

You must

- 1 Follow in full the test procedure on Page 4, complete the warranty form and return a copy to Thermogroupuk
- 2 Ensure adequate substrate insulation for optimum performance (see thermal insulation notes below)
- 3 Install sensor conduit in accordance with instructions on Page 2 to facilitate easy replacement
- 4 Ensure that the yellow element and connectors are totally covered in a cement based tile adhesive or levelling compound
- 5 Ensure all furniture has sufficient air gap below and / or fitted with bun feet, and that no rugs or mats are permanently in place in the heated areas with timber floor finish
- 6 Use a primer before self levelling compound or tile adhesive if the manufacturer recommends it
- 7 Ensure heatmat is protected after laying, before floor finish is completed (installed)
- 8 Position the sensor in a representative area of floor with no possibility of the floor being covered at that point

You must never

- 1 Cut or shorten the yellow wire
- 2 Cross or overlap any wires
- 3 Wire multiple mats in series
- 4 Turn on the system until the adhesive or levelling compound has cured
- 5 Staple or clip the heatmat cables independently of the mesh
- 6 Leave boxes / furniture on heated floor
- 7 Strain or bend the cold tail or end connections

Important do not proceed without understanding this booklet, if you have any questions phone the Thermonet helpline on 091 1163 2003.*

A more detailed guide is available on request, please contact 08700 41 21 41 or visit our website www.thermogroupuk.com

*Calls cost 50p per min.

IMPORTANT DO NOT PROCEED WITHOUT READING AND UNDERSTANDING THIS INSTALLATION GUIDE FAILURE TO DO SO WILL INVALIDATE THE WARRANTY

Concrete / screed subfloors

Insulated concrete and screed subfloors are ideal for Thermonet installations.

CHECKLIST

- STABLE SUBFLOOR
- SMOOTH SUBFLOOR
- FULLY CURED
- ADEQUATE THERMAL INSULATION
- ACOUSTIC INSULATION (IF REQUIRED)
- WATERPROOF TANKING SYSTEM (IF REQUIRED)

Unstable, uneven or new subfloor

Subfloors that are unstable, cracked, damp or freshly laid should be made good before laying heatmats. Thermogroupuk recommend Econoboard backer board or Watec decoupling matting.

Uneven surfaces or levels should be made good before laying heatmats. Thermogroupuk recommend Stonefix fibre reinforced self levelling floor compound.

Thermal insulation

Subfloors that are not thermally insulated or that require a higher level of insulation should be improved before laying heatmats. Improving the thermal insulation will reduce floor heat up times.

Thermogroupuk recommend using Econoboard insulation panels laid onto concrete subfloors.

Timber subfloors

Both suspended and floating timber floors are suitable after preparation for Thermonet installations.

CHECKLIST

- IS SUBFLOOR RIGID
- ALL BOARDS/SHEETS SECURED
- OVERBOARD OR DECOUPLING MATTING
- ADEQUATE THERMAL INSULATION
- ACOUSTIC INSULATION (IF REQUIRED)
- WATERPROOF TANKING SYSTEM (IF REQUIRED)

Floor preparation

The rigidity of the floor should be checked. Using a straight edge, measure the distance the floor deflects under a typical load. Where deflection exceeds 1mm over 3m, additional floor joists bracing or support should be fitted.

Uneven levels or floorboards that are cupped should be made good using a suitable floor levelling compound. Thermogroupuk recommend Stonefix fibre reinforced self levelling floor compound. Use Primer before laying Stonefix.

Overboarding

All timber floorboards and sheet flooring must be overboarded. Use either Econoboard Coated minimum thickness 12mm or WBP grade plywood minimum thickness 18mm. When using plywood always prime seal the back and edges of the sheet before fixing. Econoboard Coated must be screwed down at 300mm centres.

