

SMS200
Sound Masking
System

operation manual

advantage ®

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INTRODUCTION

ADVANTAGE® SMS200 Sound Masking System provides a digitally controlled 1/3-octave equalizer, with a digital noise source in a single rack-space unit. Input, noise, and 28 filter bands, as well as high-pass & low-pass filters, are all adjusted via computer. Eight presets are recalled via contact-closures, third-party controllers, or computer. Filter design utilizing Constant-Q technology guarantees precise system tuning with less filter interaction, better filter combining, and constant filter bandwidth at any setting. The SMS200 is covered by a five-year warranty.

SMS200 features include:

- ◆ 1/3-octave equalizer with built-in sound masking generator
- ◆ white-noise generator spectral purity ($\pm 0.1\text{dB}$ @ 0Hz-20kHz)
- ◆ precision pink-noise filtering (-3dB per octave low-pass)
- ◆ extended 'non-apparent' repeat time of noise (200 minutes)
- ◆ 28 digitally controlled filters on ISO center frequencies
- ◆ Constant-Q technology provides precision system tuning
- ◆ filters adjustable $\pm 12\text{dB}$ in 1dB steps or $\pm 6\text{dB}$ in 0.5dB steps
- ◆ noise & input levels adjustable $\pm 12\text{dB}$ in 1dB steps (plus off)
- ◆ high-pass filter (12dB per octave) adjustable 9.1Hz-171.9Hz
- ◆ low-pass filter (12dB per octave) adjustable 1.9kHz-34.7kHz
- ◆ eight non-volatile memory presets available (levels & filters)
- ◆ logic inputs allow selection of presets via contact-closures
- ◆ RS-232 serial port for computer or third-party controllers
- ◆ software for Windows® 95/98/NT & serial cable included
- ◆ device number switch & link port for controlling multiple units
- ◆ baud rate switch provides choice of communications rates
- ◆ front panel indicators for peak, bypass, & selected preset
- ◆ balanced input and output on plug-in barrier strip terminals
- ◆ modular ± 12 Volt DC Out jack for powering external devices
- ◆ incorporates AES recommended grounding practices
- ◆ CE marked and UL / C-UL listed power source
- ◆ covered by Five-Year "Gold Seal" Warranty

FRONT PANEL



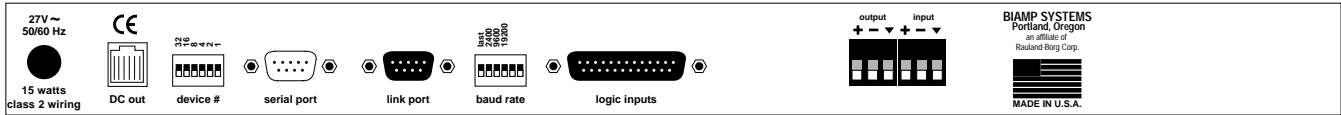
Preset: This seven segment LED display indicates which preset is currently selected. There are eight presets available, which can be recalled from non-volatile memory via RS-232 or Logic Input control. Each preset stores settings for input level, noise level, 28 filter bands, a high-pass filter, and a low-pass filter. These settings are adjusted, and presets are stored, via RS-232 control, using the PC Control Software and serial cable provided with the SMS200 (see Setup on pg. 4). The SMS200 may also be controlled via RS-232 from third-party controllers.

Peak: This red LED indicates output level has reached +14dBu balanced (+8dBu unbalanced). When the Peak indicator lights, 10dB of headroom remains before clipping. If increased signal levels or equalizer adjustments cause the Peak indicator to light frequently, reduce the SMS200 input & noise levels to avoid distortion caused by overdriving the output section.

Bypass: This red LED indicates the SMS200 equalizer has been bypassed via RS-232 control. When bypassed, all filters are temporarily set flat, the high-pass & low-pass filters are set to their extremes (9.1Hz & 34.7kHz respectively), and the input level is set to unity gain. From the factory, noise level is not affected by Bypass (see Setup on pg. 6).

On: This red LED indicates power is applied to the equalizer.

REAR PANEL



AC Power Cord: The power transformer provides 27 Volts AC to the SMS200, and is detachable via a 5-pin DIN connector. The SMS200 has two internal 'self-resetting' fuses (there are no user serviceable parts inside the unit). If the internal fuses blow, they will attempt to re-set after a short period. However, this may be an indication that the SMS200 requires service.

DC Out: This 6-pin Modular jack supplies ± 12 Volts DC, for powering external accessory devices. The SMS200 DC Out provides up to 100mA maximum current.

Device #: This 6-gang DIP switch allows an SMS200 to be assigned a specific device number. Up to 64 different device numbers (0-63) may be assigned to allow RS-232 control of multiple ADVANTAGE[®] products in a common system. From the factory, an SMS200 is assigned Device # 1.

Serial Port: This 9-pin Sub-D (male) connector provides an RS-232 Serial Port for remote control via computer or third-party controllers. The Serial Port has the following pin assignments (left-to-right & top-to-bottom): **Pin 1** not used; **Pin 2** Receive Data (RxD) input; **Pin 3** Transmit Data (TxD) output; **Pin 4** Data Terminal Ready (DTR) output; **Pin 5** Ground; **Pin 6** not used; **Pin 7** Request To Send (RTS) output; **Pin 8** not used; **Pin 9** not used. PC Control Software and a serial cable are provided for programming via Windows[®] 95 (see Setup on pg. 4). **NOTE:** The Serial Port can also transmit commands which are received via the Logic Inputs (see Setup on pg. 4).

Link Port: This 9-pin Sub-D (female) connector provides a Link Port for RS-232 control of multiple ADVANTAGE[®] products. The Link Port of one device simply connects to the Serial Port of the next device (and so forth). Link cables are available as an option (Biamp #909-0057-00). **NOTE:** All but the final device in a system should have its 'last' switch down (see Baud Rate). The Link Port has the following pin assignments (right-to-left & top-to-bottom): **Pin 1** not used; **Pin 2** Transmit Data (TxD) input; **Pin 3** Receive Data (RxD) output; **Pin 4** not used; **Pin 5** Ground; **Pin 6** not used; **Pin 7** not used; **Pin 8** not used; **Pin 9** not used. **NOTE:** The Link Port can also transmit commands which are received via the Logic Inputs (see Setup on pg. 5).

Baud Rate: This 6-gang DIP switch allows an SMS200 to be assigned a specific communications baud rate. Baud rates available are 2400, 9600, & 19200 bps. The factory default is 9600 bps. Only one baud rate should be selected at a time, by raising the corresponding switch. The two switches on the far right are not used. The switch on the far left (labelled 'last') is used when connecting multiple devices in a 'Link Port to Serial Port' configuration (see Link Port). From the factory, the 'last' switch is up. When connecting multiple devices, the 'last' switch must be switched down on all devices except the final ('last') device in the system (the device with no Link Port connection).

