



MULTIPIPE

UNDERFLOOR HEATING INSTALLATION GUIDE

V5 MAY 2022

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For more information visit www.multipipe.co.uk

Join us on social



Checking Your Order

Upon delivery of your underfloor heating system, please check all products are correctly supplied against corresponding delivery note. Please contact us on 01245 227 630 within 24 hours of receipt if there are any problems with your delivery.

MultiPIPE Ltd
Unit 12 Great Hayes Business Park
Lower Burnham Road, Stow Maries
Chelmsford
Essex
CM3 6SQ
Tel : 01245 227630
Email : info@multiPIPE.co.uk
VAT Reg No: 135769973

MULTIPIPE

MKM Building Supplies Limited (Darlington)
Stoneferry Road
Dukes Park Industrial Estate
Hull
HU8 8DE

DELIVERY NOTE Page 1

Order No	10625
Order Date	28/03/2017
Your Order No	0011/00161794
Account Ref	MKM

This is not a V.A.T Invoice

Qty Despatched	Product Code	Description	Qty Remaining
1.00	UNDERFLOORHEATING	Underfloor Heating Design / Install Guide - Q10625/1	0.00
3.00	10-16751	75m coil 16x2 MLCP Pipe	0.00
3.00	10-16101	100m coil 16x2 MLCP Pipe	0.00
3.00	10-16121	120m coil 16x2 MLCP Pipe	0.00
2.00	10-16050	50m Coil Black Conduit 25mm Ø (16mm pipe)	0.00
1,800.00	10-16306	60mm Pipe Staple for use with Tacker Gun / 30mm per box	0.00
3.00	10-50150	50m Roll Edge Insulation 8mm x 150mm Inc Apron	0.00
1.00	35-16110	FMC 10-Port 1" Manifold with Flow Meters	0.00
1.00	35-14049	FMC Pair 1" UFH Manifold Ball Valve (Red/Blue)	0.00
1.00	35-53128	FMC Pair of Manifold 1" End Caps [ZL-2811A/ZL-2841B]	0.00
20.00	20-03161	FMC 16x2 (3/4" FT) Compression Eurocone [Use with FMC Mfold]	0.00
1.00	28-06151	FMD/B/C 15kw Pump Control Pack with A rated pump [Wilo]	0.00
1.00	TEXT	**** CONTROLS ****	0.00
10.00	10-23023	230volt 2 Wire Actuator Normally Closed	0.00
1.00	29-23042	Honeywell 2 Port Motorised Zone Valve [22mm]	0.00
5.00	15-23001	230v Dial Thermostat NSB (no remote sensor)	0.00
1.00	15-23013	230v 8 Zone Master Wiring Centre	0.00
1.00	15-23015	230v LCD Programmable Single Channel Time Clock	0.00

Deliver To:
MKM Building Supplies Limited
John Street
Darlington
DL1 1LG

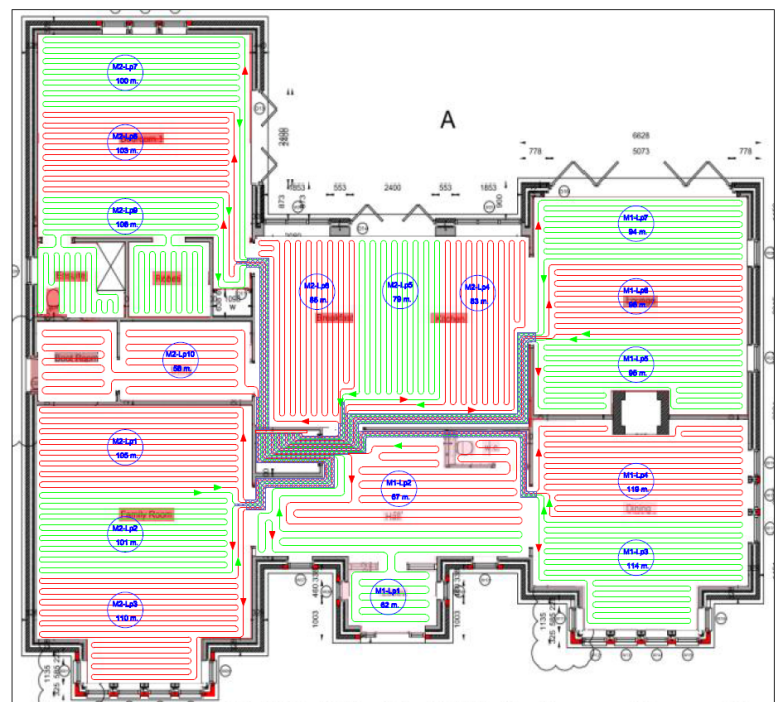
Please take time to check delivery for any shortages.
All claims must be made within 48 hours upon receipt of goods.
If you need to return any items please request a copy of our returns procedure and Goods Return Form (GRN1).
All goods supplied correctly and as ordered are subject to a 35% re-stocking fee. Your signature confirms that all goods received are as ordered, and in good condition. Please take time to ensure all goods are not damaged before you sign for receipt of delivery.

Line Drawings

(if applicable to your order)

If you have requested a line drawing with your order please thoroughly before commencing installation of the UFH to ensure it meets with your requirements. Please pay particular attention to the following:

- The manifold is indicated in the correct position.
- That all loop lengths match the supplied pipework
- That all the room areas to be heated are indicated correctly.
- That all unheated room areas are indicated such kitchen units & fixed furniture
- That the floor constructions are correct.



Line Drawing showing completed UFH pipe layouts

Project Tooling

Before installation of the underfloor heating system please ensure you have the following tools:

(depending on the type of installation additional tools may be required)

- | | | | |
|---|------------------------------|---|--------------------------------------|
| • | Tape measure | • | Screw drivers |
| • | Masonry drill & bits | • | Stanley knife |
| • | Adjustable spanners/wrench | • | Spirit level |
| • | Pipe cutter & bevelling tool | • | Tacker gun |
| • | Circlip hose pipe fasteners | • | Anti-freeze protection |
| • | Hose pipe | • | Fine toothed hand saw |
| • | Pressure tester | • | Suitable wall fixings (for manifold) |
| | | • | Marking paint |

Site Requirements

Before installation of the underfloor heating system please ensure the following site requirements are met:

- The working area must be weather tight.
- The working area must be clean and swept of any debris or rubbish
- Access to mains pressure water for filling and testing
- Task lighting & power
- Any site specific safety & access equipment/scaffolding PPE etc.

SITE SAFETY

All Visitors and Contractors MUST report to the Site Office to receive information and rules regarding this site.



Safety helmets must be worn



Safety footwear must be worn



High visibility jackets must be worn



No unauthorised persons allowed on this site

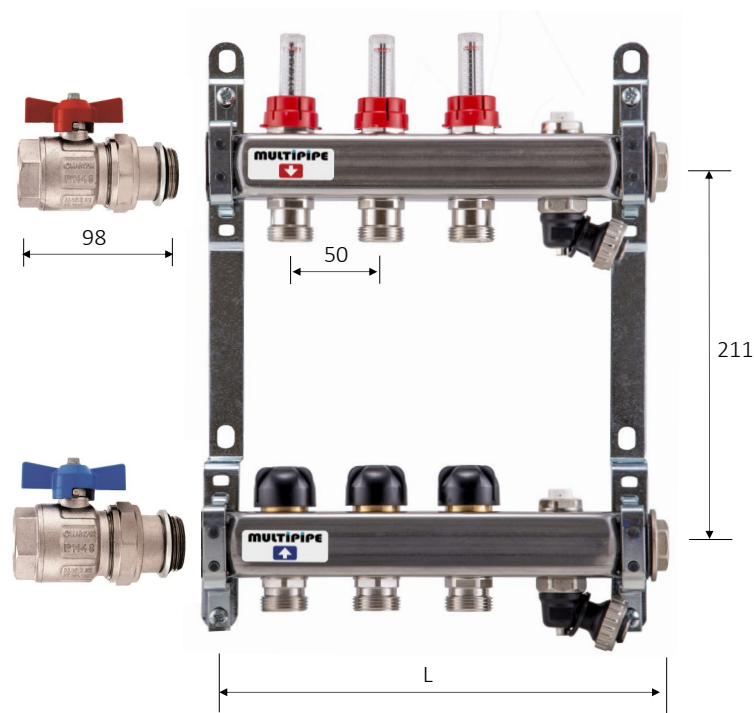
Tooling

The following items are available to buy from Multipipe Ltd, please contact our office for price and availability.

<div><p>Pipe Bevelling tool 11-30281</p></div> <div><p>Pipe Cutter</p></div>	<div><p>Pipe Staple Tacker Gun 10-50000E</p></div>	<div><p>Pipe Decoiler <i>(Recommended for use with 200m pipe coils+)</i> 10-50003</p></div>
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Stainless Steel UFH ‘Flowmeter’ Manifold

Multipipe Stainless Steel manifolds are pre-assembled, and supplied complete with flow metres, fill and drain points, air vents and blanking plugs. Manifold finish is stainless steel. Return rail has a capped integrated electrothermic body (ready for actuator head) per circuit. Flow metres provide a visual indication of flow rate through each circuit. Pipe is connected to manifold using 3/4" Eurocone pipe connectors.



Manifold Ports	2	3	4	5	6	7	8	9	10	11	12
L (mm)	193	243	293	343	393	443	493	543	593	643	693

Accessories for Stainless Steel Flowmeter Manifold



21-14049 21-53115 21-53117 21-53118 21-53116 21-53114

1" Manifold Ball Valve (Red/Blue) Single manifold ext. kit Flow Meter Flow Meter Seat Pin Assembly for Actuator Pin Assembly Seat



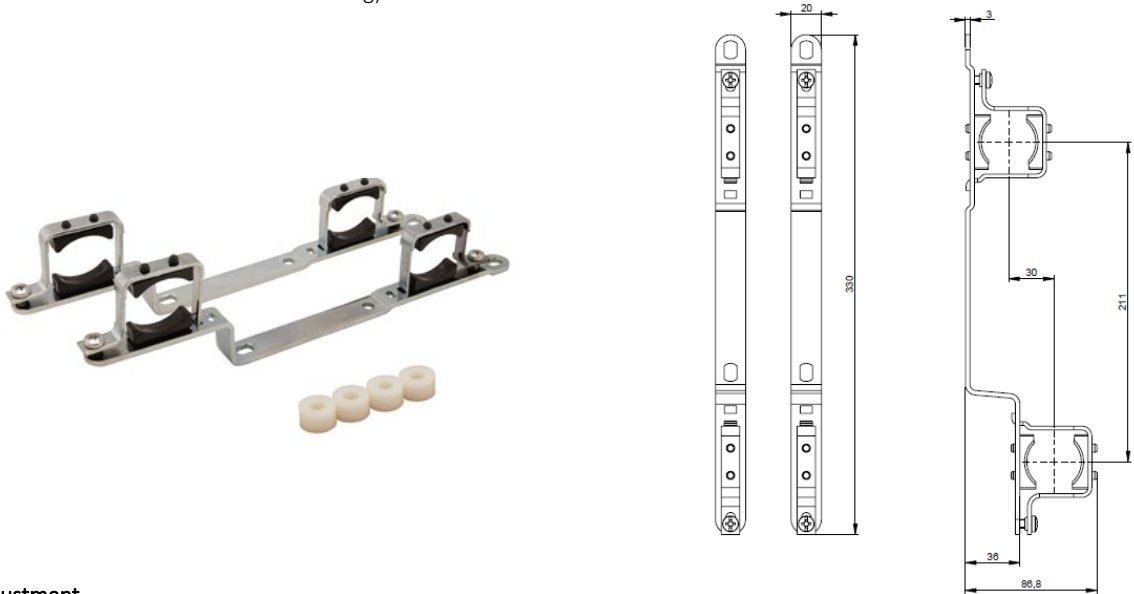
21-53120 21-53135 21-53119 21-53121 21-06298 21-06426

1/2" Adjustable Drain Valve 1" Manifold End Cap (with o ring) 1/2" Automatic Air Vent 1/2" pressure gauge End T-Piece (1" MT x 1/2"x1/2" FT) 1" Straight Coupling (MT x MT)

Stainless Steel UFH ‘Flow Meter’ Manifold

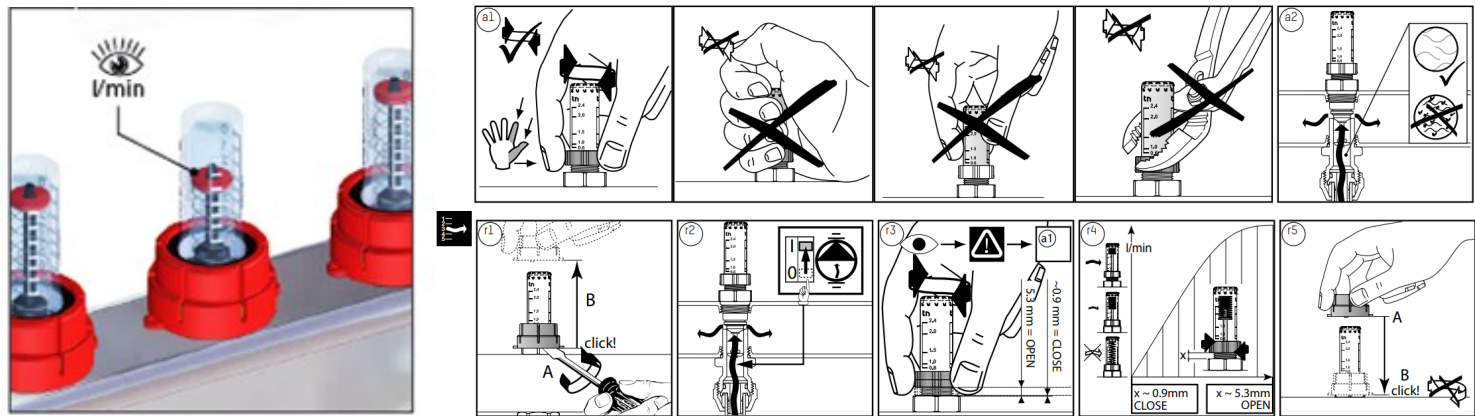
Wall Bracket Installation

When installing Manifold together with a pump control pack, please use the White Plastic Spacers provided, together with the wall brackets (Spacers are provided inside Manifold box in loose bag)



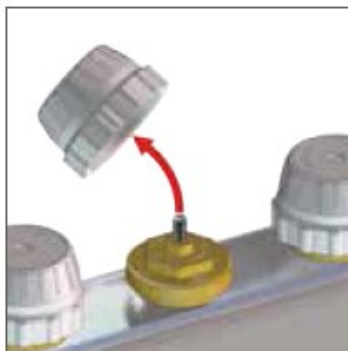
Flow Meter Adjustment

The Manifold flow meters are supplied in an open position, you can adjust the flow rate of each circuit by following the below instructions, in accordance with the chart on Page 7 or the design flowrates from your pack.

