

WSG
X-WSG
SoundGrid I/O Card

User Guide



Compliance Info

FCC INFORMATION (U.S.A.)

1. **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. **IMPORTANT:**

When connecting this product to accessories and/ or to another product, use only high-quality shielded cables. Use **ONLY** the cable(s) supplied with this product..

Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. **NOTE:**

This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15, for Class “B” digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit “OFF” and “ON,” please try to eliminate the problem by using one of the following measures: This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- a. This device may not cause harmful interference.
- b. This device must accept any interference received, including interference that may cause undesired operation.

See user manual instructions if interference to radio reception is suspected.

COMPANY INFORMATION

- Company: Waves Inc.
- Address: 2800 Merchants Drive, Knoxville TN, 37912
- Telephone: 1-865-909-9200
- Type of Equipment: Waves Interface Card
- Model Name: X-WSG



PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

Please keep this manual in a safe place for future reference.

WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire, or other hazards. These precautions include, but are not limited to, the following:

- Before installing the card in an audio device, please confirm that the device is compatible with the card and check possible restrictions regarding the maximum number of third-party expansion cards that can be simultaneously installed. Refer to the owner's manual supplied with the audio device, and/or the Behringer® Pro Audio web site.
- Do not install the card in any Behringer®/Midas® products not specified by manufacturer for use with the card, to avoid possible electrical shock, fire, or equipment damage.
- Do not attempt to disassemble or modify the card. Do not apply excessive force to card connectors or other card components.
- Mishandling of the card may lead to shock, fire hazard, or equipment failure.
- Be sure to disconnect the power cable of the host device before installing the card and connecting/disconnecting the cables (in order to eliminate shock hazard, create undesired noise, and avoid equipment damage).
- Turn off all peripheral devices connected to the host device before installation, and unplug all related cables.
- Be sure to properly ground the host device to prevent electrical shock and/or malfunction.
- Do not touch the metallic leads (pins) of the circuit board when handling the card.
- Wear a pair of heavy gloves during installation to avoid scratching or cutting your hands on sharp edges.
- Avoid touching exposed connectors and metal parts to minimize the possibility of bad connections.
- Drain all static electricity from your clothing and body before handling the card. Static electricity can damage the card. Touch an exposed metal part of the host device or other grounded object beforehand.
- Do not drop the card or subject it to physical shock as this can result in breakage and/or malfunction.

- Do not drop screws or other small parts inside the card. If power is applied while screws or similar metal objects are loose inside the unit the card may malfunction or be damaged. If you cannot retrieve dropped objects yourself, refer the problem to qualified Behringer service personnel.
- The illustrations as shown in this Owner's Manual are for instructional purposes only, and may be different from the ones on your equipment.
- The company names and product names in this Owner's Manual are the trademarks or registered trademarks of their respective companies

Welcome

Thank you for choosing Waves. In order to get the most out of your Waves X-WSG card, please take the time to read through this manual. In conjunction, we also suggest that you become familiar with The Behringer page on the Waves website -

<http://www.waves.com/live-sound/Behringer#overview>.

There you will find an extensive answer base, the latest tech specs, detailed Installation guides, new software updates, and current information on authorization and registration.

By signing up at <https://www.waves.com/create-account>, you will receive personalized information on your registered products, reminders when updates are available, and information about your authorization status, as well as a direct line to Waves technical support.

Package Contents

1. X-WSG Card
2. Warranty
3. Registration Card

The X-WSG is a console expansion card supported by various X-32 and M-32 series console models. For an up-to-date list of supported consoles, visit the X-WSG product page at www.waves.com.

About the X-WSG Card

The X-WSG expansion slot card makes it possible to run Waves plug-ins on selected Behringer mixing consoles, using Waves SoundGrid technology. Together with a server, a Mac or PC, and authorized Waves plug-ins, the X-WSG lets you process 32 channels of audio using Waves award-winning reverbs, equalizers, compressors, limiters, delays, and more.

With a rich feature set including a redundancy and recovery safety net, plus scalability and expandability, X-WSG is an essential asset to any compatible Behringer mixing console.

The X-WSG card also features Clock Sync-over-Ethernet for syncing multiple consoles and performing digital splits.

X-WSG Features

- Supports the following sampling frequencies: 44.1, 48 kHz
- Sample resolution: 24 bits
- 32 channels of audio at 44.1/48KHz
- Clock Sync-over-Ethernet (SoE) for digital splits and audio networking
- Card can accept Firmware changes/upgrades

About SoundGrid

SoundGrid is Waves' Audio-over-Ethernet networking and processing technology, which provides extremely low latency, high channel-count Waves audio processing. Since it uses standard, off-the-shelf network switches, servers, and computers, it is an extremely cost-effective live-sound platform.

SoundGrid System Components

- SoundGrid Server (SGS)
- Network Switch
- X-WSG I/O card
- SoundGrid Host



SoundGrid Server (SGS)

The SoundGrid Server is the “number cruncher” that performs the audio processing. Audio is streamed from the card to the server, is processed at low latency, and is streamed back to the card, according to the audio connections established using the MultiRack SoundGrid host application.

Visit <http://www.waves.com/hardware/soundgrid-servers> for a list of supported servers.

