

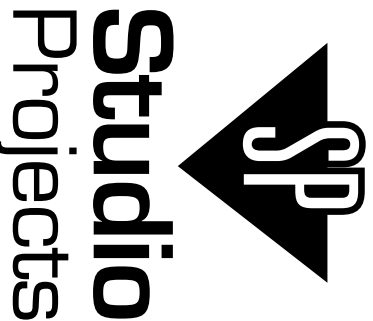


**SP828 MICROPHONE PREAMPLIFIER**  
visit our web site at [studioprojects.com](http://studioprojects.com)



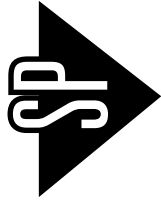
StudioProjects

Place  
Stamp  
Here



**STUDIO PROJECTS**  
DISTRIBUTED BY PMI AUDIO GROUP  
1845 W. 169th Street  
Gardena, California 90247 USA





# Studio Projects

Studio Projects is manufactured and marketed under the direction of:

## PMI AUDIO GROUP

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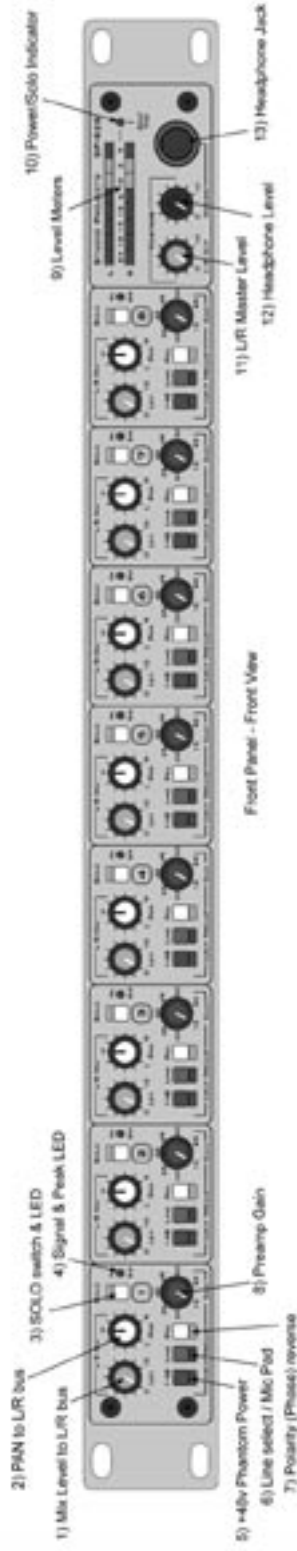
## WHAT IS STUDIO PROJECTS?

Studio Projects is a technology company committed to designing and bringing to market high quality pro audio products at an affordable price. As a small sized company with lower expenses than many of our competitors, we pass along the savings to our end users.

When we introduced our “C” Series microphones in 2001, both end users and reviewers acclaimed the build and sound quality as nothing short of amazing. Pushing the “Price Vs. Performance” envelope even further, we brought out the “B” Series mics in 2002. As part of the “B” series we introduced our first electronics product, the highly acclaimed VTB1 Mic Pre/Direct Box.

Now we offer our second release in what will be a series of electronics products, the SP828. This unique product offers the best possible quality and feature set in its price class.

We hope you enjoy using it as much as we enjoyed making it for you!



## FRONT PANEL CONTROLS - INDIVIDUAL CHANNEL CONTROLS

### 1) Mix Level to L/R bus

Controls the amount of the channel signal that is sent to the L/R mix buses. Use these individual channel level controls to create a mix of all the channels within the SP-828. NOTE: This control does not affect the level at the rear-panel Channel Output jack (#16).

### 2) PAN to L/R bus

Positions the channel in the L/R mix. CCW is full Left, CW is full Right. The channel signal will be 3dB down to both buses in the center-detent position. Create a stereo blend of the 8 channels within the SP-828 with the PAN controls.

