



CLEAR-COM ECLIPSE

IFB-104 INTERFACE

INSTRUCTION MANUAL

IFB-104 Interface Instruction Manual

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IMPORTANT SAFETY INSTRUCTIONS

For your safety, it is important to read and follow these instructions before operating an IFB-104 Interface:

- (1) **WARNING:** To reduce the risk of fire or electric shock, do not expose an IFB-104 Interface to rain or moisture. Do not operate an IFB-104 Interface near water, or place objects containing liquid on it. Do not expose an IFB-104 Interface to splashing or dripping water.
- (2) For proper ventilation, make sure ventilation openings are not blocked. Install the IFB-104 Interface according to the directions in the Installation Chapter of this manual.
- (3) Do not install an IFB-104 Interface near a heat source such as a radiator, heat register, stove, or other apparatus (including amplifiers) that produces heat. Do not place naked flame sources such as candles on or near an IFB-104 Interface.
- (4) Only use attachments/accessories specified by Clear-Com Communication Systems.
- (5) Unplug the IFB-104 Interface during lightning storms or when unused for long periods of time.
- (6) Refer all servicing to qualified service personnel. Servicing is required when:
 - The IFB-104 Interface has been damaged in any way, such as when a power-supply cord or plug is damaged.
 - Liquid has been spilled or objects have fallen into the IFB1-4 Interface chassis.
 - The IFB-104 Interface has been exposed to rain or moisture.
 - The IFB-104 Interface does not operate normally.
 - The IFB-104 Interface has been dropped.

Please read and follow these instructions before operating an IFB-104 Interface.

Please familiarize yourself with the safety symbols in Figure 1. When you see these symbols on an IFB-104 Interface, they warn you of the potential danger of electric shock if the IFB-104 Interface is used improperly. They also refer you to important operating and maintenance instructions in the manual.



This symbol alerts you to the presence of uninsulated dangerous voltage within the product's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product's case.



This symbol informs you that important operating and maintenance instructions are included in the literature accompanying this product.

Figure 1: Safety Symbols



OPERATION

DESCRIPTION

The IFB-104 provides an easy way to connect Matrix panels to on-air talent using IFB (Interruptible Foldback).

The interface provides an audio-balanced program input to a Matrix frame and sends IFB outputs to on-air talent. Both the input and output are transformer isolated.

- *The IFB-104 is used primarily to connect a director to on-air talent.*

The IFB-104 back panel has enough connectors to accommodate as many as four Matrix frames and four on-air talents. Each of the four pairs represents a Matrix frame port. Although each pair can have separate inputs and outputs, each of the four pairs do not have to be used together. Input for each output can come from any source and one input can be used for all four outputs. In addition, the inputs do not have to be IFB-related, but can contain other program material.

The front panel has only one indicator. This indicator lights up when power is connected to the IFB-104. Power is only necessary if the talent receivers require it.

2 INSTALLATION

To install the IFB-104:

1. Connect the female XLR-3 connectors (J101, J201, J301, and/or J401) to the program feed(s).
2. Connect the RJ-45 connectors (J102, J202, J302, and/or J402) to a Matrix frame.
3. Configure the Matrix port through the Eclipse Configuration Software (ECS), which has declared the IFB-104 as a direct 4-wire port connection.
4. Connect the XLR-3 male (J103, J203, J303, and/or J403) to an on-air talent receiver.
5. Move the slide switch to WET if the on-air talent receiver requires power and to DRY if it doesn't require power. Use the WET setting with a Clear-Com talent receiver.
6. Connect power to the appropriate connector on the left of the back panel.

• *Simple connections can connect on-air talent receivers to Matrix panels.*

Following is an illustration of how one panel can be connected to an on-air talent receiver that requires power using the IFB-104.

