

TS86A Powerpile® Thermostat

INSTALLATION INSTRUCTIONS

APPLICATION

The TS86A is a mercury switch thermostat that controls Powerpile® millivolt gas systems. The millivolt system operates independently of the electrical line service of the home. Do not attach this thermostat to any source of power other than a millivolt pilot generator.

The wallplate adapts the TS86A to 250, 500, or 750 millivolt systems.

The positive OFF switch on the TS86A breaks the electrical circuit to prevent system operation.



RECYCLING NOTICE

This control contains mercury in sealed tube. Do *not* place control in the trash at the end of its useful life.

If this control is replacing a control that contains mercury in a sealed tube, do *not* place your old control in the trash.

Contact your local waste management authority for instructions regarding recycling and the proper disposal of this control or of an old control containing mercury in a sealed tube.

INSTALLATION

When Installing this Thermostat...

1. Read these instructions carefully. Failure to follow them could damage the thermostat or cause a hazardous condition.
2. Check the ratings given in the instructions and on the thermostat to make sure it is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out thermostat operation as provided in these instructions.



CAUTION

Never use any source of power other than a self-powered millivoltage pilot generator system.

NOTE: The TS86 was carefully adjusted at the factory. *Handle the thermostat carefully*; rough handling may decrease its accuracy.

Location

Select a location about 5 ft (1.5m) above the floor in an area with good air circulation at average temperature.

Do not mount the thermostat where it can be affected by:

- drafts, or dead spots behind doors and in corners.
- hot or cold air from ducts.
- radiant heat from the sun or appliances.
- concealed pipes and chimneys.
- unheated (uncooled) areas behind the thermostat.

Mounting Wallplate on Wall

IMPORTANT

Use plumb line or spirit level to accurately level wallplate (Fig. 1). Inaccurate wallplate leveling causes the temperature control to deviate from the setpoint.

Use 127293 Cover Ring and wallplate to mount on outlet box as in Fig. 3. For wall mounting, use of 127293 Cover Ring is optional (Fig. 2).

1. Place cover ring on the wall at the desired location with the cable entrance holes to the left.
2. Bring the thermostat cable through the bottom entrance hole of the cover ring and through the wallplate entrance hole.
3. Fasten the cover ring and wallplate to the wall with the mounting screws as shown in Fig. 2.
4. Tighten screws after the wallplate is leveled. See Fig. 1 for leveling instructions.



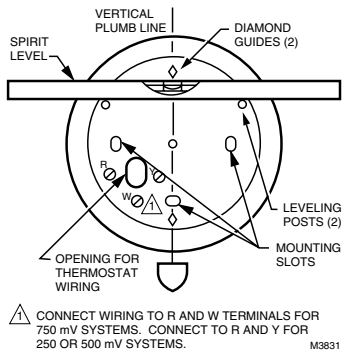


Fig. 1. Leveling wallplate with spirit level or plumb line.

Mounting Wallplate on Outlet Box

Use cover ring, TS86A Wallplate Assembly and screws as shown in Fig. 3.

1. Place the cover ring on the outlet box with the cable entrance holes toward the bottom.
2. Pull the thermostat cable through the bottom hole.
3. Align the diamonds vertically on the cover ring and secure with the screws provided.

NOTE: The side reading **Made in U.S.A.** must be against the wall.

4. Position the wallplate assembly and pull the thermostat cable through the cable entrance hole.
5. Mount wallplate with the screws provided. Tighten screws after the wallplate is leveled. See Fig. 1 for leveling instructions.

Wiring

IMPORTANT

1. *Never use any source of power other than a self-powered millivoltage pilot generator system. Refer to Fig. 4. Connect a 750 millivolt system to R and W terminals at wallplate. Connect a 250 or 500 millivolt system to R and Y terminals at wallplate.*
2. *This thermostat has a fixed anticipation heater properly sized for use with self-generating Powerpile systems. It should not be changed.*
3. *Use the T87, not the TS86, in systems where the millivoltage gas valve is controlled through a switching relay.*

All wiring must comply with local codes and ordinances for wire size and voltage. See Fig. 4 for typical millivolt hookup.

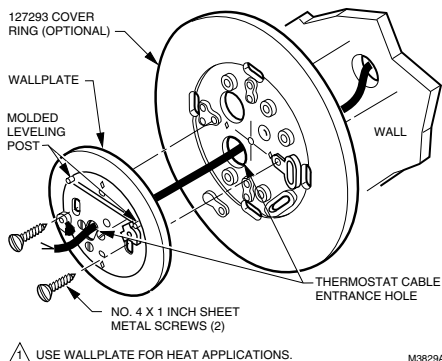


Fig. 2. Mounting wallplate to wall.

