LP-2010

Switching Amplifier Measurement Low Pass Filter

User Manual

INHAOS™

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Version:V1.1
Release Date:2011-3-29

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User Manual

Introduction

Dear Users,

Hello! Thank you for choosing LP-2010 Switching Amplifier Measurement Low Pass Filter. For using the device correctly, please read this manual carefully , especially the "Important Safety Tips" section.

If you have read the complete manual, we recommend that you keep this manual with the device or in accessible place for inspection in the future.

Declare

The device is designed referenced to AES17-1998 specification. And it only provides a low pass filter function similar to AES17-1998 specification. Please NOTE :The accuracy of measurement is based on the entire system, rather than solely on this device.

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Important Safety Tips

Thank you for choosing LP-2010 Switching Amplifier Measurement Low Pass Filter. The device will help you debug and measure switching audio amplifier. Before using, please read this manual carefully, especially the "Important Safety Tips" section below：

1. Please strictly use the power supply attached in the device. Use non-attached power supply may cause accidental damage or reduce the measurement accuracy.
2. Most switching audio power amplifier adopt bridged output, which means different channel output can not have a common connection point, nor have any of the output directly connected to ground, or it may cause the amplifier circuit damage.
3. Rated input range of the device is ±10Vp. Please NOTE: the input signal amplitude must not exceed the rated input range， or it may cause measurement error or damage the device. For a wider range of measurement, please refer to the extended input range chapters.
4. The amplifier's output signal must have rated load resistor before it reaches the device, or may cause measurement error.

The device is designed referenced to AES17-1998 specification. And it provides a low pass filter function similar to AES17-1998 specification .Please NOTE :The accuracy of measurement is based on the entire system, rather than solely on this device.

