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

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

GLD Chrome Edition User Guide   AP9989 Issue 2
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ALLEN&HEATH

Allen & Heath Limited, Kernick Industrial Estate, Penryn, Cornwall, TR10 9LU, UK
http://www.allen-heath.com
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 GLD Chrome Edition is determined by the firmware (operating software) that runs it. This guide relates to Version 1.5 Chrome or later firmware.

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

- Check the Allen & Heath web site for the latest version of GLD and this user guide.

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 at: www.allen-heath.com/legal.

Further information

For further information about GLD Chrome Edition please refer to the user guides associated with each system component. A single sheet Quick Start Mixing Guide is provided at the end of this user guide. Also refer to the GLD Touch Screen Reference Guide available online, and the on-screen Help Manual available on the mixer. Refer to the Allen & Heath website 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 Chrome Edition 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 mixer 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 Chrome Edition Mixer

This User Guide AP9989

Safety Sheet
  • Read this before starting

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

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Introduction

Combining supreme ease of use with a wealth of advanced functionality, GLD Chrome Edition is a digital mixing system fast to learn for the new recruit and with the sophistication to satisfy the most demanding veteran engineer. GLD Chrome Edition takes the acclaimed GLD concept to the next level with sleek new styling reflecting an array of powerful new features.

GLD Chrome Edition components

There are two GLD Chrome Edition 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.

The mixers differ only in size, number of faders and SoftKeys. They both provide the same channel count and rear panel I/O.

Adding one or a combination of the available AudioRacks lets you configure systems with up to 48 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.

**AR2412** 24 Mic/Line in, 12 Line out - Rack mount

**AR84** 8 Mic/Line in, 4 Line out - Rack mount

**AB168** 16 Mic/Line in, 8 Line out - Floor, shelf or rack mount

**GLD accessories**

Refer to the Allen & Heath website for information on recommended cable types.

The following accessories are available from Allen & Heath:

- **AH9650** – 100m drum of EtherFlex Cat5 with locking Neutrik EtherCon connectors
- **AH9981** – 50m drum of EtherFlex Cat5 with locking Neutrik EtherCon connectors
- **AH9651** – 20m EtherFlex Cat5 with locking Neutrik EtherCon connectors
- **LEDLampX** – Variable brightness 18” gooseneck lamp with right angled 4-pin XLR connector
- **AP8806** – black, water repellent polyester soft cover for GLD-80
- **AP9263** – black, water repellent polyester soft cover for GLD-112
ME Personal Mixing System

GLD Chrome Edition 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.

**ME-1** – 40 channel personal mixer

**ME-U** – 10 ports PoE hub for parallel connection

Refer to the Allen & Heath website for more information.

Compatibility with GLD, iLive and Qu

Shows and Libraries created with older GLD systems can be loaded on a GLD Chrome system. Shows created with GLD Chrome can be loaded on older GLD systems running firmware version V1.5 or later.

GLD and GLD Chrome Edition are not compatible with iLive components, firmware, Libraries or Show files. However, they are compatible with the range of audio networking cards letting you interface easily between GLD and iLive or other systems via ACE, MADI, EtherSound, Waves SoundGrid or Dante.

GLD and GLD Chrome Edition are not compatible with Qu firmware, Libraries or Show files.

GLD Chrome Edition Key features

- Plug and play components for systems from 4 to 44 mics plus 2 stereo inputs
- 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 into 20 mix outputs – assignable mono/stereo Group, Aux, FX, Main, Matrix
- 8 stereo RackFX engines with dedicated return channels – total 56 sources to the mix
- AMM (Automatic Mic Mixer) with up to 44 mic contributions and two modes of operation
- 64 channel I/O audio networking option cards 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
- Virtual write-on strip – 8 colour backlight LCD strip display for naming and colour coding
- User assignable SoftKeys
- 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
GLD Systems and socket numbering

The dSNAKE port on the GLD-80 or GLD-112 mixer can be connected to a main AR2412 or AB168 AudioRack. The main AudioRack can be expanded by cascading to a second AudioRack (AB168 or AR84). The EXPANDER port on the GLD mixer can only be connected to an AR84.

