AccuMic™ User Manual

ClearOne®

You're Virtually There℠

Table of Contents

Introduction

The AccuMic™ VC and the AccuMic PC are highly-advanced microphones that provide high quality, hands free audio. The AccuMic VC connects to video codecs to improve audio in videoconferencing applications. The AccuMic PC connects to a computer to improve audio in webconferencing applications. Each mic element features noise cancellation, automatic gating control, PA adaptive mode, adaptive ambient mode and Gentner® Distributed Echo Cancellation® to make communication between several people a natural, seamless experience.

- Push-button muting facilitates private discussions.
- First-mic priority eliminates hollow "tunnel" sound by activating only the microphone closest to the person speaking.
- 360-degree microphone coverage, adaptive noise cancellation and proprietary Gentner Distributed Echo Cancellation provide clean, clear audio.
- Expansion capability extends audio pick-up range to accommodate larger conferencing rooms.

Service and support
If you need additional information on how to install, set up or operate your AccuMic VC or AccuMic PC, please contact us. We welcome and encourage your comments so we can continue to improve our products and better meet your needs.

Technical services
Telephone: 1-800-283-5936 (USA) or 1-801-974-3760
Fax: 1-801-977-0087
E-mail: tech.support@clearone.com
Web site: www.clearone.com

Sales and customer service
Telephone: 1-800-945-7730 (USA) or 1-801-975-7200
Fax: 1-800-933-5107 (USA) or 1-801-977-0087
E-mail: sales@clearone.com

Product returns
All product returns require a return materials authorization (RMA) number. Please contact ClearOne Technical Support before attempting to return your product. Make sure you return all the items that shipped with your product.

Unpacking

Carefully remove the AccuMic, cables and power supply from the packaging. Ensure that you received the following parts:

AccuMic VC

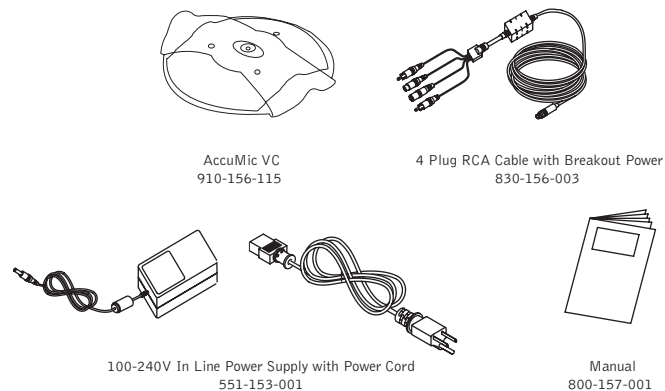
AccuMic VC
910-156-115

4 Plug RCA Cable with Breakout Power
830-156-003

100-240V In Line Power Supply with Power Cord
551-153-001

Manual
800-157-001

Figure 1. Unpacking the AccuMic VC

AccuMic PC

AccuMic PC
910-157-001

3.5 mm Cable with Breakout Power
830-157-001

100-240V In Line Power Supply with Power Cord
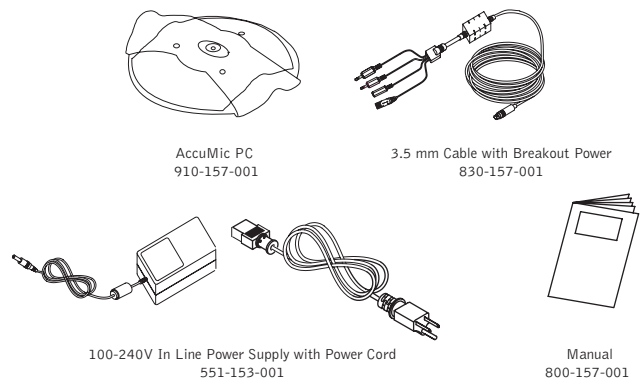551-153-001

