# Telecare Equipment

## General Information

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This document describes the capacity of VC International Pty Ltd to supply residential Telecare equipment into the Australian healthcare market.

The VCI website is at: www.vcint.com.au

## 1. VC International Pty Ltd (VCI)

VC International is Australia's leading manufacturer of Personal Emergency Response Systems (PRS), with its Head Office located at Lane Cove NSW and manufacturing operations at Penrith NSW.

VCI was formed following the sale of the former VitalCall business to Chubb Security in 1999, the new company retaining the intellectual property to the PRS technology and the manufacturing facility. Since that time, VCI has continued to design and manufacture PRS equipment for the wider marketplace.

VCI and its predecessors have manufactured and supplied PRS products and systems in Australia since about 1980.

All VCI products are designed and manufactured in Australia, and the company is committed to maintaining the highest possible Australian content.

VCI is a founding member of the Personal Emergency Response Services Association (PERSA) and a major supplier of PRS systems to the Victorian Department of Human Services and the Commonwealth Department of Veterans Affairs.

## 2. The Personal Emergency Response System (PRS)

A system consists of a small personal pendant radio transmitter worn by the client which, when activated, signals an alarm to a Local Unit receiver connected to a standard telephone line in a client's residence.

Typically, in Australia the Local Unit dials a national service provider, where a response centre operator receives the call and views the client's details automatically, opens a sensitive voice channel into the client's home, and summons the help required.

The voice channel allows the operator to determine (if possible) the nature of the emergency and send the most appropriate help from a list of responders. Although it is not necessary for the operator to speak with the client, it does provide them valuable reassurance that help is on the way.

## 3. Telecare

"Telecare" is a term that covers an extensive range of care-based technologies and services provided in a client's home.

Telecare systems may respond to an immediate need, such as a medical emergency or a fall, or monitor client data in a preventative mode with services programmed to monitor an individual's health or well-being. Often known as "lifestyle monitoring", this can provide early warning of deteriorating health, prompting a response from family or professionals.

Another form of Telecare, often called "telemedicine", is designed to complement the delivery of healthcare. It works by monitoring vital signs – such as blood pressure – and transmitting the data to a response centre or clinician's computer, where it is monitored against parameters set by the individual's clinician.

Evidence that vital signs are outside of 'normal' parameters triggers a response. It is thought, for it to be successful, telemedicine needs to be part of a local health and social care pathway for managing long term conditions.

The adoption of a community Telecare model in the UK has not been without difficulties. Some of these are highlighted in the summary of the UK Telecare 2007 Conference at: http://www.telecare-events.co.uk/

## 4. A logical extension to PRS

PRS technology has been available in Australia since about 1980. Over the years since then, the technology has remained focused on providing a means to call for help in an emergency situation.

A PRS Local Unit contains a radio data receiver, a microcomputer and a telephone line connection. It can be adapted easily to collect event data from a variety of sensors, analyse and store that data, and download the stored events to a remote computer.

Environmental and security sensors have been available for a long time. More recently, biometric sensors have become available with data outputs allowing easy interfacing to other equipment.

By enhancing the functionality of the PRS Local Unit, and interfacing a variety of environmental and biometric sensors, Telecare appears to be a logical extension to the PRS product and can provide a very cost-effective solution without the need for broadband access and associated ongoing costs.

## 5. Tynetec Ltd (UK)

For many years, VCI and its predecessors have had a close association with a similar company, Tynetec Ltd, in the United Kingdom. VCI's technology was licensed to Tynetec in 1999 on a royalty basis, enabling Tynetec to offer a PRS product to the homecare market in the UK and Europe.

Since then, Tynetec has further developed the technology to incorporate a unique and comprehensive range of Telecare features, meeting the needs of the growing UK Telecare market. Tynetec is now a leading supplier of Telecare products in the UK.

Through our long association with Tynetec, we are now able to offer this comprehensive and unique range of Telecare products to the Australasian market under the CarePhone™ and Altera™ brands.

