careium®

CAREIUM 450

MOBILE SOCIAL ALARM

User guide

English

Contents

1 Safety information

- Users should pay particular attention to the potential for interference from other systems operating in the same or adjacent frequency bands.
- The Careium 450 cannot and shall not be dismantled.
- Danger of explosion if battery is incorrectly replaced. To reduce risk of fire or burns, do not disassemble, crush, puncture, short external contacts, expose to temperature above 60° C (140° F), expose to extremely low air pressure or dispose of in fire or water. Recycle or dispose of used batteries according to the local regulations or reference guide supplied with your product.
- Only use recommended power supply as stated in the section Power supply.
- The wall socket should be installed near the Careium charger equipment and should be easily accessible.
- Follow the rules and laws that apply wherever you are, and always turn off the unit whenever its use is prohibited or can cause interference or hazards. Only use the unit in its normal user position. The unit should never be used in an operating temperature exceeding 40 °C or below -10 °C.

2 Important information

All systems using radio and telecommunications are subject to interference beyond the user's control.

Products from Careium are designed to minimize the impact of such interference. Nevertheless, the user must be aware that system components can be subjected to interference or other influences that may cause malfunction.

It is therefore important to regularly check that every part of the system works in all areas, especially radio communications. Contact your supplier immediately in case of any suspected malfunction.

Keep the product away from interfering devices such as radio transmitters, mobile phones, DECT-telephones or wireless headphones.

Users should pay particular attention to the risk of disruption from products which communicate using the same or adjacent frequencies.

For further information, please contact your supplier.

2.1 Medical units

The use of equipment that transmits radio signals, for example, mobile phones, can interfere with insufficiently protected medical equipment. Consult a doctor or the manufacturer of the equipment to determine if it has adequate protection against external radio signals, or if you have any questions. If notices have been put up at health care facilities instructing you to turn off the unit while you are there, you should comply. Hospitals and other health care facilities sometimes use equipment that can be sensitive to external radio signals.

2.1.1 Implanted medical devices

To avoid potential interference, manufacturers of implanted medical devices recommend a minimum separation of 15 cm between a wireless device and the medical device. Persons who have such devices should:

- Always keep the wireless device more than 15 cm from the medical device.
- Should not carry the phone in a breast pocket.
- Hold the wireless device to the ear opposite the medical device.

If you have any reason to suspect that interference is taking place, turn the phone off immediately If you have any questions about using your wireless device with an implanted medical device, consult your health care provider.

2.2 Specific Absorption Rate (SAR)

This device meets applicable international safety requirements for exposure to radio waves. Your mobile device is a radio transmitter and receiver. It is designed not to exceed the limits for exposure to radio waves (radio frequency electromagnetic fields) recommended by international guidelines from the independent scientific organization ICNIRP (International Commission of Non-Ionizing Radiation Protection). The radio wave exposure guidelines use a unit of measurement known as the Specific Absorption Rate, or SAR.

The SAR limit for mobile devices is 2 W/kg averaged over 10 grams of tissue and include a substantial safety margin designed to assure the safety of all persons, regardless of age and health. Tests for SAR are conducted using standard operating positions with the device transmitting at its highest certified power level in all tested frequency bands. The highest SAR values under the ICNIRP guidelines for this device model are:

Body SAR: 1.373 W/kg

During normal use, the SAR values for this device are usually well below the values stated above. This is because, for purposes of system efficiency and to minimize interference on the network, the output power of your mobile device

is automatically decreased when full power is not needed for the call. The lower the power output of the device, the lower its SAR value.

3 Package content

- Careium 450
- Charging cradle/Beacon
- Power supply
- Lanyard
- Quick start guide

4 Description

Careium 450 is a small and comfortable GPS mobile social alarm that improves security not only in the home, but everywhere the user goes. It is easy to carry around at all times, either in a pocket or as a pendant around the neck, and it is waterproof (IP67). When the emergency assistance button is pressed, an alarm is sent to the monitoring centre and a built-in speakerphone enables voice communication with the centre's trained staff. GPS, Wi-Fi and beacon positioning all cooperate to provide not only the user’s location, but also advanced tracking and geofencing functionality that incorporates energy-saving technology for achieving long battery time. A mobile social alarm makes it easier for the senior to maintain an active lifestyle. The alarm should be directed to an alarm receiving centre, a relative or care staff. The service can be set up as a social alarm or a GPS-tracking alarm. A mobile social alarm encourages and helps the senior to stay active and move around freely outside their home, while still feeling safe.

