

Emfit[®] SafeFloor

Bed and Door Exit Monitor



Art.no 464020

Note! The device must not be used if an operational failure of the device might lead to a delay in getting the appropriate treatment or medication for the patient, which could put the patient's life at risk.

Table of Contents

1. Important safety precautions	5
1.1 Important information and limitations for use. Read before use.....	5
1.2 Accidental or intentional adjustment of knobs and switches by the user or subject may cause:	5
2. Danger notes.....	6
2.1 Other symbols used.....	6
3. General Information.....	7
3.1 Intended use	7
3.2 Control Unit.....	7
3.3 Floor Sensor	7
4. Package contents.....	7
5. Basic Setting	8
5.1 Table of DIP Switch Setting	8
5.2 Setting the Notification Sound Volume	9
6. Setting the sensitivity.....	9
7. Installing the Floor Sensor.....	10
8. Connectors and wiring.....	11
8.1 X2 (AUX) Connector Pin Order.....	11
9. Installing the wall mount and device.....	12
10. Installing batteries and battery consumption	12
11. About the optional 5V AC adapter	13
12. LED-light indicators	13
13. SW1 - Reset switch / ON/OFF switch.....	14
13.1 As a Reset Switch.....	14
13.2 As an ON/OFF Switch	14
14. Testing and inspections.....	14
14.1 Daily Inspection	14
15. Troubleshooting.....	15
15.1 Notification is not working or not getting forwarded via other systems the device is connected to;	15
15.2 Notification sound does not operate;	15
15.3 False notifications without reason:.....	15
16. Cleaning	15
17. Materials disposal.....	15
18. Declaration of conformity (EU)	16
19. U.S. / FCC statement	16
20. CANADA / EMC compatibility statement.....	16
21. Abilia limited warranty statement.....	16
21.1 Your guarantee	16
21.2 Terms	17
21.3 Exclusions and limitations.....	17

21.4 Your legal rights reserved	18
22. Technical specifications	18
22.1 Control unit	18
22.2 Sensor	19
22.3 External Power Supply	19
22.4 Ambient conditions	19

1. Important safety precautions

1.1 Important information and limitations for use. Read before use

- Always test the system per instructions prior to use
- This product may not be suitable for all persons
- This product should not be a substitute for the routine visual monitoring protocol by caregiver
- Must not be used in situations where a delay in the arrival of appropriate medical care, could lead to a potentially life-threatening situation
- Never use Emfit sensors with other manufacturers' devices
- The notification may fail to sound if the sensor or its cable is damaged or the sensor is improperly positioned
- Pets can cause false notifications
- Sensor must not be scratched, slit or cut
- Check sensor and cable condition as well as total use time at least weekly and replace when necessary
- Do not integrate to other systems other than those specified in this manual
- To avoid risk of electrical shock, avoid getting the sensor system wet
- Do not open the parts or attempt to repair it yourself
- Always keep the control unit and sensor dry. Exposure to excessive moisture can cause it to malfunction
- The product fulfils the requirements of the EMC-Directive for medical devices. It does not cause electromagnetic disturbances under normal working conditions
- The product can be stacked or placed near other products or devices as long as mechanical vibration is not present
- Always check the function of the product after making adjustments
- Please remove batteries if the unit is to be out of use or stored for an extended period of time
- 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.



1.2 Accidental or intentional adjustment of knobs and switches by the user or subject may cause:

- the notification sound to not activate when adjusting the volume control to the off position.
- false notifications (increasing) or malfunction (decrease) when adjusting the sensitivity.
- the product not to give notifications when necessary if turned off by pressing the SW1 switch.
- the product not to give notifications when necessary when switching DIP switches.


2. Danger notes

The following notes are provided for BOTH your personal safety and to protect the described product or attached devices from damage.

Safety notes and warnings for the prevention of danger to the lives and health of users or maintenance personnel and/or for the avoidance of damage to property are emphasized in these instructions by the pictogram's defined here. The pictogram's used have the following meanings for these instructions:

	Means that death, serious personal injury or substantial damage to property can occur if the appropriate precautionary measures are not taken.
	Means important information about the product or a part of the instructions that particular attention should be paid to.

