

Innovative design, unrivalled flexibility...proven performance

Intercom Gemini

**Broadcast Communications...
...Without Compromise**



trilogy▲

Trilogy's headquarters in
Hampshire, United Kingdom



"Innovation, quality and customer service are the foundations of our business"

Trilogy is a UK based company which has been serving the Broadcast and Professional Media industries for over 25 years, specialising in high performance communications (Intercom/Talkback) systems as well as video and audio reference products. Our clients are located in over 70 countries and range from major international broadcasters including the BBC, CBS, ARD and Al-Jazeera to media organisations, universities, government institutions and a significant number of large-scale defence and industrial applications.

Innovation has always been at the heart of Trilogy's products, developing the world's first all-digital Sync Pulse and Test Signal Generators and pioneering the introduction of IP Intercom in Broadcast, over a dozen years ago.

In high profile live environments operating around the clock, communication by its very nature is critical to success, making the proven reliability and high quality technical support we provide absolutely essential.

Technical Services

We pride ourselves on listening to customers' needs, offering solutions based on our extensive experience of broadcast intercom and providing the technical expertise and support from initial design to an operational system.

- System design and software configuration
- Customised solutions
- Support during installation and commissioning
- 3rd Party product sourcing and integration
- Factory and on-site training for operators, administrators and maintenance engineers

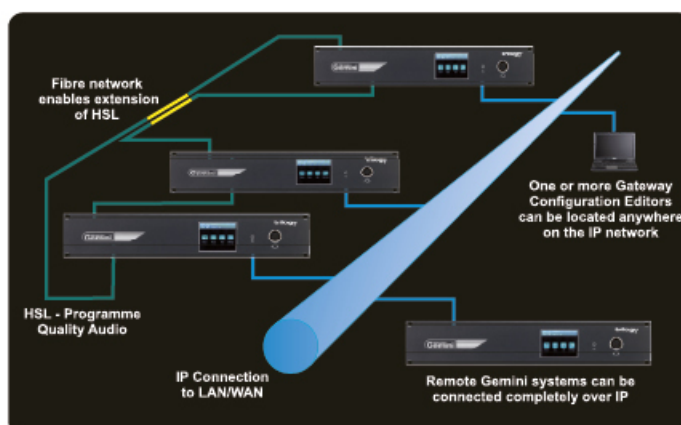
Gemini Intercom - An Introduction

Gemini delivers the sophisticated functionality and performance expected of a class-leading Intercom with unrivalled flexibility and the reassurance of being able to meet any future requirements.

Based on a distributed architecture rather than a single central matrix, and using Gemini's unique IP capability, systems can be expanded, using LAN, WAN or Satellite for even the most complex installations.

This approach eliminates any single point of failure within the entire intercom system, while retaining all of the operational characteristics of a single central matrix solution.

Each Gemini frame can be fitted with up to 32 local ports for panels, analogue and digital audio interfaces and telephony. Expansion is accomplished by connecting multiple frames over a digital audio network (High Speed Link - HSL) that supports hundreds of simultaneous conversations at programme audio quality and with almost zero latency.



It also supports a further 64 communication channels over IP, and the integral audio mixer/DA allows up to 12 channels of camera intercom to be connected without using standard audio ports.

The HSL audio network is configured as a dual redundant 'ring' for maximum resilience throughout the whole installation, with interconnection over copper or fibre.

A further level of security is provided by a unique feature which automatically diverts all voice traffic onto the IP data network in the exceptional circumstance that the external cable connections are broken in more than one place.

Interface Boards

A range of interface boards may be selected in any combination for connection to conventional control panels over CAT5, analogue 4-wire audio equipment, analogue telephone lines, AES / MADI streams or Trilogy's IP enabled panels.

The in-built IP capability allows up to 64 channels of voice to be carried over any standard IP network either to Trilogy matrices or other IP enabled devices. It also carries all inter-matrix messaging and system configuration data.

Although traditionally deployed as a simple control interface to other equipment, Gemini's GPI capability allows external control access to an extensive array of audio routing and logic functions.

A unique feature of Gemini is its front panel engineering facility with touchscreen control and colour display.