BEFORE INSTALLATION ALWAYS CHECK THE SUBFLOOR HAS ADEQUATE THERMAL INSULATION THIS IS PARTICULARLY IMPORTANT WHERE THERMONET IS THE PRIMARY HEAT SOURCE

BEFORE LAYING HEATMATS, IT IS IMPORTANT THAT TIMBER SUBFLOORS ARE PROPERLY PREPARED, CLEAN AND FREE OF SHARP EDGES

Load calculation / control rating / thermostat location

Prior to installation, work out the electrical requirements.

CHECKLIST

- TOTAL HEATMAT CURRENT DRAW (AMPS)
- HEATMAT CONTROL RATINGS
- THERMOSTAT LOCATION
- CIRCUIT PROTECTION

Total heatmat current draw

Firstly calculate the total load. The load in watts(W) of each heatmat is shown on the heatmat factory test certificate. To find the total load, add the load of each individual heatmat together.

Sum of individual heatmat loads = Total load(W)

Calculate the current draw in amps(A) by dividing the total load(W) by the working voltage.

$$\frac{\text{Total load W}}{230 \text{ v}} = \text{Total current draw A}$$

Heatmat control ratings

Thermonet heatmats must be controlled by a Thermonet thermostat. Thermostats have a maximum current draw rating of 16.0A.

If the total current draw exceeds 16.0A and the system has to be controlled by a single thermostat, a contactor/snubber must be used in addition to the thermostat. The rating of the contactor/snubber must always exceed the total current draw of the system.

25.0A CONTACTOR / SNUBBER

STOCK NO 5279

40.0A CONTACTOR / SNUBBER

STOCK NO 5280

Alternatively larger areas can be divided into zones. The total heatmat current draw for each zone must not exceed the maximum rating of the thermostat or contactor/snubber controlling that zone.

One benefit of zoning larger areas is that each zone can have different thermostat settings leading to enhanced efficiency. The floor area of each zone is governed by the area of the heatmat(s) in each zone. Heatmats must never be shortened or joined together in series.

Thermostat Location

Select a location for the thermostat. Thermostats require an electrical supply and a conduit feed to floor level. Thermostat operation is via a floor temperature sensor. Thermostats are suitable for all locations except wet zones as defined in the current IEE wiring regulations (less than 600mm from any bath or shower).

The recommended thermostat position is 1.3m above floor and within a 3m wiring run of the heatmat(s). Where possible thermostats should be flush mounted. If required thermostats can be located in cupboard spaces or up to 50m away from the room to be heated.

Installations of three or more heatmats controlled by a single thermostat will require the heatmat connection wires to terminate at a separate location. We recommend installing a marshalling box just above skirting level and in line with the thermostat mounting box. Use this marshalling box to house a terminal block and take single wire feeds to the thermostat.

Where possible, 2 x 20mm conduits should be installed between the thermostat, termination mounting box (if fitted) and the floor level to facilitate wiring.

ALL ELECTRICAL WORK MUST CONFORM TO CURRENT IEE WIRING REGULATIONS AND BE CHECKED OR CARRIED OUT BY A QUALIFIED ELECTRICIAN. ELECTRICAL INSTALLATION WORK IN DWELLINGS IS SUBJECT TO THE BUILDING REGULATIONS PART P

TURN OFF THE ELECTRICAL SUPPLY AT THE POWER DISTRIBUTION UNIT TO AVOID RISK OF ELECTRICAL SHOCK

THE ELECTRICAL SUPPLY TO THE INSTALLATION MUST ALWAYS BE PROTECTED BY A RESIDUAL CURRENT DEVICE (RCD) THE TRIPPING CURRENT RATING OF THE RCD MUST NOT EXCEED 30MA

Sensor location / installation / testing

CHECKLIST

- LOCATE SENSOR BETWEEN YELLOW HEATING WIRES
- ALWAYS INSTALL SENSOR IN CONDUIT
- RECESS CONDUIT INTO SUBFLOOR
- BEND CONDUIT AT FLOOR LEVEL FOR EASY SENSOR REPLACEMENT IF REQUIRED
- TEST THE SENSOR RESISTANCE

The sensor head should be placed in a representative area of the heatmat(s) for optimum system performance. Locate the sensor head and wire centrally between any two of the yellow heatmat wires. The sensor must not cross or touch any yellow heatmat wires and must be installed in conduit to facilitate removal if necessary. Sensor conduit extension kits (stock no 5267) are available from your Thermonet stockist.

