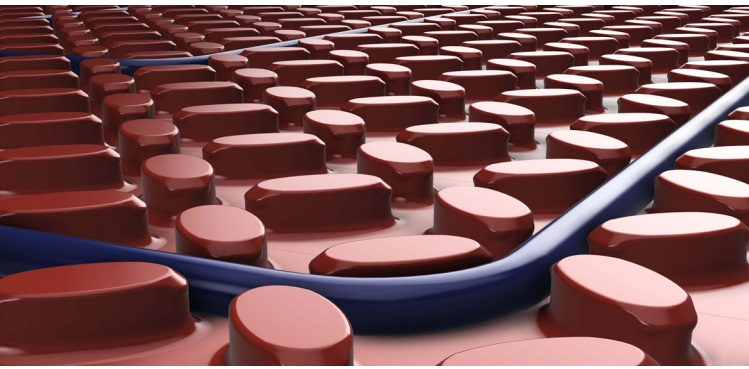
Installation Manual

DCM-PR



Technical Helpline

0345 345 2288

IMPORTANT!
Please read this manual before attempting to install your Warmup product. Complete and submit your warranty form **online at www.warmup.co.uk**

Warmup LIFETIME* WARRANTY

SAFETY Net™ Installation-Guarantee

Electric
Heating System

www.warmup.co.uk

The world's **best-selling** floor heating brand™

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Unique to Warmup:

SmartGeo™
Smarter geo-fencing. Reduce energy usage by up to 25%

EasySwitch™
Always on the best tariff, automatically

Easy to use
Simple and secure set up with 24/7 support

Natural Language Programming™
Programming that speaks your language

4iE® SMART WIFI THERMOSTAT

Please scan the QR code for more information

WARNING

Your Warmup® Underfloor heating system has been designed so that installation is quick and straight forward, but as with all electrical systems, certain procedures must be strictly followed. Please ensure that you have the correct heater(s) for the area you wish to heat. Warmup plc, the manufacturer of the Warmup® DCM-PRO System, accepts no liability, expressed or implied, for any loss or consequential damage suffered as a result of installations which in any way contravene the instructions that follow.

It is important that before, during and after installation that all requirements are met and understood. If the instructions are followed, you should have no problems. If you require help at any stage, please contact our helpline.

You may also find a copy of this manual, wiring instructions and other helpful information on our website:

www.warmup.co.uk

Quick Install Guide - Please also read the full instructions that follow this page.

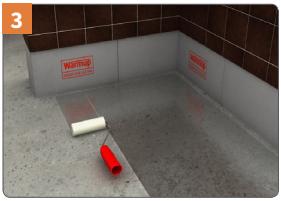
1

- Make electrical provision for the heater (30mA RCD, 35mm deep electrical back boxes, trunking).

2

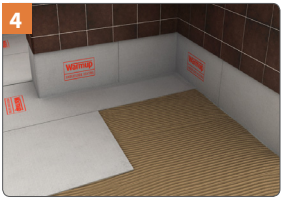
- Ensure the subfloor is smooth, dry and free from dust.

3



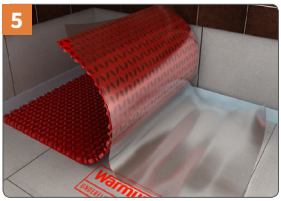
- Prime loose and porous floors with a dilute (1:4) SBR Primer.

4



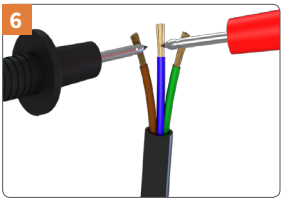
- We recommend installing Warmup insulation boards for optimum performance.

5



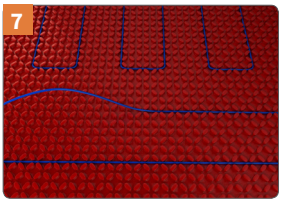
- Install perimeter strip around the perimeter of the room
- Cut the mat to size. Peel off the backing in one corner and tack in place, remove it completely and press it down once properly aligned.

6



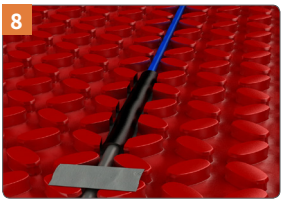
- Test the resistance of the heater ensuring it is within the range set out in the Reference Resistance Band table on Page 35.

7



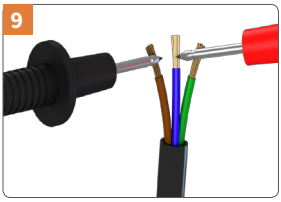
- Install the heating cable at the chosen spacing, minimum 60mm.
- Maintain a perimeter spacing of half the chosen cable spacing.

8



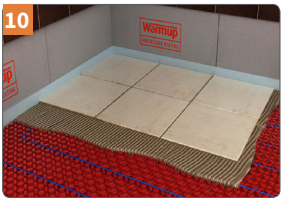
- Channel a groove in the mat and subfloor for the coldtail & termination joints, enabling them to fit flush with the top of the mat. DO NOT tape over these joints!
- Install the floor sensor centrally between two runs of the heater.

9



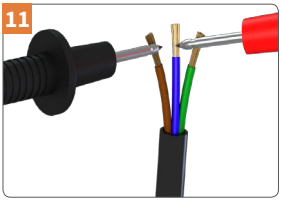
- Test the resistance of the heating cable after installation and check against the previous value to ensure no damage has occurred.

10



- Lay the tiles or levelling compound over the system.
- The heater, including its joints, must be wholly within the adhesive or levelling compound and not exposed.
- Use flexible grout when grouting.

11

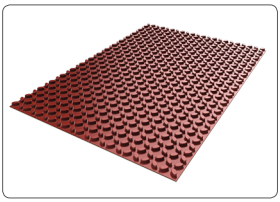


- Test the resistance of the heating cable after tiling and check against previous values to ensure no damage has occurred.

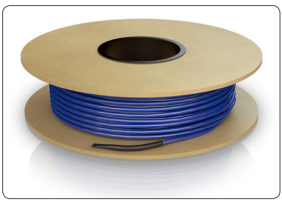
12

- Connect your Warmup thermostat.

