



Heating Cable

Installation Manual



Thank you for investing in our Amber underfloor heating system

Amber electric underfloor heating cable offers the perfect solution to a warmer home.

In this instruction manual you will find important information regarding the installation of your underfloor heating system. Please follow the step by step instructions, ensuring complete care is taken. Check with the floor manufacturer if you have any doubt about the suitability of laying our heating cable under your floor covering.

All our underfloor heating cables come with a 12 year warranty. Please register your product within 30 days from completion of installation, using our warranty registration form, which can be found at www.amberufh.co.uk

This warranty is only valid if installed by an IET latest edition qualified electrician/ electrical contractor. The installation must conform to Part P of the latest Building Regulations. For full terms and conditions relating to our warranty please visit our website www.amberufh.co.uk

For technical support call **0800 056 0494** or email technicalamberufh.co.uk

Please note: The warranty does not extend to costs of relaying, replacing or repairing any floor covering or floor. The warranty is not valid if faults are caused by damage, incorrect installation or misuse.



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DO's

- ✓ **DO** read through the instructions carefully before beginning work.
- ✓ **DO** ensure your floor base is clear of debris before beginning your installation.
- ✓ **DO** cover both heating cable and connection joint under the flooring.
- ✓ **DO** check the Amber Heating Cable will fit into the free floor area of the room, prior to unpacking.
- ✓ **DO** test the cable before installing, and then before and after covering the Amber Heating Cable.
- ✓ **DO** ensure the Amber Heating Cable is encapsulated in flexible tile adhesive / flexible levelling compound prior to your floor finish being laid.
- ✓ **DO** be careful not to damage the cable at any stage during installation.
- ✓ **DO** check the heat loss if this is to be the sole heat source.
- ✓ **DO** ensure the system is controlled by a thermostat with a floor sensor.
- ✓ **DO** consider additionally insulating your sub-floor before installing the underfloor heating system.
- ✓ **DO** ensure the system is protected by a suitable dedicated RCD (30mA).

DONT's

- ✗ **DON'T** install the Amber Heating Cable across two or more rooms.
- ✗ **DON'T** place the Amber Heating Cable under any fixed furniture such as kitchen units, baths or showers.
- ✗ **DON'T** cross the Amber Heating Cable.
- ✗ **DON'T** cut the yellow Amber Heating Cable.
- ✗ **DON'T** lay the system so that any cables are closer than 3cm to each other.
- ✗ **DON'T** install the floor temperature sensor cable close to other heat sources such as hot water pipes.
- ✗ **DON'T** turn on the Amber Heating Cable while it is rolled up.
- ✗ **DON'T** install the system if the ambient temperature is below 5°C as the cables can become less flexible.
- ✗ **DON'T** bend the joint between the yellow Amber Heating Cable and the black cold tail.

Thermal resistive items like rugs, bean bags or mattresses should not be left or installed onto any floor with underfloor heating..



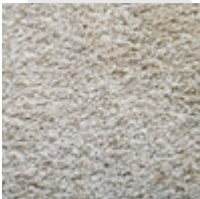
Floor **Finishes & Coverings**

The underfloor heating system is compatible with most common floor finishes, such as:



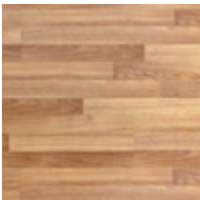
Tile / Stone

Fully encapsulate the Amber Heating Cable with either a flexible smoothing compound or flexible tile adhesive, prior to the tile / floor finish being laid. Amber recommends the use of a plastic trowel when laying tile adhesive, to protect the underfloor heating cable from accidental damage.



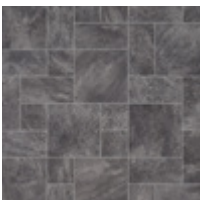
Carpet

Fully encapsulate the Amber Heating Cable with a flexible smoothing compound, to provide minimum of 10mm coverage above the top of the heating cable, prior to the carpet floor finish being laid. Avoid rubber or foam backed carpets. Please check with the carpet manufacturer to ensure the carpet is suitable for underfloor heating.



Timber

Fully encapsulate the Amber Heating Cable with either 6-7mm bed of flexible smoothing compound layer, prior to the timber floor finish being laid. When installing natural wood floors it is recommended that soft wood floors should not exceed 20mm in thickness, hard wood floors should not exceed 30mm in thickness.



Vinyl

Fully encapsulate the Amber Heating Cable with a 10mm bed of flexible smoothing compound, to provide minimum of 5mm coverage above the top of the heating element, prior to the vinyl floor finish being laid.

*Floor coverings should not exceed a thermal resistance of 0.15 m²K/W.

