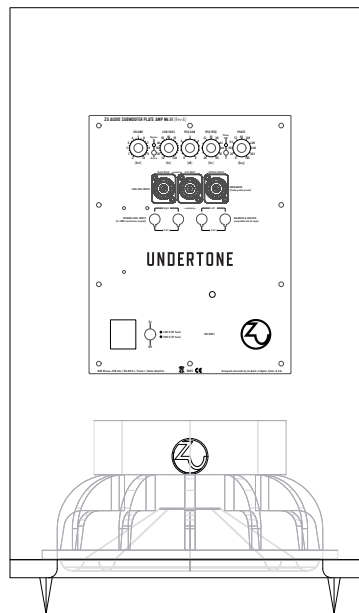


UNDERTONE Mk.II

[Rev-A]



AD COPY + SPECIFICATIONS

7 | 2015



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WHAT IT IS AND WHY

Undertone is for those searching for that missing majesty and space, for systems that need that added tone in the foundation of big/deep music and soundscapes—and without that slow and foggy one-note sound of a modern under-built subwoofer. It is a down-firing subwoofer with active signal processing and built in amplification. It accepts line-level feeds (RCA left and right summing), sub feed (RCA) and speaker-level (five-way binding posts, left and right transformer isolated and summing).

Undertone is designed specifically to compliment playback systems that have great sound down to about the kick drum, 50Hz* or so, but lack a sense of glory and tranquility that deep bass done right can give. The stereo and home theater systems that best fit Undertone are those that typically feature large monitors or medium to large floor-standing loudspeakers—high resolution and dynamic systems that gives you a solid impression of bass but lack sincere detail of body and weight.

Undertone Mk.II (mark-two) is designed to further compliment high-resolution, wide dynamic range loudspeakers that could use help in handling the dynamic demands of the bottom most octave. Undertone's excellent integration of sub-contrabass content is stunning and very resolving of the subtle tones, textures and dynamics that live and breath in that deep bass domain—music or film. If you are looking for an agile, deep and powerful subwoofer system that is flexible, dynamically agile and incredibly musical consider Undertone.

Undertone Mk.II features the same electronics and awesome Eminence LAB-12 [A] subwoofer driver and tuning we developed for our Definition Mk.IV [Rev-B] loudspeaker, but strips out the high cost of the machined aluminum alloy electronics enclosure and massive base. Undertone is all about giving you state-of-the-art subwoofer performance for a very reasonable amount of cash. For those that have heard our Definition Mk.IV loudspeaker, the performance is pretty close, getting you about 90% of the quality of deep bass sound and 100% of the power.

* Yes, Undertone can be used higher than 50Hz but above 70Hz you are falling outside its design targets.

MK.II FEATURE CHANGES AND THEIR BENEFITS

Undertone Mk.II features a new and improved built-in amplification, specifically the line-level stages which have lower noise levels, improve signal resolution, and are designed to more intimately drive the UcD amplification modules. Specific changes are:

- Lundahl loudspeaker-level input transformers. This addition lowers system noise, balances the input and removes ground reference, improves system transient response and fidelity generally, and allows *any* main amplifier to be paired with the Undertone Mk.II subwoofer system.
- Premium, 1% precision Vishay resistors on line-stage. These high quality parts improve system precision and accuracy, with values to work in conjunction with the Lundahl inter-stage transformer to give improved performance in subwoofer/main loudspeaker blending.
- Zu Event-level internal interconnecting cable harnesses reduce electrical noise further through significantly improved RF rejection characteristics.
- Replacement of all internal fiber fills with premium open-cell polyurethane foam for improved internal damping and management of acoustic standing waves.



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- AC mains transformer is imbedded top and bottom in a very low durometer damping compound to reduce mechanical AC transformer noise from the mounting plate as well as the signal processing and amplification circuits. This mounting also improves the operational life of the AC mains transformer.
- Diamagnetic stainless steel hardware is used throughout the Undertone Mk.II subwoofer system.
- Sweeter knobs. Kilo International machined from billet 211 alloy knobs.
- Cabinet to amplifier fasteners are stainless steel, both inserts and mating screws. (Note: in the event of removal, stainless to stainless fasteners need a touch of lubricant or anti seize to eliminate the chance of thread galling.)

UNDERTONE MK.II QUICK SPEC'S

Device: Down-firing, sealed, 12" subwoofer system with active signal processing.

