



# **UX410**

## ***LEGENDS 500***

### **MODULAR RACK SYSTEM**

*Owners Manual*

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## 1 Welcome!

Thank you for purchasing your new UX410 audio module rack. Before operating or installing the unit, please read this manual thoroughly and retain it for future reference. Additional copies of this manual are available upon request or from our website at <http://www.rtzaudio.com>.

All units are carefully packed to endure the rigors of shipping and handling. However, please inspect all contents and packaging immediately upon receipt. Please report any problems to us immediately. Save all shipping and packaging materials until you are confident that the unit survived shipping. In the event of damage, the shipper will demand inspection of the packaging materials for any damage claims.

The UX410 is designed to deliver a lifetime of trouble free operation. If you experience any problems or difficulties, please contact us directly. Do not attempt to modify, alter or repair the unit yourself. Each unit has been carefully tested and packed prior to shipment. Any unauthorized modifications may destroy the unit or severely degrade performance and void the warranty.

## 2 Overview

The UX410 is an API 500 Series compatible module rack. Each UX410 rack holds up to ten 500 series modules and requires a PS410 external DC power supply for operation. Each UX410 has its own DC power switch to facilitate powering down a rack independent of the main supply for quick module changes. DIP configuration switches allow for linking signals between adjacent module slots in the rack.

Front panel access fuses allow for easy fuse replacement in the event a module fails and/or draws excessive current. LEDs provide clear power indication status at all times. The internal safety fuses protect the system against major damage in the event a module fails or draws excessive current.

Unlike other designs, the UX410 uses a forced air cooling system rather than convection cooling. Cool air is pulled from the left hand side of the rack and across all modules and then forced out the right hand chassis side by a long-life low-noise DC fan. The forced air design allows for stacking UX410 racks directly on top of each other without the need for spacer/vent panels between units in studio gear racks.

### **WARNING**

**NEVER INSERT MODULES INTO A RACK WITH POWER APPLIED; DOING SO WILL LIKELY DAMAGE THE MODULE AND VOID THE WARRANTY. NONE OF THE 500-SERIES RACKS ARE DESIGNED TO ALLOW HOT-SWAPPING MODULES. DOING SO COULD DAMAGE THE MODULE BEING INSTALLED, AND/OR OTHER MODULES ALREADY INSTALLED, AND/OR THE RACK ITSELF. TO AVOID DAMAGE, ALWAYS POWER THE RACK DOWN WHEN INSTALLING ANY MODULE.**

### 3 Power Supply and Safety Fuses

The UX410 requires a PS410 external DC power supply for operation. The VPR specification states that each module should draw no more than 120mA per. RTZ specifies that all ten modules installed in a UX410 rack should not draw more than 1.5A total combined current per rack.

The front panel power switch on the UX410 controls the 16V and 48V DC power rails feeding all modules in the rack. Thus, the DC power switch can be used to power down the rack for quick module changes. Always disconnect or turn off power before removing or installing modules in the UX410 rack to avoid damaging the module and/or rack.

#### 3.1 DC Branch Safety Fuses

The front panel DC safety fuses provide branch circuit protection for all modules and power in the UX410 rack. The LED's beside each fuse indicate power status and will fail to light when the unit is powered if a fuse is blown or external DC power is not available.

**Table 1 – DC Fuse Requirements**

Voltage	Type	Part#
16V	250V SLO-BLO 5X20MM 2A	0218002.HXP
48V	250V SLO-BLO 5X20MM .500A	0239.500MXP

#### 3.2 DC Power Supply Connector Wiring

The DC power cable to the UX410 requires a six pin XLR connector and cable. Separate power and analog grounds are maintained all the way through to unit and back to the power supply.

Noisy components like relays and LED Vu meters typically reside on the “power ground” while critical audio circuits reside on the “analog ground”. These grounds eventually meet at a central “star ground” within the PS410 power supply to provide a central common ground while keeping the analog and power grounds separate throughout the rack.

**Table 2 – DC XLR Power Connector**

Pin	Description
1	+16V Power In
2	-16V Power In
3	+48V Power In
4	Power Ground
5	Analog Ground
6	Chassis Ground

## 4 Installation and Connections

The UX410 is designed for standard 1U 19" rack mounting. Ideally, the unit should be mounted where cool air flows all around and through the unit. Do not obstruct the flow of air on the sides of the UX410; air must be able to flow in and out of the sides at all times. Do not place the unit near strong magnetic fields and noise sources such as power amplifiers, power supplies, transformers, motors, florescent lighting, computers, etc.

