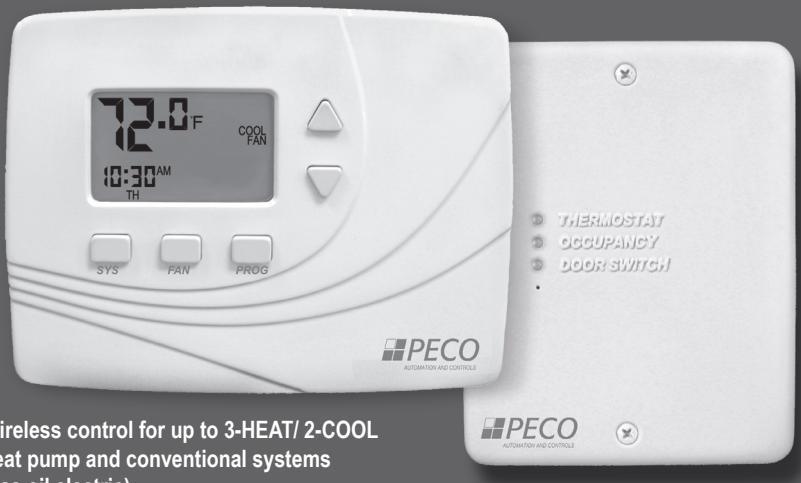
PECO® WavePRO™ Wireless System

INSTALLATION GUIDE:
T2500 THERMOSTAT AND R2500 RECEIVER



Wireless control for up to 3-HEAT/ 2-COOL heat pump and conventional systems (gas,oil,electric).

Benefits:

- Reduced installation time
- Reduced wiring costs
- Energy cost savings
- Scalability of network
- Flexibility in floor planning
- Ideal for building renovation

The Peco WavePRO Wireless System

The PECO® WavePRO™ Wireless System is a wireless thermostat transmitter and receiver. It is designed for use with conventional (gas, oil, electric) or heat-pump systems. It can support up 2-HEAT/ 2-COOL configuration on conventional systems and up to 3-HEAT/ 2-COOL configurations of heat pump systems. The PECO WavePRO Wireless System is comprised of the wireless T2500 Thermostat paired with the wireless R2500 Receiver.

The T2500 Thermostat may be powered by battery, 24 VAC, or by both (recommended). The system may be programmed for 7-day individual, 5/2-day, 5/1/1-day, or 7-day identical programmable operation, with four time periods per day. The R2500 Receiver is powered by 24 VAC only and is wired directly to the HVAC equipment that it controls.

Model K2500-001

PECO
AUTOMATION AND CONTROLS

WARNING

- DISCONNECT POWER BEFORE BEGINNING INSTALLATION.
- READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO OPERATE THIS THERMOSTAT AND RECEIVER.
- To avoid electrical shock or damage to equipment, disconnect power before installing or servicing and use only wiring with insulation rated for full thermostat operating voltage.
- To avoid potential fire and/or explosion do not use in potentially flammable or explosive atmospheres.
- Contact a qualified service person if at any time your system does not operate properly.
- Use care to avoid static discharge to thermostat and receiver.
- Retain these instructions for future reference. When installed, this product will be part of an engineered system whose specifications and performance characteristics are not designed or controlled by PECO. You must review your application and national and local codes to assure that your installation will be functional and safe.

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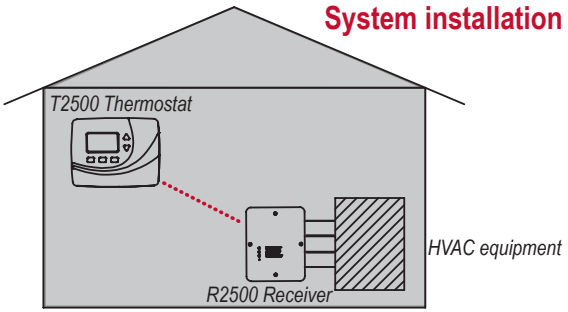
System installation at a glance



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Getting started

This booklet provides an installation guide, wireless pairing instructions, and advanced configuration options for the R2500 and T2500. Please note:

- **In order to establish correct pairing, the R2500 must be mounted and wired before applying power to the T2500.**
- **Read and understand the "Advanced configuration" section to determine your preferred settings on the T2500 before performing wireless pairing.**

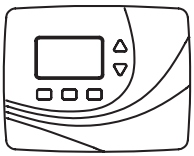
WavePRO Wireless System pre-installation checklist

WavePRO Wireless System (T2500 and R2500) mounting considerations:

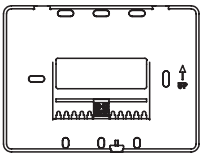
- Locate the T2500 and R2500 within 100 ft. (30 m.) of one another.
- Avoid locating devices within a metal enclosure or between large obstructions.
- The WavePRO Wireless System will communicate through walls and other obstructions, but these may reduce the effectiveness of its operating range.