Manual
800-157-001

Figure 2. Unpacking the AccuMic PC

✎ **Note:** ClearOne Communications is not responsible for product damage incurred during shipment. You must make claims directly with the carrier. Inspect your shipment carefully for obvious signs of damage. If the shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.
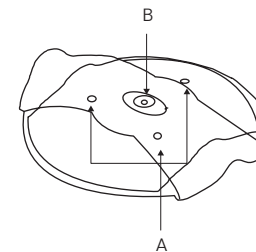
Product overview

Microphone pad

Figure 3. Microphone pad

A. **LEDs.** Indicates when the microphones are activated.

B. **Mute button.** Mutes or unmutes the microphones.

AccuMic VC cable   ### AccuMic PC cable
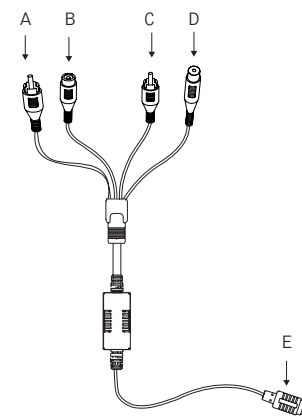

Figure 4. AccuMic VC connector cable   Figure 5. AccuMic PC connector cable
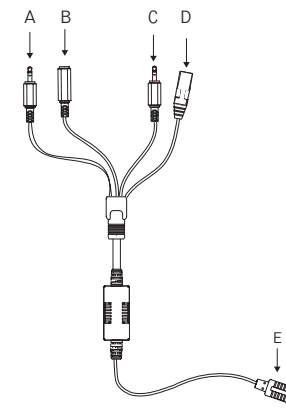
A. **Speaker Reference In.** This plug provides an echo cancellation reference for the AccuMic, ensuring audio is clear and echo-free.

B. **Speaker Reference Out.** This audio jack sends the far-side audio to the computer loud speakers.

C. **Mic Out.** This audio jack sends local audio to the computer or codec for transmission to the far-side participants.

D. **Power supply.** 12VDC.

E. **10-Pin Connector.** This connector connects to the microphone pad.

AccuMic PC

Connecting the AccuMic PC

The AccuMic PC provides the highest quality audio to any desktop webconferencing system. Featuring Distributed Echo Cancellation, automated gain control, gating control and adaptive ambient mode, the AccuMic PC flawlessly picks up audio within a full 360 degree coverage area. You can connect an AccuMic PC Extension Mic (part no. 910-157-010) to expand the audio pick-up capabilities of the conferencing system.
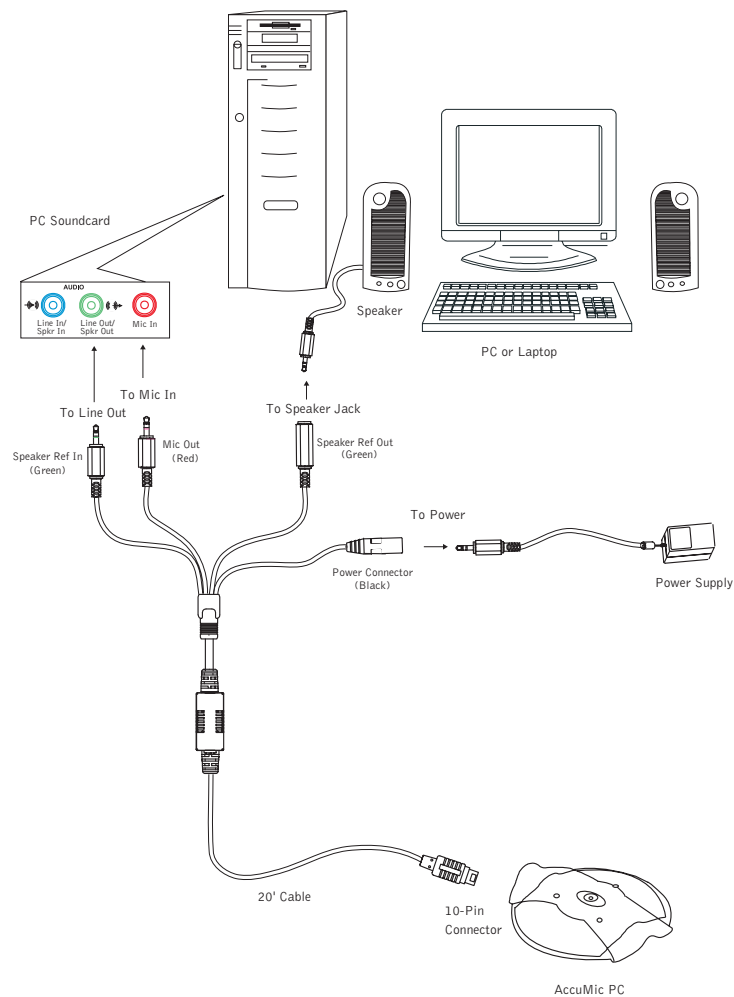