### 3) SOLO switch & LED

When depressed, the LED illuminates and the channel's signal is sent to the SOLO mix bus. This signal is independent of the Mix Level, only the Preamp controls (#6, #7, #8) will affect this signal. Use the SOLO system to set the Preamp gain (#8) for proper signal level.

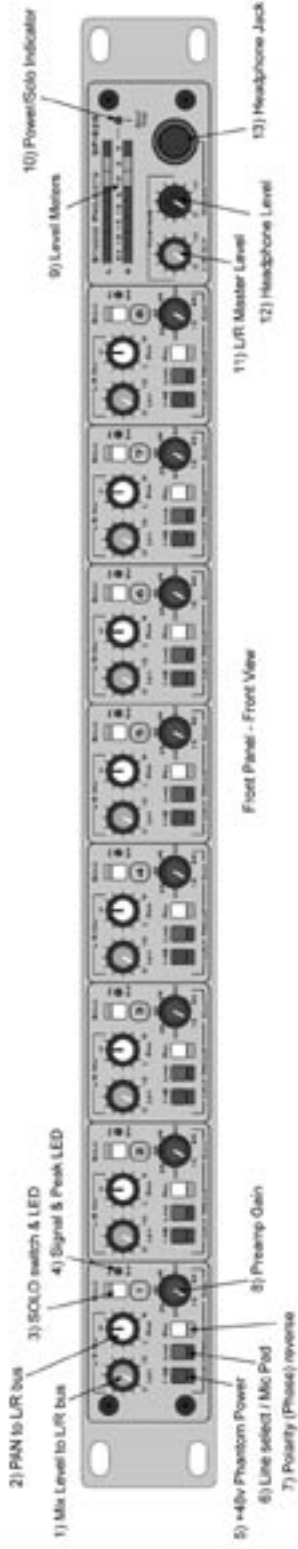
### 4) Signal & Peak LED

This LED will vary in Green intensity with the signal level of the channel. It will turn Red when the channel level is within 3dB of clipping. Used with the Solo system and Preamp Gain to properly set the channel level.

### 5) +48v Phantom Power

This switch applies +48 volts to Pins 2 & 3 of the channel XLR connector. This Phantom power (as it's called) is used to power condenser microphones and direct boxes. It is not needed for Dynamic microphones and should be avoided with Ribbon mics.





## FRONT PANEL CONTROLS - INDIVIDUAL CHANNEL CONTROLS

### 6) Line select / Mic Pad

This switch selects between the XLR and TRS connectors on the rear panel. When UP, the XLR connector is selected, when depressed the TRS jack is selected. The two jacks are “normalised” together in that the XLR signal is available at the TRS jack if nothing is plugged into the TRS jack. This allows the switch to do double-duty as a Line-select switch (if a plug is inserted into the TRS jack), or as a -20dB PAD switch for the XLR jack if nothing is plugged into the TRS Line jack.

### 7) Polarity reverse

This switch reverses the balanced connections to the preamp circuit and therefore reverses the polarity of the input signal. This switch is sometimes called “Phase”, or marked as “Ø” on other products, but the function is the same. It is used to change the overall polarity of the signal. This matters most when the signal is being mixed with other signals. The overall sound of the mixed signals may change depending on the position of the switch. Try both positions when mixing channels together (through the L/R mix controls)

### 8) Preamp Gain

This rotary control varies the circuit gain of the preamp. The minimum gain of the preamp is approximately 15dB, the maximum is 65dB. By using the Line/PAD switch, a wide-range of input signals can be accommodated. This control should be used in conjunction with the Solo switch and Sig/Peak LED to properly set the channel gain: adjust the Gain control so that the Sig LED is a strong Green intensity, occasional Red peaks are OK. By using the Solo switch (#3), the channel can be monitored on the Level meters (#9) and heard in the headphones.