Required tools & supplies:

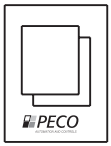
- No. 2 Phillips screwdriver
- Small flathead screwdriver
- Drill
- Drill bit (3/16" for drywall, 7/32 for plaster)
- Hammer
- Pencil
- Electrical tape
- Level (optional)
- Two new AA batteries (included)



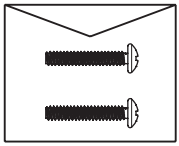
PECO T2500 WavePRO Wireless Thermostat



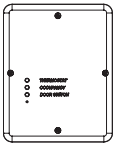
T2500 backplate



WavePRO Wireless System Installation Guide



Wall anchors



PECO R2500 Wireless Receiver

WavePRO Wireless T2500 & R2500 Operating Manual

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1. Install R2500 Receiver

The following section provides installation instructions for the R2500 Receiver.
Note: In order to establish correct pairing, the R2500 must be mounted and wired before applying power to the T2500.

Figure1. R2500 front cover

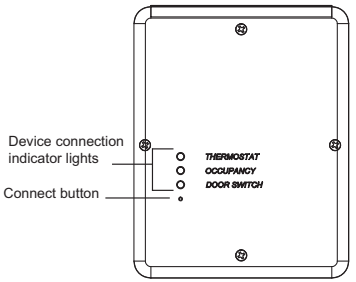
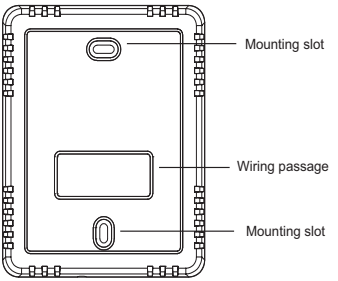


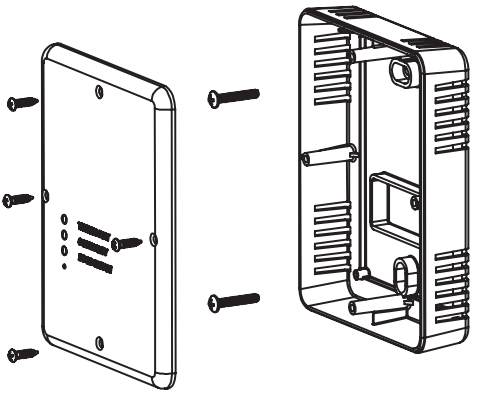
Figure 2. R2500 backplate



INSTALLATION TIPS

- **WARNING: Disconnect power before beginning installation.**
- **Mount the R2500 on a wall near the HVAC equipment.**
- **Choose indoor mounting locations free from obstructions.**
- **CAUTION: Use copper wire only. Insulate or wire-nut all unused leads.**
- **Use care to avoid electrostatic discharge to thermostat and receiver.**

Figure 3. Remove cover of Receiver.



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1. Remove the front cover (see Fig. 3) by loosening screws.
2. Pull equipment wires through the R2500 wiring passage (see Fig. 4).
3. Drill holes appropriately in the mounting surface.
4. Mount the R2500 using the enclosed mounting screws. Tighten screws evenly.
5. Connect equipment wire to the R2500 terminals:

   a. Match equipment wire to the R2500 terminals, referencing the appropriate wiring examples below (see “R2500 wiring examples” section of these instructions for assistance with single-stage, multi-stage, heat pump, and traditional applications).

   b. Loosen screw terminals.

   c. Insert wires into the appropriate terminals.

   d. Re-tighten screw terminals.
6. Cap off unused wires or terminate properly according to local building codes.
7. Re-attach the R2500 front cover (see Fig. 4).

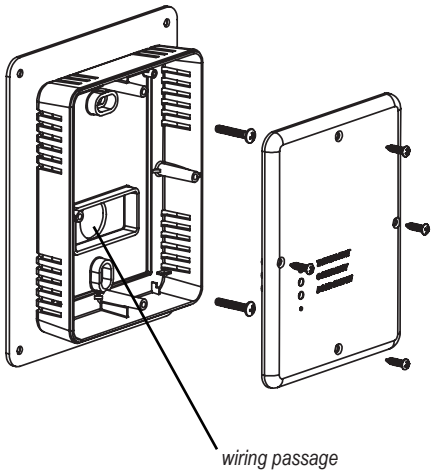

Figure 4 . Reattach cover of R2500 Receiver.

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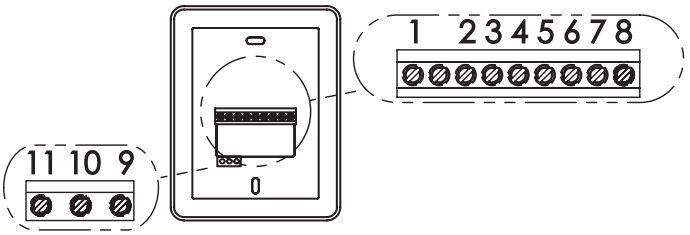
R2500 wiring examples

The following are examples of typical wiring configurations for the R2500 Receiver (see Fig.5 and Terminal Designations Overview below). Please contact a service technician if you are unable to perform the wiring installation.

