



**Thermafloor**  
**UNDERTILE HEATING**

# Installation Manual

**VERSION 1**



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**THERMAFLOOR.CO.NZ**

08/04/2024



**BRANZ Appraised**  
Appraisal No. 1275



# Contents

<b>Sizing Guide</b>	<b>2</b>
<b>General Information</b>	<b>3</b>
<b>Safeguards</b>	<b>4</b>
<b>Connecting cable tester/monitor</b>	<b>5</b>
<b>Element cable layout examples</b>	<b>6</b>
<b>Installation steps 1-4</b>	<b>7</b>
<b>Installation steps 5-6</b>	<b>8</b>
<b>Installation steps 7-8</b>	<b>9</b>
<b>Installation steps 9-10</b>	<b>10</b>
<b>Do's &amp; Don'ts</b>	<b>11</b>
<b>Commissioning</b>	<b>12</b>
<b>Warranty</b>	<b>14</b>

# Cable size guide

230V	Length (m)	Watts (11.5W/m)	ohms
Catalogue Number			
<b>MinicableS-11.5-150</b>	13.0	150	352.7
<b>MinicableS-11.5-200</b>	17.4	200	235.1
<b>MinicableS-11.5-300</b>	26.1	300	141.1
<b>MinicableS-11.5-400</b>	34.8	400	100.8
<b>MinicableS-11.5-500</b>	43.5	500	88.2
<b>MinicableS-11.5-600</b>	52.2	600	78.4
<b>MinicableS-11.5-700</b>	60.9	700	70.5
<b>MinicableS-11.5-800</b>	69.6	800	58.8
<b>MinicableS-11.5-900</b>	78.3	900	50.4
<b>MinicableS-11.5-1000</b>	87.0	1000	44.1
<b>MinicableS-11.5-1250</b>	108.7	1250	39.2
<b>MinicableS-11.5-1500</b>	130.4	1500	35.3
<b>MinicableS-11.5-1750</b>	152.2	1750	29.4
<b>MinicableS-11.5-2000</b>	173.9	2000	26.5
<b>MinicableS-11.5-2500</b>	217.4	2500	21.2
<b>MinicableS-11.5-3000</b>	260.9	3000	17.6

# General Information

## USE OF THE MANUAL

- This manual describes the Thermafloor heating system. It includes room design, selecting the correct size of heating cable and how to install the heating system.
- Before any installation, it is important to thoroughly review this manual and the Thermafloor thermostat installation and operation manual.

For additional information regarding any aspect of the Thermafloor heating system, contact Thermafloor at 0278981313 or check out the website at [www.thermafloor.co.nz](http://www.thermafloor.co.nz)

## SAFETY GUIDELINES

- The safety and reliability of any floor heating system depend on proper design, installation, and testing.
- Incorrect installation or mishandling of the product can cause damage to the heating cable system components and property and can create a risk of fire or shock.
- The guidelines and instructions contained in this manual are important. Follow them carefully to minimize these risks and to ensure that the Thermafloor system performs reliably.



# WARNING

## Shock & fire hazard

### IMPORTANT SAFEGUARDS AND WARNINGS

- If the Thermafloor heating cable is damaged or not installed properly, fire or shock could result in serious personal injury or property damage.
- You must carefully follow the warnings and instructions contained in this manual.
- The Thermafloor heating system must be installed only by registered electricians or trained installers who are familiar with the proper sizing, installation, construction and operation of floor warming systems and the hazards involved.
- The Thermafloor heating cable is classified as an electrical appliance. You are not required to be an electrician to install the heating cable. But all electrical connections must be undertaken by a licensed electrician including connection of the thermostat.

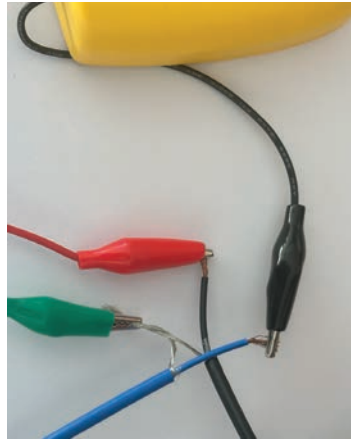
The heating cable is designed for underfloor heating purposes only. Be sure that the floor is not penetrated by nails, screws, or similar objects that can cause damage on first installation or during subsequent floor repairs in the future.

