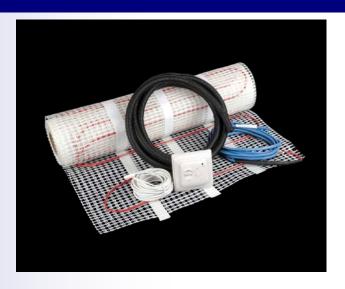
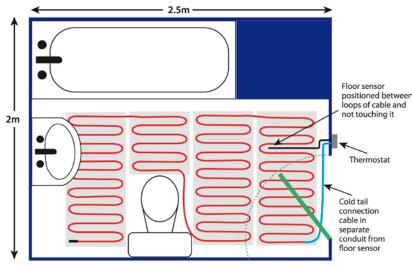


# Electric Underfloor Heating made easy





## **Introduction**

- What is Electric Underfloor Heating
  - Do's & Don'ts
- Benefits of Electric Underfloor Heating
  - Technical Data
  - Our products we supply
  - What size mat do you need
  - Preparation of the floor surface
    - Laying the Heating Mat
    - Wiring up the System
      - The Thermostat
    - Resistance Readings
  - Guarantee / Warranty & Service
    - Q & A Trouble Shooting
      - Future Products

# What is Electric Underfloor Heating?

## Do's & Don'ts

#### <u>DO</u>

- Carefully read this installation manual before commencing installation.
- Consult our website or a competent professional if you are unable to proceed.
- Ensure the system is tested before, during and after installation.
- Plan your mat layout and installation so that any drilling after tiling (e.g. fixing sanitary ware) will not damage the wiring.
- Maintain a minimum gap between the wire runs of 50mm.
- Check that the mat is working immediately before commencing tiling.
- Take particular care when tiling not to dislodge or damage the heating wire.

#### <u>DON'T</u>

- Cut or shorten the heating cable at any time.
- Install the mat under any floor other than tiles – Check with manufacturer first.
- Leave surplus matting rolled up under units or fixtures use the right size.
- Install the heating mat on stairs.
- Run the floor sensor wire or power lead over or under the heating cable.
- Commence tiling before testing the mat.
- Install the Heating mat without a sensor probe.
- Install the heating mat without a Thermostat.
- Wire any electrics up unless you are a qualified electrician.

#### Benefits of Electric U/Floor

- Heat is spread evenly across the whole floor area rather than being concentrated at radiators. This provides a more comfortable climate for you wherever you are in the room.
- With no water pipes involved, there is no danger of leaks so you don't have to worry about damage to your property or the hassle involved with insurance claims.
- There are cost savings too, as there is no need for any kind of maintenance contract as once the systems are installed they can be forgotten about for years to come.
- With no hot surfaces and no sharp edges to deal with, this form of heating is particularly child friendly.
- Underfloor heating produces less air movement so fewer dust particles are floating around. This is good news if you or anyone in your family suffers with allergies.
- With no moving parts involved in floor heating, there are no creaks or groans especially on solid floors, so no more scary noises in the night.

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#### **Technical Data**

#### **Heating Mat:**

- Dimensions all mats are 0.5m wide. Lengths available: 2m, 2.5m, 4m, 6m & 8m.
- Rating Voltage: 230-240vac
- Power unit: 150W/m² +/- 10%
- Min. bending radius: 30mm
- Min. cable space: 76mm
- Max. ambient temperature: 30°C
- Min. installation temperature: 5°C
- Heating cable: 2 wires, grounded, insulation jacket by fluoropolymer plastic
- Connecting leads: 2 wires 17 AWG with grounded braid, length 2.25m
- All components comply fully with all relevant EMC and LVD British and European standards

#### **Thermostat:**

- Temperature control by dial setting: 5°C to 40°C
- On/off switch
- Voltage: 230-240v
- Power consumption: 5W
- Switching differential: 0.5K
- Protective housing: IP20
- Housing material: anti-flammable PVC
- Floor sensor: rubber-thermoplastic NTC sensor, cable length 3M

### What do you get – Electric U/Floor Kit

- Heating Mat with 2.25m connecting cable
- Thermostat
- Flexible floor temperature sensor, 3m length
- Flexible conduit for temperature sensor
- Installation Manual
- Warranty card / resistance record card





## What size heating mat do you need?

■ Measure the length of the room by the width of the room to get the square meter area, i.e. 2m x 2m = 4m². When you have the area measured and the correct square meterage calculated you then match this figure to the available pack sizes.

