User Guide

Eclipse® HX-PiCo

User Guide for the HX-PiCo matrix

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Clear-Com
AN HME COMPANY

Document Reference

Clear-Com Eclipse HX-PiCo User Guide
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1 Important Safety Instructions

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do **not** use this apparatus near water.

6) Clean only with dry cloth.

7) Do **not** block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do **not** install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do **not** defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-cord supply or plug is damaged, liquid has been spilled or objects have

fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) **Warning:** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

Safety symbols

Familiarize yourself with the safety symbols in ***Figure 1***. These symbols are displayed on the apparatus and warn you of the potential danger of electric shock if the system is used improperly. They also refer you to important operating and maintenance instructions in the product user manual.

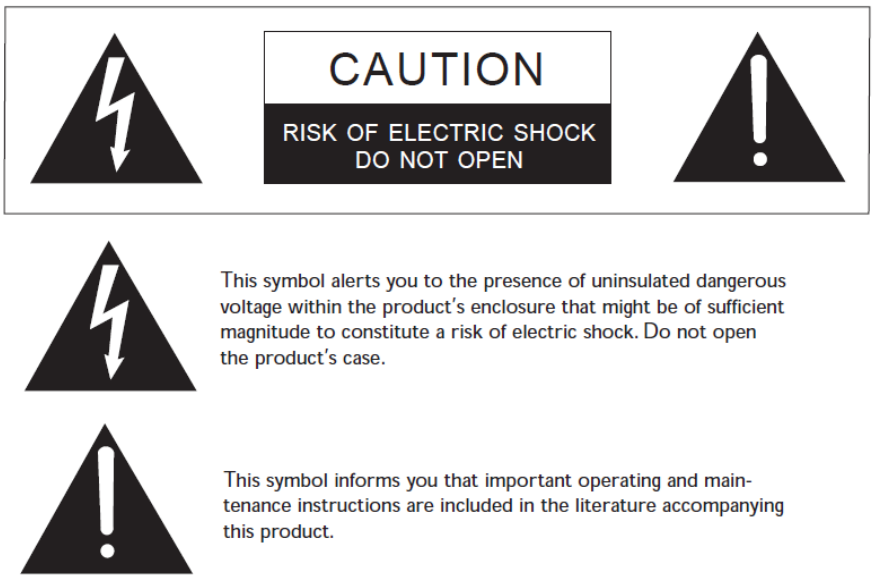


Figure 1: Safety symbols

Mains power cord

Eclipse matrix frames and associated devices are powered by an internal power supply. The cord to connect the internal power supply to the mains supply must conform to the following:

- The mains power cord shall have an **IEC C13 connector** at one end and a mains power plug at the other end.
- An **IEC C13 plug** has three pins, the centre pin carrying the earth / ground. The other two pins carry neutral and live circuits.
- The conductors of the mains cords shall have adequate cross-sectional area for rated current consumption of the equipment.
- The mains plug that connects to the mains supply must be approved for use in the country where the equipment is to be used.
- The mains power cord must be an **IEC mains power cord** complying with standard **IEC60320; IEC320/C13**.
- Mains power cords used in the U.S. must also comply with standard **UL817**.

2 Introduction

The Eclipse system is system is a digital point-to-point intercom platform, designed to seamlessly integrate your entire intercom infrastructure (digital, wireless, IP-based and analog intercom systems). The system comprises matrices, interface cards and modules, user panels and interface frames.

At the heart of the system is the central matrix, comprising a matrix frame and the highly intuitive EHX configuration software, run from an external PC.

The **Eclipse HX-PiCo User Guide** describes how to use the most compact matrix frame in the Eclipse HX product range, the 1RU **Eclipse HX-PiCo**.

The guide:

- Provides an overview of the Eclipse HX-PiCo, including intelligent linking with other Eclipse HX matrices (Eclipse HX-Omega, Eclipse HX-Median and other Eclipse HX-PiCo matrix frames).
- Describes how to install, use and maintain an Eclipse HX-PiCo.
- Provides detailed specifications for the Eclipse HX-PiCo.

Note: For more detailed information about installing an Eclipse HX system, see the **Eclipse HX Matrix Frame Installation Guide.**

*For more information about EHX, see your EHX documentation, including **EHX Help** (integrated with your software).*

Servicing instructions (including hardware installation instructions) are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that described by this guide, unless qualified to do so. Refer all servicing to qualified service personnel.

2.1 Summary of chapters

Chapter	Description
***1 Important Safety* Instructions**	Important safety instructions for installing, using and maintaining the Eclipse HX-PiCo
2 Introduction	An introduction to the Eclipse HX-PiCo User Guide.
3 Overview	This chapter provides an overview of the Eclipse HX-PiCo, including its applications, functionality, power supplies and connectors.
4 Connecting to external devices	
5 Installing the Eclipse HX-PiCo	This chapter describes how to install and set up the Eclipse HX-PiCo.
6 Using the Eclipse HX-PiCo	This chapter describes how to perform a range of tasks, using the Eclipse HX-PiCo front panel controls and menu system
7 Maintaining the Eclipse HX-PiCo	This chapter provides brief guidance on maintaining the Eclipse HX-PiCo.
8 Specifications	Technical specifications for the Eclipse HX-PiCo.
0 Error! Not a valid result for table.	Menu map for the Eclipse HX-PiCo menu system
1 *Error! Not a valid result for table.*	Glossary of terms used in the Eclipse HX system.
10 Compliance	Safety standards for this device.

Table 1: Summary of chapters

2.2 Further information

For more information about any of the Eclipse HX system components (devices) referenced in this guide (including matrices, intercom cards, interface modules and software), see the specific manual / documentation for that device or software.

Eclipse HX documentation is available from:

- Your product DVD-ROM. The Clear-Com website
- (http://www.clearcom.com/product/digital-matrix).

For sales information, see your Clear-Com sales representative. For contact information, see Page 2 of this guide.

3 Overview

This chapter provides an overview of the Eclipse HX-PiCo, including its applications, functionality, power supplies and connectors.

3.1 Eclipse HX matrix frames

There are four matrix frames in the HX product range:

Matrix frame (matrix)	Description
Eclipse HX-Omega 	The Eclipse HX-Omega has slots for 17 cards (1 / 2 CPU cards and 15 / 16 interface cards) in a six rack unit (6RU) frame. For more information, see the ***Eclipse HX-Omega User Guide***.
Eclipse HX-Median 	The Eclipse HX- Median matrix frame has slots for up to 7 client cards (system and interface cards) and 8 interface modules in six rack units (6RU). For more information, see the ***Eclipse HX-Median User Guide.***
Eclipse HX-Delta 	The Eclipse HX-Delta has slots for 2 CPU cards, 4 interface cards and 3 interface modules in a 3 rack unit (3RU) frame. For more information, see the ***Eclipse HX-Delta User Guide***.

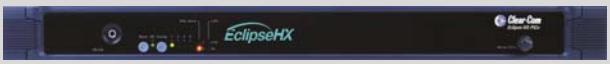
Eclipse HX-PiCo 	The Eclipse HX-PiCo provides up to 36 panel and/or four-wire ports in a one rack unit (1RU). For more information, see this guide.

Table 2: Eclipse HX matrix frames

3.2 Eclipse HX-PiCo matrix frame

A complete Eclipse HX system comprises an Eclipse HX matrix frame (such as the Eclipse HX-PiCo) and the remote audio devices (such as User Panels, Interface cards, Interface modules and Interface frames) connected to it.

Note: The term **central matrix** is used to differentiate the system's core hardware and software from the connected intercom panels and interfaces. The central matrix itself comprises the matrix frame and the EHX configuration software.

3.2.1 Chassis and assembly

The Eclipse HX-PiCo matrix frame is 19 inches wide and one rack unit (1RU) high (26.9 cm x 48.3 cm). It installs to a standard Electronics Industry Association equipment rack. No parts of the unit are removable without the matrix frame being taken out of service.
The **front panel** of the Eclipse HX-PiCo provides controls (pushbuttons), indicator lights, and a display for operating the system.

Note: For more information, see **3.2.8 Eclipse HX-PiCo front panel controls and lights.**

The **back panel** holds the RJ-45 connectors (ports) for connecting user panels, interface modules, interface frames, and other matrix frames to the system.

Note: For more information, see **4 Connecting to external devices**.

3.2.2 Features of the Eclipse HX-PiCo

The Eclipse HX-PiCo includes the following features:

- Thirty-six ports in one rack unit (1 RU), including four four-wire ports.
- Eight on-board general purpose outputs (GPOs) and eight on-board general purpose inputs (GPIs).
- Intelligent linking of up to 15 matrices using the four-wire trunks and a LAN.
- The PiCo-Link, a high capacity CAT-5 connection that enables you to create a 72-port non-blocking system from two Eclipse HX-PiCo matrix frames.
- Two power supplies for fail-safe redundancy.

- DTMF (Dual Tone Multi-Frequency signaling) inward access.
- Programmable VOX.

  Note: VOX helps reduce redundant noise in 2-wire communication. The VOX functionality automatically deactivates and activates the continuous audio feed, at a determined volume threshold. VOX is only available on ports 17 -32.

- Individual level control.
- Controlled with intuitive EHX configuration software (installed to an external PC).
- Remote matrix access via Internet/Ethernet.
- Frequency response of 30 Hz - 22 kHz, ± 3 dB.
- SNR (Signal-to-Noise Ratio) and crosstalk > -70 dB.

Note: The Eclipse HX-PiCo matrix frame supports the same V-Series and i-Series user panels, interface cards and interface modules as its larger counterparts, the Eclipse HX-Omega and the Eclipse HX-Median matrices.

3.2.3 Applications of the Eclipse HX-PiCo

The Eclipse PiCo provides high-quality full-duplex communications for applications requiring a moderate number of ports in a compact 1-RU form.
Applications may include:

- Mobile production facilities.
- Small to mid-sized studio integration.
- Sports and performance venues.

Intelligent linking to other Eclipse PiCo matrices, Eclipse Omega and Eclipse Median matrices, means that the Eclipse PiCo can form the hub of a comprehensive communications system.

3.2.4 Audio quality

The Eclipse HX-PiCo matrix frame is designed to optimize audio quality. Features include:

- Industry-leading 24-bit, 48 kHz audio sampling, yielding a frequency response of 30 Hz - 22 kHz, ± 3 dB.
- A signal-to-noise ratio better than -70 dB.
- Crosstalk better than -70 dB.

Note: Level adjustments are in 0.355 dB steps, which will sound completely smooth to the user.

3.2.5 Level control

You can connect the Eclipse HX-PiCo to a wide range of user panels and other intercom devices either directly or through the interface cards and modules (fitted to other system or interface frames).
You can:

- Adjust both incoming and outgoing volume levels for each device connected to an Eclipse HX-PiCo port.
- Create a customized audio mix by using the individual listen-level controls on connected user panels to adjust the level of each key.

3.2.6 Power supplies

An Eclipse HX-PiCo matrix has two internal power supply units. One power supply unit can power the entire matrix; the second unit provides a backup in case of failure or damage to the first unit.
In addition, the two supplies have separate IEC connectors to AC mains, and are designed for completely automatic and transparent changeover between supplies in the event of a power outage in one of the AC mains circuits.
A power-supply failure sensor is connected to a warning light, allowing power anomalies to be diagnosed.

3.2.7 Rear panel connectors (Ports)

The Eclipse HX-PiCo matrix connects to remote devices such as intercom panels, interfaces, general purpose inputs and outputs, local area networks, and other matrices through its rear-panel hardware connectors.
A rear-panel RJ-45 connector (to which cable is connected to run from the matrix to a user panel or interface module) is called a port.
Shielded CAT-5 cable is connected to a port to carry signals from the Eclipse HX-PiCo to connected devices.

Note: For more information about the rear panel connectors, see **1.1.1**

Note: **Rear panel** connectors.