Sensor installation

Mark the position of the conduit on the floor. Remove the surrounding heatmat(s) and cut a channel 12mm wide x 8mm deep in the floor to accommodate the conduit. This will maintain the overall finished floor level. Ensure that the floor is clean before installation of heatmat(s).

Sensor testing

Using a multimeter, measure the resistance between the two connection wires in the floor temperature sensor flex, and check against the Thermostat Kit Installation/Operation Guide supplied with the thermostat. Check the resistance before and after installation.

Sensor description

The sensor comes complete with 3m of cable and can be extended if necessary up to a maximum of 50m using 1mm² twin core flex.

IT IS IMPORTANT TO CHECK FOR OTHER SOURCES OF HEAT SUCH AS CENTRAL HEATING PIPES OR RECESSED DOWNLIGHTERS BELOW THE FLOOR AS THIS CAN ALTER READINGS

LOCATE THE SENSOR IN AN AREA OF FLOOR THAT WILL NOT BE COVERED AT THAT POINT

Planning layout / installation tips

CHECKLIST

- PLAN HEATMAT LAYOUT
- HAVE YOU GOT THE CORRECT HEATMAT SIZE?
- ALWAYS WIRE HEATMATS IN PARALLEL
- WILL YOU NEED EXTRA CABLE OR CONNECTION KITS?

Plan heatmat layout

Decide the best layout for the heatmat(s). All the connection wires from the heatmat(s) must return to the thermostat or the marshalling box, if fitted.

Heatmat connection wires are a minimum of 3m long. Where possible, try to arrange the start and finish position of each heatmat so that the connection wires reach back to the thermostat or marshalling box, if fitted.

Extra cable/connection kits

Heatmat connection wires can be extended if necessary. Each extension will require a slimline connection kit and a length of connection wire extension cable. Slimline connection kits and extension cable (sold by the metre) are available from your Thermonet stockist.

Installations where slimline connection kits have been fitted on site must undergo an insulation test in accordance with current regulations.

Installation tips

Roll out the heatmat(s) onto a clean floor. Heatmats can be laid either way up.

Where required, Thermonet can be fitted as a single wire. Cut the mesh backing either side of the yellow heating wire. Secure the mesh backing to the floor using staples, hot melt glue or spray adhesive.

Do not staple or clip the yellow element.

Do not join one heatmat to another in series. Heatmats must be wired in parallel with all connection wires terminating at the thermostat or termination mounting box.

Do not install heatmats under fixtures (e.g. kitchen units, bath, etc) or over floor movement joints. Contact your Thermonet stockist for advice when installing Thermonet when floor movement joints are present.

CONNECTION WIRE EXTENSION CABLE - BLUE	STOCK NO 5268
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CONNECTION WIRE EXTENSION CABLE - BROWN	STOCK NO 5269
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SLIMLINE CONNECTION KIT (1 PER CONNECTION)	STOCK NO 5410
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CONNECTION WIRE - 2 CORE	STOCK NO 5412
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NEVER CUT THE YELLOW HEATING WIRE. HEATING WIRE MUST NEVER BE SHORTENED OR LENGTHENED

ALWAYS CONNECT MULTIPLE HEATMATS IN PARALLEL. ALL CONNECTION WIRES MUST RETURN TO THE THERMOSTAT OR A COMMON TERMINATION POINT

YELLOW HEATING WIRES MUST NEVER CROSS AND MUST ALWAYS BE AT LEAST 50MM APART

DO NOT BEND OR STRESS THE ELEMENT / COLD TAIL CONNECTION

ENTIRE HEATMAT INCLUDING COLD TAIL CONNECTION SHOULD BE IN THE ADHESIVE LAYER

Floor finish options

Thermonet underfloor heating is suitable for use with most types of floor finishes including ceramics, vinyls, timber/laminates and carpet.