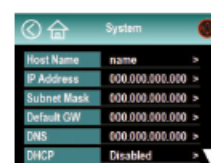
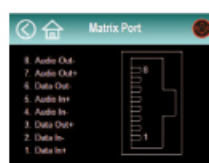
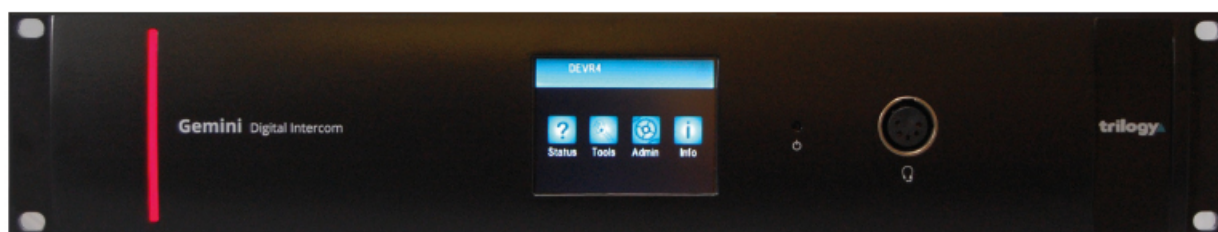
Key Benefits

- Distributed matrix architecture maximises resilience and reduces installation costs
- Full access audio network provides programme quality performance with no latency
- Dual redundant 'ring' connectivity has no single point of failure for ultimate system dependability
- Integrated IP capability permits unlimited expansion in terms of system size or geographic location
- Supports integration with IP phone systems and other SIP compliant devices
- Lever key and Touchscreen control panels to suit individual operational preferences
- Upgrade and expansion options enable full integration of Gemini with existing Trilogy intercoms including Commander and Orator

This 'panel' can be used to set up network and other system parameters, and provides an easily accessible means of verifying hardware and software status, panel connections, and GPI activity.

Audio routes and signal levels can also be viewed and monitored in real time using the headset connector.

Gemini's Unique Engineering Front Panel



STATUS

Checks the status of power supplies, fans, IP Network and HSL connections, as well as reporting the status and version of system software

TOOLS

Enables monitoring of audio signals (Including level metering), GPI input and output activity, panel connections and current audio routes

INFORMATION

Provides all connector wiring details and displays option board fitting - e.g. Panel / 4 wire, AES / MADI, Phone Interface or IP panels

SETTINGS

Allows set up of matrix identity and checks IP addresses of both the matrix itself and its database server

Gemini can be seamlessly integrated with all other Trilogy matrix intercoms, such as Commander and Orator via Ethernet and audio trunk lines, while interfacing to Mercury and Messenger matrices only requires a shared IP network connection.

Although normally connected to a master database on the network, each Gemini frame can store up to 4 configurations and is therefore not reliant on connection to a central server.

For further system expansion, multiple Gemini 'rings' may be interconnected over any IP network, without loss of functionality or any practical limit to overall system size. IP connectivity between matrices can be configured from an array of coding profiles based on industry standard CODECs to optimise quality, latency and bandwidth usage.

Telephony

When fitted with a telephone interface option, the matrix serves up to four lines per board, with dialling to and from control panels, auto-answering and DTMF control of audio routing, allowing remote users to access Gemini from any internal and external lines, or mobile phones and tablets.

