OPERATING MANUAL

T12000 Non-Programmable Models
T12500 Programmable Models

PECO

Performance PRO™ Series

- *Touchscreen technology*
- *Large 12 square inch blue display*
- *7 available outputs, including economizer*
- *SD memory card interface*
- *365-day, 20 holiday programmability*
- *7-day, 5-1-1, 5-2 programming*

Oil   Electric   Gas   Heat Pump   T12000 Series

THE PECO PERFORMANCE PRO T12000 SERIES

Thank you for choosing a PECO® Performance PRO™ thermostat. The Performance PRO T12000 Series is intended for use in residential and commercial environments. It is designed for and can support up to 3-HEAT/ 2-COOL configurations in conventional systems and heat pump applications. The Performance PRO also provides the capability to meet the requirements for ASHRAE 90.1-2004 and California Building Code Title 24 (2008 edition).

The Performance PRO T12000 Series is comprised of the T12000 non-programmable thermostat models and the T12500 programmable thermostat models. The T12500 model features a 12 square inch blue backlit display with dynamic menus, accessed using touchscreen keys. All Performance PRO T12000 Series offer the following standard features: auto-changeover, optional remote sensors, occupancy sensors, three levels of keypad lockout, a PIN access code, and filter replacement reminder. The T12500 programmable models contain: up to four scheduled events per day, a 365-day calendar, 20 holidays, holiday override, temporary override, a Power Harvesting feature (also known as "power stealing") to preserve battery life, Secure Digital (SD) card capability (card not included), and optional humidity control (T12532-IAQ only).

The T12000 Series can be powered by 24 VAC or batteries or both (recommended). The T12000 Series can control up to 7 outputs and monitor three external sensors. The T12000 Series mounts onto any PECO Performance PRO Series wallplate.

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T12000 Thermostat

T12500 Thermostat

⚠ **CAUTION!**

- READ INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO OPERATE THIS THERMOSTAT.
- FOLLOW THE PERFORMANCE PRO INSTALLATION INSTRUCTIONS BEFORE PROCEEDING.
- Failure to observe safety information and comply with instructions could result in PERSONAL INJURY, DEATH AND/OR PROPERTY DAMAGE.
- Use this thermostat only as described in this manual.
- This is a 24 VAC low-voltage thermostat. Do not install on voltages higher than 30 VAC.
- Contact a qualified service person if at any time the thermostat does not operate properly.
- Use care to avoid static discharge to the thermostat.
- 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 nor controlled by PECO.
- All wiring and applications must conform to local and national building codes and ordinances. Applications and national codes must be reviewed prior to installation to assure the installation is functional and safe.

IMPORTANT NOTE: This thermostat was shipped with factory default settings. The 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 there are questions about the thermostat's configuration.

QUICK REFERENCE: DEFAULT DISPLAY MODE

Default Display
The factory programmed settings show the time, temperature, and setpoint. This is called the Default Display. The Default Display appears after a short period of inactivity. The Default Display can be custom configured to show user-selected items only (see Service Menu 520 in "Performance PRO T12000 Series Installation Guide").
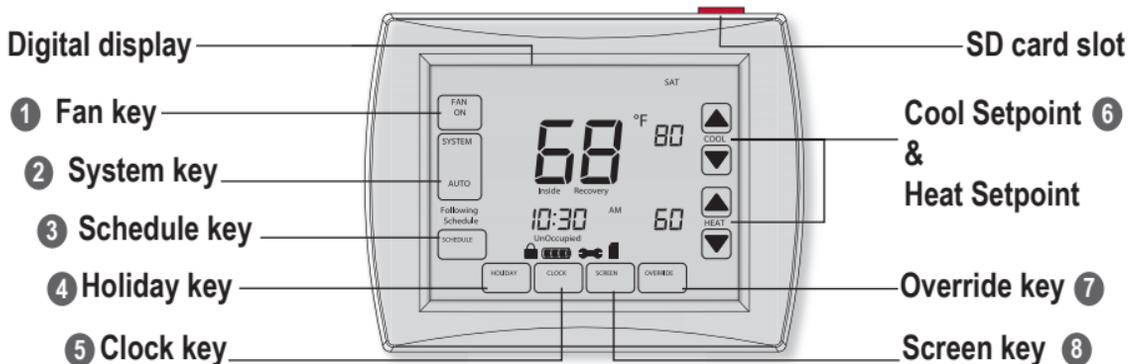

