

Manual

Emfit[®] SafeBed



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ABILIA

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1. Important safety precautions

1.1. *Important information. Read before use.*

- Must not be used in situations where a delay in the arrival of appropriate medical care, could lead to a potentially life-threatening situation.
- This device is designed only to be used as an aid for a caregiver.
- Pets can cause false notifications or prevent a notification when needed if they walk or lie on a bed fitted with this device.
- Do not use this device for any purpose other than that specified by the manufacturer.
- Do not connect the device to any other devices other than those specified by the manufacturer.
- Do not try to repair the device yourself.
- The device is designed to be used in the electromagnetic environment and conditions specified on chapter *Electromagnetic conditions*. The client or user of the device must ensure that it is only used in the specified ambient conditions.
- Do not install this device near or on top of another device. However, if this cannot be avoided, the user must ensure that the device functions in the normal manner.
- Do not use X1, X2 or X3 connectors for any purpose other than that specified by the manufacturer. Do not connect the connectors to e.g. telecommunications or local area networks.
- If this device is used with a pressure care mattress filled using a compression pump, the device may not function normally in some cases.
- Equipment is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.
- Do not let the device get wet.
- Remove the batteries when the device is not in use or when it is stored for an extended period. Alkaline batteries may become self-discharged, start leaking and contaminate the device.
- When removing the power supply from the socket, ensure that the plug part is not left in the socket. If the plug part is left in the socket, touching or trying to remove it carries the risk of an electric shock.
- Do not use any rechargeable batteries or lithium-ion batteries! Rechargeable or lithium-ion batteries carry the risk of melting, ruining the device and causing possible danger to the user.

1.2. *Unintended adjustment of control unit settings:*

- Adjusting the volume may lead to the notification sound not being heard.
- Incorrect positioning of the DIP switches may interfere with the normal operation of the device.
- Pressing the ON/OFF/Reset (SW1) press switch for too long will switch off the device.

2. Symbols used in these instructions for use

The following instructions are designed to ensure the personal safety of the user and protect this device or any device connected to it from damage. These instructions use symbols to draw the user's attention to the instructions at hand. The symbols act as safety and warning signs. The symbols and their explanations are as follows:

	If the instructions are not adhered to, the situation may lead to a death or serious personal injury (in these instructions for use). ATTENTION - consult accompanying documents (i.e. these instructions for use)
	Means that the section contains important information for the user (in these instructions for use).
	Indicates the maximum use and storage temperature of the sensor.
	When led next to this is blinking it indicates person is in bed (in the control unit)
	When led next to this is blinking it indicates product is in stand-by mode (in the control unit).
	Non-ionizing radiation (in these instructions for use, chapter <i>Electromagnetic conditions</i>).
	Symbol of European Waste Electrical and Electronic Equipment Directive (WEEE Directive) 2002/96/ EC on waste electrical and electronic equipment (in these instructions for use and on bed sensor).
RoHS	Indicates that the product is in compliance with the European directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as the Restriction of Hazardous Substances Directive or RoHS).
	Indicates manufacturer's name and address (in the control unit and bed sensor).
	Indicates positioning of battery cell. + is positive terminal and - is negative terminal (in the control unit).
	Indicates polarity of d.c. power connector (In the external power supply).
	Indicates alternating current (in the external power supply).
	Indicates direct current (in the external power supply).
	Indicates that product meets safety requirements specified in IEC 61140 for Class II equipment (In the external power supply).
	Product is for indoor use only (in the external power supply).
	Product is UL Demko certified (in the external power supply).

	Product is China SJ/T 11363-2006 certified (in the external power supply).
	Product is UL certified (in the external power supply).
	Indicates that the product conforms with the essential requirements of EMC directive 2004/108/EC.
	Product is VCCI certified (in the external power supply).
	Product is UKRSePro certified (in the external power supply).
	Product is GOST-R certified (in the external power supply).
	Product is C-TICK certified (in the external power supply).
	Product is China RoHS 30 certified (in the external power supply).
	Product is BSMI certified (in the external power supply).
	Product is SIQ certified (in the external power supply).
	Product is IRAM certified (in the external power supply).
	Product is CCC certified (in the external power supply).
	Product is CPSQ certified (in the external power supply).
	Product is PSE to J60950 certified (in the external power supply).

3. Introduction

- These instructions describe the use of the Emfit SafeBed, bed exit and occupancy monitor. The version number and details can be found in chapter 21. *Technical specifications*.
- Use the device only in the ambient conditions specified by the manufacturer. For detailed information, refer to chapter 21. *Technical specifications*.
- Follow all instructions provided in this document concerning the installation, use and cleaning of the device.
- In accordance with the intended use defined in Section 3.1 below, the Emfit SafeBed is not a medical device as defined in the Medical Device Directive 93/42/EEC.

3.1. *Intended use*

The Emfit SafeBed is intended to be used to assist in sensory bed exit and occupancy monitoring and to notify the caregiver if the person recumbent on a mattress fitted with the under-mattress sensor leaves the bed or does not return to it within predefined time.

Note! The manufacturer cannot guarantee that the device will detect all bed exit episodes. It may also trigger a false bed exit notification.

3.2. *Liability of the manufacturer*

Abilia is liable to ensure the safety, reliability and performance of the device, provided that:

- the device is installed, used and cleaned in accordance with the instructions in this manual
- any changes to the product, maintenance and repairs are conducted by a person trained by Abilia or its representative
- any spare parts or accessories used have been approved by Abilia

3.3. *About this manual*

Read all warnings and reminders in this manual with care to avoid any hazardous situations and damage.

