



# 'SMARTCARE-1000' Nurse-Call System

## INTRODUCTION

'SmartCare-1000' is an Australian designed and manufactured premium quality nurse-call system offering facilities and benefits that continues to set it apart from all other systems. Meeting and exceeding all industry Standards it offers a total solution to managing residential care from outreach through to the highest levels of dementia specific monitoring and care-plan management.

Whilst based on the intrinsically reliable hard-wired technology the system also accommodates wireless, telephone, loud-speaking intercom, RFID and IP technologies using a single SmartCom-01 solid state industrial grade computer platform.

With the capacity to accommodate up to 10,000 hard-wired call-points spread over a cable length of 1.5Km, each call-point may also include an (optional) low cost internal wireless receiver to accommodate room accessories and site 'fall' incidents.

## SYSTEM APPLICATIONS

The system may be configured to suit any of the following applications whilst also allowing up-grade paths to incorporate future requirements without obsolescence or the need to change cabling infrastructures.

- Independent Living nurse-call and security
- Hostel assisted care nurse-call
- Nursing home high care nurse-call
- Dementia care-plan management
- Incontinence care-plan management
- Staff duress with pinpoint location
- Monitoring of plant and equipment
- Asset tracking & door access wanderer protection
- Interface to fire, security & existing nurse-call systems
- Acute Care Hospital nurse-call designs

## THE COMPUTER TERMINAL

The rugged small dimension SmartCom-01 host computer employs the latest industrial quality solid state design without fan or other moving parts along with an embedded Windows\* operating system. It also operates from the nurse-call system's 12v dc battery backed power supply and therefore requires no UPS computer system support.



Fig 1  
SmartCom solid-state computer

As a guide to system reliability this computer has a rated MTBF (mean time between failures) of 50,000 hours of continuous operation over a temperature range of -20 to +70C and despite this exceptional computer performance

the nurse-call system will continue to fully operate (without logging facilities) even in the absence or failure of the computer terminal.

## THE WINWATCH SOFTWARE PROGRAM

This popular and highly reliable software program has comprehensive facilities well beyond those normally found within a nurse-call system. With its unique three dimensional database reporting and response time records plus its optional incontinence management module it is possible to use recorded behavioral tendencies in order to create and modify individual care-plans whilst also monitoring staff and system performance.

Comprehensive inputs and output options exist to satisfy all possible expectations of the healthcare industry.

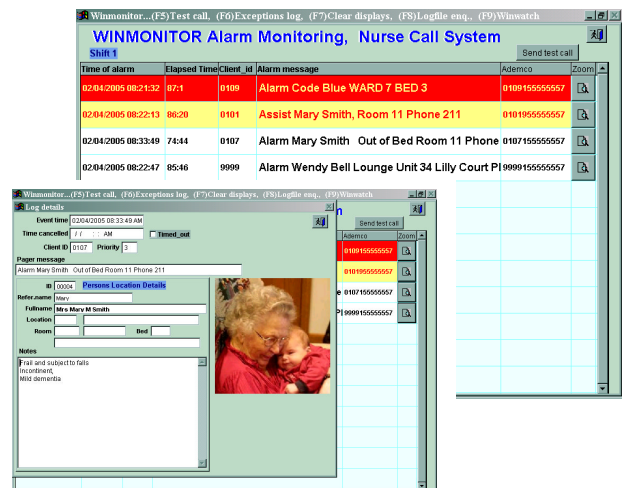


Fig 2 (Top): 'Calls in progress' screen showing elapsed time against unattended calls in order of call priority.

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

## CONTACT WITH CARER & NURSING STAFF

The need to deliver alarm call traffic to appropriate destinations is well catered for by Winwatch and its SmartCom-01 computer terminal offering many options.

## DECT SOLUTIONS

Digital Enhanced Cordless Telecommunications (DECT) is still the preferred mobile communications medium for the majority of aged care professionals.

This is primarily due to advantages gained by not sharing wireless bandwidth with other services thereby ensuring immunity from interference and congestion which also results in excellent range coverage.



