

MIXING  
CONSOLES

# GA32/12

# GA24/12



# Group/Aux Diversity Means Unprecedented Mixing Versatility

The Yamaha GA32/12 and GA24/12 are high-performance mixing consoles designed primarily for sound reinforcement applications and installations. 32-input and 24-input models are available, both with a unique 12-buss architecture – 10 mix busses plus stereo – featuring Yamaha's Group/Aux Diversity system for unprecedented flexibility. The GA consoles also feature a center-master design with a logical, easy-to-use control layout, and are remarkably affordable in spite of their outstanding overall quality and extraordinary versatility.



## Group/Aux Diversity System

Most mixing consoles have a fixed buss system: e.g. say 4 groups busses, 3 or 4 auxiliary busses, a stereo buss, and maybe a mono buss. The numbers and variations are endless, but you're stuck with the configuration you initially purchased. If your buss requirements change, you need a new console. And if your buss requirements change from project to project, you'll need a console with much more capacity than any single job requires.



The GA Diversity system provided on the GA Series Mixing

Consoles gives you the flexibility to match the console's buss configuration to a wide range of signal-routing requirements. 4 of its 10 mix busses can be individually switched from pre-fader auxiliary send status to group type operation, so you can have 2 groups and 8 auxiliary sends, 4 groups and 6 auxiliary sends, or any other combination the job requires.

## Clean Signals From Input To Output

Many mixer circuits must handle low-level signals - the head amplifiers, for example - and must be designed with extra care or they can be a major source of noise and distortion. Other critical design criteria include inter-stage matching, internal impedance, circuit layout, grounding, component selection, and a veritable plethora of other factors that affect performance and the mixer's overall "sound". Here's where Yamaha technology makes a real difference. Whether you're using microphone or line input, Yamaha's high-performance circuitry gives you an exceptionally clean, quiet signal from input to output. But then there's RF rejection. RF (Radio Frequency) noise generated by motors, video monitors, and digital equipment of almost any kind can make the cleanest, quietest circuitry virtually worthless. The GA32/12 and GA24/12 boast outstanding RF noise rejection, so you can use them just about anywhere.

## Specs You Can Trust

Yamaha never has "tweaked" specifications. Never will. It's amazing how mediocre specs can be made to look impressive by simply optimizing test conditions. The electrical specifications we publish are all brutally honest, measured under the stated and/or industry-standard conditions. When in doubt, we urge you to use the most sensitive sound measurement devices available: your own ears. They'll tell you who you can trust.

## Rugged & Reliable

From connectors to controls to chassis, GA consoles are built to last. Whether used in an installation or taken on the road, these attractively-finished, rugged consoles will keep on performing with the utmost reliability.

*GA24/12 Front Panel*



*GA32/12 Rear Panel*



# Mono & Stereo Input Channels



## ❖ Inputs

The GA32/12 has 28 mono input channels, and the GA24/12 has 20 mono input channels, with balanced XLR-type microphone inputs and balanced/unbalanced TRS phone jack line inputs. Phantom power is switchable in 4-input groups for all mono inputs, providing direct compatibility with high-performance phantom-powered condenser microphones and DI boxes.

On both the GA32/12 and GA24/12 stereo line sources can be directly connected to either of 2 stereo input channels (a total of four inputs) with unbalanced L/MONO and R phone jack inputs. The L/MONO inputs allow the stereo channels to be used for mono signals.

## ❖ Channel Insertion

Insert send/return patch points are included on all mono channels for convenient insertion of compressor/limiters (a must for top-quality vocal sound), equalizers, or any other outboard equipment you might need to apply to individual channels.

## ❖ Input Controls & Level Matching

Gain trim controls with a 44-dB range and LED peak indicators on all mono and stereo inputs facilitate optimum level matching with a wide range of sources. The mono inputs additionally feature 26-dB pad switches, phase switches for easy input phase correction, and switchable high-pass filters to cut out rumble and other low-frequency noise.

## ❖ 4-band Channel EQ

4-band equalization on each input channel can be used to bring out the best in the sound of individual instruments or voices, emphasize a channel in relation to others, blend the sound of several channels, create special effects, reduce noise, and much more. The hi-mid and lo-mid bands on the mono channels are sweepable for

extra control precision. EQ bypass switches are provided on all channels so equalization can be punched in or out as required without having to change settings.

