P139 Instruction Manual MK2

For v4 software

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.

ITs Designs offers a technical support service for all customers.
Phone +44 (0)116 2993804
Email support@alert-it.co.uk

This system is certified to the following European Standards

93/42/EEC1	Class 1 Medical Device
73/23/EEC	Low Voltage Safety
BS EN 61010-1	
89/336/EEC	Radio Interference Immunity
BS EN 50081-1:1992	
BS EN 50082-1:1995	
BS EN 300-220-1	
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.

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

The internal battery contains LEAD and must be treated as hazardous waste

MONITOR P139 INSTRUCTIONS FOR USE

Contents

Quick Start Guide

The P139 is a complex device with the ability to monitor many sensors and trigger alarms in many different ways. It is therefore ESSENTIAL to adopt a methodical approach to setting each set of parameters, or the user will soon become confused as to which sensor is giving alarms or false alarms.

Unless otherwise informed the unit will have been shipped with all alarms turned off and the internal audible sounder disabled. This will enable the user to gradually introduce one sensor at a time and not be hassled by the loud noise as each setting is tested. Once all the parameters are proved to be working as required, then the audible alarm can be enabled (see Hidden Menu).

In addition to the above, if only a limited number of sensors have been ordered with the unit, then those not required will be disabled (in the Hidden Menu) to stop the annoyance of having settings appear for sensors that are not fitted.

Unless there is specific pressing needs, then the following order for setting the sensor parameters is recommended. After enabling a sensor, then it is recommended that the sensor is used for a few days to establish the optimum setting that has few false alarms while giving the required security, before proceeding with more sensors.

- Bed Movement
- Respiration
- Slow Breathing
- Fast Breathing
- Bed Occupancy
- Sound
- Bed Moisture (wetting)
- Pillow Moisture (Vomit)
- Manual Distress
- Auxiliary

Finally remember there are a set of DEFAULT parameters stored in the unit. If you get into difficulty, these can easily be recalled to establish a known good working state. Once the changes have proven to be successful, then these new defaults can be saved within the Hidden Menu system.

On page 14 you will find a useful chart that lists all the menu items in order, with space to write the optimum settings found by the user.

Hint for Getting Started

- *To start the process, press the top right "Menu" key for 3 seconds to switch the unit on. This key will also act to silence and accept any alarms that are triggered.*
- *Wait for the "Monitoring" screen. The P139 will return to this screen if no keys are pressed for 30 seconds. The value shown is the detected breathing rate and will be 0 bpm if not an active function. The "bar" display indicates the state of the battery charge. Ensure the charger is plugged in if only one bar is displayed, as the next stage will be that the unit will automatically power down.*
- *Press the MENU key again, and all the available settings will be displayed in rotation, starting with the Power Off capability.*
- *In general the RIGHT arrow key will turn-on and increase the displayed parameter, while the LEFT key will decrease and eventually turn off the parameter. The UP key will scroll back through he menu.*
- *Refer to the main book section for hints on how best to begin setting each parameter., which will appear in a frame like this.*

Look out for this "hint" frame throughout the handbook

MONITOR P139 INSTRUCTIONS FOR USE

IMPORTANT

Please read these instructions carefully before using the equipment and keep readily available for reference purposes.

It is not intended for this equipment to be used in diagnosis of medical conditions or for the measurement of any physiological processes. If the user is considered to be at risk it should not be used without medical advice and support.

The equipment can, when used correctly and in accordance with the instructions, be used to give warnings of symptoms that may be related to particular conditions. The equipment, for a number of reasons, cannot always detect the symptoms being monitored and is not a substitute for direct supervision.

If there is ever any cause for concern with the performance of the equipment the supplier should be contacted.

DISPLAY & CONTROLS

A liquid crystal display screen with back lighting and a touch sensitive keypad is provided in order to indicate and adjust, as required, the functions and the status of the system.
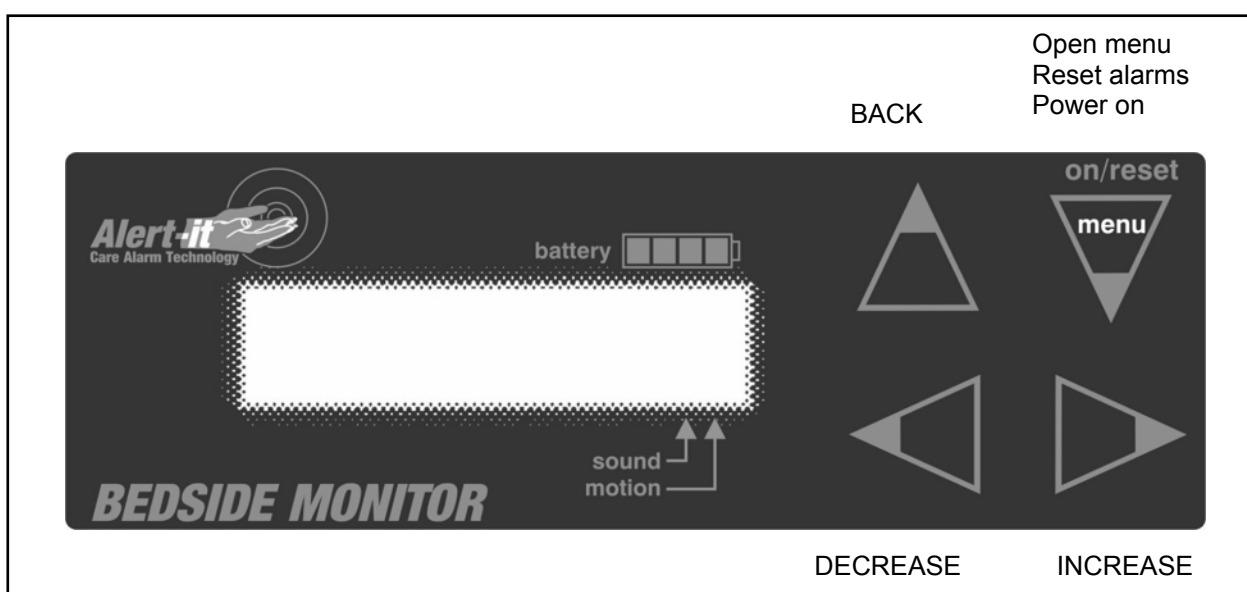
In the event of an alarm condition a highly visible red alarm light will flash on the top of the monitor.

There are a number of screen displays, which provide details of each function and allow adjustment of the various settings. Pressing the 'menu' button advances the screen display in sequence and the settings can be adjusted by pressing the 'INCREASE' or 'DECREASE' buttons. By pressing the 'menu' button repeatedly, the screen displays can be scrolled in sequence until the one required is observed. BACK reverses the menu scrolling.

The 'menu' button has the additional functions of a 'POWER ON' switch when the monitor is turned off and an 'ALARM RESET' button when an alarm condition is active.

When any button is pressed, while the monitor is switched on, the backlight automatically operates to provide nighttime visibility. The backlight also turns on automatically to display any messages during an alarm condition.

Continuously pressing a button has the same effect as repeated pressing.

If no buttons are pressed for longer than 30 seconds and no alarms have been activated the backlight turns off and the screen will show the normal monitoring display.