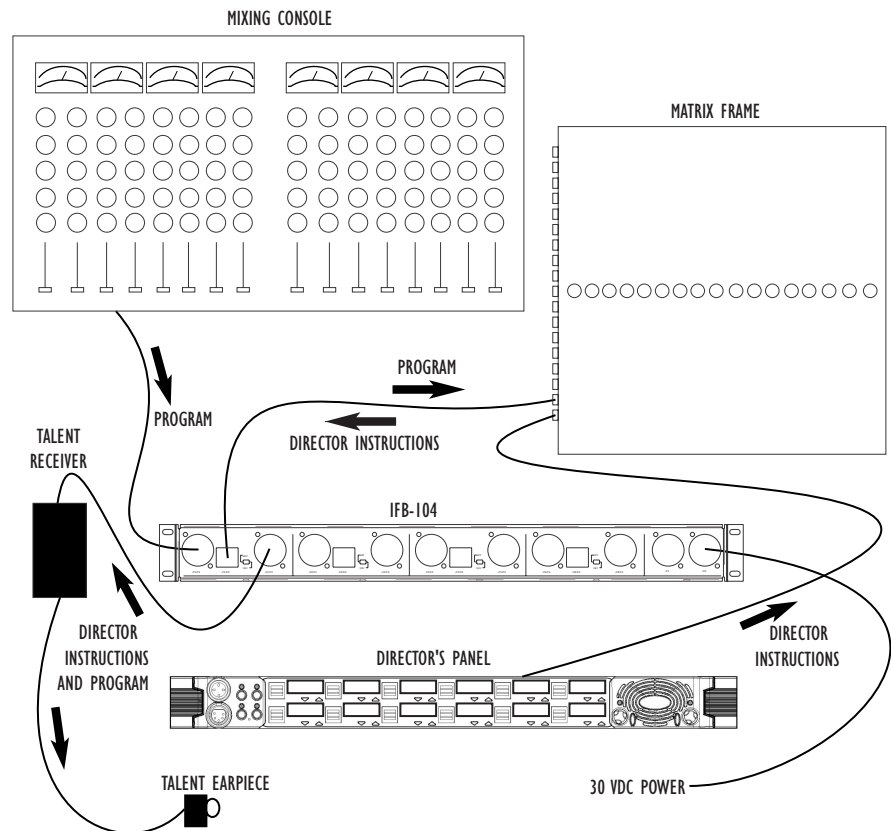


Figure 2-1: IFB-104 Connections

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MAINTENANCE

BILL OF MATERIALS

IFB-104 MAIN PCB

Designator	Description	QTY
J2 J103 J203 J303 J403	Connector R/A 3 PIN MALE XLR	5
J1 J101 J201 J301 J401	Connector R/A 3 PIN FEMALE XLR	5
J102 J202 J302 J402	Connector RJ-45 RT ANG SHLD	4
	LED GREEN R/A PC MOUNT LED	R1
R1	LED 2.7K OHM 1/4 Carbon Film 5%	1
S101 S201 S301 S401	Switch DPDT SLIDE SWTCH	4
T101 T102 T201 T202 T301 T302 T401 T402	Transformer 600CT/600CT	8

