Smart-Caller
Smart Systems Saving Lives
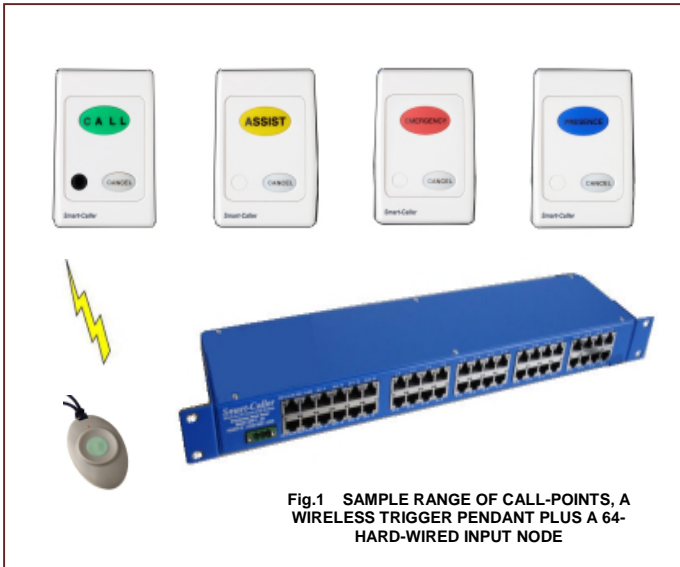
'*BlueLine-IP*' Nurse-Call System'

Fig.1   SAMPLE RANGE OF CALL-POINTS, A WIRELESS TRIGGER PENDANT PLUS A 64-HARD-WIRED INPUT NODE

Features & Benefits

- **The Reliable, Flexible & Low Cost IP solution**
- **Accepts Hard-Wired & Wireless Call-Points**
- **Plug & Play 64 & 128 input hard-wired Nodes**
- **Hard-wired Call-Points have Wireless Trigger**
- **Hard-wired Call-Points include Call & Assist**
- **Accepts Long Range Wireless Call-Points**
- **Accepts Long Range Area Wireless Nodes**
- **Call-points have 'heartbeat' monitoring**
- **Wide range of System Input Connections**
- **Wide range of System Output Connections**
- **Personal Tracking & Location Options**
- **Room 'Minder' Systems for Dementia Care**
- **Backward Compatibility to Existing Systems**
- **Ease of Deployment & Remote Management**

INTRODUCTION

Following the success of the '*BluePhone*' for Independent Living (ILU) applications Smart-Caller's '*BlueLine-IP*' system provides a modern Ethernet based nurse-call solution for low, high and dementia care facilities.

Australian Standard AS811 is fully satisfied by this new IP (*Internet Protocol*) solution suitable for both large and small Aged Care facilities with or without ILUs.

New bed licenses & system upgrades can now enjoy the benefits of this latest 'IP-technology'. This means that there is no longer the need to expand an existing system with old or like-technology. '*BlueLine-IP*' or its alternative '*BlueLine-LR-Wireless*' system can accommodate or 'work around' most of the existing brands of 'Legacy' systems.

Proven Reliability is ensured by the Server and system components having MTBF (Mean Time Between Failure) rating of 50,000 hours (approximately 6 years. Meanwhile system connections are isolated from adverse power spikes and voltage overloads via opto-coupling and current limiting techniques.

Remote Access is possible to each connection throughout the site and to the Server system database entries. This is provided under strict password protection. Server Database access is to a 'file replacement' level thereby ensuring ease of system upgrades, enhancements and remote maintenance.

Plug-&-Play 'Hot-swap' devices are used throughout including the 64-input Node Distribution panels.

The Head-End and each Node is supplied as a fully tested Plug & Play system sub assembly installed within its cabinet complete with power supply and back-up power facilities.

Fast Communication and Response is ensured by the use of a dedicated high-speed 10/100Mbps multi-drop Ethernet LAN ideally using a CAT6 interconnecting cable. The high-speed protocol ensures fast response to emergency-call situations such as those applicable to Cardiac Arrest and Staff Duress.

TYPICAL 'NODE' SET-UP

Although the Installer may wish to centralize all 'Area Nodes' into a single location within a single Rack Mounting Cabinet, the fully tested and programmed Plug-and-Play '*BlueLine-IP*' design concept allows for each Node to typically comprise a 9RU Rack mounting cabinet.

Typical Area Nodes usually comprise 64 or 128 inputs however larger configurations have also been delivered to site as required.

Fig. 2 128-INPUT NODE READY FOR SHIPMENT

Each of the distribution panel's RJ45 sockets accommodates two independent call-point circuits via opto-coupled (isolated) connections. They supply current

limited power to each call-point whilst also monitoring the signaling back from each call-point. This monitoring also includes the periodic call-point 'heartbeat' to ensure that the device and its cabling are in good working order.

The special distribution Node panel also includes an RS485 LAN socket pre-cabled to an 8-way LAN switch also located within the cabinet.

The cabinet also includes a 10A regulated power supply plus a 20AH battery each interconnected via a special 30A power management module which acts as both a UPS (Uninterruptable Power Supply) and a battery performance monitoring facility.

