Clear-Com®
COMMUNICATION SYSTEMS

Eclipse Digital Matrix Systems

Raising Performance

Robust, flexible and reliable communication solutions

For 40 years, Clear-Com has provided matrix intercom solutions to broadcast, live performance, government and other mission-critical users who demand highly reliable and uncompromising levels of audio performance.

The Clear-Com Eclipse digital matrix is the latest advancement in communications technology, blending the best of features and functions from two of the industry's field-proven matrix technology platforms: Clear-Com Matrix Plus 3 and Drake 4000 Series II. With additional innovations, the Eclipse digital matrix platform is enhanced to be much more powerful, functional and expandable than ever before.

The Eclipse matrix systems provide a flexible and scalable foundation for user-to-user and group-based multi-connections communication, supporting as few as 16 on a single matrix frame or as many as 3120 user connections on a networked system platform. Designed and engineered to meet communication needs of any size and complexity, Clear-Com Eclipse is unrivalled in terms of performance, versatility and expandability:

- Powerful, redundant processing
- Integrated Digital Wireless
- Individual level control
- Unsurpassed audio quality
- Rugged design
- Intelligent linking of matrices

Digital Matrix Product Family Overview

The Eclipse product family provides a broad range of robust and powerful digital matrix frames, panels and interfaces to support a broad range of basic to complex intercom requirements.

Digital Matrix Systems

Eclipse PiCo

Eclipse Easi-PiCo Package

Eclipse Median

Eclipse Omega

Interface frames

IMF-3

PSU-101

TW-60

IMF-102

IFB-104

BAL-8

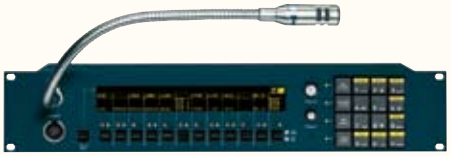
User Control Panels

V-Series 12-key, lever or pushbutton panels

V-Series 24-key, lever or pushbutton panels

Eclipse V-Series Desktop

4224 Series



ICS-2003

I-Stations

ICS-1008

ICS-1016

Interface Modules

TEL-14

CCI-22

FOR-22

RLY-6

GPI-6

AES-6

AES-6-RJ

AES-6-CX

Eclipse Matrix System

Eclipse PiCo

Eclipse PiCo is ideal for communication needs in small to mid-size production environments such as OB vans, studio and sports facilities. It provides high-quality full-duplex communication requiring a moderate number of ports in a compact 1RU form. The front user menu enables quick and easy changes to input/output levels, routes and configurations.

Eclipse PiCo offers 36 full-duplex panel/4-wire ports, including four 4-wire ports, in a one-rack unit (1RU) chassis. Each Eclipse PiCo has two power supplies for fail-safe redundancy and eight on-board general purpose inputs and outputs. It supports V-Series, I-Series, 4000 series panels , ICS panels and all IMF interface modules including the AES Co-Ax module for external panels.

A local High Speed Link CAT-5 connection provides audio linking functionality between Eclipse PiCo matrices without using ports. In this way, two locally connected Eclipse PiCo's can provide 64 non-intelligent port audio connections for panels and interfaces in 2RU*.

An intuitive user menu display provides quick and easy access to all port input and output levels, routing and GPI status. This provides users the ability to make quick online changes required in OB trucks and live events.

