

# Loose Cable Underfloor Heating System



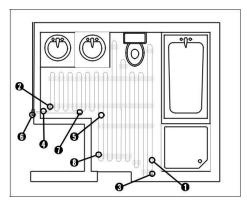
Therm

MAT HEATING SYSTEM INSTALLATION MANUAL

# CONTENTS

- 1 General
- 1.1 Heating cable system terminology
- 2 Cautions
- 3 Scope of supply
- 3.1 The loose cable system
- 4 Electrical safety and wall preparation
- 4.1 Electrical boxes and trunking
- 5 Installation process
- 5.1 Floor preparation
- 5.2 Testing the loose cable system
- 5.3 Important information before laying the loose cable system
- 5.4 Laying the loose cable system
- 5.5 Installing the conduit and floor sensor cable
- 6 Wiring the loose cable system
- 6.1 Use of contactors
- 7 Floor types
- 8 Switching system on and maintenance
- 9 Troubleshooting
- 10 Warranty Details
- 11 Mat specification & resistance
- 12 Mat resistance and insulation test log
- 13 Warranty Certificate
- 14 The plan of the premises

Thank you for choosing our ultra-thin loose cable underfloor heating system. We are pleased to provide you with our product which will bring comfort in your home.



# 1. GENERAL

Please carefully read this manual before starting the installation of your loose cable underfloor heating system. It will ensure a smooth installation process and a correctly installed system. Incorrect installations may damage the system/flooring and will invalidate the product warranty.

This manual gives installation instructions on how to install under common types of tiles and linoleum. However, as there are so many variations on the market, it is advised that you contact your flooring manufacturer for advice on installing over underfloor heating. This advice should include suitability of floor covering for underfloor heating, subfloor preparation, insulation, maximum temperature as well as any other general requirements of the manufacturers.

#### 1.1 Heating cable system terminology

The following terms will appear frequently throughout this manual. Each is graphically illustrated in the diagram below:

- Heating Cable a specially constructed cable used for heating.
- Coupling Joint the connection between the cold cable and the heating cable.
- Cable termination the sealed end of the heating cable.
- Cold cable the power cable which feeds the heating cable.
- Heated Area the area physically covered by the heating cable
- O Thermostat an electronic device which enables the on/off switching of the heating cables. It allows control of the floor temperature and the power supply by means of a temperature sensor.
- Floor Temperature Sensor a sensor cable which is connected to the thermostat. It has a temperature-sensitive element for measuring the floor temperature and is laid next to the heating cable.
- Ouck Tape- Tape used to fix heating cable to the insulation/ sub-floor

Air Temperature Sensor – an electronic device with a temperature-sensitive element for measuring the air temperature.

Floor Sensor Conduit – this conduit not only protects the floor temperature sensor but if the floor sensor ever fails, the floor sensor may be removed and replaced without having to lift the floor.

# 2. CAUTIONS

Read these cautions carefully BEFORE you start the installation. You must carefully follow the warnings and instructions in this instruction manual. If the Underfloor Heating System is damaged, not installed properly or has restricted air flow causing thermal blocking then fire or shock could occur resulting in serious personal injuries or damage to property.

#### Always...

Ensure that all electrical work is executed by a qualified and registered person in accordance with the local building and electrical codes.

Record the cable and sensor resistance readings and location in the Log before and after the installation. This log, illustration and warranty certificate must be returned to validate the warranty.

Wear soft elastic sole shoes or cover the cable system with plywood boards or other material to protect the cable from damage.

Pay close attention to the voltage and amperage requirements of the breaker, the control, and the heating cable.

Avoid heating cable contact with corrosive, hygroscopic, or flammable material. The heating cable must not be exposed to oil, lubricant, solvent etc or similar substance influence.

Connect the heating cable earth conductor to the earth terminal in the junction box or to the appropriate thermostat terminal.

Install the floor temperature sensor.

Avoid air pockets and pinholes around the heating cable when using latex based self-leveling compound/ flexible tile adhesive.

Seek help if a problem arises. If ever in doubt about the correct installation procedure, or if the product appears to be damaged, you must contact the official representative of the Company before you proceed with the installation.

Use casters on furniture where there is little/no air gap between the final floor covering and furniture. This will stop the build up of heat.