Terminal Descriptions

Conventional Terminal Letters		Heat Pump Terminal Letters	
C	Common wire from secondary side of system transformer	**C**	Common wire from secondary side of system transformer
R	Power connected to system transformer	**R**	Power connected to system transformer
W	First stage of heat relay/contactor	**Y**	First stage of compressor contactor
W2	Second stage of heat relay/contactor	**Y2**	Second stage of compressor contactor
Y	First stage cool relay/contactor	**Aux**	Auxiliary heat relay/contactor (Emergency heat)
Y2	Second stage cool relay/contactor	**G**	Fan relay
G	Fan relay	**E**	Emergency mode

Figure 5. R2500 numbers on terminal block correspond to Terminal Designations Overview below.



Terminal Designations Overview

Terminal	Heat Pump Systems		Conventional Systems	
1	C	24VAC 2	C	24VAC 2
2	R	24VAC 1	R	24VAC 1
3	Y1	COMP 1	Y1	COOL 1
4	Y2	COMP 2	Y2	COOL 2
5	O/B	REV. VALVE	W1	HEAT 1
6	AU	AUX HEAT	W2	HEAT 2
7	E	EMERGENCY MODE	NA	NA
8	G	FAN	G	FAN
9	Remote probe common			
10	Unused			
11	Remote probe			

Note: All heat pump systems that call for emergency heat will have more heat stages than cool stages.

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R2500 wiring examples

System Type 0 (1H/1C CONV)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Cooling
4	Y2	
5	W1	Heating
6	W2	
—	NA	NA
8	G	Fan

System Type 1 (1H/1C HP)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Compressor 1
4	Y2	
5	O/B	Reversing valve
6	AU	
—	NA	NA
8	G	Fan

System Type 2 (1H/1C HP + Emergency)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Compressor 1
4	Y2	
5	O/B	Reversing valve
6	AU	Aux/Emergency Heat
7	E	Emergency Mode
8	G	Fan

System Type 3 (1 Heat without Fan)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	
4	Y2	
5	W1	Heating
6	W2	
—	NA	NA
8	G	

System Type 4 (1 Heat with Fan)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	
4	Y2	
5	W1	Heating
6	W2	
—	NA	NA
8	G	Fan

System Type 5 (Cooling Only)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Cooling
4	Y2	
5	W1	
6	W2	
—	NA	NA
8	G	Fan

ALL ELECTRICAL LOADS MUST BE CONNECTED TO 24VAC 2.

Note: If remote probe is used, please refer to the Terminal Designations Overview (p 6).

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R2500 wiring examples

System Type 6 (2H/1C HP)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Compressor 1
4	Y2	
5	O/B	Reversing valve
6	AU	Aux/Emergency heat
7	E	Emergency mode
8	G	Fan

System Type 7 (2H/2C Conventional)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Cooling stage 1
4	Y2	Cooling stage 2
5	W1	Heating stage 1
6	W2	Heating stage 2
—	NA	NA
8	G	Fan

System Type 8 (2H/1C Conventional)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Cooling stage 1
4	Y2	
5	W1	Heating stage 1
6	W2	Heating stage 2
—	NA	NA
8	G	Fan

System Type 9 (1H/2C Conventional)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Cooling stage 1
4	Y2	Cooling stage 2
5	W1	Heating stage 1
6	W2	
—	NA	NA
8	G	Fan

System Type 10 (2H/2C HP)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Compressor 1
4	Y2	Compressor 2
5	O/B	Reversing valve
—	NA	NA
—	NA	NA
8	G	Fan

System Type 11 (3H/2C HP)		
TERM	Name	Function
1	C	24VAC 2
2	R	24VAC 1
3	Y1	Compressor 1
4	Y2	Compressor 2
5	O/B	Reversing Valve
6	AU	Aux/Emergency heat
7	E	Emergency mode
8	G	Fan

ALL ELECTRICAL LOADS MUST BE CONNECTED TO 24VAC 2.

Note: If remote probe is used, please refer to the Terminal Designations Overview (p. 6).

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2. Install the T2500 Thermostat backplate

The T2500 Thermostat is intended for indoor installation only. It should be mounted on an inner wall, in a location with freely circulating air, **where it will be responsive to changes in room temperature.** Avoid mounting the thermostat near heat-generating appliances (i.e., TV, heater, refrigerator), or in direct sunlight. This instruction assumes that the installer will use pre-existing wires found at the location of the previously-installed thermostat.

Power Options

The T2500 will operate on 24 VAC power and/or two AA alkaline batteries. Where possible, the thermostat should be operated on 24 VAC power with battery backup.