It is generally accepted that the maximum surface temperature of the floor finish should be 27°C. Thermonet thermostats are floor sensing and fully adjustable to meet the floor finish manufacturer's specification.

Consideration should be given to the moisture content of the subfloor and its effect on the adhesive or floor finish being used. New concrete and screeds will require a drying time see subfloor preparation section for further details (page 2). All surfaces must conform to current building regulations.

Follow the adhesive or floor compound manufacturer's recommended curing instructions. As a general rule, the heating system should be gradually brought up to working temperature over a 7 day period.

Thermonet technical helpline 091 1163 2003 calls are charged at 50p per minute.

Ceramic floor tiles including porcelain, slate, flagstones etc

Thermonet underfloor heating works very well with all types of ceramic and stone based floor finishes, as these all offer a minimum resistance to heat transfer.

Using a plastic notched trowel (stock no 6018) and a cement based flexible tile adhesive approved for underfloor heating, e.g. Econofix, trowel out the adhesive over the heatmats. The consistency of the adhesive should allow it to penetrate through the blue mesh and surround all the yellow heating wire and connections. Use sufficient adhesive to ensure that there are no voids under the tiles.

Laminate flooring, carpets or vinyl floor coverings

Solid wood laminate type flooring, carpets or vinyl flooring maybe used with thermonet underfloor heating. Thermonet heatmats are laid in the normal way and covered with a 10mm thick layer of a fibre reinforced self levelling compound eg Stonefix.

ALWAYS FOLLOW THE FLOOR FINISH MANUFACTURER'S GUIDELINES FOR ELECTRICAL UNDERFLOOR HEATING

ON INSTALLATIONS WHERE THERE IS A TIME DELAY BEFORE THE FINAL FLOOR FINISH IS COMPLETED CONSIDER LAYING A SKIM COAT OF SELF LEVELLING COMPOUND TO PROTECT THE HEATMATS

ALWAYS ALLOW FOR ANY ADHESIVE / GROUT TO CURE COMPLETELY

ALWAYS ALLOW ADEQUATE EXPANSION JOINTS ON FLOOR FINISHES

TEAR HERE

FACTORY TEST CERTIFICATE

Stock code: 5255A
 Size: 17000 x 100mm
 Wattage: 1356
 Working Voltage: 230 ac
 Batch No.

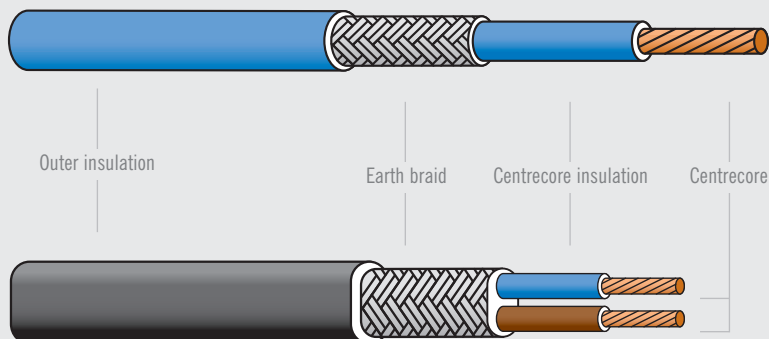
RESISTANCE	
Centrecore/Centrecore	39 Ohm
Centrecore/Earth braid	Open Circuit

Install and test in accordance with the ThermoNet Installation Guide.
 Detach and file this certificate in the ThermoNet Customer Installation File.

thermoNet
 UNDERFLOOR HEATING

TFTC/03

Typical factory test certificate

Cross section of a connection wire**Cross section of twin connection wire**

The cold tail and sensor can probe cable can be shortened or extended up to 50mm.

How to test heatmats

CHECKLIST

- LOCATE THE HEATMAT FACTORY TEST CERTIFICATE
- CHECK CENTRECORE / CENTRECORE RESISTANCE
- CHECK CENTRECORE / EARTHBRAID RESISTANCE
- REPEAT RESISTANCE CHECKS FOR EACH HEATMAT AS REQUIRED
- COMPLETE WARRANTY VALIDATION FORM

Factory test certificate

Each heatmat is supplied with a factory test certificate. Locate and detach the certificate before proceeding. Factory test certificates must be handed to the customer on completion.

