

INTERNATIONAL LIMITED WARRANTY

ARX Systems (ARX) warrants to the first purchaser of this ARX equipment that it is free from defects in materials and workmanship under normal use and service. ARX's sole obligation under this warranty shall be to provide, without charge, parts and labour necessary to remedy defects, if any, which appear within twelve (12) months from date of purchase, and for a further twelve (12) months supply parts only.

This is our only warranty. It does not cover finish or appearance items, or if the equipment has been, in ARX's sole judgement:

- Subjected to misuse, abuse, negligence or accident;
- Repaired, worked on, or altered by persons not authorized by ARX;
- Connected, installed, adjusted or used for a purpose other than that for which it was designed.

Some states do not allow the exclusion or limitation of incidental or consequential damages so some of the above exclusions may not apply to you. This warranty gives you and us specific legal rights and you may also have other rights which may apply.

Warranty Service Procedure

Should it become necessary to have your equipment serviced under the terms of the warranty, please follow these steps:

1. Call your ARX distributor for a Return Authorization (RA) number;
2. **Carefully** repack the unit, in its original packaging where possible, including a note with a description of the problem, and a copy of the receipt showing date of purchase. Attach these to the actual unit itself. Don't forget to write your name and address clearly, and include a phone number where you can be contacted during normal business hours. Make it easy for our service technicians to contact you if they have a question. Also, use **plenty** of packing material - better to be safe than sorry.
3. Send the unit freight prepaid to ARX Systems, at the address given you with your RA number. We will pay the return freight when the serviced unit is returned to you.
4. We strongly recommend you insure the package. We can't fix it if it gets lost! Send it by UPS, Fedex, or any similar service that can track the package. Parcel Post is *not* recommended

If Warranty Registration Card is missing, please write to ARX in the country of purchase, stating model and where purchased, or to ARX, PO Box 15, Cheltenham, Victoria 3192, Australia. Email: info@arx.com.au

Afterburner II™

Single/Dual Channel

Enhanced

Compressor Limiter

OWNER'S MANUAL



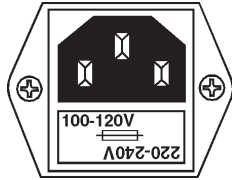
ARX Systems Pty Ltd, PO Box 15,
Cheltenham, Victoria 3192, Australia
Phone: 03 - 9555 7859 Fax: 03 - 9555 6747
International Fax: +61-3 -9555 6747
On the Web: www.arx.com.au
Email: info@arx.com.au



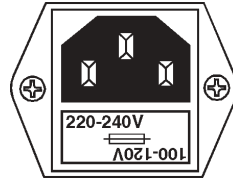
IMPORTANT - PLEASE READ THIS FIRST



This is a dual voltage unit. It is essential that you check that the voltage on the fuseholder cover below the AC connector on the rear of the chassis is set correctly before connecting it to AC power.



THIS IS SET FOR
100 V AC TO 120 V
AC OPERATION



THIS IS SET FOR
220 V AC TO 240 V
AC OPERATION

To change, pull fuseholder out and rotate 180°, then push in again. Do not insert power cable into unit until voltage has been correctly set. Do not plug power cable into AC power until voltage has been correctly set

WARNING SYMBOLS USED ON THIS EQUIPMENT



This symbol is intended to alert you to the presence of important operating instructions contained in this owner's manual



This symbol is intended to alert you to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



This symbol indicates that a Slow Blow fuse is used in this equipment. Replace with same type and value only



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER OR BACK OF UNIT
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