## ❖ Four Group/Aux Sends

The M1 through M4 “Mix Send” controls feed the GA console’s unique GA Diversity system. When the corresponding FIX/VAR switch in the master section is set to the “VAR” position, that send functions as a pre-fader auxiliary send: i.e. the send control adjusts the level of the signal sent to the corresponding buss (M1 ... M4), and the send ON switch simply turns the corresponding send on or off. If a FIX/VAR switch is set to the “FIX” position, the send then functions as a post-fader group send: The send control is bypassed, and the send ON switch functions as a group assign switch.

## ❖ Six Aux Sends

The M5 through M10 controls function as auxiliary sends, feeding the corresponding mix buss. These controls can be switched to receive the pre- or post-fader signal in groups of two (5/6, 7/8, and 9/10).

## ❖ Stereo Assign & Panning

Stereo assign switches and pan controls on each input channel assign the corresponding channel signal to the GA console’s stereo buss.

## ❖ Channel Faders, Pre-fader Listen, & Channel ON Switches

Smooth, noise-free 100-mm linear faders make it easy to set up the optimum balance between channels, while PFL (Pre-Fader Listen) switches allow convenient solo monitoring of a channel’s pre-fader signal. All channels additionally feature channel on switches that can be used to switch the channel signal into or out of the mix without changing any other settings.

# Master Controls



## ❖ GA Diversity FIX/VARI Switches

The core of the GA console's innovative GA Diversity system, these switches determine whether the corresponding sends on the input channels - M1 through M4 - function as auxiliary or group sends (see "Four Group/Aux Sends," above, for more details).

## ❖ Mix Buss Master Strips M1 through M4

The first four mix buss master strips - M1 through M4 - receive either the pre-fader aux signal or the post-fader group signal from the channel sends, depending on the setting of the corresponding GA Diversity FIX/VARI switch. Each strip has its own 3-band equalizer and EQ switch, as well as a "to stereo" switch, a pan control which assign the mix buss signal to the console's stereo buss. The mix buss master strips also feature 100-mm faders and AFL (After-Fader Listen) switches for convenient solo monitoring.

## ❖ Mix Buss Master Strips M5 through M10

Mix buss strips M5 through M10 receive the auxiliary signal from the corresponding channel send controls. Like the M1 through M4 strips, strips M5 through M10 have individual 3-band equalizers and EQ switches as well as 100-mm faders and AFL (After-Fader Listen) switches.

## ❖ Stereo Master Strip

The stereo buss feeds two stereo output pairs: stereo 1 and stereo 2. The main linear stereo fader feeds the balanced stereo 1 outputs, with AFL listen capability. The stereo 2 signal can be derived pre or post the stereo 1 fader, and feeds an unbalanced output

pair via the rotary stereo 2 level control. A mono switch is also provided to sum the stereo 2 signal to mono for instant mono monitoring or to feed a mono sound system.

## ❖ Stereo Aux Returns and Buss Sends

The stereo auxiliary return 1/2 pair has controls to adjust the level of the returned signal sent to the M1 through M4 mixes and the stereo buss as well as return on/off switch and PFL switches. The signal returned to the stereo auxiliary return 3/4 pair can be sent to any of the remaining mix busses (M5 through M10), or to the stereo buss. The 3/4 returns also have on/off and PFL switches.

## ❖ Two Matrix Mixes

Matrix controls can be used to set up two matrix sub-mixes from the M1 through M4 mix busses and the stereo buss. Both matrix mixes include mix on/off switches and AFL switches.

## ❖ Flexible Monitoring & Metering

Convenient monitoring is provided by control-room monitor and headphones outputs with independent level controls, and peak-reading level meters providing accurate visual monitoring of the signal appearing at the ten mix busses, the stereo buss, and the PFL and AFL busses.

## ❖ Handy Rec Outputs & Tape Inputs

Rec outputs provide a line-level stereo output for convenient recording of the main program, while tape inputs with a level control allow the output from a recorder or other line-level source to be added to the console's stereo signal.

