tekmar® - Application

Injection Mixing Control 350

A 350-1

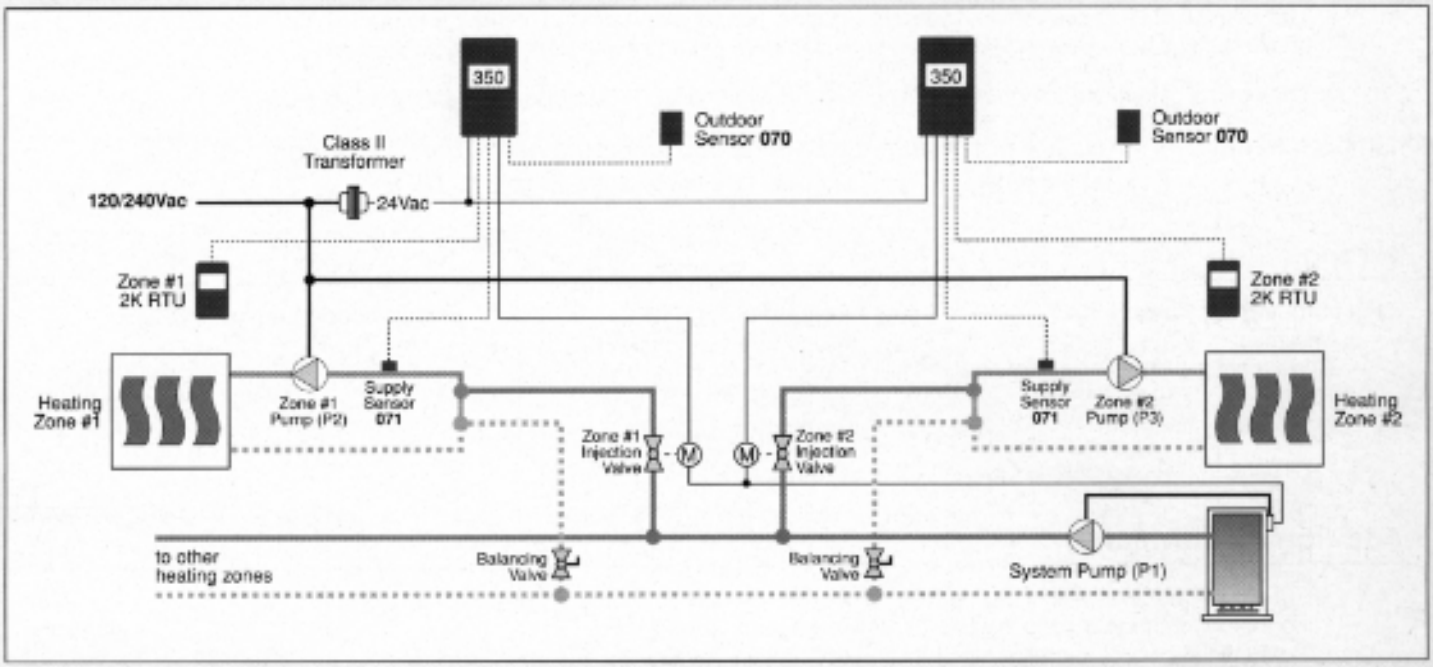
12/92

The Injection Mixing Control 350 regulates the indoor air temperature of each heating zone by injecting hot boiler water through a two-way valve into the continuously circulating zone loop. The water temperature of each zone loop is regulated based on the zone air temperature and outdoor air temperature.

