

T3 Control Set Installation Guide

1. General

- 1.1 This T3 control set has been designed for control of flow and water temperature in an underfloor heating system. It is pre-assembled and tested to ensure that it can be fitted with the minimum of on-site labour and commissioned immediately once fitted.
- 1.2 As supplied it is designed to connect to the left hand side of an Emmeti manifold with 210mm between the centres of the flow and return arms. It can also be used with any other manifold built on this dimension. The control set can also be altered to fit to the right hand side of a manifold simply by removing the bracket clips and turning the control set elbows through 180 degrees using the union fittings at the top and bottom of the pump. The pump motor may need to be rotated through 180 degrees to minimise the space occupied by the control set and allow access to the electrical connection box.

1.3 There are three other manifold sets to cater for applications with different control needs or higher flow rates for larger residential and commercial applications:

- U9700030 - Control set with Thermostatic mixing valve, thermal actuator and pump, kvs 3.4
- U9700040* - Control set with motorised mixing valve and pump, kvs 6.3
- U9700050* - Control set with motorised mixing valve and pump, kvs 8.0

* available with 3-point actuator, temperature controller or weather compensator for mounting on control set

For a full description of each control set, please consult our Product Price List or Technical Product Guide.

2. Connections & Dimensions

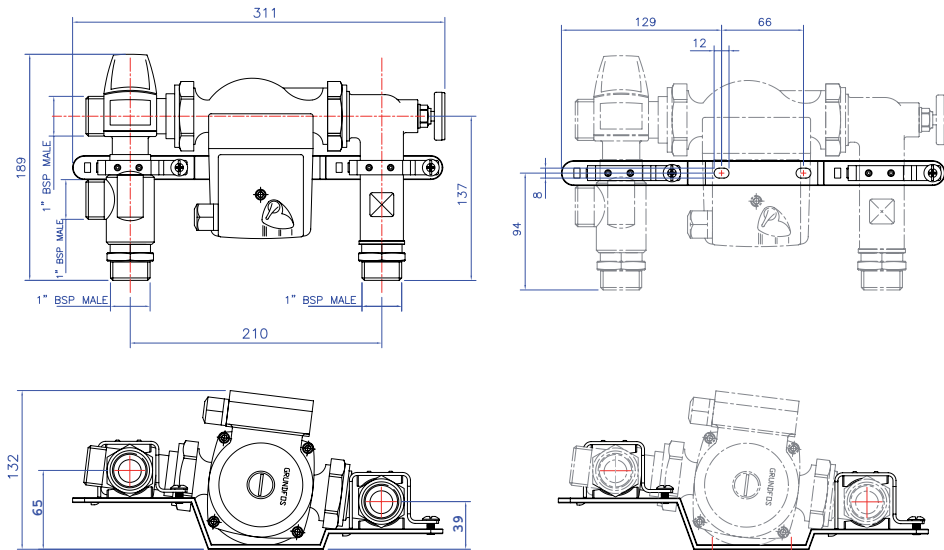


Fig. 1 Overall Connections and Dimensions

Fig. 2 Mounting Bracket Dimensions

Please note the overall dimensions of the control set and allow reasonable access at either side and the front for installation and maintenance

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3. Technical Data

Maximum static pressure	10 bar
Maximum differential pressure	3 bar
Maximum temperature	95°C
Operating temperature Range	Adjustable between 35°C and 60°C
Inlet connections	2 x 1" M (G1)
Outlet connections	2 x 1" M (G1) – swivel joint
Overall dimensions mm	311h x 189w x 132h
Kvs	3.4

4. Control Set Contents

Pre-assembled control set including:

- 'L' pattern thermostatic mixing valve – operating temperature range 35°C to 60°C
- Grundfos UPS 25-60 circulating pump
- Inlet tee assembly with 1" M swivel connector to the underfloor return rail
- Outlet elbow assembly with built-in temperature gauge and 1" M swivel connector to the underfloor flow rail
- Mounting bracket with rubber supports

5. Installation

- 5.1 Remove the control set assembly carefully from the packaging and check to ensure that all components are in place and that there is no damage to them.
- 5.2 The control set is supplied for connection to the left hand side of the manifold but can be altered very simply for connection to the right hand side.
- (i) Remove the mounting bracket clips from the control set by unscrewing the two screws shown in Fig. 3 and rotating the upper and lower elbows through 180° using the pump union nuts.