3.2.8 Eclipse HX-PiCo front panel controls and lights

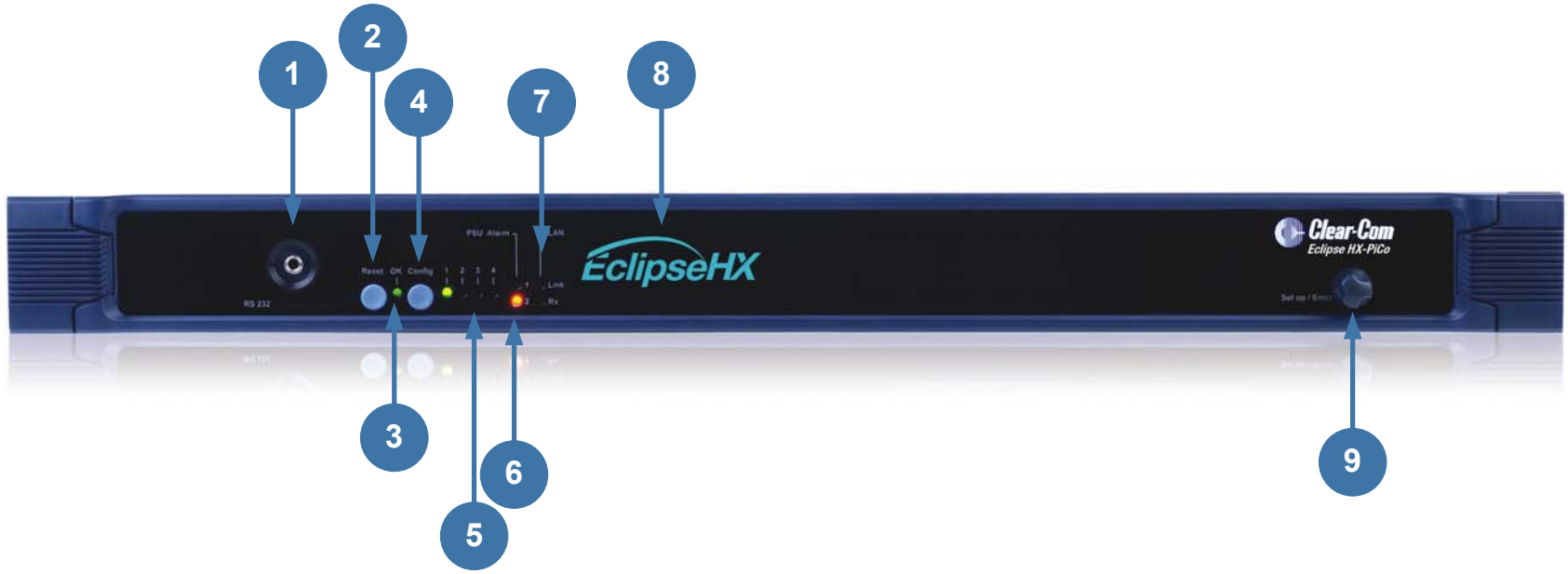


Figure 2: Front panel controls and lights

Key to Figure 2 Front panel controls and lights	
Feature	**Description**
1	**PC null-modem serial connector (3.5mm jack socket, labeled RS-232)** Connects the matrix to an external computer (PC). For more information, see ***5.4 Connecting to an external PC***.
2	**Reset button** Pressing the reset button causes the matrix to stop its current activity and to restart. **Note:** The same configuration that was active before the reset will be active after it is reset. During the reset, configuration information reloads to the matrix's operational memory from its non-volatile memory.
3	**OK light (LED)** When flashing once per second (1:1 1Hz), the **OK light** indicates that the Eclipse HX-PiCo matrix is running normally.
4	**Configuration (CONFIG) button** The Eclipse HX-PiCo can hold four complete system configurations in its operational memory. Any one of the four configurations can be activated using the **CONFIG** button on the matrix front panel. When one of the four configurations is active, its front-panel light illuminates steadily. A configuration can also be selected using the setup/enter rotary control and front-panel display. See **3-6** for more information. To select a new configuration 1. Repeatedly tap the **CONFIG** button until the desired configuration's light (**1, 2, 3,** or **4**) starts flashing. 2. While the desired configuration's light flashes, press and hold the **CONFIG** button for three seconds, until the light stops flashing, and illuminates steadily. The selected configuration then becomes the system's active operational configuration. **Note:** If an invalid or blank configuration is chosen all four configuration lights steadily illuminate **at the same time for about a second**. The currently active configuration continues to operate and its front-panel light steadily illuminates after the other lights go out.

5	**Configuration status lights** The four configuration status lights indicate which of the four onboard configurations is currently active. The currently active configuration's light illuminates steadily.
6	**Power supply alarm lights (1 and 2)** An Eclipse HX-PiCo matrix has two internal power supply units. One power supply unit can power an entire matrix; the second unit provides a backup in case of an equipment failure. In addition, the two supplies have separate IEC connectors to AC mains power, and are designed for completely automatic and transparent changeover between supplies in the event of an outage on one of the AC mains circuits. The front-panel alarm lights do **not** illuminate under normal operating conditions. The following conditions cause a power-supply alarm light to illuminate: • If any of the voltages produced by the **first** power supply unit fall below normal levels. • If any of the voltages produced by the **second** power supply unit fall below normal levels. Once the power-supply fault condition is no longer present, the power-supply alarm light goes out.
7	**LAN Status lights** When a local area network is connected to the matrix's LAN port, the **LAN UP** light steadily illuminates to indicate that the Eclipse HX-PiCo matrix is connected to a local area network. The **Rx** light flashes when data is being received. **Note:** The front-panel System Status screen shows activity when a LAN is connected and communicating with the matrix.
8	**Display (menu) screen** Using the display screen and setup/enter rotary control, a variety of actions can be performed directly on the Eclipse HX-PiCo matrix, without recourse to the EHX configuration software (hosted on an external PC). For more information about using the Eclipse HX-PiCo menu system, see ***6* Using the Eclipse HX-PiCo**.

9	**Setup / Enter rotary control** Using the display screen and setup/enter rotary control, a variety of actions can be performed directly on the Eclipse HX-PiCo matrix, without recourse to the EHX configuration software (hosted on an external PC). For more information about using the Eclipse HX-PiCo menu system, see **6 Using the Eclipse HX-PiCo**.

Table 3: Key to Figure 2: Front Panel controls and lights

4 Connecting to external devices

4.1 Intelligent linking between Eclipse HX matrix frames (matrices)

You can use intelligent linking to connect an Eclipse HX-PiCo to an Eclipse HX-Median, Eclipse HX-Omega, Eclipse HX-Delta and other Eclipse HX-PiCo matrices. Up to 15 matrices may be connected. The linking between matrices is achieved using dedicated trunk lines between ports on the linked systems. Any port within the matrix may be used as a trunk line, creating one full-duplex communications path between the matrices. Typically, the number of trunk lines equals the anticipated simultaneous communications between matrices.

The system intelligently uses and releases these lines to route the communications traffic between panels connected with the various matrices, routing the calls through available open trunks.

Note: You **cannot** connect two Eclipse HX-PiCo matrix frames with a trunk line, if they have already been connected using a PiCo-Link connection (see section below). Trunk lines can only be used to connect the combined system to other Eclipse HX matrix frames.

4.1.1 Intelligent linking with PiCo-Link

You can create a high capacity CAT-5 connection between two Eclipse HX-PiCo matrix frames using the **PiCo-Link** connector on each device.

The 36 ports of the first matrix frame are intelligently linked to the 36 ports of the second, creating a **72-port non-blocking system**. For more information, see **5.3.7 Connecting to another Eclipse HX-PiCo (PiCo-Link)**.

Hopping is not supported. Within virtual IFB functionality only remote callers and sources are supported across the PiCo-Link.

DTMF generation and detection is only supported on 16 ports (ports 17 – 32) on an Eclipse HX-PiCo.

For more information, see **5.2.1** detection. The last four ports on an Eclipse HX-PiCo matrix frame are four-wire ports, and not available for panel connections.

4.1.2 Linking to user panels (V-Series and i-Series panels)

The following user panels are compatible with the Eclipse HX-PiCo matrix system:

- I-Series panels, including expansion panels.
- V-Series panels, including expansion panels.

User panels are normally connected to the matrix frame with an **analog connection**, using shielded CAT-5 4-twisted pair cables with RJ-45 connectors.

You can also connect V-Series panels to the matrix frame with a **digital connection,** using the AES-6 digital interface module. Coaxial cable is required to connect panels to the AES-6CX rear card.

Note: For each panel, additional connector wiring may be required, depending on the options and accessories installed.

To find out more about installing, using, maintaining and connecting user panels to the Eclipse HX-PiCo, see the appropriate product manual / guide**.**

4.1.3 Linking to interface modules

Interface modules convert the four-wire signals of a central matrix port to other types of signals that communicate with devices such as telephones, camera intercoms, two-way radios, and so on. In this way non-four-wire devices can communicate with the central matrix.

Each interface module has hardware connectors to connect to both the central matrix and to the external device that communicates with the central matrix. Most interface modules connect to the central matrix via shielded category-5 cable terminated with RJ-45 connectors.

The type of cable used to connect the interface module to the non-four-wire device varies with the device. Each of these connections is described more fully in the individual manual for each interface.

Note: To find out more about installing, using, maintaining and connecting interface modules to the Eclipse HX-PiCo, see the appropriate product manual / guide.

The following interface modules are compatible with the Eclipse HX-PiCo matrix:

- **TEL-14** telephone interface module.
- **CCI-22** dual party-line interface module.
- **FOR-22** four-wire interface module.
- **GPI-6** general purpose inputs interface module.
- **RLY-6** relay (general-purpose outputs) interface module.
- **AES-6** digital interface module.

4.2 EHX configuration software

The **Eclipse HX configuration software (EHX)** controls the operation of the connected devices (such as user panels, interface modules and interface frames) by sending signals to the CPU in the Eclipse HX-PiCo, which then relays the signals to the devices.

Note: EHX is also used to configure the Eclipse HX-PiCo. EHX configuration software is ordered separately.

Configurations (the operating parameters of complete system setups) are usually created on the external computer that hosts the EHX software. Up to four complete system configurations can be stored on the Eclipse HX-PiCo, for retrieval and activation when required.
The external PC that hosts the EHX software can store an almost unlimited number of complete system configurations (the number is only limited by the available memory space on the PC). You can download the configurations to the Eclipse HX-PiCo as required.

EHX 7.6 runs on the following versions of Windows:

- Microsoft Windows 7 (32-bit and 64-bit).
- Microsoft Windows 8.1 (32-bit and 64-bit)
- Microsoft Windows Server 2008 SP2 (32-bit and 64-bit).
- Microsoft Windows Server 2008 R2 (64-bit).

Note: Operation on other platforms is no longer supported.

When running EHX on Windows operating systems, the client and server can run on separate machines connected over a network.

Note: For minimum and recommended PC requirements, see:

- **8.5 Minimum PC requirements (for EHX software)**.
- **8.6 Recommended PC requirements (for EHX software)**.

You can use EHX to perform a wide range of configuration tasks, including:

- Assigning labels (names) to ports and user panels.
- Creating point-to-point and fixed group (partyline) communications between connected intercom devices.
- Enabling, limiting or disabling features of connected user panels or interface modules.
- Configuring connections between matrix frames (matrices).

Note: The above list is not definitive. For more information about the capabilities of EHX, see ***EHX Help***.

5 Installing the Eclipse HX-PiCo

This chapter describes how to install the Eclipse HX-PiCo matrix frame to a standard 19" (48.26 cm) rack.
It also shows you how to connect the matrix to the mains power supply and external devices, including other matrix frames (matrices) and user panels.

Note: For an overview of the Eclipse HX-PiCo, see **3. Overview**.

5.1 Preparing to install the Eclipse HX-PiCo

5.1.1 Checking the shipment

When the Eclipse HX-PiCo is received inspect the boxes for shipping damage.

Note: The Eclipse HX-PiCo distributor is **not** responsible for shipping damage. If there is damage to the shipment, report the damage to the carrier.

Check the packing list and verify that every item on the list has been received. Save all packing materials in the event any items need to be returned.

16) Unpacking the System

The system comprises the Eclipse HX-PiCo matrix hardware, and the software for operating the matrix frame.
The customer must supply:

- A standard 19 inch wide (48.26 cm) Electronics Industry Association rack in which to install the matrix.
- A personal computer to run the EHX configuration software (see **4.2 EHX configuration software**).
- Shielded CAT-5 cables to connect the matrix to user panels, interface modules, interface frames and other intercom devices.

To install an Eclipse HX-PiCo:

17) Remove the Eclipse HX-PiCo from its shipping carton.

18) Place the matrix frame (matrix) in a standard Electronic Industry Association equipment 19" (48.26 cm) rack.

Environmental information: *Leave clearance on all sides of the matrix to ensure proper airflow. Do not block ventilation vents.*

Note: Connect the power supplies to AC mains power using the IEC connectors on the matrix's rear panel. The matrix has two separate AC power entry connectors for the two separate power supplies in the system (see section below).

Note: The Eclipse HX-PiCo requires 100 - 240 VAC at 50 - 60 Hz. The maximum input power to each of the two power supplies is 60 watts. For the power supply specifications, see **8.7 Power supply unit**.

5.1.2 Powering the Eclipse HX-PiCo

The Eclipse HX-PiCo matrix has two IEC mains AC power connectors that provide separate power inputs for the redundant power supplies. If each AC input is connected to a different mains AC branch, one power supply will continue to operate if the other supply's main AC branch fails.

Note: CPU backup battery

The Eclipse HX-PiCo matrix is fitted with a non-rechargeable battery to maintain the system memory (CPU) that stores the configuration maps and other system data in the event of power failure or the unit being switched off for a period of time. The Eclipse HX-PiCo battery is normally a **1/2AA 3V VARTA 6127-201-301** and is fitted on shipment. The battery has a capacity of **970mAh** and a life of approximately 252 days.

Note: If the matrix is stored for more than three months, or if the AC power to the matrix is regularly turned off, a qualified service person should be contacted to disconnect the CPU backup battery before storing the matrix. Only a qualified service person should attempt to disconnect the battery.

5.1.3 Connecting the Eclipse HX-PiCo to external devices

You can connect the Eclipse HX-PiCo to the following external devices:

- Thirty-two Eclipse HX intercom panels or interfaces.
- Eight general purpose outputs (GPOs or relays).
- Eight general purpose inputs (GPIs).
- Up to ten external GPI/RLY interfaces.
- An additional Eclipse HX-PiCo matrix to form a 72-port linked system.
- A local area network (LAN) connection for Ethernet-based communication with a network.
- An external computer (for the EHX configuration software).

Note: For detailed information about connecting external devices to matrix frames (matrices), including cabling information, see the ***Eclipse HX Matrix Frame Installation Guide***.

