

**AUDIOCONFERENCING
SYSTEM**
–The Voice ISDN–

INSTALLATION AND
USER MANUAL

AUDIOCONFERENCING SYSTEM

–The Voice ISDN–

INSTALLATION AND USER'S MANUAL

The information contained in this manual is property of Aethra Telecomunicazioni s.r.l. it is subject to change without notice and does not involve any responsibility by Aethra Telecomunicazioni s.r.l.

© Copyright Aethra Telecomunicazioni Srl 2002.
All rights reserved
REV.0 – APRIL 2002 Cod. 074115002GB
THIS MANUAL IS COMPOSED OF 33 PAGES

TABLE OF CONTENTS

1. INTRODUCTION.....9

1.1. SYSTEM FEATURES 10

2. GETTING STARTED.....11

2.1. CONNECTION AND SUPPLY MODULE FOR THE AUDIO CONFERENCING SYSTEM..... 11

2.2. CONNECTING THE AUDIO CONFERENCING SYSTEM..... 12

2.3. HOW TO ENSURE BETTER PERFORMANCE 13

3. USING THE AUDIO CONFERENCING UNIT15

3.1. ADJUSTING THE PHONE RINGER VOLUME. 15

3.2. OUTGOING CALLS 15

3.3. INCOMING CALLS 16

3.4. PHONEBOOK 16

3.4.1. MEMORIZATION.....16

| | | |
|---------------|---|-----------|
| 3.4.2. | CANCELLING THE OPERATION..... | 16 |
| 3.4.3. | CANCELLING THE NUMBER..... | 16 |
| 3.4.4. | LOCATION NOT FREE | 17 |
| 3.5. | CALLING A MEMORIZED NUMBER..... | 17 |
| 3.6. | SPEAKER VOLUME | 18 |
| 3.7. | REDIAL | 18 |
| 3.8. | MUTE | 18 |
| 3.9. | HOLD..... | 18 |
| 3.10. | RECORDER OUTPUT..... | 18 |
| 3.11. | SWITCH SETTINGS | 19 |
| 4. | USING EXTENSION MICROPHONES..... | 21 |
| 4.1. | CONNECTING EXTENSION MICROPHONES..... | 21 |
| 4.2. | SETTING UP OF THE EXTERNAL MICROPHONES FOR THE BEST PICKUP | 21 |

4.3. SWITCHING ON A MICROPHONE..... 23

4.4. MUTING A MICROPHONE..... 23

5. TROUBLESHOOTING AND MAINTENANCE24

5.1. PREVENTIVE MAINTENANCE..... 24

5.2. TROUBLESHOOTING 24

6. TECHNICAL SPECIFICATIONS27

6.1. USE AND STORAGE CONDITIONS 28

6.2. REFERENCE REGULATIONS (CE MARK AND RELIABILITY TESTS) 28

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.

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

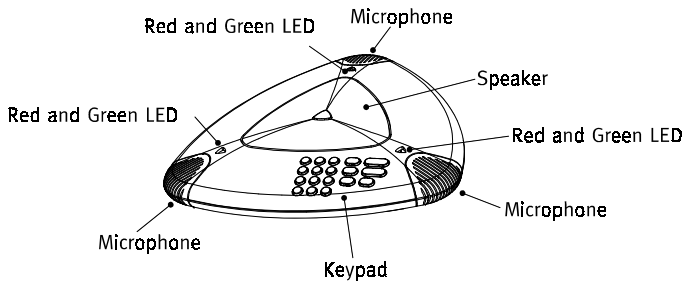


TO CLEAN THE DEVICE USE A SOFT CLOTH EITHER DRY OR SOAKED WITH LITTLE DETERGENT. NEVER USE ANY TYPE OF SOLVENTS, SUCH AS ALCOHOL OR GASOLINE, TO AVOID DAMAGING THE FINISH.