ATTENTION

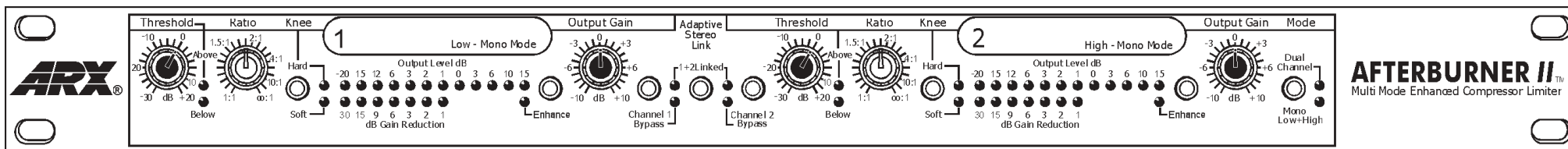
RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR



Complies with 89/336/EEC EMC Directive, amended by 92/31/EEC and 93/68/EEC; CE 73/23/EEC Low Voltage directive and meets the following standards: EN 55013 : 1990, Sections 3.2 and 3.5
EN 55020 : 1988, Sections 4.3, 5.4, 6.2, 7.0, 8.0.
Complies with Australian Standard AS/N25 1053

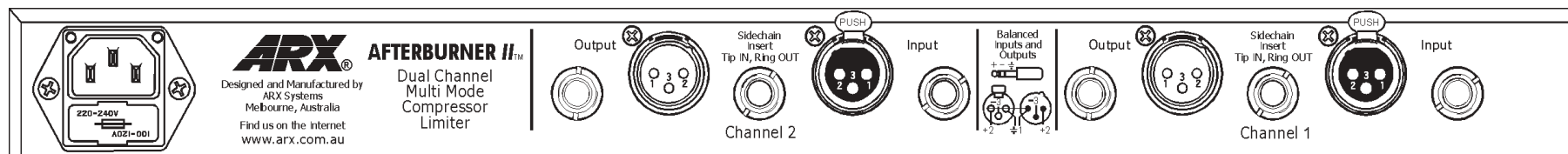
Afterburner™ Specifications

Input Impedance	Balanced 20 Kohms Unbalanced 10 Kohms
Input Headroom	+22 dB
CMRR	>60dB, 20 Hz - 20 KHz
Output Impedance	Balanced 300 ohms Unbalanced 150 ohms
Output Level (Max)	+22 dB
Frequency Response	20 Hz to 20 KHz Note: RFI filter -6dB 100KHz
Signal to Noise Ratio	-93dB Unweighted -99dB A weighted
Distortion	.03% @ 0dB, 1 KHz
Dynamic Range	115dB
Attack and Release Times	Program dependent
Threshold	Variable -30dB to +20dB
Ratio	Variable 1:1 to infinity:1
Output Gain	Variable -20dB to +20dB
Sidechain Insert Impedance	10 Kohm
Maximum Input Level	+20 dB
Filter Dividing frequency	250 Hz
Filter Type	Phase corrected 6 dB per octave
Summed Filter Response	± 0.2dB through crossover region
Low Enhance Knee Frequency	50 Hz
High Enhance Knee Frequency	10 KHz
Power Requirements	100/120 V AC, 220/240 V AC 50/60 Hz 8 watts (8 VA)
Weight	5 lb/2.2 Kg
Dimensions	19"W x 1¾"H x 6"D 482 x 44 x 155 mm
Input Connector	Balanced Jack and XLR
Output Connector	Balanced Jack and XLR
Sidechain Insert Connector	Jack (TRS)



Front panel controls

- Hardware bypass compressor IN/OUT switch
- Threshold control; variable from -30dB to +20dB
- Above/Below Threshold indicator LEDs
- Ratio control; variable from 1:1 to infinity :1
- Hard/Soft compressor knee switch and LEDs
- 12 segment LED display Output Level meter; from -40dB to +20dB
- Numbered marker panel for labelling compressor assigns
- 7 segment LED display Gain Reduction meter; from 1dB to -30dB
- Output Gain control; variable from -20dB to +20dB
- Enhance switch and status indicator LED
- Adaptive Stereo link switch and status indicator LED
- Dual/Single channel mode switch and indicator LEDs



