



NUMBER 1 FOR UNDER FLOOR HEATING

INSTALLATION GUIDE



PRE-INSTALLATION CHECKLIST

SOLID / SCREED FLOORS

1. Insulation fitted neatly and stable with all gaps and joints taped.
2. If using liquid screed, a membrane of between 500 and 1000 gauge must be laid as crease / fold free as possible with all joints taped and no gaps. The membrane should lap up the wall by approx 100mm - paying attention to corners and joins will give a neater edge to the screed.
3. If pipe is to be routed through walls, there should be a suitably sized hole(s) for this with conduit around the pipe to protect it.
4. Perimeter insulation should be fitted around all walls (also over the 500 gauge membrane if applicable). Pull the plastic skirt out and if using liquid screen, tape the skirt to the membrane along all edges, see picture.



JOISTED FLOORS

1. Insulation fitted neatly in between joists
2. If pipe is to be routed through walls, there should be a suitably sized hole for this.
3. Notching of the joists as per building and insurance regulation (our design will show pipe routes for this).

RECOMMENDED FOR ALL INSTALLATIONS

1. A mains water supply with a suitable tap connection (Hozelock or bib tap etc) should be available within 20m of the manifold(s)
2. A solid provision for the manifold(s) to be fitted to should be available
3. All areas free of other trades, water and debris etc
4. Electricity supply for power tools and lighting
5. Our CAD design (if applicable) should be approved before the installation date

EQUIPMENT / DESIGN

1. Before commencing with installing materials check the equipment is complete, correct, undamaged and matches the delivery note / invoice Check that the CAD design (if applicable) is present and correct to your property etc.

Check you have the appropriate fixings for the floor construction

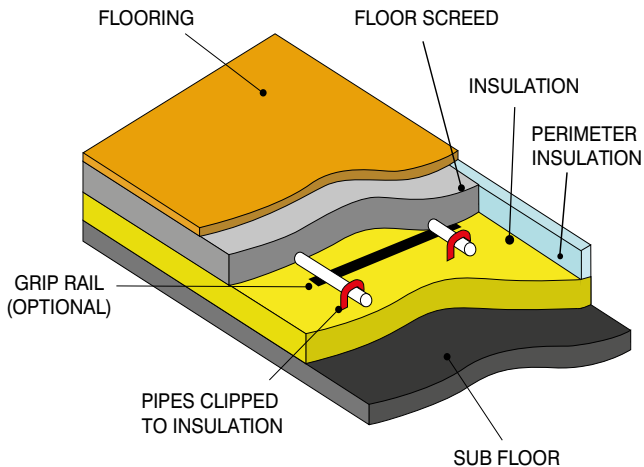
The installation of this equipment should be carried out by a competent person and in accordance with the relevant, Building Regulations, Model Water By laws and the Building Standards (Scotland) Regulations.

Underfloorheating1 shall not be responsible for any damage or loss resulting from failure to carefully observe the instructions given. Installers should read this manual carefully. Responsibility for finished system function and operation rests with the installer. Please pay attention to the following points.

1. Please check you have been delivered all components to complete installation in accordance with these instructions. If you have any doubts please call the Underfloorheating1 despatch department on 01302 727182. All queries must be notified within 48 hours of delivery or subsequent items may be charged.
2. Where pipes pass through walls they must be sleeved with flexible conduit.
3. The CAD drawing supplied contains information on pipe spacing and pipe lengths, this must be observed.
4. Please ensure all timber joist notching complies with building regulations and the building insurers.
5. The software use for the CAD design calculates the total amount of pipe required to complete the installation. The system allows for 5 metres per circuit contingency. Please make sure you optimise pipe supplied by calculating (or read the pipe schedule), before cutting, the optimum lengths required to be cut from each particular roll. Underfloor Heating 1 accept no responsibility for pipe shortages as a result of mistakes of failure to optimise pipe cutting.
6. Make sure you understand the design and pay careful attention to pipe spacing.

