HEALTH SYSTEM BROCHURE

**Reliable & integrated communication, always**

JACQUES

Healthcare communication: Always available

In the healthcare sector, dependable communication is critical. The ability to communicate effectively among staff, patients, and various departments is crucial for fostering a safe environment conducive to recovery, work, and familial visits. Jacques' communication system featuring intercom, help point units & public address for hospitals, aged care facilities, and laboratories, features multiple fit-for-purpose communication devices & unrivalled integration to building, security & CCTV systems for an integrated, efficient approach to security & communication.

The solution

The Jacques IP Communication System includes audio & video intercom, help point units and multi-zone public address systems, facilitating multi-layered communication in & across hospitals. The system offers advanced & security-rich features including CCTV camera associations with intercom terminals, entry/exit access control, redundant server set-up for ultimate reliability plus site-specific configuration and use-case call routing. The healthcare communication system easily facilitates calling between carpark help point units and security control, in-theatre cleanroom intercom calling to outside theatres and ward entrance video calling with access control to nurse stations & zone public address announcements simultaneously & within the one system.

Watch Healthcare - Meet Alan video

Meet ▶ Alan
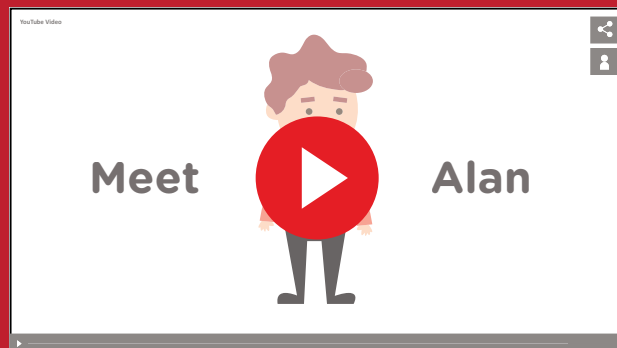
vimeo.com/435994721

NEVER DOWN: System redundancy ensures continual, uncompromised communication. Our redundancy solution dramatically reduces the risk of system failure, specifically for communication-critical environments such as HOSPITALS

IP COMMUNICATION SYSTEM

One system, endless possibilities

The Jacques IP Communication System (650 Series) is built tough for critical, security communication in the healthcare market, yet flexible and scalable to suit any market requirement where communication is vital. Featuring audio and video intercom, public address and help point units, communication with an individual or the masses is effortless. With the scope to achieve systems with an unlimited number of endpoints, and with virtually unlimited configuration options; the possibilities are endless.

Core system features

Central and control monitoring

Specialised call handling to and from multiple locations via hierarchical and/or peer to peer predefined call routing structures.

Diagnostics and reporting

Systemwide, continuous device diagnostics and reporting including call button testing, acoustic performance, tamper detection, and data communication reliability.

Audio recording

Redundant integrated call audio recording at a central location. Unlimited number of channels available for audio recording.

Full duplex

Full duplex audio communication with advanced audio capabilities ensuring a clear, two-way communication.

Digital Signal Processor

The use of a digital signal processor allows total user control of the PA system. Users have the flexibility to broadcast background music to any number of selected PA zones, while making an audio announcement to other individual or selected zones simultaneously. Multiple simultaneous streams of background music can be distributed throughout the system at each zone.

Unlimited Multi Zone

Features dynamic grouping of PA zones, with no limit on the number of groups or the number of zones within a group ensuring complete system scalability.

CCTV Associations

The Jacques communications system can be configured so that when a call is placed from an intercom a CCTV camera can point to the intercom where the call was made so that the audio and video can be monitored.

Advanced system features

Acoustic echo cancellation (AEC)

An acoustic echo cancellation (AEC) engine when used in full duplex mode - significantly reduces unwanted interference from acoustic reflections and feedback - ensuring clarity of audio.

Threshold monitoring

The system provides threshold monitoring whereby a call is automatically connected or an alarm notification is activated, should a predetermined ambient noise level be exceeded at any configured intercom endpoint.

Call prioritisation

Priority queuing of calls allows the system to identify and prioritise calls from predetermined important, high risk or danger areas ensuring communication lines from caller to master station are handled with precedence. 256 call priority levels are available.

Automate intercom button test

The Jacques Self-Test Button (STB) – a call button that allows for remote testing of the push button mechanism, acoustics and data communications whereby diagnostic tests are logged and recorded on the system controller. Any tests reporting a test fail triggers an alarm within the system.

Reporting and logging

Jacques systems provide complete event logging of all call activity and fault conditions for incident reporting or maintenance. The results from intercom self-acoustic testing of the speaker and microphone are recorded. The reporting of tamper alarms, activated if an intercom device has been damaged, pulled from the wall or impacted upon allows for a timely response from the maintenance team.

Configurable event triggers

The system can be configured to allow for the triggering of events in conjunction with an action performed in the intercom/help point unit/public address system. Event triggers include (but are not limited to) CCTV switching, light on/off switching, door/gate/boom gate release, pre-recorded message announcements, SMS or email notifications, night switching (call diversion relating to hierarchy, based on time of day), and bell or warning alarm scheduling.

