ELECTRIC UNDERFLOOR HEATING CABLE

INSTALLATION INSTRUCTIONS

Klima Underfloor Heating
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Dear Client,

Congratulations on the purchase of this KLIMA product. The KLIMA CABLE 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 CABLE 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 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

1. Check

Check the contents of the box before starting. A complete set consists of:

- A heating cable with connecting wire
- Inspection card
- A digital clock or Manual thermostat including floor sensor (Order as separate item)
- A flexible sensor pipe
- Spacer Strip pack
- Expansion Foam
- Installation Manual
- Installation video download available on www.klima.co.uk

2. Technical details

Type	Wattage	Ampére
Set 500	500Watt	2,1
Set 1000	1000Watt	4,3
Set 1700	1700Watt	7,4

Ohm	meter length
109	30m
53	59m
31	100m

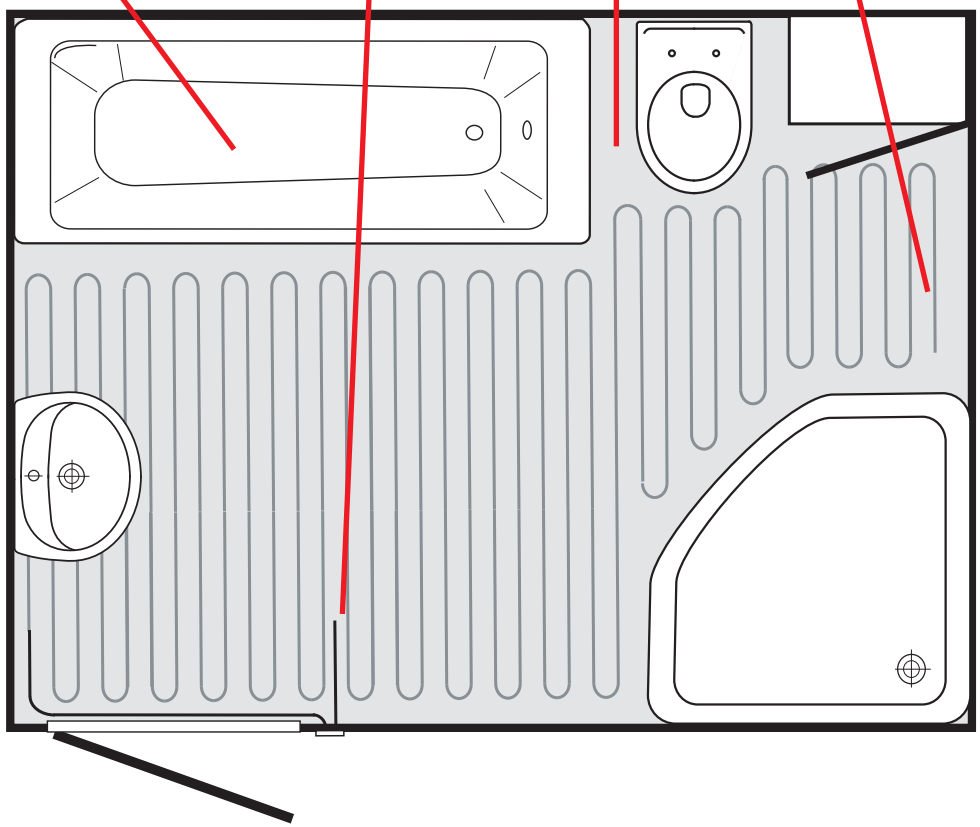
Heating cable	: XLPE insulated solid resistance cable, Tinned copper earthing conductor, Aluminum screen, PVC outer jacket
Type cable series	: wo conductor / resistance
Diameter	: 7,5mm
Power	: 230Volt
Wattage pro mtr/l	: 17 Watt/mtr. / 230Volt
Elements values	: 500 to 1700 Watt
Bending radius	: min. 37,5 mm
Max.cable temperature	: 65°C outer jacket temperature
connection wire	: 2.25 mtr. length

The Cable 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 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.

Please note that where there is no cable installed the floor will not be heated!

If the cable is too long it must be looped at least 4 cm from each other. They may not touch or cross each other!



FITTING DIRECTLY ON TOP OF INSULATION





FITTING ON DOVETAILED SHEETING





3. Points of attention

The cable is insulated and watertight and can be installed on Foil finished insulation (Kingspan or Celotex) or existing concrete bases. The construction of the cable also allows installation in wet spaces. The heating cable 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 power supply must be disconnected during installation. 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 IEE regulations. The electrical heating cable is patented worldwide and fully conforms to the European IEC 800 standards.