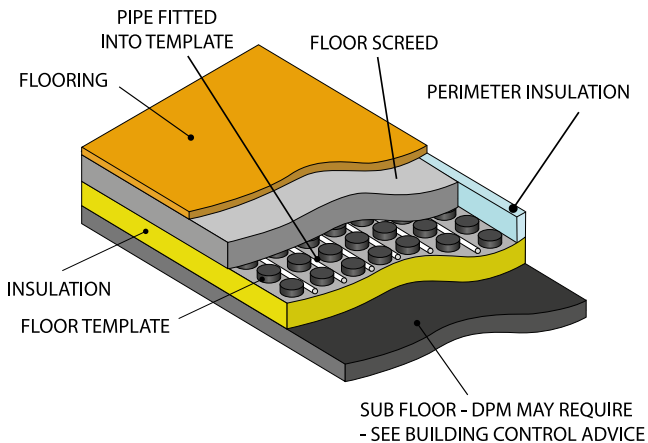
FLOOR CONSTRUCTIONS

Screed Floor



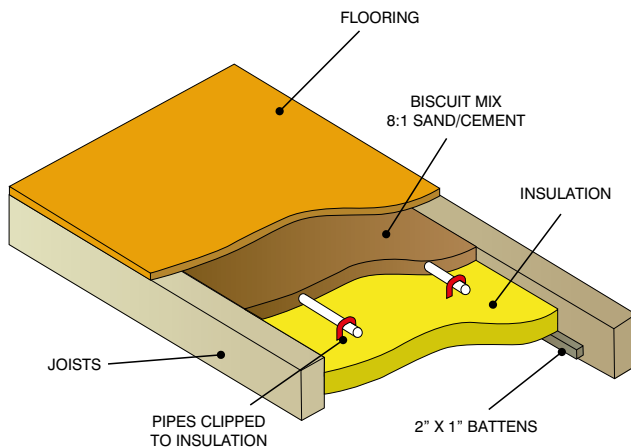
- Insulation - refer to building regulations for size.
- Screed - We recommend 50 - 75mm liquid or 65 - 75mm traditional screed
- Seek building control advice on the position and use of damp proof membrane
- 500 gauge screed membrane above the insulation before pipe is required for liquid screed

Screed Floor (with floor templates)



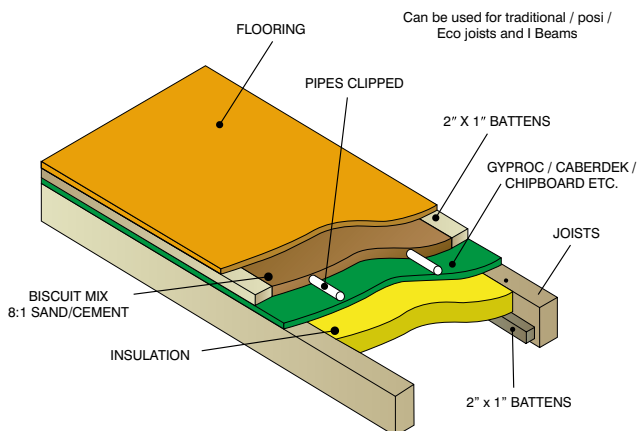
- Insulation - refer to building regulations for size.
- Screed - We recommend 65 - 75mm traditional screed
- Seek building control advice on the position and use of damp proof membrane

Joisted Floor (using 'biscuit mix')



- Insulation - refer to building regulations for size.
- Flooring - Plywood/chipboard flooring may be required before floor covering. Contact us if unsure
- Biscuit Mix - we recommend 20 - 25mm thickness