This power management device will dispatch a 'trouble report' (a) if the Node loses 240v mains power supply or if the battery becomes faulty or is otherwise unable to provide the necessary back-up power. Cabinet anti-tamper protection is also possible.

FAST PLUG-&-PLAY INSTALLATION

IP Nodes and the system Head-End are each preferably delivered to site in cabinets fully assembled, cabled and tested ready for action. The installer, having pre-installed, terminated and labeled the CAT5/6 connections from each room or other location, all that is then necessary is to effectively 'plug-in' those cables and to list the connections on the 'tag strip' located on the inside of the cabinet door.

Each Node cabinet also includes DIN Rail mounted 240v mains (GPO) power distribution panel; 12v battery backed regulated power supply plus a cable entry panel to better distribute cable weight and to assist logical cable layout.

A Node designed to accommodate 128 inputs (as shown in fig 2) would include a second 64-input Distribution Panel but is able to share the power supply and management facilities.

A 'Node' installation therefore becomes a fast Plug & Play solution and arrangement also offers ongoing benefits for low cost installation and local and remote maintenance plus system adjustments and expansions.

LEGACY SYSTEM CONNECTION

With the ongoing dependence on some 'Legacy' equipment whereby analogue, RS232/RS485 protocols must continue to be accommodated, the *'BlueLine-IP'* system offers various 'Gateway' solutions. This is possible at the central equipment location and throughout the network both at 'Node' and via ad- hoc on-line LAN connections.

UPGRADING OLD SYSTEMS

The versatility of the *'BlueLine-IP'* system allows any existing hard-wired nurse-call system that uses mechanical or electrical latching call-points (which includes 95% of all known systems) to be re-terminated into a standard *'BlueLine-IP'* 'Node' for further processing as a genuine IP reticulated and controlled nurse-call system.

This would necessitate some relatively minor cabling terminating at each of the previous Area Controller locations and at the LAN input to the new *'BlueLine-IP'* Head-End Server.

This upgrade solution offers an excellent method of moving forward with system expansions using latest technology whilst also bringing the existing (legacy)

infrastructure into the same level of technology with fully compatible outcomes.

THE COMPUTER TERMINAL

The rugged and small dimensioned SmartCom-05 Server includes a solid state design without fan or other moving parts along with an embedded Windows* professional operating system.

It is powered from the nurse-call system's 12v dc battery backed power supply and therefore requires no UPS computer system power back-up support.

Fig. 3 SmartCom-05 Server

As occurs with system Nodes the SmartCom-05 Server even monitors the performance of its back-up battery and will generate a call should the battery have a fault or reach its end-of life condition. No longer will depleted back-up batteries place mission critical nurse-call systems at risk.

As a guide to overall system reliability this Server has a certified MTBF (Mean Time Between Failure) of 50,000 hours (Approx 6 years).

THE WINWATCH SOFTWARE PROGRAM

This popular and highly developed and reliable software program has comprehensive facilities well beyond those normally found within a nurse-call system.

It has, for example a unique three dimensional database with elapse time response reporting. This allows many different reports to be generated providing both specific and 'averaged' performance levels and comparisons for each location and duty cycle shift.
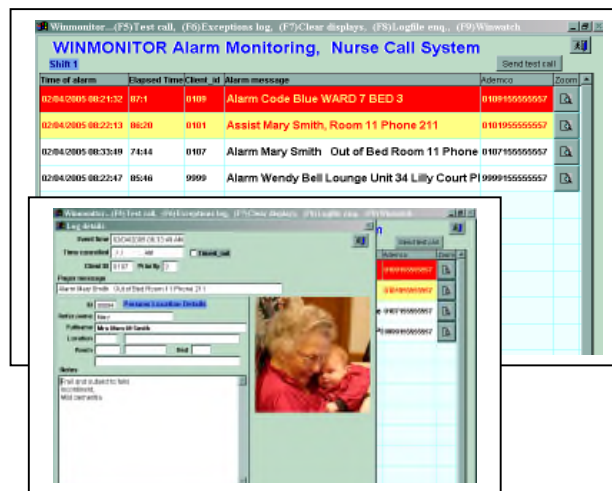

Fig 4 (Top): 'Calls in progress' screen showing elapsed time against unattended calls in order of call priority.

Fig 5 (Lower insert) shows both the image and personal profile of the 'Calling Resident' by clicking the zoom button of a call entry.

Winwatch also allows for 'Individual Care-Plans' to be established and maintained based on 'real-time' event

capture thereby allowing accurate tracking of recorded behavioral patterns, locations and trends.

Comprehensive inputs and output options exist to satisfy all possible expectations of the Healthcare Professional. The system is also compatible with MobiCall and other system integration platforms.

Various typical outputs include the delivery of Alphanumeric text and (where applicable) two-way analogue or VoIP (SIP) voice communication as required.

UNIQUE CALL-POINT DESIGN

Smart-Caller's' 'H3' series hard wired call-points include large soft-touch anti-bacterial, anti-fungal silicon back-lit buttons. Other benefits include unique wireless trigger capability, proven reliability and isolation from the Network along with call-point 'Heartbeat' monitoring via the parent Node.

