Project Watts

WS-12 V2

Studio/Live Subwoofer User's Guide

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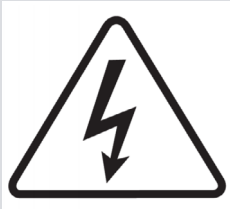
Important Safety Information

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Power the product down, and unplug it from power before cleaning.
7. Clean only with a dry cloth.
8. Do not block any ventilation openings.
9. Keep ventilation opening free of dust or other matter.
10. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
11. No naked flame sources (such as lighted candles,) should be placed on the product.
12. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades, with one blade wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
13. Protect the power cord from being walked on or pinched, particularly at plugs, receptacles, and at the point where they exit the apparatus.
14. Use only attachments and/or accessories specified by the manufacturer.
15. Use only with a cart, stand, tripod, plate, bracket, or table specified by the manufacturer. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
16. Unplug this apparatus during lightning storms or when unused for long periods of time.
17. Refer all servicing to qualified service personnel. Servicing is required when:
    A. The apparatus is damaged in any way
    B. The power supply cord or plug is damaged
    C. Liquid or other objects have fallen into the product
    D. The product has been exposed to rain or moisture
    E. The product does not operate normally
    F. The product has been dropped
18. This apparatus shall not be exposed to dripping or splashing.
19. No object filled with liquids, such as a vase or a glass, should be placed on the apparatus.
20. This apparatus is to be used in a moderate climate. Do not expose to extremely high or low temperatures.
21. High sound pressure in excess of 85 dB can cause hearing damage and/or loss. Do not expose yourself to high sound pressure levels.
22. The power cord must be connected to a Mains socket/outlet with earthing connection.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Important Safety Information



The lightning bolt with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

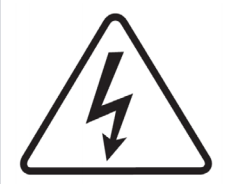
The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operation and maintaining (servicing) instructions in the literature accompanying the appliance.

Informations de Sécurité Importantes

1. Lisez ces instructions.
2. Conservez ces instructions.
3. Tenez compte de tous les avertissements.
4. Suivez toutes les instructions.
5. N'utilisez pas cet appareil à proximité de l'eau.
6. Mettez le produit hors tension et débranchez-le de l'alimentation avant de le nettoyer.
7. Nettoyez uniquement avec un chiffon sec.
8. Ne bloquez pas les ouvertures de ventilation.
9. Gardez l'ouverture de ventilation exempte de poussière ou d'autres matières.
10. N'installez pas à proximité de sources de chaleur telles que radiateurs, bouches de chaleur, cuisinières ou autres
appareils (y compris les amplificateurs) qui produisent de la chaleur.
11. Aucune source de flamme nue (comme des bougies allumées) ne doit être placée sur le produit.
12. Ne supprimez pas la fonction de sécurité de la fiche polarisée ou de mise à la terre. Un polarisé la fiche a deux lames, avec une lame plus large que l'autre. Une fiche de mise à la terre a
deux lames et une troisième broche de mise à la terre. La lame large ou la troisième broche sont fournies
pour votre sécurité. Si la fiche fournie ne rentre pas dans votre prise, consultez un électricien pour remplacement de la prise obsolète.
13. Protégez le cordon d'alimentation contre tout piétinement ou pincement, en particulier au niveau des fiches, des prises et à l'endroit où ils sortent de l'appareil.
14. N'utilisez que des accessoires et / ou des accessoires spécifiés par le fabricant.
15. Utilisez uniquement avec un chariot, un support, un trépied, une plaque, un support ou une table spécifiés par le fabricant. Lorsqu'un chariot est utilisé, soyez prudent lorsque vous déplacez la combinaison chariot / appareil vers éviter les blessures par renversement.
16. Débranchez cet appareil pendant les orages ou lorsqu'il n'est pas utilisé pendant de longues périodes.