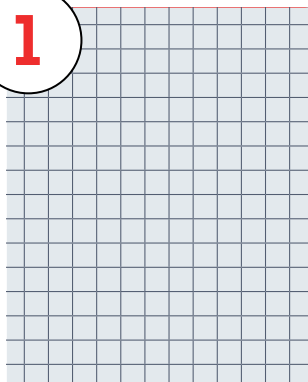
Please note that thermally resistive items should not be left or installed onto the underfloor heating in a way where heat can become trapped. This trapped heat could cause failure if left without due care or attention. Possible examples of thermal restrictive items could be heavy rugs, bean bags or a mattress laid in direct contact with the floor. Some items of furniture that do not allow air flow could also cause concern. **If you are unsure please contact Amber.**



Installing the Amber Heating Cable

Step-by-Step Guide

1



Let's get started

Plan

Use your plan to calculate the heated area, working out how to lay the cable evenly across the floor whilst avoiding all floor obstructions and close floor fitting objects (pipes, baths, cupboards). Detail on your plan the location of the cold tail (where the heating cable starts), floor sensor and connection box. It is acceptable to lay the Amber Cable under suspended cupboards, wash basins and wall mounted toilets.

2



Testing your Amber Heating Cable

At every stage of the installation it is recommended that you test your Amber Cable and floor sensor for the following:

Continuity: This checks that the heating cable (blue and black wires) are intact and have the correct resistance. Checked with a multimeter, the resistance reading should match the rating on the cold tail label with a tolerance of -5 to +10%. Ensure your multimeter is capable of reading values between 28-800 ohms. The floor sensor should read between 10k Ω and 30k Ω (temperature dependant).

Insulation (checking cable only): This checks that the earth screen around the heating cable has not been damaged and shorted to the heating cables. The test can be made with a multimeter and can be done by testing both the path between the blue cable and the earth screen, and also the black cable and the earth screen - both should read infinity.

All readings should be recorded for the homeowner and warranty registration.



3



Preparation

The subfloor must be prepared as normally required for tiling, ensure the installation surface is even, stable, dry, clean and free of sharp objects. When installing onto existing floorboards, it will be necessary to brace the floor with WBP plywood of standard recommended thickness or tile backer boards. For the floor heating system to operate at its most efficient, an insulation board is recommended to be installed below the heating. If installing as a loose laid cable, a floor primer maybe required to seal the floor and for the tape to adhere.

4



Floor Sensor Installation

Each cable is supplied with a piece of flexible tubing (only one tube is required for each thermostat), this is to house the floor sensor, so that in the unlikely event that the sensor fails, it can be easily removed and replaced without lifting the floor. The sensor and tubing should be laid in-between two cable loops, 15-20cm into the floor, in line with the thermostat, avoiding any heat sources. The end of the tube should be sealed. In some situations, a small channel may have to be made in the floor to accommodate the tubing. If so, cut a channel from the thermostat position approximately 20-30cm across the floor.



Decoupling

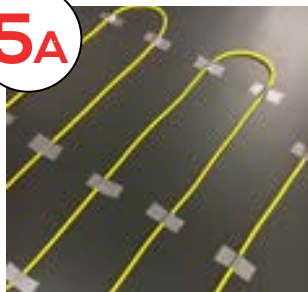
Alternatively, if using the Amber Decoupling Membrane, the sensor can be installed on top of the membrane, between the studs and equidistant between two heating cables, following the guidance above. In this instance, the tubing cannot be used, instead we recommend a second floor sensor should be installed as backup in the unlikely event of one failing. Do not connect the second floor sensor to the thermostat. Additional floor sensors can be purchased from your stockist / retailer.



Mark the positions of the floor fitting objects that will be installed once the floor is finished, so these can be avoided when laying the heating cable.



5A



Installing the heating cable

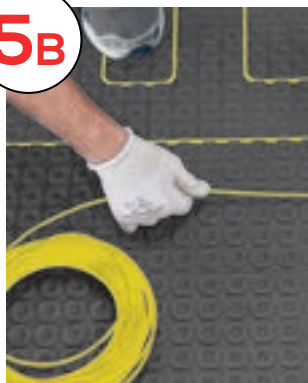
A: Loose laid with tape

Calculate the exact cable spacing using the following formula: heated floor area divided by the length of heating cable (e.g. 1m^2 divided by 10m heating cable gives a cable spacing of $0.10\text{m} = 10\text{cm}$).

The connection between the connecting cable and the heating cable should be installed in the floor.

Start by positioning the heating cable a minimum of 50mm from the wall or floor obstruction, then lay the cable using the calculated distances. When you reach the end of a cable run, turn the heating cable, creating a loop, again keeping the same distance from the wall. The heating cable is fixed to the floor using self-adhesive tape, initially with small pieces, then once the heating cable has been laid, the whole heating cable should be covered by a single strip of tape. The tape should be laid over the heating cable tightly with no air pockets under the tape. The cold tail connection and end cap should not be covered with tape. The heating cable should be laid evenly and equally spaced across the area to be heated to provide an even heat.