5.1.4 Rear panel connectors

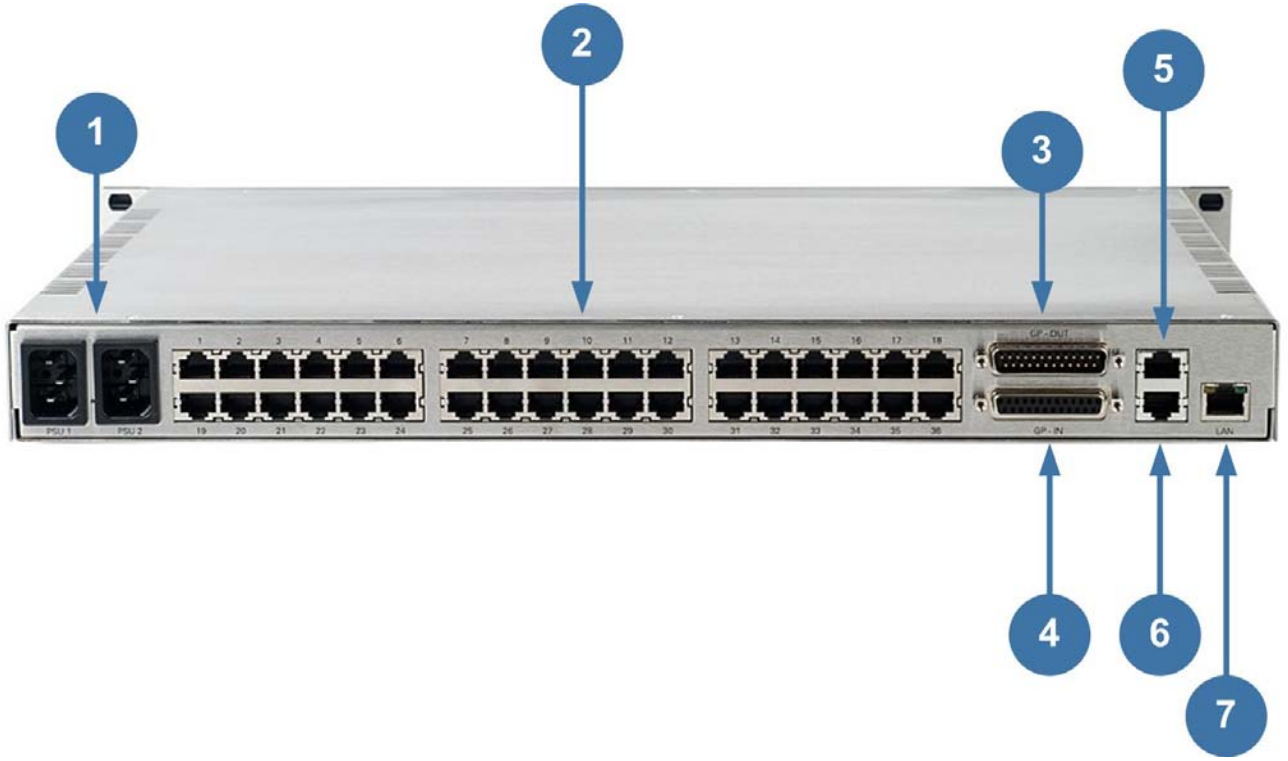


Figure 3: Rear panel connectors

Key to Figure 4 Rear panel connectors	
Feature	**Description**
1	**Two IEC AC power input connectors** (1 for each power-supply unit).
2	**RJ-45 connectors (36).** For connecting the Eclipse HX-PiCo to remote user panels (V-Series and i-Series user panels), interface modules, interface frames and other intercom devices. **Note:** *The last four ports are four-wire only.*
3	**General Purpose Outputs (GPOs) connector**. Male, 25-pin, D-Type
4	**General Purpose Inputs (GPIs) connector**. Female, 25-pin, D-Type
5	**GPI-6/RLY-6 interface module connector (RJ-45)**. Connector specifically designed to connect GPI-6 and RLY-6 interface modules.
6	**PiCo-Link connector (RJ-45)**. High capacity link for connecting two Eclipse HX-PiCo matrix frames together, forming a non-blocking system of 72 ports.
7	**LAN connector (RJ-45).** For Ethernet connections.

Table 4: Key to Figure 4: Rear panel connectors

5.2 Connecting user panels and interface modules

An Eclipse HX-PiCo rear panel contains 36 RJ-45 sockets for connecting the matrix to remote user panels (V-Series and I-Series user panels), interface modules and other intercom devices. These sockets are often called ports. Each port socket is given a number on the rear-panel for easy identification.

All ports contain a voice detection mechanism (VOX) that is programmed in EHX software. This mechanism (VOX):

- Allows the panel operator to know when the audio on a particular channel has exceeded a threshold.
- Is particularly useful for channels that are inactive periodically, so that the panel operator is visually cued in the software when audio appears on the line.

5.2.1 Dual tone multi frequency (DTMF) generation and detection

DTMF generation and detection is only supported on 16 ports (ports **17 – 32**) on the Eclipse HX-PiCo. When using a TEL-14 interface module with the Eclipse HX-PiCo, Clear-Com recommends that the TEL-14 is connected to one of these matrix ports for full functionality.
Although ports 1 - 16 are **not** DTMF-enabled, a TEL-14 interface module connected to one of these ports can receive incoming calls. However, it is not possible to then use inward DTMF on ports 1 through 16. It is also not possible to dial out from the matrix on these ports.
A shielded cable should be used.

5.3 Wiring schemes

The Eclipse HX-PiCo uses:

- A 4-pair (analog) wiring scheme between the matrix and user panels (V-Series and I-Series user panels).
- A 2-pair (analog) wiring scheme between the matrix and four-wire equipment / devices.
- Single-pair wiring for digital connections.

Eclipse HX user panels (V-Series and i-Series user panels) have built-in RJ-45 connectors.

5.3.1 4-Pair analog

4-pair analog connections are performed using shielded CAT-5 RJ-45 cable:

Pair	Description
Pair 1	Transmits analog audio from the matrix to the panel.
Pair 2	Transmits digital data from the panel back to the matrix.
Pair 3	Transmits audio from the panel to the matrix.
Pair 4	Transmits digital data from the matrix back to the panel.

Table 5: 4-Pair analog connections

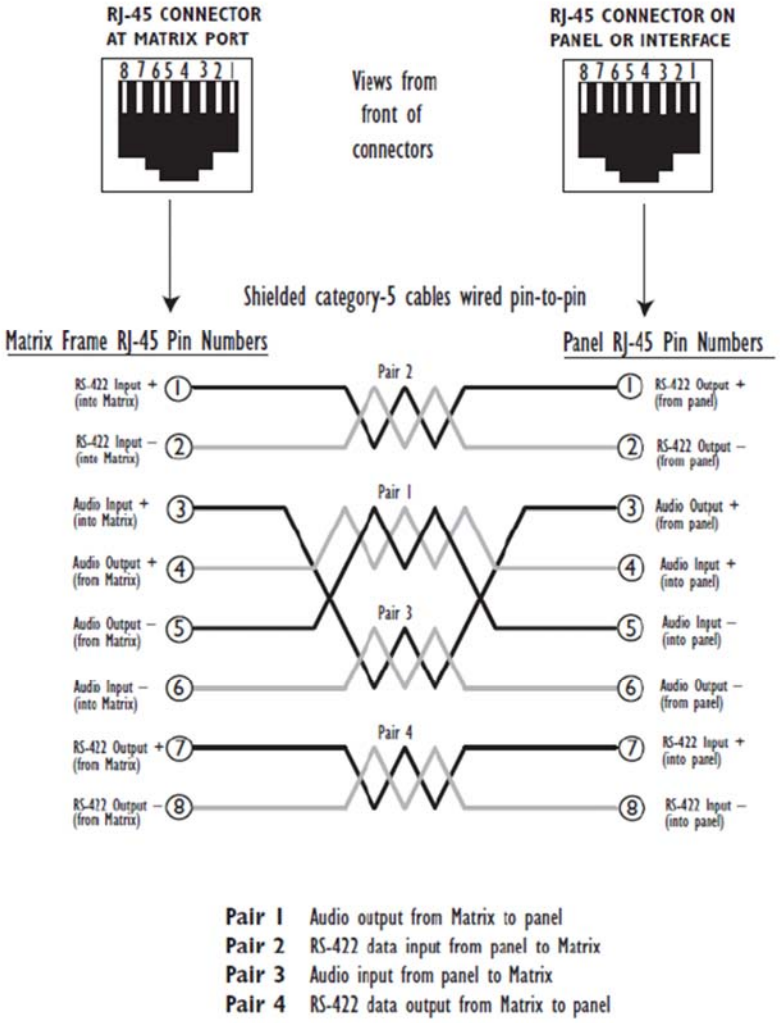


Figure 4: Connecting the matrix frame to an analog panel (4-Pair connection)

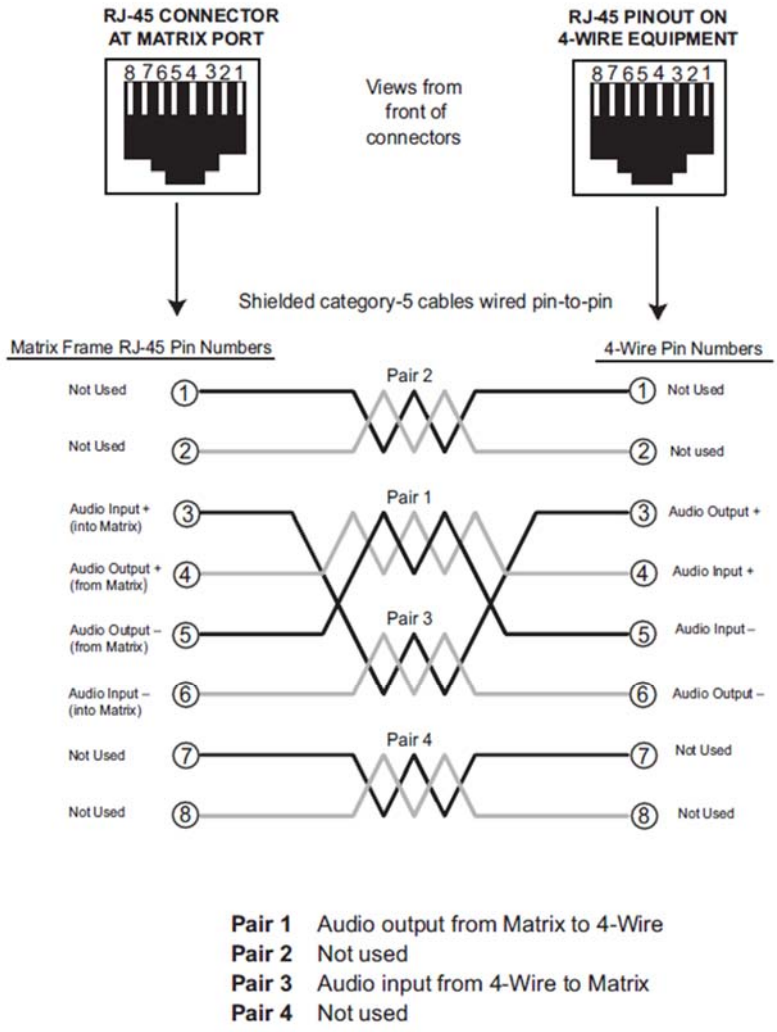
5.3.2 2-Pair analog

Eclipse HX-PiCo uses a 2-pair analog wiring scheme between the matrix and four-wire equipment.

Note: The wiring scheme shown in Figure 5 below is for four-wire equipment with an RJ-45 connector. For four-wire equipment with other types of connector the pin connections should be changed in accordance with the installation specification for the four-wire equipment.

Pair	Description
Pair 1	Pair 1 is not used.
Pair 2	Transmits digital data from the four-wire device back to the matrix
Pair 3	Transmits audio from the four-wire device to the matrix.
Pair 4	Pair 4 is not used.

Table 6: 2-Pair analog



Pair 1 Audio output from Matrix to 4-Wire
Pair 2 Not used
Pair 3 Audio input from 4-Wire to Matrix
Pair 4 Not used

Figure 5: Connecting the matrix frame to a four-wire device (2-Pair analog)

5.3.3 Single-Pair Digital

Single-pair digital connections are performed using CAT-5 cable for AES-6-CX interfaces.
Pair 1 transmits and receives multiplexed digital and analog between the matrix frame and the panel.

Note: Check that the **Select** switch on the panel's rear panel is in the correct position for the intended use.

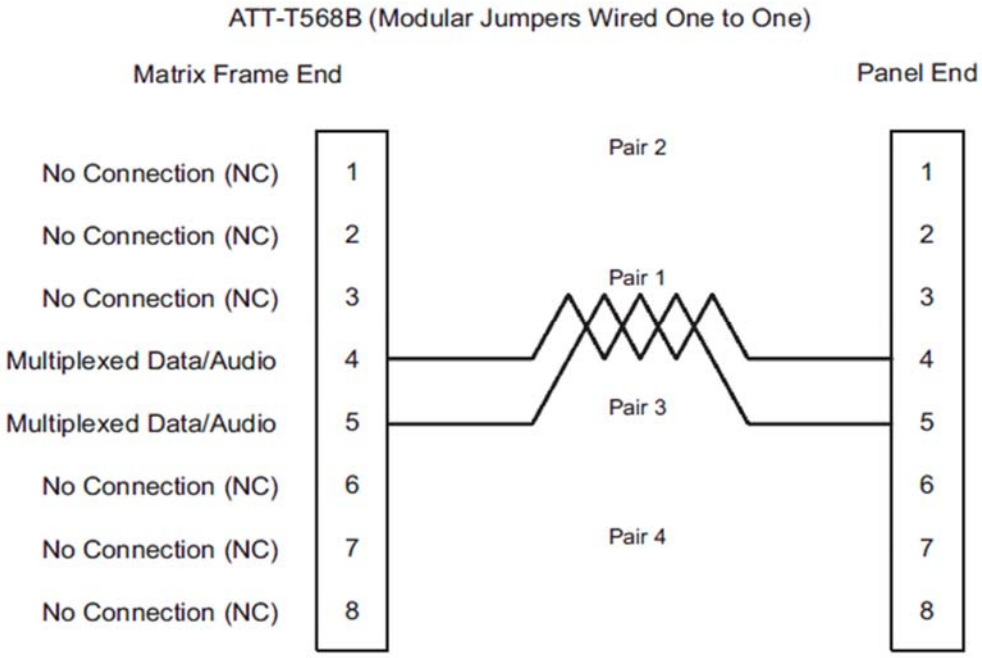


Figure 6: Connecting the matrix frame to a digital panel (single-pair digital)

5.3.4 Connections using general-purpose outputs (GPO's)

The male 25-pin D-type socket labeled GP OUT allows the Eclipse HX-PiCo matrix to be connected to eight general purpose outputs (GPOs). General-purpose outputs are single-pole double-throw relays with contact ratings of 30 VDC (volts direct current) at 1 Ampere.
A general purpose output or relay is a switch that is controlled remotely. The relay is programmed in the EHX software to close a contact whenever an intercom panel's key is pressed. When the contact is closed, it completes an electronic circuit's signal path so that a remote device, such as a light, is powered.
A GPO can be programmed to mute a speaker, to turn on an applause light, to turn on a door lock, or to perform a variety of other functions. For example, to get the

attention of a panel operator working in a high-noise environment such as a control booth a relay can be programmed to switch on a light at the panel each time the panel receives an incoming call to ensure that the call will not be missed.
Each general-purpose output has a relay inside the Eclipse HX-PiCo matrix. When a general-purpose output is inactive, the associated **common** pin on the GP OUT connector will be shorted to the relevant **normally closed** pin. When a general-purpose output becomes active, the short between the **common** pin and the **normally closed** pin is broken and a new connection is made between the **common** pin and the **normally open** pin.

