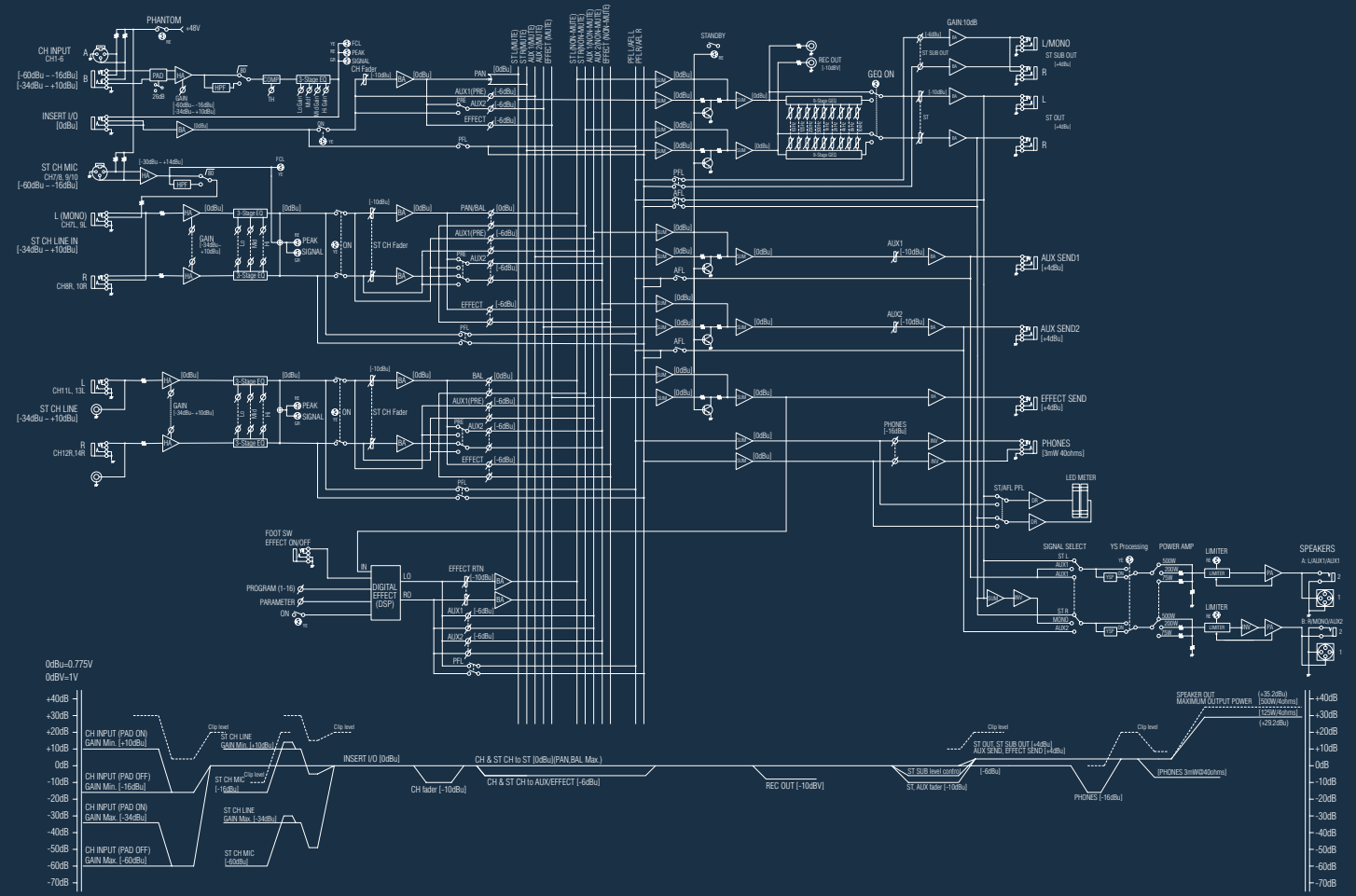
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Rack Mount Adaptor RK5014

The EMX5016CF can be rack-mounted using an optional rack-mounting kit for optimum integration with any system or installation.