4. Package contents

- A control unit and two screws to attach the lid (picture 1)
- A sensor (L-4060SL/L-4060SLC/L-3030SL) (picture 6)
- Two pieces 3M double-sided tape to fix the sensor (picture 26)
- A wall mounting bracket with two screws and two plugs (picture 7)
- Clip for bed side attachment (picture 8)
- This manual
- Two AA size 1.5 V alkaline batteries
- Optional power supply (This part is not included unless it has been ordered as a spare part) (see chapter *Technical Specifications* for details) (picture 2)

5. General

5.1. Control Unit

The control unit activates for bed occupancy monitoring after it has noticed movements or micro-movements for 1 minute. After activation for occupancy monitoring, a notification is triggered if no movements or micro-movements are detected for at least 3 or 5 seconds (adjustable by DIP switch, see *chapter 6*).

The control unit operates with 2 pcs AA size 1.5 V alkaline batteries. An optional AC adapter is available. Do not use any power supply other than that provided by Abilia. (see *chapter Technical Specifications* for details).

In the event of a power failure, two high-quality 1.5 V AA alkaline batteries can be used as an emergency power supply. Do not use any rechargeable batteries or lithium-ion batteries! Rechargeable or lithium-ion batteries carry the risk of melting, ruining the device and causing possible danger to the user.

The control unit has an input connector for the bed sensor (X3) and power supply (X1). The device also has a connector (X2) to transfer the notification to e.g. a nurse call system, a personal emergency phone or an external wireless transmitter.

Next to the input connector, there is a push button (SW1) that can be used to acknowledge a notification or as an on/off switch. (picture 3).

The control unit has 8 DIP switches (picture 4) to select the settings and a rotary switch to adjust the sensitivity of the device. (picture 5)

5.2. Bed sensor

The bed sensor produces a millivolt alternating current when detecting movement. The control unit calculates the frequency and scale of the movement from this signal and, on this basis, detects the person's presence in the bed. Heartbeat causes micro-movement that allow the device to detect the person's presence. When there is no micro or other movement, it recognizes this as the individual being absent and it gives a notification both by sound and via dry-contact optocoupler.

There are no particular size or weight limitations, but sensitivity and the ability to recognize a user's micro-movements and thus, presence in bed, need to be tested in each case.

6. Setting up the dip switches

Open the lid of the control unit by lifting it from the side (picture 9). Inside, you will find eight DIP switches that are used to select the desired functions (picture 4). Remember to select the desired settings using the DIP switches before using the device.

The control unit has the following factory settings. DIP 1, 2, 3, 4, 5, 6, 7 and 8 OFF (down). With these settings:

- Bed exit notification delay is 3 seconds.
- Output is in pulse mode
- The SW1 switch acts as the On/Off switch which means that the device can be switched on or off by pressing the switch for three (3) seconds.
- The notification sound is “very loud”.



Disconnect the device from the power supply and remove nurse call cable (if used) from connector X2 before opening the lid.



Remove the batteries and disconnect the power supply before setting up the DIP switches in order to implement the new settings.

6.1. Setting bed exit notification delay (DIP Switch 1 - 3)

Time Delay	Switch 1	Switch 2	Switch 3
Shortest (3–4 sec)	OFF (down)	OFF (down)	OFF (down)
5–7 seconds (use if after proper sensitivity adjustment false alarms occur)	OFF (down)	ON (up)	OFF (down)
3 minutes	ON (up)	ON (up)	OFF (down)
6 minutes	OFF (down)	OFF (down)	ON (up)
10 minutes	ON (up)	OFF (down)	ON (up)
15 minutes	OFF (down)	ON (up)	ON (up)
30 minutes	ON (up)	ON (up)	ON (up)

6.2. Switch 4 - 6 settings

Switch	OFF (down)	ON (up)
4	Normal environmental noise filtering	Strong environmental noise (for example air conditioning, laundry machine, traffic etc.) filtering to prevent false presence detection.
5	Dry-contact output is pulse mode (about 1.5 sec pulse)	Dry-contact output is constant type. Use only when necessary by other system to be connected with. Not to be used with batteries! Optional power supply is needed due to increased power consumption.
6	Power switch function at SW1 is enabled (device can be shut down and turned on by pressing SW1 for about 3 seconds)	Power switch function at SW1 disabled (device is always on).

6.3. Adjusting the notification sound volume (switches 7 and 8)

There are four volume levels: Very loud, loud, quiet and mute. The factory setting is very loud.

Volume Level	Switch 7	Switch 8
Loud	OFF (down)	OFF (down)
Normal	ON (up)	OFF (down)
Quiet	OFF (down)	ON (up)
Mute	ON (up)	ON (up)

The notification sound stops when the SW1 switch is pressed or when person returns to bed.



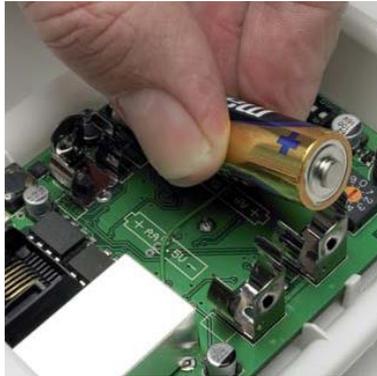
Remove the batteries and disconnect the power supply before setting up the DIP switches in order to implement the new settings.

7. Inserting batteries and battery service life

Product operates with 2 pcs AA size 1.5 V alkaline batteries. Install and remove the batteries as follows:



Open the cover by lifting from one side.



Install 2 pcs good quality AA size 1,5 V alkaline batteries according the polarity drawings on the circuit board.



