

Comfort

Energy Savings

Ease of Installation

First-class Product Quality

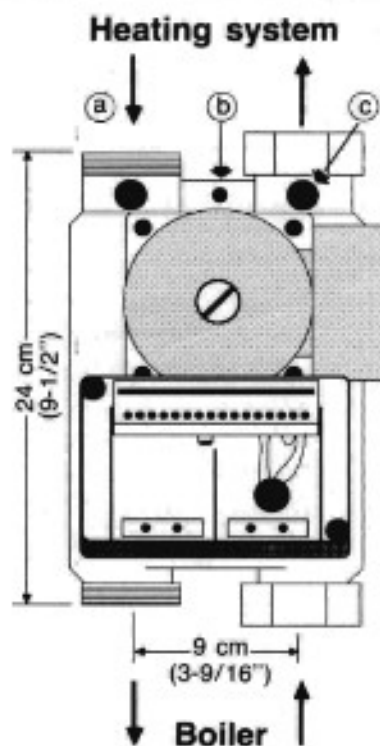
Conveniently assembled in one package, the tekmar control unit includes

- a water lubricated circulating pump
- a bronze 4-way mixing valve
- a high torque actuating motor
- a precision electronic control including outdoor and supply temperature sensors
- plus thermometers and pipe unions;

All of these quality parts have been fully factory tested.

① Mechanical

- a Install the control unit in the plumbing.
- b Generally the control unit will have enough mounting support from the pipes. However, if the 43-75 pump is used, then put a lag bolt through the 1/4" bolt hole and into a solid mounting surface to reduce the load on the pipes.
- c Push the thermometer into its well. The 'O'-ring gives a friction fit.



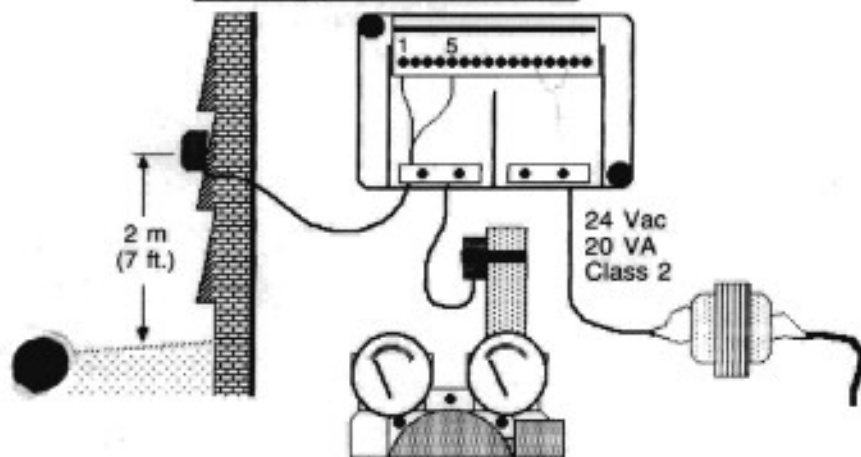
② Wiring the pump

The circulation pump requires 117 V ac, 60 Hz. Connect line to terminal "L", neutral to "N" and ground to "⊥". On pumps without 'quick-connects' connect line to the red wire, neutral to the blue wire, and ground to the green screw.

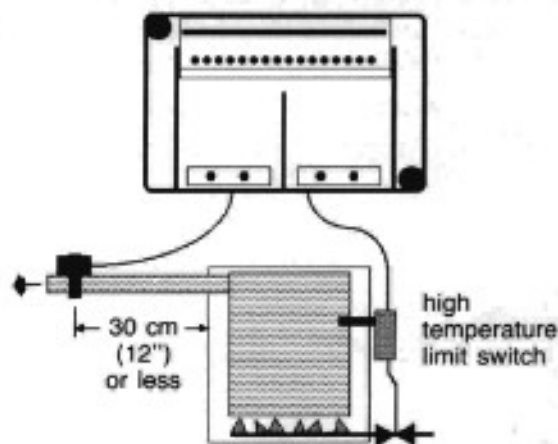
Start-up procedure for the pump

- a. Fill the heating system and boiler circuit with water (and optionally glycol). Vent the system and open the isolation valves.
- b. Remove the indicator plug which is in the middle of the pump's nameplate. Insert a small slot screwdriver into the end of the shaft and gently rotate it until the shaft turns freely. When water begins to dribble out, replace and tighten the plug.
- c. The electrical supply can now be switched on and the pump started. On a variable speed pump select the rotation speed which gives the correct pump performance curve for the system.

