



# UNDERFLOOR HEATING MAT

## INSTALLATION INSTRUCTIONS



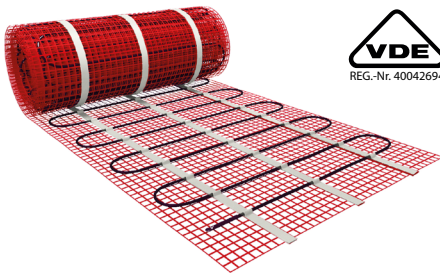
# KLIMA Mat

Dear Client,

Congratulations on the purchase of this KLIMA product. The KLIMA Mat is manufactured from high quality, durable materials. To guarantee that your product functions optimally there are a few points of attention which are described in the Installation Instructions. We can only offer you the full guarantee if the KLIMA Mat is correctly installed in accordance with the Installation Instructions. Carefully read the instructions prior to installation, do not forget the red centre page when doing so, and ensure that you have the correct tools and materials. The control check card that is supplied within the sealed packaging of the Klima Underfloor Heating Mat must be fully filled out at the time of installation and kept in a safe place in conjunction with your proof of purchase to validate any warranty claims. This control check card contains the unique individual serial number of the Mat. The electrical installation must be carried out by a qualified electrician in accordance with IEE Regulations. If you have any questions or require more information then you can contact the Support Line Monday to Friday from 9 am to 5 pm:

01887 822 020

or visit our website for more information and other products at: [www.klima.co.uk](http://www.klima.co.uk)



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Karelia House, Keltneyburn, By Aberfeldy, PH15 2LS

## 1. Check:

A complete set consists of:

- Heating mat with adhesive backing
- Control check card (must be filled out and retained)
- Flexible sensor pipe
- Installation Manual

Order as separate item:

- Digital or Manual thermostat including floor sensor
- Thermal Insulation Boards (recommended)

## 2. Technical details:

Type	FHM_TWIN_ALU_150
Width	50 cm
Power	150 W/m <sup>2</sup>
Voltage	230 Volt~
Connection Wire	1x 3,5 meter
Max. temp.	115 °C

Type	Wattage	Size	Amps	Ohm
1 m <sup>2</sup>	150 W	0,5x2m	0,7	353
1,5 m <sup>2</sup>	225 W	0,5x3m	1,0	235
2 m <sup>2</sup>	300 W	0,5x4m	1,3	176
2,5 m <sup>2</sup>	375 W	0,5x5m	1,6	141
3 m <sup>2</sup>	450 W	0,5x6m	2,0	117
3,5 m <sup>2</sup>	525 W	0,5x7m	2,3	100
4 m <sup>2</sup>	600 W	0,5x8m	2,6	88
4,5 m <sup>2</sup>	675 W	0,5x9m	2,9	78
5 m <sup>2</sup>	750 W	0,5x10m	3,3	71
6 m <sup>2</sup>	900 W	0,5x12m	3,9	59
7 m <sup>2</sup>	1050 W	0,5x14m	4,6	50
8 m <sup>2</sup>	1200 W	0,5x16m	5,2	44
9 m <sup>2</sup>	1350 W	0,5x18m	5,9	39
10 m <sup>2</sup>	1500 W	0,5x20m	6,5	35

## 3. Points of attention

The KLIMA Mat electrical floor heater consists of a heating cable that is equally distributed and connected to a glass fibre net with an inter-loop distance of approximately 7cm. The KLIMA Mat is fully earthed. Check before hand if the heating mat is the right size for the floor area to be heated and that there is sufficient electrical capacity (Amps.) available. The mat may not be positioned over expansion joints.

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Each mat is tested at the factory and has its own unique serial number which is printed on the control check card. The control check card should be filled out and signed by the installer. Every mat is tested at 4000V

Before installing the mat, the resistance reading should be taken and noted down on page 6 of this instruction manual and also on the control check card that was supplied within the mat - (See point 7).

