PECO® Wave Wireless® System Operating Manual

RW205 Wireless Receiver

TW205 Non-programmable Wireless Thermostat

TW206 Programmable Wireless Thermostat

PECO
AUTOMATION AND CONTROLS

THE PECO WAVE WIRELESS SYSTEM

Thank you for choosing the PECO® Wave Wireless® System.

The PECO Wave Wireless System is comprised of a wireless thermostat transmitter and a receiver. PECO offers two wireless thermostats: the **non-programmable** TW205 Thermostat, and the **programmable** TW206 Thermostat. Both operate with the same wireless RW205 Receiver. This operating manual contains important information on operating the TW205 and TW206 Thermostats and on the RW205 Receiver.

The TW205/TW206 are designed for use primarily in 2- or 4-Pipe Fan Coil Units, PTAC, PTHP, and heat pump applications. The TW205/TW206 support 1-HEAT/1-COOL, 1-HEAT/2-COOL, 2-HEAT/1-COOL, and three fan speeds. The TW205/TW206 may be powered by batteries, 24 VAC, or both (recommended). The TW206 can be configured for 7-day individual, 5/2-day, 5/1/1-day, or 7-day identical programmable operation, with four time periods per day. The TW205/TW206 feature an attractive blue digital display and support auto changeover, remote temperature probes, outdoor air damper/reversing valves, wireless occupancy sensors (SW205), and door switches (SW206).

The RW205 Receiver is wired to the HVAC equipment and controls all outputs.

Product Specifications

Temperature Range:	50° to 90° F (10° to 32° C)
Differential:	1° F (0.5°C)
Input Power:	TW205-TW206 Thermostat: Two AA alkaline batteries or 24 VAC, 50/60 Hz; RW205 Receiver: 24 VAC, 50/60 Hz or 100-277 VAC, 50/60 Hz
Output Rating:	RW205 output rating 24VA (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:	TW205-TW206: 4.5"H x 5.75" W x 1.1"D RW205: 4.8"H x 3.8"W x 1.3"D

Read and save this operating manual.

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⚠ **CAUTION!**

- READ INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO OPERATE THIS THERMOSTAT AND RECEIVER.
- Contact a qualified service person if at any time your system does not operate properly.
- Use care to avoid static discharge to the thermostat and receiver.
- Failure to observe safety information and comply with instructions could result in PERSONAL INJURY, DEATH AND/OR PROPERTY DAMAGE.
- 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.
- This product, when installed, 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.
- Retain these instructions for future reference.

IMPORTANT NOTE: This thermostat was shipped with factory default settings. Your thermostat's installer may have configured the thermostat differently from the factory default settings, and may have modified or disabled certain features. Contact the installer or a service technician if you have questions about the thermostat's configuration.

FRONT PANEL DISPLAY REFERENCE: TW205 THERMOSTAT

The illustration below depicts the **non-programmable TW205** Thermostat **display** and **buttons.**

Display

SYSTEM button ❶

FAN button ❷

❺ UP ▲ and DOWN ▼ buttons

❹ °F /°C button
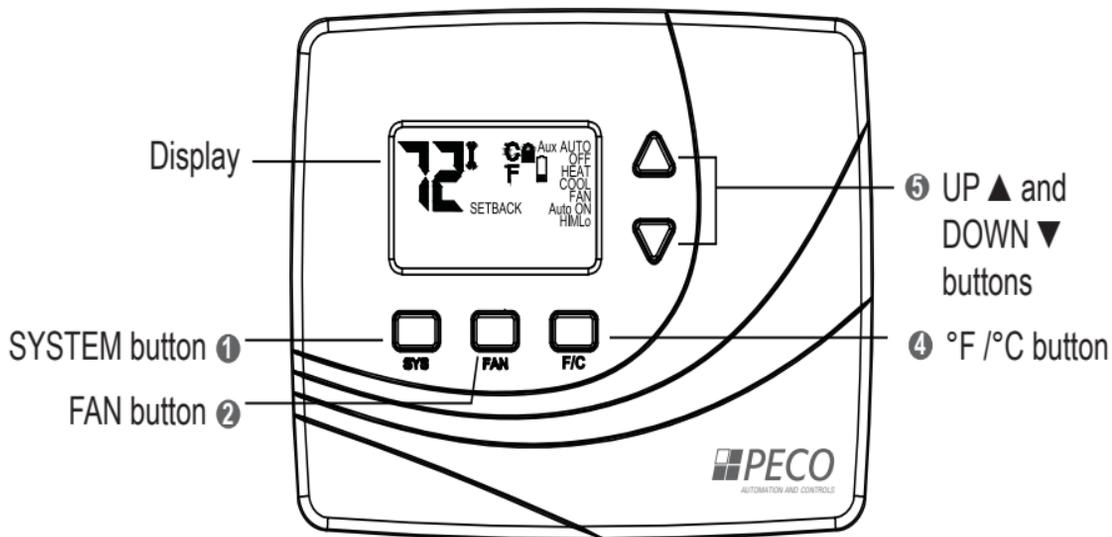
FRONT PANEL DISPLAY REFERENCE: TW206 THERMOSTAT