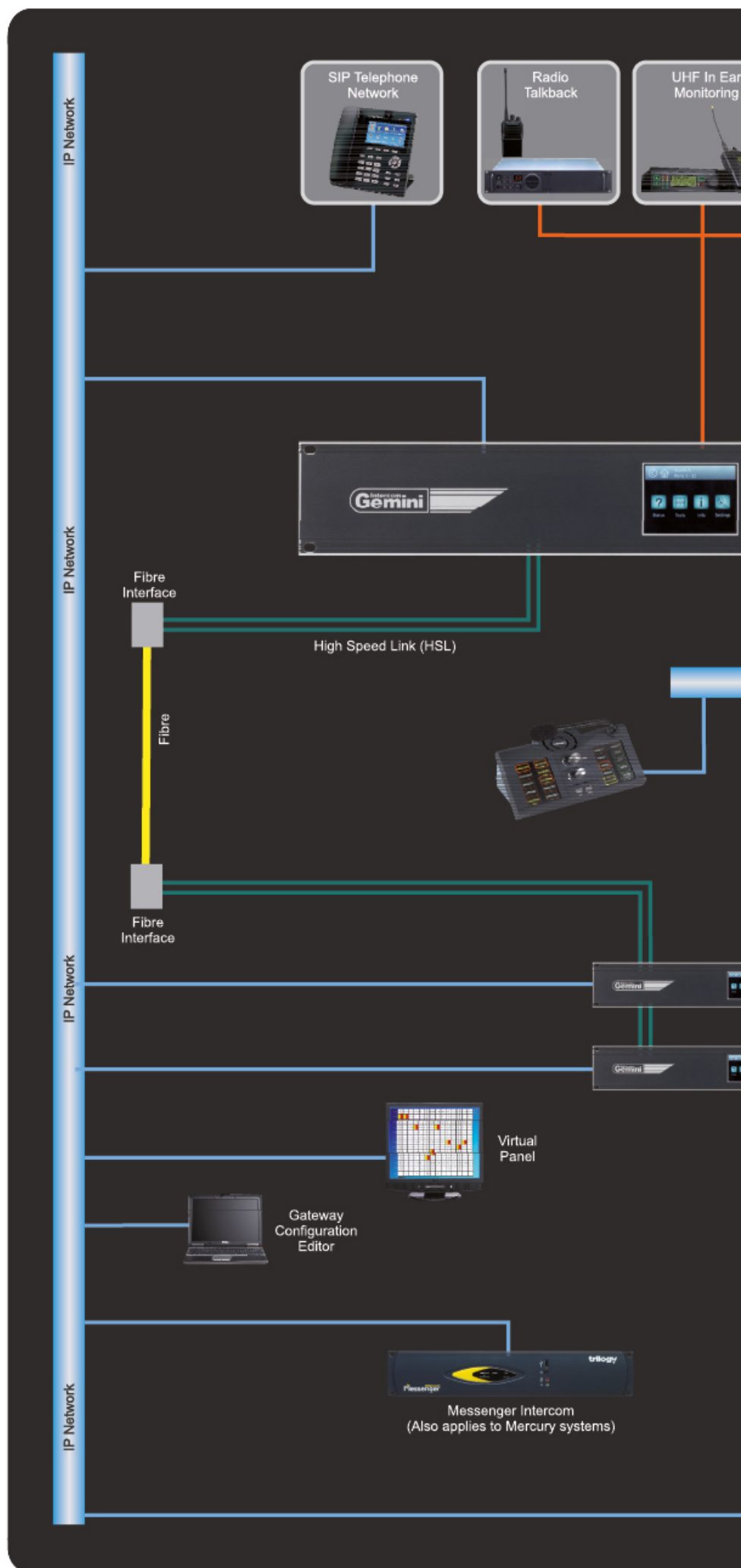
Session Initiation Protocol (SIP)

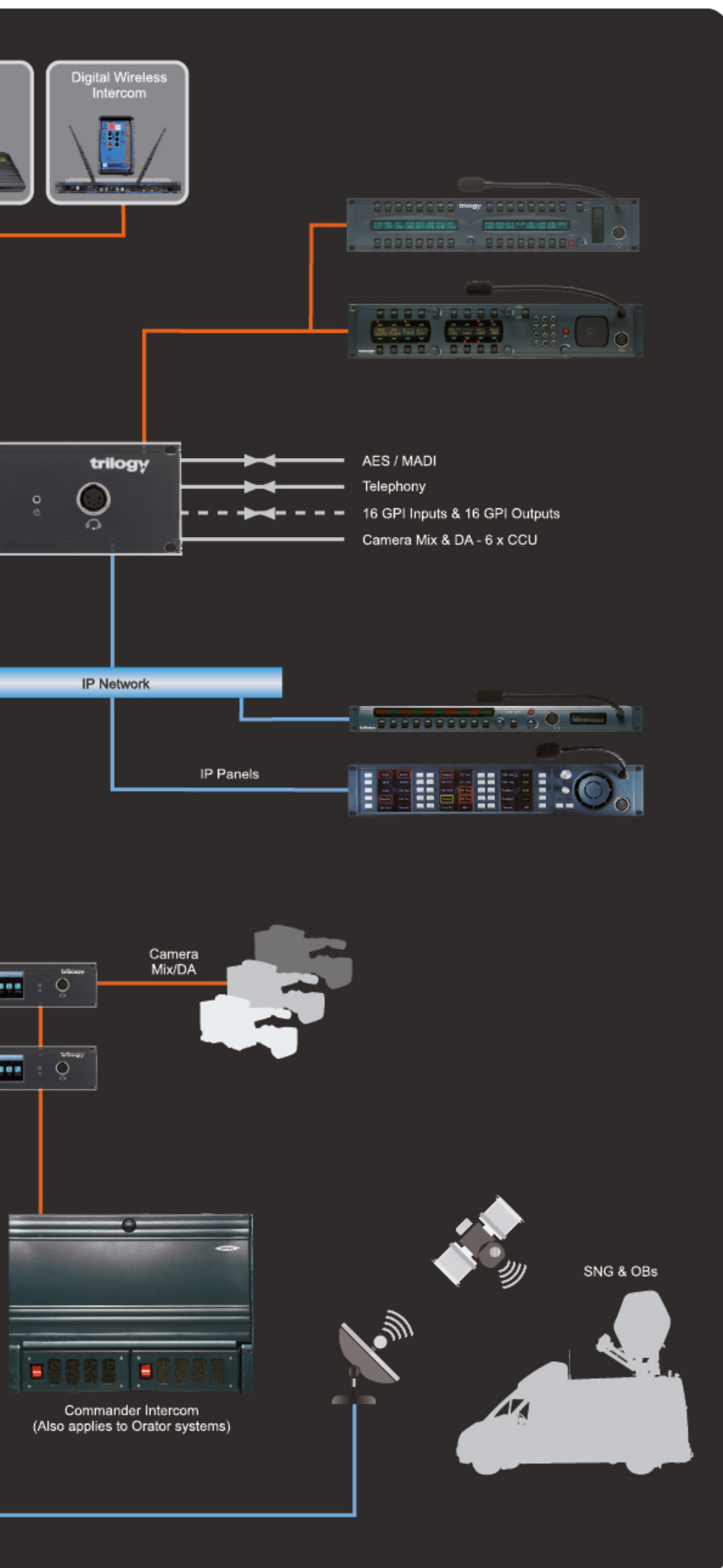
SIP is now established as the de-facto standard for VoIP telephony and it has also been adopted by the European Broadcast Union (EBU) and many audio CODEC suppliers as the preferred method for connection of intercom audio.

