

## Specifications

Operating Frequency	869 MHz / Custom
Dimensions	H120 x W65 x D80 mm (without aerials). Aerials - L185 x W12 x D37 mm (when angled)
Power Source	Standard 13A Mains Socket
Wireless Range	1km line of sight
Battery Backup	12 Hour Battery Backup
Auto Low Battery	Daily Check and at every transmission
Radio Receive Category	Channel 1: Class 1 Channel 2: Class 2
Compliance	CE / RoHS 2 / RED
Warranty	24 months

## Packing for shipment

The equipment containing cells or batteries must be packed in strong rigid packaging and must be secured against movement within the outer packaging to prevent accidental activation. The sender's name and return address must be clearly visible on the outer packaging.

## Safety

Do not dismantle or alter the unit. Do not open the case. Indoor use in dry location only.

## Declaration of Conformity:

Hereby, Cair (UK) declares that the radio equipment type, Cair Orion is in compliance with Directive 2014/53/EU

## Disposal

All electronic waste should be disposed of in accordance with the latest legislation.

It must be disposed of within the electrical and electronic waste stream and not be disposed of in the normal waste stream. Recycling electrical waste products help to conserve natural resources and prevent adverse effects on the environment.

Contact your supplier should you require more information.



Smart Technology, Made to Care

## Orion Range Extender

Programming  
Guide v 1.2



Turning signal black spots into hotspots! Never let an alert go undetected again with the Orion range extender.

The Orion range extender uses antenna diversity technology to boost the signal of TEC sensors, thereby significantly increasing their range. Orion helps to ensure that those crucial life saving alerts do not go undetected.



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## Intended Use

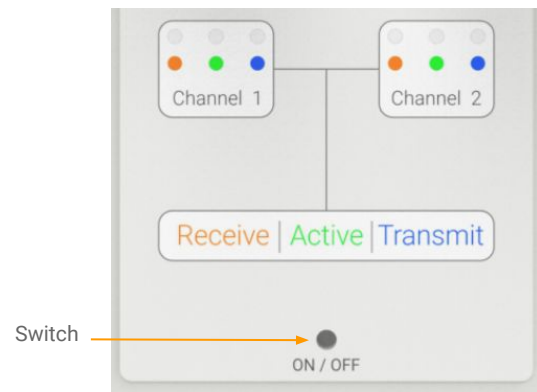
The Orion range extender is a signal booster for all Cair and Tunstall compatible telecare sensors. The range extender repeats all telecare signals up to a line of sight range of 1km, ensuring alerts are less likely to be missed. The Orion is mains powered. It also has a back up battery so will still be able to transmit in the event of a power cut or mains failure. When fully charged, the battery should provide up to 12 hours power, depending on usage. The unit is intended to be installed by a competent person and plugged into a UK style mains socket.

**Note: This guide is for Orions with new software only - from serial numbers 2209 onwards (2209 = 22(year), 09(month)).**

## Installation

For best operation, and to make the most of the transmit and receive diversity, the two aerials should have different polarisation (set at 90 degrees as shown on the image on the front page).

Ideally the Orion should be inserted into an unused socket, and located in a discreet position away from possible interference.



## Turning On

To turn on, simply plug the Orion into a mains socket, it will automatically power up. Another method of turning on is to press and hold the switch (see image above) with the end of a paperclip or a suitable instrument for approximately 10 seconds until the LEDs illuminate.

On power up, all LEDs will flash 4 times, immediately followed by flashing of the blue LEDs which indicate the mode setting (e.g. one flash for mode 1, two flashes for mode 2, etc), and flashing of the yellow LEDs which indicate the repeater number. A buzzer sound may also be heard, depending on options 5 or 6. All modes/options are explained overleaf. The green LEDs will then flash slowly, indicating that the range extender is now ready to use.

## Turning Off

To turn the Orion off, press the switch with the end of a paperclip or a suitable instrument and hold for approximately 5 seconds until the LEDs stop flashing. Please note - the Orion will not switch off if there is a reception/transmission event occurring at that time.

## General Behaviour

When the Orion is sitting idle, the only functioning indicators are the green LEDs which will flash slowly. They may flash in time with each other, or they may not, either is normal.

If the Orion is operating on battery power, the green LEDs will flash quickly.

## Operational Behaviour

When the Orion receives a signal from a sensor, the yellow LEDs on channels 1 & 2 will illuminate briefly, then the blue LED(s) will illuminate briefly at timed intervals, which vary depending on the repeater number (options 7, 8 and 9 overleaf). Both channel 1 and channel 2 LEDs will illuminate in modes 1 and 3, and channel 1 only in modes 2 and 4.