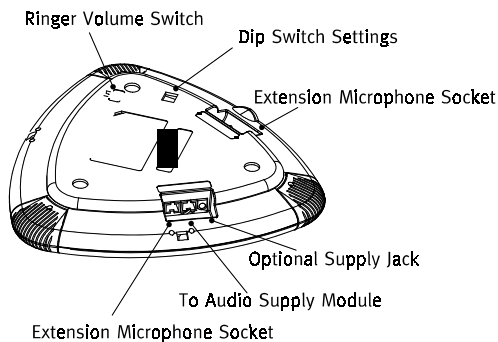
1. INTRODUCTION

The Audio Conferencing System is capable of providing actual "full duplex" communication without the noise, echo and feedback common in most speakerphones. Designed to work with an analog telephone line, the **system** features advanced Digital Signal Processing and software controlled functions. It's easy to use and will ensure that you always receive high fidelity sound during your conference calls.

TOP



BOTTOM



1.1. SYSTEM FEATURES

- ▶ Digital signal processing (DSP) technology
- ▶ Full duplex, interactive operation for natural conversation
- ▶ Built-in telephone dial pad - no separate telephone required
- ▶ Phonebook with 100 numbers
- ▶ Built-in loudspeaker
- ▶ Software controlled room noise monitors and telephone line noise monitors
- ▶ Automation Gain Control to minimize talking loudness variations
- ▶ Ringer tone switch
- ▶ One auxiliary jack for recording a conference
- ▶ Expandability to include two extension microphones

2. GETTING STARTED

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

The Audio Conferencing System includes the following items:

- ▶ Audio Conferencing Unit (ACU)
- ▶ Audio Supply Module (ASM)
- ▶ a gray 4 meter cable with RJ-45 and RJ-11 modular plugs to connect the Audio Conferencing Unit to the Audio Supply Module
- ▶ a gray 4 meter cable for connection to a ISDN network
- ▶ a power supply cable to connect the Audio Conferencing Unit to the power-line supply
- ▶ user's guide

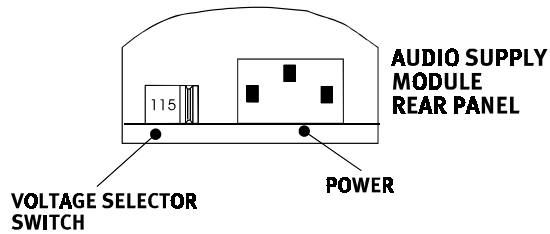
2.1. CONNECTION AND SUPPLY MODULE FOR THE AUDIO CONFERENCING SYSTEM

The Audio Conferencing Unit is intended for use when supplied with power from the Audio Supply Module. The module includes a switch on the power supply to change the supply input voltage from 115VAC/60Hz to 230VAC/50Hz.

!