When sound or motion is detected this is indicated by display symbols on the screen situated above the sound and motion arrows.

POWER SWITCH

Press and hold the 'POWER ON' button for 3 seconds to switch on the monitor. A start-up display will indicate the model number and serial number, as well as the monitor identification and site identification numbers.

After approximately 5 seconds the normal monitoring display will be observed on the screen. To maintain the start display for longer than 5 seconds, press either the 'INCREASE' or 'DECREASE' button. This will cause the display to remain for a further 30 seconds after the button has been pressed.

If an alarm is activated, the screen will indicate the relevant alarm message and override the start-up display.

To turn off the monitor press the 'menu' button until the Power display is visible (one press from the normal monitor screen) and then press the 'DECREASE' button.

ALARM ACTIVATING & RESET

When an alarm is activated the cause appears on the screen with a seconds counter showing how long the alarm has been active. Any active alarm condition can be reset immediately by pressing the 'ALARM RESET' button so that the message "ALARM RESET" is displayed. After a period of 3 seconds the display screen will show the normal monitoring display providing that no further alarm conditions are activated. In this state the display can show:
ALARMS OFF! This warns that no sensors have actually been enabled
ACTIVE: The normal state when the monitor is sensing for a condition
=zZ following ACTIVE shows the Snooze feature is enabled and can be activated
SUSPENDED: If the RESET has been pressed and the sensor is still in an alarm condition, then monitoring using that sensor is suspended until the sensor returns to its safe condition

Many of the alarms can be individually configured to be latching or automatically resetting. When an alarm is configured as latching, then once activated the alarm will continue until it is manually reset by pressing the 'ALARM RESET' button. When an alarm is configured as auto resetting the alarm will automatically cancel as soon as the conditions causing the alarm have reverted to normal., though the screen will continue to show that the alarm was activated for 60 seconds.

The configuration of the alarms as latching or auto resetting is made with the hidden settings screens.

SNOOZE

There may be short times when it is desirable to have the Bed Movement alarms temporarily disabled. This is particularly useful if the user is restless for a period after going to bed or when there is someone present with them and the alarm is superfluous. From the STANDBY screen pressing the INCREASE button (as indicated by >=Zz) will show a time increasing in 5 minute steps. This will count down to zero, at which point the alarm monitor will recommence. Any attached PANIC buttons will remain active in the period. Pressing the DECREASE button at any time will cancel the snooze period.

Radio Transmitter option (P139Bxx)

Model P139B includes a transmitter module and external aerial, which will pass an alarm condition to a remoteP137 or P138 Pager. Any alarm indication that causes the red beacon on the P139 to flash will also cause an Alarm to be indicated on the Pager. Resetting the alarm at the P139 will also reset the Pager.
The radio transmission is "failsafe" in that if a regular heartbeat signal is not received, then the Pager will indicate that the RF link has failed (and hence the user may be at risk). This should be remedied immediately. Please see the Pager handbook (UH1068) for fault finding suggestions.
The communication address for this option is the ID Number displayed on the front panel, which can be adjusted from 1-64 within the hidden menu.

Ethernet Network Option (P139Cxx)

This model has the usual RJ45 Ethernet connector, which is 10/100 T Capable. Due to power requirements, communication to the monitor can only be carried out whilst the AC adaptor is connected. Two lights either side of the LAN connector indicate the operational status. The left light indicates the Link status, Green for 100Mbps, Amber for 10Mbps or off for no link. The right light indicates activity and flashes orange when communication is in progress.
The IP address can be set manually or via DHCP.
Not only can all the alarm states be monitored over this link but also the monitor settings can be remotely retrieved and changed. There is also the capability to log all the sensor activity, which gives the health professional a complete picture of how the sensor activity changes during distress conditions, which will allow more precise adjustment of the alarm trigger parameters. For full details please see the separate P139C Ethernet Handbook (UH1075B)

Alarm Receiver Option (P139xxB)

Models without a radio transmitter can house a P155 radio receiver unit that can be triggered by any compatible Alert-iT Care Alarm. In particular this has application for monitoring day-time falling, where the client wears a radio linked Fall detection badge (eg P135). Should the detector be activated then a radio communicated alarm will trigger the P139 to display "Patient Alarm", and pass the alarm to any connected equipment (eg Nurse Call). For details how to pair the receiver with alarm units please see the P155 handbook (UH1093)

MONITOR FUNCTIONS AND DETECTION OF SYMPTOMS AND CONDITIONS

BODY BREATHING MOVEMENTS ASSOCIATED WITH RESPIRATION

This function can be used when the movement Sensor Plate is plugged into the black socket marked "movement sensor" on the rear of the monitor.

The Sensor Plate in combination with the respiration function of the monitor can detect movements of the chest and abdomen. It does not detect respiration directly and cannot always differentiate between movement caused by respiration and other movements. The respiration monitor ignores most low-level vibrations. Even so, care must be taken to ensure that the cot / bed being monitored is not subjected to continuous vibration, as this could delay or prevent activation of the alarm. This point can usually be covered via the Confidence Check procedure described later.

The Sensor Plate with the label side uppermost should be placed on a firm, flat surface **UNDERNEATH** the mattress so that it will be located centrally under the area of the abdomen of the user. If the surface below the mattress is not firm or flat, the Sensor Plate should be supported by placing it on a piece of non-resilient board. Ideally the board should be made to cover the area under mattress and be made of a material such as plywood of at least 6 mm (1/4") thickness. The cable from the Sensor Plate should be located so that it will not be liable to damage or present a hazard to the user. Ensure that thick bedclothes are not tucked under the edges of the mattress which might lift the underside of the mattress away from the Sensor Plate.

The Sensor Plate should not be used in a moving pram, vehicle or in a rocking cot/crib.

Draughts blowing over the bed/cot/crib may be detected by the Sensor Plate and interpreted as respiration movements. This would delay or prevent activation of the alarm. The use of fans directed towards the bed/cot/crib should be avoided.

RESPIRATION ALARM

When the Monitor has detected a pattern of breathing movements the 'x' symbol will flash on the screen above the motion arrow in time with each breath. If no breathing movements have been detected within the pre-set respiration time limits the message "RESPIRATION ALARM" will be observed. The red alarm light will also flash on top of the monitor and the alarm relay output will be activated. The inbuilt audible alarm will also operate if it has been enabled.

If the respiration alarm has been configured to latch then it can only be cancelled by pressing the alarm reset button. Otherwise it will cancel automatically when breathing movements resume, but the alarm message will remain on display for 60 seconds to indicate that an alarm has been activated. The alarm message can be cleared by pressing the 'menu' button.

The respiration alarm will not activate when screens other than the normal monitoring screen are displayed to prevent nuisance alarms whilst adjusting of the monitor settings.

The respiration alarm will not operate during clonic seizures or in episodes of obstructive apnoea because the continued movement is likely to be detected as normal breathing movement.

If the bed occupancy detector system is not used, an alarm will occur after the bed is vacated because the breathing detector will sense the lack of breathing. To avoid activating the respiration alarm when the bed is vacated the monitor should be turned off by the user when leaving the bed. It must also be switched on again when the bed is re-occupied. If the user is unable to do this, the addition of a bed occupancy sensor is possible to automatically enable and disable the respiration alarm function.