Fig.3 DECT wrist/pendant unit with text display, speakerphone, duress & dial-up communication facilities

The preference for DECT is now enhanced by lower priced handsets along with the introduction of the wrist/pendant transceivers. This is further enhanced by the integral duress reporting facilities and the possible connection of DECT Wireless Access Points (WAP) directly to the site's hard-wired Ethernet LAN.

Fig 4 shows a selection of popular brands of DECT handsets suitable for use with SmartCare-1000



### PAGING OPTION

Irrespective of the decision to use belt worn alphanumeric portable pagers, the Smart-Care-1000 system provides a paging output which can connect to a paging transmitter to deliver alphanumeric SMS messages to individual pagers or to selected paging groups as required.



Fig 5 Text Pager

### ANNUNCIATOR DISPLAY OPTION

The use of Annunciator displays, perhaps in the corridor outside of a nurse-station, is recommended as it also provides an independent source of system call traffic display in the event of failure of the computer terminal or the DECT phone or other call display and response system.

Further, each Annunciator display has an inbuilt programmable and independent 'System Watchdog' designed to warn staff of a system failure whilst then taking over the role of being the sole call display device until normal service is resumed.

A single Annunciator controller unit will control up to 16 Annunciator displays throughout the site. As with pagers, this allows all or selected calls to be delivered to each display unit as required. The addressable functions of these units are important in order to allow the allocation of day and night shift call traffic to be sent to required locations.



Fig. 6 white ceiling mount Annunciator

### TOUCH SCREEN DISPLAY OPTION

It may be preferred to locate the robust solid state SmartCom-01 and the central equipment safely behind lock and key within the communications room and to provide a second (networked) computer at the prime nurse-station, perhaps allowing touch screen operation.

There is a wide range of computer control and display products to suit any preferred method of operational requirement keeping in mind that the DON will require editing access for Care-Plan management.



Fig 7 Smart Display unit

### OTHER OPTIONS

Other possibilities that may be used within a 'bundled' selection of display options include; WiFi, SMS to GSM, or Mobiles, Vocera and other system concepts that will inevitably evolve. These various alternative and generally supplementary communication paths from the host computer may be selectively or collectively used within structured paging groups to suit duty shift requirements.

### HARD-WIRED & WIRELESS INPUTS

One special feature of the 'SmartCare-1000' system is its ability to accommodate both hard-wired and wireless call traffic whereby all such calls are reliably delivered to the host computer via a single supervised hard-wired system backbone cable.

Area 'Slave Controllers' are connected to the back-bone cable infrastructure, each being able to accept and process up to 32 hard-wired and 100 wireless inputs. This important site-wide radio reception capability is known as the 'Safe-T-Net' umbrella, it having many important functions and benefits not otherwise possible in a hard-wired system.

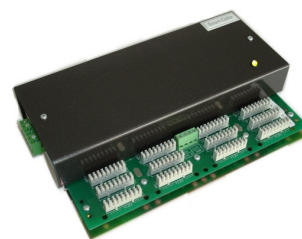


Fig.4 Area controller with 32 hard-wire &100 wireless inputs

### UNIQUE CALL-POINT DESIGN

A wide selection of call-points is available including wireless and hard-wired versions. The latter also has an optional wireless input capability via an integral wireless receiver module.



Irrespective of wireless or hard-wired technology, the call-points have identical appearance and operating facilities thereby allowing convenient system upgrade capabilities without the need for cabling or introducing items of different appearance.

Fig. 5 shows an 'H' series bedside hard-wired or (identical appearance) wireless call-point with cord pendant socket.

In addition to having two independent connections to the nurse-call system these bedside and communal area hard-wired call-points also have the ability to be initially or subsequently fitted with a wireless receiver module.

This wireless option allows the resident to trigger a call from any location within the room or ensuite via a Personal Emergency Transmitter (PET). Alternatively it offers a convenient and low cost solution to the future use of out-of-bed, chair exit, bed-wet and similar monitoring accessories as may need to be deployed from time to time.

