



SEVEN

Dual SIM 4G/2G Digital Telecare System – Technical Specification



SEVEN is a market leading Dual SIM Digital Telecare/mPERS solution providing the very best in safety and communication resilience. **SEVEN** offers superior functions and reliability communicating with a wide range of intelligent Telecare sensors to provide personalised care and outcomes.



SEVEN is the future of telecare -

with 4G/ 2G cellular communication and dual SIM card slots for redundancy. SEVEN offers superior functions and reliability, while operating with existing Chiptech personal help buttons and peripherals.

What is it?

SEVEN is Chiptech's 4G and 2G (LTE CAT 1/GSM) Cellular base unit providing dual reporting options while voice communication can occur over VoLTE (Voice over Long Term Evolution) on 4G or voice over the 2G network, depending on setup and availability on the networks.

SEVEN comes complete with 2 SIM slots for comprehensive and redundant communication through multi-network M2M SIM providers.

The intuitive user interface combines status indicators with buttons to keep users informed of any changes to their system that could impact performance. Voice messages and lights are used to provide event notifications and reminders*, along with automated system messages via pre-recorded voice files. SEVEN is compatible with existing Chiptech GO, Pearl, and Chiptech SID/Telecare products, as well as Chiptech software, including SmartCare® Cloud connectivity to enable fleet updating.

How does it work?

When help is needed at any time of the day or night, press and hold the personal help button and count to three. The outer rim of the personal help button will flash red to let the user know that the call for help has been received by the base unit, and will be sent to monitoring. Alternatively, press the large Help button on SEVEN.

When an alert for help is activated, a loud pre-alarm will sound from the base unit. If it is a false activation for any reason, then the alert can be cancelled during this period by pressing the 'Cancel' button on the base unit.

Once the pre-alarm has finished, voice messages will play to keep the user informed while they are being connected to monitoring. When the help alert has been received by an operator, they can speak to the user through the automatic speakerphone, and organise the assistance that is required.

*** Denotes a configuration setting throughout this document.**

Who is it for?

Advanced technology has been smartly wrapped in an easy-to-use system that provides assistance, peace of mind, and reassurance to people who live independently.

For those in the community who may be elderly, frail, disabled or vulnerable, they can be safe and secure in the knowledge that help is only a button press away.



Features

- Multiple reporting pathways enabled by dual micro SIM card slots for data reporting over 4G/2G cellular network.
- Built-in cellular antenna. Also available as an external antenna model (SEVEN X) to support installations in low cellular coverage areas.

Audio

- Quality speaker with adjustable volume settings.
- Comprehensive voice files to provide clear information to end user and installers.
- Voice messages that can be triggered to notify end users about emergency events such as a flood or fire, request an evacuation, or deliver a friendly notification at a predetermined time e.g. a birthday message.

Visual

- Lights under the buttons change colour and flash to indicate a change in status. SEVEN uses an easy to understand traffic light colour sequence, where green is good, orange is a warning, and red is critical.
- Backlit buttons make the product easy to locate and use in low light conditions.



Indicator Buttons

SEVEN has five buttons. The three buttons on the left; Power, Connect and Info, all have associated notifications. If there is a message to be heard, or an action required, these buttons will change colour to orange, red, or blue.



Power – Hold for a short time to turn on from battery (or plug in to mains power for automatic start up). Press to hear the power notification speak, and hold to turn off.

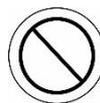


Connect – Press* to hear what communication pathways are enabled, along with the status of each connection. Press and hold* to initiate the communication pathway test. Press* to send daily call to monitoring. Press three times* to perform an immediate cloud connection, to apply an update.



Info – Press to hear a voice message, or the time being spoken when their aren't any messages. Messages can include a request to test pendant, a timed daily or routine reminder, or critical event message.

Press three times* to enter learn mode.
Press and hold* to enter range test mode.



Cancel button – Used to cancel any function. This includes: cancelling the repetition of voice notifications, an alert during pre-alarm or to exit installer (programming) mode. Holding the button will activate/deactivate the Away Function. It is also used to toggle through different options in the Installer Setup Menu.



Help button – Used to start an emergency alarm, and change settings in the Installer Setup Menu. The Help button is dimly backlit during normal operation so it can be located in the dark.

Installation and Operation

Learn mode, Test mode, and the Installer Setup Menu are all accessed by the top buttons on SEVEN, using a combination of button presses or holds. These modes have a safety timeout period to return the base unit to standard operation after a short period of time. The Installer Setup Menu can include the following options: *

- Notification volume
- Ring volume
- General Volume
- Pre-alarm volume
- Cellular Pathway
- RF Device Testing
- Unit Testing
- Clear All RF Devices
- Help Brightness
- Audio Assisted Install
- Installation Position

Connection to GO and additional Telecare devices

In addition to the supplied personal help button, SEVEN connects to a wide array of Telecare devices and the Chiptech GO™ GPS pendant to enable a wide array of solutions to allow people to remain independent in their home and when out and about.