### 4.1 Air Flow Considerations

The UX410 rack must have all slots either loaded with modules or covered with module blank faceplates in order for the forced air cooling system to function properly. Air will pull through any open module faceplate slots rather than from the left hand side and across the modules if slots are left open. Please contact RTZ if you need to purchase blank faceplates to fill open slots.

### 4.2 Balanced I/O Connectors

The rear panel XLR input and output connectors are designed for balanced operation. The XLR connectors follow modern standards for XLR wiring conventions as follows:

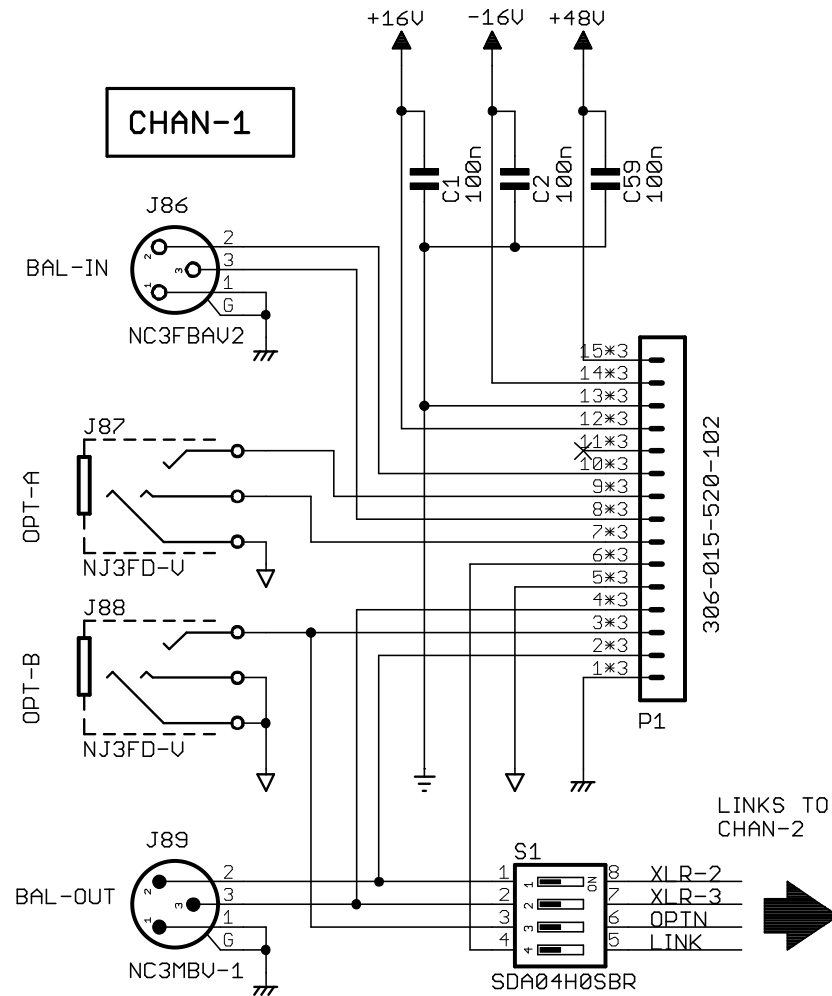
**Table 3 – Balanced Connectors**

XLR Pin	Connection
1	Ground
2	Hot (+)
3	Cold (-)

### 4.3 Option I/O Connectors

The ¼" option I/O connectors may be used as desired by designers to implement additional input and output features to modules. The function of these connectors is purely defined by the module in the slot. The following diagram illustrates the UX410 signal flow and connector wiring.

Figure 1 - Channel Diagram



### 4.5 DIP Link Configuration Switches

The UX410 allows configuring link options between odd/even channels via DIP switches. The DIP switches are accessed on the mother board by removing the module. Use a long handle screwdriver, or similar tool, with a small tip to access the switch.

