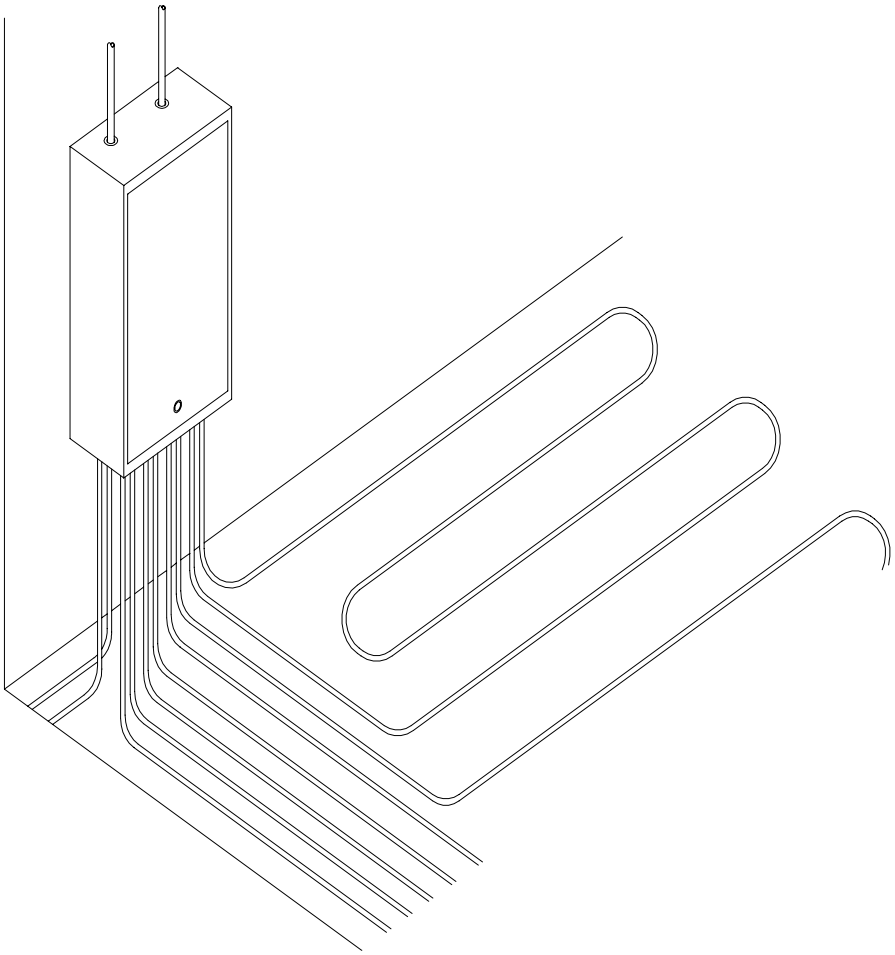
Instructions VSMR™



Introduction

The VSMR™ (Variable-Speed Module) is a self-contained package for radiant floor heating. 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. The injection pump provides the precise amount of hot water needed based upon heating load.

A loop pump, heat exchanger, variable speed injection pump, and electronic controls are contained in an attractive cabinet that can be directly connected to A Rinnai tankless water heater. Each unit has the necessary valves required for servicing the tankless water heater as well as a connection for an expansion tank. The unit comes pre-assembled to save time and simplify installation.

Physical Properties

Model	Cabinet dimensions			Connections*				Shipping Weight
	height	width	depth	Heat source	DHW	Radiant loops	Expansion tank	
VSMR	24”	14 ¼”	8”	¾” FPT Union	¾”	¾”	½”	58 lb.

- Copper sweat is standard. Any alternate plumbing connection is available by special order: barb, compression, NPT.

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Ecologix HEATING TECHNOLOGIES INC.

