ALLEN & HEATH FIREWIRE CONTROL PANEL

A description of the Control Panel for the ALLEN & HEATH FW driver v4.2.x. and above

Both the Windows & Mac versions are covered by this guide, the differences are highlighted where relevant.

The Control Panel from v3.5.5 is now universal and allows for both ZED-R16 and GS-R24 to be connected.

The Windows or Mac installer program will install the driver software for the Allen & Heath audio streaming device onto your computer, and a control panel application which can be used to check and set up certain parameters such as sample rate and synchronisation source.

Screenshot of the Windows (Vista, W7, W8, W10) control panel

Screenshot of the Mac control panel

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The control panel is divided into two main sections, Global Settings and Device Settings.

Global Settings

All system related settings are here, grouped into five Tabs for Windows, three for the Mac version.

When the mouse pointer hovers over the Master combo box, a ToolTip will display the IEEE1394 unique ID of the device.

The sample rate and sync source always refer to the selected clock master. It is possible to connect a ZED-R16 to the GS-R24, in which case one of them will be the clock master and the other the slave. When only one Allen & Heath device is connected, it will always be the clock master. When the device is not locked (synchronised and working at the selected sample rate), a warning icon will appear under the Master display box. Hovering the mouse pointer over the text will display a message stating whether the master device is locked or not. The GS-R24 can be synchronised to an external clock source by selecting Word Clock and connecting to the BNC connector, or GS-R24 / ZED-R can be synchronised to an ADAT source by selecting ADAT as the Sync Source and plugging an ADAT source into Input 1-8. Here (below), the GS-R24 device (clock Master) is set to synchronise from the ADAT input stream which is not plugged in, therefore the GS-R24 device is not locked or synchronised to the master clock.

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Buffer Size

Operation Mode

The Buffer Size (Windows only) option box contains a number of predefined sizes in its drop-down menu, this is when you have selected Operation Mode to be Normal Mode.

The Operation Mode enforces buffer levels which help prevent performance-related dropouts when using audio on computers. The higher the Mode number, the less chance of audio artefacts, with the sacrifice of increased system latency. Dropouts are caused by the configuration of the computer, and also by what other applications are running at the time, and lastly by the worst-case DPC latency caused by other drivers. Network drivers, for example, are a notorious source of latency on an otherwise high-performance computer.

The WDM tab (Windows only) can be used for enabling or disabling the Windows Driver Model audio channels, configuring them as mono, stereo or surround, depending on your computer's capability, and mapping the WDM channels to the required channels on your GS-R24 / ZED-R. For example you can map the stereo WDM channels to the master L-R channels (31-32) on your mixer so that your computer CD player and general audio will be played to the Master L-R channels for monitoring.

Drag the speaker channels from here….

….To here.

Device Settings

This area of the control panel shows information for the Allen & Heath FireWire device if connected to the FireWire bus. The device (mixer) is shown in the Devices list on the right, the clock symbol is displayed if it is the clock master and a padlock symbol shows if the device is locked or unlocked (synchronised or not).

On the left of the Device Settings area are two Tabs, General and Module Firmware Loader.

The General tab displays the device description which should be set to Allen & Heath Ltd. Device type if connected, and the Nickname box allows the user to give a particular name to the mixer connected which is useful if different mixers are being used, or if two are connected together (this is possible but is not described in this control panel guide).

Underneath the device Nickname, the actual measured sample rate is displayed along with the device status.

An alert icon will appear on the device list item to show that certain events have been logged which apply to the device shown such as the device being locked or unlocked temporarily. The icon will fade, but if the mouse is hovered over the icon before it fades the reported events will appear as a ToolTip. When the icon has faded, shift+clicking over the device box in the Devices list will show the most recent 40 events logged.

The Firmware Loader tab allows the user to upload new Firmware to the GS-R24 / ZED-R.

To upload new firmware you will need the latest .bin file available on the website. Download this to a known location on your computer for example the desktop. Select the Firmware Loader tab then click browse and locate the .bin file and select it. Click upload and the new firmware will be programmed.

Note:

The firmware is pre-loaded on your device and you only need to update it when there is a new release of firmware to enhance functionality for some reason.

To check the firmware version loaded on your GS-R24 / ZED-R, click the Show Details check box and go to the Allen & Heath website and check your firmware version is up to date.

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The System tab (Windows and MAC) allows a utility to check your computers chipset, basically it checks to see what chipsets are being used inside your computer and checks against a list of tested devices and states current compatibility, can also check on line in case chip has been tested later than the release of the driver firmware.

OHCI Controller checker.

The OHCI checker is an application tool that will check the computer for installed IEEE1394 FireWire host controller hardware and report on the chipset of the device. It will show whether the device is compatible with the DICE FireWire streaming device used by Allen & Heath mixing consoles.

It will report:

Manufacturer name
Chipset name
Chipset revision
The number of isochronous contexts for transmit and receive that the chipset supports (if known)
Whether the chipset is supported by the DICE driver (supported, limited support, unsupported, or untested)
A notes field with any details about compatibility

If Look Online is ticked when clicking Scan button OHCI Tool will retrieve the latest information from TCAT on chipset and compatibility issues.

Parameter Locking:

When an audio application is running on the computer, certain functions are locked by the control panel for example the sample rate setting. A ToolTip will appear to inform the user of this if the mouse pointer is hovered over the relevant parameter box.

To access these parameter settings, the audio application should be closed and re-opened after the settings are made.

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DPC Latency Checker (Windows only).

This tool in the control panel allows the deferred procedure call delays to be measured and recorded. It is important to check this to know that your computer is capable of streaming audio data to and from the FireWire bus and to your audio software application.

Please note that this is not the latency measurement of the audio data transfer between the Allen & Heath FireWire device and the computer. The DPC latency is the timing delays imposed on certain instructions used by your computer to process audio data.

Click the DPC tab.

DPC checker starts automatically when the control panel is opened. The checker can be reset at any time by clicking clear.

The shot above shows a healthy reading, with a maximum measured timing of 82 microseconds. The Recommended Operation Mode displayed is Lowest Latency which allows low buffer sizes to be used, hence giving fast data transfer speeds and low FireWire bus latency.

There are Safe modes which may be recommended if high DPC timings are measured.

The shot below shows what happens when a video application is loaded and an MPEG movie is played separately on the computer. A large DPC timing is detected caused by the computer loading a new application and buffering the video data, a figure of 2128 microseconds is displayed and the Recommended Operation Mode is changed to Safe Mode Level 1.

If the FireWire bus was currently streaming in Normal mode and low buffer sizes then audio dropout would almost definitely happen resulting in clicks at the very least, and interruptions in the audio software application.

A variety of things can cause high DPC latencies – network connections being particularly notorious, also other peripherals connected to USB ports or on the FireWire bus, video graphics cards and settings, and of course other applications as in this example that use up processor power.