DIGITAL MIXING SYSTEM

User Guide

For firmware Version V1.4
Check the Allen & Heath web site for the latest version available

Publication AP8561
The GLD range of products complies with the European Electromagnetic Compatibility directives 2004/108/EC and the European Low Voltage directives 2006/95/EC.

Any changes or modifications to the equipment not approved by Allen & Heath could void the compliance of the product and therefore the users authority to operate it.

Limited One Year Manufacturer’s Warranty

This product is warranted to be free from defects in materials or workmanship for period of one year from the date of purchase by the original owner.

To ensure a high level of performance and reliability for which this equipment has been designed and manufactured, read this User Guide before operating.

In the event of a failure, notify and return the defective unit to the place of purchase. If this is not possible then please contact the authorised ALLEN & HEATH distributor or agent in your country as soon as possible for repair under warranty subject to the following conditions:

Conditions Of Warranty

The equipment has been installed and operated in accordance with the instructions in this User Guide.

The equipment has not been subject to misuse either intended or accidental, neglect, or alteration other than as described in the User Guide or Service Manual, or approved by ALLEN & HEATH.

Any necessary adjustment, alteration or repair has been carried out by an authorised ALLEN & HEATH distributor or agent.

This warranty does not cover fader wear and tear.

The defective unit is to be returned carriage prepaid to the place of purchase, an authorised ALLEN & HEATH distributor or agent with proof of purchase. Please discuss this with the distributor or the agent before shipping.

If the unit is to be repaired in a different country to that of its purchase the repair may take longer than normal, whilst the warranty is confirmed and parts are sourced.

Units returned should be packed to avoid transit damage.

In certain territories the terms may vary. Check with your ALLEN & HEATH distributor or agent for any additional warranty which may apply.

If further assistance is required please contact Allen & Heath Ltd.
**IMPORTANT** - Read these instructions before starting:

**Safety instructions**

Before starting, read the Important Safety Instructions printed on the sheets supplied with the equipment. For your own safety and that of the operator, technical crew and performers, follow all instructions and heed all warnings printed on the sheet and on the equipment panels.

**System operating firmware**

The function of the GLD is determined by the firmware (operating software) that runs it. Firmware is updated regularly as new features are added and improvements made. This guide relates to Version 1.4 firmware.

The latest firmware can be downloaded from the Allen & Heath web site, transferred to USB key and then loaded into the GLD mixer using the Firmware Update utility. If the AudioRack firmware is different to that running on the mixer it is automatically updated by the GLD mixer when the mixer powers up.

- Check the Allen & Heath web site for the latest version of GLD firmware.

**Software licence agreement**

By using this Allen & Heath product and the software within it you agree to be bound by the terms of the relevant End User Licence Agreement (EULA), a copy of which can be found on the Allen & Heath website in the product's pages and in the About section of the GLD built-in Help Manual. You agree to be bound by the terms of the EULA by installing, copying, or using the software.

**Further information**

For further information about the GLD please refer to the user guides associated with each system component. Also refer to the GLD Touch Screen Reference Guide available on the web site, and use the on-screen Help Manual available on the GLD-80 surface. Refer to the Allen & Heath web site for additional downloads, resources, knowledgebase and technical support.

**General precautions**

- To prevent damage to the controls and cosmetics, avoid placing heavy objects on the control surface, obstructing movement of the motorised faders, scratching the surface or touch screen with sharp objects, or rough handling and vibration.

- Protect the equipment from damage through liquid or dust contamination. Avoid dust or small objects getting into the fader slots. Cover the mixer when it is not being used for a long period.

- Computer and touch screen technology can be affected by extreme cold. If the equipment has been stored in sub-zero temperatures allow time for it to reach normal operating temperature before use at the venue. Recommended operating temperature for GLD is 5 to 35 degrees Celsius.

- Avoid using the equipment in extreme heat and direct sunlight. Make sure the mixer and rack ventilation slots are not obstructed and that there is adequate air movement around the equipment.

- Transport the GLD using a touring grade, purpose designed flightcase with adequate foam lining and internal support for protection.

- Clean the control surface with a soft brush and dry lint-free cloth. Avoid the use of chemicals, abrasives or solvents.

- It is recommended that servicing is carried out only by an authorised Allen & Heath agent. Contact details for your local distributor can be found on the Allen & Heath web site. Allen & Heath do not accept liability for damage caused by maintenance, repair or modification by unauthorised personnel.
Packed contents, registration and accessories

GLD Mixer

- User Guide AP8561
- Mains lead • Check this is correct for your territory

GLD-AR2412 AudioRack

- CAT5 cable 2m (6.6’)
- Information AP8566
- Mains lead • Check this is correct for your territory

GLD-AR84 AudioRack

- CAT5 cable 2m (6.6’)
- Information AP8720
- Mains lead • Check this is correct for your territory

Register your product online  http://www.allen-heath.com/support/register-product/

Accessories available

The 2m CAT5 cable shipped with the GLD AudioRack is to get you started or for local connection. For longer distances refer to the Allen & Heath web site for information on recommended cable types. The following are available from Allen & Heath:

- LEDlamp
  Part LEDlampX
  Right angled 4-pins XLR with built-in dimmer

- Soft cover
  GLD-80 AP8806
  GLD-112 AP9263
  Black, water repellent polyester

- ME Personal Mixing System
  ME-1 Personal Mixer
  ME-U 10-port PoE hub for ME-1 mixers

- 120m (396’) CAT5 drum
  AH8721 • For use with dSNAKE and ACE™ connection only

- 80m (264’) CAT5 drum
  AH7000 • For use with all GLD CAT5 connections

- 80m (264’) CAT5 drum
  AH7000 • For use with all GLD CAT5 connections
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### Important note about this guide

This user guide relates to **Version 1.4** GLD firmware and is to help you get started setting up and using the GLD. Some details shown in this guide may differ from those in the current release of firmware.

For information on advanced functions not described in this guide, please refer to the **GLD Touch Screen Reference Guide** which can be downloaded from the Allen & Heath web site, and to the **Help Manual** built into the GLD mixer.

- Check the Allen & Heath web site for the latest version of this guide.
- Check the Allen & Heath web site for the latest version of GLD firmware.
- A single sheet **Quick Start Mixing Guide** is provided at the rear of this user guide.
Standard system  32 in (28 mics), 22 out
24 mics at rack, 4 mics at mixer

GLD-80 or GLD-112  x1
GLD-AR2412  x1
Connect to dSNAKE

Compact system 16 in (12 mics), 14 out
8 mics at rack, 4 mics at mixer

GLD-80 or GLD-112  x1
GLD-AR84  x1
Connect to EXPANDER

Expanded system  40 in (36 mics), 26 out
32 mics at racks, 4 mics at mixer

GLD-80 or GLD-112  x1
GLD-AR2412  x1
GLD-AR84  x1
Connect to dSNAKE

Fully expanded system  48 in (44 mics), 30 out
40 mics at racks, 4 mics at mixer

GLD-80 or GLD-112  x1
GLD-AR2412  x1
GLD-AR84  x2
Connect to dSNAKE and EXPANDER

GLD mixer only  8 in (4 mics), 10 out
4 mics at mixer
Can use I/O module option for networked audio
The GLD can interface directly with the Allen & Heath ME Personal Mixing System to allow musicians, performers and presenters to control their own monitor mix without using up GLD mix buses.

Visit the Allen & Heath web site to find out more.

**Daisy chain connection**  One or more ME-1 personal mixers can connect to any GLD dSNAKE port (dSNAKE, Expander, Monitor).

**Parallel connection**  Each ME-1 mixer can be connected with its own cable using a standard PoE Ethernet switch or the Allen & Heath ME-U hub.

**GLD Remote and OneMix apps for iPad**

Provides remote wireless control using one or more iPads via a wireless access point (router) connected to the GLD Network port.

GLD Remote allows full remote live mixing control for the engineer. GLD OneMix allows access to just one mix for each musician to control their own personal monitor.

The apps can be downloaded from the Apple Store.

- Note that the GLD mixer firmware and app software must be compatible.
Introduction

GLD is an affordable live sound digital audio mixing system from Allen & Heath. At its low price point and with its intuitive user interface and ‘plug n play’ connection it provides the perfect upgrade for users of analogue mixers such as the Allen & Heath GL Series, and for small to mid-sized venues, tours and rental companies looking for an affordable yet fully featured and configurable professional digital solution that is easy to learn, operate and maintain.

GLD components

There are two GLD mixers available, the GLD-80 with 20 faders, and the larger GLD-112 with 28 faders. The DSP is located in the mixer and can process 48 channels x 30 buses x 20 mix outputs plus 8 ‘RackFX’ internal effects devices with dedicated return channels bringing the total number of sources able to feed the mix to 56. The rear panel provides connections for 8 inputs and 10 outputs plus a slot to fit one of several audio networking cards available from Allen & Heath.

