

MCA Series Multi-Channel Amplifiers

Operation Manual

IMPORTANT SAFETY INSTRUCTIONS

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| <p>1) Read these instructions.</p> <p>2) Keep these instructions.</p> <p>3) Heed all warnings.</p> <p>4) Follow all instructions.</p> <p>5) Do not use this apparatus near water.</p> <p>6) Clean only with dry cloth.</p> <p>7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.</p> <p>8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.</p> <p>9) Do not defeat the safety purpose of the polarized or grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.</p> <p>10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.</p> | <p>11) Only use attachments/accessories specified by the manufacturer.</p> <p>12) Unplug this apparatus during lightning storms or when unused for long periods of time.</p> <p>13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.</p> <p>14) WARNING - To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.</p> <p>15) The MAINS plug or appliance coupler is used as the disconnect device. This disconnect device must remain readily accessible after installation.</p> <p>16) In order to comply with international safety requirements for operating temperature, clearance of at least 5cm or 1.97" must be maintained between this device and other rack-mounted devices. This spacing will ensure that all exposed metal surfaces are safe to touch.</p> |
|--|---|

Explanation of safety related markings and symbols which appear on the outside of the apparatus.



Lightning Bolt: Hazardous Live voltages present when this unit is in operation. Do not touch terminals marked with this symbol while the unit is connected to live power.



Exclamation Point: Replace components (i.e. fuses) only with the values specified by the manufacturer. Failure to do so will compromise safe operation of this unit.

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MCA Series

INTRODUCTION

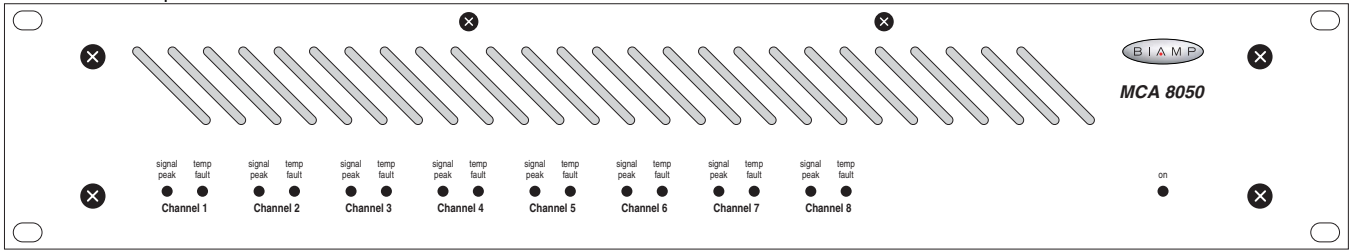
MCA Series Multi-Channel Amplifiers provide eight channels of power amplification. Model MCA 8050 delivers 50 watts/channel into 4 ohms. Model MCA 8150 delivers 150 watts/channel into 4 ohms. Channels may be bridged in pairs for higher combined wattage. Connections are provided for remote control of channel levels & muting. MCA Series amplifiers are covered by Biamp Systems' five-year warranty.

MCA Series features include:

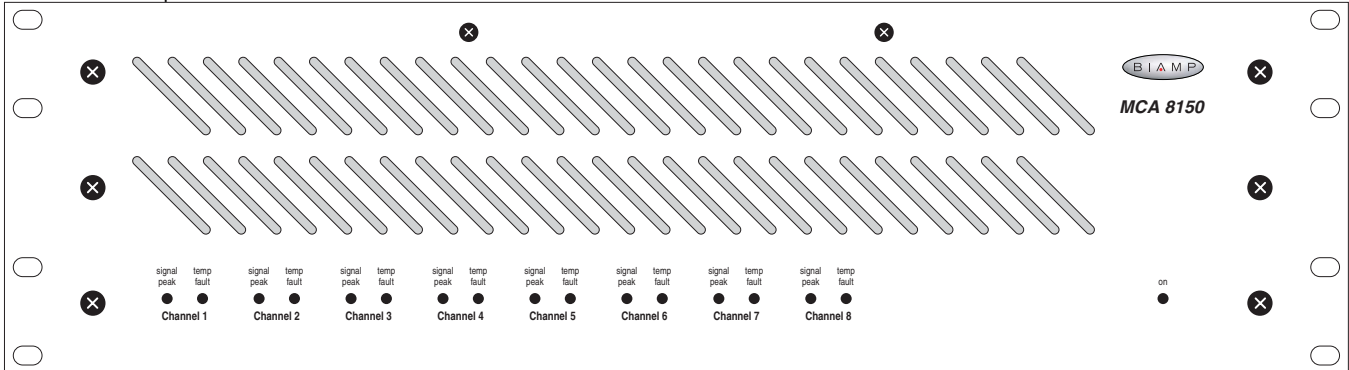
- ◆ 8 channels of 50W (MCA 8050) or 150W (MCA 8150)
- ◆ channels may be bridged in pairs for combined power
- ◆ terminals for remote control of channel levels/muting
- ◆ balanced line-level inputs on plug-in barrier strips
- ◆ rear panel level controls & high-pass filter switches
- ◆ amplifier outputs on screw-terminal connectors
- ◆ dual-color signal/peak indicators on front & rear panels
- ◆ front panel indicators for amplifier temp/load faults
- ◆ fan cooled with complete output/speaker protection
- ◆ optional transformers for 25/70/100 Volt systems
- ◆ incorporates AES recommended grounding practices
- ◆ CE marked and UL / C-UL listed
- ◆ CCC Certified
- ◆ covered by BiampSystems' five-year warranty

