

# Instructions for installation of Electric Underfloor Heating *Cable Kit*

**Before you begin installing please read through these instructions carefully & check that you have all the components required.**

The system is designed for installation below tiles, stone or marble flooring, it may also be installed below vinyl, laminate & thin carpets but in these cases must first be covered with a suitable latex-based levelling compound.

## ***Contents of heating kit***

- 3mm twin-core heating cable on drum(s)
- Neoprene floor primer (750ml)
- Disposable roller for application of primer
- High adhesion fixing tape
- Digital thermostat & separate floor sensor
- Lifetime Guarantee

## **Installation Notes:**

- *The system requires a mains voltage 230/240v & must be connected by a suitably qualified person. **All wiring must conform to IEE 16<sup>th</sup> edition regulations.***
- *The system is intended for heating tiled or stone floors & the optimum recommended output is approx **150watts per sqm**, achieved by **spacing the cable at around 6.5cms between the loops.***
- *The cable is double insulated & inside the first outer sheath (coloured black) there is an earth screen (the silver coloured braid). The cable also contains a built in return meaning that the cable only has to be connected to the thermostat from one end. Within the earth screen there are 2 wires - one black, one blue - these are the live & neutral but it does not matter which way round they are connected.*
- *For larger areas, if two or more cables are supplied, these can usually be connected together at the thermostat or by using a small blank fronted connection box.*
- *The system is suitable for installing on any sub-floor which is sound suitable for tiling. In general this will be concrete, plywood or cement faced tile-backer boards – some water resistant composite boards may also be suitable, but it is not recommended to tile directly onto hardboard, MDF or standard grade chipboard as these substances absorb moisture & subsequent swelling could cause tiles to crack or dislodge. Note - if installing on a newly finished concrete screed the required minimum drying out or 'curing' period should be followed before installing (this is typically 1mm per day in good conditions).*
- *The electrical & electromagnetic fields generated are negligible & well within all recommended European & International guidelines.*
- *The orange heater cable **MUST NOT** be cut or cross at any point.*

## Electrical Provision:

Before starting the installation you should make provision for the electrical connections, for smaller areas this should be possible by means of a fused spur or combined RCD spur from an existing circuit- **see Fig 1**. However for larger areas a separate circuit from the distribution board is recommended – you should **always consult with your electrician concerning your requirements**.

**Note - if installing in a bathroom or other 'wet' room the thermostat must be located OUTSIDE of the room on the opposite side of the wall, for example in a bedroom or hallway/landing.**

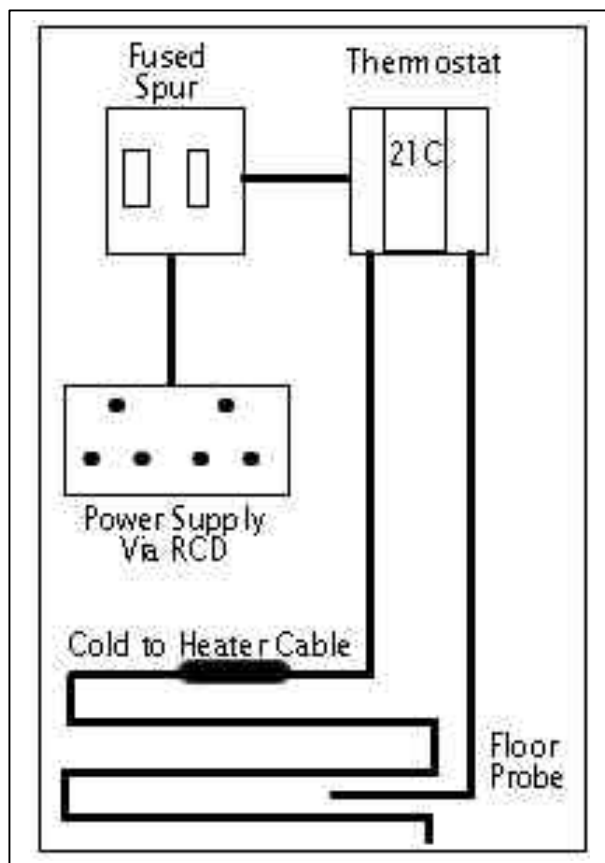


Fig 1

### Important Notes:

The system **MUST** incorporate a 30mA RCD protection either at the distribution board or by replacing the fused spur with a combined fused spur/RCD.

The orange heater cable **MUST NOT** be cut or cross at any point – only the black 'cold' cable & the white probe can be cut or lengthened.

The joint between the orange heater cable & the black cold cable **MUST** be located under the floor.

For larger areas a separate circuit will be required – always consult your electrician concerning your individual requirements.