The diagram below shows the interconnection and socket numbering of the system. Each socket is identified by the device and socket number. Any input socket or source can be patched to any of the 48 channels. Any mix or signal can be patched to any of the output sockets.

System examples

GLD + AR2412
Standard AR system
32 in, 22 out
24 remote mic inputs

GLD + AR84
Compact AR system
16 in, 14 out
8 remote mic inputs
GLD + AR2412 + AR84
Expanded AR system
40 in, 26 out
32 remote mic inputs

GLD + AR2412 + 2x AR84
Expanded AR system
48 in, 30 out
40 remote mic inputs

GLD + AB168
Rugged digital stage box
24 in, 18 out
16 remote mic inputs

GLD + 2x AB168
Two digital stage boxes
40 in, 26 out
32 remote mic inputs

GLD + AR2412 + AB168 + AR84
Fully expanded AR system
48 in, 30 out
48 remote mic inputs
The block diagram here shows the audio signal flow and processing through the GLD mixer.

The 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.
GLD Chrome Mixer controls

Channel Processing Strip  Analog 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.

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

Main / PAFL meters

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).

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 / 3 groups of motorised faders with 4 layers each (80 control strips on GLD-80, 112 on GLD-112). Provides control of the Input channel, FX return, Mix master, DCA, engineer’s Wedge or IEM monitor, or MIDI assigned 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.

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.

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.

Hold Reset and push a fader to set it to ‘0’ or off.

Safe  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.

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.

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.

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.

Safe  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.
GLD Chrome 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.

Power On indicator

Cooling fan. Do not block this opening.

The LOCK indicator lights when the audio is sync locked.

Mains power IEC input socket and On/Off switch.

EXPANDER link

You can plug an AR84 expander in here.

The AR84 can be located near the mixer to provide more local I/O, on stage or at a remote location.

Connect using a touring grade 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.
Connect and power up

**Connect the main AudioRack** Plug a Cat5 cable into the dSNAKE port at the rack and mixer.

**Connect the dSNAKE Expander** Plug a Cat5 cable into the EXPANDER port of the main AudioRack and the AR84 or AB168.

**Connect the Mixer Expander** Plug a Cat5 cable into the EXPANDER port at the AR84 rack and mixer.

**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

GLD Chrome 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 Editor

GLD Editor is an offline / online tool for setting up and controlling a GLD system from a PC or Mac. It is available free of charge and gives complete wired or wireless control of the mixer. GLD Editor offers the ability to configure the system offline before the show, and control the mix live using a laptop with standard network connection or wi-fi. Different tasks can be performed on Editor and the GLD mixer at the same time.

There are two operating modes:

**Offline** – Prepare your channel plot and surface layout, edit guest engineer Show files before transferring them to USB key to load into a GLD at the venue.

**Online** – Editor adds a second ‘virtual’ control surface to the GLD system providing simultaneous control. Editor can connect as either a master (uploads settings to the mixer) or a slave (downloads mixer settings).

iOS apps

GLD Remote and GLD OneMix 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 apps**  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 Apps and GLD firmware versions are compatible. Check the Allen & Heath website for the latest firmware.

**Choose a router**  (wireless access point)  GLD Chrome apps are professional mixing tools that justify 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 website for more information on choosing wireless routers for use with GLD Chrome.

**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.

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**Recommended settings:**

**GLD**  (default)

- Static IP = 192.168.1.50
- Subnet Mask = 255.255.255.0

**Router**

- Router IP = 192.168.1.254
- Subnet Mask = 255.255.255.0
- DHCP 192.168.1.100 to 200
- Security = WPA
**Set the router security** - To prevent other people accessing your Wi-Fi 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

GLD Chrome 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.