Each heatmat must be checked for both centrecore/centrecore and centrecore/earthbraid resistance at 3 stages. The results must be checked against the factory test certificate and recorded on the warranty validation form.

All heatmat resistance checks must be carried out before connecting any control equipment.

ELECTRONIC HEATMAT MONITOR

STOCK NO 6010

Centrecore/Centrecore resistance

All heatmats have individual resistance readings. Always check readings against the heatmat factory test certificate. Using a multimeter, measure the resistance in ohms Ω between the centrecores of the two connection wires for each heatmat.

The Centrecore/Centrecore resistance value should equal the factory test certificate value to within a tolerance of +10% / -5%.

For example stock no 5229 has a factory test certificate value of 121 ohms. On-site value must be between 115-133 ohms for this heatmat.

Check and record resistance values on the warranty validation form at Stage 1, 2 and 3 of installation. Should the resistance value fall outside the allowable tolerance at any stage, contact your ThermoNet stockist for advice. Do not continue installation.

How to check centrecore/earth braid resistance

Using a multimeter, measure the resistance in ohms between either one of the connecting wire centre cores and either one of the earth braids for each heatmat.

The centrecore / earth braid resistance value should always be open circuit (infinity). Check and record resistance values on the warranty application form at Stage 1, Stage 2 and Stage 3 of installation.

Should the resistance value change from open circuit at any stage of installation, contact your ThermoNet stockist for advice. Do not continue installation.

EACH HEATMAT REQUIRES 2 ELECTRICAL RESISTANCE TESTS AT 3 STAGES:

- 1 - BEFORE
- 2 - DURING
- 3 - AFTER FLOOR FINISHING

TO VALIDATE THE 10 YEAR WARRANTY ALL HEATMATS MUST BE CHECKED AND THE RESULTS RECORDED ON THE WARRANTY VALIDATION FORM AT THE TIME OF INSTALLATION

THE USE OF A THERMONET ELECTRONIC HEATMAT MONITOR DURING INSTALLATION DOES NOT REPLACE THE NEED TO TEST THE MAT AT STAGES 1 AND 3

3 YEAR WARRANTY ON THERMOSTAT

TAKE PHOTOGRAPHS DURING INSTALLATION



HEATMAT ON SITE RESISTANCE TEST RESULTS		CUSTOMER NAME		INSTALLER NAME				
		ADDRESS	POSTCODE	ADDRESS	POSTCODE			
STAGE 1 AFTER LAYING HEATMAT(S) AND BEFORE STARTING FLOOR FINISHING STAGE 2 DURING FLOOR FINISHING STAGE 3 ON COMPLETION OF FLOOR FINISHING		TELEPHONE		TELEPHONE				
		STAGE 1	STAGE 2	STAGE 1	STAGE 2			
1	BATHROOM	5229	5.8x0.5	126 Ω	125 Ω	127 Ω	125 Ω	OPEN CIRCUIT
2				Ω	Ω	Ω	Ω	
3				Ω	Ω	Ω	Ω	
4				Ω	Ω	Ω	Ω	
5				Ω	Ω	Ω	Ω	
6				Ω	Ω	Ω	Ω	
7				Ω	Ω	Ω	Ω	
8				Ω	Ω	Ω	Ω	
9				Ω	Ω	Ω	Ω	
10				Ω	Ω	Ω	Ω	
11				Ω	Ω	Ω	Ω	
12				Ω	Ω	Ω	Ω	
13				Ω	Ω	Ω	Ω	
14				Ω	Ω	Ω	Ω	
15				Ω	Ω	Ω	Ω	
THE THERMONET HEATMAT TEN YEAR WARRANTY AGAINST MANUFACTURERS DEFECTS IS A LIMITED LIABILITY WARRANTY. YOUR STATUTORY RIGHTS ARE NOT AFFECTED.		I/WE DECLARE THAT ALL DETAILS ARE CORRECT						
IN THE EVENT OF A PROBLEM WITH YOUR INSTALLATION CONTACT YOUR THERMONET STOCKIST. ALTERNATIVELY TELEPHONE THE THERMONET ADVICE LINE 091 1163 2003.		<input type="checkbox"/> TESTED HEATMAT AND COMPLETED ABOVE <input type="checkbox"/> TAKEN PHOTOGRAPHS <input type="checkbox"/> KEPT A COPY OF ORIGINAL PROOF OF PURCHASE <input type="checkbox"/> KEPT FACTORY TEST CERTIFICATE <input type="checkbox"/> KEPT COPY OF THIS FORM <input type="checkbox"/> POSTED / FAXED THIS FORM		PRINT NAME				
TAKE PHOTOGRAPHS OF INSTALLATION AT ALL 3 STAGES OF INSTALLATION.				DATE				
WE RECOMMEND THAT RECORDED DELIVERY IS USED TO RETURN THIS FORM TO US.				SIGNATURE				