Tynetec is a member of the Continua Alliance and the Telecare Services Association, and has also been heavily involved in designing a new British Standard for an open communication protocol for Social Alarms.

The Tynetec website can be viewed at:
www.tynetec.co.uk

## 6. The Telecare Equipment

The equipment installed in a client's residence consists of a Local Unit connected to the telephone line and a number of sensors, depending on each client's needs. Most of the Telecare functions are totally passive and those requiring some client action are very simple to operate.

The equipment has proven to be very reliable and is battery backed-up for over 24 hours of operation in case of mains power failure.

Communication is via a standard public switched telephone network (PSTN) connection, which is found in the vast majority of homes and offers a low cost, highly reliable connection. Standard PSTN connections are quite capable of handling the moderate data requirements of this application.

As households are adopting broadband phone line connections (digital subscriber line, or DSL) in increasing numbers, broadband connectivity will shortly be available on the CarePhone™. However, we believe the PSTN is likely to remain the most appropriate in-home access technology for this type of equipment in the medium term.

Any technology in a client's home that relies on a cable or DSL modem for a broadband connection will incur monthly access fees to a broadband service provider. All ancillary equipment – such as modems and routers – will require additional battery back-up, and user configuration issues are encountered, with firewall software/hardware for example, which are not under the control of the care agency.

## 7. Locally Stored Data

Increasingly, we all expect to have data available instantaneously from wherever we might be working. With the expected rapid growth in the use of Telecare sensors, an increasingly large amount of data will be used by a growing number of care agencies.

A unique feature of the CarePhone™ equipment is that all client data is stored locally in non-volatile memory. The data can be accessed at any time remotely by any authorised person using a standard computer modem. The client themselves, the client's family, the client's GP, health professionals, or any other authorised person possessing a computer modem and a correct access code, can download from the Local Unit up to 10,000 date-and-time stamped stored events, for up to a 12-month period.

## 8. Data Download

Data is downloaded to a standard computer with modem, and uses industry standard commands. Data is transmitted in a standard file format using 'comma separated data' in the format: date, time, unit ID, sensor type, sensor priority, sensor status.

The healthcare professional simply initiates a phone call to the client's home phone number and the Local Unit auto-answers that incoming call by recognising the calling number. The Local Unit is programmed to recognise up to 16 incoming telephone numbers.

Downloaded data can be analysed by industry standard spreadsheet programs or by the Altera™ software.

## 9. Equipment in the Client's Home

Any number of alarm points or sensors can be connected by radio link to the CarePhone™ Local Unit. The equipment in a client's residence consists of:

**Local Unit:**

- CarePhone™ Local Unit connected to client's telephone line
- Altec™ Telehealth Interface unit (for biometric sensors only).


Tynetec's Local Unit.

**Altec™ Activity Sensors:**

- PIR Detector (passive infrared)
- Bed Occupancy In-Bed Sensor
- Bed Occupancy Bed-Side Sensor
- Chair Occupancy Sensor
- Fall Detector
- Wandering Alarm
- Variable Pressure Switch

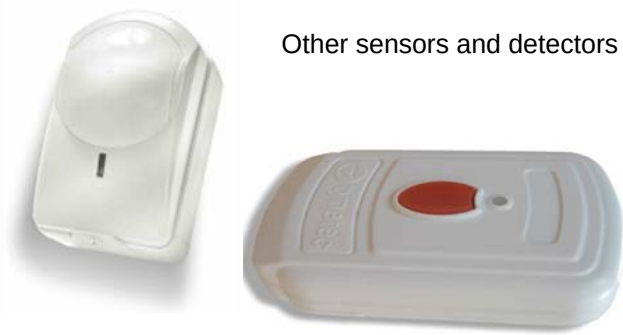
**Alarm Call Points:**

- Personal Pendant
- Wall Switch Call Point
- Pull Cord Call Point
- Door Alarm with Keypad

**Altec™ Environmental Sensors:**

- Smoke Detector
- Heat Detector
- Carbon Monoxide Detector
- Natural Gas Detector
- Flood Detector
- Temperature Extremes Detector


Various environmental sensors.