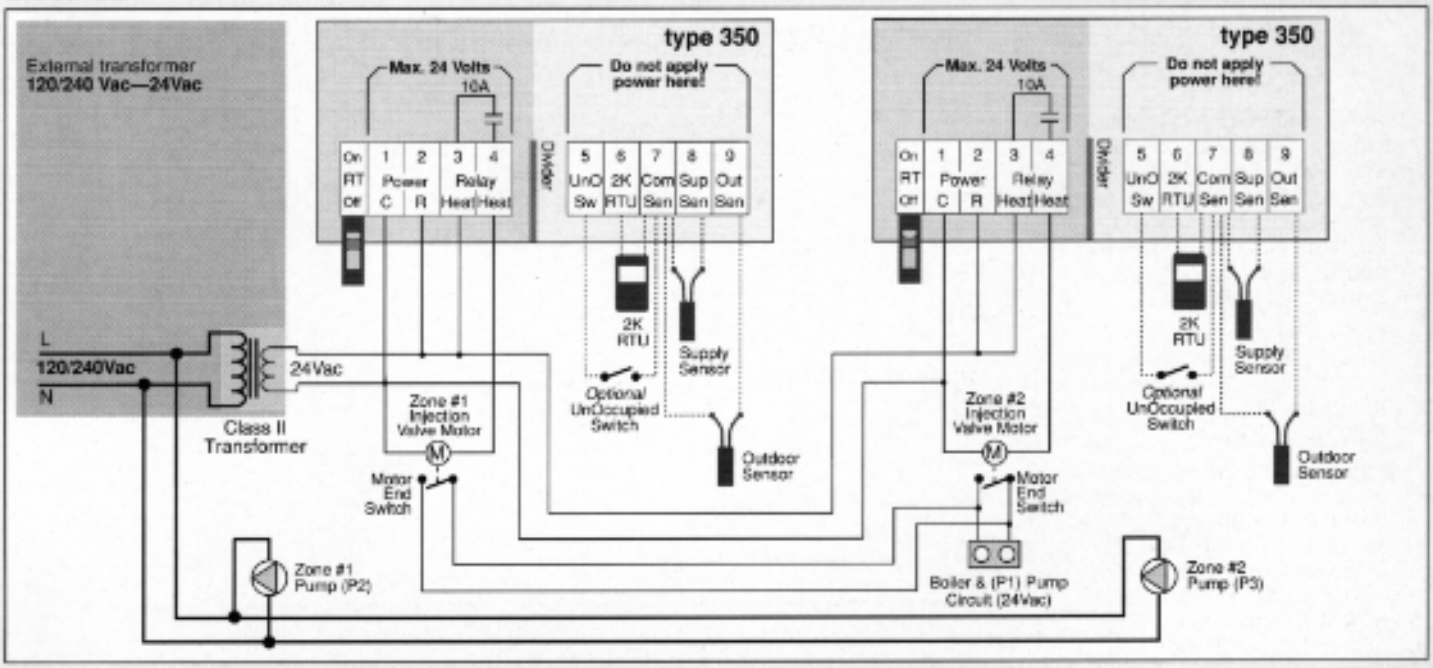
Note: *If pumps are used in the other zones of the system, an injection pump should be substituted for the injection zone valve to ensure consistent flow rates in the zone. The type 350 would then energize a double pole relay to power the injection pump and boiler.*

See balancing procedure in brochure D 350.

Mechanical



Electrical



Note: This is only a concept drawing. The designer must determine whether this system will work in his application and conform to code requirements. Necessary auxiliary equipment and safety devices must be added.

Specifications

The following are minimum recommended specifications for the control in this application.

- Each control shall calculate its HRF zone supply water temperature based on the control's Heating curve dial (reset ratio) setting, the outdoor air temperature and the HRF zone air temperature.
- Each control shall close its 2-way injection valve if its HRF zone supply water temperature rises above its adjustable maximum supply water temperature setting to prevent damage to the HRF plastic piping.
- Each control shall have an adjustable Cycle length to prevent short operating cycles of its 2-way injection valve.
- Each HRF zone's air temperature setting shall be adjustable at its RTU (Occupied temperature setting).
- Each HRF zone's air temperature shall be measured by a thermistor in its RTU, mounted remotely from the control.
- The zone pumps shall run continuously whenever the heating system is operating.
- The WWSD point for each zone shall be calculated by the control based on the occupied temperature setting of its RTU and its actual air temperature.
- Each control shall have a Test button which opens its 2-way injection zone valve.
- The controls shall be electronic controls with 10 Amp relay contacts and indicator lights for control functions and status.
- The control enclosures must be able to be mounted on standard North American electrical boxes.
- The location of each control must be within its specified temperature and humidity ranges with the installer ensuring that the control and its wiring are isolated and/or shielded from strong sources of electromagnetic noise.