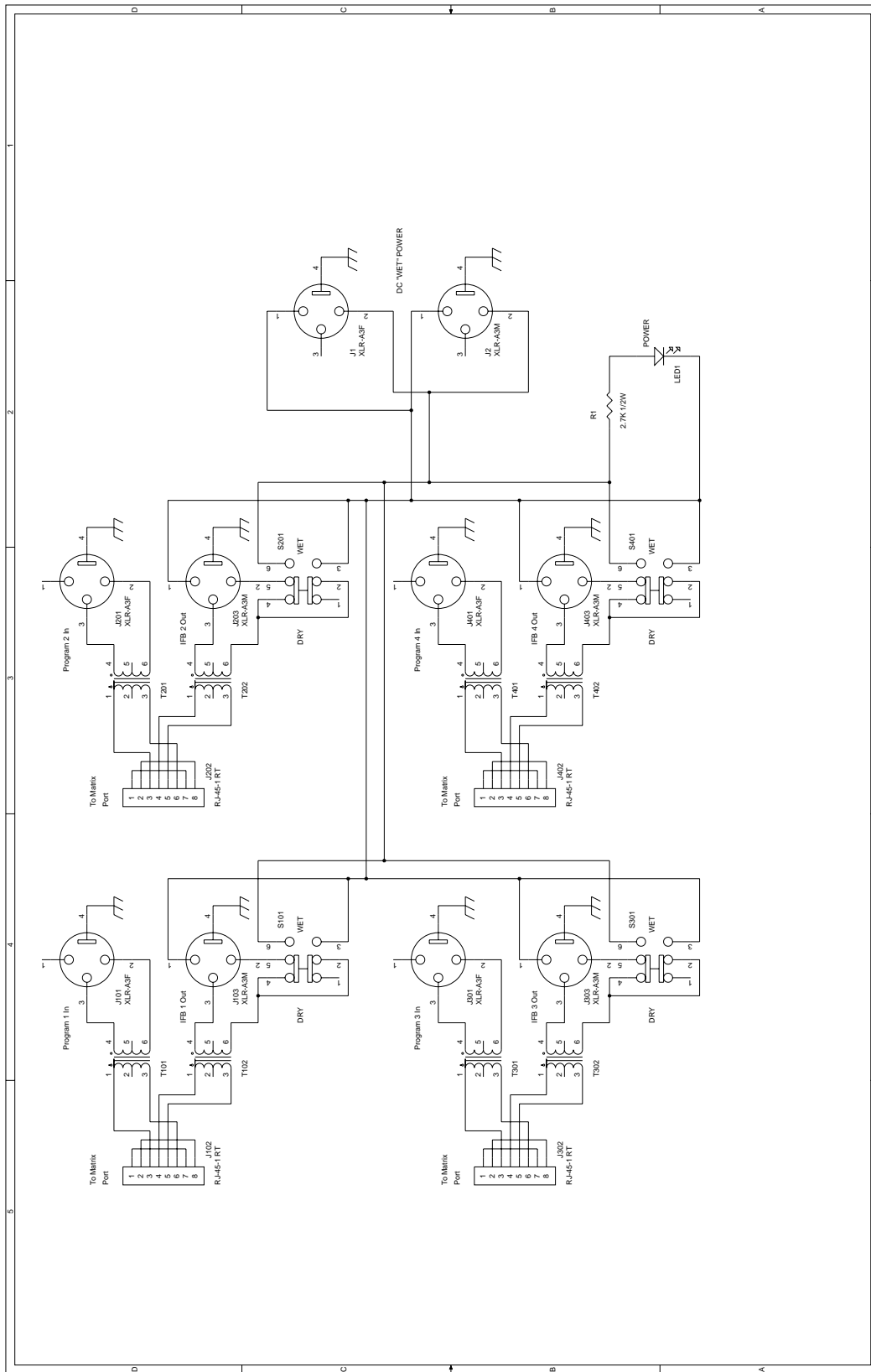


Figure 3-2: IFB-104 Schematic

4 SPECIFICATIONS

0 dBu is referenced to 0.775 V RMS

Front Panel Indicators

Power LED 1

Rear Panel Connectors

Program Input Three-pin XLR female (4)
To Matrix RJ-45 (4)
Talent Three-pin XLR male (4)
DC Power Three-pin XLR male; three-pin XLR female

Program Input

Type Transformer isolated
Impedance 600 ohms bridging
Level 0 dBu

Headphone Talent Receiver Outputs

Impedance 600 ohms, transformer balanced
Power 1 mW into 600 ohms

Line Input (2-Pair Listen from Matrix)

Type Transformer balanced
Impedance 600k ohms
Level 0 dBu nominal
Frequency Response 100 Hz to 15 kHz, +/- 2 dB

Line Output (2-Pair Talk to Matrix)

Type Transformer balanced
Impedance 600 ohms
Level 0 dBu nominal
Frequency Response 100 Hz to 15 kHz, +/- 2 dB

Temperature

Operating 0° to 50° C (32° to 125° F)
Storage 0° to 70° C (32° to 150° F)

Humidity

Operation and Storage 20% to 90%, non-conducting

Package Dimensions

Height	1.75 in. (4.45 cm), (1 RU, EIA rack)
Width	19.0 in. (48.25 cm)
Depth	2 in. (5.1 cm)
Weight	1.80 lbs. (.82 kgs)

Notice About Specifications

While Vitec Group Communications makes every attempt to maintain the accuracy of the information contained in its product manuals, that information is subject to change without notice. Performance specifications included in this manual are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

5 GLOSSARY

Analog Port Any of the Eclipse matrix's analog input/output RJ-45 connectors that are used to connect cable from the matrix to panels and interfaces. Each "port" connects to a separate audio channel in the matrix intercom system.

Bus A bus is the channel or path between the components in the matrix along which electrical signals flow to carry information from one component to the next. In the Eclipse matrix the bus is located in the etched surface of the midplane.

Call Signal A call signal is an electronic signal sent from one panel or interface to another. A call signal can be audible and/or visual. Typically a call signal is sent to get the attention of a panel operator who may have turned down their intercom speaker's volume or removed their headset. It can also be sent to activate an electronic relay.

Category-5 cable EIA/TIA 568 category specification relating to network cabling. Shielded category-5 cabling is required for Eclipse matrix wiring.

CellCom Digital wireless communications product. Sold under the CellCom name in USA and as FreeSpeak in Europe and Asia.