**Recall** the selected Show.

**Store** a new User Show. This opens the keypad. Type in and **Apply** a name for the Show.

**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.

**Overwrite**, **Delete** or **Rename** an existing User Show.

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

**Template3 Mon**

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)
- USB playback to CH47/48
- Recording from stereo Matrix 1

**The engineer’s IEM/Wedge monitor is configured so that pressing a mono Aux (wedge) mix PAFL key will automatically mute the engineer’s stereo IEM monitor. Pressing a stereo Aux (IEM) mix PAFL key will mute the engineer’s Wedge monitor.**
A few things to know before starting

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

The Touch Screen

Screen graph view for PEQ and dynamics:
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.

The last Scene recalled and the Scene highlighted in the Scene list ready to be recalled are displayed here.

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.

Shows USB playback and recording status. Touch to open the USB Audio screen.
Also shows if one or more channels are assigned to the Automatic Mic Mixer. Touch to open the AMM Setup page.

Pull-up tab opens additional controls and options for the current screen

Displays system connection status

Displays system information

Access the User login screen

Opens the Quick Start Mixing Guide

To safely shut down the GLD computer before turning the system off.

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.

The Touch Screen

Name and Colour button

Tabs to select the pages available for the current screen

Screen select keys:
Press a key to select that view. Press the key again to return to Processing view.

Screen rotary control:
Touch a parameter on the screen to highlight it, then turn the rotary to adjust its value.

Processing
Meters
FX
I/O
Scenes
Ganging
Setup

Returns to this screen

Line Peaking
Reverb 1
Reverb 2
Aux 1
Aux 2
Aux 3
Aux 4
Aux 5
Aux 6
Aux 7
Aux 8
Main (LR)
Main (L/R)
Main (L+R)
Main (L)
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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.

User-defined backlight Colour

User-defined channel Name

Touch the top left Name box in the Processing screen to open the Name and Colour edit page.

Strip Rotary setting

Gain
Pan
Custom 1
Custom 2
Send level, Direct Out level, HPF frequency, Compressor threshold, Unassigned

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.

Pre/Post + press Sel
Assign + press Mix
Alt view

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.

Turns on when the channel has been made Safe from Scene recall.

Turns on when the channel is assigned to one or more DCA groups.

The lower section of the LCD displays the channel assignment to the currently selected Mix.
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, DCA master or MIDI strip 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:

- **Meter**: Displays audio signal activity for the channel or mix master. Input channel metering is post-processing, pre-fader. Mix master metering is post-fader, post-mute so you can check the signal present at the output. The red PK! indicator lights to warn that the signal is within 5dB of clipping. It is multi-point sensing which means it detects peak activity at several points in the signal chain and can therefore keep a check on signal activity throughout the channel path.

  **Note**: If the top red LED lights before the rest of the meter, or while the channel fader is down, this means that the signal is peaking earlier in the channel path. Press Sel to open up the channel processing and check signal activity.

  **Note**: GLD meters are fast response digital absolute peak meters. This ensures you keep control and avoid digital clipping of signals including those with very fast dynamics. It does mean the GLD meters may read hotter than those on other consoles you are used to. It is perfectly ok to work with meters reading well into the yellow, but back the level off if the red PK! LED flashes.

- **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**

Press a Main 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 Chrome 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.

Display the full list of 500 Scenes. Display a Cue List of selected Scenes. Create, name, save and load Cue Lists using this screen. Choose to make select parameters globally Recall Safe using this screen.

Touch to open the keypad and name the Scene. Set a crossfade time to affect faders, send levels and pan. Type in a description for the Scene. Touch to recall the selected Scene. Touch to view and edit the Recall Filter for the selected Scene. Delete the selected Scene. Store the current settings to the selected Scene. This will overwrite existing Scene settings.

Embedded Scene Recall function (refer to the Help manual).

The last Scene recalled and the Scene highlighted in the list ready to be recalled are displayed in the status bar. When the Scene is recalled its name briefly flashes green to confirm the action.

Touch to Copy the currently selected Scene ready to be pasted to one or more other Scene positions. This copies the Scene contents but not its name.

Highlight a Scene in the list then touch Paste to overwrite its contents with those of the copied Scene. It also copies the settings of the Recall Filter.

You can paste one Scene to multiple positions in the list.