Final electrical connection

CHECKLIST

- ALL HEATMAT CHECKS COMPLETED
- WARRANTY VALIDATION FORM COMPLETED
- HEATMAT CONTROLS RATING CHECKED (PAGE 4)
- CIRCUIT PROTECTION CHECKED AND OK
- PROCEED WITH ELECTRICAL CONNECTION
- PHOTOGRAPHS TAKEN AND LEFT WITH CUSTOMER

Circuit protection

The electrical supply to the installation must always be protected by a residual current device (RCD). The tripping current rating of the RCD must not exceed 30mA. The current rating of the equipment and cable used must be sufficient for the installation.

Electrical connection

Connect the heatmat connection wires and floor temperature sensor in accordance with the electrical preparation section of this guide (page 4) and the installation guide supplied with the thermostat.

It is the responsibility of the electrician to ensure that all electrical equipment and cables are suitable for the installation.

To comply with BS 7671:2008 it is important to label the fuseboard clearly indicating the relevant fuse / mcb which controls the underfloor heating. Each zone must also be labelled to assist compliance with BS 7671:2008 (17th edition IEE wiring regulations) an envelope with relevant floor stickers, distribution board labels, floor plan sheet and 17th edition IEE wiring regulations questionnaire. Once completed this envelope should be left adjacent to the distribution board.

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Information and documents your customer will need

CHECKLIST

- THERMOSTAT INSTALLATION/OPERATION GUIDE
- THERMONET INSTALLATION GUIDE
- COMPLETED HEATMAT LAYOUT DRAWING PAGE 8
- COMPLETED WARRANTY VALIDATION FORM PAGE 10
- HEATMAT FACTORY TEST CERTIFICATE(S)
- DEMONSTRATE HOW TO USE THERMONET
- MECHANICAL FLOOR FIXINGS PROHIBITED
- PHOTOGRAPHS
- DB LABELS AND FLOOR TAPE INSTALLED

Where possible give the customer an indication of the floor heat up time.

Heat up times will be governed by floor construction and floor finish. As a guide, solid uninsulated floors may take up to 5 hours. Insulated timber floors may take 0.5 hours. For installations where heat up times are extended, cool down times are also extended, so it is unlikely that the floor will be heating up from cold each day.

Make the customer aware that Thermonet is maintenance free. Once installed, the system does not require a regular service.

Copies of all Thermonet documents and installation photographs should be kept with other building documents and passed onto any future owners.

Thank you for selecting Thermonet underfloor heating. You can look forward to years of reliable service.

MAKE SURE ALL THE NECESSARY DOCUMENTS ARE HANDED TO THE CUSTOMER ON COMPLETION

EXPLAIN TO YOUR CUSTOMER HOW TO SET UP AND OPERATE THE THERMOSTAT CONTROLS

EXPLAIN TO YOUR CUSTOMER THE IMPORTANCE OF ALLOWING AIR MOVEMENT UNDER FURNITURE AND RUGS