Note: The Battery Indicator, Service Indicator, Filter Indicator, and Secure Digital (SD) icons appear at bottom of digital display if user action is required.

QUICK REFERENCE: HOME DISPLAY MODE & NAVIGATION

Home Display

The Performance PRO T12000 Series has a touchscreen digital display, with variable menu keys (shown below). To make a selection from a multiple-option key, press the key continuously. Flashing option is automatically selected. Available submenus depend on system type and menu navigation.

Digital display — **SD card slot**

① **Fan key**

② **System key**

③ **Schedule key**

④ **Holiday key**

⑤ **Clock key**

Cool Setpoint ⑥
&
Heat Setpoint

Override key ⑦

Screen key ⑧

Press blank area of touchscreen to enter Home Display from Default Display. Navigate submenu options to customize thermostat settings. Available options are:

Edit - Allows user to edit variable settings (e.g., Cool/Heat Setpoints) within submenus.

Done - Saves settings and reverts to the Home Display.

Cancel - Discards changes and reverts to the Home Display.

QUICK REFERENCE: T12000 HOME DISPLAY SCREEN

Fan key
Press to enter fan display (see pp. 8, 13)

Current temperature
(see p. 12)

Current day
(see p. 11)

Temperature format
(see p. 12)

System key
Press to enter system settings: Off/Heat/Cool/ Auto (see pp. 8, 14)

Cool Setpoint temperature
(see pp. 16-19)

Program scheduled events
(see p. 17)

Heat Setpoint temperature
(see pp. 16-19)

FAN ON

SYSTEM

AUTO

SCHEDULE

Following Schedule

SAT

°F

68

80   COOL

Inside   Recovery

10:30

AM

UnOccupied

60   HEAT

HOLIDAY   CLOCK   SCREEN   OVERRIDE

Current time
(see p. 11)

Keypad Lockout
(see p. 10)

Battery Indicator
Appears when battery is low (see p. 10)

Service Indicator
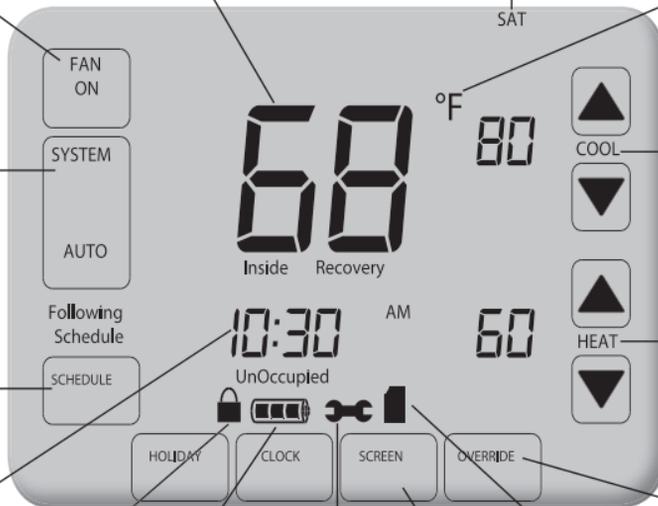*(see p. 10)*

Screen key
(see p. 10)

SD Card
(see p. 10)

Override key
Press to override scheduled events (see pp. 9, 19)

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1 Fan key

Used to select among two fan menu options:

ON - Continuous fan operation.

AUTO - Fan is activated only when there is demand for heat or cool, with some exceptions.
Note: Several Service Menu options affect the fan operation (See Advanced
Configuration in the "Performance PRO T12000 Series Installation Guide.")