Resident call-points also include an integral 'Staff Assist' function and multiple independent connections from within the room into the system network. The call-points also directly control over-door lights and in effect act as the Room Controller

Fig 6. H3 CALL-POINT WITH WIRELESS TRIGGER

Despite its low cost, the call-point's ability to also be triggered via a wireless transmitter offers significant benefit. It means that the Resident/Patient can carry a wrist or necklace pendant and be able to trigger a call from anywhere within his or her room and ensuite.

The wireless trigger capability also accommodates 'Cordless' accessories being less hazardous to Residents, particularly within those Dementia Specific rooms.

CALL-POINT ACCESSORIES

The range of call-point accessories includes a new anti-bacterial, anti-fungal and washable entertainment handset and silicon over-bed cord pendants plus wireless trigger devices.
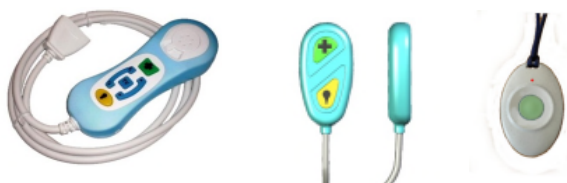

Fig 7. RANGE OF CALL-POINT CORD PENDANT ACCESSORIES

CONTACTING NURSING & CARER STAFF

The need to deliver alarm call traffic to appropriate persons and destinations is well catered for offering widely varied options and alternatives.

Traditional techniques such as Paging, Annunciator Displays and various brands of DECT and WiFi phone handsets are all fully supported by the system's central equipment head-end.


'MINDER' ROOM MONITORING

As illustrated below the *'BlueLine-IP'* system can include an inconspicuous fully integrated hard-wired or wireless based 'Minder' Room Monitoring System.

In addition to providing a curtain PIR above the door to detect a departing Wanderer, the room 'Minder' system comprises dual wall-mounting PIR Bed-Exit sensors which effectively scan the floor each side of the bed.

Alternatively the high quality low profile floor mats, chair mats or within-bed sensors may be connected using a double adaptor interface into the bedside call-point or special wall mounting interconnecting faceplate.

This overall room 'Safety-Net' facility is controlled via the 'Minder' wireless or hard-wired Control Panel' located at head-height at the entrance to the room.

MINDER DEMENTIA ROOM LAYOUT
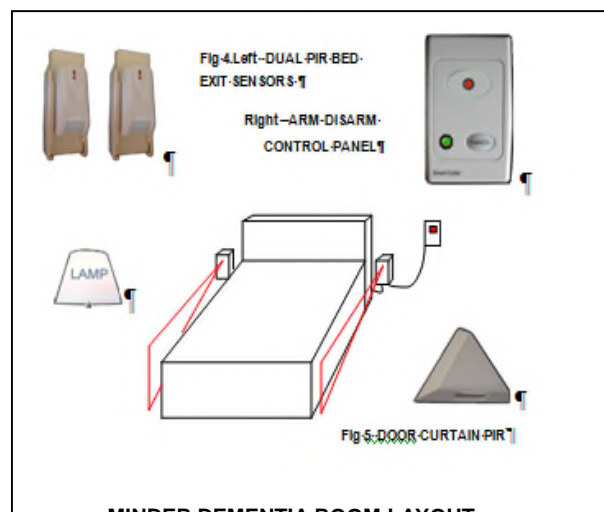
Arming the room's corridor mounted control panel causes the Minder's transceiver module to send a wireless 'Switch-On' command to both the Door Wanderer and the bed-side PIR sensors.

These sensors then become active and will remain so until disarmed via the Control Panel's Arm/Disarm button or common key switch as preferred.

Specifications and illustrations subject to change without notice

Smart Caller
Healthcare solutions

32_{nd} Anniversary

The Complete "Ageing in Place" IP Communication System

Remote Access | **Wi-Fi** | **Wireless** | **NURSE-CALL LAN** | **SIP/VoIP** | **Data**

Access Points (WAP)

IPhones, IPads & Tablets (Text + SIP-VoIP)

Wi-Fi 5Km Repeater

Repeater

➤ Data-IP
➤ Wi-Fi
➤ VoIP/SIP
➤ Wireless
➤ Legacy
➤ Remote Access

System Server

➤ Admin LAN
➤ Internet
➤ Printer
➤ Paging
➤ Annunciators
➤ DECT
➤ Work Stations
➤ Remote Screens
➤ PSTN/PABX/PBX
➤ GSM/GPRS
➤ Fire Panel
➤ VoIP/SIP Server
➤ Vocera
➤ Amcom* Message Centre
➤ Cisco* Message Centre

64-input Node

Call Points

HIGH CARE ROOM

Location/Intercom Beacons

LOW CARE ROOM

Door Bell

Wander Alert

REMOTE LOCATION

Wi-Fi 5Km Repeater

IPhones, IPads & Tablets (Text + SIP-VoIP)

Remote Node (Via Wi-Fi)

VILLAGE ILU

➤ PSTN
➤ PABX
➤ GSM
➤ ATA

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