## FRONT PANEL CONTROLS - MASTER & MONITORING CONTROLS

### 9) Level Meters

These meters allow the user to monitor the main L/R mix output, or individual channels by using the channel Solo switches. Normally, the meters are showing the output level of the L/R mix (controlled by #11). When any channel Solo switch is pressed, that channel's signal level is displayed on both meters and the Pwr/Solo LED (#10) turns Red indicating that the meters are monitoring the Solo mix bus. The Solo mix is made up of all channels that have their Solo switch pressed, so individual channels, or a mixture of channels can be monitored. The meters have a VU-response, and will show the average level of the signal. The headphone system follows these meters, so anything that shows on the meters can be heard in the phones.

### 10) Power/Solo Indicator

This LED normally is Green, indicating that the unit is being supplied power (via the rear AC power jack). The LED will turn Red when any channel Solo switch is pressed. This lets the user know that the meters are now showing the Solo mix level instead of the L/R mix output.

### 11) L/R Master Level

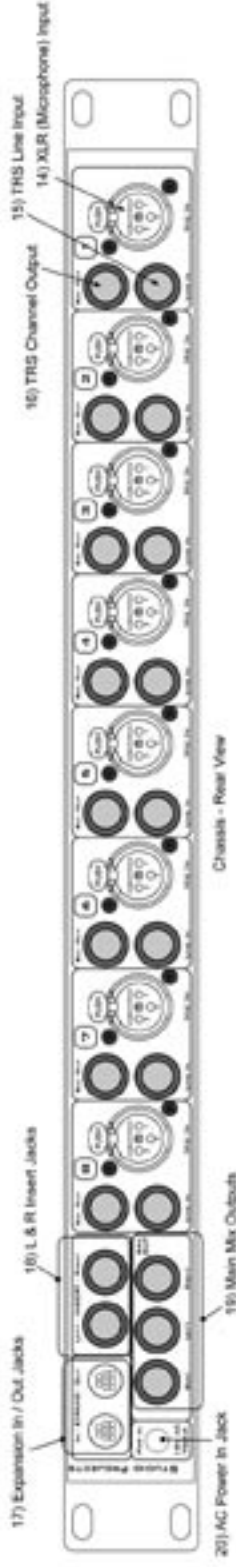
This rotary control sets the overall level of the L/R mix output to the rear-panel output jacks. The L/R mix is the sum of all of the channels, controlled by their individual Mix and Pan controls (#1 and #2).

### 12) Headphone Level

This rotary control sets the overall level of the headphones. The headphones follow the Level Meters and normally monitor the L/R mix. If a Solo switch is depressed, the phones then monitor the Solo mix bus.

### 13) Phone jack

This 1/4" TRS jack is used to connect headphones to the unit. The phones normally monitor the L/R mix, switching over to the Solo bus when a channel Solo switch is pressed. Best results are obtained with studio-quality phones with an impedance of 30 to 75 ohms.



## REAR PANEL CONNECTIONS - INDIVIDUAL CHANNEL JACKS

### 14) XLR Input Jack

This 3-Pin Female XLR jack is used to bring balanced signals into the channel. Normally, microphones are connected to this jack, and are selected by having the front-panel Line switch in the UP position, but hi-level signals can be accommodated by pressing the front-panel Line switch (#6). Input impedance is approx 3K ohms.

### 15) Line Input Jack

This 1/4" TRS jack is used to bring line-level balanced or unbalanced signals into the channel. This jack is selected with the front-panel Line switch (#6). If nothing is plugged into this jack, the XLR signals are normalled into the TRS circuit which allows the front-panel Line switch to do double-duty as a PAD switch. Input impedance is approx 15K ohms, so Hi-impedance instruments (guitars, bass) should not be plugged in here. No damage will occur, but the sound will not be optimum for those instruments. Use an onboard preamp or buffer amplifier for these types of instruments.

### 16) Channel Output

This 1/4" TRS jack is used for the channel output. Signals from the channel can be fed into individual tracks for recording. Nominal output level is +4dBu. Output impedance is 100 ohms, ground-compensated, impedance balanced. This allows this jack to be connected to balanced and unbalanced inputs without concern. Use a balanced (2-wire w/shield) cable for all connections for best results.

