

GRACE

d e s i g n



2434 30th street, boulder, CO 80306-0204 USA
tel 303.443.7454 fax 303.444.4634
info@gracedesign.com / www.gracedesign.com

MODEL 101

single channel microphone preamplifier

owner's manual Rev C

all contents © Grace Design/ Lunatec LLC

CONTENTS

<u>Features</u>	3
<u>Front Panel Controls</u>	4
<u>Preamplifier Connections</u>	5
<u>Operation</u>	6
<u>Trim Control</u>	6
<u>Rackmounting</u>	6
<u>Cable Diagrams</u>	7
<u>Specifications</u>	8
<u>Warranty Information</u>	9
<u>Manual Revisions</u>	10

Welcome and thanks for purchasing the Grace Design model 101 microphone preamplifier and DI. We build all of our products to be completely reliable and easy to use, so you can concentrate on making great recordings, not struggling with complicated equipment or difficult product manuals.

While the model 101 is completely straightforward to use, we do ask that you spend a little time familiarizing yourself with this product manual to help avoid any common user difficulties.

In the event that you do encounter any technical difficulties with this or any of our products, feel free to call at 303-443-7454. Our office hours are 9 to 5, Monday through Friday, MST, or you may email any technical questions to: info@gracedesign.com.

Also, please check out our web support page listed below for the latest Grace Design product

information, owners manuals and technical documents. Grace Design has been building audio-ophile-quality products for the recording industry over 15 years. The technology in the model 101 and all of our products has evolved through a process of extensive listening, field-testing and careful refinement.

Your new model 101 preamplifier represents a remarkable combination of absolutely pristine audio performance, robust mechanical construction and bombproof reliability at a reasonable price.

Regardless of what audio sources you plan to record, your model 101 will faithfully serve as an invisible link between your microphone or instrument and recording device.

We sincerely hope our products help you achieve a new level of excellence in your work!

