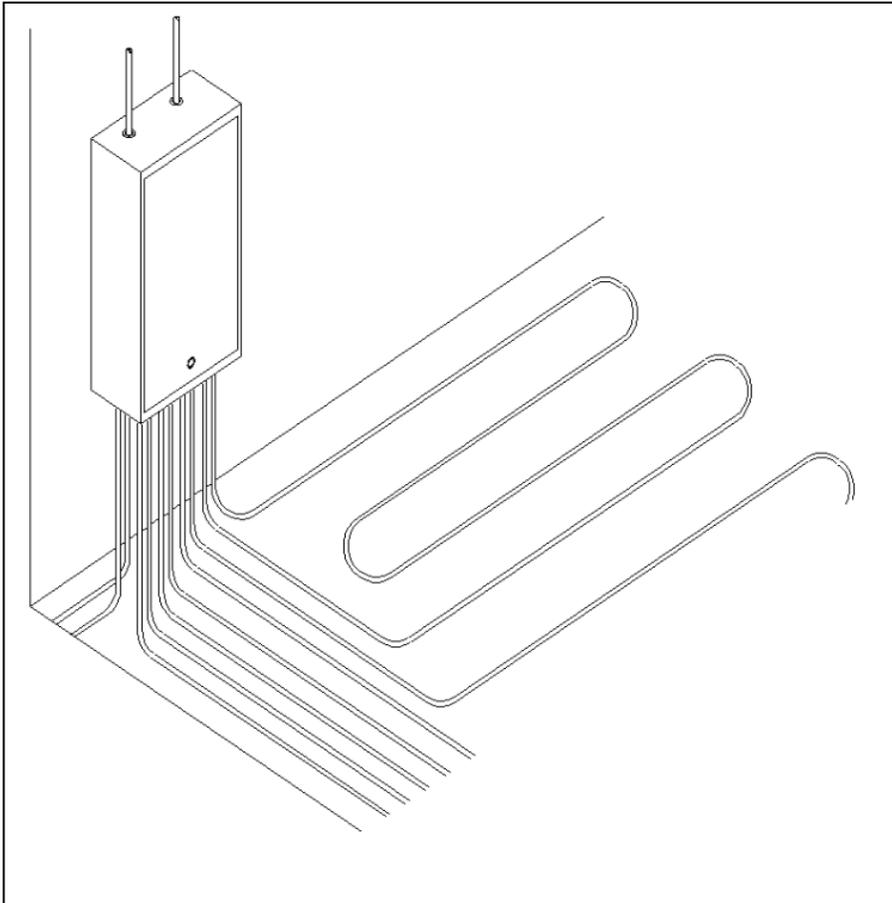


Installation Instructions

Introduction

PM™ (Pump Module) is a self-contained package for space heating of up to five zones. **There is no internal water temperature control.** It is ideal for radiant floor heating where the heat source is low-temperature such as heat pump or solar. It can also be used as a convenient means of zoning baseboard or radiant heaters connected to a boiler.

A pump for each zone 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 to simplify installation.



Physical Properties

Model	Cabinet dimensions			Water Connections**		Shipping Weight
	Height*	width	depth	Heat source	Radiant loops	
PM080-1Z	12"	12"	8 1/2"	3/4"	3/4"	25 lb.
PM140-2Z	24"	14 1/4"	8 1/2"	1"	3/4"	40 lb.
PM200-3Z	24"	14 1/4"	8 1/2"	1-1/4"	3/4"	45 lb.
PM260-4Z, 5Z	30"	22 1/4"	8 1/2"	1-1/2"	3/4"	70 lb.

* plus a 1" hanging flange on the top and bottom. ** Heat Source dimensions also apply to common return from radiant loops. Copper sweat is standard. Alternate plumbing connection are available by special order: barb, compression, NPT. PM70-III-Alpha dimensions 30x22-1/4x8-1/2. Alpha pumps include isolation flanges where space permits.

Mounting

The PM™ 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 PM™ be recessed at least 3-1/2" in order to hide all plumbing connections.