## REAR PANEL CONNECTIONS - MASTER JACKS

### 17) Expansion In / Out jacks

These 8-Pin mini-DIN jacks are used to tie SP-828 units together. When connected, the "Slave" SP-828 will send its signals to the "Master" SP-828. L/R mix and Solo signal and control signals are sent out of the Expansion Out jack of the "Slave" SP-828, and are received on the Expansion In jack of the "Master" SP-828. By chaining additional units together, up to 32 channels (4 units) can be mixed together and monitored from one master unit. The mini-DIN connector cables should be shielded and wired Pin-to-Pin and limited to 3 feet in length for best results.

### 18) L/R Insert Jacks

The 1/4" TRS jacks are used to insert processing gear into the L/R mix. Stereo compressors or EQs are typically used here. The insert point is located after the mix amp and before the main level control. Tip is Send, Ring is Return, Sleeve is audio ground. Send impedance is 100 ohms, return impedance is 10K ohms.

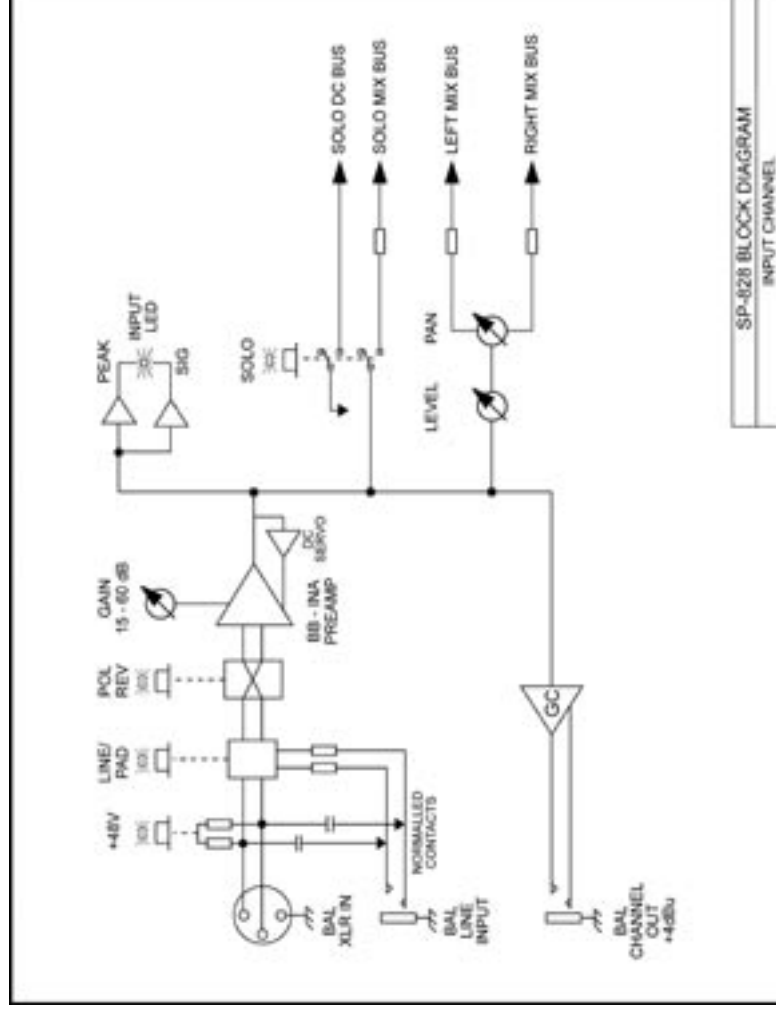
### 19) Main Output Jacks

These 1/4" TRS jacks are the main mixed outputs of the unit. The L/R outputs are available here as well as a summed-mono mix of the L & R outputs. The overall level is controlled by the front-panel L/R level control (#11). Nominal output level is +4dBu. Output impedance is 100 ohms, ground-compensated, impedance balanced. This allows this jack to be connected to balanced and unbalanced inputs without concern. Use a balanced (2-wire w/shield) cable for all connections for best results.

