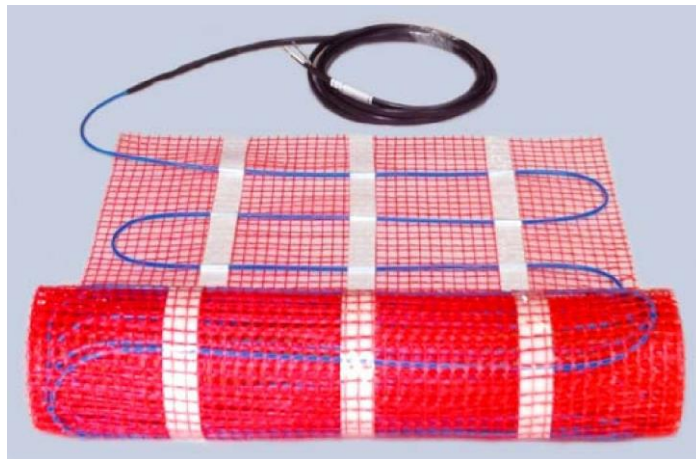


Accent Floor Heating

Mat System Installation Manual



Floor heating system

Accent Floor Heating

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Important Safeguards and Warnings

WARNING: Shock and fire hazard

If the mat System is damaged or not installed properly, fire or shock could occur resulting in serious personal injuries or damage to property. You must carefully follow the warnings and instructions contained in this manual.

- The Accent thermostat must be used.
- It is important that this equipment is installed only by qualified electricians who are familiar with the proper sizing, installation, construction and operation of floor warming system and the hazards involved. The installation must comply with all national and local electrical codes. If you are unfamiliar with these requirements, contact a electrician.
- The mat System is designed for under floor heating purposes only. Be sure that the floor is not penetrated by nails, screws, or similar devices that can cause damage on first installation or during subsequent floor repairs in the future.
- If the mat System is damaged, it must be replaced. Contact Accent Floor Heating ,**do not** attempt to splice or repair any part of the system.
- NOTE: The Cable Mat can be DIY installed but must be commissioned (connected) by a licensed electrical contractor & connected to a Thermostat & an RCD to comply with current AS/NZS 3000 wiring regulations.

1 General Information

1.1 Use of the Manual

This manual describes the mat floor heating system — how to design the room, select the product, and install the system. It is important to thoroughly review this manual and the following document prior to installation:

Accent Thermostat Installation and Operation Manual

For additional information regarding any aspect of the mat System, contact:

Accent Floor Heating.


Tel: 0430 180 516

www.accentfloorheating.com.au

1.2 Safety Guidelines

The safety and reliability of any floor heating system depends 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 guide are important. Follow them carefully to minimize these risks and to ensure that the mat system performs reliably.

Pay special attention to the following:

- Instructions marked  Important
- Safety warnings identified as  WARNING

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1.3 Remember to measure resistance

The resistance should be measured between the two conductors, brown and blue. Compare this resistance reading to the resistance specified in the Product Selection “Table 1 or Table 2”. The value should be within -5% to +10%. If you get a different reading, contact Accent at 0430 180 516. Also, measure the resistance between the brown, blue and shielding/ground wire. Both should read infinity. If you get a different reading, contact Accent at 0430 180 516.

Please refer to “5 Commissioning” for instructions on how to measure the resistance.



Important: measure the resistance four times 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-leveller application and after installation of floor tiles).

1.4 15-year Limited Warranty

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

2 MAT System

2.1 mat Specifications

Cable Construction:	Twin conductor
Rated Voltage:	230V
Output:	100W/m ² & 150W/m ² & 200W/m ²
Cable spacing:	112mm & 80mm & 80mm
Cable Diameter:	3.6mm
Conductor Insulation:	fluoropolymer
Outer Insulation:	PVC
Max. Ambient Temp.:	(40°C)
Min. Installation Temp.:	(5°C)
Cold lead	2-wire plus ground braid; 2.5m length

2.2 Thermostat Specifications

Functions:	On/Off control, digital display, 7-day programmable
Supply Voltage:	120/240 V ±15%, 50/60 Hz
Maximum switching current:	16 Amp
Temperature control range:	40 to 104°F (5 to 40°C)
Ambient range:	32 to 104°F (0 to 40°C)
Floor temperature sensor:	2-wire, 3.0m lead wire

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2.3 Mat typical installations and applications