The "H" series hard-wired call-points include many additional benefits which are collectively unique and include the following:-

- Soft touch lens buttons (for cleaning & ultimate hygiene)
- Backlit 'Call' button (glows in the dark)
- Plug-in wireless trigger (for accessories)
- Hidden 'Staff Assist' (press 2 buttons simultaneously)
- Cord pendant Jack (standard over-bed pendant)

- Cord disconnect alarm (raises an alarm if disabled)
- Two independent circuits (i.e. allows n/call and bed exit)
- 'Heartbeat' watchdog (for system integrity)
- Quick release connector (no need for service calls)
- Plus waterproof models (both slave and master models)

There is no need to clutter the resident's room with unnecessary call-point assemblies to cause confusion and to incorrectly generate high priority calls because all 'SmartCare-1000' hard-wired or wireless two-button call-points or their low cost two-button slave versions will provide 'Alarm', 'Cancel', and 'Assist' facilities.

Staff Assist is achieved by staff pressing both buttons simultaneously for one second at which time the higher priority call is dispatched and the LED and corridor light assembly also commences to flash at a fast 'Assist' rate.

A wide range of over-bed cord pendants are available including those with a light-switch option plus others that are sealed and have anti-bacterial properties.



Fig. 8 shows a standard over-bed cord pendant and an anti-bacterial version including light switch option



### MULTICOM SPEECH FACILITIES

The flexible design of the 'SmartCare-1000' system allows the inclusion of a two-way (hands-free) Multicom speech module to be located in association with any hard-wired or wireless master call-point.

When used in conjunction with a hard-wired call-point the Multicom module requires no additional cabling as it simply connects to the rear of its associated call-point. This facility would typically be located at the bed-head but is equally suited to other 'dry area' locations.

Utilizing the site's PABX (or a dedicated PBX), the Multicom units do not require screened cable and there is no practical limit to cable length or to the number of available both-way speech paths.



Fig. 9 Multicom two-way speech module (Shown with associated call-point)

### HIGH CARE, DEMENTIA & INCONTINENCE

The 'SmartCare-1000' is able to monitor the dementia wing perimeter such as doors and corridors to provide a 'safe containment' situation.

The Dementia resident's room however, is monitored and controlled by the room's 'Demcon'. Dementia Controller. This unit will automatically function in accordance with the selection of low cost installed sensors deployed within the room.

As the Demcon unit is a 'plug-and-play' device requiring no set-up or adjustment it is common practice to deploy these units as is necessary to satisfy the 'Ageing-in-Place' deterioration of certain residents.



Fig 10. Typical Dementia room equipment items (excluding the Demcon Unit) and including the alternative big-button call-point which would normally also include a wireless receiver option.

When used in conjunction with the corridor-mounted arm/disarm Smart-Key control panel, it is able to provide the following monitoring functions:

- Out of Bed, with light switch trigger on
- Back to bed, with light switch trigger off
- Out of room or other perimeter, wandering
- 'Thrashing about' in bed, including epileptic fits
- Pacing
- Entered ensuite
- Overdue from ensuite
- Bed-wet (24 hour function)

### MANAGING RESIDENT CARE PLANS

From the host computer's archive log it is possible to extract, view, filter and configure each of the various types of call for each room and/or resident and/or/location and to place those calls into required reporting categories.

This then establishes, for each resident, the basis of evaluation for both current and past behavior pattern from which to judge and predict future behavior.

It also monitors carer response times for each category of call throughout the various staff duty cycles. It will even allow pro-active pager calls to be automatically dispatched, for example to 'toilet' a resident at a certain prescribed time.

To assist in substantiating accurate real time statistical reports to ACFI (Aged Care Funding Instrument) Winwatch is able to export suitable reports in standard Excel\* format. These may be used in isolation or applied to other software programs designed to accept such input and include:-

- Incident reports
- Bladder charts for urinary management
- Resident behavior charts

### CONVERTING ROOMS TO HIGH CARE

With resident 'ageing-in-place' being a realistic expectation it follows that a low cost and portable room upgrade from 'low-care' to 'dementia specific high care' room classification is a desirable outcome.