Central Matrix The term "central matrix" is used to differentiate the central hardware and software of the intercom system from the connected audio devices. The central matrix consists of:

1. The metal housing for the circuit cards and power supplies.
2. The circuit cards.
3. The power supplies.
4. The rear panel connectors which connect the matrix's hardware to panels and interfaces.

Destination A device such as an intercom panel, beltpack, or interface to which audio signals are sent. The device from which audio signals are sent is called a "source".

Duplex All real-time communication between individuals talking face to face is full duplex, meaning that they can both talk and listen simultaneously. The Eclipse Omega matrix provides full-duplex audio.

ECS Eclipse Configuration System. Software program that guides the operation of the central matrix circuit cards and connected panels.

EMS Element Management System. Software program that is used to manage the Concert server system resources.

Ethernet International standard which describes how information is transmitted across a network. Provides for the efficient organization of network components.

Fiber-optic Cable A fiber-optic cable consists of a glass core covered with a reflective material called “cladding” and several layers of buffer coating to protect the cable from the environment. A laser sends light pulses through the glass core to the other end of the cable.

FreeSpeak Digital wireless communications product. Sold under the FreeSpeak name in Europe and Asia and CellCom in USA.

Full Duplex Refers to transmission of signals in two directions simultaneously.

IFB “Interruptible Foldback”. The term “foldback” refers to sending “program” audio, or some other audio mix, back to announcers while they are on the air. Doing so allows announcers to monitor themselves, other announcers, videotapes of commercials, or some mix of sources, while they on the air. This is typically found in television news and live broadcast events.

Announcers typically wear a small ear piece so they can hear the selected foldback audio mix. When a director wants to give directions to an announcer on air, or to announce changes in the program, the director must “interrupt” the foldback. To do this, the director uses a channel specifically set up to interrupt the foldback audio.

Interface Module A piece of electronic hardware designed to convert the 4-wire signals of a central matrix port to some other form of communication, such as 2-wire party line, telephone, etc. The interface module is connected to a central matrix port. The external non-4-wire device is then connected to the interface module.

ISO The ISO function, short for “panel ISOLation”, allows a panel operator to call a destination and interrupt all of that destination’s other audio paths and establish a private conversation. When the call is completed the destination’s audio pathways are restored to their original state before the interruption.

IV-R Instant Voice Router. Software that routes digital audio data between Concert users and between Concert users and Eclipse systems.

Label A label is an alphanumeric name of up to five characters that identifies a source, destination, or control function accessed by an intercom panel. Labels appear in the displays of the intercom panel. Labels can identify panels, ports interfaced to other external equipment, fixed groups, party lines, and special control functions.

Mode A term used to describe a light path through a fiber as in multimode or single mode.

Multimode Fiber-optic Cable The glass core of a multimode fiber is larger than the core of a single mode fiber, which causes the transmitted light beam to disperse as it travels through the core. Single mode fiber, with its smaller core, concentrates the light beam so that it carries signals further. Multimode fiber was the first type of fiber offered

by manufacturers. Single-mode fiber evolved as production methods improved.

Multiplexing The process by which two or more signals are transmitted over a single communications channel. Examples include time division and wavelength division multiplexing.

Nanometer (nm) Common unit of measure for wavelength. One billionth of a meter.

Non-volatile Memory Data stored in the CPU's firmware (ROM) that is not lost when the power is turned off.

Optical Signal A laser at one end of a fiber-optic cable pulses on or off to send a light signal through the glass core of the cable to the other end of the cable. Because the light signals are binary (on or off), the signal is digital.

Panel Also referred to as "station" in some cases (usually older manuals). Any intelligent intercom device connected to the rear-panel analog ports of the central matrix. This term does not refer to devices connected through interface modules.

Port Any of the input/output connections (RJ-45 connectors) on the back panel of the central matrix. These connectors and the attached cables connect the central matrix to remote intercom devices. The term "port" emphasizes that the connection is a "portal" between the central matrix and the remote intercom devices.

Program Any separate audio source that is fed into the intercom channels. In television applications, for example, "program" audio is the audio that is broadcast on air.

Rack Unit or RU Standardized unit of mounting space on a rack panel. Each rack unit is 1.75 inches (44.45 mm) of vertical mounting space. Therefore 1 RU is 1.75 inches (44.45 mm) of vertical mounting space, 2 RU is 3.5 inches (88.9 mm), 3 RU is 5.25 inches (133.35 mm), and so on.