Adding one or more of the available AudioRacks lets you configure systems with up to 40 remote mic inputs in addition to the mixer rear connections. This gives you a distributed audio system with convenient CAT5 digital snake based on the proprietary Allen & Heath dSNAKE protocol. The main I/O (Input/Output) rack is the GLD-AR2412 AudioRack providing 24 mic/line inputs and 12 line outputs. It also features a MONITOR port compatible with the Allen & Heath ME and Aviom® personal mixing systems. The GLD-AR84 AudioRack is an expander I/O remote rack adding an extra 8 mic/line inputs and 4 line outputs. You can add up to two GLD-AR84 racks, one at the GLD-AR2412, the other at the GLD-80 mixer.

Compatibility with iLive

GLD is not compatible with iLive components, firmware, Libraries or Show files. However, it is compatible with the range of iLive Port B option cards letting you interface easily between GLD and iLive or other systems using a digital snake such as ACE, MADI, EtherSound or Dante.

Key features

- Plug and play components for systems from 4 to 44 mics
- Easy to use, quick access, analogue style interface with 8.4” colour touch screen
- Remote I/O using dSNAKE CAT5 digital snake - up to 120m (400’) length
- High grade 1dB/step recallable mic/line preamps
- 48 channels into 30 buses with 20 outputs – assignable mono/stereo Group, Aux, FX, Main, Matrix
- 8 stereo RackFX engines with dedicated return channels – total 56 sources to the mix
- 64 channel I/O network card option for FOH/Monitor split, recording, link to iLive and more
- Full processing on all inputs – Preamp, trim, polarity, HPF, insert, Gate, PEQ, Compressor, Delay
- Full processing on all outputs – Ext input, Insert, PEQ, GEQ, Compressor, Delay
- Dedicated keys for quick Copy/Paste/Reset of mixes and processing parameters
- Input, insert and output soft patchbays
- GLD-80 = 20 faders, 2 Banks of 4 Layers each – 80 freely assignable strips for custom layout
- GLD-112 = 28 faders, 3 Banks of 4 Layers each – 112 assignable strips
- Virtual write-on strip – 8 colour backlight LCD strip display for naming and colour coding
- 14 user assignable SoftKeys on GLD-112, 10 SoftKeys on GLD-80
- 16 DCA / Mute groups
- Compatible with the Allen & Heath ME personal mixing system and Aviom® A-Net 16.
- USB stereo recording and playback
- Built-in Talkback, RTA display, Signal Generator
- Monitor mode features – Input override output PAFL, engineer’s Wedge and IEM strips
- GLD Remote and OneMix iPad apps for wireless mixing and parameter control
- MIDI In/Out and Network ports
- Libraries, Scenes and Show memories
- Scene Filters, Safes, crossfade and embedded Scene function
- 10 User Profiles for restricted operator access
- Get started quickly with Template Shows for classic FOH or Monitor configuration
The block diagram here shows the audio signal flow and processing through the GLD mixer. The GLD-AR2412 and GLD-AR84 AudioRacks provide inputs as shown in the ‘Remote Inputs’ box, and outputs as shown in the ‘Remote Outputs’ box. These signals connect to the GLD via the dSNAKE or EXPANDER ports.

Note the options available for AUX sends, FX sends and global Direct Out. Configuration possibilities are shown for the MIX masters.
## Input and output sockets

The diagram here shows the interconnection and socket numbering of the fully expanded system.

Each socket has a unique number. The physical socket numbers are shown below. Any input socket or source can be patched to any of the 48 channels. Any mix or other GLD signal can be patched to any of the output sockets.

The default is one-to-one mapping, i.e. Socket 1→CH1, Socket 2→CH2 and so on.

<table>
<thead>
<tr>
<th>Input Sockets</th>
<th>Output Sockets</th>
<th>Additional Inputs</th>
<th>Additional Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLD mixer</td>
<td>Mixer dSNAKE:</td>
<td>GLD mixer</td>
<td>GLD mixer</td>
</tr>
<tr>
<td>Mixer REAR</td>
<td>GLD AR2412</td>
<td>Rear I/O Port:</td>
<td>Rear I/O Port:</td>
</tr>
<tr>
<td>GLD AR84</td>
<td>GLD AR2412</td>
<td>1-64 Input channel</td>
<td>1-64 Output channel</td>
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<tr>
<td>GLD AR84</td>
<td>GLD AR84</td>
<td>Surface USB port:</td>
<td>Surface USB port:</td>
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<td>GLD</td>
<td>GLD AR84</td>
<td>From USB key:</td>
<td>To USB key:</td>
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<tr>
<td>GLD AR84</td>
<td>GLD AR84</td>
<td>L-R Stereo playback</td>
<td>L-R Stereo record</td>
</tr>
</tbody>
</table>

### Input Sockets
- **Mixer dSNAKE:**
  - GLD-AR2412 Main rack:
    - 1 XLR mic
    - 2 XLR mic
    - 3 XLR mic
    - 4 XLR mic
    - 5 XLR mic
    - 6 XLR mic
    - 7 XLR mic
    - 8 XLR mic
    - 9 XLR mic
    - 10 XLR mic
    - 11 XLR mic
    - 12 XLR mic
    - 13 XLR mic
    - 14 XLR mic
    - 15 XLR mic
    - 16 XLR mic
    - 17 XLR mic
    - 18 XLR mic
    - 19 XLR mic
    - 20 XLR mic
    - 21 XLR mic
    - 22 XLR mic
    - 23 XLR mic
    - 24 XLR mic
- **GLD-AR84**
  - Expander at rack:
    - 25 XLR mic
    - 26 XLR mic
    - 27 XLR mic
    - 28 XLR mic
    - 29 XLR mic
    - 30 XLR mic
    - 31 XLR mic
    - 32 XLR mic
- **Mixer EXPANDER:**
  - GLD AR84 Expander at mixer:
    - 13 XLR line
    - 14 XLR line
    - 15 XLR line
    - 16 XLR line
- **Mixer REAR:**
  - GLD
    - 21 XLR line
    - 22 XLR line
    - 23 XLR line
    - 24 XLR line
  - 25/26 RCA line
  - 27/28 SPDIF digital
  - 29/30 AES digital

### Output Sockets
- **Mixer dSNAKE:**
  - GLD-AR2412 Main rack:
    - 1 XLR line
    - 2 XLR line
    - 3 XLR line
    - 4 XLR line
    - 5 XLR line
    - 6 XLR line
    - 7 XLR line
    - 8 XLR line
    - 9 XLR line
    - 10 XLR line
    - 11 XLR line
    - 12 XLR line
- **GLD-AR84**
  - Expander at rack:
    - 13 XLR line
    - 14 XLR line
    - 15 XLR line
    - 16 XLR line
  - **MONITOR**
    - Port at rack:
      - ME-1 Mode: 21-60 = ME 1-40
      - Aviom Mode: 1-16 = Aviom 1-16
- **Mixer EXPANDER:**
  - GLD AR84 Expander at mixer:
    - 17 XLR line
    - 18 XLR line
    - 19 XLR line
    - 20 XLR line
- **Mixer REAR:**
  - GLD
    - In 41-48 Out 21-30

### Additional Inputs
- **GLD-AR84 AudioRack**
  - In 25-32 Out 13-16
  - EXPANDER
  - Cat5 up to 120m (400’)
  - Digital snake to/from stage
  - Personal monitoring system

### Additional Outputs
- **GLD-AR84 AudioRack**
  - In 1-24 Out 1-12
  - EXPANDER
  - MONITOR
  - Cat5 up to 120m (400’)
  - M sends

### Additional Information
- **GLD mixer**
  - I/O Module Port
    - Accepts any iLive Port B card option
    - For audio networking, digital mic split, recording, link to iLive
    - In 1-64 Out 1-64

- **GLD-80 Mixer**
  - MIDI
  - Includes SPDIF and AES digital output
  - ACE
  - MADI
  - Dante
  - EtherSound
  - Waves
  - MMO

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I/O Port fitted with MMO card option

Up to 64 GLD inputs and 64 outputs can be assigned to an audio option card fitted to the GLD rear panel I/O Port. The MMO (Mini Multi Out) card provides several output formats – 24 channels of ADAT optical out, two 8 channel iDR links to connect the Allen & Heath iDR-8 or iDR-4 mix processors, or the iDR-Out or iDR-Dout output expander, and also compatible with the HearBus hub, and a 16 channel output compatible with Aviom® A-Net 16 or the Allen & Heath ME personal mixing system running in Aviom mode.