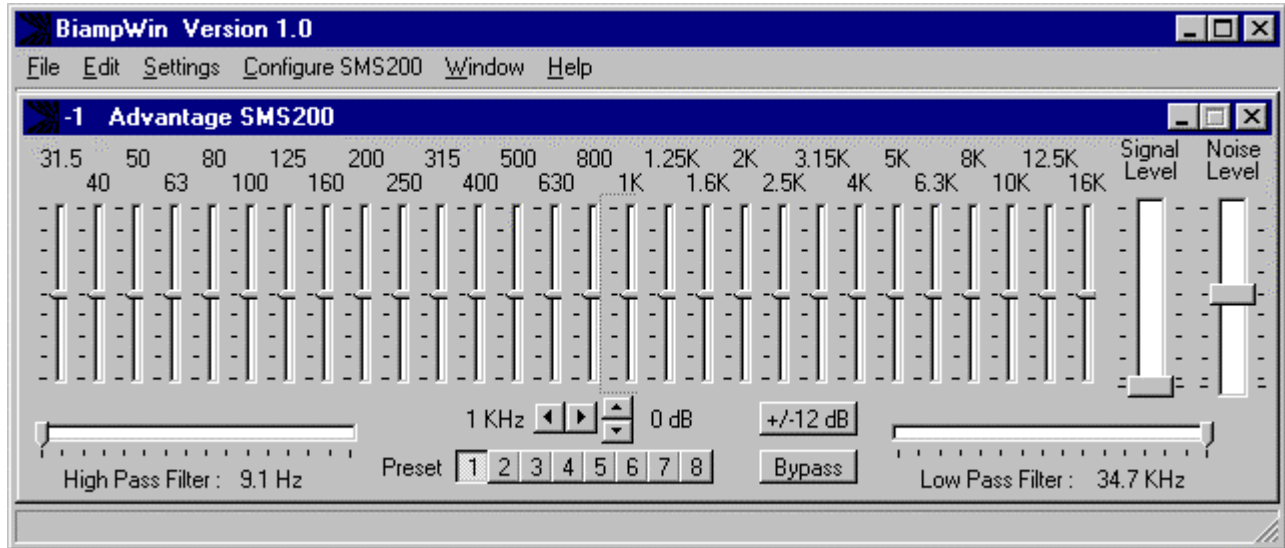
Logic Inputs: This 25-pin Sub-D (female) connector provides 16 logic input terminals, plus 9 ground terminals (see Logic Inputs on pg. 7). Once SMS200 settings are adjusted (and presets are stored) via RS-232 control, the Logic Inputs can be used to recall presets from non-volatile memory using simple switches or contact-closures. Logic Inputs have the following pin assignments (right-to-left & top-to-bottom): **Pins 1-8** recall Presets 1-8; **Pins 9-16** no operation; **Pins 17-25** switch ground points. Logic Input functions may be programmed using the PC Control Software and serial cable provided with the SMS200 (see Setup on pg. 4).

Output: These plug-in barrier strip terminals provide a balanced line-level output. For balanced connection, wire high to (+), low to (-), and ground to (⊘). For unbalanced connection, wire high to (+) and ground to (⊘), leaving (-) unconnected. Signal level will be reduced by 6dB when outputs are wired unbalanced.

Input: These plug-in barrier strip terminals provide a balanced line-level input. For balanced connection, wire high to (+), low to (-), and ground to (⊘). For unbalanced connection, wire high to (+), and ground to both (-) & (⊘). Input level is adjustable via RS-232, and has a range of ± 12 dB in 1dB steps, plus off.

SETUP

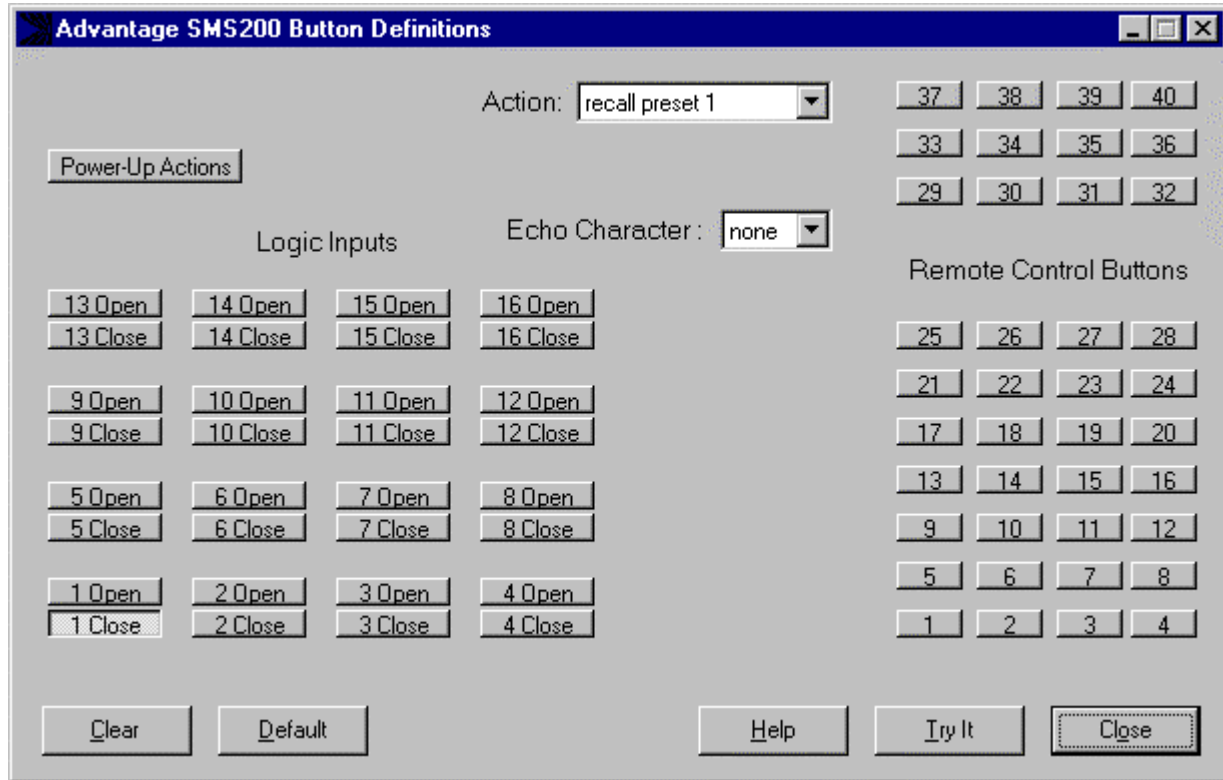
All SMS200 parameters are adjustable using the Windows® 95/98/NT 'PC Control Software' and serial cable provided with the unit. The PC Control Software provides programs for various ADVANTAGE® products, including the SMS200. The SMS200 program includes three different control screens (Main, Button Definition, & Configuration Options), which are described on the following pages. Once the software is started (and Comm Port Configuration is set), the three control screens are accessible through the drop-down menus at the top of the opening screen. The Main screen appears whenever an SMS200 file is opened. Button Definition & Configuration Options screens are then available from the Configure SMS200 menu. The File menu provides functions such as open, close, save, etc. The Edit menu allows copy/paste & flat-curve functions. The Settings menu recalls the Comm Port Configuration screen. The Window menu arranges the active product screens. The Help menu explains the available adjustments. To install PC Control Software: Select 'Run' from the 'Start' menu, and enter A:\SETUP. System Requirements: Windows® 95/98/NT with 16M RAM & 5M of available hard disk space (serial port required for 'on-line' operation).



MAIN SCREEN

The Main Screen is used to adjust the SMS200 signal level, noise level, 28 filter bands, high-pass filter, and low-pass filter settings, as well as to store & recall eight memory presets. Adjustments are made with the computer mouse (or keyboard). Settings are adjusted by dragging the corresponding 'faders' (or left-clicking the arrow buttons). Each filter band fader provides 25 gain steps, in 1 dB increments (± 12 dB). Left-clicking on ± 12 dB will instead select 0.5 dB increments (± 6 dB). Left-clicking above or below a fader will adjust the gain three steps at a time. High Pass & Low Pass filters provide 16 frequency steps. Left-clicking to the left or right of the fader will adjust the frequency 4 steps at a time. The Level faders each provide 26 gain steps (± 12 dB, plus off). Right-clicking in the filter band area opens a drop-down menu, which allows copy/paste & flat curve functions. Left-clicking a Preset button will recall the corresponding preset from non-volatile memory (presets are stored automatically). Left-clicking the Bypass button will temporarily bypass filter & level settings (see Configuration Options screen on pg. 6). The title bar across the top of the Main screen will indicate the Device #, the custom Device Name, and the model of product being controlled. The PC Control Software can operate 'off-line' (with no product connected) by opening a 'new' file for the desired product. The Device # for 'off-line' files is assigned sequentially as a negative number.