Aim to cover at least 80% floor area to achieve primary heating. Please note, high heat loss rooms may require additional heating regardless of high floor area coverage.

Ensure that the heating cable is evenly spaced and is no closer than 6cm apart from one another (minimum length before turning is 0.5m). This is the closest they should be installed. The allowed spacing deviation is +/- 1cm.

Reel out the heating cable to prevent cable from twisting.

#### Never...

Install the cable directly under flooring other than tiled/ stone flooring without first embedding it in latex based self leveling compound.

Cut the heating cable. The cold cables may be cut shorter if necessary, but not removed completely.

Attempt to repair the heating cable if damaged. Contact the Company representatives for instructions before you proceed.

Splice one loose cable system to another to extend it. Multiple heating cable systems must be connected in parallel via a junction box.

Overlap/ cross the cable on itself. This will cause dangerous over heating.

Remove the name plate label of the heating cable power leads.

Install loose cable mats in any walls or to heat outdoor areas and stairs.

Install the cables in a cement-sand layer.

Put the system ON when the heating cables are still rolled/ or before the tile adhesive/ latex based self-leveling compound is fully dry.

Cover the floor surface where heating cable is installed with any high thermal insulation materials (high tog carpets, rugs, flat based furniture, bean bags, blankets etc) this will cause thermal blocking

Hammer nails, dowels or screws into the floor surface where the heating cable is installed.

Replace the cold leads, breaking sealed coupling connections, made by the manufacturer.

Plug the loose cable system to a power supply of a voltage that is different from the operating voltage which is stipulated in the heating cable specification, marking or packaging.

Perform the thermostat installation and/or repairs with the power supply ON.

Install the heating cable beyond an expansion joint. If necessary the heating cable should be installed right up to the joint, but do not bridge the joint. You must always make sure to check the instructions when using any Latex self levelling compound and flexible tile adhesive as they can vary between manufacturers. Please pay particular attention to the thickness require, expansion gap/strips and primers required.

# 3. SCOPE OF SUPPLY

This installation manual supports every loose cable heating system for indoor applications only. For a complete system, a thermostat and floor temperature sensor must be installed in addition to the loose cable heating system.

#### 3.1 The loose cable heating system

The loose cable is made of a shielded double conductor heating cable.

The heating conductor and screen are connected with two installation wires, designed to connect the heating section to the thermostat and earth.

Please refer to Section 11.0 for specifications of the loose cable heating system.

The heating cables are manufactured and tested in full accordance with the IEC (International Electro-technical Commission) Global Quality Standards.



# 4. ELECTRICAL SAFETY & WALL PREPARATION

All electrical work must be executed by qualified and registered persons in accordance with the local building and electrical codes.

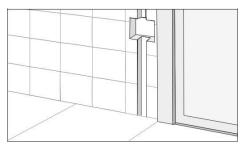
The loose cable system must be connected via a RCD (Residual Current Device) where the actuating rated current does not exceed 30mA. In all instances the earth wire must be connected.

Conductor	Cross	Max. load	Max. total
Conductor	section	current	load power
material	mm <sub>2</sub>	Α	kW
	2 x 1.0	16	3.5
Copper	2 x 1.5	19	4.1
	2 x 2.5	27	5.9
Aluminium	2 x 2.5	20	4.4
Aluminium	2 x 4.0	28	6.1

It is important to check that the existing electrical wiring allows sufficient power to the loose cable system. Please refer to Section 11.0 of this manual for the amperage load of the Webtech heating systems. Take into consideration additional electrical appliances which are powered by the same circuit. Furthermore, specify the amperage load of your safety device.

#### 4.1 Electrical Boxes and Trunking

- Choose the thermostat location carefully. It should be installed in the most convenient place, so it will not interfere with furniture or be located in an area where an unfair reading may be obtained. Thermostats which are intended to control the heating in damp premises (bathrooms, toilets, saunas, swimming pools) must be installed outside of such premises.
- Prepare the space for the thermostat mounting and junction box (if required) before laying your underfloor heating system. By doing this first, will ensure that the cables are clear from wall waste and potential damage.
- A 35-40mm back box is required for the fuse spur and a deep back box for the thermostat. Prepare channels in the wall for power supply wires, cable cold leads and temperature sensor in the wall.