CONFIDENCE CHECK

The Monitor should be tested before being used and on a regular basis thereafter, ideally prior to each period of monitoring. The confidence check establishes that the respiration alarm is operating correctly and also checks that room vibrations do not cause unwanted disturbance of the movement detection function.

For test purposes the bed should be empty. If there is an occupancy detection system in use disconnect the bed occupancy sensor lead from the rear of the monitor. Switch on the monitor and check that an alarm is activated by the lack of detection of respiration movements after the pre-set time delay period has expired. Cancel the alarm by gently tapping the mattress over the movement Sensor plate about every 1 or 2 seconds to simulate breathing motion.

BREATH TICK SOUND VOLUME

As each breathing movement is detected this is indicated by the flashing of the 'X' symbol on the display screen above the "MOTION" arrow on the front of the monitor. In addition to this the detection of these movements can also be indicated with an audible 'tick' sound, the volume of which is adjustable.

To adjust the 'tick' volume press the 'menu' button until the display reads "BREATH TICK VOL." Then press the 'INCREASE' button to turn on the 'tick' sound and increase the volume. Press the 'DECREASE' button to decrease the volume of the 'tick' sound or to turn it off.

The audible 'tick' will not affect the sound monitoring feature of the monitor, since the microphone is muted momentarily during each tick sound.

RESPIRATION ALARM ADJUSTMENT

This alarm is activated when no breathing movements are detected for a given pre-determined time period. This period is adjustable from 10 to 60 seconds in 5-second increments. Alternatively the respiration alarm feature can be turned off if not required. A typical setting would be 20 seconds for use with infants or young children. This time can be extended to prevent false alarms with older users or reduced for more intensive monitoring.

To adjust the time period or to turn the respiration alarm function on or off, press the 'menu' button until the "RESPIRATION" display is observed. Press the 'INCREASE' button to turn the respiration alarm function on and to increase the time period. Press the 'DECREASE' button to decrease the time period. Decreasing the time period below 10 seconds will turn off the respiration alarm function.

BREATHING MOVEMENT SENSITIVITY THRESHOLD

To allow for different thick nesses, structure and composition of mattresses and the depth and degree of the user's breathing movements, the monitor has an adjustable breathing threshold setting. In order to set this to the optimum level first allow the user to settle into a deep sleep so that the breathing pattern is at the shallowest level. Press the 'menu' button until the "BREATH THRESHOLD" display is observed. One step at a time, slowly increase the threshold level until the respiration indication stops. Next decrease the threshold level one step at a time, until the respiration indication resumes and flashes consistently with the user's breathing pattern.

Setting the breath threshold too low will make the monitor more likely to pick up external movements, which could prevent alarm activation. For this reason do not set the threshold any lower than necessary. Repeat the 'Confidence Check' after adjusting this setting.

Setting the breath threshold too high will increase the probability of false alarms.

Hints on setting Breathing Monitoring
1.   Set the Breathing Threshold at minimum (flashing curser to the left) and with no child in the bed and no one touching the bed, check the small x symbol does NOT appear on the screen. Using the breathing TICK function is also very useful to hear the breathing sensor working. If necessary, increase the threshold to stop any sensor activity.
2.   With the child sleeping normally check that the small x symbol appears regularly on the screen with each breath (with the ticking if allowed). The screen will show the measured breathing rate (bpm).
3.   Turn on the respiration minimum time to 10 seconds. This is only needed to detect Apnoea but adding the alarm will test for security against false alarms.
4.   Set the Slow or Fast Breathing to a rate appropriate to the child's seizure condition or at least a margin away from the rate observed in 2 above while sleeping normally.
5.   If the system is failing to detect, then please note the breathing rate recorded during the seizure and reset the alarm conditions accordingly. If there are many false alarms then:
A) If the alarm is Respiration failure, then check the position of the sensor pad and maybe try a lower threshold (moving curser left). Also check the connection but pressing the bed and observing the sensor activity on the display (and by the tick).
B) If the Breathing rate is triggering the alarm, then check the detection rate is sufficiently different to the normal breathing pattern.

RESPIRATION RATE

 The monitor keeps track of the respiration rate by counting the number of breathing movements detected during the previous minute. When the monitor is first switched on the respiration rate measurement starts at 25 breaths per minute (bpm) to prevent unwanted activation of the respiration rate alarms.

The respiration rate is displayed at the bottom left of the normal monitoring screen and is updated every 10 seconds when a new breathing rate is calculated.

SLOW RESPIRATION ALARM

 If the detected breathing rate falls below the slow respiration alarm setting the monitor display will show the message "SLOW RESPIRATION". The red alarm light will also flash on top of the monitor and the alarm relay output will be activated. The inbuilt audible alarm will also operate if it has been enabled.

The slow respiration alarm will not activate when screens other than the normal monitoring screen are displayed to prevent nuisance alarms whilst adjusting of the various monitor settings.

If the detected breathing rate rises above the Slow Respiration setting the alarm will cancel automatically but the alarm message will remain on the screen for 60 seconds to indicate that an alarm has been activated. The alarm message can be cleared by pressing the 'menu' button.

SLOW RESPIRATION ALARM ADJUSTMENT

The slow respiration alarm is activated if the detected breathing rate falls below a set limit. The limit is adjustable from 5 to 20 breaths per minute in 5 bpm steps. Alternatively, the slow respiration alarm feature can be turned off. A typical setting for infants would be 10-15. In general the setting would need to be decreased for older users as the breathing rate decreases with age., with 5 being a safe starting choice

To adjust the respiration rate limit or turn the slow respiration alarm function on or off, press the 'menu' button until the "SLOW RESPIRATION" display is observed. Press the 'INCREASE' button to turn the respiration alarm function on and increase the limit. Press the 'DECREASE' button to decrease the limit. Decreasing the limit below 5 bpm will turn off the Slow Respiration alarm function.

FAST RESPIRATION ALARM

If the detected breathing rate rises above the fast respiration alarm setting, the monitor will show the message "FAST RESPIRATION", the red alarm light will flash on top of the monitor and the alarm relay output will be activated. The inbuilt audible alarm will also be activated if enabled.

The fast respiration alarm will not activate when screens other than the normal monitoring screen are displayed to prevent nuisance alarms whilst adjusting of the various monitor settings.

If the detected breathing rate falls below the fast respiration setting, the alarm will automatically cancel but the alarm message will remain on the screen for 60 seconds to indicate that the alarm has been activated. The alarm message can be cleared by pressing the 'menu' button.

FAST RESPIRATION ALARM ADJUSTMENT

The fast respiration alarm is activated if the detected breathing rate rises above the set limit. The limit is adjustable from 30 to 60 breaths per minute in 5 bpm steps. Alternatively the fast respiration alarm feature can be turned off. A typical setting for infants would be between 50 and 60. In general the setting would need to be decreased for older users as the breathing rate decreases with age, with 35 being an acceptable starting place for adults.