2.1 Other symbols used

	Upper storage temperature limit
---	---------------------------------

3. General Information

3.1 Intended use

The Emfit SafeFloor Bed and Door Exit Monitor (device model D-1050-2G and sensor model L-6090SL) is intended to be used for monitoring a bed or door exit and giving notification to the caregiver when the user is stepping on the sensor. The product consists of a floor sensor and a control unit. The control unit has an audible notification sound and a dry-contact output for connecting it to the other parts of the system.

3.2 Control Unit

The control unit D-1050-2G gives a notification after it has noticed a step on a sensor. A 6 second delay can be set for caregivers by pressing the by-pass switch (SW1) and pass through the doorway without activating a notification. The control unit processes a low voltage (from about 1 mV up to about 1 V), high impedance signal from the dynamic, quasi-piezoelectric type (i.e. self-biased) flexible film-like sensor.

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 22. *Technical specifications* for details).

The control unit has input connectors for the AC adapter and sensor. There is also a connector for connecting the device to other systems for transferring the notification via dry-contact optocoupler. A reset switch for turning off the notification sound is marked as SW1.

Inside the device there is a place for 2 standard AA size 1.5 V alkaline batteries, and mini-switches (DIP and rotary) for program settings.

3.3 Floor Sensor

The Emfit floor sensor is a quasi-piezoelectric, dynamic sensor that has no embedded wires or switches. This specially formulated plastic sheet sensor model L-6090SL is placed on top of the flooring. The sensor produces signals from even the slightest movement on the sensor.



4. Package contents

- A control unit
- Floor sensor
- A wall mounting bracket with two screws and two plugs
- Clip for bed side attachment
- This manual
- Two AA size 1.5 V alkaline batteries
- Optional power supply (see chapter *Technical Specifications* for details)

5. Basic Setting

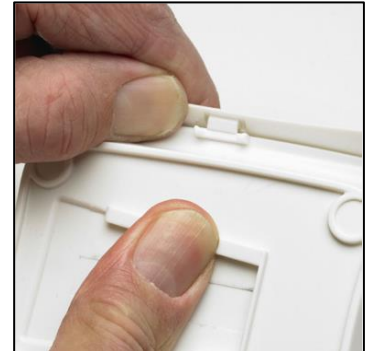
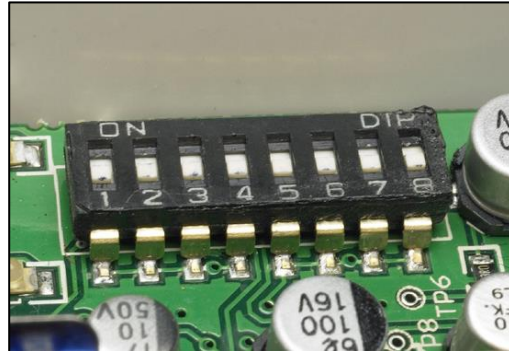
Inside the device there is a DIP switch with 8 small switches. These are used for various program settings.



Always remove the batteries and unplug the AC adapter (if using) before making changes to the DIP switch positions. If all sources of power are not removed the new settings will not take effect!

See the following table and set up the switches for your preferred way.

To open the device cover, see the picture on right.



5.1 Table of DIP Switch Setting

Switch	OFF (down)	ON (up)
1	Normal bed-side operation (no notification delay)	Door use (a 6 seconds delay to allow caregivers time to pass through the doorway. Press the SW1 switch to avoid a false notification)
2	Manual reset	Automatic reset. NOTE! Notification sound stops automatically after 30 seconds. Ready to make new notification after 1 minute.
3	Not in use, leave OFF	Not in use, leave OFF
4	Not in use, leave OFF	Not in use, leave OFF
5	Dry-contact output is in pulse mode (about 1 sec pulse)	Dry-contact output is constant type (will remain connected until reset button is pressed). Use only when necessary with other systems. Not to be used with batteries. The control unit should be used, in this case, with the optional power supply.
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).
7	Notification sound volume setting, see 5.2	Notification sound volume setting, see 5.2
8	Notification sound volume setting, see 5.2	Notification sound volume setting, see 5.2