MERCURY NOTICE: If this product is replacing a control that contains mercury in a sealed tube, do not place the old control in the trash. Contact your local waste management authority for instructions regarding recycling and/or proper disposal.

Remove the old thermostat

1. Turn off all power for heating/cooling system (or for fuse/circuit breaker panel) before installing thermostat to avoid electrical shock or damage to equipment.
2. Remove the cover of old thermostat (see Fig.6).

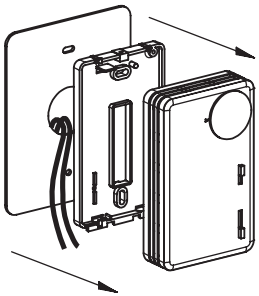

Figure 6. Remove the old thermostat.

3. Label each wire with the terminal to which it was attached *before removing wires* from the old thermostat (see Fig.7).
4. Disconnect wires. Do not let wires fall back into the wall.
5. Remove backplate from the wall after all wires are labeled. If old thermostat has a wall mounting plate, remove both of these as an assembly.

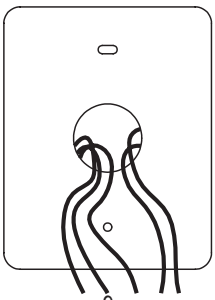

Figure 7. Label exposed wires.

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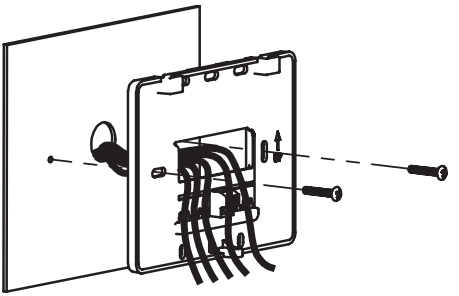
6. Use a level to mark the backplate mounting position.
7. Mark positions of the screw holes (two at minimum) with a pencil.
8. Drill holes at pencil-marked locations (3/16” for drywall, 7/32” for plaster).
9. Insert the wall anchors in the holes. Use a hammer to gently tap anchors into holes.
10. Mount the T2500 Thermostat backplate on the wall. Assure that all loose wires come through the center opening of the backplate (see Fig. 8).

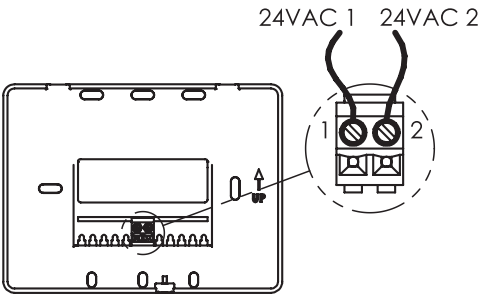
Figure 8.
Install the T2500 Thermostat backplate.



Attach wires to the T2500 Thermostat backplate.

1. Using a small flathead screwdriver, loosen the screws on the terminal block, located on the backplate, to allow the wires to be inserted easily.
2. Strip the insulation of each wire at a proper length (about 1/4” or .64cm).
3. Insert the appropriate wires into the terminal block as shown in the wiring diagram below (see Fig. 9).
    a. Connect 24VAC 1 to terminal 1
    b. Connect 24VAC 2 to terminal 2
4. Tighten each terminal block screw until the wires are held firmly in place. Ensure that no uninsulated wire is exposed.

Figure 9.
T2500 backplate with terminal block.



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3. Install batteries in the T2500

Batteries are recommended for the T2500 Thermostat. Insert two AA batteries (included) in the T2500 Thermostat back compartment where indicated (see Fig. 10). Assure batteries are inserted properly.

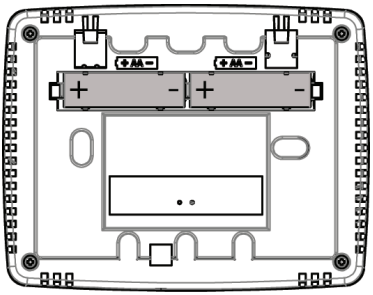

Figure 10.
T2500 reverse view: Insert two AA batteries into reverse side.

4. Perform advanced configuration of the T2500 before pairing.

Perform advanced configuration for thermostat before performing wireless pairing. (See p. 14, "Advanced Configuration" section). Advanced configuration allows you to customize thermostat settings, such as temperature display, time and day display, programming commands, and to create setpoints for scheduling different time periods. For more information on using thermostat's buttons and features, refer to the "WavePRO Wireless Programmable T2500 Thermostat & R2500 Receiver Operating Manual."

5. Establish a wireless connection

Perform wireless pairing after the R2500 is installed and advanced configuration is complete. For best results, perform wireless pairing before the T2500 Thermostat is attached to the backplate.

NOTE: Wireless pairing is time sensitive. Pairing the T2500 with the R2500 must be completed within two minutes after initiating the pairing process. (If you wait longer than two minutes, restart the wireless pairing process at Step 1.)