SETUP

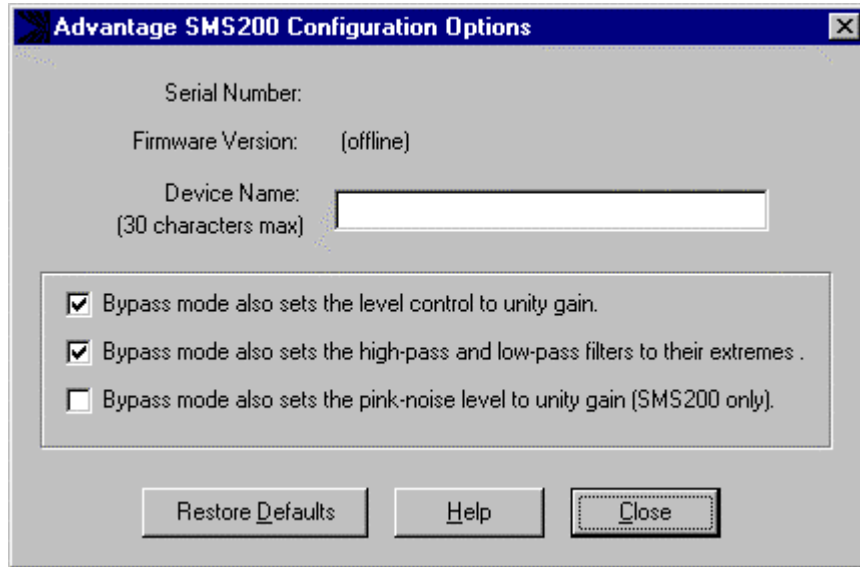


BUTTON DEFINITION SCREEN

The Button Definition screen is used to assign specific 'recall preset actions' to the Logic Inputs (and remote control buttons). Logic Inputs allow remote control of preset selection via external circuits, such as switches, contact-closures, active driver circuits, and/or 'open-collector' logic outputs (see Logic Inputs on pg. 7). From the factory, Logic Inputs 1-8 are programmed to recall presets 1-8 respectively. Logic Inputs 9-15 are programmed to do nothing. Logic Input 16 is programmed to decrement (step down) from the currently selected preset to the next lower numbered preset (until reaching Preset 1). However, using the Button Definition screen, each Logic Input may be assigned different 'recall preset actions'. Left-clicking on a numbered button will select that Logic Input to be defined. Left-clicking on Action will open a drop-down menu of the available recall preset actions. Left-clicking the desired recall preset action will then assign that action to the currently selected Logic Input. Since Logic Inputs are controlled by switches, contact-closures, etc., each Logic Input may be assigned a recall preset action to perform when the switch is 'opened', and a different recall preset action to perform when that switch is 'closed'. The Button Definition screen also includes the ability to assign a specific recall preset action to be performed each time the equalizer is powered up. Left-clicking Power Up Actions selects this function to be defined. A Power Up Action is then assigned in exactly the same way as they would be for a Logic Input. From the factory, the SMS200 has no Power Up Action assigned. When the SMS200 is powered up, and no Power Up Action has been assigned, the SMS200 will automatically recall the last settings which existed before it was powered off. Left-clicking on Echo Character opens a drop-down menu, which allows the 'echo' character for the selected Logic Input to be changed. This is the RS-232 equivalent ASCII character which will be transmitted via the Serial Port, whenever that Logic Input is switched. From the factory, no echo characters are assigned to Logic Inputs 1-16. Changing the echo character is used primarily for customizing remote control commands amongst various RS-232 controlled products within a system (see RS-232 Control on pg. 8).

NOTE: . Unlike other remote controls, the SMS200 Logic Inputs do not include a 'repeat' function. Therefore, a Logic Input in an 'opened' or 'closed' state will not continuously repeat an echo character via RS-232. Although the SMS200 does not accept infrared or wall-mount remote controls itself, it can still receive echo characters (via RS-232) from other ADVANTAGE[®] products which are utilizing these types of remote controls. From the factory, Remote Control Buttons have equivalent ASCII characters permanently assigned to them (see RS-232 Control on pg. 8). Therefore, recall preset actions can be assigned to Remote Control Buttons in the same way they are assigned to Logic Inputs. Left-clicking on Clear opens a drop-down menu, which allows recall preset actions to be cleared from the selected Logic Input (or all Logic Inputs). Left-clicking on Default opens a drop-down menu, which allows recall preset actions to be set back to the factory default for the selected Logic Input (or all Logic Inputs). Left-clicking on Try It causes the recall preset action currently assigned to the selected Logic Input to be performed by the SMS200. Left-clicking on Help provides additional instruction. Left-clicking on Close will close the Button Definition screen.

SETUP



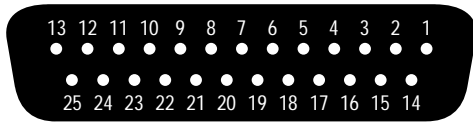
CONFIGURATION OPTIONS SCREEN

The Configuration Options screen is used to select options which customize the operation of the SMS200. At the top of the Configuration Options screen, the Serial Number and Firmware Version of the SMS200 will be displayed. The PC Control Software can operate 'off-line' (with no product connected) by opening a 'new' file for the desired product. The Serial Number and Firmware Version are not displayed for 'new' ('off-line') files. Left-clicking on Device Name allows a custom name to be given to the particular SMS200, by entering up to 30 characters of text. The Device Name will be stored in the SMS200 memory, and will be displayed on the title bar of the Main screen whenever that SMS200 is accessed with the software. Left-clicking on Bypass mode also sets the level control to unity gain will remove the check-mark, and thereby prevent Bypass from changing any current signal level settings. Left-clicking on Bypass mode also sets the high-pass and low-pass filters to their extremes will remove the check-mark, and thereby prevent Bypass from changing any high-pass filter or low-pass filter frequency settings. Left-clicking on Bypass mode also sets the pink-noise level to unity gain will add the check-mark, and thereby allow Bypass to change the noise level setting to unity gain. From the factory, Bypass is programmed to affect the signal level and high-pass & low-pass filters (as well as the 28 filter bands), but not to affect the noise level. Left-clicking on Restore Defaults will set all Configuration Options back to their factory defaults.

LOGIC INPUTS

Sixteen Logic Inputs are available on a rear panel 25-pin Sub-D (female) connector. Logic Inputs allow remote control of preset selection via external circuits, such as switches, contact-closures, active driver circuits, and/or 'open-collector' logic outputs. From the factory, Logic Inputs 1-8 are programmed to recall presets 1-8 respectively. Logic Inputs 9-15 are programmed to do nothing. Logic Input 16 is programmed to decrement (step down) from the currently selected preset to the next lower numbered preset (until reaching Preset 1). However, Logic Inputs may be individually programmed to perform other functions, using the PC Control Software and serial cable provided with the SMS200 (see Setup on pg. 4). Since Logic Inputs are controlled by switches, contact-closures, etc., each Logic Input may be assigned two functions (one for switch 'closed' and one for switch 'open'). Logic Inputs may be programmed to have no effect on the SMS200, but instead trigger ASCII characters which affect other ADVANTAGE® products via RS-232 (see RS-232 Control on pg. 8).

