

**AUDIOCONFERENCING  
SYSTEM**  
–The Voice Plus–

INSTALLATION AND  
USER MANUAL

# **AUDIOCONFERENCING SYSTEM**

## **–The Voice Plus–**

### **INSTALLATION AND USER'S MANUAL**

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## SAFETY RULES



THE CHANGE FROM COLD TO HOT ENVIRONMENTS CAN CAUSE THE FORMATION OF CONDENSATE INSIDE THE DEVICE. TO AVOID MALFUNCTIONING, WAIT AT LEAST 1 HOUR BEFORE CONNECTING THE DEVICE TO THE SUPPLY MAINS.



WARNING: FOR POWER SUPPLY CONNECTION USE AN EASILY ACCESSIBLE OUTLET LOCATED NEAR THE DEVICE.  
NEVER REMOVE THE MAINS PLUG FOR PERMANENT CONNECTION.



WARNING: RISK OF ELECTRIC SHOCK  
THE POWER SUPPLY USED BY THIS DEVICE INVOLVES **LETHAL** VOLTAGE LEVELS.



DO NOT ACCESS INTERNAL PARTS OF THE DEVICE (AND/OR OF THE POWER SUPPLY UNIT).



IF OBJECTS OR LIQUIDS PENETRATE INSIDE THE DEVICE, IMMEDIATELY DISCONNECT THE POWER SUPPLY CABLE. BEFORE USING THE DEVICE AGAIN, HAVE IT CHECKED BY SPECIALIZED STAFF.



REFER TO QUALIFIED STAFF FOR SERVICE.



IN CASE OF INTERVENTION, ALWAYS CHECK THAT THE POWER SUPPLY HAS BEEN COMPLETELY AND SUCCESSFULLY DISCONNECTED.



IN CASE OF FIRE, ABSOLUTELY AVOID USING WATER TO EXTINGUISH IT.



THE BATTERIES OF THIS EQUIPMENT MUST BE RECYCLED BY A COMPANY IN CHARGE OF THIS ACTIVITY, A COMPANY QUALIFIED FOR THE DISPOSAL OF DANGEROUS MATERIALS OR BY USING CONTAINERS PROVIDED FOR THE SEPARATE COLLECTION OF WORN OUT BATTERIES.

### WARNINGS



**CAUTION:**  
MANY OF THE COMPONENTS USED IN THIS DEVICE ARE SENSITIVE TO ELECTROSTATIC CHARGE.



IN CASE OF MANIPULATION OF THE CONNECTION CABLES, DISCONNECT THE POWER SUPPLY AND AVOID DIRECT CONTACTS WITH THE CONNECTOR TERMINALS.



FAILURE TO COMPLY WITH THESE WARNINGS COULD CAUSE PERMANENT DAMAGE TO DEVICE.

### CLEANING

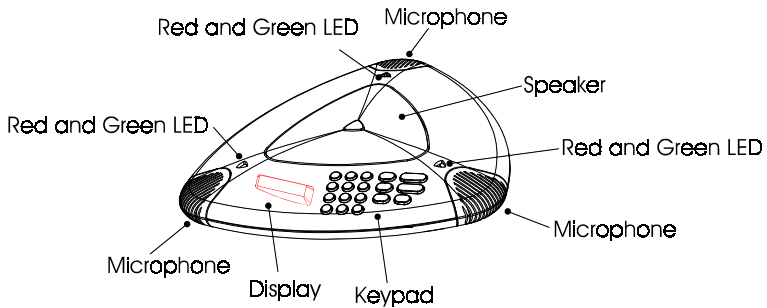


TO CLEAN THE DEVICE USE A SOFT CLOTH EITHER DRY OR MOISTENED WITH A LITTLE DETERGENT. NEVER USE ANY TYPE OF SOLVENTS, SUCH AS ALCOHOL OR GASOLINE, TO AVOID DAMAGING THE FINISH.

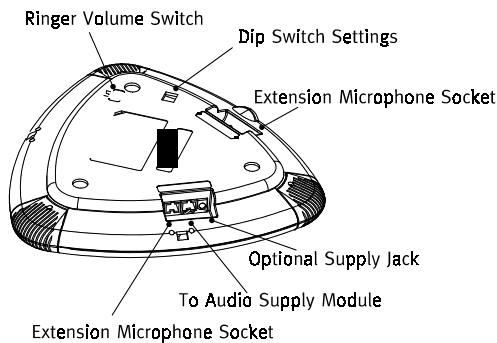
# 1. INTRODUCTION

The Voice™ Plus Audio Conferencing System is capable of providing actual “full duplex” communication without the noise, echo and feedback that are common in most speakerphones. Designed to work with an analog (PSTN) telephone line, as well as with a digital (ISDN) line, The Voice™ Plus features advanced Digital Signal Processing and software controlled functions. Taking advantage of its sharp, clear backlight LCD display, it proves to be very easy to use and it will ensure that you can always receive high fidelity sound during your conference calls. The included infrared remote control adds the comfort of operating the system while being away from the base unit.