Remote Panel Any intelligent intercom device connected to the back-panel ports of the central matrix. This term does not refer to devices connected through interfaces.

Sidetone The sound of the panel operator's own voice heard in their own earphone as they speak.

Single-mode Fiber-optic Cable The glass core of a single-mode fiber is smaller in diameter than the core of a multimode fiber, so that the light signal transmitted over the core is more concentrated than with multimode fiber, which allows the signal to travel further. Single-mode fiber evolved from multimode fiber as production methods improved.

Source In this manual, the term "source" refers to a device—such as an intercom panel, interface, or beltpack—that sends audio into the matrix. The device to which audio is sent is called a "destination".

VOX In the Eclipse system, when audio at a panel exceeds a threshold, a light switches on at the panel's port card to visually cue the operator. The threshold level is set in the Eclipse Configuration Software.

V-Series Communications panels used with Eclipse systems providing advanced facilities. Available in rack mount and desktop formats.

Wavelength-division Multiplexing (WDM) A method of multiplexing optical signals developed for use on fiber-optic cable. Each signal is assigned a particular wavelength on the light spectrum and therefore many signals can be transmitted simultaneously without interfering with each other.

ECLIPSE MANUALS

The following manuals are available covering Eclipse products and accessories.

SOFTWARE MANUALS

Eclipse Configuration System (ECS) Instruction Manual - 810299Z

Eclipse Logic Maestro Instruction Manual - 810414Z

Eclipse Production Maestro Quick Start Guide - 810409Z

Eclipse Production Maestro Installation and User Guide - 810410Z

Eclipse DECTSync Manual - 810412Z

Eclipse Host Computer Interface (HCI) Manual - 810413Z

HARDWARE MANUALS

Eclipse Omega Matrix Instruction Manual - 810290Z

Eclipse Median Matrix Instruction Manual - 810347Z

Eclipse PiCo Matrix Instruction Manual - 810348Z

Eclipse-32 Matrix Instruction Manual - 810315Z

Eclipse Matrix Installation Manual - 810298Z

Eclipse Upgrade Reference Manual - 810377Z

Eclipse V-Series Panels User Manual - 810365Z

Eclipse FOR-22 4-Wire Interface Instruction Manual - 810306Z

Eclipse CCI-22 Party Line Interface Instruction Manual - 810307Z

Eclipse TEL-14 Telephone Interface Instruction Manual - 810308Z

Eclipse GPI-6 General Purpose Inputs Instruction Manual - 810309Z

Eclipse RLY-6 General Purpose Outputs Instruction Manual - 810310Z

DIG-2 Digital Interface Instruction Manual - 810311Z

IMF-3, IMF-102, DIF-102 Interface Module Frame Instruction Manual - 810313Z

Eclipse AES-6 Digital Interface Instruction Manual - 810383Z

Eclipse BAL-8 Isolation Interface Instruction Manual - 810403Z

Eclipse V-Series AES-3 Option Card Installation Instructions - 810388Z

Eclipse V-Series XLR-7M Upgrade Instructions - 810405Z

Eclipse V-Series T-Adapter Installation Instructions - 810406Z

Eclipse FIM-202D Fiber Interface Instruction Manual - 810385Z

Eclipse FIM-102 Fiber Interface Instruction Manual - 810319Z
Eclipse FIM-108 Fiber Interface Instruction Manual - 810291Z
Eclipse IFB-104 Interface Instruction Manual - 810268Z
Eclipse 4000 Series II Panels Installation Guide - STA0530Z
Eclipse 4000 Series II Panels User Guide - STA0531Z
Eclipse ICS 1008E/1016E Panels Instruction Manual - 810404Z
Eclipse ICS 102/62 Panels Instruction Manual - 810302Z
Eclipse ICS 2003 Panel Instruction Manual 810303Z
Eclipse ICS 92/52 Panels Instruction Manual - 810301Z
Eclipse i-Station Instruction Manual - 810305Z
Eclipse ICS-21 Speaker Panel Instruction Manual - 810263Z
Eclipse ICS-22 Speaker Panel Instruction Manual - 810264Z
Eclipse ICS-24 Headset Panel Instruction Manual - 810265Z
Eclipse Digital Wireless Beltpack Instruction Manual - 810376Z

LIMITED WARRANTY

This document details the Clear-Com Standard Limited Warranty for all new products for sale within all regions with the exception of Military, Aerospace, and Government (MAG).