When removing old batteries, they are easiest to remove by lifting from positive (+) ends.

Estimated battery life is 3 months when using high quality alkaline batteries with 2800 mAh capacity (2pcs). Estimation is based on measured battery consumption in various conditions and then a calculation where device is on 50% of time (shut down 50% of time) and of that 50% of time there is someone in bed 75% of that time, there are two notifications per day and sound notification is on 30 seconds each time.



When the batteries are getting low, the red LED will begin to flash slowly. A “beep” sound will be heard after every 1.5 hours and the dry-contact output will give a low battery notification after every 3 hours.



NOTE! All alkaline batteries start to leak when empty, and a leak will contaminate the device. Remember to replace the batteries at least once a year to avoid any leaks. Remove the batteries when the device is not being used or when it is being stored for an extended period. Disconnect the power supply briefly to test the batteries. If the batteries are empty, the red light on the control unit will flash every fourth time compared to blue light. The X2 connector and the connected system will also trigger a notification. Replace the batteries when necessary.



Product is tested and safe to use with following two alkaline batteries:

Manufacturer: Duracell Type: AA 1.5V Model: MN1500 LR6

Manufacturer: Energizer Type: AA 1.5V Model: E91 LR6 AM3



Do not use any rechargeable batteries or lithium-ion batteries! Rechargeable or lithium-ion batteries carry the risk of melting, ruining the device and causing possible danger to the user.

8. 5V AC External power supply (optional)

Set up the power supply in the following manner:



Remove the plastic cover (if applicable).



Select a suitable plug from the four alternatives.



Plug in the plug and ensure that it is not loose.



The control unit has been designed and tested to be used with the Globtek inc. power supply (see chapter *Technical Specifications* for details). Using any other power supply may interfere with the safe use of the device.



When the power supply is connected, the batteries act as backup power supply in the event of a power failure. All alkaline batteries self-discharge and start to leak when empty, contaminating the device. Ensure that batteries are replaced at least once a year.



When removing the power supply from the socket, ensure that the plug part is not left in the socket. If the plug part is left in the socket, touching or trying to remove it carries the risk of an electric shock.



Keep device cords out of the reach of children (risk of strangulation). Use protective cord covers or cable ties to securely attach and hide cords to prevent strangulation. Keep cords as short as possible and secure them so that they are out of reach of children.

9. Connectors and cables

Connector symbols can be found at the bottom of the control unit. (picture 3)



X1 Connector for an external power supply. Only use Globtek inc. power supply (see chapter *Technical Specifications* for details) which can be obtained as an original accessory from Abilia.



X2 AUX Connector to connect the device to a nurse call system, a personal emergency phone or an external wireless transmitter. The connector may only be connected to a system safety voltage input with max. voltage below 25 V(AC) / 60 V (DC), where both poles have been separated from the electrical network. Max. load current 100 mA.



X3 - Sensor connector. Only use Emfit Bed sensor.

Connect the sensor (picture 13), the power supply delivered as an accessory (picture 14) and any connector cables (picture 15) according to the pictures.

9.1. X2 (AUX) Connector Pin Order (picture 16)

From left to right:

Pin 1	Common return
Pin 2	Normally Open (NO) send
Pin 3	Normally Closed (NC) send
Pin 4	Low Battery send (NC)
Pin 5	Not in use, do not connect
Pin 6	Not in use, do not connect
Pin 7	Not in use, do not connect
Pin 8	Not in use, do not connect



10. Installation of the control unit

10.1. With wall mounting bracket



Fix the mounting bracket onto a wall with the plugs and screws supplied.



Slide the control unit onto the wall mounting bracket.



Press the control unit down until you hear a click.

10.2. With bed side clip

Press the control unit down to the clip (picture 20).

11. Installation of the sensor

11.1. *Bed sensor*

- Place the bed sensor across the bed, under the mattress at approximately chest height. (picture 12)
- To prevent the bed sensor from moving, fix the sensor to the bed bottom or mattress using the double sided tape provided or e.g. cable ties (picture 26). The tape will not leave a mark and it will come off as a whole if removed.
- Check at least once a week that the bed sensor is properly positioned.
- If you are using the bed sensor with a spring mattress, always place the bed sensor between the mattress and the mattress topper!
- Always place the bed sensor under the mattress or mattress topper, never just under the sheet. The bed sensor must not come into direct contact with a person!
- The bed sensor is designed to last for a minimum of two (2) years placed under a foam mattress and against the hard base of a bed frame.
- With a spring mattress, the service life of the bed sensor is considerably shorter. When the bed sensor is placed on a spring mattress, the user's weight and movement will cause the sensor to crumple, which may affect the sensor's performance. The manufacturer recommends that users replace the sensor when it starts to look crumpled. When used with a spring mattress, the sensor should be replaced every year. The warranty does not cover damage caused by crumpling.
- If the bed sensor is used with a pressure care mattress that is adjusted using a compressor pump, the mattress may interfere with the sensor's performance. If you are unsure about the suitability of your mattress, please contact the manufacturer.

12. SW1 – press switch (picture 21)

12.1. ON/OFF switch

The SW1 switch acts as the on/off switch if this function is activated (DIP switch 6 is down).

Press the SW1 switch for three (3) seconds in order to activate or deactivate the control unit. When the control unit is switched on, you will hear a beep and the blue LED light will start to flash. When the device is switched off, you will hear a "beep-beep-boop" (high-highlow) sound. The blue LED light will go off.

12.2. Acknowledgement switch

The notification sound (if activated) can be muted by pressing the SW1 switch shortly. The device will make a "beep-beep" sound.