Network Switch

The switch connects all SoundGrid components. The network switch must be a gigabit switch.

Refer to <http://www.waves.com/support/network-switches-for-soundgrid-systems> for a list of supported switches.

Cables

SoundGrid, uses Giga Ethernet. High quality CAT6 STP cables are required.

MultiRack SoundGrid Application

MultiRack SoundGrid is the host platform that controls the Waves plugins.

Both Mac and Windows compatible, MultiRack SoundGrid consists of virtual effects racks, each of which can contain up to eight plugins.

It allows you to program up to 1000 Snapshots per Session, so you can seamlessly change setups between or even within songs. For more information, refer to the MultiRack SoundGrid user guide.

MultiRack SoundGrid is compatible with Waves plugins version 9.2 or higher. Refer to <http://www.waves.com/support/tech-specs/supported-platforms> for a full list of SoundGrid-compatible plug-ins.

Installing the X-WSG

Before installing the card in a host device, please refer to the Behringer Pro Audio web site for the latest information about compatible host devices in which the card can be installed:

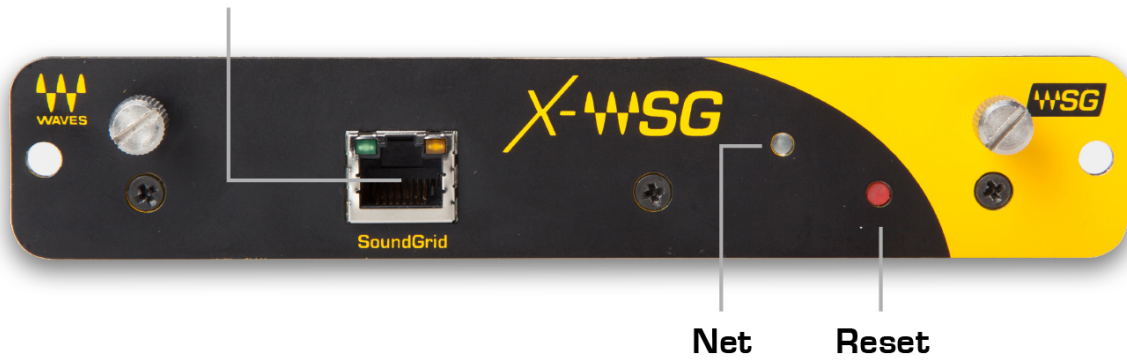
<http://www.music-group.com/brand/behringer/home>

The X-WSG card is installed into the expansion slot on the rear panel of the console.

1. Turn your console OFF. For additional safety, disconnect the power cable from the AC socket.
2. In the back of your console, unscrew the protective cover from the expansion slot you'll be installing to.
3. Carefully line up the X-WSG card with the slot guide and slide the card in, following the directional grooves.
4. Make sure the card is seated firmly; screw it in tightly.
Refer to the console's operation guide for further installation instructions.

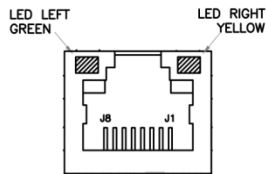
Ethernet Port

Use this port to connect the network switch to the SoundGrid System



Ethernet RJ45 connector:

The RJ45 connector features 2 LEDs: Green and Yellow.



The yellow LED lights when a 1 Gigbit Ethernet connection is established. Please note: the card will connect only to 1000Base-T (Gigabit) Ethernet equipment.

The green LED lights when connection is achieved, and blinks when there is Ethernet activity (packets are being sent and received, to and from the card).

Net LED:

A network LED is located at the back of the console, on the front panel of the card.

The LED functions as follows:

Condition	LED color
Firmware update	Yellow
Device is up, but SoundGrid network is not found	Red, blinking
SoundGrid network found	Blue
Device ID mode	Revolving colors
Hardware error state	White

Connection Examples

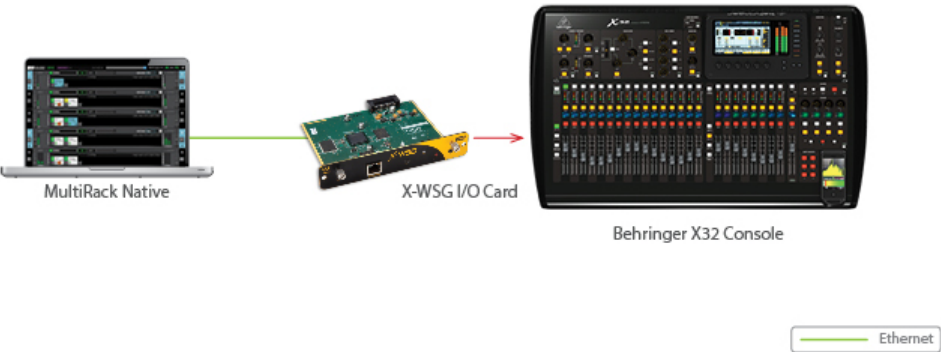
SoundGrid Processing and Recording on One Computer



SoundGrid Processing and Recording on One Computer



Native Processing



Native Processing



Thank you for purchasing the Waves X-WSG expansion slot card. -