Logic Inputs have the following pin assignments (right-to-left & top-to-bottom): **Pins 1-16)** Logic Inputs 1-16; **Pins 17-25)** Ground.

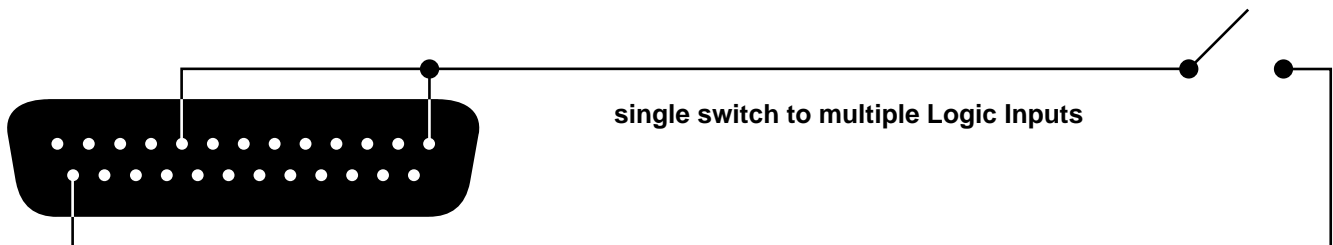
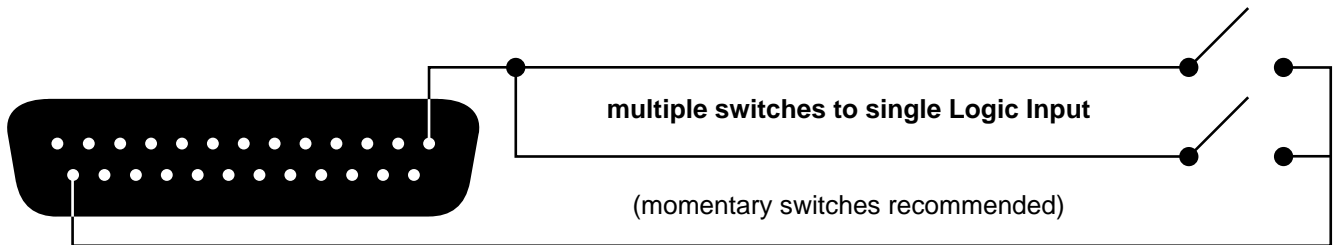


logic inputs

Pins	Functions	Factory Programming
#1-8	Logic Inputs 1-8	Preset Select 1-8
#9-15	Logic Inputs 9-15	NOP (no operation)
#16	Logic Input 16	Preset Decrement (step down to Preset 1)
#17-25	common ground	switch ground points (not programmable)

When nothing is connected to a Logic Input, an internal pull-up resistor keeps it at a 'high' idle state (+5.0 VDC). The Logic Input is activated when its input goes 'low' (less than +0.8 VDC), and is de-activated when its input goes 'high' (greater than +2.4 VDC). A Logic Input is controlled in one of three ways: 1) Use an NPN style 'open-collector' logic output from an external device (such as an ADVANTAGE® PMX84 or DRC4+4) to short the Logic Input to ground. 2) Use a switch, relay, or other contact-closure (such as from a third-party controller) to short the Logic Input to ground. 3) Use an active TTL output driver circuit (such as from a third-party controller) to actively drive the Logic Input to a 'high' or 'low' state.

Multiple contact-closures or 'open-collector' logic outputs or may be wired in parallel to a single Logic Input (see diagram below). Likewise, a single contact-closure or 'open-collector' logic output may be wired in parallel to multiple Logic Inputs. However, these circumstances may be rare, since the Logic Inputs can be individually programmed for specific preset selections. Logic Outputs and contact-closures should be rated for at least 5 Volts / 1mA operation. Low-current / dry-contact closures are recommended for reliability. Active output driver circuits should not exceed a signal range of 0-5 Volts DC, and should have a minimum pulse width of 100 milli-seconds. Logic Input impedances are approximately 10k ohms.



RS-232 CONTROL

The SMS200 has an RS-232 compatible Serial Port, which allows it to be controlled by a computer (see Rear Panel: Serial Port on pg. 3). In addition to the PC Control Software, the SMS200 offers two other methods of computer control.

Control Button Emulation: This method allows the computer to emulate the operation of an ADVANTAGE® infrared or wall-mount push-button remote control. Using this method, the computer outputs ASCII characters, which are equivalent to pressing 'buttons' on a remote control. Control Button Emulation allows the computer to utilize up to forty button definitions (see Setup on pg. 5). When using up to four devices in a system, Control Button Emulation also allows the computer to designate which device or devices should react to each control button command. **NOTE:** *Although the SMS200 does not accept infrared or wall-mount remote controls, it can still receive the corresponding ASCII characters from other ADVANTAGE® products which are utilizing these types of remote controls.*

Advanced Computer Control: This method provides advanced commands, which allow the computer to retrieve or edit level & equalizer settings, presets, control button definitions, and a variety of other functions. The computer may also emulate control buttons. Using this method, the computer may designate up to sixty-four devices, and may create unlimited presets. The computer may also provide 'real-time' display of equalizer settings.

This manual only describes the Control Button Emulation method of computer control. For complete details about using the equalizers with a computer, including Advanced Computer Control, contact Biamp Systems for the manual "Computer Control of ADVANTAGE® EQ281/8, EQ282/8, & SMS200".

Each push-button on an ADVANTAGE® infrared or wall-mount remote control corresponds to one character in the standard ASCII character set. The character equivalents are summarized in the following table. This table includes all forty of the possible buttons, their button numbers, their ASCII code equivalents, and their factory default button definitions (see Setup on pg. 5). **NOTE:** *From the factory, there are no functions assigned to any of the control buttons.*

button 01	B	NOP (no operation)	button 15	P	NOP (no operation)	button 29	^	NOP (no operation)
button 02	C	NOP (no operation)	button 16	Q	NOP (no operation)	button 30	_	NOP (no operation)
button 03	D	NOP (no operation)	button 17	R	NOP (no operation)	button 31	'	NOP (no operation)
button 04	E	NOP (no operation)	button 18	S	NOP (no operation)	button 32	b	NOP (no operation)
button 05	F	NOP (no operation)	button 19	T	NOP (no operation)	button 33	c	NOP (no operation)
button 06	G	NOP (no operation)	button 20	U	NOP (no operation)	button 34	d	NOP (no operation)
button 07	H	NOP (no operation)	button 21	V	NOP (no operation)	button 35	e	NOP (no operation)
button 08	I	NOP (no operation)	button 22	W	NOP (no operation)	button 36	f	NOP (no operation)
button 09	J	NOP (no operation)	button 23	X	NOP (no operation)	button 37	g	NOP (no operation)
button 10	K	NOP (no operation)	button 24	Y	NOP (no operation)	button 38	h	NOP (no operation)
button 11	L	NOP (no operation)	button 25	Z	NOP (no operation)	button 39	i	NOP (no operation)
button 12	M	NOP (no operation)	button 26	[NOP (no operation)	button 40	j	NOP (no operation)
button 13	N	NOP (no operation)	button 27	\	NOP (no operation)			
button 14	O	NOP (no operation)	button 28]	NOP (no operation)			

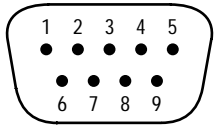
The computer can initiate any functions that are assigned to a control button or Logic Input, by simply transmitting the equivalent control button ASCII character. When interfacing the SMS200 to a computer, the computer must be aware that the SMS200 will 'echo' all characters it receives (both from computer and Logic Inputs) via the Serial Port Transmit Data (TXD) output signal.