To adjust the respiration rate limit or turn the fast respiration alarm function on or off, press the 'menu' button until the "FAST RESPIRATION" display is observed. Press the 'INCREASE' button to turn the respiration alarm function on and increase the limit. Press the 'DECREASE' button to decrease the limit. Decreasing the limit below 30 bpm will turn off the fast respiration alarm function.

BODY SPASM MOVEMENT MONITORING

The spasm movement monitoring function of the monitor can be used when the movement Sensor Plate is plugged into the black socket marked "movement sensor" at the rear of the monitor. This sensor has a dual function. It can detect body movements associated with breathing or body shaking movements associated with epileptic seizures.

The Sensor Plate used in combination with the seizure alarm function of the monitor detects significant amplitude movements of the body.

The Sensor Plate with the label side uppermost should be placed on a firm, flat surface **UNDERNEATH** the mattress so that it will be located centrally under the area of the abdomen of the user. If the surface below the mattress is not firm or flat, the Sensor Plate should be supported by placing it on a piece of non-resilient board. Ideally the board should be made to cover the area under mattress and be made of a material such as plywood of at least 6 mm (1/4") thickness. The cable from the Sensor Plate should be located so that it will not be liable to damage or present a hazard to the user. Ensure that thick bedclothes are not tucked under the edges of the mattress, which might lift the underside of the mattress away from the Sensor Plate.

When the Monitor has detected a spasm movement of sufficient intensity, a '#' symbol will flash on the screen above the motion arrow in time with each movement.

SEIZURE ALARM

The seizure alarm is activated when movements are detected which are greater than a pre-set energy sensitivity level and faster than a pre-set frequency, as well as lasting for at least a pre-set period. The monitor will then display the message "SEIZURE ALARM". The red alarm light will also flash on top of the monitor and the alarm relay output will be activated. The inbuilt audible alarm will also operate if it has been enabled.

If the seizure alarm has been configured to latch then it can only be cancelled by pressing the alarm reset button. Otherwise it will cancel automatically when the seizure movements cease, but the alarm message will remain on the monitor screen for 60 seconds to indicate that the alarm has been activated. The alarm message can be cleared by pressing the 'menu' button.

Check the operation of the seizure alarm by repeatedly pressing on the mattress to simulate body spasm movements.

SEIZURE MINIMUM TIME SETTING

 This setting adjusts the minimum period that movements need to persist before the alarm is activated. The period is adjustable between 5 and 60 seconds or, alternatively, the seizure alarm feature can be switched off. This can be done by pressing the 'menu' button until the message "SEIZURE MIN. TIME" display is observed. Press the 'INCREASE' button to turn the seizure alarm function on and increase the setting. Press the 'DECREASE' button to decrease the time setting. Decreasing the time below 5 seconds will turn off the seizure alarm function.

If the time delay is set for too short a period, this will give an early warning of body movements, which may not necessarily be seizure movements, and is more likely to cause false alarms. If the time delay setting is increased this should reduce the probability of false alarms, but may not detect spasm movements of short duration. Some prior knowledge of the nature of the user's seizure patterns is desirable to make a suitable choice of the time delay setting. The monitor will normally be provided with a pre-set time delay of about 15 seconds for general use and may not need to be changed, unless a more suitable specific setting can be selected based on experience with the user.

SPASM THRESHOLD SETTING

The body movement energy level which can be detected is adjustable in 8 steps. Setting the spasm threshold at a low level will allow minor movements to be detected, at a high level the movements would need to be more energetic in order to be detected.

To adjust the setting, press the 'menu' button until the "SPASM THRESHOLD" display is observed. Press the 'INCREASE' button for higher energy movements and to increase the detection level threshold. Press the 'DE-CREASE' button to reduce the threshold for detection of low energy movements.

With the spasm threshold set at a low level most spasm movements should be detected but other normal movements may also be detected. This would cause a greater probability of false alarms. With a high threshold level, most normal, minor body movements should not be detected thus making the monitor less prone to producing false alarms but less likely to pick up all spasm movements. It is recommended to initially set a low threshold level and gradually

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Hints on setting SPASM detection

1. **Turn off all other alarm sensors and use only the Seizure Detection.**
2. **Use the following settings as a start.**
   Seizure Min Time   15 seconds
   Spasm Rate   30 times per minute
3. **You will note this means the system will require a minimum of 8 spasms to trigger the alarm, which is acceptable. If you do make the time shorter than 10 seconds then the minimum rate allowed will increase to ensure a reasonable number of spasms are needed to trigger the alarm (otherwise false alarms can be too easy).**
4. **Set the Spasm Threshold so that it is as low as possible (1), and test that the # symbol appears on the screen if the bed is pressed. If not, then check the connection and position of the sensor plate.**
5. **Increase Spasm Threshold until the # symbol does NOT appear on the screen while the user is lying still or asleep normally. Test the # does appear when the bed is pressed, but with less movement that the seizure produces. This test MUST be conducted every evening**
6. **If the system is failing to detect, then please note if the # symbol is flashing on the display while the seizure is in progress. If not, then the Threshold must be too high or the pad position is poor. Note the frequency of flashing of #. If the rate of the flashing # is less than the rate set in 2 above, then the system will not detect a seizure.**

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increase this, as necessary, to minimise false alarms. A prior knowledge of the behaviour patterns of the user would be useful in this respect, in order to make a better estimate of the most suitable setting.

SPASM RATE SETTING

This is a necessary adjustment because it can assist in distinguishing between the movements associated with normal body activity and rhythmic spasms. The spasm rate setting can be adjusted between 12 and 120 movements per minute in steps of 12 spasms/min. This adjustment is intended to prevent the alarm from being activated by slow, repetitive movements, which are not typical of a seizure.

The spasm rate should be set LOWER than the typical rate of body seizure movements. For example, if a user typically has spasm movements at a rate of 12 every 10 seconds (72 spasms/min) the spasm rate should be set at 60 spasms/min on the display.

To adjust the spasm rate setting, press the 'menu' button until the "SPASM RATE" display is observed. Press the 'INCREASE' button to increase the frequency limit (so that more rapid spasm movements are required to activate an alarm condition). To reduce the rate limit press the 'DECREASE' button (This will allow detection of seizures with both rapid and slow movements).

Setting the spasm rate limit to a low value may cause alarm activation with other normal movements and cause false alarms. By setting the spasm rate limit too high the probability of false alarms will be reduced but a seizure may possibly remain undetected. If in doubt initially set the frequency limit to a low value and gradually increase this, as necessary, in order to eliminate false alarms.


Hints on setting SOUND detection
1.   With the child sleeping normally in the bed, set the sound threshold to minimum (flashing curser to the left) and observe the occurrence of the "ear" symbol on the display. It is reasonable that this may appear occasionally due to some outside noise, but if it appears regularly (so that it would trigger an alarm) then increase the threshold until it stops).
2.   Set the alarm conditions to
         Sound Min Time   10 seconds
         Sound Threshold   4
         Sound Rate   24 per minute
3.   If the system fails to detect seizure please observe if the "ear" symbol is being displayed with the sounds made by the child during a seizure, and lower the threshold if not.
4.   If the system is prone to false alarms then try increasing the threshold. If this leads to failure to detect then reset the threshold and increase the Sound Rate (but to no more than 60 per minute). Finally you may try increasing the time delay to 15 seconds .