FRONT PANEL

MCA 8050 front panel



MCA 8150 front panel



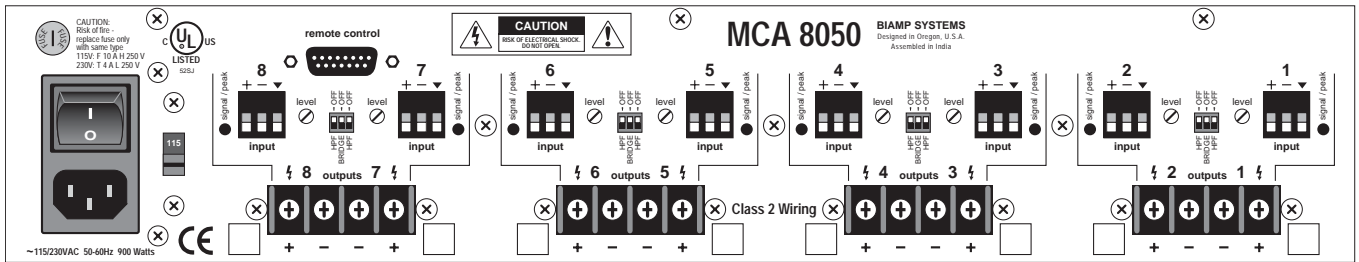
Signal / Peak Indicators: These 2-color LEDs indicate the signal level for each channel. When an LED is green, that channel has signal (above -30dB). When an LED is red, that channel signal is clipping (max. power). **CAUTION:** *Signal levels should be adjusted to avoid clipping. Clipping can cause severe distortion, over-temperature conditions, and even loudspeaker damage.* **NOTE:** *Signal / Peak indicators will turn off during Temp / Fault conditions (see Temp / Fault Indicators below).*

Temp / Fault Indicators: These red LEDs indicate over-temperature and output fault conditions for each channel. When an LED remains lit, that channel has an over-temperature condition. When an LED is flashing, that channel has an output fault condition. Either condition will temporarily de-activate the channel, causing the Signal / Peak LED to turn off as well. The channel will attempt to self-reset once the over-temperature or output fault condition is resolved.

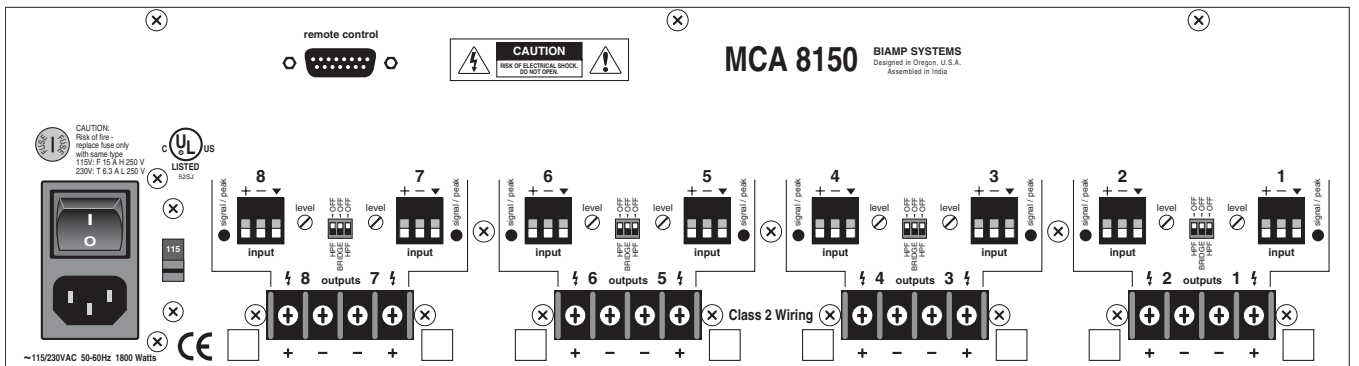
On Indicator: This green LED remains lit when AC power is applied to the unit.

REAR PANEL

MCA 8050 rear panel



MCA 8150 rear panel



REAR PANEL

Input: These plug-in barrier strips provide the balanced line-level inputs to the channels. For balanced connection, wire high (+), low (-), and ground (▼). For unbalanced connection, wire high (+) and ground to both (▼) & (-). **NOTE:** *When using a pair of channels in 'bridged' mode (see Bridge below), input signal must be connected to the odd numbered channel.*

Level: These screw-driver adjustable controls determine the level of input signals allowed into the channels. Level provides a gain range from 'off' (min.) to 'unity' (max.). The Level control is factory set for -24dB of gain, which will produce maximum output power with input signal peaks of +24dBu. For best performance, first adjust the source signals for optimum (maximum) levels, then adjust the MCA Series Level controls for the desired volume.

Signal / Peak Indicators: These 2-color LEDs indicate the signal level for each channel. When an LED is green, that channel has signal (above -30dB). When an LED is red, that channel signal is clipping (max. power). **CAUTION:** *Signal levels should be adjusted to avoid clipping. Clipping can cause severe distortion, over-temperature conditions, and even loudspeaker damage.* **NOTE:** *Signal / Peak indicators will turn off during Temp / Fault condition (see Temp / Fault Indicators on pg. 3).*

HPF: These DIP switches provide High-Pass Filters for the input channels. High-Pass Filters are used to eliminate unnecessary lower frequencies (12dB/octave @ 125Hz) for speech and distributed speaker applications. From the factory, the High-Pass Filters are bypassed (switches up). To assign a High-Pass Filter on an input channel, move the switch to the down position. **CAUTION:** *To avoid output fault conditions, High-Pass Filters must be assigned on channels driving 25/70/100 Volt speaker systems (see Output below). Also, any other system equalization affecting frequencies below 125 Hz should remain flat or be used as cut-only.*

Bridge: These DIP switches allow adjacent channels to Bridge together in pairs, for a higher, combined output power (see Bridging on pg. 6). Bridge disables the even numbered input, and applies the odd numbered input signal to both amplifier channels. From the factory, Bridge is bypassed (switches up). To assign Bridge to a pair of channels, move the switch to the down position.

Output: These screw terminals provide the speaker outputs from the channels. Connect the positive speaker line to the (+) terminal and the negative speaker line to the (-) terminal of the channel being used. The minimum speaker load on an individual channel is 4 ohms. **NOTE:** *When using a pair of channels in 'bridged' mode (see Bridge above), connect the positive speaker line to the (+) terminal of the odd numbered channel and the negative speaker line to the (-) terminal of the even numbered channel. The minimum speaker load for a bridged output is 8 ohms.* Output transformers for 25/70/100 Volt speaker systems are available as an option (installation instructions are included with the output transformers). Transformers (by model) are as follows:

TDT50 = MCA 8050 individual channels (50 Watts)

TDT100 = MCA 8050 bridged channels (100 Watts)

TDT150 = MCA 8150 individual channels (150 Watts)

TDT300 = MCA 8150 bridged channels (300 Watts)

Remote Control: This 15-pin Sub-D (female) connector provides remote level & muting control of the input channels (see Remote Control on pg. 9). **NOTE:** *When using a pair of channels in 'bridged' mode (see Bridge above), apply Remote Control only to the odd numbered input channel.*

AC Power Entrance: The switch applies AC power to the unit. The receptacle accepts the detachable AC Power Cord. The AC Power Cord is for connection to three-prong grounded AC outlets. **CAUTION:** *Do not remove or defeat the ground prong on the AC Power Cord, as this constitutes a shock hazard.*

Line Voltage Selector Switch: Set this switch to "115" for nominal line voltages of 110-120 VAC. Set this switch to "230" for nominal line voltages of 220-240 VAC. Make sure that the appropriate fuse is installed when changing voltage selections.