WARNING

BEFORE USE MAKE SURE TO SELECT THE RIGHT POWER SUPPLY ON VOLTAGE SELECTOR SWITCH

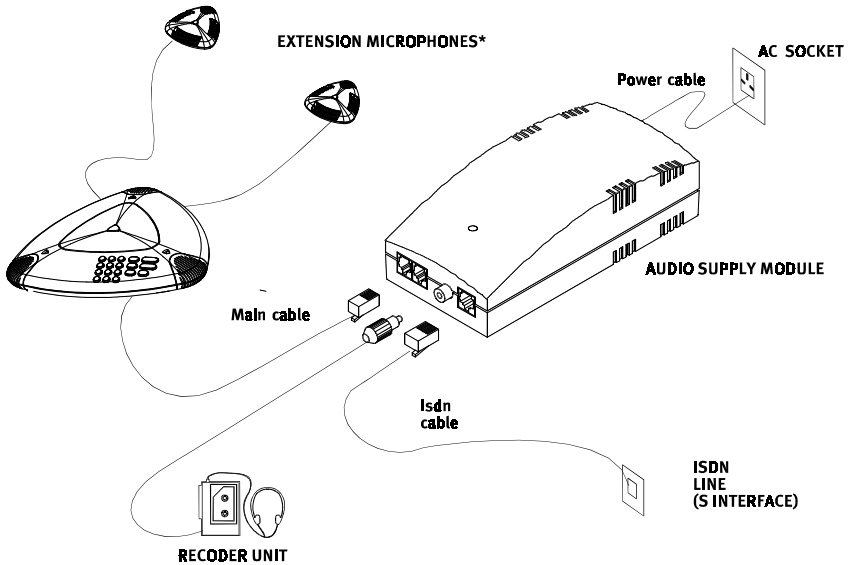


2.2. CONNECTING THE AUDIO CONFERENCING SYSTEM

! 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 cable from the AUDIO SUPPLY MODULE into a wall jack of a standard Bus S interface
3. Plug the power cable from the AUDIO SUPPLY MODULE into an AC socket.
4. The AUDIO CONFERENCING UNIT will run a self-test. The LEDs will flash and then you will hear a tone.
5. Place the AUDIO CONFERENCING UNIT on a stable surface, and dial the desired telephone number.



WARNING

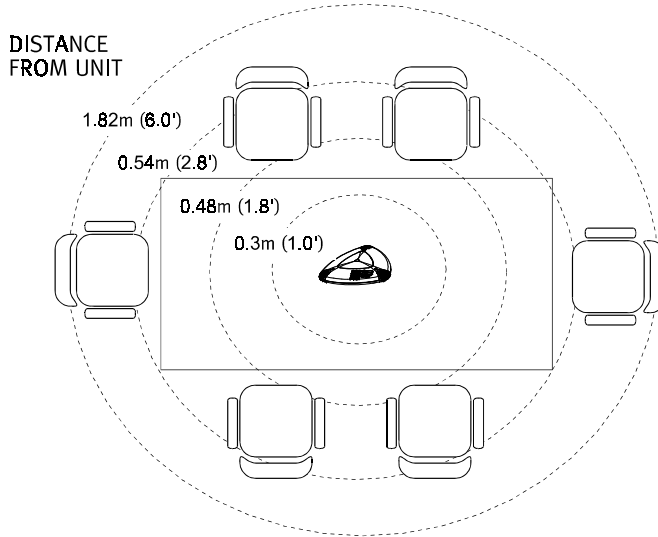


- NEVER install telephone wiring during a lightning storm.
- NEVER install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- NEVER touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- ALWAYS USE CAUTION when installing or connecting telephone lines.
- ALWAYS place the AUDIO SUPPLY MODULE on the floor

2.3. HOW TO ENSURE BETTER PERFORMANCE

For best microphone coverage, place 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.

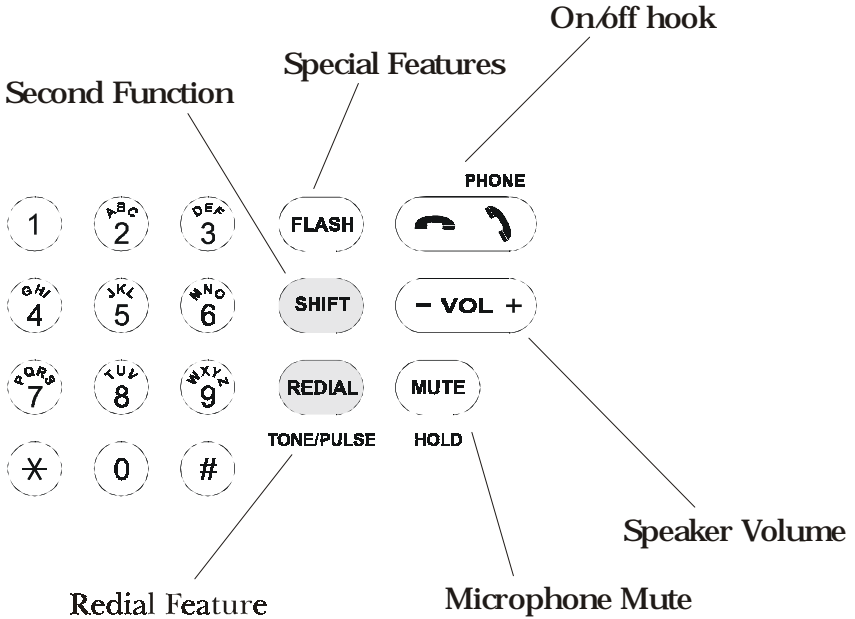


NOTE: Keep large sound reflecting objects such as water carafes and briefcases at least 0.3 meter (1 foot) away from the ACU.