Note: If the GP-OUT port is used the following filter must be fitted between the PROC-RCC socket and the cable: **CINCH FA-25PS/1-LF 25W D-type in-line 1000pF filter (UK supplier: Farnell 111-4108)**

Note: A shielded cable should be used.

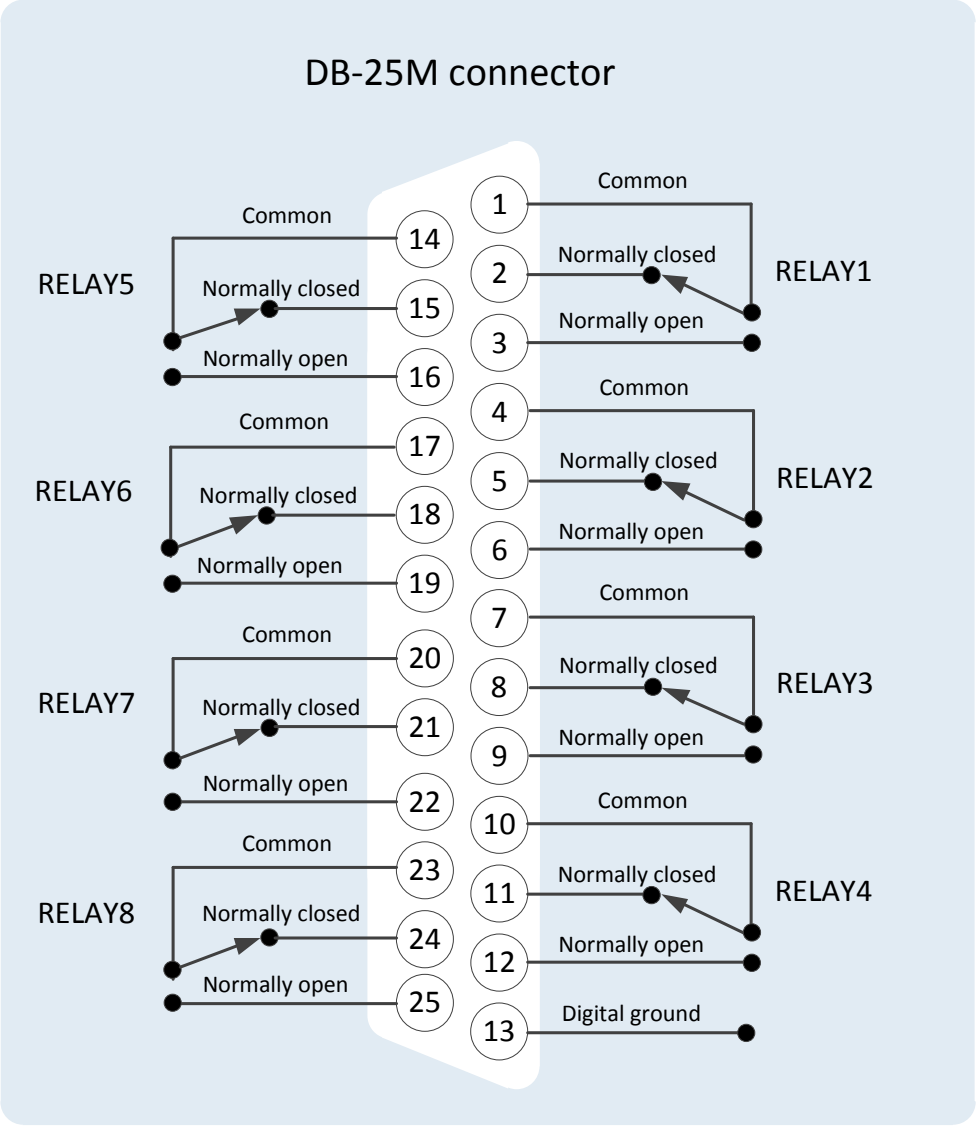


Figure 7: Pin configuration of the GPO connector (DB-25M)

DB-25M Connector		
Pin	**Description**	**Relay**
Pin 1	Common	**RELAY1**
Pin 2	Normally closed	
Pin 3	Normally open	
Pin 4	Common	
Pin 5	Normally closed	

Pin 6	Normally open	**RELAY2**
Pin 7	Common	**RELAY3**
Pin 8	Normally closed	
Pin 9	Normally open	
Pin 10	Common	**RELAY4**
Pin 11	Normally closed	
Pin 12	Normally open	
Pin 13	Digital ground	**-**
Pin 14	Common	**RELAY5**
Pin 15	Normally closed	
Pin 16	Normally open	
Pin 17	Common	**RELAY6**
Pin 18	Normally closed	
Pin 19	Normally open	
Pin 20	Common	**RELAY7**
Pin 21	Normally closed	
Pin 22	Normally open	
Pin 23	Common	**RELAY8**
Pin 24	Normally closed	
Pin 25	Normally open	

Table 7: Pin configuration of the GPO connector (DB-25M)

5.3.5 Connections using general-purpose inputs (GPI's)

The DB-25 connector labeled **GP IN** connects the matrix to eight local general-purpose inputs (GPIs).
An external logic device (such as an external foot switch, a panel-mounted switch, or the logic output of some other device) can be connected to the **GP IN** connector. When the external logic device is activated, it sends a control signal into the matrix to perform one of several preset functions, such as turning an intercom panel's microphone on or off, muting a microphone's output, or turning a panel's speaker off. The function to perform, and the panel upon which it is performed is programmed from the EHX software.
A shielded cable should be used.

Non-isolated mode

When delivered from the factory, the general purpose inputs (GPIs) operate in **non-isolated mode**. Non-isolated mode does **not** require that the externally connected equipment powers the general-purpose input. The current is supplied by a voltage output on the **GP IN** connector.

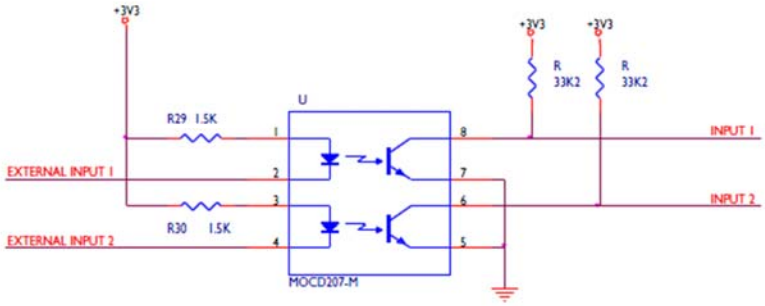


Figure 8: Non-isolated connection to an Eclipse HX-PiCo GPI connector

To cause an input to detect an active signal, current must be sent from the relevant input pin.
The external device should draw no current to cause an inactive input and at least **5 mA** to cause an active input. The opto-isolator drive line contains a **1.5 kOhm** resistor to limit the current through the opto-isolator. It is therefore possible to connect the input pins directly to a ground pin to cause an active input.

Note: The voltage level at the external input pin should **not** be allowed to go below ground or above +6 V with respect to ground.

Opto-Isolated Mode

If required the Eclipse HX-PiCo matrix can be operated in **fully opto-isolated mode**. The unit **must** be taken out of service and powered down before this change is made.
To operate the Eclipse HX-PiCo matrix in opto-isolated mode

1) If the Eclipse HX-PiCo unit is connected to AC power, disconnect it from AC power.

2) Remove the top cover of the Eclipse HX-PiCo matrix by unscrewing the 12 M3 x 6 flat screws and lifting the cover upwards.

3) On the internal circuit board, move the jumper located under the heading **J6** from pins **2-3** (marked **INT**) to pins **1-2** (marked **ISO**).

Circuit board components include CMOS chips that are sensitive to static electricity.

Before touching the matrix's circuit board touch a grounded metal object, such as any unpainted surface on the matrix, to dissipate static electricity. When handling a circuit board, be careful not to bend any of the board's connector pins or component leads.

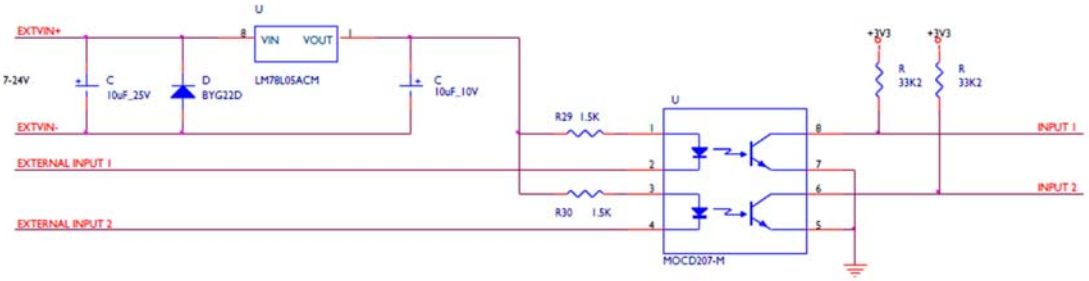


Figure 9: Opto-Isolated connection to Eclipse HX-PiCo GPI connector

In this mode, a DC voltage of between **7 - 24 V** is required at the **EXTVIN+** pin with relation to the **EXTVIN–** pin. To cause an input to detect an active signal current must be sent from the relevant input pin.
The external device should draw no current to cause an inactive input and at least **5 mA** to cause an active input. The opto-isolator drive line contains a **1.5 kOhm** resistor to limit the current through the opto-isolator. It is therefore possible to connect the input pins directly to the **EXTVIN–** level to cause an active input.

Note: The voltage level at the external input pin should not be allowed to go below **EXTVIN–** or above **+6 V** with respect to **EXTVIN–**.

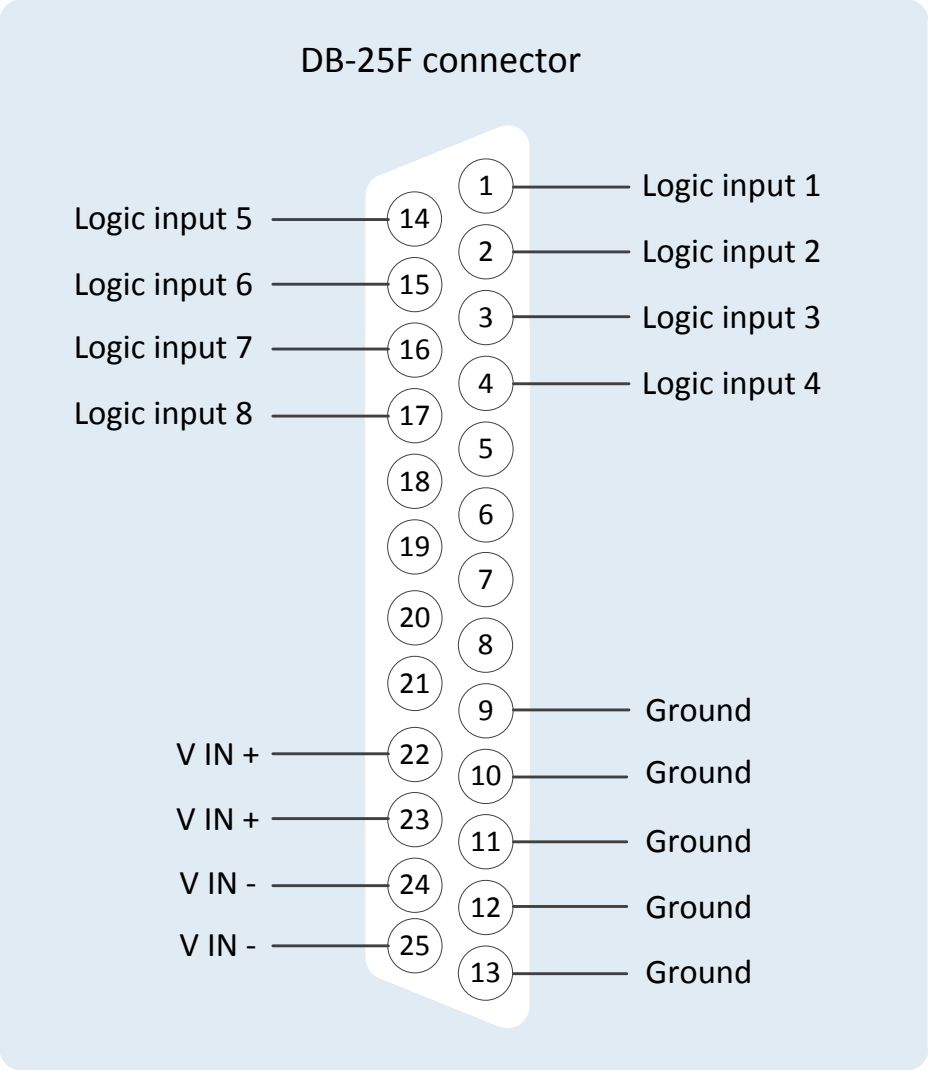


Figure 10: Pin connection General Purpose Inputs, DB-25F connector

DB-25F Connector	
Pin	**Description**
Pin 1	Logic input 1
Pin 2	Logic input 2
Pin 3	Logic input 3
Pin 4	Logic input 4
Pin 5	N / A
Pin 6	N / A
Pin 7	N / A

Pin 8	N / A
Pin 9	Ground
Pin 10	Ground
Pin 11	Ground
Pin 12	Ground
Pin 13	Ground
Pin 14	Logic input 5
Pin 15	Logic input 6
Pin 16	Logic input 7
Pin 17	Logic input 8
Pin 18	N / A
Pin 19	N / A
Pin 20	N / A
Pin 21	N / A
Pin 22	V IN +
Pin 23	V IN +
Pin 24	V IN -
Pin 25	V IN -

Table 8: Pin connection General Purpose Inputs, DB-25F connector

5.3.6 Connecting to a GPI/RLY Interface

The RJ-45 connector labeled **GPI/RLY Interface** connects the Eclipse HX-PiCo matrix to a **GPI-6** or **RLY-6 interface card**. The GPI-6 provides six general-purpose opto-isolated logic inputs. The RLY-6 module provides six single-pole, double-throw relay outputs.