System diagram
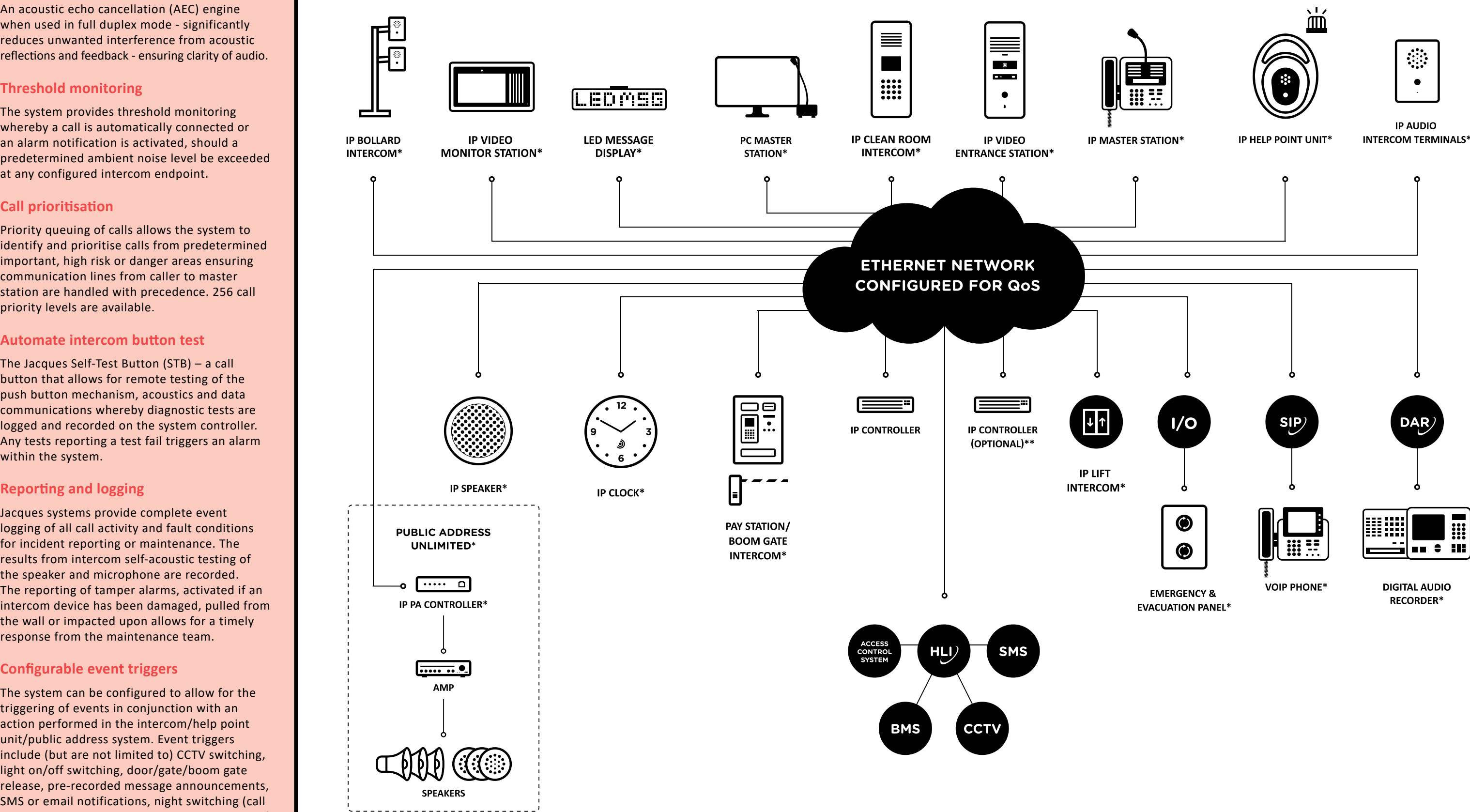
*Virtually unlimited. Dependent on server configuration and network bandwidth **Multiple controllers available for redundancy or distributed options

SIP interface

Jacques SIP software module allows for integration of the Jacques communication system with compatible digital telephony systems such as Avaya IP Office 500, Cisco Call manager, Asterisk and others. The SIP trunk allows for an unlimited number of concurrent calls between the phone system and the Jacques system. SIP gateway ensures calls are always answered, even after hours, by transferring calls to an external telephone system.
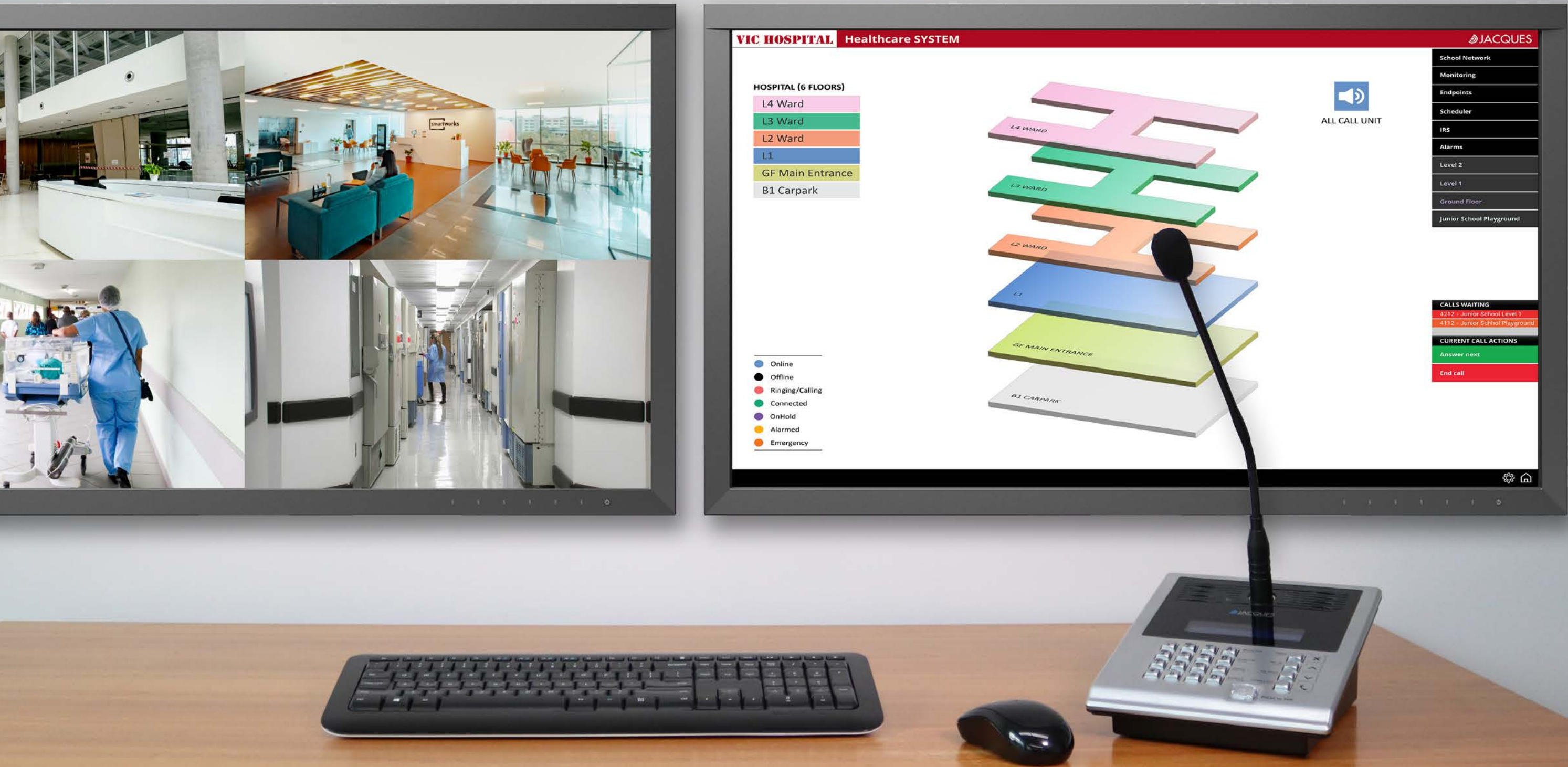
Logging and reporting