Note: for recessed installations, all plumbing connections must be completed and tested 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 PM™. The supply **OR** return manifold **MUST** have circuit isolation valves 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 PM 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 and return from the heat source to the connections on the PM™ 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 PM™ control to the thermostat. The green wire is ground (or C) and is for 3-wire thermostats. The PM™ 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

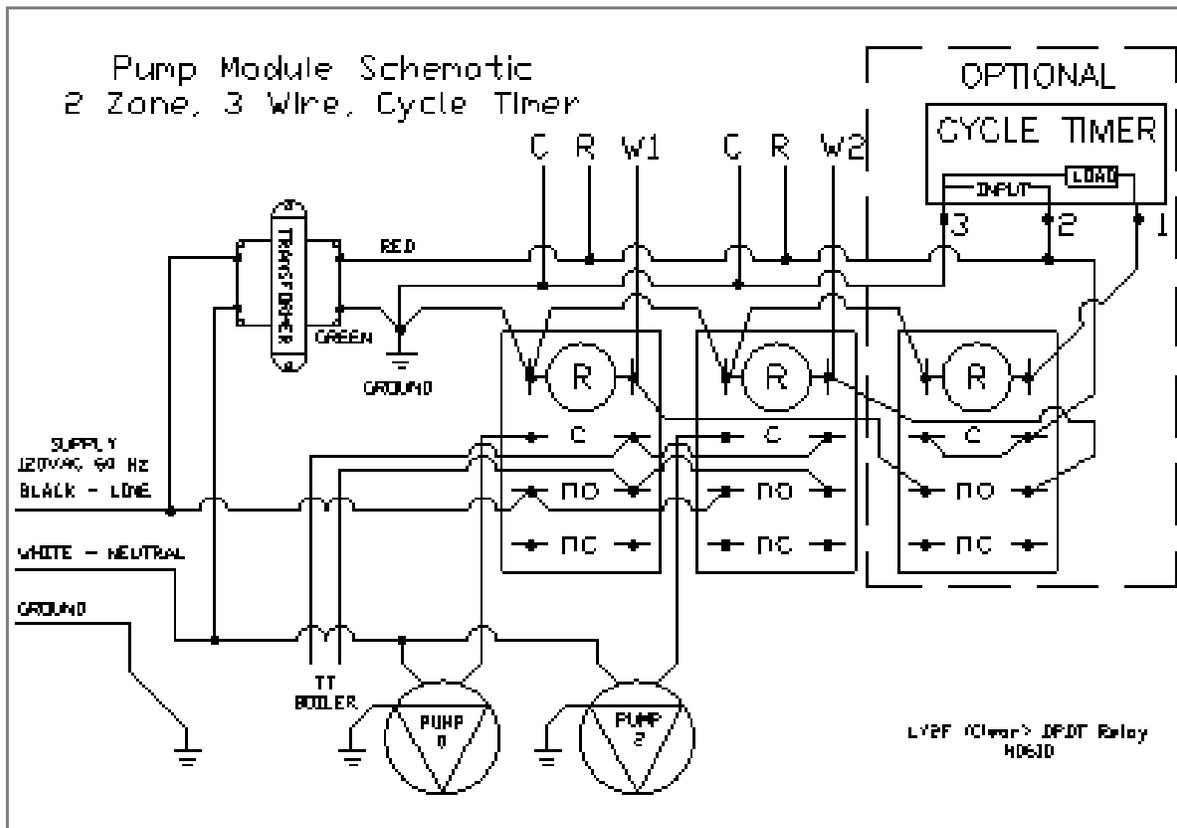
Ensure all plumbing connections are complete.