Both card types mount in either an IMF-3 interface frame or an IMF-102 interface frame. Up to ten GPI-6 or RLY-6 modules can be operated at one time from the matrix by daisy-chaining the cards together. Each card has an **IN** and an **OUT** connector for this purpose.

The RLY-6 and GPI-6 interface modules connect to the GPI/RLY interface connector using shielded CAT-5 cable.

Note: If this port is used a ferrite core must be added to the socket end of the cable. A suitable ferrite core is **Würth Electronik part: 74271132**. A shielded cable should be used.

For more detailed information about connecting matrices to interfaces, see the ***Eclipse HX Matrix Frame Installation Guide***.

Connecting to a RLY-6 Interface module

The RLY-6 relay interface module connects up to six programmable relays to the matrix so that each relay is directly controlled from the matrix. Multiple RLY-6 interfaces can be daisy chained to provide connection of up to 60 relays to the matrix.

RLY-6 interface module in an IMF-3 interface frame

To connect a RLY-6 interface that has been housed in an IMF-3 interface module frame to the matrix:

1. Connect one end of an RJ-45 cable (eight wires with no reversal) to the **GPI/RLY INTERFACE** connector on the back of the matrix.

2. Connect the other end of the RJ-45 cable into the top RJ-45 (**CH. A MATRIX**) connector for the **RLY-6**.

To connect an additional RLY-6 interface module:

1. Connect one end of a short RJ-45 cable into the lower RJ-45 (**CH. B MATRIX**) for the first **RLY-6**.

2. Connect the other end of the short RJ-45 cable into the top RJ-45 (**CH. A MATRIX**) connector for the additional **RLY-6**.

Additional RLY-6 interfaces are added in the same way, using "daisy-chain" wiring. If there are multiple RLY-6 interfaces, the inputs in the first interface are numbered **1 to 6** for **RLY 1**; in the second interface **1 to 6** for **RLY 2**, etc. **RLY interface 0** is the internal **Matrix RLY** interface.

Note: If both GPI-6 and RLY-6 interface modules are used, then the GPI-6 interface module must be placed **first** in the daisy chain. The maximum combined length of all the RJ-45 cables should not exceed 20 ft. (6 m).

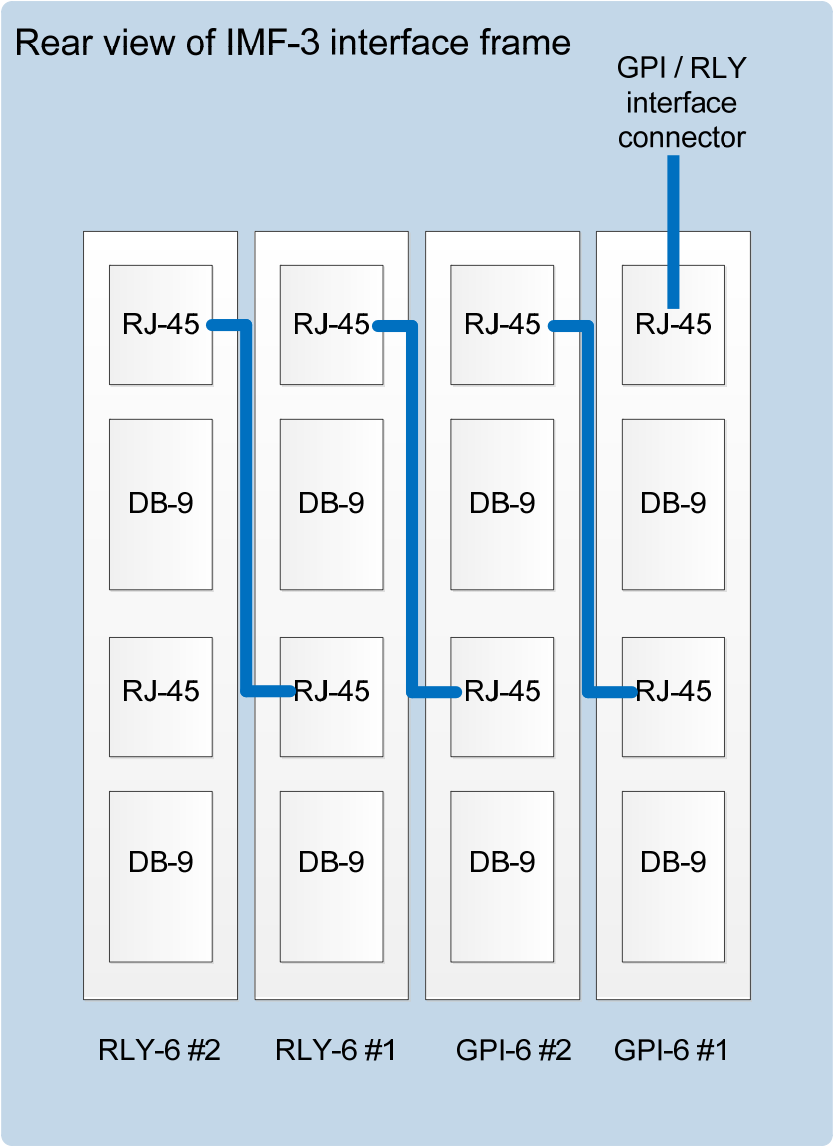


Figure 11: RLY-6/GPI-6Daisy Chain Connection

Connecting external devices to the RLY-6 interface module

To connect external devices to the RLY-6 interface module in an IMF-3 interface module frame, use the two DB-9M connectors on the rear cable assembly panel for the interface.

If a DB-9F is plugged into the connector labeled **CH. A I/O**, relays **1 to 3** are available on that connector. The connector labeled **CH. B I/O** has the contacts for relays **4 to 6**.

In **Figure 12: RLY-6 DB-9M connector pinout**, the labels on the pins apply to either connector. For example, #1/4 COM refers to the wiper of relay 1 if it is connected to **CH. A**, and the wiper of relay 4 if it is connected to **CH. B**.

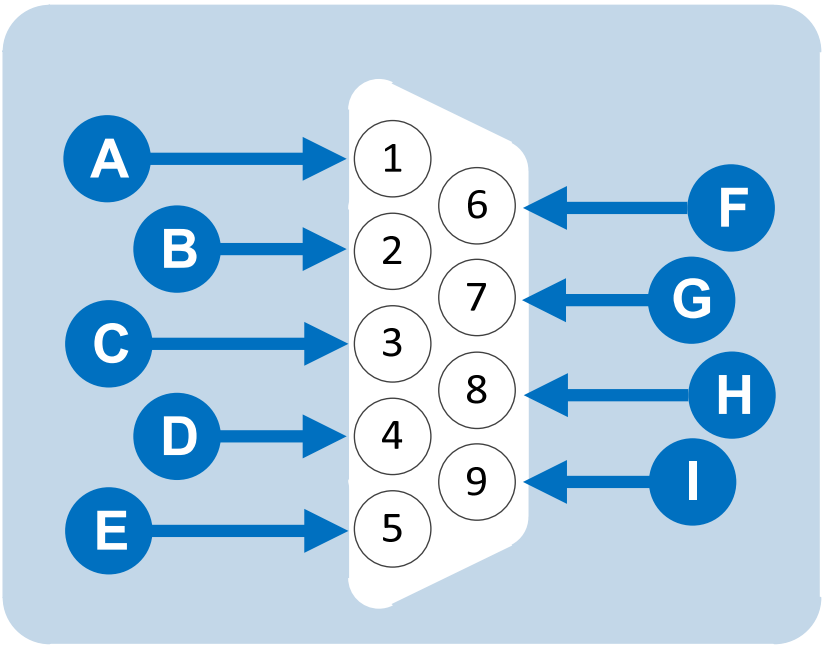


Figure 12: RLY-6 DB-9M connector pinout

Key to Figure 13: RLY-6 DB-9M connector pinout	
Connector	**Description**
A	#1/4 Normally closed
B	#1/4 Normally open
C	#2/5 COM
D	#3/6 Normally closed
E	#3/6 Normally open
F	#1/4 COM

G	#2/5 Normally closed
H	#2/5 Normally open
I	#3/6 COM

Table 9: Key to Figure 13: RLY-6 DB-9M connector pinout

RLY-6 interface module in an IMF-102 interface frame

Connecting to a RLY-6 interface module in an IMF-102 interface frame is the same as connecting to a RLY-6 interface module in an IMF-3 interface frame.
The only difference is that an IMF-102 interface frame houses only **two** interfaces, which are mounted horizontally rather than vertically in the frame.

Note: For more detailed information, see the individual documentation for these interfaces and frames, and the ***Eclipse HX Matrix Frame Installation Guide***.

EHX configuration

Use the EHX configuration software to associate a relay to a label. For more information, see your EHX documentation (including **EHX Help**).

Connecting to a GPI-6 interface module

The GPI-6 input interface module connects up to six programmable inputs to the matrix so that each input can control a predefined matrix function. Multiple GPI-6 interface modules can be daisy-chained to provide connection of up to 60 inputs to the matrix. RLY-6 and GPI-6 interface modules can be mixed together up to the total limit of 60 items.
Five RLY-6 and five GPI-6 modules provide 30 relays and 30 inputs for a total of 60 inputs and outputs.

Note: If both GPI-6 and RLY-6 interface modules are use, you must place the GPI-6 interface modules **first** in the daisy chain.

GPI-6 interface module in an IMF-3 interface frame

To connect the GPI-6 interface module to the matrix:

1) Connect the RJ-45 cable (eight wires with no reversal) to the **GPI/RLY INTERFACE** connector on the back of the matrix.

2) Connect the other end of the RJ-45 cable into the top RJ-45 (**CH. A MATRIX**) connector for the **GPI-6**.

To connect an additional GPI-6 interface module:

1) Connect one end of a short RJ-45 cable into the lower RJ-45 (**CH. B MATRIX**) for the first **GPI-6**.

2) Connect the other end into the top RJ-45 (**CH. A MATRIX**) connector for the additional **GPI-6**.

Additional GPI-6 interface modules are added in the same way, using daisy-chain wiring.
If there are multiple GPI-6 modules, the inputs in the first interface are numbered **1 to 6 for GPI 1**; in the second interface **1 to 6 for GPI 2**, etc. GPI interface **0** is the internal matrix GPI interface.

Note: If both GPI-6 and RLY-6 interface modules are used, you must place the GPI-6 interface modules first in the daisy chain (see **Figure 11: RLY-6/GPI-6Daisy Chain Connection**). The maximum combined length of all the RJ-45 cables should not exceed 20 ft. (6 m).

Connecting external devices to the GPI-6 interface

To connect external devices to the GPI-6 interface, use the two DB-9M connectors on the rear cable assembly panel for the interface.
If a DB-9F is plugged into the connector labeled CH. A I/O, inputs 1 through 3 are available on that connector. The connector labeled CH. B I/O has inputs 4 through 6.
In **Figure 13: GPI-6 interface DB-9M connector pinout**, the labels on the pins apply to either connector.