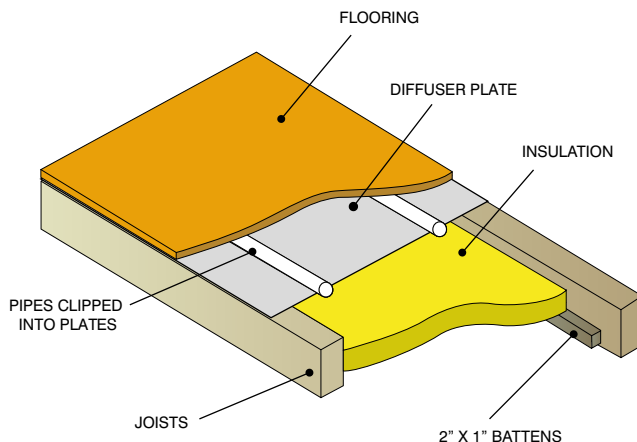
Joisted Floor (Cross Battening)



- Insulation - refer to building regulations for size.
- Flooring - Plywood/chipboard flooring may be required before floor covering. Contact us if unsure

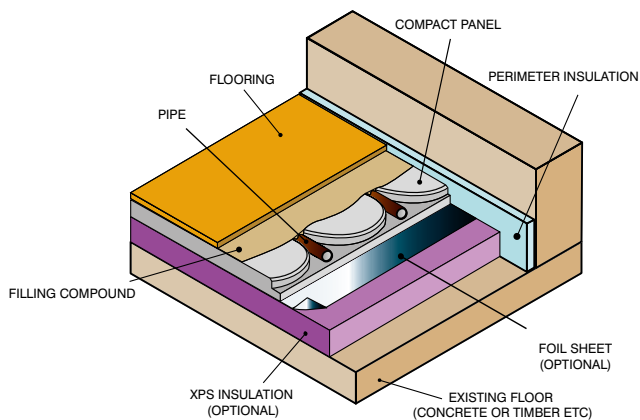
Joisted Floor

(using aluminium spreader plates)



- Insulation - refer to building regulations for size.
- Flooring - Plywood/chipboard flooring may be required before floor covering. Contact us if unsure

Variotherm Compact Floor Retrofit system



VARIOTHERM

INSTALLATION OF MANIFOLD

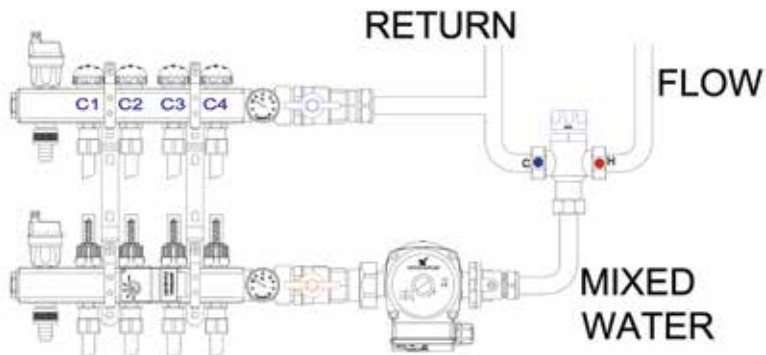


The manifold should be installed with the top rail of the manifold approximately 600mm from the floor. It should be securely fixed to a solid mounting point such as brick/blockwork etc. Modern UFH pumps are very quiet however we do not recommend installing the manifold on a timber stud wall due to noise transfer.

Although UFH systems are mostly maintenance free, there should be room around the manifold to access it.

The manifold is reversible so flow/return pipework can be at either side. If using the 'easy fit pump pack' (example pictured) see the item instructions for mounting it correctly.

