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# DiGiGrid Q

## User Guide



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Waves Inc  
2800 Merchants Drive, Knoxville, TN 37912 USA  
1-865-909-9200  
[www.waves.com](http://www.waves.com)



# Introduction

The **DiGiGrid Q** headphone amplifier is a high-end audio interface. Its flexible design suits any audio application where precise monitoring with very low latency is required. Q features 1/4-inch and 3.5 mm outputs, and it can accommodate all headphones up to 600 ohms. It has four input options: AES/EBU, RCA, Ethernet (SoundGrid), and Bluetooth. The unit is powered by a twist-lock 12V DC power supply (provided) and it has a non-slip base.

DiGiGrid **Q** does not need an external power source when connected to a DiGiGrid **S** network switch. DiGiGrid **S** provides power over Ethernet (PoE) for DiGiGrid **D**, **M**, and **Q** interfaces.

DiGiGrid Q operates as part of a SoundGrid network. SoundGrid is the Waves high-speed networking protocol for moving audio, clock, and other information between a host system and I/O devices—and between I/O devices themselves. A SoundGrid host configures the network, assigning servers and I/O devices to mix, process, or record, depending on the host. SoundGrid I/Os link to the SoundGrid network with standard Ethernet cable.

SoundGrid is scalable. Connect one I/O device to a DAW and you have a high-quality sound card. Add more I/Os and your system becomes more flexible and powerful. Depending on the host application, a SoundGrid host can assign up to sixteen I/O devices. Complete SoundGrid systems can be networked together to share devices.

Add a server to a SoundGrid system to offload plugin processing from the host CPU to a SoundGrid DSP server. This dramatically increases processing power and enables greater plugin counts, as well as providing very low system latency.



# Hardware and Connections



DiGiGrid Q FRONT PANEL

- 1 Selected input indicators
- 2 Bluetooth Status LED
  - Flashes alternating red and blue when not paired.
  - Flashes steady blue when paired.
- 3 Headphone outputs: ¼ inch and 3.5 mm, (¼ inch overrides 3.5mm)



DiGiGrid Q REAR PANEL

- 1 Headphone output level control
  - Click to cycle through inputs:
    - ANA = Analog
    - DIG = AES
    - NET = SoundGrid network
    - BT = Bluetooth
- 2 USB programming service port for tech support.  
This is not a USB audio port.
- 3 Analog Line Inputs
- 4 AES/EBU Inputs
- 5 Reset button (on side panel)
- 6 DC In
- 7 SoundGrid Ethernet port



## Input Sources

There are four different monitoring options that you can choose from with the DiGiGrid **Q**. Press down on the headphone level control to cycle through these options:

<b>ANA</b>	Analog – Unbalanced stereo analog input on phono RCA connectors.
<b>DIG</b>	AES – Stereo AES/EBU input on XLR.
<b>NET</b>	SoundGrid network – Two-channel SoundGrid input from your SoundGrid network.
<b>BT</b>	Bluetooth – Stereo input from smartphone, tablet, or computer, via Bluetooth.

The selected input source is indicated on the top panel, in front of the Headphone Level control. Please note that the inputs feed only the headphone amplifier. They do not appear as inputs to the SoundGrid network.

## Setting up Bluetooth

The Bluetooth LED on the **Q** top panel flashes blue and red alternatively when the unit is unpaired.

To set up Bluetooth monitoring, choose **BT** by pressing down on the volume button until selected, enable Bluetooth on your tablet / phone / computer, and view the available Bluetooth devices.

The DiGiGrid **Q** is identified in the Bluetooth setup with the name “DiGiGrid **Q**-XXXX,” where the XXXX is a unique identifier.

When the DiGiGrid **Q** device appears, select it and choose to pair. You will not need to enter a passcode. When the pairing process is complete, the Bluetooth indicators on the top panel of the **Q** will flash blue only, which indicates successful pairing.