## TOP



## BOTTOM



## 1.1. SYSTEM FEATURES

- ▶ 32-bit floating-point DSP (Digital Signal Processing) technology
- ▶ LCD display (2 rows x 16 columns, 40 characters-wide screen)
- ▶ infrared remote control with 360-degrees operating angle
- ▶ full duplex, interactive operation for natural conversation
- ▶ built-in telephone dial pad – no separate phone required
- ▶ built-in loudspeaker
- ▶ software-controlled room noise monitors and telephone line noise monitors
- ▶ Automated Gain Control to minimize talking loudness variations
- ▶ ringer tone switch (silent/low/high)
- ▶ pulse (decadic) ore tone (multi-frequency) dialing mode
- ▶ phonebook with 100 locations of up to 40 digits,
- ▶ plus a 16-characters name for labeling each phonebook entry
- ▶ ordinary telephone connector
- ▶ expandable with up to 2 optional extension microphones

## 2. GETTING STARTED

For correct installation, follow the instructions given below. This will ensure proper operation of the unit.

The Voice™ Audio Conferencing System includes the following items:

- ▶ The Voice™ Audio Conferencing Unit (ACU)
- ▶ The Voice™ Audio Supply Module (ASM)
- ▶ a black 6 meter (20 ft) cable with two RJ-45 modular plugs to connect the Audio Conferencing Unit to the Audio Supply Module
- ▶ a black 4 meter (13 ft) cable with two RJ-11 modular plugs for connection to any analog telephone network
- ▶ a power supply cable to connect the Audio Conferencing Unit to the power-line supply
- ▶ a remote control
- ▶ user's guide

### 2.1. CONNECTION AND SUPPLY MODULE FOR THE AUDIO CONFERENCING SYSTEM

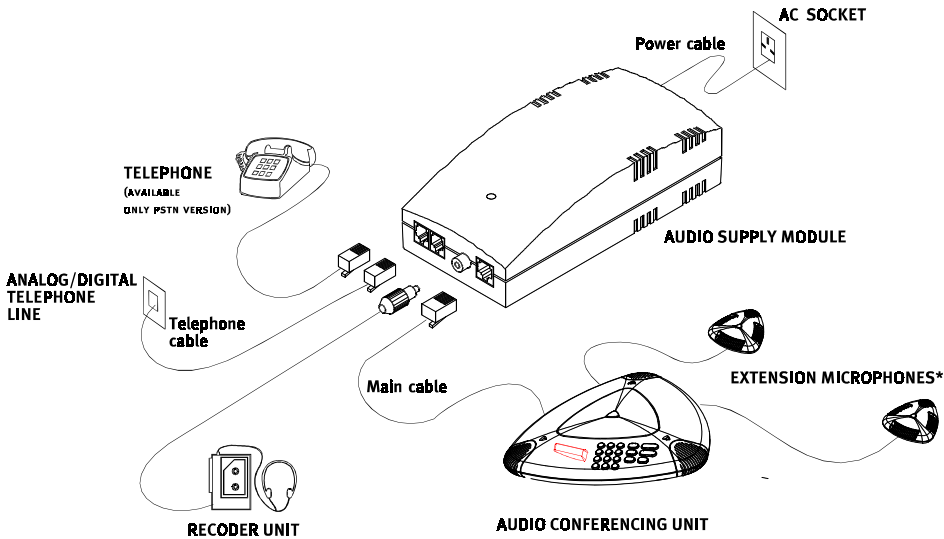


#### WARNING

CONNECT ALL AUXILIARY CABLES BEFORE CONNECTING THE UNIT TO THE MAINS.

1. Plug the cable from the AUDIO SUPPLY MODULE into the Main Supply Socket under the left side of the AUDIO CONFERENCING UNIT.
2. Plug the flat cable from the AUDIO SUPPLY MODULE into a wall jack of a standard analog telephone line.

3. Plug the power cable from the AUDIO SUPPLY MODULE into an AC socket.
4. The AUDIO CONFERRING UNIT will run a self-test. The LEDs will flash and then you will hear a tone.
5. Place the AUDIO CONFERRING UNIT on a stable surface, and dial the desired telephone number.
6. OPTIONAL. To utilize the privacy feature, plug the cable from a regular telephone unit into the "Phone" socket on the ASM.



