

T6 Pro Hydronic Programmable Thermostat Installation Instructions



Package Includes:

- T6 Pro Hydronic Programmable Thermostat
- Floor sensor (model AQ12C20)
- UWP™ Mounting System
- Honeywell Standard Installation Adapter (J-box adapter)
- Honeywell Decorative Cover Plate – Small; size 4-49/64 in x 4-49/64 in x 11/32 in (121 mm x 121 mm x 9 mm)
- Screws and anchors
- 2 AA Batteries
- Installation Instructions and User Guide

Welcome!

T6 Pro Hydronic Programmable Thermostat can be used to control the ambient air temperature or floor temperature or both. You can choose among the following temperature control modes.

A mode: Controls and displays the ambient air temperature only.

F mode: Controls and displays the floor temperature only using an external floor temperature sensor. This control mode is suitable for areas such as bathrooms where floor temperature could be scheduled to be warm only during occupied, morning and evening periods.

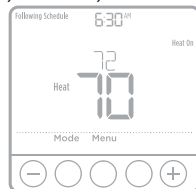
- Floor temperature is indicated by “FLR” above the actual floor temperature.
- Actual ambient air temperature could also be displayed in the Thermostat **MENU/TEMP**.

AF mode: Controls and displays the ambient air temperature as well as maintains the floor temperature within desired floor temperature limits using an external floor temperature sensor. Setting the minimum and maximum floor temperature limits is a way to enhance comfort and to protect the floor covering at the same time.

- Actual floor temperature could also be displayed in the Thermostat **MENU/TEMP**.

NOTE: To set the thermostat temperature control mode, go to “Installer setup (ISU)” on page 7.

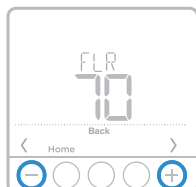
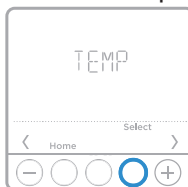
A, AF mode; main screen



F mode; main screen



Temperatures menu



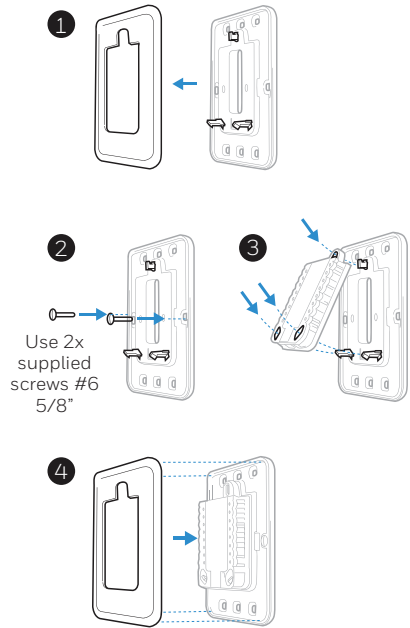
Optional Cover Plate installation

NOTE: If Optional Cover Plate is not required, see “UWP Mounting System installation” below.

Use the **Optional Cover Plate** when:

- Mounting the thermostat to an electrical junction box
- Or when you need to cover paint gap from old thermostat.

1. Separate the Junction Box Adapter from the Cover Plate. See Figure 1.
2. Mount the Junction Box Adapter to the wall or an electrical box using any of the eight screw holes. Insert and tighten mounting screws supplied with Cover Plate Kit. Do not overtighten. See Figure 2. Make sure the Adapter Plate is level.
3. Attach the UWP by hanging it on the top hook of the Junction Box Adapter and then snapping the bottom of the UWP in place. See Figure 3.
4. Snap the Cover Plate onto the Junction Box Adapter. See Figure 4.

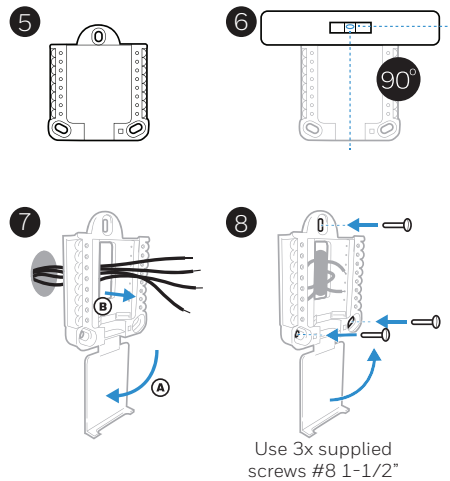


UWP Mounting System installation

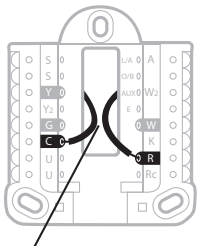
5. Before starting, turn the power off at the breaker box or switch. Open package to find the UWP. See Figure 5.
6. Position the UWP on wall. Level and mark hole positions. See Figure 6.