**If the Thermafloor heating system is damaged, it must be replaced. Do not attempt to slice or repair any part of the system, contact your supplier immediately.**

# Connecting Cable Tester/Monitor

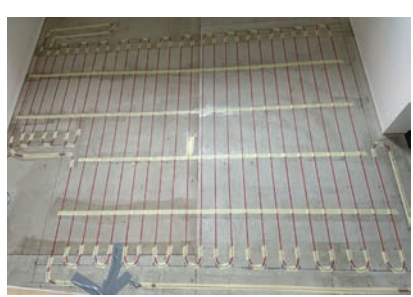
The Cable tester/monitor must be connected to the heating element after the installation has been completed. This is essential as the tester/monitor will detect any damage that may occur after the element is laid.

- Connect the black crocodile clip to an element conductor.
- Connect the red crocodile clip to an element conductor.
- Connect the green crocodile clip to the earth shield.
- Switch the tester/monitor on.
- A white light will be displayed.
- Disconnect the black crocodile clip to check that the alarm is working, the alarm should sound.
- Re-connect the crocodile clip to the element conductor.



# Element cable

## LAYOUT EXAMPLES



**START**

**FLOOR SENSOR**

**FINISH**



**START**

**FLOOR SENSOR**

**FINISH**



# Preparation & installation

The Branz good tiling guide recommends that waterproofing be completed after the heating cable has been installed. This reduces the risk of damage to the waterproofing membrane and the risk of moisture exposure to the heating cable.

## STEP 1 FLOOR PREPARATION

Grind or chisel two channels on the floor (approximately 100mm in length x 20mm wide x 10mm in depth) directly where the draw wire comes out from the bottom plate of the wall. This allows for the cold tail joints to fit into the floor and stop any unnecessary height when tiling.

## STEP 2 CLEAN FLOOR

Scrape and sweep the floor removing all protrusions and dust to ensure it is clean and dry. A well-prepared surface will provide good adhesion.

## STEP 3 MEASURE AND MARK FLOOR AREA

Mark out on the floor the area to be heated, excluding areas under fixtures and a perimeter of 100mm along walls, doors and obstacles (check out the diagram on page 8).

## STEP 4 CALCULATE THE REQUIRED CABLE SPACINGS

Measure the area that you have marked out on the floor to determine the size of the heating cable required and check the sizing guide. To work out your spacings follow the below calculation. Please note that your spacing should be a minimum of 50mm apart.

### FLOOR AREA TO BE HEATED X 1000 DIVIDED BY THE CABLE LENGTH

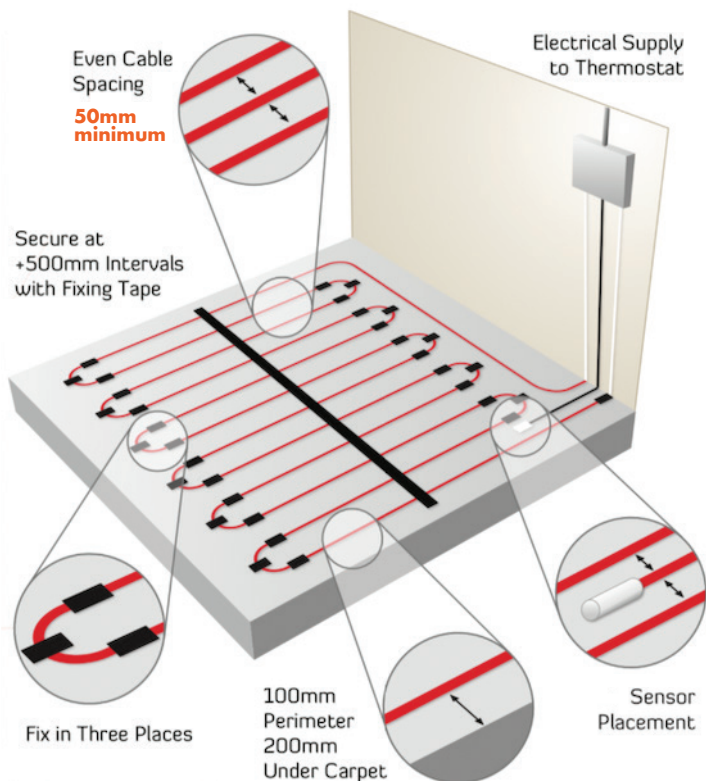
(found on the label attached to the heating cable)