The card uses 56 channels from the port. These are assigned using the I/O / Port Out screen. The port channels map to the MMO sockets as below:

<table>
<thead>
<tr>
<th>GLD Port Map</th>
<th>GLD Port Map</th>
<th>GLD Port Map</th>
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</thead>
<tbody>
<tr>
<td>Port Out: MMO:</td>
<td>Port Out: MMO:</td>
<td>Port Out: MMO:</td>
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<tr>
<td>ADAT</td>
<td>iDR A</td>
<td>Aviom®</td>
</tr>
<tr>
<td>1 ADAT 1</td>
<td>25 iDR-A 1</td>
<td>41 Aviom 1</td>
</tr>
<tr>
<td>2 ADAT 2</td>
<td>26 iDR-A 2</td>
<td>42 Aviom 2</td>
</tr>
<tr>
<td>3 ADAT 3</td>
<td>27 iDR-A 3</td>
<td>43 Aviom 3</td>
</tr>
<tr>
<td>4 ADAT 4</td>
<td>28 iDR-A 4</td>
<td>44 Aviom 4</td>
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<tr>
<td>5 ADAT 5</td>
<td>29 iDR-A 5</td>
<td>45 Aviom 5</td>
</tr>
<tr>
<td>6 ADAT 6</td>
<td>30 iDR-A 6</td>
<td>46 Aviom 6</td>
</tr>
<tr>
<td>7 ADAT 7</td>
<td>31 iDR-A 7</td>
<td>47 Aviom 7</td>
</tr>
<tr>
<td>8 ADAT 8</td>
<td>32 iDR-A 8</td>
<td>48 Aviom 8</td>
</tr>
<tr>
<td>9 ADAT 9</td>
<td>33 iDR-B 1</td>
<td>49 Aviom 9</td>
</tr>
<tr>
<td>10 ADAT 10</td>
<td>34 iDR-B 2</td>
<td>50 Aviom 10</td>
</tr>
<tr>
<td>11 ADAT 11</td>
<td>35 iDR-B 3</td>
<td>51 Aviom 11</td>
</tr>
<tr>
<td>12 ADAT 12</td>
<td>36 iDR-B 4</td>
<td>52 Aviom 12</td>
</tr>
<tr>
<td>13 ADAT 13</td>
<td>37 iDR-B 5</td>
<td>53 Aviom 13</td>
</tr>
<tr>
<td>14 ADAT 14</td>
<td>38 iDR-B 6</td>
<td>54 Aviom 14</td>
</tr>
<tr>
<td>15 ADAT 15</td>
<td>39 iDR-B 7</td>
<td>55 Aviom 15</td>
</tr>
<tr>
<td>16 ADAT 16</td>
<td>40 iDR-B 8</td>
<td>56 Aviom 16</td>
</tr>
</tbody>
</table>

Assign each output:
- Unassigned
- Input Direct Out
- Group
- Aux
- Main Mix
- Matrix
- Rack FX
- USB playback
- Input socket
- I/O Port input
- PAFL monitor
- Wedge/IEM monitor

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The GLD Family

GLD-112
The larger mixer with 28 faders and 14 SoftKeys.
3 Fader Banks each with 4 Layers = 112 strips
Shelf for iPad

GLD-80
The smaller mixer with 20 faders and 10 SoftKeys.
2 Fader Banks each with 4 Layers = 80 strips

The mixers differ only in size, number of faders and SoftKeys. They both provide the same 48 channel, 30 bus, 20 mix output architecture. They have similar rear panel layout with 8 inputs, 10 outputs, dSNAKE and local Expander ports.

GLD-AR2412
The main AudioRack - Typically positioned on stage and connected to the mixer over a CAT5 'digital snake'. It provides 24 remote mic/line inputs, 12 XLR line outputs, an Expander port and a Monitor port for connecting to the Allen & Heath ME personal mixing or Aviom® A-Net16 system.

- Note that a GLD system can have a maximum of one AR2412 AudioRack connected.

GLD-AR84
The expander AudioRack- Provides 8 remote mic/line inputs and 4 XLR line outputs. You can plug one AR84 into the AR2412 Expander port to expand the number of mic inputs on stage to 32. You can also plug one AR84 into the mixer Expander port to expand the number of inputs and outputs at the surface, or to provide this additional I/O on stage or at a remote location using CAT5 cable.

GLD Remote and OneMix apps
To allow wireless remote mixing control using an iPad with a wireless router connected to the GLD Network port.

GLD Editor software
Set up or control GLD using a PC or MAC. You can download the software free from the www.allen-heath.com.
GLD Mixer controls

Channel Processing Strip  Analogue style processing control section presenting the main controls for the Preamp, HPF, Gate, PEQ and Compressor. Press the strip Sel key to access the processing for the input or master assigned to it. Further parameter control is available using the touch screen Processing screen.

Copy/Paste/Reset  Hold down Copy and press any Sel or Mix key to put its related mix or processing parameters on to the clipboard. Then hold down Paste and press a strip Sel or Mix key to paste its contents to that channel. Hold Reset and press a key to reset the related parameters to factory default.

Routing  Select key to display the assignments and sends for the Selected strip in the touch screen while in Processing mode.

Main / PAFL meters

Touch Screen  For status display, system setup and memory management. To see details and a graphical view of the processing for the channel or master currently selected make sure it is in Processing mode. The keys select the screen mode. Use the rotary control to adjust the value of a highlighted parameter.

Copy/Paste/Reset edit keys  Assign and Pre/Post access keys for the selected mix.

While a Mix is active:
Hold down Assign and press strip Mix keys to toggle the assignments on or off.
Hold down Pre/Post and press strip Sel keys to toggle sends pre or post fade.
Toggle all on/off or pre/post while a master is selected by pressing the master strip Mix or Sel key instead of the channel keys.

The touch screen lower toolbar displays the currently selected mix. You can return to the Main mix by turning the selected Mix off, or by turning on then off any other Mix key.

Alt View  Hold down to view the channel or socket numbers in place of the name in the LCD displays. Set this preference in the Setup / Control screen.

Assign  and Pre/Post  access keys for the selected mix.

Safes  Make one or more channels safe from Scene recall by holding down the Safes key and then pressing channel Mix keys. A Safes Map is also available to make selected parameters safe.

Freeze in Layers  Hold down then press strip Mix keys to temporarily keep a channel visible across all layers. To assign channels to strips use the Setup / Control screen.

GEQ on Faders  Presents the GEQ for a Selected mix on the faders. Press to toggle between high and low frequencies. Frequency values are shown on the strip LCD displays. The mix master fader is presented on the right hand strip while in this mode.

USB ports  For transferring Show files, Libraries and event logs, stereo playback and recording to USB, and for updating system firmware.

Headphones  Level control and ¼” and 3.5mm sockets.

Press to Talk  Talkback source and destination is assigned using the Setup / Audio screen.

Help  Touch the ? button to open the built-in Help Manual.

SoftKeys  User assignable functions using the Setup / Control screen.

Strip LCD display  To show channel status information and user defined Name and Colour.

Strip rotary controls  Their function is selected using these keys – Gain, Pan, Custom 1 and 2 (assignable using the Setup / Control screen). Their function is selected using these keys – Gain, Pan, Custom 1 and 2 (assignable using the Setup / Control screen). Their function is selected using these keys – Gain, Pan, Custom 1 and 2 (assignable using the Setup / Control screen).

Strip meters  The top red indicator lights when a peak is detected at any point in the channel signal path. These meters also display RTA activity while in GEQ on Faders mode.

Fader Banks  2 groups of motorised faders with 4 layers each (80 control strips). Provides control of the input channel, FX return, Mix master, DCA or engineer’s Wedge or IEM monitor assigned to it using the Setup / Control screen.

Mute  Mutes the channel assigned to the strip. It affects pre and post-fade sends. The DCA indicator lights when the channel is muted by a DCA master assigned to it.

Sel  Opens the channel processing for the selected strip.

Mix  Presents the sends for the selected strip on faders and shows the related assignments and pre/post settings in the strip LCD displays.

PAFL  Selects either PFL (pre-fade listen) or AFL (after fade listen) according to preferences set in the Setup / Audio screen. Input overrides output (mix) PAFL.

Safes  Make one or more channels safe from Scene recall by holding down the Safes key and then pressing channel Mix keys. A Safes Map is also available to make selected parameters safe.

Freeze in Layers  Hold down then press strip Mix keys to temporarily keep a channel visible across all layers. To assign channels to strips use the Setup / Control screen.

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Help  Touch the ? button to open the built-in Help Manual.
GLD Mixer rear connectors

GLD sockets can be patched using the I/O screen.

Surface audio inputs 8 analogue inputs:
4 mic/line XLR (skt 41-44)
2 stereo RCA pairs (skt 45-48)

Any socket can be patched to any channel. The default is one-to-one mapping of sockets to channels.

Cooling fan. Do not block this opening.

The LOCK indicator lights when the audio is sync locked.

Power On indicator
Ready indicator – Lights yellow when the output sockets are ready to pass audio after power up.

Network
Ethernet port for wireless router.

Mains power IEC input socket and On/Off switch.

I/O Port See below

EXPANDER link
You can plug an AR84 expander in here. This carries audio inputs from skt 33-40 and outputs to skt 17-20.

The AR84 can be located near the GLD mixer to provide more I/O at the mixer, or up to 120m away to provide more I/O on stage or at a remote location.

Connect to using a CAT5 cable up to 120m (396') long.