- The control components required from tekmar are two Injection Mixing Controls 350 and two 2K RTUs.

Important note: ***RTUs are not included with type 350 and must be ordered separately.***
See Data Brochures D 05 and D 06 for selection of a suitable 2K RTU.

Settings

Injection Mixing Control 351	Adjustment Range	Recommended Initial Settings
Maximum	100 to 200°F (38 to 93°C)	
Cycle length	- to +	
Heating curve	0.4 to 3.6	
Occupied temperature	See D 05 or D 06	

- RT On/Off Switch setting = On

Additional Information

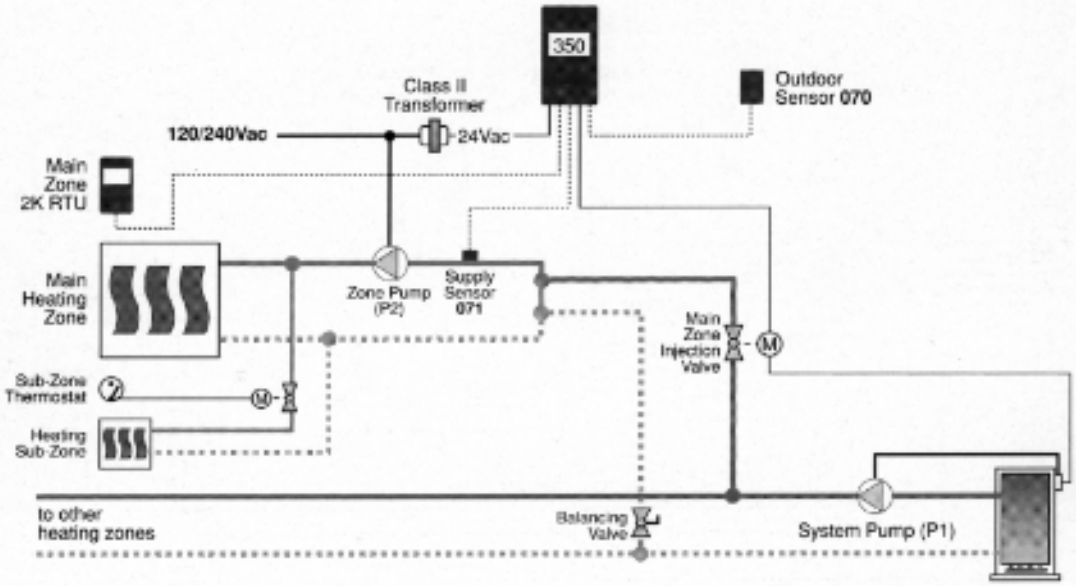
- For control installation and testing instructions see Brochures D 001, D 350 and D 05 or D 06.
- For other control applications see Application Register A 000.
- For detailed control operation and function description see Essays E 001 and E 002.

Sub-Zoning When Using On/Off Injection Mixing Controls

Although on/off injection mixing controls like the 350 are intended for use in controlling single zone systems, a small sub-zone may be taken off of the main heating zone subject to the following design considerations:

(1) — The sub-zone should be sized to be no more than 25% of the size (flow rate) of the main zone.

(2) — Since the sub-zone has no effect on the calculated supply temperature of the 350, the design supply temperature of the sub-zone must be lower than that of the main zone to ensure that sufficient heat is always available to the sub-zone.



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