5 Alarms

5.1 Emergency alarm

This alarm is triggered via the SOS button on the front of the device. Three short presses in a row, or a long 3s press will activate the alarm.

5.2 Fall alarm

The fall algorithm built into the device can have two levels of sensitivity, high or normal.

In the event of that the device register a fall, then it will check for motion or steps for a period of 30s after the fall occurred. If motion or steps are recorded within this period, then the device will cancel the fall alarm This sequence is silent, and user will not know that the device has registered a fall, and thereafter canceled it.

In the event of that the device register a fall, the user will be alerted with a beep every second for the coming 30s. During these 30s the fall alarm can be canceled by the user with a press on the side button.

Note! A false alarm is cancelled if there is movement detected after the fall. If the device is placed on a hard surface, such as a table, and then not moved, it can generate a false alarm.

5.3 Geo-Fence alarm

Two type of Geo-fence alarms can be set in the Careium 450. Settings is done via i-care® online. The fence shall be defined so that the target, such as a house, lake etc. is in the middle of the fence. The radius of the fence shall not be less than 100m.

- Geo-Fence alarm IN.
    - If the device enter inside this fence the alarm will be triggered
    - Two Geo-fence IN zones can be setup
- Geo-Fence Out
    - If the device go outside of this fence the alarm will be sent
    - The Beacon need to be inside this fence
    - One Geo-Fence OUT zone can be set up

5.4 Technical alarms

- Power on
- Power off alarm
- Low battery alarm
- Critical low battery alarm (EOL alarm)
- Battery full alarm
- Test transmission alarm

6 Positioning

The device position can be determined in 4 different ways. GPS (and Glonass), Wi-Fi, LBS and via Beacon.

Every 3 minutes the device will determine its position, except for when it is stationary as in below cases:

- Static. Definition of static is 7 minutes without movement. Movement is determined by the accelerometer in the device.
- In contact with at least one beacon.

Satellite's positioning has the highest priority. Accuracy is often about 10-100m.

Wi-Fi position is determined by 2 or more mac addresses obtained from surrounding Wi-Fi networks. Accuracy is often about 10-100m.

Base station position is determined by data from 2 or more GSM base stations that the device have in range. Accuracy is often less than 1000m.

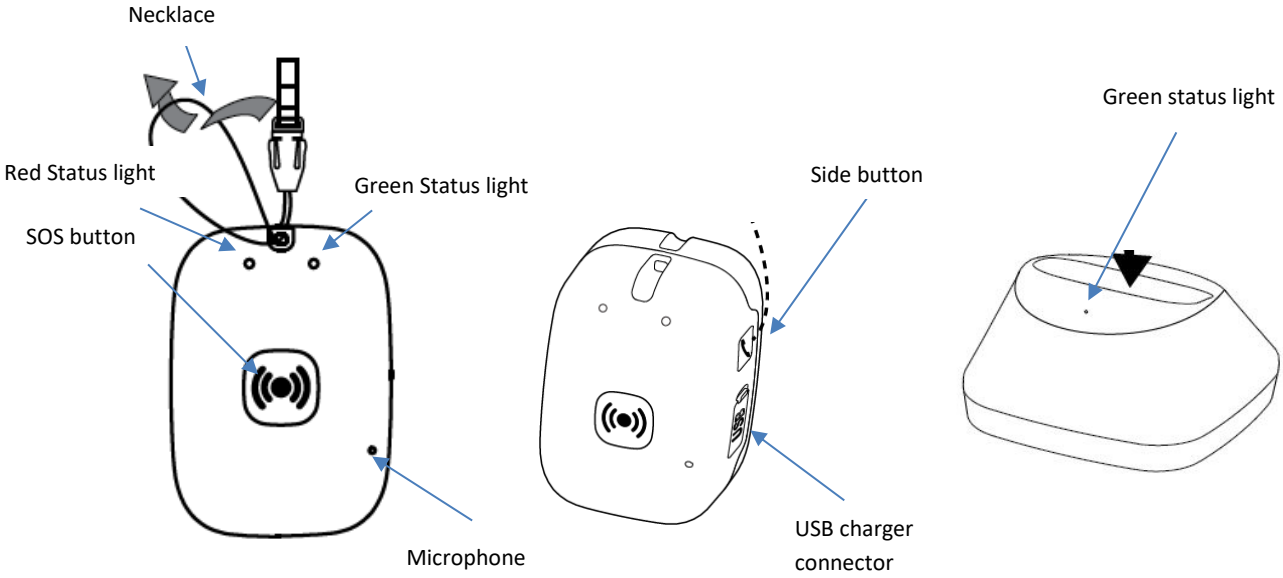
Beacon. If there is a beacon registered as "home" is within range, the system know that the user is at home.