**\*OPTIONALS**



**WARNING**

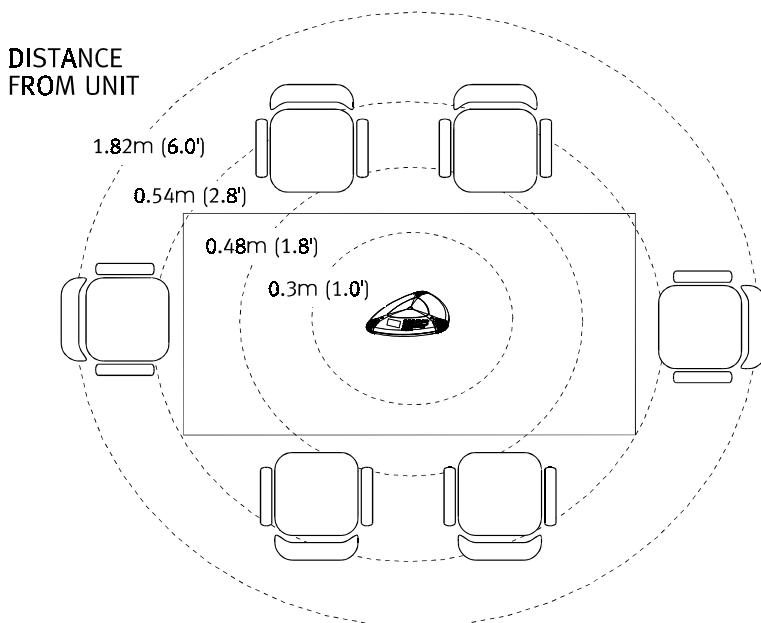
- NEVER install telephone wiring during a lightning storm.
- NEVER install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- NEVER touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

- ALWAYS USE CAUTION when installing or modifying telephone lines.
- ALWAYS place the AUDIO SUPPLY MODULE on the floor.

## 2.2. HOW TO ENSURE BETTER PERFORMANCE

For best microphone coverage, place The Voice™ Audio Conferencing Unit in the center of the conference table.

Participants should be seated uniformly around the ACU to minimize level differences in the pick-up of voices. In noisier rooms, participants need to be closer to the module for clearer pickup of their voices. For optimum performance, use the figure below to determine talker distance to unit.



NOTE: Keep large sound reflecting objects such as water carafes and briefcases at least 0.3 meter (1 foot) away from the ACU.



**WARNING !!**

THE VOICE™ IS DESIGNED TO COPE WITH THE WORST ACOUSTIC AND LINE CONDITIONS AND WILL ENSURE GOOD PERFORMANCE, EVEN AT MAXIMUM VOLUME. MINIMUM HOWLING OR SOUND DISTORTION CAN BE AVOIDED BY REDUCING THE VOLUME, ESPECIALLY DURING THE FIRST 60 SECONDS OF OPERATION.

## 3. THE VOICE™ PLUS BASIC OPERATIONS

This chapter will provide a thorough description of the most common operations that can be performed with the system; the explanation regarding advanced features (phonebook management, etc.) can be found in Chapter 4.

### 3.1. OUTGOING CALLS.

Press the *ON* key to go off-hook: the three LED's on the corners of the ACU will turn GREEN. Now you can dial the desired telephone number, or you can recall it from the phonebook (see paragraph 4.1.1.). Press the *OFF* key to terminate the conversation; the three LED's will then turn back to YELLOW.

Re-dialing of the last dialed number can be performed by going off-hook and pressing the *REDIAL* key.

### 3.2. EARLY DIALING

When the phone is on-hook, you can either type in a phone number or you can recall it from the phonebook (see paragraph 4.1.1.): the number digits will appear on the LCD screen accordingly. When entering the number, use the *MUTE* key to delete the last typed digit, and the *OFF* key to clear the whole number. As soon as the *ON* key is pressed, the 'early-dialed' number will be sent out. Otherwise, if the unit remains idle for more than 30 seconds, the early dial buffer is reset; the same applies when the unit detects an incoming call.

### 3.3. INCOMING CALLS

When an incoming call is detected, a ringing signal is generated, while the three LED's will FLASH YELLOW and a pop-up sign appears on the LCD display:



The Voice™ *Plus* supports the Calling Line ID Presentation (CLIP) standard, therefore, if your provider supports it, the caller's phone number is displayed as soon as the related messaging signal is detected and correctly decoded.



### 3.4. ADJUSTING THE PHONE RINGER VOLUME

A ringer volume switch is available with SILENT, LOW and HIGH positions on the bottom side of the base unit

### 3.5. WHEN A CALL IS IN PROGRESS

Throughout the phone call, a progress timer will show up on the LCD screen, so you can check the running duration. While off-hook, use the **-VOL / +VOL** keys repeatedly to adjust the speaker volume. The LED's will blink at every volume step, and a meter bar will appear on the LCD display. There are 25 volume steps, ranging from -18 to +6 dB. When trying to increase or decrease the volume beyond these limits, you will be warned by a different blink pattern of the unit LED's.