Key Features

- 36 ports in 1RU
- 32 RJ-45 with 4 extra 4-wire ports
- 8 On-Board Relays and General Purpose Inputs
- User menu for I/O levels, routing and status
- Intelligent Trunk Linking
- Seamless interfacing with Clear-Com IMF modules
- DTMF inward access
- DTMF outward dialing
- Configurable VOX
- Individual level control adjustment
- Intuitive ECS programming software
- 4 on-board configurations selectable by front menu
- Frequency response of 30Hz to 22kHz,+/-3dB
- < -70dBu Crosstalk
- Dual-redundant power supplies

** Excludes IFB, ISO and controls between frames*

Eclipse Easi-PiCo Package

The Easi-PiCo is a fixed configuration version of a standard Eclipse PiCo with 16 ports. Easi-PiCo can be pre-configured with 4 set-ups supporting the 16 ports, a highly economical and low risk approach to evolve from a party-line system to a small scale point-to-point matrix system. Delivered as an entry-level matrix package, the Easi-PiCo solution includes the scaled down Eclipse PiCo frame, interface module, party-line power supply and choices of wired beltpacks and panel options.

The Easi-PiCo 16 channel system does not require any software set-up and offers a mix of non-display panels and interfaces. Easi-PiCo systems can be later expanded into a full software configurable 36-port Eclipse PiCo through a software upgrade.

Easi-Pico Frame

IMF-102

CCI-22 *FOR-22*

Key Features

- Cost-effective matrix intercom upgrade from party-line
- Plug-and-play - No configuration software programming
- Choice of 4 factory configurations on front menu

Eclipse Matrix System

Eclipse Median

Key Features

- 7 x 16-port cards provide large-system performance in a small package
- 8 built-in interface module slots
- Matrices can connect over non-blocking fiber
- Intelligent trunk linking between systems
- Ability to integrate with CellCom®/FreeSpeak® digital wireless beltpacks
- Dual redundant processors
- 24-bit resolution with audio frequency response of 30Hz to 22kHz, +/-3 dB

The Eclipse Median is a 6RU frame that houses 2 CPU and 7 matrix slots with 8 built-in interface module slots, uniquely designed for outside broadcast vehicles, mobile flight-case systems, or any production environment where rack space is limited.

Eclipse Median delivers up to 112 CAT-5 panel/4-wire ports combined with any combination of interface cards: CCI-22 party-line, FOR-22 4-wire/relay, TEL-14 dual channel telephone hybrid, AES-6 Co-Ax or AES interface module, RLY-6 relay output card, GPI-6 input interface modules. The interface modules are all powered by a redundant pair of Median PSUs.

- < -70dBu Crosstalk
- Individual crosspoint level adjustment
- 8 frame GPI inputs and relays included
- Compatible with V-Series, I-Series, ICS and 4000 series panels
- Powerful, visual, and intuitive system ECS software
- VOX detection controlled from the software
- Redundant Ethernet and a serial link for programming
- System remotely programmed and maintained via Ethernet

Eclipse Omega

Eclipse Omega is an advanced digital matrix intercom platform, offering up to 240 RJ-45 ports over 15 module slots in a 6RU chassis – the highest port density of any available system on the market. Each of the 15 slots can house 16-port matrix cards to provide full-duplex connections with panels, external lines, and interfaces to other matrix systems. External interface modules are connected using external 1RU and 3RU frames, leaving all 15 slots available for client and interface cards.

Eclipse Omega is perfect for large scale communication productions with thousands of users located in multiple facilities. By connecting multiple Eclipse Omega matrices, up to 3120 users can be supported on a single networked platform.

Key Features

- 15 x 16-port cards give large system performance in a small package
- Matrices can connect over non-blocking fiber
- Intelligent trunk linking between systems over telecom lines
- Ability to integrate with CellCom®/FreeSpeak® digital wireless beltpacks
- Dual redundant processors
- 24-bit resolution with audio frequency response of 30Hz to 22kHz, +/-3 dB

- < -70dBu Crosstalk
- Individual crosspoint level adjustment
- 8 frame GPI inputs and relays included
- Compatible with V-Series, ICS, I-Series and 4000 panels
- Powerful, visual and intuitive ECS system software
- VOX detection controlled from the software
- Redundant Ethernet and a serial link for programming
- Systems remotely programmed and maintained via Ethernet

User Control Panels

Clear-Com's comprehensive range of innovative user panels offers an unrivaled match of features, functionality and performance with contemporary styling.