EXCEPT AS SET FORTH HEREIN ("LIMITED WARRANTY"), CLEAR-COM MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT OF THIRD PARTY RIGHTS, OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED.

1. **Standard Limited Warranty.** Clear-Com Communication Systems ("Clear-Com") warrants its products, including supplied accessories, against defects in material or workmanship for the time periods as set forth below provided it was purchased from an authorized Clear-Com dealer or distributor.

a) Pursuant to this Limited Warranty, Clear-Com will, at its option:

- i) repair the product using new or refurbished parts, or;
- ii) replace the product with a new or refurbished product.

b) Remedies: In the event of a defect, the rights detailed in 1 (a) are your exclusive remedies. For purposes of this Limited Warranty, "refurbished" means a product or part that has been returned to its original specifications.

c) Standard Warranty Period (by Product):

- i) All Clear-Com brand systems and products, including belt packs, have a Limited Warranty of two years, with the exception of;
 - (1) Cables, accessories, components & consumable items have a Limited Warranty of 90 days.
 - (2) Any Clear-Com product that has been classified as obsolete at the time of sale has a Limited Warranty of 90 days from sales and will be replaced with the same product or a sales credit will be issued, at the sole discretion of Clear-Com.
 - (3) Headsets, handsets, microphones, and associated spare parts, as well as UHF wireless IFB products, have a Limited Warranty of one year.
 - (4) UHF WBS Analog wireless intercom systems have a Limited Warranty of three years.

- (5) All software products, including Concert (Client and Server), ECS, Production Maestro and Logic Maestro are warranted for one year and shall substantially conform to published specifications. The media on which the Software is furnished is warranted to be free of defects in material and workmanship (under normal use) for a period of one year.

 - (6) Any Clear-Com products that are listed within the last time buy period have the same Limited Warranty for their type 1.i.1 - 1.i.5 as above.
- d) Any Clear-Com product that is repaired or supplied as a replacement under the terms of this Limited Warranty shall inherit the remaining warranty period from the original product.
- e) Standard Warranty Period Start Date
- i) Dealer / Distributor Sales: In view of Dealer or Distributor stocking practices, the Standard Warranty Period for products sold through Dealers or Distributors will commence from the Clear-Com invoice date and will include an automatic extension of three months. Any valid warranty claim within the Standard Warranty Period as determined by the Clear-Com invoice date will be covered without further supporting evidence. All warranty claims after this date must be supported by the Customer's proof of purchase that demonstrates the product is still within the Standard Warranty Period (as detailed in Section 1.c.i above, plus the automatic three month extension) from their purchase date.
 - ii) Direct Sales: The Standard Warranty Period will commence from the date the product was shipped from Clear-Com to the Customer. The Standard Warranty Period start date for contracts that include commissioning will be the date of the Site Acceptance Test (SAT) or one month from conclusion of the commissioning project, whichever is earlier.
- f) Invalidation of Warranty
- i) This Limited Warranty shall be invalidated if the product's outer case has been opened and internal modifications have been made or damage has occurred, or upon the occurrence of other damage or failure not attributable to normal wear and tear. Authorized modifications with Clear-Com's express written permission will not invalidate the warranty.
- g) Software Updates
- i) Software Updates are released periodically to correct discovered program bugs. During the Warranty Period, software updates are available to Customers free of charge.

h) Software Upgrades

- i) Software Upgrades include new Features and/or Functional Enhancements and are not included as part of the Standard Warranty but may be purchased at the published rates.
- ii) Note: In the absence of a Software Update containing a program correction and no available workaround to mitigate the problem, at the discretion of Service, Sales, Engineering, or Product Management, the Customer may be provided a Software Upgrade under warranty.

2. **Exclusions.** Services do not cover damage or failure caused by any occurrence beyond Clear-Com's reasonable control, including without limitation acts of God, fire, flooding, earthquake, lightning, failure of electric power or air conditioning, neglect, misuse, improper operation, war, government regulations, supply shortages, riots, sabotage, terrorism, unauthorized modifications or repair, strikes, labor disputes or any product failure that Clear-Com determines is not a result of failure in the Services provided by Clear-Com. Further Services excluded from this Agreement include: services required due to errors or omissions in Customer purchase orders; installation or maintenance of wiring, circuits, electrical conduits or devices external to the products; replacement or reconditioning of products which, in Clear-Com's opinion cannot be reliably maintained or properly serviced due to excessive wear or deterioration; Customer's failure to maintain the installation site in accordance with the environmental specifications of the products; or service on products removed from the location originally specified by Customer and/or reinstalled without the prior written approval of Clear-Com. Customer will pay Clear-Com's then current published charges to restore such Covered Products to a condition eligible for further service under this Agreement. Clear-Com shall be excused from and shall not be liable for any failure or delay in performance under this Agreement due to the foregoing or any causes beyond its reasonable control.