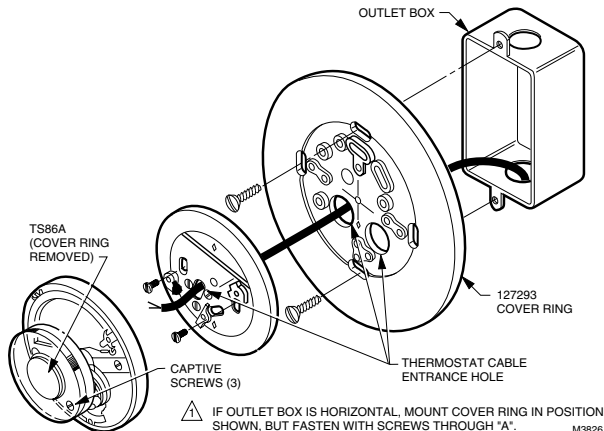


Fig. 3. Mounting wallplate to outlet box.

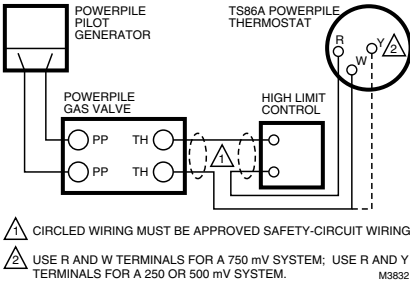


Fig. 4. Typical Powerpile millivolt system hookup.

1. Do not exceed the maximum lengths listed in Table 1 when wiring between the TS86A and a Powerpile gas valve. When wiring the TS86A in a 250 or 500 millivolt system, use No. 14 wire and keep the run as short as possible.

Table 1. Wire Lengths.

Wire Size	Maximum Length 2-Wire Cable		Maximum Length Single -Wire Cable	
	ft	m	ft	m
No. 18	30	9.1	60	18.3
No. 16	50	15.2	100	30.5
No. 14	80	24.4	160	48.8

2. Make connections to the wallplate terminals. For 750 millivolt systems, connect terminals R and W; for 250 or 500 millivolt systems, connect R and Y.
3. After wiring the wallplate, push excess wire back into the wall.
4. Plug the hole in the wall to prevent drafts from affecting thermostat operation.

Mounting Thermostat

Place thumb and fingers of one hand on thermostat base and thumb and fingers of other hand on thermostat cover ring. Lift off the ring.

NOTE: Carefully remove the protective packing that holds the mercury switch and bimetal assembly secure during shipment.

Mount the thermostat by placing it on the wallplate and tightening the three captive mounting screws. These captive screws complete the electrical connections to the wallplate. Replace the cover.

Temperature Selection

To select the temperature control point, turn the transparent dial until the desired point on the setting scale (top) is aligned with the pointer.

CHECKOUT



CAUTION

When checking out this thermostat, NEVER (even temporarily) apply a jumper across the valve coil terminals.

To check thermostat operation, first make certain the pilot burner is lit.

Raise the temperature setting slowly until the main burner lights. The burner should go out when the dial is turned back a degree or two below room temperature. Make sure all equipment functions properly in response to the thermostat.

NOTE: For models with positive OFF on the dial, the control circuit is open when the dial is turned to the OFF position.

CALIBRATION

The TS86 is accurately calibrated at the factory under controlled conditions and no recalibration should be necessary. If it appears that the thermostat is out of calibration, make sure that it is level, and is not subjected to radiant heat from the sun, radiators, fireplace, or appliances such as television sets.

Remove thermostat cover ring so you can observe mercury switch action. After a five or ten minute OFF period (with thermostat setting below room temperature), slowly raise the setting until the switch just makes contact. *If thermometer pointer and setting indicator read the same the instant you see the switch make, no recalibration is necessary.*

If recalibration is necessary, proceed as follows:

1. Turn the setting dial a few degrees above room temperature and remove the cover.
2. Slip part no. 104994, the Calibration Wrench, onto the hex nut, see Fig. 5, under the bimetal coil. Holding the dial firmly, turn the hex nut clockwise until the mercury breaks contact.

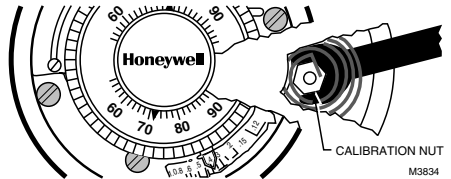



Fig. 5. Recalibration procedure.

3. Turn the dial to a low setting so that the thermostat loses the heat it has gained from your hands. Wait at least five minutes.
4. Slowly turn the dial until the pointers read the same.
5. Firmly hold the dial from turning and carefully turn the hex nut counterclockwise  until the mercury just slips to the heating contact end of tube but *no farther*.
6. Recheck calibration, select the desired temperature, and replace the cover.

After the installation is complete, the homeowner can paint the TS86 cover to match the room decor. Remove thermostat cover ring to paint. Be careful not to damage or splash paint on working parts.

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