# 5. INSTALLATION PROCESS

Before unrolling your underfloor heating system, in all cases, you must re-measure the room to ensure all specified systems will fit and that no errors have been made during the process of room measurements. This system can only be returned if in perfect condition (a fee will apply on all returns).

#### 5.1 Floor preparation

It is highly recommended that the appropriate insulation is installed to limit heat loss.

Please refer to the table below for information on which insulation to use:

INSULATION TYPE	SUITABLE FLOORING						
Insomax Insulation	Only to be laid on concrete subfoor						
Appropriate Tile backer board (with cement layer on both sides)	Can be laid on concrete or wood If being laid on wood it will need to Be screwed down to the subfloor						

#### Over Wood Sub-Floors

- Prepare your sub-floor by making sure the area is dry, level, rigid, free from dust/ dirt, secure, with adequate underfloor heating ventilation and has an appropriate bearing capacity and suitable for tiling or for laying vinyl/carpet/wood etc with a latex based self-levelling compound.
- If using Tile backer board with cement layer, you must follow the same principle as installing Insomax boards; however in addition, once the adhesive is dry, the boards must be secured with screws and washers (approx 12 per board) at a distance of 30mm from the edge.
- If using WBP Wood, mechanically screw the boards down.

#### Over Concrete Sub-Floor

- Prepare your floor by making sure the area is dry, level, rigid, free from dust/ dirt, secure, and has an appropriate bearing capacity.
- Regardless which type of insulation board is being used, use a notched trowel to apply the flexible tile adhesive to fix the boards in a staggered pattern to the entire sub-floor. Tape all the joints with fibre industrial duck tape. There should be no air gaps/ void underneath the insulation boards.

#### If you choose to install the heating mats directly onto the existing sub-floor please note:

- The warm up time of your system will be considerably longer than without insulation.
- Ensure the sub-floor is suitable for tiling or for laying vinyl/carpet/wood etc with a latex based self-levelling compound.

The sub-floor must be primed with a deepened earth solution. Intensive absorbing surfaces should be primed twice. Allow the surface to fully dry before continuing with the install.

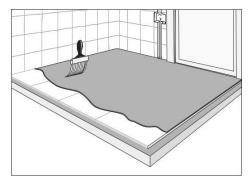
If the primer hasn't made the floor tacky it is advised that you spray the floor with a suitable spray adhesive to help the mat adhere to the floor.

#### Over Ultra Backerboard

You cannot prime the surface of a concrete backer board so it advised to tackify with a suitable spray adhesive.

#### Over Insomax XPS insulation

Spray adhesives are not suitable for use over the Insomax board and the mats generally adhere to well to them.



#### 5.2 Testing the Loose Cable System

Throughout the installation process, it is essential to perform an insulation test and resistance reading of the heating cable and floor temperature sensor. These readings are recorded to ensure they have not been damaged. Use a quality digital\* ohmmeter (multi-meter) able to measure up to 20,000  $\Omega$ .

#### **Required Measurements**

Take and record in the Heating Cable Resistance Log the resistance and insulation readings:

- Before beginning the installation
- After the heating cable and sensor are fastened to the floor

It is advised that these measurements are also checked frequently during tiling to avoid burying a damaged heating cable or floor temperature sensor.

If the resistance differs from the readings in Section 11.0, contact Rayotec for further instructions. If the heating cable has been cut/sliced or damaged in anyway, clean the damaged area quickly and contact Rayotec for further instructions.

To validate the Warranty, send a copy of the floor heating heating cables resistance log, Warranty Certificate and heating cable layout diagram to Rayotec Ltd.

Heating cable leads resistance check - Measuring between the blue and brown leads of the cold lead.

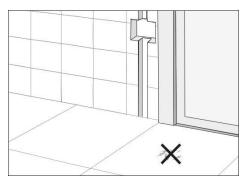
Heating cable insulation resistance - Measuring between the two conductors (blue and brown wires) and shielding.



5.3 Important information before laying the heating system

Any competent person can lay the loose cable heating system using this manual. All electrical work/ wiring however, must be completed by a certified electrician who will do the works in accordance with the local building and electrical codes.