Not only does this simplify interfacing to other IP based systems and devices, for example, VoIP phone systems, smart phones and tablets it also offers a previously unachievable means to establish intelligent communication between disparate intercom suppliers.

Virtual Panel

Blending the powerful feature set of Trilogy's Virtual Panel with SIP connectivity, Intercom Anywhere further enhances the scope for operators to become fully integrated using a tablet or smart phone, and select a complete panel configuration in seconds, wherever they are.





Gateway Configuration Editor

The system configuration is performed using Trilogy's Gateway software which provides unrestricted ability for users to build, modify and save multiple databases to suit any operational requirement. Gateway allows users to configure all system parameters, whether it is just a change to key assignments, audio level adjustment, or extensive re-configuration of an entire network.

The intuitive graphical interface allows selection of simple and advanced modes to suit the user's needs and capabilities. The advanced mode allows full control over all system parameters, such as audio settings and IP addresses, while for day to day tasks, the user can select a simplified view for fast assignment of IFBs, panel keys, user labels, audio routing, GPIs and conferences.

Gateway Key Features

- Offline or Online (Live) updates for real time changes
- Multiple user access with password protection
- Drag and drop operations for fast assignment and ease of use
- Matrix configuration upload and download
- Graphical panel representation
- Extensive system status monitoring and generation of time stamped log files



Gateway's Access Management facility supports multiple administrators, with defined roles and selective control over individual Gemini matrices or the entire communication network. System administration has also been taken to a new level by the introduction of a browser based utility for remote access to all engineering and maintenance functions.

Gemini may be simply integrated with 3rd party software management systems, enabling these to control audio routing and panel assignments via a comprehensive and flexible API.

Gemini Control Panel Options

With choices including dual action lever key, and innovative Touchscreen technology, Trilogy's control panels are manufactured to demanding standards and assure reliability, flexibility of operation and ease of use. The extensive range of lever key functions offer 'latch/non-latch' or 'listen/speak' modes, enabling users to select their preferred method for communicating with other control panels, portable devices and audio systems.

Panels are compatible with the entire range of Trilogy Intercom systems and may also be used in any combination or configured as expansion panels increasing the total number of keys available for high traffic applications.

Up to 4 'shift' pages can be configured, and key functions can be quickly re-assigned using the panel's intuitive menu system and rotary encoder, which also serves to adjust individual audio levels.