If option 5 is selected, the Orion will be silent when the blue LED(s) illuminate.

If option 6 is selected, the Orion will beep when the blue LED(s) illuminate. This is the default setting.

## Repeating

By default, the Orion will repeat an incoming signal twice (Channel 1 after two seconds and Channel 2 after four seconds).

If option 8 is chosen, the timings will change to five and ten seconds.

If option 9 is chosen, the timings will change to eight and sixteen seconds.

Repeating twice maximises the range of the Orion as the signal is transmitted from each aerial, and as they are at right angles to each other, the signals have more chance of penetrating further.

This can be changed to repeat once only by changing the mode number to either modes 2 or 4.

The mode numbers can also be used to increment the incoming signal ID by 1 so that the receiving unit ignores a signal from a sensor but reacts to the signal from the Orion instead. This is useful when using the Orion with dispersed alarms (lifelines), or when using multiple Orions together.

## Programming the Mode/Option numbers

The modes and options are listed in the next section below. Use the following method to adjust each setting:

- Using the end of a paperclip or suitable instrument, press and hold the switch for two seconds then release.
- The yellow edit LED will illuminate, and the Orion will enter programming mode for a period of ten seconds. During this time, tap the switch the same number of times as the desired mode/option number, i.e. once for mode 1, twice for mode 2, etc. The blue LEDs will flash every time the switch is pressed.
- When finished tapping the switch, the Orion will restart once the ten second programming period expires. The restart procedure is the same as the power up sequence described overleaf in the 'Turning On' section. Please note - the Orion won't restart if it's already programmed to the attempted mode number.
- When the Orion powers up, the blue LEDs will flash to confirm the mode number, followed by the yellow LEDs to confirm the repeater number. The sounder may also beep if it is enabled.

## Mode/Option Numbers

The Orion has four Modes, two Sound Options and three Repeater Options. The default modes should suit most installations with a Buzz and Notifier, although if using the Orion with a Lifeline, modes 3 or 4 should be used. The sound can be turned off if required. Repeater 1 option should suit the majority of installations.

Modes 3 and 4 are 'Incremental' modes. These modes receive the trigger ID of the sensor, add 1000 digits to the ID then transmit the new ID number, e.g. an incoming ID of 283472 would change to 284472. This reduces the number of signals picked up by the Buzz/Notifier/Lifeline and can also help when using multiple Orions together. When using these modes, ensure that the repeated signal is programmed to the Buzz/Notifier/Lifeline, not the signal directly from the sensor.

- Mode 1 (Default).** Repeats twice (Ideally used with Buzz or Notifier only).
- Mode 2.** Repeats once (Ideally used with Buzz or Notifier only).
- Mode 3.** Repeats twice - **Incremental** (Can be used with Buzz, Notifier and Tunstall Lifelines).
- Mode 4.** Repeats once - **Incremental** (Can be used with Buzz, Notifier and Tunstall Lifelines).
- Sound Off.**
- Sound On (Default).**
- Repeater 1 (Default).** Repeats twice in modes 1 & 3 - after 2 secs and 4 secs. Repeats once in modes 2 & 4 - after 2 secs.
- Repeater 2.** Repeats twice in modes 1 & 3 - after 5 secs and 10 secs. Repeats once in modes 2 & 4 - after 5 secs (refer to 'Using multiple Orions together' section below).
- Repeater 3.** Repeats twice in modes 1 & 3 - after 8 secs and 16 secs. Repeats once in modes 2 & 4 - after 8 secs (refer to 'Using multiple Orions together' section below).

## Using Multiple Orions Together

If two Orions are to be used in the same installation, one should be set to Repeater 1 and the other to Repeater 2. If a third Orion is required, that should be set to Repeater 3. All of the Orions should be programmed to Mode 4; this mode reduces the amount of extraneous signals that can occur when using multiple Orions together.

## Mains Fail Alert

Ten seconds after a loss of mains power, the Orion will sound and send a radio signal. This radio signal can be assigned to a Buzz, Notifier or Tunstall Lifeline if desired, to inform a carer or monitoring centre that the Orion has lost mains power. The type of radio signal sent to a Lifeline is a 'Zoning Trigger', this can easily be amended to another type by using PC Connect software.

**Note:** If the mode and /or repeater number are changing from the default setting, these should be programmed first before the mains fail alert is programmed into any receiving device.