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Mounting

The VSMR may be mounted in a mechanical room or basement wall or in a closet. Ensure the Rinnai tankless water heater is installed according to Rinnai Installation Instructions. The VSMR is designed to be surface mounted and directly connected to the Rinnai water heater using the union connections provided

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

Piping Layout

Each VSMR has one zone pump. Note that some custom systems may use multiple loop actuators. Actuator end switches may be used to provide heating. Ensure all end switches are wired in parallel to the terminals marked thermostat.

Contact Ecologix for assistance with your radiant heating system design.

Plumbing Connections

All connections to the VSM are sweat copper and may be adapted to crimp PEX, compression PEX or NPT. Many options are available for circuiting the in-floor loop layout including remote manifolds.

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.

The VSMR™ includes a pre-wired 24VAC power supply for the controls. Connect your heat only thermostat to the low voltage terminal strip provided inside the cabinet.

For complex zoning ensure the room thermostats used have their own independent 24VAC source. 24 VAC connections provided inside the cabinet must be isolated from this foreign power supply. Using 24V sources that are not in Phase will result in an electrical failure. Contact Ecologix for assistance with your radiant floor heating design.

To install the optional outdoor sensor, remove the factory installed jumper/resistor The outdoor sensor is not polarity sensitive and is connected to TA4 and TB4. Call Ecologix for details.

STATUS AND ERROR CODES **Variable Speed Mixing (VSM)**

STATUS CODING		
LEVEL	D5 PATTERN	DESCRIPTION
1	SOLID RED	IrDA COMMUNICATIONS
2	SOLID GREEN	SLAB MAINTENANCE
3	SOLID ORANGE	TEST MODE
4	SLOW RED	HOT SUPPLY TEMP
5	SLOW GREEN	GOOD SUPPLY TEMP
6	SLOW ORANGE	COLD SUPPLY TEMP
7	FAST RED	HEAT CALL
8	FAST GREEN	SYSTEM STANDBY

ERROR CODING		
LEVEL	D4 PATTERN	DESCRIPTION
1	SOLID RED	SANITY FAILURE
2	SOLID GREEN	50 HZ LINE FREQUENCY DETECTED
3	SOLID ORANGE	SENSOR FAILURE
4	SLOW RED	OVER TEMP
5	SLOW GREEN	OVER LOAD
6	SLOW ORANGE	
7	FAST RED	WARM WEATHER OVERRIDE
8	FAST GREEN	THERMISTOR ERROR

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Start up

Ensure all plumbing connections are complete.

Purge all air from the domestic and hydronic system. Opening a DHW fixture will eliminate air on the domestic side of the system.

The closed loop side of the system can be filled by closing the isolation valve located between the two drain valves . Subsequently fill the system through the drain valve on the supply side to closed loop system. Open the drain valve on the return side of the system to purge air and to return liquid to the filling vessel or to drain.

The expansion tank should be charged as per expansion tank installation instructions. An isolation valve is located on the line for connection of expansion tank. It can be used if if necessary.

When the closed loop system is filled, close both drain valves used to fill the system and open the isolation valve located between them.

The tankless water heater will operate during a heat call cycle and for domestic hot water.

The VSMR is self calbrating. The control automatically determines supply temperature. LED Diagnostics are available for fine-tuning the system. See Attached Table.

Troubleshooting

No heat -- check the following:

- Check the tankless water heater inlet screen. Particulate may be restricting water flow through the heater
- all required valves are fully open.
- power available
- pump is running (a screwdriver held to the pump can work like a stethoscope)

Noisy Pump

- Repeat purge procedure

Heat distribution

- The VSMR will provide heated water to the loop system at the lowest possible temperature to ensure efficient operation.
- The floor surface will feel neutral as a result of operation in an optimal range. Loop supply temperature is not an indicator for comfort. The VSMR will automatically determine the appropriate supply temperature and deliver even heating to the loop.