Packing List

1.INHAOS LP-2010 Low Pass Filter —— ×1

2.User Manual ———————————— × 1

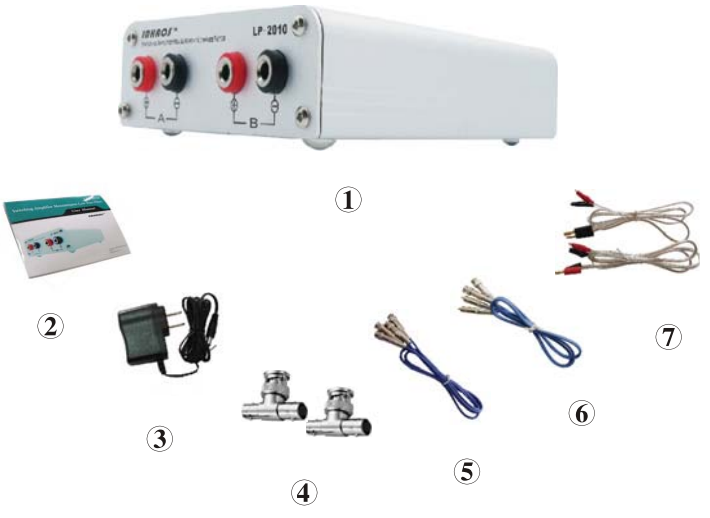
3.DC 9V 500mA Power Supply————— × 1

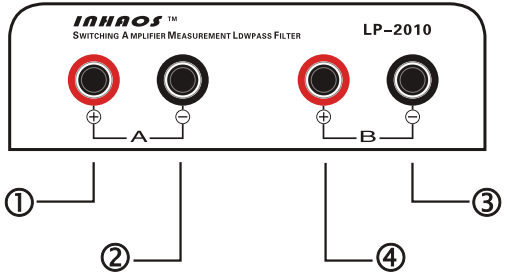
4.BNC Tee connector ————————— × 2

5.BNC to BNC Audio Cable ————————— × 1

6.RCA to BNC Audio Cable ———————— × 1

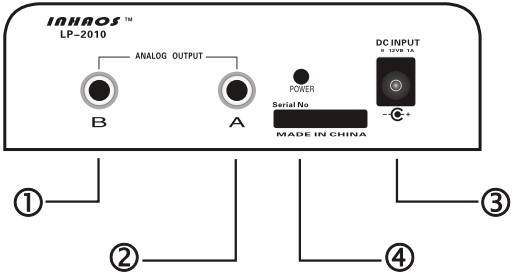
7.Speaker Cable ———————————— × 2





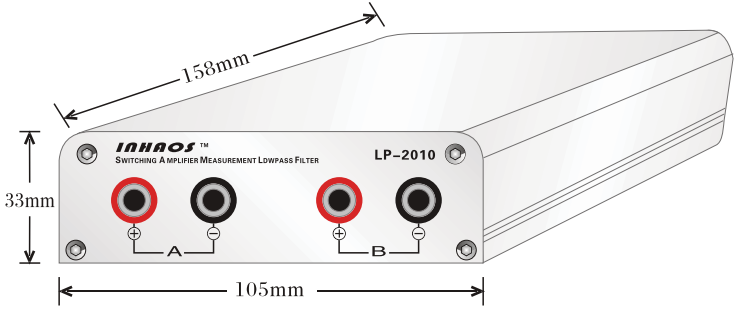
① CH A Input Positive ③ CH B Input Negative