EMX5014C Block and Level Diagram



EMX5014C Specifications

GENERAL SPECIFICATION

	EMX5014C
Maximum Output Power @ 0.5% THD at 1 kHz	500 W/4 Ω 350 W/8 Ω (UA) 320 W/8 Ω (H)
Frequency Response	-3, 0, 1 dB 20 Hz-20 kHz, ref to the nominal output level @ 1 kHz
Total Harmonic Distortion	Less than 0.3% (THD+N) +14dBu output into 600 Ω @ 20 Hz-20 kHz
Hum & Noise	Equivalent Input Noise, -128 dBu, GAIN=MAX, 20 Hz-20 kHz, ST OUT
Crosstalk @ 1 kHz	-68 dB
Input Connectors	CH 1-6: XLR and Phone CH 7/8, 9/10: XLR and Phone CH 11/12, 13/14: XLR and Pin
EQ	HIGH (10 k, Shelving), MID (mono: 250-5 k, st: 2.5 k, Peaking), LOW (100, Shelving)
Phantom Voltage	48 V
Graphic Equalizer	9 Band (63, 125, 250, 500, 1 k, 2 k, 4 k, 8 k, 16 kHz)
Digital Effects	SPX Digital Multi Effector (24 bit AD/DA, 32 bit Internal Processing): 16 Programs
Power Amp. Mode	L/R, AUX1/MONO, AUX1/2
Foot Switch	Effect On/Off
Dimensions (W x D x H)	444 x 493 x 155 mm (17-3/8" x 19-3/8" x 6-1/8")
Weight	10.5 kg (23.1 lbs.)
Power Requirements/Consumption	U/C: 120 V 60 Hz, 450 W H: 230 V 50 Hz, 450 W BS: 240 V 50 Hz, 450 W

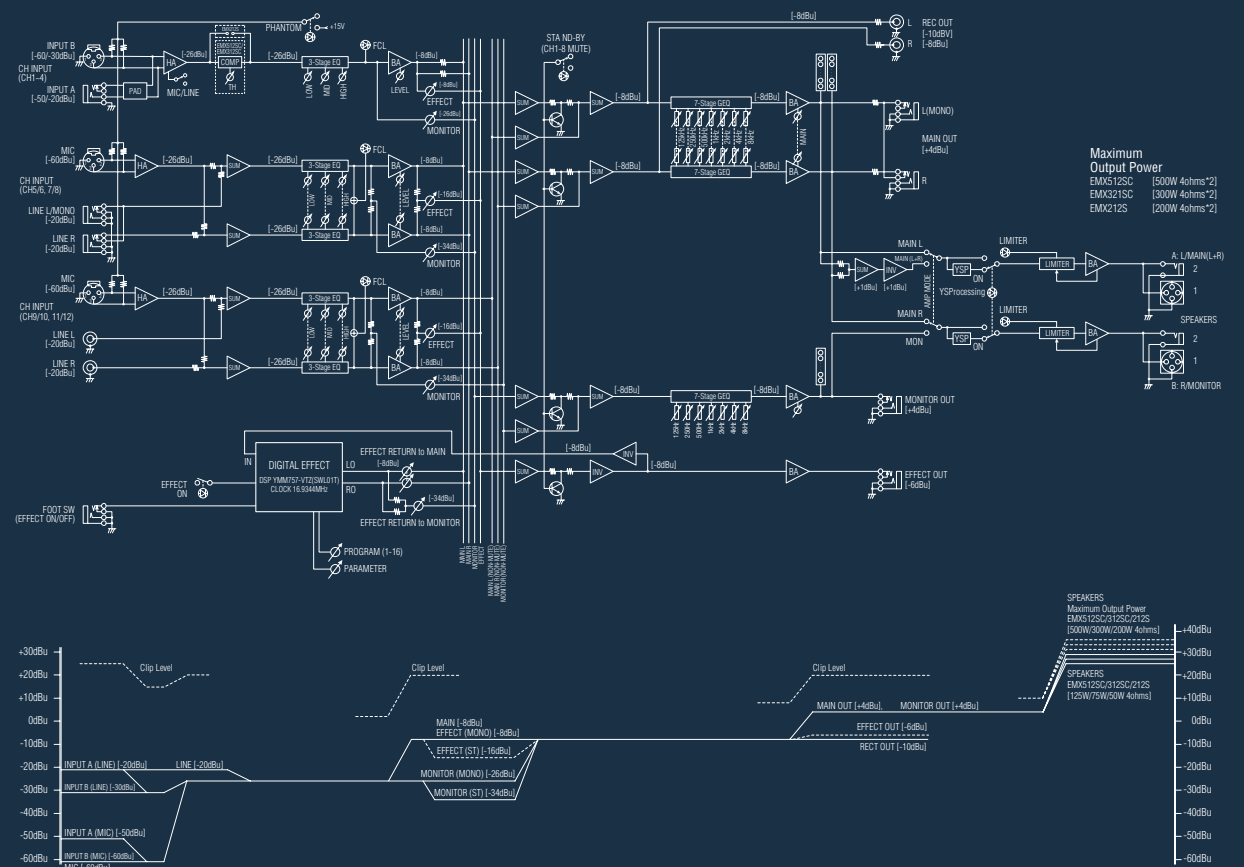
All level controls are nominal, when measured. Output impedance of signal generator: 150 Ω



Rack Mount Adaptor RK5014

The EMX5014C can be rack-mounted using an optional rack-mounting kit for optimum integration with any system or installation.

