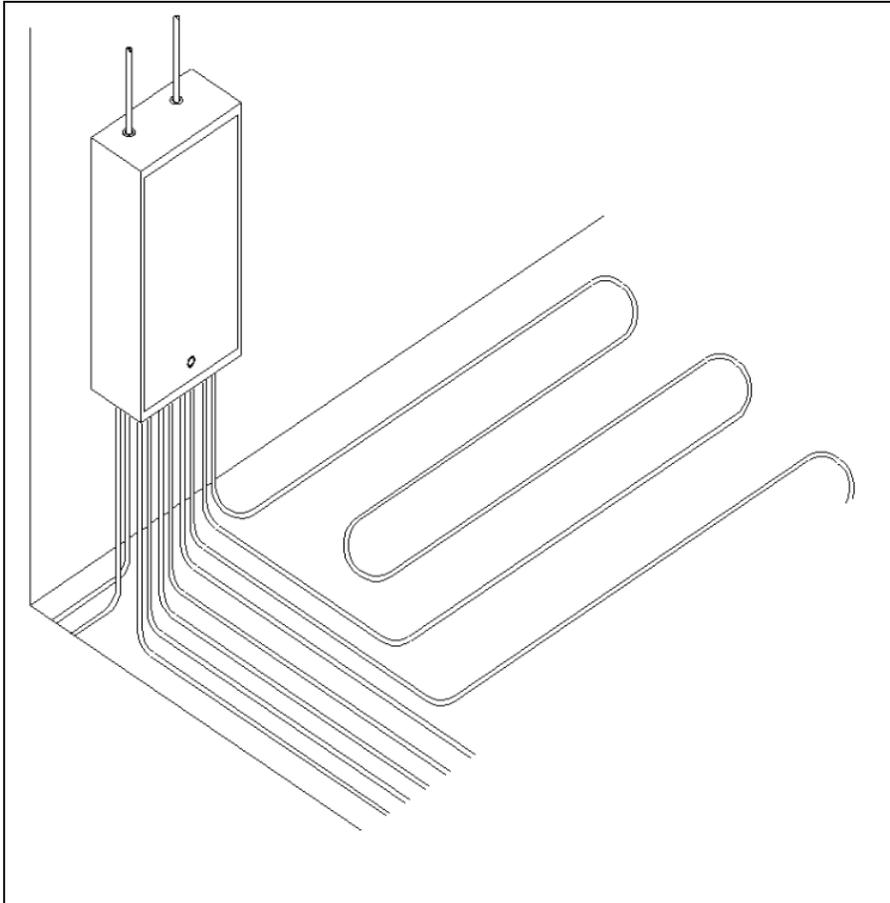


## Installation Instructions



### Introduction

TMM™ (Thermostatic Mixing Module) is a self-contained package for radiant floor heating of up to five zones. It can provide floor warming or room heating for an entire building or anywhere that requires extra comfort through radiant floor heating. It is suitable for new construction or for renovations – commercial, industrial, agricultural or residential.

A pump for each zone, temperature control valve and electronic controls are contained in an attractive cabinet that can be mounted anywhere and in any orientation: up, down or horizontally. The unit comes pre-assembled to save time and simplify installation.

### Physical Properties

Model	Cabinet dimensions			Water Connections**		Shipping
	Height*	width	depth	Heat source	Radiant loops	Weight
TMM40-I	12"	12"	8 1/2"	1/2"	1/2"	20 lb.
TMM70-I	12"	12"	8 1/2"	3/4"	3/4"	25 lb.
TMM70-II, III	24"	14 1/4"	8 1/2"	3/4"	3/4"	35 lb.
TMM70-IV, V	30"	22 1/4"	8 1/2"	1"	3/4"	45 lb.

\* plus a 1" hanging flange on the top and bottom. \*\* Copper sweat is standard. Any alternate plumbing connection is available by special order: barb, compression, NPT.