The thermostat has a rating of 16amps – loads in excess of **16 amps** (3.6kw approx) will need to be connected via a suitable switched contactor – consult your electrician on this.

The thermostat **MUST NOT** be located in a bathroom.

## Preparation

Ensure that the sub-floor is solid & suitable for tiling, free from dust & debris. Wood flooring with more than 30cms between the joists should ideally be reinforced to prevent flexing & the possibility of tiles dislodging. Wood flooring can be reinforced using **18mm WBP plywood** or insulated tile-backer boards such as **Marmox™** or **Aquapanel Thermal™**.

## Insulation

The insulation levels of a floor will affect both the performance & running costs of an underfloor heating system & adequate insulation is recommended wherever possible. It would not generally be considered necessary to insulate small areas where the requirement is simply to 'take the chill off the floor', however in cases where the heating is being installed over large areas, particularly as the primary heating source in a ground floor room or conservatory, insulation boards will greatly reduce warm-up times & running costs. Suitable insulation boards are available from your underfloor heating retailer/supplier.

# Installation

## Step 1

First prepare the sub-floor ensuring that it is clean & free from grease, dirt or debris.

Note - if installing on a bitumen base, this must either be removed or covered with a suitable insulation board before proceeding.

The most suitable sub-floors are:  
concrete, tile-backer boards, existing tiles,  
water-resistant timber e.g. WBP Ply.



## Step 2

Prime the floor using the Neoprene primer contained in the kit. If installing over a large area or on an absorbent surface the primer may need to be diluted with water to a maximum of two parts water to one part primer. **Leave the primer to dry (typically 1-3 hours).** Once primed avoid any foot traffic over this area. The purpose of priming is to promote greater adhesion of the tape & reduce the amount of moisture absorbed into the sub-floor.



## Step 3

If fixing tile-backer boards, do so in accordance with the separate instructions provided, using tile adhesive 3mm thick.



## Step 4

If possible test the cable before laying the cable using a multi-meter to ensure that the resistance is as per that given on the drum.

If you do not have a multi-meter you may proceed & lay the cable but **DO NOT** tile over the cable without first testing it. (See Step 10)



## Step 5

### Calculate the cable spacing

This is a very important step & **MUST** be done correctly to ensure all the cable is used up & avoid extra work later.

First measure the area to be heated in sqm (do not include the area taken up by fixed objects such as baths/showers & kitchen units), then divide this area by the length of the cable shown on the drum. The cable is 10 watts per linear metre so a 750 watt kit contains 75 metres of heating cable.

**The spacing is calculated by dividing the total sqm of the area to be heated by the cable length in metres** (see Fig 2)

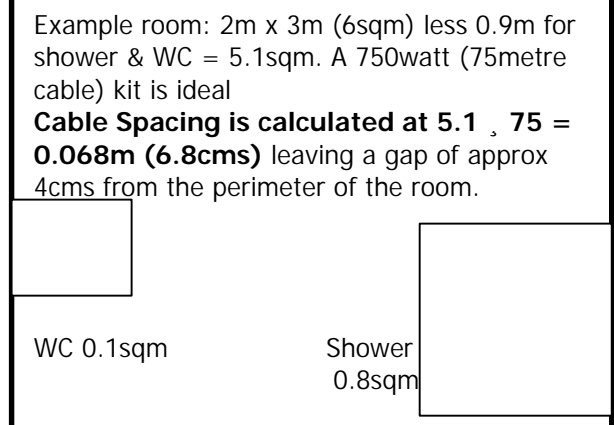
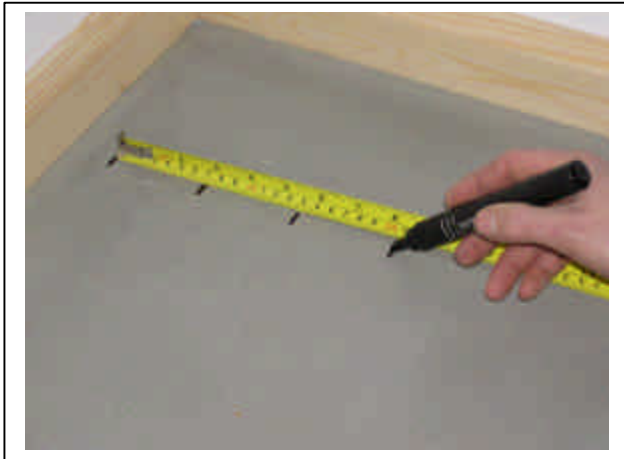


Fig 2



## Step 6

Once the spacing has been determined, **leaving a perimeter of 4-5cms around the edge of the room**, mark out the floor at the calculated intervals. **This will usually be between 6 & 8cms** – if your calculated spacing is less than 5cms **STOP** & do not install – the kit size is too large for the room.