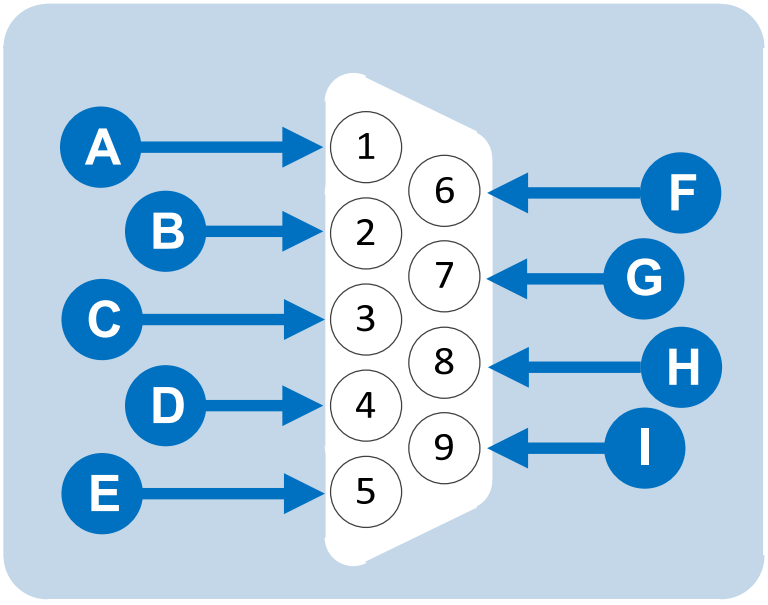


Figure 13: GPI-6 interface DB-9M connector pinout

Key to Figure 13: GPI-6 DB-9M connector pinout	
Connector	**Description**
	#1/4 Input A
	#2/5 Input A
	#3/6 Input A
	Ground
	Ground
	#1/4 Input B
	#2/5 Input B
	#3/6 Input B
	Power source

Table 10: Key to Figure 13: GPI-6 DB-9M connector pinout

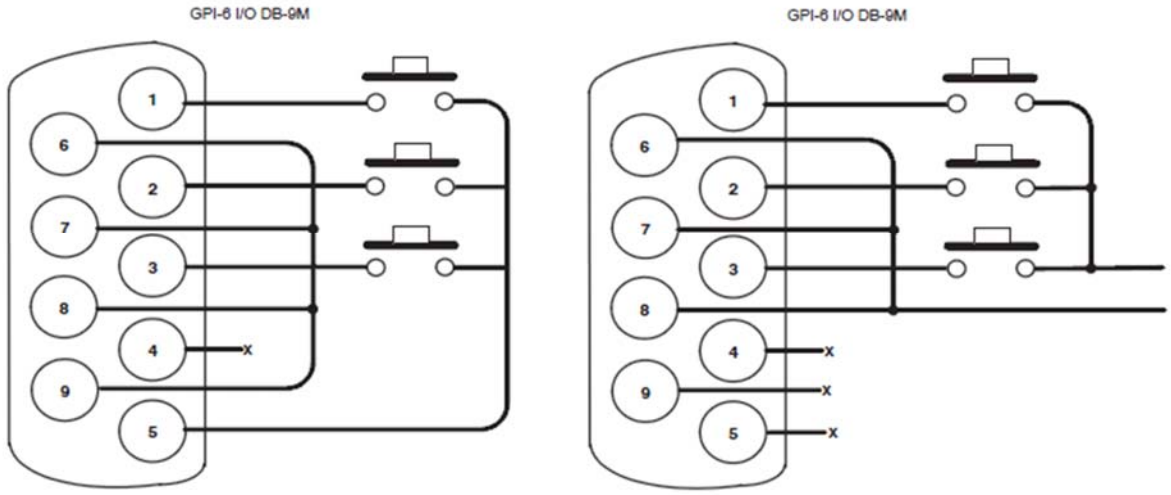


Figure 14: GPI-6 application examples

Figure 14 shows how to connect switches or contacts using the power source provided by the GPI-6 module or powering switches from external sources. Each input can be wired to be isolated from each other as a further variation.

GPI-6 interface in an IMF-102 interface module frame

Connecting a GPI-6 interface that is placed in an IMF-102 interface frame is the same as connecting a GPI-6 interface placed in an IMF-3 interface frame. The only difference is that an IMF-102 houses only two interfaces, which are mounted horizontally rather than vertically in the frame.

Note: For more detailed information, see the individual documentation for these interfaces and frames, and the ***Eclipse HX Matrix Installation Guide***.

EHX configuration

Use the EHX configuration software to associate a relay to a label. For more information, see your EHX documentation (including ***EHX Help***).

5.3.7 Connecting to another Eclipse HX-PiCo (PiCo-Link)

You can create one non-blocking 64 port Eclipse HX system by connecting two Eclipse HX-PiCo matrix frames (matrices) together, using the PiCo-Link RJ-45 connectors on the matrices.
To make this connection, use a specially constructed screened CAT-5 cable of maximum length 1 meter (3.28 feet). The cable is wired as shown in Table 11 below.

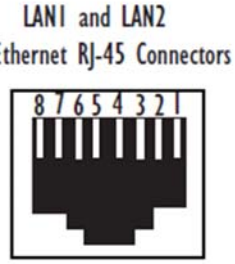
Cable end 1	Wire color	Cable end 2
Pin 1	White / orange	Pin 3
Pin 2	Orange	Pin 6
Pin 3	White / green	Pin 1
Pin 4	Blue	Pin 4
Pin 5	White / blue	Pin 5
Pin 6	Green	Pin 2
Pin 7	White / brown	Pin 7

Table 11: CAT-5 crossover cable pinout

To transfer data between two linked Eclipse HX-PiCo matrices using the PiCo-Link also requires that the Ethernet ports are connected with either a cross-over shielded CAT-5 cable or a hub or switch using conventional shielded CAT-5 cable.

5.3.8 Connecting to a LAN (Local Area Network)

The LAN connector on the Eclipse HX-PiCo has standard Ethernet pin assignments:



PIN	FUNCTION
1	Transmit data +
2	Transmit data –
3	Receive data +
4	Unused
5	Unused
6	Receive data –
7	Unused
8	Unused

Figure 15: Standard pin assignments for a LAN connector

Note: If the LAN connector is used a ferrite core must be added to the socket end of each cable. A suitable ferrite is **Würth Electronik part: 74271132**. A shielded CAT-5 cable should be used.

5.4 Connecting to an external PC running EHX

The computer is normally connected to the matrix using the LAN connector (a standard RJ-45 Ethernet connector) on the rear of the HX-PiCo.
Ethernet connection allows single or multiple PCs to control, configure, monitor, and diagnose single or multiple matrices from anywhere on the WAN / LAN.

Note: A ferrite core must be added to the socket end of each Ethernet cable to comply with European EMC standards. A suitable ferrite core is **Würth Electronik part: 74271132.** Shielded CAT-5 cable is recommended for Electro Magnetic Compliance in EC countries.

5.4.1 Serial connection to the PC

A **DB-9F** connector is used at the PC, when wiring for an Eclipse HX-PiCo serial connection. The **3.5mm jack socket** is labeled **RS-232** on the front of an Eclipse HX-PiCo. Ensure that:

- The data connections of Pin 2 to jack plug tip and Pin 3 to jack plug ring are followed.
- Pin 5 (DB-9F) goes through to the jack plug screen.

The cable will then be ready to use.

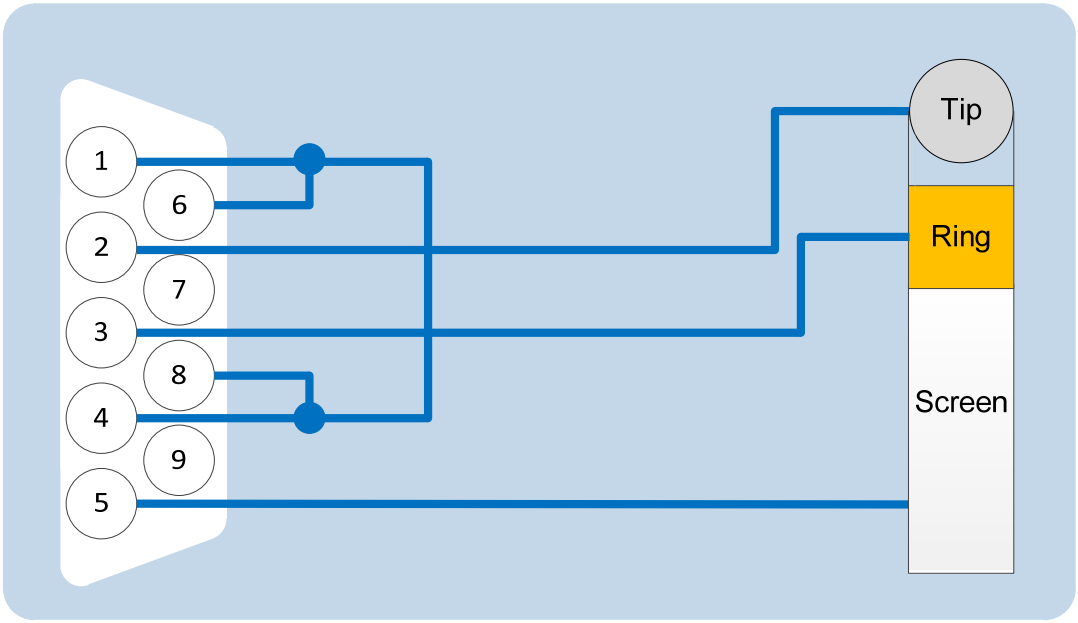


Figure 16: Pin connections for PC DB-9F to Eclipse HX-PiCo 3.5mm jack

PC Connection (DB-9F)	Eclipse HX-PiCo (3.5mm jack)
Pin 1	Links to Pins 4,6,8 on PC side
Pin 2	Tip
Pin 3	Ring
Pin 4	Links to 1, 6, 8 on PC side
Pin 5	Screen
Pin 6	Links to Pins 1, 4, 8 on PC side
Pin 7	N/C
Pin 8	Links to 1, 4, 6 on PC side
Pin 9	N/C

Table 12: Pin connections for PC DB-9F to Eclipse HX-PiCo 3.5mm jack

6 Using the Eclipse HX-PiCo

The following chapter describes how to use the Eclipse HX-PiCo front panel controls and menu system

Note: It is easier to perform the majority of configuration and management tasks in EHX configuration software. For more information, see your EHX documentation (including ***EHX Help***).

Note: For an overview of the Eclipse HX-PiCo matrix frame, see **3. Overview**.

6.1 Accessing the Eclipse HX-PiCo menu system

When the Eclipse HX-PiCo is first powered up, the Clear-Com Eclipse HX-PiCo message is displayed in the display (menu) screen.
To view the main menu, press the **Setup / Enter** rotary control to the right of the display screen.
Scroll to a menu item by turning the rotary control. When the desired menu item is highlighted on screen, select the item by pressing the **Setup / Enter** rotary control.

Figure 17: Main menu display

Note: For the location of the display screen and the Setup / enter rotary control, see **Figure 2: Front panel controls and lights.**

The Eclipse HX-PiCo display dims when the unit has not been used for **three minutes**. Pressing any key causes the previously displayed screen to reappear.

6.2 Checking port status

- To view the current status of the ports, navigate to **Main menu > Status > Ports**.
- **Ports** displays all of the available **36 port connections** graphically (as rectangles), together with their current status.

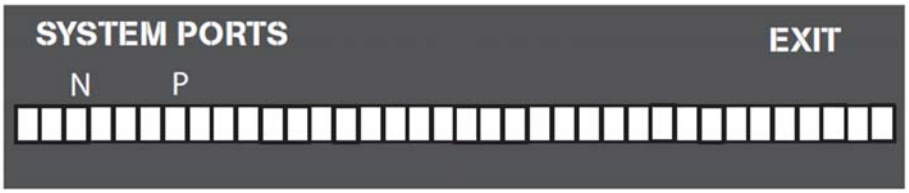


Figure 18: System Ports menu display

Note: A port connection represents one of the RJ-45 connectors on the rear panel of the Eclipse HX-PiCo to which remote panels and / or interfaces have been connected with shielded CAT-5 cable.

When an external device is connected to a port, the rectangle for that port first displays a **chequered pattern** to indicate communications activity, then changes to a **solid light** when the connected device is online and communicating with the matrix.
In addition, **a letter or number** will appear above each rectangle to indicate the type of connection:

Code	Description (type of connection)
R	2-way radio (requires the FOR-22 interface module)
4	four-wire audio
P	panel
N	four-wire network trunk
T	telephone (requires the TEL-14 interface module)

Table 13: Port status codes: Type of connection

Note: Ports 33 through 36 do **not** show the chequered pattern to indicate communications activity, but will light solidly to indicate an online connection to the matrix. In addition, a letter or number will appear on the display above these port symbols to indicate port function.

To exit from port status mode scroll to **EXIT** using the rotary control.

6.3 Adjusting audio levels

Both incoming and outgoing audio levels can be adjusted for an audio device (intercom panel, interface, and so on) connected to an Eclipse HX-PiCo port.
To adjust audio levels for a device connected to an Eclipse HX-PiCo port

1) From the Main menu, select **Audio**. The audio menu appears, as shown **Figure 19** below.

Figure 19: Audio menu display

2) From the **Audio menu**, select **either:**

- **INPUTS.** From the **Input Level** menu the incoming volume level to a port can be adjusted.
- **OUTPUTS.** From the **Output Level** menu the outgoing volume level from a port can be adjusted.

Figure 20: Input Level menu display

Figure 21: Output Level menu display

To adjust a port's **incoming audio levels**:

a) From the Input Level menu, scroll to the Port number.

Press and release the Setup/Enter rotary control.

b) Rotate the setup/enter rotary control clockwise to display the available port digits. When the desired port digit appears in the display, select it by pressing the Setup/Enter rotary control.

Note: When a port number appears onscreen, the port's label (as set in EHX), automatically appears next to it.

c) Scroll to the LEVEL number. Press and release the setup/enter rotary control

Rotate the setup/enter rotary control clockwise to display available decibel levels.

Note: The audio level changes in real time as the setup/enter rotary control is rotated in the same way as adjusting the audio with a volume control.

d) When the desired decibel level appears in the display, press the Setup/Enter rotary control to select and save it.

Note: The audio level can be set between **-60 dB** and **18 dB** in **1 dB steps**.

To adjust audio levels from the **Output Level** menu, scroll to the **Port** number:

a) Press and release the Setup/Enter rotary control to scroll through available ports.