② CH A Input Negative ④ CH B Input Positive

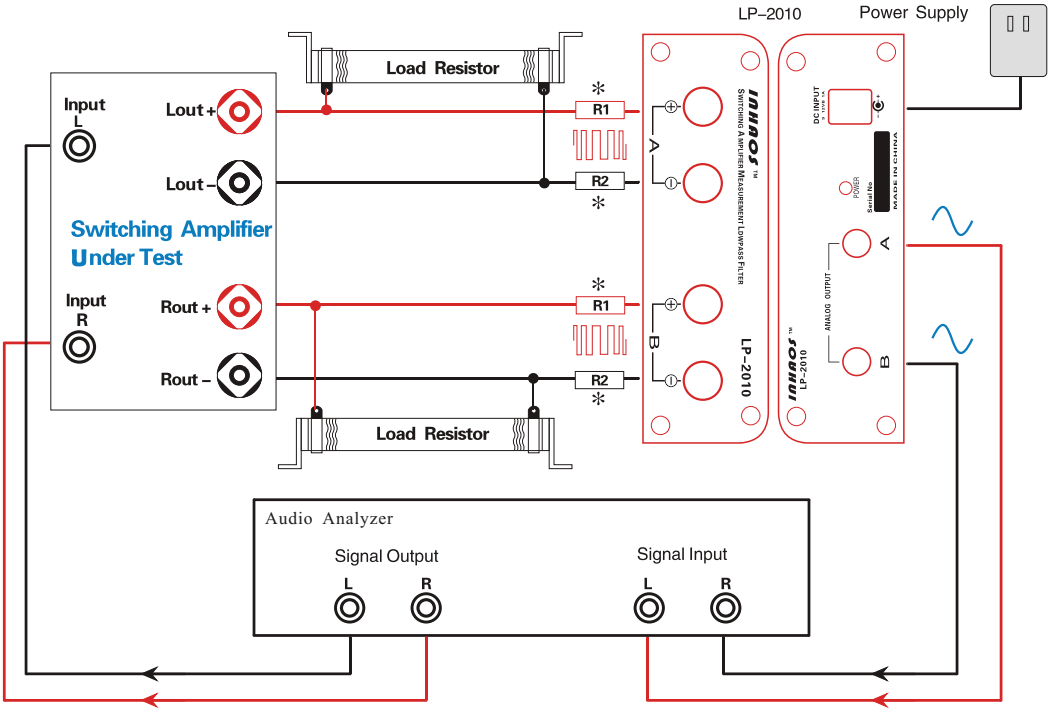


① CH B Analog output ③ Power LED

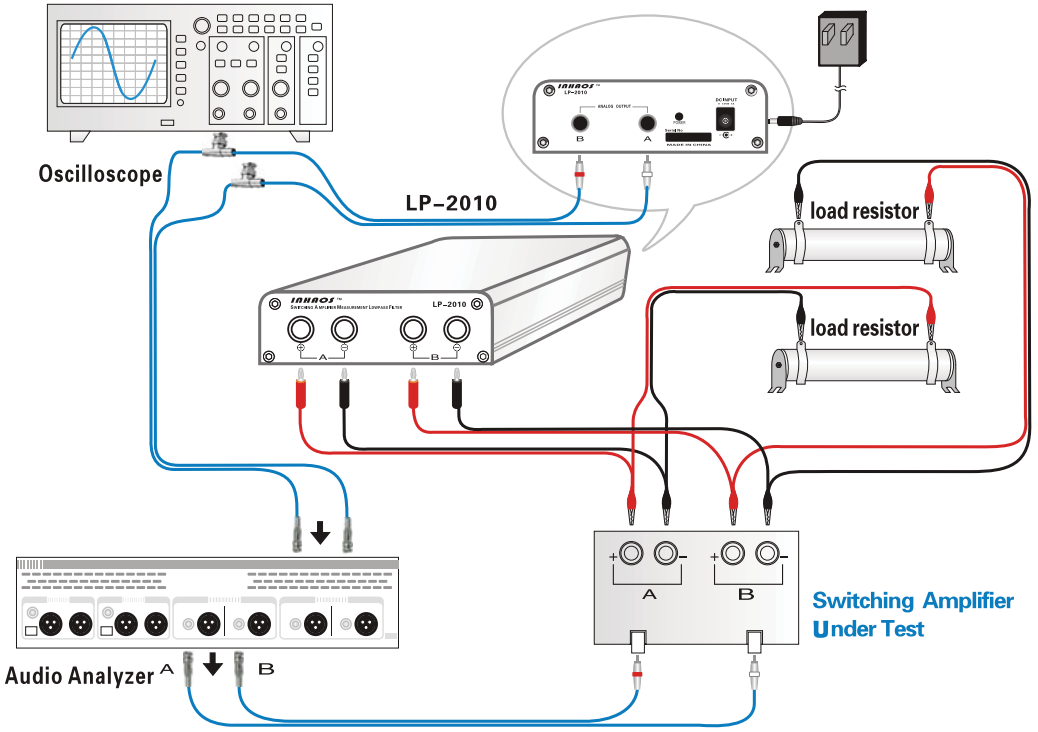
② CH A Analog output ④ Power Input Socket



Equipment Schematic



* R1/R2 used to extend the range of input signal, if you don't need extended input range, skip R1/R2 (short R1/R2).



＊Most required cable is attached . See packing list for details.

Use Method

- Connect the amplifier's output to the device's A / B input channels.
- Please note that the amplifier output must be connected with a rated load resistor.
- Connect the analog signal output of the audio analyzer to the input of under-test amplifier used as audio test excitation signal.
- Connect the A/B output channel to input of audio test equipment ,used as the input signal of the test equipment.
- If you want to monitor the output signal simultaneously (for example , one channel connected to oscilloscope for signal observation) , please use the tee connectors attached.
- If the output signal of the power amplifier under test exceeds ± 10Vp , please serial resistor (R1/R2) to extend the input signal range.

Please refer to the relevant sections of this manual. If you do not need to extend the input signal range, skip R1/R2 (short R1/R2).