Informations de Sécurité Importantes

17. Confiez toute réparation à un personnel qualifié. Un entretien est nécessaire lorsque:
A. L'appareil est endommagé de quelque manière que ce soit
B. Le cordon d'alimentation ou la prise est endommagé
C.Le liquide ou d'autres objets sont tombés dans le produit
D. Le produit a été exposé à la pluie ou à l'humidité
E. Le produit ne fonctionne pas normalement
F. Le produit est tombé
18. Cet appareil ne doit pas être exposé aux gouttes ou aux éclaboussures.
19. Aucun objet rempli de liquide, tel qu'un vase ou un verre, ne doit être placé sur l'appareil.
20. Cet appareil doit être utilisé dans un climat tempéré. Ne pas exposer à des ou basses températures.
21. Une pression acoustique élevée supérieure à 85 dB peut entraîner des dommages et / ou une perte d'audition. Faire ne vous exposez pas à des niveaux de pression acoustique élevés.



L'éclair avec le symbole de la tête de flèche dans un triangle équilatéral est destiné à alerter l'utilisateur de la présence de "dangereux tension" dans le boîtier du produit qui peut être d'une amplitude suffisante pour constituer un risque de choc électrique pour les personnes.

Le point d'exclamation dans un triangle équilatéral est destiné à alerter l'utilisateur de la présence d'instructions importantes de fonctionnement et de maintenance (entretien) dans la documentation accompagnant l'appareil.

About Your Subwoofer

Congratulations on your Kali Audio WS-12 V2 Studio/Live Subwoofer. This subwoofer was designed to deliver accurate, authoritative low end for recording studios, and also to be used on stage in light-duty applications. Whether you need to mix very low frequency content, or if you're just looking for some punch, you've picked an excellent subwoofer!

Where does "WS" come from?

The official name of Kali's subwoofer product line is "Project Watts." Kali names all of our product lines after towns in California. Watts is a neighborhood in Los Angeles that features prominently in the history of West Coast Hip-Hop. The name is also an allusion to the high power of our subwoofers.

Features

12-Inch Woofer

The "12" in the WS-12 V2's name alludes to the high-excursion 12-inch woofer at the heart of the subwoofer. This woofer uses a large motor with a 2.5-Inch voice coil for high power and minimal distortion.

Output

The WS-12 V2 is designed to provide reference level output at a distance of 5 meters. This makes it an ideal subwoofer for near-to-mid field monitoring where high power is required. One subwoofer has enough output to provide both LFE and bass management with up to 5 of Kali's most powerful speakers, and two WS-12s will be sufficient in most immersive systems using Kali's full-range speakers.

The WS-12 V2 will be an excellent companion to both Kali Audio speakers, and other speakers and studio monitors that are designed for near-to-mid field monitoring.

Kali Audio uses Dolby's music studio reference level spec, which is 85 dB continuous output at the listening position, with 20 dB dynamic headroom, or 105 dB peaks at the listening position. For help configuring a system in Dolby's room design tool (the DARDT,) using the WS-12 V2, contact Kali's customer support.

Low Noise Port Tube

Similar to the LP-Series Studio Monitors, the port tube on the WS-12 V2 was designed to deliver all the benefits of a front-firing port tube, without any drawbacks associated with noise. This allows the WS-12 V2 to have even lower bass extension, while delivering clean, tight, punchy bass.

About Your Subwoofer

Features

Footswitch Bypass

Turn off the subwoofer and listen to your mix through your full-range speakers so you can hear how it will translate to systems that don't have a sub. Footswitch sold separately; most music retailers sell a variety of 1/4-inch footswitches that will work. Contact Kali Customer Support if you need assitance in selecting a suitable footswitch.

Limiter Circuit

The WS-12 V2 is equipped with a limiter circuit that will protect the speaker from unsafe operating levels. In other words, you don't need to worry about blowing up the subwoofer by playing it too loud.