When using Control Button Emulation, up to four ADVANTAGE® products may be connected together, and addressed individually,. When multiple units are used, each unit is assigned a unique "Device #" (see Rear Panel: Device # on pg. 3). Normally, all units would react to control button commands. However, a computer can send commands to specific units, by preceding each command with a "device select prefix" character (see following table). Only those units whose Device #s are specified will respond to the command which follows. If a command is not immediately preceded by a device select prefix character, then all units in the system will react to that command.

Select Device 1	l	Select Devices 2 & 3	q	Select Devices 1 & 2 & 4	v
Select Device 2	m	Select Devices 1 & 2 & 3	r	Select Devices 3 & 4	w
Select Devices 1 & 2	n	Select Device 4	s	Select Devices 1 & 3 & 4	x
Select Device 3	o	Select Devices 1 & 4	t	Select Devices 2 & 3 & 4	y
Select Devices 1 & 3	p	Select Devices 2 & 4	u	Select Devices 1 & 2 & 3 & 4	z

RS-232 CONTROL

Serial Port: The 9-pin Sub-D (male) connector on the SMS200 rear panel provides the RS-232 compatible serial interface signals used for computer control. The Serial Port transmits serial data on pin 3 (TxD), receives serial data on pin 2 (RxD), and provides a ground on Pin 5. The Data Terminal Ready (DTR) & Request To Send (RTS) output signals are connected to a positive voltage source (through a resistor) and are always asserted when the SMS200 power is on. **NOTE:** *The Serial Port will also transmit commands which are received via the Logic Inputs*



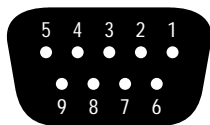
- | | |
|--|--|
| pin #1 = not used | pin #6 = not used |
| pin #2 = Receive Data (RxD) input | pin #7 = Request To Send (RTS) output |
| pin #3 = Transmit Data (TxD) output | pin #8 = not used |
| pin #4 = Data Terminal Ready (DTR) output | pin #9 = not used |
| pin #5 = ground | |

serial port

The SMS200 only requires receive data (pin 2), transmit data (pin 3), and signal ground (pin 5) to be connected for successful data communications (see cable diagram below). However, the PC may require that signals be present on the data set ready, clear to send, or carrier detect inputs, as well as the receive data, transmit data, and signal ground pins. Success or failure depends entirely on the actual computer hardware and software being used. When trying to solve an interfacing problem, the most important thing to remember is that an output of one device should connect to one or more inputs of the other device, and that two outputs should never be connected together. Also, keep in mind that the RS-232 specification calls for the cable length to be no greater than 50 feet (although it is not unusual to be able to operate over distances of 150 to 250 feet), and the connectors must be of the appropriate gender (male or female) to mate properly. For best results, a shielded cable should be used, with the shield connected to signal ground. Since the SMS200 serial interface ground is also tied (indirectly) to the analog signal ground, undesirable ground loops may occur when the SMS200 is connected to a PC (if the system grounding is not carefully designed). For best performance, the PC ground and the chassis ground of the SMS200 should be at the same potential, and the PC should get AC power from the same source as the SMS200 (and any other audio equipment which is connected to the SMS200).

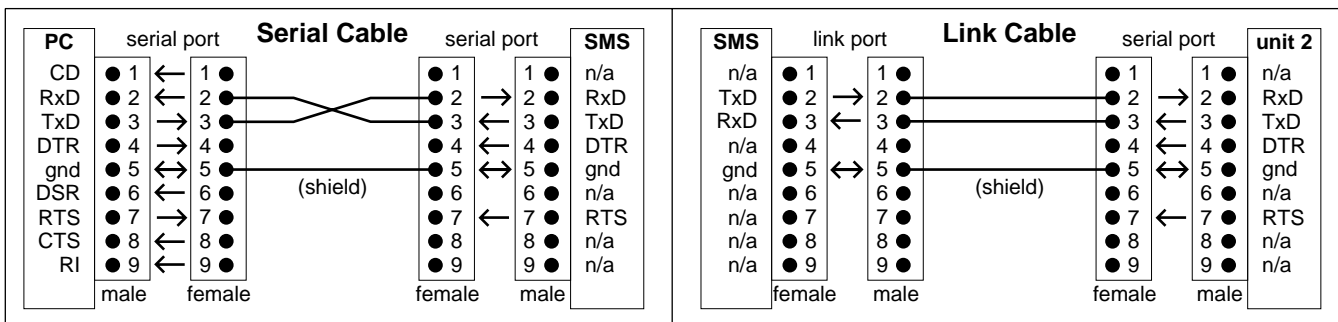
Serial Port Data Communications Parameters: The SMS200 communicates through the Serial Port at the factory selected rate of 9600 bits per second, with 8 data bits, 1 stop bit, and no parity. The SMS200 utilizes a subset of the standard 7-bit ASCII character set. The eighth data bit of each character (the most significant bit) should always be 0. The computer should not echo the characters it receives. The computer should not be set for either hardware (DTR) or software (XON/XOFF) flow control. The baud rate may be changed to either 2400 or 19,200 bits per second by means of the rear panel Baud Rate DIP switches.

Link Port Connections: The 9-pin Sub-D (female) connector on the SMS200 rear panel provides the RS-232 compatible serial interface signals used for linking multiple ADVANTAGE® products within a system. The Link Port of one device simply connects to the Serial Port of the next device, and so forth (see diagram below). Link cables are available as an option (Biamp #909-0057-00). **NOTE:** *All but the final device in a system should have its 'last' switch down (see Rear Panel: Baud Rate on pg. 3). The Link Port will also transmit commands which are received via the Logic Inputs.*



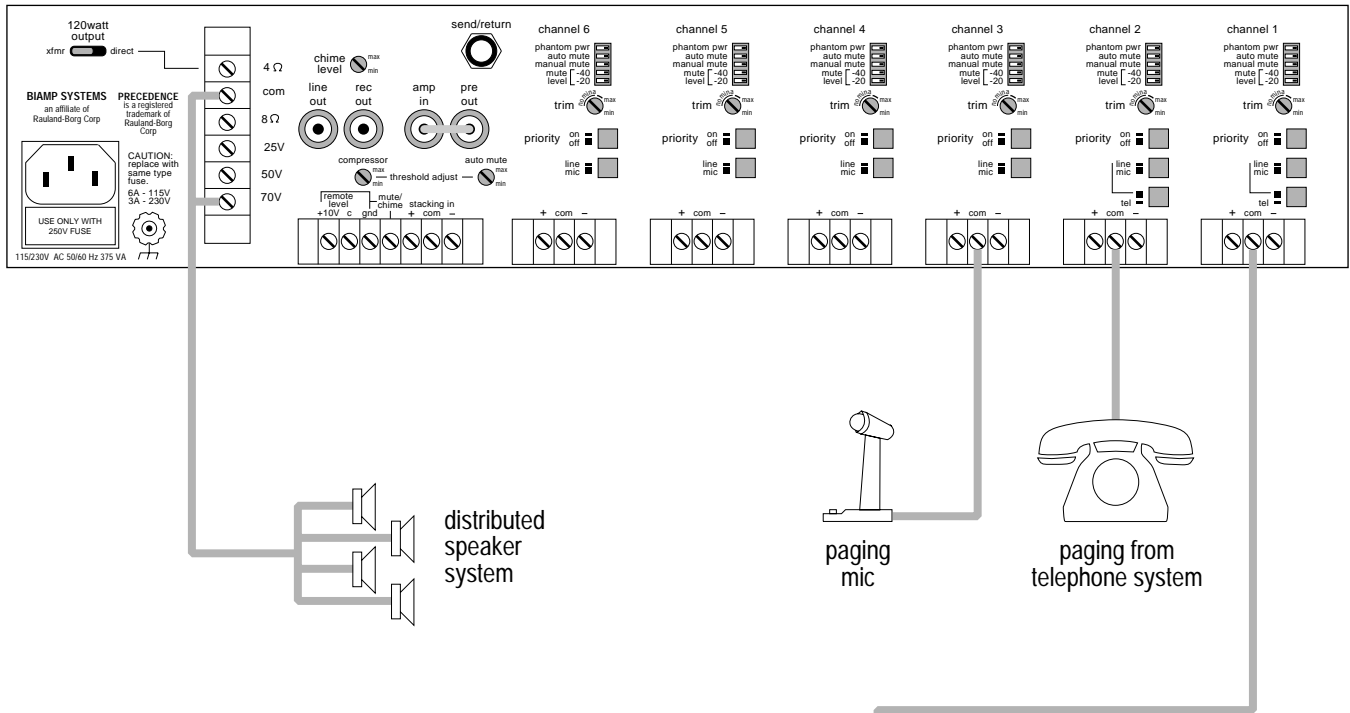
- | | |
|--|--------------------------|
| pin #1 = not used | pin #6 = not used |
| pin #2 = Transmit Data (TxD) output | pin #7 = not used |
| pin #3 = Receive Data (RxD) input | pin #8 = not used |
| pin #4 = not used | pin #9 = not used |
| pin #5 = ground | |

