User Guide

Eclipse® ICS 1008E/1016E Intercom Panels User Guide

Part Number:399G222 Rev A

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Clear-Com®

Document Reference

ICS 1008E/1016E Intercom Panels

Part Number: 399G222 Revision: A

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Safety instructions

For your safety, it is important to read and follow these instructions before operating an ICS-1008E/1016E intercom panel.

WARNING: To reduce the risk of fire or electric shock, do not expose an ICS-1008E/1016E intercom panel to rain or moisture. Do not operate an ICS-1008E/1016E intercom panel near water, or place objects containing liquid on it. Do not expose an ICS-1008E/1016E intercom panel to splashing or dripping water.

(2) For proper ventilation, make sure ventilation openings are not blocked. Install the ICS-1008E/1016E according to the directions in the Installation Chapter of this manual.

(3) Do not install an ICS-1008E/1016E intercom panel 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 a panel.

(4) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades, with one blade wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

(5) Protect the power plug from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the panel chassis.

(6) Only use attachments/accessories specified by Clear-Com Communication Systems.

(7) Unplug the ICS-1008E/1016E panel during lightning storms or when unused for long periods of time.

(8) Refer all servicing to qualified service personnel. Servicing is required when:

- The ICS-1008E/1016E panel 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 ICS-1008E/1016E panel chassis.
- The ICS-1008E/1016E panel has been exposed to rain or moisture.

- The ICS-1008E/1016E panel does not operate normally.
- The ICS-1008E/1016E panel has been dropped.

Please familiarize yourself with the safety symbols in Figure 1-1. When you see these symbols on an ICS-1008E/1016E intercom panel, they warn you of the potential danger of electric shock if the station 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.

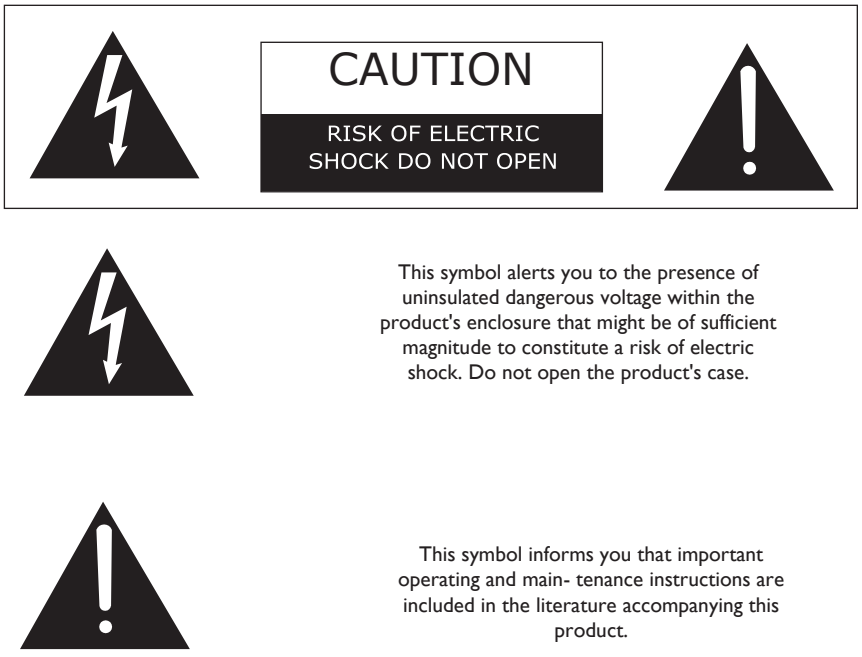

Figure 1-1 Safety Symbols

1 Operation

1.1 Introduction

This chapter describes the features and functions of the ICS-1016E and ICS-1008E panels used with Eclipse systems. Panel operators can use this manual after the Eclipse system has been correctly installed and configured. For installation information, see the chapter on installation in this manual, for troubleshooting and maintenance information, see the maintenance chapter and for programming information, see the Eclipse Configuration System (ECS) manual.

1.2 Description

The ICS-1016E, ICS-1008E, and EXP-1016E each require 1 RU (1.75-in.) of mounting space on a rack panel.

The ICS-1016E has 30 talk/listen and the ICS-1008E has 14 talk/listen buttons. Each also has six function buttons and the following features:

- back-lit, bi-color LED buttons illuminate at different levels to indicate conditions
- individually programmable buttons can be designated as talk, listen, or talk with listen
- individually adjustable listen levels
- momentary/latching buttons can be individually programed as momentary only
- answer-back button
- call-waiting tallies
- controls for sidetone, microphone gains, page override, and speaker mute
- programming via a configuration computer or the ICS-2003E Master Intercom Panel.

1.2.1 ICS-1016E/ICS-1008E front-panel controls and indicators

The panels are identical, except for their number of talk/listen buttons. Each panel has the following front-panel controls and indicators, unless indicated otherwise:

- panel microphone connector
- headset connector
- 30 talk/listen buttons (ICS-1016E)
- 14 talk/listen buttons (ICS-1008E)
- answer-back button
- clear button
- six function buttons
- intercom volume control.