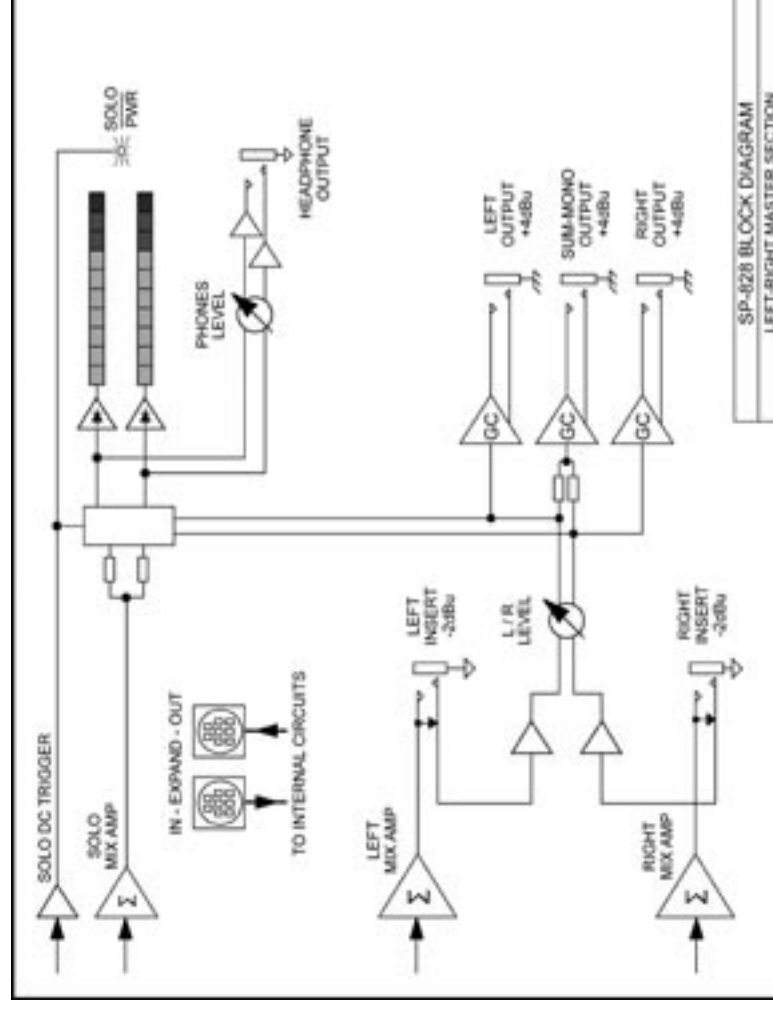
### 20) AC Power In jack

This 5.5mm barrel jack brings low-voltage AC power into the unit. 18 volts at 750mA is required for proper operation. Only use the supplied AC adaptor from Studio Projects.

## BLOCK DIAGRAM - INPUT CHANNEL - 1 OF 8 SHOWN



## BLOCK DIAGRAM - LEFT-RIGHT MASTER SECTION



## SP828 SPECIFICATIONS

**Input Channel:** XLR in to TRS Out

**Frequency Response:**

20Hz – 20kHz • +/-0.5B (Ref 1kHz)

**THD+Noise:**

<0.0002% THD 20Hz to 20kHz at -20dBu In, +15dBu out (35dB gain)

**Phase Shift:**

< +/-10 degrees 20Hz to 20kHz

**Gain Range:** 10dB to 65dB

**Pad:** -25dB

**Polarity:** Reverse (-180 degrees)

**XLR Input:**

2k5 ohms Balanced, Pin 2 hot

EIN: <-127dBu (@150 ohm, 60 dB gain)