SELF-BUILD PUMP PACK SCHEMATIC



pump/blending valve can be mounted LH or RH as shown

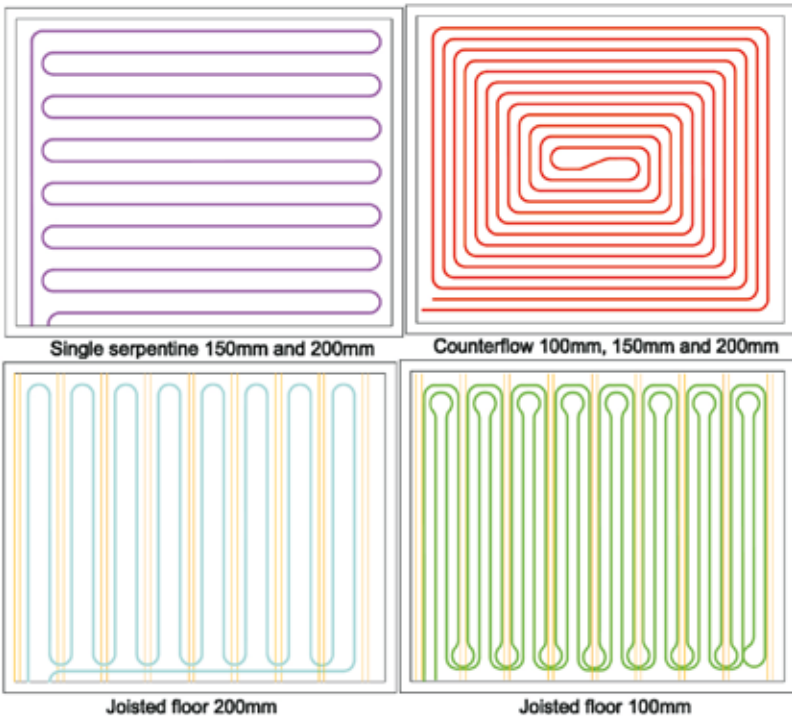
INSTALLATION OF PIPE

We supply pipe in rolls up to 400m in length. The pipe is marked in 1m increments.

The pipe should always be cut cleanly and straight using a pipe cutter, do not use a saw of any type. If installing in a screed floor, slide 300mm of conduit over the pipe if using screed (as per the above picture). The pipe connector is in 3 parts - nut, olive, nipple - fit the nut over the pipe and then the brass olive. Insert the nipple into the end of the pipe.

Starting at one end of the manifold, push the pipe to the port on the flow rail (red) and connect the nut. Keep pushing the pipe squarely into the port whilst tightening the nut, using a suitable grips or spanner - do not over tighten. Fit the pipe in accordance with the design (if applicable) making note of the pipe used as you lay it - as a rule of thumb we recommend not laying any single circuit more than 100m. We allow in our specifications for 2 clips per metre although more may be required if using low grade insulation such as EPS etc. Connect the other end of the pipe to the corresponding port on the return rail (blue). Repeat the process (as per CAD design if applicable) until all ports have been installed and connected to the manifold.