EMX512SC, EMX312SC, EMX212S Block and Level Diagram



EMX512SC, EMX312SC, EMX212S Specifications

GENERAL SPECIFICATION

	EMX512SC	EMX312SC	EMX212S
Maximum Output Power @ 0.5% THD at 1 kHz	500 W/4 Ω 350 W/8 Ω (UA) 320 W/8 Ω (H)	300 W/4 Ω 190 W/8 Ω (UA) 180 W/8 Ω (H)	220 W/4 Ω 130 W/8 Ω (UA) 130 W/8 Ω (H)
Frequency Response	-3, 0, 1 dB 20 Hz-20 kHz, ref to the nominal output level @ 1 kHz	Less than 0.5% (THD+N) +14 dB @ 20 Hz, 1 kHz, 20 kHz, GAIN control: all nominal	
Total Harmonic Distortion	Equivalent Input Noise, -115 dBu, Rs = 150 Ω CH 1-4 MIC/LINE: MIC		
Hum & Noise ¹	-65 dB		
Crosstalk @ 1 kHz	-65 dB		
Input Connectors	CH 1-4: XLR and Phone CH 5/6, 7/8: XLR and Phone CH 9/10, 11/12: XLR and Pin		
EQ	HIGH (10 k, Shelving), MID (2.5 k, Peaking), LOW (100, Shelving)		
Phantom Voltage	15 V		
Graphic Equalizer	7 Band (125, 250, 500, 1 k, 2 k, 4 k, 8 kHz): Main (Stereo) and Monitor		
Digital Effects	SPX Digital Multi Effector (24 bit AD/DA, 32 bit Internal Processing): 16 Programs		
Power Amp. Mode	MAIN L/R, MAIN (L+R)/MONITOR		
Foot Switch	Effect On/Off		
Dimensions (W x D x H)	442 x 274 x 286 mm (17-3/8" x 10-3/4" x 11-1/4")		
Weight	8 kg (17.6 lbs.)		
Power Requirements/Consumption	U/C: 120 V 60 Hz, 450 W H: 230 V 50 Hz, 450 W A: 240 V 50 Hz, 450 W	U/C: 120 V 60 Hz, 400 W H: 230 V 50 Hz, 400 W A: 240 V 50 Hz, 400 W	U/C: 120 V 60 Hz, 270 W H: 230 V 50 Hz, 270 W A: 240 V 50 Hz, 270 W

¹ Hum & Noise are measured with a 8 dB/octave filter @ 12.7 kHz, equivalent to a 20 Hz filter with infinite dB/octave attenuation.



Rack Mount Adaptor RK512

All models in this series can be rack-mounted using an optional rack-mounting kit for optimum integration with any system or installation.

INPUT CHARACTERISTICS

Input Terminals	MIC/LINE	Actual Load Impedance	For Use With Nominal	Input Level	Connector		
CH INPUT 1-4	XLR	MIC	2 kΩ	50-600 Ω Mics	XLR-3-31 type *3		
						LINE	-60 dBu (0.69 mV)
	PHONE	6 kΩ	600 Ω	-30 dBu (21.8 mV)			-5 dBu (436 mV)
				MIC		-50 dBu (2.18 mV)	-25 dBu (43.6 mV)
CH INPUT 5/6, 7/8	PHONE	—	2 kΩ	600 Ω Mics	XLR-3-31 type *3		
						LINE	-20 dBu (69.0 mV)
CH INPUT 9/10, 11/12	XLR	—	2 kΩ	50-600 Ω Mics	XLR-3-31 type *3		
						PHONE	—
CH INPUT 9/10, 11/12	Pin	—	10 kΩ	600 Ω Lines	RCA Pin Jack		
						MIC	-60 dBu (0.69 mV)

¹ 0 dBu is referenced to 0.775 Vrms.
² Sensitivity is the lowest level that will produce an output of +4 dB (1.23 V), or the nominal output level when the unit is set to maximum level. (All level controls are at maximum position).
³ XLR-3-31 type connectors are balanced. (1=GND, 2=HOT, 3=COLD)
⁴ Phone Jacks are balanced. (Tip=HOT, Ring=COLD, Sleeve=GND)
⁵ Phone Jacks are unbalanced.