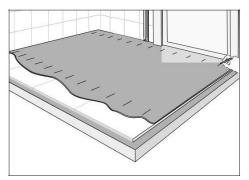
 Before laying the heating cable, check there is no dust or sharp objects on the floor that could potentially damage it.



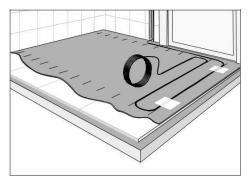
- Lay the heating cable on areas free of fixed furniture (i.e. kitchen units, toilets, baths etc).
- Install the heating cable 10-15 cm away from showers, tubs, and wax toilet rings. You can install right up to vanities and counter areas. The heat will radiate only about 4-5 cm from the heating wire.
- Install the heating cable at a minimum of 10cm away from other heating appliances, e.g. risers and tubes of the water heating system.
- Install 5cm away from walls and fixed furniture.
- Please note, it is not recommended to use the same heating cable for heating different types of rooms (e.g. bathroom, hallway or kitchen). It is also not recommended to use the same heating cable for the heating of rooms with different floor coverings. For this purpose independent loose cable systems should be installed.

#### 5.4 Laying the Loose Cable system

- Depending on the size of the room, refer to Appendix 10 to see the guide spacing the heating cable is to be installed.
- Starting 5cm away from the wall/ fixed furniture, mark the spacing intervals the heating cable should be installed in the whole room.

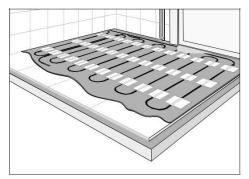


- Making sure that the cable does not twist, gently unwind the spool until the coupling joint is reached and fix this to the pre-marked starting point.
- According to the marked spaces, unwind the heating cable in parallel lines to and from each side of the room (whilst being careful not to twist it).



- For unusual shaped areas (i.e. toilets, basins etc), lay the heating cable accordingly taking consideration of the minimum fixed spacing.
- If you find that you have some heating cable left over at the end or not enough to cover the room, adjust the spacing of the whole system evenly. The allowed spacing deviation is +/- 1cm. Ensure the heating cable is not installed closer than 6cm from each other.

 Once the wiring has been laid, use duck tape to secure the heating cable down at set intervals.

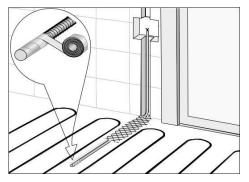


Once you have completed laying the heating cables, sketch a diagram of the heating cable in Section 13.0 and show the location of the coupling joint and temperature sensor location into the premises plan found at the back of this manual. If multiple heating cables were used, ensure that the cable cold cables are labeled with their cable size so you are able to refer back to them at a later date.

Please note that while we provide cloth tape you only need to use this sparingly. Any excessive use may affect the ability for the latex or tile adhesive to stick down and could cause cracking in the flooring

# 5.5 Installing the conduit, floor sensor (provided with the thermostat) & heating cable cold cable.

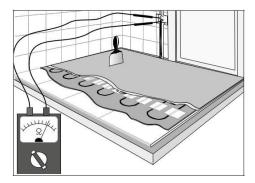
- At this stage you should have already appropriately positioned the thermostat, installed the back box and trunking. If not –please refer to section 4.1-Electrical boxes and trunking.
- Cut a channel in the insulation/sub-floor for the floor sensor conduit and a second channel for the cold cable/s. The floor temperature sensor should be placed a minimum of 4cm from the heating cable. It can not touch or cross over the heating cable at any point.



- Place the floor temperature sensor into the floor sensor conduit. Tape the end of the floor sensor conduit so it is sealed against ingress of adhesive.
- 4. Place the cold cable and conduit with floor sensor in their appropriate channel.

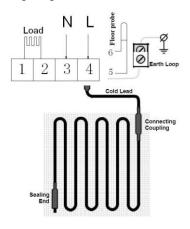
The conduit bending radius must be a minimum of 5cm and as smooth as possible. When the corrugated tube is affixed to the wall and the floor, make sure that the sensor floats inside the tube. For this, pull the floor sensor cable partially out and then insert it back. This installation method allows the replacement of the sensor without removing the floor covering. Attention: The start of the floor sensor conduit with the sensor cable should be at the terminal box or the thermostat. This will allow you to replace the sensor cable without removing the floor covering if required.