link port

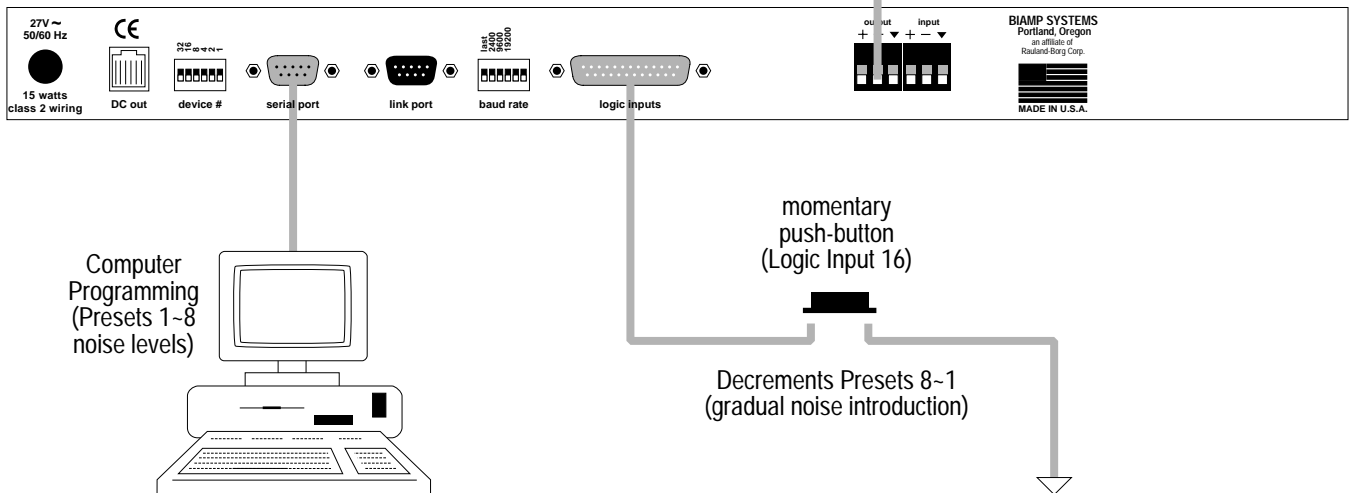


APPLICATIONS

CMA120



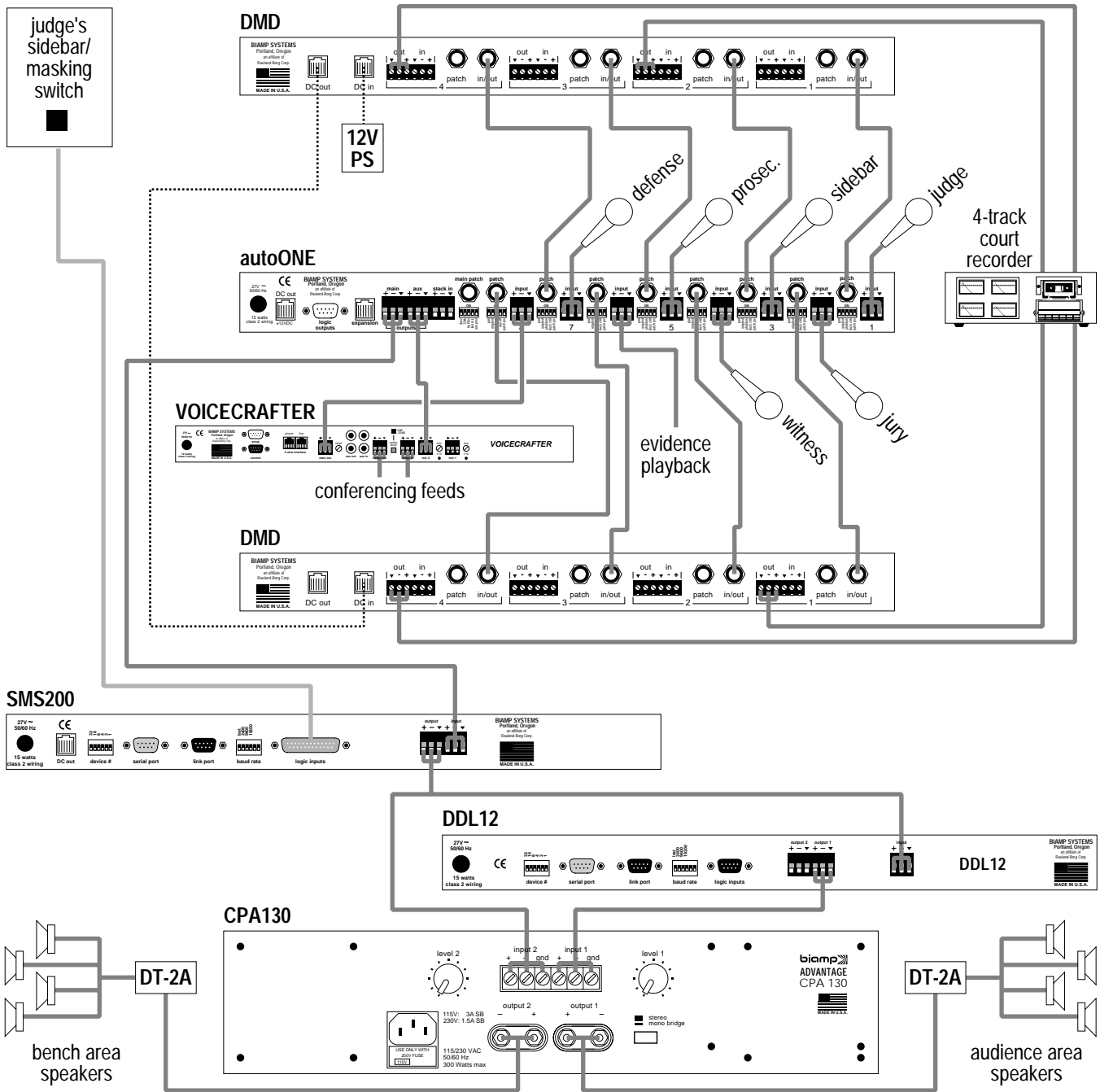
SMS200



Small Office Facility with Noise Masking and Paging Combined

This application shows a PRECEDENCE® CMA120 providing page & noise input mixing to a common amplifier and distributed speaker system. This could be any mixer/amplifier system. The SMS200 provides noise and equalization of the noise, before it is sent to the CMA120. In addition, the SMS200 provides up to eight selectable presets, which include both equalization and level settings. This allows Presets 8-1 to be stored with gradually increasing noise levels, and appropriate equalization. The SMS200 also provides a preset decrement function on Logic Input 16. Therefore, a single momentary switch may be used to cycle down through the presets (one a day). This allows the noise to be introduced into the system slowly and, therefore, inconspicuously to the office personnel. Noise levels and equalization are programmed via RS-232, while only preset decrementation (noise introduction) is controlled via a momentary switch.

