Companion Monitor Handbook

Wired Companion Bedside Monitor Solutions
S1027AB/S1027BB

Introduction

The handbook covers the essential instructions for the installation and use of the Alert-iT Companion epilepsy monitor.

The Companion solutions covered in this manual have the ability to detect:

- Excessive Bed Movement as typified by a tonic-clonic seizure
- Repetitive Sound Patterns (grunts, clicks or shouts) associated with an epilepsy episode or continuous vocal sounds above a set volume level (S1027AB Solution)
- Moisture (sweating, enuresis, vomiting) associated with an epilepsy episode (S1027BB Solution)
- Bed Vacation (instant or prolonged) as may pose a risk to the user

It is NOT suitable for seizures characterised by stillness or stiffness as typified by a tonic seizure, for this please ask about the Guardian Monitor.

Before installing the Companion, you will need to have sufficient knowledge of the client to make the necessary risk assessment. This assessment will establish suitability of the equipment and sensors required to provide a safe environment with comprehensive support.

This handbook will help you install, test and adjust the settings of your Companion and its sensors.

Once you have installed your monitor, your equipment provider will be pleased to offer any advice you may require.

Please test the operation of your Companion and sensors at least once per week. You will find a simple form on page 21 which will help you keep track of this process.

Finally, please call 01530 239 900 or go online to **www.alert-it.co.uk/registration** and register your new equipment with our Service Team. You will be assigned an SRN (Support Registration Number) which will link your details and equipment to our database, ensuring that you always receive fast and efficient service and support. An additional benefit is that this will extend your warranty to three years at no extra charge.

Contents

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Product Information

The system is designed for use in an indoor residential environment of 10-30ºC and 90% RH (relative humidity) maximum.
If you are not using your Companion for an extended period, isolate the device from the mains by removing the power supply plug
Your Companion is a high quality device that is supported by a three-year warranty. Some of the optional sensors may, however, only be guaranteed for one year (after registration) due to the harsh environment in which they operate - for instance, bed mat sensors where contamination can occur. As such, we would urge you to test the Companion and its sensors frequently. Please contact your equipment provider should you have any queries.

The Companion range of monitors supports the following symptoms:

Tonic-clonic seizures from tremors to large movements

Immediate or prolonged bed vacation

Enuresis via the moisture sensor sheets (also vomiting and salivation via optional P142F pillowcase sensor)

OR

Sharp vocal sounds associated with seizures

Client Assessment

The appropriate sensors for the above symptoms can be verified on the following table:

	Symptoms			
Sensor	**Bed Movement**	**Enuresis (moisture, vomit or salivation)**	**Bed Vacation**	**Sound**
P114 Bed Movement Sensor	✓			
P143* Bed Occupancy Mat			✓	
P142A/F Moisture Sensors		✓		
Microphone P158B				✓

The Companion and its Optional Sensors

Companion Monitor Contents:

- Companion Bedside Monitor P154*
- Power Supply for Companion P171
- Bed Movement Sensor P114A
- Foam Pad for Movement Sensor P128A
- External Microphone P158BD

Optional Items (purchased seperately):

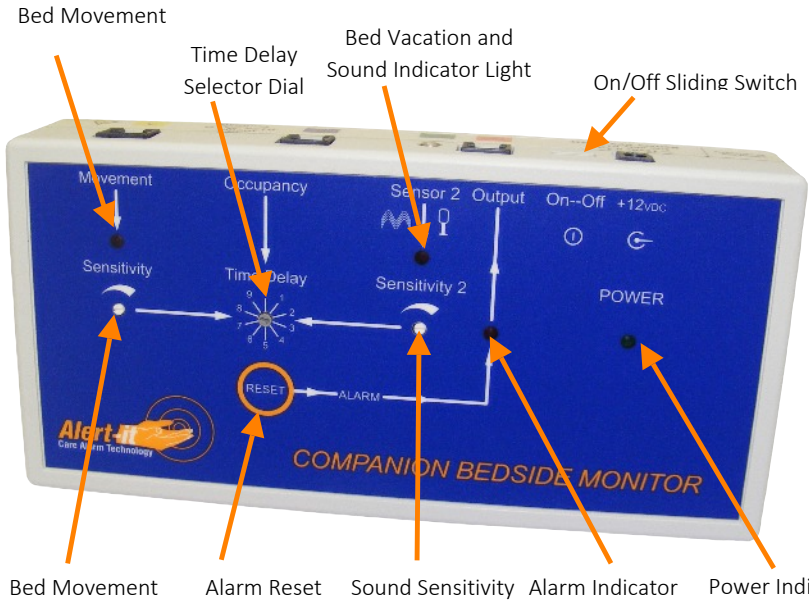
- Pillowcase Sensor Sheet P142F
- Connecting Lead for Pillowcase Sensor Sheet P141B
- Bracket for wall or bed mounting P159A
- Bed Occupancy Sensor P143*