③ Low voltage wiring for the Mixing Valve Control

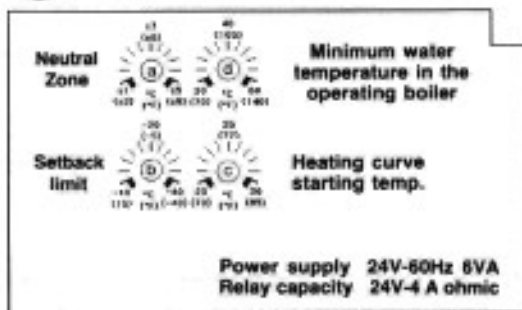


Additional wiring for the Mixing Valve & Boiler Control



All wires have no positive or negative: either wire can be connected to either terminal. The outdoor temperature sensor should be on the same side of the building as the main rooms are.

④ Dials on the back of the electronic control



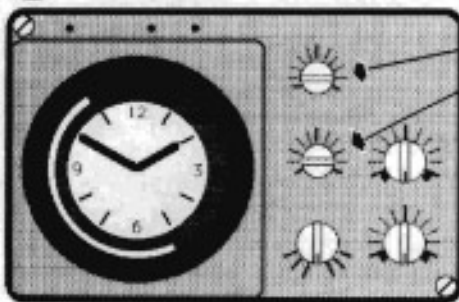
a. Neutral zone — Adjusts how accurately the control regulates the water temperature. Typical settings: HRF (radiant floor) = $\pm 0.5^{\circ}\text{C}$ (1°F), convectors = $\pm 1^{\circ}\text{C}$ (2°F), fan coil = $\pm 2^{\circ}\text{C}$ (4°F).

b. Setback limit — Below this outdoor temperature there is no night setback. Generally the setback limit should be a few degrees warmer than the design outdoor temperature.

c. Heating curve starting temp. — Compensates for the inefficiency of some heat distribution systems. Typical settings: HRF (radiant floor) = 20°C (68°F), convectors = 23°C (75°F), fan coil = 27°C (80°F).

d. Minimum water temperature in the operating boiler — (only on Mixing Valve & Boiler control) So that operation of the boiler conforms to the manufacturer's specifications.

⑤ Dials on the front of the electronic control



Heating curve(s) — Correct adjustment of the heating curve dial(s) is very important.

$$\text{Heating curve} = \frac{\text{design supply temp.} - \text{room temp.}}{\text{room temp.} - \text{design outdoor temp.}}$$

Example: • Design outdoor temperature -30°C (-22°F)
• Design room temperature 20°C (68°F)
• Design supply water temp. 50°C (122°F)

$$\text{Heating curve} = \frac{50^{\circ}\text{C} - 20^{\circ}\text{C}}{20^{\circ}\text{C} - (-30^{\circ}\text{C})} = \frac{122^{\circ}\text{F} - 68^{\circ}\text{F}}{68^{\circ}\text{F} - (-22^{\circ}\text{F})} = 0.6$$

Set the correct time — Turn the large hand of the timer clockwise until the correct time on the ring is pointed to by the switch in the upper left corner.

Program the timer — The beginning of a temperature setback period is set by a blue lug. A red lug ends the setback period.

Knobs ☀ and ☾ — These adjust the normal and setback temperatures respectively. Set both at ||.

Function switch — Set to ⌚.

⑥ Test procedure

Set function switch to 'O' — Is the open light on and the actuating motor opening the mixing valve?

Set function switch to 'C' — Is the close light on and the actuating motor closing the mixing valve?

Set function switch to ⌚ — Regular programmed operation

For more installation and testing instructions see brochure D 01.

Hang U 01 (instructions for use) on the wall beside the control unit.

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