### 3.6. MUTING / HOLDING A PHONE CALL

Press **MUTE** to cut off outgoing sound during a call. The LED's will turn RED. Your microphones are off and your voice is not heard by the other party. Press **MUTE** again to disable this feature and allow your voice to be heard by the other party (the LED's will turn back to GREEN). Likewise, you can cut off both incoming and outgoing sound, keeping the connection alive, by pressing **SHIFT+MUTE**: in this 'hold' mode the LED's will FLASH RED, you will not be able to hear the other party nor will they be able to hear you. To switch off the hold mode, simply press the **MUTE** key, and check that the three LED's turn back to GREEN.

### 3.7. USING AN EXTERNAL PHONE

For sake of privacy, you may want to connect regular phone equipment to the Audio Supply Module, and use it in place of the ACU. To do so, you have just to take the phone off-hook, and you will see that the three LED's turn off, while the LCD display will read as below.



[EXT.LINE]

If you want to switch the line back to the ACU, without cutting off the call, simply press the **ON** key: you will see the LED's flash GREEN, to remind you that the ACU will take over the line as soon as the external phone goes on-hook.



## 4. MENU MODE

The Menu Mode can be accessed from either on-hook or off-hook mode, by pressing the SHIFT+FLASH key sequence on the base unit keypad. The same key sequence must be pressed to exit Menu Mode. When on-hook, you will hear two distinctive sounds when entering and exiting Menu Mode, while the YELLOW LED's will start and stop blinking.

When in Menu Mode, you can recall, save, edit and erase the phonebook entries, and you can modify some equipment settings.

The Menu Mode is operated through the *ON*, *OFF*, *-VOL* and *+VOL* keys, which act as Menu Enter, Menu Exit, Menu Previous and Menu Next navigation commands. There are more contextual key definitions that will be explained in the following related paragraphs.

Please note that, when in Menu Mode, the remote control is disabled; however, even if you are not able to check the LCD display, you are warned of being in Menu Mode by the blinking YELLOW LED's.

## 4.1. THE PHONEBOOK

The Voice™ *Plus* features a very easy-to-use phonebook; you can store up to 100 phone numbers (max. 40 digits each), and associate each of them with a name of up to 16 characters. Once in Menu Mode, you can move through the available phonebook commands by pressing *-VOL / +VOL*; the *ON* key will select the active menu, then it will be used to proceed to the next operation step; conversely, in any moment, the *OFF* key will quit the ongoing operation. A detailed explanation of each command is found in the following paragraphs.

### 4.1.1 MEMORY RECALL

◀ Memory Recall ▶

Press *ON* to proceed to memory recall. When recalling by memory position, simply enter up to two numbers that specify a memory location. Otherwise, recall by memory name is possible, specifying up to sixteen characters; you need not type in the whole name, since you will be always prompted with the closest alphabetical match in the phonebook.

◀ Recall Pos. ▶

Pos.: 21

◀ Recall Name ▶

Name.: Lar

After pressing the *ON* key, you can browse the phonebook, either by position or in alphabetical order, depending on the selected recall option.

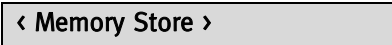


< 21: Larry Laf

0,55634253

At this point, a further **ON** keypress will transfer the selected number to the 'Early Dial' buffer, when on-hook, or it will start dialing the selected number, when off-hook.

#### 4.1.2 MEMORY STORE



< Memory Store >

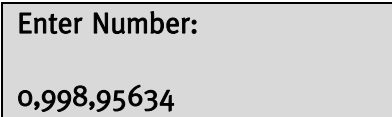
When the 'Memory Store' menu screen is selected, simply press **ON** to store a phonebook entry. Then, type in one or more characters, by repeatedly pressing the numeric key which corresponds the required letter; you can delete mistyped characters using the MUTE key.



Enter Name:

Condoleeza

Press **ON** to proceed entering the phone number; you can enter up to 40 digits. Please note that, for calls through PBX's, you can enter a one-second dialing pause (displayed as a comma ',') in any position, by pressing the FLASH key.



Enter Number:

0,998,95634

A further **ON** keypress is needed to confirm the storing operation. The first free entry in the phonebook will be chosen for storing, as reported on the LCD display. After a short delay, the display then reverts to the memory store menu.



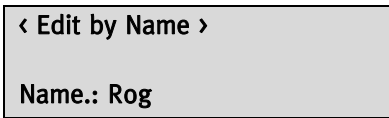
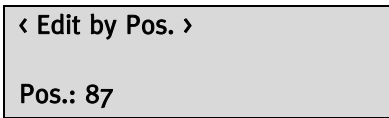
Saved to Pos.:

44

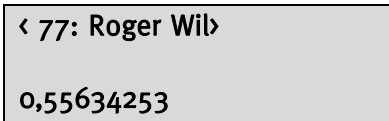
### 4.1.3. MEMORY EDIT



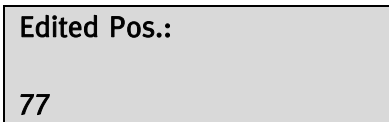
The 'Memory Edit' menu feature allows to modify an existing phonebook entry. First of all, you have to select the required entry, looking up either by position or by name (see paragraph 4.1.1. Memory Recall).



By pressing the *ON* key, it is then possible to browse the phonebook, either by position or in alphabetical order; thus, you can easily recover from a look-up failure.



Edit confirmation is done by pressing the *ON* key again; now you can modify the entry name and phone number, in sequence, by pressing the numeric keys and deleting the last typed character/number with the 'MUTE' key.



The edited entry is saved to the phonebook when you press the *ON* key from the 'Edit Number' screen; the edited position is displayed for confirmation, then the 'Memory Edit' menu appears again after a short delay.

#### 4.1.4. MEMORY ERASE

**< Memory Erase >**

Erasing a phonebook entry is performed by selecting it and then confirming the erase operation; please note that the erased data will be permanently lost, with no chance of recovery.

**< Erase by Pos.>**

**Pos.: 56**

**< Erase by Name>**

**Name: Bil**

Selecting the entry to be erased is easily accomplished, since you can either type in the numeric position, or you can perform an alphanumeric search on the phonebook names; after pressing *ON*, you can browse the phonebook, either by position or in alphabetical order, in order to correct the search.

**< 11: Billie Je>**

**3479394578**

To complete the erase operation, you have to press *ON* once, thus selecting the phonebook entry, then once again, to confirm your decision.

**66: Bill of Righ**

Erase?

A confirmation screen will then appear for few seconds, then the screen reverts to the 'Memory Erase' menu.

Erased OK

## 4.2. USER SETTINGS

< User Settings >

Besides managing the phonebook entry, you can use the LCD display and keypad to view and change some of The Voice™ Plus configuration parameters.

<Def. Spkr Vol.>

The default (i.e.: power-on) speaker volume can be set by pressing *ON* and then using *-VOL* / *+VOL* to adjust it; when the desired value is reached, pressing *ON* again will save it permanently; however, you can change the current speaker volume at any time during a phone call, by simply pressing the *-VOL* / *+VOL* keys.

Def.Spkr Volume:  
[.....\*...]

The factory setting for the operating dial mode is MultiFrequency (Tone), and you can switch back and forth to Decadic (Pulse) mode at any time, using the *SHIFT+REDIAL* key sequence. If the MultiFrequency dial mode is not suitable for your telephone line, you can instruct The Voice™ *Plus* to select Decadic mode as the power-on default. You do so by selecting the related User Setting menu, and then toggling the Dial Mode using the *-VOL / +VOL* keys.

A rectangular box representing a screen display. The text inside is '< Def. DialMode>' in a bold, black, sans-serif font, centered horizontally and vertically within the box.

**< Def. DialMode>**

A rectangular box representing a screen display. The text inside is 'Def. Dial Mode:' in a bold, black, sans-serif font, centered horizontally and vertically within the box.

**Def. Dial Mode:**

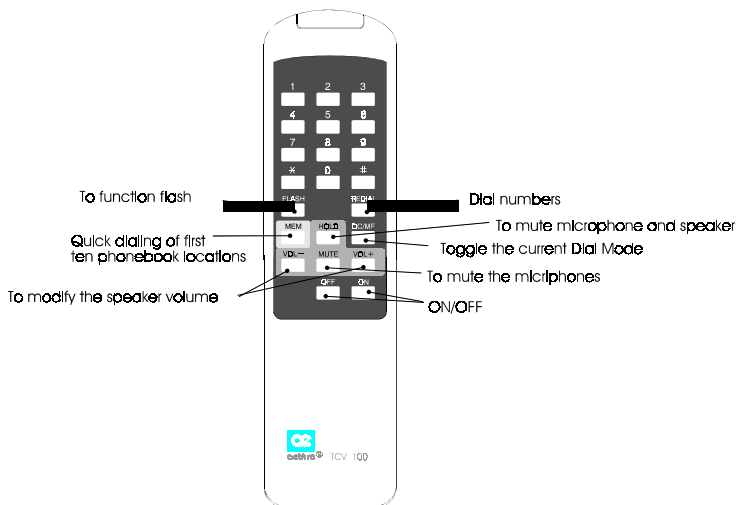
A rectangular box representing a screen display. The text inside is 'DECADIC' in a bold, black, sans-serif font, centered horizontally and vertically within the box.

**DECADIC**

You can then confirm and save the selection by pressing the *ON* key. The screen goes back to the 'User Settings' menu.



## 5. USING THE REMOTE CONTROL



The Voice™ *Plus* can be operated by the included infrared remote control, so you don't have not to be close to the base unit when performing such common operations as dialing or answering a phone call.

### 5.1. THINGS YOU CAN DO WITH THE REMOTE CONTROL

Using of the remote control, you can issue one-key commands that correspond with the base unit keypad commands. You can do any of the following:

- switch on- and off-hook (*ON / OFF* keys);
- dial numbers, re-dial last dialed number (*REDIAL*);
- issue a *FLASH* (break) command;

- modify the (off-hook) speaker volume (*VOL+* / *VOL-*);
- mute the microphones (*MUTE*), mute both microphones and speaker (*HOLD*);
- toggle the current Dial Mode (*DC/MA*);

## 5.2. THINGS YOU CAN NOT DO WITH THE REMOTE CONTROL

When operating via remote control, it's very likely that you won't be able to see the LCD display; therefore, the Menu Mode cannot be accessed by remote. To achieve a higher degree of reliability and prevent incorrect Menu Mode operations, the remote control is completely disabled while The Voice™ Plus remains in Menu Mode. Keep in mind, however, that there are cases when the Menu Mode is left abruptly, e.g., when an incoming phone call is detected, so you can always answer a phone call via remote control.

## 5.3. QUICK DIALING

When operating from the remote control, quick dialing of the first ten phonebook locations is possible using the *MEM* key: simply go off-hook, then press the *MEM + <number>* remote key sequence: if the corresponding entry exists, then the related phone number is immediately dialed, otherwise nothing happens.

## 6. USING EXTENSION MICROPHONES

The Voice™ *Plus* Audio Conferencing Unit External Microphones have excellent unidirectional characteristics that optimize voice pickup while eliminating background noise.

Together with a voice-activated circuit that attenuates unused microphones, The Voice™ *Plus* with External Microphones solves the common problems found in large-group audio conferencing applications.

### 6.1. CONNECTING EXTENSION MICROPHONES

Connect the microphone cables to the ACU, plugging them into the two dedicated sockets which are found on opposite sides of the bottom cover.

### 6.2. SETTING UP OF THE EXTERNAL MICROPHONES FOR THE BEST PICKUP

To ensure the best performance:

- set the extension microphones 1.5 to 2 meters (5 to 7 feet) away from the ACU;
- have the participants sit about 1 meter (3 feet) away from the microphone.

### 6.3. SWITCHING ON A MICROPHONE

Turn on the microphone using the ON/OFF switch. The LED will turn GREEN.

### 6.4. MUTING A MICROPHONE

To mute all microphones and the ACU, press MUTE. The LED will turn RED. To resume the communication, depress the MUTE button and the LED will turn back GREEN.

To shut off a single extension microphone, simply set the ON/OFF switch to OFF. The microphone's mute LED will turn red. Switch it back to ON to activate the microphone again.



## 7. TROUBLESHOOTING AND MAINTENANCE

### 7.1. PREVENTIVE MAINTENANCE

- ▶ DO unplug the SUPPLY MODULE and the ACU before cleaning.
- ▶ DO check cables for kinking or tearing, especially in floor traffic areas.
- ▶ DON'T use volatile solvents to clean surfaces. A clean, soft cloth, lightly moistened, is usually adequate. If a spray or paste cleaner is used, DON'T let it clog the microphone or loudspeaker openings.
- ▶ DON'T risk fire or electrical shock by placing the SUPPLY MODULE on a wet surface or spilling liquid on it.
- ▶ DON'T place the SUPPLY MODULE on a radiator or other heat sources.

## 7.2. TROUBLESHOOTING

Problem	Corrective Action
No dial tone	<ol style="list-style-type: none"> <li>1. Make sure the power supply cable is plugged into a working 120 Vac, 60 Hz outlet.</li> <li>2. Verify that the green light glows steadily.</li> <li>3. Make sure telephone line is plugged into telephone line connector on the SUPPLY MODULE.</li> <li>4. Make sure telephone line is not a digital PABX line, but is a standard analog telephone line</li> </ol>
Dialed party can't hear conversation originating from your end of the call	<ol style="list-style-type: none"> <li>1. Verify that the mute and hold functions are off.</li> <li>2. Make sure telephone line is plugged into telephone line connector on the SUPPLY MODULE .</li> </ol>
No conference operation	<ol style="list-style-type: none"> <li>1. Make sure the power supply cable is plugged into a working 120 Vac, 60 Hz outlet.</li> <li>2. Verify that the green light glows steadily.</li> <li>3. Make sure telephone line is plugged into telephone line connector on the SUPPLY MODULE .</li> <li>4. Make sure the ACU is properly connected to the SUPPLY MODULE .</li> </ol>
ACU loudspeaker sound is too low	Press the VOL + key on the ACU until an adequate volume is reached.
ACU loudspeaker sound is too loud	Press the VOL - key on the ACU until an adequate volume is reached.
Received speech intermittent without being interrupted by local sounds	<ol style="list-style-type: none"> <li>1. If remote party is using a teleconferencing system, tell them to move their system away from large objects or reflective surfaces.</li> <li>2. Bad telephone connection (remote party may be using a cellular phone or a radio telephone). Hang up and try calling again.</li> </ol>
Low-level conversation or pulses can be heard from loud-speaker.	"Cross talk" on the telephone line or in the PBX may be present. Hang up and re-dial. If the condition persists, contact your telephone service provider.
Problem	Corrective Action
Remote party complains that your voice is garbled	Move your ACU away from any large reflective surfaces.
Volume will go up, but not down (or vice-versa). Module	Volume is at the minimum or maximum level already.