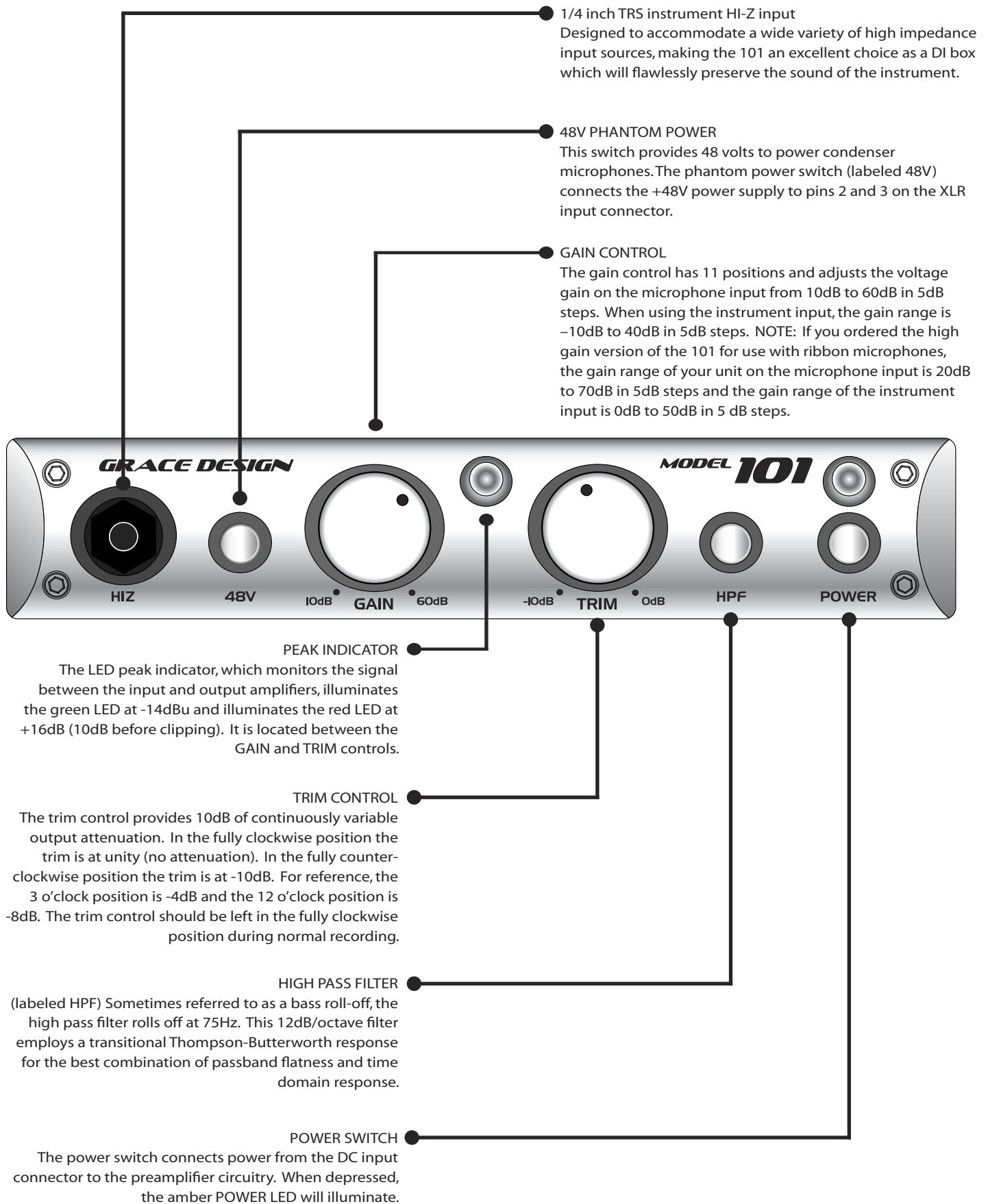
-The Grace Design Team

<http://www.gracedesign.com/support/support.htm>

MODEL 101 FEATURES

- fast, musical transimpedance amplifier architecture
- fully balanced, transformerless XLR microphone input
- high impedance 1/4 inch instrument DI input
- balanced XLR and 1/4 inch TRS outputs
- gold plated XLR input and output connectors
- 11 position precision silver contact rotary switch gain control
- high quality conductive plastic 10dB output trim control
- 75Hz 12dB/octave transitional Thompson-Butterworth high pass filter
- two color, bi-phase LED peak meter shows signal present and peak
- optional extended gain range input (10-70dB) for ribbon microphones
- 1/2 width 1U chassis / two units fit together in a standard 1U rack tray
- sealed gold contact relay for instrument/mic switching
- high precision active balanced output circuit
- no electrolytic capacitors in the signal path
- ultra clean 48 Volt phantom power
- minimal internal signal wiring
- 5 year warranty on parts and labor