Fuse: Replace Fuse with same type and value only.

MCA 8050 @ 115VAC Fuse = F 10 A H 250 V

MCA 8050 @ 230VAC Fuse = T 4 A L 250 V

MCA 8150 @ 115VAC Fuse = F 15 A H 250 V

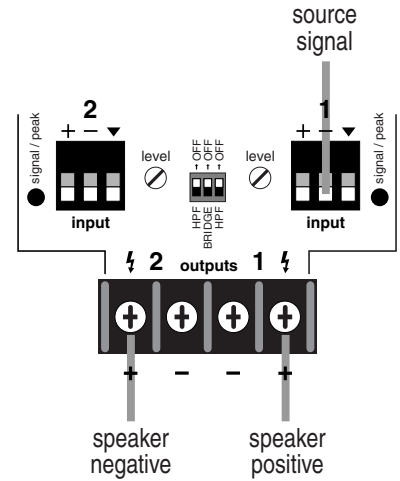
MCA 8150 @ 230VAC Fuse = T 6.3 A L 250 V

NOTE: *If the Fuse continues to blow (even after checking for proper output connections and speaker loads) the amplifier may require service.*

BRIDGING / REMOTE CONTROL

BRIDGING

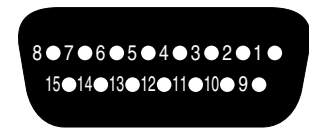
Bridge DIP switches allow the adjacent odd/even numbered channels to be bridged together in pairs, for a higher, combined output power (see Bridge on previous page). When a pair of channels are bridged, their wattage is combined, but the minimum load increases to 8 ohms (MCA 8050 = 100 watts @ 8 ohms; MCA 8150 = 300 watts @ 8 ohms). Bridge disables the even numbered input, and applies the odd numbered input signal to both amplifier channels. From the factory, Bridge is bypassed (switches up). To assign Bridge to a pair of channels, move the related switch to the down position. Connect the source signal to the odd numbered input channel, connect the positive speaker line to the (+) output terminal of the odd numbered channel, and connect the negative speaker line to the (+) output terminal of the even numbered channel (see diagram on right). **NOTE:** Only adjacent odd/even numbered channels, which share a common Bridge switch, can be bridged. When channels are bridged, the minimum load is increased to 8 ohms. The negative (-) output terminals on bridged channels are not used (no connection). For remote control of a bridged pair of channels, only the odd numbered input channel requires control (see Remote Control below).



REMOTE CONTROL

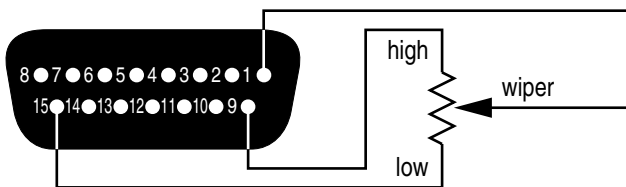
The 15-pin Sub-D (female) Remote Control connector provides terminals for remote level/mute control of Channels 1-8 (see diagram & table on right). A variable control voltage (0~+10 VDC) is used to control levels (+10 VDC = unity gain; 0 VDC = off). Remote Control provides +10V and ground terminals (for use with potentiometers), but external 'ramp' voltage devices may be used instead. Potentiometers should be 25kΩ linear taper, and are wired with high to +10V, low to ground, and wiper to the desired channel terminal(s). See examples below. The wiper of a single potentiometer may be wired to multiple control terminals (to control a group of channels). However, wipers from multiple potentiometers should not be connected to a single control terminal (undesirable interaction). Switches, Logic Outputs, or other contact-closures can be used to mute channels, by simply shorting the associated control terminal(s) to ground. A switch may be wired to multiple control terminals (to mute a group of channels). Multiple switches may be wired to a single control terminal, but wiring multiple switches to multiple control terminals would require a diode matrix. The combination of a potentiometer & a switch can be used to perform level adjustment & muting, or to provide an adjustable amount of mute attenuation. **NOTE:** Remote controls simply decrease volume from a maximum, which is established with the channel Level controls (see Level on previous page). When using a pair of channels in 'bridged' mode (see Bridging above), apply Remote Control only to the odd numbered input channel.

remote control

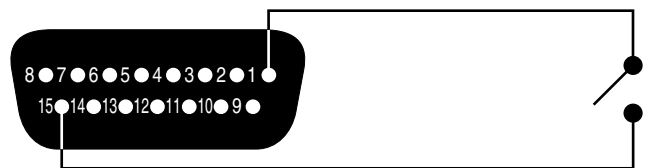


remote control	pin number
channel 1	pin #1
channel 2	pin #2
channel 3	pin #3
channel 4	pin #4
channel 5	pin #5
channel 6	pin #6
channel 7	pin #7
channel 8	pin #8
+10V	pin #9
ground	pins #10-15