*Multiple variants available - please contact your equipment supplier for details

Part 1 - Quick-Start Guide

Using The Companion

Controls



Switching The Unit On

Turn the Companion on using the recessed sliding switch on the side of the unit (this ensures that the battery back up is functioning correctly*). Next, insert the power supply into the socket on the Companion marked 'POWER 12V DC'. (Fig.1).
The Companion will enter a 30-second self-test mode each time it is switched on, during which the green power light will flash. Once the green light glows solid, the Companion is active and monitoring its sensors.

*The Companion's internal battery ensures that the monitor has a constant power source in case of power cuts. The battery charges while the Companion is connected to the mains supply, so please make sure that the Companion is always plugged in. Prior to the battery becoming fully discharged, the Companion's Movement and Sensor 2 lights will flash together repeatedly.

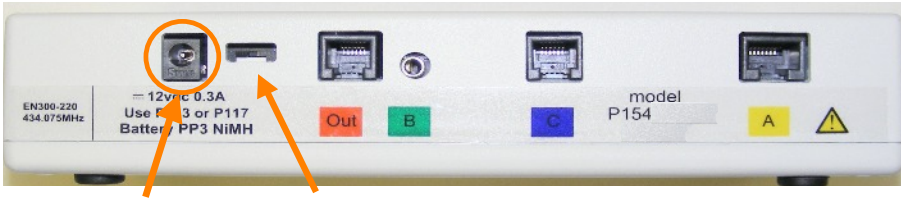


Figure 1

Output to Nurse Call Systems

The Companion is fitted with a six-pin multi-function Nurse Call socket which is compatible with all systems. A matching lead for your particular system (P145**) will need to be ordered with your Companion. Connect this lead via the orange 'Alarm Output' socket as shown below in Figure 1.

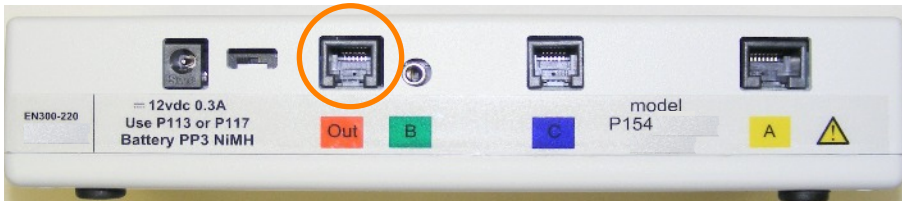
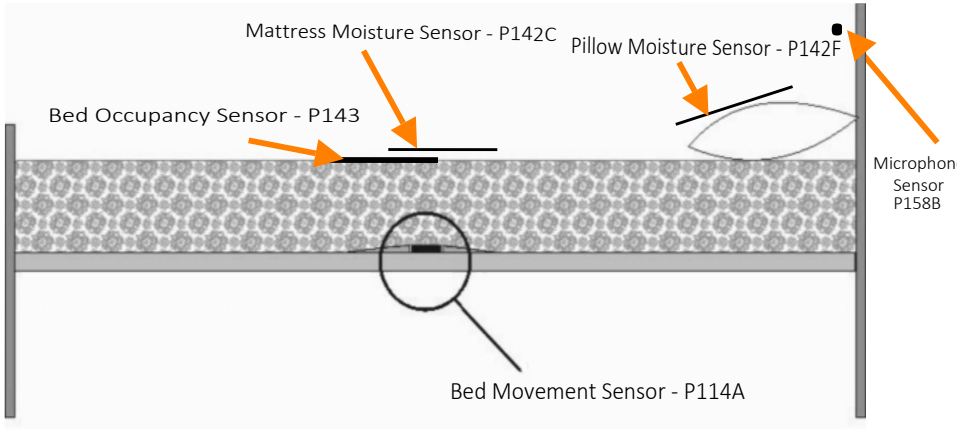


Figure 1.