Touchscreen Panels

The rack-mount and desktop Touchscreen panels both offer a powerful feature set with intuitive operation similar to that of smart phones and tablets. The enhanced features and capabilities found in these panels are simply not possible with conventional switch and display technology and include:

- Sophisticated menus for personalising panel audio and control parameters
- 8 character colour displays
- Pop-up telephone dial pad
- Colour coded key functions for listen/speak
- Individual audio level adjustment with in-built displays
- Signal presence and incoming call signalling
- Audio replay facility with adjustable time window

IP Enabled Panels

Selected panels are also equipped with an IP interface that permits connection to a Gemini matrix over any standard LAN or WAN, and allows authorised selection of the panel's desired 'identity' in the system, enabling users to change location while preserving all panel settings.

Virtual Panels

Where it may be more appropriate to provide an operator with a 'soft' panel facility, Trilogy has developed a range of PC and tablet options. Although primarily used as intercom workstations, the powerful Virtual and Patch panel applications are particularly useful for performing a host of routing functions for Telephony, IFBs, Groups and Conferences.



Portable and Mobile Communications



In most Broadcast and TV Production facilities, portable communication devices are needed to enable production staff to work freely throughout studio areas or OB venues. In order to provide a turnkey communication package, Trilogy can supply portable equipment to deliver the solution best suited to each application. Our independence gives us the freedom to select and integrate a wide range of wireless solutions and technologies.

Although many “mobile operators” prefer the freedom of wireless, there are still situations and environments where simple wired beltpacks suit specific requirements in terms of functionality, ease of use and cost. Operators on Party Line (2 wire) systems typically share a limited number of channels, while in 4 wire systems, each beltpack has a separate matrix connection, allowing private communication but also ‘conferencing’ set-up within a Gemini system.

Licence Free Wireless for Studio Applications

A license-free (DECT) wireless beltpack system is typically recommended for Floor Managers and other studio personnel, due to its simple installation and operation. Both single and dual channel beltpacks are available and the base stations can also act as host for 2 wire beltpack equipment, enabling Gemini to be seamlessly and flexibly integrated with all 2 wire and wireless users.



UHF In Ear Monitoring (IEM) for Presenters

We offer best of breed IEM systems that include both 4 and 20 selectable channel base stations and portable receivers, with several frequency range/channel options. They all have dual audio capability and are supplied with appropriate acoustic tube earpieces. Gemini then provides the IFB functionality to feed the selected audio to each user, with either dim or cut as preferred.



Semi-Duplex UHF Wireless

Where greater distances are required to provide full coverage in larger Outside Broadcast (OB) applications, large entertainment venues and many sports events, a variety of UHF semi-duplex beltpack systems can be supplied, together with a full range of wireless support equipment.



Operating in the 440–470 MHz band, with 1 or 5 watt RF power output and 16 selectable channels, the extremely rugged portable units provide semi-duplex communication, and boast an exceptional battery life of over 11 hours of uninterrupted operation.

Base stations are full duplex, support single or dual antenna operation and can provide up to 25 watt RF power. In addition to its connection to a Gemini matrix, the base station's front panel also incorporates channel select and audio interfaces for communication directly with all portable units.

Typically, the UHF equipment is supplied with user specified frequencies, but with the optional programming software, both the base station and portables may be easily field configured to comply with local administrative regulations and to avoid interference with other wireless systems.

Any of these systems can be simply and quickly connected to Gemini and then configured for independent use or built into groups



Panel / 4 Wire Board – For 8 channels of analogue 4 wire audio inputs / outputs or control panels in any combination



IP Panel Interface – Each board allows up to 8 IP enabled control panels to be connected over a LAN or managed WAN, and for panels to dynamically select their identity from a list of available system ports



AES / MADI Board – Provides input and output interfacing for both AES and MADI formats and allows flexible assignment of individual stereo pairs or mono mixes from either format to 8 matrix ports



Telephone Interface Board – For 4 telephone lines, with phone loop-through, auto-answer, audio level adjustment and acoustic / line echo cancellation

12 Channel Mixer / DA - Typically used for Camera intercom

Plug-in Power Supply with optional redundant unit for maximum resilience



Dual High Speed Link (HSL) – Connectors for redundant digital audio ring connection to other Gemini matrices over copper or fibre (Using optional external adaptor)

Fault Loop – A simple contact loop for remote alarm on any power supply or fan failure

Aux – Provides a source of +/- 12V DC for powering external devices such as belt packs

LAN – For connection with the database server, configuration PCs and other Trilogy intercom systems, in addition to carrying voice traffic between Gemini matrices and other IP enabled communication systems

GPI – Provides 16 closure to ground inputs and 16 opto-isolated outputs as standard. Inputs may be configured to initiate audio routing functions or to integrate with other 'logic' conditions. Outputs may be enabled directly from audio route activity or other switched functions

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