PC Soundcard

AUDIO

Line In/
Spkr In   Line Out/
Spkr Out   Mic In

To Mic In

To Line Out

To Speaker Jack

Speaker Ref In
(Green)

Mic Out
(Red)

Speaker Ref Out
(Green)

Speaker

PC or Laptop

To Power

Power Connector
(Black)

Power Supply

20' Cable

10-Pin
Connector

AccuMic PC

Figure 6. AccuMic PC connections

To connect the AccuMic PC

1. Connect the 10-pin plug to the 10-pin connector on the AccuMic PC.

2. Connect the Speaker Ref In (green) to the Line Out connector on the PC soundcard.

3. Connect the Mic Out (red) to the Mic In on the PC soundcard.

4. Connect the Speaker Ref Out (green) to the Speaker jack cable from the speakers.

   Note: Your speakers connect directly to the AccuMic PC to allow the echo cancellation to work properly.

5. Connect the power connector to the power supply and plug the power supply into an outlet.

To connect an AccuMic PC Extension Mic

   Note: Do not connect an AccuMic PC Extension Mic to an AccuMic VC. The AccuMic PC is not compatible with the AccuMic VC and will not work properly.

1. Disconnect the first AccuMic PC from the power source.

2. Connect one end of the 10' (3 meter) mini-DIN cable to the 8-pin connector on the first AccuMic PC.

3. Connect the other end of the cable to the 8-pin connector on the extension AccuMic PC.

4. Reconnect the first AccuMic PC to the power source.

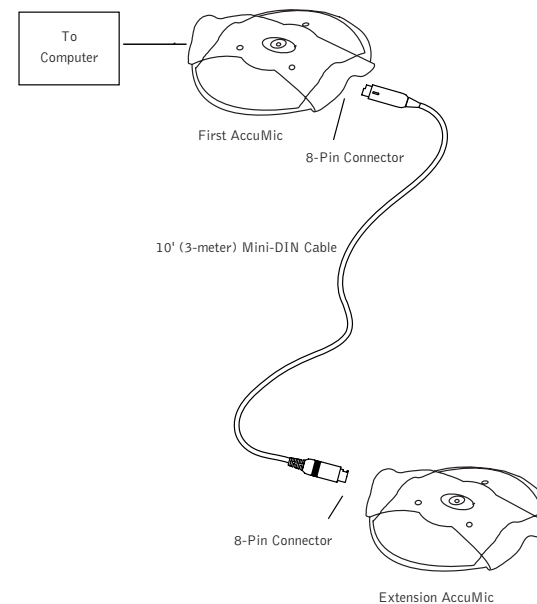5. Place the mic pads a suitable distance apart on the conference table to accommodate meeting participants.

To
Computer

First AccuMic

8-Pin Connector

10' (3-meter) Mini-DIN Cable

8-Pin Connector

Extension AccuMic

Figure 7. Connecting an AccuMic PC Extension Mic

Configuring volume control settings

To ensure audio is heard clearly on both ends, you must configure the Volume Control settings on your computer. You need to mute the near-end microphone balance to prevent local audio feedback. (Note: This does not mute the AccuMic Microphone). You also need to select and adjust the far-end microphone balance to ensure audio is being sent at a proper level and far-end participants can hear you.