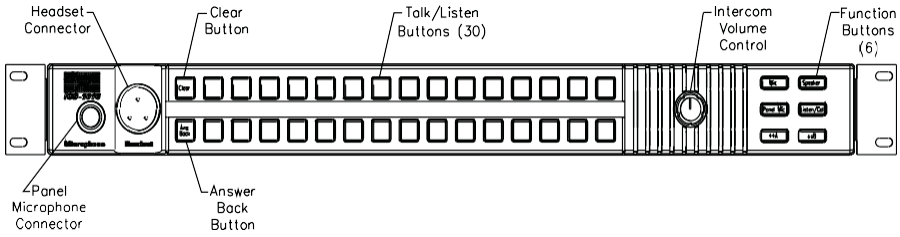

Figure 1-1: ICS-1016E Front Panel

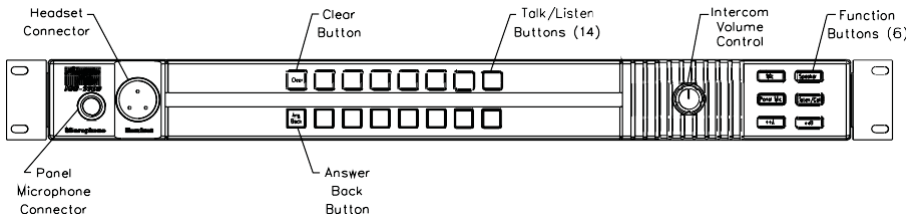

Figure 1-2: ICS-1008E Front Panel

Note: For convenience and ease of use, you can print out labels for panel keys from the EHX configuration software. Open EHX and navigate to **Matrix>Configuration>Panels>Panel XX** (where Panel XX is the required ICS panel). Find **Print Keys** at the top of the configuration screen towards the right side.

Panel Microphone Connector

This connector allows panel operators to use a panel microphone (see "Panel Mic" on page 1-5). Plugging in a panel microphone will initially cause the panel to switch to panel-microphone operation and will turn the headset microphone off.

Headset Connector

The headset connector provides a front-panel connection for a headset. Plugging in a headset will initially cause the panel to switch to

headset-microphone operation and will turn the speaker off. Unplugging the headset will cause the panel to switch to panel-microphone operation and will turn the speaker on.

Talk/Listen Buttons

Each talk/listen button can be programmed through the configuration program or an appropriately configured ICS-2008E Master Intercom Panel as a talk (red), listen (yellow), or talk with listen (red). The button color will be dim to indicate it has a programmed label and is available for selection. When selected it will become bright to indicate it is active.

Following are descriptions of what the panel's other indicators mean.

Communication-Error Indicator

If the ICS-1016E/ICS-1008E should lose data communication with the matrix frame, the talk/listen buttons will flash bright red at a slow rate. When data communication is restored, the panel will automatically return to normal operation.

Monitoring/Eavesdropping Indicators

If any other panel begins monitoring a panel, a beep (the monitoring-alert tone) will sound at the panel.

To inhibit the monitoring-alert tone, use the "Configure-Local Preferences" menu in the configuration program.

Call-Waiting Indicator

If a panel calls another panel with a button programmed for that label, the button will rapidly flash bright red. This flashing is a call-waiting tally. To answer the incoming call, push the indicated talk/listen or the "Ans Back" button. The call-

waiting tally can be cleared either by answering the call or by letting the answer-back, auto-clear time, which is set in the configuration program, lapse.

If another panel calls a panel without a button programmed for that label, it will be placed in the answer-back stack (see "Removing Labels From the Answer-Back Stack" on page 1-5).

In-Use Tally Indicator

If a talk/listen button is assigned to a label and another panel is currently using that label, the button will double-flash once per second to indicate the label is in use. This tally must be specifically enabled from the configuration software.

Telephone Off-Hook Tally Indicator

When a telephone interface is assigned to a talk/listen button, the button will flash once per second if that telephone is off the hook. This tally must be enabled from the configuration program.

Radio Receiver Active Tally Indicator

When a two-way radio interface port is assigned to a talk/listen button, the button will flash once per second when that radio's receiver is active. This tally must be enabled from the configuration program.

Panel Connected Tally Indicator

This tally is used when a panel is connected to the frame by a high-speed data line (such as an ISDN or T1 line) that might be

inactive periodically. The talk/listen button for any such panel will flash once per second when any such panel is on-line. This tally must be enabled from the configuration program.

Answer-Back Facility

The "Ans Back" button is used to answer calls to a panel from other panels or interfaces not assigned to a that panel's talk/listen buttons. When these calls arrive:

- The "Ans Back" button will flash bright red.
- The calling panel's label will be temporarily assigned to the panel's "Ans Back" button.

These two conditions will continue until the call is answered, or until the answer-back, time-out period lapses and the caller's label is automatically removed. To answer the call, push the "Ans Back" button. The button will turn bright red, indicating an active talk path to the caller. The talk path is active for as long as the button is held down.

Note: The "Ans Back" button cannot be latched; it is a momentary-only function.

To manually remove the caller's label from the "Ans Back" button, push the "Clear" button. The label assignment will be removed automatically after the answer-back, time-out period lapses. If another call (or calls) comes in while answering a call using the "Ans Back" button:

- The user will hear the caller's voice.
- The calling panel's label will be placed in the panel's answer-back stack.

To answer the next caller:

1) Release the "Ans Back" button.

2) Push the "Clear" button to remove the current caller's label.

3) Push the "Ans Back" button to talk to the next caller.

Removing Labels From the Answer-Back Stack

Any label will be automatically removed from the stack if it is not answered within a certain time interval, which is set by the answer-back, auto-clear time in the configuration program.

To manually remove a label from the answer-back stack press the "Clear" button.

Clear Button

The "Clear" button, located on the far left in the first row, removes the current caller's label from the "Ans Back" button.

Function Buttons

The function buttons are located on the right-hand side of the front panel.