TRANSIENT SOUND ALARM

This alarm is designed to respond only to transient or non-continuous sounds in order to eliminate detection of background noises such as from ventilation systems. The monitor uses a microphone located in the top of the enclosure to detect sounds. The monitor will respond best when situated close to the source of sound but the exact positioning is not critical because the microphone is equally sensitive in all directions.

When the monitor has detected a sound, an ear symbol '' will flash in time with each sound on the display screen above the sound arrow indicator.

The transient sound alarm is activated when a sequence of transient sounds above a pre-set sound level occur within a pre-set time period. The sequence must repeat faster than a present frequency. The transient sound alarm can be set to respond for example to a baby crying, as well as personal vocalisations during a seizure or to someone calling for help. It is particularly designed to mirror the detection pattern used for Seizure Monitoring.

When the monitor detects sounds, which meet the set criteria, the monitor will display the message "TRANSIENT SOUND ALARM", the red alarm light will flash on top of the monitor, and the alarm relay output will be activated. The sound alarm will NOT activate the monitor's inbuilt audible alarm.

If the transient sound alarm has been configured to latch then it can only be cancelled by pressing the alarm reset button. Otherwise it will cancel automatically when the transient sounds cease, but the alarm message will remain on the screen for 60 seconds in order to indicate that the alarm has been activated. The alarm message can be cleared by pressing the 'menu' button.

SOUND MONITORING PERIODS

The transient sound alarm requires the sounds to continue for a set time period. The time period commences with the first sound and continues for the pre-set time. This period can be set between 5 and 30 seconds in 5-second steps.

To adjust the sound monitoring period or turn the sound alarm function on or off, press the 'menu' button until the "SOUND MIN TIME" display is observed. Press the 'INCREASE' button to turn the sound alarm function on and increase the setting. Press the 'DECREASE' button to decrease the time setting. Decreasing the time below 5 seconds will turn off the sound alarm function.

SOUND THRESHOLD

 The sensitivity to sound can be adjusted with this setting. This can be set in 8 steps between low for detecting quite low level sounds to high for detecting only loud sounds.

To adjust this setting press the 'menu' button until the "SOUND THRESHOLD" display is observed. Press the 'INCREASE' button to increase the threshold (requires louder sound) or press the 'DECREASE' button to decrease the threshold (to detect quieter sounds).

SOUND RATE

To activate the alarm, the sound bursts must occur faster than the rate set.

To adjust the rate, press the 'menu' button until the "SOUND RATE" display is observed. Press the 'INCREASE' button to increase the rate or press the 'DECREASE' button to decrease the rate.

BODY MOISTURE ALARM

This is used to detect excessive perspiration or bed wetting with urine, both of which can be a consequence of an epileptic seizure.

This function of the system can be used when the lead of the moisture detection sheet is plugged into the blue socket marked "Body Moisture" at the rear of the monitor. The sensor sheet should be positioned under the top bed sheet. The connection lead from the sensor should be located so that it is not liable to damage or present a hazard to the user.

The alarm is activated when the sensor sheet becomes moistened with fluid of sufficient electrical conductivity. The message "BODY MOISTURE ALARM" will be displayed, the red alarm light will flash on top of the monitor and the alarm relay output will be activated. The audible alarm inside the monitor will also be activated if it has been enabled.

The alarm will only cancel if the moisture detection sheet dries or is replaced with a clean dry one.

To silence the alarm while the sheet is being replaced, turn off the monitor. The 'ALARM RESET' button will NOT reset the moisture alarm.

Body Moisture sensor fault warning

If the body moisture detection function is active and the sensor is not connected to the monitor, the message "BODY MOISTURE SENSOR FAULT" will be displayed, the red alarm light will flash on top of the monitor and the alarm relay output will be activated. The audible alarm inside the monitor will also be activated if it has been enabled.

BODY MOISTURE CONDUCTIVITY SETTING

The sensitivity to the conductivity of the liquid required to trigger the alarm can be adjusted in 5 steps from that for perspiration, which is least conductive, to that for urine, which is the most conductive. Using the least conductive setting will cause the monitor to produce alarms with most liquids. Setting the conductivity higher will make the monitor more selective, and will only produce alarms with more conductive liquids.

To adjust the conductivity setting, press the 'menu' button until the 'BODY MOISTURE' display is observed. Press the 'INCREASE' button to turn the body moisture alarm function on and increase the setting. Press the 'DECREASE' button to decrease the conductivity setting. Continuing to decrease the setting will turn off the body moisture alarm function.

PILLOW MOISTURE ALARM

This is used to detect dribbling or vomiting, both of which can be a consequence of an epileptic seizure.

The connection lead from the smaller moisture sensor sheet should be plugged into the blue socket marked "Pillow Moisture" at the rear of the monitor. The sensor sheet should be positioned under the top side of the pillow cover. The connection lead from the sensor should be located so that it is not liable to damage or present a hazard to the user.

The alarm is activated when the sensor sheet becomes moistened with fluid of sufficient electrical conductivity. The message "PILLOW MOISTURE ALARM" will be displayed, the red alarm light will flash on top of the monitor and the alarm relay output will be activated. The audible alarm inside the monitor will also be activated if it has been enabled.

The alarm will only cancel if the moisture detection sheet dries or is replaced with a clean dry one.

To silence the alarm while the sheet is being replaced, turn off the monitor. The 'ALARM RESET' button will NOT reset the moisture alarm.

Hints on setting Wetting detection (either Bed or Pillow
1.   Install the sensor pad in the bed on top of any waterproof mattress or pillow protection and connect.
2.   Enable the correct pad (Body or Pillow Moisture) with the lowest threshold (flashing curser to the left). Please note that the sensor pad is automatically tested for damage and a "Sensor Failure" will show if a wire is broken or the plug not inserted correctly.
3.   If the system fails to detect, then note if the pad has been penetrated by moisture and reposition if necessary.
4.   If the system to too sensitive (eg to dribbling or just slight wetting), then reset the threshold accordingly.)

Pillow Moisture sensor fault warning

If the pillow moisture function is active and the sensor is not connected to the monitor, the message "PILLOW MOISTURE SENSOR FAULT" will be displayed, the red alarm light will flash on top of the monitor and the alarm relay output will be activated. The audible alarm inside the monitor will also be activated if it has been enabled.

PILLOW MOISTURE CONDUCTIVITY SETTING

The sensitivity to the conductivity of the liquid required to trigger the alarm can be adjusted in 5 steps from that for saliva, which is the least conductive, to that for vomit, which is the most conductive. Using the least conductive setting will cause the monitor to produce alarms with most liquids. Setting the conductivity higher will make the monitor more selective, and will only produce alarms with more conductive liquids.

To adjust the pillow moisture conductivity setting or turn the pillow moisture alarm function on or off, press the 'menu' button until the "PILLOW MOISTURE" display is observed. Press the 'INCREASE' button to turn the pillow moisture alarm function on and increase the setting. Press the 'DECREASE' button to decrease the conductivity setting. Continuing to decrease the setting will turn off pillow moisture alarm function.