# SPECIFICATIONS / BLOCK DIAGRAM

## General specifications

<b>Frequency response</b>	20 Hz–20 kHz +1 dB, –2 dB, +4 dB 600Ω (ST1 OUT, ST2 OUT, MIX OUT, MATRIX OUT)		
<b>Total harmonic distortion</b>	<0.1% @20 Hz–20 kHz, +14 dB 600Ω (ST1 OUT, ST2 OUT, MIX OUT, MATRIX OUT)		
<b>Hum and noise</b> (Rs=150Ω, 20 Hz–20 kHz)	–128 dB equivalent input noise –95 dB residual output noise (ST1 OUT, ST2 OUT, MIX OUT, MATRIX OUT) –83 dB residual output noise (ST1 OUT) ST master fader at nominal level. all channel fader, mix level control: minimum ST switch: OFF –78 dB residual output noise (MIX OUT) Mix master fader at nominal level. all channel fader, mix level control: minimum M1–M4 switch: OFF –64 dB (68 dB S/N) (ST1 OUT, MIX OUT) ST master/mix master fader, one channel fader and mix level control at nominal level. one channel gain control: maximum		
<b>Maximum voltage gain</b>	84 dB CH IN to ST1 OUT 84 dB CH IN to MIX OUT 58 dB ST IN to ST1 OUT 58 dB ST IN to MIX OUT		
<b>Crosstalk at 1 kHz</b>	–70 dB adjacent input –70 dB input to output		
<b>Gain control</b>	44 dB variable		
<b>Channel input pad</b>	0 dB/26 dB		
<b>Channel input HPF</b>	80 Hz 12 dB/oct		
<b>Input channel equalization</b>	±15 dB Maximum	10 kHz* shelving	
		HI-MID 400 Hz–8 kHz	peaking
		LO-MID 80 Hz–1.6 kHz	peaking
		LOW 100 Hz* shelving	
<b>ST input channel equalization</b>	±15 dB Maximum	10 kHz* shelving	
		HI-MID 3 kHz	peaking
		LO-MID 800 Hz	peaking
		LOW 100 Hz* shelving	
<b>Mix out equalization</b>	±15 dB Maximum	10 kHz* shelving	
		MID 300 Hz–6 kHz	peaking
		LOW 100 Hz* shelving	
<b>Meters</b>	13 points LED × 14		
<b>Channel peak indicators</b>	An indicator for each channel turns on when the pre-channel fader signal is –3 dB below clipping.		

<b>Phantom power</b>	+48V (balanced)	
<b>Power requirement</b>	USA and Canadian General	120 V AC 60 Hz 230 V AC 50 Hz
<b>Power consumption</b>	120 W	
<b>Dimensions (W × H × D)</b>	GA32/12: 1372 × 161 × 705 mm (54" × 6-5/16" × 27-3/4") GA24/12: 1144 × 161 × 705 mm (45-1/16" × 6-5/16" × 27-3/4")	
<b>Weight</b>	GA32/12: 38 kg (83.8 lbs.) GA24/12: 34 kg (75 lbs.)	

\* Turn over/Roll off frequency of shelving: 3 dB below maximum variable level.  
Specifications are subject to change without prior notice.