OUTPUT CHARACTERISTICS

Output Terminals	Actual Source Impedance	For Use With Nominal	Output Level	Connector	
SPEAKER OUT [A1, A2, B1, B2]	0.1 Ω	4 Ω Speakers	EMX512SC: 125 W	500 W	
			EMX312SC: 75 W	300 W	
			EMX212S: 50 W	200 W	
MAIN OUT [L, R]	600 Ω	10 kΩ Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
EFFECT OUT	600 Ω	10 kΩ Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
MONITOR OUT	600 Ω	10 kΩ Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
REC OUT [L, R]	600 Ω	10 kΩ Lines	-10 dBV (316 mV)	+10 dBV (3.16 V)	RCA Pin Jack

¹ 0 dBu is referenced to 0.775 Vrms. 0 dBV is referenced to 1 Vrms.
² Phone Jacks are unbalanced.

INPUT CHARACTERISTICS

Input Terminals	PAD	GAIN	Actual Load Impedance	For Use With Nominal	Input Level			Connector	
					Sensitivity *2	Position	Max. Before Clip		
CH INPUT A 1-6	0dB	-60 dB	3 kΩ	50-600 Ω Mics	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	XLR-3-31 type *3	
		-16 dB			-36 dBu (12.3 mV)	-16 dBu (123 mV)	+4 dBu (1.23 V)		
	26dB	-34 dB			-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)		Phone Jack *4
		+10 dB			-10 dBu (2.45 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)		
CH INPUT B 1-6	0dB	-60 dB	10 kΩ	600 Ω Lines	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	Phone Jack *4	
		-16 dB			-36 dBu (12.3 mV)	-16 dBu (123 mV)	+4 dBu (1.23 V)		
	26dB	-34 dB			-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)		Phone Jack *4
		+10 dB			-10 dBu (2.45 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)		
ST CH INPUT 7/8-9/10	—	-60 dB	3 kΩ	50-600 Ω Mics	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	XLR-3-31 type *3	
		-16 dB			-36 dBu (12.3 mV)	-16 dBu (123 mV)	+4 dBu (1.23 V)		
	—	-34 dB			-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)		Phone Jack *5
		+10 dB			-10 dBu (2.45 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)		
ST CH INPUT 11/12-13/14	—	-60 dB	10 kΩ	600 Ω Lines	-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	Phone Jack *5	
		-16 dB			-10 dBu (2.45 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)		
	—	+10 dB			-10 dBu (2.45 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)		RCA Pin Jack
		+10 dB			-10 dBu (2.45 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)		
CH INSERT IN (1-6)	—	—	10 kΩ	600 Ω Lines	-20 dBu (7.75 mV)	0 dBu (0.775 V)	+20 dBu (7.75 V)	Phone Jack *5	

¹ 0 dBu is referenced to 0.775 Vrms.
² Sensitivity is the lowest level that will produce an output of +4 dBu (1.23 V), or the nominal output level when the unit is set to maximum level. (All level controls are at maximum position).
³ XLR-3-31 type connectors are balanced. (1=GND, 2=HOT, 3=COLD)
⁴ Phone Jacks are balanced. (Tip=HOT, Ring=COLD, Sleeve=GND)
⁵ Phone Jacks are unbalanced.

OUTPUT CHARACTERISTICS

Output Terminals	Actual Source Impedance	For Use With Nominal	Output Level		Connector
			Nominal	Max. Before Clip	
ST OUT [L, R]	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
ST SUB OUT [L, R]	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
AUX SEND 1, 2	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
EFFECT SEND	150 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone Jack *2
CH INSERT OUT 1-6	600 Ω	10 kΩ Lines	0 dBu (0.775 V)	+20 dBu (7.75 V)	Phone Jack *2
REC OUT [L, R]	600 Ω	10 kΩ Lines	-10 dBV (316 mV)	+10 dBV (3.16 V)	RCA Pin Jack
PHONES [L, R]	100 Ω	8 Ω/40 Ω Lines	1mW/3mW	20mW/75mW	Phone Jack (TRS)
SPEAKER OUT	0.1 Ω	4 Ω Speakers	125W	500W	SPEAKER Phone Jack *2

¹ 0 dBu is referenced to 0.775 Vrms. 0 dBV is referenced to 1 Vrms.
² Phone Jacks are unbalanced.

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