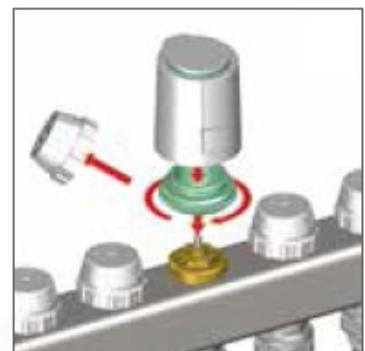


Installation of Electrothermal Actuator

Remove the plastic cap from the valve, installed on the manifold bottom return bar.



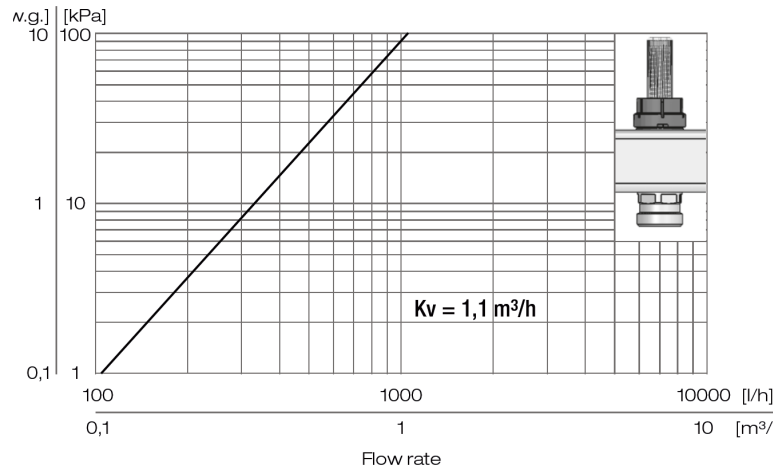
Once you have adjusted the flow rate, the valve has to be protected from dust and dirt by screwing back the plastic cap or by installing an electrothermal actuator



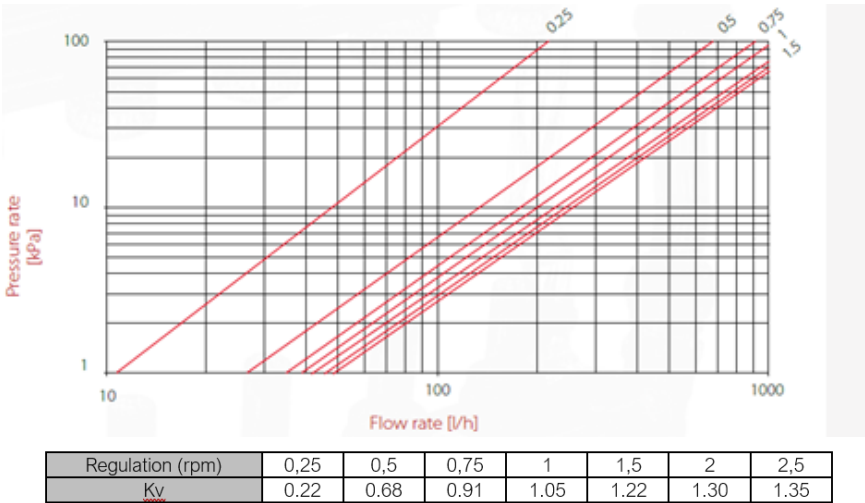
Stainless Steel UFH Manifold Technical Data

Below are the flow rate/ pressure drop diagrams relative to pre-assembled 1” Stainless Steel Manifolds.

Flowmeter manifold



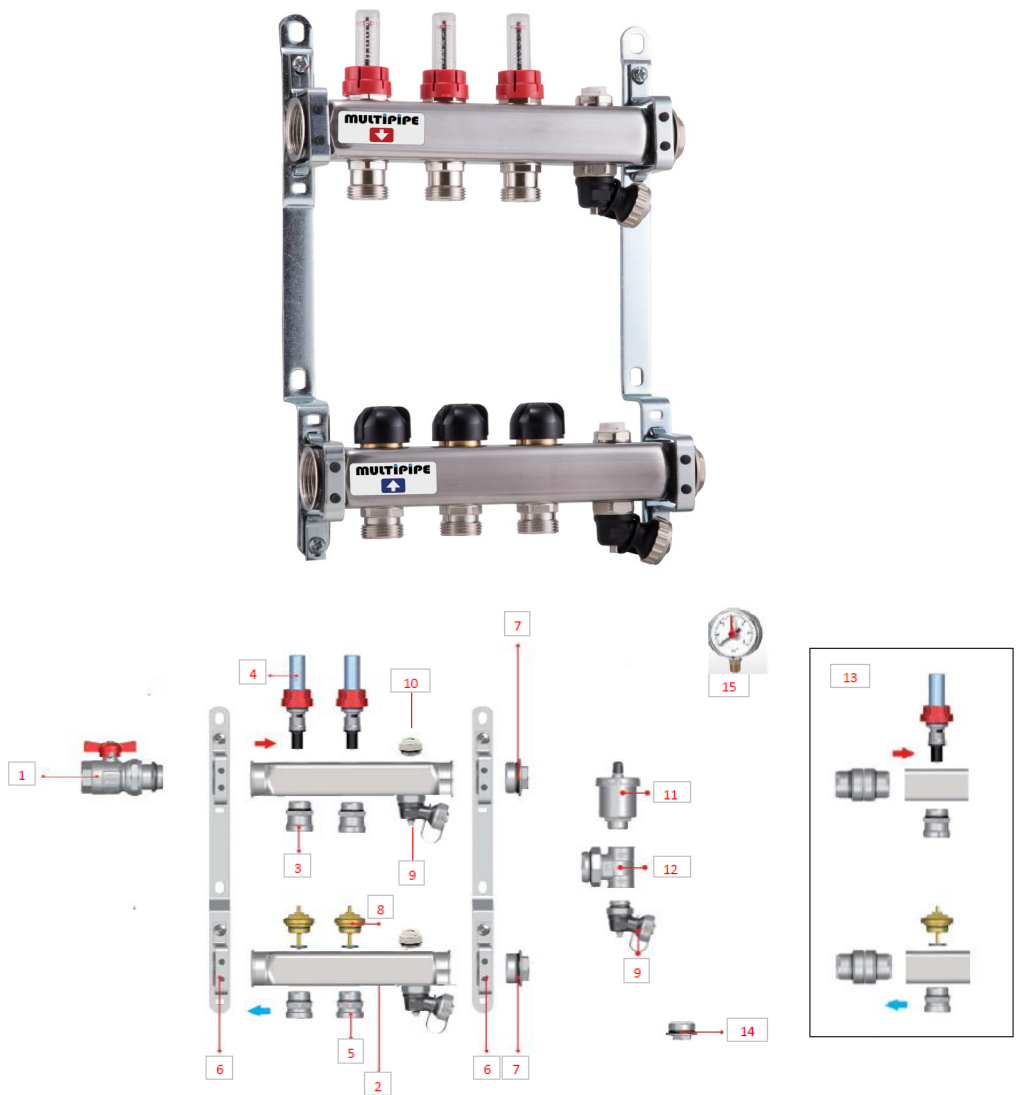
Lockshield manifold



Manifold Technical Data:
Available sizes: 1”.

Maximum operating pressure with installed flow meters:	6-bar (10 bar for installation test@ 20°C)
Suitable fluids:	water, glycol solutions (max. 30%)
Maximum working temperature:	70°C (with flow meters) 80°C (with lockshields)
Outlets:	2-12 port
Pipe Connection:	3/4" male thread (Eurocone)
Threads:	ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228)
Outlet Centre distance:	50mm
Flow meter Scale:	0-5l/min (preset to fully open)
Accuracy:	±10%

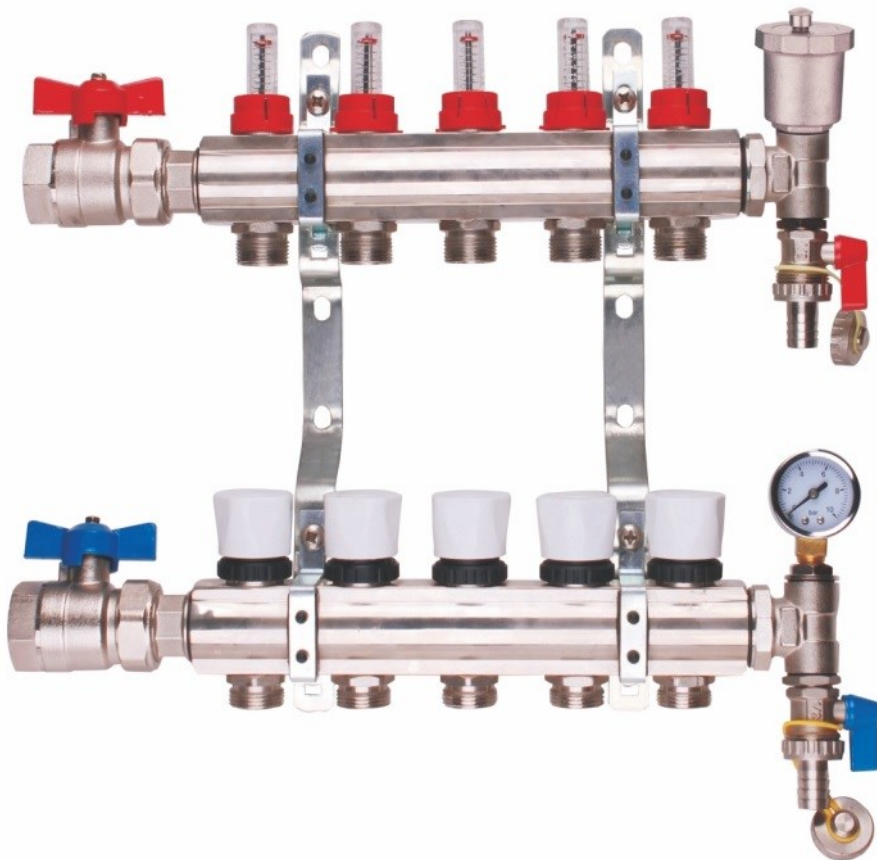
Stainless Steel UFH Manifold Accessories & Components Guide



Number	Part number	Description
1	21-14049	Pair Straight Ball Valve 1"FT x 1"MT (Red/Blue)
2	21-061XX	Stainless Steel F/M Manifold
3	21-53118	Flow Meter Seat (1/2"x3/4" MT)
4	21-53117	Flow Meter 1/2" (0-5lin/m)
5	21-53114	Adapter Seat for Return & Lockshield (1/2"x3/4" MT)
6	21-53126	Mounting Bracket for Manifold (211mm Spacing)
7	21-53135	Male 1" End Plug with O-ring
8	21-53116	Pin Assembly for Actuator
9	21-53120	Adjustable Drain/Fill Point Valve 1/2"
10	21-53121	Manual Air Vent 1/2"
11	21-53119	Automatic Air Vent 1/2"
12	21-06298	End T-Piece with O-ring (1/2" outlets)
13	21-53115	Single Circuit Flow Meter Manifold Extension Kit
14	21-53136	Male 1/2" End Plug with O-ring
15	21-53127	Pressure Gauge 0-6bar, with 1/2" MT

Brass UFH ‘Flowmeter’ Manifold (#35-161..)