BED OCCUPANCY

This function can be used to provide a remote alarm after a preset period when the bed is vacated. It can be set to allow the user to leave the bed for a given time but generate an alarm if they have not returned within a preset time limit. The time period between the bed being vacated and the bed occupancy alarm activating can be set between 10 seconds and 20 minutes. Alternatively this feature can be set just to stop nuisance alarms from the RESPIRATION sensor, whilst the bed is vacated, and not produce the bed occupancy alarm.

This function is used by connecting an appropriate switch device into the 3.5 mm socket marked "bed occupancy" at the rear of the monitor.   The switch would need to be fitted with a jack plug as illustrated below.
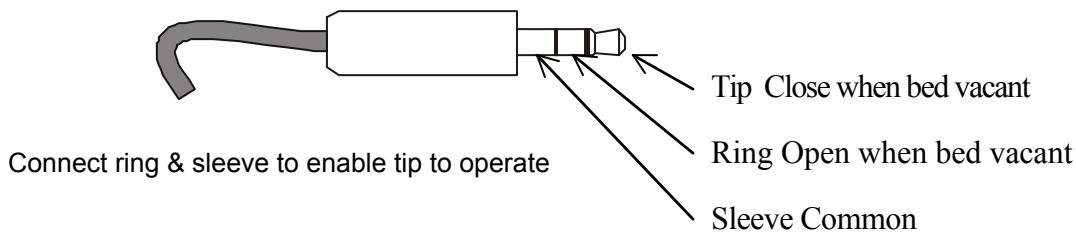
Safety Warning:
When using Mobility Detection it is essential to ensure the users weight is sufficient to set the alarm, no matter where on the mat they step. For this reason the Bed Occupancy sensor should be considered more reliable

Sensor Connection

There are currently 3 types of device that can be used.

1) **Bedwatch** sensor platform for location under a bed leg
 This adjustable device detects the change in weight of a bed when it is vacated. It acts as a normally open switch when adjusted for an occupied bed.

Tip Close when bed vacant

Ring Open when bed vacant

Connect ring & sleeve to enable tip to operate

Sleeve Common

2) **P143 Pressure sensitive mat** for use in the bed under the user

Hints on use of Bed Occupancy Sensor
1   If the user is known to leave the bed at night, or if the breathing false alarms indicate this is happening, then install the bed occupancy sensor. With the bed vacant the display should now shows the word VACANT. Check that this word is not present when the child is in bed and sleeping normally.
2   If the user is known to risk collapsing out of bed then there is a feature to raise the alarm on

Alarm Setting & Pager Messages

Function	Left-most	Adjustment Range		Comment	Defaut	Client	Pager Message
ID Number/Site No				Appears on screen at power up			
Power	off		menu	Press to scroll menu / Press also resets alarms			
Breath Tick Vol	off	1	8	Volume of click on each breath	8		
Respiration	off	10	60	Time for no breathing detected	OFF		Urgent 11
Breathing Threshold		1	8	Set for optimum breath detection using tick or # symbol	4		
Slow Respiration	off	5	20	BPM below which is alarm	OFF		Urgent 12
Fast Respiration	off	30	60	BPM above which is alarm	OFF		Urgent 13
Seizure Min Time	off	5	60	Time for spasm to set alarm	15		Urgent 01
Spasm Threshold		1	8	Set for optimum detection of spasm using # symbol	4		
Spasm Rate		12	120	Movements per minute above which a spasm is assumed	24		
Sound Min Time	off	5	30	Time for sound level to set alarm	OFF		Urgent 05
Sound Threshold		1	8	Sensitivity of microphone	5		
Sounds Rate		1	20	Minimum sound peaks frequency to trigger alarm	4		
Body Moisture	off	1	5	Fault alarm if sensor open circuit / Covers perspiration to urine	OFF		Help 21
Pillow Moisture	off	1	5	Fault alarm if sensor open circuit / Covers Saliva to Vomit	OFF		Help 22
Bed Occupancy	Stop Alarms	10 sec	20min	Minimum will disable breathing alarm. Time allowed for vacancy alarm.	Stop		Help 23
Reload Default				Snapshot saved in "hidden menu"			

Other alarms without set-up parameters

Function	Pager Message	Comment
Body Moisture Sensor fault	Fault 21	Open circuit wires
Pillow Moisture Sensor Fault	Fault 22	Open circuit wires
Battery Low	Fault 31	Connect charger
Distress Call (or internal radio call)	Help 20	External push button or internal radio receiver (option)
Aux Input	Assist 20	External push button or floor mat
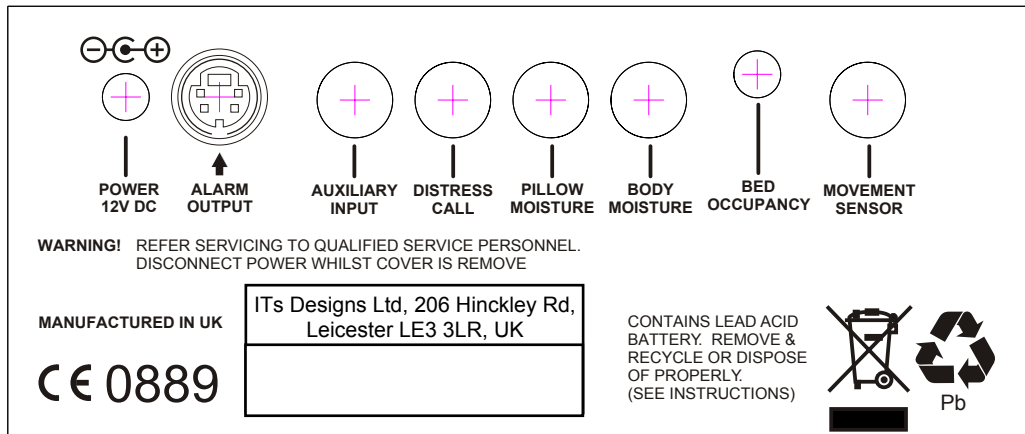
In general the mat must be installed on top of the mattress, which should be firm. The mat is waterproof and easily wiped clean in the event of soiling. For a user of sufficient weight and size this simple device may be located under the mattress to detect the presence of a bed occupant. The mat will act as a normally closed switch for an occupied bed.

Operation of Alarm

When the bed is vacated, thereby triggering the pressure switch, the breathing rate function is frozen to prevent the slow respiration rate alarm from being activated. The respiration detection functions is also disabled. This enables a user to leave the bed temporarily without setting off alarms unnecessarily. The activation of the pressure switch is indicated on the normal display screen with the word "Vacant".

When the bed is re-occupied and the pressure sensitive switch is activated the breathing rate detection function will resume and, if set, the respiration alarm will resume its function.

If a time has been set for the bed occupancy alarm feature an alarm will be generated after the set time period, the monitor will display the message "BED OCCUPANCY ALARM", the red alarm light will flash on top of the monitor and the alarm relay output will be activated. The bed occupancy function will NOT activate the monitor's inbuilt audible alarm.

The alarm is cancelled as soon as the bed is reoccupied and the pressure sensitive switch is activated, although the alarm message will remain on the screen for 60 seconds. The alarm message can be cleared by pressing the 'menu' button.