Bluetooth operates over a relatively short range. If you experience audio dropouts when using the Bluetooth, move the **Q** closer to the transmitting device.



# Getting Started

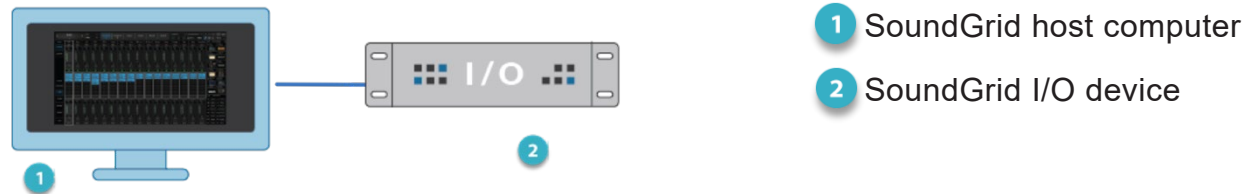
All SoundGrid systems, regardless of size, are set up in the same manner:

- A** Connect the hardware
- B** Install the software
- C** Configure your system

## **A** *Connect the Hardware*

### One I/O

In this example, one DiGiGrid Q is used to connect a console to the SoundGrid host application's SoundGrid ASIO/Core Audio driver for plugin processing and/or DAW playback/recording. The interface is connected directly to the host using a Cat 5e Ethernet cable or better.



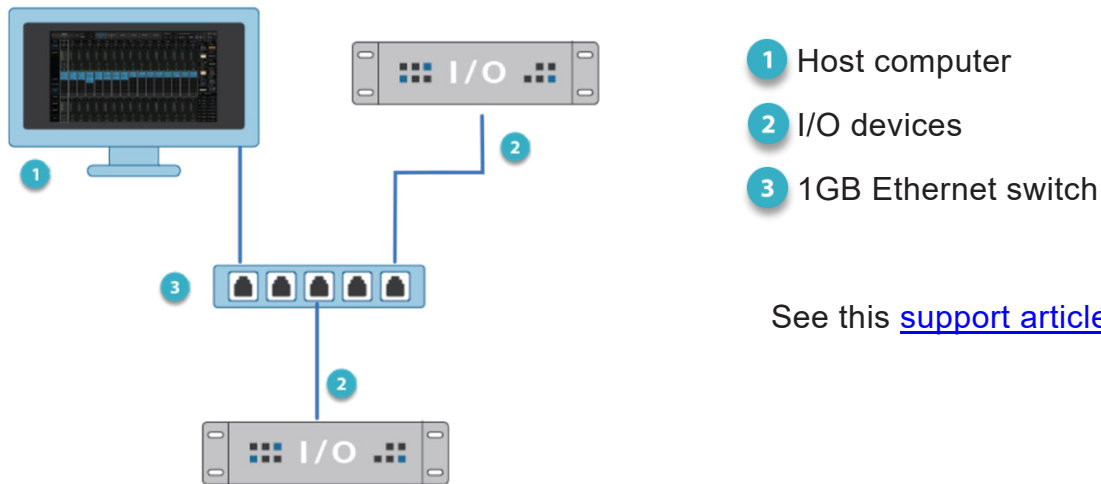
The LAN port that's connected to the SoundGrid network should be used for SoundGrid only. Do not share this port with the internet or other networks.

In this configuration, all plugin processing is carried out on the host computer. The speed and power of the host defines overall latency.



## Add I/Os

Adding I/O devices not only increases the number of I/O channels, but lets you have separate devices for stage and FOH, or live room and control room. When you have more than one device in the SoundGrid network, use a "star" network configuration with a 1GB Ethernet switch. Only use switches tested and approved by Waves.



See this [support article](#) for a list of supported switches.

You can connect and assign up to 16 SoundGrid I/O devices to the network, depending on the SoundGrid Host Application. You can also add more computers to enable audio streaming between hosts.