The cables capacity is 17W per meter at 230V. The invisible transition of the resistance cable (heating section of the cable) to the power cable (cold connection part of the cable) is indicated by the word "SPLICE" between two arrows. The 2 meter power cable marked with stars: ******, may be extended.

THE HEATING CABLE CANNOT BE SHORTENED!!!! THE END SEAL CANNOT BE BROKEN!

This Klima Cable is a twin conductor (built in return cable) and has an extra aluminium earth cladding to neutralise magnetic fields.

If multiple cables 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 fitting more than one cable set and the combined area length exceeds 3400 watts, a suitably rated Contactor will have to be fitted. The thermostat may only be installed by a qualified electrician.

The Klima Cable can be used under various floor finishes - Tile, Marble, Slate, Wood, Laminate, Vinyl and Carpet. (Tog rate of carpet and underlay should not exceed 2.5). If using underneath a wooden floor or carpet please contact your flooring supplier.

4. Guarantee

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

5. Necessary materials

- Standard junction box (min 35mm deep, preferably 50mm) for the thermostat.
- Mounting material: Tie wraps, Spacerstrips or smooth Weld Mesh
- Electrical conduit for the connecting cable for the thermostat.
- A multimeter to test the mat after each installation activity.

6. Preparations

- Check that the cable length/wattage is correct for the area of free floor surface that must be heated.
- Check the available electrical connection and mains voltage in the space for installation.
- Test the cable with a multimeter and check if the resistance (Ohms) coincide with the test data in Section 2. Measure both between the resistance wires themselves and between the resistance wire and the earth cladding, whereby the latter should give a reading of 0 and not swing.
- 1 or 2 grooves must be cut/ground in the wall for electrical conduits, 1 for the power cable and 1 for the floor sensor. Do not run the power cable and sensor cable through the same pipe.

TAKE CARE: DO NOT PLACE THE SENSOR IN THE VICINITY OF A (HIDDEN) RADIATOR OR WATER PIPE!

- Ensure that the base floor is clean and level.
- Always apply insulation to the base floor if possible. Uninsulated floors will have downward heatloss.
- Place expansion strips around the perimeter of the area (for coping with the contraction and expansion of the floor).

7. Calculations for Heat Requirements

150 + watts/m² for prime heating of normal rooms cable spacing 100 mm

100/125 Watt sq. m for comfort heating of normal rooms cable spacing 125/150 mm

Example: for a Kitchen of 20 sq. m floor surface multiply the total floor surface with the above mentioned capacities (20 x 150 Watt = 3000 Watt) Choose 2 x 1700 watt. Cable can be sized (or checked) by measuring the linear length i.e. Heat required 150 watts/m².

Room size 4mx2.5m = 10m² Cable spacing = 100mm Therefore 4mx25 = 100 linear mts. Use 1700 Watt set (100 linear mts).

If there is any excess cable left after installation, you can space a few runs at 50mm at the window & door areas of the room to lose it in the floor.

Please contact the KLIMA Technical Department (0871 321 0411) if you require assistance on the spacing of the cable.

NEVER SHORTERN THE KLIMA CABLE!

8. Resistance Readings

Please make a note of your resistance readings in the table below. This forms your guarantee. Readings to be taken with an ordinary Multimeter. Please also make note of the resistance readings on your inspection card.

* Should always read open circuit. If not: STOP immediately and call the technical helpline!

9. Fitting the cable to the floor

Feed the cable end (marked with *******) through the electrical pipe to the back box for the thermostat. The word "splice" must stay visible. Splice must be covered by screed.

Fix the spacer strips at 500 - 600 mm centres with masonary or Hilti nails. Attach the cable in a zigzag fashion with a distance between the cable as required.
If reinforcing is used (*Smooth Weld mesh at 100mm square) plastic tie wraps can be used for attaching the cable directly to the reinforcing.