FRONT PANEL CONTROLS



PREAMPLIFIER CONNECTIONS

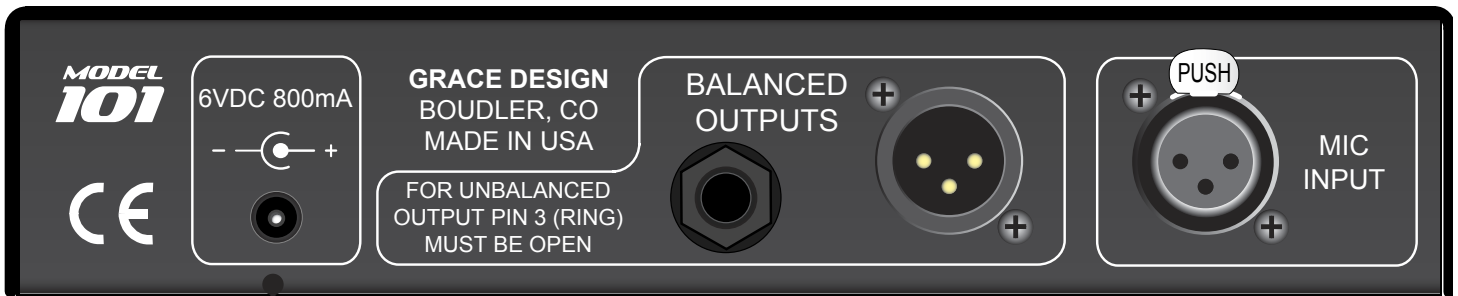
MICROPHONE INPUT

connections are made using the female XLR connector on the rear panel. This connector is wired with pin 2 positive, pin 3 negative and pin 1 ground. 48V phantom power, if used, is supplied on pins 2 and 3.

OUTPUT CONNECTIONS

are made using the male XLR connector or the 1/4" TRS jack. The XLR connector is wired with pin 2 positive, pin 3 negative and pin 1 ground. The 1/4" TRS connector is balanced with the Tip positive, Ring negative and Sleeve ground. The XLR and TRS outputs can be used simultaneously.

It is important to note that if either of the outputs are to be used **unbalanced**, a modified cable is required (see cable diagram 1 and 2 on page 7). It is not recommended to use an unbalanced 1/4" plug in the TRS output jack, because the sleeve of the unbalanced plug will short the inverting output amplifier to ground. While this will not cause damage to the preamplifier, it can cause unwanted distortion in the unbalanced signal



POWER SUPPLY

A 2.1mm jack is used for the DC power input of the 101. The polarity of the jack is positive in the center and ground on the outside. Included with your Model 101 is an AC adapter rated for 6VDC @ 800mA



INSTRUMENT AND LINE INPUT

connections are made using the 1/4" TRS jack on the front panel. This connector is balanced with the Tip positive, Ring negative and Sleeve ground.

Using the instrument input with an unbalanced source is simple if a mono 1/4" jack is used since the sleeve will automatically ground the inverting input (ring) when plugged in.

When a plug is inserted into the instrument input, a sealed gold contact relay switches the preamplifier input source from the mic input connector to the front panel TRS jack. The input impedance of the instrument input is 1M Ohm, which is ideal for inserting high impedance sources such as guitars with passive pickups as well as any instrument with a high level output. Please note that the gain range of the preamplifier when using the instrument input is -10dB to +40dB.

OPERATION

Setting The Gain

- 1 Turn the gain control fully counter-clockwise, turn the trim control fully clockwise and check that the +48V phantom power is off.
- 2 Connect the microphone to the preamplifier and then turn on the phantom power switch on if required. When sending a signal to a recorder that has fixed input levels, simply increase the gain until the optimum recording level is reached.

When sending a signal to a tape recorder with a variable input, use the following procedure:

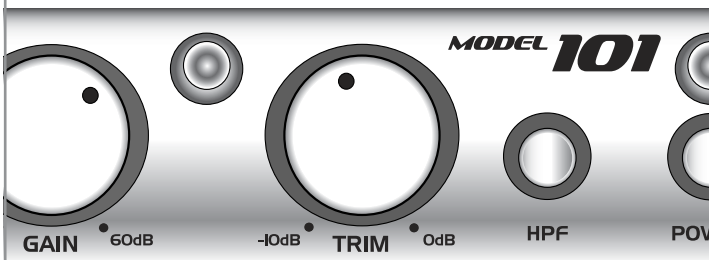
- 1 Turn the gain control fully counter-clockwise, turn the trim control fully clockwise.
- 2 Set the record level control on the recorder to 12 o'clock or midway between minimum and maximum.
- 3 With the sound source present, turn the preamplifier gain control clockwise until the peak LED begins flashing red, then reduce the gain until the red stops flashing.

NOTE- since red indicates a peak level which is 10dB before clipping, it is OK for it to come on occasionally during recording.