The Intercom Report Server (IRS) software module is instrumental in the detailed and accurate logging and reporting of live system activities including system operation, network management via traffic monitoring, alarms, and device state. The IRS is accessed via a web interface and provides a dynamic view of live events to monitor the system in real time while automatic or scheduled report generation and document creation ensure simplified information dissemination.

Report detail can be configured by four defined filters depending on reporting requirements:

DEFAULT Creates reports containing tag, status (online or offline), resets, number of answered/held/connected calls, failed calls, total ringing/calling/connected time and elapsed triggered alarm duration

CALL ACTIVITY Creates reports containing tag, call timestamp, intercom descriptors, and call handling information

FAULTS Creates reports containing tag, fault timestamp, and fault description

SYSTEM DIAGNOSTIC FUNCTIONALITY (SDF) Creates reports containing tag, acoustic test, status test, and button test information

MASTER/INTERCOM USAGE Create reports & graphs based on endpoint usage to optimize workflows

High level interface (HLI)

Jacques boasts a number of HLI to industry leading third party systems, enabling our systems to integrate with numerous access control, CCTV, security and building management systems. Integration allows full intercom master functionality to the client applications which includes receiving endpoint status changes.

Features

INTERCOM FUNCTIONS Make/receive calls, terminate, forward, call hold, music streaming control

PA FUNCTIONS Select PA zones for broadcast, group calling, push-to-talk for intercom and PA system

RELAYS & EVENTS Trigger alarms, events, activate CCTV, door/gate relay

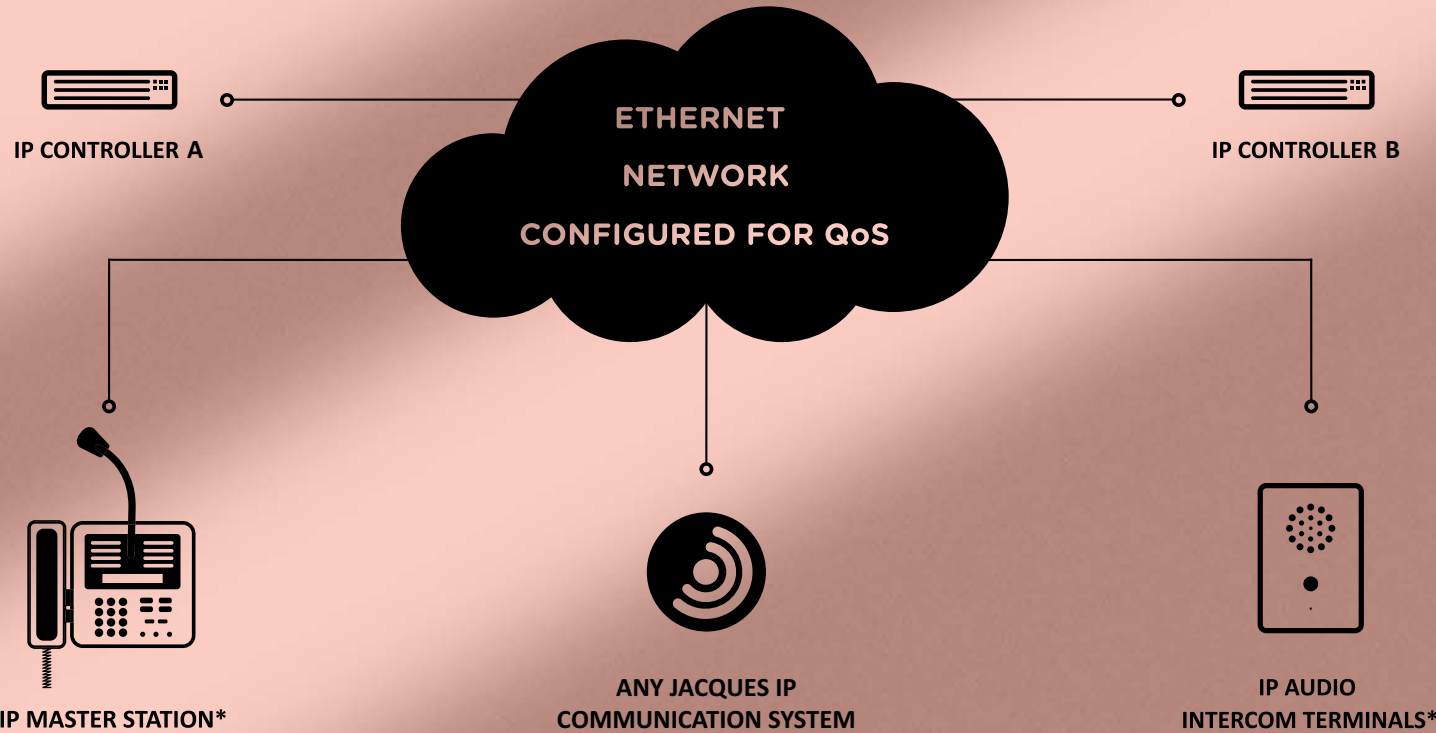**DIAGNOSTICS AND REPORTING** Event logging, monitor endpoint status (online/offline/alarm)