5.2 Setting the Notification Sound Volume

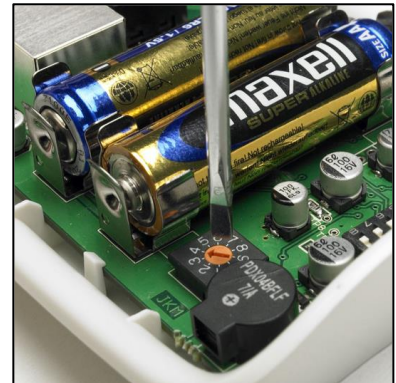
The notification sound is useful only when the caregiver is in close proximity to the control unit. The volume can be adjusted at 4 levels: Very loud, normal, quiet and mute.

Volume level	Switch 7	Switch 8
Very Loud	OFF (down)	OFF (down)
Normal	ON (up)	OFF (down)
Quiet	OFF (down)	ON (up)
Mute (no sound)	ON (up)	ON (up)

In the automatic reset mode (DIP switch 2 at ON) the notification sound stops automatically after 30 seconds. The notification sound can also be stopped by pressing SW1.

6. Setting the sensitivity

The sensitivity can be adjusted with the rotary switch inside. The factory default setting is set to 3. In case the device does not notice a light step on sensor, increase the sensitivity by turning the pointer clock-wise one position at a time. If the device notices unnecessary light movements on sensor and causes false notifications, decrease the sensitivity by turning the switch counter-clockwise one position at a time. Always test after every change before taking into use.



7. Installing the Floor Sensor



1. Place the included anti-slip mat beside the bed, so that one long edge goes slightly beneath the bed.



2. Place the sensor on top of the anti-slip mat. Plug the sensor cable into the X3 input.



3. If you are installing the sensor to an out-going door, the edges of the mat should be taped to the floor so that sand and small stones do not get under the mat. Those will soon punch the sensor electrodes causing it to malfunction. The tape should also prevent any water, like melting snow in winter conditions, getting beneath the mat and causing the sensor to detach.



Sand, dirt and rocks may damage the sensor causing it to stop functioning properly. When taping the edges use tape that is water resistant. Tape should be tough enough to withstand foot traffic, melting snow, etc.

8. Connectors and wiring

Connect the sensor, power supply (sold separately) and any additional cables in the following way:



Connect the sensor to input X3



It's possible to attach another system to the control unit via input X2 (i.e. Nurse call system)



The power supply (sold separately) fits into input X1.

Connectors are marked with X1, X2 and X3. These are:



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. (use only Emfit floor sensor model L-6090SL or L-60150)

8.1 X2 (AUX) Connector Pin Order

From left to right:

Pin 1	Common return
Pin 2	Normally Open (NO) send
Pin 3	Normally Closed (NC) send
Pin 4	Low Battery warning send (NO)
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



Dry-contact output of the X2 (AUX) connector can only be connect to a system safety voltage input with max voltage below 25V (AC) / 60V (DC), where both poles have been separated from the electrical network (so called floating applied part)! Max load current is 100mA.

9. Installing the wall mount and device



Attach the wall mount with the included two anchors and screws



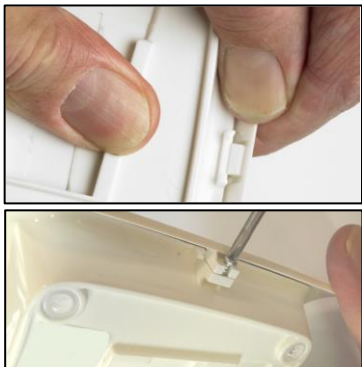
Slide the device into the mount



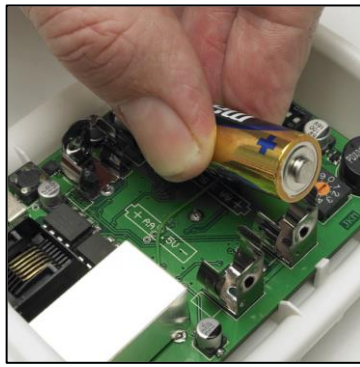
Press the device downwards so you hear a “click” sound