Max Voltage Gain: XLR-In to Chan Balanced Out=65dB

**TRS Line Input:**

15k ohms Balance

Max Voltage Gain: TRS-In To Chan Balanced Out=40dB

**Channel Output:**

Gnd-Compensated/Impedance Bal TRS • Max Out=+21dBu

**Mix Outputs**

**Mix Gain:**

Channel to L or R Output: +10dB

**Mix Insert Points:**

TRS Jack • Tip=Send, Ring=Return  
Mix Insert Levels=-20dBu

**Package Info**

**Power Requirements:**

18VAC, 750mA

**Size:**

17.2" x 5.8" x 1.75" (IU)

## PROBLEMS

Studio Projects electronics are extremely resistant to physical damage, but if the unit fails to work after being dropped, it should be returned in adequate packing to the supplier. A double test and inspection system means that manufacturing faults are non-existent but should any fault occur, it will be repaired (or replaced) free of charge except where the fault has been caused by physical damage. (SEE WARRANTY INFORMATION)

## ORIGINS AND MANUFACTURE

Studio Projects Electronics are entirely designed in the USA. They are manufactured in China under strict guidelines set by PMI Audio Group Gardena, California. All Studio Projects electronics are inspected and tested at the factory, then inspected and tested again at PMI Audio Groups facility prior to shipping. Studio Projects electronics meet the requirements of electronic equipment sold both in the USA, Canada, and the European Union. All Studio Projects products are CE Approved, and all power supplies are UL rated.

## DECLARATION OF CONFORMITY

This analog audio processing equipment conforms to the standards and requirements of the European Economic Community.

The EC Harmonized standards that have been applied are:

- a) Electrical equipment (safety) Regulations 1994 (S.I. 1994/3260)
- b) Electromagnetic Compatibility Directive (89/336/EEC) incorporating (S.I. 1992/2372)

## TROUBLESHOOTING

### 1) The microphone doesn't work!

Have you got something plugged into the INSTRUMENT input or is the mic/line set incorrectly? (this can disable the microphone input)

Is the phantom power on? (capacitor microphones).

If there is indication on the VU LED, is the output volume control turned down?

### 2) Got signal going through but no output?

Is there enough signal? Use plenty of drive.

Is the output gain control turned up, and do you have a properly working monitor system?

### 3) I don't get any power!

Is the supplied power supply plugged in correctly? Make sure the barrel connector is pushed all the way into the socket, and be sure you have available power to the supply.

## STUDIO PROJECTS LIMITED WARRANTY

### THIS PRODUCT IS FOR PROFESSIONAL USE ONLY

PMI Audio Group warrants that all products will be free from defects in material or workmanship:

A: For a period of (1) one year from the date of purchase (hereinafter the labor warranty period), PMI Audio Group will repair or replace this Product if determined to be defective. After the expiration of the labor warranty period, the Purchaser must pay labor charges.

B: In addition, PMI Audio Group will supply, at no charge, replacements for defective parts for a period of (one year) from the date of purchase. During the labor warranty period, to repair the Product, Purchaser must return the defective Product, freight prepaid, or deliver it to PMI Audio Group Service Center. The product to be repaired is to be returned in either its original carton or a similar package affording an equal degree of protection. PMI Audio Group will return the repaired Product freight prepaid to the Purchaser. PMI Audio Group will not be obligated to provide Purchaser with a substitute unit during the warranty period or at any time.

## CONDITIONS

1. Notification of claims: Warranty Service: If Purchaser discovers that the Product has proven defective in material or workmanship, then written notice with an explanation of the claim shall be given promptly by Purchaser to PMI but all claims for warranty service must be made within the warranty period. If

after investigation PMI determines that the reported problem was not covered by the warranty, Purchaser shall pay PMI for the cost of investigating the problem at its then prevailing time-and-materials

rate. No repair or replacement by Purchaser of any Product or part thereof shall extend the warranty period as to the entire Product. The specific warranty on the repaired part only shall be in effect for a period of ninety (90) days following the repair or replacement of that part or the remaining period of the Product warranty, whichever is greater.