GRAPHICAL MAPS Display Jacques intercoms on maps, display of intercom based on status, control of intercoms

ALARM MANAGEMENT Automatic intercom control

RECORDING Records third party CCTV in conjunction with intercom audio

Redundant controllers

System redundancy can be achieved in several ways, with both virtual and hardware-based system controllers operating as a pair. High availability configuration eliminates single points of system failure and ensures that no current call or queued call is lost during failover, guaranteeing system robustness and the continued reliability.

IP CONTROLLER A

ETHERNET
NETWORK
CONFIGURED FOR QoS

IP CONTROLLER B

IP MASTER STATION*

ANY JACQUES IP
COMMUNICATION SYSTEM

IP AUDIO
INTERCOM TERMINALS*

IndigoVision

GALLAGHER

avigilon

milestone

GEUTEBRÜCK

Luxriot

PELCO

Jacques
quality care

Hospitals

Hospitals, as vast complexes with hundreds of employees and serving thousands of patients and visitors across various departments, present unique challenges for effective communication. The Jacques IP Communications System addresses these challenges by seamlessly connecting each department – from car parks to admissions, emergency to theatres, and patient care – through a comprehensive array of audio and video intercoms, clean room intercoms, public address systems, and third-party CCTV integration. This expansive and multi-zoned system can be centrally managed from one or multiple control locations, ensuring that visitors, patients, and staff can easily access assistance and support with the simple push of a button, promoting safety and convenience throughout the facility.

Theatre communication

Operating theatre staff require access to communication, in often, time critical situations. The Jacques Clean Room Intercom terminal has been purposefully engineered to provide simplified, hands-free calling from within these sterile environments ensuring doctors & nurses can contact additional healthcare professionals if & when required. The Clean Room Intercom features a completely smooth front panel with an antimicrobial membrane which inhibits the growth of bacteria while allowing for easy cleaning.

Laboratories

Laboratories play a critical role in the healthcare sector, providing vital information and test results essential for accurate patient care. Our comprehensive communication solution enhances laboratory security and efficiency by seamlessly integrating intercom, PA, and CCTV systems.

Staff access to laboratories is carefully managed through our system, which allows entry via PIN authentication or remote door activation after ID verification captured by the entrance station camera. This advanced security protocol ensures that laboratory work remains uncompromised, safeguarding the integrity of patient information and test results.

Aged care

With many countries facing an aging population, the demand for Aged Care facilities has surged in recent years. To enhance the level of service provided, these facilities can benefit greatly from implementing an effective communication solution, ensuring the safety and peace of mind of both the elderly residents and their caregivers.

Installing user-friendly intercoms in easily accessible locations enables residents to feel secure, knowing they can reliably communicate with their carer's, security personnel, or emergency services as needed. This communication is available around the clock, with calls seamlessly directed to a central location onsite or to remote facilities.

The Jacques system goes beyond traditional intercom solutions by integrating with leading CCTV, access control, telephony, and building/ security management systems. This comprehensive integration extends to bollard and boom gate intercoms, as well as car park Help Point Units, connecting directly to a central security control hub. This connectivity ensures that residents and staff alike can receive prompt help, assistance, and advice whenever necessary.