#### Mats we supply:

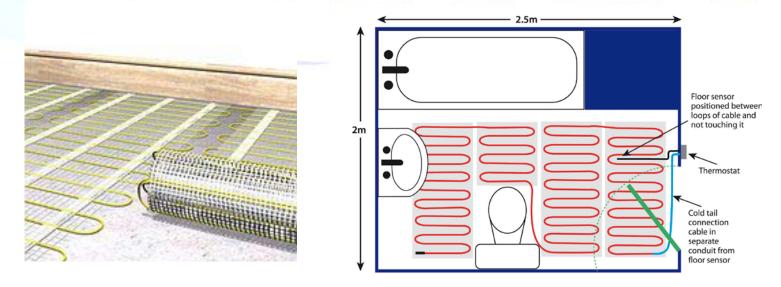
1.	2m <sup>2</sup>	UFH Kit	Code: 45001R/S
2.	2.5m <sup>2</sup>	UFH Kit	Code: 45002R/S
3.	4m <sup>2</sup>	UFH Kit	Code: 45003R/S
4.	6m <sup>2</sup>	UFH Kit	Code: 45004R/S
<b>5.</b>	8m²	UFH Kit	Code: 45005R/S

**Note:** Do not include the area taken up by fixed objects such as baths/showers and kitchen units.



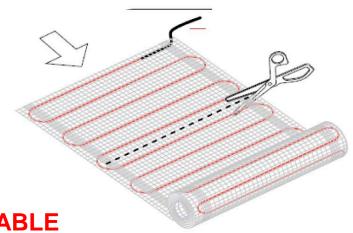
### Preparation of the Floor Surface

- Make sure that the floor area to be heated is clean (as dust free as possible), dry, flat and free of any protruding objects that can damage the mat, like nails or staples.
- Take resistance readings before starting installation and note the results on your warranty registration card and in the back of the user guide.
- Only when you have planned the mat layout and are sure the mat will fit into the room, should you begin to lay. Beginning at the corner closest to where you have located the thermostat, position the mat ready to start rolling out.

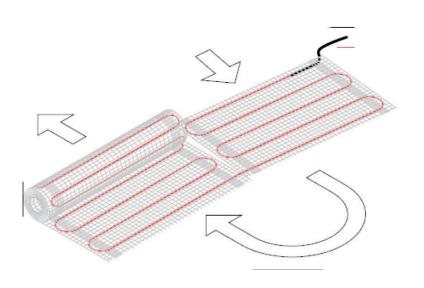


#### Layout of the Matting

- •Lay out the mat according to your design with the red heating element uppermost, using as few turns as possible and ensuring that the cold tail connecting lead is close enough to connect to the thermostat.
- To make a turn in the direction the mat is being installed, cut the mesh WITH SCISSORS ONLY,



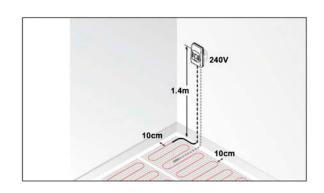
#### **DO NOT CUT THE RED CABLE**

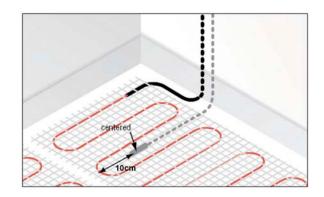


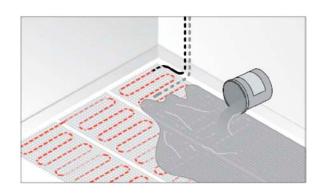
- If it is necessary to remove the heating cable from the mesh to route around an obstacle, be sure to maintain at least 76mm space between heating cables.
- Also leave a space of at least 40mm between heating cables and any conductive materials such as pipes.
- •Turn the mats over and remove the white plastic backing to the adhesive tape on the back and stick to the floor.

- The installation MUST USE a separate cable for the sensor mounted in a separate conduit, run the sensor inside the wall to the thermostat box location.
- The floor sensor must be placed in the sensor conduit which must be embedded in a shallow channel in the floor – approx 10-15mm deep, making sure it reaches the end of the conduit but does not protrude.
- After laying out the heating mat and routing the connecting lead and the temperature sensor to the electrical junction box, apply a thin coat of self levelling mortar over the mat. Be sure to use the flat side of the trowel to avoid any damage to the mat. Spread the mortar evenly over the mat filling in all voids between the floor, mesh and heating cable.
- You can switch on the system when the thin set & grout are fully cured, which should be within 14 days of installation.