<p>emits a howling sound</p>	<ol style="list-style-type: none"> <li>1. make sure the telephone line is connected to the SUPPLY MODULE .</li> <li>2. Make sure the telephone line is a standard analog telephone network.</li> </ol>
<p>No ringing signal .sounds to indicate incoming calls</p>	<p>Check switch settings on ACU. Move Ringer tone switch to "LOW" or "HIGH" position.</p>
<p>The LCD display remains blank, or it shows garbled characters</p>	<p>Reset the unit by unplugging the mains cord, then plug it back after a few seconds; if the problem remains, while you can still hear the power-on 'ding' and see the LED's blinking, then please contact your dealer.</p>
<p>The remote control doesn't work at all</p>	<p>Check that the unit is not in Menu Mode (LED's must not blink YELLOW); if it is, you have to leave Menu Mode first, then you can use the remote control again.</p>
<p>The remote control works discontinuously</p>	<p>The batteries that operate the remote control have almost run out, and they need to be replaced.</p>



## 8. TECHNICAL SPECIFICATIONS

AUDIO BANDWIDTH	200Hz - 3400Hz
LOUDSPEAKER VOLUME	Adjustable +12dB/-12dB Maximum sound level 78dB SPL
MICROPHONES	3 per module unidirectional hypercardioid type
ADAPTIVE ACOUSTIC ECHO CANCELLER	ERLE 30 dB typical
ADAPTIVE LINE ECHO CANCELLER	ERLE 36 dB typical
ADAPTIVE NOISE REDUCTION FILTER	Noise attenuation 10 dB typical
ADAPTIVE ECHO REDUCTION	Residual Echo Level is reduced at the adaptive estimation of the Tx noise level
AUX OUTPUTS	Line Level > 100 Ohm
NETWORK INTERFACE	RJ-11 Type single line analog on PSTN
POWER REQUIREMENTS	104-126 VAC 188mA maximum
DIMENSIONS	ACU: 30cm x 30cm x 7cm SUPPLY MODULE: 10cm x 20cm x 6.5cm
WEIGHT	ACU: 1 Kg SUPPLY MODULE: 0.850 Kg
LINE VOLTAGE	115/230 VAC 60/50 Hz with Voltage selector switch
TEST FREQUENCY	1kHz
MAXIMUM TOTAL HARMONIC DISTORTION	Tel Line output 0.5% at -12dBm Speaker output: 0.5% at 78 dB SPL
MUTING	100dB minimum attenuation of transmit signal
LINE LOSS COMPENSATOR RANGE	+12dB/-6dB
SPEECH LEVEL COMPENSATOR RANGE	+12dB/-6dB
AMBIENT TEMPERATURE RANGE	Operating: 5°C to 45°C Storage: -25°C to 55°C
CERTIFICATION	UL, FCC, CE, CSA

<b>AUDIO BANDWIDTH</b>	200Hz - 3400Hz
<b>LOUDSPEAKER VOLUME</b>	Adjustable +12dB/-12dB Maximum sound level 78dB SPL
<b>MICROPHONES</b>	3 per module unidirectional hypercardioid type
<b>ADAPTIVE ACOUSTIC ECHO CANCELLER</b>	ERLE 30 dB typical
<b>ADAPTIVE LINE ECHO CANCELLER</b>	ERLE 36 dB typical
<b>ADAPTIVE NOISE REDUCTION FILTER</b>	Noise attenuation 10 dB typical
<b>ADAPTIVE ECHO REDUCTION</b>	Residual Echo Level is reduced at the adaptive estimation of the Tx noise level
<b>AUX OUTPUTS</b>	Line Level > 100 Ohm
<b>NETWORK INTERFACE</b>	RJ-11 Type single line analog on PSTN
<b>POWER REQUIREMENTS</b>	104-126 VAC 188mA maximum
<b>DIMENSIONS</b>	ACU: 30cm x 30cm x 7cm SUPPLY MODULE: 10cm x 20cm x 6.5cm
<b>WEIGHT</b>	ACU: 1 Kg SUPPLY MODULE: 0.850 Kg
<b>LINE VOLTAGE</b>	115/230 VAC 60/50 Hz with Voltage selector switch
<b>TEST FREQUENCY</b>	1kHz
<b>MAXIMUM TOTAL HARMONIC DISTORTION</b>	Tel Line output 0.5% at -12dBm Speaker output: 0.5% at 78 dB SPL
<b>MUTING</b>	100dB minimum attenuation of transmit signal
<b>LINE LOSS COMPENSATOR RANGE</b>	+12dB/-6dB
<b>SPEECH LEVEL COMPENSATOR RANGE</b>	+12dB/-6dB
<b>AMBIENT TEMPERATURE RANGE</b>	Operating: 5°C to 45°C Storage: -25°C to 55°C
<b>CERTIFICATION</b>	UL, FCC, CE, CSA