10. Installing batteries and battery consumption

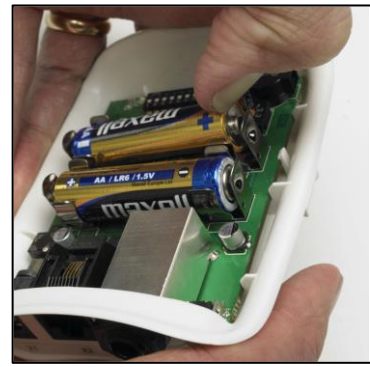
Product operates with 2 standard AA size 1.5 V alkaline batteries. Install and remove the batteries as follows:



Remove the two screws and open the cover by lifting from one side. Install screws again when batteries are installed.



Install 2 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 about 6 months, when using high quality alkaline batteries, with 2800 mAh capacity (2 pcs). Estimation is based on measured battery consumption in various conditions and then a calculation where device is on 50% of time and shut down 50% of 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.



We recommend that the batteries be removed if the control unit is to be stored or unused for extended periods of time.

11. About the optional 5V AC adapter

To prepare the optional power supply for use, do the following:



Remove the plastic cover



Pick up suitable adapter from the included 4 pcs



Install the adapter and make sure it stays in its place



The control unit has been designed and tested to be used with the Globtek inc. power supply (see chapter 22. *Technical specifications* for details). Using any other power supply may interfere with the safe use of the device.



We do not recommend batteries to be used as backup power when optional AC adaptor is being used. All alkaline batteries empty in time (even though not used) and once empty they begin to leak. This can ruin 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.

12. LED-light indicators

1. Green – Presence

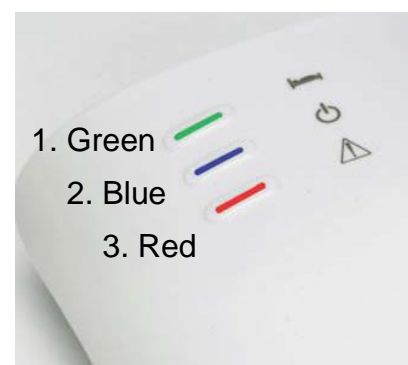
- The green light starts blinking when the device notices movements on the sensor.

2. Blue – Device on/standby

- The blue light blinks slowly when the device is ON
- The blue light blinks fast for a short moment when the device triggers a notification

3. Red LED / Fault

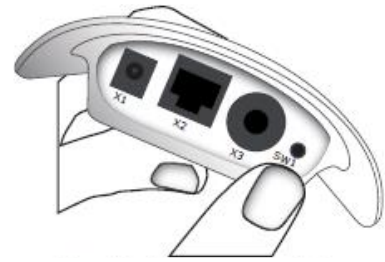
- When the red light is blinking quickly it means the sensor is not connected or the sensor is broken. A notification sound is heard the first time 10 seconds after the device notices a sensor fault, and thereafter every 45 seconds. Dry-contact output gives a notification the first time after 30 seconds and then thereafter every 30 minutes, until a proper sensor is plugged in.
- When the red light blinks slowly means that the batteries should be replaced. A notification sound is sounded every 1 ½ hours. The dry-contact output gives a low battery notification every 3 hours until the batteries are replaced.



13. SW1 - Reset switch / ON/OFF switch

13.1 As a Reset Switch

When the notification sound is ongoing it can always be silenced by pressing the shortly the SW1 switch (see picture).



In manual reset mode (DIP switch 2 OFF), the device must be reset by briefly pressing the SW1 switch. Only after pressing the SW1 device is the device ready to make a new notification.



When the automatic reset function (DIP 2 is enabled ON), the notification sound stops automatically after 30 seconds. The device is ready to make new notifications after 1 minute (both by dry-contact output and sound). Therefore in automatic reset mode it is not necessary to press the SW1 to reset the device.

13.2 As an ON/OFF Switch

When the ON/OFF switch function is enabled (DIP-switch 6 at OFF), the SW1 switch functions also as an ON/OFF switch. To turn the device ON or OFF, simply press the switch SW1 for about 3 seconds.

14. Testing and inspections

14.1 Daily Inspection

Test that the system gives a notification when you step gently on the sensor, as if a person is getting out of the bed and putting their feet slowly down on the floor.

