### LS9 Specifications

#### General Specifications
- **Sampling Frequency**
  - Internal: 44.1kHz, 48kHz
  - External: 39.69 - 50.88kHz
- **Fader**
  - 100mm motorized x3 <LS9-32>, x2 <LS9-16>
- **LED Display**
  - 520 x 240 dots Graphic Color LCD
- **Phantom Power**
  - 48V

#### Analog Input Characteristics

<table>
<thead>
<tr>
<th>Input Terminals</th>
<th>GAIN</th>
<th>Impedance</th>
<th>For Use With</th>
<th>Input Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT 1-16 &lt;LS9-16&gt;</td>
<td>-62dB</td>
<td>3kΩ</td>
<td>50-600Ω</td>
<td>Mics &amp; -82dBu (61.6µV) -62dBu (0.616mV) -42dBu (6.16mV) XLR-3-31 type</td>
</tr>
<tr>
<td>INPUT 1-32 &lt;LS9-32&gt;</td>
<td>+10dB</td>
<td>600Ω</td>
<td>Lines -10dBu (245mV) +10dBu (2.45V) +30dBu (24.5V) with latch (Balanced)</td>
<td></td>
</tr>
</tbody>
</table>

#### Analog Output Characteristics

<table>
<thead>
<tr>
<th>Output Terminals</th>
<th>Impedance</th>
<th>Gain Switch*5</th>
<th>Output Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMNI OUT 1-8 &lt;LS9-16&gt;</td>
<td>75Ω</td>
<td>2.4kΩ</td>
<td>+24dB (default) +4dBu (1.23 V) +24dBu (12.3 V) XLR-3-32 type (Balanced)</td>
</tr>
<tr>
<td>OMNI OUT 1-16 &lt;LS9-32&gt;</td>
<td>500Ω</td>
<td>20kΩ</td>
<td>+18dB -2dBu (616mV) +18dBu (6.16V)</td>
</tr>
</tbody>
</table>

#### Digital Input Characteristics

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Format</th>
<th>Data Length</th>
<th>Level</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>2TR IN DIGITAL</td>
<td>COAXIAL</td>
<td>IEC-60958</td>
<td>24bit</td>
<td>0.5Vpp/75Ω RCA Pin Jack</td>
</tr>
</tbody>
</table>

#### Digital Output Characteristics

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<th>Level</th>
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<tr>
<td>2TR OUT DIGITAL</td>
<td>COAXIAL</td>
<td>IEC-60958</td>
<td>Consumer Use</td>
<td>0.5Vpp/75Ω RCA Pin Jack</td>
</tr>
</tbody>
</table>

#### Yamaha Mini-YGDAI cards

LS9-32 has 2 Mini-YGDAI card slots, the LS9-16 has one. Each slot offers up to 16 I/O channels, with Mini-YGDAI cards available for digital I/O on ADAT, TASCAM or AES/EBU formats, or for extra analog I/O capability.

### Dimensions

<table>
<thead>
<tr>
<th>Dimensions (W x H x D mm)</th>
<th>LS9-32</th>
<th>986 x 235 x 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS9-16</td>
<td>980 x 220 x 500</td>
<td></td>
</tr>
</tbody>
</table>

#### Fort Weight

| LS9-32 | 16.5kg |
| LS9-16 | 13.9kg |

#### Power Requirements

| LS9-32 | 170 W, 110–240 V, 50/60 Hz |
| LS9-16 | 95 W, 110–240 V, 50/60 Hz |

#### Storage Temperature Range

-20°C to +60°C

#### Temperature Range Operation

+10°C to +35°C

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http://www.yamahaproaudio.com