Rear Panel Connectors

- Balanced TRS Input socket. Tip HOT +, Ring COLD -, Sleeve GROUND
- Balanced XLR Input socket. Pin 2 HOT +, Pin 3 Cold -, Pin 1 GROUND
- Sidechain Insert TRS socket. Tip IN, Ring OUT, Sleeve GROUND
- Balanced XLR type Output socket (same wiring as Input)
- Balanced TRS Output socket (same wiring as Input)
- IEC 3 pin AC connector and integral fuseholder. Replace fuse with correct value only: 100 - 120 V AC 1 amp, 220-240 V AC 0.5 amp. Please also refer to voltage details on Page 2

Note: When using the Afterburner II in Single channel mode, use Channel 1 Inputs and Outputs only.

Architects' and Engineers' Specifications

The enhanced compressor/limiter shall be a dual channel unit in a steel chassis 6 inches (152mm) deep and one rack unit (44mm) high. There shall be a front panel switch to link the channels to track as a stereo pair. As well, there shall be a switch to put the unit into dual band mono mode; in this mode Channel 1 controls shall compress Low frequencies, and Channel 2 controls shall compress High frequencies. The filter shall be 6 dB per octave, phase corrected, with a dividing frequency of 250 Hz, and the unit shall have a summed filter response of ± 0.2 dB through the crossover region.

Each channel shall have a 12 segment LED Output level display with Peak Hold function, and a 9 segment LED Gain Reduction display, plus variable controls for Threshold, Ratio and Output Gain. There shall be a switch to toggle the compressor knee between Hard and Soft, with associated LEDs. A further 2 LEDs shall indicate Above or below Threshold status.

Attack and Release times shall be program dependent. Each channel shall also have a hardwire Bypass switch on the front panel, and a switch to control the Enhance circuit. This circuit shall operate in

either mode, and shall provide Low frequency enhancement at 50 Hz, and High frequency enhancement at 10 KHz.

The unit shall have electronically Balanced inputs and outputs, on both TRS jack and XLR type connectors, with passive RFI filters and an Input impedance of 20 Kohms (10 Kohms unbalanced). The Input headroom shall be +22dB, with a CMRR of better than 60dB, and the frequency response shall be 20 Hz to 20 KHz, ± 0.2 dB. The Output impedance shall be 300 ohms (150 unbalanced), and the maximum Output level shall be +22dB, with a Signal to Noise ratio of -99dB 'A' weighted (-93dB unweighted). The Sidechain Insert points shall be TRS jack connectors and have an impedance of 10 Kohms. T.H.D shall be 0.02% @ 0dB, 1 KHz, and the unit shall have a dynamic range of 115dB.

AC Power shall be supplied via a removable mains cable, connecting to an IEC connector with an integral fuse and voltage change switch on the unit's rear panel.

The compressor/limiter shall be the ARX Afterburner II.

Where to use the Afterburner II

The Afterburner can be inserted anywhere in the line level signal chain of the audio system:

- As a channel insert on the mixing console
- As a group insert on the mixing console
- On the Main Outputs or Aux sends of the mixing console
- Pre or Post Graphic EQ
- Pre or Post System crossovers

However, it is not designed to have a microphone or an instrument plugged directly into it. If you need compression at this point, then connect the Afterburner II to the channel insert point of the mixing console.

For more ideas on using the Afterburner, have a look at the Afterburner Application Notes on the ARX website: www.arx.com.au/Aburner_apnotes.htm.

Compressors and Limiters

A *compressor* is a variable gain amplifier whose output voltage compared to input voltage decreases as its input level increases past a set threshold.

A *limiter* is essentially a compressor with a high compression ratio, thus maintaining a basically constant output level despite any increase in input level past the threshold.

So, looking at this in non-technical terms, these devices are designed to stop signal levels from getting any louder than the level you set (the Threshold). A compressor puts a gentle 'squeeze' on the excess level, whereas a limiter stops excess level with the audio equivalent of a brick wall.