7 Sending SMS

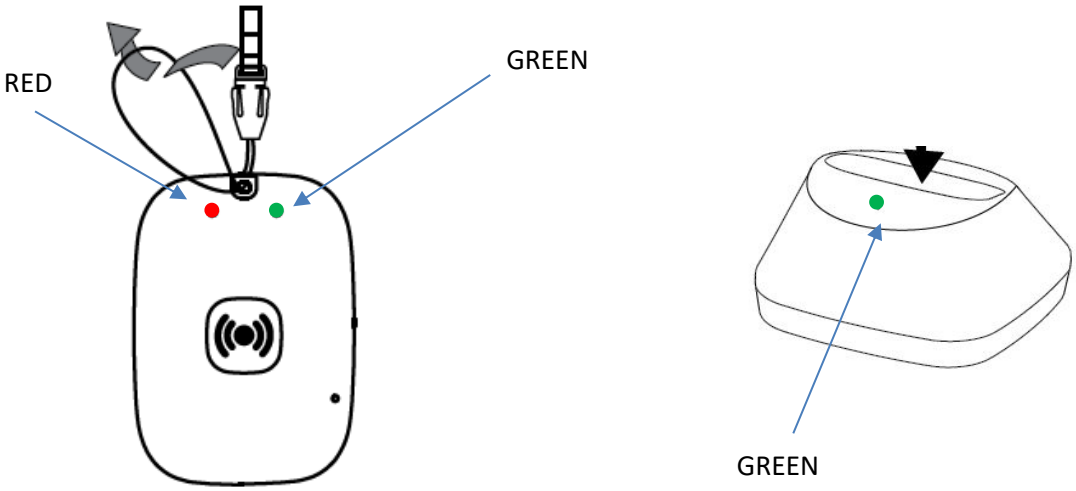
The device can send a predefined text message to one predefined receiver. SMS is sent by pressing the side button on the device. A sound and a vibration are played to confirm that the SMS will be sent.

The SMS will contain a link with a google map position.

8 Careium 450 and docking station, front and side view



Each indicator can light only have one color, but it can have different blinking patterns depending on status. Example with all three indicators activated.