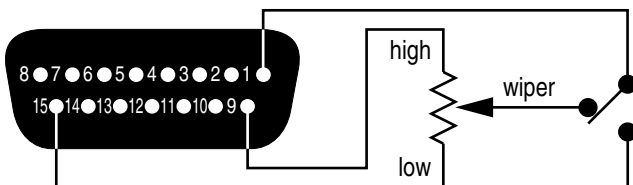
Channel 1 Level



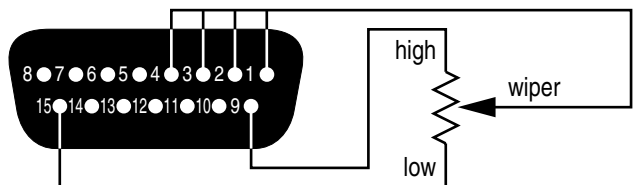
Channel 1 Mute



Channel 1 Level & Mute



Channels 1~4 Group Level



SPECIFICATIONS

MCA 8050 SPECIFICATIONS

MCA 8150 SPECIFICATIONS

Maximum Power Output (@ 2kHz):		Maximum Power Output (@ 2kHz):	
individual channel into 4 ohm load	50 watts/channel	individual channel into 4 ohm load	150 watts/channel
individual channel into 8 ohm load	30 watts/channel	individual channel into 8 ohm load	90 watts/channel
bridged channels into 8 ohm load	100 watts	bridged channels into 8 ohm load	300 watts
Signal-to-Noise Ratio (20Hz~20kHz @ rated power):	> 85dB	Signal-to-Noise Ratio (20Hz~20kHz @ rated power):	> 85dB
THD + Noise (20Hz~20kHz @rated power):	< 0.2%	THD + Noise (20Hz~20kHz @rated power):	< 0.2%
Intermodulation Distortion (SMPTE):	< 0.35%	Intermodulation Distortion (SMPTE):	< 0.35%
Frequency Response (20Hz~20kHz):	+0/-1dB	Frequency Response (20Hz~20kHz):	+0/-1dB
Input Impedance:		Input Impedance:	
balanced	20k ohms	balanced	20k ohms
unbalanced	10k ohms	unbalanced	10k ohms
Input Sensitivity:	0.775 Vrms (0dBu)	Input Sensitivity:	0.775 Vrms (0dBu)
Channel High-Pass Filters:	12dB/octave @ 120Hz	Channel High-Pass Filters:	12dB/octave @ 120Hz
Power Requirements:	115/230VAC 50/60Hz	Power Requirements:	115/230VAC 50/60Hz
Power Consumption:	900 watts max.	Power Consumption:	1800 watts max.
Dimensions:		Dimensions:	
height (2 rack spaces)	3.5 inches (89mm)	height (3 rack spaces)	5.25 inches (133mm)
width	19 inches (483mm)	width	19 inches (483mm)
depth	15.5 inches (394mm)	depth	15.5 inches (394mm)
Weight:	30 lbs. (13.6kg)	Weight:	35 lbs. (15.9kg)
Compliance:	AES48-2005 Grounding & EMC practices EU Directive 2002/95/EC, RoHS directive CE marked UL / C-UL listed CCC Certified	Compliance:	AES48-2005 Grounding & EMC practices EU Directive 2002/95/EC, RoHS directive CE marked UL / C-UL listed CCC Certified

Blamp Systems reserves the right to make changes to performance specifications without prior notice.

WARRANTY

BIAMP SYSTEMS IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS MANUAL

1. BIAMP Systems warrants to the original purchaser of new products that the product will be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase from an authorized BIAMP Systems dealer, subject to the terms and conditions set forth below.
2. If you notify BIAMP during the warranty period that a BIAMP Systems product fails to comply with the warranty, BIAMP Systems will repair or replace, at BIAMP Systems' option, the nonconforming product. As a condition to receiving the benefits of this warranty, you must provide BIAMP Systems with documentation that establishes that you were the original purchaser of the products. Such evidence may consist of your sales receipt from an authorized BIAMP Systems dealer. Transportation and insurance charges to and from the BIAMP Systems factory for warranty service shall be your responsibility.
3. This warranty will be VOID if the serial number has been removed or defaced; or if the product has been altered, subjected to damage, abuse or rental usage, repaired by any person not authorized by BIAMP Systems to make repairs; or installed in any manner that does not comply with BIAMP Systems' recommendations.
4. Electro-mechanical fans, electrolytic capacitors, and normal wear and tear of items such as paint, knobs, handles, and covers are not covered under this warranty.
5. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. BIAMP SYSTEMS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
6. The remedies set forth herein shall be the purchaser's sole and exclusive remedies with respect to any defective product.
7. No agent, employee, distributor or dealer of Biamp Systems is authorized to modify this warranty or to make additional warranties on behalf of Biamp Systems. statements, representations or warranties made by any dealer do not constitute warranties by Biamp Systems. Biamp Systems shall not be responsible or liable for any statement, representation or warranty made by any dealer or other person.
8. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.
9. BIAMP SYSTEMS SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS OR LOSS OF USE ARISING OUT OF THE PURCHASE, SALE, OR USE OF THE PRODUCTS, EVEN IF BIAMP SYSTEMS WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Biamp Systems
9300 S.W. Gemini Drive
Beaverton, Oregon 97008
(503) 641-7287

585.0075.90B



EC Declaration of Conformity

Biamp Systems Corporation, as manufacturer having sole responsibility, hereby declares that the following described product complies with the applicable provisions of the DIRECTIVES below except as noted herein. Any alterations to the product not agreed upon and directed by Biamp Systems Corporation will invalidate this declaration.

Product Models: MCA 8050 with optional Output Transformers TDT50 or TDT100
MCA 8150 with optional Output Transformers TDT150 or TDT300

Product Description: Audio Amplifiers and Distribution Transformers

Applicable EC Directives:

Applicable Harmonized Standards:

LVD Directive (2006/95/EC)

Safety

EN 60065:2002

EMC Directive (2004/108/EC)

Emissions

EN 55103-1:1996, Environment E2

Immunity

EN 55103-2:1996

Special Considerations for Product Environment or Compliance:

Shielded cabling must be used for system connections.

Technical Documentation File, Location and Contact:

Biamp Systems, Inc.

phone:

(503) 641.7287

9300 S.W. Gemini Drive

fax:

(503) 626.0281

Beaverton, OR USA 97008

e-mail:

biamp@biamp.com

Authorized Representative:

Larry Copley, Compliance Engineer

Authorized Signature:

A handwritten signature in cursive script that reads "Larry Copley". The signature is written in black ink and is positioned to the right of the "Authorized Signature:" label.

Issued:

March, 2010

SAFETY INFORMATION

The words **WARNING** and **CAUTION** throughout the manual, and on the device, call attention to important safety information. These words have the following meanings.

WARNING: The related information alerts you to conditions that could result in serious injury or damage to property if the instructions are not followed properly.

CAUTION: The related information instructs you on how to prevent damage to the equipment or how to avoid conditions that could result in minor injury if proper steps are not followed.

Product labelling and the operation manual may use the internationally recognized symbols defined below to note safety messages.