Height: (with spikes) 25" [635cm]

Footprint: 15 x 15" [38 x 38cm]

Weight: 68 pounds [31kg] each

Bandwidth: 14 – 80Hz

Line-Level Input: yes, RCA (left and right summing)

Sub Line-Level Input: yes, RCA

Speaker-Level Input: yes, 5-way binding posts (L/R summing)

Tunability: yes, very

Signal Processing Bypass: yes, switched for those that want to integrate more elaborate signal processing but desire to take advantage of the excellent amplification of Undertone.

Driver: Eminence LAB-12 [A]

Plate Amp: Zu Subwoofer Plate Amp Mk.III

Amplification: Hypex UCD 400W

Interstage Transformer: Lundahl LL-1585

Line-Level Interconnecting Cable: Zu Event

AC Mains Input: standard C-14 [IEC 60320]

Voltage input: 100–120V or 230–250V factory set

Fuse: slow-blow T3.15A @240V or T6.3A @120V

Hypex UcD amp module made by Hypex, Netherlands.

Eminence LAB-12 driver made by Eminence in Kentucky, U.S.A.

Balance of the system designed and made by Zu Audion in Ogden, Utah, U.S.A.



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CABINET CONSTRUCTION

Undertone is made from North American high-density composite wood plate (comp-60) and is machined on state-of-the-art CNC mills in Utah. Undertones finished in wood use real wood veneers that are pressed at the plywood factory and is not laid-up post cabinet assembly. This ensures the finish will not lift or warp, and it yields the flattest surfaces and tightest seams. Titebond-III is used for layup for the highest joint strength and a lifetime of unflinching, moisture-proof service.

FINISH

Standard paint and wood finishes are top coated by UV protecting premium finish systems. All finish work is done in Zu's custom finish shop in Ogden. Other finishes—anything you can dream—are available through the Zu custom shop, inquire for pricing.

ACOUSTIC TECHNOLOGY

Old-school, in all the best ways. Undertone is a medium compliance, sealed enclosure system where the restorative driver forces are shared between the driver's suspension (spider is primary) and the air in the cabinet. Undertone continues our tradition of making quick, detailed "sealed" subwoofer systems.

SUBWOOFER PLATE-AMP DETAILS

Undertone's electronics really perform and offer just enough tunability to be useful and not overwhelming. The amplifying module is the highly regarded Hypex UcD 400. Undertone's electronics were designed to accept unfiltered left and right RCA line-level inputs, home theater sub-woofer signal, and unfiltered loudspeaker-level feeds (tapping only signal). Undertone is also able to integrate with high efficiency loudspeakers like ours without having to jump through hoops with gain and volume matching. Some design highlights include:

- Hypex UCD 400 V5 amp module.
- ALPS pots for volume and signal processing control.
Lundahl interstage transformers on speaker-level inputs.
- Zu Event interconnecting cable harness assemblies.
- 3M IDC adhesive locking terminals.
- Panduit disconnect terminals.
- Neutrik RCA jacks (sound great and as tough as it gets).
- Extra large toroidal transformer and overbuilt linear power supply.
- Machined 1/4" [6.3mm] 6061 aluminum amp plate with laser engraved information.
- Kilo International machined knobs.
- High-copper brass machined 5-way binding posts on speaker-level inputs.
- Gain structure of preamp section is designed to accommodate both low and high-efficiency loudspeakers.



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TIPS ON GETTING GREAT SOUND FROM UNDERTONE

Undertone subwoofers only get limited play before leaving the factory, and while it is high-intensity and shakes the bugs out, you will find Undertone to sound better after a week or so of heavy play. And of note, if they are transported in cold weather, they take several days to “warm up” and return to giving you their best.

Make sure you have a 3/4” [20mm] or more gap between the bottom of the loudspeakers and the floor; the down-firing woofer needs a bit of room to breath. More than 3/4” is not necessary.

WHAT'S INCLUDED

1x Undertone subwoofer system as outlined.

4x stainless-steel ball-end footers for use with hard surface flooring.

4x high strength spikes to be used to punch through and anchor the subwoofer through carpets and rugs.

4x stainless-steel low profile nuts for locking the footers in place. 9/16” wrench size; 14mm also works but it's tight. The thread size for those interested in trying aftermarket footers is 3/8-16.

Thanks for your interest, and please don't hesitate to call or email, we love what we do and we are here to help.