The connector cable can be extended or shortened, there must always be at least 0.5 meter of connecting wire left. The heating cable, attached to the Red glass fibre net, cannot be cut. The mats cannot be laid over each other and the heating cables may never cross each other! The cable **SPLICE** is the transition of the resistance cable (heating section of the mat) to the power cable (cold connection) is just within the heating mat and is marked by cable ties. This must be encapsulated in the floor adhesive or levelling compound.

A distance from the wall of 5 to 10 cm should generally be adhered to. The KLIMA Mat may never be installed under fixed objects like wall units, kitchen units, baths, or showers and must be able to give off its warmth unimpeded. The KLIMA Mat may only be incorporated into the free floor areas. As bathrooms consist mostly of a small free floor area the mat can only be installed as supplementary heating. Please contact your local supplier for information about use as main heating.

All installations must be wired through a suitably rated MCB or RCCD when applicable. All installations in wet areas must be wired through a dedicated RCCD in line with the thermostat. All connections must be made by an approved electrician in accordance with current local regulations.

The KLIMA Mat is 3 to 4 mm thick and must be incorporated in a flexible adhesive or casting mortar suitable for floor heating. Check the manufacturers data.

The KLIMA Mat has 1 connecting cable 3.5 meters in length (Twin Conductor) and has an end seal (loop) at the end of the mat. The end seal CANNOT be broken or shortened. The connector cable can be shortened, there must always be at least 0.5 meter of connecting wire left. The power supply must never be connected during installation.

If multiple mats are installed in a space, they must be wired in parallel and a suitably rated junction box may be incorporated so that only one power cable runs to the thermostat. Maximum capacity of the thermostat is 16 Amperes. If combined area exceeds 23m<sup>2</sup>, a Contactor will have to be fitted. The thermostat may only be installed by a qualified electrician. We recommend if wiring 3 or more mats in parallel via a contactor that at least 1 of the mats is wired directly into the thermostat.

The sensor cable can be extended or shortened. The sensor must be installed in the middle of a cable loop for optimal temperature registration. Ensure that the sensor is installed well clear (min. 50 cm) of (hidden) radiator and water pipes, drains and electrical wiring. The sensor must always remain IN the sensor tube. Fit cap to end of the sensor tube. If the sensor ever needs to be replaced it can then easily be removed.

The KLIMA Mat is primarily designed for installation on concrete floors. If laying on a wooden floor, all floors must be sheathed with a cement faced board which is compatible with heated floor systems. Or sheet the floor with 15 mm WBP or Marine plywood, fix with screws at 200mm centres and then skim with 2-3 mm of flexible tile adhesive and allow to dry, then proceed as installation for concrete base.

## 4. Guarantee

The electro technical part of the floor heating is guaranteed for 10 years. The thermostat is guaranteed for 2 years. This does not apply to damage caused by external factors and/or incorrect installation.

# KLIMA Mat

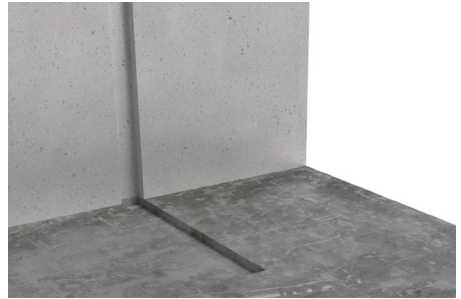
## 5. Necessary materials

- A KLIMA Mat System and Thermostat with Floor Sensor
- Flexible tile adhesive or Self levelling compound and flexible grout suitable for floor heating.
- Flexible cement and cement gun for expansion joints along the walls.
- 2m flexible electrical conduit (16mm).
- Plastic adhesive comb with 6mm teeth.
- Electrical back box (min. 35mm deep, preferably 50mm).
- Earthed power connection.
- A multimeter to test the mat after each installation activity.