Clear-Com has the widest range of user panel types, designed to meet the needs of all production personnel. These range from modern, fully programmable digital pushbutton, lever key and LCD units, to basic, non-display panels.

Eclipse V-Series Panels

V12LDX5

V24PDX5

V-Series are innovative display panels for Eclipse, providing cutting edge Digital Signal Processing technology in an acoustically controlled contemporary design. The panel range comes with the choice of either pushbutton or lever key in 1RU/12 key, 2RU/24 key and 12-lever-key Desktop forms.

Source and destination labels are more distinct and easily identified through 10-character high resolution graphic displays with international character support.

The V-Series panels are capable of simultaneously running both 8 shift pages, and up to 8 extension panels giving the user flexible solutions for area intercom (shift) and many extra physical keys on extension panels.

The panels not only have user-configured signaling LEDs, which makes incoming calls easy to follow at busy times; but also with "Listen Again" when everything is happening at once, digital memory can replay up to the last 15 seconds of any incoming call at a touch.

Leading Digital Signal Processing (DSP) allows for local and centralized changes to audio routing and effects. Individual up and down level controls let users adjust personal audio mix for all calls or send call alerts.

Supervisor functionality allows centralized control of any V-Series panel, enabling efficient workflow.

Connection options include analog CAT5/CAT6, digital CAT5/CAT6 with AES-3, Co-Ax video cable and IP.

Eclipse V-Series Desktop

V-Series Desktop provides convenient access to users with limited desk space. It features:

- 12 lever keys and 8 shift pages
- Keypad for telephone dialing and quick menu access
- Front-mounted large loudspeaker
- Main and Auxiliary Rotary level controls with LED level indication
- Gooseneck and Headset connectors
- Choice of XLR4M or XLR5F headset connectors
- Rear connections for Audio I/O and GPI control
- Comes with Ethernet connection for future use
- XLR type RJ-45 for robust Matrix connection
- Soft Menus for local assignment
- 'Listen Again' memory
- Supervisor capability

V12LDDX4

User Control Panels

4000 Series 2 VFD

4224 Series

The 4224EBL features 32 (+32 shift) pushbuttons, assignable crosspoint level control and a high-contrast VFD (vacuum fluorescent display), giving clear 4-character labels.

ICS-2003E Master Station

ICS-2003E

The powerful ICS-2003E is a 12-key Master Intercom Panel with a large, informative display screen and a keypad for programming, IFBs, party-lines, DTMF dialing and direct access to any panel or port in a single matrix.

I-Series

The 1RU I-Series panels are engineered and built to be rugged and reliable. I-Series panels are factory built with two to four 5-character display selector modules and a microphone headset module. The fully fitted 4 module panels also includes a keypad. There are 5 standard variants available:

I-1110E 1x8-key display key module, no keypad
I-1210E 2x8-key display key modules, no keypad
I-1410E 4x8-key display key modules, no keypad
I-1430E 4x8-key display key modules with keypad (dial and assignment menus)
I-1470E as per I-1430E but with aux 101 option (local audio and GPIs plus the I-1410E 4 x 8 display key extension panel)

Non-Display Panels

ICS-1016E

ICS-1008E

The Clear-Com non-display panel range provides a cost-effective solution where continual label changes are not required.
The ICS-1016E features 32 pushbutton keys.
The ICS-1008E features 16 pushbutton keys.

Interface Frames

IMF-3

The IMF-3 holds up to 11 interface modules in a 3RU chassis. Modular rear-mounted connector units feature two RJ-45 connectors to the matrix ports and two DB-9s attaching the connected devices. The frame is used in conjunction with the PSU-101 rack-mountable dual power supply, providing power to the enclosed interfaces.

