

# APHEX<sup>®</sup>

## PROJECT CHANNEL<sup>™</sup> ESSENTIAL CHANNEL STRIP





## OWNER'S MANUAL



a DWV ENTERTAINMENT company

SAFETY DECLARATIONS

**WARNING**

SHOCK HAZARD  
DO NOT OPEN

AVIS: RISQUE DE CHOC ELECTRIQUE  
NE PAS OUVIR

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 DÉVITER DES CHOCs ÉLECTRIQUES,  
N'ENLEVEZ PAS LE COUVERCLE. IL N'Y A AUCUNE  
PIECES D'ENTRETIEN À L'INTÉRIEUR. RÉFÉREZ LES  
RÉPARACIONES À UNE PERSONNE QUALIFIÉE.



CAUTION: For protection against electric shock, do not remove the cover. No user serviceable parts inside.

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the operating guide, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user’s authority to operate this equipment.

It is suggested that the user use only shielded and grounded cables to ensure compliance with FCC Rules.



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1.0 CONTROLS AND INDICATORS

POWER INDICATION

The Aphex logo glows green when the unit is on and ready for use.

CLASS A MIC PRE

The Project Channel works well with all professional microphones. There is a red LED clip indicator that will light when too much input signal is overloading the preamp. When this happens, lower the input gain knob until the peak LED stops flashing. If the input gain knob is turned all the way down and the peak LED is still flashing, you'll need to engage the -20dB pad and adjust the input gain knob appropriately. The clean and stable 48V phantom supply is suitable for even the most expensive microphones. The 12dB/octave low cut filter starts at 70Hz. The filter is a useful tool for removing unwanted low frequencies like air conditioner hum or street rumble.

OPTICAL COMPRESSOR

The Project Channel includes an optical compressor which has proven to be outstanding. It is very simple to use with only an on/off button and ratio control. To get deeper compression, turn up more Gain. To achieve more gain reduction, turn up the ratio control. Note that the units output level may need to be boosted once the compressor has been used to control the dynamics of the signal.

TONE ENHANCEMENT BLOCK

This section includes the popular Aphex Big Bottom and Aural Exciter processors. These features increase power, punch and presence without adding noise or an increase in output level. As a real plus, they are also very easy to adjust.

METERS

Meters are provided for peak output level and the compressor's gain reduction. The output level bar graph will move upwards indicating level, and the gain reduction bar graph will move downwards indicating gain reduction. The output level meter is DBFS. It is meant to match the digital input meter of your DAW when using the S/PDIF coaxial digital output of the Project Channel with an audio interface.