Accessibility

In healthcare settings, ensuring accessibility to audible, visual, and mobility features within intercom and public address systems is paramount. Compliance with the Disability Discrimination Act 1992 (DDA) mandates equal access for all individuals, regardless of disability. Jacques integrated communication solutions prioritize inclusivity, offering products designed to accommodate diverse needs. Across various sectors, including healthcare, accessibility enhances safety, security, and customer confidence. Jacques' solutions cater to those with mobility, auditory, or visual impairments, ensuring everyone can easily access assistance. Customisation options, from visual signage to product adaptations to engineering services relating to induction loop amplifier inclusions guarantee a comprehensive and tailored communication solution. With Jacques, healthcare precincts and hospitals uphold accessibility standards, fostering a supportive and inclusive environment for all.
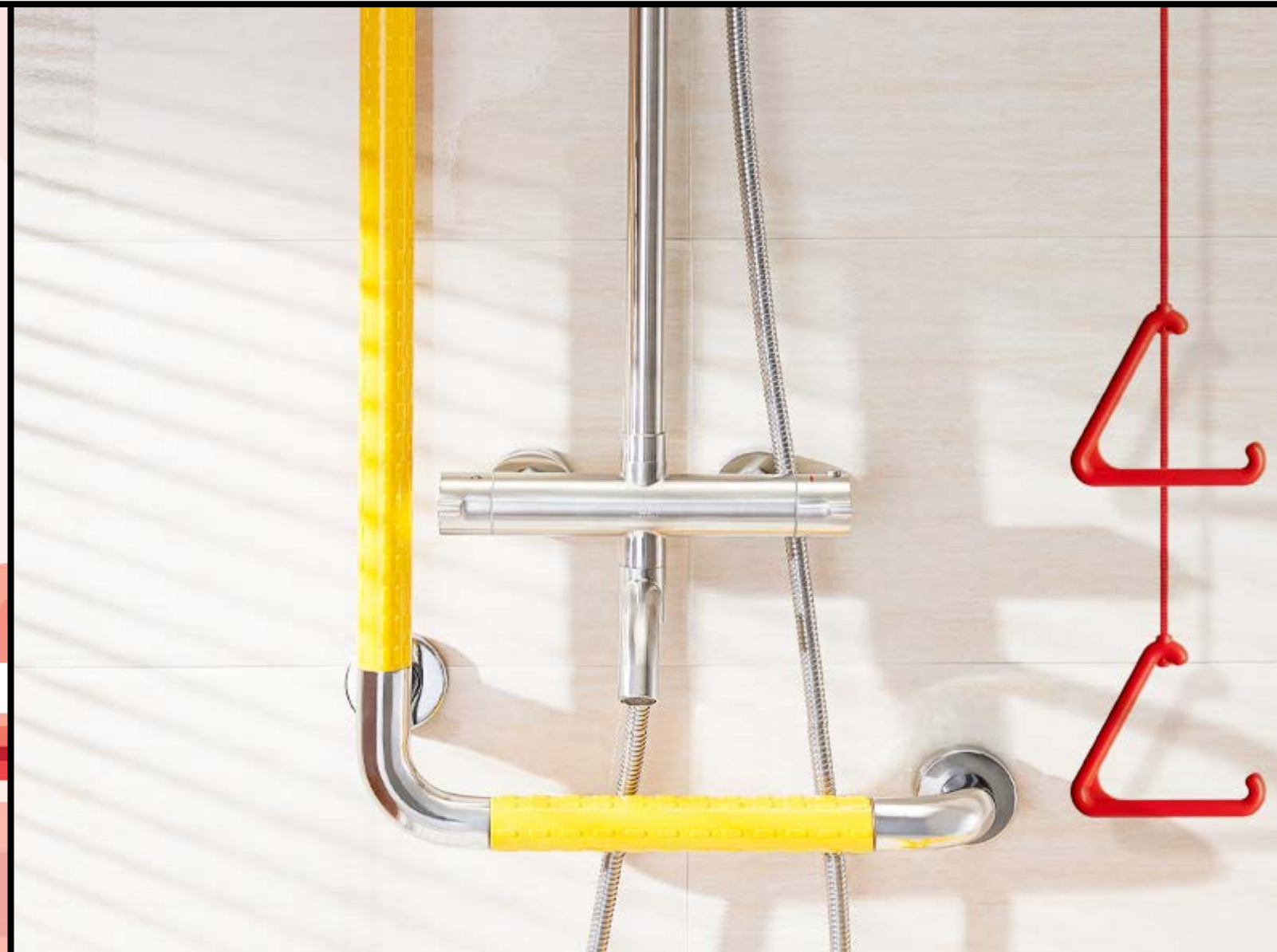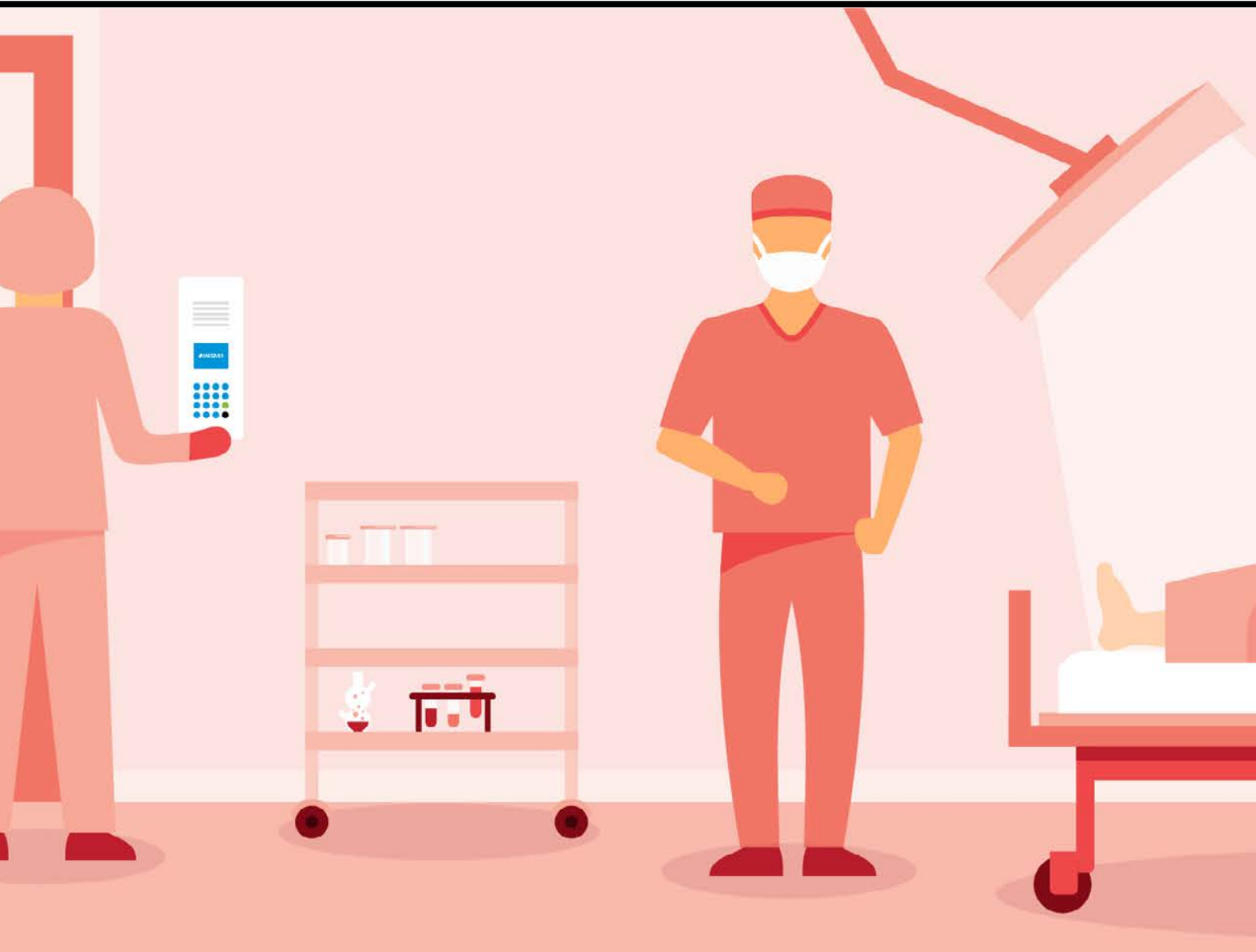
Healthcare projects

