APHEX®

DUAL RPA 500®

Two-Channel Reflected Plate Amplifier Tube Mic Pre®
500 Series Module

Owner's Manual

a DWV ENTERTAINMENT company

SAFETY DECLARATIONS

CAUTION: For continued protection against risk of fire, replace only with the same type and rating of fuse.

ATTENTION: Pour une protection continue contre les risques d'incendie, ne remplacer qu'avec la même valeur et même type de fusible.

WARNING: Do not place objects containing liquid on this unit as it is not designed to protect against spillage. Do not expose this unit to dripping or splashing of liquids as the unit is not designed to protect against these occurances.

WARNING: This unit must be connected to a mains socket outlet with a protective earthing connection.

WARNING: The DUAL RPA 500 has been tested and meets the FCC, CE and European Union rules, regulations, and guidlines for use. Do not attempt to modify or change the DUAL RPA 500, as this could void the regulatory compliance, which would place you at risk of losing your authority to operate the DUAL RPA 500.

WARNING: Do not place objects on top of this unit if they weigh more than 10 pounds.

SAFETY DECLARATIONS

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.

3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4. Consult the dealer or an experienced radio/TV technician for help.

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1.0 INSTALLATION

1. Turn off and unplug your 500 series rack frame. Inspect the card slots you intend to use to make sure that they are clean and free of any debris.

2. Before removing your DUAL RPA 500 from its box, discharge any static electricity buildup you may have by touching your 500 series rack.

3. Pull your DUAL RPA 500 module out of its box and carefully slide it into place in the designated opening. Sight down the back of the module (use a flashlight if necessary) and ensure the card edge connector is aligned to seat into the card slot of the frame.

4. Firmly and evenly push the DUAL RPA 500 module into place until its is positively seated in the card slot.

5. Use the 4 thumb screws in the module to mount the DUAL RPA 500 front panel to the 500 series rack. These screws have a pretty tight fit; please be careful not to cross thread.

6. Plug your 500 series rack back into the AC source and power up your rack. Your DUAL RPA 500 will automatically power up with your 500 series rack.

2.0 INTRODUCTION

The DUAL RPA 500 is a two-channel microphone preamp featuring a two channel reflected plate amplifier tube mic pre. It takes up two slots in your receiving frame. The preamp features electronically balanced inputs and outputs and uses a discrete, solid-state, transformerless front end carefully crafted for extremely low noise and high common mode rejection. The back end features a 12AT7 tube and the Aphex patented RPA circuit. The unique and stable RPA tube circuit retains the tube's transconductance and grid characteristics while at the same time creating a much more efficient amplifier stage that runs on low power supply voltages.

3.0 CONTROLS & INDICATORS

3.1 TRIM CONTROL

The Trim control boosts the input signal from +26dB to +65dB.

3.2 INPUT METER

This 20 segment input meter provides visual confirmation of the input signal level. The top three LEDs of the meter are red. When the input signal reaches the top red LED, the input signal will clip.

3.3 OUTPUT LEVEL SWITCH

The output level can be set to +16dB, +20dB and +24dB. You will need to know the maximum input level of the next device in the audio chain to set this properly. Most professional audio devices can handle a +24db input signal without issue.

However, some inexpensive computer audio interfaces have a maximum input level of less than +16dB. Most also offer a -20dB pad to address these kind of issues.

3.4 -26dB PAD

When the input signal is clipping the preamp with the input trim control turned all the way down, the -26dB pad can be engaged to provide more headroom.

3.5 PHASE

The Phase button will invert the input signal 180 degrees. Using two microphones on the same source can cause phase problems. Reversing the phase of one of the microphone signals will often clear up the issue.

3.6 75Hz HIGH PASS FILTER

Engaging the 75Hz HPF will roll off all the freqencies below 75Hz at 18dB/octave. It's a good idea to use the HPF when recording voices or instruments that don't have much low frequency content. Only capturing the relevant frequencies will provide a cleaner mix later on.

3.7 48V PHANTOM POWER

Condenser microphones require power to function. Sometimes a microphone will use internal batteries, but usually the required power is provided by the mic pre. Turning on the Phantom Power will send power through the cable to power the microphone. Be carefull though, as ribbon microphones and some older dynamic microphones can be damaged or destroyed by phantom power.