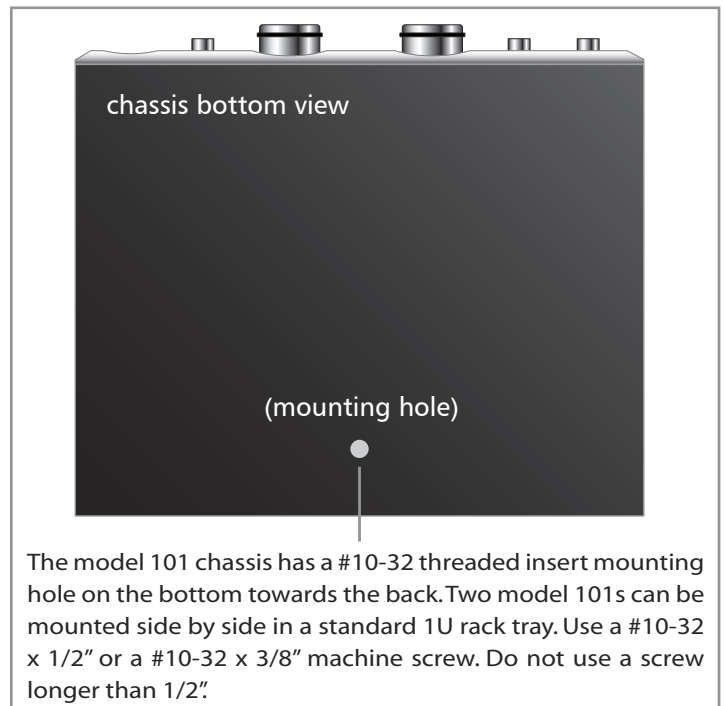
- 4 Adjust the recorder input control for the optimum recording level.

TRIM CONTROL

The trim control can be used for fine output level adjustment as well as for level riding during recording. It should be noted that the maximum output level of the preamplifier is reduced by the amount of output attenuation (trim control) being used. For instance, if the trim is set to -6dB, the maximum output level of the preamplifier will drop from +25dBu to +20dBu. Since the LED peak indicator monitors signal level before the trim control it, will always monitor the actual preamplifier headroom regardless of the trim control setting. It is best to leave the trim control fully clockwise for normal recording operations. This ensures that the preamplifier will be operated at the minimum necessary gain setting.