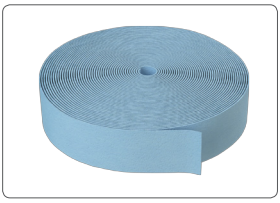
Components available from Warmup



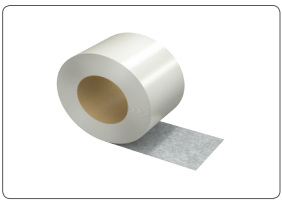
DCM-PRO Mat



DCM-PRO Cable



DCM-PRO Perimeter Strip



DCM-PRO Waterproofing Tape

Warmup Insulation Boards

Warmup Thermostat & Floor Sensor

Additional components needed as part of your Warmup heating installation:

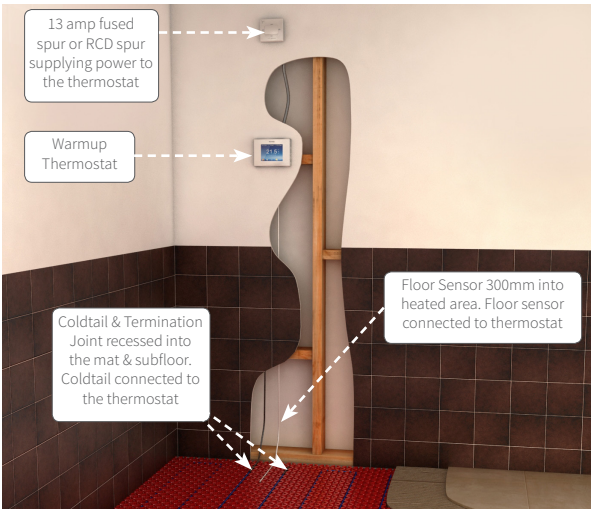
- ☑ 30mA Residual Current Device (RCD), required as part of all installations.
- ☑ Digital Multi-meter required for testing the resistance of the heater and floor sensor.
- ☑ Electrical tape to secure the floor sensor.
- ☑ Electrical housing, back boxes and junction boxes.
- ☑ Electrical trunking/conduit for housing the power leads.
- ☑ SBR Based Primer.
- ☑ Flexible Tile Adhesive & Flexible Grout.

DO

- Ensure that the control card at the back of the manual is completed and fixed at the consumer unit along with any plans and electrical test records as per the current edition of BS7671.
- Ensure the termination and coldtail joint are within a full bed of adhesive or levelling compound directly beneath the heated floor finish.
- Ensure the heat output of the floor meets your requirements.
- Install the floor sensor centrally between two parallel runs of heating cable and away from other heat sources such as hot water pipes.
- Use adhesives and grouts suitable for use with underfloor heating.
- Ensure all furniture installed over the underfloor heating has feet, creating a minimum 50mm ventilated space beneath it to allow heat flow into the room.

DON'T

- Cut or shorten the heating element at any time.
- Leave surplus heater rolled up under units or fixtures, use the correct size heater.
- Connect two heaters in series, only connect heaters in parallel.
- Attempt a DIY repair if you damage the heater, contact Warmup for assistance.
- Tape over manufactured joints or the floor sensor tip.
- Install items above the heating system which has a resistance of more than 2.5 tog, as this may cause overheating.
- Store the mat in direct sunlight. Prolonged exposure to UV radiation will alter the properties of the adhesive backing, voiding the product warranty.



Install the RCD

Install a dedicated 30mA RCD or use an existing RCD. No more than 4.8kW of heating may be connected to each 30 milliamp RCD. For larger loads, use multiple RCD's.

NOTE: It is possible to run the heater(s) from an existing circuit protected by a 30mA RCD. It should be calculated whether or not the circuit can handle the additional load.

NOTE: A junction box is required if more than two heaters are being installed

NOTE: When conducting an insulation resistance test on the supply to the thermostat the thermostat and heaters must be isolated or disconnected.

Zone Chart

NOTE: In the case of bathroom installations, electrical regulations prohibit the installation of Mains Voltage products such as thermostats, contactors, fused spurs, isolators or junction boxes, within Zones 0 or 1.

Any mains voltage product fitted within Zone 2 must have a degree of protection at least of IPX4 or IPX5 if water jets are present.

It is common to install the thermostat outside of wet rooms in the adjacent connected room in circumstances where it is not practicable to install the thermostat within the wet room.

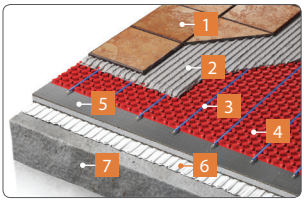
When installed in this way, using only the floor probe to control the heating, it is not possible to directly control the air temperature, only the floor surface temperature.

All electrical connections must conform to the current BS 7671 Wiring Regulations. Final connections to the main electricity supply MUST be completed by a Part P qualified electrician.

Subfloor Preparation

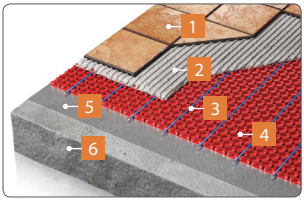
Subfloors previously covered in vinyl, cork or carpeting: all old flooring and adhesive must be removed. If there is bitumen as a damp proofing layer, it must be covered with a minimum 50mm of sand/cement screed or overboarded with 10mm Warmup Insulation Boards, taking care not to puncture the bitumen coating. The screed must be fully cured and dry before proceeding. If using other damp proofing or tanking systems, contact the manufacturer for advice.

Concrete Subfloors



CONCRETE SUBFLOOR
(Recommended)

1 Floor Finish
2 Tile adhesive or levelling compound
3 Warmup DCM-PRO Cable
4 Warmup DCM-PRO Mat
5 Warmup Insulation Board
6 Flexible Tile Adhesive
7 Subfloor



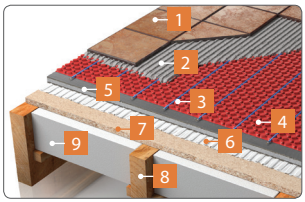
CONCRETE SUBFLOOR

1 Floor Finish
2 Tile adhesive or levelling compound
3 Warmup DCM-PRO Cable
4 Warmup DCM-PRO Mat
5 SBR Primer
6 Subfloor

It is recommended that you use Warmup® Insulation Board beneath Warmup DCM-PRO for optimum performance. The insulation will improve the systems response to heating demand, saving energy and reducing running costs.

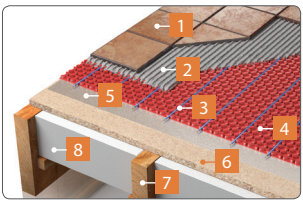
In addition to the general subfloor preparation instructions on the previous page, timber subfloors should be prepared for tiling in accordance with local tiling standards such as BS5385-3, ANSI A108.01.

