

**SCM7600**  
**Stereo Club Mixer**

**Operation Manual**



# SCM7600

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*After reading this manual, if you have any questions or need technical assistance, please call Biamp Systems toll-free (1-800-826-1457).*



## INTRODUCTION

The Biamp SCM7600 is a complete stereo control center, designed to be the heart of a high quality club sound system. With two stereo phono inputs, eight stereo line inputs, and two mono microphone inputs, the SCM7600 is perfectly suited for applications such as discos, resorts, and professional DJ use. The SCM7600 provides convenient control of audio program sources from turntables, audio tape recorders, video tape recorders, laser disc players, and compact disc players, as well as inputs from microphones and auxiliary equipment. Six independent stereo outputs, plus a subwoofer output and a light send output, provide maximum flexibility for mixing, monitoring, recording, and sound system connections. The SCM7600 brings together sonic quality and innovative special features in a rugged, reliable design.

SCM7600 features include:

- ◆ 10 stereo inputs assignable to 4 Input Channels
- ◆ Input Channels assignable to either side of the Crossfader
- ◆ 2 Microphone Inputs with individual Level and Talkover
- ◆ Talkover with adjustable attenuation of program signals
- ◆ +15 volt Phantom Power for condenser microphones
- ◆ 3-band equalization on each of the Microphone Inputs
- ◆ 3-band equalization on each side of the Crossfader
- ◆ VCA controlled Crossfader eliminates drop-outs from wear
- ◆ Crossfader Defeat allows mixing direct from Input Channels
- ◆ Bass Impact circuit to expand low-frequency dynamics
- ◆ switchable Effects loops for Mains and Microphone Inputs
- ◆ Cue system previews inputs, equalization, and effects
- ◆ Cue Blend switch provides two monitoring techniques
- ◆ high power 8 ohm Headphone output for Cue system
- ◆ stereo Control Room output with level and equalization
- ◆ Control Room output monitors Cue or Program signals
- ◆ balanced stereo Main outputs on XLR connectors
- ◆ balanced stereo Zone outputs on 1/4" phone connectors
- ◆ Zone output switchable pre or post Effects & Talkover
- ◆ balanced mono Subwoofer output on XLR connector
- ◆ adjustable Subwoofer level and crossover frequency
- ◆ 2 stereo Tape outputs on RCA phono connectors
- ◆ Tape 1 output includes Effects, Bass Impact, & Talkover
- ◆ Tape 2 output contains Program directly from the Crossfader
- ◆ transformer isolated Light Send output with adjustable level
- ◆ dual Level Meters display stereo Mains or Cue & Program
- ◆ visual Beat Sync indicators for Cue & Program signals
- ◆ 2 Accessory switches for Remote Start contact closures

## FUNCTIONAL DESCRIPTION

**Input Source Selection:** The SCM7600 has ten stereo inputs and four program channels. Each channel has a 4-position assign switch to select the desired input. The input choices for each program channel are shown in the chart below.

	Ch 1	Ch 2	Ch 3	Ch 4
Phono 1	X			
Phono 2		X		X
CD 1	X		X	
CD 2		X		X
Tape 1	X		X	
Tape 2		X		
Video 1	X		X	
Video 2				X
Aux 1			X	
Aux 2		X		X

**Cue Points:** The Cue switches are used to select any of nine mixer signals as the Cue signal. The signal points that can be selected are: pre-fader signals from Channels 1-4; Crossfader A; Crossfader B; Mic 1 Effects return; Mic 2 Effects return; and Main Effects return.

The Cue switches are operated independently, so any combination of Cue signals can be assigned together. The Cue signal is always a mono signal. When the Cue Blend switch is out, Cue signal appears at the left headphone and Program signal appears (mono) at the right headphone. With the Blend switch in, Cue signal is centered between left and right headphones, and is *blended* with the stereo Program signal.