NOTE! If you press the switch for too long, you might accidentally switch off the device. The notification sound will also stop when the fast-paced movements stop.



12.3. Bed exit alarm “presence / absence” sensitivity switch

SW1 switch can be used to launch automatic calibration for presence / absence sensitivity. See chapter 13. *Calibrating the “presence / absence” sensitivity.*

13. Calibrating the “presence / absence” sensitivity

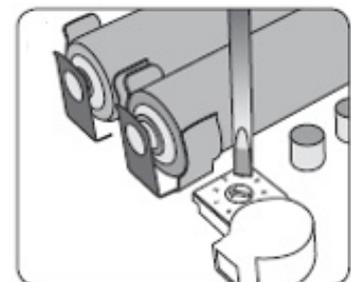
13.1. Doing calibration

The sensitivity to notice correctly that person is in or out of bed, is adjusted in calibration mode. First the person to be monitored should be in bed and resting (not moving, talking or else) at least for one (1) minute until green light starts to blink with same speed as blue light. Control unit should lay on a table or be fixed on a wall. Sensor must be in its correct place under mattress.

Start calibration by pressing three (3) times the SW1 switch (picture 21). You will hear 3 times low and high tone (kind of bu-beep, bu-beep, bu-beep). The calibration takes 18 seconds. If calibration was successful, the confirmation sound is the same 3 times bu-beep again.

13.2. Error messages and how to handle them

One (1) long beep - Device has not detected strong enough micro movement signal and has reached an adjustment limit. Device might not work optimally. Is the sensor positioned correctly in the bed and device was not in error -state (red led was not blinking)? If not: Correct the problem and re-try calibration. If yes: Adjust the rotary switch (picture 5) up 2 notches and re-try auto adjustment.



Two (2) long beeps - Device has detected too strong signal and has reached an adjustment limit. Device might not work optimally. Was person laying still during the calibration period? Re-try calibration again and see if second time would be successful. If second time gives same error sound, adjust the rotary switch (picture 5) down 2 notches and do the calibration again.



You can always return sensitivity to factory default. First press SW1 three (3) times and soon after hearing the three sounds, press SW1 again 3 times. That interrupts adjustment and device returns to factory setting.



Adjust the sensitivity of the device every time the sensor is re-installed, if the user or the sensor changes.

14. Signal lights (picture 22)

14.1. Green – Presence

Light flashes every second time compared to blue light.	A person is on the bed or other movement is being made.
Light flashes the same speed as blue light.	A person has been on the bed for 60 seconds and the device has become activated.
Light flashes rapidly.	Fast-paced movement on the bed detected.
Light is off.	No one is on the bed.

14.2. Blue – Device on/standby

Light is off.	Device is switched off.
Light flashes slowly.	Device is switched on.
Light flashes rapidly a few times.	Device triggers a notification.

14.3. Red – Malfunction

Light is flashing the same speed as blue light	The sensor is disconnected or defective. Signal alarm sounds after 10 seconds and then every 45 seconds. There is also an alarm sent through the X2 connector after 30 seconds and then every 30 minutes.
Light is flashing every fourth time compared to blue light.	Batteries are empty. Replace batteries.

15. Checks

15.1. Weekly checks

1. Condition of the cables

Check the condition of the cables

2. Position of the bed sensor

Check the position of the bed sensor under the mattress. The correct position is at the chest height of the user and across the bed.

15.2. Start-up and monthly checks

To ensure faultless performance, conduct the following tests at least once a month and when ever the device is re-installed.

Testing the absence i.e. no movements notification

1. Check that the device is on (blue light is blinking). If longer delay (3, 6, 10, 15 or 30 minutes) is in use, change that to shortest. See chapter *6.1 Setting bed exit notification delay (DIP Switch 1 - 3)*.
2. Have the person lie still on the bed on his/her right side for at least 2 minutes. The system should notice person's micro movements immediately and the green occupancy LED indicator will start to blink. At first it blinks every second time the blue light blinks. Then after 1 minute the device gives a short "beep" sound as a sign that device is activated for presence monitoring. After that the green LED should blink continuously the entire time person is in bed. If the device does not detect the presence of a person (green LED light is not blinking) move to *16. Troubleshooting*. If the green light goes off for long periods of time and the no movement notification is triggered, adjust sensitivity higher, *13. Calibrating the "presence / absence" sensitivity*. If the green light blinks continuously, while the person is laying still on their right side, the sensitivity level is correct.
3. Now ask the person to leave the bed. The 'no movement' notification should be triggered after the delay time (3 or 5 seconds, *6.1 Setting bed exit notification delay (DIP Switch 1 - 3)*), when the person has left the bed and no one is touching the bed, sensor or wires. If the notification doesn't work and the green light continues blinking, see *16. Troubleshooting*.

16. Troubleshooting

Ensure that the device is properly installed. Test the device carefully every time its settings are adjusted.

The device triggers a notification but the nurse call system does not.	Ensure that the external wireless transmitter or other system's connection cable is connected to the X2 connector. Check the battery of the external wireless transmitter.
Notification sound is inaudible	Check the setting for volume.
The device triggers a notification even if person is in bed.	Check the condition, installation and position of the sensor. Check that the sensitivity setting of the sensor is not too high. The green light should not be on if no one is on the bed.
The green light flashes even if no one is on the bed.	Ensure that the bed sensor and its cables are not affected by external movement and remove any distractions. Check the condition of the sensor and its cables. Faulty sensor or cable may cause distractions so that the green light is on all the time. Adjust sensitivity.
The green light is not flashing even if someone is on the bed.	Check the condition of the sensor and its cables. Faulty sensor or cable may cause distractions so that the green light is on all the time. Check that the sensitivity is correct.