 Check that the heating cable and temperature sensor cable were not damaged during the install by performing an insulation test and resistance reading of the heating cable and temperature sensor. This reading should conform to Section 11.0 and logged in Section 12.0.



### 6. WIRING THE LOOSE CABLE HEATING SYSTEM

WARNING! It is essential that the power from the fuse box or electrical source is switched off before beginning to work.



For the correct connection of the loose cable system, please, pay attention to the colours of the installation wires. The blue and brown installation wires are connected with the heating conductor and are to be connected to the thermostat. The earth wire must be connected to the earth.

 Connect the floor temperature sensor and cold cable of the loose cable system directly to the thermostat. If multiple heating cables are used, the cold cables must be connected in parallel to the thermostat via the junction box. (All junction boxes must be placed where they are accessible after the installation is finished.)

Please consult your electrician to calculate how much can be connected to any one thermostat. If the total amperage of the system is greater than the amperage of the single thermostat, the system will either require a separate thermostat or a contactor to break the current. (See section 6.1 for further information on contactors).

- 2. Connect the earth wire to the earth.
- Connect the electric power to the thermostat and perform earthing. Please refer to the thermostat installation manual of how it should be connected.
- Fill the chiseled channels in the wall, which lead the connection wires, earth circuit, cold leads and the temperature sensor wires in the corrugated tube.
- 5. Lay your final floor covering according to its own instruction manual.

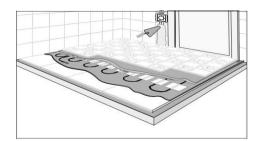
#### 6.1 Use of Contactors

If the total amperage of the system exceeds the amperage on the thermostat, then either an additional thermostat or a contactor must be installed. Using a contactor will enable you to break the current and use a single thermostat. A contactor can be supplied and installed by your local electrician e.g. *If your heating system requires 16.5 amps, the system will require either an additional thermostat or a contactor as a thermostat normally works up to a maximum of 16amps (please check with the thermostat manual what your maximum amperage is).* 

# 7. FLOORING TYPES

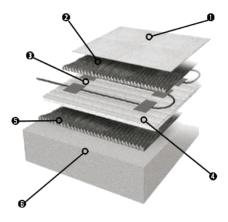
Floor Type	Restrictions
Under Tiles	Thickness allowed: 5mm-30mm
, e	adhesive, tile directly onto the heating cable - be careful not to damage it.

The adhesive layer is normally a minimum of 8 mm thick. The depth is dependent on the floor build up, brand of adhesive used and final floor covering so ensure you check with the adhesive manufacturer for the required depth. The maximum thermal resistance between the heating cable and the premises, produced by the adhesive layer and ceramic tile, should not exceed 0.06 m<sup>2</sup>K/W.



	These materials are very thin, so thickness is normally not a problem. Please contact flooring company for maximum operating temperature. You can adjust the thermostat to the flooring requirement.
Under Vinyl/ Amtico†	Please always check with the flexible self-leveling compound manufacturer for suitability of use under your floor covering with the insulation board as a base.
	†This system is not suitable for heavy traffic or high point loading applications.

Pour latex based self-leveling compound onto the heating cable. A minimum of 10mm over the top of the heating elements is required however the depth is dependent on the floor build up, brand of latex used and final floor covering so ensure you check with the latex manufacturer for the required depth. Level the solution and let it dry according to the manual of preparation and application of the self-leveling compound used.



# INSTALLATION UNDER TILE FLOORING

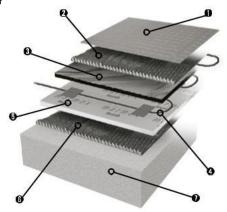
Tiles

Plexible Tile Adhesive

- Heating Cable
- Tile backer board for concrete floor or Insomax for wooden subfloor
- **5** Flexible Tile Adhesive
- 6 Floor Slab

# INSTALLATION UNDER VINYL FLOORING<sup>†</sup>

- Vinyl Flooring
- Appropriate Adhesive
  [as per adhesive instructions]
- Latex based self-levelling compound
- Heating Cable
- Tile backer board for concrete floor or Insomax for wooden subfloor
- 6 Flexible Tile Adhesive
- Floor Slab



Under any floor covering:

The Insomax boards are a rigid and dense foam board. If you receive anything other than this ie a roll of insulation foam please contact us before laying the system.