Mic

This button activates the panel or headset microphone, whichever has been selected with the "Panel Mic" button. The button will be bright yellow when the

selected microphone is active, dim yellow when not active, and off when a microphone is not present. The "Mic" button also is activated when the user activates a talk button. If the talk is latched, the microphone will remain on after the call.

Speaker

This button toggles the front-panel speaker between active (bright yellow) and inactive (dim yellow). If a headset is not attached the "Speaker" button will default to bright yellow and the panel speaker can not be turned off.

Panel Mic

This button toggles between the panel (bright yellow) and headset (dim yellow) microphones. If only a panel microphone is attached, the button will default to bright yellow and cannot be turned off. If a panel microphone is not attached, this button is off and not functional.

Listen/Call

The "Listen/Call" button has four functions:

- activating the listen-level mode
- resetting the listen-level settings
- sending call signals
- releasing auto-answered telephone lines.

Listen-Level Mode

Steps to adjust listen volume:

1) Latch a listen to an audio source.

2) Push (for less than 1 sec.) and quickly release the "Listen/Call" button.

3) The button will turn bright yellow to indicate the function is on and all the active buttons programmed with listen and/or talk with listen will begin to flash. In addition, if the two programmable buttons (located under the "Panel Mic" and "Listen/Call" buttons) are programmed, they will turn from dim yellow to off.

Note: Only active talk/listen buttons programmed with listen or talk with listen can be adjusted in listen-level mode.

4) Push the appropriate talk/listen button programmed as a listen or talk with listen. The selected button will turn bright yellow and the programmable buttons with the up and down arrows will turn dim yellow.

5) Use the up and down arrows on the programmable buttons to increase (up arrows) or decrease (down arrows) the crosspoint volume of the selected listen or talk with listen button.

6) To exit, push the "Listen/Call" button or wait for the 3 sec. time-out.

Listen Level Reset

To reset the listen level:

1) Push (for less than 1 sec.) and quickly release the "Listen/Call" button to activate the listen-level mode. The "Listen/Call" button will turn bright yellow and the active talk/listen buttons programmed with listen and/or talk with listen will flash.

2) Push and hold the "Listen/Call" button for 3 sec. to reset the listen level settings to the default. The active talk/listen buttons programmed with listen and/or listen with talk will stop flashing and all the programmed talk/listen buttons will return to their previous states.

3) Release the "Listen/Call" button.

Call Signals

To activate call signals:

1) Push and hold the "Listen/Call" button until it is dim yellow (at least 1 sec).

2) Push the talk/listen button programmed with a talk or talk with listen of the desired destination's label. The call signal will be sent each time the destination's talk/listen button is pressed.

3) The call-signal mode will time-out after 5 sec. of button inactivity or can be deactivated by pressing the "Listen/Call" button.

Call signals can be issued to any talk or talk with listen destination assigned to a panel's talk/listen buttons. If more than one label is assigned to a button, all

labels will receive the signal. If a label is a fixed group, the entire group will receive the call signal. If the label is a party line, then every panel listening on the party line will receive the call signal.

Remote Telephone Line Release

This function is available only if specifically enabled in the configuration program. To hang up a telephone interface left off the hook:

1) Push and hold the "Listen/Call" button for at least 2 seconds until it is bright yellow to activate the call-signal mode.

2) While holding the "Listen/Call" button, press the talk/listen button programmed with talk or talk with listen of the desired telephone's label.

3) Release the "Listen/Call" button.

Note: In addition to hanging up the telephone interface, this will deactivate any audio path set to the interface from anywhere in the system.

Programmable Buttons

The two programmable buttons, located in the last row on the right-hand side of the front panel, can be programmed through the

configuration program. In default mode, these programmable buttons increase (left button) or decrease (right button) the crosspoint volume (see "Listen/Call" on page 1-5).

The two programming modes are:

Local Exclusive

Allows the user to isolate an assigned talk/listen button by turning off the audio paths from all other active (brightly lit) talk/listen buttons.

If a talk/listen button programmed as a talk is selected for local exclusive, only other active talks will be turned off. If a talk/listen button programmed as a listen is selected for local exclusive, only other active listens will be turned off. If a talk/listen button programmed as a talk with listen is selected for local exclusive, all other active talk/listen buttons will be turned off.

To activate this function:

1) Push the programmable button programmed with the local exclusive option. This will turn the button bright yellow and turn off the other programmable button and the "Listen/Call" button.

2) Push the appropriate programmed talk/listen button. This will turn that button on brightly and turn off all other active and/or programmed buttons.

3) To exit this momentary-only function, release the selected talk/listen button. All buttons will return to their previous state(s).

Note: This function does not work with the "Ans Back" button.

Local Page Override

Allows other panels to hear the user/pager through the individual panels' speakers regardless of their speaker on/off status or volume level (see "Page Override Level Control" on page 1-9).

To activate this function:

1) Push the programmable button programmed for local page override. This will turn off the other programmable button, the "Listen/Call" button, and all inactive talk/listen buttons only programmed with listens.

2) Push the appropriate talk/listen button programmed for talk or talk with listen. This will turn that button bright red and momentarily make unavailable all the other programmed talk/listen buttons programmed with talk or talk with listen.

3) To exit this momentary-only function, release the talk/listen button. All buttons will return to their previous state(s).

Note: This function does not work with the "Ans Back" button.

Intercom Volume Control

This knob sets the volume level for all incoming Matrix frame audio, except for paging communication (see page 9).