Telecare device solutions include:

- Environmental Sensors
- Epilepsy Sensors
- Health Sensors
- Daily Living and Security Sensors
- Fall Sensors and Solutions

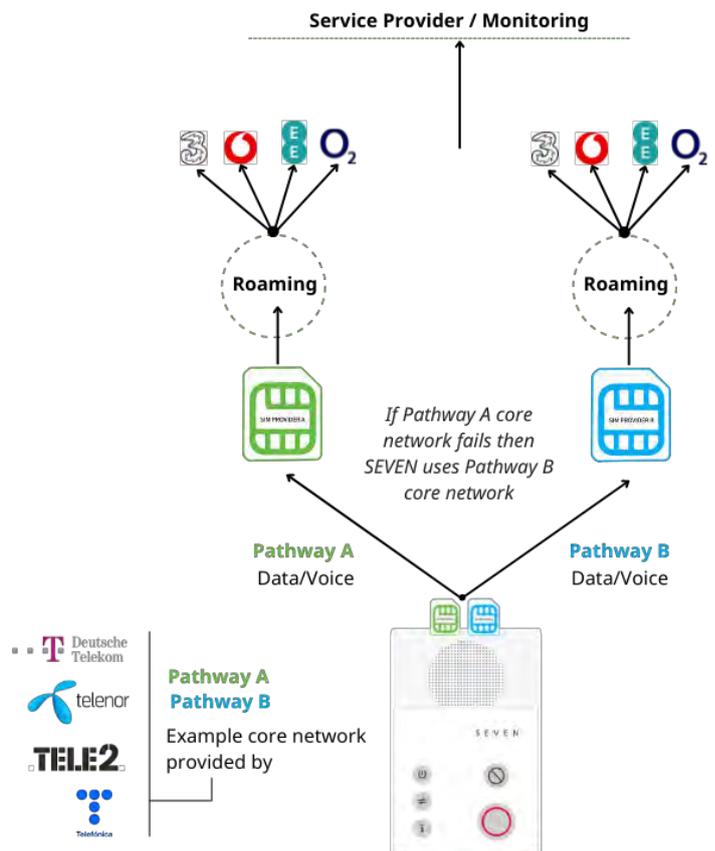
Dual SIM Functionality and Roaming Algorithm - Communication Resilience

SEVEN provides **safe and resilient** communication through an advanced roaming algorithm and a secondary SIM pathway.

SEVEN uses roaming 'Machine to Machine' (M2M) SIM cards to provide data and voice communication, with the added benefit of a managed platform for support should communication issues arise.

SEVEN uses these SIMs in conjunction with a roaming algorithm to determine the most suitable local network for your device dependent on location and other external factors. In the UK, these are typically EE, Vodafone, Three and O2. Should SEVEN be unable to connect to the local network, SEVEN will roam and connect to an alternative provider.

To connect to one of these providers, data and voice traffic must be passed through a Core Network provider such as Tele2, Telenor, Deutsche Telekom etc. In the rare event of a core network outage, SEVEN is fitted with a secondary 'back-up' SIM card to offer a redundancy path for connection to an alternative network. Should the Core Network provider through Pathway A be unavailable, Pathway B can be used to send an alert.



Additional Features

Audio Assisted Install* – SEVEN’s audio assisted installation steps a user through the process of establishing good cellular connectivity, testing the range between the pendant and SEVEN base unit, and sending an activation. This feature can be enabled at start up, remotely or via the Installer Setup Menu.

Away Function – this disables the base unit from tracking RF devices and announcing voice messages, it sends a report to monitoring to inform them the user is ‘away’ from home for an extended period (used when staying away).

Holding the ‘Cancel’ button during normal operation and it will announce “Away mode enabled” and the ‘Cancel’ button will flash left/right.

Holding the ‘Cancel’ button again will return it to normal operation and a “welcome” message will play, and a ‘Home’ report is sent.

I’m OK * – When this feature is enabled, pressing the ‘Connect’ button will send a report to the monitoring centre, which does not require an operator’s interaction. If the ‘Connect’ button isn’t pressed, then the operator will be informed and follow the pre-agreed procedures.

System Test Reminder – SEVEN provides a audio and visual reminder for the service user to complete a full system test.

Voice Messages – Three types of voice announcements can occur:

- 1) **Automated System Announcements;** these play during daytime hours only, to notify a user of device associated events that require their attention.
- 2) **Scheduled Reminders;** Up to six reminders can be scheduled to occur daily at pre-set times through the Chiptech Wizard. These can include medication, caregiver visits, mealtimes, and generic timed reminders.

- 3) **Event Notifications:** Sets of voice announcements can be remotely triggered to notify users about ‘Critical’ events, ‘Action’ requests and ‘Friendly’ messages or greetings.