Drill holes at marked positions, and then lightly tap supplied wall anchors into the wall using a hammer.

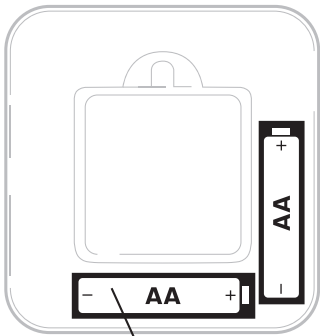
- Drill 7/32" holes for drywall.
7. Pull the door open and insert the wires through wiring hole of the UWP. See Figure 7.
 8. Place the UWP over the wall anchors. Insert and tighten mounting screws supplied with the UWP. Do not overtighten. Tighten until the UWP no longer moves. Close the door. See Figure 8.



Power options



Insert **R** and **C** wires into designated terminals for primary AC power (**C** terminal is optional if batteries are installed, but it is recommended). Remove wires by depressing the terminal tabs.



Insert AA batteries for primary or backup power. Match the polarity of the batteries with the + / – marks inside the battery compartment.

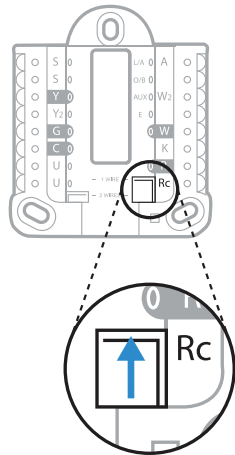
Setting Slider Tabs

Set R Slider Tab.

- Boiler, hot water valve circuit, or hot water relay panel wires to **R** and **W**. If the same transformer is providing common to power the thermostat, wire the transformer common to **C** and leave the R slider tab in the up position (**1 wire**). If a transformer that is not powering the heating equipment is used to power the thermostat display, set the R slider tab to the down position (**2 wires**). Wire the heat circuit to **R** and **W**, then wire the separate transformer to **Rc** and **C**.

NOTE: Slider Tabs for U terminals should be left in place for this thermostat model.

UWP Mounting System



R/Rc slider tab

Wiring terminal designations

S	Input for auxiliary wired floor or indoor sensors	L/A - A	Unused
S		O/B	Unused
Y	Unused	AUX - W2	Unused
Y2	Unused	E	Unused
G	Unused	W	Heat relay (stage 1)
C	24 VAC common. If a second transformer, separate from the one powering the heating equipment, is used, use the common from that transformer.	K	Unused
U		R	24 VAC power from heating transformer*
U	Unused	Rc	24 VAC power is a transformer other than a heating transformer used to power display (optional)

* Terminal can be jumped using Slider Tab. See “Setting Slider Tabs” on page 3.

Wiring conventional systems

Heat-only System (with floor sensor)

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
C 24 VAC common [3]
W Heat relay
S,S Input for wired floor sensor

Heat-only System (hot water relay panel with floor sensor)

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
C 24 VAC common [3]
W to W on zone of relay panel
S,S Input for wired floor sensor

Heat-only System (power open zone valve)

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
C 24 VAC common [3]
W Valve

Heat-only System (boiler with floor sensor)

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
C 24 VAC common [3]
W to W on boiler
S,S Input for wired floor sensor

NOTES

Wire specifications: Use 18- to 22-gauge thermostat wire. Shielded cable is not required.

- [1] Power supply. Provide disconnect means and overload protection as required.
- [2] Move R-Slider Tab on UWP to the **R (1 wire)** setting. For more information, see “Setting Slider Tabs” on page 3.
- [3] Optional 24 VAC common connection.

Floor temperature sensor installation

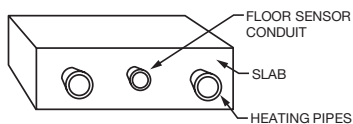
T6 Pro Hydronic thermostat is compatible with the following 10K ohm Honeywell floor temperature sensors: AQ12C20, AC112-01, AC130-01.

The floor temperature sensor needs to be installed mid way between the piping to ensure proper temperature reading (not over or right next to piping). Example: For a 12" pipe spacing install the sensor 6" away from the piping and ensure the sensor is vertically centered.

We recommend installing the floor temperature sensor inside of min. 0.5" PEX pipe. This simplifies future sensor replacement, if required.

In a small room, position the sensor in the center of the floor. In larger rooms, ensure the sensor is at least 7 feet from the wall.

Floor sensor conduit position in a slab

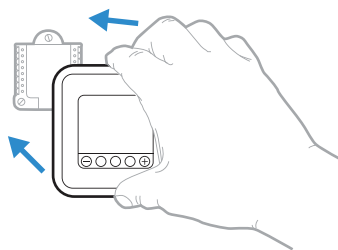


Recommended floor temperatures settings

Recommended maximum floor temperature is 90 °F (32 °C) for most floor covering types except wood. Suggested maximum floor temperature for wood floor is 85 °F (29.5 °C). Freeze protection temperature for garages and basements is suggested to be set between 41-45 °F (5-7.2 °C).