Sensor Installation and Basic Operation

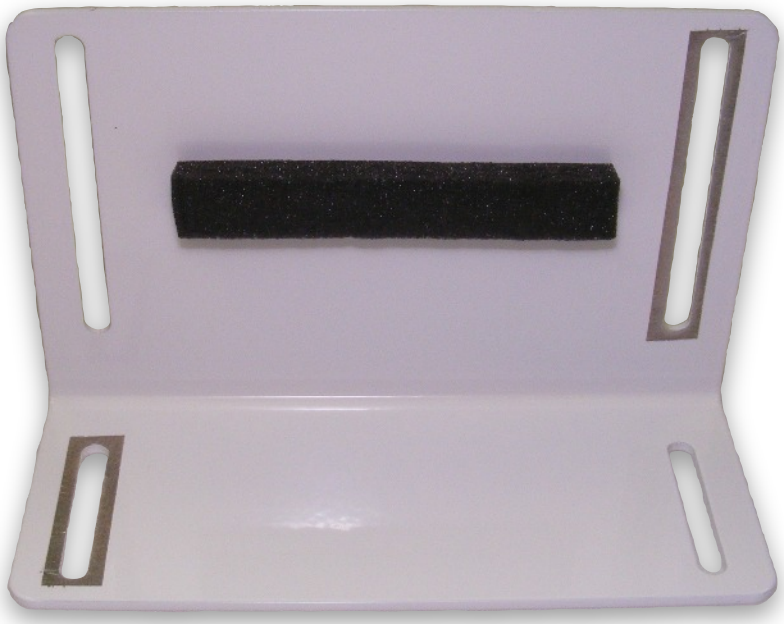
The diagram below illustrates the advised positioning of the Companion's sensor units. In the case of slatted bed frames, attach the sensor unit to the supplied foam to prevent the unit falling through the gaps between slats.



Positioning sensors on the bed Fig 2

Monitor Installation

The Companion is a robust unit and can be positioned on a bedside table or under the bed - just make sure you can reach the monitor's RESET button. Alternatively a bracket is available for wall-mounting the unit or clipping it to a bed head (P159A).



Spasm Movement

Designed to detect tonic/clonic seizures

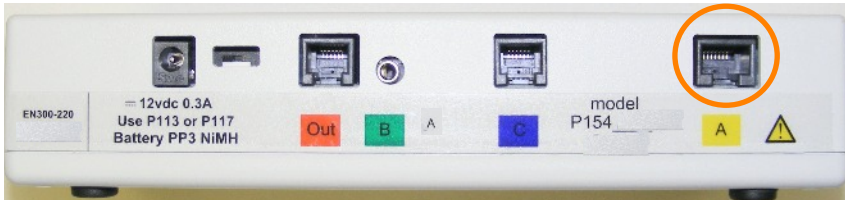


Figure 3

Install the Sensor

Attach the P114A movement sensor to the foam pad using the supplied hook and look fixing pads. Position the sensor and pad beneath the mattress on a firm bed base - ensure the sensor on the top surface of the foam an the unit is directly below the occupant's torso. If your bed base is slatted, please see the note in Appendix B on page 23. Next, plug the sensor into the Companion monitor making sure that the sensor's yellow plug connects to the movement sensor socket (as shown in figure 3).

Activate the Function

The Companion is factory-set to send an alarm after detecting tonic/clonic seizure movements lasting for longer than 15 seconds. To change this setting, please see page 17.

Test the sensor

Tap the mattress to imitate a seizure (you will need to use the same amount of movement based on your knowledge of the user) and note that the red sensor light illuminates and remains visible as you tap but goes out as soon as you cease. See page 15 for further information on adjusting the sensitivity if required.

Normal Operation

When the test period is over, the red 'Movement' light stays on after each movement of the bed for the 'rate time' set on the switch. To register an alarm the movement must be faster than this rate so that the light stays on permanently for the time period set on the switch (see table on page 16). When an alarm has been registered, a signal will be passed to your Nurse Call System or Third Party Telecare System.