Unsafe playback levels will be plainly audible as distortion, indicating that the speaker is receiving too much input signal. If this is the case, it is recommended to reduce the volume of the playback material. In some cases, the subwoofer will shut itself down to protect itself from harm. See page 18 for what to do if this happens to you.

Road-Ready Enclosure

The WS-12's immense power makes it useful as a light-duty subwoofer for live music. It features a road-ready finish that won't easily scratch when being transported and setup, and steel handles for transportation.

On the top of the sub, there is an M20 threaded pole cup to accept speaker poles for mounting PA speakers above the subwoofer.

Full Specifications

Self-Powered:	Yes
Amplifier Class:	D
Continuous Power:	500W
Peak Power:	1000W
Driver Complement	12-Inch High Excursion Woofer
Voice Coil Size:	2.5 Inches
Frequency Response: (-10dB, anechoic)	23 Hz - 250 Hz
Frequency Range: (+/-3dB, anechoic)	30 Hz - 180 Hz
Recommended Listening Distance:	Up to 5 meters
Max SPL: (Peak at 1M)	123 dB
System THD: (90dB SPL at 1M)	<2%
Unbalanced Inputs:	Stereo RCA (-10dBV)
Balanced Inputs:	Stereo XLR/TRS Combi Jack (+4dBu)
Balanced Outputs:	XLR
Pass-through signal-to-noise ratio:	>115 dB
Other Inputs/Outputs:	1/4-Inch Footswitch for Sub Bypass
Enclosure:	Front Ported
Pole Cup:	M20 Threaded
Height	19.2 Inches (48.8cm)
Width:	17.2 Inches (43.7cm)
Depth:	20.5 Inches (52.1cm)
Weight:	58 lbs (27 kg)

Inputs and Controls

1 **Dip Switch Quick Reference Guide**
The quick reference guide on the back of the speaker can help you set the dip switches to the appropriate positions for your application without needing to consult this manual.

Use the 80 Hz crossover (DIP switches 2 and 3 UP) for Kali loudspeakers. A full explanation of the DIP switches can be found on pages 13-16.

2 **XLR Outputs**
Use the XLR Outputs to pass signal through the subwoofer and to a stereo pair of speakers. The signal from the subwoofer will be high-passed according to the crossover set with dip switches 1-4. If using more than 2 full-range speakers, it is recommended to use an external processor and crossover.

Inputs and Controls

3

XLR/TRS Combi Jack Inputs (+4 dBu Sensitivity)
The XLR/TRS input is for use with professional audio devices like mixers, interfaces, and controllers. Depending on your device, it will either use XLR or ¼" TRS outputs, either of which can be used with this input.

4

RCA Inputs (-10 dBV Sensitivity)
The RCA input is for use with consumer devices like record players, laptops, smart phones, and media players. Commonly, the playback device will either have an RCA or a 3.5mm (Aux) output. Cables from either of these outputs to RCA are easy to find.

5

Volume Control
The volume control allows users to adjust the output of the speaker from -∞ (Muted) to +6 dB. There is a center detent at the +0 dB setting.

If you have your main speakers running off the outputs of the WS-12, start with the volume all the way down, and slowly bring it up.

6

Dip Switches
The dip switches control crossover, location-based gain, polarity, standby mode, and input gain. A full explanation of the operation of the dip switches can be found on pages 13-16.

7

Footswitch Input
The footswitch input allows for a footswitch to be connected to the subwoofer to toggle between normal operation and bypassed operation. When the subwoofer is bypassed, the subwoofer will no longer play, and the high-pass filter on the outputs will be disabled. In other words, full-range speakers connected to the outputs will behave as though they are not connected to a subwoofer at all.

When the subwoofer is bypassed, the LED on the front will flash blue.

No footswitch is sold with the WS-12. Any common toggle switch with a 1/4-Inch connector will work. These are available for sale at any music retailer.

8

Power Input
Connect the provided power cord to this input. Before powering the unit on, be sure that the 110V-230V switch (10) is set to the appropriate setting for your location. Most areas in North America use 110V power, and most areas in Europe use 220V power. If you are unsure of the voltage in your location, search "Local Voltage (Name of your country.)"