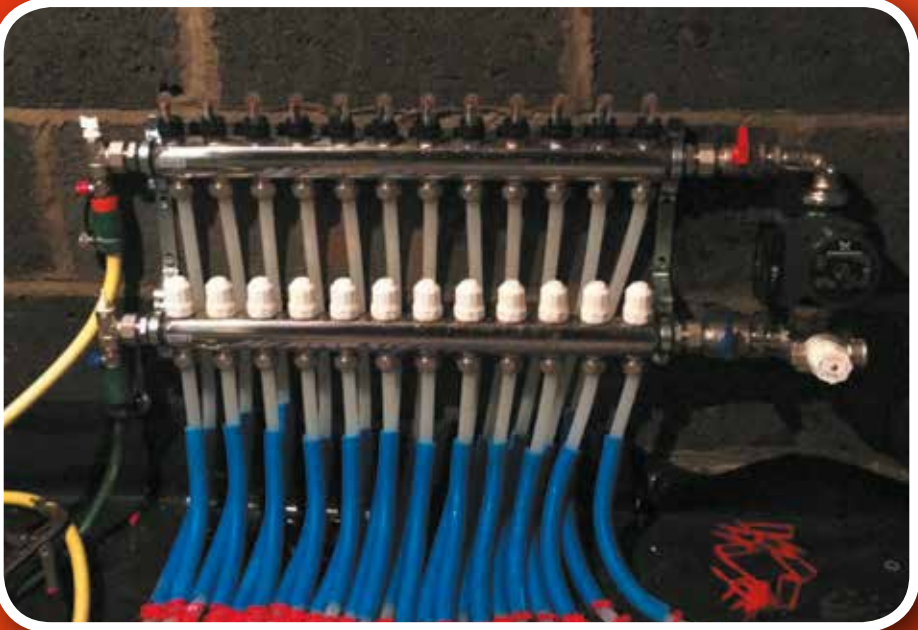
PIPE DESIGNS



FILLING & PRESSURISING THE UFH SYSTEM

A test is performed at a pressure of 6 bar before flooring, screed or biscuit mix is laid to check for leaks and ensure the pipes are at their most expanded. This pressure is to be maintained until screed application is completed in order to ensure that any leaks are identified immediately and prevent the screed cracking later. 6 bar is a lot higher than a system would normally run.

REMEMBER: You must be extremely careful to avoid frost unless anti freeze has been added to the water.



This picture shows how to connect the hose pipes to the manifold.

The flow from the mains tap to the filling point on the flow rail (red) of the manifold and the return / waste hose connected from the drain point of the return manifold (blue) to somewhere the return water can drain to.

Handy tip - putting the return hose into a bucket of water (that can overflow somewhere!) makes it easier to see any air bubbles

FILLING AND PRESSURISING PROCEDURE (CONTD.)

1. Close the isolating valves on the manifold (red and blue 'butterflies').
2. Connect suitable filling pipes to the fill and drain points on the relevant rail as per Figure 1.
3. Route the pipe connected to drain point on return rail of the manifold to a suitable discharge spot - secure the open end as it can whip about!
4. Connect pipe from the fill point on the flow rail of the manifold to a mains cold water supply.
5. All the caps (white or blue) on the return rail should be closed. They can be closed by turning them clockwise.
6. All flow meter valves (flow rail) should be closed. They can be closed by turning them clockwise.

See picture below:



Flow meter open (collar removed)

7. Open the first cap on the return rail (at one end) fully by turning anti - clockwise.
8. Open the flow meter valve above the cap opened (i.e. on the same circuit) as per Figure 2.
9. Open the filling and drain points (either a square key beneath the drain point or a small red/blue lever) fully by turning anti-clockwise or quarter turn if the small red/blue lever.
10. Turn on the mains cold water supply.
11. You should see the red indicator marker in the flow meter move to the bottom of the tube. This indicates correct flow of the water in and shows there isn't a blockage. The return hose will probably spit and will have an intermittent flow until the circuit has been purged of all air correctly.

12. When circuit is full and correctly purged, the flow from the return hose will be smooth. Open the next white cap and corresponding flow meter and close the circuit you've done by turning the white cap clockwise as far as it will go. The flow of water should stop immediately, if not, there is still air left in the pipe.
13. Repeat for the next circuit on manifold until all circuits are filled and vented.
14. Once all circuits are filled and vented individually, open all the white caps so that water is flowing through all circuits.
15. Close the drain valve on the return rail drain point and let pressure build for a minute before closing the valve on flow rail fill point.
16. Using a Rothenberger pump or similar (Figure 3), 'pump' the system up to 5 bar via the flow rail filling point (with the point open!) and then close the system off. Leave for 10 minutes. After this time pressure should have dropped by no more than 1 or 2 bar. If pressure drops significantly, check system for leaks and make sure all connections are tight but not over tightened.



Figure 3 - using a test pump to pressurise the system to 5 bar

COMMISSIONING THE SYSTEM

Important notes

Check with screeding company (if applicable) the initial drying/warming up process

Ensure that supply pipe work to the manifold is vented of all air before opening manifold isolation valves and before the rest of the commissioning process