3. **Limitation of Liability.** IN NO EVENT WILL CLEAR-COM BE LIABLE UNDER THIS AGREEMENT FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), REGARDLESS OF THE FORM OF ACTION, EVEN IF ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES.

4. **Assignment.** Neither party may assign this Agreement or any portion thereof without the prior written consent of the other, except in the event of a merger, sale of all or substantially all of the assets or other corporate reorganization.

5. **Ownership of replaced parts or product.** All replaced parts or products become the property of Clear-Com.

6. **Entire Agreement.** This Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof, and supersedes all prior or contemporaneous proposals, oral or written, and all other communications between them relating to the subject matter of this Agreement.

TECHNICAL SUPPORT & REPAIR POLICY

NOVEMBER 1, 2008

In order to ensure that your experience with Clear-Com and our World Class products is as beneficial, effective and efficient as possible, we would like to define the policies and share some "best practices" that can accelerate any problem solving processes which we may find necessary and to enhance your customer service experience. Our Technical Support, Return Material Authorization, and Repair Policies are set forth below. These Policies are subject to revision and constantly evolve in order to address our Customers' and the Market's needs. Accordingly these are provided by way of guidance and for information only and may be changed at anytime with or without Notice.

TECHNICAL SUPPORT POLICY

- a) Telephone, online, and e-mail technical support will be provided by the Customer Service Center free of charge during the Warranty Period.

- b) Technical support will be provided free of charge for all software products under the following conditions:
 - i) The application, operating, and embedded software is installed on a product covered by Clear-Com's Limited Warranty, and:
 - (1) The software is at the current release level; or,

 - (2) The software is one (1) version removed from current.

 - ii) Older versions of software will receive "best-effort" support, but will not be updated to correct reported bugs or add requested functionality.

- c) For Technical Support:
 - i) North and South America, (inc. Canada, Mexico, and the Caribbean) & US Military:
 - Hours: 0800 - 1700 Pacific Time
 - Days: Monday - Friday
 - Tel: +1 510 337 6600
 - Email: CustomerServicesUS@vitecgroup.com

 - ii) Europe, the Middle East and Africa:
 - Hours: 0800 - midnight Central European Time

Days: Monday - Friday
Tel: +49 40 853 999 700
Email: TechnicalSupportEMEA@vitecgroup.com

iii) Asia-Pacific:

Hours: 0800 - 1700 Pacific Time
Days: Monday - Friday
Tel: +1 510 337 6600
Email: CustomerServicesAPAC@vitecgroup.com

d) Email Technical Support is available for all Clear-Com branded products free of charge for the life of the product, or two years after a product has been classified as obsolete, whichever comes first.

e) Support for Distributor and Dealer Sales

i) Distributors and Dealers may utilize the Customer Service Centers once a system has been installed and commissioned. Clear-Com Systems and Applications Engineers will provide support to the Distributor from the pre-sales stage through to satisfactory installation for new system purchases. Customers will be encouraged to contact their Dealer or Distributor with their installation and technical support enquires rather than using the Customer Service Centers directly.

f) Support for Direct Sales

i) Customers may utilize the Customer Service Centers once a system has been installed and commissioned by Clear-Com Systems and Applications Engineers, or in the case of project installations, once the Project Team has completed the hand-over to the Support Centers.

RETURN MATERIAL AUTHORIZATION POLICY

- a) Authorizations: All products returned to Clear-Com or a Clear-Com Authorized Service Partner must be identified by a Return Material Authorization (RMA) number.
- b) The Customer will be provided with an RMA number upon contacting Clear-Com Sales Support as instructed below.
- c) The RMA number must be obtained from Clear-Com via phone or email prior to returning product to the Service Center. Product received by the Service Center without a proper RMA number is subject to return to the Customer at the Customer's expense.