Extend the 2nd electrical pipe to about 50 cm from the wall and have it end in the middle of a cable loop. Pull the sensor cable

Cable type:.....W	Initial	Cable Laid	Completion
Live & Neutral	Ω	Ω	Ω
Live & Earth	Ω	Ω	Ω
Neutral & Earth*	Ω	Ω	Ω

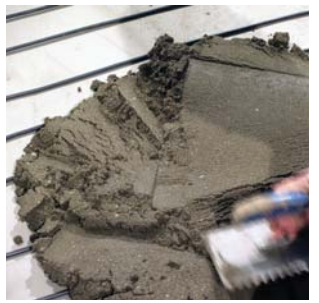
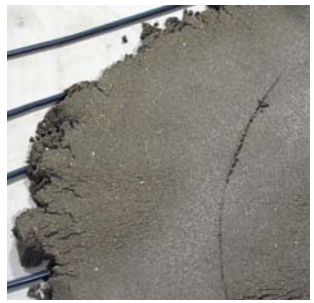
FITTING THE CABLE








APPLYING THE MORTAR

PREPARATIONS

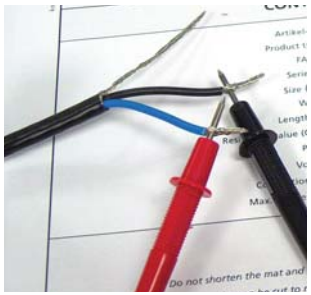





INSTALLING SENSOR



RESISTANCE READINGS


to the back box and ensure that the sensor is in the conduit. Ensure the cap is placed on the end of the conduit so that replacing the sensor is always possible.

Please contact the KLIMA Technical Department (0871 321 0411) if you require assistance on the spacing of the cable.
*Refer to centre pages.

10. Applying the mortar

10 A Applied directly to a concrete subfloor

1. Lay the spacer strips at 500 -600mm centres. Attach the cable at the desired/ specified spacing.
2. Ensure a good bond by brushing the subfloor with cement powder or PVC glue.
3. Then apply a layer of sand/cement screed (5/6:1) of 3.5 to 5.0 cm. Allow it to cure before the tiles can be laid or other types of floor coverings applied.
4. This method of application is also suitable for applying pourable liquid screeds in thicknesses of between 3 and at most 6 cm.
5. Protect the cables when bringing in the cement or grout by using duckboards. Never use wheelbarrows with unprotected footrests.
NB: For large spaces it is necessary to create or observe expansion joints in multiples of approx. 40/50 m2. The cables may not cross the expansion joints to avoid damaging the cables.
6. Remember to take the resistance readings throughout this installation process.

10 B Applied Directly on top of Insulation

When laying the KLIMA CABLE onto the insulation the KLIMA CABLE must be laid and secured onto a steel mesh. Do not install the cable directly onto the insulation. The cable is laid on to a smooth reinforcing mesh (approximately 100mm square), and secured with tie wraps. When using insulation, the top surface of the insulation must be aluminium covered and coated appropriately to resist reaction with screed. Kingspan and Celotex manufacture insulation boards for the sole purpose of underfloor heating. The cable must not come into contact with the insulation. Contact the insulation manufacturer for compatibility with cable floor heating systems and fitting instructions.

The minimum depth of screed is 75mm. It is very important that the bedding is applied free of air bubbles. Air bubbles form insulating, non-conductive areas where the cable cannot release its heat and a danger of overheating arises which can cause damage to the cable. To avoid this first of all wetter screed must initially be used to enclose the cable in the screed. Following this drier cement can be used for levelling the final bedding. In this case a pourable liquid screed is also a good option. Protect the cables when bringing in the cement or grout by using duckboards. Never use wheelbarrows with unprotected footrests. Remember to take the resistance readings throughout this installation process and mark opposite.

10 C On dovetailed sheeting

Always allow for expansion. Dovetailed subfloors offer very poor insulation. It is recommended the dovetailed sheeting is insulated from below. Then fill in the grooves with mortar before installing the cables. Then install as indicated in Chapter 10A. In the latter case pourable liquid screed method can also be applied. Protect the cables when bringing in the cement or grout by using duckboards. Never use wheelbarrows with unprotected footrests.

11. Using the system for the first time

Depending on the drying time specified for the cement or grout, however not sooner than 30 days after installation due to the natural expulsion of moisture from the floor. Turning on the system sooner can damage the floor.

ATTENTION!

UNDERNEATH THE FLOORING A 230 VOLT HEATING SYSTEM IS INSTALLED! NEVER DRILL OR SCREW INTO THE FLOOR! SEE SCHEDULE/PICTURE FOR THE POSITION OF THE 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 "0")
C: Between centre core wire #2 and the earth (This should read "0")

Initial Reading:	Mat/Cable Laid:	After completion:
A:.....Ohm	A:.....Ohm	A:.....Ohm
B:.....Ohm	B:.....Ohm	B:.....Ohm
C:.....Ohm	C:.....Ohm	C:.....Ohm

Installer	Date	Signature
.....	...../...../20.....	.....

KEEP THIS CONTROL/CHECK CARD IN THE METER CUPBOARD IN A VISIBLE PLACE!

Schedule or pictures of the installation: