

APHEX[®]

COMP 500[®]

OPTICAL COMPRESSOR
500 SERIES MODULE





OWNER'S MANUAL



a DWV ENTERTAINMENT company

SAFETY DECLARATIONS

	WARNING SHOCK HAZARD DO NOT OPEN AVIS: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR		TO PREVENT FIRE OR SHOCK HAZARD DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE. DO NOT REMOVE THE COVER, NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL ONLY. ATTENTION: AFIN D'ÉVITER DES CHOCES ÉLECTRIQUES, N'ENLEVEZ PAS LE COUVERCLE. IL N'Y A AUCUNE PIÈCES D'ENTRETIEN À L'INTÉRIEUR. RÉFÉREZ LES RÉPARATIONS À UNE PERSONNE QUALIFIÉE.
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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 occurrences.

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

WARNING: The COMP 500 has been tested and meets the FCC, CE and European Union rules, regulations, and guidelines for use. Do not attempt to modify or change the COMP 500, as this could void the regulatory compliance, which would place you at risk of losing your authority to operate the COMP 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 slot you intend to use to make sure that it is clean and free of any debris.
2. Before removing your COMP 500 from its box, discharge any static electricity buildup you may have by touching your 500 series rack.
3. Pull your COMP 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 COMP 500 module into place until it is positively seated in the card slot.
5. Use the 2 thumb screws in the module to mount the COMP 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 COMP 500 will automatically power up with your 500 series rack.

2.0 INTRODUCTION

The COMP 500 module is an optical compressor. It features an electronically balanced input and uses a Jensen JT-11DL nickel output balancing transformer. The optocoupler was designed to be as fast as possible and is produced exclusively for Aphex. The COMP 500 also features stereo linking.



- Transparency in the behavior of the optical element.
- Flexibility of being able to control the release time from a leveling amp behavior to a compression behavior.
- Character of the Jensen output transformer.
- The combination of these features makes the COMP 500 unique.

3.0 CONTROLS & INDICATORS

3.1 DRIVE CONTROL

The Drive control determines the amount of input signal sent to the compressor. The COMP 500 has a maximum input level of +27dB. Turning this knob clockwise will result in more gain reduction. However, the total amount of gain reduction is determined by the Ratio control.

3.2 RATIO CONTROL

The Ratio control determines how hard the input signal is compressed. It has a range of 1.5:1 to 10:1. This means that with the knob set fully clockwise, for every 10dB of input signal only 1dB of signal is sent to the output.

3.3 GAIN REDUCTION METER

The 10-segment Gain Reduction meter provides visual feedback as to the amount of gain reduction measured in dB. The example above would register about 12dB of gain reduction.

3.4 RELEASE CONTROL

The Release control determines the amount of time it takes for the audio signal to return to normal levels after the signal is no longer being compressed. Use a slower setting for a leveling affect when inserting the COMP 500 on a buss. A faster setting would be more appropriate for compressing a dynamic signal like a vocal or kick drum.





3.5 OUTPUT LEVEL CONTROL

This knob controls the overall output level of the module and drives the output level meter.

3.6 OUTPUT LEVEL METER

This 10-segment meter provides visual feedback of the output level of the device. The meter range is from -20dBu to +3dBu.

3.7 ENABLE BUTTON

This is essentially a bypass for the device. When the module is active this button will light up. The light will go off when the unit is bypassed.

3.8 LINK BUTTON

Two COMP 500 modules can be stereo linked when they are installed as adjacent odd/even pairs. Slot 1 & 2, 3 & 4, etc. This follows API's protocol for linking. Frames made by other manufacturers may be different. Check your frames' manual for details on stereo linking. Engaging the LINK button on both modules will cause the module with the most gain reduction to be the master and the same amount of gain reduction will be applied to the adjacent module. This feature helps maintain a wide stereo image. The Drive and Output parameters must be set so that the gain structure is the same on both modules for this function to work properly. Pin 6 of the modules are used for this function.

4.0 COMPRESSION

If you are reading this, congratulations! Learning more about what compression is and how it benefits you will ensure you get the best results from your COMP 500 module.

COMPRESSORS-WHAT THEY DO

The basic idea is that a wide range of input levels is automatically "compressed" into a smaller range of output levels. After compression, sounds that were low in volume are higher in volume and sounds that were high in volume are made lower in volume. This results in more consistent volume levels that sit "just right" in a mix without some parts being too loud with other parts too soft.

PUNCH AND SUSTAIN

When a compressor reduces the volume of a loud sound, it does so in a way that is unique to each type of compressor. The time it takes for this volume reduction to occur is called "attack". An attack that is too fast can change the natural character of an instrument while too slow can lose the benefits of compression. The COMP 500s interactive attack adapts to the input signal, controlling volume without changing character and enhancing punch while retaining articulation.

Typically, compression creates more sustain by raising the level as the sound decays. This is more or less apparent, depending on the input signal.

5.0 OPTICAL COMPRESSION-WHAT IS IT?

There are many ways to create a circuit that controls the gain reduction of a compressor. Each method has its own characteristics and all have produced popular compressors over the years. One of the most popular types is the optical compressor.

An optical compressor is created from the combination of a light sensitive resistor called a photocell, and a light source such as a small bulb or LED. Devices called optocouplers combine a photocell and light source inside a light-proof package. The photocell increases its resistance when input level increases the intensity of the light - that increased resistance provides the compression. While attack is the time it takes for compression to occur, "release" is the time it takes for the signal to return to normal. Photocells have a characteristic called "memory" that makes such a compressor interactive. When just a few brief attacks have been experienced, the photocell recovers quite fast, bringing back the level more quickly. However, after repeated and constant attacking, the photocell builds up a memory of the light pulses and recovers more gradually. This helps to smooth out the compression and preserve the character of the sound.

6.0 SERVICE & WARRANTY

6.1 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

Aphex' 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.

6.2 SERVICE INFORMATION

If it becomes necessary to return this unit for repair, you must first contact Apex 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

7.0 SPECIFICATIONS

OPERATING LEVEL

Switch Setting: +4dBu

INPUT

Type: Transformerless, active balanced
Impedance: 40kohm balanced, 20kohm unbalanced
CMRR: >40dB @ 60Hz
Max Input Level (comp off): N/A - true bypass
Max Input Level (comp on): >26dBu

OUTPUT

Type: Transformer balanced
Impedance: 100 ohm nominal
Nominal Operating Level: +4dBu
Maximum Level: +26dBu
Level Meter Peak: +18 dBu

AUDIO

Frequency Response: +0.1/-1.0dB <10Hz to 45kHz
THD: <0.003% @ +4dBu input (Drive/Output mid, min ratio, no compression)
THD: <0.05% @ +10dBu input (Drive/Output mid, max ratio, -6dB compression)

POWER

Current draw: 60 mA

CONNECTOR PINOUT

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

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