Bed Occupancy (if applicable)

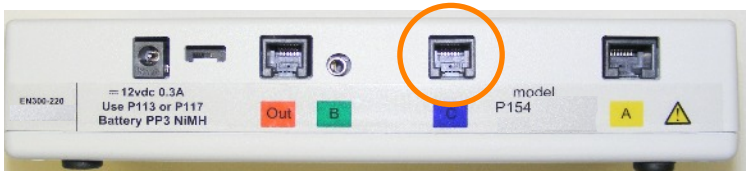


Figure 4

Install the Sensor

Place the Bed Occupancy Sensor (P143*) on top of the mattress under a suitable cover sheet, in a position that ensures the maximum body weight is lying on the sensor. Typically this is the area beneath the upper torso. Positioning the sensor beneath the bed occupants shoulder area is advised if an alarm is required before the user's feet touch the floor. Insert the sensor cable into the Companion's Occupancy Monitor socket as shown in figure 4.

Activate the Function

Press the RESET button before the user gets onto the bed, once the bed is occupied the function will be automatically activated. To prevent false alarms, especially in the day, the Bed Occupancy and Sound monitoring will remain de-activated after the RESET button has been pressed until the pad detects that a person has returned to the bed. Consequently the user can easily suspend the function during the day by pressing RESET.

Test the Sensor

The red sensor 2 light illuminates if the bed is vacant (or the sensor unplugged). Sit or lie on the bed to activate the sensor mat and the light will go out.

Normal Operation

If the bed is vacated, the red light B will illuminate, and after the set period (default 6 minutes) the monitor will sound a warning alarm raised for 20 seconds to remind a user to return to the bed. An alarm will then be sent to be passed to your Nurse Call System or Third Party Telecare System if the bed remains unoccupied. This monitor warning alarm is optional and can be disabled by an internal link should it upset the user. The movement and sound alarms are still active while the Bed Vacation light is on (in case a failure of the mat has falsely indicated vacation).

*The bed occupancy function must be specified at point of order. If it has not been requested, please contact your equipment supplier for activation details.

**Other types of bed sensor are also available - please contact your equipment supplier for details.

Sound (S1027AB Variant Only)

Designed to detect seizures associated with vocal sounds

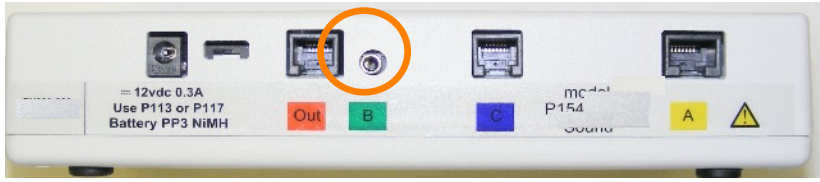


Figure 5

Install the Sensor

The microphone plugs into the Companion's green socket (as shown in Figure 5). Place the microphone near to where the user rests their head - this is especially important if the monitor is being used in a noisy environment.

Activate the Function

The function is activated automatically as soon as the microphone lead is plugged into the socket.

*Please note: To prevent false alarms if using the Bed Occupancy function, the Sound monitoring will not reactivate after RESET button has been pressed until the pad detects a person has returned to bed. Therefore, you can easily disarm the function during the day simply by pressing RESET.

Test the Sensor

Check that the Sensor 2 light flashes when small, sharp sounds (such as a finger click) are made near to where the user's head would be positioned. If a Bed Occupancy sensor is fitted, it must be activated (by sitting on the bed and thus extinguishing light B) to carry out this test. Please see page 16 for details of how to adjust the microphone's sensitivity.

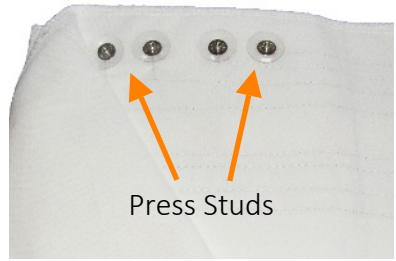
Normal Operation

If the sound pattern matches the rate and carries on longer than the set delay, an alarm is generated and passed to your Nurse Call System or Third Party Telecare System. Press RESET to silence and reset this alarm.

Moisture (S1027BB Variant Only)

Install the Sensor

Connect the Moisture Sensor (P142C) to its connecting lead using the press-studs (you **must** connect the studs to **either** the right or left-hand pair in the case of the mattress sheet - the sheet will not function if you connect the lead (P141B) to the central pair) and then plug the lead into the Companion's green port (as shown in figure 6).