2 System key

Used to control operating mode of Performance PRO T12000 Series thermostats. Available
options are dependent on system type selected (see Advanced Configuration in "Performance
PRO T12000 Series Installation Guide"). System modes:

HEAT – Select for the system to operate in heating mode only. Only one setpoint is displayed.

COOL - Select for system to operate in cooling mode only. Only one setpoint is displayed.

AUTO – Allows system to control to both the Heat and Cool setpoints. The system will
automatically change over between heating and cooling modes as room temperature
varies. Cool Setpoint must always be greater than Heat Setpoint by the deadband value.

OFF – Disables all thermostat outputs; only zone temperature and time are displayed.

EMERGENCY (Em) – Emergency heat can be used when the Heat Pump cannot keep up
with the heat load. Use Service Menu 110 (System Type 6 & 11) to enable.

Note: Deadband is the user-defined minimum difference between the Cool Setpoint and Heat Setpoint (see Service Menu 380).

3 Schedule key
Used to view Schedule Display and program two or four scheduled events per day (with Heat and Cool Setpoints) including Occupied1, Occupied2, Unocc1, or Unocc2.

4 Holiday key
Used to view Holiday Display and schedule up to 20 different holidays.

5 Clock key
Used to view the clock format (12 or 24 hour) and to set the clock time.

6 Cool Setpoint & Heat Setpoint
Used to create a temporary override of current setpoint temperature. Pressing Cool Setpoint or Heat Setpoint shows Override Display. User selects desired Heat and Cool Setpoints and "Hold Until" time for Override, using time ▲ /▼ keys. (Cool Setpoint is greater than Heat Setpoint by deadband.) **Note**: Available options depend on system type selected.

7 Override key
Used to view Override Display and create a temporary override of scheduled events. Heat Setpoint, Cool Setpoint, and override time may all be adjusted from Override Display.

Temporary Override – The active setpoint is taken from setpoints defined in the Override menu. (In Home Display, "Override" flashes during the override time period if selected.)

8 Screen key

Press Screen key:"Clean Screen" flashes for 30 seconds, allowing cleaning with no key input.

Service Indicator

Icon appears to notify the user that the remote temperature sensors are reading out of range.

Battery Indicator

Icon shows battery's current charge level in segments. Two AA Alkaline batteries (2.6 – 3.1VDC) have an approximate 1-year life expectancy.

Keypad Lockout

Icon appears if any type of keypad lockout is active. Keypad lockout blocks access to certain features of the thermostat. (See Service Menu 340 to enable key pad lockout).

Filter Filter Indicator

Icon appears in the Default Display when the reminder timer expires (see service menu 230). The thermostat will continue to return to the filter menu until the Done key is pressed. After the Filter Indicator icon appears, pressing Done will restart the filter timer.
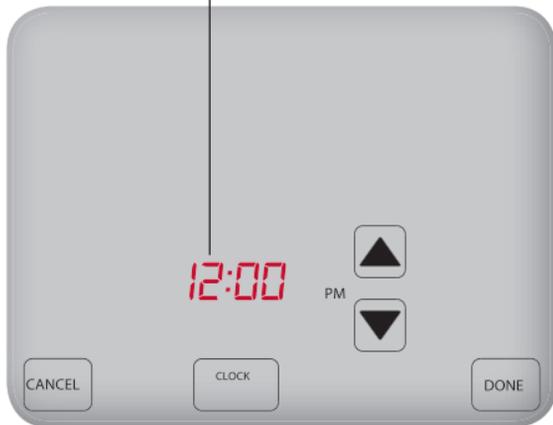
Secure Digital (SD)

Icon appears (flashes) when SD card is inserted (optional SD card not provided). SD card functionality allows user to upload/download settings to/from a PECO-formatted SD card (see section "Load SD card settings").