To open the volume control panel

1. From the Start Menu, go to **Settings**, then **Control Panel**.

2. Double click the **Sounds and Multimedia** icon to open **Sounds and Multimedia Properties**.

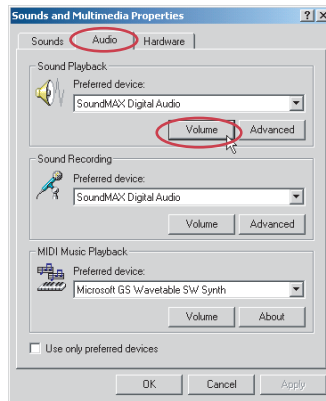3. Select the **Audio** tab and click **Volume** in the Sound Playback section.

Figure 8. Sounds and multimedia properties

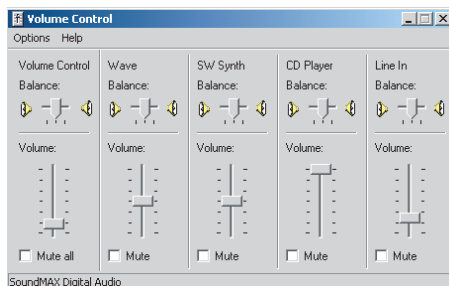The Volume Control panel will open.

Figure 9. Volume control

To mute near-end microphone balance

✎ **Note:** You must mute the microphone balance to prevent local audio from looping back through your loudspeakers and causing feedback problems.

1. Open Volume Control panel.

2. On the **Options** menu, click **Properties**.

Figure 10. Options menu

Figure 11. Playback

3. In the Properties window, click **Playback**.

4. Scroll down and select the **Microphone** check box.

5. Click **OK**.

   The volume control window now displays the settings for Microphone Balance.

Figure 12. Mute microphone balance

6. Select the **Mute** check box for Microphone Balance.

To select and adjust far-end microphone balance

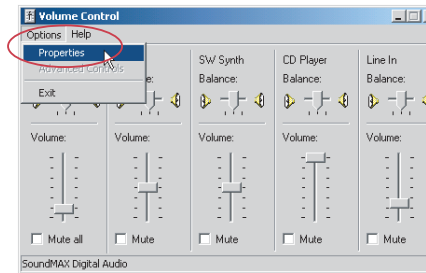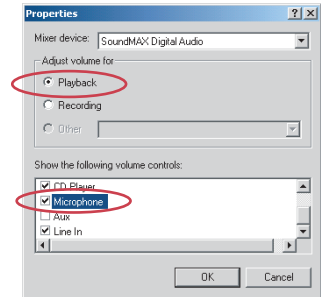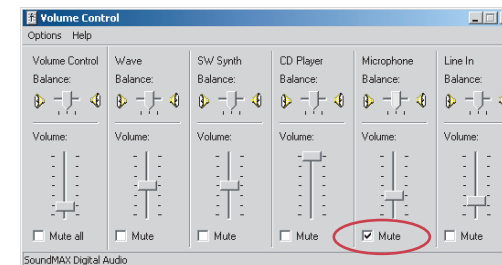✎ **Note:** You must select Microphone in the Recording Control window to ensure audio is being sent to the far end.

1. Open Volume Control panel.

2. On the **Options** menu, click **Properties**.

3. In the Properties window, click **Recording**.

4. Select the **Microphone** check box.
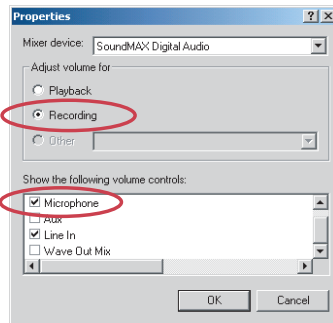
Figure 13. Recording

5. Click **OK** to open the Recording Control window.

6. Click the **Select** check box for Microphone Balance.
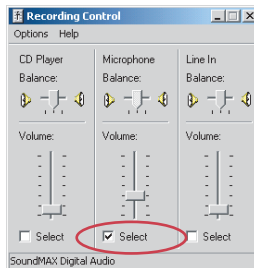
Figure 14. Recording control