The illustration below depicts the **programmable TW206** Thermostat **display** and **buttons.**
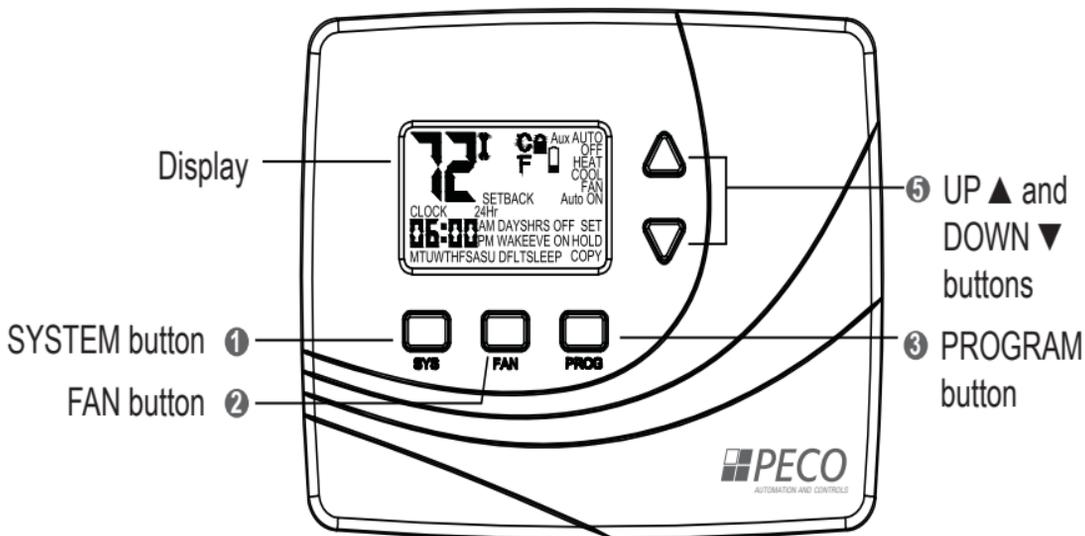
BUTTON OPERATION

1 **System Button**

The SYS (system) button is used to control the operating mode of the TW205/TW206. Press the SYS button once to show the menu options, as described below. Continue pressing SYS button to scroll through menu options. As you scroll, the menu option being accessed (operating mode) will flash. To select that option, allow the display to automatically time out. The TW205/TW206 saves the "flashing" option and switches the thermostat to the selected operating mode. The SYS modes are:

HEAT – Indicates the system is in heating mode.

COOL – Indicates the system is in cooling mode.

AUTO – Indicates the system will automatically changeover between heating and cooling modes as the room temperature varies.

OFF – Disables thermostat outputs.

SETBACK –Indicates the heating or cooling system is operating in manual setback mode. (To appear, SETBACK must be selected in "Advanced Configuration." See the "PECO Wave Wireless System TW205/TW206 &RW205 Installation Guide").

NOTE: SETBACK must be selected in the Service Menu in order to appear in the SYS mode (see "Advanced Configuration" in the "Wave Wireless System TW205-TW206 & RW205 Thermostat and Receiver Installation Instructions"). The SYS button is also used to scroll through the Service Menu in advanced configuration.

BUTTON OPERATION

2 **Fan Button**

The FAN button is used to control the fan mode. Pressing FAN will show fan mode options. Press FAN continuously to scroll through the options. The "flashing" option is automatically saved and the thermostat times out. The modes are:

FAN – "FAN" will always be lit in conjunction with "ON" or "AUTO."