**Channel Selection and the Crossfader:** Control of the Main Output signal is accomplished with the four channel faders, the two Crossfader Select switches (A & B), the Crossfader, and the Main Level fader. The signal selected by the Select A switch is routed through a 3-band EQ to the left side of the Crossfader. Likewise, the signal selected by the Select B switch is routed through a 3-band EQ to the right side of the Crossfader.

The position of the Crossfader determines which signal is sent to the Main Output. With the Crossfader fully left, signal from the Select A switch is sent to the Main Output. With the Crossfader fully right, signal from the Select B switch is sent to the Main Output. With the Crossfader centered, an equal amount of both signals is sent to the Main Output.

If desired, the Crossfader and Select A & B switches can be disabled by depressing the Crossfader Defeat switch. In this

condition signals are routed through the two program equalizers to the Main Output. With the Crossfader Defeat switch in, signals from Channels 1 & 2 are sent to EQ A and signals from Channels 3 & 4 are sent to EQ B. From there both signals are sent to the Main Output.

Signal leaving the Crossfader circuit (with the Crossfader active or defeated) is sent to the Main Effects section. Signal at this point is also routed to the Program Beat Sync indicator, the Zone Pre/Post switch, the Tape 2 output, the Meter switch, and the Cue Blend section.

**Main Effects:** The Main Effects section provides a pair of patch points for external signal processing. With the Main Effects switch out, the Main Effects return is bypassed, allowing only the non-processed signal to be sent to the Main Output. With the Main Effects switch in, processed signal from the Main Effects return is sent to the Main Output. The Effects send signal is always present. Only the Effects return signal is switched.

**Bass Impact:** This circuit is active when the front panel Bass Impact switch is pressed in. The circuit monitors the low frequency dynamics of the Main signal. When the peak value of the signal exceeds the average value by 6dB, expansion takes place. The brightness of the Bass Impact indicator varies with the amount of expansion: dim for little expansion and bright for maximum expansion (approximately 9dB).

Signals leaving the Bass Impact circuit are applied to the Talkover section, which is used to add signals from the two microphone channels to the Main Output. Signal from the Bass Impact circuit is also sent to the Zone Pre/Post switch programming jumpers (see Options on page 7).

**Mic Channels:** Signals from DJ microphones are routed through 3-band equalizers, and are sent to the Mic Effects sections, where patch points are provided for external signal processing. The Mic Effects switches select either non-processed Mic signal (switch out) or processed signal from the Mic Effects return (switch in). Signal from either Mic Channel is routed to the Talkover section when its Talkover switch is depressed. For both Mic Channel signals to be sent to the Main Output, both Talkover switches must be depressed.

**Talkover:** When a Talkover switch is depressed, signal from that Mic Channel is routed to the Main Output. The Talkover

Level control determines how much the Program signal is attenuated when either Talkover switch is in. Attenuation is continuously variable from 0dB (clockwise) to -20dB (counter-clockwise). When either Talkover switch is depressed, the Program signal will be attenuated gradually. When the Talkover switch is released (both switches must be out), the Program signal will gradually return to normal level.

The output of the Talkover section is sent through a high-pass filter to the Main Output Balance control, which is used to adjust the left to right stereo balance. Signal from the high-pass filter is also sent to the Light Send, Tape 1, the Control Room Pgm/Cue switch, and the Zone Pre/Post switch (see Options on page 7).

**Main Level:** The Main Level fader controls the level of signal at the rear panel Main Output Left & Right, and Subwoofer Output jacks. Signal from the Main Level fader is also sent to the Meter.

**Subwoofer:** The rear panel Subwoofer Output uses a second-order Linkwitz-Riley crossover, with variable frequency, and an output Level control. A switch is provided that allows the stereo Main Output to contain either "full-range" signal, or just the frequency range which is above the Subwoofer crossover frequency.