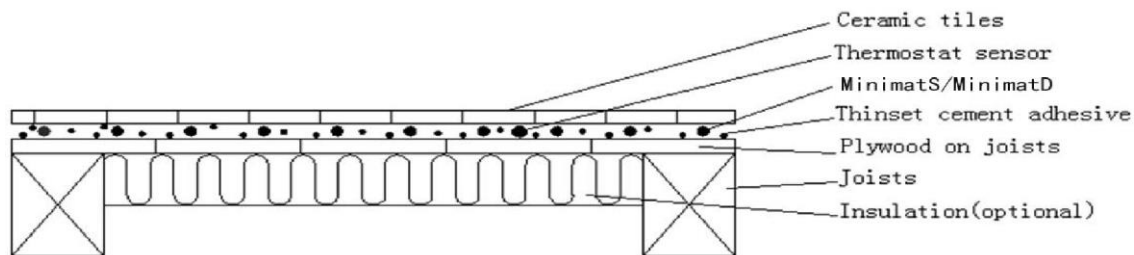


Figure 1: Directly on plywood

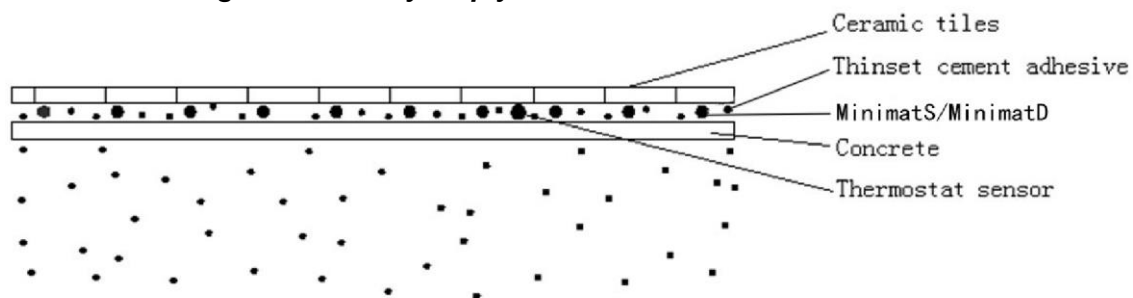


Figure 2: Directly on concrete

Alternative method: self-levelling cement is recommended for large surfaces and the following floor materials: engineered wood, laminate, floating floors, vinyl, linoleum and carpet.

Warning

Consult the manufacturer for information on special installation requirements for wood, laminate and vinyl or linoleum flooring.

Important

- Read the instructions carefully before installing mat system.
- Remember to measure the resistance four times.
- Only for indoor installation. Do not install mat in walls or ceilings.
- The cable must be embedded in mortar, thin set, concrete or similar material.
- The minimum installation temperature is (5°C).
- **The heating cable cannot be cut to length, crossed over itself, or installed too close.**
- It is recommended to use copper wire only.
- Remember to check that the supply voltage matches the voltage of the mat.
- Remember to place the labels as written in this instruction.

Please consult the factory for any other questions or advice.

3 Floor Heating Design and Product Selection

3.1 Design the Installation

Step 1: Measure the heated area

Determine the heated area of the floor where there are no permanent fixtures or furniture such as showers, toilets, vanities, or cabinets. Measure the heated area of the floor.

For example, in Figure 3, the area of the bathroom is 8.75 m². When you subtract the area of the vanity, shower and toilet, the total heated area is only 6.45 m².

Step 2: Determine the power supply voltage

Make sure the supply voltage was 230/240 V.

Step 3: Plan the design

Determine the optimum floor heating mat layout for your heated area to ensure coverage. Select a spot for the thermostat in the wall above the heated area where it can be reached by the 2.5m cold lead on the mat, and the 3.0m floor temperature sensor. Please refer to Figure 4.

Important

The predetermined mat spacing must be maintained to ensure proper floor heating. Do not change the mat heating cable spacing when you lay out the cable or the floor may have cold spots.