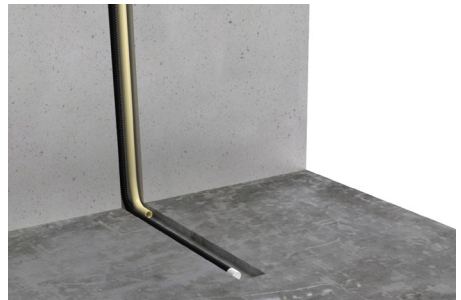


## 6. Preparations

Determine where the thermostat must be placed, place a standard electrical back box with a minimum depth of 48mm, preferably at a height of 1.40 m for ease of operation. Grind/cut the necessary grooves and mount the junction box and electrical conduit.



2 conduits have to be installed; One for the sensor and the other for the power cable from mat. Do not run the power cable and sensor cable through the same conduit. Cut a groove in the floor for the floor sensor pipe (2 cm deep).



**TAKE CARE:** Never place the sensor in the vicinity of a (hidden) radiator pipe! Never install it passing under a heating cable!

Ensure that the surface where the mat is worked on is flat, clean, and free of dust and grease. In larger spaces, expansion joints along the wall may have to be used.

## 7. Resistance readings

Before installing the KLIMA Mat, the resistance reading should be taken and noted down on





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page 6 in the centre of this manual and also on the control check card provided with the mat. The reading should be taken during the installation and on final completion. These readings should be as per the technical information (Point 2). Take measurements both between the resistance wires and between the resistance wire and the earth cladding.

Keep this inspection card in the meter cupboard in a visible place! This forms part of your guarantee.

## 8. Installation Instructions

For Self levelling compound: (Point 10):  
Unroll the KLIMA Mat with the heating cable facing upwards using double sided adhesive tape. Determine how the matting must be laid. The glass fibre netting can be cut between the cable loops and folded over. Avoid damaging the cable!

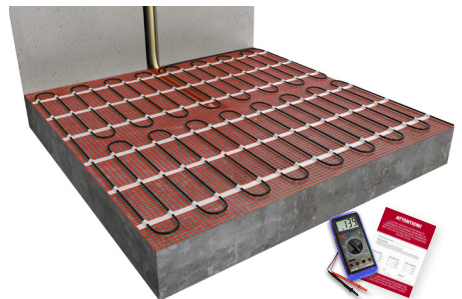
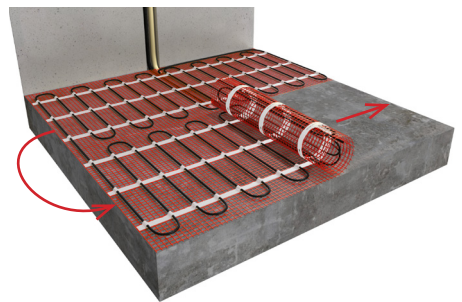
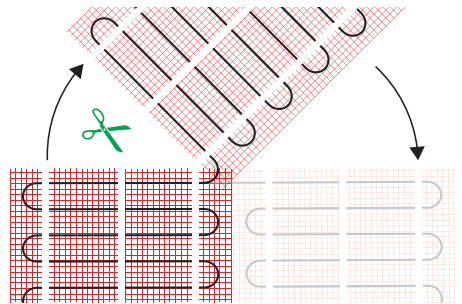
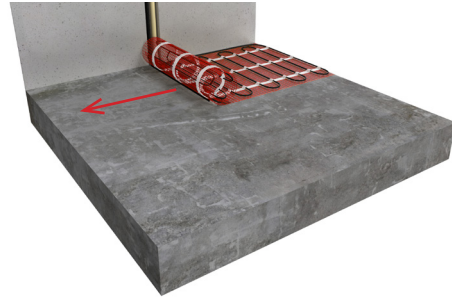
When installing in tile cement: (Point 11)  
Unroll the KLIMA Mat with the heating cable facing down so that only the glass fibre netting is visible.

There are many possible variations when installing.

## 9. Measuring out the mat

Allow for a distance from the wall of 5 to 10 cm when rolling out the matting in larger areas. This does not apply to glazed walls where extra heating is required.