Fig. 3 Remove mounting bracket clips

- 5.3 Re-fit the mounting bracket and rotate the pump to an upright position as shown in Fig. 4.

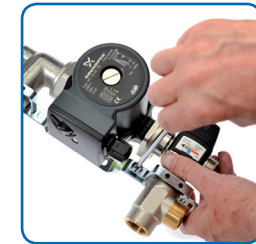


Fig. 4 Re-fit mounting bracket

- 5.4 If the pump needs to be lowered into the gap in the mounting bracket for space-saving reasons, it will be necessary to remove the Allen screws securing the pump motor and rotate the motor so that the junction box is at the front.
- 5.5 The control set can be attached to the manifold either before or after the manifold is secured to the wall. The control set should be secured to a flat vertical surface able to support the weight of the control set and manifold. Using the dimensions shown in Figs. 1 and 2, ensure that there is sufficient space for installation and maintenance at the intended position for the control set. The fixing hole positions of the mounting bracket can be marked through the mounting bracket itself.
- 5.6 A swivel joint is fitted to each side of the control set for connecting to the 1" F manifold tappings. The inlet tee swivel joint should be connected to the return rail and the outlet elbow swivel joint to the flow rail of the manifold. Carefully offer up and screw the swivel joint threads evenly into the manifold using a 37mm A/F spanner: the use of a 31mm A/F spanner will also ensure that the connection to the control set is kept tight – see

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Fig. 5. An optional 31mm-37mm spanner is available from Emmeti – code U9760010. The joints use o-ring seals and care should be taken not to over-tighten them.



Fig. 5
Tightening
the swivel joints

Be aware that you cannot get the benefit of this feature when filling via the primary flow and return connections or the lower manifold rail drain and fill valve.

- 6.2 The control set, manifold and underfloor circuits can now be filled and commissioned in accordance with the manifold instructions. Prior to filling, a final check of all joints should be made to ensure no connections have loosened during transit. For details of the recommended commissioning procedure please refer to the Emmeti literature for the manifold.
- 6.3 Once the system has been filled and pressure tested, the individual underfloor circuits can be balanced. As part of this process the mixed flow temperature must be adjusted to the correct level for the system design. To achieve this, the thermostatic mixing valve can be adjusted between 35°C and 60°C as shown in Figs. 6, 7 & 8 below. Allow sufficient time for the temperature to stabilise, then check the setting against the temperature reading on the mixed flow temperature gauge fitted to the control set.
- 6.4 Please retain this document and hand it to the user for future reference.

- 5.7 Once the control set is connected, finish securing the manifold and control set to the wall if not already completed.
- 5.8 The primary flow and return pipework can now be connected to the 2 x 1" M connections facing downwards. The flow connection is at the left hand side and the return connection is at the right. It is recommended that ball valves are used to isolate this pipework where it is connected to the control set: Emmeti offer a pair of ball valves with a 1" union connection suitable for this application, code 6066R006.

6. Commissioning

- 6.1 Filling the UFH system - The built-in non-return valve in the flow elbow allows you to fill the circuits from the upper flow rail drain and fill valve only.



Fig. 6 Remove the mixing
valve cap

Setting Number	1	2	3	4	5	6
Temperature °C	35	40	45	50	55	60

Fig. 7 Choose the setting number to give the correct temperature for your system. The setting numbers are a guide only and should be checked against the fitted temperature gauge.



Fig. 8 Adjust the setting
number against the index
mark, then replace the cap

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Installation and Commissioning Instructions T3 Control Set with Thermostatic Mixing Valve and Pump U970020



- Boxed set pre-assembled for immediate installation, including:
 - Thermostatic mixing valve adjustable from 35°C to 60°C
 - Temperature gauge measuring mixed water temperature
 - Grundfos UPS 25-60 circulating pump
 - 1" M swivel joints for fast connection to 1" F manifold tapplings
 - All nickel plated for improved appearance
 - Supporting bracket with rubber supports for extra stability and noise reduction
- Built-in non-return valve in flow elbow to allow simple system filling when commissioning
- 1" M close coupled flow and return connections
- Suitable for Topway Type 2 manifolds or any manifold with connections on 210mm centres
- Optional ball valve set for fitting to 1" M connections
- Valve body kvs 3.4