Figure 2 - Motherboard DIP Switches

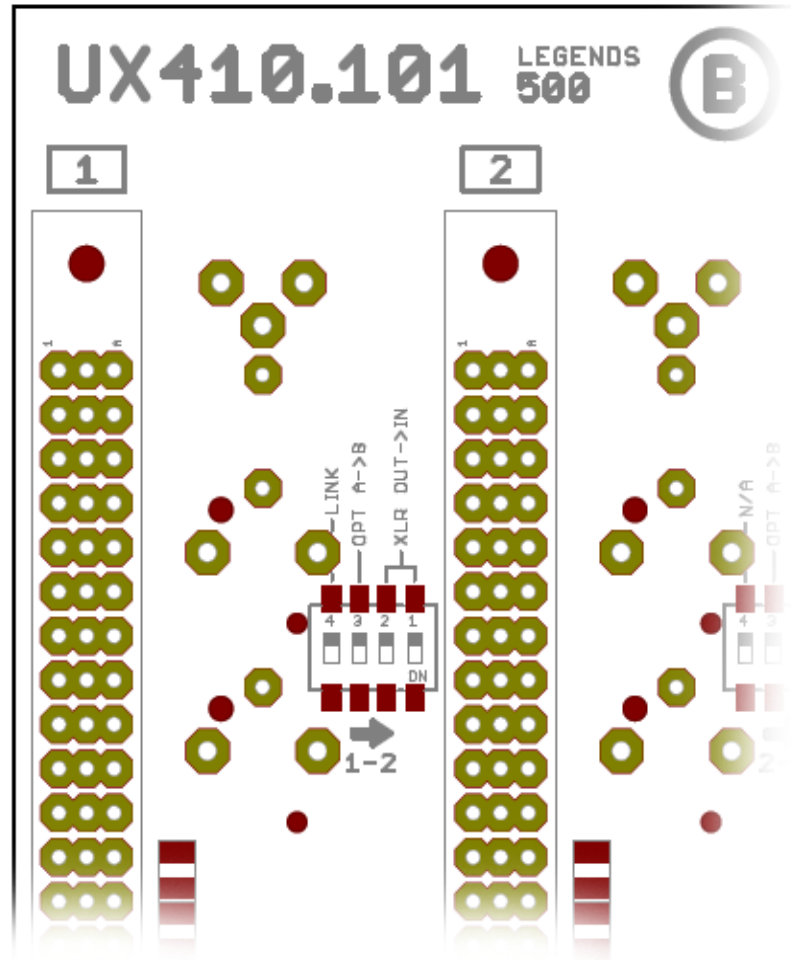


Table 4 – DIP Link Switches

DIP Switch	Connection
1	XLR In/Out Link
2	XLR In/Out Link
3	Option I/O Link
4	Compressor Link Bus

## 4.6 Edge Connector Pin Descriptions

The following table details the connector pin descriptions and functions as defined by the UX410 rack. The pin descriptions are compatible with the API 500 format as defined by the VPR<sup>1</sup> specification. However, pins 3, 7 and 9 are redefined for optional I/O use and available for custom use by module designers if needed.

**Table 5 – EDAC Edge Card Connector Signals**

Pin	Description
1	Chassis Ground
2	Balanced Output '+' (+4 dBm)
3	Option-B Output (1/4" TIP)
4	Balanced Output '-' (+4 dBm)
5	Audio Ground (AGND)
6	Stereo Link (1-2, 3-4, 5-6, 7-8, 9-10)
7	Option-A Input (1/4" RING)
8	Balanced Input '-' (+4 dBm)
9	Option-A Input (1/4" TIP)
10	Balanced Input '+' (+4 dBm)
11	N/C (not connected internally)
12	+16V Power Rail
13	Power Ground (GND)
14	-16V Power Rail
15	+48V Power Rail

<sup>1</sup> API and VPR are trademarks of Automated Processes Incorporated and their appearance here in no way alters their ownership of same.