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Fiona Stanley Hospital

Jacques is proud to have contributed to one of Western Australia's most significant infrastructure projects, the Fiona Stanley Hospital. This premier tertiary healthcare facility, located in Perth's south metropolitan area, has become a cornerstone of the region's healthcare landscape. With a robust capacity of 783 beds, the hospital provides comprehensive acute patient care around the clock. Renowned not only for its medical services but also for its sophisticated architectural design and advanced security communication systems, Fiona Stanley Hospital stands as a beacon of excellence in healthcare delivery and medical research.

Jacques has seamlessly integrated 350 intercom touchpoints throughout the hospital, encompassing cutting-edge video intercoms, help point units, and lift intercom modules. Through close collaboration with Fiona Stanley Hospital, our dedicated team has ensured steady progress and meticulous on-site supervision. This project inspired us to innovate and tailor our products to meet the hospital's specific requirements. One notable advancement was the integration of third-party CCTV camera footage into Jacques IP video monitor stations, a feature that has garnered attention across various sectors and solidified Jacques' position as a leader in integrated communication systems for security, transportation, public safety, and commercial applications.

Our engagement with Fiona Stanley Hospital extends beyond a mere project; it serves as a source of inspiration. It has driven us to pursue new product innovations and forge lasting business relationships. As pioneers in IP Communication systems, our collaboration with this esteemed institution underscores our dedication to advancing the latest developments in science, technology, and medicine.

National Heart Centre, Singapore

The Singapore National Heart Centre stands as a testament to the global reach of the Jacques IP Communication System, with implementation overseen by our long-standing distributor, Ascendo, in Singapore.

As a non-profit healthcare institution, the centre plays a crucial role in treating over 100,000 patients annually, offering comprehensive cardiac services ranging from preventative care to rehabilitation. Given the dynamic environment with hundreds of staff and a steady flow of patients, a robust communication system is indispensable.

For this project, Jacques provided a tailored video intercom system with advanced event-triggered functions and seamless integration with access control systems. Approximately 10 video monitor stations (VMS-750) were strategically deployed in reception and ward areas, ensuring efficient communication. These stations were linked to around 15 video entrance stations (VES-741) situated across the hospital's entrances, some featuring access-controlled key entry to restricted areas. Through the missed caller snapshot feature, staff at the video monitor stations could access snapshots of attempted access by unauthorized individuals. Furthermore, the reporting software offered comprehensive insights into the live activities across the Jacques IP Communication System, ensuring accurate monitoring and management.

Wyong Hospital

With a recent $200 million redevelopment, Wyong Hospital, boasts state-of-the-art healthcare facilities & and an enhancing patient experience. The redevelopment saw a comprehensive IP communication system featuring IP video intercom, help point units, and a public address system installed. A key focus of the project was on communication system reliability, resulting in the deployment of a redundant server/headend solution.

The IP video intercom and help point units were strategically placed throughout the hospital including car parks to facilitate instant communication, streamlining response times during emergencies. This played a crucial role in bolstering security and enabling swift assistance in critical situations. The IP public address system was designed to broadcast important announcements, enhancing overall communication efficiency within the facility. As an IP system, future upgrades or expansions to the site are as simple as adding more endpoints or PA zones, ensuring longevity & future-proof of investment.

In line with a commitment to accessibility, special attention was given to the Emergency Department (ED) waiting and reception area. A dedicated effort was made to assist with the design and delivery of an induction loop system, ensuring that individuals with hearing impairments have equitable access to vital information. This integration not only aligns with inclusivity goals but also underscores the hospital's dedication to providing accessible healthcare services for all. The project stands as a testament to the successful implementation of advanced IP communication solutions with a focus on reliability, security, and accessibility.

Queensland Children's Hospital

The Queensland Children's Hospital has embraced cutting-edge communication technology to enhance the overall experience for patients and their families. A key feature of their approach is the implementation of an IP video intercom and help point unit system. Strategically positioned at ward entrances, the IP video intercom terminals streamline communication between parents and nursing staff, allowing video calls directly to the nurse station. This innovative setup not only fosters a sense of connection but also incorporates a door release mechanism, enabling secure access to areas like the recovery ward.

Moreover, Help Point Units and audio intercom terminals have been strategically deployed at elevator floors, corridors, and car parks to assist and guide visitors. This comprehensive system integration extends to CCTV and access control, fortifying security measures and providing immediate assistance when needed.

By seamlessly merging technology with healthcare infrastructure, Queensland Children's Hospital has created a model that prioritizes accessibility, security, and family-centered care. The IP video intercom and help point unit system exemplify a commitment to utilizing advanced solutions for the betterment of patient and family experiences within the hospital environment.