Installation Tips

- **Hold the T2500 Thermostat within 6-10 feet (3 m.) of the R2500 Receiver during pairing.**
- **Step 3 (below) must be completed within two (2) minutes of completing Step 2, initiating the flashing LEDs on the R2500.**
- **Install and perform wireless pairing of only one set at a time of the T2500 Thermostat and the R2500 Receiver (if installing more than one pair at the same location).**

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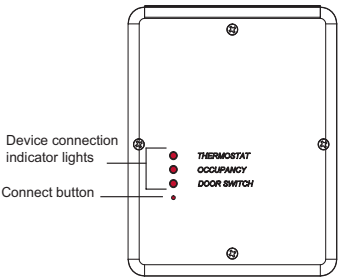
1. Turn on power to both the T2500 and R2500. Note: **DO NOT** attempt to pair more than one WavePRO Wireless System simultaneously.
2. Push and hold the CONNECT button using a paperclip on the R2500 Receiver, until **all three LED lights flash** for about 10 seconds (see Fig.11). If only two LEDs flash, continue pressing CONNECT button until all three LEDs flash.

Figure 11.
R2500 Receiver LEDs: Thermostat, Occupancy, and Door Switch.

CONNECT button appears at bottom.



Note: The following steps must be performed within two minutes of initiating the flashing LEDs on the R2500 (Step 2).

3. Push simultaneously ▲ and ▼ buttons on T2500 until **1** appears in **Display**.
   a. Push the **SYSTEM** button continuously until **Service Menu 43** appears.
   b. Pause at **Service Menu 43. Display** will change to **0.**
   c. Push ▲ button to change the **0** to **1** *within* **Service Menu Function 43.**
      • T2500 **Display** will begin countdown from **99** and stop before 0. (Countdown indicates that pairing process has begun).
   d. Wait for the **Service Indicator** on the T2500 to begin flashing (indicating the R2500 was found but pairing process is not yet complete).
      • T2500 **Display** will show the room temperature.
   e. **Wait for up to 10 minutes to allow completion of pairing process. Do not press buttons during this process.**

Wireless pairing is successful only when you see the following:

- **R2500 "Thermostat" LED is continuously lit.**
- **T2500 Service Indicator disappears from Display.**

NOTE: For more help, see"Frequently asked questions & troubleshooting."

Verify wireless pairing

After the T2500 and R2500 are installed, configured, and the wireless pairing process is complete, verify the T2500 operation:

1. Press FAN button on T2500 Thermostat.
2. Press FAN button continuously until ON is flashing.
3. Allow timeout. Flashing menu option (ON) is automatically selected.
   Note: Fan blower should begin to operate (there may be a delay).
4. Press FAN button until AUTO begins flashing so it is automatically selected.
   Note: FAN has now been reset to AUTO.
5. Allow the device to time out. **Wireless verification is complete.**

For further system testing, see also "Advanced configuration," Menus 80-83.

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Interpreting the R2500 Indicator LEDs

LED indicator lights on the R2500 may also be used to diagnose communication errors. Use the following table to interpret the R2500 LEDs.

If R2500 LED...	Interpretation
Blinks once	R2500 is receiving **valid** messages from another device.
Blinks twice	R2500 is receiving **invalid** messages from another device.
Blinks intermittently	R2500 is receiving **invalid** messages that may be caused by an excessive amount of obstruction between the R2500 and other wireless paired devices; or from excessive interference from other wireless devices. Note: If the R2500 LEDs indicate invalid messages frequently, review for help the following sections: "Install R2500 Receiver" or "Frequently asked questions & troubleshooting."

If replacing either the T2500 or the R2500, follow these instructions:

A brief connection process must be performed that erases all previously paired devices from the R2500 memory. Hold the CONNECT button down until all the LED lights begin to flash (about 10 seconds). Wait until all three LEDs stay lit for one (1) second and begin to flash. Begin the pairing process again at section "5. Establish a wireless connection."

6. Mount the T2500 onto the backplate

1. Attach thermostat by sliding the mounting tabs (on its reverse side) down onto the hinge pockets on the backplate (see Fig. 12-13). Make sure that thermostat's pins on reverse fit securely into the terminal block on backplate.
2. Install retaining screw provided with the mounting hardware (see Fig. 12). **Note: Inserting the retaining screw is recommended to assure thermostat is securely attached to the wall.**

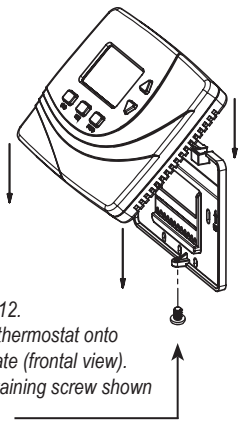
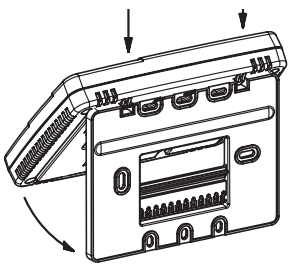


Figure 12.
Mount thermostat onto backplate (frontal view). Use retaining screw shown here.