## ADD A SERVER

To add a server to your SoundGrid system, just connect it to the Ethernet switch and configure it in your host application. This moves all DSP processing from the host computer to the server, which provides a higher plugin count and enables the eMotion LV1 and ST mixers. Visit the [waves.com hardware pages](https://www.waves.com/hardware/pages) to learn more about SoundGrid servers. Consult your host application user guide to learn how to configure additional I/Os and servers.



## B Download and Install Software

### INSTALLING A NEW SOUNDGRID HOST SYSTEM

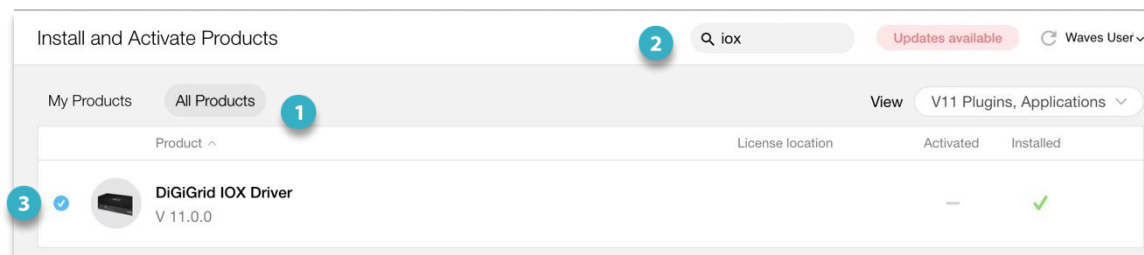
Installing the Waves SoundGrid host application will also install applicable device drivers and ASIO/Core Audio drivers. Your devices will appear in the Inventory of your host system. If a device is not visible in the Inventory, you may need to install a specific driver from **Waves Central**—please see below. First, however, check the device's connections and power.

### ADDING AN I/O DEVICE TO AN EXISTING SOUNDGRID HOST SYSTEM

If you are already using a Waves SoundGrid host application and your device does not appear in the Network Devices list, use Waves Central to update the host application, which also updates the device drivers—or install just the missing device driver from Waves Central.<sup>1</sup>

#### Waves Central

All Waves software is downloaded and installed via the Waves Central application. To install a specific device driver, launch Waves Central and follow these steps:



- 1 Choose **All Products**
- 2 Search for the driver by name
- 3 Choose the driver and click **Install**

Install

If you are new to Waves products, begin by downloading the Waves Central installer from the Waves Download Page. See the Waves Central User Guide for instructions on how to install drivers, plugins, and applications.

### LICENSES

You do not need a license to use this device. However, many hosts or specific host configurations do require a license. Refer to your host's [product page](#) for details.

<sup>1</sup> The SoundGrid QRec host is installed with any I/O.





## C Configure the System

A SoundGrid network is configured and devices are assigned in a host's **Setup** window. At the heart of this window are racks where devices are assigned. Any compatible device that's part of the host's SoundGrid network will be available for assignment. This collection of devices is called the **Inventory**. Setup is similar with all hosts: identify the host's LAN port, select a device slot, and use the drop-down menu to choose an available device. Please consult the user guide of your host application for specific instructions.



SoundGrid QRec

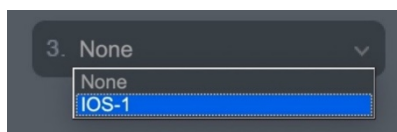


SoundGrid Studio Setup Window

All SoundGrid devices are configured in a very similar manner. Throughout this section, we show DiGiGrid IOS as an example.



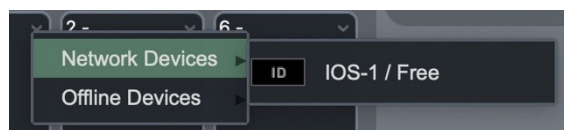
## Manual Device Configuration



SoundGrid QRec

You can assign, remove, and manage a device manually. Click on the **plus** or **arrow** symbol in a device slot to open the **Device Menu**, then select a device.