The bed occupancy alarm will not activate when screens other than the normal monitoring screen are displayed to prevent nuisance alarms whilst adjusting of the various monitor settings.

The operation of the bed occupancy alarm should be checked periodically by deliberately activating the pressure switches.

Bed Occupancy Alarm Setting

To adjust the bed occupancy alarm delay setting or set it to only disable the respiration alarms whilst the bed is vacated, press the 'menu' button until the "BED OCCUPANCY" display is observed. Press the 'INCREASE' button to increase the delay period. Press the 'DE-

Safety Warning:
When using the Occupancy function to disable the Breathing Alarms you should ALWAYS consider setting a Bed Vacant Time Delay as well. This ensures that a failure of the Pressure Mat which inhibits the Breathing Alarm continuously, will produce a corresponding false Bed Vacant alarm.

CREASE' button to decrease the delay period. Continuing to decrease the setting below 10 seconds will set the bed occupancy function to disable alarms only.

MANUAL DISTRESS CALL

This function is used by plugging an activation device, such as a press button switch into the red socket marked "distress call" at the rear of the monitor.

When the device is operated (usually by pressing the call button for 1 second or longer) the distress alarm is activated. The monitor display shows the message "DISTRESS CALL ALARM", the red alarm light will also flash on top of the monitor, and the alarm relay output will be activated. The distress call feature does NOT activate the monitor's inbuilt audible alarm.

If the distress call alarm has been configured to latch then it can only be cancelled by pressing the alarm reset button. Otherwise it will cancel when the distress switch has been deactivated.

Check the function of the distress call alarm by regular test operation.

Notes: The call button needs to be pressed for at least a quarter of a second to ensure activation of the distress call feature. While the activation device (call button) is pressed the red alarm light will remain on.

AUXILIARY ALARM

This function enables a zero potential switch signal from an external device to be routed through the monitor and its alarm circuits.

To use this function the external device should be connected to the yellow socket marked Auxiliary input at the rear of the monitor. The Auxiliary input can accept a normally open or normally closed switch contact (see Hidden Settings).

When the alarm output from the external device is activated, the message "AUXILIARY ALARM" will be displayed. The red alarm light will also flash on top of the monitor and the alarm relay output will be activated. The inbuilt audible alarm will also operate if it has been enabled.

The auxiliary alarm will not activate when screens other than the normal monitoring screen are displayed to prevent nuisance alarms whilst adjusting of the various monitor settings.

If the auxiliary alarm has been configured to latch then it can only be cancelled by pressing the alarm reset button. Otherwise it will cancel automatically when the alarm output from the auxiliary device is deactivated, although the alarm message will remain on the screen for 60 seconds or until the 'menu' button on the monitor front panel is pressed.

Check the operation of the auxiliary alarm feature by periodically activating the external device.

Notes: If the Auxiliary alarm input is configured as a normally closed input then the alarm will also be activated if the auxiliary input is disconnected.

BED LEAVING (MOBILITY) ALARM

A P150 Floor Mat can be connected to the AUXILIARY INPUT and will give an alarm as soon as the user steps out of bed onto the mat. The input should be set in the HIDDEN MENU as Normally Open and Latching.

RECALL DEFAULT

In the "hidden menu" the supervisor can store a complete snapshot of all the settings as "default". Hence should the operator accidentally adjust any setting wrongly, this function will restore this saved default.

ALARM OUTPUT SOCKET

The multifunction alarm output socket will accept cables or accessories that use any one of the following options:

- ✓ Normally open contact output.
- ✓ Normally closed contact output.
- ✓ 5 volt power output with no alarm, zero volt output during alarm (50 mA max.).
- ✓ Zero volt output with no alarm, 5 volt output during alarm (50 mA max.).
- ✓ Continuous 5 volt (50 mA max.) output, in addition to the normally open or normally closed contact output.

BATTERY

An internal rechargeable battery allows the monitor to continue uninterrupted operation in the event of a mains power failure for several days or it allows the monitor to be used for short periods without a mains supply.
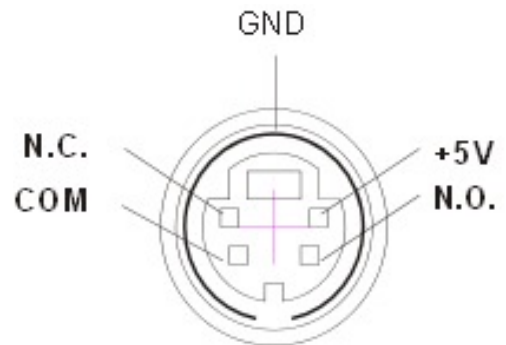
Battery Level Indication

When the battery status bar indication is static with hollow boxes, then the battery is powering the unit and there is no charger attached (and functioning). The number of bars indicates the battery charge condition as follows:

4 bars: 75 to 100% level (Fully charged)
3 bars: 50 to 75% level
2 bars: 25 to 50% level
1 bar: Up to 25% level (battery needs recharging immediately)
The later situation will be accompanied by short clicks from the audible alarm to ensure the potential danger is recognised.

Battery Charging

If possible, the monitor should be connected to the AC adaptor at all times. Prolonged periods of disconnection should be avoided. An inbuilt charger continuously monitors the battery condition. The battery charger has a number of modes of operation to maintain the battery in optimum condition.

Trickle Charge: While the monitor is connected to the mains supply via the AC adaptor the battery is trickle charged to maintain the battery voltage, even when the monitor itself is switched off. In this situation the Battery Status bargraph are solid black and static.

Fast Charge: If the battery needs charging, for example after a power cut, it will be automatically charged rapidly. This process is indicated by the battery bar graph continuously cycling from 1 through to 4 bars.

Top up charge: When the battery is nearly fully charged or when the battery needs charging during normal usage, intermittent charging will occur. This is indicated by intermittent cycling of the indicator from 1, 2, or 3 through to 4 bars.

Notes: Fast and Top up charging will only occur while the monitor is switched on with the mains adaptor operative.

Battery Fault: If the battery cannot be charged to its full capacity, the bars on the indicator are replaced with question marks '????'. This situation will arise if the battery has been fast charged for over 18 hours. The charging process will continue in an attempt to reinstate the battery condition and, if successful, the display will revert to normal. If the Battery fault indication continues for more than a few days, the battery should be replaced with an identical type available from your supplier.

Battery care

The type of battery used is designed to be continuously kept on charge and topped up to full capacity. For this reason the monitor should be connected to the AC adaptor and powered by the mains supply at all times. Avoid repeated deep cycling of the battery from full charge to a discharged condition since this will shorten the battery life. Allowing the battery to discharge completely can cause irreversible battery damage that will require the battery to be replaced.

To help protect the battery from irreversible damage the monitor will automatically switch off when the battery level drops below a critical level. All monitoring functions will stop. This will happen after the battery indicator displays a single bar.

End of Battery life

The battery will need to be replaced when the battery fault indication persists for several days while the battery is being charged or when the battery has been damaged by being discharged for an extended period of time. Battery damage can be checked by the procedure described below.