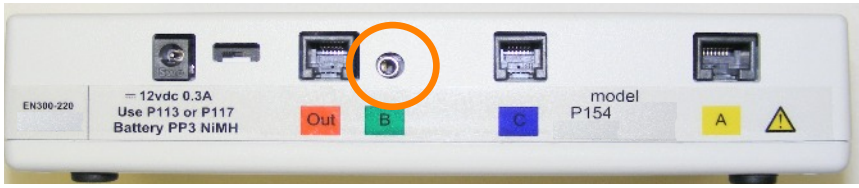


Figure 6

The sensor sheet is positioned on the bed as shown in Figure 1 on page 8.

Activate the Function

The function is activated automatically as soon as the lead is plugged into the socket.

Test the sensor

To test the sensor, join the two unused stud connections using a metal object (such as a teaspoon) to trigger an alarm. Please see page 16 for details of how to select moisture level required to activate an alarm

Normal Operation

The moisture alarm will illuminate Sensor Light 2 when the pad is wet. Please note there is an 8 second delay due to the alarm being monitored when the red light flashes). The alarm is then passed to your Nurse Call System or Third Party Telecare System after the time delay set on the switch (shared by the movement alarm). The alarm will only reset if the wet sheet is removed or replaced.

Alarm Condition

When an alarm is generated, the monitor's Output light will illuminate.

All alarms can only be cleared at the monitor by pressing the button marked 'RESET' on the Companion's control panel.

The pager will automatically detect any failure in the communication system or catastrophic failure of the monitor.

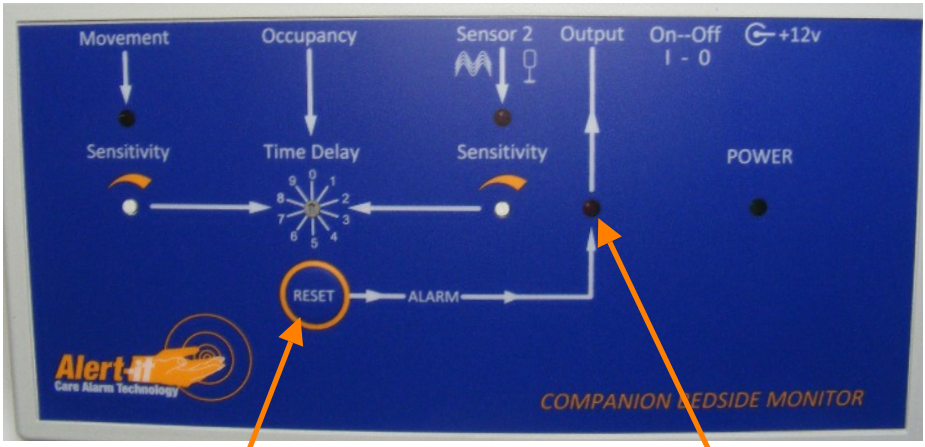


Figure 7

Alarm Reset Button

Alarm Output Light

Part II - User Settings & Adjustments

The Companion's dial controls have been designed to be tamper resistant, and you will find an adjustment screwdriver stored in the battery compartment (figure 8), situated on the base of the unit. The screwdriver fits the recessed slots of each dial (figure 8), allowing their adjustment.

Please note - Make all adjustments after the end of the 30 second test period that occurs when the Reset button is pressed or the monitor is first turned on.

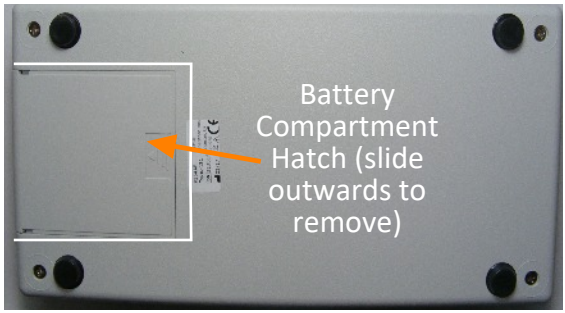


Figure 8

Bed Movement Sensitivity Adjustment

The sensitivity dial controls the level at which the stimulus is detected. To set the correct level of sensitivity, turn the dial fully clockwise - the red light will glow constantly. Next, slowly turn the dial anti-clockwise until the light goes out, but illuminates as the bed is shaken.