## **Mounting**

The TMM™ may be mounted in a mechanical room or basement wall or in a closet. It may be surface mounted or recessed into the wall. It may be mounted in any orientation: up, down or horizontally.

For **surface mounting**, use anchors suitable for the wall surface (concrete, drywall or wood screws). The cabinet should be screwed through the top and bottom flanges. (fig.1)

For **recessed installations**, the cabinet may be screwed from the inside through the sides of the cabinet into the wall stud. The cabinet is designed to fit between wall studs that are 16 or 24 inches on centre. Additional wood blocking may be necessary to support both sides of the cabinet. It is recommended that the TMM™ be recessed at least 3-1/2" in order to hide all plumbing connections.

Note: for recessed installations, all plumbing connections must be completed before the drywall is installed around the cabinet.

## **Piping Layout**

Poly Ethylene Cross-linked tubing (PEX) is used in the radiant floor panel. The PEX tubing is connected to supply and return manifolds that are fed from the floor pump of the TMM™. The supply **OR** return manifold **MUST** have circuit isolation valves (12) on each loop of the radiant floor panel. This is to ensure that the positive purging of air from the panel can be performed. See **Start-up**.

## **Plumbing Connections**

All connections to the TMM are sweat copper and may be adapted to crimp PEX, compression PEX or NPT. Note: PEX with an oxygen barrier is required for closed loop (boiler) systems.

The oxygen barrier is not required for open (water heater) systems, iron-free boiler systems or boiler systems isolated with a heat exchanger. Many options are available for circuiting the in-floor loop layout including remote manifolds and common return.

Connect supply (3) and return (4) from the heat source to the connections on the TMM™ as shown in the diagram and labeled inside the cabinet.

## **Electrical Connections**

Plug the electrical cord into a standard 120VAC/60Hz/1Ph grounded outlet. This device draws less than 3 amps and does not need to be on a separate circuit. The cord can be removed and the unit hard wired by a qualified electrician. Follow all local electrical codes.

Each pump has its own control and may have its own room thermostat. Connect low voltage thermostat wire from the red and white wires (R & W) of the TMM™ control (7) to the thermostat. The green wire is ground (or C) and is for 3-wire thermostats. The TMM™ includes a pre-wired 24VAC power supply for the controls. On some models, yellow wires are dry contacts (TT) for activating a boiler. Contact Vortex if you wish to operate an additional 120VAC load such as a primary pump.

An optional cycle timer/pump exerciser is available to run the pumps for 30 seconds once each day.

## **Start up**

Ensure all plumbing connections are complete.

Purge all air from the plumbing or hydronic system. To purge air from the heating loop, open both heat source isolation valves (10) and

close the valve on the return leg of the radiant floor heating loop (9). Connect a drain hose to the return leg purge valve (8). Open the purge valve (8) and purge all air from the system. Close the return leg purge valve (8) and open the valve on the return leg of the radiant floor-heating loop (9).