The lightning flash with arrowhead symbol, enclosed within a triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the apparatus's enclosure or at connection terminals that may be of sufficient magnitude to constitute a risk of electrical shock.



The exclamation point, enclosed within a triangle, is intended to alert the user to important installation, operation, and maintenance (servicing) instructions in the literature accompanying the apparatus.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

CAUTION: Installation of this apparatus should be made by a qualified installation person and should conform to all applicable local codes.



Modification and optional equipment information referenced in this manual is for use by qualified installation and service personnel only.



"INFORMACIÓN DE SEGURIDAD"

Las palabras **PELIGRO** (**WARNING**) y **PRECAUCIÓN** (**CAUTION**) a lo largo del manual y en el dispositivo (sistema), llaman la atención acerca de una importante información de seguridad. Estas palabras tienen los siguientes significados:

PELIGRO : la información relata las condiciones en que podría ser dañada seriamente la propiedad si no se siguen adecuadamente las instrucciones.

PRECAUCIÓN : la información que se relata le instruye en cómo prevenir daños al equipo o como evitar condiciones que podrían resultar en perjuicio menor si los pasos adecuados no son seguidos correctamente.

El etiquetado del producto y el manual de operación pueden hacer uso de los símbolos reconocidos internacionalmente y cuyos mensajes están definidos a continuación para modificar mensajes de seguridad:



El símbolo del rayo encerrado en un triángulo pretende alertar al usuario de la presencia de un peligroso voltaje no aislado, dentro de la caja del aparato o a un terminal de conexión y que podría ser de suficiente magnitud como para constituir un grave riesgo de descarga eléctrica.



El punto de exclamación dentro de un triángulo pretende alertar al usuario de la importancia de las instrucciones de instalación, operación y mantenimiento (servicio) que acompañan al aparato.

PELIGRO (WARNING) : para reducir el riesgo de fuego o una descarga eléctrica, no exponer este aparato a la lluvia o la humedad.

PRECAUCIÓN (CAUTION) : la instalación de este aparato debería hacerse por una persona cualificada en la instalación, y debería conformar todos los códigos locales aplicables.



La modificación y la información opcional del equipo referenciada en este manual es para ser utilizada únicamente por personal cualificado en instalación y servicio.



INFORMATION CONCERNANT VOTRE SECURITE

Les mots **WARNING** et **CAUTION** dans le manuel d'utilisation et sur les appareils attirent votre attention sur les plus importantes informations concernant votre sécurité. Ces mots ont la signification suivante:

WARNING: Ce mot vous indique les circonstances dans lesquelles vous pourriez être blessé ou endommager votre équipement si les instructions ne sont pas suivies correctement.

CAUTION: Ce mot vous indique comment éviter d'endommager votre matériel et comment éviter de vous blesser si vous ne suivez pas les instructions.

Vous trouverez peut-être les symboles suivants sur votre appareil ou dans le manuel d'utilisation.



L'éclair se terminant en flèche dans un triangle permet de prévenir l'utilisateur d'un voltage dangereux non isolé dans l'appareil ou d'une connexion d'une amplitude suffisante pour constituer un risque de choc électrique.



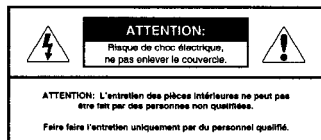
Le point d'exclamation dans un triangle permet de prévenir l'utilisateur des points importants concernant l'installation, le fonctionnement et l'entretien de l'appareil figurant dans le manuel d'utilisation.

WARNING: POUR REDUIRE LES RISQUES DE FEU OU DE CHOC ELECTRIQUE, NE PAS METTRE L'APPAREIL SOUS LA PLUIE OU DANS L'HUMIDITE.

CAUTION: L'installation de cet appareil doit être faite par un installateur qualifié et doit être en conformité avec toutes les lois locales en application.



Les informations concernant une modification ou un équipement en option dans le manuel doivent être effectués par du personnel qualifié.



INFORMAZIONI PER LA SICUREZZA

Le parole **AVVERTENZA** (**WARNING**) e **PRUDENZA** (**CAUTION**) poste sul manuale d'uso e sul apparato richiamano la vostra attenzione su delle importanti informazioni per la vostra sicurezza. Queste parole hanno il seguente significato.

AVVERTENZA: La suddetta indicazione vi avvisa sul rischio di incorrere in danni a cose o a persone, se le procedure d'uso e installazione non saranno seguite propriamente.

PRUDENZA: La suddetta indicazione vi instruisce su come prevenire e ridurre al minimo, il rischio di danni agli apparati e alle persone se le istruzioni saranno seguite propriamente.

Le apparecchiature e i manuali di istruzioni riporteranno la simbologia standard raffigurata qui sotto, accompagnate dalle relative informazioni per la sicurezza.



La simbologia con il fulmine all'interno di un triangolo, intende avvisare l'utente della presenza di alto voltaggio all'interno del apparecchio in questione, e che il suddetto apparecchio si alimenta attraverso una tensione di rete ad alto voltaggio o che dunque si potrebbe incorrere sul rischio di una possibile scossa elettrica.



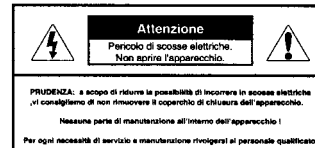
La simbologia con il punto esclamativo all'interno di un triangolo, intende avvisare l'utente di una serie di istruzioni contenute nel manuale d'uso riguardanti: operato, manutenzione e assistenza. Il suddetto manuale sarà a corredo dell'apparecchio.

AVVERTENZA: PER RIDURRE IL RISCHIO DI POSSIBILI INCENDI O SCOSSE ELETTRICHE, SCONSIGLIAMO DI ESPORRE L'APPARECCHIO ALLA PIOGGIA O ALL'UMIDITA'.

PRUDENZA: l'installazione di questo apparato dovrà essere effettuata solo da personale qualificato e il tipo di installazione dovrà essere in regola con le norme vigenti locali.



Modifiche e ulteriori informazioni specificate in questo manuale sono solamente riservate al personale qualificato all'installazione.