15. Troubleshooting

Always check first that installation is correct and test the device properly after every adjustment.

15.1 Notification is not working or not getting forwarded via other systems the device is connected to;

- Check that the connection cable is connected correctly and is in good condition. Often both ends of the cable appear to be identical but it is possible that the wiring order is not the same. Make sure it is connected the right way!
- Check that the device is switched ON. It is ON if the blue light is blinking slowly. If it is not blinking, press the SW1 switch for 3 seconds. If the device does not turn on, change the batteries or if you use AC adapter, check it is connected to mains.
- If the red light is blinking the same speed as blue light, and sensor is connected, the sensor is broken. Typically this is due to a small particle, such as sand or pebbles, having punctured the electrode layers and caused a short.

15.2 Notification sound does not operate;

- Check the volume level.

15.3 False notifications without reason:

- Sensitivity may be too high. Some things such as a sudden large change in air pressure may cause notifications. See chapter 6. *Setting the sensitivity.*

Please never hesitate to contact the manufacturer if you experience any problems with use! All feedback is highly appreciated!

16. Cleaning

The floor sensor can be cleaned with water and, when necessary, a neutral general-purpose or mild antiseptic detergent. Always dry the sensor after cleaning. Use a moist cloth for cleaning the control unit. Also clean the bottom of the sensor and the floor where it is being installed to avoid small particles such as sand or small rocks, puncturing the sensor and causing a short.



The control unit must not get wet! Do not immerse in water! Do not clean the AC adapter or the control unit when it is connected to the mains outlet. Always dry it well after cleaning.

17. Materials disposal

At the end of the product's use life, please dispose of it at appropriate collection points provided in your country. For disposal or recycling information, please contact your local authorities or the Electronic Industries Alliance (EIA, www.eiae.org).



In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

18. Declaration of conformity (EU)

The manufacturer, Abilia, hereby declares that the Emfit SafeFloor (device model D-1050-2G and floor sensor model L-6090SL) 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.

19. U.S. / FCC statement

The United States Federal Communications Commission has specified that the following notice to be brought to attention of users of this product:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for the compliance could void the user's authority to operate the equipment.

20. CANADA / EMC compatibility statement

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérisé de la classe A est conforme à la norme NMB-003 du Canada.

21. 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.

21.1 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 one (a) year (USA/Canada) from that date (2 years outside of USA/Canada).

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.

21.2 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.
- 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.

21.3 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.

21.4 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.

22. Technical specifications

22.1 Control unit

Model:	D-1050-2G (t68v1.1.1)
Operating voltage:	5V DC
Input and output connectors:	Power supply, AUX and Sensor
Dry-contact output:	Max. 100 mA A, <60 V DC, <25 V AC
Switches and controls:	On/Off/Reset switch, 8 DIP switches for program settings, 1 pcs 10 position rotary switch for sensitivity adjustment
Light indicators:	3 LEDs: green, blue and red
Notification delays:	No delay or 6 seconds
Mounting:	On the wall with included bracket or on the table
Measurements:	96 x 127 x 34 mm
Weight:	110 g
Colour:	White
IP rating:	IP20
Casing:	Plastic

22.2 Sensor

Model:	L-6090SL
Type:	Floor sensor
Placing:	On the floor
Portability:	Yes
Measurements:	610 x 930 mm
Thickness:	2.5 mm
Weight:	1 kg
Colour:	Grey
Surface material:	PVC
Cable length:	3.0 m

22.3 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

22.4 Ambient conditions

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



Abilia AB, Kung Hans väg 3, Sollentuna, Box 92, 191 22 Sollentuna, Sweden
Phone +46 (0)8-594 694 00 | info@abilia.se | www.abilia.se

Abilia AS, Tevlingveien 23, 1081 Oslo, Norway
Phone +47 23 28 94 00 | info@abilia.no | www.abilia.no

Abilia UK Ltd, Unit 12 Buckingham Business Park, Swavesey,
Cambridge, CB24 4AE, United Kingdom
Phone +44 (0)1954 281210 | info@abilia.uk | www.abilia.uk