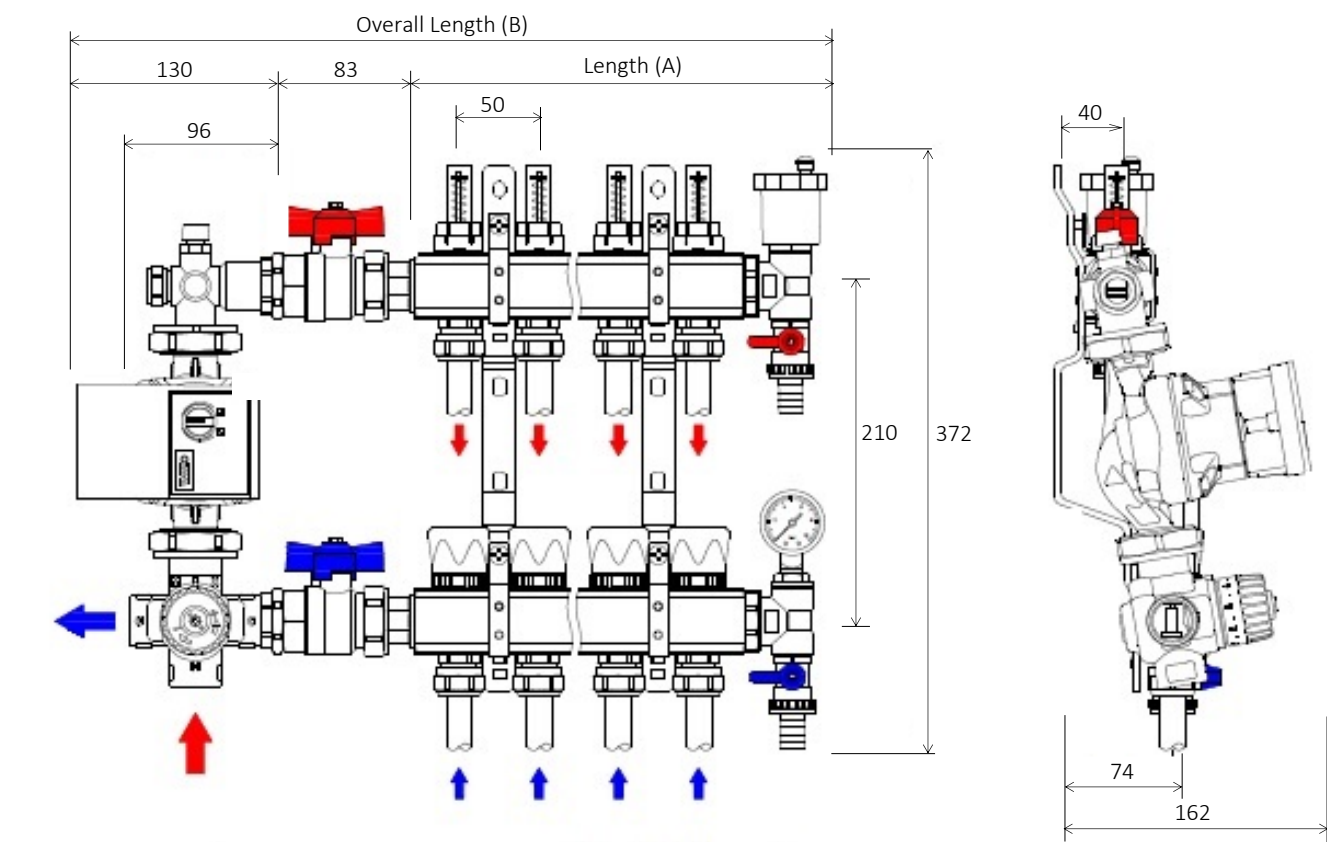
Multipipe FMC contract manifolds are pre-assembled, supplied complete with flow metres, Manifold finish is nickel plated. Return rail has a capped integrated electrothermic body (ready for actuator heads). Flowmeters provide a visual indication of flow rate through each circuit. Pipe is connected to manifold using 3/4" Eurocone pipe connectors.



Accessories for Brass Flow Meter Manifold

					
35-14049	35-53128	35-06201	35-53122	35-06204	21-53115
1" Pair isolation Valves	Ball	1" Pair End Caps	Flow Meter	Female Blanking cap 3/4"	Pin Assembly for Actuator
					Single Circuit extension kit manifold

Brass UFH ‘Flow Meter’ Manifold (#35-161..)



Manifold Ports	2	3	4	5	6	7	8	9	10	11	12
Length (A)	158	208	258	308	358	408	458	508	558	608	658
Overall Length (B)	371	421	471	521	571	621	671	721	771	821	871

Installation

When fixing a manifold to plasterboard walls, it is recommended that a fixing timber is placed within the plasterboard walls construction where the manifold fixing points are to be drilled and screwed. This will ensure a secure fix for the manifold. Where this is not possible suitable cavity fixings can be used.

Step 1 – Fix the manifold onto the wall using approved fixings for the type of wall you have ensure you do not exceed fixing weight of the manifold. The fixing holes on the bracket and the plugs/ screws provided. It must be a minimum of 300mm from the top of the finished floor to the bottom manifold connections.

Step 2 - Connect the 1” pair of isolation vales (35-14049) to the top and bottom headers (same end) of the manifold. To avoid leaks, ensure that the washers provided are positioned between the valve face and manifold prior to tightening the union nut.

Step 3 - Connect the combined drain valve and air vent set (35-53128) to the top and bottom headers of the manifold on the opposite side to the isolation valves. Again, to avoid leaks ensure that the fibre washers are in position between the valve face and manifold prior to tightening the union nuts.

Heat Pump Control Pack—with high limit sensor

(Model: 40-06156)

Heat Pump Control Pack—With high limit sensor - Type 40-06156

Suitable for up to 20kW heating load, this compact pump set is design for boosting the primary pump on low-temperature water systems. Designed with no mixing control, this allows for maximum flow temperature to the manifold. Coupled with a high-limit thermostat, this ensures if a problem was to occur, it would not damage the floor. Please note: this should be wired in line with the zone valve with pump separate this ensures in the event of a failure the heat does not sit at the manifold bar and quickly dissipates.

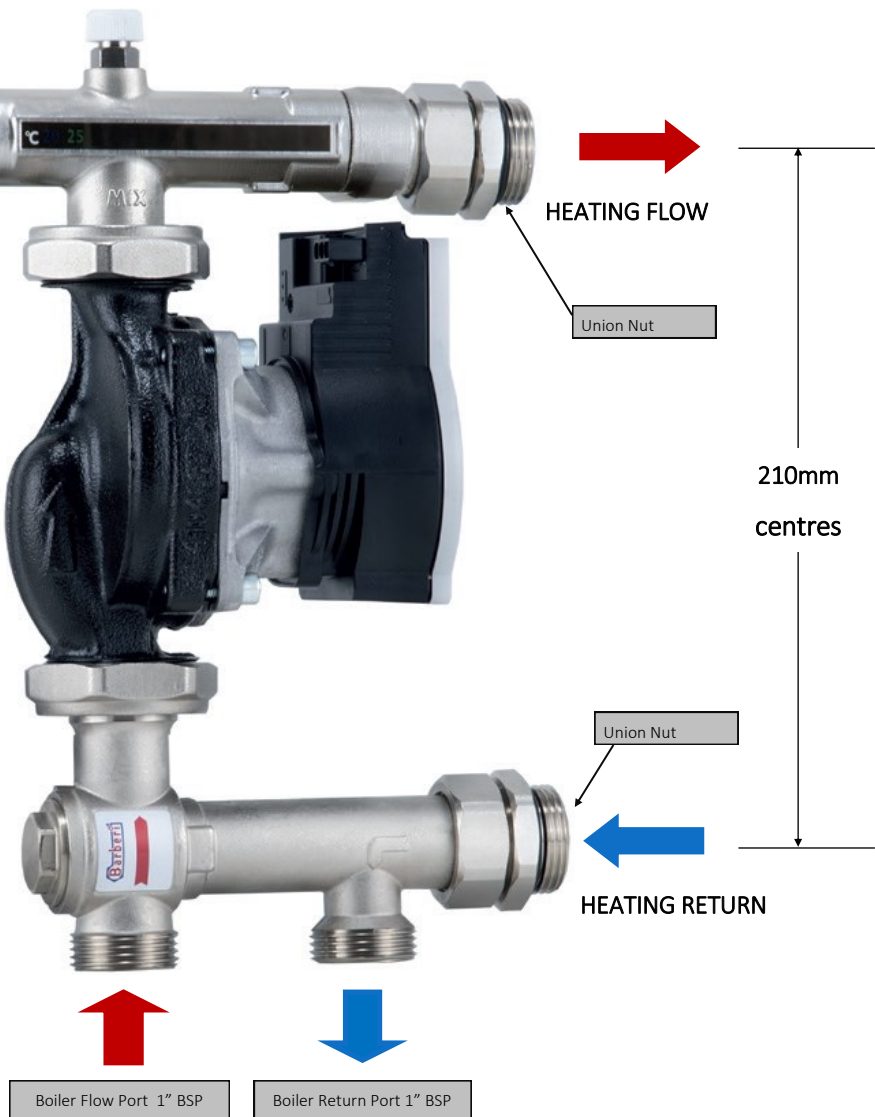
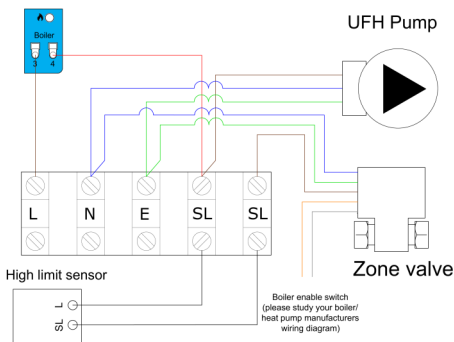
High-limit sensor