1.2.2 ICS-1016E/ICS-1008E rear-panel connectors and controls

The panels have identical rear-panel connectors and controls. They are:

- power supply connector
- DB-9 female connector
- RJ-45 connector
- speaker mute level control
- page override level control
- headset microphone sidetone control
- headset microphone gain control
- panel microphone gain.

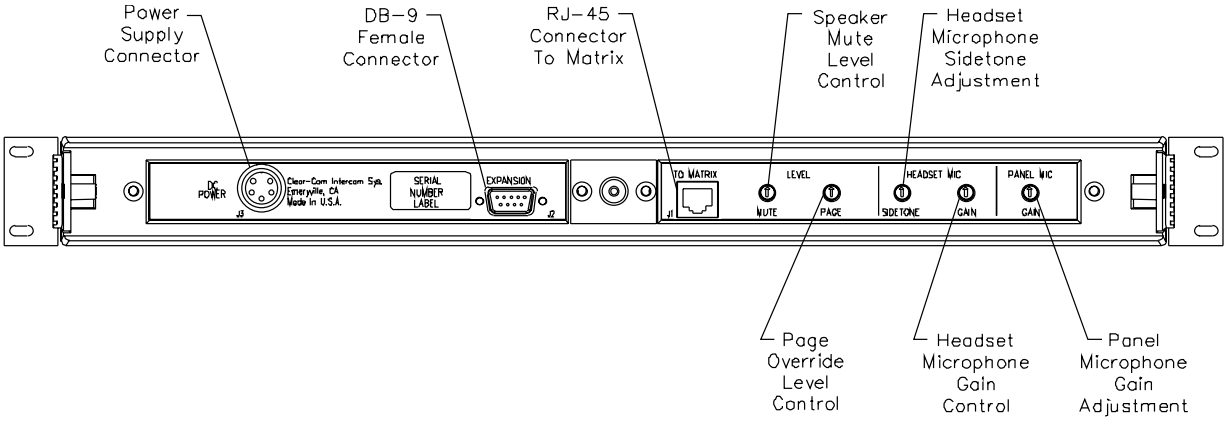

Figure 1-3: ICS-1016E/ICS-1008E Rear Panel

Power Supply Connector

The panels operate with DC power.

DB-9 Female Connector

The female DB-9 connector, labeled Expansion, is used to connect either panel to an EXP-1016E.

RJ-45 Connector to Matrix

The RJ-45 connector connects the panel to the Matrix frame.

Speaker Mute Level Control

This knob adjusts the speaker level when any talk is active at the panel. This function helps prevent possible feedback. The maximum amount of muting is 15 dB below full volume. If the rear-panel control is set below that level, then muting will have no effect. When shipped from the factory, the mute level is adjusted to provide a -6dB attenuation.

Page Override Level Control

This knob adjusts the page override level. Page Override is a special function in the panel in which the intercom volume defaults to a preset a value or the current front-panel volume control setting (whichever is higher) when commanded to by the central matrix. Any fixed group can be assigned the page-override function through the configuration program. When shipped from the factory, the page override level is adjusted to the equivalent of half volume.

Headset Microphone Sidetone Control

This knob adjusts the headset sidetone level. Sidetone is the sound of the user's voice in his headset. When shipped from the factory, the sidetone is adjusted for maximum sidetone.

Headset and Panel Microphone Gain Controls

These knobs adjust the gain of the headset and panel microphones. The preamplifier gain of the panel and headset microphone can be adjusted over a range of 0 to 20 dB. When shipped from the factory, the headset microphone gain is set to 10 dB and the panel microphone gain is set to 0 dB.

If two panels are talking to each other at the same time with the panel microphone gain set to maximum, feedback may occur even if the Speaker Mute (see "Speaker Mute Level Control" on page 1-9) is set to maximum. In this case, it will be necessary to turn the panel microphone gain down. Similarly, in some noisy environments it may be necessary to turn the panel microphone gain down and have the operator talk more closely into the microphone.

2 Installation

This chapter describes the installation procedure of the ICS-1016E and ICS-1008E Panels and their associated EXP-1016E expansion panel. For operation information, see chapter 1 of this manual; for troubleshooting and maintenance information, see chapter 3 of this manual and for programming information, see the Eclipse Configuration System manual.

2.1 Equipment mounting

2.1.1 ICS-1016E/ICS-1008E

Put all intercom panels at a comfortable operational height. Leave at least 2 in. of clearance at the rear of the panel's chassis to allow for cable connectors and access to the rear-panel controls.

2.2 Wiring

2.2.1 ICS-1016E/ICS-1008E

The ICS-1016E/ICS-1008E uses a twisted, 4-pair transmission scheme to connect it to the frame using the industry standard RJ-45 connector. Refer to the Eclipse Installation Manual for RJ-45 connector installation and use, and the type of cable needed for connection between panels and frames.

Each pair of the twisted, 4-pair wire has the following function:

- pair 1 transmits analog audio from the matrix port to the panel
- pair 2 transmits digital data from the panel back to the matrix card port
- pair 3 transmits audio from the panel to the matrix card port
- pair 4 transmits digital data from the matrix port back to the panel.