7. Use the volume slider to adjust the volume of the audio being sent to the far end.

AccuMic VC

Connecting the AccuMic VC

The AccuMic VC easily connects to most video codecs at the line level audio input and output. Please refer to the table in the appendix for a list of video codecs that are compatible. You can connect an optional AccuMic VC Extension Mic (kit part no. 910-156-117) to expand the sound pick-up capabilities of the conferencing system.

To connect to a video codec

1. Connect the 10-pin end of the mini-DIN cable to the 10-pin connector on the AccuMic VC.

2. Connect the Speaker Ref In plug (white) to the video codec's Audio Out jack.

3. Connect the Mic Out plug (red) to the video codec's Audio In jack.

4. Using an RCA audio cable or an adapter (not included), connect the Speaker Ref Out (white) plug to the television's Audio In jack.

5. Connect the power connector to the power supply and plug the power supply into an outlet.

Figure 15. AccuMic VC connections

To connect an AccuMic VC Extension Mic

✎ **Note**: Do not connect an AccuMic VC extension to an AccuMic PC. The AccuMic VC is not compatible with the AccuMic PC and will not work properly.

1. Disconnect the first AccuMic VC from the power source.

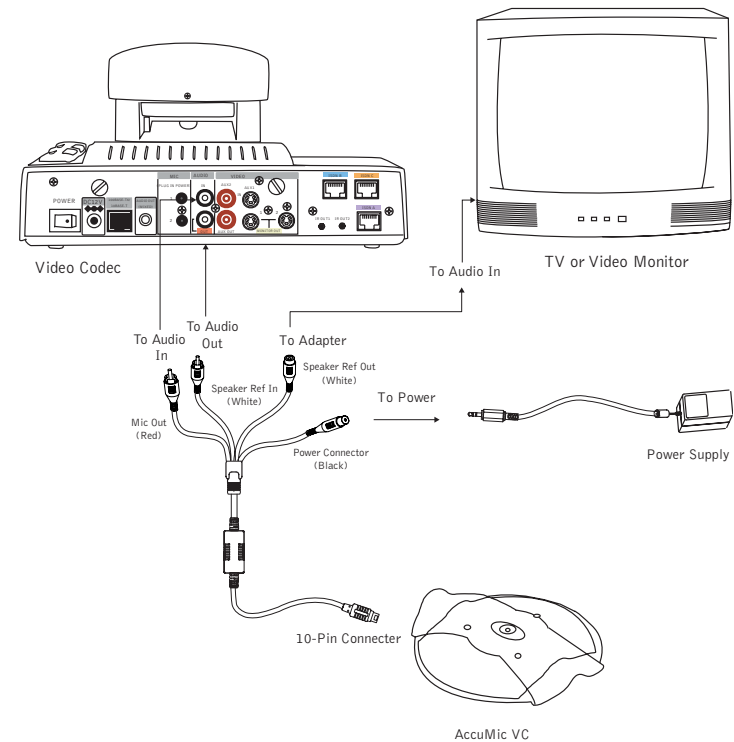2. Connect one end of the 10' (3 meter) mini-DIN cable to the 8-pin connector on the first AccuMic VC.

