Jacques 650 Series Voice Communication System uses Voice-over-IP (VoIP), leading edge technology to create a fully digital, professional networked intercommunications and Public Address System.
The Jacques 650 Series Voice Communication System uses Voice-over-IP (VoIP), technology to create a fully digital networked intercommunications and Public Address System. This multifunctional system integrates a number of subsystems which include:

- Professional Intercom
- Multi-zone Public Address
- Digital message store
- Music distribution
- Information and Entertainment
- Emergency Help Points

The Jacques 650 Series VoIP System is easily configurable to suit a variety of applications such as:

**Secure Facilities**
Prisons, police stations, courthouses, detention centres and defence installations.

The system is designed for integration with security and building management systems, access control and CCTV systems.

Specialised call handling for Secure Environments allows staff complete control over communications with slave intercom stations. Hierarchical call handling centralises responsibility for easy response to calls.

**Commercial Buildings**
Shopping centres, office buildings, Universities, malls, car parks, vehicle entry, fire stairs, airports and more.

In addition to standard intercom features, the VoIP system provides emergency help points designed for public safety, integrated multi-zone public address with Emergency Warning and Intercommunication System (EWIS) support and distribution of digital background music.

**Transport Industry**
Fixed infrastructure and onboard solutions for rail, bus, shipping, highway help phones, tunnels, and long line public address (LLPA) applications.

Passenger information and entertainment is provided in one single convenient system, therefore reducing costs and cabling requirements significantly.

**SYSTEM FEATURES**

**Fully digital, Voice-over-IP technology**
This system is based on Ethernet network standards and TCP/IP protocols, whilst using commercially available network equipment and infrastructure.

**Expandable and flexible system architecture**
The 650-Series allows virtually an unlimited number of intercom stations and Public Address zones to be connected in a fully integrated system.

**Crystal clear voice communications**
Wide voice bandwidth digital audio, with low distortion provides high intelligibility which is essential for public safety and security applications.

**Reduced cabling and installation costs**
No special cabling or terminations are required. Uses standard Ethernet and operates over copper, fibre or wireless. The system easily integrates with structured cabling systems or existing data networks.

**Flexible Call Handling**
- Rule based call permissions are configurable for all intercom stations.
- Priority queuing of calls based on risk assessment and site procedures.
- Intercom system topology can be structured as a mix of hierarchical or peer to peer configuration.
- All call activity and system events are recorded to an event log database for call accounting, incident reports, or fault diagnosis. System fault and alarms are distributed to operators in real-time.

**Public Address**
- The 650 Public Address Controllers interface directly to standard commercially available PA amplifiers and sound reinforcement equipment.
- PABX interface module allows phone extensions to access the public address system.

**Robust, weatherproof and vandal resistant Intercom & Help Point Stations**
Years of experience in designing and developing equipment for the High Security Industry has honed our expertise in creating products that are ideally suited for installation in extreme environments.

**Powered Ethernet Support**
Data and power are provided over a single 4 pair CAT-5/CAT-6 data cable to Jacques 650 Series equipment.

- Enhanced Public Address features with JAG-S1 Audio Gateway (refer to LLPA brochure for further information)
- Emergency Warning & Intercommunication System (EWIS) eight (8) zone module, compliant with AZ2220. Modules can be linked to provide virtually an unlimited number of zones. (also available standalone)
- Automatic Level Control (ALC) with ambient noise monitoring and 24-hour time schedule

**SYSTEM FEATURES**

Jacques design and develop all software and hardware in Australia, enabling Jacques to offer as an option, custom solutions for special project requirements.

www.jacques.com.au
System Integration

- High Level Interface (HLI) to third-party systems is available as a software developer kit.
- Fully supported by leading building and security management systems (BMS, SMS).
- Relay modules are available on intercom slave stations as an option to activate external equipment such as door or boom gate controllers, or to signal CCTV camera presets.
- Designed for low or high level integration with CCTV systems (intercom activated video).
- Audio outputs are available for recording of intercom conversations on external digital video recorders or digital voice loggers.
- Time can be synchronised with external systems using GPS (NMEA) or NTP.