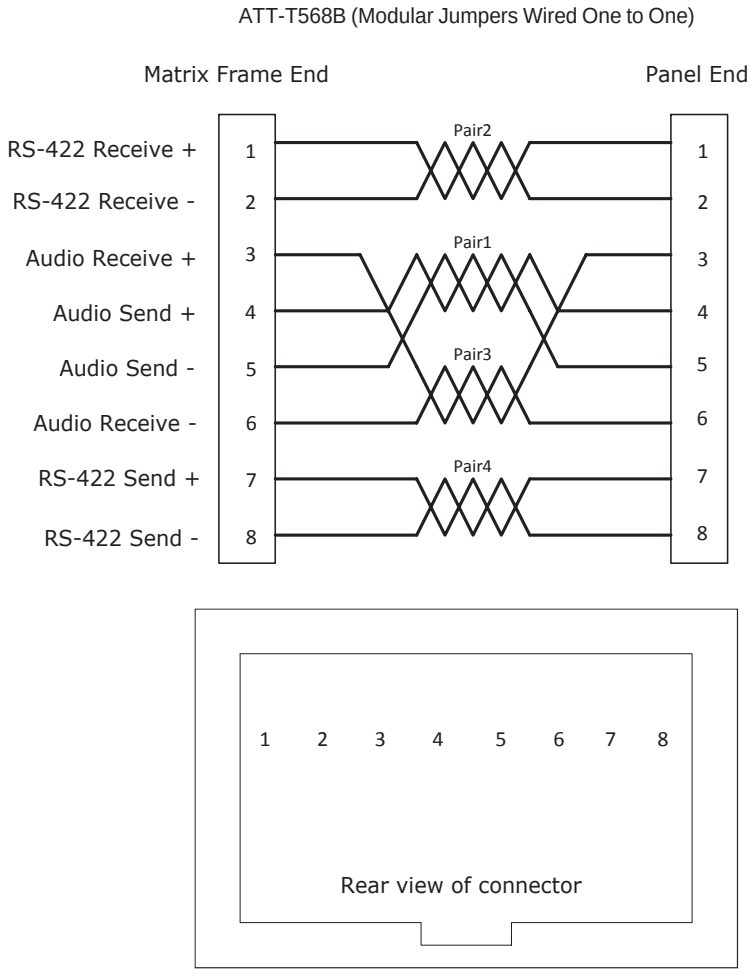

Figure 2-1: Matrix Frame to Panel Wiring

2.3 Mains ac power

2.3.1 ICS-1016E/ICS-1008E

The panels have an external DC power supply with a removable AC power cord. The power supply is "universal," operating over a voltage range of 90 to 260 VAC and 45 to 65 Hz. The maximum dissipation is 30 W. A bracket has been provided to mount this external supply, if necessary.

2.4 Adjustments

2.4.1 ICS-1016E/ICS-1008E

The panels have identical rear-panel controls. They are:

- speaker mute level control
- page override level control
- headset microphone sidetone adjustment
- headset microphone gain adjustment
- panel microphone gain.

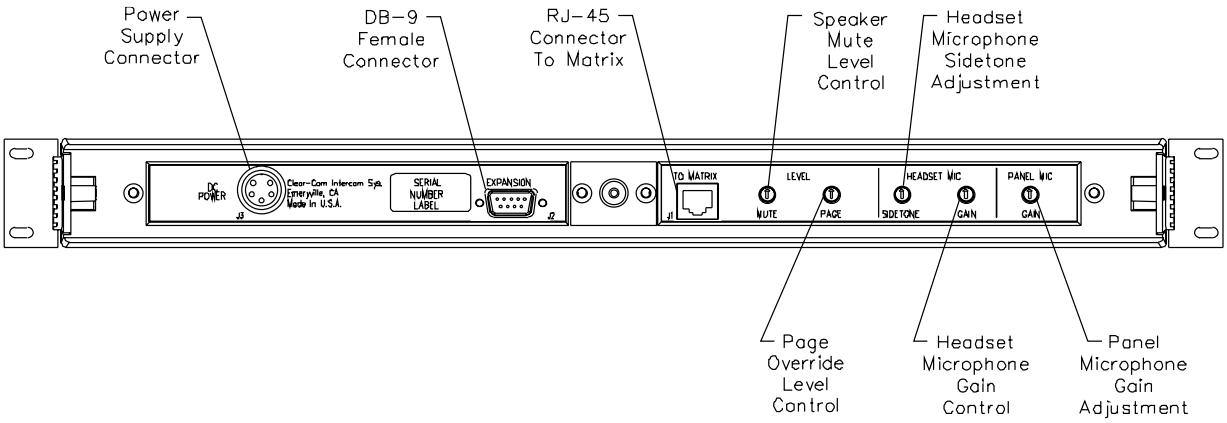

Figure 2-2: ICS-1016E/ICS-1008E Rear Panel

Speaker Mute Level Control

This knob adjusts the speaker level when any talk is active at the panel. This function helps prevent possible feedback. The maximum amount of muting is 15 dB below full volume. If the rear-panel control is set below that level, then muting will have no effect. When shipped from the factory, the mute level is adjusted to provide a -6dB attenuation.

Page Override Level Control

This knob adjusts the page override level. Page Override is a special function in the panel in which the intercom volume defaults to a preset a value or the current front-panel volume control setting (whichever is higher) when commanded to by the central matrix. Any fixed group can be assigned the page-override function through the configuration program. When shipped from the factory, the page override level is adjusted to the equivalent of half volume.

Headset Microphone Sidetone Control

This knob adjusts the headset sidetone level. Sidetone is the sound of the user's voice in his headset. When shipped from the factory, the sidetone is adjusted for maximum sidetone.

Headset and Panel Microphone Gain Controls

These knobs adjust the gain of the headset and panel microphones. The preamplifier gain of the panel and headset microphone can be adjusted over a range of 0 to 20 dB. When shipped from the factory, the headset microphone gain is set to 10 dB and the panel microphone gain is set to 0 dB.

