


## RHA1

REFERENCE HEADPHONE AMPLIFIER  
DESIGN & MADE IN TAIWAN




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## GENERAL PRECAUTION

Thank you for purchasing the UNiKA product. Before using, please read this manual carefully and pay attention to every detail that you must pay attention to. Please make sure the power switch is on the "OFF" position before you plugged power adaptor in outlet. And make sure the power switch is on the "OFF" position before you pulled out power adaptor from outlet.

And rotate volume control to the end of counterclockwise position to avoid the sudden sounds hurting your ears. Please do not plug or unplug the wires arbitrarily to avoid signal loss.

If you need further installation or operation guidance, please directly contact UNiKA's dealer or distributor, or write to the following mail address for help,,

✉ [info@unikapro.com](mailto:info@unikapro.com)

## SAFETY INSTRUCTIONS

- Please read this instruction manual carefully and completely before using the product.
- Save this manual for future reference.
- Remember and follow all safety instructions.
- Follow all steps.
- Please always include this instruction manual when passing the product on to third parties.
- Please do not use obviously defective products on the front and rear end of the device.
- Please place the device away from the water source.
- When cleaning, please unplug the power plug, and then use a dry cloth to clean the device.
- Make sure that the ventilation openings of the device are not blocked.
- Please place the device away from heat sources.
- Prevent the power adaptor (ext. power supply) from being trampled or dragged.
- Please be sure to use the included external power supply. Using any of other power supplies may cause equipment damage or leakage.
- Please place the device in a stable position.
- Please unplug the power adaptor during thunderstorms or when not in use for a long time.
- In case of failure, please consult or send it to professional technicians. Do not open the inside of the device for maintenance without authorization.
- To prevent the risk of fire or electric shock, do not expose the device to rain and moisture.
- Do not expose the device to dripping and splashing water or under a water container.

## PREVENTING DAMAGE TO HEALTH AND HEARING

- Please protect your hearing from high volume levels. Permanent hearing damage may occur when headphones are used at high volume levels for long periods of time.
- To prevent hearing loss and damage from excessive headphone use, **the WHO suggests keeping noise levels below 70 decibels over a 24-hour period.** Decibels are the measurement of how loud a sound is.
- A good rule of thumb is usually to keep your headphones at less than 60% of maximum volume. Generally, the volume greater than 120 decibels can cause instant or permanent hearing damage.



### **LOUD AND DANGEROUS SOUND IS ALL AROUND US**

Your hearing isn't just in danger at a rock concert or construction site (although both of those situations are, indeed, harmful to your hearing). There are potential hazards with many every-day sounds. That's because it's not exclusively the volume of a sound that is dangerous, it's also how long you're exposed. Even lower-level sounds, such as dense city traffic, can be damaging to your hearing when experienced for more than a couple of hours.

Here is a general description of the levels of volume relative to hearing health,

- **30 dB:** Everyday conversation would be at this volume level. You should be perfectly fine at this volume for an indefinite length of time.
- **80 - 85 dB:** An air conditioner, heavy traffic, and a lawnmower are at this level of sound. This level of sound will normally become damaging after **two hours of exposure.**
- **90 - 95 dB:** A motorcycle is a good illustration of this sound level. **50 minutes is enough to be unsafe at this level of sound.**
- **100 dB:** An approaching subway train or a mid-sized sports event are at this sound level (of course, this depends on the city). **15 minutes of exposure** will be enough to be harmful at this sound level.
- **110 dB:** Do you ever turn the volume on your ear-pods up to max? That's usually around this sound level on most smartphones. **5 minutes** will be enough to be dangerous at this level.
- **120 dB and over:** *Anything over 120 dB (think loud rock show or exceptionally large sports events) can produce instant injury and pain in your ears.*

## PRODUCT PACKAGING CONTENTS



RHA1 Headphone amplifier



Warranty card



Power supply incl. 4 types of interchangeable AC plug

## FEATURES

- Versatile headphone amplifier with great connectivity
- Line Input : XLR and 6.3mm Jack NEUTRIK Combi connector
- Headphone Output : 6.3mm jack.
- Separate electronic circuits for Left and Right signals
- Broadcast-grade audio pre-amp and separate electronic circuits for Left and Right signals
- The world's first linear +/-18dB Gain Control with variable Attenuator for precise level adjustment.
- Low EMI Universal Power adaptor : with 4 interchangeable plugs

## PRODUCT OVERVIEW

The RHA1 is a reference-grade headphone amplifier carefully developed by UNiKA and manufactured in the UNiKA factory in Taiwan. The application object of RHA1 is headphone enthusiasts, audiophiles and professional recording engineers and live concert sound man.