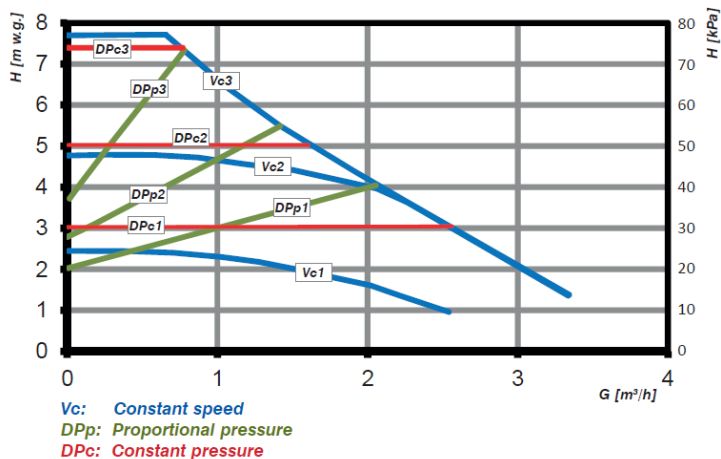
High Limit Sensor port

Pump Wilo Para 25-130/7-50/SC-12

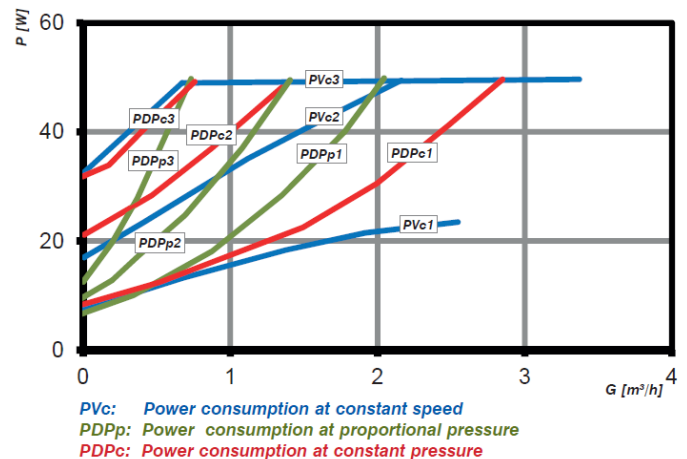
High-limit sensor wiring



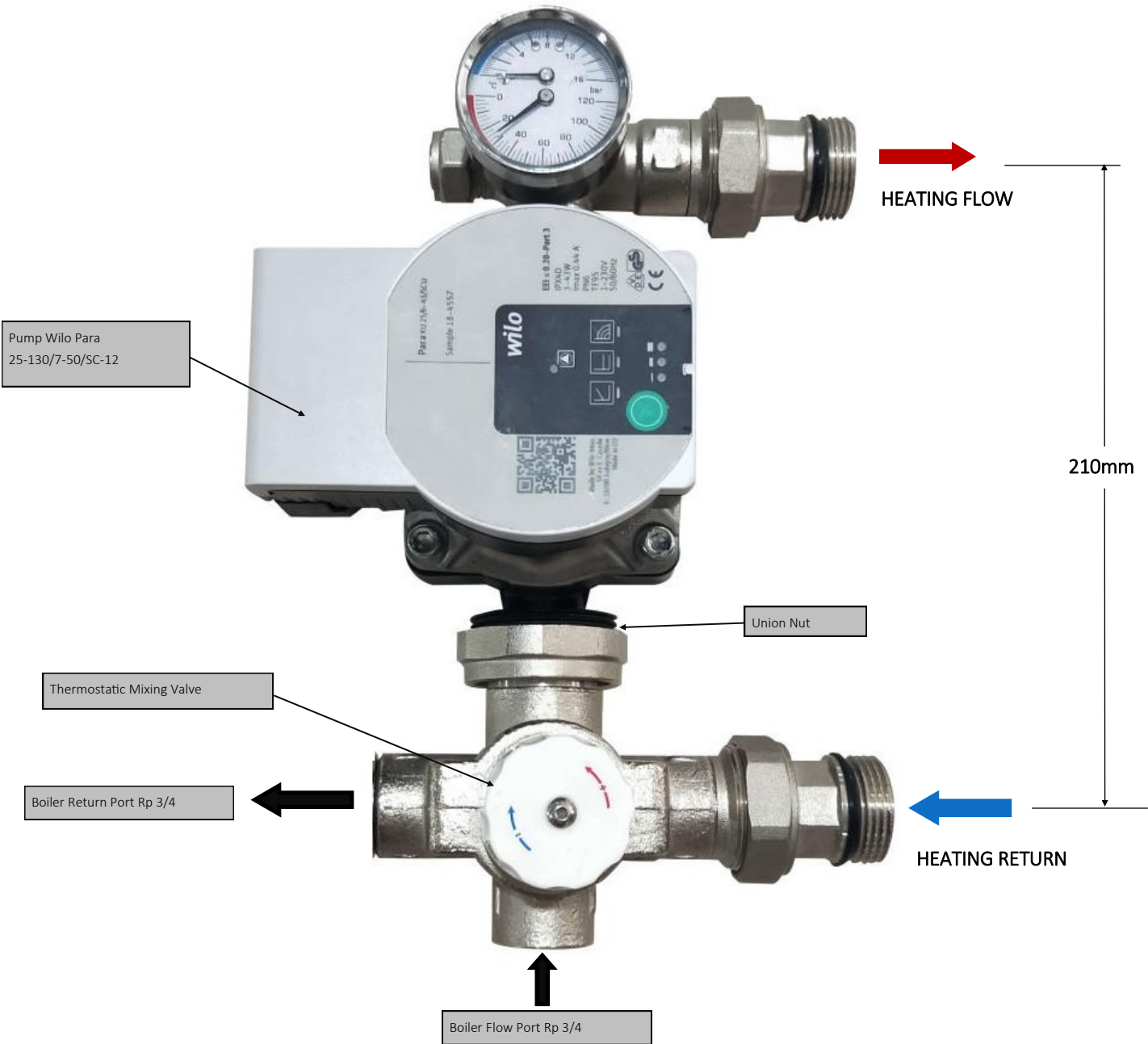
Head of pump Wilo Para 25-130/7-50/SC-12



Power of pump Wilo Para 25-130/7-50/SC-12



Water Temperature Pump Control Pack
(Model: 35-06156 Supplied unassembled)



Water Temperature Pump Control Pack - Type 35-06156

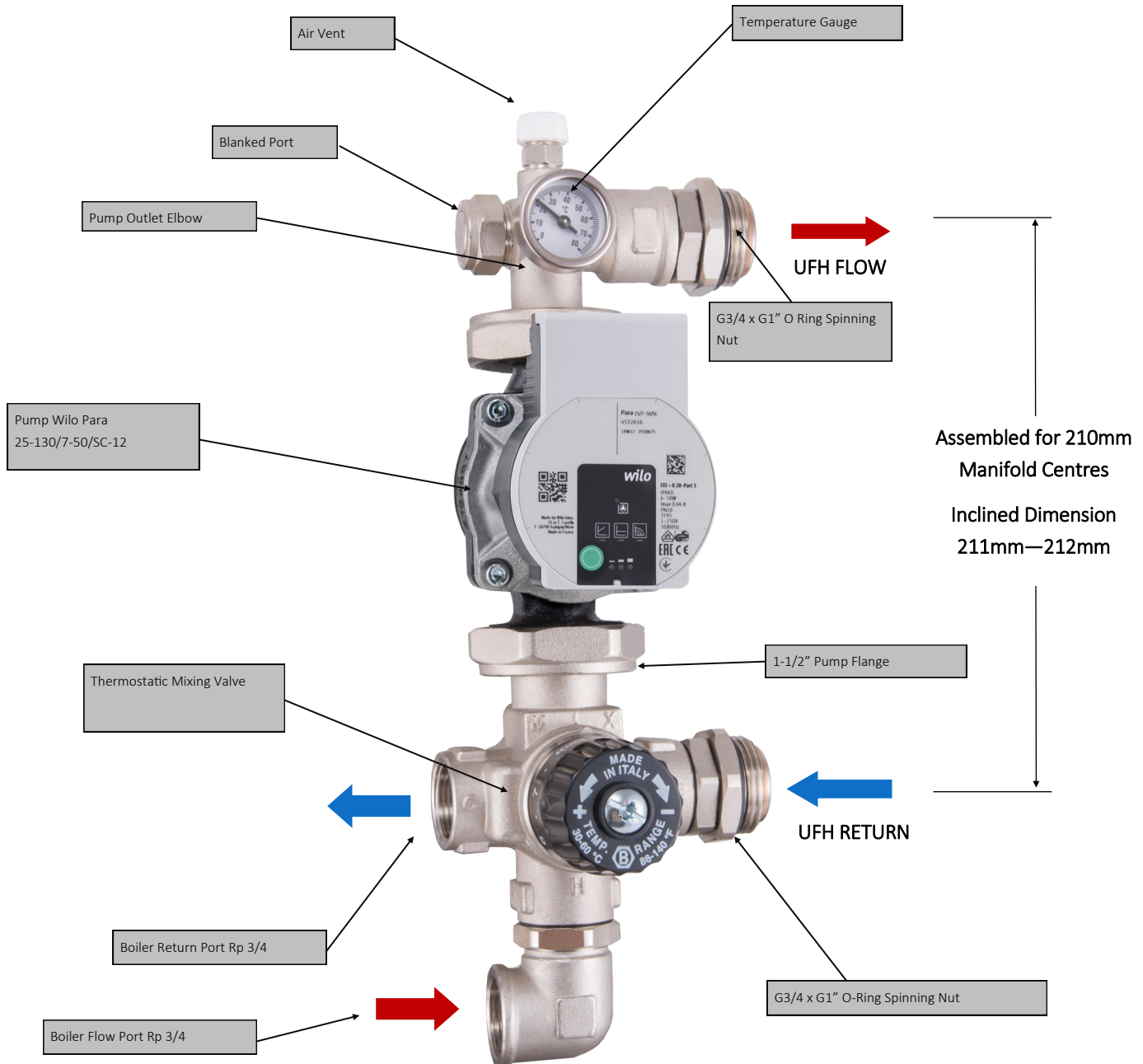
Suitable for up to 15kW heating load, this compact lightweight underfloor thermostatic mixing control complete with Wilo Yono Para class A efficiency pump has been designed for direct connection to heating manifolds with 210mm centres and is supplied with G1 male O-ring sealed connections as standard.

Its versatile design and O-ring connection system provides for simple and quick conversion from left to right hand format if required, as Illustrated.

Installing the control pack to the manifold is simple and quick, requires no additional supporting bracket and so eliminates the need for time consuming drilling and fixing.

Water Temperature Pump Control Pack

(Model: 40-06151 Supplied pre-assembled)



Premium Water Temperature control Pack- Type 40-06151

Suitable for up to 22kW heating load, this compact lightweight underfloor thermostatic mixing control complete with Pump Wilo Para 25-130/7-50/SC-12 has been designed for direct connection to heating manifolds with 210mm centres and is supplied with G1 male O-ring sealed connections as standard.

Its versatile design and O-ring connection system provides for simple and quick conversion from left to right hand format if required.

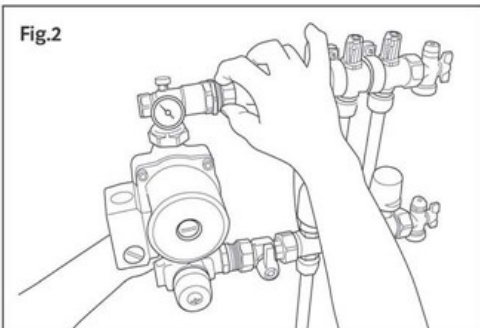
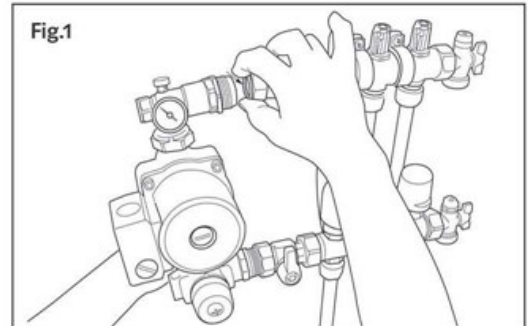
Installing the control pack to the manifold is simple and quick, requires no additional supporting bracket and so eliminates the need for time consuming drilling and fixing.

Water Temperature Pump Control Pack

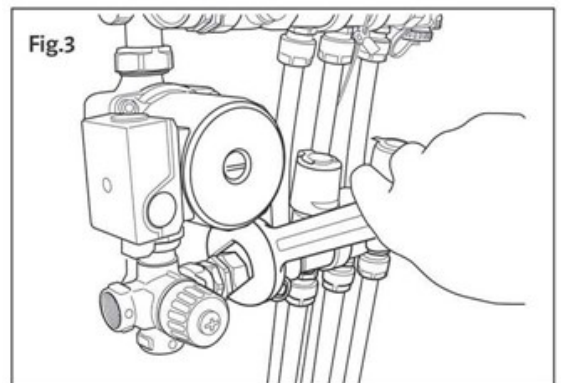
(Model: 40-06151 Supplied pre-assembled)

Installation

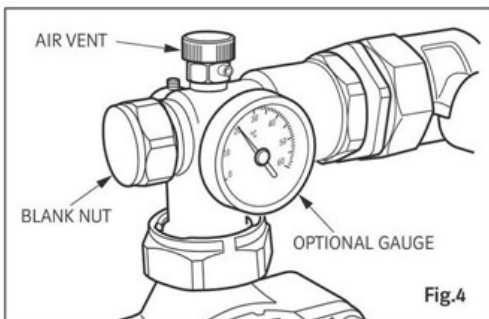
Insert the G1 spinning nut into the female sockets of the isolating ball valves on the manifold. Offer the control unit to the sockets, locating the bottom (TMV) connection first (Fig. 1) then swing the top (mixed flow) connection, aligning the assembly, then push forward until G1 male threads mate with female connections.



Screw top and bottom G1 connection spinning nuts alternatively a few turns at a time to maintain alignment (Fig. 2) until fully engaged.



Tighten spinning nuts (Fig. 3) using appropriate tools, ensuring both ends of spinning nut are tightened at the same time in order to seal both O ring connections.



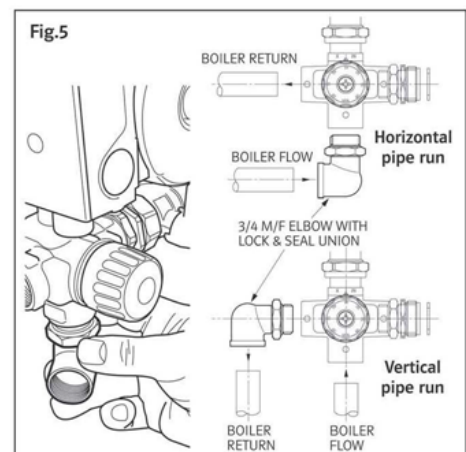
Pump Outlet Elbow

The pump outlet elbow (Fig. 4) is fitted with air vent, a blanked port for optional bypass kit and two temperature gauge sockets with fixing screw. A temperature gauge (optional extra) can be fitted to either socket so allowing for left or right handing of manifold connections.

Boiler Connections

The $\frac{3}{4}$ x 1" M/F elbow provides for the option of vertical or horizontal connection of the primary pipe work with the boiler.

For vertical pipe runs connect the elbow to the return port and for horizontal pipe runs connect the control valve flow port (Fig. 5). Screw in the male thread until the O-ring contacts the valve port face then continue to turn clockwise within 1 turn until aligned suitably for the connecting pipe run. Tighten the locknut to secure and seal. *Do not over tighten.*



Water Temperature Pump Control Pack

(Model: 40-06151 Supplied pre-assembled)

Electrical Connection

Connect the pump and zone valves (if fitted) to the electrical control circuit serving the system.

Commissioning

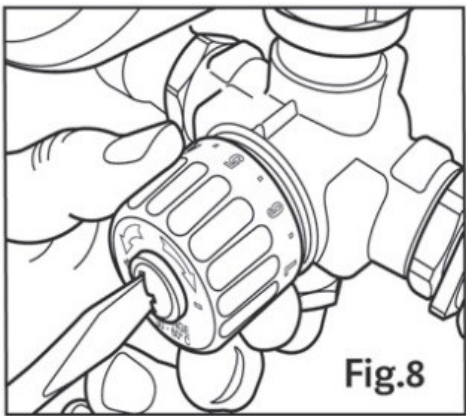
To protect and prevent damage to the mixing control and other devices in the heating circuits, it is recommended that the pipe work connecting to the boiler be flushed thoroughly of flux and debris before final connection, filling and venting the heating control and system.

