

MAGNUM[®]

Specialist in electrical heating



Millicable

Installation manual

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Congratulations on the purchase of this MAGNUM product. This 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 cable kit is correctly installed in accordance with the Installation Instructions. Carefully read the instructions prior to installation, do not forget the yellow 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

01887-822022

send an E-mail with your question to:

technical@magnumheating.co.uk

or visit our website for more information and other products at:

www.magnumheating.co.uk

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1. Check:

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

- MAGNUM Millicable Twin conductor cable unit
- Flexible sensor tube
- Floor Primer (1 litre)
- Roll duct tape 25mtr. 15mm.



2. Measurements:

Installation on a concrete based floor

Power	Length	Ohm value	160W/m ² Cable spacing 7cm	140W/m ² Cable spacing 8cm
150 Watt	13,0	352 Ohm	0,9 m ²	1,1 m ²
300 Watt	26,1	176 Ohm	1,9 m ²	2,1 m ²
600 Watt	52,2	88 Ohm	3,8 m ²	4,3 m ²
750 Watt	65,2	70 Ohm	4,7 m ²	5,4 m ²

Installation on a combustible subfloor (wood floor)

Power	Length	Ohm value	120W/m ² Cable spacing 10cm	100W/m ² Cable spacing 12cm
150 Watt	13,0	352 Ohm	1,3 m ²	1,5 m ²
300 Watt	26,1	176 Ohm	2,5 m ²	3,0 m ²
600 Watt	52,2	88 Ohm	5,0 m ²	6,0 m ²
750 Watt	65,2	70 Ohm	6,3 m ²	7,5 m ²

3. Points of attention:

The cable is insulated and watertight and can be installed directly on existing primed concrete or plywood subfloors. The construction of the cable also allows installation in wet areas. The heating cable should never be installed under fixed objects such as 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 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 11.5W per meter at 230V. The invisible transition of the resistance cable (heating section of the cable) to the power cable is indicated by Black Shrink tube and 2 x clear cable wraps. The 2 mtr power cable marked with "KALT/COLD", may be extended.

The heating cable CANNOT be shortened! The end seal CANNOT be broken. This cable is a twin conductor (built-in return cable) and has an extra aluminium earth cladding to neutralise magnetic fields.

The end splice and connection splice **MUST** be covered with tile adhesive or self leveller.

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. (3600Watt) The Millicable is designed to be used under Tile, Stone, Marble, Slate or similar type products.

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.

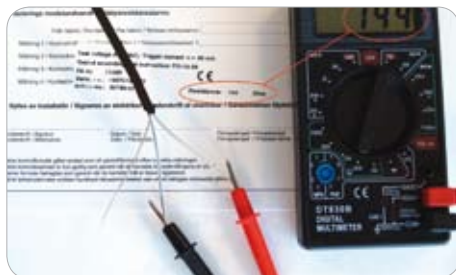
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4. Preparation:

- Check that the cable length/wattage is correct for the area of free floor surface that is to be heated.
- Check that there is sufficient space in the wall to feed the connection and floor sensor cables to the mounted controller.
- Check the available electrical connection and mains voltage in the space for installation.
- Test the cable with the multimeter and check if the resistance (Ohms) coincides with the data in the table. 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.
- 2 grooves must be cut/ground in the wall for electrical conduits, 1 for the power cable and 1 for the floor sensor.

TAKE CARE: Do NOT run the power cable and sensor cable through the same pipe. Do NOT place the temperature sensor in the vicinity of a radiator or hidden water pipe!

- Ensure that the base floor is clean and level.
- Wood and Chipboard floors need to be strengthened to prevent cracks from forming and tiles coming loose. This applies also if no underfloor heating is being installed.
- Prime the floor and let this dry.



5. Necessary materials:

Required for installation:

- Standard back box (min 35mm deep, preferably 50mm) for the thermostat.
- For adhering cable to floor - use supplied tape.
- Plastic conduit pipe for housing floor sensor
- Primer - use supplied primer.
- 2 part Flexible Tile Adhesive or 2 part Self Levelling Screed.



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6. Calculations for Heat Requirements:

160 - 140 watts/m² for installation on a concrete based subfloor. 120 - 100 watts/m² for installation on a combustible subfloor.

$$\text{Cable spacing (distance)} = \frac{\text{Laying area}}{\text{Cable length}}$$



7. Fitting the cable to the floor:

Install the floor sensor and conduit as per point 4. Feed the connection end of the cable (Black Cable) through the electrical conduit to the back box for the thermostat. The CONNECTION SPLICE must be installed on the floor to be covered with the tile adhesive or self leveller.

Calculate the the cable spacing using the formula in point 6. Mark the c/s measurements on the floor about 20cm from each wall. Secure the cable with the tape at the first mark. Please take care when calculating and marking the c/s to ensure that you have equal spacing of the complete cable. Install the first loop of the cable and fix it with the tape supplied tape. The distance between the cable and the wall should be approx half the c/s distance.