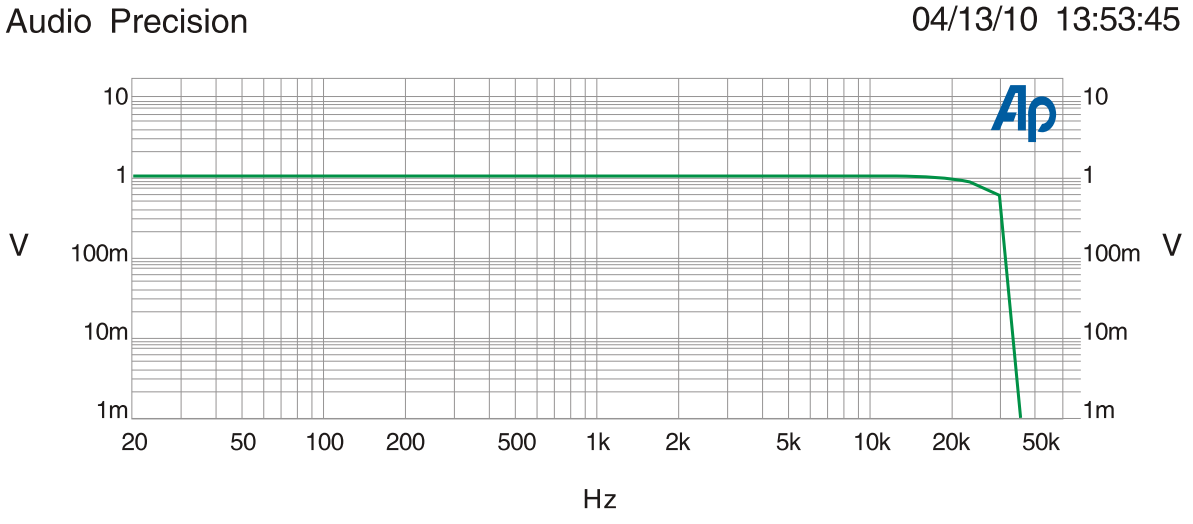
Extended Input Range

For this device ,the rated input range is ± 10Vp.In some applications, the users need a wider input range, so the input signal range extension is necessary.

To scale the input signal range , serial a resistor to the A/B input channel as a divider .

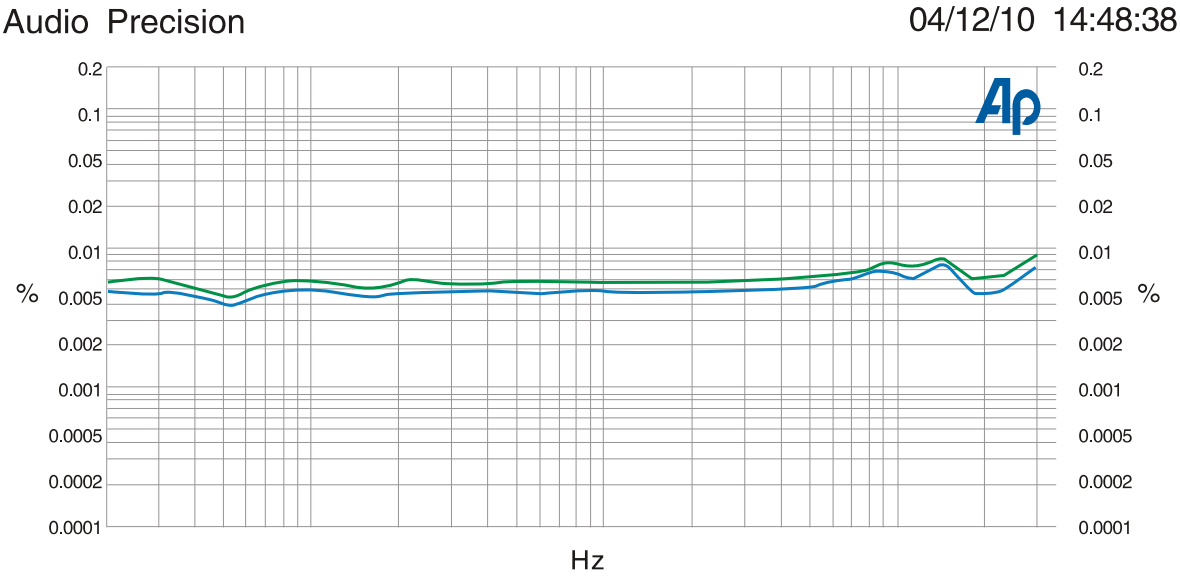
After the divider , the signal obtained from the Output port should be multiplied by the corresponding factor to have the actual measured value.