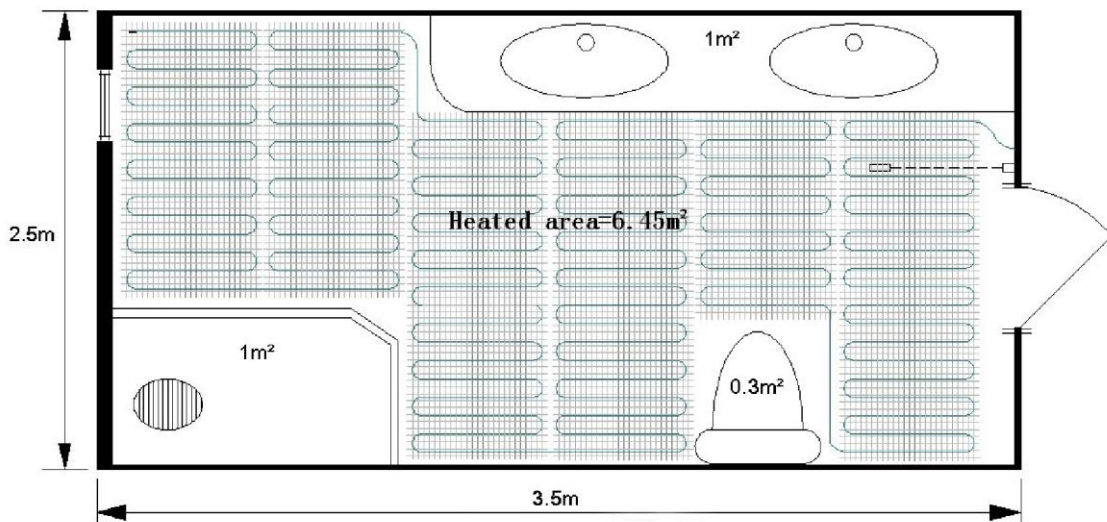


Figure 3: Heated area example

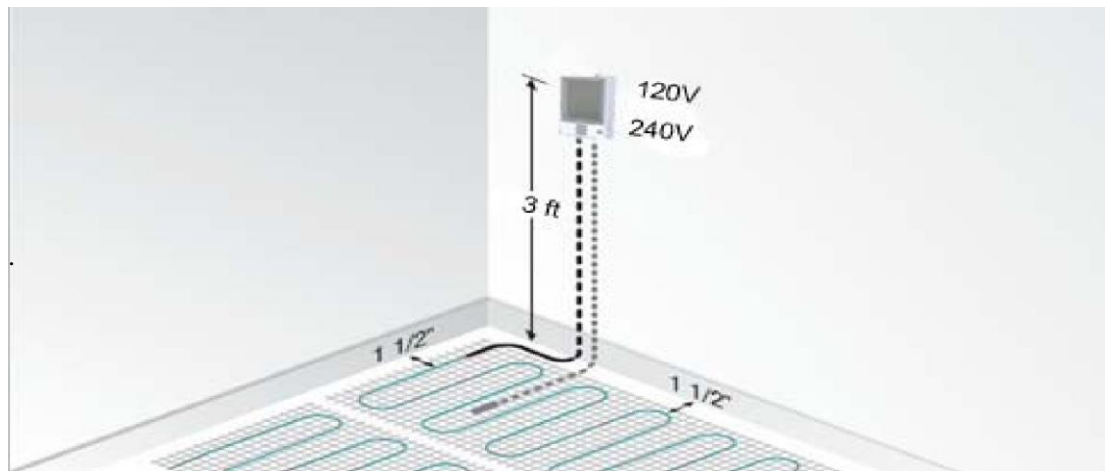


Figure 4: Typical cold lead and floor

3.2 Confirm Your Product Selection

Confirm that your mat is no larger than the heated area. Following the example from Figure 3, if the heated area is 6.45 m^2 , select the 6.0 m^2 mat system.

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Table 2: Mat Product Selection

230/240V	Heated Area		Mat Dimensions		Watts (100W/m) ²	Amps	ohms
Catalogue Number	m ²	sq.ft.	m*m	in.*ft.			
ATM-100-1	1.0	10.8	0.5*2	20*6.6	100	0.4	529.0
ATM-100-1.5	1.5	16.1	0.5*3	20*9.9	150	0.7	352.7
ATM-100-2	2.0	21.5	0.5*4	20*13.1	200	0.9	264.5
ATM-100-2.5	2.5	26.9	0.5*5	20*16.4	250	1.1	211.6
ATM-100-3	3.0	32.3	0.5*6	20*19.7	300	1.3	176.3
ATM-100-3.5	3.5	37.7	0.5*7	20*23.0	350	1.5	151.1
ATM-100-4	4.0	43.1	0.5*8	20*26.3	400	1.7	132.3
ATM-100-4.5	4.5	48.4	0.5*9	20*29.5	450	2.0	117.6
ATM-100-5	5.0	53.8	0.5*10	20*32.8	500	2.2	105.8
ATM-100-6	6.0	64.6	0.5*12	20*39.4	600	2.6	88.2
ATM-100-7	7.0	75.3	0.5*14	20*45.9	700	3.0	75.6
ATM-100-8	8.0	86.1	0.5*16	20*52.5	800	3.5	66.1
ATM-100-9	9.0	96.9	0.5*18	20*59.1	900	3.9	58.8
ATM-100-10	10	107.6	0.5*20	20*66.6	1000	4.3	52.9
ATM-100-12	12	129.2	0.5*24	20*78.8	1200	5.2	44.1

230/240V	Heated Area		Mat Dimensions		Watts (150W/m) ²	Amps	ohms
Catalogue Number	M ²	sq.ft.	m*m	in.*ft.			
ATM-150-1	1.0	10.8	0.5*2	20*6.6	150	0.7	352.7
ATM-150-1.5	1.5	16.1	0.5*3	20*9.9	225	1.0	235.1
ATM-150-2	2.0	21.5	0.5*4	20*13.1	300	1.3	176.3
ATM-150-2.5	2.5	26.9	0.5*5	20*16.4	375	1.6	141.1
ATM-150-3	3.0	32.3	0.5*6	20*19.7	450	2.0	117.6
ATM-150-3.5	3.5	37.7	0.5*7	20*23.0	525	2.3	100.8
ATM-150-4	4.0	43.1	0.5*8	20*26.3	600	2.6	88.2
ATM-150-4.5	4.5	48.4	0.5*9	20*29.5	675	2.9	78.4
ATM-150-5	5.0	53.8	0.5*10	20*32.8	750	3.3	70.5
ATM-150-6	6.0	64.6	0.5*12	20*39.4	900	3.9	58.8
ATM-150-7	7.0	75.3	0.5*14	20*45.9	1050	4.6	50.4
ATM-150-8	8.0	86.1	0.5*16	20*52.5	1200	5.2	44.1
ATM-150-9	9.0	96.9	0.5*18	20*59.1	1350	5.9	39.2
ATM-150-10	10	107.6	0.5*20	20*66.6	1500	6.5	35.3
ATM-150-12	12	129.2	0.5*24	20*78.8	1800	7.8	29.4