WARNING !!

THE SYSTEM 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. USING THE AUDIO CONFERENCING UNIT



3.1. ADJUSTING THE PHONE RINGER VOLUME.

A ringer volume switch is available with “SILENT”, “LOW”, and “HIGH” positions on the bottom side of the UNIT.


3.2. OUTGOING CALLS

Press  and dial the desired telephone number. The three LEDs on the corners of the AUDIO CONFERENCING UNIT will switch to green.

After the conversation has finished, press the  and the three LEDs will turn yellow.


3.3. INCOMING CALLS

When a call comes in, a ringing signal is heard. At the same time the LEDs flash.

Press  key to activate the hands-free function.

3.4. PHONEBOOK

3.4.1. MEMORIZATION

Check that the handset is on-hook (), then press SHIFT and FLASH; the music and the yellow LED's flashing indicate the phonebook mode.

Select the memorization code (00 ÷ 99) on the keypad.

EXAMPLE:  +  +  + 

The green LED's start flashing to indicate that the location is free. Dial the telephone number (maximum 40 figures).




Press FLASH to end the operation. You will hear music that confirms the number memorization.

3.4.2. CANCELLING THE OPERATION

To cancel the operation, press SHIFT and FLASH and then follow the instructions for memorization.

3.4.3. CANCELLING THE NUMBER

To cancel a number from the phonebook, digit:

 +  +  + LOCATION +


- ▶ If the red LED'S start flashing press FLASH to cancel the number.
- ▶ If the green LED'S start flashing, the selected location is free.




3.4.4. LOCATION NOT FREE

If flashing, the red LED's indicate that the location is not free. To cancel the operation press SHIFT and FLASH and then follow the instructions for memorization.

3.5. CALLING A MEMORIZED NUMBER

Check the code that corresponds to the user name in the phonebook.

Press  key to activate the hands-free function, then press SHIFT and dial the number code (00 ÷ 99)

EXAMPLE:  +  + 

The number is dialed.

! | THE MEMORIZATION CODES RANGE FROM 00 TO 99.

3.6. **SPEAKER VOLUME**

When the call is in progress press and release + VOL or - VOL several times to increase or to decrease the volume through the speaker. The green light will blink each time you depress the volume button. When the unit reaches maximum volume, the green light will blink several times. There are 24 volume levels for speaker volume. After the conversation has ended the AUDIO CONFERENCEING UNIT reverts to the default volume level.

3.7. **REDIAL**

To dial the last telephone number dialed press REDIAL.

3.8. **MUTE**

To cut off outgoing sound during a call, press MUTE. The LEDs will turn red. Your microphones are off and your voice is not being transmitted. To switch off the mute, press the MUTE key again. The LEDs will turn green.

!

NOTE: YOU CAN ALSO MUTE THE ENTIRE SYSTEM BY DEPRESSING THE MUTE BUTTON ON EITHER OF THE 2 EXTENSION MICROPHONES

3.9. **HOLD**

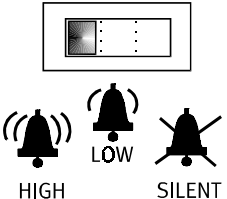
To mute both the outgoing and incoming sound during a call, press SHIFT then MUTE. The LEDs will turn on and flash red. While the hold function is being used, all microphones and your speaker are off. To return to hands-free mode, press the MUTE or the ON key again.

3.10. **RECORDER OUTPUT**

To record an audio conference session connect the recorder unit to the RCA jack available on the AUDIO SUPPLY MODULE.