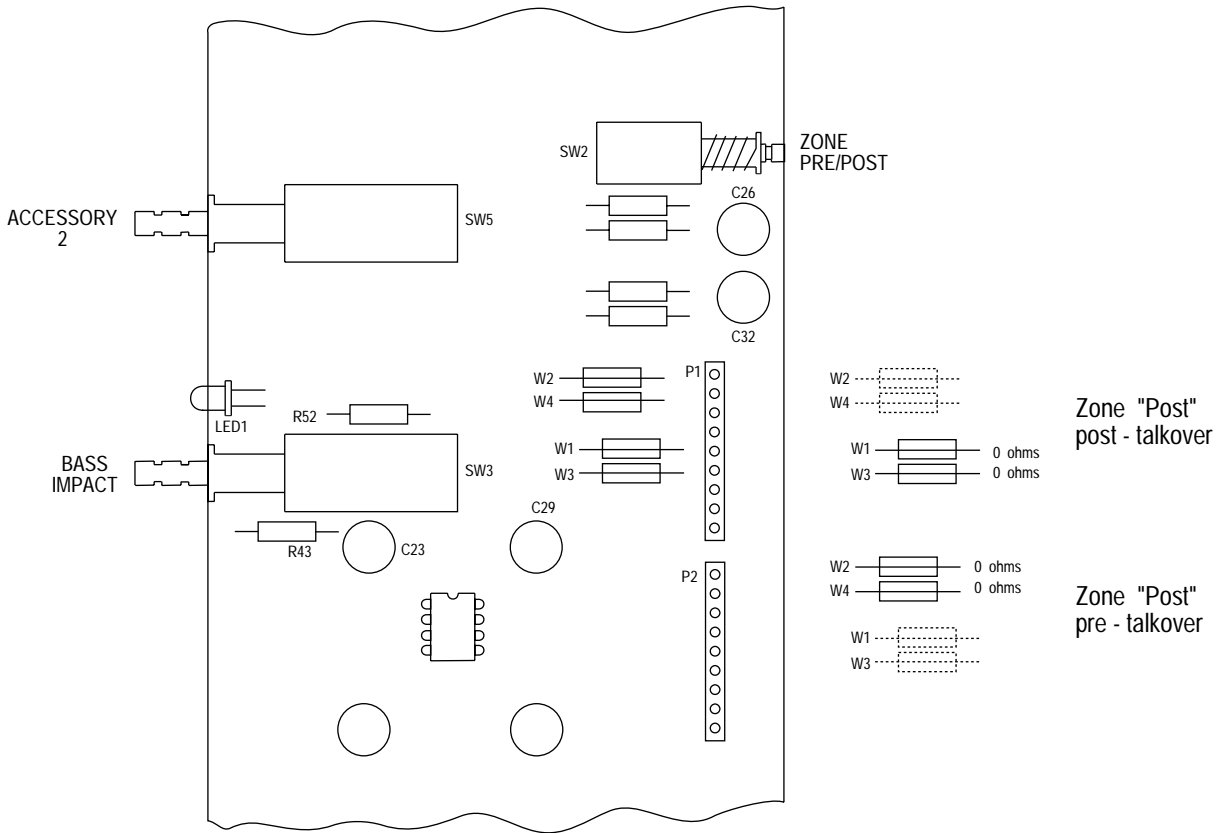
**Control Room:** Control Room Output signal is selectable either from the Main Output (Pre-Balance & Level), or from the Headphone Output (Pre-Cue Level). The Control Room Output is provided with independent EQ and Balance controls.

**Zone:** The Zone Output includes a rear panel switch, which allows signal to be taken directly after the Crossfader (Pre) or after Main Effects, Bass Impact, and Talkover (Post). A pair of internal jumpers allows the "Post" position of the switch to select signal from after Main Effects & Bass Impact, but before Talkover (see Options on page 7).

**Blend:** The Blend Active switch, and the Blend control, determine the signal that is sent to the Headphone Output. With the Blend Active switch out, the Blend control has no affect. The right headphone receives a mono sum of the stereo Program signal, and the left headphone receives the mono Cue signal. With the Blend Active switch in, the Blend control adjusts a mix of stereo Program and mono Cue signals.