IE floor area to be heated = 2.5sqm x 1000 = 2500 divided  
by length of cable (34.8metres long) = 71.8mm spacing

## STEP 5 MARK OUT YOUR CABLE SPACING

- Start on the floor directly below the thermostat and where the draw cable comes out from the bottom plate of the wall.
- Mark out each spacing at the top and bottom end of each run.

The drawing below is an example of the floor area to be heated.



## STEP 6 CABLE TEST

You can use the cable monitor tester that is supplied with your heating kit to verify the integrity of the cable before installation (see page 5 ). If the alarm sounds this could indicate a fault with the cable, do not install and contact your supplier.

## STEP 7 READY TO LAY CABLE

- Spray the floor with spray adhesive at the start point where the cable will loop at each end. Allow a few minutes for this to dry.
- Unroll the cold tail from the reel until you reach the cold tail joint.
- Tape the cold tail joint in the channel that you have ground or chiselled in Step 1.
- Install the cable along your planned route ensuring that you are taping the cable at regular intervals.
- Run the cable up and down in line with the markings, pulling each run tight and fixing the loops in three places.
- Always keep spacing even.

There is a halfway mark on the heating cable to guide your installation position. When you reach the halfway mark check your position visually.

After completing approximately 90% of the installation, roll out the remainder of the heating cable and second cold tail.

- Tape the second cold tail joint into the second channel that was ground or chiselled at the start point.
- Finish laying the remainder of the heating cable.
- Secure the rest of the heating cable to the floor, spray the floor at 500mm intervals to allow for strips of tape to hold the heating cables down.

## STEP 8 ATTACH COLD TAILS AND FLOOR SENSORS TO DRAW WIRE

- Remove the 2 floor sensors from the thermostat controller box.
- Fix the floor sensors directly below the thermostat position and tape in the middle of 2 runs of the heating cable, coming off the wall 300mm.
- Attach both cold tails and floor sensors to the draw wire using electrical tape. Gently pull the draw wire from the flush box up through the wall with the attached wires and sensors until they reach the flush box.
- Pull the cold tails and floor sensors out of the flush box gently, not over-pulling.

**PLEASE NOTE** that only one floor sensor should be connected, the other one should remain in the flushbox as a spare, connecting both sensors will give the thermostat a false reading or error.

- Attach the continuity cable tester alarm that is supplied with your heating kit. The picture on page 5 shows how to attach it.
- This will ensure any work carried out on the floor will be monitored for damage.

Take several pictures of the completed heating cable installation. The licensed electrician may ask to see that it has been installed correctly before they connect the thermostat.

If the alarm sounds at any time, please stop all work and contact your supplier or Thermafloor at 0278981313.

## **STEP 9 SECURE & PROTECT THE CABLE**

### **TILED FLOORS**

It is highly recommended that prior to the tile installation that the heating cable is protected using a floor levelling compound, this will help to stop any damage occurring to the heating cable.

### **VINYL & TIMBER FLOORING**

If the heating cable is installed under vinyl or timber then a levelling compound must be used to protect the cable.

## **STEP 10 CONNECT POWER SUPPLY & THERMOSTAT**

- A licensed electrician must do the connection of the heating cable and thermostat. The electrician should connect one, floor sensor to the thermostat and leave the other floor sensor in the flush box as a spare.
- Measure the resistance before connecting up the heating cable.

# Enjoy the comfort

The Thermafloor heating system is now ready to be switched on.