The Lnk/Err indicator flashes at a steady rate when the link is established.

Surface audio outputs 6 analogue and 4 digital outputs
4 XLR line out (skt 21-24)
1 stereo RCA pair (skt 25/26)
1 SPDIF 2 channel digital out (skt 27/28)
1 AES 2 channel digital out (skt 29/30)

Any GLD signal can be patched to any socket.

I/O Port options for system linking, expansion, recording and audio networking using one of the option cards available from Allen & Heath. 64 channel bi-directional 48kHz audio.
GLD-AR2412 Main AudioRack

1. **Input sockets** 24 balanced XLR inputs for microphone and line level sources. The preamps are built into the AR2412 rack and their Gain, Pad and 48V phantom power is remote controlled from the GLD mixer via the dSNAKE link. The output of the analogue preamps are converted to digital format and transported via dSNAKE to be processed and mixed at the GLD mixer.

The sockets are numbered 1-24. Any input can be patched to any channel using the I/O or Preamp screens. The default is one-to-one mapping of the input sockets 1-24 to channels 1-24.

2. **Output sockets** 12 balanced XLR outputs operating at nominal +4dBu line level. Any GLD signal can be patched to any socket using the console I/O screen. The default Template Shows provide a logical mapping of these sockets to get you started.

3. **EXPANDER port** CAT5 cable link to connect a GLD-AR84 expander rack to add a further 8 mic/line inputs and 4 XLR line outputs. The GLD system numbers these sockets as Inputs 25-32 and Outputs 13-16. This port can also be used to connect to the Allen & Heath ME personal mixing system.

4. **MONITOR port** CAT5 cable link to connect to the ME personal mixing system. It is also compatible with Aviom A-Net 16 when Aviom mode is selected in the I/O / Monitor screen.

5. **dSNAKE port** CAT5 cable link to connect the AR2412 rack to the GLD mixer. This carries the 32 inputs, 16 outputs and the monitor port sends audio to and from the rack as well as control for the preamps and system status.

Maximum CAT5 cable length is 120m (396’), depending on cable type.

- Note that dSNAKE is not compatible with the iLive ACE connection.

6. **Fan** A low noise fan ensures air movement through the rack to keep the circuits within operating temperature range.

- Ensure good ventilation at the back of the rack. Read the safety instructions printed on the panel and the Safety Sheet packed with the unit.

7. **Mains power input** IEC connector, fuse and power ON/OFF push switch for the built-in universal voltage power supply unit. This accepts worldwide voltages from 100 to 240V AC 50/60Hz. Check that you have received the correct mains lead for your territory.

Secure the cable in place using the plastic P-clip. Use a T20 Torx screwdriver to refit the screw.
GLD-AR84 Expander AudioRack

1. **Input sockets**  8 balanced XLR inputs for microphone and line level sources. The preamps are built into the AR84 rack and their Gain, Pad and 48V phantom power is remote controlled from the GLD console via the EXPANDER link. The output of the analogue preamps are converted to digital format and transported via a Cat5 cable to be processed and mixed at the GLD mixer.

   Any input can be patched to any channel using the I/O or Preamp screens.

   The sockets are not numbered. This is because the number depends on where the AR84 is plugged into the GLD system. Write-on blocks are provided for you to label the sockets.

2. **Output sockets**  4 balanced XLR outputs operating at nominal +4dBu line level. Any GLD signal can be patched to any socket using the console I/O screen. The default Template Shows provide a logical mapping of these sockets to get you started.

   The sockets are not numbered. This is because the number depends on where the AR84 is plugged into the GLD system. Write-on blocks are provided for you to label the sockets.

   The socket identification is shown in the diagram below:

3. **EXPANDER port**  CAT5 cable link to connect the AR84 expander to the EXPANDER port on the AR2412 AudioRack or GLD Mixer.

   - Note that the EXPANDER link is not compatible with the iLive ACE connection.

4. **Kensington security slot**  To attach a ‘Kensington lock’ standard anti-theft cable and lock if required.

5. **Fan**  A low noise fan inside the rack ensures air movement to keep the circuits and internal components within operating temperature range.

   - Ensure good ventilation at the back of the rack. Read the safety instructions printed on the panel and the Safety Sheet packed with the unit.

6. **Mains cable clip**  You can secure the cable in place using the plastic P-clip. Use a T20 Torx screwdriver to refit the screw.

7. **Mains power input**  IEC connector, fuse and power ON/OFF push switch for the built-in universal voltage power supply unit. This accepts worldwide voltages from 100 to 240V AC 50/60Hz. Check that you have received the correct mains lead for your territory.

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**Socket numbering**

AR84 plugged into the AR2412 main AudioRack:

- Inputs 25-32
- Outputs 13-16

AR84 plugged into the GLD Mixer:

- Inputs 33-40
- Outputs 17-20
Connect and power up

Connect the AR2412 AudioRack  Plug a CAT5 cable into the dSNAKE port at the rack and mixer. This is the main system link.

Connect the AR84 AudioRacks  Plug a CAT5 cable into the EXPANDER port of the AR84 and the EXPANDER port of the AR2412 or GLD mixer.

- Always plug the AR84 into an EXPANDER port. Do not plug it into the dSNAKE port even if you are not using an AR2412 main rack.

Plug in the mains power leads supplied with the mixer and racks. Secure the leads by hooking them into the plastic clips. If required the leads can be locked into these clips. Use a T20 Torx (starhead) screwdriver to remove the fixing screw.

To turn on the system  Turn on power using the rear panel On/Off switches.

The GLD takes around 40 seconds to boot up. Its screen lights white for a few seconds, then turns black displaying its boot sequence. A while later the Home screen is displayed. At this point the yellow Lnk/Err indicators of connected dSNAKE and EXPANDER ports start to flash steadily showing that the link between the mixer and racks is established. The mixer Audio Sync LOCK indicator lights. Finally, the AudioRack Ready indicators light and you will hear a click as the output socket protection relays switch over.

- If the firmware in a connected AudioRack is not the same version as that in the GLD mixer then the mixer will automatically update the rack firmware during power up. This takes a few seconds. During this time the Lnk/Err indicators on the AudioRack flash at a fast rate. Once updated normal flash rate is restored.

To turn off the system  The system must be powered down correctly. Return to the Home screen. To do this turn off any active Sel key whilst in the Processing view.

Touch the Power Down button. A popup appears. Confirm the action then turn the mixer and racks off using their power switches.

- If the system is not powered down correctly there is a possibility recent changes may be lost.
- If the system was not powered down as described above then a 'Not shut down correctly' screen appears the next time the system is turned on.
GLD iPad app and wireless router

GLD Remote and GLD OneMix iPad apps allow wireless control of mixing and processing using one or more iPads. GLD Remote allows simultaneous control of different functions by more than one engineer, for example one engineer controlling the FOH mix at the GLD surface and another controlling monitors on stage using an iPad. GLD OneMix allows personal monitor control for the musicians.

Get the app  Download the app from the Apple Store. You can open it in Demo mode without a GLD connected to get a feel for how it operates and to read the Help Manual within the app.

- Make sure the App and GLD firmware versions are compatible. Check the Allen & Heath web site for the latest firmware.

Choose a router  (wireless access point) The GLD app is a professional mixing tool that justifies network equipment of suitably high performance, quality and reliability.

For best performance we recommend you choose a dual band wireless router with auto channel selection. Use the more recent 5GHz band in places where there is intense WiFi activity or interference in the more crowded 2.4GHz band. A wireless router with auto channel selection automatically sets itself to an available or least congested channel when you power it up.

Refer to the Allen & Heath web site for more information on choosing wireless routers for use with the Allen & Heath iLive and GLD systems.

Set up the router  You will need to connect it to a PC using a wired LAN connection. Follow the instructions provided by the wireless router manufacturer to access its setup menus.

Set the router IP address - This must be compatible with the GLD console which has a default static IP address = 192.168.1.50 and Subnet Mask = 255.255.255.0. Go to the Setup / Config / Network screen to check the current GLD settings.

To work with the GLD you must give your wireless router a unique but compatible IP address. Some routers may have a default address that is not compatible and must be changed, for example 192.168.2.1. Some may already be compatible, for example 192.168.1.254.

Set the router DHCP settings - Make sure the router is set for DHCP so that it automatically allocates a compatible IP address to your iPad. To avoid conflict with the GLD static address we recommend you set a router DHCP address allocation range of 192.168.1.100 to 200.

Note  You do not need to change the GLD setting to DHCP. The console will work fine with a static IP address as long as it is not within the router DHCP address range.

Set the router security -To prevent other people accessing your WiFi we recommend you enable WPA/WPA2 encryption during router setup. A wireless key (password) will need to be set up.

Make a note of the router SSID. This is the name that the router broadcasts to help identify it in the network list you will see in the iPad Settings Wi-Fi page. If you want you can change the SSID to help you identify it alongside other wireless networks in the area.