SET THE CLOCK, MONTH, AND DAY PRESS TOUCHSCREEN TO BEGIN

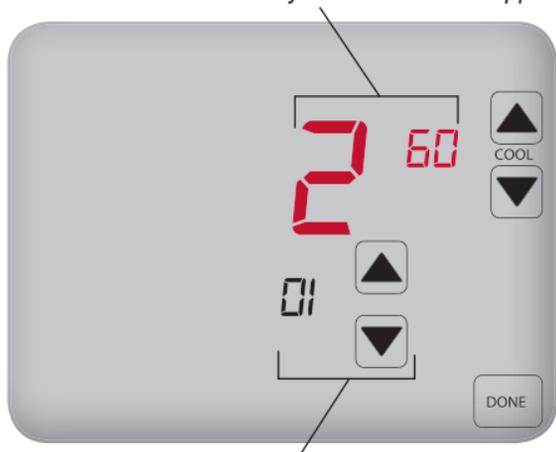*In Clock mode press ▲ / ▼ to select clock hour.*

Note: At any time, press **Cancel** to abort current selection and return to Home Display, or press **Done** to save changes and return to Home Display.

1. From the Home Display, Press **Clock** key.

2. Press ▲ / ▼ to select 12 or 24 HR format, then press **Clock**.

3. Press ▲ / ▼ to select clock hour, then press **Clock**.

4. Press ▲ /▼ to select clock minutes, then press **Clock**.

5. Press ▲ / ▼ to select clock year, then press **Clock**.

6. Press ▲ / ▼ to select current month, then press **Clock**. **Note: Month** appears.

7. Press ▲ / ▼ to select current numerical date. **Note: Days** appears.

8. Press **Done** to finish Clock mode.

SELECT FAHRENHEIT OR CELSIUS TEMPERATURE

After entering Service Menu mode, press
Cool ▲ / ▼ *continuously until menu "***260***" appears.*

Use the ▲ / ▼ keys to select Service Menu option.

ℹ **Note**: To custom configure thermostat settings, access more Service Menus (See Advanced Configuration in the "Performance PRO T12000 Series Installation Guide").
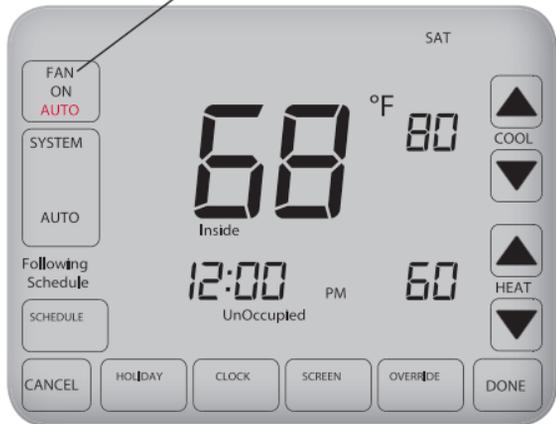
1. Press the lower left and lower right touchscreen areas simultaneously for about five seconds. **Note**: Service Menu "100" appears with default value.

2. Press **Cool ▲ / ▼** continuously until Service Menu "**260**" appears.

3. In Service Menu 260, Press ▲ / ▼ to select the desired temperature display:

   - "1" for Fahrenheit (default)
   - "0" for Celsius

4. Press **Done** when you have completed your selection.

ℹ **Note**: After you complete your selection, Home Display shows the temperature in the format selected.

In Fan mode, press **Fan** *continuously to select desired option.*

Note: At any time, press **Cancel** to abort current selection, or press **Done** to save changes and return to Home Display.

1. Press **Fan** to set fan operation.

2. Press **Fan** to select "**On**," or "**Auto**."
   Note: Selected option flashes.
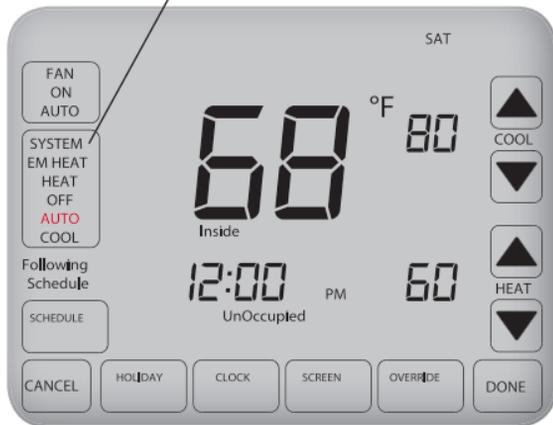
3. Select **Done** to save changes.

Note: "On" mode indicates continuous output. "Auto" mode indicates that fan is activated only when there is demand for heat or cool. Some exceptions apply (see Advanced Configuration in the "Performance PRO T12000 Series Installation Guide").

Press **System** *continuously to select System Mode preference. The selected option flashes.*

ℹ **Note**: System modes available are dependent upon which system type is selected (see Service Menu 110).
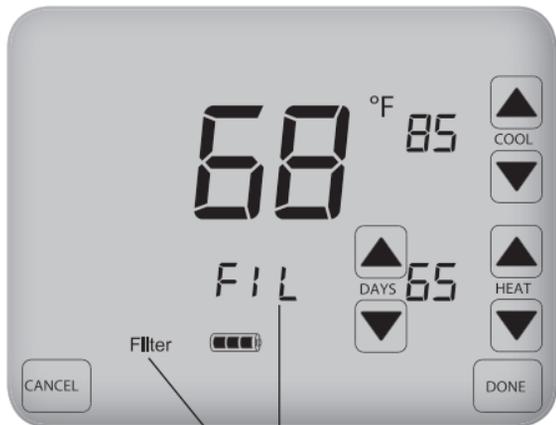
1. Press **System** to show system preferences.
   Note: Selected option flashes.

2. Press **System** continuously and select **Heat**, **Cool**, **Auto**, **Off**, or **Em (Emergency) Heat**.

3. Press **Done** to save changes.

In "Heat" and "Cool" modes, only one setpoint is displayed for each, and only the selected mode (e.g.,Heat) is applied. "Auto" mode switches automatically between Heat and Cool. Auto controls the room's temperature to the programmed Heat and Cool Setpoints. "Off" mode disables all thermostat outputs; and only the zone temperature and clock are displayed. If Emergency (Em) heat is enabled in a Heat Pump system, Emergency acts as the primary heat source.

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The Filter Indicator serves as a reminder to change the furnace filter (see note below). When the filter timer expires, a Filter Indicator appears.

1. From the Default Display, press any key to enter the Filter mode (**FIL/Filter**, **Cancel** and **Done** appear).

2. Press **Done** to reset the filter timer. **Note**: Pressing **Done** restarts filter timer with previous time value selected.

3. Press **Cancel** to bypass the reminder and return to the Home Display.

Note: The thermostat will return to the Filter menu from the Default Display until **Done** is selected (see Service Menu 230 in the "Performance PRO T12000 Series Installation Guide" for settings).

When the filter expires, the Default Display on the thermostat will automatically show a Filter Indicator in one of the two above locations.

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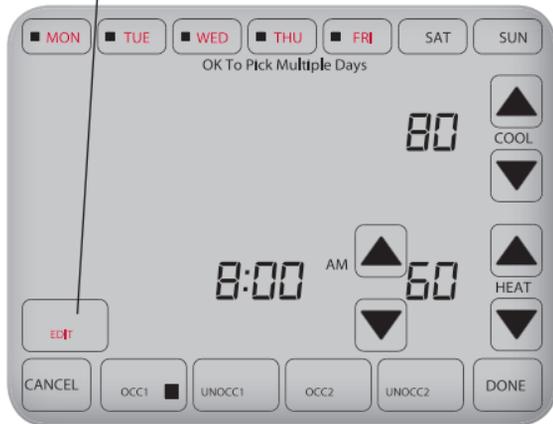## PROGRAM THE THERMOSTAT (T12500 MODELS ONLY)