Inputs and Controls

9

On/Off Switch

Power the speaker on and off. Be sure to power the speaker off when connecting or disconnecting the power cable, during lightning storms, or during extended periods of disuse. Before powering the unit on, be sure that the 110V-230V switch (10) is set to the appropriate setting for your location. Most areas in North America use 110V power, and most areas in Europe use 220V power. If you are unsure of the voltage in your location, search "Local Voltage (Name of your country.)"

10

110V-230V Power Switch

The WS-12 requires you to select the appropriate input voltage for your location. Before powering the unit on, be sure that the 110V-230V switch (10) is set to the appropriate setting for your location. Most areas in North America use 110V power, and most areas in Europe use 220V power. If you are unsure of the voltage in your location, search "Local Voltage (Name of your country.)"

11

Power LED

The LED on the front of the WS-12 indicates power, bypass mode, and standby.

Solid Blue: The WS-12 is on and functioning normally.
Flashing Blue: The WS-12 is on, but bypassed. The subwoofer itself will not make sound, and the high-pass filter on the outputs is bypassed. Full range speakers connected to the subwoofer will behave as if they are not connected to the subwoofer.
Solid Orange: The WS-12 is on, but in standby mode. To wake the subwoofer up, play signal through it.

Dip Switches

Like the LP-Series Studio Monitors, the WS-12 features easy-to-use dip switches on the back that help you configure it to your specific application. Note that each set of switches is completely independent of one another, so any adjustments you make to one set of switches will not affect any other set of switches.

Switches 1-4: Crossover

These switches control a low-pass filter that passes signal to the subwoofer, and a high-pass filter that passes signal out through the XLR outputs. If you're using more than 2 full-range speakers, it is recommended to set the crossover to "External" and use an external processor and crossover.

Positions 1-13: Variable Crossovers
The crossovers on the WS-12 V2 send low-passed signal to the subwoofer itself, and a complementary high-passed signal via the XLR outputs. Crossovers can be set every 5 Hz between 50 Hz and 110 Hz.

For all Kali Audio speakers, and most common studio monitors, Kali recommends using the 80 Hz crossover. (DIP Switches 2 and 3 UP)

For other speakers, multiply the speaker's lower frequency response spec by 2, and then round up to the nearest crossover point. For example, with an LP-6, the lower frequency response is 39 Hz. Multiplied by 2, that feature is 78 Hz. Round this up to 80 Hz and use that crossover.

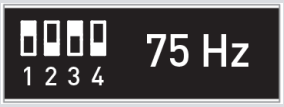
Position 1: 50 Hz
Switch 1: DOWN
Switch 2: DOWN
Switch 3: DOWN
Switch 4: DOWN

Position 2: 55 Hz
Switch 1: UP
Switch 2: DOWN
Switch 3: DOWN
Switch 4: DOWN

Position 3: 60 Hz
Switch 1: DOWN
Switch 2: UP
Switch 3: DOWN
Switch 4: DOWN

Position 4: 65 Hz
Switch 1: UP
Switch 2: UP
Switch 3: DOWN
Switch 4: DOWN

Position 5: 70 Hz
Switch 1: DOWN
Switch 2: DOWN
Switch 3: UP
Switch 4: DOWN



Position 6: 75 Hz
Switch 1: UP
Switch 2: DOWN
Switch 3: UP
Switch 4: DOWN

Position 7: 80 Hz
Switch 1: DOWN
Switch 2: UP
Switch 3: UP
Switch 4: DOWN
This is the recommended setting for Kali speakers.