5B



B: Installed within the Amber Decoupling Membrane

Depending upon the system purchased and required output, the heating cable can be spaced into the membrane in every two or three studs, it **MUST NOT** be installed any closer. Starting from the connection point, run the cold tail connection and first cable loop into the membrane by pushing the cable between two studs. The heating cable should be a minimum of 65mm from the walls and floor fixing obstructions. When you reach the end of a cable run, turn the heating cable, creating a loop, keeping the same distance from the wall as calculated.



6



Completing your floor

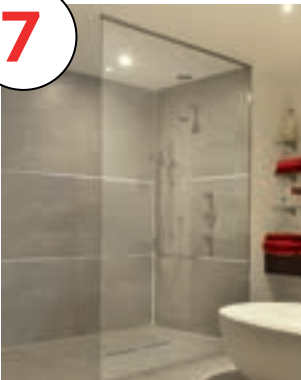
With the heating cable installed, you can apply a suitable adhesive (or self-levelling compound) and start laying the flooring. With the flat side of the notched trowel, cover the heating cable (and fill the studs and cover the membrane if applicable) with a suitable adhesive. Take care to cover the heating cable, the end cable connection and the floor sensor in the floor. Apply the adhesive with a notched trowel, appropriate to the tile size and lay the flooring. Ensure the back of the tile is fully covered. You may need to double spread the adhesive for larger format tiles.

There should be at least 5mm adhesive/self-levelling covering above the heating cable. If the floor covering is not tiles, the heating cables/membrane must be covered with 10mm of flexible levelling compound.

For professional guidance refer to your adhesive manufacturer's recommendations.

After covering the cable, measure the resistance value of the heating cable again, recording the values as before.

7



Finishing

After the work has been completed the floor must dry completely before the floor heating and thermostat are connected.

This process usually takes 8-10 days, but you should refer to the adhesive and floor finish manufacturers guidelines.

To connect the thermostat, please refer to the installation guidelines supplied with the thermostat. The thermostat should also be programmed to maximum floor temperature guidelines, in particular in relation to wood floors and vinyl floor coverings, refer to the manufacturer for guidance.

Now complete the commissioning certificate and leave with home owner.



Resistance **Values**

Amber **Heating Cable**

Stock Code	Length (m)	Output (W)	Resistance (ohms)
A500010	10	100	529
A500020	20	200	265
A500028	28	300	176
A500041	41	400	132
A500050	50	500	106
A500057	57	600	88
A500070	70	700	76
A500081	81	800	66
A500090	90	900	59
A500100	100	1000	53
A500129	129	1250	42
A500140	140	1384	38
A500165	165	1650	33

Caution



The underfloor heating element must be controlled with an approved thermostat, regulated by a floor temperature sensor, and fitted and set up in accordance with the thermostat instructions.

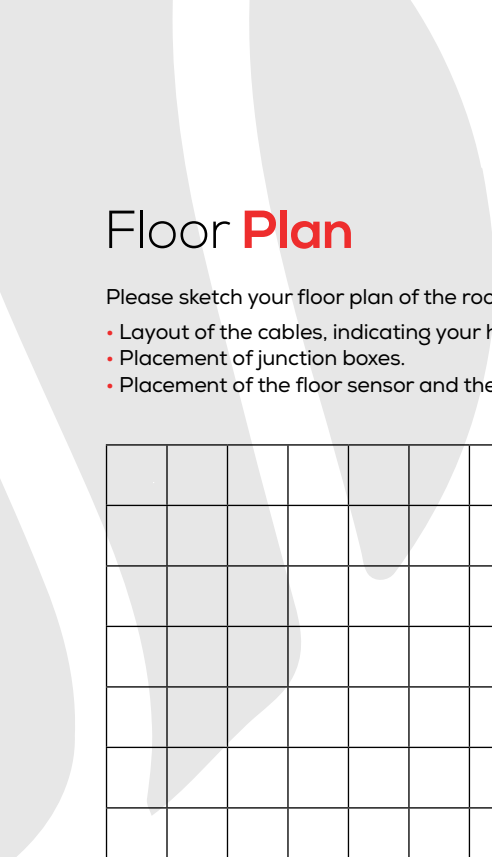
DO NOT cut or shorten the heating element.

The heating element must be used in conjunction with a 30mA RCD.

No fixed furniture should be laid or fixed to the heated floor area - for example thick mats, bean bags or cupboards.

The heated floor area should not be drilled or nailed as this could damage the heating elements.

The heating cable must be installed by a qualified electrician.



Floor Plan

Please sketch your floor plan of the room and show the following:

- Layout of the cables, indicating your heated area.
- Placement of junction boxes.
- Placement of the floor sensor and thermostat.

[illegible]



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