If two panels are talking to each other at the same time with the panel microphone gain set to maximum, feedback may occur even if the

Speaker Mute (see "Speaker Mute Level Control" on page 2-4) is set to maximum. In this case, it will be necessary to turn the panel microphone gain down. Similarly, in some noisy environments it may be necessary to turn the panel microphone gain down and have the operator talk more closely into the microphone.

2.5 Configuration

2.5.1 ICS-1016E/ICS-1008E

Assign each panel's name and other parameters by using the Eclipse Configuration System (ECS) program (see the ECS manual for more information).

3 Maintenance

This section provides panel microprocessor resetting instructions, troubleshooting guidelines, assembly drawings, schematics, and component lists.

3.1 Panel reset

If the panel is acting erratically, try resetting it by unplugging the panel from AC power and reconnecting or by simultaneously pressing the "Mic," "Speaker," and up and down arrow buttons.

3.2 Troubleshooting

When experiencing the symptoms listed below, attempt the following solutions in the order outlined. The solutions are listed in order of difficulty with the first being the most simple and easy. For troubleshooting guidelines for the entire system, see the "Overview" chapter of this manual.

3.2.1 The panel's front-panel indicators fail to light

1) Check mains AC power into the panel.

2) Ensure the external power supply is properly connected to the panel.

3) Replace the panel.

3.2.2 The LED behind the talk/listen button does not light when the key is pressed

1) Ensure the button has a label assigned to it (the LED indicator will not light without an assigned label).

2) Reset the panel.

3) Replace the panel.

3.2.3 The panel appears to activate talk paths, but other panels can't hear the panel operator

1) Check "Mic On/Off" and "Panel Mic" buttons to ensure the intended microphone is selected and on.

2) If the correct microphone is turned on, ensure the panel audio has not been muted externally through the logic inputs.

3) Make sure the panel has not been defined as a nearby panel.

4) Enable eavesdropping on the panel.

5) Test the integrity of the panel's audio path by temporarily setting a forced listen to it.

6) Reset the panel.

7) Replace the panel.

3.2.4 No audio from the panel's speaker

1) Ensure the "Intercom" knob on the panel's front panel is turned up.

2) Ensure the "Speaker" button is on.

3) Check whether audio can be heard in a headphone.

4) Test the integrity of the panel's audio path by temporarily setting a forced listen to it.

5) Reset the panel's matrix card in the Matrix frame.

6) Replace the panel's matrix card in the Matrix frame.

7) Reset the panel.

8) Replace the panel.

3.2.5 The operator cannot hear another panel's page

1) Adjust the panel's rear-panel "Page" control.

2) Check the panel's configuration to see if the page override inhibit is set.

3.2.6 Announce tones (call signal tones, eavesdropping indication, etc.) aren't heard at the panel

1) Adjust the panel's rear-panel "Page" control.

2) Check the panel's configuration to see if page override is set.

3.2.7 Accessory panel keys do not function

1) Check the accessory panel's connection on the panel's rear panel.

2) Check the configuration program to ensure the correct number of accessory keys has been configured.

3.3 Servicing

Figure 3-1 illustrates the steps required to disassemble an ICS-1016E/ICS-1008E for servicing. The disassembly steps are:

1) Remove the unit from the rack.

2) Remove both screws from each side that are holding the rack ears in place.

3) Remove the rack ears.

4) Remove the four screws holding the PCB in place.

5) Remove the three screws holding the front panel in place.

Note: Do not disconnect any wiring unless a component is to be replaced.

To reassemble an ICS-1016E/ICS-1008E, reverse the above steps.