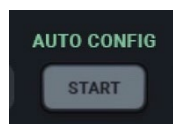
Any device not already used will be available for assignment. If no other devices are assigned, the current device will become your clock master. Drivers and servers are assigned in the same manner.



SoundGrid Studio

See the user guide of your host system for specific instructions on device assignment and I/O channel patching.

## Automatic Device Configuration



Certain SoundGrid hosts—including SoundGrid Studio, eMotion LV1 or SuperRack SoundGrid—offer an **Auto-Config** tool. Once your devices are connected and powered up, click **Auto Config** to start the configuration.

Auto-config chooses the correct LAN port on the host computer and scans the SoundGrid network for devices. It then patches the devices to the host. We recommend that you let Auto-Config take care of things, at least when you are getting started. If later you add, remove, or swap a device; Auto-Config will reconfigure your inventory and re-patch.

Note that SoundGrid Studio assigns the SoundGrid driver automatically. SuperRack SoundGrid and eMotion LV1 require that the SoundGrid ASIO/Core Audio driver is assigned manually.

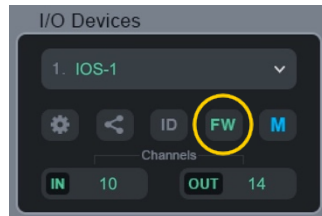


## Device Firmware

An I/O that is using outdated or incompatible firmware will not work properly in a SoundGrid network until its firmware is updated. The color of the **FW** button in a device slot indicates the current firmware status.



SoundGrid Studio



SoundGrid QRec

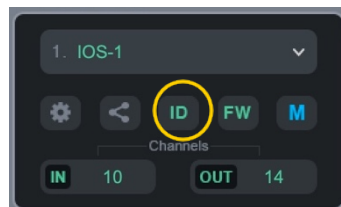
Grey	Compatible firmware
Blue	Compatible firmware, but a newer version exists
Red	Firmware not compatible and must be updated in order to use

If a device requires updated firmware, click on the FW button to start a hardware scan. Do not disconnect the device or turn off the computer before **Done** appears. Once the update is ready, turn the device off and on to reset.

## Identify a Device on the SoundGrid Network



SoundGrid Studio



SoundGrid QRec

Click on the **ID** button to activate a hard-to-miss LED on the front panel of the corresponding hardware device. You can also activate the front panel from the top bar of the device's control panel.



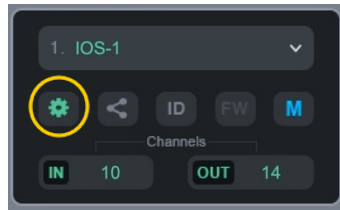
# DiGiGrid Q Control Panel

There are two ways to open the device control panel:

## FROM THE DEVICE RACK



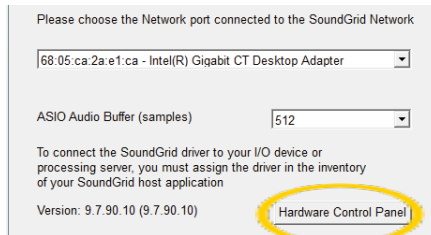
SoundGrid Studio



SoundGrid QRec

Click the **Gear** button on a device in the rack slot.

## FROM THE DRIVER CONTROL PANEL



Open the driver control panel and then click the Hardware Control Panel button. The driver control panel is located here in the host computer:

PC: C:\Program Files (x86)\Waves\SoundGrid\Driver Control Panel

Mac: System HD/Applications/Waves/SoundGrid

## CONTROL PANEL PAGES



The **Clock** page is used to set the clock source and monitor clock status. The **About** and **System Info** pages provide information about the unit, such as MAC address, SOE master MAC Address, firmware version, and more.



## Clock Page

Use the Clock page to set the clock source and sample rate for the device and to assess clock status. Clock controls are on the left side of the page, status indicators are on the right.