Standard TCP/IP and Ethernet Networking

- All Jacques Intercom and Help Point stations fully support VoIP and can connect to any point on a TCP/IP network.
- Quality of Service (QoS) support for reliable digital voice communications.
- Multicast audio transmission for efficient distribution of auxiliary channels and calls to groups of Intercom stations and PA controllers.

Intercom Stations

Master Stations

- PC master station software application for Microsoft Windows provides a user-friendly graphical user interface to control all intercom functions through a keyboard, mouse or touchscreen.
- Console master stations provide operators with user-friendly menu and key functions and a multi-line alphanumeric display. All calls to or from master stations are identified by name as well as a unique tag number.

Slave Stations

- Intercom slave stations have simple single button operation and call only to pre-defined master stations. Operation is hands-free once the call is established.
- Intercom slave stations are available in a wide variety of sizes, styles and finishes. Suitable for mounting in building entrances, on bollards, both internal and external locations.
- All intercom stations are microprocessor controlled, and perform continuous integrity, tamper and diagnostic tests.
- Intercom Station Options – Intercom stations can receive up to 16 auxiliary channels of streamed audio from sources such as AM/FM radio tuners.
## System Capacity

<table>
<thead>
<tr>
<th>Feature</th>
<th>Unlimited *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercom Stations</td>
<td></td>
</tr>
<tr>
<td>Master Levels (Hierarchical Structure)</td>
<td></td>
</tr>
<tr>
<td>Stored Announcements</td>
<td></td>
</tr>
<tr>
<td>Call queue size</td>
<td></td>
</tr>
<tr>
<td>Groups</td>
<td>Unlimited *</td>
</tr>
<tr>
<td>Public Address Zones</td>
<td>Unlimited *</td>
</tr>
<tr>
<td>Simultaneous conversations</td>
<td>Unlimited *</td>
</tr>
<tr>
<td>Auxiliary channels</td>
<td>16</td>
</tr>
</tbody>
</table>

* Dependant on server configuration and network bandwidth.

## Audio Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Response</td>
<td>200 Hz – 7 kHz +/- 3 dB</td>
</tr>
<tr>
<td>Transmission Format</td>
<td>Real-time Transport Protocol (RTP) streaming</td>
</tr>
<tr>
<td>Digital audio format – Voice</td>
<td>A-law compressed PCM 16 kHz sampling rate</td>
</tr>
<tr>
<td>Digital audio format – Aux. playback</td>
<td>MPEG Layer 3 (MP3), typical encoding: 128kbps stereo 44.1 kHz</td>
</tr>
<tr>
<td>Audio Streaming Bandwidth</td>
<td>128kbps one way (256 kbps for full duplex)</td>
</tr>
</tbody>
</table>

## Call Handling

<table>
<thead>
<tr>
<th>Topologies</th>
<th>Intercom / Hierarchical, PABX / Peer, Public Address / Zoned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priorities</td>
<td>256 priority levels.</td>
</tr>
</tbody>
</table>

### Call Features

- **Basic**
  - Auto-Answer
  - Hold
  - Forward
  - Diversion
  - Directory
  - Group call
  - Caller ID
  - Bridged call appearance

- **Specialised**
  - Isolate nuisance callers
  - Covert monitor
  - Dynamic group call
  - Stored announcements
  - Master call
  - Remote mode
  - Priority queuing
  - Selective answer of calls waiting

## Network

- **Addressing**
  - TCP/IP, static or dynamic (DHCP)