Sicherheitshinweise

Die Begriffe **WARNUNG** (engl. WARNING) und **ACHTUNG** (engl. CAUTION) in der Bedienungsanleitung und auf den Geräten machen auf wichtige Sicherheitsinformationen aufmerksam. Diese Begriffe haben die folgende Bedeutung:

WARNUNG: Der folgende Text warnt Sie vor ernsthaften Verletzungen oder Beschädigungen, die aus einer fehlerhaften Bedienung bzw. Handhabung des Gerätes resultieren können.

ACHTUNG: Der folgende Text informiert Sie über Bedienungshinweise zum Schutz Ihres Gerätes oder weist auf mögliche Schäden hin, wenn die Bedienungshinweise nicht beachtet werden.

Die Beschriftung der Geräte und die Bedienungsanleitungen weisen unter Umständen international bekannte Symbole auf, die die folgende Bedeutung haben:



Das Blitzsymbol im Dreieck warnt vor anliegender, nicht isolierter „gefährlicher Spannung“ im Inneren oder an den Anschlüssen des Gerätes. Die Berührung der unter Spannung stehenden Teile kann zu einem elektrischen Schock führen.



Das Fußzeichen im Dreieck macht auf wichtige Installations-, Bedienungs- und Servicehinweise in der zugehörigen Bedienungsanleitung aufmerksam.

WARNUNG: Zur Minderung des Risikos von Feuer und elektrischem Schock schützen Sie das Gerät vor Regen und Feuchtigkeit.

ACHTUNG: Die Installation des Gerätes sollte nur durch qualifiziertes Personal durchgeführt werden und muß den jeweiligen Bestimmungen entsprechen.



Die Modifikationen und die Informationen zu den optionalen Erweiterungen in der Bedienungsanleitung sind nur für qualifiziertes Personal bestimmt.

	ACHTUNG Risiko von elektrischem Schock Gerät nicht öffnen	
Achtung: Zur Minderung des Risikos von elektrischem Schock das Gerät nicht öffnen		
Keine Bedienungsanleitung im Inneren des Gerätes		
Service nur durch qualifiziertes Personal durchführen lassen		

Sikkerhedsinformation

Ordene **ADVARSEL** (WARNING) og **FORSIGTIG** (CAUTION), brugt i henholdsvis brugervejledning og på selve produktet, indikerer, at vigtig information omkring sikkerhed følger. Ordene betyder følgende:

ADVARSEL: Den efterfølgende information advarer Dem om forhold, der kan føre til alvorlige ulykker og ejendoms-skader, hvis ikke vejledningen følges.

FORSIGTIG: Den efterfølgende information vejleder Dem i, hvordan De undgår skade på produktet, samt undgår forhold der kan føre til mindre ulykker og ejendoms-skader, hvis ikke vejledningen følges.

Produktetiketter og brugervejledning kan indeholde de internationalt anerkendte symboler der er vist nedenfor:



Trekanten med et lyn i midten har til hensigt at advare brugeren om, at produktet indeholder "farlig spænding", og at det derfor er forbundet med fare for elektrisk stød at åbne produktet.



Trekanten med udråbtegn har til hensigt at advare brugeren om, at vigtig information omkring installation, brug, service og vedligeholdelse af produktet er indeholdt i den medfølgende brugervejledning.

ADVARSEL: Med henblik på at reducere risikoen for brand eller elektrisk stød, må produktet ikke udsættes for regn eller fugt.

FORSIGTIG: Installation af dette produkt skal foretages af en autoriseret installatør og skal være i overensstemmelse med alle anvendelige lokale retningslinier.



Modifikationer samt alternativt udstyr beskrevet i denne brugervejledning er kun henvendt til kvalificerede installatører og servicepersonale.

	FORSIGTIG Fare for elektrisk stød - må ikke åbnes.	
FORSIGTIG: Med henblik på at reducere risikoen for elektrisk stød, må arbejdet ikke fjernes.		
Indeholder ingen komponenter relevante for brugeren.		
Anvend autoriseret servicepersonale ved alle serviceeftersigt.		

VEILIGHEIDSINFORMATIE

De woorden **WAARSCHUWING** (WARNING) en **VOORZICHTIG** (CAUTION) welke in de handleiding en op het apparaat voorkomen, waarschuwen U voor belangrijke veiligheidsinformatie. Zij hebben de volgende betekenissen:

WAARSCHUWING: De betreffende informatie waarschuwt U voor omstandigheden die kunnen leiden tot defecten of beschadigingen aan apparaten als de instructies niet volledig worden opgevolgd.

VOORZICHTIG: De betreffende informatie instrueert U hoe U defecten aan apparatuur kunt voorkomen of hoe U omstandigheden kunt vermijden die kunnen resulteren in schade als de juiste stappen niet worden opgevolgd.

Produkt informatie en handleiding hanteren onderstaande internationaal erkende symbolen om veiligheidsinstructies aan te geven.



De bliksemschicht in een driehoek wordt gebruikt om de gebruiker te attenderen op ongesoleerde "gevaarlijke spanning" in het apparaat of bij de aansluitklemmen, die het risico van een elektrische schok kunnen geven.



Het uitroepteken in een driehoek wordt gebruikt om de gebruiker te attenderen op belangrijke installatie, gebruiks- en onderhoudsinstructies in de beschrijving die bij het apparaat hoort.

WAARSCHUWING: OM HET RISICO VAN BRAND OF EEN ELECTRICISCHE SCHOK TE VERMIJDEN DIENT U HET APPARAAT NIET AAN VOCHT BLOOT TE STELLEN.

VOORZICHTIG: Installatie van dit apparaat dient te geschieden door gekwalificeerd personeel en dient te geschieden conform de plaatselijke voorschriften.



Modificaties en aanvullende informatie waar in de handleiding naar wordt verwezen, dient alleen voor gebruik door gekwalificeerd personeel.

	VOORZICHTIG. Risiko van elektrische schok. Niet openen.	
Waarschuwing: Om het risico van een elektrische schok te vermijden het apparaat niet openen.		
Er zijn geen, voor gebruiker, vervangbare onderdelen in dit apparaat.		
Service overlaten aan gekwalificeerd service personeel.		

TURVALLISUUSTIEDOTE

Sanat **VAROITUS** (WARNING) ja **HUOMIO** (CAUTION), jotka esiintyvät manuaalissa ja itse laitteessa, ilmoittavat tärkeästä turvallisuusinformaatiosta. Näillä sanoilla on seuraava merkitys:

VAROITUS: Yhteydessä oleva informaatio varoittaa olosuhteista, jotka saattavat johtaa vakaviin vammoihin tai laitteen vaurioitumiseen, mikäli ohjeita ei täysin noudateta.