### 1 SOURCE sets the clock source

Sync Over Internet	The DiGiGrid Q sets its clock to the sample rate of the SoundGrid network. In this mode, the device is a slave.
Internal	The device is the clock master, so it's setting the sample rate of the SOE network.

### 2 SAMPLE RATE sets the sample rate when Clock Source is set to Internal. Range: 44.1 / 48 / 88.2 / 96 kHz.



### 3 CLOCK STATUS INDICATORS



Three windows on the right side of the Clock control panel help you to quickly assess the network status of the DiGiGrid **Q**.

Status	Reports the presence or absence of sync between the Q and the SoundGrid network.
Current Clock Source	Displays the current sync method. This may differ from the choice made in the Source menu.
SOE	Indicates that the device is assigned to the SoundGrid network and whether it's the SOE master or a slave.



## System Info Page and About Page

The **About** page contains a description of the device. The **System Info** page contains technical details, including MAC address, firmware version, and module version. This information is useful for troubleshooting. Please have this information handy if you contact Waves technical support concerning the device.



## Presets



A bar at the top of the control panel lets you save and load presets. A preset describes the condition of the control panel status, including clock source and sample rate.

Click the **ID** button on the right to illuminate a LED on the device. This helps to quickly identify the hardware device associated with the control panel.

# Using an I/O Device with a DAW

Setting up SoundGrid devices with a DAW involves these steps:

## *Patch the I/O device and the SoundGrid ASIO/Core Audio driver*

When using a DAW on a SoundGrid network, the SoundGrid ASIO/Core Audio driver serves as a bridge between the I/O device and the DAW. It enables the I/O to communicate with the DAW and it provides patches. Patching an I/O to the SoundGrid ASIO/Core Audio driver differs slightly among hosts. When you use a host's Auto-Config tool, the host input channels are patched automatically in an order based on rack. The order of the devices in the Device Rack determines the default patching order. Please refer to your SoundGrid host's user guide for details.

## *Configure the DAW for SoundGrid*

1. Set the DAW playback engine to "Waves SoundGrid." The SoundGrid driver channels will now appear in the DAW I/O preferences and in the Input/Output selector in each DAW channel.
1. Route the DAW inputs and outputs to SoundGrid.





# Specifications

## GENERAL

Line Input Impedance: 10 kilohms  
AES/EBU Input Impedance: 110 ohms  
Line Input Level: +2 dBu for full scale  
Frequency Response: -3 dB <10 Hz to 100 kHz  
(Analog to Analog)  
Harmonic Distortion: 0.005%

## HEADPHONES

Gain Range Infinity: To +10 dB  
Max Output Level:

Load	RMS
16Ω	2.3V
32Ω	3.7V
100Ω	6.0V
200Ω	7.5V
600Ω	8.8V

## DIMENSIONS

Width: 9 cm / 3.54 inches  
Height: 11.35 cm / 4.46 inches  
Depth: 9 cm / 3.54 inches  
Device Weight: 0.6 kg / 1.32 lbs  
Package Weight: 1.81 kg / 4 lbs

## XLR CONNECTORS

### Phase Termination Point

Positive (+) Pin 2  
Negative (-) Pin 3  
Signal Ground Pin 1  
Chassis Ground Case

## 1/4" TRS CONNECTORS

### Phase Termination Point

Positive (+) Tip  
Negative (-) Ring  
Signal Ground Sleeve



## Resetting the Unit

If after an unsuccessful firmware update the DiGiGrid Q is not recognized by the SoundGrid Host Application (the DiGiGrid Q does not appear in the Inventory panel), use the Reset button, which is on the DiGiGrid Q back panel, to try and recover the unit.

- Turn off the unit
- Press and hold the Reset button
- Restart the unit while holding the button
- Release the Reset button once the device has fully booted
- The unit is now in “force update” mode, and a new firmware update can be performed