Position 8: 85 Hz
Switch 1: UP
Switch 2: UP
Switch 3: UP
Switch 4: DOWN

Dip Switches

Switches 1-4: Crossover

Positions 1-13: Variable Crossovers

Position 9: 90 Hz

Switch 1: DOWN
Switch 2: DOWN
Switch 3: DOWN
Switch 4: UP

Position 10: 95 Hz

Switch 1: UP
Switch 2: DOWN
Switch 3: DOWN
Switch 4: UP

Position 11: 100 Hz

Switch 1: DOWN
Switch 2: UP
Switch 3: DOWN
Switch 4: UP

Position 12: 105 Hz

Switch 1: UP
Switch 2: UP
Switch 3: DOWN
Switch 4: UP

Position 13: 110 Hz

Switch 1: DOWN
Switch 2: DOWN
Switch 3: UP
Switch 4: UP

Position 14: LFE

The subwoofer is being used as a dedicated subwoofer for Low Frequency Effects (LFE) while mixing for film or immersive formats. This position will not send signal through the subwoofer's outputs.

Switch 1: UP
Switch 2: DOWN
Switch 3: UP
Switch 4: UP

Position 15: External Crossover

The subwoofer is receiving low-passed signal from an external source, and full range sound is being crossed over and processed by an external processor. Use this setting if you want to use your own crossover, or if you're using a system larger than stereo. Note that in this position, the subwoofer will play up to about 1 kHz unless the signal you send to it is low-passed. This position will not send signal through the subwoofer's XLR outputs.

Switch 1: DOWN
Switch 2: UP
Switch 3: UP
Switch 4: UP

Dip Switches

Switches 5&6: Gain Adjustment

Switches 5 & 6 provide gain adjustment. These are particularly useful when using the WS-12 with a stereo pair of monitors. These switches will compensate the output of the subwoofer based on where it is positioned, allowing for a useful baseline gain setting from which to make adjustments

Position 1: +/-0 dB
This is the recommended setting if the subwoofer is in the middle of a room, more than .5 Meters (19 inches) away from any walls.
Switch 5: DOWN
Switch 6: DOWN

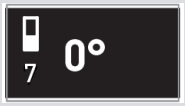
Position 2: -6 dB
This is the recommended setting if the subwoofer is within .5 Meters (19 inches) of any walls.
Switch 5: UP
Switch 6: DOWN

Position 3: -12 dB
This is the recommended setting if the subwoofer is in a corner: within .5 Meters (19 inches) of two perpendicular walls.
Switch 5: DOWN
Switch 6: UP

Position 4: +6 dB
This is the recommended setting if the subwoofer is being used with a larger system, at a greater distance, or in a live sound setting. This setting will deliver the subwoofer's maximum output.
Switch 5: UP
Switch 6: UP

Switch 7: Polarity

Depending on the shape and size of your room, the position of the subwoofer relative to the monitors, and your listening position relative to all of those factors, the subwoofer may sum better with the monitors with the polarity reversed. To test which setting is more appropriate, simply try both settings, and use the one that sounds better. It is also possible to use free software such as Room EQ Wizard (REW) to test the polarity of your subwoofer. Instructions for doing so are readily available with a quick internet search.



Position 1: 0°
Switch 7: DOWN

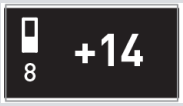
Position 2: 180°
Switch 7: UP

Dip Switches

Switch 8: Max Input

Depending on your source, you may wish to raise or lower the input sensitivity on the balanced inputs. +14 dBu should be used for lower power sources. This includes most desktop USB interfaces, and many live music mixers. If you find that you're clipping with the +14 dBu setting, use the +20 dBu setting instead.

+20 dBu should be used for higher power sources, like professional recording consoles. If you find that you're not getting enough output using the +20 dBu setting, use the +14 dBu setting instead.



Position 1: +14 dBu
Switch 8: DOWN

Position 2: +20 dBu
Switch 8: UP

Switch 9: Standby Mode

The WS-12 is equipped with a standby feature which will put the subwoofer into a low-power mode after 20 minutes of disuse. In low-power mode, the power LED will turn orange, and the subwoofer will not pass audio. The subwoofer will come back online once it receives signal. If this operation is not desired, turn switch 8 up to disable standby mode.