With the manifold isolated but filled and pressurised, open the supply connecting the mixing control to the boiler. Purge the primary pipe work until free of air. Then vent the control unit via the vent on the outlet elbow. Check that the primary pipe work and controls is filled and at system pressure then check all joints for leaks. Open the isolating valves on the manifold to integrate the primary circuit and mixing control and heating circuits. Check again that the system pressure is correct and that all connections are good. Finally check that the integrated system is free of air via the pump outlet elbow vent and the manifold vents.

Mixing Control adjustment (Temperature setting)

The thermostatic mixing valve (TMV) is factory set to provide 45°C mixed water to the heating manifold. The mixed water flow temperature can be adjusted and locked very simply to suit the designed flow requirements within the temperature range of 30-60°C.

With the boiler on and the heating circuits balanced the mixed temperature is easily adjusted by the following method.



- 1. Unscrew the central screw (Fig 8) approximately ½ turn anti clockwise to release the clutch locking mechanism.
- 2. Turn the knob clockwise to decrease and anti clockwise to increase the temperature.

3. The numbers on the control knob indicate the approximate mixed flow temperature when aligned with the indicator rib on the valve body. Refer to Table 1.

4. Select on the dial the temperature required as shown in Table 1 (please note if using on a screed floor please see pre-heating on page 20 first!). Once pre-heating is complete this should be set to the temperature given on the commissioning sheet alternatively:

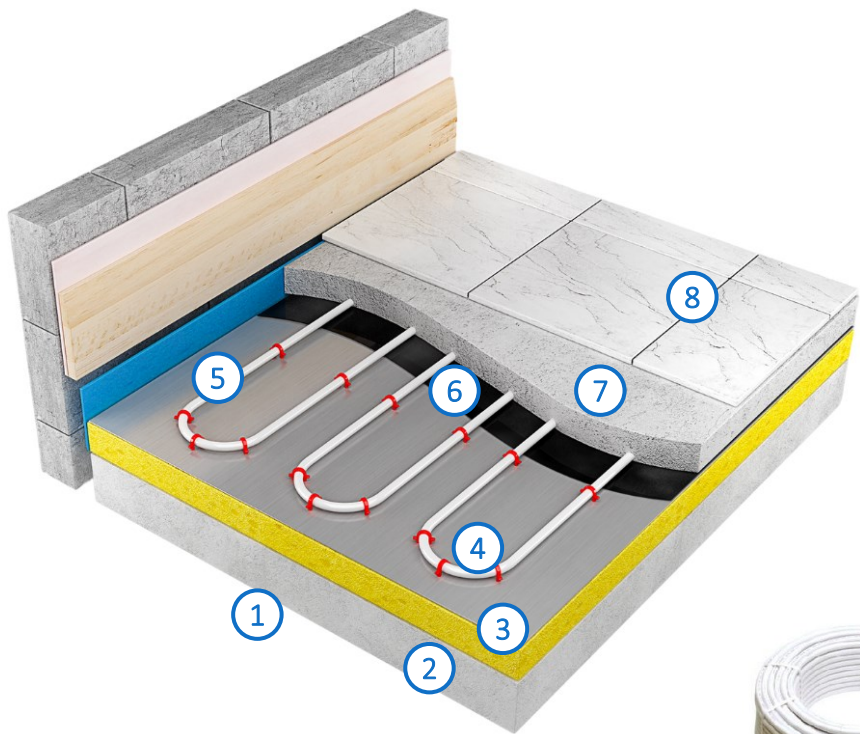
Altis FLOW	40°C
Altis DRY+ all screed types	45°C
All Fortis systems and HEP's	55°C

5. Tighten the central screw (Fig. 8) approximately ½ turn clockwise to engage the clutch mechanism and lock the temperature setting.

Min	=	30 °C
1	=	34 °C
2	=	38 °C
3	=	41 °C
4	=	43 °C
5	=	45 °C
6	=	47 °C
7	=	50 °C
8	=	54 °C
Max	=	60 °C

Table 1

Screed-Clip UFH® System



- 1 Structural Subfloor
- 2 Insulation board to Part L
- 3 UFH pipe
- 4 Pipe Staples
- 5 Edge Insulation
- 6 Membrane
- 7 Screed
- 8 Finished Floor



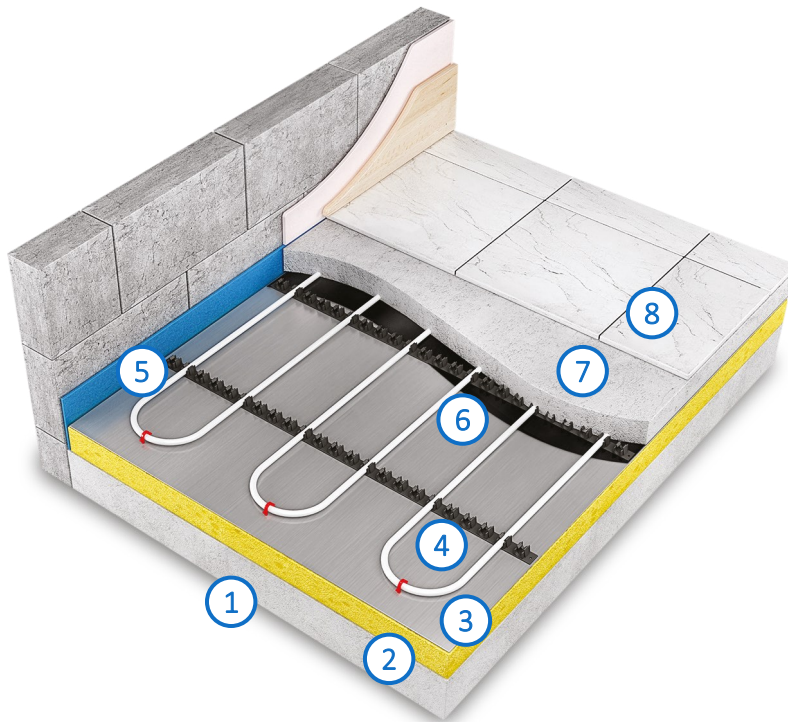
Installation

Before installation can begin the sub floor must be cleared of all debris and rubbish.

- Pipe Staples are available in 40mm or 60mm depth for stapling to insulation.
- Edge insulation is to be installed to all perimeter walls, internal & external using suitable staples, nails or adhesives
- Floor insulation must be laid directly onto the sub floor to reduce downward heat losses and comply with any building regulations. The types and thickness is to be determined by the architect, builder or owner.
Insulation boards should be butted up against the perimeter strip and laid in a staggered formation.
- We recommend to use a minimum 500 gauge polythene layer on top of the insulation to form a slip membrane and prevent ingress of screed into the insulation zone which will cause thermal bridging. Polythene also prevents screed additives affecting the insulation board. Lap joints 100mm.
- Depending on your pipe layout lay the pipe a minimum 100mm from side walls and depending on your pipe pattern 500mm from end walls thus allowing for pipe returns. The rail has an adhesive backing tape. Use pipe staples to help secure the rail to the insulation board below. We recommend Staples to be spaced evenly every 500mm.
- Connect the flow pipe to the required circuit on the flow manifold and begin to lay the pipe in accordance with your design. Use the pipe staples provided to secure the pipe every 500mm. These can be fitted easily by hand and have barbs to prevent them pulling out. Or by using Tacker Gun 10-50000E (optional extra)



Screed-Clip Rail UFH® System



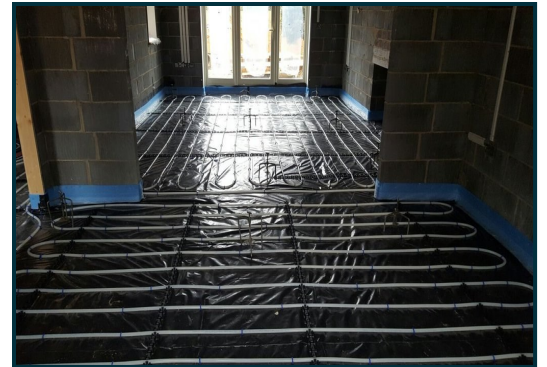
- 1 Structural Subfloor
- 2 Insulation board to Part L
- 3 UFH pipe
- 4 Pipe Staples/ClipRail
- 5 Edge Insulation
- 6 Membrane
- 7 Screed
- 8 Finished Floor



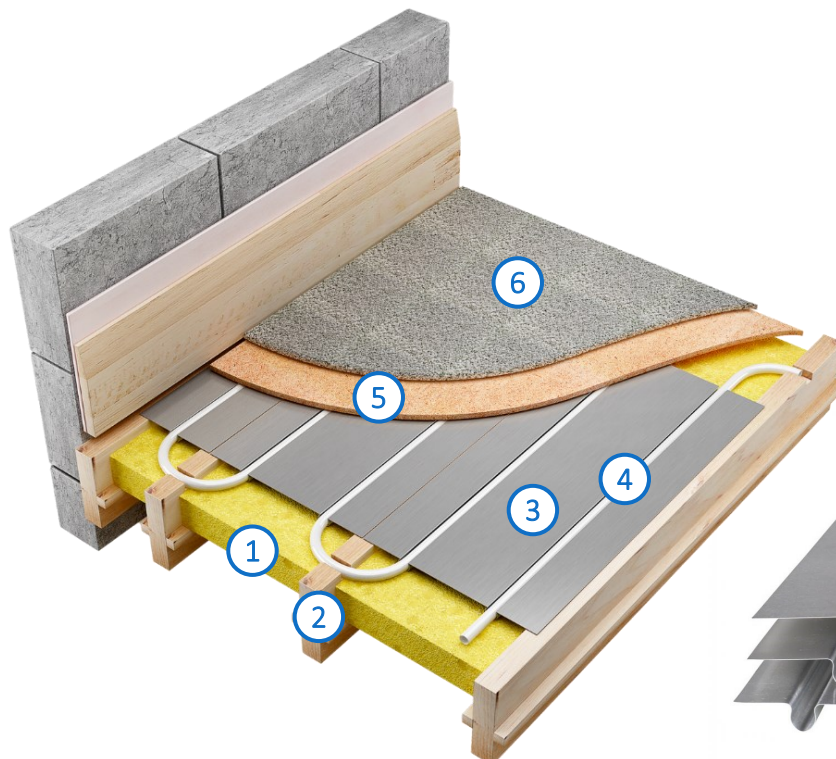
Installation

Before installation can begin the sub floor must be cleared of all debris and rubbish.

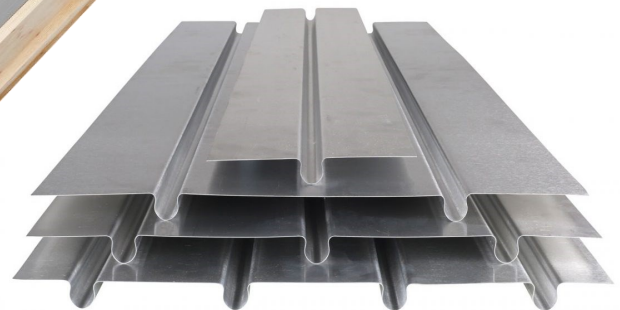
- Edge insulation is to be installed to all perimeter walls, internal & external using suitable staples, nails or adhesives
- Floor insulation must be laid directly onto the sub floor to reduce downward heat losses and comply with any building regulations. The types and thickness is to be determined by the architect, builder or owner. *Insulation boards should be butted up against the perimeter strip and laid in a staggered formation.*
- We recommend to use a minimum 500 gauge polythene layer on top of the insulation to form a slip membrane and prevent ingress of screed into the insulation zone which will cause thermal bridging. Polythene also prevents screed additives affecting the insulation board. Lap joints 100mm.
- Depending on your pipe layout lay the clip rail a minimum 100mm from side walls and depending on your pipe pattern 500mm from end walls thus allowing for pipe returns. The rail has an adhesive backing tape. Use pipe staples to help secure the rail to the insulation board below. Lay the rail in rows at maximum 1-metre centres. The rail can be clipped together and cut as required.
- Use staples on turns and between rails. If you cannot use staples we recommend reducing the rail centres to every.
- Connect the flow pipe to the required circuit on the flow manifold and begin to lay the pipe in accordance with your design. Firmly push the pipe into the rail slots. The slots are at 50mm centres to help you accurately place your pipe centres.



Joist-Plate UFH® System



- 1 Supported Insulation
- 2 Structural joists
- 3 HEP's saddling joist
- 4 Pipework
- 5 Structural floorboards
- 6 Finished Floor



Installation

A minimum of 100mm quilt or 50mm polyurethane insulation supported on timber battens. It is very important that insulation zones above ventilated spaces (i.e. ground floors) are air tight. Use suitable foil tapes where required.

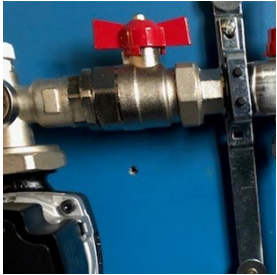
- Aluminium plates have extremely sharp edges, please handle with care and wear appropriate PPE.
- The plates are grooved with an omega shape ensuring a snug fit. Some plates are supplied with score marks these can be snapped along the marks and used as infill plates.
- Allow 200mm gap at end of runs for pipe returns, maintain a gap of 5mm between plates to allow for expansion.
- Simply fix the plates to the top of joists using a staple gun or tacks
- The plates are grooved with an omega shape ensuring a snug fit.
- Connect the flow pipe to the required circuit on the flow manifold and begin to lay the pipe in accordance with your design.
- You may need to support the plate from below whilst inserting the pipe.
- Ensure the insulation placed below the plates forms a complete blanket without voids.