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Table 2 (continue)

230/240V	Heated Area		Mat Dimensions		Watts (200W/m) ²	Amps	ohms
Catalogue Number	m ²	sq.ft.	m*m	in.*ft.			
ATM-200-1	1.0	10.8	0.5*2	20*6.6	200	0.9	264.5
ATM-200-1.5	1.5	16.1	0.5*3	20*9.9	300	1.3	176.3
ATM-200-2	2.0	21.5	0.5*4	20*13.1	400	1.7	132.3
ATM-200-2.5	2.5	26.9	0.5*5	20*16.4	500	2.2	105.8
ATM-200-3	3.0	32.3	0.5*6	20*19.7	600	2.6	88.2
ATM-200-3.5	3.5	37.7	0.5*7	20*23.0	700	3.0	75.6
ATM-200-4	4.0	43.1	0.5*8	20*26.3	800	3.5	66.1
ATM-200-4.5	4.5	48.4	0.5*9	20*29.5	900	3.9	58.8
ATM-200-5	5.0	53.8	0.5*10	20*32.8	1000	4.3	52.9
ATM-200-6	6.0	64.6	0.5*12	20*39.4	1200	5.2	44.1
ATM-200-7	7.0	75.3	0.5*14	20*45.9	1400	6.1	37.8
ATM-200-8	8.0	86.1	0.5*16	20*52.5	1600	7.0	33.1
ATM-200-9	9.0	96.9	0.5*18	20*59.1	1800	7.8	29.4
ATM-200-10	10	107.6	0.5*20	20*66.6	2000	8.7	26.5
ATM-200-12	12	129.2	0.5*24	20*78.8	2400	10.4	22.0

4 Installation



Important: Tools and materials required

You will require the following items to install and test the floor heating system:

- Scissors
- Utility knife
- Wire strippers
- Tape measure
- Screwdriver
- Multimeter
- Cable monitor

You will also need the appropriate tools and materials to install your particular floor. These will likely include products like self-levelling mortar, thin-set mortar, backer board, tile, a notched trowel, and any other tools for your specific floor.

Follow these steps to ensure a successful mat installation.

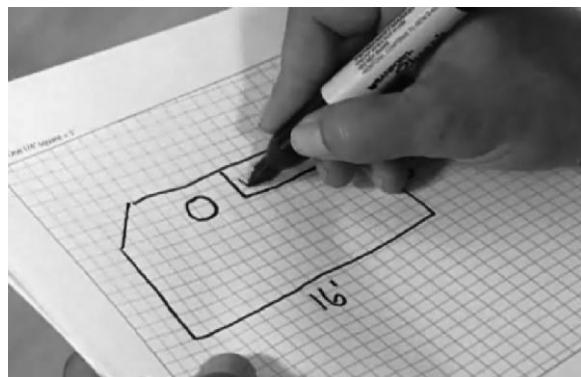
Step 1: PLAN LAYOUT

Make a sketch layout or a floor plan of the room; include all permanent furnishings such as toilets, bathtubs, appliances, cabinetry, etc. Indicate all dimensions required to determine the available floor area and the position of the thermostat.



Important

Accent recommends that the installation is

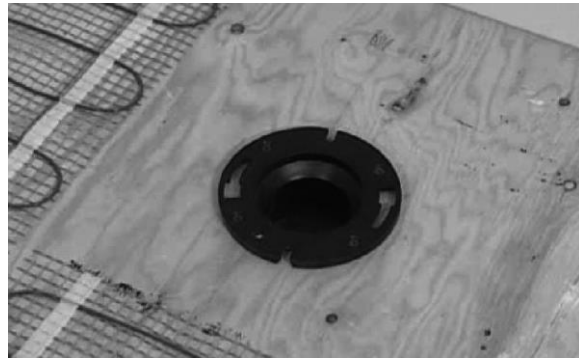


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documented with photos to note the location of connections and the sensor.

Step 2: TRANSFER LAYOUT TO FLOOR

Draw an outline of the layout on the room floor including a foot print of all furnishings that are not yet installed. Unroll the first few feet of the mat. The starting point of the cable must be placed within 2.5m from the thermostat.



Important

Mark the position of the connection point between the power lead and the mat heating cable. **This connection must be concealed in thinset or self-levelling cement.** When using a floor temperature sensing thermostat, mark the sensor position in the middle of 2 heating cables, about 25cm away from the wall (within the heated area), as close as possible to the thermostat.

Step 3: INSTALL SENSOR

If using a floor temperature sensing thermostat, install the sensor now, either in conduit tube, or directly to the subfloor. It is recommended that the sensor be installed in conduit tube. This will allow the sensor to be easily replaced in the unlikely event of failure.



The sensor and/or tube needs to be installed between the thermostat wall box and the sensor position. The conduit tube must be partially countersunk into the subfloor. Cut a channel approximately 8cm deep x 8cm wide in the floor and wall up to the thermostat for the sensor conduit. The conduit has to go from the thermostat and minimum of 25cm away from the wall towards the middle of the floor.

Important

The sensor conduit must be centred in the cable loop (between two heating wires).

Use duct tape to close the end of the conduit so that thinset can't penetrate the conduit.

Use duct tape to hold the sensor conduit into the groove to prevent it from floating up when the mortar or thinset is poured.

If the sensor is installed directly in the mortar bed, use duct tape to secure to subfloor.

Step 4: PREPARE SUBFLOOR SURFACE

Clean and vacuum the floor thoroughly and remove dust and debris from the floor that may damage the heating cable.

Ensure that the subfloor is secure and stable. Carefully fill in all cracks to prevent any potential damage to the new tiles resulting from shifts in the subfloor.



Step 5: MEASURE THE RESISTANCE (THE FIRST TIME)

Use a digital ohm meter to measure the resistance of the mat and compare it to “Table 1 or

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Table 2”. Record the measured resistance on the warranty card. Documenting the resistance at each stage of installation is required for warranty purposes. Also, measure the resistance between the white, black and shielding/ground wire. Both should read infinity.

Please refer to “5 Commissioning” for instructions on how to measure the resistance.

Step 6: BEGIN LAYING THE MAT

An adhesive has been added to the bottom of the mat which will prevent the mat from moving during installation. Start by placing the mat such that the connection point and the temperature sensor are in their intended positions and bring the power cable to the thermostat or connection box.

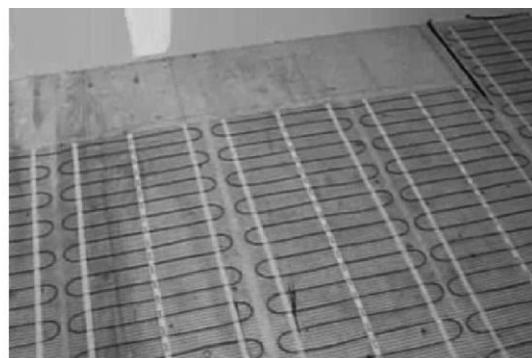
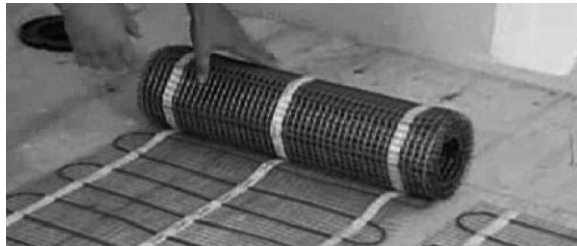
Begin unrolling the mat evenly across the floor outside the areas that you marked previously. The adhesive on the mat is made such that the mat may be moved several times before it loses its adhesiveness. When you reach the next wall, cut the mesh, turn the mat, and begin rolling in the desired direction.

NEVER CUT OR SHORTEN THE HEATING CABLE!

Ensure that the mat is in full contact

with the subfloor at all times. Avoid walking on the heating mat. If this is not possible, **use shoes with soft soles.**

When approaching obstacles (toilets, cabinets, etc.), carefully remove some of the heating cable from the mat and lead the cable around the obstacle. In some cases, pieces of the mesh will be cut away entirely. **Remember to never cut the cable.** Use hot melt glue or a thin strip of tape to secure the loose cable to the floor. **It is highly recommended to take photographs of the installed, mat before installing the flooring.**



Step 7: MEASURE THE RESISTANCE (THE SECOND TIME)

Please refer to Step 5.

Step 8: INSTALL FLOOR COVERING

ENSURE THAT THE SENSOR CONDUIT HAS BEEN PROPERLY INSTALLED BEFORE

Accent Floor Heating

PROCEEDING (see Step 3).

In the case of tiles, proceed with the installation of the tiles by covering the heating cables with a layer of thin-set cement as directed by the tile manufacturer. Ensure that the thin-set mortar covers the entire height of the heating cable as the tiles are installed. In the case of a wood, engineered or laminate floor covering, it is recommended that the flooring manufacturer be contacted. For wooden floors, a minimum of



5cm of self-levelling cement over the heating cable is recommended. Ensure that all moisture in the self-levelling cement has been fully eliminated in accordance with the drying times recommended by the manufacturer (consult the manufacturer for exact drying time).



Important

The system must not be turned on until the thinset cement has fully dried. A minimum of one to two weeks is recommended.

Step 9: MEASURE THE RESISTANCE (THE THIRD TIME)

Please refer to Step 5.

Step 10: Install the tile

To install the tile, apply a layer of acrylic or latex modified thin-set using the ridged side of your trowel. Tile and grout the floor using best industry practices and in accordance with instructions provided by the manufacturer of the tile.

Step 11: CONNECT POWER SUPPLY AND THERMOSTAT

The connection of the power supply and the thermostat must be done by a qualified electrician. The electrician should connect the floor sensor to the thermostat, take the final resistance reading and record it on the warranty card, see Step 13.

Note: You need to mark the appropriate circuit breaker reference label indicating which branch circuit supplies the circuits to those electric space heating cables.

Step 12: MEASURE THE RESISTANCE (THE FOURTH TIME)

Please refer to Step 5.

Step 13: RECORD INFORMATION AND AFFIX LABELS

It is important for the homeowner to mail in the certificate immediately after installing the system (cable and thermostat). Failure to do so could void the manufacturer's warranty. The warranty is subject to the guarantee conditions listed on the warranty certificate.

Keep a copy of the warranty card for your reference.

Step 14: ENJOY THE COMFORT OF TMAT

The mat heating system is now ready to use. Increase the floor temperature gradually and adjust it until it reaches a comfortable level depending on the type of room and your personal preferences.

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Multiple Heater Installation

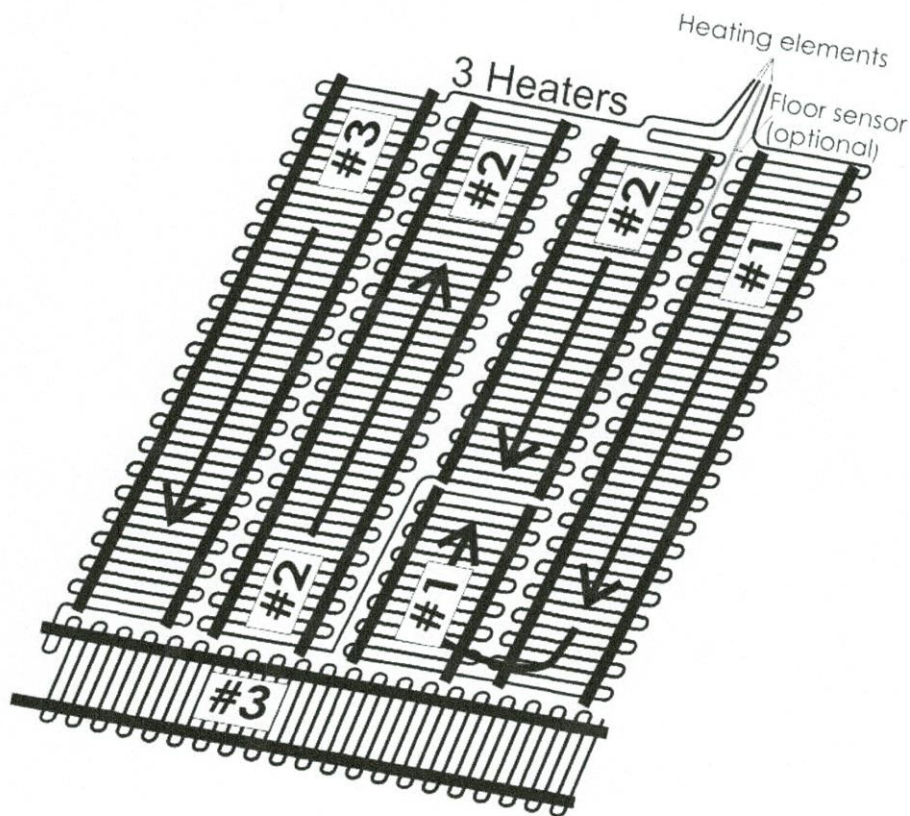
- If you are installing multiple heaters into one single heat zone (and thus using one thermostat), each heater will need to start at the thermostat location

MULTIPLE heaters must be connected in PARALLEL

- As explained earlier, you may need to cut the mesh between the elements (without cutting the heater element) to enable the heater to be laid in a single line, leading to the start of the next run

Do not allow different elements or factory connections (from cold tail to heating element) to touch or cross each other

- Remember to maintain a spacing of 60-80mm when laying the heater element freehand. Laying the element further apart than suggested may result in cooler areas



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5 Commissioning



Important

For the limited warranty to apply, you must perform these tests, record the results on the warranty card, and retain a copy of the record.