Timber Subfloors



TIMBER SUBFLOOR
(Recommended)

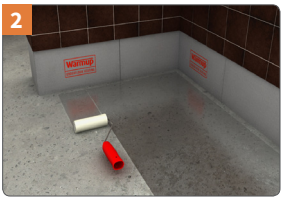
1 Floor Finish
2 Tile adhesive or levelling compound
3 Warmup DCM-PRO Cable
4 Warmup DCM-PRO Mat
5 Warmup Insulation Board
6 Flexible Tile Adhesive
7 Floor Deck
8 Joists
9 Insulation



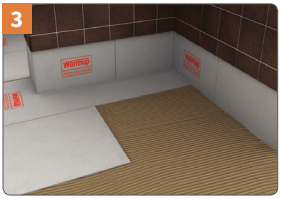
TIMBER SUBFLOOR

1 Floor Finish
2 Tile adhesive or levelling compound
3 Warmup DCM-PRO Cable
4 Warmup DCM-PRO Mat
5 SBR Primer
6 Floor Deck
7 Joists
8 Insulation

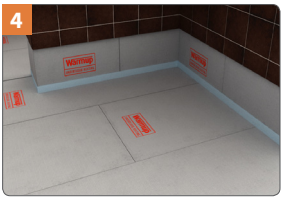
- Ensure the subfloor is dry and smooth, such that the DCM-PRO Mats adhesive will make full contact. If necessary an appropriate smoothing or levelling compound should be applied.



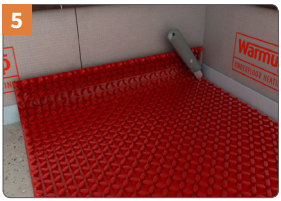
- Prime timber or sand and cement screeded subfloors with a dilute (1:4) SBR solution. For proprietary subfloors refer to the manufacturers instructions.



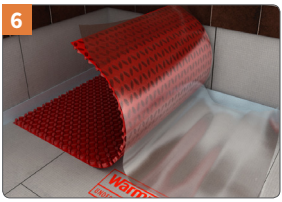
- **Recommended Step -** Install Warmup® Insulation Board over the subfloor referring to their installation instructions.
- Ensure that the top surface is smooth allowing the adhesive on the DCM-PRO Mat to make full contact.



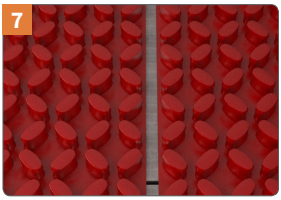
- Install the DCM-PRO perimeter strip around the perimeter of the room and any penetrations through the floor.



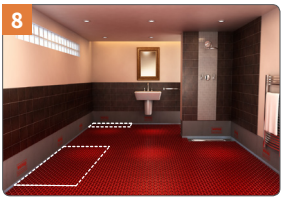
- Measure and cut a length of mat to suit your room using a utility knife and/or scissors.



- Position the mat and remove the backing from one edge/ corner and stick in position before removing the rest of the backing.



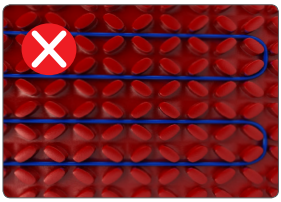
- Repeat steps 5 & 6 for subsequent runs of the mat, butting the mats together tightly until the floor area is covered, making sure to align the castellations between mat runs.
- Protect the mat with walking boards in areas of high foot traffic and under heavy loads.



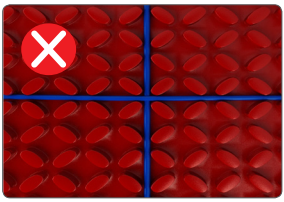
- Mark out the floor with a permanent marker showing where fixtures and other unheated areas are going to be.

A plan of the cable layout is required as part of the control card so that any cutting or drilling after tiling will not result in injury or damage to the heater.

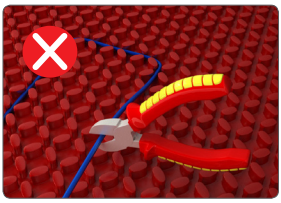
Before you begin



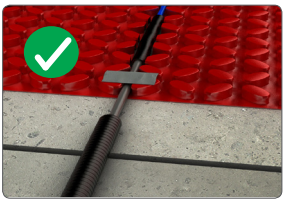
- Ensure that there is a minimum of 60mm between parallel heating cables and they are away from the influence of other heat sources, such as heating and hot water pipes, lighting fixtures or chimneys at all times.



- When installing the cable **DO NOT** cross the cable over another run, over coldtails or the floor sensor. This will cause overheating and will damage the cable.



- The heating cable must not be cut, shortened, extended or left in a void, it must be fully installed within the layer of tile adhesive or levelling compound.



- Heating cables cannot be installed across expansion joints within the floor. Where a heated floor is divided by expansion joints, individual cables should be used to heat each area. The cold tail may cross the expansion joint within a 300mm long conduit if necessary.

NOTE: The heater should not be installed on irregular surfaces such as stairs or up walls.

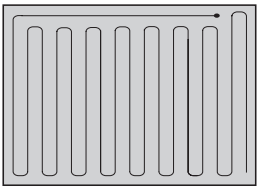
The standard specific heating load of the DCM-PRO system is 150W/m^2. By adjusting the cable spacing, the installation can be customised to suit both the floor coverage and heat load requirements.

When installing the cable, maintain a spacing of half its cable to cable spacing, between itself and the perimeter or any unheated areas.