Especially using only 24V external power supply and classic OTL amplifier circuit design, its performance is amazing.

RHA1 is suitable for general consumer headphones, as well as reference-grade and low-sensitivity high-end headphones. Impedances from 15ohm to 600ohm are easily driven and produce a very smooth and very dynamic sound. Moreover, it performs very high S/N ratio and cannot be perceived power supply and circuit characteristic noise.

It can be seen from the test chart (please scan the QR code on the last page to download), we can see that the frequency response of the RHA1 is very flat from 20Hz to 80KHz, and the full-band frequency response error value is not greater than  $\pm 0.2\text{dB}$  in the test from low impedance to high impedance.

The most special feature is its specially designed  $\pm 18\text{dB}$  linear gain and post-amp level control with maximum 0dB output. This design is like using a professional mixing console. Users can first use its linear gain to adjust to the optimal input level and dynamics according to headphones or signal sources with different characteristics or impedance and sensitivity, and then use the output level control to determine the volume you need to listen.

This design greatly exceeds some products currently on the market with fixed gain value switches.

The components selected by RHA1 are all top-level models, and a double-connected stereo potentiometer with very low L/R output different is specially customized to ensure listening consistency.

The amplification of the output stage adopts the independent amplification of the L/R channel, which greatly improves the separation and minimizes the crosstalk.

The input jacks are a pair of NEUTRIK® Combi jack. It can be available to connect XLR and TRS balanced plug or TS unbalanced plug from recording devices or Hi-Fi equipment.

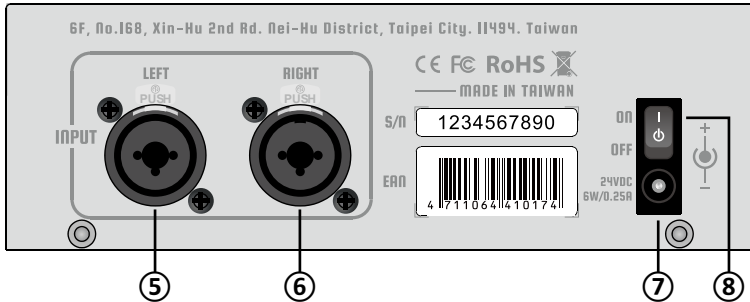
At the same time, UNiKA is very considerably equipped with an external power supply of adaptive Universal Input Range 90~264VAC and comes with 4 kinds of AC plugs that can be interchangeable by user, including US, UK, AU and EU types.

## APPEARANCE PARTS & FUNCTIONS



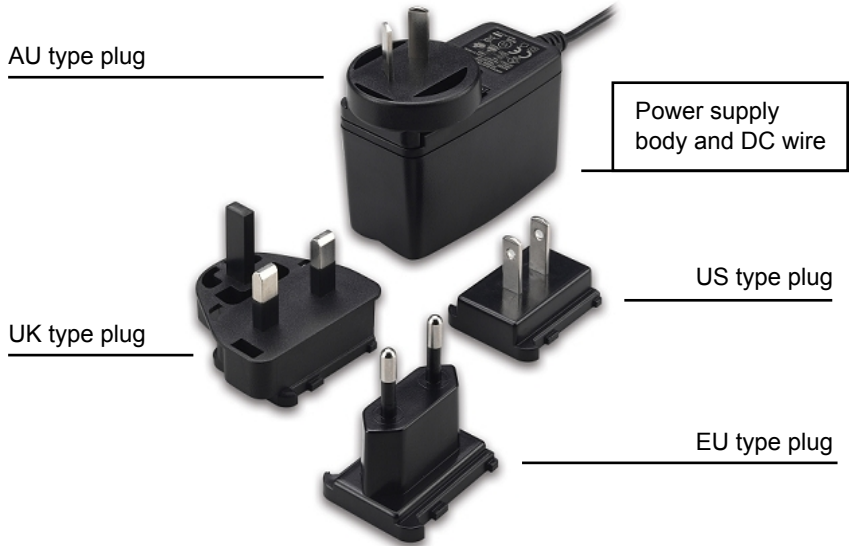
- ① TRS Stereo headphone output jack.
- ② Power indicator.
- ③ Output level attenuator.
- ④ Front stage gain control with  $\pm 18\text{dB}$  range.

## APPEARANCE PARTS & FUNCTIONS



- ⑤ NEUTRIK® Combi jack for left channel input. It can be inserted XLR, TRS and TS plug.
- ⑥ NEUTRIK® Combi jack for right channel input. It can be inserted XLR, TRS and TS plug.
- ⑦ External power supply input jack. Please be sure to use the included external power supply. Using any of other power supplies may cause equipment damage or leakage.
- ⑧ Power switch. Please make sure to plug in an external power supply and headphones before turning on this switch. On the contrary, unplug the headphone plug and external power plug after turning off the power.

## EXTERNAL POWER SUPPLY



- Adaptive input voltage range: 90~264VAC
- Output: 24VDC, 10W
- Power Efficiency up to 84%
- Interchangeable AC Plugs includes US/EU/UK/AU types
- Protection class of Class II power supply

### Note

Manufacturer cannot provide special specification plugs other than those mentioned above.



## SPECIFICATIONS

(Specifications are subject to change without notice.)

|                                  |   |
|----------------------------------|---|
| Circuit principle                | OTL / External power supply / Discrete amplifier            |
| Frequency response               | 20Hz ~ 20KHz , $\pm 0.2$ dB<br>( Limited by APx525's B.W. ) |
| THD+N@10mW                       | 0.0004%, 600 $\Omega$ @mid gain,<br>1KHz@20KHz B.W.         |
| Dynamic range@                   | 119.5dB @220 $\Omega$ load, XLR input                       |
| Input connector                  | A pair of NEUTRIK® Combi jack                               |
| Output connector                 | 6.3mm TRS phone jack  |
| Linear gain control range        | $\pm 18$ dB @1dB step                                       |
| Maxinum output power             | 800mW   |
| Maxihum input level              | 25.5dBu   |
| Balance input inpedance          | >4K $\Omega$  |
| Output loading impedance         | 15 $\Omega$ ~ 600 $\Omega$                                  |
| Power consumption                | 6W/0.25A  |
| Power supply & consumption       | 24VDC / 10W   |
| Ext. AC to DC adaptor            | 90 ~ 264VAC input / 24VDC output                            |
| Type of AC plugs                 | includes UK / US / AU / EU                                  |
| Dimension ( W x D x H )          | 162 x 104 x 53 mm   |
| Shipping dimension ( W x D x H ) | 306 x 163 x 70 mm   |
| Nett weight                      | 0.77kg  |
| Shipping weight @ per unit       | 1.14kg ( w/carton & adaptor )                               |

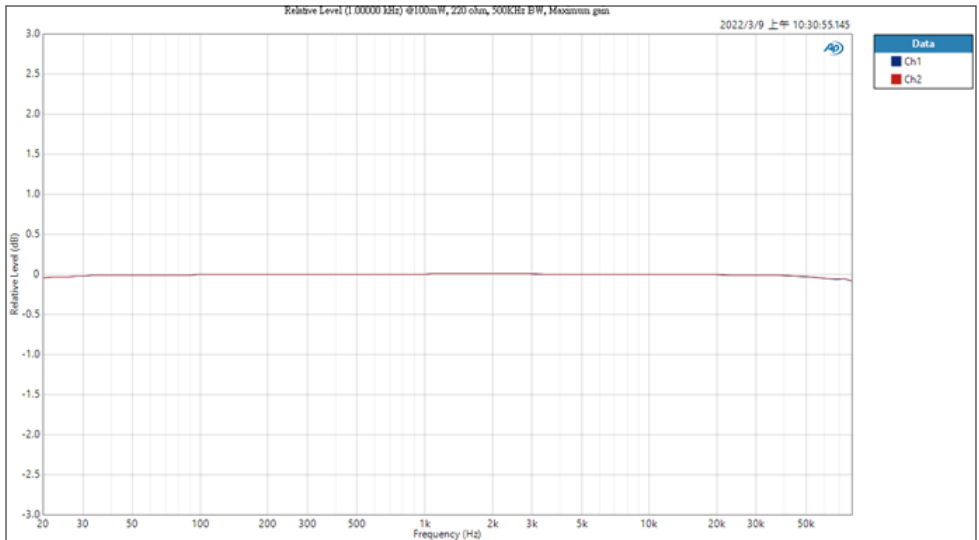
## INSTRUMENT TEST DATA AND DOWNLOADS

- Equipment: Audio Precision APx-525
- Test range: 20Hz~80KHz

### Items included in the test data

- Gain
- RMS Level
- THD+N Ratio
- Relative Level / Frequency Response

### Example



Please click the link below to download the detailed rest results directly,

**<https://www.unikapro.com/support/download/>**

Or please scan the following QR code with your mobile phone or pad,



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**PROFESSIONAL AUDIO**