Increase the floor temperature gradually and adjust until it reaches a comfortable temperature depending on the type of room and your personal preferences.



## DO'S

- Read the installation manual before starting the installation.
- Ensure the surface is clean and dry.
- Plan and mark the heating cable layout before installation.
- Space the cable evenly over the floor.
- Protect the heating cable before tiling with floor levelling compound.
- Check before tiling that the cable tester monitor is switched on.
- Check with your supplier what tile adhesives and grouts are suitable for use with the under-tile heating.
- Take care when tiling not to damage the heating cable.

## DON'T

- Allow the heating cable to be any closer than 50mm apart
- Shorten or cut the cable at any point
- Allow the cable to cross over or touch each other at any point.
- Install any of the heating cable up wall cavities or up walls
- Turn the heating on until the tile adhesive has fully cured (a minimum of 7 days)

If unsure of any aspect of the installation please contact your supplier or call Thermafloor 0218981313 for technical advice

# Commissioning

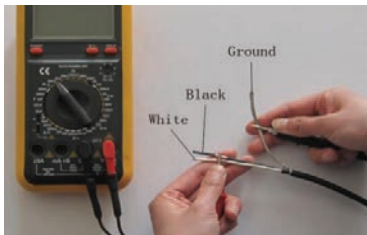
## IMPORTANT

For the extended 15-year limited warranty to apply, you must perform these tests, record the results on the warranty card, and retain a copy of the record. You must perform the Insulation Resistance Test, the Heating Cable Resistance Test, and the Sensor Resistance Test during the installation process.

## INSULATION RESISTANCE TEST

This test ensures that the insulating jackets of the cable are not damaged. A low value indicates the cable has been damaged and must be replaced.

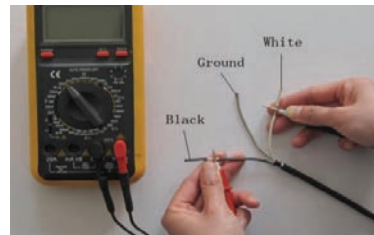
1. Connect the ground wire to the black lead and both power wires to the red lead of the multimeter.
2. Make sure the meter reads "Open" or "OL." If you get a different reading, contact Thermafloor at 0278981313
3. Record these readings on the warranty card.



## HEATING CABLE RESISTANCE TEST

This test measures the resistance of the cable and is used to determine circuit integrity.

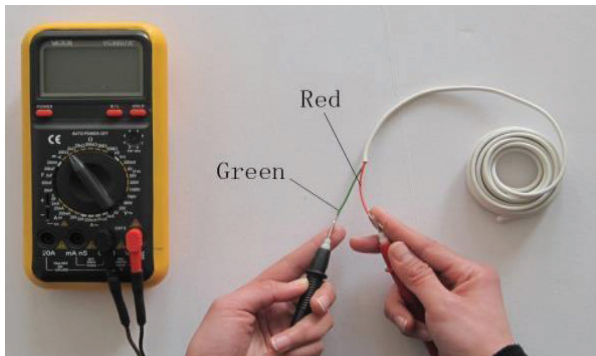
1. Set your multimeter to the 200 or 2000 ohm range.
2. Connect the multimeter leads to the black and blue cold lead wires.
3. Compare this resistance reading to the resistance in the cable size guide ( see page 2). The value should be within -5%- +10%. If you get a different reading, contact Thermafloor at 0278981313.
4. Record these readings on the warranty card.



## SENSOR RESISTANCE TEST

This test measures the resistance of the floor sensor and is used to verify the sensor integrity.

1. Set your multimeter to the 200K ohm range.
2. Connect the multimeter leads to the red and green lead wires.
3. Make sure the meter reads between 9-25K ohms. If you get a different reading, contact Thermafloor at 027 898 1313
4. Record these readings on the warranty card.