2. Exclusive Remedy: Acceptance: Purchaser's exclusive remedy and PMI's sole obligation is to supply (or pay for) all labor necessary to repair any product found to be defective within the warranty period and to supply, at no extra charge, new or rebuilt replacements for defective parts. If repair or replacement fails to remedy the defect, then and only in such an event, shall PMI exchange to Purchaser a new or reconditioned unit. Purchaser's failure to make a claim as provided in paragraph 1 above or continued use of the product shall constitute an unqualified acceptance of such Product and a waiver by Purchaser of all claims thereto.

3. Exceptions to Limited warranty: PMI shall have no liability or obligation to Purchaser with respect to any Product subjected to abuse, improper use, negligence, accident, modification, failure of the end-user to follow the operating and maintenance procedures outlined in the users manual, attempted repair by non-qualified personnel, operation of the unit outside of the published environmental and electrical parameters, or if such products original identification (trademark, serial number) markings have been defaced, altered, or removed. PMI excludes from warranty coverage, Products sold AS IS and/or WITH ALL FAULTS and excludes used products which have not been sold by PMI to the Purchaser. PMI also excludes from warranty coverage consumables such as fuses and batteries, etc.

4. Proof of purchase: The dealer's dated bill of sale must be retained as evidence or the date of purchase and to establish warranty eligibility

## DISCLAIMER OF WARRANTY

EXCEPT FOR THE FORGOING WARRANTIES, PMI HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR LIMITED, INCLUDING, BUT NOT LIMITED TO ANY/OR ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND/OR ANY WARRANTY WITH REGARD TO ANY CLAIM OF INFRINGEMENT THAT MAY BE PROVED IN SECTION 2-312(3) OF THE UNIFORM COMMERCIAL CODE AND/OR IN ANY COMPARABLE STATE STATUTE. PMI HEREBY DISCLAIMS ANY REPRESENTATIONS OR WARRANTY THAT THE PRODUCT IS COMPATIBLE WITH ANY COMBINATION OF NON-PMI AUDIO PRODUCTS PURCHASER MAY CHOOSE TO CONNECT TO THE PRODUCT.

## LIMITATION ON LIABILITY

THE LIABILITY OF PMI, IF ANY, AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DAMAGES FOR ANY CLAIM OF ANY KIND WHATSOEVER, REGARDLESS OF THE LEGAL THEORY AND WHETHER ARISING IN TORT OR CONTRACT, SHALL NOT BE GREATER THAN THE ACTUAL PURCHASE PRICE OF THE PRODUCT WITH RESPECT TO WHICH SUCH CLAIM IS MADE. IN NO EVENT SHALL PMI BE LIABLE TO PURCHASER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION, REIMBURSEMENT OR DAMAGES ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS OR ANY OTHER REASON WHATSOEVER.

## OWNERS REGISTRATION CARD TO BE COMPLETED AT TIME OF PURCHASE

Name \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Serial Number \_\_\_\_\_

Dealer's Name \_\_\_\_\_

RETAIN FOR YOUR RECORDS  
PLEASE DISPATCH AND RETURN  
YOUR REGISTRATION  
TO STUDIO PROJECTS  
WITHIN 14 DAYS OF PURCHASE

Specifications and model numbers are subject to change without notice

# NOTES

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## PRODUCT REGISTRATION INFORMATION PLEASE FILL IN THE BELOW SECTIONS AND RETURN

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ email Address: \_\_\_\_\_

Model Purchased: \_\_\_\_\_ Date Purchased: \_\_\_\_\_

Serial Number: \_\_\_\_\_ Dealer: \_\_\_\_\_

Comments: \_\_\_\_\_

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**What magazines do you read to influence your buying decision:** (please check all that apply)

- MIX  Electronic Musician  EQ  Home Recording  Pro Audio Review  Recording  Pro Sound News