If the KLIMA Mat is too long, the mat can be cut into a long length and laid round the periphery of the mat. The loose cables must be looped at least 5 cm from each other. They may not touch or cross each other. Retest the mat when it has been laid.



# ATTENTION!

**A 230 VOLT HEATING IS SYSTEM INSTALLED UNDERNEATH THE FLOORING! NEVER DRILL OR SCREW INTO THE FLOOR! SEE LAYOUT DIAGRAM ON NEXT PAGE FOR THE POSITION OF THE UNDERFLOOR HEATING SYSTEM**

Floor Heating mat installed in: .....

**Resistance readings:**

A: Between centre core wires (within 10% margin!)

B: Between centre core wire #1 and the earth (This should read "indefinite/overload")

C: Between centre core wire #2 and the earth (This should read "indefinite/overload")

**Initial Reading:**

A:.....Ohm

B:.....Ohm

C:.....Ohm

**Mat/Cable Laid:**

A:.....Ohm

B:.....Ohm

C:.....Ohm

**After completion:**

A:.....Ohm

B:.....Ohm

C:.....Ohm

**Installer**

.....

**Date**

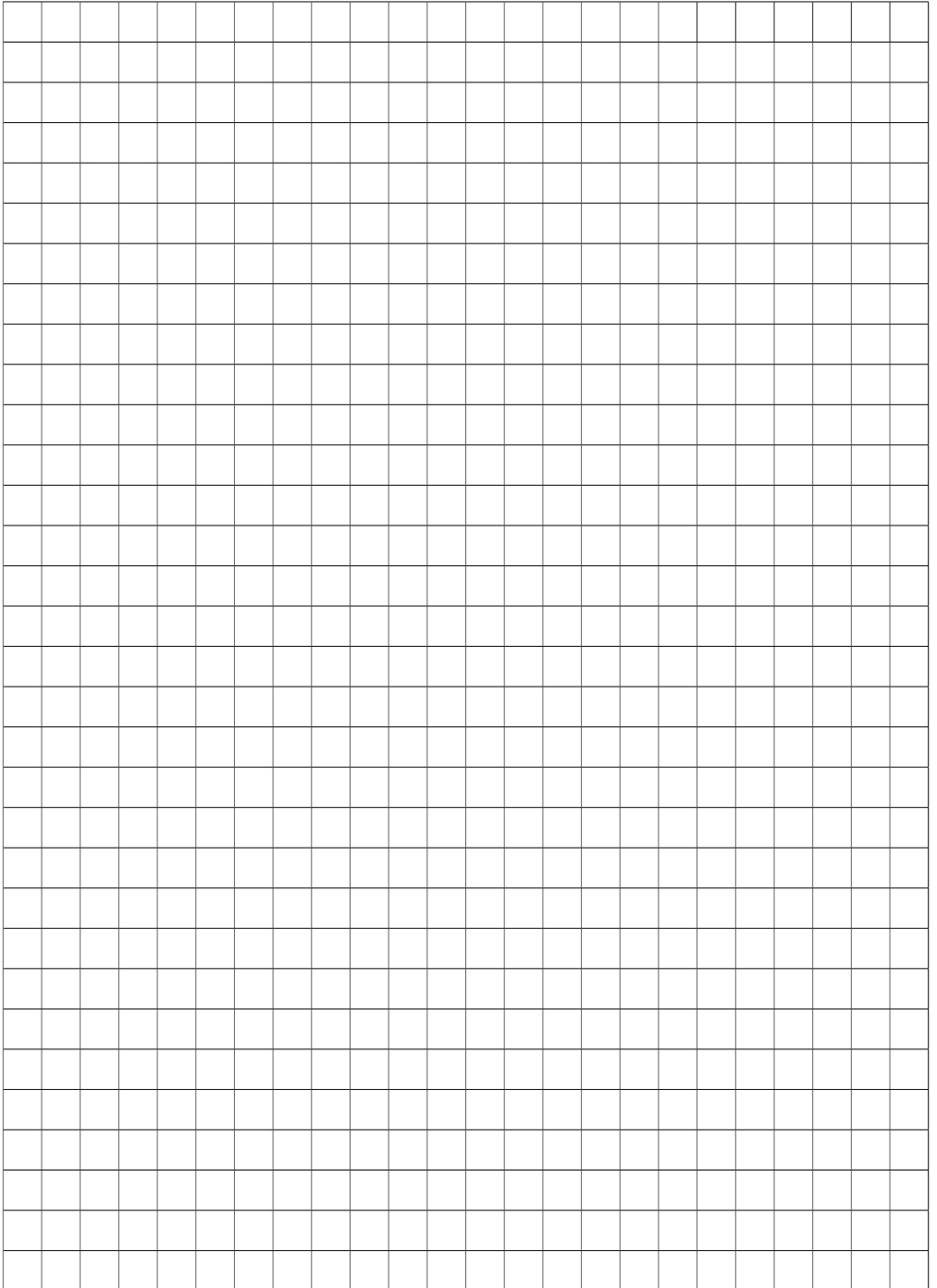
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**Signature**