3. Connect the other end of the cable to the 8-pin connector on the extension AccuMic VC.

4. Reconnect the first AccuMic VC to the power source.

5. Place the mic pads a suitable distance apart on the conference table to accommodate meeting participants.

To
Video Codec

First AccuMic

8-Pin Connector

10' (3-meter) Mini-DIN Cable

8-Pin Connector
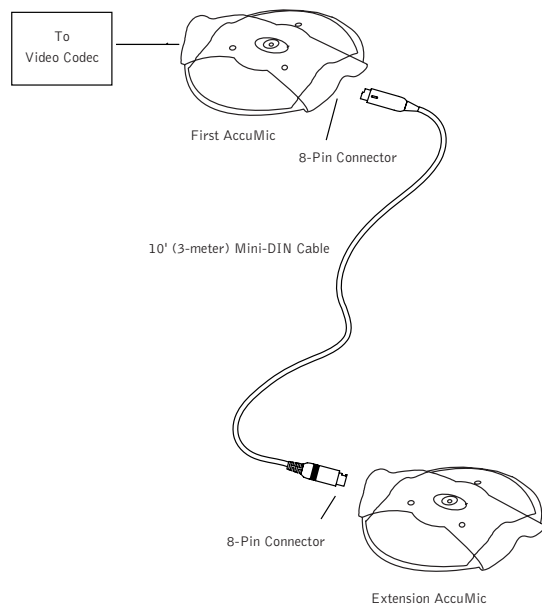
Extension AccuMic

Figure 16. Connecting an AccuMic VC Extension Mic

Operation

Using the AccuMic

The AccuMic is a plug-and-play microphone; the only function that is controlled manually is Mute.

To mute the AccuMic

1. Press the Mute button (on top of the mic pad) to mute the AccuMic's mic elements. The LEDs will turn red.

2. Press Mute again to unmute the mics. The LEDs will turn green.

✎ **Note**: When using two connected AccuMics, pressing the Mute button on either unit will mute/unmute both AccuMic mic pads.

Troubleshooting

If you have trouble with your AccuMic, the unit might not be properly connected or other equipment might be malfunctioning. To begin, check the following:

• The AccuMic power supply is plugged into a 100-240-volt electrical outlet.

• The base connector cable from the power supply to the AccuMic is securely connected.

• Connections to the video codec, television and PC are secure.

• The LEDs on the top of the AccuMic illuminate in the direction of the participant speaking. Participants need to be within 10 feet of the AccuMic.

If you have trouble with the audio quality, ensure that:

• The Playback microphone balance mute option is selected. See page 7.

• The Recording microphone balance is selected. See page 8.

If problems persist, please contact our Technical Services Group.

Appendix

Specifications

Dimensions (L x W x H)
8" x 6.5" x 1"
(20.3 x 16.5 x 2.5 cm)

Weight
1 lb (.45 kg)

Operation
Temperature: 41–104° F
(5–40° C)
Humidity: 50–80%

Storage
Temperature: 41–158° F
(5–70° C)
Humidity: 10–90%

Power
12 VDC, 2.5A, 25W, center positive

**AccuMic VC
Microphone Out**
RCA jack
Nominal level: -10 dBu
Impedance: 100 ohm

**AccuMic PC
Microphone Out**
3.5 mm
Nominal level: -23 dBu
Impedance:100 ohm

Speaker Reference In
RCA plug
Nominal level: -10 dBu
Impedance: 200 ohm

Speaker Reference Out
RCA jack
Nominal level -10dBu

AccuMic VC Cables
(1) 35' (10.7 m) four plug
RCA cable
(1) Power In 12VDC, 2.5A, 25W
(1) Microphone Out
(1) Speaker Reference In
(1) Speaker Reference Out

AccuMic PC Cables
(1) 20' (6.1 m) four plug 3.5 mm plug
(1) Power In 12VDC, 2.5A, 25W
(1) Microphone Out
(1) Speaker Reference In
(1) Speaker Reference Out

Microphones
3 elements, each with 120-degree pickup range

Visual Feedback Indication
3 LEDs that indicate direction of audio pickup

Mute Button
Mutes all mic elements

A/D Conversion
24 bit, 16kHz

Frequency Response
50Hz–7kHz

AEC Tail Time
130ms

Noise Cancellation
6dB attenuation

**Auto Mixer and Input
Configuration**
Automatic gating control
PA adaptive mode
Adaptive ambient mode
Echo cancellation
Noise cancellation
First mic priority
NOM