1. Check that all flow meters are open. Turn them anti-clockwise a couple of turns from closed.
2. Switch the programmer for zone 1 so that it is calling for heat, you should see a flame signal.
3. There should be no actuators fitted on the manifold, the manifold pump should run and the zone valve should open (if one is fitted).
4. The boiler should fire up at this stage and the system should circulate water. Turn the flow meter on all circuits until the plastic indicator is around 1.5 (if using a boiler) or 1 for heat pump systems. The flow meter scale works down, so allowing more flow (like opening a tap) moves the red indicator down. As each are adjusted, some you may have already set may alter slightly. We find that it's best to alter in small increments.
5. Turn the zone 1 room stat up to it's highest temperature.
6. Within 5 minutes (some can take that long) the actuator should open there will be an indicator of sorts, usually either a viewing window with plastic indicator, plastic pin moves out of the top or a light within the unit.
7. Fit the actuator(s) to the appropriate valve(s) on the manifold (on large floor areas there may be more than 1 actuator, check the CAD).
8. Now turn off zone one and activate zone two. It is important to work methodically like this to ensure that the correct room stat is operating the appropriate actuator(s).
9. Repeat process until all actuators are checked.
10. Check system pressure is @ 1.5 bar & no further air is coming out of air vents.
11. Check that the temperature on the flow gauge reaches the required temperature - usually 50C for a screed floor and 55 - 60C for a suspended timber floor.
12. Remember for a screed floor the initial heat up period can be up to 8 hours

TROUBLESHOOTING

SYMPTOMS	CHECKS/REMEDIES
Flow pipe gets hot, return stays cool, even after many hours running, temperature on flow side not increasing.	Insufficient flow from boiler to manifold turn up speed of boiler or manifold pump.
Flow & Return pipes both hot, but temperature on floor low.	Flow & return to manifold wrong way round or manifold pump not running.
No rooms getting hot	Check flow meters (red indicator) have a flow running through and check all valves are open.
Room stat calling for heat, but no power to the pump.	Safety stat on the manifold locked out or faulty, electrical connection problems.
One room warm, other cold.	Check correct thermal heads on correct manifold ports.
One room not getting warm.	Air lock - flush through by repeating the filling up process.
Noise in system.	Manifold fitted on stub partition, acting like sound box. Tension on copper flow & return pipes. Air in system - due to wrong filling procedure
Room gets too warm.	No thermostatic control. Not connected to correct manifold port. Thermal head faulty/broken. Room stat faulty/broken.

WIRING DIAGRAMS

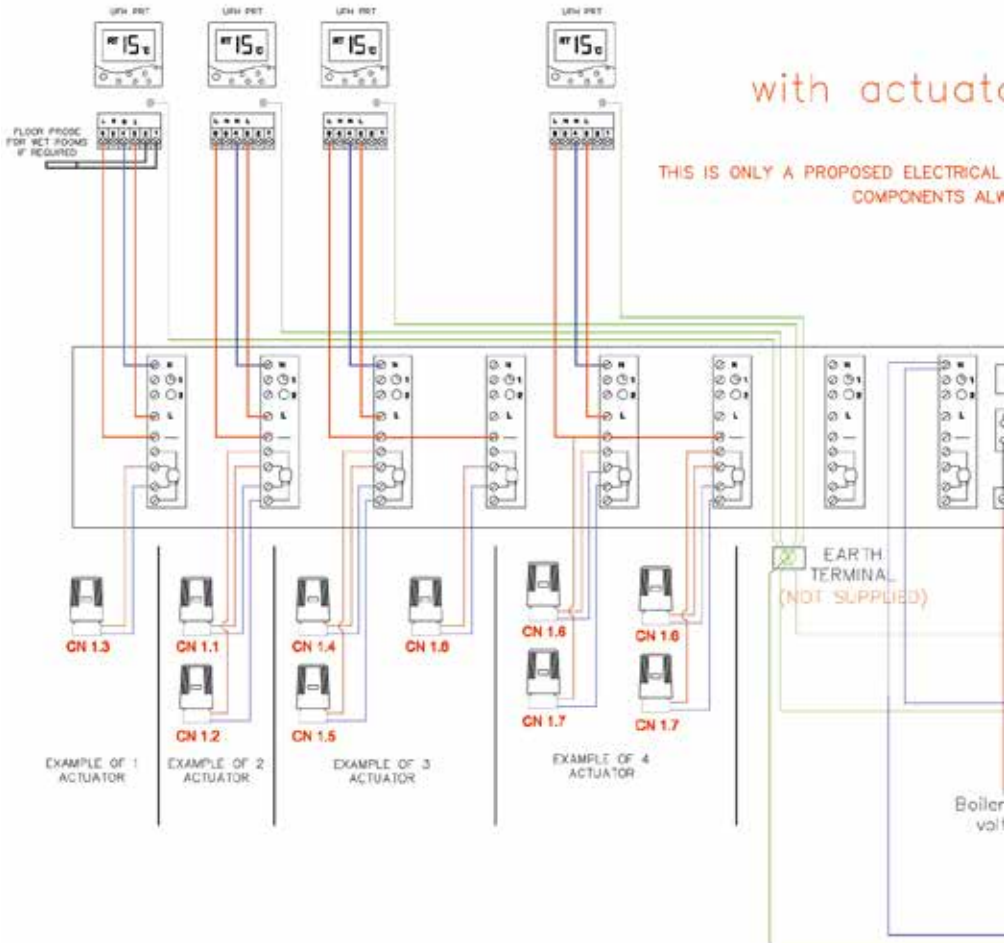
Whilst every effort is made to ensure these diagrams are correct, the products must be fitted by a suitably qualified electrician and UFH1 do not accept liability for any products that are found to be incorrectly fitted or any other subsequent damage.