ON – Turns on continuous fan, even if no demand exists for heating or cooling.

AUTO – Sets fan cycles with demand for heating and cooling.

*ON Hi – High speed fan is on continuously, even if no demand exists for heating or cooling.

*ON M – Medium speed fan is on continuously, even if no demand exists for heating or cooling.

*ON Lo – Low speed fan is on continuously, even if no demand exists for heating or cooling.

*AUTO Hi – High speed fan cycles with active demand for heating and cooling.

*AUTO M – Medium speed fan cycles with active demand for heating and cooling.

*AUTO Lo – Low speed fan cycles with active demand for heating and cooling.

*NOTE: Options must be selected in the Service Menu in order to appear (see "Advanced Configuration" in the "Wave Wireless System TW205-TW206 & RW205 Thermostat and Receiver Installation Instructions").

BUTTON OPERATION

③ Program Button (TW206 only)

The PROG (program) button is used to program the TW206. Press PROG button once to show the five program mode options, described below. Press ▲ or ▼ buttons to scroll through the options. As you scroll, the option being accessed will flash. To select the flashing option (e.g.,"CLOCK"), press PROG again, and an associated submenu appears. Press ▲ or ▼ to scroll through the submenu options. Press the PROG button to select an option. The thermostat times out and automatically saves the "flashing" option. The five program mode options are:

CLOCK – Sets the current time and day (see "Setting the time and day").

°F / °C – Sets temperature display to Fahrenheit or Celsius. Default setting is Fahrenheit (see "Selecting the Fahrenheit or Celsius temperature").

SET – Initiates the time and temperature schedule for a particular day or group of days. Allows you to reset the thermostat to the factory program default settings (see "Programming the TW206").

COPY – Copies one day's schedule to another day or to another group of days (see "Programming the TW206").

HOLD – Puts the thermostat in Temporary or Permanent Hold mode. Overrides your programmed settings but does not lose them (see "Overriding the program").

ℹ️ NOTE: Press the SYS button to exit the program menu at any time.

BUTTON OPERATION

4 **°F /°C Button (TW205 only)**
The °F /°C button allows you to toggle between Fahrenheit or Celsius temperature displays. Press ▲ or ▼ to select either option. Flashing option is automatically saved.

°F / °C –Sets temperature display to Fahrenheit or Celsius. Default setting is Fahrenheit.

5 **Up ▲ and ▼ Down Button Operation**
The up ▲ and ▼ down buttons are used to display the current setpoint, to create a temporary override and increase or decrease the current setpoint, or to access the Service Menu. On the TW206, they are also used with the PROG button to select various programming options.

THE TW205 & TW206 DISPLAYS

The TW205 and TW206 displays are illustrated below (see Fig. 1 & 2). While both models share certain common features, the TW206 has additional capabilities (shown by asterisks "*"). The Display menus are:

1. System Mode Display
2. Temperature Display
3. Time & Day Display*
4. Programming Commands*
5. Time Period Indicators*
6. Fan Operation Indicators
7. Program Override Commands*
8. Service Indicator
9. Keypad Lockout
10. Battery Indicator
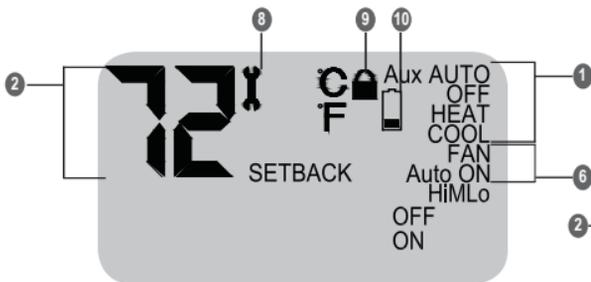
Figure 1. TW205 display.
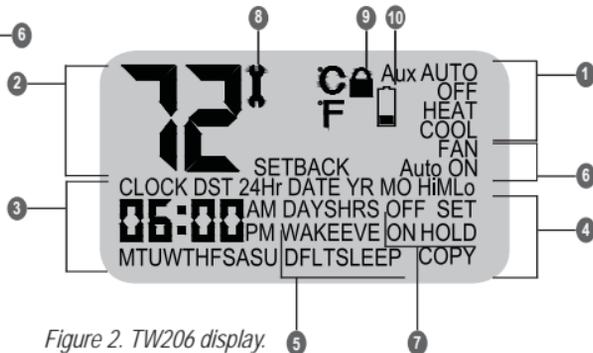
ⓘ ***Note:** Features only present in TW206. *Figure 2. TW206 display.*

1 **System Mode Display**

HEAT – Indicates the system is in heating mode.