Position 1: Standby On
Switch 9: DOWN

Position 2: Standby Off
Switch 9: UP

First Time Setup

Once the subwoofer is in position, follow these steps to get it turned on and playing for the first time.

1. Make sure that the power switch on the sub is set to the OFF position.
2. Turn the volume control on the back of the sub all the way down.
3. Plug the subwoofer into power.
4. Plug in your audio cables from your source, and, if you're using the WS-12's built-in cross over, to your main speakers.
    - If you're using the WS-12's crossover, also power off your main speakers, and set their output to a nominal level.
5. Turn on your audio source.
6. Power on the subwoofer and speakers.
7. Slowly turn the volume on the subwoofer up to the center detent. If you hear distortion, turn the subwoofer back down and check that all of your connections are tight.
8. Use the volume knob on the subwoofer to adjust its level relative to the main speakers.

Enjoy your new subwoofer!

Troubleshooting

1. I opened the subwoofer, and it is damaged.
If you received a speaker that is obviously damaged, please contact your dealer immediately.

2. The subwoofer is making no sound.
- Is the subwoofer plugged in?
- Is the subwoofer turned on? There should be a blue LED on the front of the subwoofer if it's on. If this light is off, the subwoofer is turned off.
- Is the volume turned up?
- Have you made sure that the subwoofer is not being bypassed using a footswitch?
- Are all cables plugged in to both your playback device and the subwoofer?
- Are you passing audio via your playback device?

3. The subwoofer sounds distorted.
- Is the subwoofer playing too loud? Turn down the volume on the back of the subwoofer. If the distortion goes away, you may be playing the subwoofer too loud. Besides the problem of distortion, this can be damaging to your hearing if you are close to the subwoofer.
- Is your source too loud? Turn the volume down at your source device. If the distortion goes away, you may be overdriving the input. If this is the case, turn the volume of the subwoofer up with the volume control on the back.

4. I hear crackling, hums, or buzzing.
- Are you using RCA?
    a. If "yes," be advised that RCA is an unbalanced connection, and is prone to picking up noise as signal travels through the cable. This is especially true if you are using very long RCA cables.
- Is the subwoofer close to electronics like a television, wireless router, phone, motor, or radio? If so, these can interact with the speaker's electronics in ways that cause unwanted noise. Try moving the subwoofer at least .5 Meters (20 inches) from any such devices.
- Are there loose objects in the room that may be buzzing with the bass? Low frequencies can cause objects in a room to vibrate loudly. Make sure that small, hard objects like screws and other hardware are secure.

5. The subwoofer stops playing.
- If the subwoofer stops playing but the blue light stays on, you may be engaging it's thermal protect mode, which will shut the subwoofer down so that it does not damage itself. Power the subwoofer down, wait 2-3 minutes, and power it back on.
- If the subwoofer plays after being turned off and on again, reduce the output level of the sub, and make sure it is in a cool, well-ventilated area so that it does not overheat.

If none of the above solves your problem, contact your dealer to initiate a return.

Warranty

What does this warranty cover?
This warranty covers defects in materials or workmanship for a period of one year (365 days) after the purchase date of the product.

What will Kali do?
If your product is defective (materials or workmanship,) Kali will replace or repair the product at our discretion - free of charge.

How do you initiate a warranty claim?
Contact the retailer from whom you bought the product to initiate a warranty process. You will need the original receipt showing the date of purchase. The retailer may ask you to provide specific details about the nature of the defect.

What is not covered?
The following cases are NOT covered by this warranty:

- Damage from shipping
- Damage from dropping or otherwise mishandling the speakers
- Damage resulting from failure to heed any of the warnings outlined on pages 3 and 4 of the user's manual, including:
    1. Water damage.
    2. Damage from foreign substances or substances entering the port tube.
    3. Damage resulting from an unauthorized person servicing the product.
    4. Damage resulting from the product being left plugged in during an electrical storm.

The warranty applies only in the United States. International Customers should contact their dealer about their warranty policy.