PSU-101

The PSU-101 is the power supply for the IMF-3 interface frame. It has both an audible failure alarm and failure relay contacts to activate a remote signal. A single PSU-101 will power a minimum of two interface frames, depending on the type of interfaces and their individual power requirements. Additional power supplies may be added in installations with a large quantity of interfaces, to provide both sufficient power and redundancy.

IMF-102

The IMF-102 interface frame combines an internal power supply, connection for a second redundant supply, a rear input/output connector panel and slots for two modular interfaces - all in a 1RU chassis. The compact frame offers a practical way to add two interfaces to an Eclipse Omega, Median or PiCo digital intercom frame. A PSU-101 can be added for power supply redundancy.

IFB-104 (IFB line Interface)

The IFB-104 is a 1RU panel that directly connects up to four IFB feeds to the ports of a digital matrix system. Individual or multiple IFB ear buds or headphones may be used directly from each connected matrix port.

The IFB-104 does not require external power to drive its circuitry. Each channel has a rear-mounted wet/dry switch, allowing either direct connection or powering via a party-line intercom power supply. The signal from the matrix port is transformer-coupled to the XLR connector output.

BAL-8 (8-way Transformer Balance unit)

The BAL-8 is a 1RU interface containing eight transformer-isolated ports. The unit isolates the connection between matrix ports and peripheral devices such as two-way radios and 4-wires. (All Eclipse matrix direct outputs are low impedance electronically balanced.)

TW-60

The 1RU TW-60 interface provides support for "Radio Interoperability" and includes a physical interface point to connect up to 4 Land Mobile Radios. The interface connects to earphone, microphone and push-to-talk radio controls. An audio output delay, to allow key-up time of a radio system on the outbound side of each connection, is also included with delay between 0 and 5000ms. Three separate controls for each radio are provided, Receive level, Transmit level and Delay time.

Interface Modules

TEL-14 (Dual Telephone Interface Module)

The TEL-14 is a two-line, auto-nulling digital hybrid telephone interface module, designed for establishing IFB connections between the main intercom and remote production trucks, and enabling telephone calls directly from any intercom station in an Eclipse matrix.

CCI-22 (Dual Party-line Ring Interface Module)

The CCI-22 connects two 2-wire full duplex party-line circuits with the matrix. The interface supports Clear-Com signaling to and from the matrix system, deriving its power from the external party-line circuit. Levels and cable nulling are completely adjustable. The CCI-22 functions with Clear-Com and other two-wire intercom systems.

GPI-6 (6-way General Purpose Input Control Module)

The GPI-6 provides six general purpose Opto logic inputs into the matrix, allowing external sources to trigger routing changes and other events through the matrix system.

RLY-6 (6-way Relay Control Module)

The RLY-6 provides six fully programmable SPDT (single pole, double throw) relay outputs, to support dedicated switching functions external to the matrix system. This provides for external DC signal light activation or door control, for example.

AES-6-CX and AES-6-RJ

The 6-channel AES-6-CX module connects V-Series or 4000 digital panels to Eclipse matrices, providing two audio paths to the intercom panel for permanent program audio or production conference feed as well as switched intercom.

The AES-6-RJ interface card provides for direct connection to AES3 stereo digital audio routers and consoles. Once converted to AES3, outgoing intercom can be transferred to any existing AES3 or MADI channel formats using readily available AES3 products. (AES3 digital audio provides two channels of low-noise, high-quality audio in two twisted pair cables.)

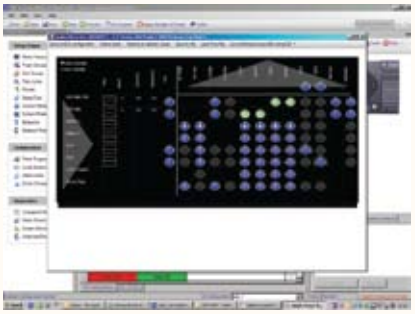
FOR-22 (Dual 4-wire Transformer Balance and Radio Relay Control Module)

The FOR-22 connects two external 4-wire circuits to the matrix. Camera intercoms, two-way radios, microwave and satellite links, IFBs, and program audio inputs and outputs are candidates for the FOR-22. The module provides proper impedance matching, transformer isolation and level adjustments between systems. It also supports external relay activation and call-sense circuitry. The relays can be controlled separately to add to the frame relay complement.