COOL – Indicates the system is in cooling mode.

AUTO – Indicates the system will automatically changeover between heating and cooling modes as the room temperature varies.

OFF – Disables all thermostat outputs. While thermostat is disabled, it will only show current temperature (TW205/TW206) and time (TW206).

SETBACK – Indicates the heating or cooling system is operating in manual setback mode.

2 **Temperature Display**

Default display: Digits display the current room temperature. During programming, you can set the desired temperatures format to Fahrenheit or Celsius (°F / °C).

3 **Time & Day Display *(TW206 only)**

Default display: Digits indicate the current time. Day abbreviations indicate the current day. During programming: Digits and days are used to program time periods.

CLOCK – Appears in programming when the clock is being set.

24Hr – Appears in programming to indicate time will be displayed in 24-hour clock format.

AM / PM – Appears in programming and indicates 12-hour clock format.

❹ **Programming Commands*(TW206 only)**

SET – Enters thermostat into custom program mode which allows you to specify unique times and temperatures for a particular day or for group of days.

COPY – Allows you to copy all of an individual day's settings to another day/group of days.

DFLT – Restores the thermostat to the factory program.

SYS – Allows you to exit the PROG menu; current menu option is not saved.

❺ **Time Period Indicators *(TW206 only)**

WAKE, DAY, EVE, and SLEEP are the names given to the four time periods per day. Each time period has its own unique setpoint times and temperatures.

❻ **Fan Operation Indicators**

FAN – "FAN" will be always be lit in conjunction with "ON" or "AUTO."

ON – Indicates constant, continuous fan operation.

Auto – Indicates fan is only on with heating or cooling demand.

Hi – Indicates high speed fan; always lit in conjunction with "ON" or "AUTO."

M – Indicates medium speed fan; always lit in conjunction with "ON" or "AUTO."

Lo – Indicates low speed fan; always lit in conjunction with "ON" or "AUTO."

❼ **Program Override Commands *(TW206 only)**

While in HOLD mode, you may select temperature settings without affecting scheduled time periods.

HOLD – Indicates thermostat is in a Temporary or Permanent Hold.

HOLD HRS – During programming, appears in conjunction with clock digits; allows program to be put on Temporary Hold for up to 24 hours.

HOLD DAYS – During programming, appears in conjunction with the clock digits; allows program to be put on Temporary Hold for up to 99 days.

HOLD ON – Turns on the Permanent Hold. The current setpoint is maintained indefinitely or until the Permanent Hold is turned off.

HOLD OFF – Turns off the Permanent Hold and resumes programmed settings.

8 Service Indicator

The wrench symbol will flash during wireless pairing. The wrench symbol is also displayed when there is a temperature sensor error. The wrench symbol indicates there is an open or a short connection to the remote sensor. When this occurs, the TW205/TW206 Thermostat will disable all outputs and illuminate the wrench symbol. Contact a service technician to determine the cause of the error.

9 Keypad Lockout

Allows you to set keypad access. If keypad prohibits input, see "Advanced Configuration" in "PECO Wave Wireless System TW205/TW206 &RW205 Installation Guide."

10 Battery Indicator

Lit only when battery is low; flashes when at a critically low level—**replace immediately**.

Make your selections in consecutive order.

CLOCK
6:00 PM

Press ▲ or ▼ buttons in PROG menu until "CLOCK" is flashing.

ℹ️ **Note**: You must press PROG to advance to the next menu option. The flashing option is saved automatically in each of the program modes.

Set the time
1. Press PROG to show program options.

2. Press ▲ or ▼ to scroll until "CLOCK" is flashing. To select, press PROG once.

3. Press ▲ or ▼ to scroll through "24Hr", "AM", "PM" options. "24Hr" sets your thermostat to a 24-hour clock. "AM" and "PM" sets your thermostat to a 12-hour clock. To select, press PROG once.

4. Press ▲ or ▼ to scroll to the current hour. To select, press PROG once.

5. Press ▲ or ▼ to scroll to the current minute. To select, press PROG once.

Set the day
6. Press ▲ or ▼ to scroll to the current day. To select, press PROG once.