.....

**KEEP THIS COMPLETED MANUAL AND YOUR COMPLETED CONTROL CHECK IN THE METER CUPBOARD AS WE WILL NEED THESE FOR ANY WARRANTY CLAIMS**

Layout diagram of the underfloor heating Installation:

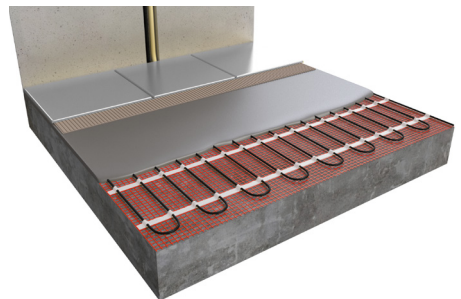
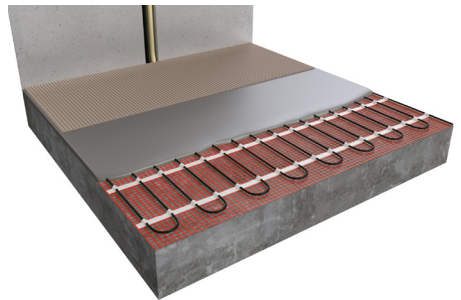


# KLIMA Mat

## 10. Self-Levelling method

- Position the mat as described in Point 9. Attach the mat to the floor with adhesive or double sided adhesive tape.
- Test the KLIMA Mat again with a multimeter and write down the readings on the inspection card. Take measurements both between the resistance wires and between the resistance wire and the earth cladding.
- First read the instructions of the self-levelling mortar, check that the product is suitable for floor heating and follow the instructions of the manufacturer to the letter.
- The self-levelling effect must usually be assisted somewhat using a squeegee. Observe the drying time before applying the floor covering.
- Take the resistance readings of the mat again.
- Then apply a solid layer of flexible tile adhesive taking care to avoid air bubbles and use a plastic tile cement comb to avoid damaging the KLIMA Mat. (DO NOT SPOT TILE!). Press down the tile with a light sliding motion.

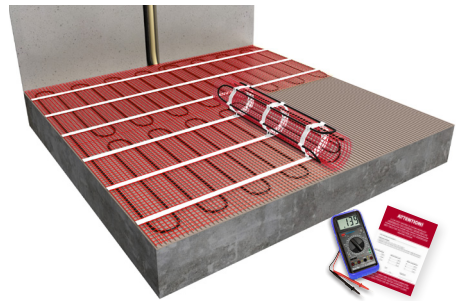
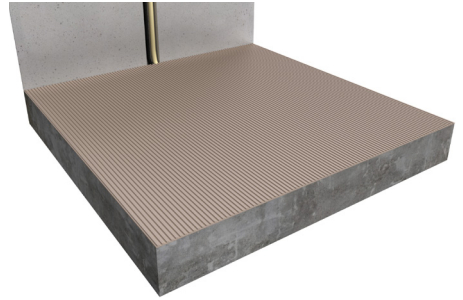
TAKE CARE: Do not apply more than 1 self levelling layer. Please follow manufacturers instructions.