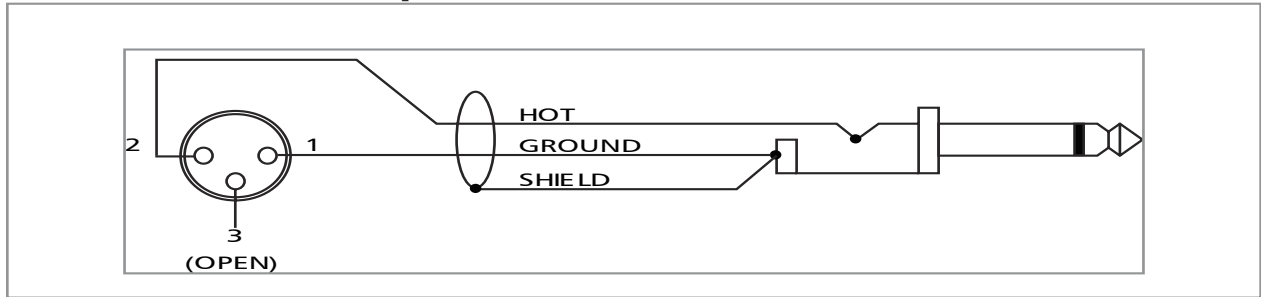
RACKMOUNTING



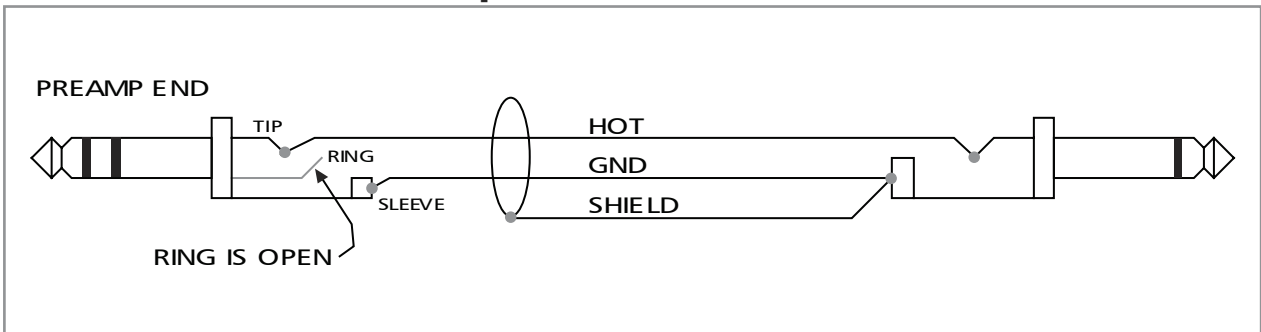
The model 101 chassis has a #10-32 threaded insert mounting hole on the bottom towards the back. Two model 101s can be mounted side by side in a standard 1U rack tray. Use a #10-32 x 1/2" or a #10-32 x 3/8" machine screw. Do not use a screw longer than 1/2".