Filling The System



Why not watch our video on how to fill your system: just scan this QR code with your phones camera.



Shut the ball valves on the primary's (isolating the UFH manifold from the system)



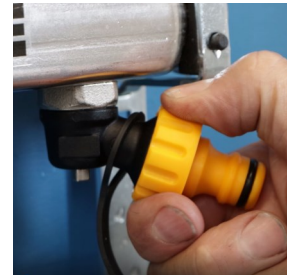
Remove **all** caps or actuators from the lower manifold



Remove the red caps from the flowmeters on the top and close them **all**



Connect the lower "drain point" with a pipe into a drain or bucket and turn the key (under) fully on.



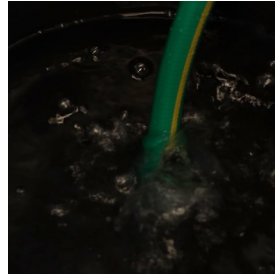
Connect the upper "fill point" with a pipe to a tap and turn the key (under) fully on.



Connect the fill pipe to an outside tap and turn on to pressurise the manifold



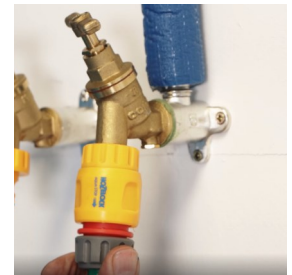
Slowly open the first flow meter and you should notice the plunger drop.



If using a bucket check for bubbles, once clear the pipe is filled (times will vary)



Shut off the first flowmeter and repeat from image 7 until all loops are filled.



Once filled all loops open all flowmeters for a few seconds. Then shut off the drain then the fill point and disconnect.

System Filling Information

Protection From Freezing

To protect the UFH heating system against freezing in winter, either applying a glycol based antifreeze fluid to no higher than 30% glycol mix. We highly recommend this is then removed from the system before commissioning the boiler, as this does reduce effective output of the water.

Alternatively, if leaving for long periods of time, test using air see page 20.

Caution: Under no circumstances should you drain the system that was previously filled with water as this could cause corrosion in other parts of the system

Caution: Antifreeze fluid must be disposed of safely after use, and fully flushed.

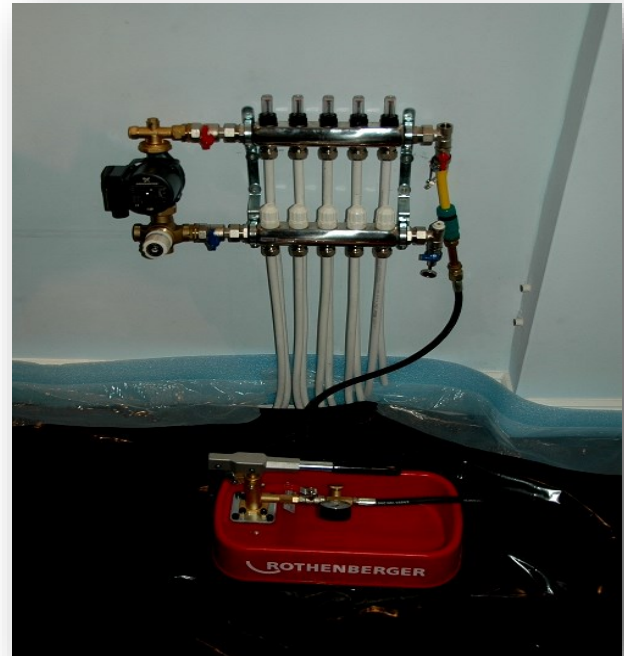
Use of inhibitors and antibacterial biocide.

Multipipe MLC pipe and manifold can work with all major inhibitors and biocides, if in doubt check with our technical line (number on the back of this guide.) Antibacterial Biocides work by disinfecting the added water to the system, this can help reduce biofilm building up in the system causing O-ring failures. This however, may not be the best way to treat your system and a simple pre-treatment of the added water to the system can mean chemicals do not have to be used in the system.

Pressurise/Testing System

- Connect a pressure test pump to the flow manifold fill point and we recommend fitting a temporary pressure gauge to the return bar.
- Fill the test bucket with water as required
- Open the valve on the flow fill and drain point.
- Open **ALL** flow meters and actuator valves.
- If pipework is connected to the boiler then isolate using the ball valves.
- Pressurise the system to between **4-6 bar**.
- Lock off the test pump. (shut of the fill point) and if needs be disconnect.
- Leave pressurised for an hour, monitor the pressure on the test pump if pressure drops slightly, pump back up to the original pressure.
- As the system settles down the pressure may drop a small amount, this is normal.
- After a minimum of 1 hour without significant pressure drops.
- Release the pressure to around **2 bar** until all follow on trades are complete (including the screed) and the heating system is connected and ready to be filled.

Why not watch our video on how to test your system: just scan this QR code with your phones camera.



Air testing

Air testing can be carried out on all our pipe and manifolds and the procedure is the same as above. However, please only pressure test to no more than **1 bar**. This is more than adequate for a leak test and as air is more searching for leaks would soon show a drop in pressure. More importantly air compresses far more and can be very dangerous if something was to fail.

System Start-up Information

Switching on

Switching on the system. Remember that actuators take some time to operate and there will be a 3 to 5 minute wait before anything happens. Check that the boiler is operating in accordance with the manufacturers instructions and set to run with a flow temperature of 55°C+ unless the boiler is directly controlling the flow water temperature to the loops, in which case it should be set to the starting temperature of the system.

Underfloor heating systems which require drying out times, (e.g. floor screed systems) are to have sufficient drying time before switching on your underfloor heating. Natural timber floor finishes need to be climatized in-situ before switching on. In the following we have provided very general information but specific advice must be sought from your supplier, manufacturer and installer as to the correct procedure for system start up.

Floor Screeds

The floor screed should be laid for a minimum of 21 days before the underfloor heating system is heated. This could be longer and it is always recommended to check with the screed manufacturer. It may be possible to use the UFH system to help drying of the screed, again this will need to be checked with the screed manufacturer.

Pre-heating Floors

Initial heating of the screed should be done in steps to ensure not damage to the screed. You need to set your mixing control (see page 14) or heat source to no higher than 25°C and no lower than 20°C for a period of 3 days. After this you need to raise the temperature to what is set out on your design.



Underfloor Heating Control

We provide a range of room temperature controls (thermostats) to optimize the operating efficiency of your underfloor heating (UFH) system and provide the flexibility to independently control each room or heating zone. These thermostats can be either:

- 230-volt hard wired
- 24-volt hard-wired
- Wireless radio-controlled
- Smart Home

Installation guides are available to download from our website. For more information, please visit www.multipipe.co.uk

230V Rio Products



22-23006

230V Quantum Smart
Thermostat



22-23003

230V Programmable
Thermostat



22-23023

230V Electro Thermal
Actuators



22-23013

230V 8-Zone Master
Wiring Centre

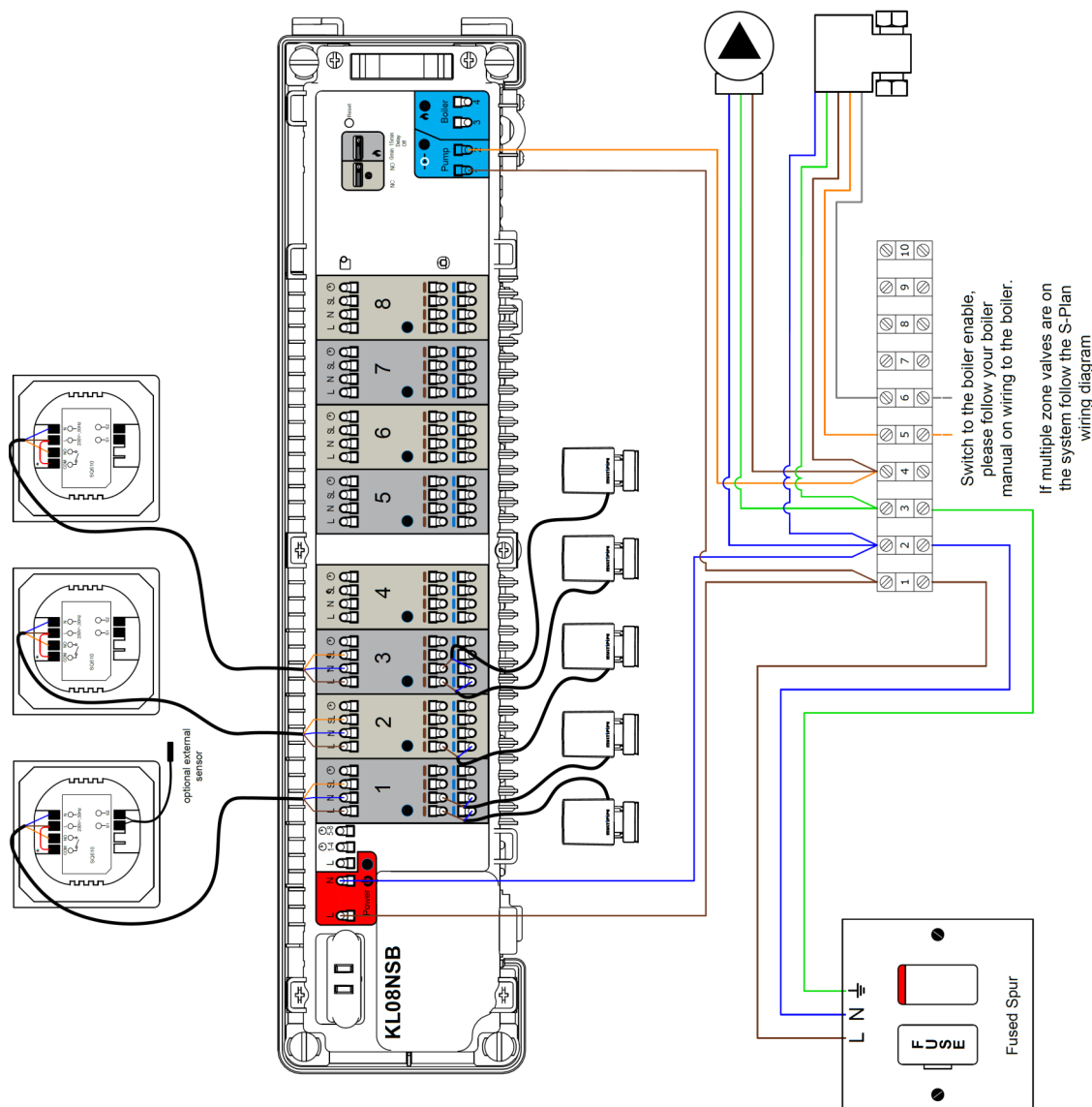


22-23020

Remote Sensor Probe
3-metre 10K ohm

22-23013 Master 8-Zone Wiring Centre 230V

Installation and Wiring Guide



Meets the following EC Directives

- Electro-Magnetic Compatibility directive 2014/30/EU
- Low-voltage Directive 2014/35/EU
- Restriction of Hazardous Substances directive 2011/65/EU

These instructions apply to the model stated above.



WARNINGS

This product must be fitted by a competent person, and installation must comply with the guidance, standards and regulations applicable to the country or state where the product is installed. Failure to comply with the requirements of the relevant guidance, standards and regulations could lead to injury, death or prosecution.

Always isolate the AC mains supply before installing or working on any components that require 230 V AC 50Hz supply.

The earth terminals on the Wiring Centre for 230V are for earth parking only. These terminals provide no earth protection.



Installation and Wiring Guide

Installing and Connecting the Wiring Centre for 230V

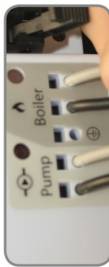
Use the Wiring Centre for 230V wiring centre to simply and safely connect thermostats and corresponding thermal actuators. It can have three different physical configurations:

- Two groups of thermostats, each group having up to four thermostats.
 - Three groups of thermostats with a wiring centre extension attached, each group having up to four thermostats.
 - A master thermostat controlling up to seven slave thermostats. For this configuration, you must make a bridge between grey positions 1-4 and 5-8. If an extension is attached to the Wiring Centre for 230V, this is not included in this configuration and another master thermostat will control the slaves connected to the extension on zones 9 to 12.
- Install the Wiring Centre for 230V only in dry and closed interior rooms. Relative air humidity in the room may not exceed 95%. Clean the Wiring Centre for 230V only with a dry and soft cloth. Do not use solvents or aggressive cleaning agents.

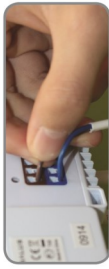
LED indications

Name	Colour	Meaning
Power	●	Wiring Centre for 230V is supplied with 230V power
Zone 1 actuators	●	Demand from zone 1 thermostat: actuator open
Zone 2 actuators	●	Demand from zone 2 thermostat: actuator open
Zone 3 actuators	●	Demand from zone 3 thermostat: actuator open
Zone 4 actuators	●	Demand from zone 4 thermostat: actuator open
Zone 5 actuators	●	Demand from zone 5 thermostat: actuator open
Zone 6 actuators	●	Demand from zone 6 thermostat: actuator open
Zone 7 actuators	●	Demand from zone 7 thermostat: actuator open
Zone 8 actuators	●	Demand from zone 8 thermostat: actuator open
Pump	●	Pump on
Boiler	●	Boiler on

12 Push in the wires for a pump and boiler (if applicable) at the bottom right of the Wiring Centre for 230V. Pump and boiler switching is volt free.