Figure 13.
Mount thermostat onto backplate (reverse view).



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Advanced configuration: T2500 Thermostat

In the following section, you will learn how to access SYSTEM (SYS) menu options for advanced configuration. To access the system menu, follow the instructions below. After you access each service menu option, a default value will appear on the screen.

1. Simultaneously press ▲ and ▼ buttons until you see "**1**" in the **Display.**
2. Press **SYS** button continuously to scroll until desired menu number appears.
3. Press ▲ and ▼ to select desired option once you enter the service menu.

Changed values will be saved by: 1) waiting for the timeout to occur; or 2) moving to the next menu. (Automatic saving of the value occurs after 15 seconds). **NOTE: You can verify system operation by accessing the system test options (service menus 80-83). To abort system tests, exit the test menus and then depress the CONNECT button for less than five seconds; this resets R2500 to its initial state.**

Temperature Display °F / °C: Select Fahrenheit (°F) or Celsius (°C)

Menu 1	0=°C; 1=°F	
Default: 1 (Fahrenheit)	Options: 0, 1	Selection:_____

Fan Delay: Select the fan on time after demand has ended

Menu 3		
Default: 0	Options: 0 to 99 seconds	Selection:_____

Temperature Range Low: Select the lowest user selectable temperature value

Menu 4		
Default: 50°F	Options: 50-90 °F / 10-32 °C	Selection:_____

Temperature Range High: Select the highest user selectable temperature value

Menu 5		
Default: 90°F	Options: 50-90 °F / 10-32 °C	Selection:_____

Zone Temperature Offset: Select temperature display value; may differ from actual zone temperature

Menu 8		
Default: 0°F	Options: +/- 9°F, +/- 4.5°C	Selection:_____

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Keypad Lockout: Select to allow restrictions to occupant access

Menu 9

0= No keypad lockout
1= Disables all buttons except ▲ and ▼ buttons.
2= Disables all buttons

Default: 0 Options: 0-2 Selection:_____

System Program Mode: Select to determine which system modes occupant can select

Menu 12

0= OFF, AUTO
1= OFF, HEAT, COOL, AUTO
2= OFF, HEAT, COOL
3= AUTO, HEAT, COOL

Default: 1 Options: 0-3 Selection:_____

Deadband Adjust: Select the changeover deadband value to prevent short cycling between heating and cooling modes; adjustable to meet HVAC system requirements

Menu 17

Default: 3 °F Options: 3-10 °F / 1.5-5 °C Selection:_____

Pre-occupancy Purge: Select period of time fan will run prior to Wake and Day periods

Menu 25

Default: 0 Options: 0 to 3 hours Selection:_____

Cycles Per Hour (CPH) for Cool Stage 1: Select Cycles Per Hour for Cool Stage 1; 0 disables cycling and thermostat becomes an ON/OFF control

Menu 30

Default: 3 CPH Options: 0 to 6 CPH Selection:_____

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Advanced configuration

Cycles Per Hour (CPH) for Heat Stage 1: Select Cycles Per Hour for Heat Stage 1; 0 disables cycling and thermostat becomes an ON/OFF control

Menu 32

Default: 0 Options: 0 to 12 CPH Selection:_____

Recovery Rate for Heat: Set temperature for heat recovery rate; 0 disables ramp recovery, uses step response

Menu 35

Default: 0 Options: 0-18°F/Hr, 0-10°C/Hr Selection:_____

Recovery Rate for Cool: Set temperature for cool recovery rate; 0 disables ramp recovery, uses step response

Menu 36

Default:0 Options: 0-18°F/Hr, 0-10°C/Hr Selection:_____

Output Minimum Off Time for Heat and Cool: Set the minimum "off time" for heat and cool output

Menu 40

Default: 4 min. Options: 1-10 minutes Selection:_____

Temp Source: Allows use of remote sensor option on R2500

Menu 42

0= Temperature will be measured by T2500 internal sensor
1= Temperature will be measured by R2500 remote sensor

Default: 0 Options 0,1 Selection:_____

Pairing Start: Allows pairing of T2500 Thermostat with the R2500 Receiver

Menu 43

0= OFF: Not pairing: Thermostat will not pair with the R2500 Receiver
1= ON: Pairing: Thermostat will attempt to pair with the R2500 Receiver

Default: 0 Options 0,1 Selection:_____

Intermittent Fan Enable: If enabled, intermittent fan will cycle when there is no demand

Menu 45

0= Disable
1= Enable

Default: 0 Options 0, 1 Selection:_____

Intermittent Fan On Time: Minutes the fan will be on when intermittent fan is enabled

Menu 46

Default: 5 min. Options: 1-60 min. Selection:_____

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Advanced configuration

Intermittent Fan Off Time: Minutes fan will be off when intermittent fan is enabled