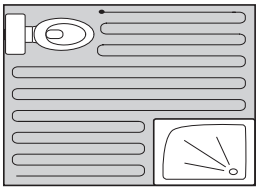
Heated area at different spacings, m²					
PRODUCT CODE	60mm	60/90mm	90mm	90/120mm	120mm
	230W/m²	~190W/m²	150W/m²	~130W/m²	115W/m²
DCM-C-1	0.7	0.8	1.0	1.2	1.3
DCM-C-1.5	1.0	1.3	1.5	1.8	2.0
DCM-C-2	1.3	1.7	2.0	2.3	2.7
DCM-C-2.5	1.7	2.1	2.5	2.9	3.3
DCM-C-3	2.0	2.5	3.0	3.5	4.0
DCM-C-3.5	2.3	2.9	3.5	4.1	4.7
DCM-C-4	2.7	3.3	4.0	4.7	5.3
DCM-C-4.5	3.0	3.8	4.5	5.3	6.0
DCM-C-5	3.3	4.2	5.0	5.8	6.7
DCM-C-6	4.0	5.0	6.0	7.0	8.0
DCM-C-7	4.7	5.8	7.0	8.2	9.3
DCM-C-8	5.3	6.7	8.0	9.3	10.7
DCM-C-9	6.0	7.5	9.0	10.5	12.0
DCM-C-10	6.7	8.3	10.0	11.7	13.3
DCM-C-12	8.0	10.0	12.0	14.0	16.0
DCM-C-14	9.3	11.7	14.0	16.3	18.7
DCM-C-16	10.7	13.3	16.0	18.7	21.3

Example installation diagrams

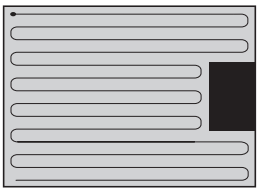
Standard room



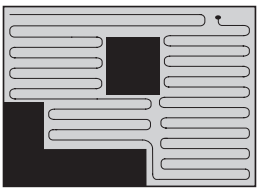
Bathroom

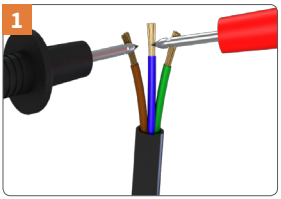


Room with recesses

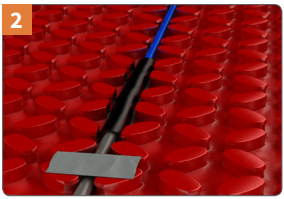


Kitchen

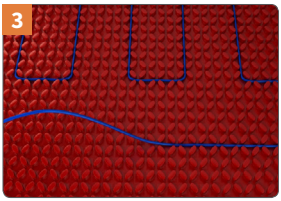




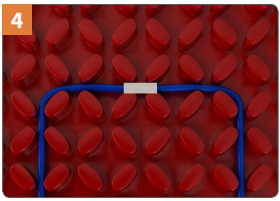
- Measure and record the resistance of the heating cable in the “Resistance Before” column of the control card, supplied as part of this installation guide on Page 30.
- Stop installation immediately and contact Warmup if its resistance falls outside the range set out in the Reference Resistance Band table on Page 35.



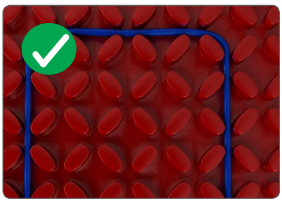
- Place the coldtail on the floor. Cut a section in the mat for the manufactured joint so that it sits at the same height as the heater.
- Secure the cold tail using tabs of electrical tape as necessary. **DO NOT** tape over the manufactured joint or heating cable. These must be fully embedded within the tile adhesive or levelling compound being laid over.



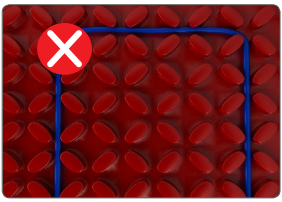
- Begin laying the heating cable, pressing it between the castellations.
- Follow the installation layout created in step 4 to complete the cable placement.
- **DO NOT** install the heating cable in temperatures less than +5°C.



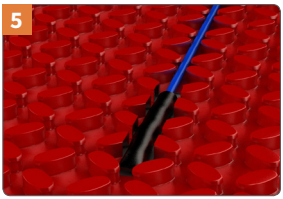
- The DCM-PRO cable has a marker at its midpoint. When you reach it, review your progress up to that point and check that you are correctly spacing the cable, ensuring that you will have covered the whole of the heated area when you reach the end of the cable.



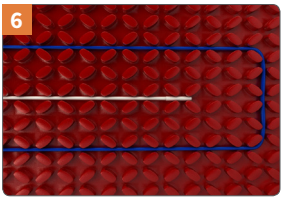
- Install the cable as shown, following the circular pattern within the castellations.



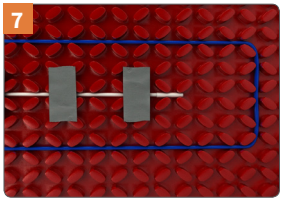
- **DO NOT** install the cable by bending it around the points of the castellations.



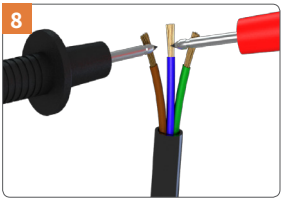
- At the end of the heating cable, you will find a termination joint. As with the manufactured joint at the beginning of the heating cable, this joint will have to be cut into the mat so that it sits at the same height as the heater.
- **DO NOT** tape over the termination joint, it must be in direct contact and fully embedded within the tile adhesive or levelling compound being laid over the heating cable.



- Install the floor sensor at least 150mm into the heated area it will be controlling. It should be located centrally between parallel runs of heating cable and not in an area influenced by other heat sources.
- If the heating cable is installed at multiple spacings, then the sensor should be installed centrally between the narrowest parallel run.



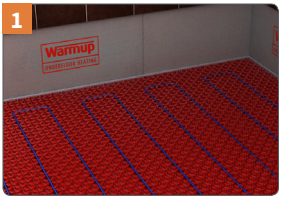
- Measure the resistance of the floor sensor and record it on the control card on Page 30. If it's resistance is outside the prescribed range contact Warmup.
- **DO NOT** tape over the floor sensor tip it must be in full contact with the heated tile adhesive or levelling compound.



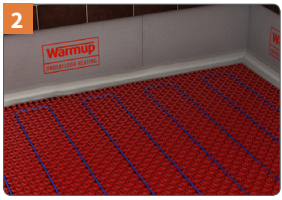
- Measure the resistance of the heating cable and verify it is still in line with the Resistance Before reading previously taken.
- Stop installation immediately and contact Warmup if its resistance has changed significantly or if it falls outside the range set out in the Reference Resistance Band table on Page 35.

There are instances where waterproofing will be required, such as in wetrooms, where there will be significant exposure to water.