9 Push the actuator wires into the round holes at the bottom of the Wiring Centre for 230V. You can connect up to four actuators in each zone.



10 Make sure there is a fuse in the fuse holder.



11 Set the actuator and boiler delay jumpers at the top right of the Wiring Centre for 230V.

Type of Actuator

The default setting for the type of actuator is normally closed (NC). To change this setting to normally open (NO), carefully remove the plunger and re-insert it in the other position as shown below. **Note** that the actuator setting and thermostat setting must be the same.



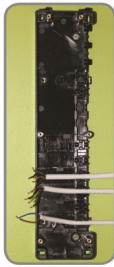
Jumper Settings/Positions for Pump/Boiler On/Off Delay

The pump/boiler on delay and the pump off delay are fixed at three minutes. The default setting for the boiler off delay is also three minutes, but can be changed to 15 minutes. To do this, carefully remove the jumper and re-insert it in the other position as shown below:

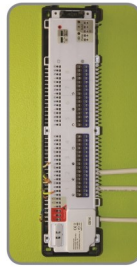


Note: the red reset button to the right of the boiler delay jumpers. Using a suitable tool, press this button at any time to reset the Wiring Centre for 230V back to factory default settings.

5 Clip all power and thermostat cables into their correct positions.
The following shows the power, zone 1, and 2 thermostat cables in position:



6 Replace the white terminal connection board.



7 Bend over and push the power wires into the round power holes.



8 Bend over and push all thermostat wires into the round holes at the top of the Wiring Centre for 230V.



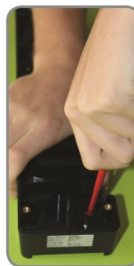
- 1 Remove the plastic cover. Open (and close) the four white screws with a quarter turn only. Note that screws on opposite sides turn in the opposite direction.



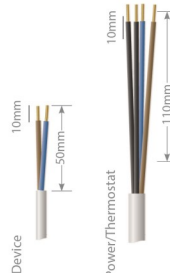
2 Remove the white terminal connection board.



3 Attach the back of the Wiring Centre for 230V to the DIN rail or wall



4 Cut the power, thermostat and device cables to length.





Underfloor Heating Control

We provide a range of room temperature controls (thermostats) to optimize the operating efficiency of your underfloor heating (UFH) system and provide the flexibility to independently control each room or heating zone. These thermostats can be either:

- 230-volt hard wired
- 24-volt hard-wired
- Wireless radio-controlled
- Smart Home

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Wireless Rio Products



22-00006
Wireless Quantum Smart
Thermostat



22-00003
Wireless Programmable
Thermostat



22-23023
Electro Thermal Actuators



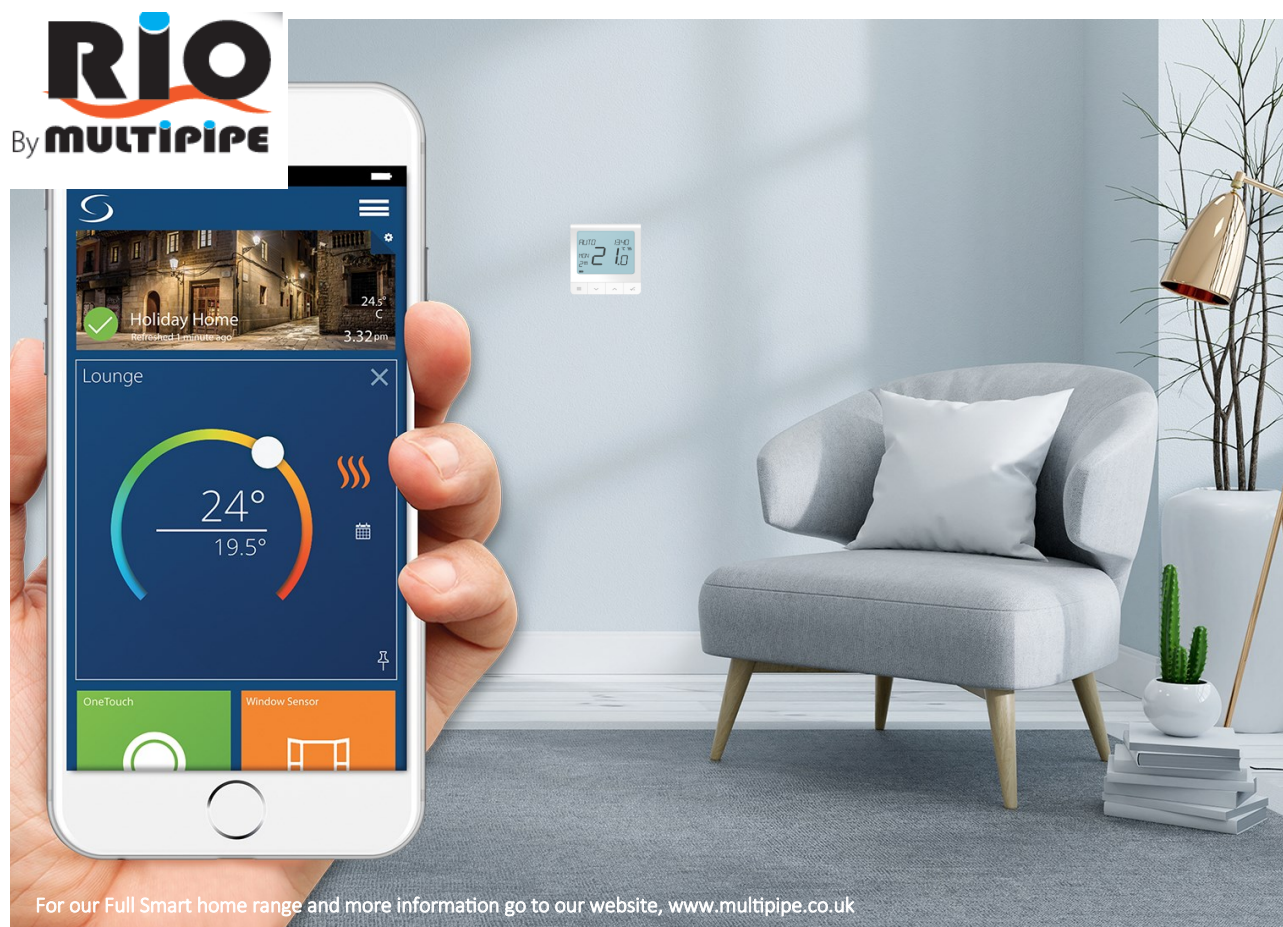
22-00013
Wireless 8-Zone Master
Wiring Centre



22-23020
Remote Sensor Probe
3-metre 10K ohm



22-99908
Wireless RF Programmable
Thermostat & Receiver



Smart Rio System



22-99998
SMART Universal Gateway



22-00006/23006
Quantum Programmable
Smart Thermostat



22-00003
Smart Programmable
Thermostat



22-00013
8-Zone Master Wiring
Centre



22-23023
Smart Button



22-00013
Smart Plug



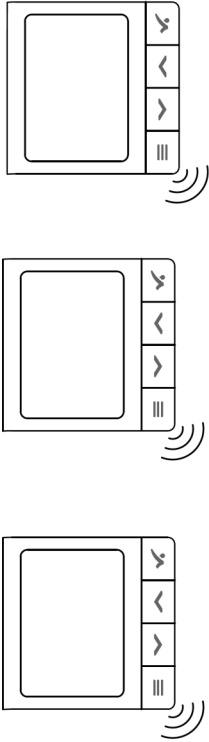
22-23021
Smart Control Relay

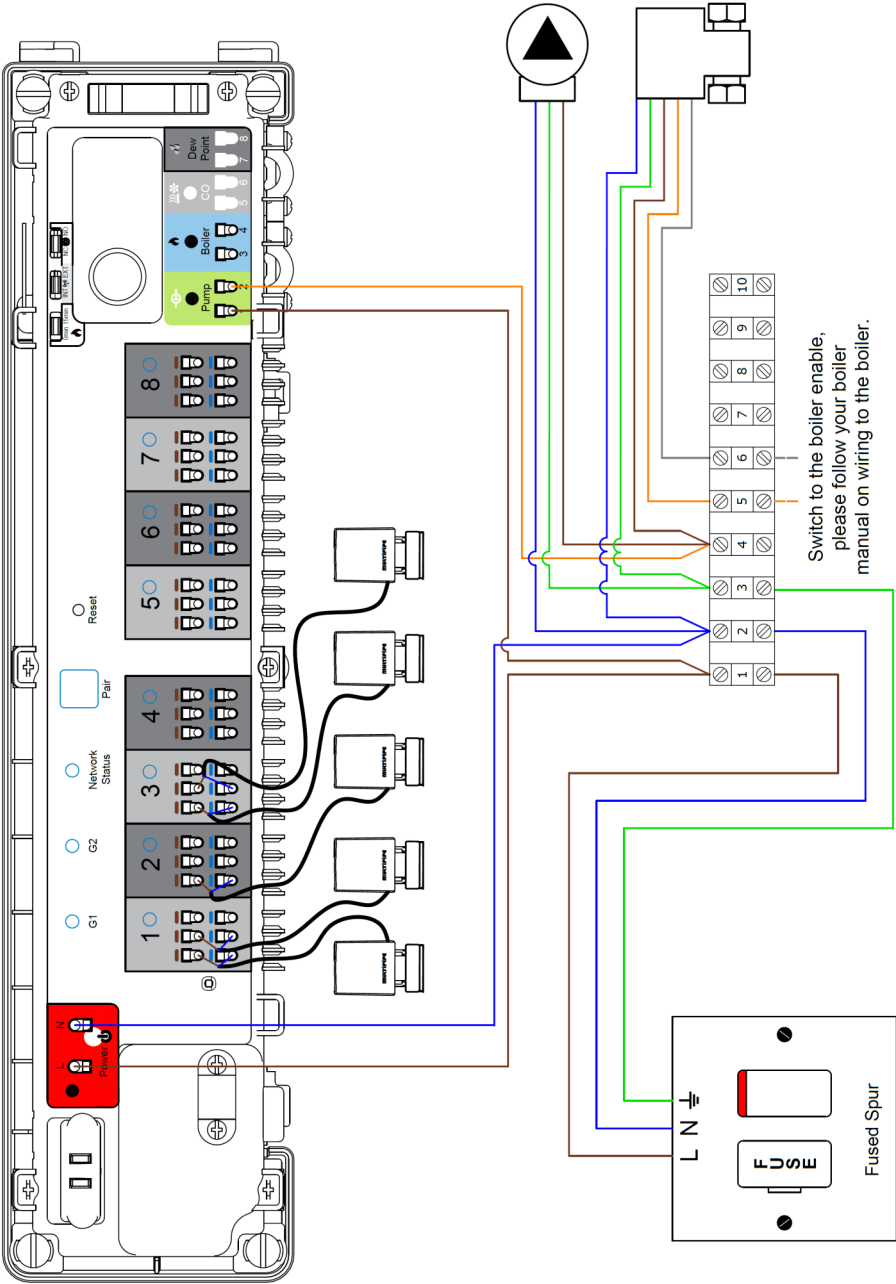


22-99994
Smart Wireless TRV

22-00013 Master 8-Zone Wiring Centre for wireless (SMART compatible)

Installation and Wiring Guide





Meets the following EC Directives

- Electro-Magnetic Compatibility directive 2014/30/EU
- Low-voltage Directive 2014/35/EU
- Restriction of Hazardous Substances directive 2011/65/EU


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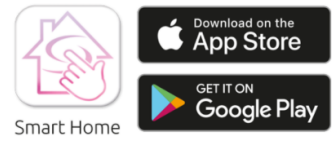
Switch to the boiler enable, please follow your boiler manual on wiring to the boiler.

If multiple zone valves are on the system follow the S-Plan wiring diagram

P.26 Multipipe UFH Technical Installation Guide

System Registration

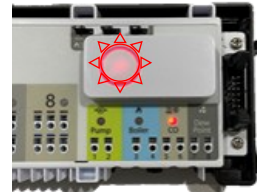
All Multipipe controls utilise a Zigbee network for reliable wireless connection throughout your home. It allows for connection to the Salus Home smart app, opening huge possibilities in home automation. When registering your system you can choose a standalone offline system or use the smart home system by the addition of a UG600 internet gateway. Note: if purchasing the gateway it changes how the system registers and it is important to register using the gateway if you have one (even if you do not have internet yet). Failure to register using the gateways will mean a system reset to add the gateway in the future.



With Coordinator



Power up the system and ensure the network status light is flashing green. (See reset if light is not flashing green)



Open the Zigbee network by pressing and holding the coordinator button for 5 seconds, or until you have a flashing red



Your network should now be established (a solid green light). Now proceed to register the thermostats.

With internet gateway



Attention: You cannot use both coordinator and internet gateway on the same system, please only use one registration method.