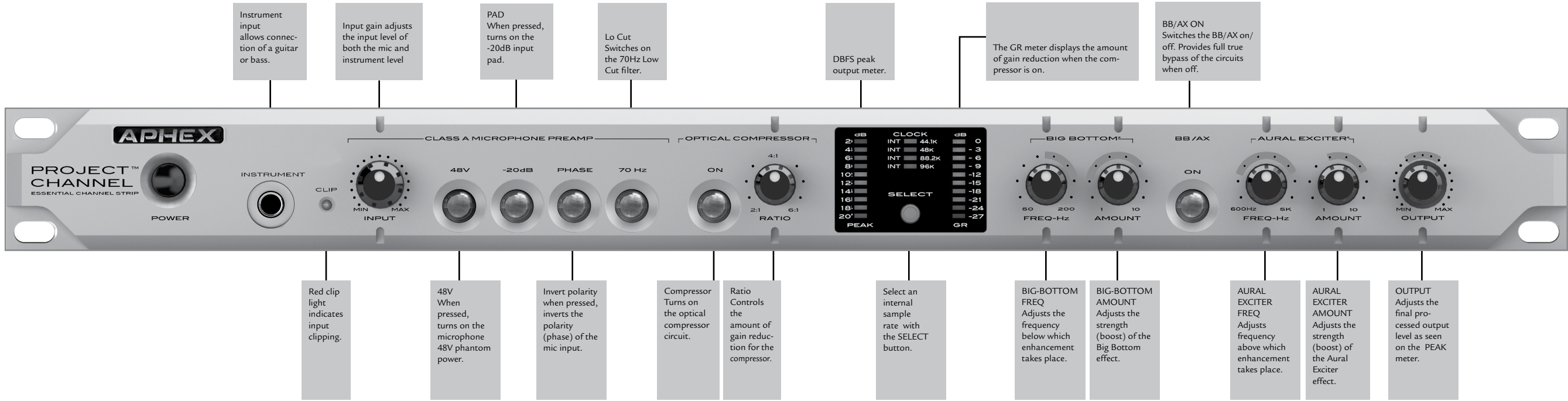
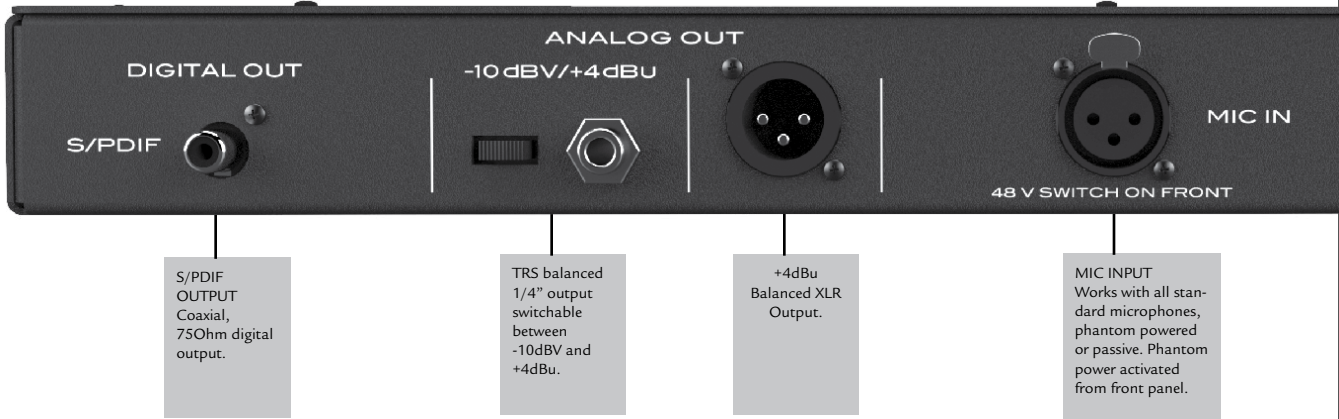
OUTPUT CONTROL

Once all processing is set where you want it, the output level may need to be adjusted. 0dB on the peak meter is equal to +24dBu for the analog outputs.

DIGITAL AUDIO

The Project Channel supplies an industry standard, coaxial, stereo S/PDIF digital audio output. The signal appears on both channels as a mono signal. Sample rate options are available at the front panel.

Rear Panel Connections



## 2.0 INSTALLATION & INTERFACING

### 2.1 INSTALLATION

The Project Channel occupies a single rack space (45mm or 1-3/4 inches) of a standard EIA equipment rack.

When rack mounting, use appropriate cushioned rack screws. Try not to position the Project Channel directly above devices that generate excessive heat such as power amplifiers.

### 2.2 REAR PANEL VIEW



### 2.3 S/PDIF DIGITAL OUTPUT

The processed signal is converted to digital in both channels at equal level as a mono signal. Simply select S/PDIF (L) or (R) as the input in your DAW. The S/PDIF output uses a 75 Ohm coaxial (RCA) connector.

### 2.4 OUTPUT CONNECTORS

There are two output connectors located on the rear panel: one 1/4" TRS phone type and one XLR-3M type. They can be used at the same time to feed separate equipment.

The output level at the XLR is +4dBu impedance balanced, while the TRS balanced/unbalanced jack is switchable between -10dBV (consumer level) and +4dBu (professional level).

If you intend to make an unbalanced output from the XLR jack, simply take "hot" from pin 2 and use pin 1 for ground. Leave pin 3 unconnected or grounded. Never ground pin 2.

### 2.5 MIC INPUT CONNECTION

The microphone input uses the standard XLR-3F type. Use only properly wired balanced mic cables.

**CAUTION:** Some ribbon mics will be damaged by phantom power. Please consult your ribbon mic's manual before connecting it to the Project Channel.

**CAUTION:** Shut off the phantom power before plugging or unplugging microphones, waiting at least 10 seconds for the voltage to fall. This also protects sensitive microphones against power inrush.