Menu 47

Default: 25 min. Options: 0-60 min. Selection:_____

System Type

Menu 50

0=1 Heat/1 Cool Conventional
1=1 Heat/1 Cool Heat Pump
2=1 Heat/1 Cool Heat Pump+Emergency
3=1 Heat without Fan
4=Heat only with fan
5=Cool only (1 Cool)
6=2 Heat/ 1 Cool heat pump (with Aux. heat)
7=2 Heat/2 Cool multistage conventional
8=2 Heat/1 Cool multistage conventional
9=1 Heat/ 2 Cool multistage conventional
10=2 Heat/2 Cool heat pump (no Aux. heat)
11=3 Heat/2 Cool heat pump (with Aux. heat)

Default: 0 Options 0-11 Selection:_____

Fan Control (Heating)

Menu 51

0=Gas (No fan with heat)
1=Electric (Fan with heat)

Default: 0 Options: 0, 1 Selection:_____

Changeover Value (O/B)

Menu 52

0=O Energize for cooling
1=B Energize for heating

Default: 0 Options: 0, 1 Selection:_____

Auxiliary Heat Type

Menu 53

0=Electric (Fan with heat)
1=Gas (No fan with heat)

Default: 0 Options: 0, 1 Selection:_____

Temporary Occupied Duration Limit

Menu 54

0=No limit
1=One hour
2=Two hour
3=Three hour
4=Four hour

Default: 3 Options: 0-4 Selection:_____

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Advanced configuration

Cycles Per Hour (CPH) Second Stage Heating: Select cycles per hour

Menu 56

Default:0 Options: 0-12 Selection:_____

Cycles Per Hour (CPH) Auxiliary Heating: Select cycles per hour

Menu 57 (Only available if 3H/2C heat pump is selected).

Default: 0 Options: 0-12 Selection:_____

Cycles Per Hour (CPH) Second Stage Cooling: Select cycles per hour

Menu 58

Default: 0 Options: 0-6 Selection:_____

Revision: Displays current revision information (for service technician); not adjustable

Menu 71

System Test Heat

Menu 80

0=Heat outputs off
1=Heat stage 1 output active
2=Heat stage 2 output active
3=Heat stage 3 (Aux.) output active

Default: 0 Options: 0-3

System Test Cool

Menu 81

0=Cool outputs off
1=Cool stage 1 output active
2=Cool stage 2 output active

Default: 0 Options: 0-1

System Test Fan

Menu 82

0=Fan output off
1=Fan output active

Default: 0 Options: 0-1

System Test Emergency

Menu 83

0=Emergency heat mode off
1=Emergency heat mode on

Default: 0 Options: 0-1

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Frequently asked questions & troubleshooting

In case of difficulty, try one of the following suggestions.

If Display is blank	• Assure two fresh AA alkaline batteries are installed (see p. 11, "3.Install batteries on the T2500")
If you cannot establish a wireless connection for the T2500 Thermostat and R2500 Receiver	• Assure distance between T2500 Thermostat and R2500 Receiver during setup is about 6-10 feet (3 m.)(see p. 11, "5. Establish a wireless connection"). • Monitor T2500 Thermostat display during pairing process. If pairing is successful, Display will change to show current temperature before countdown reaches 0. R2500 Receiver will attempt to connect to any available device for up to two (2) minutes. • Do not attempt to pair more than one set of wireless devices.
If T2500 Display counts down to 0, wireless pairing was unsuccessful	• Restart the wireless pairing process (see p. 11, "5. Establish a wireless connection").
If "Thermostat" LED on R2500 Receiver is "flashing"	• Wait until Thermostat LED on R2500 is continuously lit, indicating connection is established (see p. 4, "1. Install R2500 Receiver." and p. 11, "5. Establish a wireless connection").
If connection is broken between R2500 and T2500 for more than 10 minutes "Thermostat" LED light will shut off on the R2500 and will shut off all outputs	1. Verify that both R2500 and T2500 have power. 2. If the Thermostat LED light on the R2500 does not appear, bring the T2500 and R2500 within about 6-10 feet (3 m.). 3. Thermostat LED on the R2500 should appear. If no Thermostat LED appears, contact a service technician.
If Service Indicator continues flashing	• Assure that you have waited at least 10 minutes for wireless pairing to occur between T2500 Thermostat and R2500 Receiver (process generally takes 3-10 minutes). • Restart the wireless pairing process (see p. 11, "5. Establish a wireless connection").
If heating or cooling system does not respond	• Increase setpoint to greater than deadband value (see Service menu 17 in "Advanced configuration.") • Decrease setpoint to less than deadband value (see Service menu 17 in "Advanced configuration.") • Check circuit breaker and reset if necessary. • Assure the power is on for heating and cooling system is on. • Assure furnace door is closed securely. • Wait at least five minutes for the system to respond. • Use Menus 80-83, "Advanced configuration" to verify system wiring.
If heating and cooling equipment running at the same time (or heat does not turn off)	• Check SYS menu 50 to assure that it is set to match your heating and cooling equipment. • Turn off power to R2500 Receiver. Remove cover and verify wiring.