LPA522

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Good Reasons to Go Digital

Digital mixing and processing for live sound has come of age, and there’s no turning back. Throughout the audio industry the most demanding sound engineers and audio company professionals are turning to digital mixing as a way of enhancing quality, efficiency and commercial advantage. If you’re planning to upgrade a small or medium-scale analog system, there are plenty of great reasons to go digital. The Yamaha LS9-16 and LS9-32 are two very good reasons indeed. They offer the most up-to-date and mature digital mixing capabilities in their class, with an interface that makes operation easy even for the inveterate analog user. They do it in consoles that are remarkably compact and lightweight – even the LS9-32 can be tucked under an arm and moved around quite comfortably. Just try doing that with a 32 channel analog console and the racks of outboard gear that would be required to equal the functionality of these digital mixers. Both LS9-16 and LS9-32 can grow with your needs too; they have a second layer of channel processing power that lets you control up to another 16 or 32 channels of audio inputs from digital sources and/or analog sources with no compromises on features or quality. And then there’s the sound. From the acclaimed PM1D digital live sound console right down the line, superlative sound is another reason discerning professionals choose Yamaha Digital Mixing Consoles for critical live sound applications around the globe.

Main Features

- 16 or 32 top-performance recallable head amplifiers deliver microphone and line sources with extraordinary presence and realism.
- An additional 16 or 32 channels of processing power ready to receive audio via the Mini-YGDAI expansion slots, providing a total of 32 or 64 channels.
- 4 stereo input channels.
- An extensive range of channel functions accessible via Yamaha’s acclaimed Selected Channel interface.
- Versatile bus architecture with comprehensive digital patching capability: 16 mix buses, 8 matrix buses, and a stereo and mono bus that can be used in LCR mode.
- Virtual GEQ and effect rack offers easy access to built-in graphic equalization and effects that would fill a full-size rack or two if similar analog gear were used.
- Built-in USB Memory Recorder/Player eliminates the need for an external device for simple off-board recording, and can supply background music and sound effects as required.
- Full-console scene Store and Recall.
- Ready to use out of the box with pre-patched effects and pre-fader aux mixes for monitor splits.
- One or two Mini-YGDAI slots for easy system expansion.
- Compact size 480 x 220 x 500 and 884 x 220 x 500 weigh only 12 and 19.4 kg, respectively.
The LS9-16: Anywhere You Need Advanced Live Sound Support

The surprisingly small size and lightweight of the LS9-16 make it a perfect choice for applications that require maximum portability and handling ease. Use it for events or temporary live sound setups, and benefit from the power and performance of much larger and more complex systems in an eminently portable package that can be set up and operated anywhere with ease.

The LS9-32: High Input Capacity and a Generous Bus Structure for Serious Live Sound

With 32 input headamps the LS9-32 can comfortably handle the complex and varied source requirements presented by a wide range of live sound applications, but it’s always reassuring to know that you can expand it up to 64 channels by just adding external preamps and Mini-YGDAI interface cards for those extra demanding line-ups. Whether used in an installation or on the road, the LS9-32 will deliver the performance and versatility of large-scale systems in dramatically less space, with less hassle, and significantly lower overall cost.

Compare the Cost and Complexity

Suppose you need a compact console, but also graphic equalizers for front-of-house and monitors, a couple of effect processors for reverb and delay, compressors and gates, a 2-track player/recorder for BGM and reference recording... that’s already a fairly large rack full of gear, but it’s still a bare minimum for most serious sound applications. Think about transporting and setting up all that gear (don’t forget all the cables you’ll need), and add up the cost in terms of the equipment itself as well as transportation, staff, storage, and maintenance.

Now imagine all of that and much more in a single rackmount console that weighs only 12kg, and you have the LS9-16. It’s all pre-patched and tested in the factory so you just need to connect microphones to the inputs and speakers to the outputs and you are ready for soundcheck. If you need more capacity you can use the Mini-YGDAI expansion port system to connect a couple of rackmount head amplifiers and have up to 32 channels without taking up much more space. The advantages are obvious for touring and temporary systems, but installations will also benefit from the significant space savings and reduced cabling requirements. And of course everybody – audience included – benefits from the outstanding versatility and sound these extraordinary digital consoles deliver.
LS9 General Function

Intuitive Interface for Easy Access and Control
The LS9-16 and LS9-32 make immense digital processing power and control flexibility available via an interface that will quickly become comfortable and convenient for the first-time user. Anyone who has ever used a Yamaha digital console before will feel right at home. Fader levels are directly controlled via precision 100-millimeter motor faders for instant hands-on access. Corresponding illuminated switches are provided for channel on/off switching and cueing, and independent LED level meters let you keep an eye on channel signal levels. Yamaha’s acclaimed Selected Channel interface provides efficient access to other channel functions via an ingenious integration of physical controllers and a large color LCD panel. Deeper functions and system settings can be efficiently accessed via the console’s “Display Access” keys and programmed via the LCD display and data entry controls. A “Home” key brings you right back to the main operating mode no matter where you are, so you need never be lost in menus.

16 or 32 Mono Input Channels Plus 4 Stereo Input Channels Expandable Up to 32 or 64 Channels in Two Layers
One of the reasons the LS9 consoles are so compact – and another reason you’ll want to go digital – is that a total of 17 physical faders on the LS9-16, or a total of 33 on the LS9-32, give you fast, easy access to all input channel, mix bus, matrix, and master levels. On both consoles the input channels are available in two fully patchable layers: 1~16 and 17~32 on the LS9-16, or 1~32 and 33~64 on the LS9-32. And you can switch between layers instantly by keeping a single dedicated button. You can organize your inputs so that channels you’ll want to operate most of the time are in the “top” layer, or you can “vertically” link input channels across the two layers for stereo operation. Of course you can link channels “horizontally” in the same layer if you like, but pairing vertically keeps controls you don’t need to operate out of the way. You can even “Y-split” channels to appear in both layers and have a monitor and a FOH layer. There’s also a “Master” button that brings all 16 mix bus levels to the console’s faders on the LS9-16, and additionally the matrix levels and mono bus level on the 33-fader LS9-32. In addition to the two input channel layers and master layer, the LS9 consoles feature a “Custom Fader” layer to which you can assign any combination of input and output channel faders your application requires. Stereo inputs are handled in a similar way on the LS9-16, with two stereo inputs on each of the input layers. The LS9-32 provides panel controls for all four stereo inputs. The LS9-16 provides 16 analog inputs built-in, while the LS9-32 has 32 internal analog inputs. Additional inputs can be provided via the LS-9-16’s single rear-panel Mini-YGDAI expansion slot, or the dual expansion slots provided on the LS9-32.

16 Mix Buses, 8 Matrix Buses, Plus Stereo and Mono Buses with LCR Mode
The 16 mix buses can function as any combination of 16 auxiliary sends or sub-groups. That’s a lot of AUX knobs and/or faders. However on the LS9 consoles the mix bus levels are controlled via the “1-16, 17-32 or 1-32, 33-64” fader layer with the simple sends on fader function. Just touch the “Master” button and faders 1 through 16 directly control the mix bus levels. Each of the mix buses can be easily assigned for mono or stereo operation. You can also choose the send point to be pre or post fader, and when it’s post-fader you can even select the send point to be pre or post EQ and dynamics. But don’t worry about the choices because Yamaha provides an easily recalled default setup scene that lets you get mixing straight out of the box. The LS9 also features an 8-bus matrix that can be used to provide additional outputs whenever they are needed. The matrix can receive signals from output groups so it can be used to create extra monitor mixes or used for different level and EQ setting in a distributed PA system. And for main output both models have a stereo bus and a mono bus that can either be used independently or in LCR mode with proper LCR pan control. Outputs can be patched to any of eight analog “Omni” outputs on the LS9-16, or 16 omni outputs on the LS9-32. Additional outputs can be provided via the rear-panel Mini-YGDAI expansion slots – one slot on the LS9-16, and two slots on the LS9-32.