Note: When a port number appears onscreen, the port's label (as set in EHX), automatically appears next to it.

Press and release the setup/enter rotary control.

b) Rotate the setup/enter rotary control clockwise or counter clockwise to display the available port digits. When the desired port number appears in the display, press and release the Setup/Enter rotary control to select it.

Using the rotary control, scroll to Level. Press and release the rotary control to select Level.

Note: Rotate the rotary control clockwise or counter clockwise to display available decibel level values

The audio level changes in real time as the setup/enter rotary control is rotated in the same way as adjusting the audio with a volume control.

c) When the desired digit appears in the display, press and release the setup/enter rotary control to select and save it.

Note: The audio level can be set between **-60 dB** and **18 dB** in **1 dB** steps.

The **identification tone (Ident Tone)** is enabled in the **OUTPUT** audio levels menu.
The identification tone is typically sent to destinations that require a tone or audio statement during system setup.
To set the audio source for a port as the **identification tone:**

1) From the OUTPUT audio levels menu, scroll to and select the Ident Tone Enable checkbox. To turn off the identification tone, clear the checkbox.

The identification tone continues until either the **Enable** checkbox is cleared or **Clear Tones** is selected in the **Audio** menu.

Note: The source of the Identification Tone is selected from the **Maintenance** menu. See: **6.9 Selecting a source of Identification Tone**.

2) To exit the menu, scroll to and select Exit, or to adjust another port's audio level, repeat the above procedure(s).

6.4 Creating audio routes

An audio route between a source and a destination can quickly and easily be created directly from the Eclipse HX-PiCo's front panel.
To create an audio route:

1) From the Main menu, select Routing. The **Routes** menu is displayed.

Figure 22: Routes menu display

When a port number is selected on the screen, that port's label (as set in EHX), is automatically displayed.

2) Scroll to the Source number. Press and release the setup/enter rotary control.

3) Rotate the setup/enter rotary control clockwise or counter clockwise to display available port digits. When the desired digit appears in the display, press the setup/enter rotary control to select and save it.

4) Scroll to the **Destination** number. Press and release the setup/enter rotary control.

5) Rotate the setup/enter rotary control clockwise or counter clockwise to display available port digits. When the desired digit appears in the display, press the setup/enter rotary control to select and save it.

6) Select either the **Enable** or **Inhibit** check boxes to enable or inhibit the audio route between the selected **Source** and **Destination**.

The following table shows the possible selections for inhibiting or enabling a route:

Selection options		Description
Inhibit [ ]	**Enabled [ ]**	No control of selected route made via screen
Inhibit [X]	**Enabled [ ]**	Routes blocked between source and destination
Inhibit [ ]	**Enable [X]**	Routes enabled between source and destination
Inhibit [X]	**Enable [X]**	**Not allowed.** It is not possible to both inhibit and enable a route.

Table 14: Selection options for inhibiting or enabling a route

1. Scroll to and select **Save** by pressing the setup/enter rotary control. (Leaving this screen without selecting **Save** cancels all selected route data.)

The route confirmation screen is displayed.

2. To confirm the route, scroll to and select **Yes**. To back out from the changes select either **No** or **Exit**.

6.5 Selecting and activating a configuration map

Each Eclipse HX-PiCo matrix can store up to four complete configuration maps in its onboard memory.
*For more information about EHX, see also **4.2 EHX configuration software**.*
A configuration is a complete set of operating parameters for the matrix system which includes all talk and listen paths for each connected intercom panel.
A configuration map is created and named in the EHX software. The PC hosting the EHX software can host over a 100 000 configurations. Any of these maps can be selected and activated directly from the Eclipse HX-PiCo. A selected configuration map goes into effect immediately the system is reset.
To select a configuration map:

1) From the Main menu, select **Configs**.

2) The Configuration menu is displayed showing the names of each of the four onboard configuration maps, as programmed in the EHX software.

Figure 23: Configuration menu display

3) Scroll to the desired configuration map's checkbox. Press the setup/enter rotary control to select the configuration.

An **X** is displayed in the configuration's checkbox when it is selected.

4) A screen appears asking for the selection to be confirmed. Select **Yes** to confirm the selection or select **No** or **Exit** to cancel the changes.

The **Reset** menu is displayed. From the **Reset** menu, select one of the following:

Reset option	Description
Reset	Resets the system to the currently selected configuration, while restoring active calls and activating any changes made from the Eclipse HX-PiCo's front panel since the last reset.
Clear Xpoints	Resets the system to the currently selected configuration, while clearing active calls and clearing any changes made from the Eclipse HX-PiCo's front panel since the last reset.

Table 15: Reset options

5) To exit the menu, scroll to and select EXIT.

Note: Selected crosspoints can be cleared **without** resetting the system by using the Apply Labels menu in EHX. For more information, see your EHX documentation.

6.6 Setting the IP address for the Eclipse HX-PiCo

The factory default for the Eclipse HX-PiCo IP address is DHCP enabled.
When a DHCP server is located, and an IP address is allocated, then the Eclipse HX-PiCo's IP address can be viewed using the menu system.

Note: If a DHCP server cannot be located on power up, then the Eclipse HX-PiCo uses the link local (system default) IP address (`169.254.0.100`). If the PC running the EHX software is also DHCP enabled, and is also unable to locate a DHCP server, then the matrix and the PC can communicate on the link local network address.

Before setting the IP address for the Eclipse HX-PiCo, you must first **disable** DHCP. Clear-Com recommends using the **EHX configuration software** to first disable DHCP and set the IP address.

Note: For more information about EHX, including setting IP addresses, see your EHX documentation (including **EHX Help**).

However, you can also use the menu system on the Eclipse HX-PiCo to change the IP address: To set the IP address for the Eclipse HX-PiCo:

1) From the **Main** menu, select **System**.

The **System** menu is displayed.

2) From the **System** menu, select **IP address**.

The IP Address screen is displayed.

Note: If the matrix software has been reloaded or reset, or a DHCP server was not found, the local link (default) IP address of `169.254.0.100` is displayed.

3) In the IP Address screen, select DHCP. If DHCP is enabled, the following is displayed: `DHCP Enable [ X ]`

Disable DHCP by deselecting DHCP Enable.

4) Return to the IP Address screen. To begin changing the IP address, scroll to the first digit of the IP Address. Press the setup/enter rotary control.

5) Rotate the setup/enter rotary control clockwise or counter clockwise to scroll through the available digits. When the desired digit appears in the display, press the setup/enter rotary control to select and save it.

6) Rotate the setup/enter rotary control clockwise or counter clockwise to scroll to the next digit and repeat steps 3 and 4. Continue to go from digit to digit, until the entire IP address has been entered.

7) Repeat the same procedure for the Subnet Mask field. Scroll to and select **Save**.

8) A confirmation screen appears asking for confirmation of the selection. Select **Yes** to accept the new IP address. Select **No** or **Exit** to cancel any changes and revert to the current settings.

9) The **Reset** menu is displayed. From the **Reset** menu, select one of the following:

Reset option	Description
Reset	Resets the system to the currently selected configuration, while restoring active calls and activating any changes made from the Eclipse HX-PiCo's front panel since the last reset.
Clear Xpoints	Resets the system to the currently selected configuration, while clearing active calls and clearing any changes made from the Eclipse HX-PiCo's front panel since the last reset.

Table 16: Reset options

10) The IP address for the HX- PiCo is now assigned. To exit the menu, scroll to and select **Exit**.

6.7 Accessing system information

Information about the system number and firmware version can be accessed directly from the front panel menus of the Eclipse HX-PiCo.
To access the system number or firmware version:

1) From the Main menu, select **System**. The **System** menu is displayed.

2) From the **System** menu, select **Information**.

The Information menu is displayed.

3) From the **Information** menu, select **System Information**. The **System Information** menu is displayed, showing the system number and firmware version.

Note: These fields are not editable.

Figure 24: System Information display

System Number shows the system number for the Eclipse HX-PiCo (even if multiple Eclipse HX-PiCos are linked over a network).

Firmware Version shows the currently active firmware version for the Eclipse HX-PiCo.

6.8 Accessing system status

Information about the system's status, high speed link connection, and local area network connection can be accessed directly from the HX- PiCo's front panel. To access system status information:

1) From the Main menu, select **System**. The System menu is displayed.

2) From the System menu, select **Information**. The Information menu is displayed.

3) From the Information menu, select **System Status**. The System Status menu is displayed.

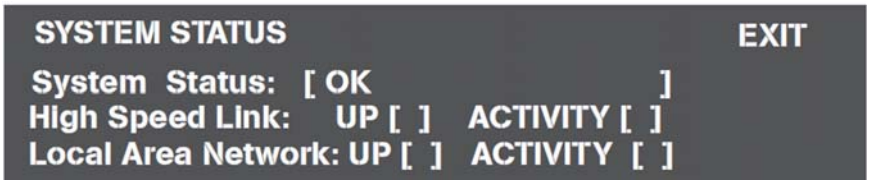


Figure 25: System status display

The following status information is displayed:

Status information	Description
System Status	This field shows the status of any data download from a connected PC computer operating the EHX software. When data downloads to the Eclipse HX-PiCo matrix from a connected PC, either **Serial Download** or **Ethernet Download** is displayed to indicate the type of download. When the download ends, **OK** is displayed in the System Status field.
PiCo-Link	Shows the status of the PiCo-Link, a high capacity link for connecting two Eclipse HX-PiCos. When an **X** is displayed in the **UP** checkbox, the high-speed link is connected. When an **X** is displayed in the **Activity** checkbox, the high-speed link is receiving information.
Local Area Network	Shows the status of a local area network, if one is connected. When an **X** is displayed in the **UP** checkbox, the LAN is connected. When an **X** is displayed in the **Activity** checkbox, the LAN is receiving information.

Table 17: System status information

6.9 Selecting a source of Identification Tone

An Identification Tone (**Ident Tone**) is typically sent to destinations that require a tone or audio statement during system setup. This feature is activated from the Audio menu's output level screen (see ***6.3 Adjusting audio levels***).
To use this feature, a source for the Identification Tone must be selected. To select a source for the Identification Tone:

1) From the **Main** menu, select **System**. The **System** menu is displayed.

2) From the **System** menu, select **Maintenance**. The **Maintenance** menu is displayed.

3) From the **Maintenance** menu, select **Ident Source**. The **Ident Source** menu is displayed.

4) Scroll to the **Source** number and press the setup/enter rotary control.

5) Rotate the setup/enter rotary control clockwise or counter clockwise to scroll through the available digits. When the desired digit appears in the display, press the setup/enter rotary control to select and save it.

6) Scroll to and select **Save** to save and activate the source of Identification Tone.

7) To exit the menu, scroll to and select **Exit**.

6.10 Resetting the system

Resetting the system restores the currently selected configuration map, while restoring active calls and activating any changes made from the Eclipse HX-PiCo's front panel since the last reset.
Another type of reset restores the currently selected configuration map, while clearing active calls and clearing any changes made from the Eclipse HX-PiCo's front panel since the last reset. This is called **clearing crosspoints** (**Clear Xpoints**).
To reset the system or clear crosspoints

1) From the **Main** menu, select **System**. The **System** menu is displayed.

2) From the **System** menu, select **Maintenance**. The **Maintenance** menu is displayed.

3) In the **Maintenance** menu, scroll to and select **Reset Options**. The **Reset menu** is displayed.

Figure 26: Reset menu display

4) From the **Reset** menu, select one of the following:

Reset option	Description
Reset	Resets the system to the currently selected configuration, while restoring active calls and activating any changes made from the Eclipse HX-PiCo's front panel since the last reset.
Clear Xpoints	Resets the system to the currently selected configuration, while clearing active calls and clearing any changes made from the Eclipse HX-PiCo's front panel since the last reset.

Table 18: Reset options

5) To exit this menu, scroll to and select **Exit**.

6.11 Checking the status of General Purpose Inputs (GPIs)

It is possible to connect an external logic device (such as an external foot switch, a panel-mounted switch, or the logic output of some other device) to the **GP IN** connector on the rear panel of the Eclipse HX-PiCo.
When the external logic device is activated, it sends a control signal into the matrix to perform one of several preset functions, such as turning an intercom panel's microphone on or off, muting a microphone's output, or turning a panel's speaker off. The function to perform and the panel upon which it is performed is chosen from the EHX programming software.

Note: For more information about GPIs, see **5.3.5 Connections using general-purpose inputs (GPI's)**

Once a GPI has been connected, you can check the on / off status of the GPI directly from the front panel of the Eclipse HX-PiCo. To check whether or not a general-purpose input is on:

1) From the **Main** menu, select **Status**. The **Status** menu is displayed.

2) From the **Status** menu, select **GPI**. The **GPI Status** menu is displayed.

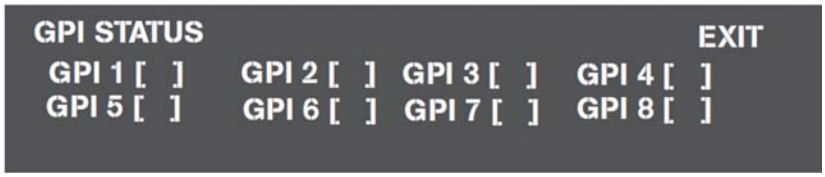


Figure 27: GPI Status menu display

If a GPI is **on** an **X** is displayed in the checkbox next to that GPI number on the menu. An unchecked box indicates that the GPI is **off**.

Note: These fields cannot be edited. They are for information only.

3) To exit, scroll to and select **Exit**.