3.8 MIC LIM

Pressing this button will engage the Aphex patented MIC LIM limiter. It limits before the preamp. This way a large transient signal will be limited before it is amplified. This protects the mic pre and provides a cleaner signal than standard limiters. When the Mic Lim is limiting, the Mic Lim button will flash red.

3.9 INSTRUMENT INPUT

The DUAL RPA 500 provides a 1/4", 10 MOhm instrument input. When an instrument is plugged in to this input it will override the XLR input on the receiving frame. This input makes it easy to record guitar and bass tracks with the DUAL RPA 500.

4.0 SERVICE & WARRANTY

4.1 LIMITED WARRANTY

PERIOD
One year from date of purchase.

SCOPE
All defects in workmanship and materials. The following are not covered:
a. Voltage conversions.
b. Units on which the serial number has been defaced, modified, or removed.
c. Damage or deterioration:
1. Resulting from installation and/or removal of the unit.
2. Resulting from accident, misuse, abuse, neglect, unauthorized product modification or failure to follow instructions contained in the User's Manual.
3. Resulting from repair or attempted repair by anyone not authorized by Aphex.
4. Occurring from shipping (claims must be presented to shipper).

WHO IS PROTECTED
This warranty will be enforceable by the original purchaser and by any subsequent owner(s) during the warranty period, so long as a copy of the original Bill of Sale is submitted whenever warranty service is required.

WHAT WE WILL PAY FOR
We will pay for all labor and material expenses for covered items. We will pay return shipping charges if the repairs are covered by the warranty.

LIMITATION OF WARRANTY
No warranty is made, either expressed or implied, as to the merchantability and fitness for any particular purpose. Any and all warranties are limited to the duration of the warranty stated above.

EXCLUSION OF CERTAIN DAMAGES
Aphexs' liability for any defective unit is limited to the repair or replacement of said unit, at our option, and shall not include damages of any other kind, whether incidental, consequential, or otherwise.

Some States do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

4.2 SERVICE INFORMATION

If it becomes necessary to return this unit for repair, you must first contact Aphex for a Return Authorization (RMA number), which will need to be included with your shipment for proper identification. If available, repack this unit in its original carton and packing material. Otherwise, pack the equipment in a strong carton containing at least 2 inches of padding on all sides. Be sure the unit cannot shift around inside the carton. Include a letter explaining the symptoms and/or defect(s). Be sure to reference the RMA number in your letter and mark the RMA number on the outside of the carton. If you believe the problem should be covered under the terms of the warranty, you must also include proof of purchase. Insure your shipment and send it to:

APHEX
3500 N. San Fernando Blvd. Burbank, CA. 91505 USA
PH: 818.767.2929 FAX: 818.767.2641

5.0 SPECIFICATIONS

OPERATING LEVEL

Switch Setting:	+4dBu

INPUT

Type:	Transformerless, Instrumentation first stage, RPA second stage
Impedance:	2.2k ohm nominal
Instrument Impedance:	10M ohm nominal
CMRR:	>70dB @ 60Hz
Gain Range:	+25dB to +61dB (no pad, +24 level)
Pad:	26dB
Max Input Level (Limiter off):	0dBu (no pad), +25dBu (pad)
Limiter:	Aphex MicLim
Low Cut:	2nd order, -3dB @ 56Hz

OUTPUT

Type:	Active true-balanced
Impedance:	100 ohm nominal
Nominal Level	+4dBu
Maximum Level (Meter 0dB):	+24/+20/+16 dBu switchable

AUDIO

Frequency Response:	+0.1/-1.0dB <10Hz to >100kHz
EIN:	-124dBu @ max gain
THD:	<0.15% @ +4dBu out

POWER

Current draw:	160mA per slot, 320mA total

CONNECTOR PINOUT

1	CHASSIS GROUND
2	OUTPUT + (+4 LEVEL)
3	(unused)
4	OUTPUT - (+4 LEVEL)
5	COMMON
6	(unused)
7	(unused)
8	INPUT- (+4 LEVEL)
9	(unused)
10	INPUT+ (+4 LEVEL)
11	(unused)
12	+16VDC
13	POWER SUPPLY COMMON
14	-16VDC
15	(unused)

APHEX®

This product is protected under one or more of the following Aphex patents.

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