### 2.6 POWER SUPPLY

Soft-start, overload foldback limiting, and across-the-line voltage spike protection is incorporated to protect the power supply from damage that might be caused by component failure or power line disturbances. If the internal fuse blows out, a catastrophic failure has occurred and simply replacing the fuse will not fix the problem. Due to the extensive protective measures used, it is highly unlikely a catastrophic power supply failure will ever occur. However, if it does, you should contact the factory or a competent service technician to affect repairs. There are no user serviceable parts inside.

### 2.7 AC LINE CONNECTION

The Project Channel is internally powered from a standard IEC power receptacle on the rear panel. Be sure you use a power cord that is approved for use in your jurisdiction.

The Project Channel's internal power supply is designed to operate from all nominal power sources from 100 to 240 volts a.c. at 50/60Hz without requiring the user to change any settings.

## 3.0 USING THE PROJECT CHANNEL



### 3.1 USING THE MICROPHONE INPUT

The Project Channel is perfect for all types of microphones. Dynamic, condenser, ribbon, etc. We encourage you to try every mic you own with the Project Channel.

If the clip LED is flashing RED, then the input signal is too hot. Turn the input gain knob down until the light no longer flashes red. If the input gain knob is all the way down and the clip light still flashes, engage the -20dB pad.

### 3.2 USING THE INSTRUMENT INPUT

The Project Channel can also be used as a high quality direct box. When an instrument cable is plugged in to the Instrument input on the front panel, the rear panel XLR input is bypassed. This allows the user to keep a microphone connected to the rear panel and simply insert an instrument cable in to the front panel instrument input when D.I. functions are required. You will be able to achieve proper input levels no matter what kind of pickups are used. Single coil passive pickups will work just as well as active humbuckers. Be aware the single coil pickups can receive hum from electrical fields in the air. Hum from single coil pickups can be reduced or eliminated by repositioning the guitar. Buzz can not be canceled, it can only be dealt with by conductive shielding installed in the wiring cavities of guitars and must be grounded.

### 3.3 USING PHANTOM POWER

Active microphones that take power through the standard mic cable fall into a class called "phantom powered" mics. The power is called "phantom" because it rides the mic cable invisibly, without interfering with the audio signal carried on the same wires.

The industry standard phantom power source is positive 48 volts d.c. (+/- 10%) supplied to pins 2 and 3 through precision low noise 6.81K $\Omega$  resistors. Plugging and Unplugging a microphone when phantom power is on can sometimes damage a mic because of power inrush. Switch off the phantom power first and wait for the mic to go silent before unplugging.

### 3.4 USING THE POLARITY SWITCH

Phase reversing can be helpful when using multiple microphones on the same source. For example, using two microphones on a guitar speaker cabinet. You may get a "nasal" or hollow effect when both mics are on. Changing the polarity of one mic will often clear up the problem. It is always worth the time to experiment with mic polarity.

### 3.5 USING THE PAD

The -20dB pad is an attenuator that drops the level coming in to the input. Its purpose is to give you a way of preventing overload of the preamp when incoming signals become excessive.

In the Project Channel, we provided a pad of -20dB. That means when the pad is on, the net gain of the preamp is 20dB lower. There are times that the input may be overloaded even with the GAIN control set all the way down. For example, a bass player with active pickups and an aggressive playing style might peak the instrument input. Or a microphone on a kick drum or snare drum could do it. Engage the pad and 26dB of headroom will be provided allowing you to better control the input signal.

### 3.6 USING LOW CUT

In the real world, mics pick up all sorts of unwanted low frequencies such as handling noise, wind rumble, etc. We designed into the Project Channel a very effective way of cutting out these low frequencies. Switching on the LOW CUT FILTER rolls off all frequencies below 70Hz at 12dB per octave.

### 3.7 USING THE COMPRESSOR



## 3.0 USING THE PROJECT CHANNEL

The Project Channel's optical compressor is very simple to use. There is only one obvious control: RATIO. To get more compression depth, turn up the input gain. The RATIO control allows you to obtain more gain reduction.

The gain reduction is displayed on the Project Channel's 10 segment meter. You may need to boost the units output level to compensate for the gain reduction of the signal.

### 3.8 USING THE TONE ENHANCEMENT BLOCK

Once the signal passes through the compressor it encounters the Big Bottom low frequency enhancer and the Aural Exciter high frequency enhancer. The whole block is bypassed with the BB/AX on/off push-button.

### 3.9 BIG BOTTOM

Some signals have no low bottom end. In such cases, the Big Bottom won't synthesize a new low end for you and it should not be used. However, voices that contain a deep chest resonance can be augmented by the Big Bottom.