After setup, the wireless router can be connected to the Network socket on the rear of the GLD console using a CAT5 cable. Plug this into one of the LAN (not Internet) ports on the rear of the router.

Position the router  Make sure it is within the specified range and in line of sight of the iPad where possible. It can help to place it high up to avoid obstacles such as people and equipment. Avoid locating it behind pillars or walls, near metal beams or on top of loudspeakers.
Recall a ‘Template Show’ as a starting point

The GLD has a fully configurable audio architecture, control layout and socket patching letting you customise the way you work. It would be a daunting task for the new user if we gave them a ‘blank canvas’ to start from scratch. Instead we have provided a set of ‘Template’ Show memories which give you a choice of classic console format to load in as a quick starting point. These present the familiar architecture and logical layout of well-equipped analogue consoles.

Once you are comfortable working with GLD you can make changes to your set up and save these as your own ‘User’ Shows. These let you archive and recall the complete configuration and setup. Use Scenes for instant store and recall of band sound checks, theatre cues and different event settings. Scenes are stored within the Show.

A Show memory stores the complete GLD setup. This includes:

- Current settings
- Mix configuration
- User preferences
- All Scene memories
- All Libraries

A default show is already loaded when the GLD is shipped from the factory. This is Template1 LR. You can load a different Template as your starting point if you wish:

To load a Template Show

Go to the Setup / Memory / Show Manager screen. Available Shows are listed. These include Template and User Shows.

Touch the Template Show you want to load. Touch Recall. A popup appears for you to confirm the action.

- Recalling a Show overwrites all the system settings including the DSP mix architecture, Surface configuration, current parameters, all the Scene and Library memories. If you want to keep the current settings to be used again in the future then first Store them as a User Show.

The Show Manager screen

Touch a Show name to highlight and select it.

Template Shows

Shown with a red icon. These cannot be deleted.

User Shows

Shown with a green icon.

Overwrite, Delete or Rename an existing User Show.

Info shows details on file size and when the highlighted Show was last modified.

USB Shows

Shown with a blue icon.

Copy Shows from the USB key to the GLD, or from the GLD to USB.

These controls become available when a USB key is plugged in and is recognised.
Template Show settings

There are three Template Shows available as a starting point for classic FOH and monitor mixing applications.

- **Template1 LR**  
  Stereo main mix. Use for FOH or mixing monitors from FOH.

- **Template2 LRM**  
  3-way main mix with separate Mono bus for centre or fill speaker

- **Template3 Mon**  
  Dedicated monitor mixer with 6 wedge and 6 stereo IEM mixes

These have the following common settings:

- SoftKey assignments are Scene Safe
- SoftKeys 1-8 = DCA mute 1-8
- SoftKey 9 = PAFL Clear All
- SoftKey 10 = FX4 tap tempo (FOH only)
- SoftKey 11-12 = Unassigned • Scene Confirmation = On
- Global Direct Out = post-delay, pre-fade, post-mute (ready for ME-1 personal mixer sends)
- Monitor Port = ME-1 mode
- I/O Port out = input socket 1-48
- PEQ = 20-20kHz, Curve Fill = On
- Talkback = Momentary, Dim off
- Template1 and 2 FOH - Auxes are post-PEQ, pre-fade
- Template3 Mon - Auxes are post-fade
- FX are post-fade (effects)
- USB playback assigned to CH47/48
- USB recording from LR via stereo Matrix1
- Scene 1 and 499 (backup) = 'Reset GLD-80' (Template default)
- Scene 2 and 500 (backup) = 'Reset GLD-112' (Template default)
- Scene 498 = 'Reset MIDI Strips' (restores default MIDI Strip message settings)

The Template Show ‘Board Reset’ Scene  
Each Template Show provides two ‘Reset’ scenes in position 1 and 2. These reset the GLD-80 or GLD-112 mixer settings to the starting point default for the loaded Template Show. These Board Reset Scenes are duplicated in positions 499 and 500 at the end of the list.

Use this Scene to instantly reset parameters without affecting the mix configuration, user preferences or the other Scenes. You can edit its Recall Filter to protect parameters you do not wish to reset. For example, you could set the filter to protect the patchbay and master strip assignments in a festival situation.

- You can also set Scene Safes to protect selected parameters for all Scenes, for example the patchbay, or SoftKeys.

When creating your own User Show from a Template Show you can choose to overwrite the Scene 1 and 2 contents with your preferred settings, rename them, write in a description, set their Recall Filters to reset selected parameters only, or simply delete them. You can still access the default reset using Scene 499 or 500 if needed.
Template1 LR

This Template configures a traditional architecture and layout with stereo LR main mix for mixing FOH and Monitors from FOH. This is the factory default Show loaded.

**LR stereo main mix**

The Front-of-House main mix using a single master fader.

**4 Groups (2 stereo)**

For example, use these to EQ or compress groups of inputs such as drums, backing vocal or radio mics, or to send to a Matrix to create a different balance in fill speakers, or to group several inputs to record to mono or stereo tracks.

**8 Auxes (6 mono, 1 stereo)**

Typically used for monitor sends such as wedge speakers and stereo in-ear systems.

**8 FX (4 assigned to strips)**

3 reverb and a delay effect are assigned to the faders. 4 more effects send and returns can be assigned or inserted into channels or mixes.

**6 Matrix (2 mono, 2 stereo)**

Ready for use as additional speaker sends such as delay fills and remote zones, or for separately controlled recording, broadcast and video feeds.

**Recording from stereo Matrix 1**

Set up ready to feed a stereo recording sourced from the main LR mix. Its send and master are turned up. Its output is patched to analogue and Spdif connections on the rear panel. It is also patched as the source to the USB stereo recorder.

**16 DCA / Mute groups**

Use these for muting and controlling the levels of groups of signals such as drums, vocals and effects. 6 DCA masters are assigned to the faders. You can assign more as required.

**Talkback using mic socket 44**

Rear panel mic input 44 is patched as the Talkback source. For this reason CH44 is not assigned to the LR mix. You can assign it to LR if you are not using talkback.

**USB playback to CH47/48**

Playback from the USB key is patched to a stereo channel.
This Template configures the GLD as a dedicated monitor console with 18 mixes:

- 6 mono mixes (wedges, fills)
- 6 stereo mixes (IEM)
- Auto switching engineer’s Wedge/IEM
- 8 FX (2 assigned to strips)
- 6 Matrix (2 mono, 2 stereo)
- 16 DCA / Mute groups
- Talkback using mic socket 44
- USB playback to CH47/48
- Recording from stereo Matrix 1

**Template2 LRM (also use for LCR)**

This Template configures stereo LR plus Mono bus for working with a 3-way FOH mix.

You can change the type of 3-way Main mix from LR+M (switched bus) to LR+M (mono sum of LR) or LCR using the Setup / Config / Mixer Config screen.

- LR + Mono (switched bus) main mix
  - 2 Groups (1 stereo)
  - 8 Auxes (6 mono, 1 stereo)
  - 8 FX (4 assigned to strips)
  - 6 Matrix (2 mono, 2 stereo)
  - 16 DCA / Mute groups
  - Talkback using mic socket 44
  - USB playback to CH47/48
  - Recording from stereo Matrix 1
A few things to know before starting

Before working with the GLD familiarise yourself with its control layout and operating principles.

The Touch Screen

- **Screen select keys:** Press a key to select that view. Press the key again to return to the Processing view.
- **Screen rotary control:** Touch a parameter on the screen to highlight it, then turn the rotary to adjust its value.

- **Name and Colour button**
- **Tabs** to select the pages available for the current screen
- **Pull-up tab** opens additional controls and options for the current screen

The Touch Screen Graph View:
- Touch a pick-up box and drag the curve. Values are displayed in the parameter buttons.
- You can adjust parameters using the graph, touch buttons or processing section rotary controls to the left of the screen.

The Home Screen

This screen displays after power up. You can return here by turning off any active strip Sel key while in the screen Processing view. You can also do this by turning on, then off any strip Sel key.

- **Access the User login screen**
- **Opens the Quick Start Mixing Guide**
- **To safely shut down the GLD computer before turning the system off.**
  - Always shut down using this button.

- **Real time clock.** Set the date and time using the Setup / Utility / Date/Time screen.
- **To lock the surface controls.** Can be password protected.
- **Tabs to open one of the 4 custom meter pages or the RTA (real time analyser) display.** The RTA follows the PAFL signal. Custom meters are assigned using the Meters screen.
- **Touch ? to open the Help page for the current screen.** You can also access the main Help menu from here.

- **Displays system connection status**
- **Displays system information**
- **Shows which Mix is currently selected.**
  - Look here to check that you are on the correct mix. For example, remember to turn off an Aux Mix key to return to the Main (LR) mix after adjusting a monitor level.
- **The last Scene recalled and the Scene highlighted in the Scene list ready to be recalled are displayed here.**
- **Shows USB playback and recording status. Touch to open the USB Audio screen.**
The strip LCD display

The LCD strip above the faders displays information about the channels assigned to the faders. Channels can each be named and have one of 8 backlight colours applied. You can edit these names and colours to easily identify different channel and mix types, or highlight certain instruments and sources.