If you experience any problems with the use of the device, please contact the manufacturer.

17. Cleaning

You can wipe the sensor and cables, control unit and external power supply with a damp cloth, neutral cleaning product or mild disinfectant.



Always disconnect the external power supply and remove nurse call cable (if used) from connector X2 before cleaning the device. Dry all parts well after cleaning.

18. Disposal of the device after use

In conformity with the Waste Electrical and Electronic Equipment Directive (WEEE Directive), the device must be collected separately and returned to an authorised collection facility. The owner must take the device to the waste collection point specified by local authorities.



For more information on how to dispose of the device, please contact the relevant authorities.

19. Declaration of conformity (EU)

The manufacturer, Abilia, hereby declares that the Emfit SafeBed complies with the essential requirements of EMC directive 2004/108/EC. Manufacturer's undersigned declaration of conformity (EU) is available by request from the manufacturer.

20. Abilia limited warranty statement

In the unlikely event that your product needs guarantee service, please contact your dealer, distributor or manufacturer. To avoid any unnecessary inconvenience on your part, we recommend you read these instructions for use carefully before seeking guarantee service.

20.1. Your guarantee

By this Guarantee, Abilia guarantees the product to be free from defects in materials and workmanship at the date of original purchase for a period of two (2) years from that date.

If within the guarantee period the product is determined to be defective (at the date of original purchase) due to improper materials or workmanship, Abilia will, without charge for labour or parts, repair or (at Abilia's discretion) replace the product or its defective parts subject to the terms and limitations below. Abilia may replace defective products or parts with new or refurbished products or parts. All products and parts replaced become the property of Abilia.

20.2. Terms

Guarantee services will be provided only if the original invoice or sales receipt (indicating the date of purchase, model name and dealer's name) is presented with the defective product within the guarantee period. Abilia may refuse free-of-charge guarantee service if these documents are not presented or if they are incomplete or illegible. This Guarantee

will not apply if the model name or serial number on the product has been altered, deleted, removed or made illegible.

This Guarantee does not cover transport costs and risks associated with transport of your product to and from Abilia.

This Guarantee does not cover:

- a) periodic maintenance and repair or parts replacement due to wear and tear. Notice! Emfit bed sensor wears and tears significantly faster when installed on soft base like spring mattress.
- b) consumables (components that are expected to require periodic replacement during the lifetime of a product such as non-rechargeable batteries)
- c) damage or defects caused by use, operation or treatment of the product inconsistent with normal use.
- d) damage or changes to the product as a result of:
 - misuse, including:
 - treatment resulting in physical, cosmetic or surface damage or changes to the product
 - failure to install or use the product for its normal purpose or in accordance with Emfit's instructions on installation or use
 - failure to maintain the product in accordance with Emfit's instructions on proper maintenance installation or use of the product in a manner inconsistent with the technical or safety laws or standards in the country where it is installed or used.
 - the condition of or defects in systems with which the product is used or incorporated except other Emfit's products designed to be used with the product.
 - use of the product with accessories, peripheral equipment and other products of a type, condition and standard other than prescribed by Abilia.
 - repair or attempted repair by persons who are not Abilia employees
 - adjustments or adaptations without Abilia's prior written consent, including:
 - upgrading the product beyond specifications or features described in the instructions for use, or modifications to the product to conform it to national or local technical or safety standards in countries other than those for which the product was specifically designed and manufactured
 - neglect
 - accidents, fire, liquids, chemicals, other substances, flooding, vibrations, excessive heat, improper ventilation, power surges, excess or incorrect supply or input voltage, radiation, electrostatic discharges including lightning, other external forces and impacts.

This guarantee covers only hardware components of the product.

20.3. Exclusions and limitations

Except as stated above, Abilia makes no warranties (express, implied, statutory or otherwise) regarding product or accompanying or constituent software quality, performance, accuracy, reliability, fitness for a particular purpose, or otherwise. If this exclusion is not permitted or fully permitted by applicable law, Abilia excludes or limits its warranties only to the maximum extent permitted by applicable law. Any warranty that cannot be fully excluded will be limited (as far as permitted by applicable law) to the duration of this Guarantee.

Abilia's only obligation under this Guarantee is to repair or replace products subject to these Guarantee terms and conditions. Abilia is not liable for any loss or damage relating to products, service, this Guarantee or otherwise, including - economic or intangible losses

- the price paid for the product - loss of profits, revenue, data, enjoyment or use of the product or any associated products - indirect, incidental or consequential loss or damage. This applies whether that loss or damage relates to: impaired or non-operation of the product or associated products through defects or unavailability while with Abilia, which caused downtime, loss of user time or business interruption inaccuracy of output from the product or associated products.

This applies to loss and damages under any legal theory, including negligence and other torts, breach of contract, express or implied warranty, and strict liability (even where Abilia has been advised of the possibility of such damages).

Where applicable law prohibits or limits these liability exclusions, Abilia excludes or limits its liability only to the maximum extent permitted by applicable law. For example, some countries prohibit the exclusion or limitation of damages resulting from negligence, gross negligence, wilful misconduct, deceit and similar acts. Abilia's liability under this guarantee will in no case exceed the price paid for the product, but if applicable law permits only higher liability limitations, the higher limitations apply.

20.4. Your legal rights reserved

Consumers have legal (statutory) rights under applicable national laws relating to the sale of consumer products. This guarantee does not affect statutory rights you may have nor those rights that cannot be excluded or limited, nor rights against the person from whom you purchased the product. You may assert any rights you have at your sole discretion.