Do the same with the next loop until the whole cable is installed. Pull the sensor cable to the back box and ensure that the sensor is in the conduit. Ensure that the end of the conduit is sealed with the cap, so that the sensor can be replaced if required.



8. Applying the tile adhesive:

When the cable is fully installed you can now cover the cable using tile adhesive or a self levelling compound. When applying the adhesive make sure that you do not damage the cable with sharp edged trowels.



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TILE CEMENT METHOD:

- Lay the cable as described in point 7.
- Take the resistance readings of the cable
- Apply a layer of Flexible Two part tile adhesive over the mat ensuring that the whole cable (INCLUDING END SPLICE AND CONNECTION SPLICE) is covered by the adhesive taking care to avoid air bubbles and use a plastic tile cement comb to avoid damaging the cable. (DO NOT SPOT TILE). Check that the product is suitable for floor heating and follow the instructions of the manufacturer to the letter.
- Either leave this layer of adhesive to dry and then apply another layer of tile adhesive then press down the tile with a light sliding motion. Or directly lay the tiles into the adhesive ensuring sufficient depth of tile cement to cover the cable (minimum 5mm) and press down the tile with a light sliding motion.
- Take the resistance readings of the cable again.



SELF-Levelling METHOD:

- lay the cable as described in point 7.
- Take the resistance readings of the cable.
- First read the instructions of the flexible self-levelling compound, check that the product is suitable for floor heating and follow the instructions of the manufacturer.
- The self-levelling effect must usually be assisted somewhat using a squeegee. Observe the drying time and then apply the floor covering, i.e. tiles as described above



TAKE CARE - DO NOT APPLY MORE THAN 1 SELF Levelling LAYER! PLEASE FOLLOW MANUFACTURERS INSTRUCTIONS

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Remember to take the resistance readings throughout this installation process and mark below.

Resistance readings Date: ___/___/_____

Electrician's Signature: _____

Readings:

A = Between centre core wires (Should read within 5% margin from value in Point 2)

B = Between each of the centre core wires and the earth (This should read "0")

Initial Reading : A _____ Ohm

B _____ Ohm

Cable Laid : A _____ Ohm

B _____ Ohm

Completion : A _____ Ohm

B _____ Ohm

9. 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. Always carefully read this manual and keep it with your other guarantees.

9.1 Instructions for the electrician:

Check that the electricity is turned off. Remove the display housing by inserting a blunt, suitable instrument, e.g. a point of a ballpoint pen carefully into the square hole on bottom of the thermostat and exerting a light pressure. Both the display housing and the cover plate can then be removed.

9.2 Wiring diagram:

Installation is done as follows:

- 1, 4 and 6 (earth) are used for the connection wire from the heating cable.
- 2 (Neutral), 3 (Live) and 6 (Earth) are for the power supply.
- 5 is the pilotwire connection.
- 7 and 8 are for connecting the sensor.



9.3 Installation:

Position the thermostat and mount and secure it in the back box with two screws. Replace the cover plate and position the display housing back in place and softly press it into position. When the power is turned on the first question will be displayed on the start up menu. Follow the start up menu as per instructions.

10. Using floorheating for the first time:

Allow the floor sufficient drying time before you turn on the floor heating. For tiled floors a drying time of 14 days after installation should generally be observed. Consult the supplier/manufacturer regarding the applicable drying time for the product. For sand/cement screed floors a drying time of 1 week per applied cm with a minimum of 4-5 weeks is generally observed. Consult the supplier/manufacturer regarding the applicable drying time for your situation.

PLEASE READ CAREFULLY:

IMPORTANT POINTS OF ATTENTION FROM THE GENERAL INSTALLATION INSTRUCTIONS WE RECOMMEND ALL FLOORS ARE INSULATED BEFORE UNDERFLOOR HEATING INSTALLATION

Shortening the Connecting Cable “Cold”

The connecting cable may be shortened (Black cable) to no less than 2 mtrs. Make sure that the heating cable before the CONNECTION/SPLICE (red cable) is fully installed and is covered by the tile adhesive or self levelling compound. **DO NOT CUT THE HEATING CABLE.**

Extending connecting cables:

The connecting cables can be extended as required, however take the Amperage of the floor heating into account and adjust the capacity of the extension cables accordingly.

FLOOR SENSOR:

Installation:

Ensure that the sensor is installed well clear (min. 50 cm) of central heating pipes, water pipes, drains and electrical wiring. Install the sensor in the middle of 2 loops. Ensure that the heating cables do not make direct contact with the conduit in which the floor sensor is mounted. The end of the sensor pipe must be closed. Check that the sensor cable is free to move to the end of the pipe.

Extending the floor sensor:

The floor sensor may be extended as required up to a maximum of 10 meters. Use a signal cable for extending the sensor. Ensure that the sensor can always be replaced in case it fails. The simplest way of doing so is installing a hidden junction box in which the signal cable is connected to the sensor.