Smart-Caller's 'Demrad' transportable Dementia room system is designed with this in mind. It is also designed to allow retrofit to prior Smart-Caller and other brands of nurse-call systems.



The new transportable 'Demrad' system will accommodate each of the facilities listed for the fixed cabling Demcon system but without the necessity of an expensive cabling infrastructure.

Fig 11, (Left) A Demrad room controller (Right) a central equipment site base unit

## INDEPENDENT LIVING UNITS

With many thousands of Smart-Caller Emergency-Call telephone and under-phone dialers already protecting residents within village self-care units or in their own homes, it is true to say that Smart-Caller pioneered this technique and remains the market leader.

One important aspect that exists for self-care residents is the need for loud automatic 2-way loud-speaking contact in the event of an alarm, whilst another is to provide the resident with home and away security.



Fig 12 HP3 Emergency-Call Phone (Below) A wireless pendant



The Smart-Caller HP3 (Blue-Phone) telephone, and to a lesser extent the alternative HD4 Smart dialer each provide these facilities.

In the security mode the phone's keypad therefore also functions as a security keypad for entering PIN access codes for arming and disarming the security home and away modes. With both products having the ability to accommodate up to 48 wireless and 9 hard-wired inputs plus a wireless output the configuration possibilities are almost endless.

The range of accessories may include wireless or hard-wired smoke detectors, passive infrared detectors, (PIRs) door reed switches, gas detectors, inactivity monitors, diaper and bed-wet sensors, room dementia controllers, wandering resident devices, wireless security arm/disarm facilities and so on.

Fig 13 Emergency-Call HD4 Smart-Dialler



These telephone based technologies offer some excellent solutions within a low or high care room providing that a PABX or PAX phone extension is available.

## DIRECTORY OF DATA SHEETS & BROCHURES

### SYSTEMS

- RADIANT-100/200 Computerless wireless system
- RADIANT-1000 Computer based wireless system
- SMARTCARE-100 Computerless hard-wired system
- SMARTCARE-1000 Computer based hard-wired system
- SMARTCALL Village phone based system
- UNIVERGE-AS4607 Upgrades for VHF wireless systems
- IP-CAREPHONE IP based Village call system
- IP-SMARTCARE IP based nurse-call system
- DEMRAD Portable room dementia system
- DURALINK Wireless Duress System
- SMART-TRACK Zigg-Bee Duress & RFID system
- KIRK-DECT Multitone/Kirk DECT system
- NEC IP-DECT NEC/Philips IP DECT system
- WANDERALERT Wanderer door security system
- DOOR-ALERT Wanderer door security system
- ACUTE-CARE Hospital nurse-call system

### PRODUCTS

- HP3-BLUE-PHONE Emergency-Call telephone
- HD3 DIALLER Emergency-Call Dialler
- HP3--SITE-WIDE Wireless to HP3 convertor
- ELD-01 Electronic Disconnect Unit
- MULTICOD-09 Hard-wired to wireless convertor
- IP-CAREPHONE SIP (VoIP) Dialler
- SMART-COM Solid State Computers
- CALL-POINTS Hard-wired & Wireless Callpoints
- SENSORS Wireless & hard-wired accessories
- CHAIR-SAFE Chair Exit monitoring facility
- MAXI-MAT Bed exit monitoring facility
- SAFE-BED Emfit bed exit monitoring facility
- WINWATCH Nurse-call computer software
- BMS-01 High Level Interfaces – various
- WIC-06 Annunciator controller & options
- DDU/DCU Door mimic display & control units

Authorized Supplier

*Specifications subject to change without notice*



Smart-Caller Pty Ltd

5/270 Lower Dandenong Rd, Mordialloc, VIC 3195, ABN. 14 217 255 933

P. (03) 9588 0833 F. (03) 9588 0933

[www.smartcaller.com.au](http://www.smartcaller.com.au)

[sales@smartcaller.com.au](mailto:sales@smartcaller.com.au)