#### 8. SWITCHING THE SYSTEM ON AND MAINTENANCE

The loose cable underfloor heating system can be switched on after the flexible tile adhesive/ latex based self-leveling compound is fully dry. (Please refer to adhesive drying times).

The heating should be turned up by 1°C every 2 days to allow the flooring to acclimatise and avoid damage.

When the temperature reaches the comfort level, you can reduce the heating level as desired. When the system is turned on for the first time, the "warm floor" feeling will appear after some time.

If you vacate your premises during the cold season, do not switch the system off. Set the thermostat on the minimal level so that the power consumption is minimal and the room will not be cooled down completely.

# 9. TROUBLESHOOTING TIPS

If the overall floor surface feels unusually cool after the system has been energized for more than 8 hours, verify that the heating controller is correctly installed and functioning properly; check with the associated heating controller's operating manual and/or contact the manufacturer. If the overall floor surface feels unusually hot when the system is energized, or if the circuit breaker trips when the system is energized, the cable may be damaged. Turn-off the system immediately and contact the manufacturer for assistance.

**Note:** In the event that the heating cable has been damaged, the fault may typically be located and field repaired with minimal flooring removal.

# **10. WARRANTY DETAILS**

The manufacturers provide a 16-year warranty for the heating mats for the first and documented installation. Any removal, modification of the floor, secondary installation will invalid the warranty. They guarantee that the Products are free from defects in materials and workmanship.

During the warranty period we are obligated to repair the heating mat or the heating cable or to deliver a new one to the customer free of charge. We are not obligated to cover the indirect costs, which are connected to the repair works or replacement of the heating mat or the heating cable.

#### Terms of Warranty:

The heating sections (mats and cables) are to be used strictly in accordance with the appropriate Installation Manual. For the warranty to be valid, both the Resistance Log Data and Warranty Certificate must be sent back to Rayotec Ltd within 30 days from date of purchase. If the appropriate information has not been sent, the warranty will automatically become null and void. In any case that the mat must be returned, the following information is required:

- The reason of the dissatisfaction of the customer in written form, a written description of the Product installation works and the history of operation.
- The customer has also to provide a retail sales receipt or another proof of purchase of the heating system.

The company retains the right to decide on the basis of the submitted documentation or after the preliminary diagnostics of the heating systems by the Company specialists.

#### The following are not covered by this Warranty:

- Any incidental or consequential damage, including inconvenience, loss of time or loss of income.
- Any labor or materials required to remove, repair or replace flooring materials.
- Any freight or delivery costs related to the Product, the control, or any related flooring or electrical products.

There are no warranties which extend beyond the face of this document. Our Company further disclaims any responsibility for special, indirect, secondary, incidental or consequential damages which arise from the ownership or use of this product, including inconvenience or loss of use. No agent or representative of our Company has any authority to extend or modify this Warranty unless such extension or modification is made in writing by a Company officer. Due to differences in building and floor insulation, climate and floor coverings, our Company makes no representation that the floor temperature will achieve any particular temperature, or temperature rise. But our Company does warrant that all Products will produce rated output listed in the Heating Mat Specification (Section 11).

Products that have been damaged due to mechanical breakdown, due to incorrect connection or due to disregard of the terms of operating rules and servicing are not a subject to the warranty repairs, replacement or return.

The thermostats have a 1 year warranty where the same Terms and Conditions stated above apply.

All claims are to be sent to the following address:

Rayotec Ltd. Unit 5 Trade City Sunbury, Brooklands Close, Sunbury-on-Thames TW16 7FD

# **11. LOOSE CABLE HEATING SPECIFICATION**

Double-conductor heating cable – Approx 10W/m

Note: All spacing recommendation is approximate and will vary according to the shape of the room to be heated. 6.6cm spacing for 150W/m2 and 10cm for 130W/m2.