3.11. SWITCH SETTINGS

The switches on the bottom of the ACU let you adjust the phone ringer volume.

| | | |
|--|------------------------|--------------------------|
|  <p>The diagram shows a three-position rotary switch at the top. Below it are three bell icons. The first bell is labeled 'HIGH', the second 'LOW', and the third 'SILENT'.</p> | <p>FUNCTION</p> | <p>RING LEVEL</p> |
| | <p>HIGH</p> | <p>+4 dB</p> |
| | <p>LOW</p> | <p>-8 dB</p> |
| | <p>SILENT</p> | <p>-100 dB</p> |

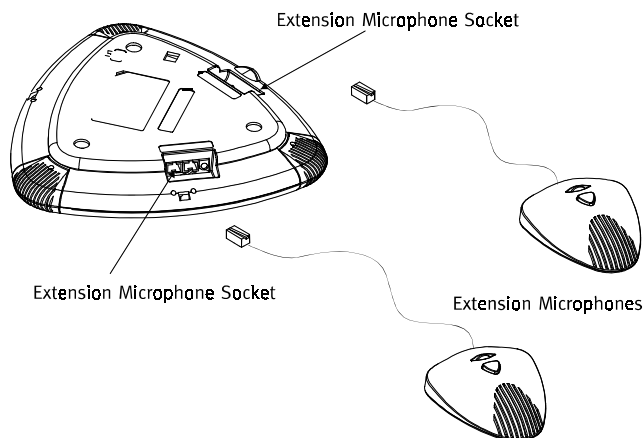
4. USING EXTENSION MICROPHONES

The Audio Conferencing Unit External microphones have excellent unidirectional characteristics that optimize voice pickup while eliminating background noise.

Together with a voice activated circuit that keeps unused microphones attenuated, the ACU with External Microphones solves the common problems found in large-group audio conferencing applications.

4.1. CONNECTING EXTENSION MICROPHONES

Connect the microphone cables to the Audio Conferencing Unit as shown in the figure below:



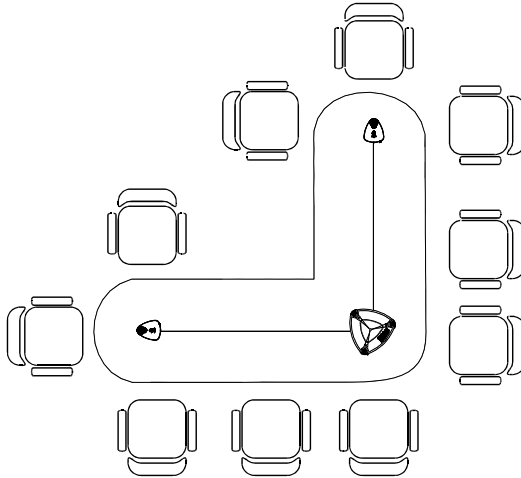
4.2. SETTING UP OF THE EXTERNAL MICROPHONES FOR THE BEST PICKUP

To ensure the best performance:

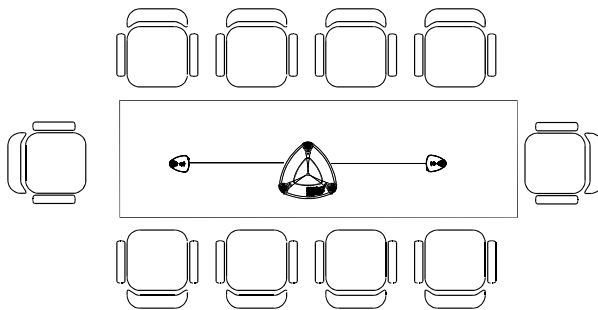
- ▶ Set the extension microphones 1.5-2 m (5-7 ft) from Audio Conferencing Unit.

- ▶ participants should sit 1 m (3 ft) from microphone.

The following examples show several positions of the external microphones for the best pickup.