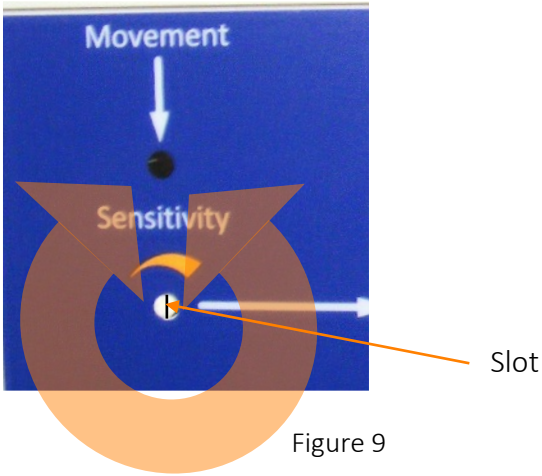
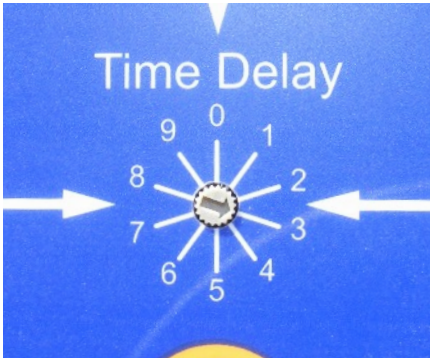
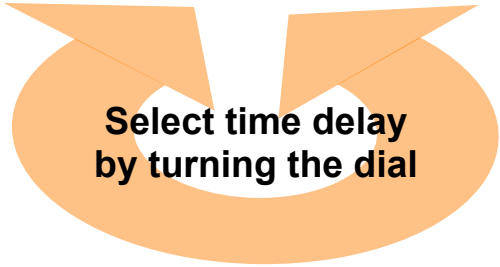


Figure 9

Time Delay Adjustment

The delay is a time for which the distress condition (sound or movement) must occur before the alarm is sent and is set by altering the position of small rotary switch according the table. The period should be set to minimize false alarms during normal movement. As delivered the sensitivity should be suitable for detecting spasms in a domestic bed and the time delay of 15 seconds (position 3) will normally be a good compromise between speed of detection and avoiding false alarms during nocturnal restlessness or coughing, turning etc.





Dial Position	Time (Seconds)	Rate (Seconds)
0	2.5	1.5
1	5.5	1.5
2	10	2
3	15	2
4	20	3
5	25	3
6	30	3
7	40	3
8	50	3
9	60	3

Sound Sensitivity Adjustment

A good starting place is with the 'Sensor 2' dial slot vertical (half-way - see figure 7). For maximum sensitivity turn the control clockwise using the small screw-driver supplied. Set the control to pick up the required level of sound, without background noise giving such continuous stimulation as to create a false alarm.

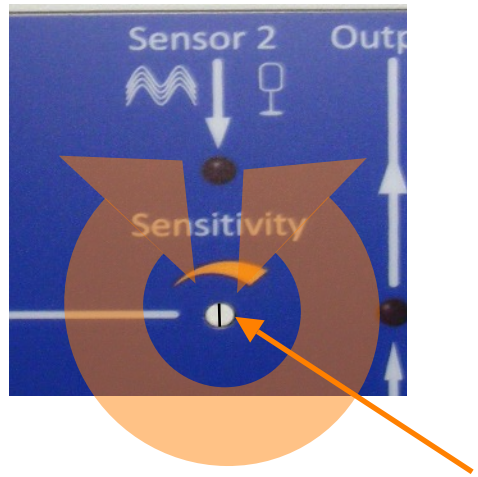


Figure 10

Moisture Sensitivity Adjustment

A small degree of adjustment can be made to the the operation of moisture function, with maximum sensitivity selected by turning the 'Sensor 2' dial fully clockwise (see figure 10).

Bed Vacation Time Setting

The default setting is 6 minutes, which is used to detect potential collapse out of bed, while allowing the user freedom for visiting the bathroom for instance. This can be changed in the range 5 seconds to 21 minutes, but requires removal of the P154 base and a reset procedure using the links exposed. For this please refer to the UH1102B P154 Installers Handbook or contact your equipment provider.

Alarm Settings

The following table shows how each detected alarm condition is signalled on the Companion monitor

P154 Indication	Meaning
Red light A constantly illuminated	Client possibly in distress - Bed Movement Alarm
Red light B constantly illuminated	Client possibly in distress - Sound Alarm
Red light B Flashing	Client possibly in distress - Bed Vacation Alarm
Red light A Flashing	Client possibly in distress - Bed Vacation Alarm

Maintenance

Cleaning

It is recommended to regularly clean both units by wiping with cotton wool pads moistened (compressed until dripping stops) with a mild detergent (0.5% washing-up liquid) solution or by using an alcohol or baby wipe. Avoid getting any liquid into containers.

