

+wire® 1502-XX smart thermostat adapter w/transformer for HVAC systems w/2 or more wires

Step 1: Thermostat Element (TE) installation at thermostat on all systems. TE has 3 wires: blue, white, and black.

1. Turn off power to HVAC system. Use masking tape and marker to label wires at Tstat (Y1, G, W1, C, Rh or HP Rc and O/B), and at gas valve (TH, TH/TP, TP, TR, TH/TR), furnace/AC (W, Y, G, C, R), or HP (W, Y, G, O/B, C, R).
Photograph all existing wire connections after labeling wires at thermostat, gas valve, furnace, or Heat Pump (HP).

TE fits behind thermostat base plate which might require enlarging hole in wall behind base plate.

2. **If replacing thermostat:** After labeling wires remove thermostat wires and base plate and install new base plate.
- 3a. **Fireplace or Gas heat or with or without AC (not heat pump):** Use wire nut to connect +wire TE black wire to wire in wall previously connected to W terminal. Connect +wire TE white wire to base plate W terminal. Skip to **Step 4**.
- 3b. **Heat pump (HP):** Use wire nut to connect +wire TE black to green wire in wall previously connected to G terminal. Connect +wire TE white wire to base plate G terminal. Proceed to **Step 4**.
4. **All systems:** Connect +wire TE blue wire to base plate C terminal, connect wire in wall labeled R to base plate Rh terminal for furnace or Rc for HP. Connect remaining wires in wall to base plate terminals: yellow to Y1, green to G, HP reversing valve orange (O) or brown (B) wire to O/B terminal. Install Switch Element (SE) in **Step 2a, 2b, 2c, or 2d**.

Steps 2a-2d: Switch Element (SE) installation. SE has 4 wires: black, blue, 1st green, and 2nd green. SE green wires are interchangeable. Do not power HVAC system until Step 3. Spade connectors are provided if needed.

Step 2a: Switch Element (SE) installation for MILLIVOLT GAS FIREPLACE or FURNACE at gas valve.

1. Millivolt gas valve for fireplace or heater has 3 terminals labeled TH/TP (heat/pilot), TH (heat), and TP (pilot).
2. **Gas valve TH terminal:** Loosen screw or remove wire from gas valve, connect SE 1st green wire and tighten screw.
3. Using wire nut, connect SE black (Blk) wire to Tstat W wire removed from TH terminal in step 2.
4. **Gas valve TH/TP terminal:** Loosen screw or remove Tstat Rh wire, insert SE 2nd green wire, and tighten screw (TH/TP wire from thermopile is connected under terminal screw or spade connector).
5. Using wire nut, connect Tstat Rh wire that was removed from gas valve TH/TP terminal to one wire from wall transformer wire (transformer wires are interchangeable).
6. Using wire nut, connect SE blue wire to other wire from wall transformer. Skip to **Step 3, System Test**.

Step 2b: Switch Element (SE) installation for 24VAC GAS FIREPLACE or WALL HEATER at gas valve.

1. 24VAC gas valve for fireplace or wall heater has 3 terminals labeled TH/TR (heat/return), TH (heat), and TR (return).
2. **Gas valve TH terminal:** Loosen screw to remove wire, connect SE 1st green wire and tighten screw.
3. Using wire nut, connect SE black (Blk) wire to wire removed from TH terminal in step 2.
4. **Gas valve TH/TR terminal:** Loosen screw and insert SE 2nd green wire with all existing wires and tighten screw. Keep existing wire from 24VAC transformer to TH/TR terminal connected (this wire is also connected from TH/TR terminal or 24VAC transformer to Rh terminal of thermostat using wire in wall). If there is no wire in TH/TR terminal, locate 24VAC transformer and use a wire nut to add length of wire to SE 2nd green wire to connect to transformer terminal with wire going to thermostat Rh terminal. **Do not** connect SE 2nd green wire to transformer wire connected to TR terminal.
5. **Gas valve TR terminal:** Loosen screw to insert SE blue wire and tighten screw. Skip to **Step 3, System Test**.

Step 2c: Switch Element (SE) installation for 24VAC GAS FURNACE at terminal block.

1. **Furnace C terminal:** Loosen screw, insert SE blue wire with all existing wires and tighten screw.
2. **Furnace W terminal:** Loosen screw to remove wire, insert SE 1st green wire, and tighten screw.
3. Using wire nut, connect +wire SE black (Blk) wire to wire removed from W terminal in step 2.
4. **Furnace R terminal:** Loosen screw, insert SE 2nd green wire with all other wires and tighten screw. This wire also connects to Rh terminal of thermostat using wire in wall. Skip to **Step 3, System Test**.

Step 2d: Switch Element (SE) installation on a HEAT PUMP (HP) at terminal block.

1. **HP C terminal:** Loosen screw, insert SE blue wire with existing wires, and tighten screw.
2. **HP G terminal:** Loosen screw to remove wire, insert SE 1st green wire, and tighten screw.
3. Using wire nut, connect SE black (Blk) wire to wire removed from HP G terminal in step 2.
4. **HP R terminal:** Loosen screw, insert SE 2nd green wire with existing wires, and tighten screw. This wire also connects to Thermostat Rc (Nest) or Rh (Ecobee) terminal using wire in wall. Skip to **Step 3, System Test**.

Step 3: System test

1. Install Smart Thermostat face plate and turn on power to HVAC system. Plug in transformer for millivolt system.
2. **For Nest:** verify "equipment" screen shows common C wire and all other wires connected. For heat only: C, W1, Rh, and possibly G. For heat/AC: C, Y1, W1, G, and Rh. For heat pump: C, Y1, O/B, G, and Rc.
3. Follow Smart Thermostat setup instructions.
4. **For heat only:** place system in heat mode and raise setpoint to verify heat operation.
5. **For AC or heat pump:** place system in cooling and lower setpoint to verify AC operation.
6. **For fan control:** set FAN to ON or ALWAYS and verify fan operation.



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