21. Technical specifications



Equipment is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

21.1. Control unit

Model:	D-1070-2G (t66v1.2.4)
Operating voltage:	3V DC with batteries / 5V DC with external power supply
Input and output connectors:	Power supply, AUX and bed sensor
Dry-contact output:	Max. 100mA A, <60V DC, <25V AC
Switches and controls:	SW1 (On/Off/Reset switch), 8 pcs DIP switches for settings (volume, delay), one 10-position rotary switch for adjusting sensitivity.
Signal lights:	3 LEDs: green, blue and red
Delays:	Absence i.e. no movements treshold delay 3 or 5 sec, or 3, 6, 10, 15 or 30 min
Mounting:	Wall mounting, bed-side or table
Measurements:	96 x 127 x 34 mm
Weight (g):	110 g
Colour:	White
IP rating:	IP20
Casing:	Plastic

21.2. Bed sensor

Model:	L-4060SL (art.no 464027), incl. in 464032 / L-4060SLC (art.no 464011), incl. in 464001
Type:	Bed sensor
Placing:	Under a mattress
Portability:	Yes
Measurements:	430 x 580 mm
Thickness:	0.4 mm / 1.4 mm
Weight:	185 g / 410 g
Colour:	Blue / White
Surface material:	Polyester / PVC
Cable length:	3 m

21.3. External Power Supply

Manufacturer:	GlobTek Inc.
Model:	GTM41076-0605 (WR9QA1200L9PNMNK2813) or GTM41060-1505 (WR9QA3000LCP-N-MNK)
Input voltage:	100-240 V
Input current:	<0.6 A RMS MAX
Input frequency:	50 - 60 Hz
Watts:	6.0 W / 15 W
Output voltage:	5 VDC
Output current:	1.2 A / 3.0 A
Electrical safety class:	Class II

21.4. Ambient conditions

Operating temperature:	10–40°C
Storage and transport temperature:	-30–50°C
Relative humidity:	20–75%

22. Electromagnetic conditions

System specification:

- D-1070-2G monitor
- Bed sensor L-4060SL / L-4060SLC
- GlobTek external power supply (see chapter *Technical Specifications* for details)

Cable specification:

- Power cable (non-shielded) max. Length 2 m
- Sensor cable (shielded) max. length 3 m

Note! RF communications equipment can effect medical electrical equipment!

Guidance and manufacturer's declaration – electromagnetic emissions		
The Emfit SafeBed is intended for use in the electromagnetic environment specified below. The customer or the user of the equipment should assure that it is used in such an environment.		
RF emissions CISPR 11	Group 1	The Emfit SafeBed uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The Emfit SafeBed is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration – electromagnetic immunity			
The Emfit Safebed is intended for use in the electromagnetic environment specified below. The customer or the user of the equipment should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	IEC-60601-1-2 test level	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	IEC-60601-1-2 test level	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s)	IEC-60601-1-2 test level	Mains power quality should be that of a typical commercial or hospital environment
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% UT (>95% dip in UT) for 0,5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	IEC-60601-1-2 test level	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Emfit SafeBed enquires continued operation during power mains interruptions, it is recommended that the Emfit SafeBed be powered from an uninterruptible power supply or battery
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	IEC-60601-1-2 test level	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE YT is the a.c. mains voltage prior to application of the test level.

Guidance and manufacturer's declaration – electromagnetic immunity			
The Emfit SafeBed is intended for use in the electromagnetic environment specified below. The customer or the user of the equipment should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V 150 kHz to 80 MHz	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Emfit SafeBed, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance:</p> $d = 1,2\sqrt{P}$ $d = 1,2\sqrt{P} \quad 80 \text{ MHz} - 800 \text{ MHz}$ $d = 2,3\sqrt{P} \quad 800 \text{ MHz} - 2.5 \text{ GHz}$ <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, a should be less than the compliance level in each frequency range, b.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.</p> <p>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the [EQUIPMENT or SYSTEM] is used exceeds the applicable RF compliance level above, the [EQUIPMENT or SYSTEM] should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the [EQUIPMENT or SYSTEM].</p> <p>b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</p>			

Recommended separation distances between portable and mobile RF communications equipment and the Emfit SafeBed.

The Emfit SafeBed is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Emfit SafeBed can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Emfit SafeBed as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter		
	150 kHz – 80 MHz $d = 1,2\sqrt{P}$	80 MHz – 800 MHz $d = 1,2\sqrt{P}$	800 MHz – 2.5 GHz $d = 2,3\sqrt{P}$
0.01	0.12 m	0.12 m	0.23 m
0.1	0.38 m	0.38 m	0.73 m
1	1.2 m	1.2 m	2.3 m
10	3.8 m	3.8 m	7.3 m
100	12 m	12 m	23 m

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be determined using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