9 Button, LED, sound and vibration chart

9.1 Careium 450, the body worn device

Status/Function	Input	Green led	Red led	Sound	Vibration
Turn on	Press side button 2s or put the device in the charger.	N/A	N/A	N/A	Long vibration
Idle mode	N/A	Short flash every 3s	N/A	N/A	N/A
Charging	N/A	Long flash every 3s	N/A	N/A	N/A
Fully charged	N/A	Lit up	N/A	N/A	N/A
Alarm (no delay)	SOS button, press 3s, or 3 short press	Short flash until call connected (or time out)	Short flash until call connected (or time out)	High tone for 3s	Vibration for 3s
Alarm (delay period)	SOS button, press 3s, or 3 short press	Short flash until canceled or call connected (or time out)	Short flash until canceled or call connected (or time out)	Loud tone for 30s or until canceled	Vibration for 30s or until canceled
Cancel Alarm (during delay)	Side button	N/A	N/A	N/A	N/A
Fall Alarm	Cancel: Side button	Short flash until canceled or call connected (or time out)	Short flash until canceled or call connected (or time out)	During cancel period, 30s: Beep 1/s. Then loud tone for 3s	During cancel period, 30s: Short vibration 1/s. Then vibration for 3s.
Geofence alarm (is a silent alarm)	N/A	N/A	N/A	N/A	N/A
Cellular network not available	N/A	N/A	Double red Short flash	N/A	N/A
Low battery (<20%)	N/A	Not lit	Short flash every 3s	Double beep (once)	Vibration (once)
Incoming call	Answer: SOS button	N/A	N/A	Ring signal	Vibration
Send SMS	Side button	N/A	N/A	Tone	Vibration
Check battery	Side button	>80%: 3 flash <80 but >20%: 2 short flash	<20%: 1 short flash	N/A	>80%: 3 vibrations <80 but >20%: 2 vibrations. <20%: 1 vibration
Turn off	Side button + emergency button pressed at the same time	N/A	Lit up approx. 5s, but can be as long as 70s	N/A	Short vibration followed by long vibration

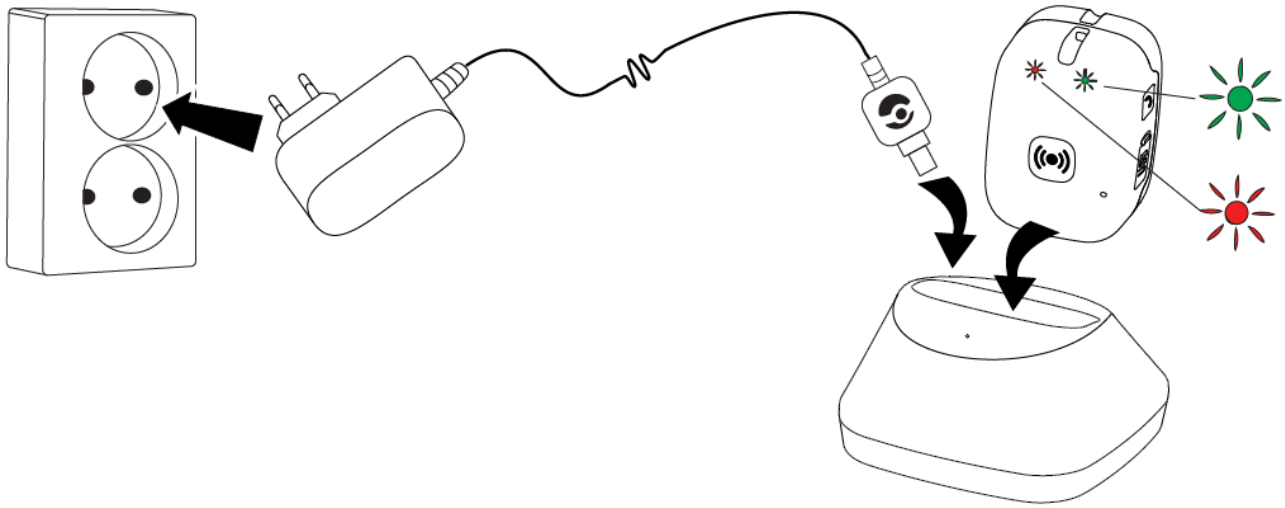
9.2 Careium 450, docking station

Status/Function	Green Led
Power connected	Lit up
No power	Off

10 Installation

When first plugged in or after storage you should let the Careium 450 charge up to 3 hours to reach full battery capacity.

Connect the power supply to the wall socket and the power supply lead to the Careium 450 Docking station. The green Led on the docking station will lit up.



- Install the Careium 450 into the Docking station
- Note! The Careium 450 will start up automatically when put into the docking station.
- The LED will flash twice in red every few seconds until it is connected to network. After approx. 30-60s it will start blinking green, and it is now ready to be configured in i-care-online. (note! When fully charged the green light is lit up)

11 Configuration & Settings

Careium 450 is supported by i-care® online, Careium's unique web-based service which provides remote supervision, product management, firmware upgrades, configuration, and support.

The service is accessible 24/7 and it is always possible to see the status of your Careium 450 in real time.