- d) Damaged equipment will be repaired at the Customer's expense.
- e) Returns are subject to a 15% restocking fee.
- f) Advance Warranty Replacements (AWRs);
 - i) *During the first 30 days of the Standard Warranty Period:* Once the equipment fault has been verified by Clear-Com or its authorized representative, Clear-Com will ship a new replacement product. The Customer will be provided with an RMA number and be required to return the faulty equipment within 14 days of receipt of the replacement or will be invoiced for the list price of a new product.
 - ii) *During days 31-90 of the Standard Warranty Period:* Once the equipment fault has been verified by Clear-Com or its authorized representative, Clear-Com will ship a like-new, fully refurbished replacement product. The Customer will be provided with an RMA number and be required to return the faulty equipment within 14 days of receipt of the replacement or will be invoiced for the list price of a new product.
 - iii) To obtain an RMA number or request an AWR:
 - (1) North and South America, Asia-Pacific, and US Military:

Hours:	0800 - 1700 Pacific Time
Days:	Monday - Friday
Tel:	+1 510 337 6600
Email:	SalesSupportUS@vitecgroup.com
 - (2) Europe, the Middle East and Africa:

Hours:	0800 - 1700 GMT + 1
Days:	Monday - Friday
Tel:	+ 44 1223 815000
Email:	SalesSupportEMEA@vitecgroup.com
 - iv) Note: AWRs are not available for UHF WBS Analog wireless intercom systems. UHF WBS Analog wireless intercom systems out-of-box failures must be returned to Alameda for repair.
 - v) Note: Out-of-box failures returned after 90 days will be repaired and not replaced unless approved by Clear-Com Management.
 - vi) Note: AWRs are not available after 90 days of receipt of product unless an AWR Warranty Extension is purchased at the time of product purchase.

- vii) Note: Shipping charges, including duties, taxes, and insurance (optional), to Clear-Com's factory is the responsibility of the Customer. Shipping AWRs from Clear-Com is at Clear-Com's expense (normal ground or international economy delivery). Requests for expedited shipping (E.g. "Next-Day Air") and insurance are the responsibility of the Customer.

REPAIR POLICY

- a) Repair Authorizations: All products sent to Clear-Com or a Clear-Com Authorized Service Partner for repair must be identified by a Repair Authorization (RA) number (see above).
- b) The Customer will be provided with an RA number upon contacting Clear-Com Customer Services as instructed below.
- c) The RA number must be obtained from Clear-Com via phone or email prior to returning product to the Service Center. Product received by the Service Center without a proper RA number is subject to return to the Customer at the Customer's expense.
- d) Return for Repair
 - i) Customers are required to ship equipment at their own cost (including transportation, packing, transit, insurance, taxes and duties) to Clear-Com's designated location for repair.
 - (1) Clear-Com will pay for the equipment to be returned to the Customer when it is repaired under warranty.
 - (2) Shipping from Clear-Com is normal ground delivery or international economy. Requests for expedited shipping (E.g. "Next-Day Air") and insurance are the responsibility of the Customer.
 - ii) **Clear-Com does not provide temporary replacement equipment ("loaner") during the period the product is at the factory for repair.** Customers should consider a potential prolonged outage during the repair cycle, and if required for continuous operations purchase minimum spare equipment required or purchase an AWR Warranty Extension.
 - iii) No individual parts or subassemblies will be provided under warranty, and warranty repairs will be completed only by Clear-Com or its Authorized Service Partners.
 - iv) Customers requesting a non-warranty repair will be provided an estimate of the total repair cost prior to the return of the equipment. In the event that Clear-Com is unable to estimate

the cost of repair, the Customer may elect to return the product to the factory for an estimate. The Customer is responsible for shipping costs both to and from the factory in the event they choose not to accept the estimate.

v) The Customer must provide either a purchase order for the repair work, or will be required to make an advance payment (as a debit against the Dealer's line of credit, or credit card) prior to the repaired product being returned to the Customer.

vi) For requesting a Repair Authorization number:

(1) North and South America, Asia-Pacific, and US Military:

Hours: 0800 - 1700 Pacific Time
Days: Monday - Friday
Tel: +1 510 337 6600
Email: CustomerServicesUS@vitecgroup.com

(2) Europe, the Middle East and Africa:

Hours: 0800 - midnight Central European Time
Days: Monday - Friday
Tel: +49 40 853 999 700
Email: TechnicalSupportEMEA@vitecgroup.com

vii) Note: Clear-Com's Limited Warranty does not cover normal wear and tear. The Customer will be charged the full cost of the repair if their equipment has been tampered with by non-approved personnel, or has been subject to damage through electrical failure, liquid damage or mishandling. The Customer Service Center will provide the Customer with a cost estimate for any such repairs prior to undertaking the work.