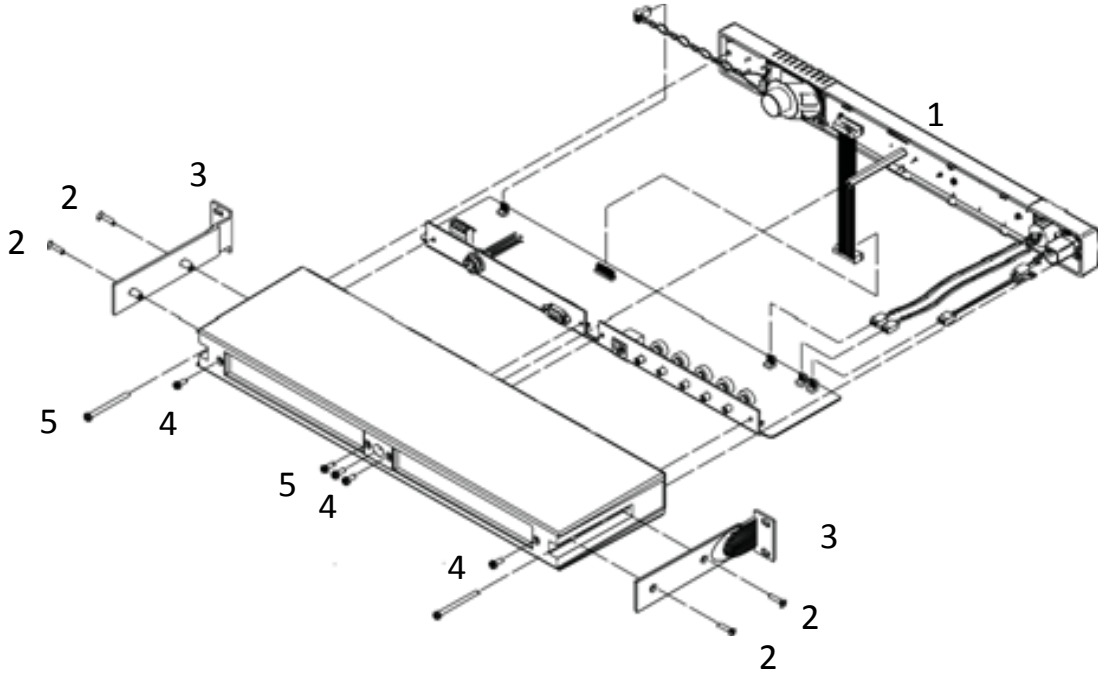

Figure 3-1: Panel Assembly and Disassembly for Service

3.4 Service items for ICS-1016E

3.4.1 Miscellaneous

Device	Description	Part
Cable	Ribbon, 16 Position Dual Row	730101
Connector	4 Pin XLR Male Flush Mount	210286
Connector	Phone Jack, 1/4”	210050
Cover	Designator Strip, ICS-1016E	250902
Knob	Grey Insert	240076
Nut	M10 X.75 Spanner Panel Nut	280359
Power Sup.	ICS-1016E Assembly	760051
Speaker	Small Magnet	500138

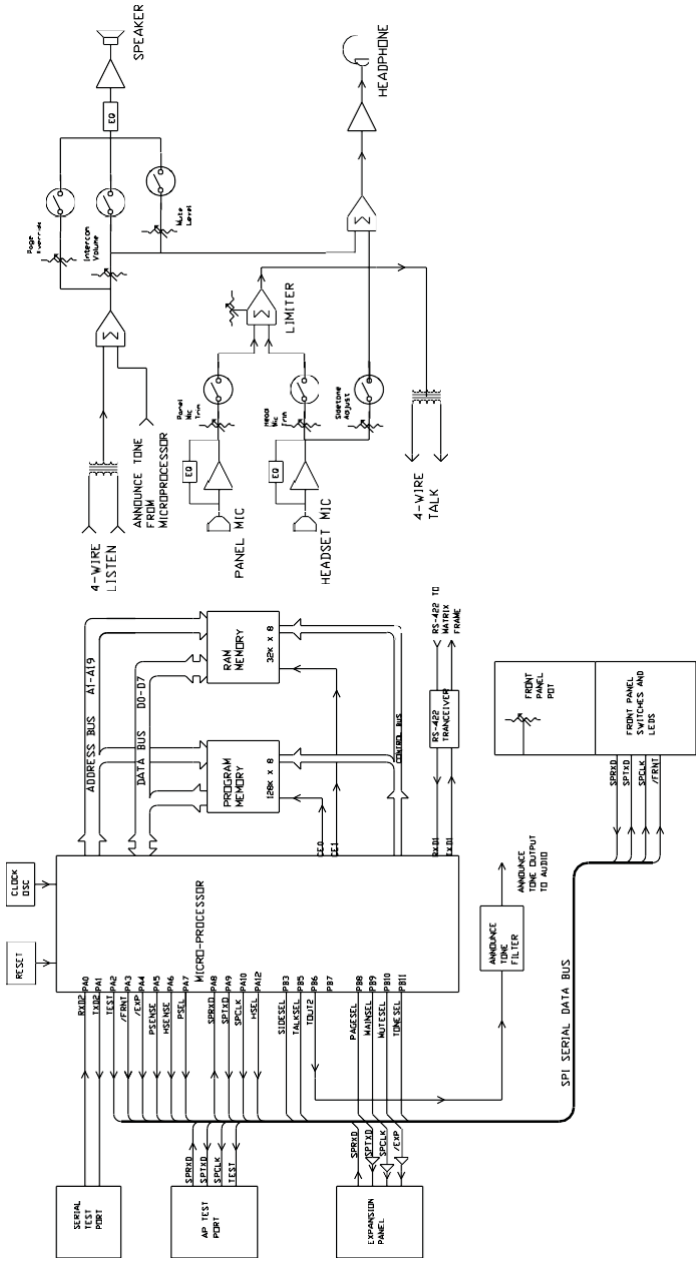

Figure 3-2: Block diagrams

4 Specifications

0 dBv is referenced to 0.775 V RMS

4.1 ICS-1008E/1016E panel

4.1.1 Front-Panel Controls and Connectors

Talk/Listen Buttons	30 (ICS-1016E); 14 (ICS-1008E)
Function Buttons	6
Answer Back Button	1
Clear Button	1
Volume Controls	Intercom
Headset Connector	XLR-4M
Panel Mic Connector	Locking 1/4-in. phone jack

4.1.2 Rear-Panel Connectors

To Matrix	RJ-45
Expansion Option	DB-9F

4.1.3 Panel Microphone Input

Type	Electret with proprietary phone jack	
Input Level -	40 dBv	
Gain Adjustment Range	0 to 20 dB Impedance	200 ohms

4.1.4 Headset Microphone Input

Type	Dynamic	
Input Level	- 55 dBv	
Gain Adjustment Range	0 to 20 dB Impedance	200 ohms

4.1.5 Line Input/output

Type	Transformer Balanced

Input Impedance	8k ohms Bridging
Output Impedance	150 ohms
Level	0 dBv nominal
Freq. Resp.	50 Hz to 15 kHz, ± 2 dB

4.1.6 Headphone Outputs

Impedance	50 to 600 ohms
Power	1/2 W into 50 ohms

4.1.7 Temperature

Operating	0 to 50 C (32 to 125 F)
Humidity	20% to 90%, noncondensing

4.1.8 Power

Power Supply	In-Line Power Supply, with 3-pin EIA connector, UL approved power supply
Voltage	90 to 250 VAC, 50 to 60 Hz, 50 VA max.