UNDERTONE SPECIFICATIONS

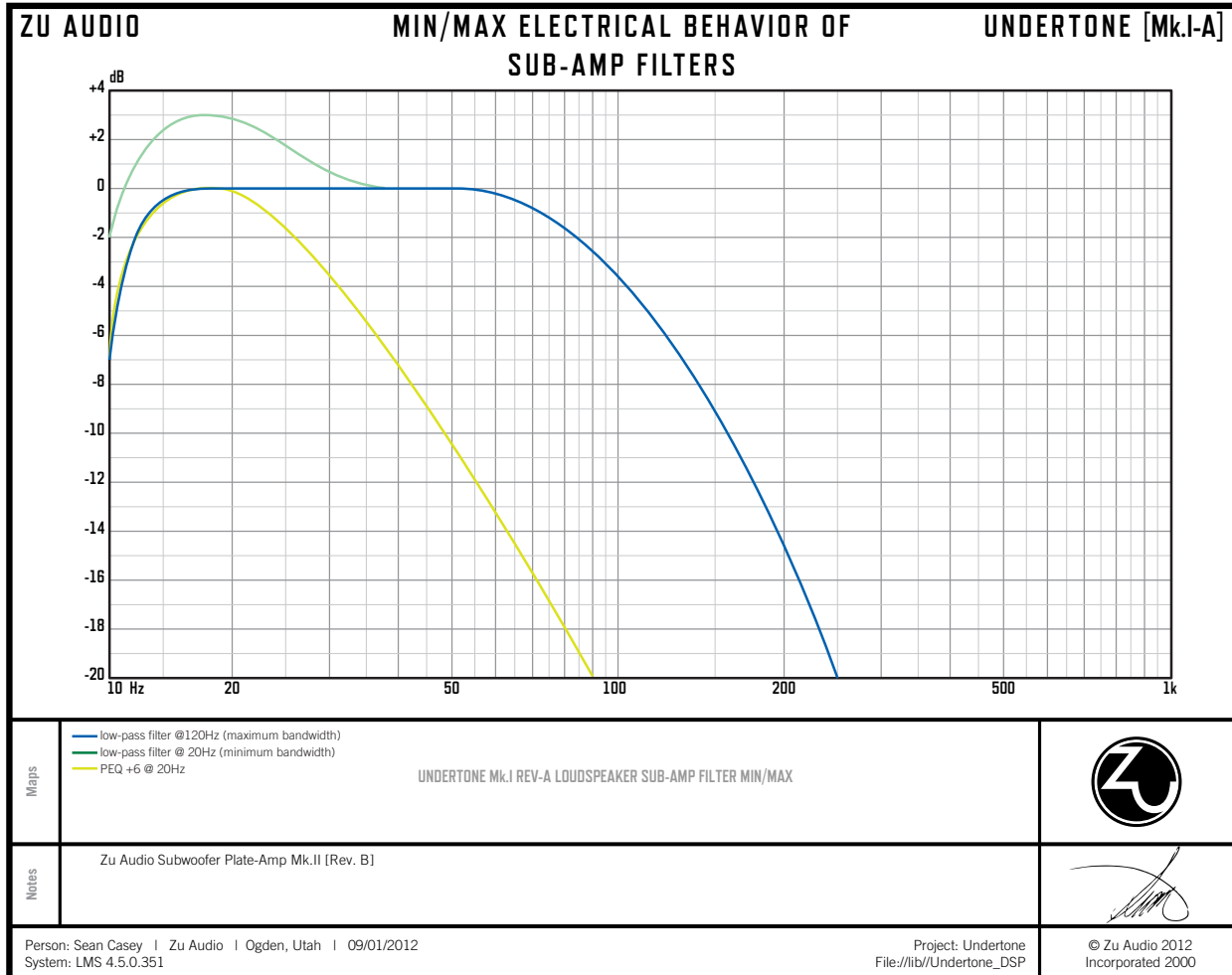
ZU AUDIO UNDERTONE Mk.II [REV-A] SUBWOOFER SYSTEM SPECIFICATIONS

Design	Undertone Mk.II is a high-resolution internally powered downward-firing subwoofer system. It accepts line-level signals including “sub” and loudspeaker-level signals. The acoustic design is a sealed system with moderate acoustic, mechanical and electrical damping. Subwoofer plate amp is built to a very high standard, yet has been engineered for field service in the unlikely event that service is needed.
Productions	Mk.II manufactured from June 2015. Mk.I was manufactured from September 2012 to June 2015.
H W D	23 x 15 x 15 [58.4 x 38.1 x 38.1cm] (note that height does not factor feet)
Footprint	15 x 15” [38.1 x 38.1cm]
Weight	68 pounds [31kg]
Packaged	FlexPak, one loudspeaker per shipping box, 77 pounds [35kg]
Driver Complement	1x Eminence LAB-12 [A]
Subwoofer Amp Type	Class-D analog switching amp with heavy-duty linear power supply. Amplifier module is Hypex DS4 UcD 400-V5.
WARNINGS	RISK OF ELECTRIC SHOCK. Dangerous voltages are present inside case during operation. DC output voltage is 50 volts up and down, 100V DC total. System is not intended for outdoor use, do not expose to rain or moisture.
RECOMMENDATIONS	We recommend unplugging your loudspeakers, main amplifier(s) and other regarded electronics during lightning storms or when the playback system will not be used or for an extended period of time. We also recommend that you switch the power off between daily use.
Safety Standards & Compliance	60065 EMC 2004/108/EC 2006/95/EC 55103 RoHS CE WEEE Class-2 subwoofer amplifier