APPLICATIONS

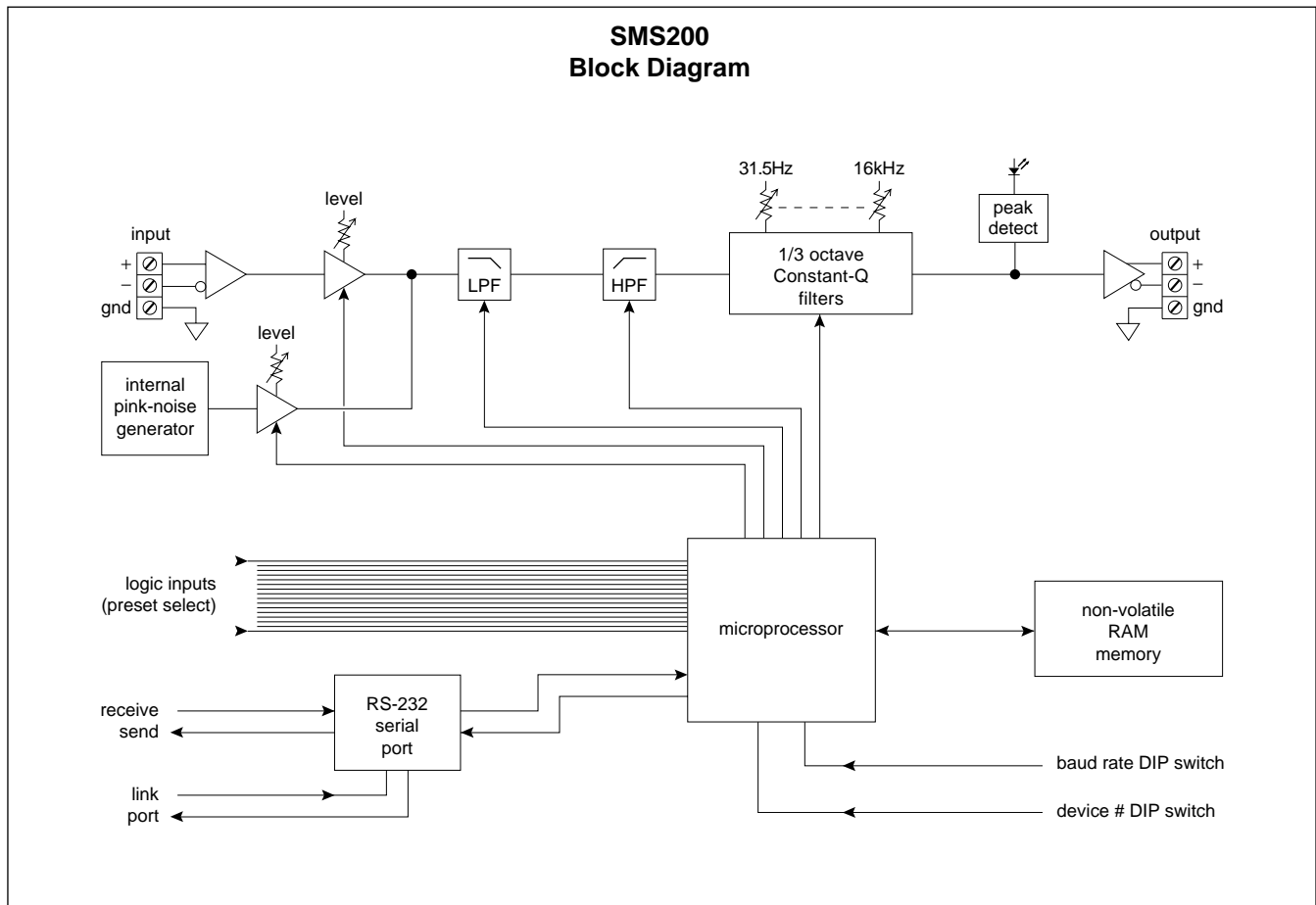


Courtroom with Noise Masking of Sidebar Conversations

This application shows an ADVANTAGE® autoONE providing automatic mixing & mix-minus feeds to sound reinforcement and teleconferencing systems. Two ADVANTAGE® DMDs provide interface of signals to a 4-track court recorder. An ADVANTAGE® Voicecrafter provides echo cancellation and interface for teleconferencing. An ADVANTAGE® DDL12 provides delay for the audience speakers. An ADVANTAGE® CPA130 and two ADVANTAGE® DT-2As provide amplification and interface to two distributed speaker systems. The SMS200 provides up to eight selectable presets, which include both equalization and level settings. In this application, the SMS200 is programmed with two presets: one provides equalization & level for the sound reinforcement signal, and one provides equalization & level for noise masking. A switch, connected to a logic input on the SMS200, is pressed by the judge when having 'sidebar' (private) conversations with the attorneys. This switch temporarily selects the noise masking preset, which turns off the sound reinforcement level, turns on the noise level, and provides proper equalization for noise masking. This preset effectively masks the 'sidebar' conversation from being overheard. The system returns to normal when the switch is released. Equalization, levels, & presets are programmed via RS-232, while only preset selection is controlled via the 'sidebar' switch.

SPECIFICATIONS & BLOCK DIAGRAM

Frequency Response (20Hz-20kHz @ +4dBu):	+0/-0.5dB	High-Pass Filter (12dB/octave - programmable):	9.1Hz-171.9Hz
THD + Noise (20Hz-20kHz @ +4dBu):	<0.01%	Low-Pass Filter (12dB/octave - programmable):	1.9kHz-34.7kHz
Intermodulation Distortion (SMPTE):	<0.01%	Noise Purity (0Hz-20kHz - white-noise):	±0.1dB
Hum & Noise (20Hz-20kHz @ unity, filters flat, noise off):	-85dBu	Noise Filtering (low-pass - pink-noise):	-3dB/octave
Dynamic Range (20Hz-20kHz):	109dB	Noise Repeat Time (non-apparent)	200 minutes
Input Impedance (balanced):	>10k ohms	Noise Gain Range (programmable / -3dBu nominal):	±12dB & off
Maximum Input Level:	+19dBu	Power Requirements:	120/240VAC
Output Impedance (balanced):	200 ohms	Power Consumption:	15 watts max.
Maximum Output Level (balanced into 600Ω):	+24dBu	Dimensions:	
Filter Frequencies (ISO centers):	31.5Hz-16kHz	Height (1 rack space)	1.75 inches (44mm)
Filter Gain Range (programmable):	±12dB in 1dB steps <u>or</u> ±6dB in 0.5dB steps	Width	19 inches (483mm)
Input Gain Range (programmable):	±12dB & off	Depth	7 inches (178mm)
		Weight:	7 lbs. (3.18kg)



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.

BIAMP Systems expressly warrants this product to be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase as a new product from an authorized BIAMP Systems dealer under the following conditions.