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If heat pump issues cool air in heat mode or warm air in cool mode	• Check SYS menu 52 to assure that reverse valve is properly configured for your system (see p. 14, "Advanced configuration").
If heating system is running in cool mode	• Check SYS menu 50 to assure that it is set to match your heating and cooling equipment. • Ensure R2500 is wired properly (see p. 6, "R2500 wiring examples").
If Zone Temperature reads "40"	• Verify that the R2500 receiver LED is continuously lit (See "WavePRO Wireless System Operating Manual"). • Verify that the intended temperature source is defined (See SYS menu 42).
If you cannot change system setting to cooling	• Check SYS menu 50 to assure that it is set to match the heating and cooling equipment.

Product specifications

Temperature Range	50° to 90° F (10° to 32° C)
Differential	1° F (0.5°C)
Input Power	T2500 Thermostat: Two AA alkaline batteries or 24 VAC, 50/60 Hz R2500 Receiver: 24 VAC, 50/60 Hz
Output Power	24 VA (Pilot Duty)
Wireless Type	902 to 928 MHz Band, Frequency Hopping Spread Spectrum (FHSS)
Wireless Range	100 feet (30.48 meters) typical reliable range in open air
Operation Temperature	0° to 120° F (-17° to 48°C)
Shipping Temperature	-20° to 130°F (-28°to 54°C)
Operating Humidity	5% to 95% RH, non-condensing
Physical dimensions	T2500: 4.5"H x 5.75" W x 1.1"; D R2500: 4.8"H x 3.8"W x 1.3"D

FCC compliance

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules. NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

T2500	
FCC ID:	XDTTW205206
IC:	8438A-TW205206

PECO Wireless Thermostats

R2500	
FCC ID:	XDTRW205
IC:	843A-RW205

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PECO WAVEPRO WIRELESS PRO UPGRADE

In order to make installation and commissioning of the WavePRO easier, Diagnostic Service Menus have been added to the WavePRO Software. They follow on the end of the configuration menu selections.

DIAGNOSING A SYSTEM PROBLEM

The following procedure will ensure that the T2500 and the R2500 are connected and in good communication.

1. Wire the R2500 (receiver) to the panel. (You may leave it hanging loosely at this point in case it has to be moved.)
2. Pair it with its associated T2500 (thermostat). After the WavePRO Wireless thermostat system pairing is complete (WRENCH icon has stopped flashing), operation can be verified by taking the following steps on the thermostat:
3. Commissioning test:
   a. Set fan to FAN AUTO and set the temperature to turn off heating and cooling. All outputs should be off.
   b. Press the FAN button and select FAN ON. The fan should typically cycle ON within 20 seconds.
   c. Press the FAN button and select FAN AUTO. The fan should typically cycle OFF within 20 seconds.

The equipment response time when cycling the fan on/off is a good indication of wireless signal strength and reliable communications. The response time is typically less than 10 seconds for a strong signal while response times typically greater than 20 seconds indicates a weak or intermittent signal.
This can be verified by Service Menus 90-94 after the system has gathered data from enough successful communications.

4. Attach the R2500 in its final position and repeat step 3.

If the fan fails to cycle or takes longer than 20 seconds to cycle then a wireless communication issue should be suspected.

Generally repositioning either the receiver or the thermostat just a few feet should allow successful communications. Try moving the unit away from ductwork, high voltage wiring, or other metal that may be interfering with communications and try the Commissioning Test (Step 3) again.

5. Reset Diagnostic Data.

The final step is to reset the diagnostics data (Set Service Menu 99 to “1”) so they reflect only your final installation.

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DIAGNOSTIC SERVICE MENUS

The T2500 features a set of diagnostic service menus that provide information on the communications history of the units. It takes about 3 hours or 15 separate communication commands (Step 3 or similar) to get good signal data.

a. On the thermostat, simultaneously press the UP and Down arrows until “1” appears on the LCD Screen.
b. Press the SYS button until the desired Service Menu (90 – 94, 99) appears.

Service Menu 89: Factory Use Only. Do not adjust.
Service Menu 90: Lowest strength seen by receiver.
Service Menu 91: Average strength seen by receiver.
Service Menu 92: Lowest strength seen by thermostat.
Service Menu 93: Average strength seen by thermostat.
Signal strength values indicate successful communications and range from 0 – 9, typically 4 – 8. Higher values are better.

Service Menu 94: The percentage of communication success.
Success rate ranges from 0 – 99, typically 70 – 95.

Service Menu 99: Select “1” to reset the diagnostic data.

For most installations these menus will not be needed. An installation with a weak or intermittent signal as indicated by a slow response time or low average diagnostic values may operate satisfactorily but could result in reduced battery life or delayed operation.

*Though they are in communication with each other you can have different strength indications at the thermostat and the receiver.

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Notes

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Notes

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