Mains AC Power	50/60Hz, 115 or 230 volt (transformer is 115/230V wound and factory wired for your region).
Mains AC Connection	C13/C14 [IEC 60320]
User Serviceable Fuse	115V AC mains = T6.3A 230V AC mains = T3.15A (SLOW-BLOW) Should the fuse blow replace it with an equivalent part. A spare fuse is located within the fuse holder, located just below the power inlet and only accessible when the power cable is not plugged into the inlet. A small flat-blade screwdriver is required.
Power Consumption	600W maximum // 8W idle
Damping Factor	500
Self Protection	output short-circuit
Input Impedance	500Ω balanced transformer isolated
Speaker Level	12Hz // 24dB/octave butterworth
Infrasonic Filter	
Adjustable Gain	-110dB~0dB
Adjustable High-Pass Filter	10 ~ 110Hz
High-Pass Filter Slope & Character	18dB/octave linkwitz-riley
PEQ Boost	0 ~ +6dB
PEQ Boost Bandwidth	1/2 octave
PEQ Frequency	20 ~ 50Hz
Phase	0 ~ 180° // 180° ~ 360°
MAIN AMPLIFIERS ISSUES	None. Speaker-level inputs on Undertone Mk.II are balanced, transformer isolated and do not present a ground reference to the main amplifiers.
Warranty & Service	2-year limited. Removing the amplifier from cabinet is simple, and though Zu and Hypex have designed the electronics to the highest standards of fidelity and durability, shit still happens. In the event that service is required, Zu offers an amplifier exchange program so you can quickly get your system back up and running quickly and with minimal hassle.



UNDERTONE SPECIFICATIONS

ZU AUDIO UNDERTONE Mk.II [REV-A] SUBWOOFER SYSTEM SPECIFICATIONS

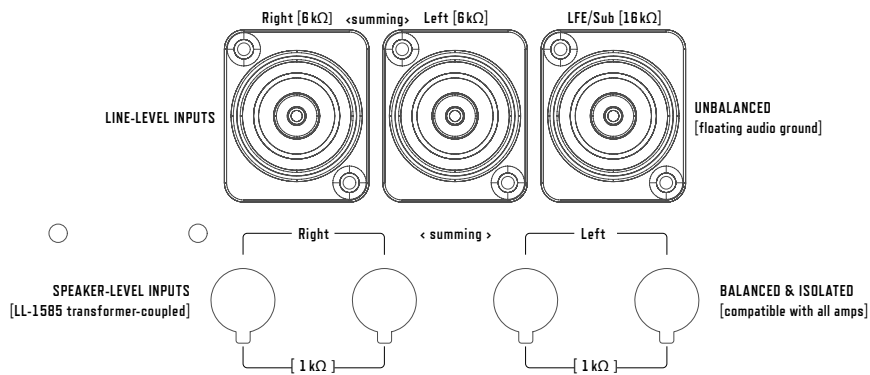
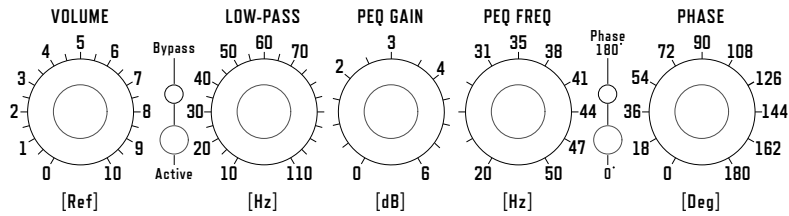