- **Interface Media**
  - IEEE 802.3 10/100Mbit Ethernet

- **Standards**
  - IEEE802.1P LAN Layer 2 prioritisation.
  - RTP - Real-time Transport Protocol (RFC3550/3551)
  - DTMF - RTP payload for DTMF digits (RFC2833)
  - DiffServ - Differentiated Services (RFC2474/2475)
  - SNMP - Simple Network Management Protocol (v2; RFC1901)
  - IGMP - Internet Group Management Protocol (v2; RFC2236)
  - DHCP - Dynamic Host Configuration Protocol (RFC1531)
  - RTP - Real-time Transport Protocol (RFC3550/3551)
  - TOS - IPv4 Type of Service (RFC791)
  - Multicast - IPv4 Multicasting (RFC1112)
  - NTP - Network Time Protocol (RFC1305)
  - DTMF - RTP payload for DTMF digits (RFC2833)
  - Multicast - IPv4 Multicasting (RFC1112)
  - Diffserv - Differentiated Services (RFC2474/2475)
  - Diffserv - Differentiated Services (RFC2474/2475)
  - NTP - Network Time Protocol (RFC1305)

## Cabling

- **Power Input / Ethernet**
  - 4 pair screened CAT-5/5e/6, multi-strand, 100m
- **Max. cable length to intercom station**
  - 100m (Jacques Cable Extender Module JCE-8B1 can provide extended distances)

## Software Components

- **Intercom Activity Report Server**
  - Web browser access to event log database reporting.
- **Audio Recorder Interface**
  - Capture intercom call audio for recording on external voice logger or DVR.
- **Voice Annunciator**
  - Digital message store with playback and recording of announcements.
- **Audio Streaming server**
  - Up to 16 channels of auxiliary audio in MP3 format from live or pre-encoded sources.
- **Event Controller**
  - Configurable interfaces to third party systems, Modbus/TCP, relay outputs or RS232/RS485.
- **HTML client**
  - Graphical master station with highly customisable user interface in standard HTML.

## System Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacques TCH servers</td>
<td>run embedded Linux and are optioned for Redhat enterprise Linux certified third party hardware vendors</td>
</tr>
<tr>
<td>TCH-1</td>
<td>1 RU rack mount system server for industrial environments.</td>
</tr>
<tr>
<td>TCH-4</td>
<td>4 RU rack mount system server</td>
</tr>
<tr>
<td>JPP-12 / JPP-24 / PaEA-6 / PaEA-1</td>
<td>Power-over-Ethernet adaptors: 12 &amp; 24 port 2RU rack mount / 6 port / single port.</td>
</tr>
<tr>
<td>IPM-650 / IPM-650H</td>
<td>Intercom master station, desk mount, flush mount option (handset option)</td>
</tr>
<tr>
<td>IPM-650PA</td>
<td>Multi-zone paging console</td>
</tr>
<tr>
<td>PCIP-650</td>
<td>Master station for Microsoft Windows 2000/XP, touchscreen option.</td>
</tr>
<tr>
<td>VSL / HSL Series</td>
<td>Slave stations; contact Jacques for further information on range.</td>
</tr>
<tr>
<td>SMI-3B1</td>
<td>Speaker/Microphone Interface; panel mount gooseneck microphone.</td>
</tr>
<tr>
<td>LIS-3B1</td>
<td>Lift Intercom Station – lift shaft, long cable run slave</td>
</tr>
<tr>
<td>HPU-5E2 / HPU-5E2-i</td>
<td>Help Point Unit, high visibility for public safety. IP65 option</td>
</tr>
<tr>
<td>JCE-8B1</td>
<td>Jacques Cable Extender Module (up to 2 kms)</td>
</tr>
<tr>
<td>UAI-3B1</td>
<td>Universal Audio Interface: radio interface/PA controller/relay controller/streaming audio controller</td>
</tr>
<tr>
<td>EU-3B1</td>
<td>Exchange Line Interface: enables connection to PSTN/PABX line</td>
</tr>
<tr>
<td>PCU-1</td>
<td>Passenger Control Unit, seat arm rest mount</td>
</tr>
<tr>
<td>JAG-S1</td>
<td>Jacques Audio Gateway</td>
</tr>
<tr>
<td>JELM-1</td>
<td>Jacques EWIS/Line Monitor (requires JAG-S1, or standalone)</td>
</tr>
<tr>
<td>ANM-1</td>
<td>Ambient Noise Monitor (requires JAG-S1)</td>
</tr>
</tbody>
</table>

Due to our policy of continuous improvement, all specifications are subject to change without notice.

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