Touch OPTIONS to turn the Scene Editing Confirmation option on or off. This affects Scene Store, Recall, Delete and Copy using the Scene Manager page.
User Profiles

GLD Chrome 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.

Category tabs group the different types of user permissions available.

List of permissions for the selected category show if they are enabled (ON) or disabled (OFF).

A description of the parameters affected for the highlighted permission is shown here.

Touch to enable or disable the highlighted permission.

Touch Apply to save your changes or Cancel to return to the User Profile page without saving.

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** – GLD Chrome 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.
Working with the AMM (Automatic Mic Mixer)

The Automatic Mic Mixer (AMM) provides automatic level control of multiple microphones for spoken word applications such as conferences and discussion panels involving several participants each with their own mic around a table. This improves intelligibility and can reduce the risk of feedback by reducing the levels of mics which are not being spoken into. Once set, the AMM needs little or no change at all whilst still allowing the engineer to maintain absolute control of the mix.

**Note** The AMM is intended for speech applications not music.

**Operating Principles**

The AMM works by automatically reducing the mix level proportional to the microphone activity at any time. It adds an automatic gain element and derives a trigger source within each assigned channel. The following diagram shows the signal flow through each input channel:

![Signal Flow Diagram]

The AMM takes control by first setting each assigned channel fader to '0' (0dB unity gain), thus effectively passing the signal unaffected through the fader, and then using its own post-fade gain element to make its automatic adjustments. It is typical to leave the faders at '0', but they can be adjusted if the engineer wishes to make additional post AMM level changes manually to adjust the relative balance between mics in the mix.

The AMM affects all channel post-fade sends but not pre-fade sends such as monitors.

The AMM determines when microphones are open (detects a level or speech) by analysing the channel signals at their pre-Insert point. The PEQ, Comp and fader do not affect AMM signal detection.

The AMM uses a complex algorithm to automatically optimise the overall gain by adjusting the microphone levels sent to the mix according to how many mics are open.

If just one mic is open then its level is passed through at 0dB and the others are attenuated. If several mics are open the overall gain is automatically reduced.

Additional features allow ambience to be maintained, crosstalk and false triggers to be eliminated, and microphones to be selected as 'Chair' to take priority over others by ducking their levels.

The AMM is assigned and set up using the **Setup / Audio / AMM** screen. This displays the current mode and assignments as well as blue bars showing the automatic gain settings.

Once channels are assigned, the screen lower right toolbar presents an AMM button to give you quick access to the AMM page from any other screen. Touch the button to open the page.

You can choose one of two operating modes using the **Setup** page:
NOM Mode

NOM (Number of Open Mics) mode evolved from the AMM developed for the Allen & Heath IDR8 installed sound processor. NOM mode acts as a gate, turning an input on when a threshold is passed. The level adjustment for each open input is equal and depends on the number of microphones open and the NOM attenuation parameter which sets the amount of attenuation applied for every doubling of open microphones.

Adaptive Threshold - You do not need to set the open mic threshold. NOM mode senses the background ambient noise level and automatically adjusts the open threshold level to ensure consistent triggering regardless of background noise.

Ambience Maintenance - Keeps the last open microphone locked on until another channel is opened to ensure consistent ambient noise is maintained, especially important in a broadcast environment. If just one microphone is active in the AMM then it is held open to maintain ambience.

ON - Any combination of mono channels 1-44 can be assigned to the AMM. Stereo channels cannot be assigned to the AMM. When switched to 'ON' the AMM sets the channel fader to '0' and then takes automatic control using its own gain element just after each fader.

Chair Priority - You can set a channel as ‘Chair’ to give it higher priority over the other channels, for example to let a chairman override another speaker. The Chair mic sensitivity and the amount that other channels are automatically ducked when the Chair is open can be set.

Best Mic On - This option ensures a single participant activates the one microphone receiving the strongest signal. This can prevent crosstalk, phasing and ambience issues caused by multiple microphones triggering for the same voice. The Chair mic is not part of the Best Mic On calculation.