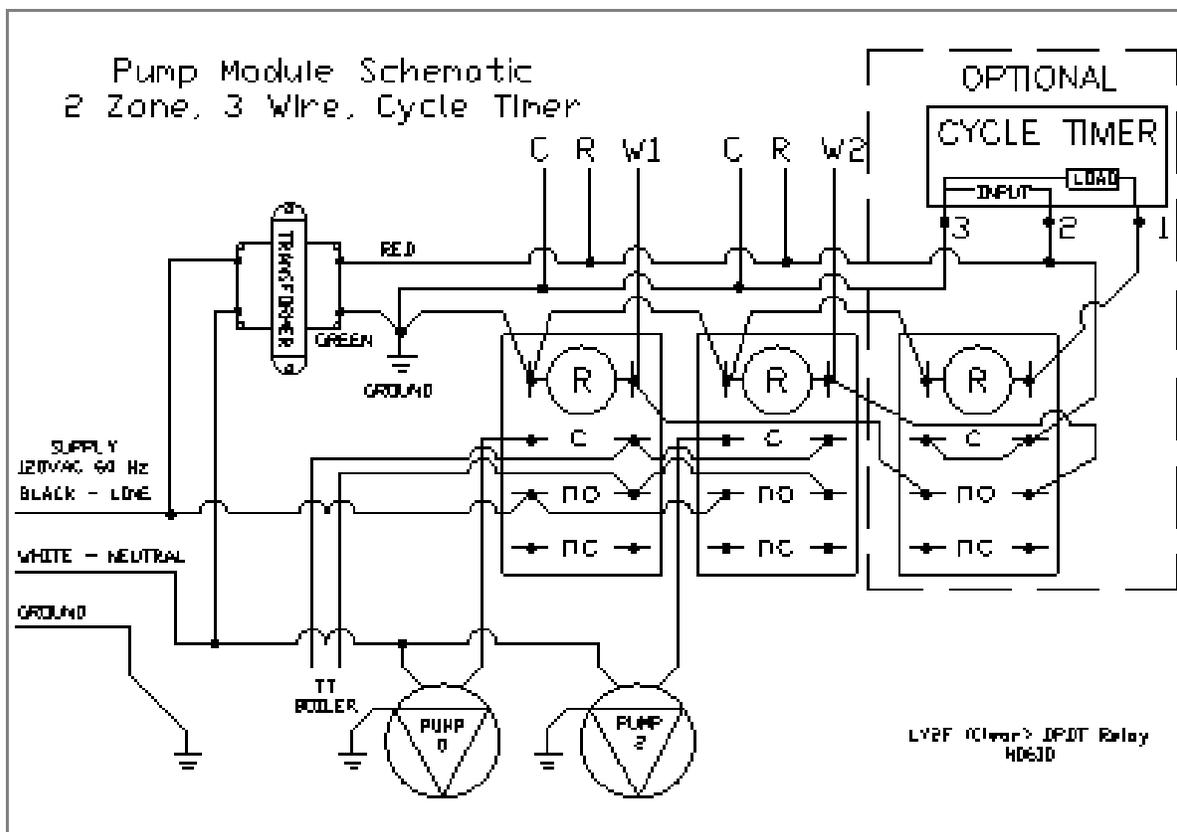
Start the boiler or water heater according to manufacturer's instructions.

