Abby
Technical Guide

www.careium.co.uk

careium®

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 Abby 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 16.3 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 minimise 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.

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 organisation 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: is 1.605 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

- Abby
- Charging cradle/Beacon
- Power supply
- Lanyard
- Quick start guide

4. Description

Abby 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. Abby supports a number of products using Careium 869MHz protocol, as an Enzo alarm trigger can be used as alternative to activate the alarm. 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 user 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 user 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 or a remote alarm trigger. Three short presses in a row, or a long 3sec press will activate the alarm on Abby. A single press activates the remote alarm trigger.

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 30sec 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 cancelled it.

In the event of that the device register a fall, the user will be alerted with a beep every second for the coming 30sec. During these 30sec the fall alarm can be cancelled 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 Abby. 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.
  - o If the device enters inside this fence the alarm will be triggered
  - o Up to three Geo-fences IN zones can be setup
- Geo-Fence Out
  - o If the device goes outside of this fence the alarm will be sent
  - o The Beacon needs to be inside this fence
  - o 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 (End Of Life alarm)
- Battery full alarm
- Test transmission alarms
- Accessory battery low alarm

6. Positioning

The device position can be determined in 4 different ways. GPS, Wi-Fi, LBS and via Beacon. When in movement the unit will determine position every 80 seconds or 3 minutes depending on movement speed.

If static or in range of a registered beacon the unit will not determine position

- Definition of static is 7 minutes without movement. Movement is determined by the accelerometer in the device.

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.

LBS station position is determined by connected base station. The accuracy is low and should more be considered an indication of position.

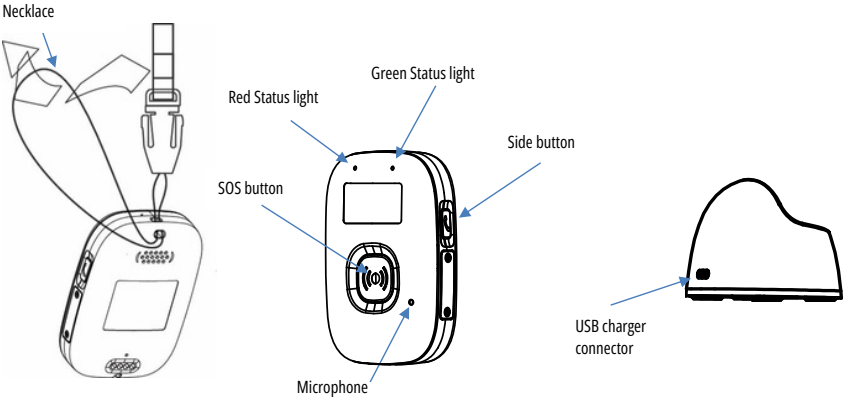
Beacon. If there is a registered beacon within range, the system will the registered position for this beacon as position.

IMPORTANT: Do not move the beacon/cradle to a new location without having the address adjusted in the administration system. If so, the position information displayed in case of an alarm may be wrong.

7. Sending a contact message

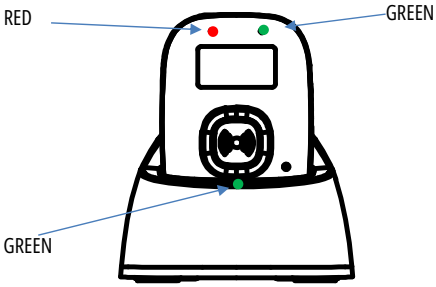
The device can send a request for contact to users connected thought the i-care plus application. The message is sent by pressing the side button on the device. A sound and a vibration are played to confirm that the message will be sent.
The message will include an updated position.

8. Abby and docking station, back, 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:

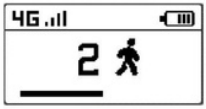


9. Button, display, LED, sound and vibration chart

9.1 Display

- Network type
- Network signal strength
- Bluetooth active
- Home beacon in range
- Battery status
- Time
- Step counter

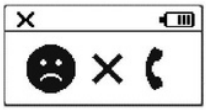
Alarm countdown



Fall alarm countdown

Alarm in progress

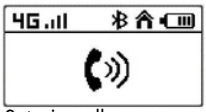
Battery low


No network

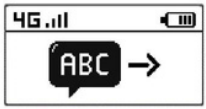
No SIM

Charging

Incoming call



Outgoing call



Contact message sent

9.2 Menu system

The menu system enables the following functions:
• Pairing of social alarm accessories
• QR code for pairing to i-care plus application
• Power on/off
• Pairing of Bluetooth accessory

To enter the menu system press side & SOS buttons simultaneously for 3 seconds
When in the menu system:
• Use side button to scroll down
• Use SOS button to confirm/enter
The unit will exit the menu system automatically after 10 seconds if no activity is taken.