HUOMIO: Yhteydessä oleva informaatio neuvoo, miten laitteen vaurioituminen voidaan ehkäistä tai miten voidaan välttää olosuhteet, jotka voivat johtaa lieviin vammoihin, mikäli ohjeita ei noudateta.

Tuotteessa tai käyttöohjeessa voidaan käyttää seuraavia alla määriteltyjä kansainvälisiä symboleja, jotka viittaavat turvallisuusinformaatioon.



Kotimion sisällä olevan nuolipäinisen selame varoittaa käyttäjää laitteen sisällä tai liitännöissä olevasta eristämättömästä vaarallisesta jännitteestä, joka saattaa olla tarpeeksi suuri aiheuttaakseen sähköiskun vaaran.



Kotimion sisällä oleva huutomerkki tarkoituksena on ilmoittaa käyttäjälle tärkeistä asennusta, käyttöä tai huoltoa koskevista ohjeista laitteen mukana seuraavassa kirjallisuudessa.

VAROITUS: ÄLÄ ALTISTA LAITETTA SATEELLE TAI KOSTEUDELLE TULIPALON JA SÄHKÖISKUN VAARAN VUOKSI.

HUOMIO: Laitteen asentaminen tulisi jättää ammattitaitoisen henkilön suorittavaksi ja asennuksessa tulee noudattaa kaikkia paikallisia säännöksiä.



Tässä manuaalissa oleva informaatio, joka koskee muutostöitä ja lisälaitteita, on tarkoitettu vain ammattitaitoisten asennus- ja huoltohenkilöiden käyttöön.

	HUOMIO Sähköiskun vaara, älä avaa.	
HUOMIO: ÄLÄ AVAA KANTTA SÄHKÖISKUN VAARAN VUOKSI		
EI SISÄLLÄ KÄYTTÄJÄN HUOLLETTAVIA OSIA		
JÄTÄ HUOLTO AMMATTITAITOISELLE HENKILÖKUNNALLE		

SIKKERHETS INFORMASJON

Når ordene **ADVARSEL (WARNING)** og **VIKTIG (CAUTION)** blir brukt i manualen og på produktet, gjelder det informasjon som har med brukernes sikkerhet å gjøre. Ordene har følgende mening:

ADVARSEL: Tilhørende informasjon viser til forhold som kan resultere i alvorlige skader eller ødeleggelse hvis anvisningene ikke følges nøye.

VIKTIG: Tilhørende informasjon forteller deg hvordan du skal unngå feil på utstyret, eller unngå situasjoner som kan resultere i mindre skader.

Produkt merkingen og bruksanvisningen bruker internasjonale symboler for å merke punkter som er viktige for brukernes sikkerhet.



Lynet i en triangel advarer brukeren om isolert "farlig spenning" inne i apparatet, eller tilkoblings terminaler som kan gi stød.



Etter utropsteget i en triangel følger informasjon som er viktig når det gjelder installasjon, bruk og vedlikehold (service) av apparatet.

ADVARSEL: FOR Å REDUSERE FAREN FOR BRANN ELLER STØT MÅ APPARATET IKKE UTSETTES FOR VANN ELLER FUKTIGHET.

VIKTIG: Installasjon av apparatet skal foretas av autorisert installatør etter gjeldende forskrifter.



Modifikasjoner og tillegg informasjon som følger er kun for kvalifiserte installatører eller service personell.

	VIKTIG FARE FOR STØT. MÅ IKKE DEMONTERES.	
<p>VIKTIG: For å unngå faren for støt, må ingen deler fjernes ingen interne deler skal justeres eller repareres av brukeren.</p> <p>Overtat service til autorisert personell.</p>		

SÄKERHETS INFORMATION

Orden **VARNING (WARNING)** och **OBSERVERA (CAUTION)** vilka används i denna manual och på apparaten, är menade att uppmärksamma viktig säkerhets information. Dessa ord har följande betydelse.

VARNING: Information som uppmärksammar på omständigheter som kan resultera i allvarig personskada eller skada på egendom om instruktionerna ej följs.

OBSERVERA: Information som uppmärksammar på instruktioner om hur skada på utrustning eller hur situationer där lättare personskador kan uppstå undviks.

Följande internationellt använda ord och symboler används i handboken och på märkningar på produkten för att uppmärksamma användare på viktiga säkerhets instruktioner.



En blixn med pil, innesluten i en triangel, menad att uppmärksamma användare på närvaron av isolerade "farliga spänningar" i apparaten eller på anslutnings kontakter vilka har tillräcklig styrka för att medföra risk för elektrisk stöt.



Ett utropstecken, innesluten i en triangel, menad att uppmärksamma användare på viktiga installations, handhavande eller underhålls-instruktioner i medföljande dokumentation.

VARNING: FÖR ATT MINSKA RISKEN FÖR BRAND ELLER ELEKTRISK STÖT, UTSÄTT EJ APPARATEN FÖR FUKT ELLER VÅTSKA.

OBSERVERA: Installation av denna apparat skall utföras av kvalificerad installatör samt enligt alla gällande lokala bestämmelser.



Eventuella modifierings instruktioner och annan information av teknisk art i denna manual är endast avsedd att användas av kvalificerad installations och service personal.

	OBSERVERA RISK FÖR ELEKTRISK STÖT FÄR EJ ÖPPNAS	
<p>OBSERVERA: FÖR ATT MINSKA RISKEN FÖR ELEKTRISK STÖT, AVLÅSNA EJ LOCKET.</p> <p>INGA AV ANVÄNDARE UTBYTBARA ELLER REPARERBARA KOMPONENTER HUTI DENNA APPARAT.</p> <p>ALL SERVICE PÅ DENNA APPARAT SKALL UTFÖRAS AV KVALIFICERAD PERSONAL.</p>		

ΠΛΗΡΟΦΟΡΙΕΣ ΑΣΦΑΛΕΙΑΣ

Οι λέξεις **ΚΙΝΔΥΝΟΣ (WARNING)** και **ΠΡΟΣΟΧΗ (CAUTION)** που αναφέρονται μέσα στο εγχειρίδιο και στη συσκευή, επικεντρώνουν την προσοχή σε σημαντικές πληροφορίες ασφαλείας. Οι λέξεις αυτές έχουν την παρακάτω σημασία.