**Cue Level:** The Cue Level control adjusts the volume at the Headphone Output.

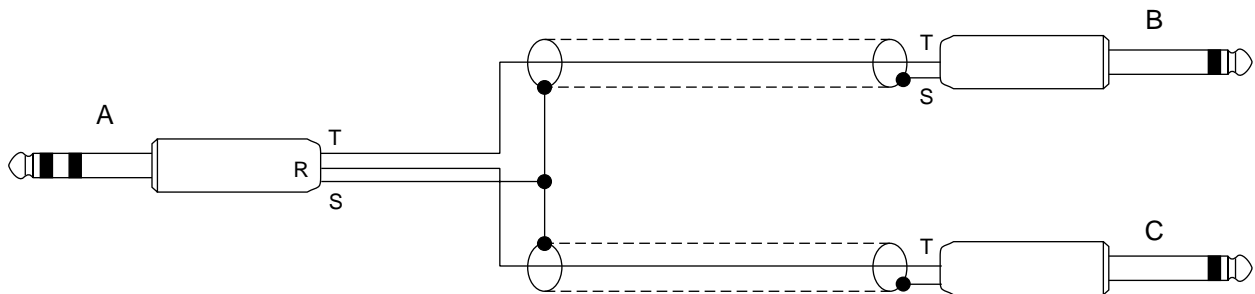
## OPTIONS



SCM7600 ZONE PCB

**CAUTION:** Modifications must be made only by a qualified technician. Modifications require some product disassembly.

**ZONE PRE/POST SWITCH (POST POSITION):** The "Post" position of the Zone Pre/Post switch is set at the factory to access post-Talkover signal for the Zone Output. However, a pair of jumpers (0 ohm resistors) is provided to allow this position of the switch to select signal that is post-Main Effect & Bass Impact, but pre-Talkover. This signal is also pre-HPF (high pass filter) so it may contain more low frequency information than the post-Talkover signal. These jumpers are found on the Zone circuit board, between the Bass Impact switch and the upper harness connector (P1). As set at the factory, W1 & W3 are installed. To change to pre-Talkover signal, remove the jumpers W1 & W3, and move them to the W2 & W4 positions. Use a low-wattage (35W) soldering iron and a pair of needle-nose pliers.



PATCH CABLE

**PATCH CABLE:** This type cable uses a Tip/Ring/Sleeve 1/4" phone connector on one end and Tip/Sleeve 1/4" phone (or RCA phono) connectors on the other two ends. It is wired Tip A to Tip B, Ring A to Tip C, and Sleeve A to both Sleeves B & C. When connected to Main Effects or Mic Effects, Tip B is the Send (effect input) and Tip C is the Return (effect output). Stereo effects connected to the stereo Mains require two Patch Cables. One for the Left Main and one for the Right Main. Mic Effects require one Patch Cable per channel.

## SPECIFICATIONS

### PHONO INPUTS:

Input Impedance	47k ohms
Nominal Input Level	5mV
Maximum Input Level (@ 1kHz)	88mV
Input Capacitance	150pf
Signal-to-Noise Ratio (ref. -10dBV, A wtd.)	86dB

### LINE INPUTS:

Input Impedance	23.5k ohms
Sensitivity	-11dBu
Maximum Input Level	+15dBu
Signal-to-Noise Ratio (ref. -10dBu, A wtd.)	86dB

### MICROPHONE INPUTS:

Input Impedance (balanced)	4.6k ohms
Sensitivity	-52dBu
Equivalent Input Noise	-124dBu
Frequency Response (20Hz-20kHz)	+0/-1dB

### CROSSTALK:

Channel-to-Channel (@ 1kHz)	-65dB
Channel-to-Channel (@ 10kHz)	-45dB
Cue-to-Program (all outputs @ 1kHz)	-85dB
Cue-to-Program (all outputs @ 10kHz)	-85dB
Headphones (Cue-to-Program @ 1kHz)	-50dB
Headphones (Cue-to-Program @ 10kHz)	-35dB