SELECT THE FAHRENHEIT OR CELSIUS TEMPERATURE

Figure 3. TW205 Display with °F/°C.

Figure 4. TW206 Display with °F/°C.

ℹ **Note**: After you select the preferred temperature format, the thermostat automatically saves the flashing option and times out.

TW205 Thermostat (Fig. 3)
1. Press °F/°C button once.
2. Press ▲ or ▼ to scroll until either "°F" or "°C" is flashing.
3. Press °F/°C button to select desired Temperature Display format.

TW206 Thermostat (Fig. 4)
1. Press PROG once.
2. Press ▲ or ▼ to scroll until BOTH "°F/°C" are flashing.
3. Press PROG once to enter the temperature menu for "°F/°C." Note: Either "°F" or "°C" will flash as an option.
4. Press ▲ or ▼ to indicate the flashing option as desired.
5. Press PROG to select desired temperature display format.

PROGRAMMING THE TW206

Each day has four scheduled periods (WAKE, DAY, EVE, and SLEEP). Each period has a start time and heat and cool setpoints. Heat Setpoint controls system heating during cold weather. Cool Setpoint controls the cooling system during hot weather. Program one event after the next, in consecutive order. Press PROG to retain your current selection, and the system will advance to the next menu item. Press the SYS button to exit the PROG menu at any time.

Factory Program: The TW206 is preprogrammed with seven days of the week as follows:

Time Period	Start Time	Heat Setpoint Temperature	Cool Setpoint Temperature
Wake	6:00 am	70° F (21.0° C)	78° F (25.0° C)
Day	8:00 am	62° F (17.0° C)	85° F (28.5° C)
Evening	6:00 pm	70° F (21.0° C)	78° F (25.0° C)
Sleep	10:00 pm	62° F (17.0° C)	82° F (27.0° C)

Note: If you want to change the preprogrammed times and/or temperatures, follow the instructions under "Custom program."

°C
°F

CLOCK

SET
HOLD
COPY
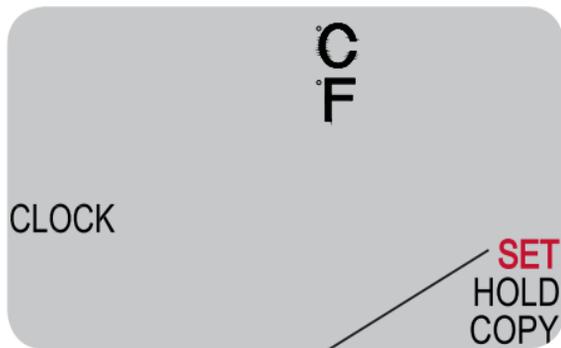
In the PROG menu, press ▲ or ▼ until "**SET**" is flashing.

The TW206 can be programmed with settings for each day individually, for Monday through Friday, for Saturday and Sunday, or for all seven days as identical. Follow this step-by-step procedure.

1. Press PROG once.
2. Press ▲ or ▼ to scroll until "**SET**" is flashing.
3. Press PROG once to select a menu option.
4. Press ▲ or ▼ to scroll to the day or group of days you want to program.

Day/Group of Days

SET

MTUWTHF
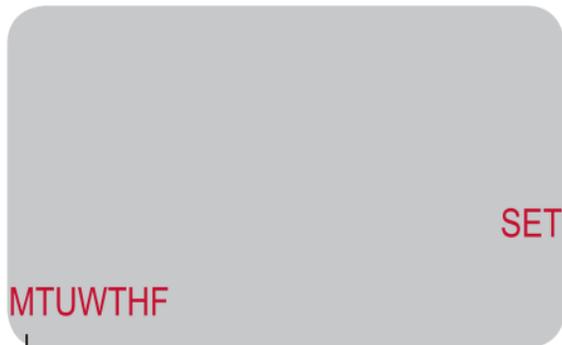
5-Day Identical Programming is example shown here.

ℹ **NOTE:** Default (DFLT) Programming: Select "DFLT" to restore seven days of the week to the original factory program default settings.

5. Select one of the following options, and press PROG.

7- Day Individual Programming: Each day flashes individually. Select: "M," Monday; "TU," Tuesday; "W," Wednesday; "TH," Thursday; "F," Friday,"SA," Saturday, and "SU," Sunday. You must program four periods for each day.