4.1.9 Dimensions

Height	1.75 in. (44.5 mm)
Width	19 in. (483 mm)
Depth	6.75 in. (172 mm)

4.1.10 Weight

4.0 lbs (1.81Kg)

Notice About Specifications

While Clear-Com 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

Term	Definition
Analog Port	Any of the matrix 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.
Alias label	A label that is temporarily assigned and replaces a previously labeled port or conference.
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.
Canvas	The assignment area of the Production Maestro Pro software which can have any user labeled background.
Category-5 (CAT-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: The metal housing for the circuit cards and power supplies. The circuit cards. The power supplies. The rear panel connectors which connect the matrix hardware to panels and interfaces.
Conference	An internal matrix virtual partyline or busbar where many panels and interfaces can talk onto or listen from the party line without talking to themselves.

Term	Definition
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.
E-DANTE64-HX	A matrix interface card that is enabled to work with Dante network protocols and software, allowing you to transport many channels of high quality audio via a Clear-Com matrix to multiple Dante enabled devices using standard Ethernet network structure (up to 64 channels per E-DANTE64 card).
EHX	EHX is the EclipseHX configuration software. EHX guides the operation of the matrix circuit cards and connected panels.
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 name in USA.
FreeSpeak II™	Digital wireless communications product.
Full 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 matrices provide full-duplex audio.
Hopping	Refers to making a trunk connection through other matrices to a destination matrix.
IFB	Interruptible Foldback. The term foldback refers to sending program audio / feed, 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.

Term	Definition
Interface module	A piece of electronic hardware designed to convert the four-wire signals of a central matrix port to some other form of communication, such as 2-wire partyline, telephone, etc. The interface module is connected to a central matrix port. The external non-four-wire device is then connected to the interface module.
i-Series	The i-Series family of user panels includes two display stations, two non-display stations, two expansion panels, and a level-control panel. Eclipse also supports V-Series panels (see below).
ISO	The ISO function, short for panel ISOlation, allows a panel operator to call a destination, interrupting all the other audio paths for that destination, and establish a private conversation. When the call is completed the destination's audio pathways are restored to their original state before the interruption.
Key group	Key groups provide a way of assigning a label to multiple panels simultaneously even within a networked matrix system. Once the Key groups have been defined using EHX, all the keys within a Key group can be changed with a single assignment in Production Maestro Pro (Pro mode only).
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.
MADI	Multichannel Audio Digital Interface. The MADI or AES10 electronic communications protocol defines the data format and electrical characteristics of an interface carrying multiple channels of digital audio.
Multiplexing	The process by which two or more signals are transmitted over a single communications channel. Examples include time division and wavelength division multiplexing.
Non-volatile Memory	Data stored in the CPU's firmware (ROM) that is not lost when the power is turned off.
Palette	The port, key group and Monitor selection screen in Production Maestro Pro.

Term	Definition
Panel	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.
Partyline	A wired shared communication system based on a single screened pair of wires. See the Encore range. Matrix requires the CCI-22 to interface to it.
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, the program audio is the audio that is broadcast on air.
Rack Unit (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 (44.45mm) of vertical mounting space, 2 RU is 3.5 inches (88.9mm), 3 RU is 5.25 inches (133.35mm), and so on.
Remote panel	Any intelligent intercom device connected to the back-panel ports of the matrix. This term does not refer to devices connected through interfaces.
Sidetone	The sound of the panel operator's voice, as heard in their own earphone(s) as they speak.
Source	In this guide, 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.
Virtual IFB	A new IFB model included in Eclipse 8.7 and above.
VOX	In the Eclipse system, when audio at a panel exceeds a threshold, a light is activated at the panel's port card to visually cue the operator. The threshold level is set in the EHX configuration software.
V-Series	User panels used with Eclipse systems, providing advanced intercom facilities. Available in rack mount and desktop formats. i-Series user panels are also supported (see above).

6 Warranty

6.1 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.

7 FCC Compliance

- Applicant Name: Clear-Com LLC
- Applicant Address: 1301 Marina Village Pky, Suite 105, Alameda CA 94501, USA
- Manufacturer Name: HM Electronics, Inc.
- Manufacturer Address: 14110 Stowe Drive, Poway, CA 92064, USA
- Country of Origin: USA

- Brand: CLEAR-COM
- Product Name: User Panel
- Product Regulatory Model Number: ICS-1016X (where suffix X can be any alpha-numeric character 0-9, A-Z or blank)
- Product Regulatory Model Number: ICS-1008X (where suffix X can be any alpha-numeric character 0-9, A-Z or blank)
- Country of Origin: USA

Caution: All products are compliant with regulatory requirements detailed in this document when installed correctly in Clear-Com product per Clear-Com specifications.

Caution: Product modification not expressly approved by the party responsible for compliance can void the user's authority to operate the equipment

USA FCC EMC Class A

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: 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 own expense.

Canada ICES-003 EMC Class A

Industry Canada ICES-003 Compliance Label: CAN ICES-3 (A)/NMB-3(A)

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numèrique de la classe A est conforme á la norme NMB-003 du Canada.

European Union (CE)

CE

Directives:

EMC Directive 2014/30/EU

Low Voltage Directive 2014/35/EU

Standards:

EN55022

EN55024

EN55032