Sunshine Coast University Hospital

The Sunshine Coast University Hospital serves as a prominent case study showcasing the effectiveness of the Jacques IP Communications System. Collaborating closely with the system integrator and installer, we ensured the seamless integration of our intercom solution to meet the communication needs of patients, staff, and visitors.

Integral to the hospital's security management, the Inner Range's Infiniti System interfaces seamlessly with the Jacques system, providing security operators with comprehensive functional capabilities. The hospital's infrastructure includes two virtual servers with high availability features, ensuring uninterrupted system operation even in the event of server failure.

Throughout the hospital grounds, audio intercoms terminals are strategically installed in Security Information Bollards, offering quick assistance with the push of a button. Within the hospital, Jacques Video Monitor Stations communicate with Video Entrance Stations, facilitating controlled access to different areas. With a total of 360 Jacques intercoms deployed onsite, user feedback has been overwhelmingly positive, with staff commending the reliability and robustness of the Jacques system.

Project references

ACT Health	Mitchelton Ambulance Base
Adelaide Dental School	Monash Health
Alfred Hospital	Mount Druitt Hospital
Atherton Hospital	Nambucca Heads Health One
Auburn Hospital	Narrabri Hospital
Australian Red Cross Blood Bank	Narrabri Medical Centre
Ballarat Base Hospital	Narre Warren Hospital
Blacktown Hospital	National Heart Centre, SG
Bowraville Hospital	Nepean Hospital
Box Hill Hospital	New Maitland Hospital
Broken Hill Hospital	Nimbin Hospital
Byron Central Hospital	Northern Beaches Hospital
Cairns Base Hospital	Northern Hospital
Cairns Forensics & Exhibits Facility	Northern Private Hospital
Camden Haven Health One	Nuclear Medical Department
Campbelltown Hospital	Palmerston Hospital, NZ
Canberra Women's & Children's Hospital	Perth Children's Hospital
Casino and District Memorial Hospital	Port Macquarie Hospital
Centre for National Resilience	Port Stephens Health One
Coffs Harbour Hospital	Princess Alexandra Hospital
Crestwood Aged Day Care	QIMR SSMRC
Cumberland Hospital	Queensland Children's Hospital
Dalby Hospital	Redland Bay Hospital
Department of Mental Health	Royal Adelaide Hospital
Dubbo Hospital	Royal Brisbane Women's Hospital
Eastern Health	Royal Children's Hospitals (QLD, VIC)
Fairfield Hospital	Royal Darwin Hospital
Fiona Stanley Hospital	Royal Hobart Hospital
Forensic & Pathology Coroners Court	Royal Prince Alfred Hospital
Frankston Hospital	Sir Charles Gairdner Hospital
Goodna Community Health Centre	South Brisbane Clinical Trials
Gosford Hospital	SRACC Herston
Goulburn Valley Heath	St George Hospital
Grafton Ambulatory Care	St John of God Hospital
Grafton Base Hospital	Sunshine Coast University Hospital
Hillston Hospital	Sutherland Hospital
Hornsby Hospital	T.I Chronic Disease
Hurstville Medical Centre	Tamahere Hospital, NZ
Joint Health Command Duntroon	The Prince Charles Hospital
Kempsey District Hospital	The Prince of Wales Children's Hospital
Linear Advanced Cancer Trial Centre	Translation Research Institute
Lismore Hospital	Tweed Heads Hospital
Liverpool Hospital	Tweed Valley Hospital
Long Bay Forensic & Prison Hospital	University of Canberra Hospital
Macksville Hospital	Victoria Comprehensive Cancer Centre
Manning Base Hospital	Wantirna Aged Care
Mersey Hospital	Westmead Hospital
Miles Hospital	Wonthaggi Hospital
Minda Complex	Wyong Hospital

1 CONTROLLER & SOFTWARE

SYSTEM CONTROLLER MEDIUM

TCH-2MXH | 51660

- IP controller, up to 80 endpoints
- Available to administer most Jacques system software modules & interfaces
- Facilitates almost all core functions of the Jacques IP Communication System
- Supports high definition audio
- Fanless and low power consumption
- SATA hard drive

SYSTEM CONTROLLER LARGE

JSC-5L | 51814, JSC-5L-AEC | 51815

- IP controller, large, includes JCCP server software for intercom devices to make and receive calls, more than 80 endpoints supported
- Supports high definition audio
- SATA hard drive
- Segregated air-flow design for optimal unit cooling
- Acoustic Echo Cancellation Software (JSC-5L-AEC only)

DAR

- Echo cancellation for full duplex communication
- Interface call audio to third party recording devices (digital, SIP or analogue)
- Stream background music/entertainment through intercom devices & PA speakers

EVENT CONTROLLER

- Provides simplified interfaces for the integration of external systems & products
- Feature highly configurable rules to match system events, simultaneous event triggers, alarms & offline events
- Standard handling of CCTV function

SIP GATEWAY

- Intermediate interface allowing for integration of Jacques system with compatible SIP systems & devices
- Implements RFC 3261-Core Session Initiation Protocol to transfer, convert & filter communication
- Support for bridge calling allowing a Jacques device to dial multiple SIP devices however only allowing one to answer and perform a call
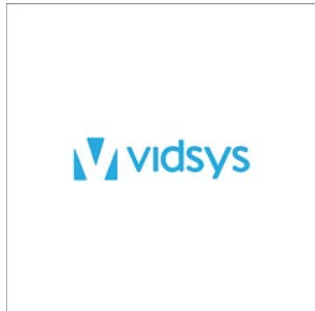
JAS

- Facilitate pre-recorded PA announcements, tones & warning alarms across a Jacques IP PA system
- Allows for the uploading of audio files for broadcast
- Built timetables of announcements, bells & tones for broadcast at allocated times to select or all PA zones
- Apply schedules to days, weeks or months according to a sites broadcast requirements.