Each day has two or four scheduled events (Occupied1, Occupied2, Unocc1, and Unocc2) per day, depending on Service Menu configuration. Each event can be programmed with a start time and Heat and Cool Setpoints. Heat Setpoint controls system heating during cold weather. Cool Setpoint controls system cooling during hot weather. The T12000 Series is preprogrammed with factory default settings for seven days of the week as follows:

Time Period	Start Time	Heat Setpoint Temperature	Cool Setpoint Temperature
Occupied1	8:00 am	70° F (21° C)	75° F (24.0° C)
Unocc1	10:00 pm	55° F (10° C)	85° F (29.5° C)
Occupied2	—	—	—
Unocc2	—	—	—

ⓘ **Note**: To change the preprogrammed times and/or setpoint temperatures, follow the instructions under "Program scheduled events."

ⓘ **Note***:* See Service Menu 240 to enable two or four scheduled events per day.

PROGRAM SCHEDULED EVENTS   PRESS TOUCHSCREEN TO BEGIN

Press Edit to assign settings for a scheduled event.

Example shows **OCC1** *settings for weekdays.*
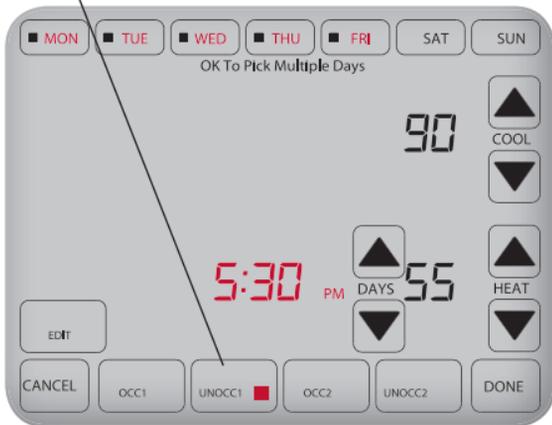
❶ Note: **Unless Occupied1 and Unocc1 are programmed, their factory default settings will apply.**

Schedule two or four events per day: Occupied1, Occupied2, Unocc1, and Unocc2.

1. Press **Schedule** to view options.

2. Press **OCC1**, **UNOCC1**, **OCC2**, or **UNOCC2** to schedule event. **Note**: See Service Menu 100 to select schedule format. See Service Menu 240 to enable two or four events per day.

3. Press **Edit** to create settings for an event. **Note**: **OK to Pick Multiple Days** appears below days.

4. Press day(s) desired. **Note**: Selected day(s) shows square, e.g.: **■ MON** (**Optional**: Select/ deselect more days to program multiple days simultaneously.)

5. Press ▲ / ▼ to schedule *start time* (in 15-minute increments) for the event.

Create another scheduled event after **OCC1**.
See Step 8.

Example shows **UNOCC1** *settings for weekdays.*

Note: At any time, press **Cancel** to abort current selection, or press **Done** to save changes and return to Home Display.

Now select a Heat Setpoint and Cool Setpoint for the scheduled event (available options depend upon system type selected).
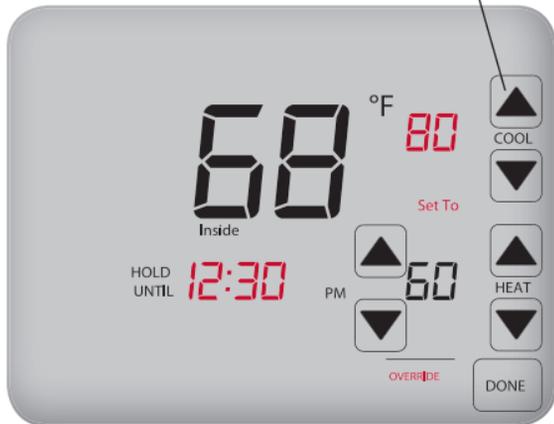
6. Press Cool ▲ / ▼ to select Cool Setpoint.