9.3 Abby, the body worn device

Status/Function	Input	Green led	Red led	Sound	Vibration
Turn on	Press side button 3s 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)	Alarm sound	Vibration for 3s
Alarm (delay period)	SOS button, press 3s, or 3 short press	Short flash until cancelled or call connected (or time out)	Short flash until cancelled or call connected (or time out)	Alarm sound until cancelled or alarm is sent	Vibration for 30s or until cancelled
Cancel Alarm (during delay)	Side button	N/A	N/A	N/A	N/A
Fall Alarm	Cancel: Side button	Short flash until cancelled or call connected (or time out)	Short flash until cancelled 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.
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	Warning sound (once)	Vibration (once)
Incoming call	Answer: SOS button	N/A	N/A	Ring signal	Vibration
Hang up call	Side button	N/A	N/A	N/A	N/A
Send message	Side button	N/A	N/A	Tone	Vibration

9.4 Abby, docking station

Status/Function	Green Led
Power connected	Flashing
No power	Off

10. Installation

When first plugged in or after storage you should let the Abby 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 Abby Docking station. The green Led on the docking station will light up and the display will show a charging symbol.

Install the Abby into the docking station

- Note! The Abby will start up automatically when put into the docking station. If totally discharged this may take some minutes
- 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. Radio trigger (Accessory)

The radio trigger uses two-way radio communication, this means that when Abby receives an alarm from a radio trigger it will send a confirmation of receipt to the radio trigger. This is confirmed on the radio trigger by indicator light change from red to green. If the radio trigger doesn't get any confirmation, the alarm is repeated. The radio trigger can be worn using a wristband or neckband. The radio trigger is waterproof according to IP67 by an integrated gasket and can be carried in the shower and in wet environment.

12. Pairing a radio trigger

1. Press side button and SOS button simultaneously for 3 seconds
2. Press SOS button twice
3. Press the button of the social alarm trigger
4. Abby will beep and confirm pairing in the display
5. Either wait 10 seconds for the unit to go back to stand-by or exit by pressing side key four times and then SOS key

Always make a test call using the radio trigger after that it have been paired to confirm functionality

13. Supported Careium radio accessories

- Enzo
- Ellis
- Vibby
- I10 Smoke Detector I10 Heat Detector I10 CO Detector

14. Maintenance

14.1 Cleaning

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

15. Reinstatement

If the Abby 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. Please contact Careium support if you do not have permission to do this in the platform.

16. Technical data

16.1 Abby, the body worn device

Dimensions: 63 x 44 x 17 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, 950 mAh, 3.5 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: Nano SIM

Cellular bands

Technology	Band
GSM (2G)	**GSM-900/1800**
WCDMA	**B1, B8**
FDD	**B1/B3/B7/B8/B20/B28A**

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

16.2 Charging Cradle/Beacon

Dimensions: 58 x 68 x 50 mm (L x W x H)
Weight: 38 g
Colour: Blue
RFID, transmitter: 865-868 MHz
USB: Micro USB-C (intended for Careium certified adapters)

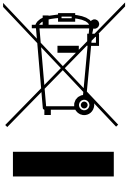
16.3 Power supply

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-C male

16.4 Environment

The device has IP class 67 and will withstand dust particles as well as water for up to 30 minutes.
The Charger cradle/beacon has no IP rating, and shall be kept indoors, and in a dry environment.

17. Environmental information



This product complies with the requirements of the EU directive 2006/66/EC (Batteries) and 2012/19/EU (WEEE). These directives regulate the product liability for battery, electrical and electronic recycling with the purpose of increasing recycling and minimizing waste. The Abby 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.
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.

17.1 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. 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 a battery collection container.

Notes

17.2 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. If the batteries are not disposed of properly, these substances may harm human health or the environment.

18. EU Declaration of Conformity

Hereby, Careium declares that the radio equipment Abby is in compliance with Directives: 2014/53/EU and 2011/65/EU including delegated Directive (EU) 2015/863 amending Annex II.

19. UK Declaration of Conformity

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

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