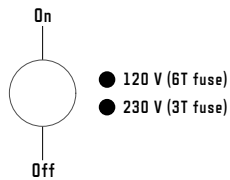
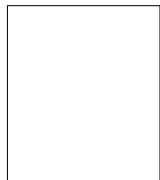
UNDERTONE SPECIFICATIONS

ZU AUDIO UNDERTONE Mk.II [REV-A] SUBWOOFER SYSTEM SPECIFICATIONS

ZU AUDIO SUBWOOFER PLATE AMP Mk.III [Rev-A]



UNDERTONE



SN: 0051



600 W max—8 W idle / 50–60 Hz / Class-I / Audio Amplifier



Designed and made by Zu Audio in Ogden, Utah—U.S.A.



UNDERTONE WARRANTY

ZU AUDIO UNDERTONE Mk.II [REV-A] SUBWOOFER SYSTEM SPECIFICATIONS

Zu products are designed and manufactured to the highest quality. However, if something does go wrong Zu will fix or replace the product free of charge. Zu Undertone subwoofers have a five year limited warranty on the driver and cabinet, two years on the electronics, from date of purchase to original owner. If under normal home use you have any problems with drivers, cable, parts, cabinet, we will fix or replace the product. Loudspeaker warranty and service can usually be performed by the user, also known as DIY service, in such cases Zu will provide full technical support. This provides faster repair of product (reducing down time is always good), minimizes handling hassle and damage potential to both Zu and you, and reduces shipping costs.

Zu loudspeaker finish warranty covers color changes in paint, finish checking, and oxidizing. While we use the highest quality UV protecting topcoat finishes, we cannot guarantee against fading and you should keep them out of direct sunlight, just like a piano. While every effort is made to ensure a perfect finish that will last a lifetime, this warranty does not cover damage from impact and abrasion, or seam / core construction visibilities in extreme high temperature / high humidity environments. Zu products are designed to be used in temperature and humidity controlled environments, namely your home or office unless otherwise stated. Warranty does not cover loudspeaker finish damage caused by the extremes of an uncontrolled environment.

If in the highly unlikely event that a Zu product arrives to you dead on arrival (D.O.A.), and after discussing it with a Zu tech, we will ship another of the same product at our expense and arrange for the D.O.A. product to be collected. If after inspection we find that you have misrepresented a returned product's condition, and that it was improperly handled or used, Zu will charge you for all damaged parts, labor, shipping and handling of the product.

Warranty does not apply to damage caused by operating the product outside the intended use, accident, another product, misuse, abuse, flood, fire, earthquake or any other external causes. Warranty does not cover damage caused by modification or service performed by anyone other than a Zu representative. Cosmetic damage is also excluded from warranty.

When a product or part is exchanged the replacement becomes your property and the suspect or damaged part becomes Zu's property. Parts provided by Zu must be used in products for which the warranty service is claimed.

WHAT YOU CAN EXPECT IF WARRANTY SERVICE IS NEEDED

If warranty becomes necessary, you must call or email for a return of material authorization (R.M.A.) number, or to arrange for user serviceable parts. This provides opportunity to assist in diagnosing the problem and helps us to schedule for rapid turnaround in the event that parts, service or repair is needed. Upon factory inspection of parts or product, warranty eligibility will be determined. While service options, parts availability and response times will vary, we do our best to keep you happy. International customers should know that Zu will comply with all applicable export / import laws and regulations, you may be responsible for custom duties, taxes, broker fees, freight, and other charges. When shipping of product or part is required, repackage the complete product, or part, in its original packaging. If you have any questions about packaging please call or email. Product damage caused from incorrect repackaging is not eligible for refund or warranty and the freight company may also reject your insurance claim. Until we have the product back in the shop and sign-off that it is eligible, the product is still your property, we recommend you insure or declare the full value when shipping. We also recommend that you only ship with a freight company that has a good reputation and offers tracking and insurance for the full amount.



ZU AUDIO

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OGDEN, UTAH — U.S.A.

[DESIGNED AND MADE BY US]