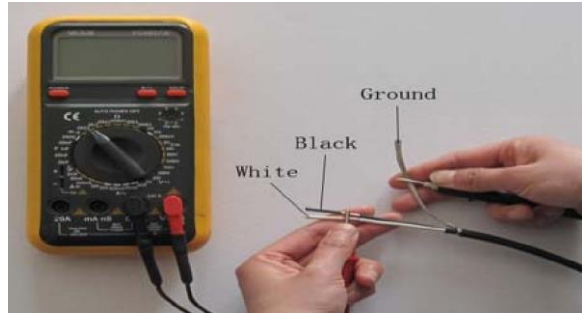
You must perform the Insulation Resistance Test, the Heating Cable Resistance Test, and the Sensor Resistance Test four times (Please refer to 4 installation) during the installation process.

5.1 Insulation Resistance Test

This test ensures that the insulating jackets of the mat 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 Accent at 1300 968 500.

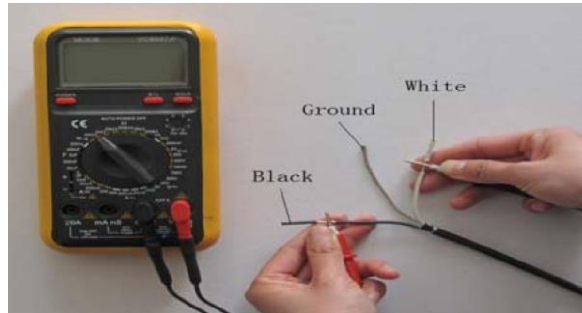
Record these readings on the warranty card.



5.2 Heating Cable Resistance Test

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

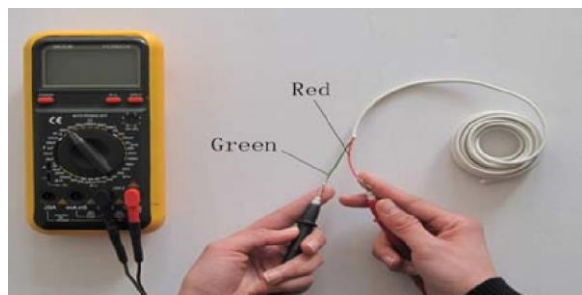
1. Set your multimeter to the 200- or 2000-ohm range.
2. Connect the multimeter leads to the black and white cold lead wires.
3. Compare this resistance reading to the resistance specified in the Product Selection “Table 1 or Table 2”. The value should be within -5% to +10%. If you get a different reading, contact Accent at 0430 180 516.
4. Record these readings on the warranty card.



5.3 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 Accent at 0430 180 516.
4. Record these readings on the warranty card.