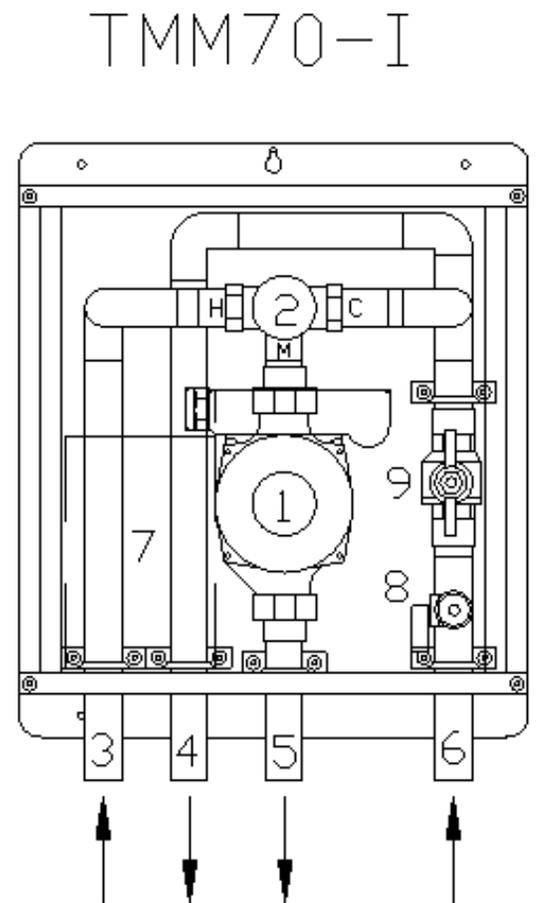
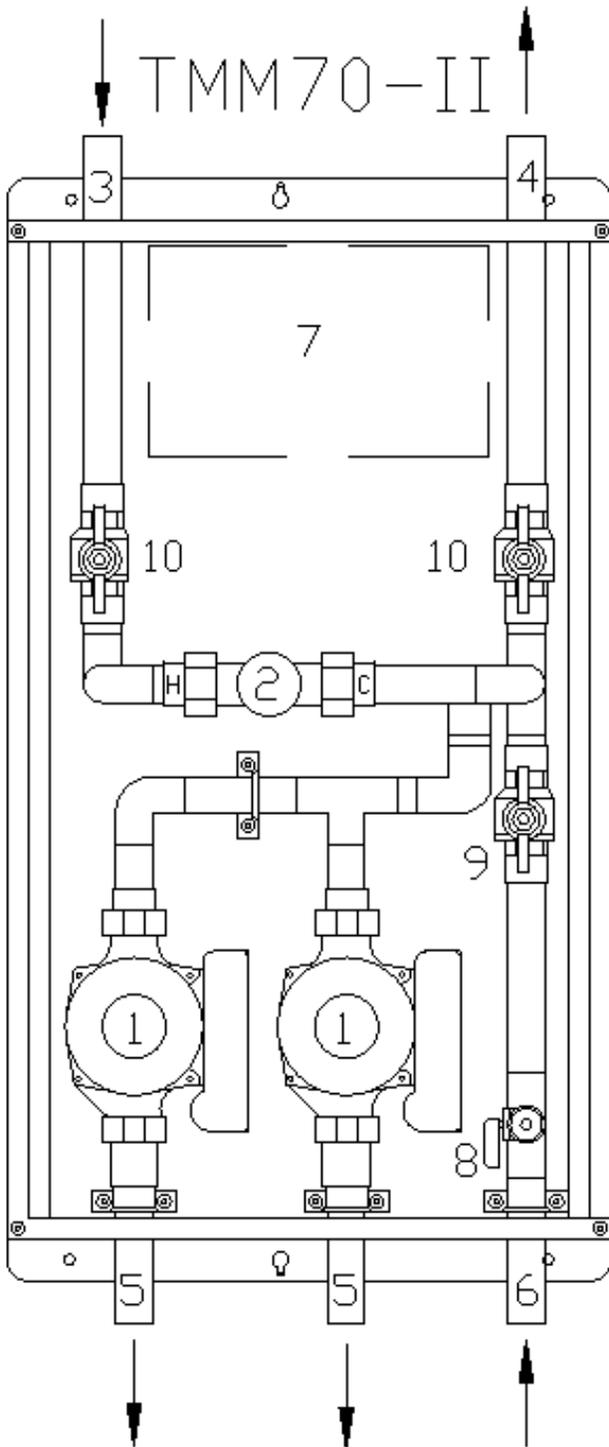
Once the heat source is up to temperature, plug in the TMM™ and set the room thermostat at the desired setting.

Set the mixing valve (2) to the desired temperature. Refer to the following table and the mix valve instructions.

These are guidelines only. Temperature adjustments may be required. For space heating, a proper heat loss is required.

	Loop Temp.	Mix Valve Setting	
		w.h. (140F)	Boiler (180F)
Floor warming (15 Btu/hr./sq.ft.)*			
In-slab with vinyl or ceramic floor	88	5	3
In-slab with carpeting	103	9	7
In-joist with vinyl or ceramic floor	103	9	7
In-joist with carpeting	118	13	11
Space Heating (30 Btu/hr./sq.ft.)*			
In-slab with vinyl or ceramic floor	108	11	9
In-slab with carpeting	138	23	17
In-joist with vinyl or ceramic floor	138	23	17
In-joist with carpeting	168	Not rec.	21





1. Pump
2. Thermostatic Mixing Valve
3. Supply from heat source
4. Return to heat source
5. Supply to floor loops
6. Return from floor loops
7. Control
8. Purge/drain valve
9. Isolation valve for purging
10. Heat source isolation valves