### HEADPHONE OUTPUT:

Minimum Load Impedance	8 ohms
Maximum Output Level	+19dBm
Hum & Noise (unity gain)	-70dBu

### MIXER OUTPUTS:

Frequency Response (20Hz-40kHz)	+0/-3dB
Total Harmonic Distortion (20Hz-20kHz)	<.05%
Intermodulation Distortion (SMPTE)	<.03%
Hum & Noise (unity gain)	-85dBu
Maximum Output	+20dBu
Output Impedance	
(Main, Zone, & Subwoofer/balanced)	150 ohms
Output Impedance (Control Room/unbal.)	50 ohms
Output Impedance (Tape 1 & 2/unbal.)	120 ohms
Minimum Load Impedance	
(Main, Zone, Subwoofer, & Control Room)	600 ohms
Minimum Load Impedance (Tape 1 & 2)	2k ohms

### SUBWOOFER CROSSOVER:

Frequency (variable)	50Hz to 200Hz
Slope	12dB/octave

**TALKOVER ATTENUATION (variable):** 0dB to -20dB

### METER REFERENCE:

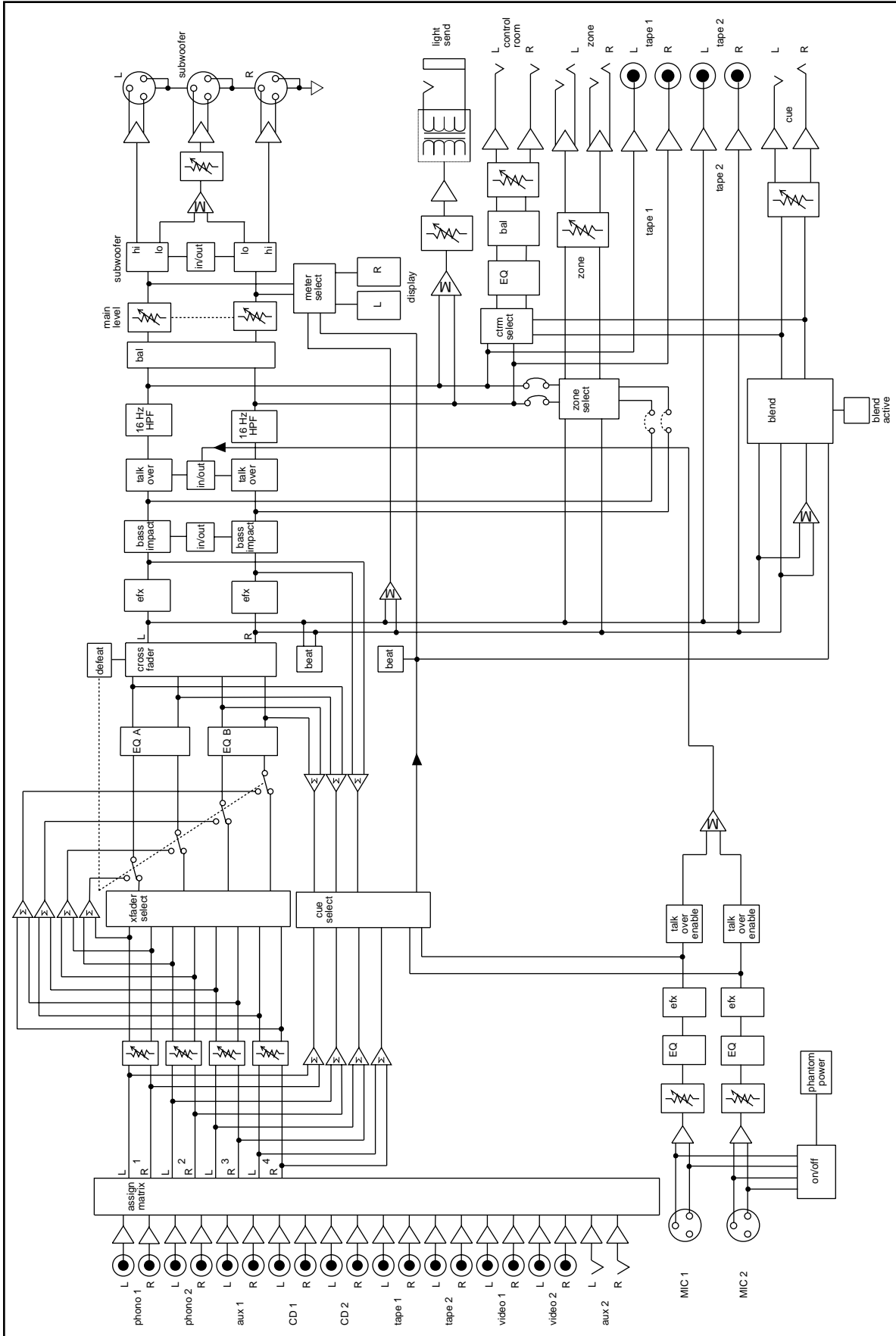
(nominal)	+4dBu
(variable)	-15dBu to +6dBu