## 11. Tile cement method

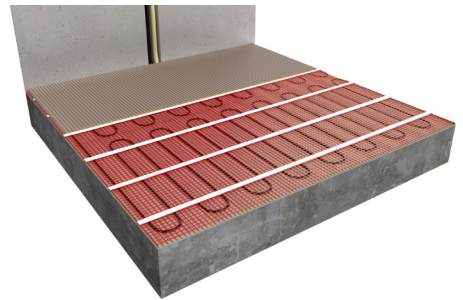
- Pull the end of the connecting cable through the electrical piping to the thermostat.
- Apply a first layer of Flexible tile adhesive 0,4 cm to 0,6 cm thick and approx. 55 cm wide.
- Roll the mat out over the tile cement with the cable facing downwards.
- Softly push the mat down with a wooden spatula or gloves and spread the tile cement that oozes through the mat.
- Smooth it over and allow it to dry.
- Take the resistance readings of the mat again.
- Then apply a second solid layer of flexible tile adhesive taking care to avoid air bubbles and use a plastic tile cement comb to avoid damaging the mat. (DO NOT SPOT TILE!).
- Press down the tile with a light sliding motion.



## 12. Connecting the thermostat:

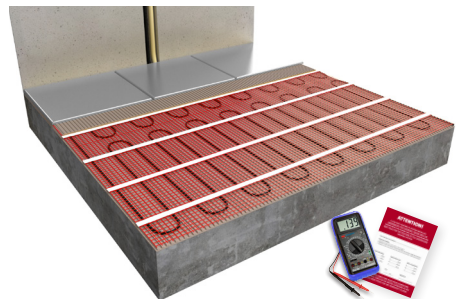
During installation/de-installation of the thermostat the electricity should always be turned off at the mains. Installation must be carried out by a qualified electrician in accordance with the IEE Regulations. Carefully read the manual and keep it with your other guarantees.

For installation, wiring and programming the thermostat, please refer to the instructions included with the thermostat.



## 13. Using the system for the first time

Depending on the drying time specified for the Flexible adhesive or self-levelling compound, however we do not recommend any earlier than 21 days after installation due to the natural expulsion of moisture from the floor. Turning on the system sooner can damage the floor.



# POINTS TO NOTE

- **NEVER CUT OR SHORTEN HEATING CABLE**
- **ALWAYS USE IN CONJUNCTION WITH A THERMOSTAT CONTROLLED BY A FLOOR SENSOR**
- **ALWAYS ENSURE THAT YOUR SUBFLOOR IS INSULATED TO MINIMISE HEAT LOSS AND IMPROVE EFFICIENCY**
- **THE HEATING CABLE MUST ALWAYS BE ENCAPSULATED IN A TILE ADHESIVE OR SELF LEVELLING COMPOUND INCLUDING THE SPLICES**
- **THIS SYSTEM IS PRIMARILARY DESIGNED FOR TILES, STONE, CERAMIC OR SIMILAR FLOOR FINISHES, ALWAYS CHECK WITH THE FLOORING MANUFACTURER ABOUT THE COMPATABILITY OF THEIR PRODUCTS WITH OUR SYSTEMS – PLEASE FOLLOW THEIR RECOMMENDED GUIDELINES**
- **DO NOT INSTALL THE HEATING MAT UNDER ANY FIXED FURNITURE OR APPLIANCES**
- **WE RECOMMEND THE SYSTEM IS CONNECTED AND SIGNED OFF BY A QUALIFIED ELECTRICIAN**
- **KEEP A COPY OF THIS COMPLETED MANUAL AND YOUR COMPLETED CONTROL CHECK CARD THAT WAS SUPPLIED WITH THE HEATING MAT AS THIS FORMS PART OF YOUR WARRANTY**





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