Battery capacity check

Periodically, after about every 12 months of daily use, or after an extended period of non-use, the capacity should be checked. This is done by first waiting for the battery to reach the fully charged condition (steady 4 bars while the AC adaptor is connected and switched on), and then disconnecting the AC adaptor and allowing the monitor to operate from the internal battery alone.

If, after 24 hours use, the monitor shows 2 bars, or more, the battery has some useful service life remaining. If the monitor fails to operate for the full 24-hour period or the battery charge level has dropped to 1 bar the battery should be replaced.

Periods of non-use

If the monitor is not going to be used for an extended period, ensure that the battery is fully charged before switching off and storing the monitor. The battery will discharge even when the monitor is switched off. The battery can be maintained by leaving the monitor connected to the AC adaptor and ensure that the AC adaptor is switched on.

Battery Replacement

To replace or remove the battery, first switch off the monitor and disconnect the AC adaptor as well as any other connecting leads. With a flat-bladed screwdriver depress the 2 tabs on the left and right hand sides of the monitor case and, with the monitor upside down, slide off the base, as illustrated. Disconnect the 2 push-on battery leads. Remove and keep the 4 retaining screws from the battery mounting board. Cut the 2 tie clips holding the battery and dispose of the old battery safely. Mount the new battery using 2 new tie clips and refit the mounting board with the 4 retaining screws. Re-connect the 2 battery leads, ensuring that the red wire is connected to the positive (+) terminal and the black wire is connected to the negative terminal (-). The base of the monitor can now be slid back into position. Squeeze the top and bottom of the enclosure together at each side so that they lock together.

Note: When the battery has been removed and replaced the monitor settings will revert to the default settings that have been pre-programmed. (The default settings can be adjusted using the 'Hidden Settings' instructions.)

Hidden Menu Settings

Function	Comment	Factory Setting	User Setting
Respiration	User Adjustable or Hidden	User Adjustable	
Breath Threshold	User Adjustable or Hidden	User Adjustable	
Slow Respiration	User Adjustable or Hidden	User Adjustable	
Fast Respiration	User Adjustable or Hidden	User Adjustable	
Seizure	User Adjustable or Hidden	User Adjustable	
Transient Sound	User Adjustable or Hidden	User Adjustable	
Body Moisture	User Adjustable or Hidden	User Adjustable	
Pillow Moisture	User Adjustable or Hidden	User Adjustable	
Bed Occupancy	User Adjustable or Hidden	User Adjustable	
Snooze Feature	Allows the user a period without some alarms	User Adjustable	
Auxiliary	State of switch when no distress	Normally Open	
Audible Alarm	Loud internal audible alarm	OFF	
Red Alarm Light	Enables the red alarm warning light on top	ON	
Monitor ID	Used as Unit Address for Radio Use, hence every P139 must be different when used with P137/8 Pager	1	
Site ID	Information only	0	
Seizure Alarm	Latching or self resetting when alarm cleared	Alarm Latching	
Transient Sound	Latching or self resetting when alarm cleared	Alarm Latching	
Respiration Alarm	Latching or self resetting when alarm cleared	Alarm Auto Reset	
Body Moisture	Latching or self resetting when alarm cleared	Alarm Auto Reset	
Pillow Moisture	Latching or self resetting when alarm cleared	Alarm Auto Reset	
Distress Call	Use Auto reset when used with P155 Receiv er so that reset of external alarm will clear the P139	Alarm Auto Reset	
Auxiliary		Alarm Latching	
Save as Default	All settings will be remembered as default and can be restored by the USER		
Exit			

INSTRUCTIONS FOR HIDDEN SETTINGS

These instructions are normally only used by service personnel or by the technical staff of authorised distributors of this product and allow functions to be tailored to a particular user's specific needs as follows:

- Hiding or display of menu items.
- Auxiliary input setting to normally open or normally closed switch condition.
- Enabling or disabling of the internal audible alarm
- Radio Identification number setting.
- Site Identification number setting.
- Setting Alarms as latching or auto resetting.
- Saving of default settings.

To gain access to the hidden settings press the 'menu' button until the 'POWER' screen is displayed (one press from normal MONITOR screen) then press and hold the 'INCREASE' button for 10 seconds as shown on the countdown

Hiding or display of menu Items

Once you have gained access to the hidden settings a group of functions can be set to either 'USER ADJUSTABLE' or 'SETTINGS LOCKED'. (see table below)

Press the 'INCREASE' button to set to 'USER ADJUSTABLE' or press the 'DECREASE' button to set to 'SETTINGS LOCKED'. Press the 'menu' button to advance down the list. If no buttons are pressed for 10 seconds then the monitor will revert to the normal display.

The 'USER ADJUSTABLE' selection allows full access for adjustment of the settings. The 'SETTINGS LOCKED' selection maintains the current settings and hides the item from the menu to prevent user adjustment.

As an example, if the pillow moisture detection feature is not required, set the pillow moisture feature to 'OFF' using the main menu, then enter the Hidden Settings display and set the 'PILLOW MOISTURE' display to 'SETTINGS LOCKED'. This will hide the pillow moisture display from the main menu.

As a further example, to set the respiration alarm to 20 seconds and prevent adjustment by the user, set the respiration period to 20 seconds using the main menu, then enter the hidden settings display and set the 'RESPIRA-TION' display to 'SETTINGS LOCKED'. This will hide the respiration screen from the main menu but still allow the respiration alarm feature to operate.

To ensure that all of the options are set as required, it will be necessary to check initially that all of the displays are 'USER ADJUSTABLE'. The required settings can then be adjusted and the displays hidden with 'SETTINGS LOCKED'.

Auxiliary input setting

The auxiliary input on the monitor can be set to respond to a 'normally open' or 'normally closed' switch condition (as safe). In the Hidden Settings menu advance to the 'AUXILIARY' display with the 'menu' button and press 'INCREASE' for a normally closed input or 'DECREASE' for a normally open input.

Audible Alarm

The audible alarm within the monitor can be turned on or off. It is often desirable to turn the 'local' alarm off if the monitor is linked to a remote monitoring station either via the alarm output socket or a radio link. In the Hidden Settings menu advance to the 'AUDIBLE ALARM' display with the 'menu' button and press the 'INCREASE' button to turn the alarm on, or the 'DECREASE' button to turn the alarm off.

Pre-Beep Warning:

This gives a short 5 second beep on the audible alarm prior to activating the main alarm outputs, in case the application requires the user to cancel false alarms quickly. It will normally be set OFF.

Monitor Identification number

When the monitor is fitted with a radio transmitter the monitor can be identified with an 'ID' number. This number

Guarantee

If the equipment becomes defective within 2 years of purchase, because of use of faulty materials of construction or faulty workmanship, the manufactures guarantee either to repair or replace the defective parts free of charge. This is on condition that the equipment has not been misused or carelessly handled and that repairs have not been attempted by persons other than authorised service staff or authorised distributors Staff. Normal wear and tear effects will not be liable to repair or replacement. This guarantee is offered as an extra benefit and is in addition to statutory rights.

Support

For technical support please fax or EMail:
HELP: 0845 2179951
FAX : 0845 2179953
Support@itsdesigns.co.uk

Designed by:
ITs Designs Ltd
Leicester
LE9 9FE UK

...using technology to care for carers