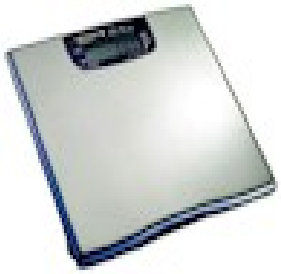
Other sensors and detectors

In-bed activity sensor

**Altec™ Biometric Sensors:**

- Enuresis Sensor
- Epilepsy Monitor
- Weight Scales *
- Blood Pressure Monitor *
- Pulse Oxymeter Clip *

* Requires ALTEC TeleHealth Interface unit



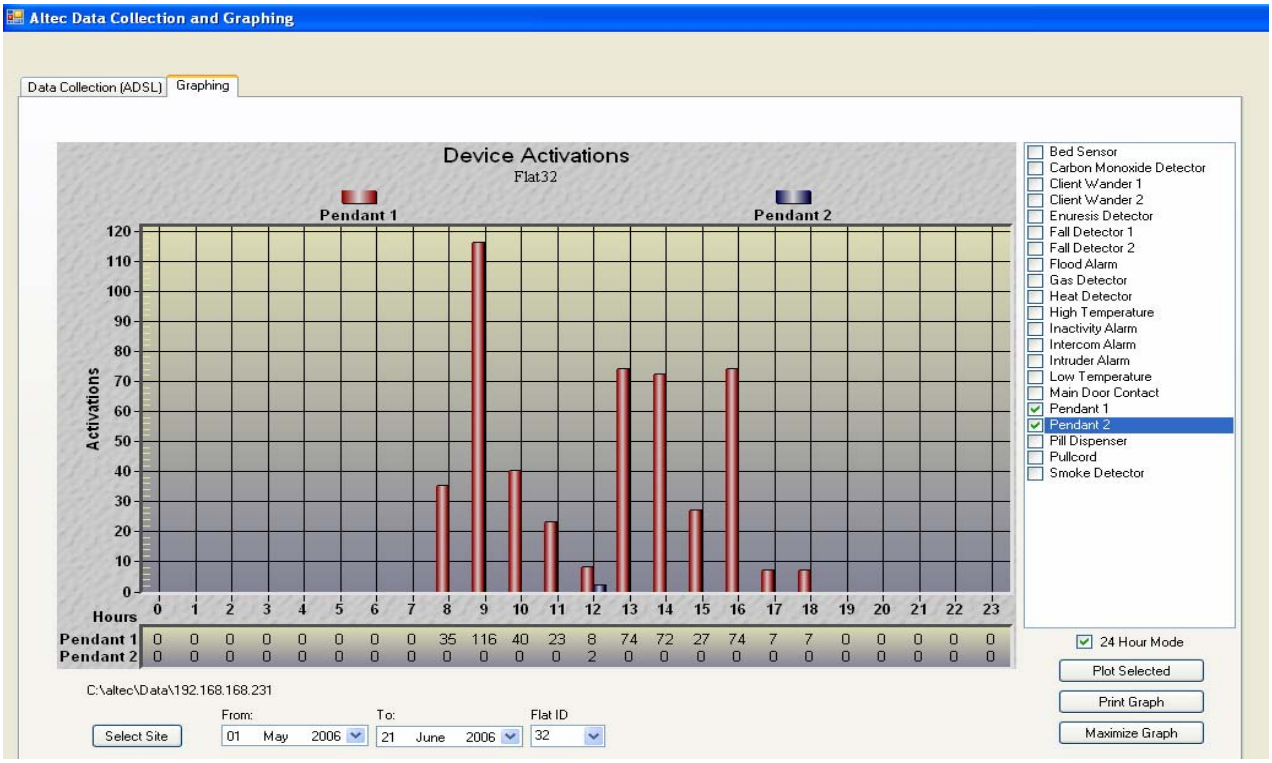
Weight scales

Blood pressure monitor

Pulse oxymeter clip

**Software:**

The Altera™ software tracks changes in activity on an hourly, daily, monthly or yearly basis. The software identifies automatically changes to client's daily routines, or biometric measurement data, and identifies those clients that may benefit from early intervention or a change in management protocols.