1. In the event the warranted BIAMP Systems product requires service during the warranty period, BIAMP Systems 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 Systems Service Center. Transportation and insurance charges to and from an authorized Service Center or the BIAMP Systems factory for warranted products or components thereof to obtain repairs shall be the responsibility of the purchaser.

2. 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 Systems to make repairs; or if the product has been installed contrary to BIAMP Systems's recommendations.

3. Electro-mechanical fans, electrolytic capacitors, and the normal wear and tear of appearance items such as paint, knobs, handles, and covers are not covered under this warranty.

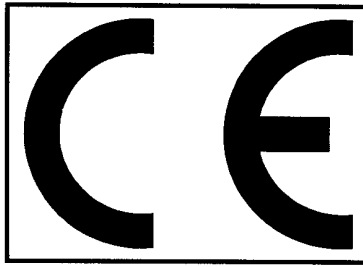
4. BIAMP SYSTEMS SHALL NOT IN ANY EVENT BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, LOSS OF USE, PROPERTY DAMAGE, INJURY TO GOODWILL, OR OTHER ECONOMIC LOSS OF ANY SORT. EXCEPT AS EXPRESSLY PROVIDED HEREIN, BIAMP SYSTEMS DISCLAIMS ALL OTHER LIABILITY TO PURCHASER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

5. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. BIAMP SYSTEMS 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 SYSTEMS ARE NOT AUTHORIZED TO MODIFY THIS WARRANTY OR TO MAKE ADDITIONAL WARRANTIES BINDING ON BIAMP SYSTEMS. ACCORDINGLY, ADDITIONAL STATEMENTS SUCH AS DEALER ADVERTISEMENTS OR REPRESENTATIONS DO NOT CONSTITUTE WARRANTIES BY BIAMP SYSTEMS.

6. 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 SYSTEMS...
AMERICAN SOUND CRAFTSMANSHIP

Biamp Systems
10074 S.W. Arctic Drive
Beaverton, Oregon 97005 U.S.A.
(503) 641-7287
<http://www.biamp.com>



Declaration of Conformity

BIAMP SYSTEMS
10074 SW Arctic Drive
Beaverton, OR USA 97005

as the manufacturer, hereby declares that the following described product, in our delivered version, complies with the provisions of the DIRECTIVES as noted herein. In case of alteration of the product, not agreed upon or directed by us, this declaration is no longer valid.

Product: Model: ADVANTAGE® SMS200
 Description: Audio Equalizer

Applicable EC Directives: EMC Directive (89/336/EEC) LVD Directive (73/23/EEC)

Applicable Harmonized Standards: EN50081-1 emissions EN50082-1 immunity
 EN60065 safety

Special Considerations for Product Environment or Compliance: Shielded cabling must be used for system connections.

This apparatus operates from a removeable external power source at voltages below the levels encompassed by the LVD. The external power source complies with the applicable requirements of EN60065. The apparatus itself is outside of the scope of the LVD and presents no hazardous voltages, as defined in the LVD. For compliance, the apparatus shall be powered only from the separate CE marked BIAMP SYSTEMS power source.

The Technical Report/File is maintained at:

Biamp Systems
10074 SW Arctic Drive
Beaverton, OR USA 97005
phone: (503) 641-7287 fax: (503) 626-0281
e-mail: biamp@biamp.com

Authorized Representative: Ralph Lockhart, President

Authorized Representative Signature:

Issued: June 1998

A handwritten signature in cursive script, which appears to read 'Ralph D. Lockhart', is written over the printed name.

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

PRECAUCIÓN : la instalación de este aparato debería hacerse por una persona calificada 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 e che dunque si potrebbe incorrere sul rischio di una possibile scossa elettrica.



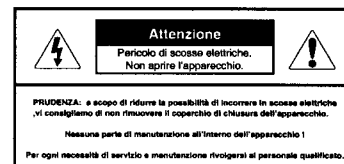
La simbologia con il punto esclamativo all'interno di un triangolo, intende avvisare l'utente di una serie di istruzioni contenute nel manuale d'uso riguardanti: operato, manutenzione e assistenza. Il suddetto manuale sarà a corredo dell'apparecchio.

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 Bedienungselemente 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 ejendomsskader, 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 ejendomsskader, 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 udråbstegn 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 svaret ikke fjernes.		
Indeholder ingen komponenter relevante for brugeren.		
Anvend autoriseret servicepersonale ved alle serviceeftersyn.		

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 betekenis:

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 internationale erkende symbolen om veiligheidsinstructies aan te geven.



De bliksemschicht in een driehoek wordt gebruikt om de gebruiker te attenderen op ongeïsoleerde "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 VERMIDDEN 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 verminderen het apparaat niet openen.		
Er zijn geen, door 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 tärkeistä turvallisuusinformatiosta. 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 turvallisuusinformatioon.



Kolmion sisällä olevan nuolipäinen salama varoittaa käyttäjää laitteen sisällä tai liitännöissä olevasta eristämättömästä vaarallisesta jännitteestä, joka saattaa olla tarpeeksi suuri aiheuttaakseen sähköiskun vaaran.



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

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

HUOMIO: Laitteen asentaminen tulisi jättää ammattitaitoisen henkilön suoritettavaksi 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 ødeleggelser 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 uisolert "farlig spenning" inne i apparatet, eller tilkoblings terminaler som kan gi støt.



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 tilleggs informasjon som følger er kun for kvalifiserte installatører eller service personell.

	VIKTIG FARE FOR STØT, MÅ IKKE DEMONTERES.	
VIKTIG: For å unngå faren for støt, må ingen deksler fjernes. Ingen interne deler skal justeres eller repareres av bruker. Overlat service til autorisert personell.		

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 VÄTSKA.

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	
OBSERVERA: FÖR ATT MINSKA RISKEN FÖR ELEKTRISK STÖT, AVLÅGNSA EJ LOCKET. INGA AV ANVÄNDARE UTBYTBARA ELLER REPARERBARA KOMPONENTER INUTI DENNA APPARAT. ALL SERVICE PÅ DENNA APPARAT SKALL UTFÖRAS AV KVALIFICERAD PERSONAL		

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 επιστράτη 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 ως αποτέλεσμα μικροτραυματισμούς αν δεν ακολουθηθούν τα σωστά βήματα.

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



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



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 ηλεκτροπληξίας, 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 εφαρμοσμένους 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 ΗΛΕΚΤΡΟΠΛΗΞΙΑΣ. ΜΗΝ ΑΝΟΙΓΕΤΕ.	
ΠΡΟΣΟΧΗ: ΓΙΑ ΝΑ ΜΕΙΩΣΕΤΕ ΤΟΝ ΚΙΝΔΥΝΟ ΗΛΕΚΤΡΟΠΛΗΞΙΑΣ, ΜΗΝ ΜΕΤΑΚΙΝΗΣΕΤΕ ΤΟ ΚΑΛΥΜΜΑ. ΔΕΝ ΠΑΡΕΧΟΝΤΑΙ ΑΝΤΑΛΛΑΚΤΙΚΑ SERVICE ΣΤΟΝ ΧΡΗΣΤΗ ΓΙΑ SERVICE ΑΝΑΦΕΡΕΤΕ ΣΤΟ ΕΞΕΙΔΙΚΕΥΜΕΝΟ ΠΡΟΣΩΠΙΚΟ SERVICE.		

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 no 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.	
PRECAUÇÃO: PARA REDUZIR O RISCO DE CHOQUE ELÉCTRICO, NÃO REMOVA A TAMPA. PARTES INTERNAS NÃO MANTIDAS PELO USUÁRIO. ENCAMINHE A MANUTENÇÃO PARA PESSOAL DE SERVIÇOS QUALIFICADO.		