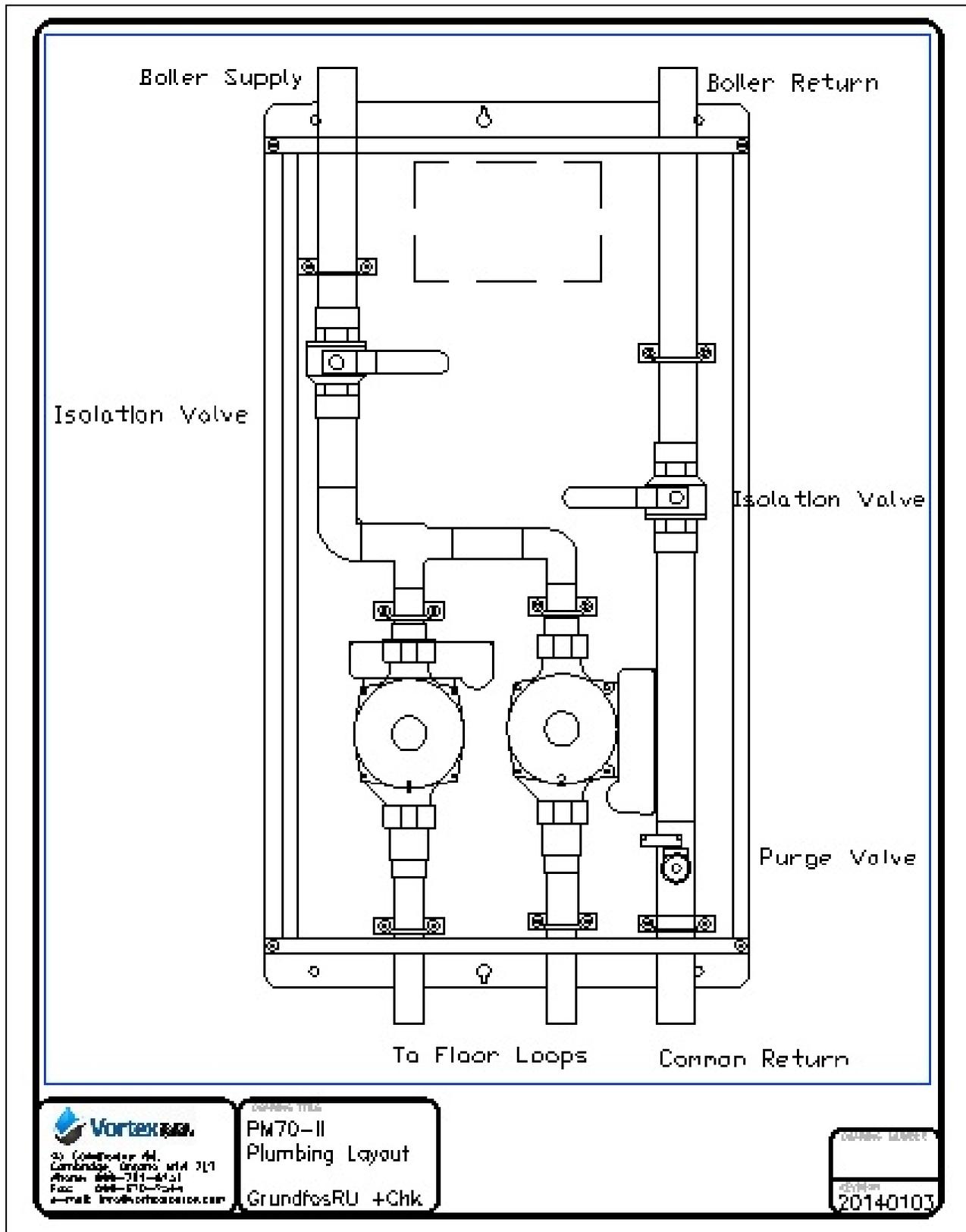
Purge all air from the plumbing or hydronic system. To purge air from the heating loop, open the supply isolation valve and close the return isolation valve. Connect a drain hose to the return leg purge valve. Open the purge valve and purge all air from the system. Repeat this on each time for each floor loop using

this individual manifold valves. Close the return leg purge valve and open all isolation valves.

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

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






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PM70-II
Plumbing Layout
 GrundfosRU +Chk

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