In addition to user and organization administration following parameters can be set up

The access rights for the Careium 450 is set up in i-care online in the same way as other Careium products. However, two new access rights are available for Careium 450.

- Relative. Only access to read, with focus on positioning
- Relative Admin. Access as above, but can also set Geofence, and administrate receivers of the SMS alarms.

11.1 Allow incoming call

It is possible to call the device directly from any type of phone. If set to All (default), then all calls will be answered by the device. If set to OFF there is no incoming calls accepted. It is also possible to whitelist 3 numbers, alarm back-up number 1-3 to just let these numbers through.

11.2 Answering mode

Incoming calls can be set to be answered automatically or manually (default setting). If set to manually, the call is answered on the emergency button. All incoming calls, except for Alarm generated calls can also be terminated via the emergency button.

11.3 Alarm Back-up number

Alarm back-up number has two functions to serve. Whitelisting as mentioned above, but also as alarm Back-up number if the normal alarm sequence to the alarm receiver fails.

11.4 Alarm delay

Function only valid for Emergency alarm (SOS button is pressed).
If set to ON (default setting), the device will make an alarm sound for 30s. During this time the alarm can be canceled by pressing the side button for 2s. If canceled, there will be no alarm sent to alarm receiver or i-car-online. This alarm will not be recorded in a log.

If set to OFF, the Alarm will sound for 3s, and the user can not cancel the alarm.

11.5 Fall alarm sensitivity

Fall alarm can be set to Off, Normal and High.

Note: In high setting the unit is more sensitive for false alarms.

11.6 Power indicator

When set to On (default) the power indicator on the device will flash green when in on-mode.

When set to Off, the green flash will be turned off.

Note! Red light indicator will flash red when less than 20% battery, even if setting is set to Off.

11.7 Side button

The device can send a preconfigured SMS to one receiver. The SMS is sent directly from the device to the receiver.

11.8 Geofence

Careium 450 can use 3 geofence.

OUT fence: Alarm is sent when the device is moved outside of this fence. Note! Charger cradle/beacon need to be positioned inside this geofence! Only one OUT fence can be set up.

IN fence: Alarm is sent when the device is moved inside of this fence. Two separate IN fence can be set up.

11.9 Access rights

The access rights for the Careium 450 is set up in i-care online in the same way as other Careium products. However, two new access rights are available for Careium 450.

- Relative. Only access to read, with focus on positioning
- Relative Admin. Access as above, but can also set Geofence, and administrate receivers of the SMS alarms.

12 Maintenance

12.1 Cleaning

When cleaning the Careium 450 including accessories and cables use only a slightly damp cloth. Do not use strong detergents or solvents when cleaning.

12.2 Reinstatement

If the Careium 450 is reinstated at a new user, it shall be reset to default settings and re-programmed according to the data and requirements of the new user.

13 Technical data

13.1 Careium 450, the body worn device

Dimensions: 62 x 44 x 16 mm (L x W x H)

Weight: 45 g

IP-Class: IP67

Temperature: Operating temperature -10ºC to +40ºC

Power consumption (typical):

- Off mode: 4.4 µW

- Call mode: 2 W

- Networked standby: 10 mW

Battery: Li-ION, 3.7 V, 800 mAh, 3.0 Wh

Standby time: Up to 5 days with the device actively used 12h a day, with at least 1hour outdoor walk every day (New and fully charged battery)

Talk time: 900 band max output power: 3 hours

1800 band minimum power: 12 hours

Alarm Protocol: SCAIP, TS 50134-9 and voice call

RFID, receiver: 865-868 MHz.

Radio receiver category:1

SIM card interface: Built in nano SIM

Cellular bands

Technology	**Band**	**TX frequency (MHz)**	**RX frequency (MHz)**
GSM (2G)	**GSM-900**	880-915	925-960
	GSM-1800	1710-1785	1805-1880

Wi-Fi: The Wi-Fi function is only used to obtain location information and does not transmit signals.