Pager Pairing Instructions - see appendix A

Compliance

- The system complies with 93/42/EEC as a Class 1 Medical Device for use in a Home Heathcare environment
- The system complies with EN60601 for Class 2 Electrical Safety and does not need a protective earth and Group 1 Class B for EMC in a Home Healthcare environment
- The system has a radio transmitter compliant to EN300-220 operating at 434.075MHz wideband 10mW power (class 8) less than 1% duty cycle (class 2)

Bibliography

Full handbook: www.alert-it.co.uk/support

Important Safety Information

1. Ensure that all sensor cables are routed and secured to avoid the risk of entanglement or strangulation.
2. Ensure the power cable is routed and secured to avoid the risk of entanglement or strangulation.
3. Regularly check the power supplies for damage and potential shock risks.
4. Ensure, by testing, that the alarm is annunciated at the carer's location(s).
5. Regularly test sensors as defined herein.
6. Use only the power supply and batteries recommended.
7. Operate power supply and charge pager away from direct heat and uncovered.
8. As with all medical electronic equipment there is potential for the equipment to interfere with or be effected by interference from other electrical or electronic devices. For this reason avoid placing the monitor, sensor or connecting cable in close proximity to sensitive electronic devices or devices which produce strong electromagnetic fields such as radio transmitters, mobile phones or power cables.
9. Only use the monitor with accessories approved for use with this product and only in accordance with instructions.
10. If the equipment is modified in any way, appropriate inspection and testing must be conducted to ensure continued safe use of the equipment.
11. The carer must conduct a risk assessment to determine if the level of reliability offered by the monitor is sufficient or if additional monitoring is needed. Contact the manufacturer for assistance with Risk Evaluation Tools.
12. Additional levels of mechanical protection may be needed for some patient disorders. Contact the manufacturers for advice.
13. The advanced pagers “Extended User” option should be disabled if there are concerns that the carer may turn-off the pager inappropriately and ignore alarms.
14. Some accessories are fitted with small screws and have plastic bags. Ensure these do not come into the possession of vulnerable patients who might choke on them.
15. Any sensor over the mattress (Bed Vacation or Incontinence) has the potential to cause pressure sores. The carer must assess this risk and monitor the use of these products if used.
16. Any sensor over the mattress could pose a fire hazard if in contact with an ignition source.

Routine Testing Sheet

Serial Number: .....

Test	Signature	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
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17		
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20		

The Alert-it system has been designed with due regard to reliability and integrity. While it offers a highly vigilant monitoring method,it is always possible that a distress condition can go undetected for a variety of reasons (including malfunction) and in life threatening situations it is advisable to use the Alert-it system in conjunction with additional monitoring techniques (e.g. video). Neither the manufacturer nor its agent can accept legal responsibility to provide a system that is infallible. The carer is responsible for assessing the risks of using this equipment and any settings pertaining to it.

None of the components, including batteries should be disposed of as Domestic Waste. For information on disposal contact iTs Designs Ltd.

This system is certified to the following European Standards:

93/42/EEC: 2007/47/EC[1] - Class 1 Medical Device
EN 14971:2007 - Risk Assessment
EN 61010-1:2005 - Safety
EN12182:1999 - Assistive Technology
EN 61010-1-2:2004 - EMC

EN 300 220-1 V2.1.1 (2006-04) - Permitted radio transmission

2002/95/ECRoHS - Permitted Materials

[1]Alert-it Care Alarms are social aids designed and manufactured in accordance with 93/42/EEC as Class 1 Medical Devices. They are intended to improve the vigilance of carers to distressing side-effects of various diseases, such as Epilepsy and Dementia. They do not monitor vital physiological processes and should not be expected to diagnose any disease or predict the onset of any symptoms.

Appendix A

The P114 movement sensor must be mounted on the supplied foam pad in order to respond consistently to both the horizontal and lateral body movements associated with epileptic seizures. On most slatted beds, the foam pad will prevent the sensor falling between slats. However, please take extra care to ensure that the sensor and foam pad cannot fall between these gaps. Should the slats be spaced too far apart for the foam pad to remain in place, a rectangle of heavy corrugated card (of the type used for storage or packaging boxes) may be used. Simply place the card on the slatted bed base, install the sensor and foam pad on top of the cardboard, and then replace the mattress.

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