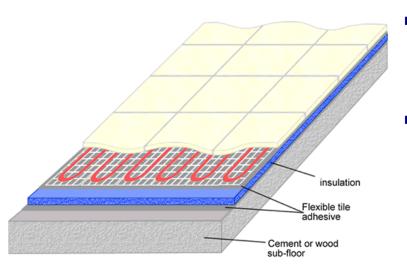
**Note:** Don't allow heating cable, connecting lead or temperature sensor to cross themselves or each other.





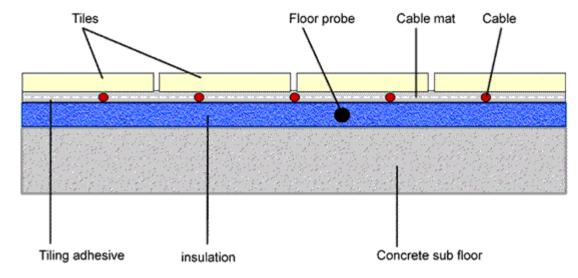


**Note:** Always check with the floor manufacturer concerning suitability with underfloor heating as heat outputs could change due to thickness of floor covering.



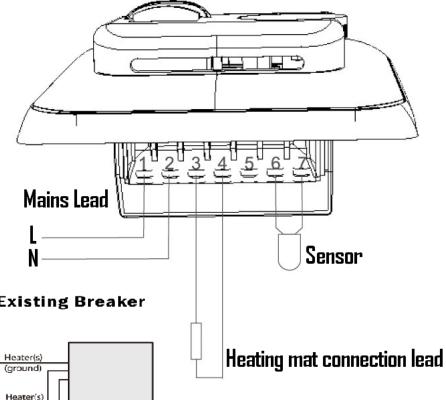
- If possible you can lay a levelling screed of <a href="3-4mm">3-4mm</a> then the flexi tile adhesive of <a href="4-6mm">4-6mm</a> or you may tile directly over the mat in a single operation of <a href="8-10mm">8-10mm</a> flexi tile adhesive.
- After the floor covering has been laid, test the cable and floor probe one last time to ensure that neither have been damaged. Record the final readings and complete the warranty card provided. Once received we will issue a guarantee certificate, retain the certificate for your records.

The heating may be slow to react at first. Start by setting the floor temp at around 20-22°C and build up by 1°C per day until your desired temp is reached.



## Wiring up the System

The Thermostat and mat require a 13 amp dedicated power supply from the consumer unit to power then and should be wired as shown opposite. The earth wires from the cold tail should be connected to the mains earth using the earth terminal in the mounting box or with a connector.



#### Circuit Diagram for Thermostat control to an Existing Breaker

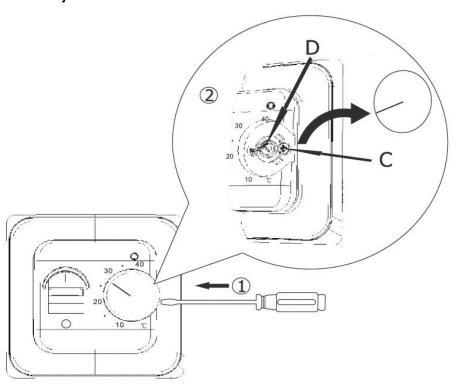
Dedicated 220-240V Ground (blue/green) Load Heater(s) L3 Breaker Thermostat control Box Live (L1) Underfloor Thermostat control Heater(s) (L2)Max. 16 amps Control Sensor Sensor wire (no polarity)

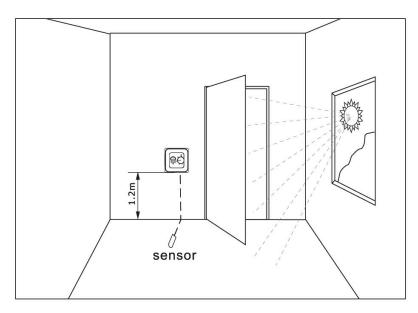
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#### The Thermostat

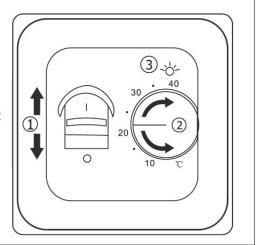
The thermostat <u>must be</u> mounted on the wall with free air circulation around it.