NO.	R 1 , R 2	Divide Ratio	Output Voltage Ratio	Input Signal Range
1	0 Ω	1	1	± 10Vp
2	9.98 KΩ	2	0.5	± 20Vp
3	39.92 KΩ	5	0.2	± 50Vp



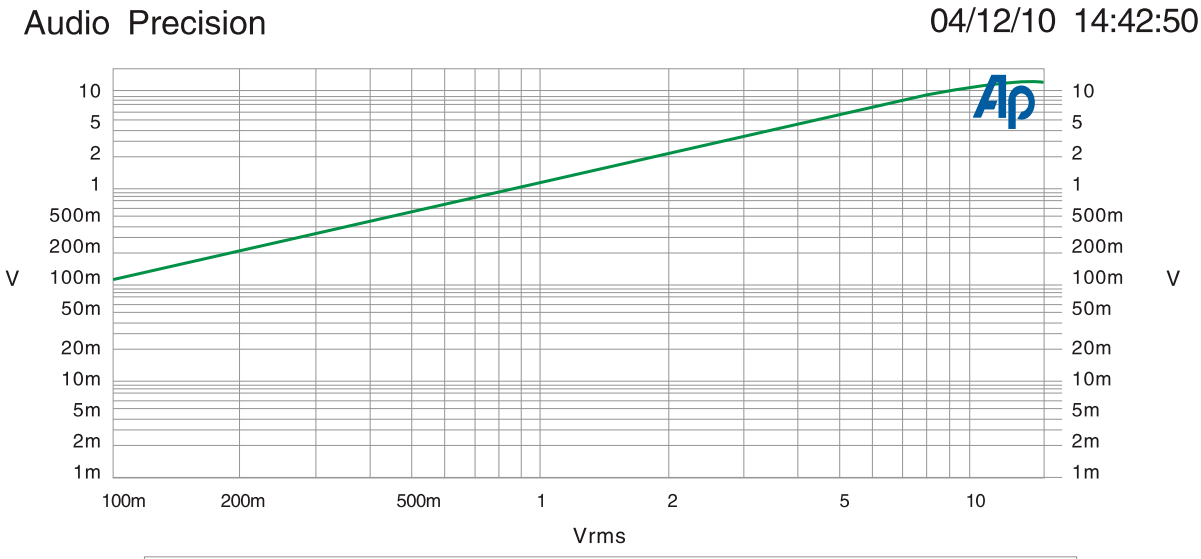
Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	1	Analyzer.level A	Left	
1	1	Creen	Solid	1	Analyzer.level B	Right	

Chart1：Level Vs Frequency



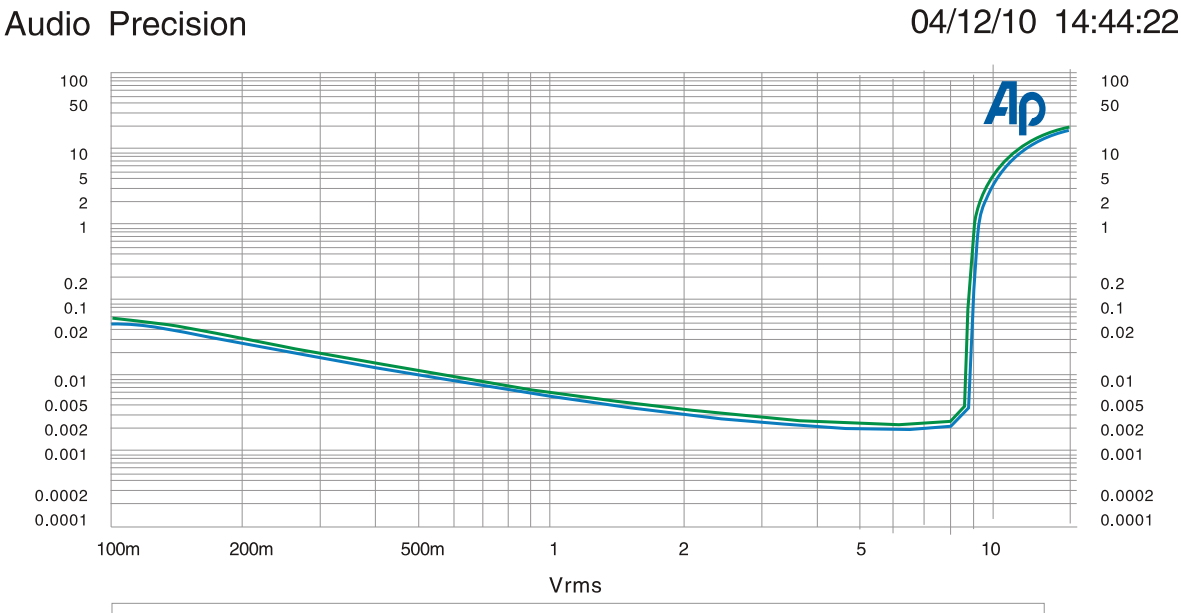
Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	1	Analyzer.THD+N Ratio	A	Left
1	1	Creen	Solid	1	Analyzer.THD+N Ratio	B	Right