Each channel of the Afterburner II can act as either compressor or limiter, since its compression ratio is infinitely variable, from 1:1 (none) through to infinity:1 (hard limiting).

In Dual channel mode, each Afterburner channel is independent, but can be switched to track as a stereo pair by pushing in the Adaptive Stereo Link switch on the front panel. An LED will indicate that this is active.

The 12 LED output metering has a Peak Hold function that allows you to view both Average and Peak levels at the same time. When the level reaches the chosen Threshold, a second LED meter indicating Gain Reduction will start to illuminate.

Each channel has a pair of LEDs that give you at-a-glance indication of either Above or Below Threshold compressor status, and a switch that toggles between Hard knee and Soft knee compressor turnover characteristics. Soft knee gives a more gradual change into compression at the Threshold point, making the compression seem more transparent; at limiter-type ratios, however, this can be at the expense of perceived level.

Each channel also has an 'Enhance' switch. When switched in, the enhance circuit restores the sagging frequency response of compressed program material, bringing back the sparkle and punch that is often lost.

A front panel switch puts the Afterburner into its unique single channel mode. In this mode, Channel 1 controls the Low frequencies, and Channel 2 the Mid/High frequencies. This means you can compress the Lows separate to the Highs, opening up a whole new range of gain control possibilities.

For Single channel use, plug into the Channel 1 input and output only.

The Enhance function works in any mode, but the switch is disabled on the Channel 2 controls in single channel mode.

Introduction

Thank you for choosing this ARX Afterburner™ Single/Dual channel enhanced compressor/limiter. We hope you enjoy using it as much as we enjoyed creating it. As with all ARX equipment, it has undergone extensive factory calibration and 'burn in' before shipping. To ensure continued trouble free use, please familiarise yourself with the contents of this manual before using the Afterburner.

About the Afterburner II

The **ARX AFTERBURNER II™** is a unique Multi Mode compressor/limiter designed for use in any professional audio dynamics control application.

The Afterburner II can be used in three different ways. In **Two channel** mode, it performs as two independent compressor/limiters, with 'industry standard' variable Threshold, Ratio and Output gain controls. When switched to **Stereo** mode, our new Adaptive Stereo Link circuitry provides increased imaging accuracy when linking both channels as a stereo pair.

A single front panel switch puts the Afterburner into its alternative **Mono mode**, setting it up as a Single channel, Dual Band compressor/limiter, with separate dynamics control of both Low and High frequencies, opening up a whole new range of gain control techniques.

In any mode, the Afterburner II features an 'Enhance' switch, which provides frequency restoration to preserve the spectral balance of the audio signal, compensating for the sagging Low and High frequency response of compressed program material. Think of it as a 'smart' loudness control.

New Above/Below Threshold LEDs enable at-a-glance compression confirmation, and the compression Threshold has a switchable Hard or Soft knee option.

New LED metering provides Output Level status and separate Gain Reduction metering in easy to read 'wide scale' meters. There is also comprehensive LED indication of all operating functions and status in any mode.

On the rear panel, each channel has true differential Balanced inputs and outputs, on both XLR and TRS jack connectors. As well, each channel has a TRS jack Sidechain access insert point, for applications such as De-essing (when used with an external equalizer such as the ARX Multi Q or EQ260).

Other features include a bypass switch for each channel, and passive RF1 filters on the inputs.

AC power range is a universal 100 to 120V or 220 to 240V AC, and is connected to the unit via a removable power lead and standard 3 pin IEC connector, with built-in fuse and voltage change switch.

With its smooth compression, intuitive user friendly layout, high density precision circuitry, and extensive user-variable operating parameters, the unique ARX Afterburner II is equally at home in Studio, Installation, Broadcast and Sound Reinforcement environments.

It can provide superb sounding dynamics control effects that are not available with any other device.