A spacing of 10cms will in many cases only take the chill off the floor – to use as a heating source in most domestic situations the spacing should be between 6-8cms (this is always dependent on insulation levels & type of construction).

## Step 7

Once marked out, position one roll of tape in each corner of the room (Fig 3) & then begin to loop out the cable as shown (Fig 4). **At this stage only use a single line of tape at each edge in case you have to adjust the spacing slightly later.** You must ensure that the cable is only installed in the 'free floor area' & is NOT routed below any fixed objects or drains. **Note – the joint between the black 'cold' cable & the orange 'heater' cable MUST be located under the floor.**

Fig 3

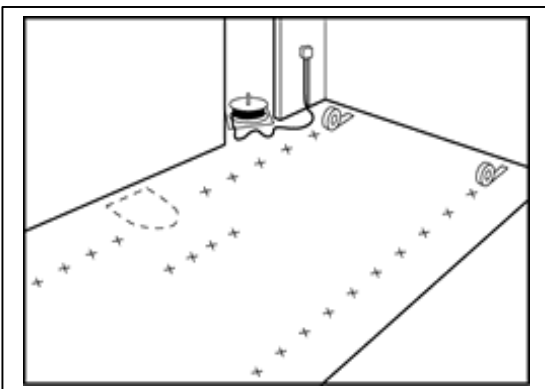
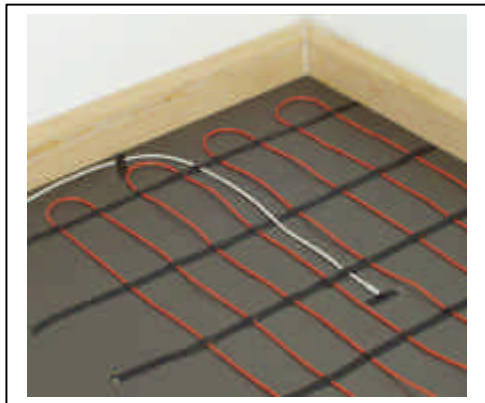


Fig 4



## Step 8

Adjust the spacing if necessary to ensure all the cable is used up & the floor has an even covering then tape over the cable at regular intervals, ensuring that it is well secured to the floor – **see example opposite.**



## Step 9

Position the sensor between two runs of cable & tape into position. The sensor wire can be shortened or lengthened, but if you need to cut it only cut the end containing the wires. **DO NOT** cut the end which contains the plastic sensor. The connections to the thermostat can now be made – but **DO NOT** turn the system on until it has been tiled. (See separate instructions with thermostat)



## Step 10

Test the cables resistance again using a multi-meter. If you do not have access to a multi-meter, you may fit a fused plug & plug the system into a socket '**for a few minutes**' to ensure that the cable starts to heat up. **DO NOT** leave the cable plugged in for more than 5 minutes & **UNDER NO CIRCUMSTANCES** should you plug the system in when the cable is still on the drum or partly coiled up.

## Step 11

If possible cover the cables with a thin layer of latex based levelling screed (3-4mm), this will help protect the cables when tiling. There are many suitable products available. Details of manufacturers can be found on page 6. If you do not wish to use a latex levelling screed, you may tile directly over the cables in a single operation, however extra care must be taken not to damage or dislodge the cables.



If you are using a suitable vinyl or thin carpet as the final flooring, we recommend a minimum 6mm screed over the cables to ensure even heat distribution.

## Step 12

Tile the floor using a flexible tile adhesive & grout as per industry standards & the manufacturer's instructions. Finally wait at least **ONE WEEK** before turning the heating system on to allow time to dry. **NOTE** – **The heating may be slow to react at first**, especially if installed on a new screed floor or in a new building – start by setting the floor temperature at around 20-22° C & build up by 1 degree per day until your desired temperature is reached. **Please see separate instructions for connection & operation of the digital thermostat.**

## **DO'S & DONT'S**

- DO** – Read through these instructions carefully before beginning work
- DO** – Use flexible adhesives & grouts
- DO** - Test the cable BEFORE tiling
- DO** - Be careful not to damage or dislodge the cable during tiling
- DO** – Ensure the cable is spaced no closer than 50mm between loops
- DO** - Try to protect the cable with cardboard or carpet during tiling
- DO** – Wait at least 7 days before turning on the system
- DO** – Read the separate installation & operating instructions for the thermostat
- DO** – Ensure that the joint between the black & orange cable is beneath the tiles

- DON'T** – Attempt to cut the orange heater cable at any point
- DON'T** – Allow the wires to cross or touch
- DON'T** - Allow foot traffic over the wire before tiling
- DON'T** – Cut tiles directly over the cable
- DON'T** – Pace tools or stacks of tiles on top of the cable