Regulatory and Standards
FCC, CE, IC

Part Numbers
AccuMic VC 910-156-115
AccuMic PC 910-157-001

**Optional AccuMic VC
Extension Mic Kit**
Includes AccuMic VC microphone and 10' (3 m) extension cable.
910-156-117

**Optional AccuMic PC
Extension Mic Kit**
Includes AccuMic PC microphone and 10' (3 m) extension cable.
910-157-010

Video codec compatibility

AccuMic VC only

Model Name	Line Level	3.5mm	Model Name	Line Level	3.5mm
CTG			**SONY**		
SM-01	Y		PCS1500	Y	
SM-02	Y		**TANDBERG**		
BNI			Vision 600	Y	
Large Group Conference Phone	Y		Vision 770	Y	
Medium Group RollAbout	Y		Vision 800	Y	
Person Desktop WorkStation	Y		Vision 2500	Y	
GENTNER			Vision 5000	Y	
APV200	Y		Vision 6000	Y	
APV200-IP	Y		Vision 7000	Y	
INTEL			Vision 2500 Portable	Y	
Intel Team Station	see PictureTel	(exclusive Dist.)	Vision 5000 Portable	Y	
Intel Video System 500	see PictureTel	(exclusive Dist.)	Vision 6000 Portable	Y	
PICTURETEL			Codec 1000	Y	
Intel Team Station	Y		Codec 2500	Y	
Concorde 4500 & System 4000ZX	Y		Codec 5000	Y	
Venue 2000 Model 50	Y		Codec 6000	Y	
Venue 2000 Model 30	Y		Health Care System III	Y	
PictureTel 760	Y		**VBRICK**		
Intel ProShare Video System 500		Y	Vbrick 1000 series	Y	
Live 200		Y	Vbrick 2000 series	Y	
Zydacron OnWAN for Win95		Y	Vbrick 3000 series	Y	
Zydacron OnWAN 250	Y		**VCON**		
LiveLAN		Y	Cruiser 384		Y
PictureTel 550		Y	Mediaconnect 6000	Y	
POLYCOM			**VTEL**		
View Station FX	Y		TC 1000	Y	
VS 4000	Y		TC 2000	Y	
View Station MP	Y		HS 2000	Y	
View Station V.35	Y		LC 5000	Y	
Video View Station	Y		WG 500		Y
View Station DCP 512	Y		SmartStation		Y
View Station SP	Y		SetTop 250	Y	
H.323 128	Y				
RSI					
Video Flyer	Y				
Media Pro	Y				

Figure 17. Video codec compatibility with AccuMic VC

Warranty

ClearOne Communications, Inc. (Manufacturer) warrants that this product is free of defects in both materials and workmanship. Should any part of this product be defective, the Manufacturer agrees, at its option, to:

A. Repair or replace any defective part free of charge (except transportation charges) for a period of one year from the date the end user is invoiced for the product, provided the end user returns the product to ClearOne Communications or an authorized ClearOne dealer according to the Product Return and Repair Policy set forth below;

B. Furnish replacement for any defective parts in the product for a period of one year from the date the end user is invoiced for the product, provided the end user provides proof of purchase that demonstrates that the product is still within the warranty period. Replacement parts shall be furnished without charge, except labor and transportation.

This warranty excludes assembled products not manufactured by the Manufacturer whether or not they are incorporated in a Manufacturer product or sold under a Manufacturer part or model number.

Product Return and Repair Policy

1. Return to Seller if Purchased Through an Authorized Dealer

   a. Proof of purchase date from reseller within warranty period must be provided by the end user.

   b. Seller may, at its discretion, provide an immediate exchange or repair or may return the unit to the Manufacturer for repair.

2. Return to Manufacturer

   a. An RMA (return merchandise authorization) number must be issued to the end user from ClearOne technical support.

   b. The end user must return the product to ClearOne with proof of purchase (showing purchase date) for a warranty claim, and display the RMA number on the outside of the shipping package.