It must be located where it is not influenced by any other heating sources (e.g. the sun shining through a window), draughts from doors or windows, or by the temperature of an exterior wall. Bathroom & En-suite stats should be situated outside on an adjacent wall.





- ① On/Off:
- ② Temperature setting:  $5^{\circ} \sim 40^{\circ}$ C
- 3 Indicator: the light is red when heat is on





#### Resistance Readings

The customer will have to make a note of their resistance readings in the table provided on the warranty card and user guide.

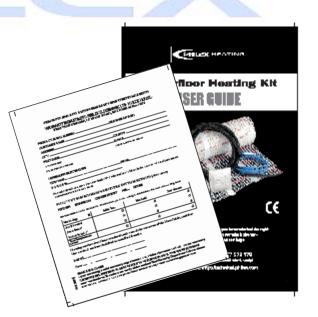
Readings 1., 2. and 3 are performed on the mat "cold tail" connecting lead and reading 4. on the two wires of the floor temperature sensor.

Resistance for Senors is 10 +OR-1

Description	Voltage	Power (W)	Linea Power (W/m)	Total Resistan ce (Ω)	Cable Length (m)	SQM (m2)	Note
UFH Kit 2sqm	230	300	12	<u>176.3</u>	25.0	2.0	Resistance tolerance: -5%, +10%
UFH Kit 2.5sqm	230	375	12	<u>141.1</u>	31.3	2.5	Resistance tolerance: -5%, +10%
UFH Kit 4sqm	230	600	12	88.2	50.0	4.0	Resistance tolerance: -5%, +10%
UFH Kit 6sqm	230	900	12	<u>58.8</u>	75.0	6.0	Resistance tolerance: -5%, +10%
UFH Kit 8sqm	230	1200	12	<u>44.1</u>	100.0	8.0	Resistance tolerance: -5%, +10%

## Guarantee / Warranty - What we offer:

- 10 Year Guarantee on the Heating mat (Valid if only in accordance with our instructions and all other conditions detailed in the warranty).
- The Thermostat is guaranteed for a period of 2 years from the date of purchase
- Philex Support Line: 08457 573 479Monday Friday 9-5pm
- Technical Support: http://technical.philex.com
- Heating Website: www.philex.com/heating



#### **Questions & Answers**

- Q. How do I select the correct mat size?
  - **A.** Measure the length of the room by the width of the room to get the square meter area, i.e.  $2m \times 2m = 4m^2$ . When you have the area measured and the correct square meterage calculated you then match this figure to the available pack sizes. Choose the pack that is closest to your area size preferably just under.
- Q. What if my underfloor heating system fails?

**A.** The only way the system will cease to work is if the mat has been damaged. By taking the resistance readings before, during and after installation as shown in the instructions then it will indicate that the system is working correctly.

- Q. Do I need an electrician to install my underfloor heating mat?
  A. All electrical work and connections must be undertaken by a qualified electrician in accordance with IEE regulations, failure to do so may invalidate the guarantee. The warranty card has a section which must be completed with the name, company, address and part 'P' certificate number of the electrician.
- Q. When can I switch on the underfloor heating system?
   A. You can switch on the system when the thin set & grout are fully cured, which should be within 14 days of installation.
- Q. How much does the underfloor heating system cost to run?
  A. There are varying factors to be taken into consideration i.e. how often you use your heating and what temperature, the insulation used, your electricity tariff etc. For further information please contact your energy supplier or a technical advisor.



#### **Trouble Shooting**

#### Sympton:

Floor does not heat up

Floor warming all the time

Floor not getting warm enough

#### **Answers:**

- No power at controller
- MCB tripped
- Thermostat not set correctly
- Mat not correctly connected with thermostat
- Floor temp sensor not connected correctly
- Faulty Sensor/Thermostat
- Heating Mat is cut or damaged
- Thermostat not set correctly
- Floor temperature sensor not connected

- Thermostat not set correctly
- Floor sensor to close to heating mat

### **Future Products**

## **Heating Cable Heating Film** Wood or 'laminate' Floating Floor Moisture Barrier Carbon Heating Film 6mm Depron Insulation Sub Floor,

Concrete or Timber