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Select the function of the strip Rotary controls using these keys. The Custom keys are assigned using the Setup / Control / Surface Prefs screen.

* Check that you have selected the correct function when working with the rotary controls.

Press and hold the Alt View key to see the Channel Number, Socket Number or fader dB value in place of the Name in the LCD display.

Choose the Alt View function using the Setup / Control / Surface Prefs screen.
The Fader Banks

The GLD-80 mixer has 2 independent Fader Banks, one with 12 fader strips, the other with 8 fader strips. The GLD-112 has 3 Fader banks with 12, 8 and 8 faders. Each Bank has 4 Layers. This means that the GLD-80 can work with up to 80 fader control strips and the GLD-112 with up to 112 strips.

Any strip can be assigned as an Input channel, Mix master, FX send master, FX Return, engineer's Wedge or IEM master, or DCA master in any combination. Strips can be left blank (unassigned). The Template Shows provide a logical assignment of the fader strips to give you a familiar starting point.

To change the fader strip assignment use the Setup / Control / Strip Assignment screen. You can drag-and-drop to quickly reassign the strips.

The Fader Strip keys

4 keys per strip provide quick access to important live mixing functions:

- **Mute**: Turns off the channel signal. Affects the main mix and pre-fade and post-fade sends. This is important in live mixing, for example to mute an acoustic guitar in both the FOH mix and monitors when the musician unplugs it.

- **Sel**: Instantly selects the processing for the channel. The rotary control section to the left of the touch screen becomes active to control the Preamp, HPF, PEQ, Gate and Compressor for that channel.
  - To see and adjust the processing using the touch screen make sure the screen **Processing** key is selected.

- **Mix**: Puts the send levels and assignments of the associated channel or master onto the fader strips. For example you can work with all the sends to one Aux shown on the input faders by selecting its master strip **Mix** key. Or work with the sends from one channel to all the Auxes shown on the master faders by selecting the channel **Mix** key.
  - Be aware of which Mix is currently selected. For example, when you have finished adjusting an Aux send, press its **Mix** key again to turn it off and return to the main mix. The currently selected mix is displayed in the lower left screen toolbar.

- **PAFL**: Sends the channel PFL (pre-fade listen) or AFL (after-fade listen) signal to the GLD headphones and monitoring system. Preferences for the PAFL system are set using the Setup / Audio / PAFL screen. Input PAFL overrides mix master PAFL.
**Working with the Mix on the fader strips**

**Normal mix mode (FOH)**

Press a Main Mix master strip Mix key.

This is the normal mixing mode. The Input strips present the channel faders. The Master strips present the master mix faders.

Hold down the Assign key and press channel Mix keys to assign or de-assign them from the main mix. Current ON status is displayed on the lower part of the strip LCDs.

**Master Mix view**

Access Aux, FX, Matrix mix on faders

Press a Mix master strip Mix key.

Use this to work with Aux and FX sends. The Input strips change to present all the send levels to the selected mix. The Master strips present the master mix faders.

Hold down the Assign key and press channel Mix keys to assign or de-assign them from the selected mix.

Hold down the Pre/Post key and press channel Sel keys to toggle each source pre or post fader. Current PRE status is displayed on the lower part of the channel strip LCDs.

You can quickly set all assignments on or off, or all sources pre or post fader by pressing the Master strip Mix or Sel key instead of a channel key as described above.

**Channel Mix view**

Press an Input Channel strip Mix key.

Use this to work with Aux and FX sends. The Input strips remain as Channel Faders. The Master strips change to present all sends from the selected channel.

Hold down the Assign key and press master Mix keys to assign or de-assign the channel from each mix.

Hold down the Pre/Post key and press master Sel keys to toggle the channel pre or post fader to each mix. Current status is displayed on the master strip LCDs.

**DCA and Audio Group assign**

Press a Group Master strip Mix key.

Use this to assign channels to the Audio and DCA groups. The Input and Master faders are not affected.

Hold down the Assign key and press channel Mix keys to assign or de-assign the channels from the group.
Working with Scenes

GLD has 500 Scene memories. These are 'snapshots' of the live mixing parameters. They store all current mix settings but not the bus configuration and user preferences. Use Scenes to store parameter changes you want to recall instantly, for example cues during a theatre production or sound checked bands during a music show. Use Shows to store and archive the complete GLD setup including its bus configuration, user preferences and all Scene memories.

A Scene stores all parameter settings. A Recall Filter is available for each Scene to let you choose which parameters to recall. For example, work with just the channel fader levels and mutes for a range of Scenes, or change an EQ on one channel using a Scene. You can name Scenes, add a description, copy and paste their settings to other Scenes, delete their contents, and create Cue Lists from selected Scenes arranged in any order and repeated any number of times.

Global Scene Safes can be set to protect selected parameters being overwritten by the Scene system. These can be set using the Scene Safes screen. You can also fully protect a channel or master from Scene recall by pressing the Safes key together its strip Mix key. For example, to protect background music and continuity announcement while a band sound check is recalled.

Refer to the GLD Touch Screen Reference Guide for more information on using Scenes and the other functions accessed via the screen.
User Profiles

GLD lets you set up and work with up to 10 'User Profiles' including an Administrator and 9 Users. You can set permissions and a password to restrict operator access to certain functions.

The User List. 'Admin' has access to all functions and can set permissions and allocate passwords if required for the other users. Up to 9 guest users may be configured and activated.

Icons show if a User is ON (active), has a password set, or has a User Scene set.

To log in as a different user

Go to the Home / Users screen and select a User. Touch Login. The User can also be changed from the GLD power up Login screen which appears when a password is set for the current user.

If a password has been set then you are prompted to enter it when you log in, turn the system on, or lock and unlock the Surface.

If a User Scene has been set then this will be recalled, but only if you are logging in as a different user.

Refer to the GLD Touch Screen Reference Guide for more information on using User Profiles and setting their Permissions.
USB Recording and Playback

Play back stereo audio tracks from a USB key and record any pair of GLD sources on to the key.

**Playback** - The GLD can play back stereo WAV or FLAC files at 44.1 or 48kHz.

To assign USB playback to an Input Channel – Patch USB Playback to input channels using the I/O / Surface screen or the channel Preamp screen. USB playback is assigned to Ch 47/48 in the factory Template Shows.

To select a track to play back - Plug in a USB key with the audio files you wish to play back. Set the OPTIONS in the pull-up. Scroll through the list and touch to highlight a track. Information on the track including file path, size and date is displayed.

To start the playback - Use the transport buttons to Play, Pause, Stop and select Next or Previous track. A blue arrow in the lower toolbar in all screens shows a track is playing.

Open the OPTIONS pull-up to set playback options:

- **Play Next Track** - Single or continuous playback.
- **Repeat Current Track** - Continuously play a single track.
- **Show All Files** – List all audio files in all directories found on the USB key.
- **Show Playback Files** – List audio files found in the USBPlayback sub directory only.
- **Show Recorded Files** – List audio files found in the USBRecord sub directory only.

**Recording** – Format = WAV files at 48kHz.

Recording time – Maximum recommended recording time for one track = 3 hours. Memory required = 188KB/sec. Therefore allow:

- 11.5MB per minute
- 700MB per hour

To assign a recording source – Use the IO / Surface screen. For example, record the main mix, a stereo group, aux or matrix, or two independent mono signals. USB recording is fed from Stereo Matrix1 in the factory Template Shows.

Check recording level – If you are using a source other than the Main mix, for example a stereo Matrix, then check that the send level to the source and its master fader are turned up. Check that there is signal displayed on the source meter.

To start the recording - Touch the Record button. This opens the name keypad. The default date/time name can be overwritten using the keypad. Default example = 15_Apr_18.23.26.wav

Touch Apply to start the recording. The elapsed time and remaining time available on the USB key is shown. A red circle in the status bar in all screens indicates that the GLD is recording to the key.

To stop the recording – Touch the Record button again.

**USB Folders**

The AllenHeathGLD / USBRecord directory is automatically created on your USB key when you start a recording. The AllenHeathGLD / USBPlayback directory is automatically created when you select the Show Playback Files pull-up option. Or you can create it manually using your computer and add the files you wish to play back.
How to Update GLD System Firmware

Note 1: Use a USB key with at least 40 MB of free space. Delete any existing GLD Firmware on the key as described below.

Note 2: The firmware file transfer must not be interrupted. Failure to complete the transfer may result in firmware corruption of the GLD. Make sure the mains power and connecting cables are reliable and that the system will not be disturbed or switched off during the update.

Note 3: Updating firmware restores the console parameters to factory default. If you want to keep your current settings then go to the Setup / Memory / Show Manager screen and store them as a Show memory before starting the update. Recall the show after you have updated your firmware.

Note 4: After updating the firmware you may need to re-calibrate the touch screen and faders. Do this using the Setup / Utility / Calibration screen.

Firmware update instructions for Windows:

Step 1 Download the firmware
Visit www.allen-heath.com and download the latest GLD firmware. Save the zipped file to your Desktop or folder of your choice. You may also wish to keep a copy of this zip file as a backup of this version of firmware.

Step 2 Remove any previous GLD Firmware from your USB key
Plug a USB key into your computer. If you have previous GLD firmware already on your key, look in its AllenHeathGLD folder and delete the existing Firmware directory and also the Firmware.md5 file in the AllenHeathGLD folder. Do not delete the other directories.

Step 3 Open and extract the Zip file to your USB key
Open up the zip file you have just downloaded. Extract all files to the root directory of your USB key. Once the extraction is complete check that a new Firmware directory has appeared under the AllenHeathGLD folder on your USB key. You may need to refresh the AllenHeathGLD folder to see this.

Note: Do not change the folder name or browse inside the Firmware folder as doing this may cause firmware corruption. Attempting to navigate or open files within this directory may cause your Operating System to leave behind temporary files which can invalidate your firmware.

Step 4 Safely remove the USB key from your computer
Click on the ‘safely remove hardware’ icon, in the bottom right of your screen to safely remove your USB key.

Step 5 Plug the key into a USB port on the GLD
Plug your USB key into either one of the USB ports on the GLD-80. Go to the Setup / Utility / Firmware screen and touch Update. This will then detect your USB key and validate the firmware contents.

Step 6 Perform the update
Touch the Update button. Do not interrupt this process. When the firmware has been successfully installed, touch the Reboot button. The GLD will reboot with the new firmware installed. Any AudioRacks currently connected or connected later to the GLD-80 will have their firmware automatically updated by the GLD-80 during their boot process.

Step 7 Recall your settings
Recall a Template Show or the User Show you saved before the update to restore your settings.
Firmware update instructions for Mac:

Step 1 **Download the firmware**
Visit [www.allen-heath.com](http://www.allen-heath.com) and download the latest GLD firmware. Save the zipped file to your Desktop or folder of your choice. You may also wish to keep a copy of this zip file as a backup of this version of firmware.

Step 2 **Remove any previous GLD Firmware from your USB key**
Plug a USB key into your computer. If you have previous GLD firmware already on your key, look in its AllenHeathGLD folder and delete the existing Firmware directory and also the Firmware.md5 file in the AllenHeathGLD folder. Do not delete the other directories.

Step 3 **Extract the Zip file and copy the folder to your USB key**
Navigate to where you have saved the GLD firmware zip file. Double click on the zip file to extract its contents (this may have automatically been done for you). You will now see a folder called AllenHeathGLD. Copy this folder to the root directory of the USB key.

Check that a new Firmware directory has appeared under the AllenHeathGLD folder on your USB key. You may need to refresh the folder to see this.

**Note:** Do not change the folder name or browse inside the Firmware folder as doing this may cause firmware corruption. Attempting to navigate or open files within this directory may cause your Operating System to leave behind small temporary system files which can invalidate your firmware.

Step 4 **Eject the USB key from your computer**
You can do this by clicking on the small eject icon by the USB key in Finder.

Step 5 **Plug the key into a USB port on the GLD**
Plug your USB key into either one of the USB ports on the GLD-80. Go to the Setup / Utility / Firmware screen and touch Update. This will then detect your USB key and validate the firmware contents.

Step 6 **Perform the update**
Touch the Update button. **Do not interrupt this process.** When the firmware has been successfully installed, touch the Reboot button. The GLD will reboot with the new firmware installed. Any AudioRacks currently connected or connected later to the GLD-80 will have their firmware automatically updated by the GLD-80 during their boot process.

Step 7 **Recall your settings**
Recall a Template Show or the User Show you saved before the update to restore your settings.

---

**USB directory structure**

The AllenHeathGLD folder is located in the root directory of your USB key.

**Event Logs** are copied to this directory. You can email them to Allen & Heath Tech Support if they require further investigation.

Delete the **Firmware** directory as described in Step 2 above before unzipping a new version of firmware to your key. **Do not browse this directory** as opening files may result in the firmware failing to update.

The GLD uses these directories to store the parameter **Libraries** and **User Shows**.

GLD creates this folder when you open the **Setup / Audio / USB Audio** screen **Options** pull-up and choose the ‘**Show Playback Files**’ option. Create this directory if it does not already exist and copy audio files from your computer here to view and play selected files rather than all audio on your USB key.

GLD creates this directory to store audio **recordings**.
### Specification

#### Inputs

<table>
<thead>
<tr>
<th>XLR Mic/Line Inputs</th>
<th>Balanced, (All XLR on GLD-80 and AudioRacks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mic/Line Preamp</td>
<td>Fully recallable</td>
</tr>
<tr>
<td>Input Sensitivity</td>
<td>-90 to +15dB</td>
</tr>
<tr>
<td>Analogue Gain</td>
<td>+5 to +6dB, 1dB steps</td>
</tr>
<tr>
<td>Pad</td>
<td>-2dB</td>
</tr>
<tr>
<td>Maximum Input Level</td>
<td>+32dB</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>&gt;4kΩ (Pad out), 10kΩ (Pad in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mic/Line Channel Noise</th>
<th>20-20kHz, Direct Out @ unbalanced out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mic EIN</td>
<td>-127dB with 150Ω source</td>
</tr>
<tr>
<td>Unity gain (Pad in)</td>
<td>-90dB</td>
</tr>
<tr>
<td>Low gain (5dB, Pad out)</td>
<td>-93dB</td>
</tr>
<tr>
<td>Mid gain (30dB, Pad out)</td>
<td>-89dB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mic/Line Channel THD+N</th>
<th>20-20kHz, Direct Out @ unbalanced out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unity gain (Pad in)</td>
<td>0.005% -86dB@1kHz, 0dB output</td>
</tr>
<tr>
<td>Low gain (5dB, Pad out)</td>
<td>0.003% -89dB@1kHz, 0dB output</td>
</tr>
<tr>
<td>Mid gain (30dB, Pad out)</td>
<td>0.004% -88dB@1kHz, 0dB output</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RCA Line Inputs</th>
<th>Unbalanced (GLD-80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Sensitivity</td>
<td>-24 to +24dB, nominal 0dB</td>
</tr>
<tr>
<td>Trim</td>
<td>+/-24dB, recallable</td>
</tr>
<tr>
<td>Maximum Input Level</td>
<td>+18dB</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>&gt;10kΩ</td>
</tr>
<tr>
<td>RCA channel Noise</td>
<td>-92dB 20-20kHz</td>
</tr>
<tr>
<td>RCA channel THD+N</td>
<td>0.0035% -90dB@1kHz, 0dB output</td>
</tr>
</tbody>
</table>

#### Outputs

<table>
<thead>
<tr>
<th>XLR Outputs</th>
<th>Balanced, Relay protected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Impedance</td>
<td>&lt;75Ω</td>
</tr>
<tr>
<td>Nominal Output</td>
<td>+4dB = 0dB meter reading</td>
</tr>
<tr>
<td>Maximum Output Level</td>
<td>+2dB</td>
</tr>
<tr>
<td>Residual Output Noise</td>
<td>-91dB (muted, 20-20kHz)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RCA Line Outputs</th>
<th>Balanced, Relay protected</th>
</tr>
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<tbody>
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<td>Output Impedance</td>
<td>&lt;75Ω</td>
</tr>
<tr>
<td>Nominal Output</td>
<td>0dB = 0dB meter reading</td>
</tr>
<tr>
<td>Maximum Output Level</td>
<td>+18dB</td>
</tr>
<tr>
<td>Residual Output Noise</td>
<td>-94dB (muted, 20-20kHz)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital Outputs</th>
<th>48kHz sampling rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDIF</td>
<td>RCA 600mV, coax terminated input 75Ω</td>
</tr>
<tr>
<td>AES3 2 ch XLR output</td>
<td>XLR, 2.5Vpp balanced terminated 110Ω</td>
</tr>
</tbody>
</table>

#### System

| Measured balanced XLR in to XLR out, 20-20kHz, minimum Gain, Pad out Dynamic Range | 112dB |
| System Signal to Noise | -90dB |
| Frequency Response | 0/0.25dB @ 20Hz, 0/0.5dB @ 20kHz |
| System peak level THD+N | 0.0055% -68dB@+17dB output, 1kHz |
| System Level level THD+N | 0.0022% -84dB@+9dB output, 1kHz |
| Headroom          | +18dB |
| Internal operating Level | 0dB |
| dBFS Alignment     | +18dB = 0dBFS (+22dB at XLR output) |
| Meter Calibration  | 0dB meter = -18dBFS (+4dB at XLR output) |
| Meter Peak indication | -3dBFS (+16dB at XLR output) |
| Meter Type         | Fast (peak) response |

| Sampling Rate | 48kHz +/-100PPM |
| ADC            | 24-bit Delta-Sigma |
| DAC            | 24-bit Delta Sigma |
| Latency        | 1.49ms (GLD-80 local XLR in to XLR out) |
|                | 0.68ms (GLD-80 local XLR in to digital output) |

| USB Playback | 2 channel, WAV, FLAC 44.1/48kHz |
| USB Record   | 2 channel, 48kHz / 16bit - WAV |
| I/O Port     | 64 channel bi-directional |
| Card Options | A&H ACE, MADI, Dante, ES, Waves, MMM |
| Operating Temperature | 0 deg C to 35 deg C (32 deg F to 95 deg F) |

#### Control

| Touch Screen | 8.4” TFT, 800x600 resolution |
| Faders       | 100mm motorised |
| GLD-80 Fader Strips | 2 Banks (12,8), 4 Layers = 30 strips |
| GLD-112 Fader Strips | 3 Banks (12,8,8), 4 Layers = 132 strips |
| Strip Display | LCD per strip, assignable backlight colours |
| SoftKeys     | 10 assignable |
| MIDI         | MIDI in and Out |
| Network      | TCP/IP Ethernet |

#### FX Processing

| Internal FX | 8x RackFX engine |
| Types       | Reverbs, Delays, Modulators, Sub-harmonics, Pitch Shift, Rotary Speaker, De-Esser |
| Mode        | Send Return, Inserted, Daisy Chain FX |

#### FX 'Short' Return Channels

8 Stereo dedicated returns

| Controls       | Fader, Pan, Mute, Routing to Grp, Aux, FX, Main |
| FX Return PEQ  | Same as Input Channel PEQ |

#### Input Processing

| 48 Processing Channels | Mono = 1-44, Stereo = 45/46, 47/48 |
| Trim                 | +/-24dB digital trim |
| Polarity             | Normal/Reverse |
| High Pass Filter     | 128dB/octave 20Hz – 2kHz |
| Insert               | Assign to any sockets, In/Out, +4dB/-10dB level |
| Delay                | Up to 85ms, Bypass switch |
| Gate                 | Input global setting - ms, feet, meters, samples |
| Sidechain            | Self key, In/Out, Sel 'listen' |
| Sidechain Hi-Cut Filter | 128dB/octave, Freq 20Hz – 5kHz |
| Sidechain Lo-Cut Filter | 128dB/octave, Freq 120Hz – 20kHz |
| Threshold            | -72dB to +12dB |
| Depth                | 0 to 60 dB |
| Attack               | 50s to 300ms |
| Hold                 | 10ms to 5s |
| Release              | 10ms to 1s |

#### PEQ

| Type | 4-band fully parametric, +/-15dB |
| Frequency Range | Global setting for Inputs = 20-20kHz or 'Analogue' |
| Analogue Ranges | 20-200Hz, 35–1kHz, 500-15kHz, 2kHz |
| Band 1 | Selectable LF Shelving, Bell, Hi-Pass |
| Band 2 | Bell |
| Band 3 | Bell |
| Band 4 | Selectable HF Shelving, Bell, Lo-Pass |
| Bell Width | Non-constant Q, variable, 1.5 to 1/9th octave |
| Shelving Type | Classic Baxandall |
| Hi-Pass, Lo-Pass Filter | 128dB/octave |

#### Compressor

| Sidechain | Self key, In/Out, Sel 'listen' |
| Sidechain Hi-Cut Filter | 128dB/octave, Freq 20Hz – 5kHz |
| Sidechain Lo-Cut Filter | 128dB/octave, Freq 120Hz – 20kHz |
| Threshold | -48dB to 180dB |
| Ratio | 1:1 to infinity |
| Attack | 300us – 300ms |
| Release | 100ms – 2s |
| Knee | Soft/Hard |
| Auto Types | VocalAuto, OptoAuto, PunchBag |

#### Channel Direct Out

| Individual Trim (per channel) |
| Options | Source, follow Fader, follow Mute (global for all) |
## Mix Processing

<table>
<thead>
<tr>
<th>Mix Channels</th>
<th>Configure as mono/stereo Groups, Aux, Main, Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains = None, LR, LCR, L+R(M/sum), LR+M(sum)</td>
<td></td>
</tr>
</tbody>
</table>

### GEQ
- **Type**: Constant
- **Gain**: +/-12dB
- **Band**: 2 overlapping frequency bands on strip faders
- **Polarity**: Normal/Reverse
- **Delay**: Up to 170ms, Bypass switch
- **Frequency**: Sine, Peak
- **Routing**: To Groups, Aux, Main, Matrix
- **Preset**: RTA

### PEQ
- **Type**: 4-Band fully parametric, +/-15dB
- **Range**: Global setting for Mixes + 20-20kHz or 'Analogue'
- **Band**: 20-200Hz, 35-1kHz, 500-15kHz, 2kHz-20kHz
- **Equalization**: Selectable LF Shelving, Bell, Hi-Pass
- **Preset**: RTA
- **Filter**: 12/24/36/48/60dB/octave

### Compressor
- **Sidechain**: self key, In/Out, Sel 'listen'
- **Gain**: -46.8dB to 18dB
- **Attack**: 1-1 to infinity
- **Release**: 100ms to 2s
- **Threshold**: 20kHz
- **Manual**: Vocal, Auto, OptoAuto, PunchBag
- **Filter**: in/out with sel 'listen'

### Talkback
- **Assigns**: source
- **Mode**: Latched/Momentary, PAFL Dim option
- **Routing**: To Groups, Aux, Main, Matrix
- **Level**: +/-24dB

### Signal Generator
- **Source**: Sine, White Noise, Pink Noise, Bandpass Noise
- **Controls**: Level, Mute
- **Routing**: To Groups, Aux, Main, Matrix
- **RTA**: 31-Bands 1/3 octave 20-20kHz

### Mains Power
- **GLD-80**: 100-240V AC, 50/60Hz, 95W max
- **GLD-112**: 100-240V AC, 50/60Hz, 110W max
- **GLD-AR2412**: 100-240V AC, 50/60Hz, 70W max
- **GLD-AR84**: 100-240V AC, 50/60Hz, 20W max

### GLD User Guide

---

### Dimensions and Weights

<table>
<thead>
<tr>
<th>GLD-80 Mixer</th>
<th>Width x Depth x Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpacked: 730 x 577 x 159mm (28.7&quot; x 22.7&quot; x 6.2&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GLD-112 Mixer</th>
<th>Width x Depth x Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpacked: 1000 x 577 x 159mm (39.4&quot; x 22.7&quot; x 6.2&quot;)</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>GLD-AR2412 AudioRack</th>
<th>Width x Depth x Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpacked: 483 x 220 x 48mm (19&quot; x 8.6&quot; x 1.9&quot;) 1U rack</td>
<td></td>
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</tbody>
</table>

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<th>GLD-AR4212 AudioRack</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Unpacked: 600 x 330 x 143mm (23.6&quot; x 12.9&quot; x 5.6&quot;) 1U rack</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>GLD-AR84</th>
<th>Width x Depth x Height</th>
</tr>
</thead>
</table>

---

### Weights

| GLD-80 | 1000 x 577 x 159mm (39.4" x 22.7" x 6.2") |
| Unpacked: 730 x 577 x 159mm (28.7" x 22.7" x 6.2") |

| GLD-112 | 1000 x 577 x 159mm (39.4" x 22.7" x 6.2") |
| Unpacked: 1000 x 577 x 159mm (39.4" x 22.7" x 6.2") |

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</table>

<table>
<thead>
<tr>
<th>GLD-AR84</th>
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</tr>
</thead>
</table>

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### GLD-80 = 730 GLD-112 = 1000
Quick Start Mixing Guide

For new user or guest engineer to start mixing with GLD. It assumes mixer already configured for show. To learn more about configuration, memories and advanced functions read on-screen Help Manual and User Guide AP6561.

1. See where Input and Master Faders are by pressing Layer keys A,B,C,D and reading the displays.
   - To change the strip assignments use the Setup/Control screen.

2. See how the Sockets are patched using the I/O screen.
   - To change the socket assignments touch and select from drop-down menu.

3. Access the Channel and Mix processing.
   - Touch to change Name and Colour.
   - For parameters on screen Processing must be active.

4. Access the Sends and Assignments.
   - Normal mix mode (FOH)
   - Main Mix active
   - DCA and Audio Group assign

5. Access the FX.
   - To send to an FX - press FX master Mix
   - To adjust FX parameters - press FX strip Sel
   - To return to the mix use related FXret channel

6. To Link parameters eg, 2 channels for stereo keyboard.
   - Use the Ganging screen. Choose attributes.
   - Ganging does not link the Gains or Trims.

7. To Copy parameters.
   - Hold down Copy and press the Sel or Mix key of the parameters to copy.
   - To return to the mix use related FXret channel.

For GEO on faders press GEQ Fader Flip - Master on last fader. RTA on strip meters. RTA follows current selected PAFL.