* Selection of software modules displayed in this brochure. Visit jacques.com.au for a complete list of software

2 HIGH LEVEL INTEGRATION

Jacques boasts a number of **High-Level Interfaces** (HLI) to industry leading, third-party systems, enabling the functions of our system to integrate with numerous building and security management, telephony, CCTV and access control systems.

avigilon

BOSCH

C-CURE 1000

GALLAGHER

Genetec

GEUTEBRÜCK

IndigoVision

LENEL
A UTC Fire & Security Company

Luxriot®

milestone

PACOM
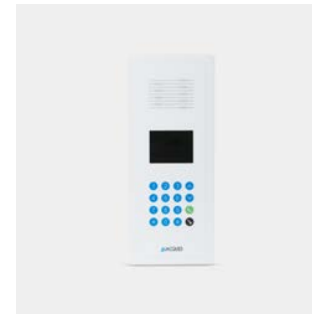
PELCO

vidsys

3

PC MASTER STATION

Master Station

Jacques **PC Master Station** (PCC-650WTS) provides complete intercom call handling functions, public address functionality and detailed diagnostics and reporting available on a visual, customised graphical user interface with touchscreen capabilities. The PC Master Station allows for easy monitoring of the entire system from the one interface. The user can easily identify alarm notifications including device state and tamper as well as monitor intercom system usage.

Features

- Complete intercom call handling functions
- Call queue display
- Call notification display
- Call originate
- Call monitoring
- Central control location for duress calls
- Additional public address functionality
- Visual display of PA zones (unlimited number of zones depending on controller)
- View CCTV footage from 3rd party camera
- Diagnostics and reporting
- Alarm notifications including device state & tamper
- Touchscreen compatible interface
- Map, grid and database views
- Upload multiple site maps to suit application/site
- Customisable layout/functions to suit application requirements

4

Intercom Terminals

VIDEO ENTRANCE STATION

VES-741 | 51423

- Attractive slimline design
- Standard PoE powered (IEEE 802.3af)
- Wide angle camera
- Two configurable relays that can control lights, gate/door access etc.
- Insect resistant microphone/speaker
- 316 type stainless steel construction
- Weather resistant, with optional rain cover
- Call one master/monitor station

CLEAN ROOM INTERCOM

VSA-76K | 51738

- IP audio intercom terminal
- Standard PoE powered (IEEE 802.3af)
- Anti-bacterial and chemical resistant front surface for easy cleaning
- Robust stainless steel front plate to withstand strict cleaning and maintenance conditions
- Attractive slimline design
- 3.5" LCD screen
- Call an unlimited number of master/monitor stations

HELP POINT UNIT

HPU-5E2 | 51687, HPU-5E2i | 51688

- Highly visible, solid, vandal resistant call point
- Standard PoE powered (IEEE 802.3af)
- Simple 1 or 2 button operation, emergency or emergency & information calls
- Two configurable relays
- Tamper detection & attempted device removal notification
- Automated testing of speaker & microphone

5

PA functionality

UNIVERSAL AUDIO INTERFACE

UAI-3B1 | 51196, UAI-3E1 | 51195

- Public address interface/zone controller
- Interface between Jacques' IP system & analogue devices such as a building's amplifier and PA system

6

Accessories

ADAM RELAY MODULE

6 Channel | CE382

- 6-ch DI, 6-ch RL, Ethernet-based smart I/O in office buildings and shopping malls
- Group configuration capability for multiple module setup
- Flexible user-defined Modbus address
- Intelligent control ability by Peer-to-Peer and CGL function
- Active I/O message by data or event trigger function

IP 650 System specifications

SYSTEM CAPACITY

Intercom stations	Unlimited*
Master stations	Unlimited*
Stored announcements	Unlimited*
Call queue size	Unlimited*
Groups	Unlimited*
Simultaneous conversations	Unlimited*
Audio communication between any endpoint	yes +
Auxiliary channels	16 (typically up to 4 live captured sources)

AUDIO CHARACTERISTICS

Frequency response	200Hz - 7 kHz ± 3 dB
Transmission format	Real-time transport protocol (RTP) streaming
Digital audio format - voice	A-law compressed PCM 16 kHz sampling rate
Audio streaming bandwidth	128 kb/s one way, 256 kh/s full duplex
Acoustic echo cancellation	Yes

VIDEO CHARACTERISTICS

Multi-standard video codec	MPEG-4 part 2, siple profile; H.264 baseline profile; H.263 part 3
Video streaming bandwidth	500 kb/s - 6 Mb/s

CALL HANDLING

Call topologies	Intercom/hierarchical/peer/public address/zoned
Call priorities	256 priority levels
Call features (basic)	Auto-answer, hold, forward, diversion, directory, group call, caller-ID, bridged call appearance
Call features (specialised)	Isolate nuisance callers, covert monitor, dynamic group call, stored announcements, master call, remote mode, priority queuing, selective answer of call waiting

NETWORK

Addressing	TCP/IP IPV4, static or dynamic (DHCP)
Interface media	IEEE 802.3 10/100 Mb/s Ethernet
Standards	IEEE802.1P LAN Layer 2 prioritisation
	IEEE802.1Q Virtual LAN
	RTP - Real-Time Transport Protocol (RFC3550/3551)
	TOS - IPV4 Type of Service (RFC791)
	DTMF - RTP payload for DTMF digits (RFC2833)
	Multicast - IP Multicasting (RFC1112)
	Diffserv - Differentiated Services (RFC2474/2475)
	NTP - Network Time Protocol (RFC1305)
	IGMPv2 - Internet Group Management Protocol v2 (RFC2236)
	DHCP - Dynamic Host Configuration Protocol (RFC1531)

CABLING

Power input/ethernet	4 pair UTP CAT-5/5e/6, multi-strand, 24 AWG -100m (328 ft) max.

*Dependent on server configuration and network bandwidth
+Dependent on system configuration and permissions granted