### DIMENSIONS:

Height (5 rack spaces)	8.75 inches
Width	19 inches
Depth	5 inches

**WEIGHT:** 17 lbs.

# BLOCK DIAGRAM



## WARRANTY

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### BIAMP IS PLEASED TO EXTEND THE FOLLOWING 1-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS OWNER'S MANUAL.

BIAMP Systems expressly warrants this product to be free from defects in material and workmanship for a period of 1 YEAR from the date of purchase as a new product from an authorized BIAMP dealer under the following conditions.

1. The Purchaser is responsible for completing and mailing to BIAMP, within 10 days of purchase, the attached warranty application.

2. In the event the warranted BIAMP product requires service during the warranty period, BIAMP will repair or replace, at its option, defective materials, provided you have identified yourself as the original purchaser of the product to any authorized BIAMP Service Center. Transportation and insurance charges to and from an authorized Service Center or the BIAMP factory for warranted products or components thereof to obtain repairs shall be the responsibility of the Purchaser.

3. This warranty will be VOIDED if the serial number has been removed or defaced; or if the product has been subjected to accidental damage, abuse, rental usage, alterations, or attempted repair by any person not authorized by BIAMP to make repairs; or if the product has been installed contrary to BIAMP's instructions.

4. The normal wear and tear of appearance items such as paint, knobs, handles, and covers is not covered under this warranty.

5. BIAMP SHALL NOT IN ANY EVENT BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, LOSS OF USE, PROPERTY DAMAGE, INJURY TO GOODWILL, OR OTHER ECONOMIC LOSS OF ANY SORT. EXCEPT AS EXPRESSLY PROVIDED HEREIN, BIAMP DISCLAIMS ALL OTHER LIABILITY TO PURCHASER OR ANY OTHER PERSONS ARISING OUT OF USE OR PERFORMANCE OF THE PRODUCT, INCLUDING LIABILITY FOR NEGLIGENCE OR STRICT LIABILITY IN TORT.

6. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. BIAMP EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES SET FORTH HEREIN SHALL BE THE PURCHASER'S SOLE AND EXCLUSIVE REMEDIES WITH RESPECT TO ANY DEFECTIVE PRODUCT. THE AGENTS, EMPLOYEES, DISTRIBUTORS, AND DEALERS OF BIAMP ARE NOT AUTHORIZED TO MODIFY THIS WARRANTY OR TO MAKE ADDITIONAL WARRANTIES BINDING ON BIAMP. ACCORDINGLY, ADDITIONAL STATEMENTS SUCH AS DEALER ADVERTISEMENTS OR REPRESENTATIONS DO NOT CONSTITUTE WARRANTIES BY BIAMP.

7. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.

Thank you for purchasing BIAMP...  
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