Voice announcements can be repeated by pressing the ‘Info’ button, and cleared by pressing Cancel. Acknowledgement of announcements is logged and can be reported.

Automated RF Device testing – RF tests are logged every 7 hours from peripheral devices learned into SEVEN. Multiple missing RF tests are reported to monitoring and can be notified locally. This ensures a peripheral is still in range and able to communicate to SEVEN. If the peripheral reports again, a restore report is sent. Peripheral device battery status is also reported to monitoring.

300m+ Range – Chiptech personal help buttons and Telecare devices communicate with SEVEN through bi-directional Radio Frequency (RF) and have a range of 300m+ in open air. The RF device confirms that the base unit has received the alert and it’s outer edge flashes red upon confirmation; reassuring users and simplifying range testing.

Battery Backup and Reporting – SEVEN is capable running solely off its battery pack for 40 hours. Automatically rechargeable in under 24 hours, SEVEN reports low battery at approximately 20% of capacity remaining as well as reporting a missing or non-functional battery pack.

SmartCare® Response App – SEVEN connects to the friends and family app, SmartCare Response. Emergency and information events can be configured to alert direct to a group of Responders with the reassurance that the events will be escalated to monitoring if there is no action taken. The SmartCare Response App also offers a smart alternative to hard-wired systems housing warden call systems.

Technical Details

System: SEVEN D is supplied with a customised top label, a Pearl pendant transceiver, a plug pack, fitted battery pack, optionally fitted SIM(s) and a user guide; programmed at production with specified files and settings, ready for installation.

Dimension: 119W x 189L x 50H mm and weighs 400-500g

Packaged: Recyclable cardboard box 240W x 200L x 60H mm and weighs 600-700g with all components included.

Battery and Charging

Capable of running solely off its battery pack for over 40 hours in ideal conditions with Chiptech recommended configuration settings, to provide peace of mind in the event of a power outage.

Industrial grade NiMH battery pack, automatically rechargeable to 90% in under 24 hours, and replaceable if required. Regular battery maintenance (every 90 days) ensures high capacity and life of battery.

Low capacity battery packs are detected and reported. A missing or non-functional battery pack is reported. Low battery warning following mains failure at approximately 20% of capacity remaining.

Environmental

Manufactured with 10% fewer plastic parts than previous EVA base unit. Lead free and RoHS compliant. Packaging is recyclable and printing uses recycled paper and food safe inks.

Temperature: Operating temperature of 0 – 40°C

Humidity: 90% humidity (non-condensating).

Communications

Pearl Radio Frequency:

Range 300m+ typical in open air between Pearl personal help buttons and SEVEN.

Up to 16 RF Devices can be learned and tracked by SEVEN.

869MHz - United Kingdom and Europe.

Pearl Protocol Version 1.0

Cellular Frequency:

2G (GSM) & 4G (CAT 1 LTE):

B1, B3, B7, B8, B20 and B40

Reporting Protocols:

SCAIP TS 50134-9

SCAIP SS 91100

CSV Contact ID

Upgrade

Option port for direct connection for updating and downloading log files using the Chiptech Wizard.

Remote update and log download using the Chiptech Wizard.

Fleet wide update of files and Cellular Module Firmware Over the Air (FOTA) facilitated via SmartCare Cloud. (FOTA updates must be done using cellular data.)

Service Life

Main internal battery pack may need to be replaced after approximately 6 years. The plug pack MTBF is 50,000 hours and is replaceable. SEVEN is dependent on the availability of the networks that it communicates over, which includes the 4G/2G network connectivity.

SEVEN Standards

Electrical Safety

IEC 62368-1:2018/COR1:2020

Human Exposure

EN 62311:2020

ICNIRP Guidelines:2020

European Council Recommendation 1999/519/

EC

Electro Magnetic Compatibility (EMC)

EN 50130-4: 2011, A1: 2014

EN 301 489-1: V2.2.3

EN 301 489-3: V2.1.1

EN 301 489-17 V3.2.4

EN 301 4

89-52: V1.1.0

Pearl Radio

ETSI EN 300 220-3-1 V2.1.1

4G/2G Cellular Radio

ETSI EN 301 908-1 V13.1.1 (2019-11)

ETSI EN 301 511 V12.5.1 (2017-03)

IP Rating

AS 60529:2004 (r2018), IP32

Social Alarm

EN 50134-3:2012 (incl. corrigendum July 2015)

SEVEN Telecare System



RoHS



Base Unit



Plastic

Packaging



Designed and manufactured in New Zealand by Chiptech Limited

Due to continual product development this product specification may change without notice. Chiptech does not accept responsibility for any errors or omissions contained within this document.

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For more SEVEN documentation please refer to the Chiptech Web Portal



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DIGITAL DISPERSED ALARM
Technical Specification

Chiptech

Chiptech International Limited is an electronics company specialising in the design and manufacture of innovative digital solutions aimed at supporting people in their environment, so they can enjoy their independence and feel safe.

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