## 8.1. USE AND STORAGE CONDITIONS

<b>OPERATING TEMPERATURE</b>	-5°C ÷ +45 °C
<b>OPERATING RELATIVE HUMIDITY</b>	10% ÷ 93 % (without condensation)
<b>STORAGE TEMPERATURE</b>	-40 ÷ +70 °C

## 8.2. REFERENCE REGULATIONS (CE MARK AND RELIABILITY TESTS)

<b>STORAGE</b>	EN 60068-2-1 TEST AB (IEC 60068-2-1) EN 60068-2-2 TEST BB (IEC 60068-2-2)
<b>TRANSPORTATION</b>	IEC 60068-2-32 TEST ED - METHOD 1 IEC 60068-2-64 TEST FDB (CEI 50-6/9)
<b>OPERATING CONDITIONS</b>	CEI 50-3 EN 60068-2-1 TEST AB (IEC 60068-2-1) EN 60068-2-2 TEST BB (IEC 60068-2-2) IEC 60068-2-14 TEST NB IEC 60068-2-56 TEST CB IEC 60068-2-6 TEST FC IEC 60068-2-31 TEST EC IEC 60068-2-32 TEST ED - METHOD 1 IEC 60068-2-64 TEST FDB (CEI 50-6/9)
<b>EMC</b>	EN 55022 EN 55024 EN 61000-3-2 EN 61000-3-3 FCC15
<b>SAFETY</b>	EN 60950 (IEC 60950)
<b>CONNECTION TO TELEPHONE NETWORK</b>	FCC 68



## 9. FCC REQUIREMENTS

This equipment complies with Part 68 of the FCC rules. On the rear panel of this equipment is a label that includes, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. (The REN for the ACU is 0.8). You must, upon request, provide this information to your telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your telephone company to determine the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you the opportunity to maintain uninterrupted telephone service.

Any changes or modifications to this equipment not expressly authorized by Soundgear Inc. could void your authority to operate it.



### WARNING

THIS DEVICE IS DESIGNED FOR USE WITH THE PUBLIC SWITCHED TELEPHONE NETWORK (PSTN) INTO AN ANALOG PHONE LINE THROUGH AN RJ11 JACK (SAME TYPE USED WITH FAX MACHINES. THE TELEPHONE CABLE INCLUDED WITH YOUR THE VOICE PLUS™ IS FOR USE WITH AN RJ11 (STANDARD SINGLE LINE) TELEPHONE INTERFACE



### WARNING

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS B DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE IN A RESIDENTIAL INSTALLATION. THIS EQUIPMENT GENERATES, USES AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTIONS, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. HOWEVER, THERE IS NO GUARANTEE THAT INTERFERENCE WILL NOT OCCUR IN A PARTICULAR INSTALLATION. IF THIS EQUIPMENT DOES CAUSE HARMFUL INTERFERENCE TO RADIO OR TELEVISION RECEPTION, WHICH CAN BE DETERMINED BY TURNING THE EQUIPMENT OFF AND ON, THE USER IS ENCOURAGED TO TRY TO CORRECT THE INTERFERENCE BY ONE OR MORE OF THE FOLLOWING MEASURES:

- REORIENT OR RELOCATE THE RECEIVING ANTENNA
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT TO WHICH THE RECEIVER IS CONNECTED
- CONSULT THE DEALER OR AN EXPERIENCED RADIO/TV TECHNICIAN FOR HELP.



THIS PRODUCT COMPLIES WITH EEC 89/336 DIRECTIVE ON ELECTROMAGNETIC COMPABILITY, EEC 73/23 DIRECTIVE (LOW VOLTAGE) ON SAFETY RULES AND EEC 91/263 DIRECTIVE ON TELECOMMUNICATION DEVICES, AS AMENDED BY EEC 92/31 AND 93/68 DIRECTIVES