A headphone jack and level control are conveniently located on the console’s front panel.
High-performance Recallable Head Amps
Head amps are the analog counterparts to the digital mixers that are critical for determining the console’s final sound and making the mix sound more like a mix. The LS9 head amps are the most accurate and user-friendly in their class, which is why they are essential for achieving the best possible sound quality and impact. But there’s more. Although the LS9 head amplifier is analog for quality and “feel” they are still digitally “recallable,” meaning that their gain, phase, and phantom power settings are stored and recalled with the console’s scene.

Comprehensive Channel Functions with Inheritance Selected Channel Control
The LS9 consoles have a powerful range of channel functions that can be accessed and used as easily as on any analog console—the only difference being that if all of these functions were provided on an analog console, the modules would be impractically long! Simply press the [SEL] key of the channel you want to control, and use the Channel Encoder to adjust as required:

**High-resolution Controls**
- **PAN**
  - Pan control for mono, stereo, and console balance. Control for stereo channels and groups is the same as for mono channels, and can be assigned to either standard stereo LR or LR operation. In the LR mode a Center-Side Ratio control becomes available, as can be used to adjust the proportion between center and LR non-center.

**Virtual Rack with Extensive Effects and EQ**
Most live-sound systems include a CD player and/or recorder of some sort to provide background music and allow recording of the program for reference purposes. That’s one or two pieces of equipment, but the LS9-32 and the LS9-16 have many more effects as you’ll discover. There are 31-band graphic EQs available, as well as the innovative “Flex EQ” on input EQs so that any EQ changes you make in real-time can be recalled at a later time for other scenes.

**Scene Recall is an Exceptional Feature**
Scene recall is an exceptional feature because it is so simple to use, yet it is so useful when setting up or changing systems. Any of the input channels can be assigned to a talkback line for instant recall whenever you need it. Scene recall is an essential feature of any digital console before you’ll really appreciate the digital solution, and if you’ve never used a digital console before you’ll really appreciate the digital solution.

**Mute Groups and Scene Recall**
Mute groups let you specify the parameters to be recalled with each scene. For example, you might recall your vocal compressor present on key features are also controlled with the console to modify the settings. Scene recall is an essential feature of any digital console before you’ll really appreciate the digital solution, and if you’ve never used a digital console before you’ll really appreciate the digital solution.

**Built-in USB Memory Recorder/Player**
Most live-sound systems include a CD player and/or recorder of some sort to provide background music and allow recording of the program for reference purposes. That’s one or two pieces of equipment, but the LS9-32 and the LS9-16 have many more effects as you’ll discover. There are 31-band graphic EQs available, as well as the innovative “Flex EQ” on input EQs so that any EQ changes you make in real-time can be recalled at a later time for other scenes.

**Data Libraries**
The LS9 data libraries provide extensive resources to draw on when setting up effects, parametric EQ, graphic EQ, or dynamics processing. You can recall an appropriate preset and use it the way it is, or tweak it to suit specific needs. As an example, you might recall a vocal compressor present on key features are also controlled with the console to modify the settings. Scene recall is an essential feature of any digital console before you’ll really appreciate the digital solution, and if you’ve never used a digital console before you’ll really appreciate the digital solution.

**Versatile Monitoring Capability**
Mute Focus lets you specify the parameters to be recalled with each scene. For example, you might recall your vocal compressor present on key features are also controlled with the console to modify the settings. Scene recall is an essential feature of any digital console before you’ll really appreciate the digital solution, and if you’ve never used a digital console before you’ll really appreciate the digital solution.
The amount of signal processing power packed into the LS9 consoles is really quite impressive when looked at from the perspective of a comparable analog system. Here’s an example: if you wanted to replace a fully loaded LS9-32 with analog gear you’d need a large 32-channel console plus some racks loaded with 32 gates each, some racks loaded with 32 compressors each, another rack containing four GEQ units and four signal processors for effects, and perhaps yet another rack containing your CD player and recording gear.

And what a wiring and patching nightmare! When you consider that you get all of this and more in a compact console that a single person can pick up and move around without breaking into a sweat, the choice is obvious.