Eclipse Configuration Software (ECS)

Eclipse Configuration Software (ECS) is visual and intuitive, featuring graphical views of the panels. ECS has the ability to apply labels online in real time and setup control functions to each individual panel button. This is combined with a series of drop-down menus to access different features of the system such as label assignments, networking, DTMF access, key functions and much more.

Based on a stand alone or client/server concept, programming is done from a PC through Ethernet LAN connections. Status and diagnostic messages are available, allowing systems to be maintained remotely. Key label and audio route changes are available in real time without download. An unlimited number of configurations may be backed up on a computer and downloaded to the matrix frame as needed.



V-Series Audio Mixer

Matrix Hardware Manager

Panel Programming

My Systems

Software Key Features:

- Configuration upload from frames
- Familiar PC Application look and feel
- Real time key assignment routes, IFB and party-line routing
- Global and local IFBs
- Automatic panel and interface recognition
- Programmable and real time V-Series audio routing-mixing
- DTMF inward access
- Activation of relays, routes, & DTMF sequences via controls
- Global and individual key latch disable
- Configuration of frame and panel relays
- Port I/O level control
- Local and global ISO routes
- Control Macro logical routing and signaling (Optional: Password required)
- Digital wireless beltpack configuration (Optional: Password required)
- Multiple pages on a panel
- 4 configuration maps per frame
- Intelligent linking (analog and digital, trunks and fiber)
- Hardware graphical diagnostics and reporting
- Event logging

The Complete Clear-Com Product Offerings

For 40 years, Clear-Com has provided intercom solutions that have led the industry with high quality audio performance, meeting mission-critical live production needs in a variety of settings.

Party-Line Intercom System

Clear-Com Encore™ offers the most comprehensive set of party-line intercom systems—from main stations to remote stations, wall-mounted speaker stations to multi-channel beltpacks, robust interfaces, headsets, announcer consoles and more.

Based upon Clear-Com's unique, market-proven communication technology, Clear-Com Encore delivers superior sound quality and offers a streamlined, contemporary and user-intuitive design.

Clear-Com Encore™

Wireless Intercom Solutions

Clear-Com carries the broadest range of wireless intercom selections on the market to address the ever-increasing needs for wireless mobile communication in large production venues. All Clear-Com wireless offerings are full-duplex, enabling beltpack users to talk and listen simultaneously. Each beltpack provides users with the flexibility of one-to-one or group communication. Available as standalone systems or linked with traditional wired intercom systems such as party-line or matrix systems, these solutions allow operators to "cut the cord", offering unrestricted mobility and unparalleled ease of communication.

Clear-Com includes the following wireless offerings:
CellCom®/FreeSpeak® – License-free digital transmission wireless intercom that provides roaming wireless beltpack connections seamlessly in a large coverage area. CellCom®, trademarked in the US, operates in 1.921- 1.928 GHz range; FreeSpeak®, for all non-US markets, operates in 1.881- 1.916 GHz range.

CellCom®/FreeSpeak®

IP Communications

Clear-Com offers the most advanced solutions to link matrix-to-matrix and matrix-to-panels over large distances. **Concert** provides PC to PC intercom with an option to communicate directly with Eclipse users. The **VoICE 2.0** IP interface takes advantage of Internet Protocol and leverages the growing availability of VPN and the Internet to lower operating costs for wide area linked matrices. **SOFT-VoICE**, a virtual panel application on your PC, connects back to VoICE 2.0 to provide IP based remote panel connections to the home matrix.

VoICE 2.0

SOFT-VoICE Screenshot

Concert Screenshot

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Version: July 2008

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