## MEASURE RESISTANCE

The resistance should be measured between the two conductors, blue and black. Compare this resistance reading to the resistance specified in the Sizing Guide on Page 2. The value should be within -5% ~ +10%. If you get a different reading, contact Thermafloor at 027 898 1313

Also, measure the resistance between the blue, black and shielding/ground wire. Both should read infinity. If you get a different reading, contact Thermafloor at 027 898 1313

**IMPORTANT:** measure the resistance during the installation process. Remember to always measure, verify and record the actual resistance throughout the installation process (out of the box, after installation, after thin set cement or self-leveler application and after installation of floor tiles).

## 10-YEAR LIMITED WARRANTY

For a period of ten years from the date of purchase Thermafloor warrants that the heating cable is free from defects in material, design, and workmanship. The extended warranty is only valid if the warranty certificate has been properly completed and mailed, and the installation is in accordance with the installation instructions.

Specifications	
<b>Cable Construction</b>	Single conductor
<b>Rated Voltage</b>	230V
<b>Output</b>	11.5W/m
<b>Heating Element Size</b>	13-260.9m (11.5W/m)
<b>Bending radius</b>	25mm
<b>Cable Diameter</b>	2.5mm-2.8mm
<b>Conductor Insulation</b>	Fluoropolymer
<b>Outer Insulation</b>	PVC
<b>Max. Ambient Temp.</b>	85°(30°)
<b>Min. Installation Temp.</b>	40°(5°)
<b>Cold lead</b>	2-wire plus ground braid; 2.5m length

Thermostat Specifications	
<b>Functions</b>	On/Off control, digital display, 7-day programmable
<b>Supply Voltage</b>	120/240 V ±15%, 50/60 Hz
<b>Maximum switching current</b>	16 Amp
<b>Temperature control range</b>	40 to 104°F (5 to 40°C)
<b>Ambient range</b>	32 to 104°F (0 to 40°C)
<b>Floor temperature sensor</b>	2-wire, 3m lead wire





## EXTENDED WARRANTY

For a period of fifteen (15) years from the date of purchase Thermafloor warrants that the heating cable is free from defects in material, design and workmanship. The extended warranty is only valid if the warranty certificate has been properly completed and mailed, and the installation is in accordance with the installation instructions.

The defective heating cable must be inspected by or submitted to Thermafloor. Failure to comply with all of the foregoing will void this extended warranty. Thermafloor will, when the customer has documented that a defect in the cable was present at the date of delivery, repair or supply a new cable at Thermafloor's discretion. All claims shall be made within the extended warranty period. Thermafloor shall not be liable for any claims made later than fifteen years from date of purchase.

Thermafloor shall not be liable for any consequential and secondary costs or damages linked to the defect or replacement of the cable. Thermafloor will be liable for any costs related to the dismantling of a defective product and the installation of a new product; however, such liability is limited to the amount of five (5) times the initial product costs for each damage/case.

THE FOREGOING WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ON THE PART OF THERMAFLOOR. THERMAFLOOR DISCLAIMS ANY WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERMAFLOOR NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON, FIRM OR CORPORATION TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH SALE OR PRODUCT. THERMAFLOOR SHALL NOT BE HELD RESPONSIBLE FOR DAMAGE TO PERSON OR PROPERTY, CONSEQUENTIAL LOSS, LOSS OF PROFIT, LOSSES ON GOODS IN STORE, OR THE LIKE WHICH MIGHT ARISE OUT OF THE FAILURE OF THE EQUIPMENT DELIVERED, IRRESPECTIVE OF THE CAUSE (INCLUDING FAULTY MANUFACTURE).

## HOW TO CLAIM THIS WARRANTY

Contact the company's Customer Service department and provide the following information:

1. Nature of the manufacturing defect
2. Date of purchase and, if already installed, date of installation
3. If installed, name of electrician and flooring installer
4. Resistance readings taken by installer
5. Proof of purchase and serial number from product label

Our Customer Service department will provide you with an authorization number and advise you on the next steps to complete your warranty claim.

## DISCLAIMER

This warranty gives you specific legal rights and you may also have some legal rights which may vary from state to state or province to province. Thermafloor hereby disclaims, and it is as a condition of the sale, that there are no implied warranties. Some states and provinces do not allow limitations on an implied warranty so the above limitation may not apply to you.







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