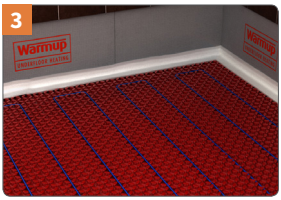
If using a proprietary waterproofing system, a levelling compound should first be laid over the Warmup DCM-PRO system to provide a finished surface to install over. Follow the steps below when using the Warmup DCM-PRO waterproofing products to waterproof the installation:



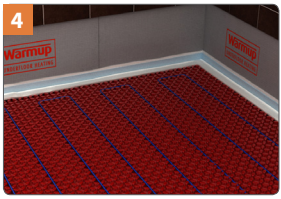
- Cut the perimeter strip to the same level as the DCM-PRO mat.



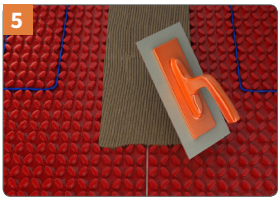
- Apply a suitable waterproof adhesive to the mat, walls and penetrations through the mat 100mm either side of the joint, ensuring there are no gaps or voids.



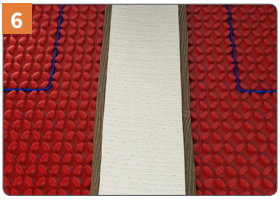
- Cut a length of Warmup tape to suit and press into the levelling compound using a trowel, removing any air gaps or creases.



- Reapply the removed portion of the perimeter strip over the top of the Warmup tape flush with the floor.



- To waterproof the joints between mat runs and over the cable joints, apply a layer of waterproof adhesive, 100mm either side of the joint, making sure the cavities of the mat are fully filled.



- Cut a length of Warmup tape to suit and press into the levelling compound using a trowel, removing any air gaps or creases.

NOTE: Where joints are required, overlap the tape by 100mm bonding the two lengths together with a layer of adhesive.

NOTE: At the manufactured joint, the termination joint or anywhere that you have damaged or pierced the mat, cover the penetration with adhesive and cover with Warmup tape.

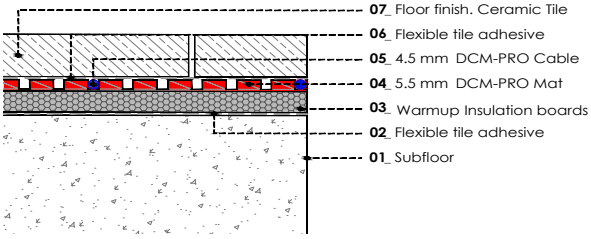
Once the DCM-PRO has been installed we recommend laying a 10mm layer of self levelling compound over the heater which is suitable for use with underfloor heating. You must ensure the entire heater, including manufactured joints are encased in the levelling compound.

The self levelling layer will:

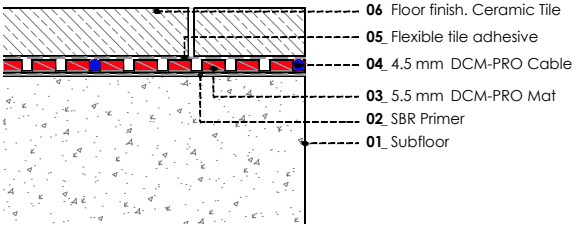
- Allow a variety of floor finishes to be laid on top such as tile, vinyl, wood and carpet.
- Provide protection for the heater until the final floor is laid.
- Give a smooth surface onto which to lay your chosen floor covering.
- Provide a more uniform temperature distribution.

NOTE: Before installing the floor finish, its suitability for use with underfloor heating and its maximum operating temperature should be checked against required operating conditions.

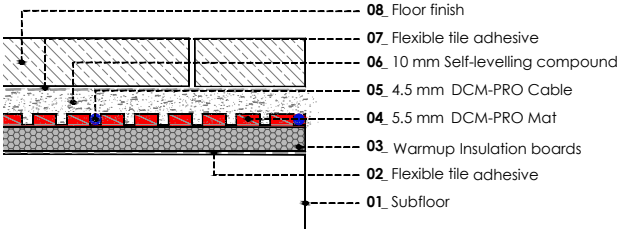
Tiled Floor Finish - With Warmup Insulation Boards



Tiled Floor Finish - Without Warmup Insulation Boards



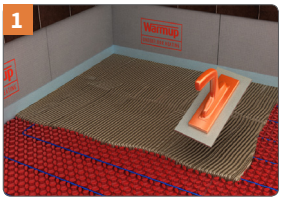
All Floor Finishes - With 10mm Self Levelling Compound and Warmup Insulation Boards



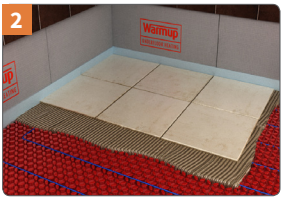
* This method can be used to create a finished floor surface suitable for most floor finishes. When forming a drainage slope within a Wetroom installation, ensure the minimum 10mm thickness of the levelling compound in maintained in the heated areas.

Underfloor heating performs the most efficiently with conductive, low resistance floor finishes such as stone and tiles. The maximum thermal resistance of the floor should not exceed 0.15 [m^2K/W].

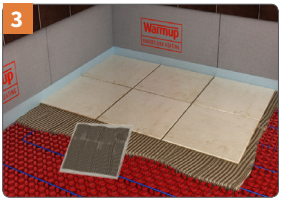
Tiled Floors



- Cover the installation with a full bed of flexible tile adhesive using a notched trowel. Take care not to damage or dislodge the heating cable. If using tiles smaller than 90mm cover the installation with a levelling compound first.



- Carefully lay the tiles and press into the adhesive bed.



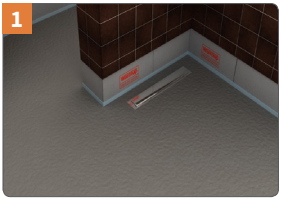
- After laying the first tile remove and ensure the tile is getting a full coverage of adhesive from your application.
- Ensure the width of the grout line is in line with the manufacturers instructions for the size and type of tile being used. Tiles must not be removed once the adhesive has set, doing so will damage the heater.

- Grout the floor as soon as possible as per the ceramic tile adhesive manufacturer's instructions. **DO NOT** switch on the heater until the tile adhesive and grout has fully dried. **DO NOT** use the heater to accelerate the curing process of the adhesive or levelling compound.

NOTE: If using tiles smaller than 90mm^2 you **MUST** cover the installation with levelling compound first.

NOTE: Please ensure that the tile adhesive used is compatible with underfloor heating and suitable for application onto non porous materials such as the DCM-PRO Mat.

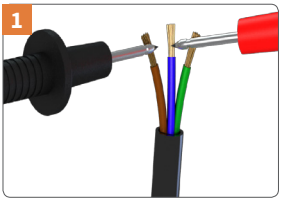
Other Floor Coverings



If you are planning to install wood, carpet or vinyl over the heater lay a minimum 10mm levelling compound over the heater. You must ensure that all heating cables are completely covered. It is important that the levelling compound is suitable for use with underfloor heating.

NOTE: Before installing the floor finish its suitability for use with underfloor heating and its maximum operating temperature should be checked against required operating conditions.

Final Steps



When the tiles or levelling compound has been installed, conduct another resistance test as described on Page 28 to ensure the sensor and heater have not been damaged and record in the control card on Page 30.

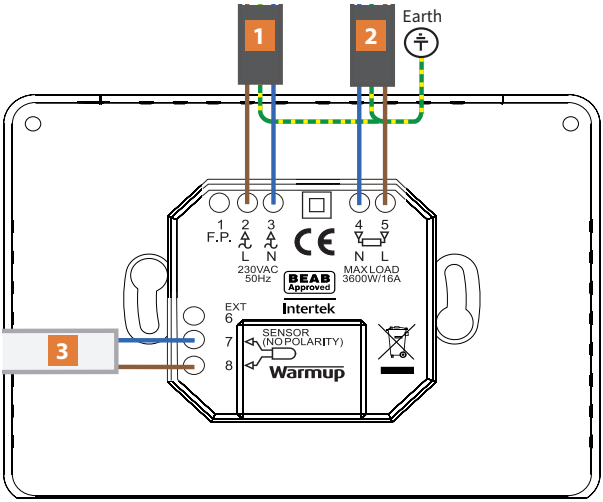
The perimeter strip should be cut flush with the tiles or levelling compound using a utility knife once complete.

Install the thermostat in accordance with its installation instructions

Instructions for fitting Warmup® Thermostats can be found inside the thermostat box. The thermostat should be connected to the main electrical supply via a fuse, circuit breaker or 'double pole isolator in accordance with the wiring regulations.

The heater power cable consists of conductors coloured brown (live), blue (neutral) and green/yellow (earth). If you are installing more than one heater a junction box will be required. These should be connected in accordance with current wiring regulations by a qualified Part P electrician.

Typical Warmup Thermostat Wiring Diagram



THERMOSTAT WIRING

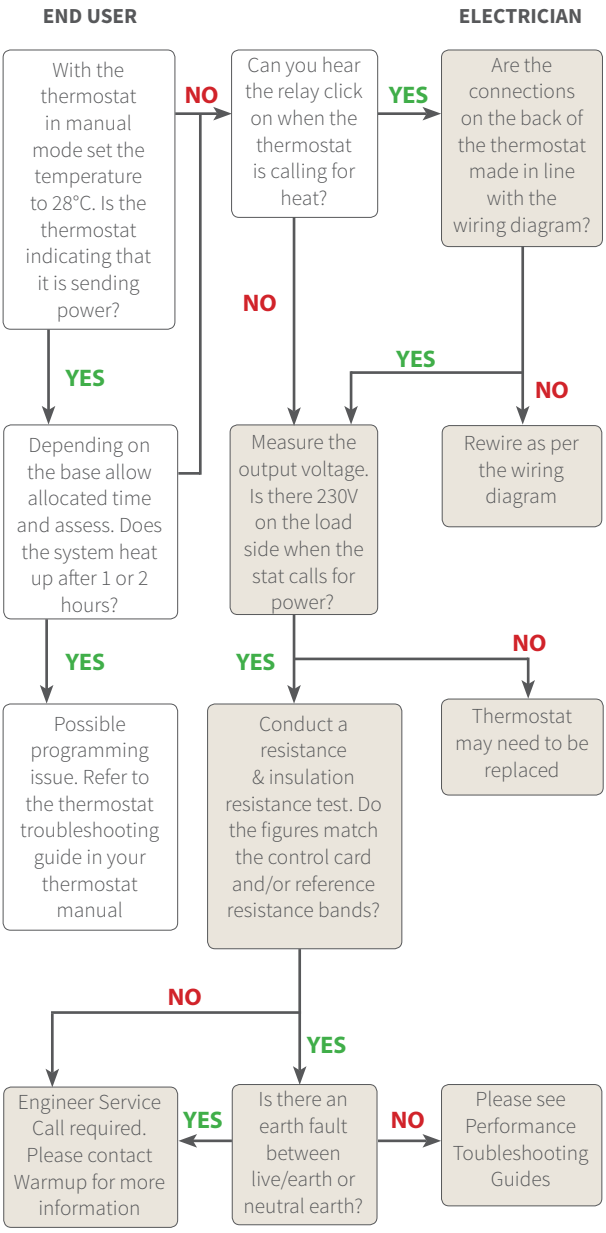
1 **Power Supply Cable 230VAC**
Wired via 30mA RCD spur supplying power to thermostat

2 **Heaters (16amp 3,600W max.)**
Over 16 amps a contactor will have to be installed

3 **Floor Sensor (No Polarity)**

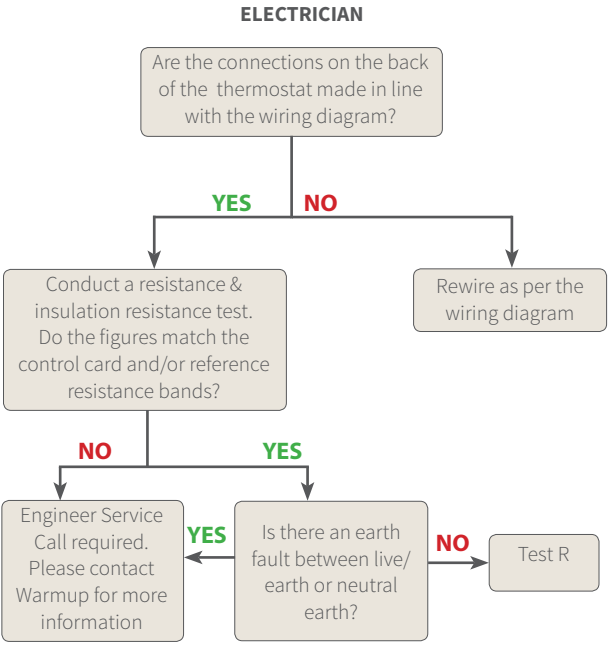
HEATING ISSUE 1 - The floor does not heat up

Instructions which are shaded grey must completed by a qualified electrician



HEATING ISSUE 2 - The heater trips the RCD

Instructions which are shaded grey must completed by a qualified electrician



My floor is getting too hot

1. **The floor temperature settings on the thermostat may be incorrect.**
   Check the thermostat settings ensuring that it is controlling the floor surface temperature and that the set target and limiting temperatures are correct.
2. **The floor sensor may be poorly positioned, if so the thermostat will be displaying a floor temperature that is not indicative of the floor surface temperature.**
   Recalibrate the floor sensor in the thermostat settings.
3. **The thermostat may be set in regulator mode with the duty cycle set too high.**
   If the thermostat cannot be set to reference a floor sensor, reduce the regulation value to its minimum selectable value. With the heating active, incrementally increase the setting at an hourly interval until the required floor surface temperature is achieved.

My floor does not get up to temperature

1. **Underfloor Heating is normally designed to heat floors to up to 9°C above the design room air temperature, which is typically 29°C. Delicate floor finishes, such as vinyl and some timbers, may be limited to 27°C. Our hand and foot temperature is normally similar to this, at around 29 - 32°C, so the heated floor will feel slightly cooler than touching your own hands together.**
   If you wish to raise the floor temperature, such that it feels warm, it is permissible to set it up to 15°C higher than the design room air temperature. The higher heat output of the floor may overheat the room, making it uncomfortable. The manufacturer of the floor finish should be consulted to ensure compatibility with the chosen temperature before making any changes to the thermostat settings.
2. **Refer to points 1, 2 & 3 in the "My floor is getting too hot" above, as each issue can also be the cause of under heating a floor.**
3. **If the thermostat is controlling the heating using the air temperature, with a floor temperature limit then the floor may be turned off before it reaches its limit.**
   This is normal as the thermostat is preventing the room air temperature from becoming overheated.

My floor does not get up to temperature

4. **The heating system may be uninsulated. If the heater has not been installed over a layer of Warmup Insulation Boards, it will be actively heating the subfloor as well as the floor finish. The warm up period of the floor will therefore be slower as the system is heating a much greater mass. It could take several hours if it is installed directly on a thick layer of uninsulated concrete.**
   If your thermostat has an optimised start feature, ensure it is enabled so that the thermostat can compensate for the mass of the floor. If your thermostat does not have an optimised start feature, measure the time taken for the floor to warm up and adjust the heating start time to compensate.

5. **The heat output of the installed system may not be sufficient. The system will require a power output of approximately 10W/m² for every degree warmer you require the floor to be than the air. This is in addition to any heat loss downwards through the subfloor.**
   If the room air temperature is also lower than desired, supplementary heating may be required to overcome the room heat losses.
   If access is available to the underside of the subfloor, installing insulation within the floor will reduce the amount of heat lost through the floor.

6. **Floor coverings such as carpets, underlays and timber are thermally resistive and will reduce the achievable floor surface temperature. They may also require the floor sensor to be recalibrated.**
   Floor finish combinations with a thermal resistance of more than 0.15m²K/W or 1.5 tog are not recommended and we recommend that you look to fit a less resistive floor finish. Floor finish combinations with a thermal resistance of more than 0.25m²K/W or 2.5 tog are not permitted.

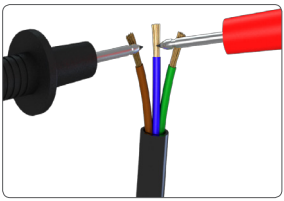
I am getting patchy heat across my floor

1. If the subfloor varies across the floor, the amount of heat absorbed by it and lost through it will affect the floor surface temperatures differently above each case.

2. If the floor covering over the underfloor heating changes, each floor finishes characteristics will affect the warm up period and the achievable surface temperature.

3. Hot water pipes under the floor could cause parts of the floor to seem warmer than others.

4. Irregularly spaced cables will cause the floor to be warmer above the closer cables and cooler where the cables are spaced further apart.



The heaters and floor sensors must be tested before they are laid, once they have been laid but before the tiles or levelling compound has been laid and again before they are connected to the thermostat. The resistance (ohms) of each heater should be measured. You should carry out the following tests and should expect the results detailed below:

• Heating Cable Resistance Test

Set a multimeter or ohmmeter to record resistance in the range of 0-500Ω.Measure the resistance across the live (brown) and neutral (blue) wires. Ensure the measured resistance is within the Reference Resistance Band shown on Page 35 for the cable size being tested.

Record the readings on the control card on Page 30 in line with the installation procedure.

• Earth Fault Check

Set a multimeter or ohmmeter to record resistance in the range of 1MΩ or greater if available. Measure the resistance across the live (brown) and neutral (blue) wires to the earth (green/yellow) wire.

Ensure the measured resistance is showing as greater than 500MΩ or infinite if the meter cannot read this high.

Insulation resistance test

Set an insulation resistance tester to 500VDC. Measure the resistance across the live (brown) and neutral (blue) wires to the earth (green/yellow) wire. Ensure the measured resistance is showing greater than 500MΩ to indicate a pass.

NOTE: Due to the high resistance of the heating element, it may not be possible to get a continuity reading from the heating cable and as such, continuity testers are not recommended. When checking resistance, make sure your hands do not touch the meter's probes as the measurement will include your internal body resistance and render the measurement inaccurate. If you do not get the expected results or at any time you believe there may be a problem, please contact Warmup's Technical Team for guidance.

Floor Sensor

Ensure that the floor sensor is tested before the final floor finish has been laid. The floor sensor values can be found in the thermostat instructions. When testing the floor sensor ensure that the meter can read up to 20kΩ. Warmup thermostats use a 10kΩ floor sensor @ 25°C. For temperatures between 20°C and 30°C the resistance of the floor sensor should measure between 8kΩ and 12kΩ.

NOTE: Draw a plan showing the layout and location of the heating cable(s)

Heater Location

.....

.....

Total Wattage

.....

WARNING

Radiant Floor Heating Systems - Risk of electric shock

Electric-wiring and heating panels contained within the floor. DO NOT penetrate with nails, screws, or similar devices. DO NOT restrict the thermal emission of the heated floor.

ATTENTION:

DO NOT cut or shorten the heating element.

Ensure that the entire heating element(s) including the joints are installed within the layer of tile adhesive or levelling compound. DO NOT tape over the joints or heating cable as this may insulate them, causing them to fail. The heating element must be used in conjunction with a 30mA RCD.

Heater Model	Resistance Before	Resistance After	Insulation Resistance (Pass)	Floor sensor resistance

....