Note We recommend you only select Best Mic On if all microphones involved are the same type and have similar positioning and gain.

Solo - Each input has a solo option which opens the selected channel and turns all others down. This is not additive. Only one channel can be soloed at a time.

NOM Setup:
**Side Chain Filter** - Set High Pass and Low Pass filters to cut off frequencies below and above the normal speech range that may cause false triggering of the mics.

**Off Attenuation** - Set the amount of shutoff for closed mics (from -10dB to fully off).

**On Hold Time** - Set the amount of time an open mic is held open once the trigger is removed (from 100ms to 5 seconds). The Chair mic is not affected by Hold Time.

**NOM Attenuation** - Set the amount of attenuation applied per doubling of open mics (from 3 to 6dB).

**Chair Sensitivity** - Set the sensitivity of signal required to trigger a Chair mic open and therefore duck the other mics (from 1 to 10 = least to most sensitive).

**Chair Duck Level** - Set the amount of attenuation applied to other mics when a Chair mic is open (from -3 to -40dB).

**D-Classic Mode**

Unlike NOM mode which uses gating and fixed gain attenuation, D-Classic uses a 'constant gain sharing' algorithm to dynamically adjust the gain for each mic proportional to its input level. Louder signals will receive more gain in the mix.

**Priority Level** - For each channel you can set a priority 'level' which will offset the amount of gain going into the mix calculation and therefore give a higher or lower artificial gain to that channel. This is a variable slider with a range from -15dB (low priority) through 0dB (no offset) in the middle to +15dB (high priority) at the top.

**ON** - Any combination of mono channels 1-44 can be assigned to the AMM. Stereo channels cannot be assigned to the AMM. When switched to ‘ON’ the AMM sets the channel fader to ‘0’ and then takes automatic control using its own gain element just after each fader.

**D-Classic Setup:**

**Side Chain Filter** - Set High Pass and Low Pass filters to cut off frequencies below and above the normal speech range that may cause false triggering of the mics.

D-Classic does not provide Best Mic On, Solo, Chair or other setup functions.
Scenes and the AMM

AMM settings are stored in GLD Scenes. However, these can be made globally safe from Scene recall using the Scenes / Scene Safes screen 'Others' tab. They can also be filtered out of individual Scene recall by highlighting a Scene in the list, touching its Recall Filter button to access its filter 'Others' tab and blocking the AMM item.

User Permissions and the AMM

AMM settings can be protected from selected users by disabling the 'AMM' item in the Setup / Config User Profiles screen Permissions page Setup tab.

Using the AMM

Set up and position the microphones. It is best to use the same type of microphone and position them so that the participants are not too close or too far from each. To avoid false triggering and phasing the distance from each voice to its mic should be closer than the distance between the mics. The distances from each mic to voice should be similar for consistent operation.

Set up an Audio or DCA Group for master control. Decide which mic channels to use for the AMM. Before assigning to the AMM we recommend you either route these via an audio Group to the LR mix (remember to also unassign these channels from the LR mix), or assign a DCA Group to them. This gives you a master fader and mute for quick overall control.

Set the mic gain and processing. It is best to start with the Group master fader down to avoid unexpected high levels in the PA while setting the gains. Use PAFL to check audio level and quality. Set gain for the loudest speech expected. Use the HPF and PEQ to tailor the sound for speech.

Set up the AMM. Use the Setup / Audio / AMM screen. This displays the current mode and assignments as well as blue bars showing the automatic gain settings. Touch the Setup button to choose NOM or D-Classic mode and adjust the available settings.

Assign the channels to the AMM. When you turn an assignment ON its fader will automatically move to its '0' position. The AMM takes over and keeps the mic closed until it picks up enough signal to trigger it.

Bring up the AMM in the mix. Turn one mic on by having someone talk into it. Raise the Group fader to set the required volume in the room.
How to Update the GLD Chrome 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](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 **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.