7. Press Heat ▲ / ▼ to select Heat Setpoint.

8. Schedule next event (e.g., **UNOCC1**) and repeat steps 2-7.
    Note: Previously selected days remain active for programming unless changed.

9. Press **Done** to exit **Schedule** mode.

Note: To program 5-1-1 day or 5-2 days format, see Service Menu 100 ("Performance PRO T12000 Series Installation Guide").

Example shows how to select a Cool Setpoint that lasts until 12:30 pm in System Auto mode.

Note: Available setpoints are determined by the system mode selected (see "Select system mode").

Note: The installer setup can limit override to 1, 2, 3, or 4 hours beyond current time.
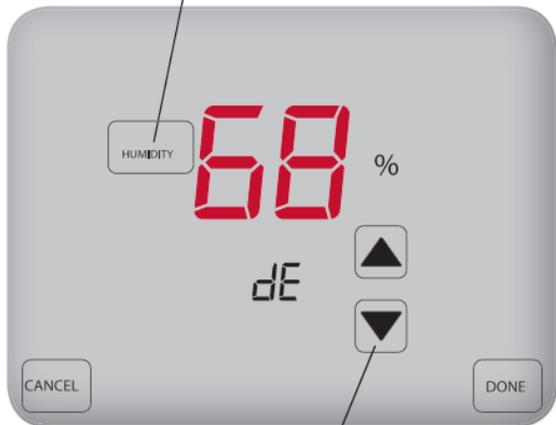
Override allows temporary override of heat or cool settings (example uses System Auto).

1. Press **Override** key.
   Note: "Hold until" time appears and is changed to show length of override (up to the maximum hold time specified in Service Menu 395).

2. Press **Cool ▲ / ▼** to select a Cool Setpoint.

3. Press **Heat ▲ / ▼** to select a Heat Setpoint.

4. Press **▲ / ▼** to adjust time (in 15-minute increments) override remains in effect.

5. Press **Done** to save changes and exit.
   Note: **Override** remains (flashing) in effect until the time period ends.
   Note: Press **Cancel** to exit Override.

Press the Humidity key to switch between Dehumidification and Humidification Setpoint.

Adjust the Dehumidification Setpoint by pressing the arrow keys.

ℹ️ **Note**: Instruction assumes humidity sensor is installed and is enabled (see Service Menu 490). Integrated sensors (not included) must be ordered separately.
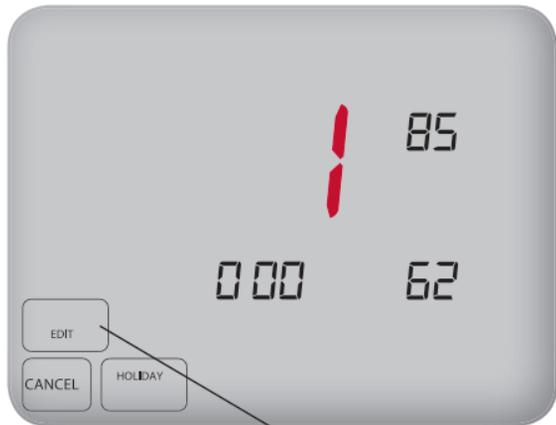
If thermostat is model T12532-IAQ, a humidity sensor is present, which allows user to set dehumidify and humidify control setpoints.