6.12 Checking the status of General Purpose Outputs (GPOs)

A General Purpose Output (GPO) or relay is a switch that is controlled remotely. The relay is programmed in the EHX software to close a contact whenever an intercom panel's key is pressed. When the contact is closed, it completes an electronic circuit's signal path so that a remote device (such as an applause light) is powered.
A GPO can be programmed to mute a speaker, to turn on an applause light, to turn on a door lock, or to perform a variety of other functions. For example, to get the attention of a panel operator working in a high-noise environment such as a control booth, it can be programmed as a relay to switch on a light at the panel each time an incoming call is received to ensure that the call is not missed. The general-purpose outputs are connected to the male 25-pin D-type socket labeled GP OUT on the back of the Eclipse HX-PiCo.
After a GPO has been connected it is possible to check whether or not a GPO is on directly from the front panel of the Eclipse HX-PiCo. A GPO can be toggled on or off directly from the Eclipse HX-PiCo front panel as well.

Note: For more information about GPOs, see ***5.3.4 Connections using general-purpose*** .

The front panel display always shows the most current on/off status of the GPO, whether it has been produced by using the front-panel controls or by using the EHX programming software.
To check whether or not a GPO is on and/or to toggle a GPO on/off:

1) From the **Main** menu, select **Status**. The **Status** menu is displayed.

2) From the **Status** menu, select **GPO**. The **GPO Status** menu is displayed.

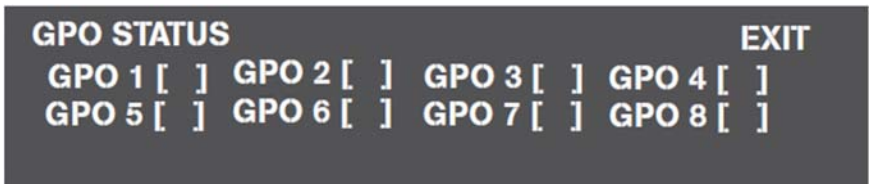


Figure 28: GPO Status menu display

If a GPO is **on** an **X** appears in the checkbox next to that GPO number on the menu. An unchecked box indicates that a GPO is **off**.

To toggle a GPO on, scroll to and select its associated checkbox. To toggle a GPO off, clear its associated checkbox.

3) A screen appears asking for confirmation of the selection. Select **Yes** to confirm. Select **No** or **Exit** to cancel the changes.

The GPO status menu always shows the current status of the GPO, regardless of whether the status changes by using the front-panel menu options or by using the EHX programming software.

4) To exit the menu, scroll to and select **Exit**.

7 Maintaining the Eclipse HX-PiCo

This chapter provides guidance on maintaining the Eclipse HX-PiCo.

7.1 Recommended spare parts

To facilitate quick repair of the system with minimum downtime, Clear-Com recommends keeping the following spare system components in good working condition at all times:

- One of each type of intercom panel in the system.
- One of each type of interface / card in the system.

Due to the complexity of the system, field service generally should be limited to isolating the specific component of the system with the problem.

7.2 Dual independent power supplies

The Eclipse HX-PiCo matrix includes two internal power supply units. One power supply unit can power an entire matrix; the second unit provides a backup in case of an equipment failure.
In addition, the two supplies have separate IEC connectors to AC mains power, and are designed for completely automatic and transparent changeover between supplies in the event of a power failure on one of the AC branches.

Note: For more information about the power supplies, see ***5.1.2 Powering the Eclipse HX-PiCo.***

Servicing instructions (including hardware installation instructions) are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that described by this guide, unless qualified to do so. Refer all servicing to qualified service personnel.

8 Specifications

8.1 General

Note: **0 dBu** is referenced to **0.775** Volts RMS.

Specification	Description / Value
Height	44mm (1.75inches) (1RU)
Width	482mm (19 inches)
Depth	300 mm (12 inches)
Weight	5 kg max
Power consumption	60 W Max per inlet
Number of panel compatible ports	32
Number of analog audio ports	4
Number of expansion modules	1
Number of power supply units	2
Max number of ports per system that can be intelligently linked	36 **Note:** *2 Eclipse HX-PiCo matrices, when connected with the PiCo-Link, form a single, non-blocking system of 72 ports.*

Table 19: General specification

8.2 Matrix frame performance

Specification	Description / Value
Sample Rate	48 kHz
Resolution	24 bit
Frequency Response @ 48 kHz sampling	30 Hz – 22 kHz ± 3 dBu
Crosstalk (adjacent channel)	<–70 dBu
Nominal Level	0 dBu
Matrix headroom	18 dBu
Distortion	<0.05 %, @ 0 dBu, 300 Hz to 10 kHz; <0.1 %, @ 0 dBu, 100 Hz to 20 kHz
Off Noise	<–98 dBu relative to +18 dBu, 20 Hz - 22kHz
On Noise	<–83 dB relative to +18 dBu, 20 Hz – 22kHz
Key response, Intra System	<40 ms for audio route
Linked Systems	<60 ms for audio between matrices
Temperature	0 to +40 C, ambient;° -55to +70C, storage ° ◦
Humidity (Maximum)	90% Non-condensing

Table 20: Matrix performance specification

8.3 Matrix frame interfaces

Specification	Description / Value
GPI inputs	8 total, opto-isolated
GPI outputs	8 total, isolated relay contacts
GPI connector	25-pin D-Type socket on rear panel
GPO connector	25-pin D-Type socket on rear panel
External GPI-6/RLY-6	RJ-45 connector on rear panel
Network	10/100 Base-T Ethernet Max. distance; 100m RJ-45 connector on rear panel
Serial PC	RS-232 3.5mm connector on front panel Baud rate: 57600 Max. distance: 10 meters Number of ports: 1

Table 21: Matrix interfaces specification

8.4 System resolution

Specification	Description / Value
Crosspoint level control	0.355 dB steps
Input Level Control	0.355 dB steps
Output Level Control	0.355 dB steps
VOX Input detection	Threshold 0dB to – 40dB adjustable

Table 22: System resolution

8.5 Minimum PC requirements (for EHX software)

Specification	Description / Value
Processor	1 GHz
Memory	1GB RAM
Hard disk	1GB minimum 32 bit, 2GB minimum 64 bit.
Input devices	CD-ROM drive
Display resolution	SVGA
User entry	Keyboard, Mouse
Ports	2 serial ports and/or network IEEE 802.3 Ethernet card
Network	IEEE 802.3 Ethernet card
Operating systems	EHX 7.6 runs on the following versions of Windows: • Microsoft Windows 7 (32-bit and 64-bit). • Microsoft Windows 8.1 (32-bit and 64-bit) • Microsoft Windows Server 2008 SP2 (32-bit and 64-bit). • Microsoft Windows Server 2008 R2 (64-bit). Operation on other platforms is no longer supported.

Table 23: Minimum PC requirements

8.6 Recommended PC requirements (for EHX software)

Specification	Description / Value
Processor	2GHz or greater for a client. As many cores as possible for a server.
Memory	2GB for client 32 bit. 4GB for client 64 bit. 3GB for server 32 bit. 4GB+ for server 64 bit.
Free space	1GB minimum 32 bit. 2GB minimum 64 bit.
Display resolution	1600 x 1200
Operating systems	EHX 7.6 runs on the following versions of Windows: • Microsoft Windows 7 (32-bit and 64-bit). • Microsoft Windows 8.1 (32-bit and 64-bit) • Microsoft Windows Server 2008 SP2 (32-bit and 64-bit). • Microsoft Windows Server 2008 R2 (64-bit). Operation on other platforms is no longer supported.

Table 24: Recommended PC requirements

8.7 Power supply unit

Specification	Description / Value
Quantity	2 per matrix

Mounting	Internal
AC power input	IEC (1 per PSU)
Input Voltage	AC 100V to 240 V, 50/60 Hz
Power consumption	60 W maximum
Alarm indicators	LEDs viewable from front of rack

Table 25: Recommended PC requirements

8.8 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.

8.9 Menu Map for the Eclipse HX-PiCo

Note: The following menu map does **not** include screens for confirmation and reboot, which are displayed automatically after some screens.

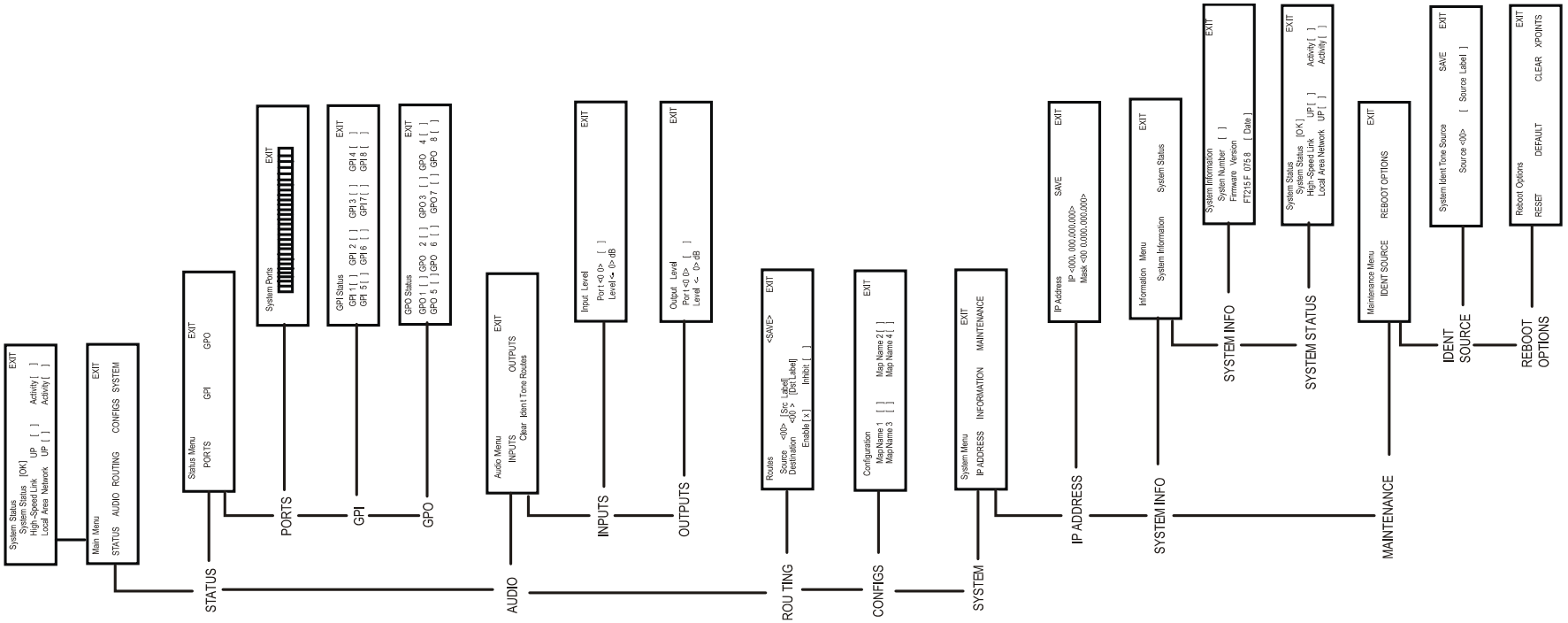


Figure 29: Eclipse HX-PiCo menu map

9 Glossary

Term	Definition
Analog Port	Any of the Eclipse HX 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.
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 HX 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 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 HX 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's 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.
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 HX matrices provide full-duplex audio.
EHX	EHX is the Eclipse HX 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	Refers to transmission of signals in two directions simultaneously.
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 often 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 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 is a family of Eclipse HX-supported user panels. The series includes two display stations, two non-display stations, two expansion panels, and a level-control panel. Eclipse HX also supports V-Series panels (see below).
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.
Keygroup	KeyGroups provide a way of assigning a label to multiple panels simultaneously even within a networked matrix system. Once the KeyGroups have been defined using EHX, all the keys within a KeyGroup can be changed with a single assignment in Production Maestro (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, KeyGroup and Monitor selection screen in Production Maestro.
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 (44.45 mm) of vertical mounting space, 2 RU is 3.5 inches (88.9 mm), 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 frame (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.
VOX	In the Eclipse HX 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 EHX configuration software.
V-Series	User panels used with Eclipse HX systems, providing advanced intercom facilities. Available in rack mount and desktop formats (lever key, pushbutton and rotary versions). I-Series user panels are also supported (see above).

10 Compliance

CE / FCC Conformity

This document confirms that this product bearing the CE (Communauté Européenne) label meets all requirements in the EMC directive 2004/108/EG laid down by the Member States Council for adjustment of legal requirements. Furthermore the product complies with the rules and regulations of the low-voltage directive 2006/95/EG and the Restriction of Hazardous Substances Recast Directive 2011/65/EU (RoHS 2). This product bearing the CE label complies with the following standards, ratified by CENELEC (Comité Européen deNormalisation Electrotechnique):

Electromagnetic compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use
EN 55103-1, Emission
EN 55103-2, Immunity

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 B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.
Avis de conformité à la réglementation d'Industrie Canada
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Korean notice

This notice applies to the following products:

Eclipse-HX-PiCo / Eclipse-PiCo
V12RDX / V12RDX4 / V12LDX4Y-IP/ V12PDX4Y-IP / V12RDX5 / V12LDX5Y-IP/ V12PDX5Y-IP
V24RDX / V24RDX4 / V24LDX4Y-IP / V24PDX4Y-IP // V24RDX5 / V24LDX5Y-IP / V24PDX5Y-IP
V12RDDX / V12RDDX4 / V12LDDX4Y-IP / V12PDDX4Y-IP / V12RDDX5 / V12LDDX5Y-IP / V12PDDX5Y-IP
V12RDE / V12LDEY / V12PDEY

A급 기기 (업무용 방송통신기자재)

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바라며, 가정외의 지역에서 사용하는 것을 목
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