CABLE DIAGRAMS

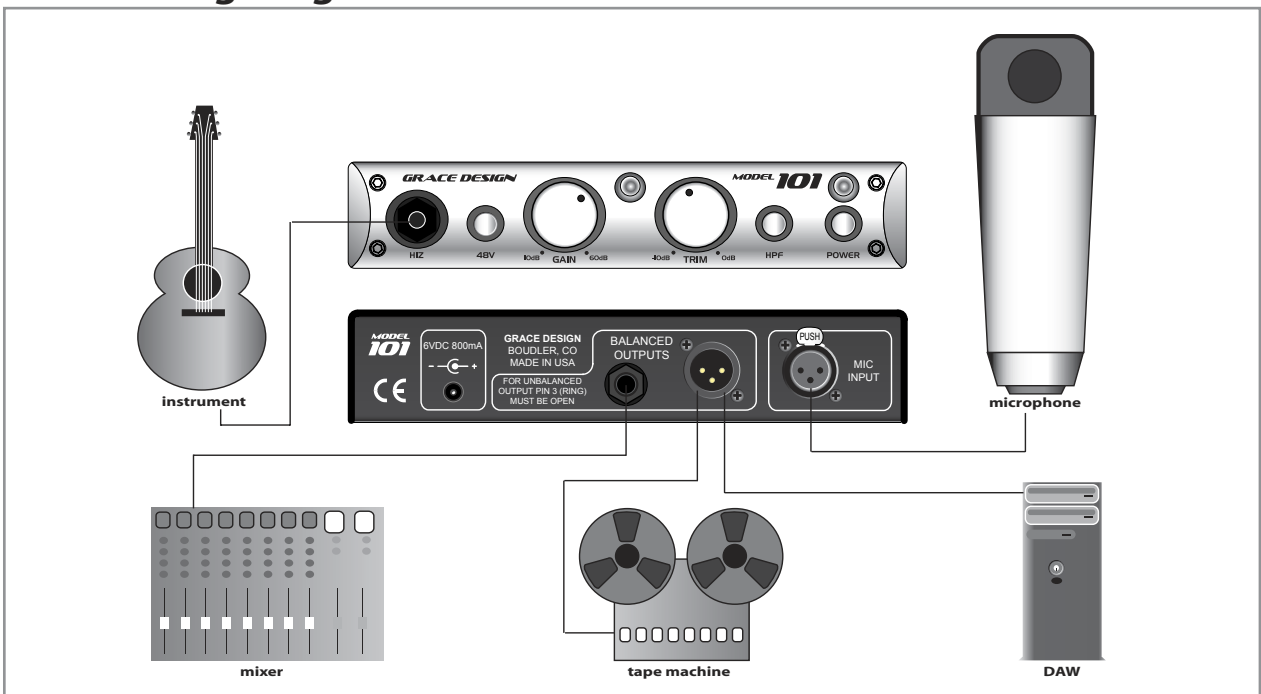
XLR Unbalanced Output Cable



1/4" TRS Unbalanced Output Cable Termination



Basic Wiring Diagram



SPECIFICATIONS

GAIN RANGE (5dB steps)	
Mic input	10-60dB
Hi-Z input	-10-40dB
Mic input High gain version	20-70dB
Hi-Z input High gain version	0-50dB
Output trim attenuator	0 to -10dB
THD+N	
@ 20dB Gain +20dBu out	<0.00085%
@ 40dB Gain +20dBu out	<0.0010%
@ 60dB Gain +20dBu out	<0.0050%
INTERMODULATION DISTORTION	
@ 40dB Gain +20dBu out SMPTE/DIN 4:1 7kHz/50Hz	<0.0020
NOISE - REFERRED TO INPUT	
50Ω source	<-130dB
150Ω source	<-128dB
600Ω source	<-124dB
CMRR	
100Hz	>68dB
1kHz	>75dB
10kHz	>65dB
PHASE DEVIATION (HPF off)	
50Hz-25kHz	<6°
FREQUENCY RESPONSE	
Mic input @ 40dB Gain -3dB	4.5Hz-390kHz
Mic input @ 40dB Gain -0.5dB	10.5Hz-140kHz
Hi-Z input @ 20dB Gain -3dB	2.5Hz-195kHz
Hi-Z input @ 20dB Gain -0.5dB	6Hz-74kHz
IMPEDANCE	
Mic input	3kΩ
Hi-Z input (unbalanced)	1MΩ
Hi-Z input (balanced)	2MΩ
Output	300Ω
PEAK LED METER	
Green threshold	-14dBu
Red threshold	+16dBu
MAXIMUM OUTPUT LEVEL	
100k Ohm load, 0.1% THD	+25dBu
WEIGHT and DIMENSIONS	
3.5lbs	1U rack mount x W8.5" x D6.75"
POWER CONSUMPTION	
6VDC	800mA max

WARRANTY INFORMATION

- ① Grace Design warrants all of our products to be free of defective parts and workmanship for a period of five years. This warranty period begins at the original date of purchase and is transferable to any person who may subsequently purchase the product during this time.
- ② This warranty excludes the following conditions: normal wear and tear, misuse, customer negligence, accidental damage, unauthorized repair or modification, cosmetic damage and damage incurred during shipment.
- ③ During the time of this warranty, Grace Design will repair or replace, at its option, any defective parts or repair defective workmanship without charge, provided the customer has appropriate proof of purchase and that the product has its original factory serial number.
- ④ In order for Grace Design to provide efficient and timely warranty service, it is important that you mail the completed warranty registration card enclosed with all of our products within 10 days of the original date of purchase. You may also register your product directly with Grace Design by telephone (303-443-7454 Monday-Friday 9:00am to 5:00pm MST), or you can register your product online at www.gracedesign.com.
- ⑤ This warranty is in lieu of all other warranties whether written, expressed, or implied, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
- ⑥ In no event will Grace Design be liable for lost profits or any other incidental, consequential or Exemplary damages, even if Grace Design is aware of the possibility of such damages. In no event will Grace Design's liability exceed the purchase price of the product
- ⑦ This warranty gives the customer specific legal rights. The customer may also have other rights, which vary from state to state. Some states do not allow limitations on implied warranties or consequential damages, so some of the limitations of the above may not apply to a particular customer.

MANUAL REVISIONS

Revision	Page	Change	Date	Initials
A-B		Initial release		
C	all	Revised layout	8/14/07	edg



WWW.GRACEDSIGN.COM
2434 30th street, boulder, CO 80306-0204 USA
tel 303.443.7454 fax 303.444.4634