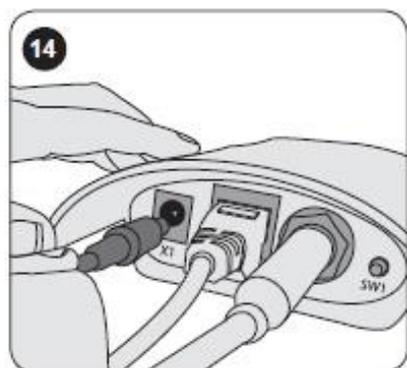
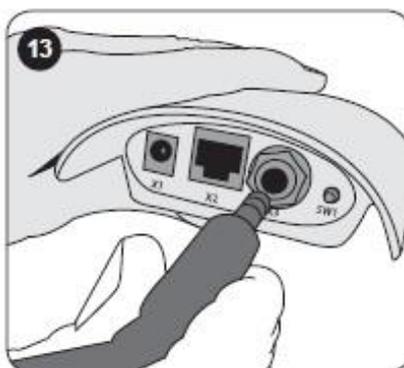
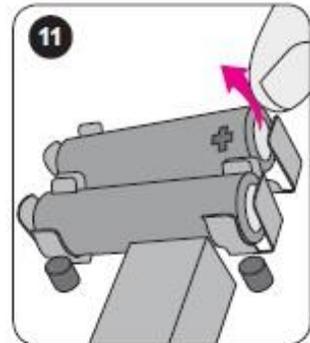
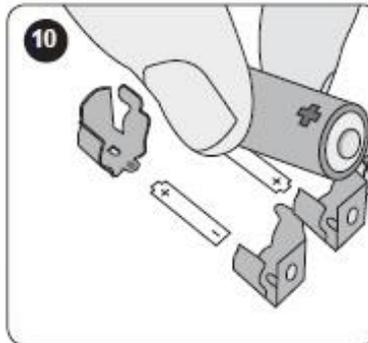
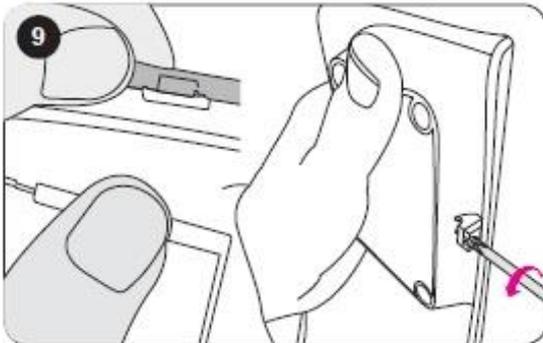
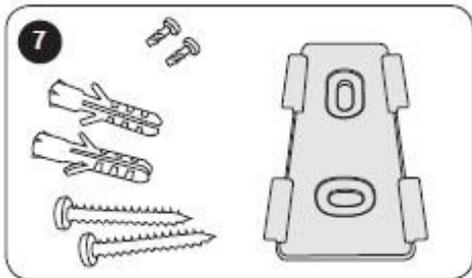
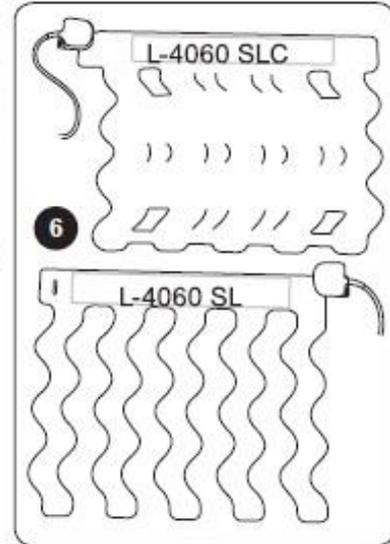
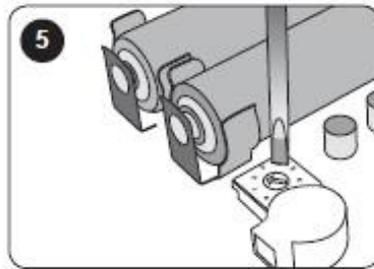
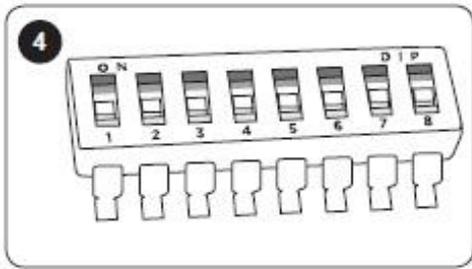
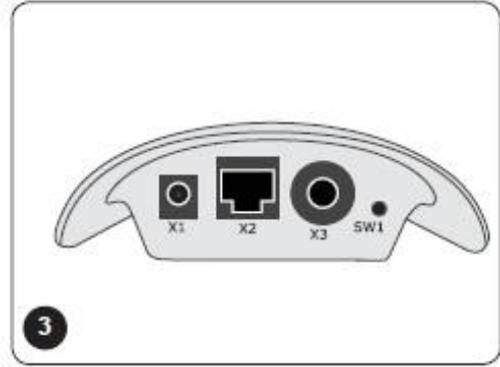
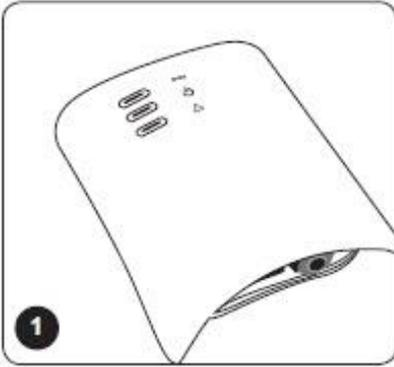
NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