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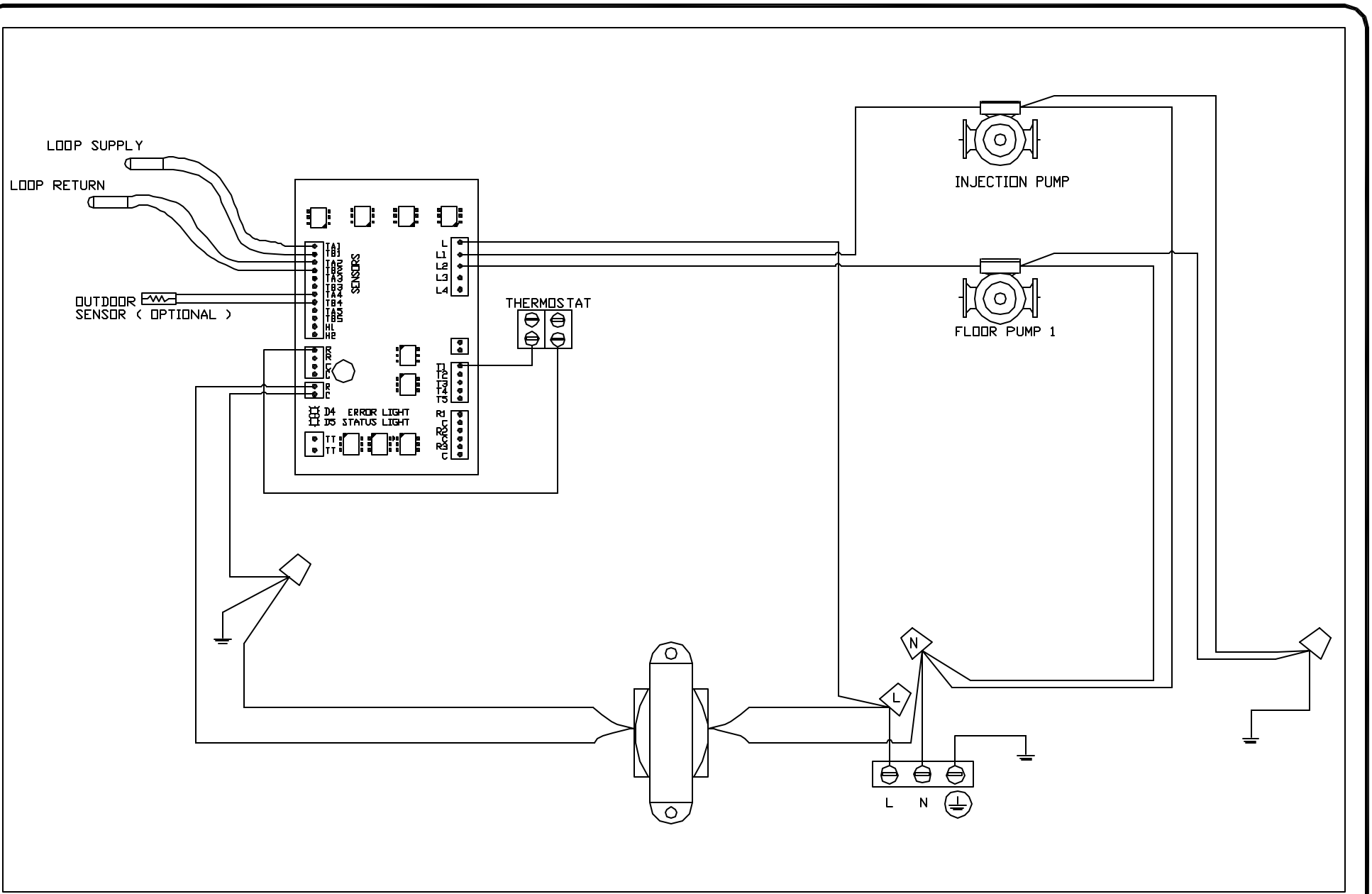

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VSM80-III WIRING DIAGRAM

Drawing Number

Revision