PLEASE CHECK THERMOSTAT INSTRUCTIONS FOR WIRING DETAIL

Under floor heating

with actuators

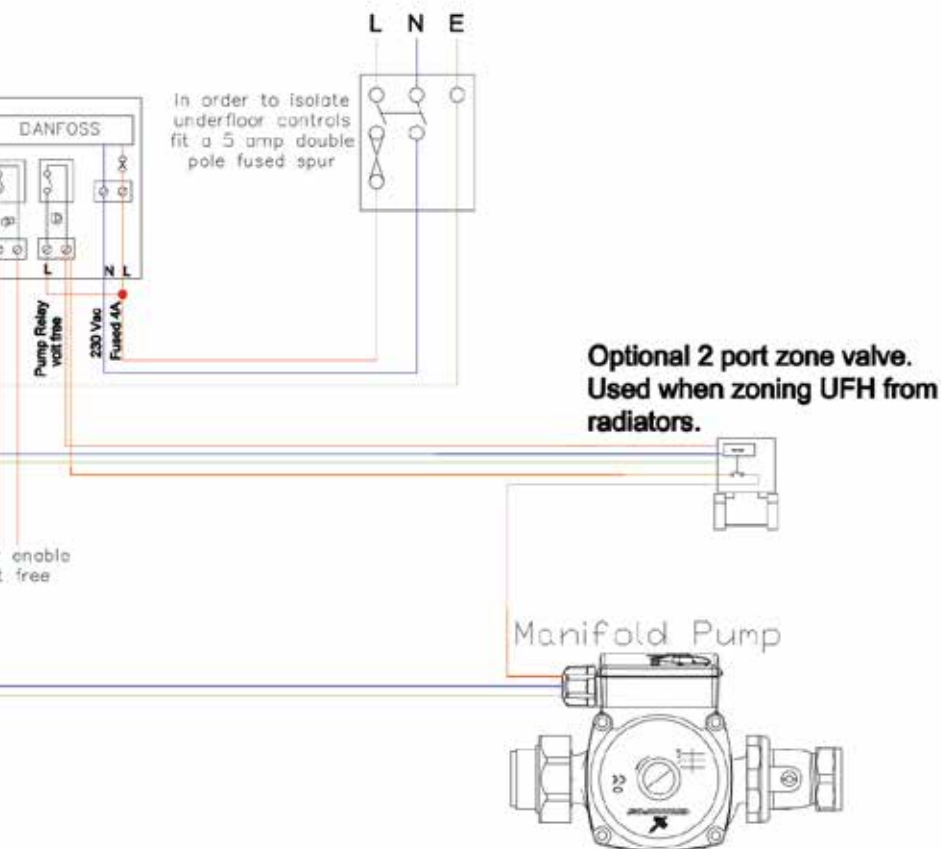
THIS IS ONLY A PROPOSED ELECTRICAL COMPONENTS ALWAYS



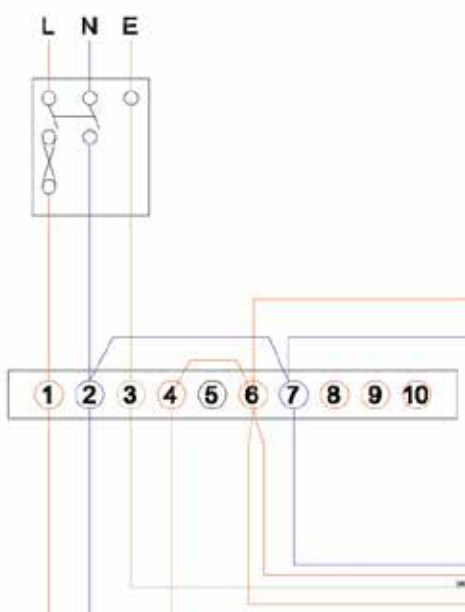
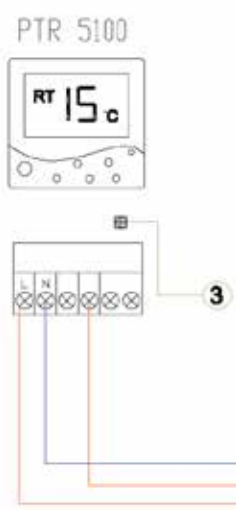
Wiring electrical schematic

UFHPRT Pumps and wiring centre

THIS SCHEMATIC AND DOES NOT NECESSARILY SHOW ALL REQUIRED
WAYS CONSULT A QUALIFIED ELECTRICIAN.



In order to isolate underfloor controls fit a 3 amp double pole fused spur to each manifold



Honeywell 10 way
junction box

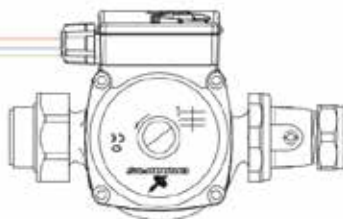


Boiler switched live

3



Strap-On Pipe Thermostat for
Overheat Protection Fixed
Fixed To Flow Pipe To Manifold



UFH Manifold Pump

NEW FROM UFH1!!!

HIGHEST HEAT OUTPUT OF ANY RETROFIT UNDERFLOOR HEATING SYSTEM IN THE UK

Our super slim, ultra-low profile retrofit underfloor heating system allows you to have underfloor heating on existing floors (inc. concrete) and is great for extensions, loft conversions, bathrooms and renovations.



ULTRA-LOW PROFILE
ONLY 18MM

FREE CAD DESIGN | FREE TECHNICAL SUPPORT | FREE SUPPORT

SEND US YOUR PLANS OR CALL US FOR A FREE QUOTE AND CAD DESIGN*

*Free CAD design on purchase

- Super slim! A Panel thickness just 18mm
- Energy-saving low temperature system
- Low weight - Ideal for drywall construction, renovation of old buildings and installing on existing flooring
- Highest performance retrofit system available due to close pipe spacing of 100mm
- Optimal heat transfer: VarioModule pipes are fully embedded in the compact filling compound
- Rapid response time
- Can be used over any floor construction
- Can be used with any floor covering
- Suitable for boilers, heat pumps etc etc

WALL / CEILING HEATING / COOLING



The Variotherm ModuleWall and Variotherm Module-Ceiling provide heating and/or cooling in a single system. This is a flexible FERMACELL gypsum panel system which has pipe pre-installed.

This system is ideal for use where UFH cannot be used or all retro-fit applications.

There are 5 standard sizes of panels plus bespoke panels can be created.

CONTACT DETAILS



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