USB**:**	Micro USB female (Micro USB-B) (intended for Careium certified adapters)

13.2 Charging Cradle/Beacon

Dimensions:	68 x 68 x 36 mm (L x W x H)
Weight:	42 g
Color:	Blue
RFID, transmitter:	865-868 MHz
USB:	Micro USB female (Micro USB-B) (intended for Careium certified adapters)

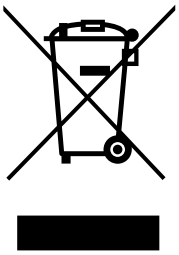
13.3 Power supply

Model (EU):	A31A-050500U-EU1
Model (UK):	S003ATB0500055
Input voltage:	100-240V
Input AC frequency:	50-60 Hz
Output voltage:	5,0 VDC
Output current:	0,55-1,0 A
Output power:	2,75-5,0 W
Cable length:	1,5m fixed cable
Interface:	USB-B micro male

13.4 Environment

The device has IP class 67 and will withstand dust particles as well as water for up to 30 minutes. This will require that the rubber seal over the USB port is properly closed/sealed. Note! If the USB port is not properly closed the device will not be IP classed.
The Charger cradle/beacon has no IP rating, and shall be kept indoors, and in a dry environment.

14 Environmental information



This product complies with the requirements of the EU directive 2006/66/EC (Batteries) and 2012/19/EU (WEEE). These directives regulates the product liability for battery, electrical and electronic recycling with the purpose of increasing recycling and minimizing waste. The Careium 450 is marked with the “crossed out wheeled bin” logo, which indicates that it should be handed in for recycling.

The product can be returned free of charge to a recycling station that is connected, directly or via a recycling system, to CAREIUM or to your distributor. For detailed instructions, please check with your distributor or visit our website, www.Careium.com/care/

Note! The WEEE information and recycling instructions applies to European Union member states only. For other countries please check local legislation or contact your distributor.

Manufactured in accordance with the EU directive, 2011/65/EU (RoHS2).

The materials used in the neckband meet the textile safety requirements of Oeko-Tex standard 100.

14.1 Proper disposable of products

(Electrical and electronic waste)

(Applicable in countries with special collection systems)

This symbol on the product itself, its accessories or instructions for use means that the product and its electronic accessories (e.g. chargers, headsets, USB cables) must not be disposed of with ordinary household waste. In order to avoid damaging the environment and human health, these parts should be sorted separately and recycled in order to promote the sustainable reuse of materials. For questions about how and where these products should be recycled, private individuals should contact the place of purchase or municipality. Companies should contact their supplier and read the terms of the purchase documentation. This product and its electronic accessories must not be mixed with other commercial wastes. This product complies with the RoHS directive. Proper disposal of batteries in this product (applicable in countries with special collection systems) This symbol on the battery, in the manual or in the packaging indicates that the battery in the product must not be disposed of in the ordinary household waste. Where they occur, the chemical designations Hg, Cd or Pb mean that the battery contains mercury, cadmium or lead exceeding the reference levels of the EU battery Directive 2006/66. If the batteries are not disposed of properly, these substances may harm

human health or the environment. To protect natural resources and promote reuse, dispose of the batteries separately and recycle them by placing them in the municipal battery collection container.

14.2 Proper disposal of batteries in this product

(Applicable in countries with special collection systems)

This symbol on the battery, in the manual or in the packaging indicates that the battery in the product must not be disposed of in normal household waste. Where they occur, the chemical designations Hg, Cd or Pb mean that the battery contains mercury, cadmium or lead exceeding the reference levels of the EU Battery Directive 2006/66/EC. If the batteries are not disposed of properly, these substances may harm human health or the environment. To protect natural resources and promote reuse, dispose of the batteries separately and recycle them by placing them in the municipal battery collection container.

15 EU Declaration of Conformity

Hereby, Careium declares that the radio equipment Careium 450 is in compliance with Directives: 2014/53/EU and 2011/65/EU including delegated Directive (EU) 2015/863 amending Annex II. The full text of the EU declaration of conformity is available at the following internet address: www.careium.com/dofc

16 UK Declaration of Conformity

Hereby, Careium declares that the radio equipment type Careium 450 is in compliance with the relevant UK legislation.

The full text of the UK declaration of conformity is available at the following internet address: www.careium.com/dofc

Manual_Careium_450_en_v12.docx
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