## Input specifications

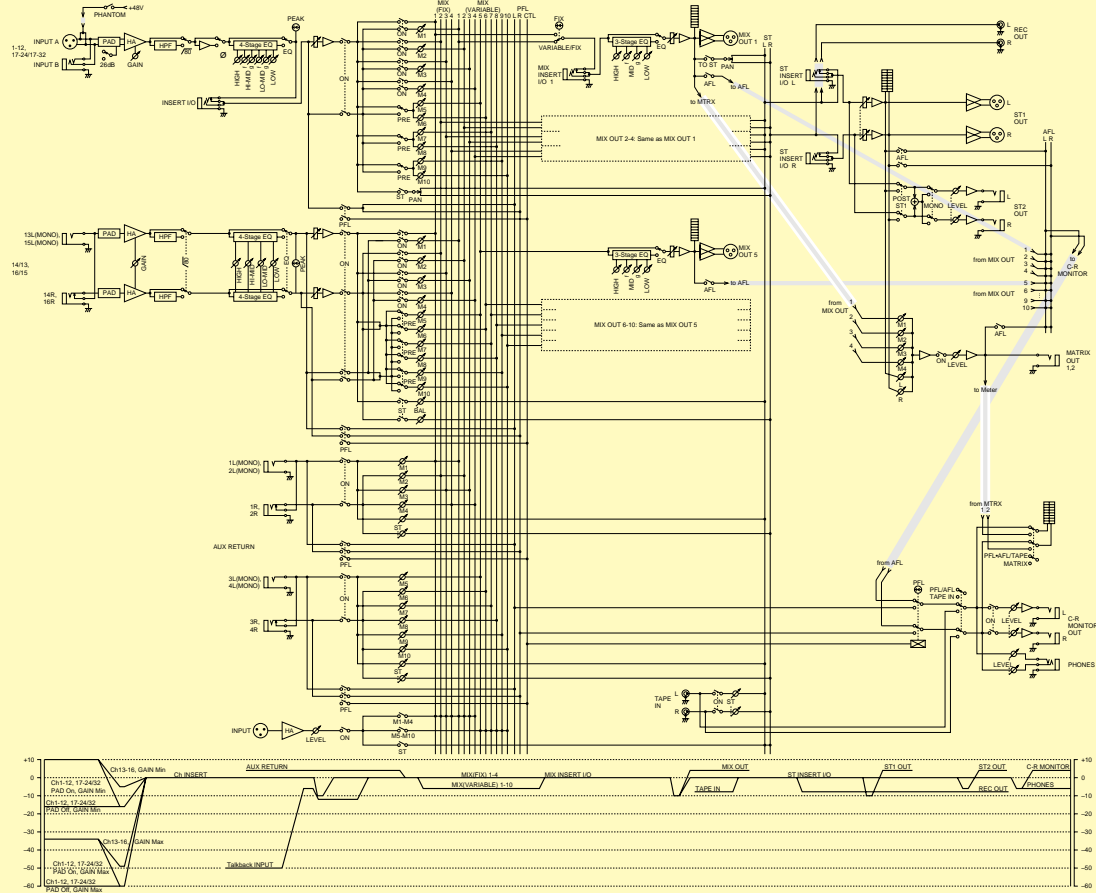
Input connectors	Gain trim	Input impedance	Nominal impedance	Input level			Connector type
				Sensitivity 1	Nominal Level	Max. before clipping	
CH INPUT 1–12, 7–24/32	MAX	3 kΩ	50–600Ω Mics	–86 dB (38.8μV)	–60 dB (775μV)	–40 dB (7.75mV)	A: XLR-3-31 type 2 B: Phone jack
	MIN			–42 dB (6.16mV)	–16 dB (123mV)	+4 dB (1.23V)	
CH INPUT 13–16	MAX	10 kΩ	600Ω Line	–60 dB (775μV)	–34 dB (15.5mV)	–14 dB (155mV)	Phone jack (TRS) 3
	MIN			–16 dB (123mV)	+10 dB (2.45V)	+30 dB (24.5V)	
AUX RETURN				–12 dB (195mV)	+4 dB (1.23V)	+20 dB (7.75V)	
TAPE IN				–26 dB (50.1V)	–10 dBV (316mV)	+8 dBV (2.51V)	Phono
CH INSERT I/O				–26 dB (38.8mV)	0 dB (775mV)	+20 dB (7.75V)	Phone jack, TRS 4
ST INSERT I/O				–10 dB (245mV)			
MIX INSERT I/O							
TALKBACK INPUT			50–600Ω Mics	–66 dB (338μV)	–50 dB (2.45mV)	–24 dB (48.9mV)	XLR-3-31 type 3

1. Sensitivity is the lowest level that will produce an output of +4dB (1.23V) or the nominal output level when the unit is set to maximum gain. 2. Balanced 3. Unbalanced 4. T: OUT, R: IN, S: GND \* 0 dB=0.775 Vrms, 0 dBV=1 Vrms

## Output specifications

Output connectors	Output impedance	Nominal impedance	Output level		Connector type
			Nominal	Max. before clipping	
ST1 OUT	150Ω	600Ω Lines	+4 dB (1.23V)	+24 dB (12.3V)	XLR-3-32 type 1
ST2 OUT				+20 dB (7.75V)	Phone jack 2
MIX OUT	75Ω			+24 dB (12.3V)	XLR-3-32 type 1
MATRIX OUT				+20 dB (7.75V)	Phone jack 2
C-R MONITOR OUT					
REC OUT			–10 dBV (316mV)	+10 dBV (3.16V)	Phono
CH INSERT I/O	600Ω	10 kΩ Lines	0 dB (775mV)	+20 dB (7.75V)	Phone jack, TRS 3
ST INSERT I/O					
MIX INSERT I/O					
PHONES	100Ω	40Ω Phones	3mW	100mW	ST phone jack

1. Balanced 2. Unbalanced 3. T: OUT, R: IN, S: GND \* 0 dB=0.775 Vrms, 0 dBV=1 Vrms



For details please contact:

Pro Audio Home Page  
<http://www.yamaha.co.jp/product/proaudio/homeenglish/index.html>



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