Туре	Cable Length (m)	Power -W (230V)	Spacing (cm)	Resistance (Ohms)					
<b>0.9 – 1.1m</b> <sup>2</sup>	14	140	6.6-10	377.86					
1.4 – 1.6m <sup>2</sup>	21	210	6.6-10	251.90					
1.9 – 2.2m <sup>2</sup>	29	290	6.6-10	182.41					
3.2 – 3.7m <sup>2</sup>	48	480	6.6-10	110.21					
5.1 – 5.8m <sup>2</sup>	76	760	6.6-10	69.60					
6.9 – 8.0m <sup>2</sup>	104	1040	6.6-10	50.87					
9.7 – 11.2m <sup>2</sup>	145	1450	6.6-10	36.48					
12.0- 13.8m <sup>2</sup>	180	1800	6.6-10	29.39					
Maximum oper	ating temperatu	re		80°C					
Minimum opera	-10°C								
Minimum insta	llation temperatu	ire		-10°C					
Cold lead length 3m									

Minimum subfloor temperature should be +5°C. The minimum mat installation temperature is -5°C. Floor Temperature sensor cable 8 - 15kohms. Please note that the readings must be done by a qualified electrician using a multifunction tester or fluke tester, a basic multimeter may give inaccurate or varying results, this is normal and must be double checked by a qualified electrician.

# 12. LOOSE CABLE AND TEMPERATURE SENSOR RESISTANCE LOG

	Loose Cable	Loose Cable	Loose Cable						
OUT OF BOX BEFORE INSTALLATION									
Loose Cable Serial Number									
Floor temperature sensor cable resistance									
Values of heating cable leads resistance									
Values of heating cable insulation resistance									
AFTER LOOSE CABLE AND SENSOR	R ARE FASTEN	ED TO FLOOR (	Ω)						
Values of heating cable leads resistance									
Values of heating cable insulation resistance									
If more than 3 heating cables are used please copy this page and continue logging. DO NOT DISCARD! To validate your warranty, copy of this log must be sent to Rayotec along with your warranty certificate and heating cable premises plan									

# 13. HEATING CABLE PREMISES PLAN

The plan of the premise where the location of the thermostat, the heating cable, the couplings, the end muffs and floor temperature sensor are indicated.

			ſ	) (	1	n	N	eeti	na C	ahlo	Le	egen	d €	[her	most	at		F	Tem	ipera	ature			
Legend    Heating Cable  Thermostat  Temperature sensor    Temperature sensor tube  Coupling  End muff																								

# **14. WARRANTY CERTIFICATE**

F # NML									
City Post Co	ode	Telephone							
Couty									
E-Mai									
Purchased from		Invoice No							
Cq		Dete of Durahana							
Installer name		Date of Purchase							
Rooms the Loose Cable is heating:	Rm1		Rm	3					
Total floor area in each room:	Rm1	m2 Rm2	m² Rm3	<b>m</b> ²					
Total area of cable installed in each room:	Rm1	m² Rm2	m2 Rm3	m²					
If there are more than 3 rooms please copy	this page a	and record the other roc	ims.						
Please state the cable sizes along with their	serial num	ber which is found on t	he plastic packagin	g:					
Room 1: Cable Serial Number /s:									
Room 2: Cable Serial Number /s:									
Room 3: Cable Serial Number /s:									
If there are more than 3 rooms please copy	this page a	ind record the other roc	ms.						
Thermostat (Digital or Dial)									
Theorem				(Model Number)					
Corrugated tube Installed? Yes		No		(Please tick appropriate box)					
		No							
I have fully read and understood all state				(Please tick appropriate box)					
-									
Customer				(signature)					
The installation was performed by		Date	20	(signature)					
Part P Number of Electrcian									
Please complete & send/fax/email back with the	e Loose Cab	ble & Temperature Senso	or Resistance Log (se	ection 12.0) to:					

# Rayotec Ltd • Unit 5 • Trade City Sunbury • Brooklands Close Sunbury-on-Thames • TW16 7FD Fax : 01932 784 849 • Email: info@rayotec.com



Rayotec Ltd • Unit 5 • Trade City Sunbury • Brooklands Close • Sunbury-on-Thames• TW16 7FD Tel : 01932 769 990 • Fax : 01932 784 849 www.rayotec.com

Photos for illustration purposes only. Versions supplied subject to change without notice.