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**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>-60 to +15dBu</td>
</tr>
<tr>
<td>Analogue Gain</td>
<td>+5 to +60dB, 1dB steps</td>
</tr>
<tr>
<td>Pad</td>
<td>-20dB</td>
</tr>
<tr>
<td>Maximum Input Level</td>
<td>+32dBu</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>Low gain (5dB, Pad out)</td>
<td>-93dBu</td>
</tr>
<tr>
<td>Mid gain (30dB, Pad out)</td>
<td>-89dBu</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% -86dBu @ 1kHz, 0dBu output</td>
</tr>
<tr>
<td>Low gain (5dB, Pad out)</td>
<td>0.003% -89dBu @ 1kHz, 0dBu output</td>
</tr>
<tr>
<td>Mid gain (30dB, Pad out)</td>
<td>0.004% -88dBu @ 1kHz, 0dBu 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 +24dBu, nominal 0dBu</td>
</tr>
<tr>
<td>Trim</td>
<td>+/-24dBu, recallable</td>
</tr>
<tr>
<td>Maximum Input Level</td>
<td>+18dBu</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>&gt;10kΩ</td>
</tr>
<tr>
<td>RCA channel Noise</td>
<td>-92dBu 20-20kHz</td>
</tr>
<tr>
<td>RCA channel THD+N</td>
<td>0.0035% -90dBu @ 1kHz, 0dBu output</td>
</tr>
</tbody>
</table>

#### Outputs

<table>
<thead>
<tr>
<th>XLR Outputs</th>
<th>Balanced, Relay protected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Output</td>
<td>+4dBu = 0dB meter reading</td>
</tr>
<tr>
<td>Maximum Output Level</td>
<td>+24dBu</td>
</tr>
<tr>
<td>Residual Output Noise</td>
<td>-91dBu (muted, 20-20kHz)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RCA Line Outputs</th>
<th>Balanced, Relay protected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Output</td>
<td>0dBu = 0dB meter reading</td>
</tr>
<tr>
<td>Maximum Output Level</td>
<td>+18dBu</td>
</tr>
<tr>
<td>Residual Output Noise</td>
<td>-94dBu (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 600mw, 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

<table>
<thead>
<tr>
<th>Measured balanced XLR in to XLR out, 20-20kHz, minimum Gain, Pad out</th>
<th>Dynamic Range</th>
<th>112dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic Signal to Noise</td>
<td>-90dB</td>
<td></td>
</tr>
<tr>
<td>Frequency Response</td>
<td>0/0.25dB @ 20Hz, 0/0.5dB @ 20kHz</td>
<td></td>
</tr>
<tr>
<td>System peak level THD+N</td>
<td>0.0055% -68dBu @ +17dBu output, 1kHz</td>
<td></td>
</tr>
<tr>
<td>System line level THD+N</td>
<td>0.0022%, -84dBu @ +9dBu output, 1kHz</td>
<td></td>
</tr>
</tbody>
</table>

| Headroom               | +18dB                                    |
| Internal operating Level | 0dBu                                     |
| dBFS Alignment         | +18dBu = 0dBFS (+22dBu at XLR output)    |
| Meter Calibration      | 0dB meter = -18dBFS (+48dB at XLR output) |
| Meter Peak indication  | -3dBFS (+19dBu 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 out) |
| 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, MMO     |
| 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 = 32 strips     |
| GLD-112 Fader Strips   | 3 Banks (12,8,8), 4 Layers = 132 strips  |

| 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 | Adds to inputs for up to 56 sources to the mix |
| Controls                | Fader, Pan, Mute, Routing to Grp, Aux, FX, Main |
| FX Return PEQ           | Same as Input Channel PEQ                |

#### 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-20kHz |

| 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 | 12dB/octave                              |

#### Compressor

| Sidechain               | Self key, In/Out, Sel 'listen'           |
| Sidechain Lo-Cut Filter | 12dB/octave, Freq 20Hz – 5kHz            |
| Sidechain Hi-Cut Filter | 12dB/octave, Freq 120Hz – 20kHz          |

| Threshold               | -72dBu to +12dBu                         |
| Depth                   | 0 to 60 dB                               |
| Attack                  | 50us to 300ms                            |
| Hold                    | 10ms to 5s                               |
| Release                 | 10ms to 1s                               |