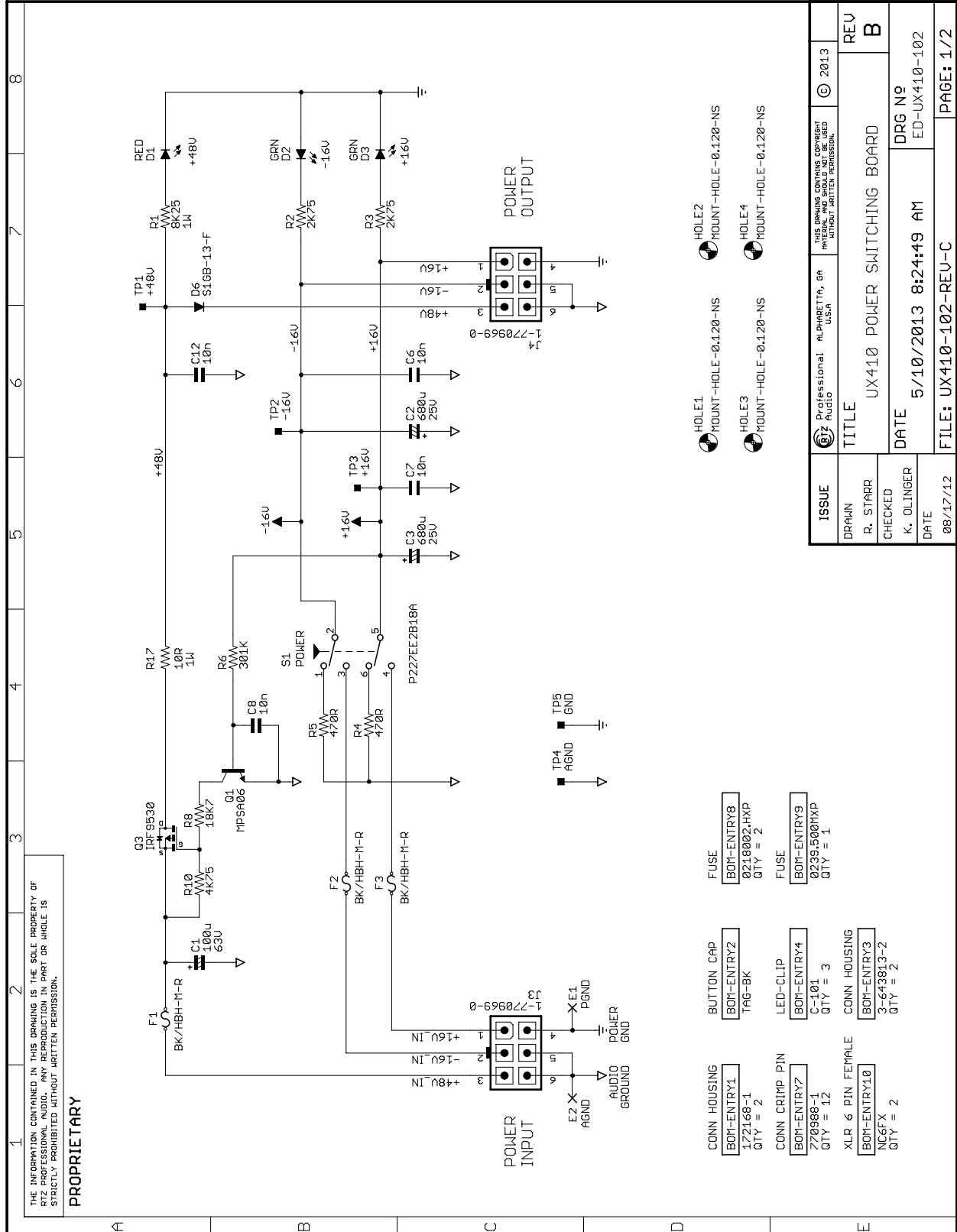


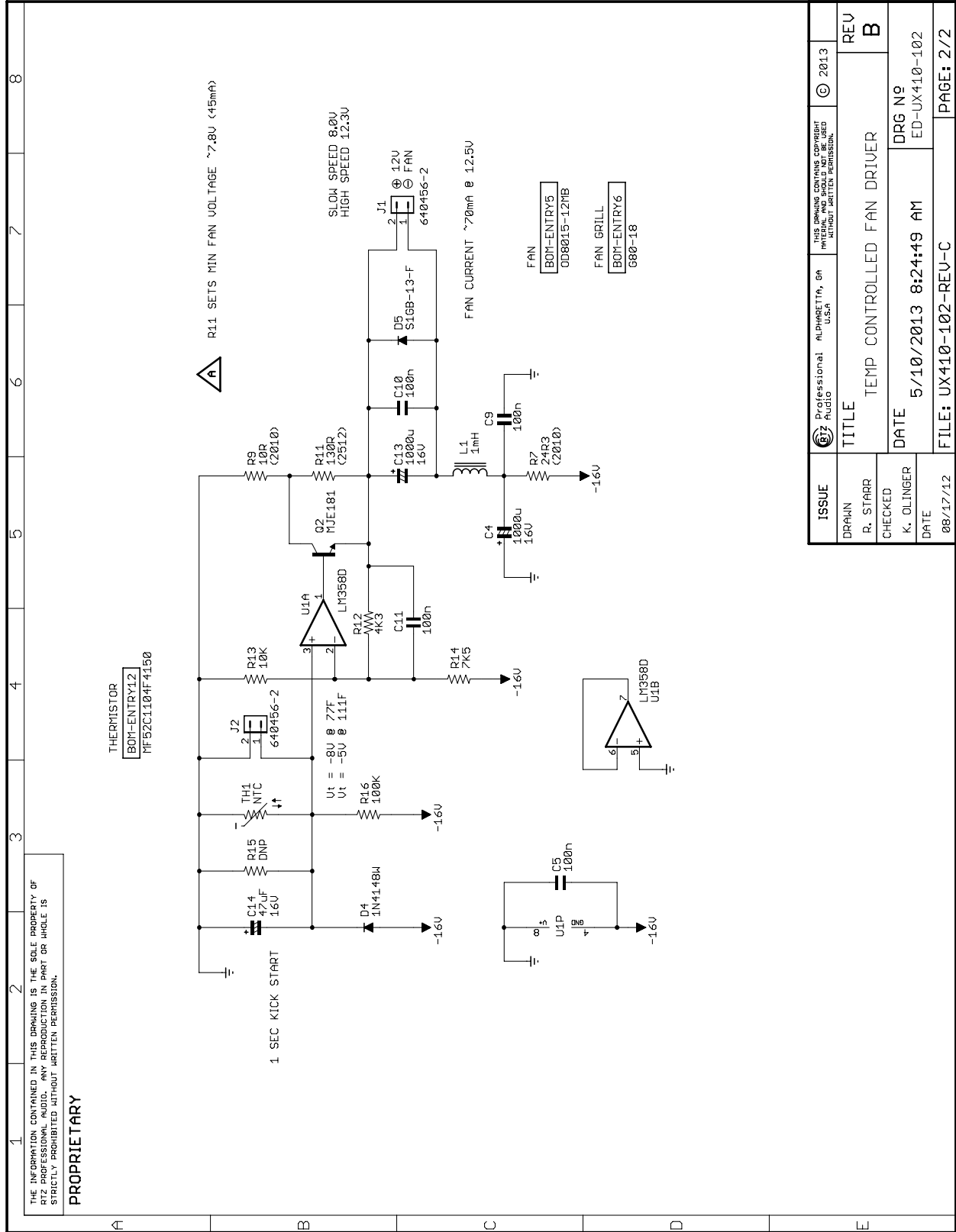
## Specifications

Power Requirements.....	+/-16V DC @ 1.5A max +48V DC @ 100mA max
Channel I/O's .....	Balanced XLR TRS ¼" option I/O's
Dimensions .....	5.25" (H) x 19.0"(W) x 18.18"(L)
Weight.....	11.5 lbs
Cooling.....	Forced Air Fan









ISSUE	Professional ALPHARETTA, GA RIZ AUDIO U.S.A.	© 2013
DRAWN	R. STARR	REV B
CHECKED	K. OLINGER	DRG N° ED-UX410-102
DATE	08/17/12	FILE: UX410-102-REV-C
TITLE	TEMP CONTROLLED FAN DRIVER	PAGE: 2/2
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## LIMITED WARRANTY

RTZ Audio warrants this product to be free of defects in material and workmanship for a period of 5 years to the original owner. This warranty is enforceable by the original purchaser and is transferable to a subsequent single owner via resale by the current owner. The current owner must provide positive dated proof of the original purchase in the form of the original sales receipt, original canceled check, or other form of positive original proof.

To request warranty service, the owner must call or contact RTZ Audio in writing to obtain return authorization and instructions concerning shipment. All authorized returns must be sent to RTZ Audio postage prepaid, insured and properly packaged. All warranty service returns must include positive proof of purchase from the original sale.

During the warranty period RTZ Audio shall, at its sole and absolute option, either repair or replace free of charge any product that proves to be defective upon inspection by RTZ Audio or an authorized repair representative.

This warranty does not cover claims for damage due to abuse, neglect, alteration or attempted repair by unauthorized personnel and is limited to failures arising during normal use that are due to defects in material or workmanship in the product.

IN NO EVENT WILL RTZ AUDIO BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES RESULTING FROM THE BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING AMONG OTHER THINGS, DAMAGE TO PROPERTY, DAMAGE BASED ON INCONVENIENCE OR ON LOSS OF USE OF THE PRODUCT, AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion 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. This warranty only applies to products sold and used in the United States of America. For warranty information in all other countries, please contact RTZ Audio directly.

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