## 10. Regulatory Approvals

**Electromagnetic Compatibility:**
Electromagnetic compatibility (EMC) is the ability of sensitive electronic equipment to function correctly in close proximity to other electrical or electronic equipment. The Australian Communications and Media Authority (ACMA) require all electronic equipment to be certified as complying with an international Electromagnetic Compatibility Framework.

This equipment has already been certified to comply with EMC requirements.

**Radio Communications Licensing:**
As sensors communicate with the Local Unit by a radio data link, they must be licensed by the ACMA as a Radio Communications device. The ACMA Class Licence for "Low Interference Potential Devices" allows low power radio devices to be used without individual licensing or licensing fees. This type of licence covers devices such as remote controls, retail merchandise tags and PRS pendants, etc.

This equipment complies with the requirements of the ACMA Class Licence. A simple frequency change to the Tynetec equipment will be necessary for its use in Australia, and equipment will need to be resubmitted for compliance testing on the new frequency.

**Telecommunications Approvals:**
All devices connected to a telecommunications network require certification as to meeting mandatory technical standards.

This equipment complies with all mandatory technical requirements and internationally accepted test reports, showing compliance with Australian requirements are available.

**Therapeutic Goods Administration (TGA):**
We have contacted the TGA to determine the requirement for these systems to be placed on the Therapeutic Goods Register. Basic Personal Response Systems, and Telecare systems performing only security and environmental monitoring, do not require TGA Registration. However, Telecare systems, or parts of those systems that incorporate sensors for measuring biometric data, may need registration.

We have submitted information to the TGA and they will advise VCI of their requirements.

## 11. Pricing

A price sheet is available from VC International.

The final installed price is largely affected by the distribution network. The UK model is one where the equipment is sold directly to health care agencies and our understanding is an additional amount is paid by the agency directly to an accredited installer for the installation of the equipment, and installation is charged on a case-by-case basis.

If equipment is supplied through a third party (service provider/installer), a seller's margin would naturally be added to the prices shown.

## 12. Research

Tynetec Ltd has been awarded recently a UK National Institute for Health Research grant for "An evaluation of the potential benefits of proactive preventative telecare and telehealth systems."

To quote Tynetec's grant application:

"Today's telecare is still operated and managed in a reaction fashion. Whilst there is generally an accepted view that preventative telecare is the correct strategy for patients and service providers, the lack of resources to collect, monitor and evaluate data has resulted in little progress being made in the development of expert 'systems' that utilize telecare data to allow efficient clinical intervention.

"This project will consider how this intelligence can be developed through combining activity (movement, eating, sleep, etc) and vitality (pulse, weight, etc) data whilst addressing key issues such as patient trust, in such systems, and data privacy. Further, by also considering patients with chronic disease, the project aims to develop intelligence that will expedite intervention to delay and manage the transition to severe chronic status, requiring intensive care support".

## 13. Summary

VCI is able to provide a very cost-effective Telecare solution identical to that currently supplied in the United Kingdom. VCI is also capable of modifying and further developing that equipment to meet specific Australian requirements.

This equipment:

- is recognised in the UK as a proven and cost-effective technology
- has a track record of success
- uses a standard PSTN telephone connection
- has a large variety of sensors and alarm triggers
- stores data locally, and downloads to approved healthcare professionals
- does not require a large central database, (although one may be used)
- does not require proprietary software for viewing or analysing data (although the Altera™ Software does enhance the display and analysis of data)
- can be provided at relatively short notice
- meets, or can easily meet, all Australian regulatory requirements
- has strong, ongoing product development and benefits from participation in a publicly-funded UK Telecare research program.

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TM – trademark brand names