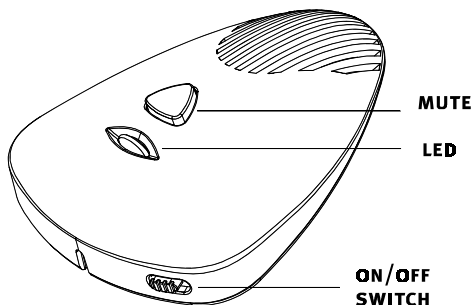
EXAMPLE 1



EXAMPLE 2

4.3. SWITCHING ON A MICROPHONE

Turn on the microphone using the ON/OFF switch. The led will turn green.



4.4. MUTING A MICROPHONE

To mute all microphones and the Audio Conferencing System press MUTE. The led will turn red. To resume the communication depress the MUTE button and the LED will turn green.

To shut off a single extension microphone, switch to OFF the ON/OFF switch. The LED MUTE will turn red.

Switch to the ON position and the microphone is activated again.

5. TROUBLESHOOTING AND MAINTENANCE

5.1. 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.

5.2. TROUBLESHOOTING

| Problem | Corrective Action |
|--|--|
| No dial tone | <ol style="list-style-type: none"> 1. Make sure the power supply cable is plugged into a working 120 Vac, 60 Hz outlet. 2. Verify that the green light glows steadily. 3. Make sure ISDN line is plugged into Interf.S connector on the SUPPLY MODULE. |
| Problem | Corrective Action |
| Dialed party can't hear conversation originating from your end of the call | <ol style="list-style-type: none"> 1. Verify that the mute and hold functions are off. 2. Make sure ISDN line is plugged into telephone line connector on the SUPPLY MODULE . |
| No conference operation | <ol style="list-style-type: none"> 1. Make sure the power supply cable is plugged into a working 120 Vac, 60 Hz outlet. 2. Verify that the green light glows steadily. 3. Make sure telephone line is plugged into telephone line connector on the SUPPLY MODULE . 4. Make sure the ACU is properly connected to the |

| | SUPPLY MODULE . |
|---|--|
| 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"> 1. If remote party is using a teleconferencing system, tell them to move their system away from large objects or reflective surfaces. 2. Bad telephone connection (remote party may be using a cellular phone or a radio telephone). Hang up and try calling again. |
| 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. |
| 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 emits a howling sound | <p>Volume is at the minimum or maximum level already.</p> <ol style="list-style-type: none"> 1. make sure the telephone line is connected to the SUPPLY MODULE . 2. Make sure the telephone line is a standard analog telephone network. |
| No ringing signal .sounds to indicate incoming calls | Check switch settings on ACU. Move Ringer tone switch to "LOW" or "HIGH" position. |

6. 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-45 Type isdn line with S interface |
| 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 | 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 |

| | |
|----------------------|------------------------|
| | Storage: -25°C to 55°C |
| CERTIFICATION | CE, |

6.1. USE AND STORAGE CONDITIONS

| | |
|------------------------------------|--------------------------|
| OPERATING TEMPERATURE | -5°C ÷ +45°C |
| OPERATING RELATIVE HUMIDITY | 10% ÷ 93% non condensino |
| STORAGE TEMPERATURE | -25°C ÷ +55°C |

6.2. REFERENCE REGULATIONS (CE MARK AND RELIABILITY TESTS)

| | |
|-----------------------------|--|
| STORAGE | CEI 50-3 CEI EN 60068-2-1 IEC 68-2-2 |
| TRANSPORT | CEI 50-6 IEC 68-2-32 IEC 68-2-36 |
| OPERATING CONDITIONS | CEI 50-3 CEI EN 68068-2-1 IEC 68-2-2 IEC 68-2-3 IEC 68-2-14 CEI 50-6 IEC 68-2-31 IEC 68-2-32 IEC 68-2-36 |
| CONDUCTED EMISSIONS | CEI EN 55022 |
| IRRADIATED EMISSIONS | CEI EN 55022 |
| IMMUNITY | CEI EN 50082-1 |
| SAFETY | CEI EN 60950 |



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