Start by turning up the BB Amount to 12:00. Then adjust the BB FREQ to find a frequency that lifts the bottom. Last, reduce the BB Amount until just the right touch of bass enhancement is felt.

### 3.10 AURAL EXCITER

Clarity, presence, and loudness can all be enhanced by the Aural Exciter. Start with the AX Amount at 12:00. Next, sweep the FREQ to find the best tonal balance. Presence is best augmented with lower settings. Air is added with higher settings. Finally, readjust the AX Amount for the right amount of brilliance. Be conservative. Use the BB/AX on/off switch to compare the original signal to the enhanced signal.

### 3.11 USING THE OUTPUT LEVEL CONTROL

Once all the processing is set, the output level may need to be adjusted. Check the input meter of the device the Project Channels output is plugged in to. If the input device is clipping, first turn the input devices gain control down. If the input is still clipping, bring the OUTPUT level of the Project Channel down to compensate. Be sure that the operation level of each device is set properly at either -10dBV or +4dBu. At 0DBFS the analog output level is +24dBu.

## 4.0 WARRANTY & SERVICE

### 4.1 Limited Warranty

#### PERIOD

One year from date of original purchase.

#### SCOPE

All defects in materials and workmanship.

The following are not covered:

Voltage conversions.

Units on which the serial number has been defaced, modified or removed.

Damage or deterioration resulting from: Installation and/or removal of the unit; Accident, misuse, neglect, unauthorized product modification; Failure to follow instructions in the Owner's Manual, User Guide or other official Aphex documentation; Repair or attempted repair by anyone not authorized by Aphex; Shipping damage – claims must be presented to the shipper.

#### WHO IS PROTECTED

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

#### WHAT APHEX WILL PAY FOR

All labor and material expenses for covered items. Aphex will pay all 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 warrant 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 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 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 LLC. 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  
PH: (818) 767-2929 FAX: (818) 767 -2641

5.0 SPECIFICATIONS

5.1 GENERAL SPECIFICATIONS

INPUT		Connector: XLR-3F Type: Transformerless, NPN active balanced, tube second stage Input Z: 2KΩ nominal Instrument Connector: 1/4" TS Instrument Input Z: 10MΩ nominal Type: Transformerless, NPN active balanced, tube second stage Maximum Input Level (MIL): 0dBu CMRR: Greater than 70dB @ 60Hz Nominal Preamp Gain: 20 to 65dB Phantom Power: +48VDC Pad: 20dB
OUTPUT		Connector: XLR-3M and TRS 1/4" phone jack Type: XLR is Impedance Balanced (may be used unbalanced); TRS is unbalanced. Output Z Balanced: XLR: 66Ω Output Z Unbalanced: XLR: 33Ω – TRS: 600Ω Nominal Level: XLR: +4dBu; TRS: -10dBV Maximum Output Level (MOL): XLR: +25dBu Unloaded; TRS: +11dBV
COMPRESSOR		Ratio: 1.5:1 to 10:1
BIG BOTTOM		Frequency Tune: 50Hz to 280Hz Mix: OFF to +12dB
AURAL EXCITER		Frequency Tune: 500Hz to 5KHz Mix: OFF to +12dB
ANALOG AUDIO		THD: <.01% @ +4dBu Out IMD: <.01% @ +4dBu Out Freq Resp (FLAT): 18Hz to 24KHz +/- 1dB
DIGITAL AUDIO		Internal Sample Rates: 44.1KHz, 48KHz, 88.2KHz, 96KHz Resolution: 24 Bits Dynamic Range: Digital dynamic range greater than analog front end. Noise Dither: Dithered by analog preamp noise floor. Equivalent to 16-bit digital audio dither. Level Equivalency: -20dBFS Digital = +4dBu Analog
OTHER SPECS		Power requirements: 85 to 260V~, 50-60Hz Power Consumption (maximum): 12 Watts Dimensions: 19" W x 1.75" H x 8.25" overall depth (482.6mm W x 445mm H x 209.6mm overall depth) Depth Behind Front Panel: 7.5" (190.5mm) Net Weight: Rack-mounted: 6lbs. (2.73kg) Shipping Weight: 9lbs. (4.1kg)

All specifications are subject to change without notice.

6.0 PATENT NOTICE

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

5,424,488  
5,359,665



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