Power up the system and ensure the network status light is flashing green. (See reset if light is not flashing green)

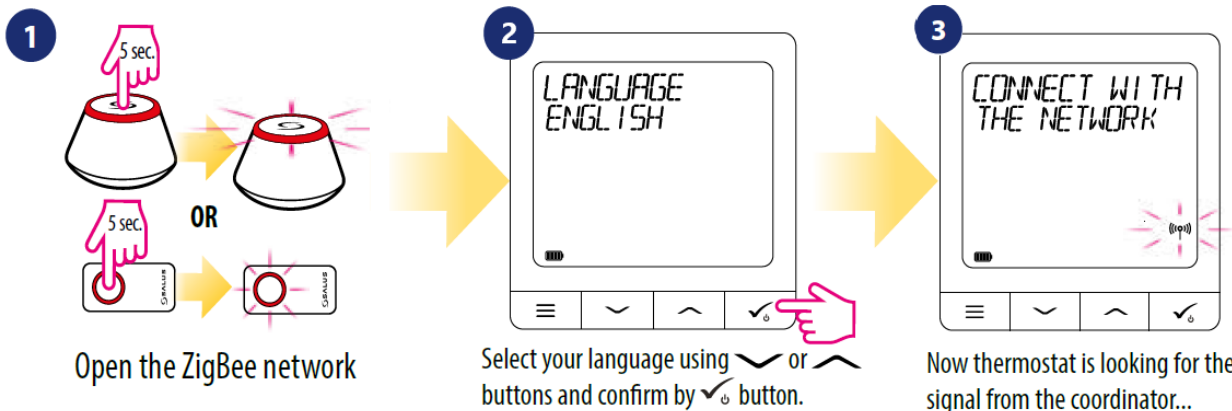


-Internet connection if you have a web connection download the app and follow the on-screen instructions to register your device. After you have done this click on Equipment > add new equipment.
-no internet connection. Press and hold the top button for 5 seconds.
Both methods should leave a flashing red light.

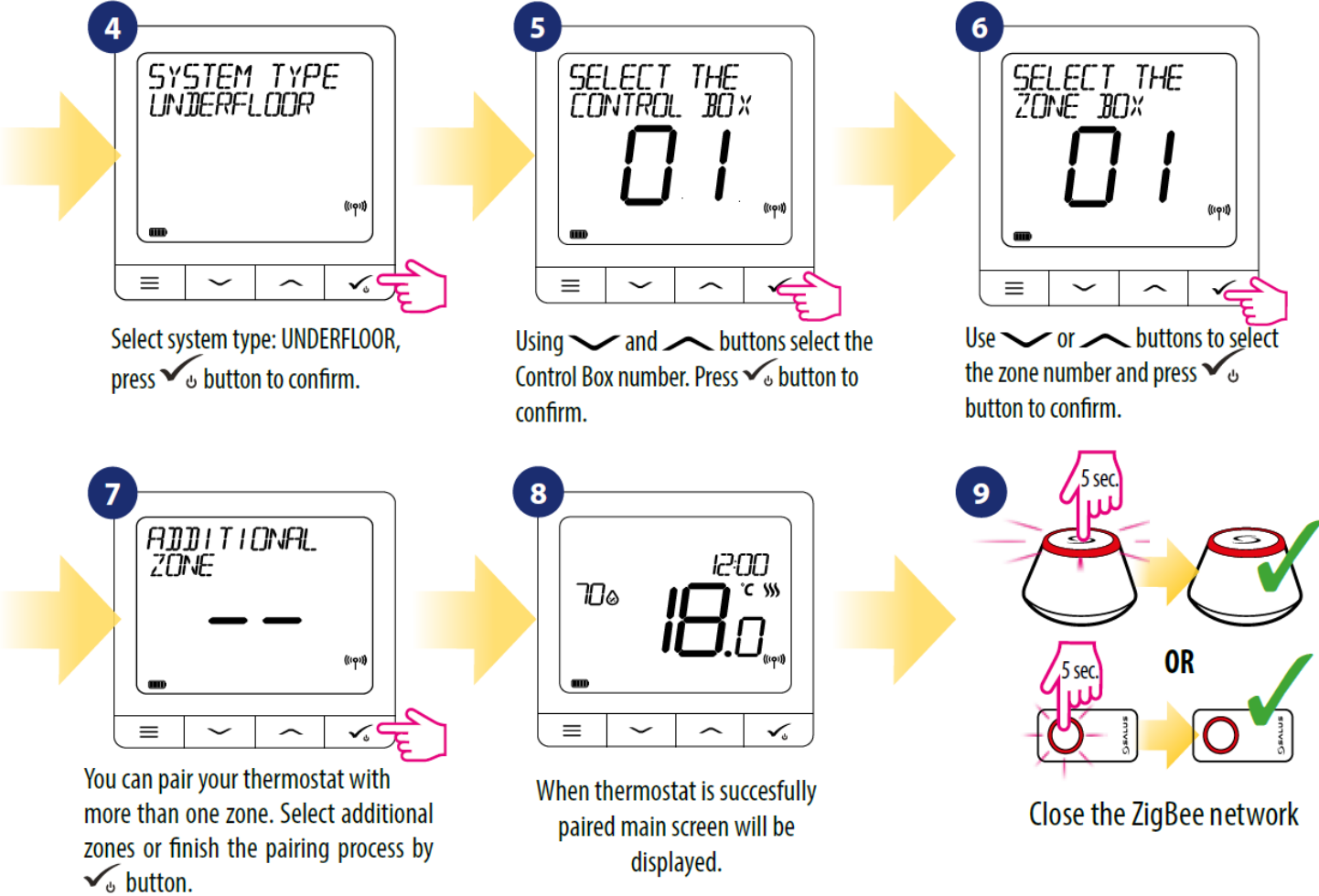


Your network should now be established (a solid green light). Now proceed to register the thermostats.

Thermostat Registration—Offline



Thermostat Registration Continued



Full System Guidance

For full system guides please use your phone camera to scan and download the documents.



Quantum thermostat (22-00006) quick guide



Programmable thermostat (22-00003) quick guide



8-Zone wiring Centre (22-00013) quick guide

FAQs/ Trouble Shooting

As described in earlier sections, the UFH system operation is relatively straightforward. Hot water from the primary heat source (boiler) is blended with the return water from the UFH secondary circuit at the mixing valve and distributed, via the secondary UFH pump, to the distribution manifold and into a series of UFH loops/ circuits of pipe embedded with the floor. Normally, there is a room temperature control, which will open and close a single or series of actuators mounted on the manifold, or prior to the manifold (single zone), depending upon the room requirement. If one or all thermostats are calling for heat, there is a boiler interlock switch to energise the boiler.

The majority of problems are usually simple installation problems, relating to the wiring or plumbing, or design problems with regards to the limitations of UFH and its suitability for the purpose intended.

In all cases where an electrical fault is reported it is always prudent to check the obvious before replacing components.

- Is there an electrical supply?
- Is it switched on?
- Are there any fuses that may have blown and need replacing?
- Are any components overloaded?
- Is everything wired correctly?

Under no circumstances replace a fuse with a higher rating than stated for the piece of equipment.

If the water arriving at the manifold (prior to entering the mixing valve) is either cold or below the design temperature, check:

- The boiler is firing
- The primary pump is fitted
- The primary pump is working
- The boiler is of adequate size
- The primary pipework is sufficiently sized
- The primary pumps are large enough

Operating Problems

If a loop or loops fail to warm, when other zones are working correctly.

General things to look for:

- Check that the corresponding manifold valves are open.
- Check that there is a demand from the corresponding room thermostat and/or the thermal actuator is open on demand.
- There may be an air lock in the loop, which will require purging, either shut down all other loops by closing the valves at the manifold or turn down all other room thermostats. This will concentrate all pump pressure to the problem loop and may shift the air blockage.
- If all else fails the loop can be flushed through with high-pressure water following the instructions details in Filling, Venting and Pressure testing. If circulation is apparent but poor, it may be that the regulating control valve on the manifold required adjustment.
- Check that all pump isolating valves are fully open.

The UFH / Room Is Not Getting Warm

General things to look for.

- That the room thermostat fitted is calling for heat and that the valve has opened using the visual window on the actuator.
- That the room thermostat is connected to and communicating to the correct actuator(s).
- That the room thermostats are not operating in temperate set-back mode.
- That the floor temperature is correct as it enters the floor loops. Although typical design water temperatures are suggested through this guide, there is some element of a learning curve with UFH, as on some occasions the design water temperature may need to be raised after commissioning and once the system has been in operation during a heating season.
- That any fitted zone valves are opening and that the boiler fires when the thermostat calls.
- That the primary flow and return connections are installed correctly and not crossed over at the UFH manifold.
- That the primary water temperature is not too low. This needs to be at least 10°C higher than the UFH system water temperature.
- Thermal resistance of floor covering is not too high, as this could reduce the floor heat output.

If the system is too noisy

General things to look for.

- There is no air in the system.
- That all pipes are firmly clipped in place and that the manifold brackets are tight.
- That the UFH pump speed is not set too high.
- The excessive pressure from another circulator in the system is not interfering (hence the importance of having a primary bypass).

FAQs/ Trouble Shooting

If the running costs are high

General things to look for.

- Check that the UFH system is correctly electrically connected to the boiler to prevent short cycling and to ensure that the boiler is not running when it is not required.
- Check that the room temperatures and thermostat settings are not too high (typical comfort temperatures are 20°C in living quarters and 18°C in bedrooms).
- Ensure there is not excessive drops from day time to night time temperatures (no higher than 4°C).
- Check for any open windows or draughts, it is not unknown for windows to be open in cold weather, as the internal comfort remains constant with thermostatic controls.
- Check that the boiler is running correctly. Has it been serviced and/or commissioned by an approved engineer?
- Check that the floor downward losses are high due to inadequate level of floor insulations.

The system is losing pressure

General things to look for.

- If the system is losing pressure either during testing and or after the system has been filled, but the flooring has not been laid, simple visual manual checks around the manifold and along each loop of pipe should identify the problem area.
- If there are no clear visual signs, each loop circuit may require a separate pressure test to identify the exact location.
- If the floor has been laid, identification of the fault can be traced through signs of a wet patch around the leak. Obviously to make the repair, the floor will have to be raised, in screed floors, excavated carefully in the centre of the wet patch.
- Any leaks on the manifold are generally due to the connection and any loose nuts and unions will require tightening.

Repairs

To make repairs to the pipe, follow the process below:

Repairing the pipe:

- Isolate the damaged pipe loop at the manifold.
- Cut out the damaged section of pipe.
- Prepare both ends of pipe using pipe cutters. For MLC Pipe use a bevelling tool.
- On panel systems, remove a small section of the floating panel or fixed tracked panel, to accommodate the compression fittings.
- Slide the compression adaptor nut over each end of pipe together with olive on PEX pipes, prior to inserting the insert sleeve into each end.
- Offer both ends of pipe/inserts to the compression coupler and tighten both nuts.
- Ideally, the joint will require an inspection chamber in case further maintenance is required. However, in practice this is often not practical, and the fitting is wrapped in suitable tape before burying in the screed (ensure approval with the building inspector is sought prior to doing this).
- Pressure test the system again before laying the floor covering.

Product Warranty

We are proud to supply high quality plumbing solutions to trade professionals. We have insurance backed Professional Indemnity to £1m to cover the unlikely event of alleged failure to perform on the part of, financial loss caused by, and error or omission in the service or product sold by Multipipe.

Pipework

10 year £2m insurance backed warranty for consequential loss, 25 year warranty limited to replacement of product.

Electrical controls

5 years - RIO Range of controls.

2 years - all other electrical components.

Components

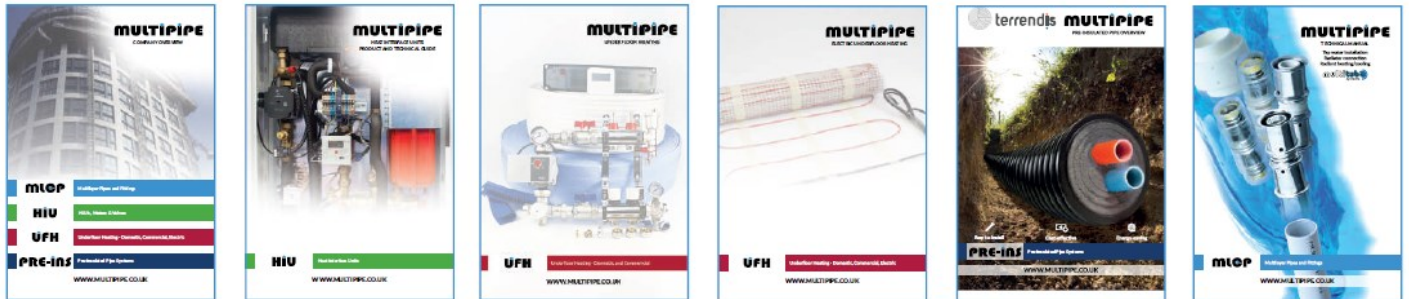
All remaining component parts not listed above. 2 years limited to replacement of product.

For more information visit www.multipipe.co.uk

Join us on social



MULTIPIPE



The latest product guides, price list and technical data sheets can be found on our website
www.multipipe.co.uk

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