ΚΙΝΔΥΝΟΣ: Η αναγραφόμενη πληροφορία εστιάζει την προσοχή σας σε καταστάσεις που θα μπορούσαν να έχουν σαν αποτέλεσμα σοβαρό τραυματισμό ή καταστροφή της ιδιοκτησίας αν οι οδηγίες δεν ακολουθηθούν κατάλληλα.

ΠΡΟΣΟΧΗ: Η αναγραφόμενη πληροφορία σας καθοδηγεί πώς να προλάβετε καταστροφή του εξοπλισμού ή πώς να αποφύγετε καταστάσεις που θα μπορούσαν να έχουν σαν αποτέλεσμα μικροτραυματισμούς αν δεν ακολουθηθούν τα σωστά βήματα.

Στις ετικέτες των προϊόντων και στο εγχειρίδιο λειτουργίας, χρησιμοποιούνται τα σεισνός αναγνωρισμένα σύμβολα, των οποίων ο ορισμός δίνεται παρακάτω έτσι ώστε να υπογραμμιστούν τα μηνύματα ασφαλείας.



Η φωτεινή αναλαμπή με σύμβολο το βόλτος, μέσα στο τρίγωνο, έχει σκοπό να επιστήσει την προσοχή του χρήστη, στην ύπαρξη μη-μονομέρους « επικίνδυνης ισχύος ρεύματος » στο εσωτερικό της συσκευής ή στις άκρες σύνδεσης οι οποίες μπορεί να έχουν αρκετό μέγεθος ώστε να περιέχουν κίνδυνο ηλεκτροαπείρίας.



Το επεξηγηματικό σημείο, μέσα στο τρίγωνο, έχει σκοπό να επιστήσει την προσοχή του χρήστη στις σημαντικές οδηγίες εγκατάστασης, λειτουργίας και συντήρησης (service) που περιέχονται στα φυλλάδια που συνοδεύουν την συσκευή.

ΚΙΝΔΥΝΟΣ: Για να αποφύγετε τον κίνδυνο φωτιάς ή ηλεκτροαπείρίας, μην εκθέτετε αυτή τη συσκευή σε βροχή ή σε υγρασία.

ΠΡΟΣΟΧΗ: Η εγκατάσταση αυτής της συσκευής θα πρέπει να γίνει από εξειδικευμένο άτομο και θα πρέπει να προσαρμόζεται σε όλους τους εφαρμοσόμενους τοπικούς κώδικες.



Οι τροποποιήσεις και οι προληπτικές πληροφορίες για τον εξοπλισμό, που αναφέρονται σε αυτό το εγχειρίδιο, προορίζονται για χρήση μόνο από εξειδικευμένα στην εγκατάσταση και στο service, άτομα.

	ΠΡΟΣΟΧΗ ΚΙΝΔΥΝΟΣ ΗΛΕΚΤΡΟΑΠΕΙΡΙΑΣ. ΜΗΝ ΑΝΟΙΞΕΤΕ.	
<p>ΠΡΟΣΟΧΗ: ΓΙΑ ΝΑ ΜΗΔΕΙΣΤΕ ΤΟΝ ΚΙΝΔΥΝΟ ΗΛΕΚΤΡΟΑΠΕΙΡΙΑΣ, ΜΗΝ ΜΕΤΑΚΙΝΗΣΕΤΕ ΤΟ ΚΑΛΥΜΜΑ.</p> <p>ΔΕΝ ΠΑΡΕΧΟΝΤΑΙ ΑΝΤΑΛΛΑΚΤΙΚΑ SERVICE ΣΤΟΝ ΧΡΗΣΤΗ.</p> <p>ΓΙΑ SERVICE ΑΝΑΦΕΡΙΣΤΕ ΣΤΟ ΕΞΕΙΔΙΚΕΥΜΕΝΟ ΠΡΟΣΩΠΟ SERVICE.</p>		

INFORMAÇÃO SOBRE SEGURANÇA

As palavras **ADVERTÊNCIA (WARNING)** e **PRECAUÇÃO (CAUTION)** neste manual, e no dispositivo, alertam para importantes informações sobre segurança. Estas palavras significam o seguinte:

ADVERTÊNCIA: Informação relacionada que alerta sobre condições que poderão resultar em lesões sérias ou prejuízo, se as instruções não forem seguidas adequadamente.

PRECAUÇÃO: Informação relacionada que instrui como prevenir danos ao equipamento ou como evitar condições que poderão resultar em lesões leves, se os passos não forem seguidos adequadamente.

As etiquetas do produto e do manual de operações podem usar os símbolos internacionalmente reconhecidos definidos abaixo para advertir mensagens de segurança.



símbolo do relâmpago com uma seta, dentro de um triângulo, tem o fim de alertar o usuário a presença de "voltagem perigosa" sem isolamento dentro da caixa isolamento do aparelho ou nos terminais de ligação que podem ter a magnitude suficiente que constitui um risco de choque elétrico.



ponto de exclamação, dentro de um triângulo, tem o fim de alertar o usuário sobre instruções importantes de instalação, operação e manutenção (serviços) na literatura que acompanha o aparelho.

ADVERTÊNCIA: PARA REDUZIR O RISCO DE INCÊNDIO OU CHOQUE ELÉCTRICO, NÃO EXPONHA ESTE APARELHO A CHUVA OU HUMIDADE.

PRECAUÇÃO: A instalação deste aparelho deve ser feita por um profissional qualificado e deve obedecer a todos os códigos locais aplicáveis.



Modificação e informação sobre equipamento adicional citados neste manual são para o uso exclusivo do pessoal qualificado de instalação e manutenção.

	PRECAUÇÃO RISCO DE CHOQUE ELÉCTRICO NÃO ABRA.	
<p>PRECAUÇÃO: PARA REDUZIR O RISCO DE CHOQUE ELÉCTRICO, NÃO REMOVA A TAMPA.</p> <p>PARTES INTERNAS NÃO MANTIDAS PELO USUÁRIO.</p> <p>ENCAMINHE A MANUTENÇÃO PARA PESSOAL DE SERVIÇOS QUALIFICADO.</p>		