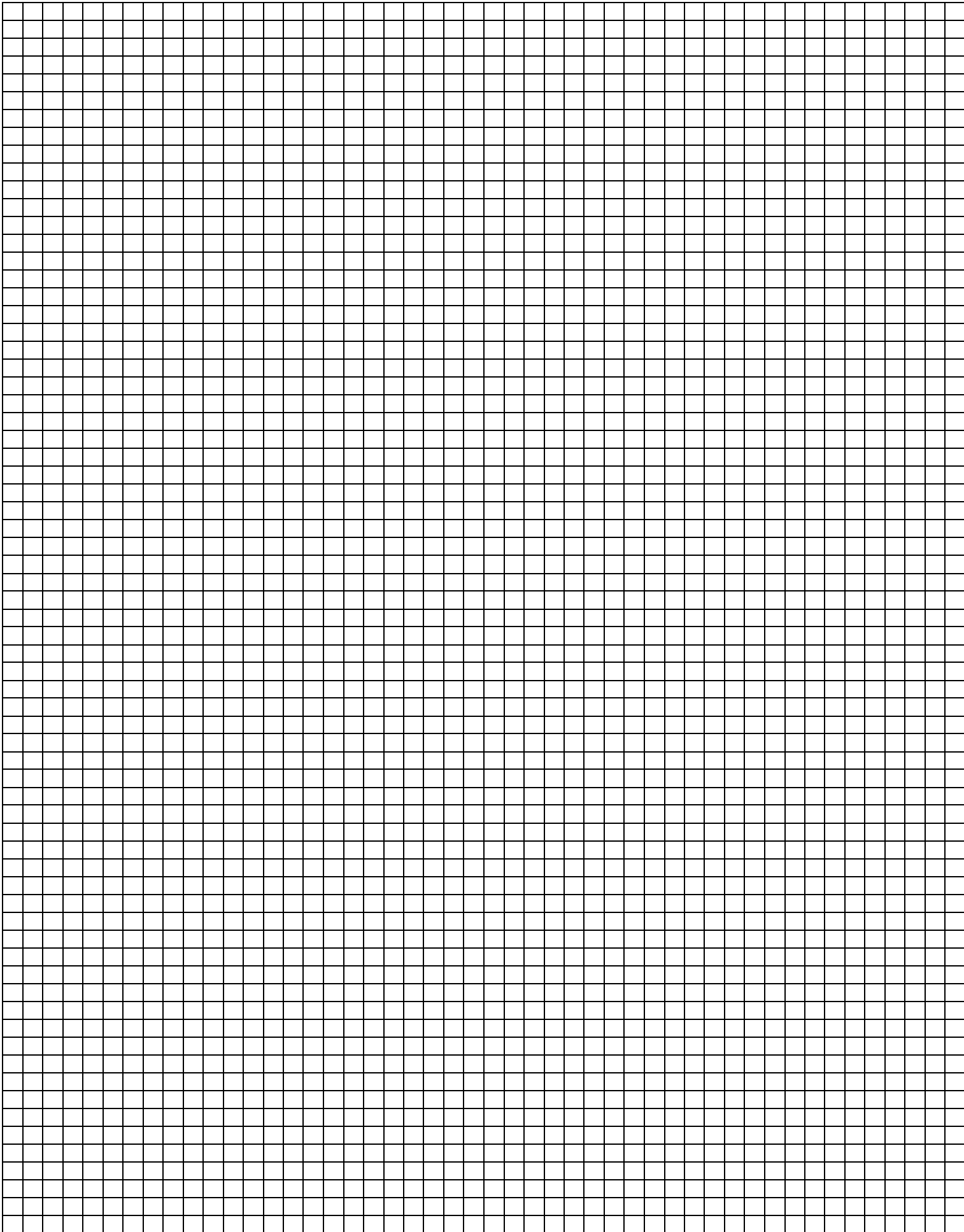


6 Troubleshooting

Symptom	Probable Causes	Corrective Action
Floor doesn't heat	No voltage.	Check circuit breaker.
	Circuit breaker tripped.	Ensure that there are not too many mats or other appliances connected on the same circuit. The mat may require a dedicated circuit. See the Product Selection "Table 1 or Table 2" of this manual.
	Ground-fault tripped in the thermostat.	Refer to Thermostat Installation and Operation Manual.
	Thermostat not turned on.	Refer to Section 4 of this manual, and the Thermostat Installation and Operation Manual.
	Cable not connected to thermostat.	Refer to Thermostat Installation and Operation Manual.
	Floor temperature sensor not connected.	Refer to Thermostat Installation and Operation Manual.
	Faulty sensor.	Contact Accent on 1300 968 500.
Floor warm all the time	Clock not set correctly.	Refer to Thermostat Installation and Operation Manual.
Floor not warm enough	thermostat setting not set correctly.	Refer to Thermostat Installation and Operation Manual.
Installation instructions not available		Download the latest version of our mat system Installation Instructions from www.accentfloorheating.com.au

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Accent Floor Heating -Sketch Page



Warranty

Warranty Every heater is thoroughly tested before shipping and is guaranteed to be in good working order on dispatch. Accent Floor Heating guarantees its products subject to the following conditions:

1. The product is free of defects at the time it was supplied. The product will be deemed to be defect free if no defect has been detected and reported to Accent Floor Heating:
 - a) within 25 years (300 months) from date of purchase (for heaters); or
 - b) 3 years (36 months) from date of purchase (for thermostats).
2. The following are conditions of this guarantee:
 - a) a competent person installed the product:
 - b) the installation was carried out according to the directions as supplied by Accent Floor Heating.
 - c) the installation was carried out in accordance with all applicable electrical regulations; and
 - d) the heater has been connected to RCD protected supply circuit.
3. Damage during installation by others is not covered by warranty.
4. Damage or repair to a product by any party voids this guarantee. Repairs done by Accent Floor Heating to rectify any damage cannot be guaranteed and the client will be charged regardless of the result.
5. Claims under this guarantee must be lodged with Accent Floor Heating in writing within the period prescribed. Full particulars must be given and a copy of the invoice as proof of purchase must be enclosed.
6. In settlement of its obligations under the guarantee set out above, Accent Floor Heating shall, at its option, either:
 - a) repair or replace the defective part without charge; or
 - b) pay the purchaser a sum equal to the price paid for the defective part at the time of purchase.
7. Accent Floor Heating's liability to the purchaser is limited to amounts referred to herein. The purchaser agrees that Accent Floor Heating shall not be liable for any other or additional damages suffered by the purchaser caused by any defects in the product, the installation itself or any constituent part of it. Accent Floor Heating shall not be liable to compensate the purchaser for any floor coverings or any other item damaged or destroyed as a result of any such defects.
8. This guarantee is subject to the purchaser adhering to all safety and operating instructions.
9. This warranty is non-transferable

INSTALLATION TEST AND RECORD SHEET

Date of Purchase ___/___/___

Product Code _____

Invoice Number _____

Installed By _____

RCD Protected Y / N _____

Date Installed	Cable Resistance Test			Megger insulation test	Sensor Resistance Test
	A - N	A - E	N - E		
/ /				AN - E	
Date Connected	Ω	Ω	Ω	MΩ	Ω
/ /	A - N	A - E	N - E	AN - E	
	Ω	Ω	Ω	MΩ	Ω