THIS WARRANTY IS VOID IF:

A. The product has been damaged by negligence, accident, act of God, or mishandling, or has not been operated in accordance with the procedures described in the operating and technical instructions; or,

B. The product has been altered or repaired by other than the Manufacturer or an authorized service representative of the Manufacturer; or,

C. Adaptations or accessories other than those manufactured or provided by the Manufacturer have been made or attached to the product which, in the determination of the Manufacturer, shall have affected the performance, safety or reliability of the product; or,

D. The product's original serial number has been modified or removed.

NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE, APPLIES TO THE PRODUCT. MANUFACTURER'S MAXIMUM LIABILITY HEREUNDER SHALL BE THE AMOUNT PAID BY THE END USER FOR THE PRODUCT. No person or entity authorized to assume any obligation or other liability in connection with the products. No action, regardless of form, arising out of or relating to the product or this warranty, may be brought by end user more than one (1) year after the cause of action has accrued.

Manufacturer shall not be liable for punitive, consequential, or incidental damages, expenses, or loss of revenue or property, inconvenience, or interruption in operation experienced by the end user due to a malfunction in the purchased product. No warranty service performed on any product shall extend the applicable warranty period.

In case of unsatisfactory operation, the end user shall promptly notify the Manufacturer at the address set forth below in writing, giving full particulars as to the defects or unsatisfactory operation. Upon receipt of such notice, the Manufacturer will give instructions respecting the shipment of the product, or such other matters as it elects to honor this warranty as above provided. This warranty does not cover damage to the product during shipping and the Manufacturer assumes no responsibility for such damage. All shipping costs shall be paid by the customer.

This warranty extends only to the original end user and is not assignable or transferable. This warranty is governed by the laws of the State of Utah, without regard to the conflicts of interests provisions thereof.

ClearOne Communications, Inc.
1825 Research Way
Salt Lake City, UT 84119

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

Changes or modifications not expressly approved by ClearOne Communications, Inc. could void the user's authority to operate the equipment.

European Compliance

This equipment has been approved in accordance with Council Directive 1999/5/EC "Radio Equipment and Telecommunications Equipment."

Conformity of the equipment with the guidelines below is attested by the CE mark.

$C\epsilon$

EC Declaration of Conformity

Application of Council Directive(s):	1999/5/EC Radio equipment and Telecommunications Terminal Equipment (R&TTE) Directive
Manufacturer's Name:	ClearOne Communications, Inc.
Manufacturer's Address:	1825 West Research Way Salt Lake City, Utah 84119 U.S.A.
Model No.:	AccuMic VC 910-156-115 AccuMic PC 910-157-001

Standard(s) to which Conformity is declared:

89/336/EEC "Electromagnetic Compatibility (EMC) Directive":

EN 55022: 1994 (Emissions)	Specification for limits and methods of measurement of radio interference characteristics of information technology equipment.
EN 61000-3-2:1995/A1/A2:1998	Part 3: Limits – Section 2: Limits for harmonic current emissions.
EN 61000-3-3:1995	Section 3: Limitation of voltage fluctuations and flicker in low voltage supply systems for equipment with rated current up to and including 16 A.
EN 55024: 1998 (Immunity)	Information technology equipment – Immunity characteristics – Limits and methods of measurement.Salt Lake City, Utah 84119
EN 61000-4-2: 1995/A1:1998	Electrostatic Discharge
EN 61000-4-3: 1996/A1:1998	Radiated RF Immunity
EN 61000-4-4: 1995	Electrical Fast Transients
EN 61000-4-5: 1995	Lightning Surge
EN 61000-4-6: 1996	Conducted RF Immunity
EN 61000-4-8: 1993	Radiated Magnetic Field Immunity
EN 61000-4-11: 1994	Voltage Dips and Voltage Interruptions

73/23/EEC "Low Voltage Directive (LVD)":

EN 60950: 1992	Safety of Information Technology Equipment, Including A1, A2, A3, A4 and A11 Electrical Business Equipment.

Manufacturer

Roger J. Midgley

Signature

Roger J. Midgley

Full Name

Project Manager

Position

Legal Representative in Europe

[signature]

Signature

Martin Offwood

Full Name

Managing Director EMEA North

Position