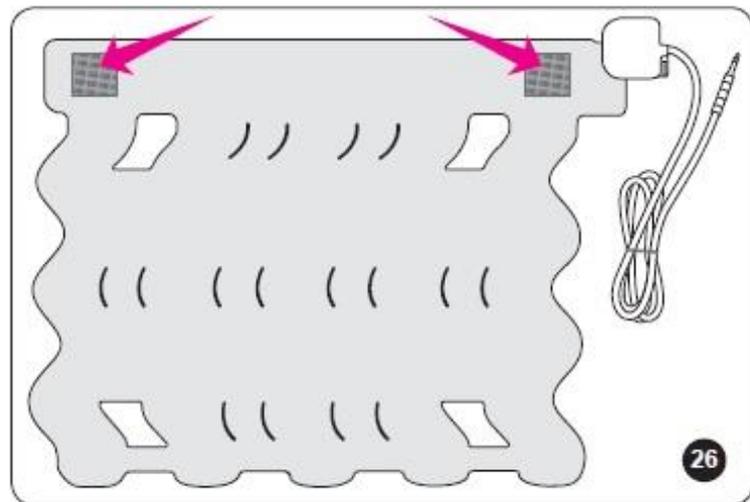
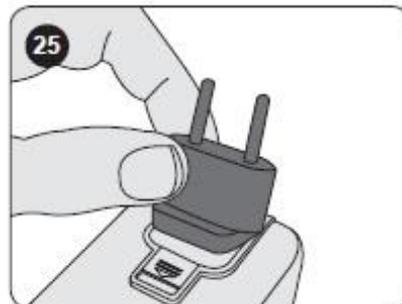
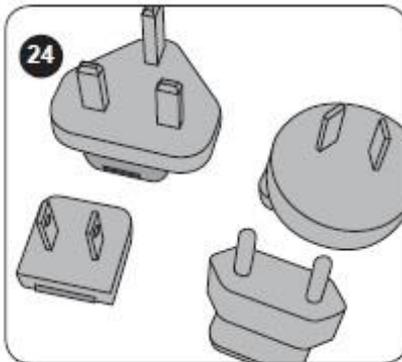
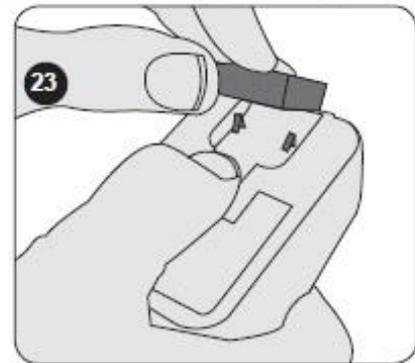
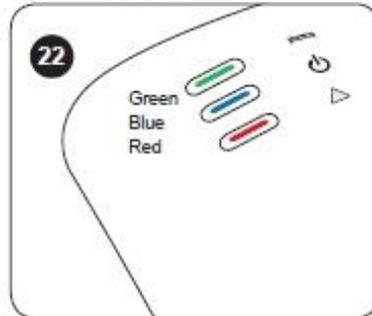
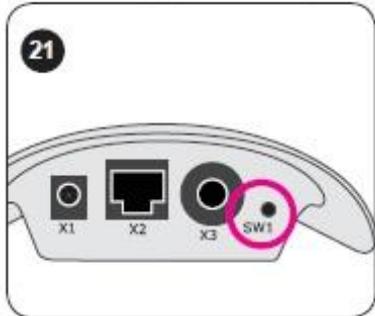
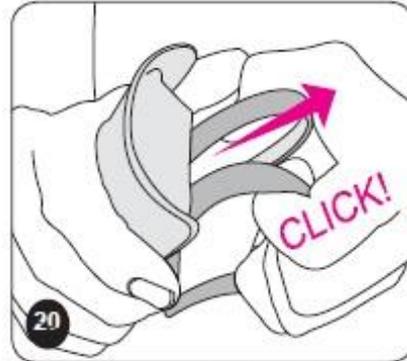
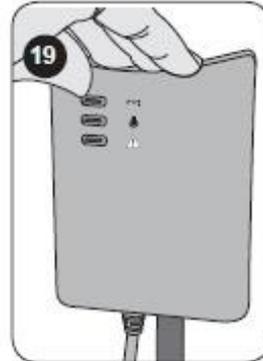
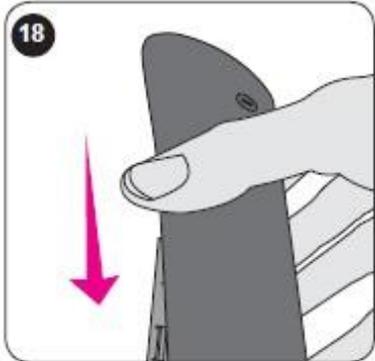
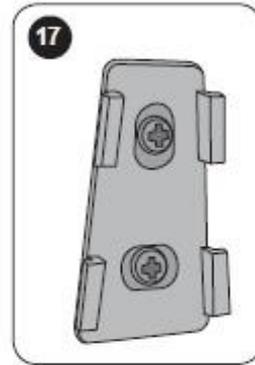
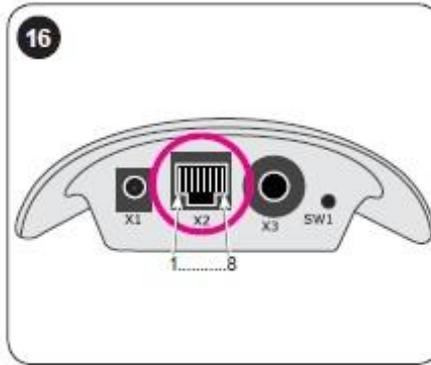
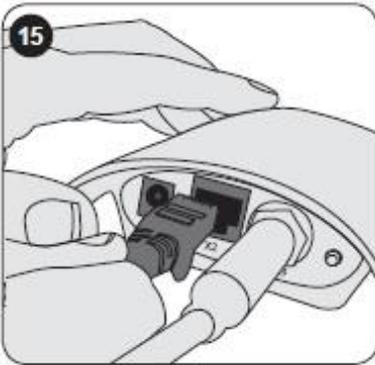
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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24. Appendix - Related pictures







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