#### 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, MMO |

#### Operating Temperature

| 0 deg C to 35 deg C (32 deg F to 95 deg F) |
Mix Processing
20 Mix Channels
Configure as mono/stereo Groups, Aux, Main, Matrix
Mains = None, LR, LCR, LHRM(bus), LHRM(sum)

External Input
Assigns outputs to any source

Trim
+/-24dB digital trim

Polarity
Normal/Reverse

Insert
Assign to any sockets, In/Out, +4dBu/-10dBV level

Delay
Up to 170ms, Bypass switch
Mix global setting - ms, feet, meters, samples

GEQ
Type Constant 1/3 octave, 28 bands 31Hz -16kHz
Gain +/-12dB
GEQ Fader Flip Mode 2 overlapping frequency bands on strip faders
SEL key resets frequency band to 0dB
RTA following PAFL is displayed on strip meters

PEQ
Type 4-Band fully parametric, +/-15dB
Frequency Range Global setting for Mixes = 20-20kHz or 'Analogue'
Analogue Ranges 20-200Hz, 35-1kHz, 500-15kHz, 2k-20kHz
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 12dB/octave

Compressor
Sidechain Self key, In/Out, Sel 'listen'
Sidechain Lo-Cut Filter 12dB/octave, Freq 20Hz – 5kHz
Sidechain Hi-Cut Filter 12dB/octave, Freq 120Hz – 20kHz
Threshold -46dBu to 18dBu
Ratio 1:1 to infinity
Attack 300us – 300ms
Release 100ms – 2s
Knee Soft/Hard
Auto Types Vocal Auto, Opto Auto, Punch Bag
Filter in/out with sel 'listen'

Talkback
Assignable source
Mode Latched/Momentary, PAFL Dim option
High Pass Filter 12dB/octave, 20Hz-2kHz
Routing To Groups, Aux, Main, Matrix
Level Trim +/-24dB

Signal Generator
Sine, White Noise, Pink Noise, Bandpass Noise
Sine, Bandpass sweep 20-20kHz
Controls Level, Mute
Routing To Groups, Aux, Main, Matrix

RTA
31-Bands 1/3 octave 20-20kHz
Source Follows selected PAFL source
Peak Band Indication Option to display dominant frequency

Dimensions and Weights
GLD-80 Mixer
Width x Depth x Height
Unpacked 730 x 577 x 159mm (28.7" x 22.7" x 6.2")
Packed in shipping box 930 x 730 x 290mm (36.6" x 28.6" x 11.4")
Unpacked weight 16.5kg (36lbs)
Packed weight 21.2kg (46.6lbs)

GLD-112 Mixer
Width x Depth x Height
Unpacked 1000 x 577 x 159mm (39.4" x 22.7" x 6.2")
Packed in shipping box 1200 x 730 x 290mm (47.2" x 28.6" x 11.4")
Unpacked weight 26.4kg (58lbs)
Packed weight 32.8kg (72.1lbs)

GLD-AR2412 Mixer
Width x Depth x Height
Unpacked 483 x 220 x 137mm (19" x 8.6" x 5.4") 1U rack
Packed in shipping box 600 x 330 x 250mm (23.6" x 12.9" x 9.8")
Unpacked weight 3kg (6.6lbs)
Packed weight 4.4kg (9.7lbs)

GLD-AR2412 AudioRack
Width x Depth x Height
Unpacked 483 x 220 x 48mm (19" x 8.6" x 1.9") 1U rack
Packed in shipping box 600 x 330 x 143mm (23.6" x 12.9" x 5.6")

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
Quick Start Mixing Guide

For the new user or guest engineer to start mixing with GLD. It assumes a mixer already configured for the show. To learn more about configuration, memories and advanced functions read the on-screen Help Manual and User Guide AP8561.

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

4. Access the Sends and Assignments

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 e.g., 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:
   Copy GEQ here
   > Hold down Paste and press the Sel or Mix key of the strip to paste to