Date Signed Company stamp/name

This form must be completed as part of the Warmup Guarantee. Ensure that the values are as per the instruction manual.

This card along with a plan showing the heater layout must be situated close to the consumer unit in a visible place.

Warmup Plc 702 & 704 Tudor Estate Abbey Road
London NW10 7UW

T: 0345 345 2288 F: 0345 345 2299 www.warmup.co.uk

Warmup® Underfloor Heating is guaranteed by Warmup plc ("Warmup") to be free from defects in materials and workmanship under normal use and maintenance, and is guaranteed to remain so subject to the limitations and conditions described below. The DCM-PRO Cable is guaranteed for the LIFETIME of the floor covering under which it is fitted when installed in combination with the DCM-PRO Mat, except as provided below (and your attention is drawn to the exclusions listed at the end of this guarantee). If installed separately DCM-PRO Cable is guaranteed for 10 Years. The DCM-PRO Mat is guaranteed for 5 Years.

This lifetime guarantee applies:

1. Only if the unit is registered with Warmup within 30 days after purchase. Registration can be completed online at www.warmup.co.uk. In the event of a claim, proof of purchase is required, so keep your invoice and receipt - such invoice and receipt should state the exact model that has been purchased;

&

2. Only if the heater has been earthed and protected by a Residual Current Device (RCD) at all times.

The guarantee is void if the floor covering over the heater(s) is damaged, lifted, replaced, repaired or covered with subsequent layers of flooring. The guarantee period begins on the date of purchase. During the period of the guarantee Warmup will arrange for the heater to be repaired or (at its discretion) have parts replaced free of charge. The cost of the repair or replacement is your only remedy under this guarantee which does not affect your statutory rights.

Such cost does not extend to any cost other than direct cost of repair or replacement by Warmup and does not extend to costs of relaying, replacing or repairing any floor covering or floor. If the heater fails due to damage caused during installation or tiling, this guarantee does not apply. It is therefore important to check that the heater is working (as specified in the installation manual) prior to tiling.

WARMUP PLC SHALL IN NO EVENT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO EXTRA UTILITY EXPENSES OR DAMAGES TO PROPERTY.

WARMUP PLC is not responsible for:

1. Damage or repairs required as a consequence of faulty installation or application.
2. Damage as a result of floods, fires, winds, lightening, accidents, corrosive atmosphere or other conditions beyond the control of Warmup plc.
3. Use of components or accessories not compatible with this unit.
4. Products installed outside the United Kingdom.
5. Normal maintenance as described in the installation and operating manual, such as cleaning thermostat.
6. Parts not supplied or designated by Warmup.
7. Damage or repairs required as a result of any improper use, maintenance, operation or servicing.
8. Failure to start due to interruption and/or inadequate electrical service.
9. Any damage caused by frozen or broken water pipes in the event of equipment failure.
10. Changes in the appearance of the product that does not affect its performance.

SafetyNet™ Installation Guidelines: If you make a mistake and damage the new heater before laying the floor covering, return the damaged heater to Warmup within in 30 days along with your original dated sales receipt. WARMUP WILL REPLACE ANY PRE-TILED HEATER (MAXIMUM 1 HEATER) WITH ANOTHER HEATER OF THE SAME MAKE AND MODEL - FREE.

Register your Warmup® warranty online at www.warmup.co.uk

(i) Repaired heaters carry a 5 year warranty only. Under no circumstances is Warmup responsible for the repair or replacement of any tiles / floor covering which may be removed or damaged in order to affect the repair.

(ii) The SafetyNet™ Installation Guarantee does not cover any other type of damage, misuse or improper installation due to improper adhesive or subfloor conditions. Limit of one free replacement heater per customer or installer.

(iii) Damage to the heater that occurs after tiling, such as lifting a damaged tile once it has set, or subfloor movement causing floor damage, is not covered by the SafetyNet™ Guarantee.

TECHNICAL SPECIFICATIONS - DCM-PRO MAT	
THICKNESS	5.5mm
COMPOSITION	POLYPROPYLENE MEMBRANE WITH SELF-ADHESIVE BACKING
COLOUR	RED
SPACING	60mm, 90mm & 120mm

TECHNICAL SPECIFICATIONS - DCM-PRO CABLE	
OPERATING VOLTAGE	220-240V: 50Hz
IP RATING	IPX7
COLOUR	BLUE
THICKNESS	4.5mm (+/- 0.2mm)
OUTPUT RATING	150W/m^2 (3 CASTELLATIONS - 90mm)
INNER INSULATION	ETFE
OUTER INSULATION	PVC
MIN. TEMPERATURE INSTALLATION	5°C
CONNECTION	3m LONG “COLDTAIL” CONNECTION

Cable size guide

DCM-PRO CABLE					REFERENCE RESISTANCE BANDS (Ω)
PRODUCT CODE	HEATED AREA (m^2)	POWER (W)	LOAD (A)	RESISTANCE (Ω)	
DCM-C-1	1	150	0.6	352.7	335.0 - 370.3
DCM-C-1.5	1.5	225	0.9	235.1	223.3 - 246.9
DCM-C-2	2	300	1.3	176.3	167.5 - 185.1
DCM-C-2.5	2.5	375	1.6	141.1	134.1 - 148.2
DCM-C-3	3	450	1.9	117.6	111.7 - 123.5
DCM-C-3.5	3.5	525	2.2	100.8	95.8 - 105.8
DCM-C-4	4	600	2.5	88.2	83.8 - 92.6
DCM-C-4.5	4.5	675	2.8	78.4	74.5 - 82.3
DCM-C-5	5	750	3.2	70.5	67.0 - 74.0
DCM-C-6	6	900	3.8	58.8	55.9 - 61.7
DCM-C-7	7	1050	4.4	50.4	48.0 - 52.9
DCM-C-8	8	1200	5.0	44.1	42.0 - 46.3
DCM-C-9	9	1350	5.7	39.2	37.2 - 41.2
DCM-C-10	10	1500	6.3	35.3	33.5 - 37.1
DCM-C-12	12	1800	7.6	29.4	27.9 - 30.9
DCM-C-14	14	2100	8.8	25.2	23.9 - 26.5
DCM-C-16	16	2400	10.1	22.0	20.9 - 23.1

NOTE: Warmup thermostats use a 10kΩ floor sensor. The expected resistance is:
10kΩ at 25°C,
12.1kΩ at 20°C,
14.7kΩ at 15°C.

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