1. Press lower left and lower right keypad area to activate Service Menus.

2. Press **Cool ▲ / ▼** for Service Menu 490.

3. Select appropriate option to enable Dehumidify, Humidify, or both (1, 2 ,or 3).

4. Press **Done** to return to Home Display.

5. Press **Humidity** key to set **Dehumidify** Setpoint. Beside "dE" Press ▲ / ▼ to select desired Dehumidify Setpoint.

6. Press **Humidity** key to view **Humidify** Setpoint. Next to "hu" Press ▲ / ▼ to select desired Humidify Setpoint.

7. Press **Done** to save and exit.

20 Holidays may be programmed. System type shown supports 1-HEAT and 1-COOL.

Press **Edit** *to select the holiday month that flashes.*
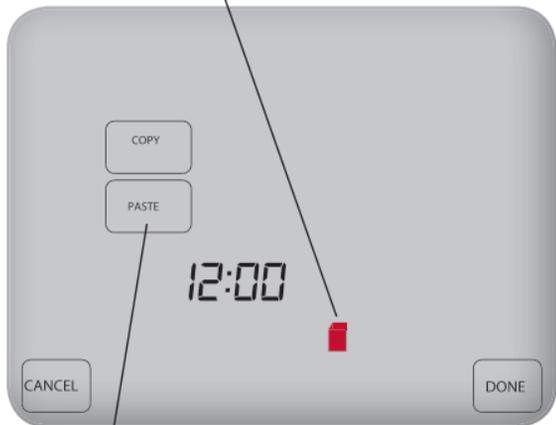
Note: Performance PRO supports 20 holidays, leap years, and daylight-saving time.

1. Press **Holiday** to enter menu.

2. Press **Holiday** continuously to select holiday number (1-20).

3. Press **Edit** to select holiday month**. Note**: **Month** number flashes.

4. Press ▲ / ▼ to select (numerical) month, then press **Holiday**.

5. Press ▲ / ▼ to select (numerical) day on which holiday starts (**Days** icon appears), then press **Holiday**.

6. Above **Days**, press ▲ / ▼ to set holiday length**,** which is number of days that the holiday period lasts (1-99).
   Optional: To schedule additional Holidays, wait for flashing Holiday number, and repeat Steps 4-6.

7. Press **Done** to save and exit.

When the SD card is inserted, the SD icon begins flashing. Icon appears solid when processing data.

COPY

PASTE

12:00

CANCEL

DONE

Press Paste to copy the settings from SD card to the thermostat.

Note: If SD card is locked, only **Paste** appears; user may only copy from SD card to thermostat.

Use the SD card to transfer customized settings *to* or *from* the thermostat. Insert the SD card into the thermostat only from Home or Default Display.

1. Insert the SD card into the slot located on top of the thermostat where indicated. (SD icon begins flashing).
    Note: **Copy** and **Paste** keys appear.

2. Press **Paste** to copy the settings *from SD card to the thermostat.*

3. Press **Copy** to transfer the settings *from the thermostat to the SD card*.

4. Press **Done** to complete process.

Note: The thermostat SD card display remains active until the user selects **Cancel** or **Done** and removes SD card (or menu reverts to Default Display).

The following T12000 Series compatible sensors are available from PECO. Using information found on the last page of this document, contact a service representative to learn more about PECO sensors or to place an order.

PECO PRODUCTS	Model Number	Part Number	Terminal	T12000	T12500
Indoor Remote Sensor	SP155-017	69308	S1	✓	✓
Occupancy Sensor	SB200-001	68375	S2	✓	✓
Outdoor Remote Sensor	--	70327	S3	✓	✓

For a complete description of sensors, terminal connections, and wiring diagrams, see the "Performance PRO T12000 Series Installation Guide."

T12000 SERIES PRODUCT SPECIFICATIONS

Temperature Control Range:	50° to 90° F (10° to 32° C)
Differential:	1° F (0.5°C)
Input Power:	24 VAC (20-30 VAC) 50/60Hz (+/-10%) or AA alkaline batteries (both recommended); 5mm terminals accept 14-24 AWG stranded or solid wire.
Output Ratings:	20-30 VAC 0.02-1.0A per terminal; W1 (B/O), W2 (AUX), G, A, E, Y1, Y2. Note: Collectively, total current draw must not exceed 2.5A.
Operational Temperature:	0° to 120° F (-17° to 48°C)
Shipping Temperature:	-20° to 130°F (-29°to 54°C)
Operating Humidity:	5% to 95% RH, non-condensing
Physical dimensions:	T12000/T12500 Thermostat: 4.3" H x 5.7" W x 1.3"D with 4" x 3" / 12 square inch viewable liquid crystal display (LCD)

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