7- Day Identical Programming:
"MTUWTHFSASU" flashes as a block. Select "MTUWTHFSASU" to program every day of the week identically.

5- Day Identical Programming: "MTUWTHF" flashes as a block. Select "MTUWTHF" to program Monday through Friday identically

SASU Programming: "SASU" flashes as a block. Select "SASU" to program identically.

06:00 AM   HRS   SET
                WAKE
MTUWTHF

ℹ️ **Note:** After the Day/Group of Days are selected, each time period must be programmed for the start time as well as the Heat and Cool Setpoints.

6. Press ▲ or ▼ to scroll through the four time periods (**WAKE**, **DAY**, **EVE**, and **SLEEP**). Select the time period to be programmed and press PROG once.

7. Press ▲ or ▼ to scroll to the desired starting hour. Press PROG once.

8. Press ▲ or ▼ to scroll to the desired starting minute. Press PROG once.

9. Press ▲ or ▼ to scroll to the desired Heat Setpoint Temperature. Press PROG once.

10. Press ▲ or ▼ to scroll to the desired Cool Setpoint Temperature. Press PROG once.

After you complete this process, the TW206 will return to the default Display.

Repeat steps 7 through 10 for the remaining day(s) and time periods.

CUSTOM PROGRAM: COPY FEATURE (TW206 ONLY)
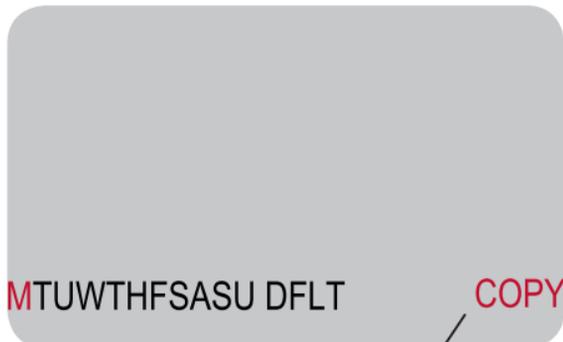
MTUWTHFSASU DFLT   COPY

In the PROG menu, press ▲ or ▼ until
"**COPY**" is flashing.

You may also copy and paste all of an
individual day's settings to another day or to
another group of days.

1. Press PROG once.

2. Press ▲ or ▼ to scroll until "COPY" is
   flashing.

3. Press PROG once to select "COPY".

4. Press ▲ or ▼ to scroll to the individual
   day *from which you want to copy*.

5. Press PROG once. "COPY" will begin
   flashing. Settings for flashing day(s) are
   now copied.

6. Press ▲ or ▼ to find the day(s) *to which
   you want to copy* the captured settings.

7. Press PROG once to select the desired
   day(s). Settings are now copied.

OVERRIDING THE PROGRAM (TW206 ONLY)

The TW206 Thermostat HOLD feature allows you to put the thermostat in Temporary Hold (hours /days) or Permanent Hold. HOLD will override programmed settings, but it does not lose them.

Setting up a Temporary Hold:

1. Press PROG once.
2. Press ▲ or ▼ to scroll until "HOLD" is flashing. To select, press PROG once.
3. Press ▲ or ▼ to scroll through options. "DAYS" allows you to specify 0-99 days hold; "HRS" allows you to specify 0-24 hours hold. To select preference, press PROG once.
4. Press ▲ or ▼ to scroll to the desired length of time. To select, press PROG once.

The thermostat is now on hold for the time period you selected, unless you turn off hold earlier.

Setting up a Permanent Hold:

1. Press PROG once.
2. Press ▲ or ▼ to scroll until "HOLD" is flashing. To select, press PROG once.
3. Press ▲ or ▼ to scroll to "ON". To select, press PROG once.

The thermostat is now on hold until you manually turn off the hold.

Turning off a Hold:

1. Press PROG once.
2. Press ▲ or ▼ to scroll until "HOLD" is flashing. To select, press PROG once.
3. Press ▲ or ▼ to scroll to "OFF". To select, press PROG once.

The thermostat will now resume your scheduled temperature settings.

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.

FC PECO Wireless Thermostats
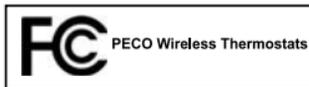
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