Chart2：THD Vs Frequency



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	1	Analyzer.level A	Left	
1	2	Creen	Solid	1	Analyzer.level B	Right	
2	1	Creen	Solid	1	Analyzer.levelA	Left	
2	2	Cyan	Solid	1	Analyzer.level B	Right	

Chart3：Level Vs Input



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Commen
1	1	Cyan	Solid	1	Analyzer.THD+N	Ratio A	Left
1	2	Creen	Solid	1	Analyzer.THD+N	Ratio B	Right

Chart4：THD Vs Level

Technical Parameters

Specifications

Frequency Response	± 0.1dB , 10Hz to 20KHz
Insert Loss	0.05dB , typically
High-frequency(HF) Inhibit	> 60dB , 250KHz to 20MHz , typically
Maximum Input (without extension)	± 10V peak
Channel Isolation	> 90dB @ 20KHz
Distortion	< 0.005% harmonic (1V 1KHz)

Dimension

Temperature	
Suitable Temperature	+5℃ to +40°C
Storage Temperature	-40°C to +75℃
Humidity	80% RH to at least +90°C
Dimension	105 * 165 * 36 mm

Warranty / Maintenance Records

Customer Name：		Serial Number :	
Customer Email：		Date of Purchase：	
Distributor:			

Maintenance Record：

Warranty:

・Warranty period is 1 year from the dateof purchase . We provide paid service beyond the time.

・Operation unaccordance with this manual ,wrong connection ,using non-attachment of the product , using beyond the ratings specified , any damagecaused by the conditions above will lead topaid service.

・Users of this product are strictlyprohibited disassemble, modify,reverse . Any product damage due to the reasonsabove will lose the warranty andthe company reserves the right to refuse maintenance services.

・Make sure the distributor fill inthe detail product serial number,purchasing data and some other information . If theinformation is not complete,repairing is chargable.

・When encounter problems in using ,please send e-mails to our company. After confirming the product is damaged ,you can send the product backto the company for maintenance , otherwise the product wouldbe sent back and the freightcharge is on you.

・Free charge of repairing ifthe product fits the warranty termsand time. The freight charge shipping to our companyis on you , and wepay for shipping back after repairing..

・When you purchase this product, whichmeans that you have read andagree with the warranty above .

FAQs

Q: If my PA is single-ended output, can I use this product?

A: Yes, if the amplifier is single-ended output, connect the output to the input positive end,and the ground line to the input negative end.

Q: My device is of D class , T class and DDX power amplifier , will they all apply to the product?

A: Yes, any switching audio power amplifier are applicable, please note the output voltage range, not to exceed the product limit .If it exceeds , you must serial a divide resistor to attenuate the input signal. Please refer to the relevant sections of this user manual.

Q: My device is damaged and return to you for maintenance . But I am in urgent need in my project , can you help me solve this problem?

A: Full communication with our company and make sure the device has been damaged .During the maintenance， you can apply to use our device. What you need to do is to pay for the freight and make sure the device safety.

Notes:

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everything done inhouse

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