Thermostat mounting

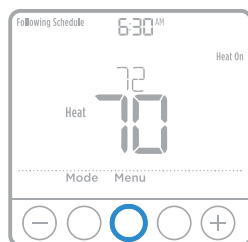
1. Push excess wire back into the wall opening.
2. Close the UWP door. It should remain closed without bulging.
3. Align the UWP with the thermostat, and push gently until the thermostat snaps in place.
4. Turn the power on at the breaker box or switch.



Set the time and date

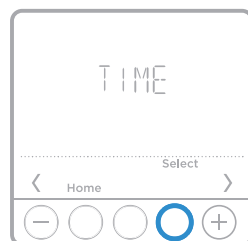
Time

- 1 Press **Menu** on your thermostat.
- 2 Press **+** or **-** to go to **TIME**. Press **Select**.
- 3 Press **+** or **-** to choose between 12 or 24 hour. Press **Select**.
- 4 Use **+** or **-** to adjust the hour. Press **Select**.
- 5 Use **+** or **-** to adjust the minutes. Press **Select** to exit Time menu.



Date

- 1 If previously setting time, continue to Step 2.
- 2 If at the Home screen, press **Menu** on your thermostat.
- 2 Press **+** or **-** to go to **DATE**. Press **Select**.
- 3 Use **+** or **-** to adjust year. Press **Select**.
- 4 Use the **+** or **-** to adjust month. Press **Select**.
- 5 Use the **+** or **-** to adjust day. Press **Select** to save and exit Date menu.

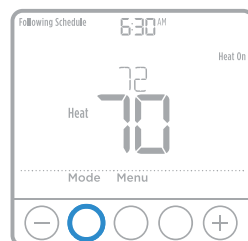


System operation settings

- 1 Press the **Mode** button to cycle to the next available System mode.
- 2 Cycle through the modes until the required System mode is displayed and leave it to activate.

Available **System** modes:

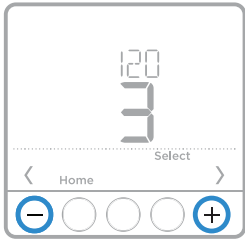
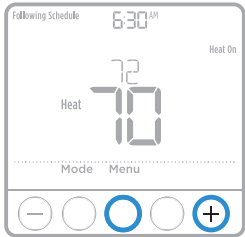
- **Heat**
- **Off**



Installer setup (ISU)

- 1 Press and hold **CENTER** and **+** buttons for approximately 3 seconds to enter advanced menu.
- 2 Press **Select** to enter **ISU**.
- 3 Press **Select** to cycle through menu setup options.
- 4 Press **+** or **-** to change values or select from available options.
- 5 Press **Select** and confirm your settings or press **Back** to ignore changes and return to ISU menu screen to continue editing another setup option.
- 6 To finish setup process and save your setting, press **Home** and return to Home screen.

NOTE: A complete list of all setup (ISU) parameters and options starts below and continues through page 9.



Advanced setup options (ISU)

NOTE: Depending on system settings, not all options may be available.

# ISU	ISU Name	ISU Options (factory defaults in bold)	Notes
120	Scheduling Options	0 = Non-programmable 2 = 5-2 Programmable 3 = 5-1-1 Programmable 4 = 7-Day Programmable	You can change default 5-1-1 schedule here. To edit periods, temperature setpoints during days, go to MENU/PROG .
125	Temperature Indication Scale	0 = Fahrenheit 1 = Celsius	
129	Wired Floor Temperature Sensor	0 = None 1 = Wired	Floor Temperature Sensor needs to be wired to S terminal and configured if you want thermostat to operate either in AF or F mode (ISU 299). If Floor Temperature Sensor is wired to S terminal and configured, actual floor temperature can be displayed in thermostat Menu/Temp .
205	Heating Equipment Type	9 = Hot Water Radiant Heat 10 = Hot Water Radiant Floor Heat 12 = Steam	This ISU configuration helps to optimize control algorithms and to force optimal default cycle rates for controlled heating equipment.
299	Temperature Control Mode	1 = Air and Floor (AF Mode) 2 = Air Only, (A Mode) 3 = Floor Only (F Mode)	This ISU is only displayed if ISU 129 is configured for 1 (wired floor sensor) and ISU 205 is set to 10 (Hot Water Radiant Floor Heat). Default Mode is AF. AF Mode: Controls and displays the ambient air temperature. Maintains the floor temperature within desired limits using an external floor temperature sensor. A Mode: Controls and displays the ambient air temperature only. F Mode: Controls and displays the floor temperature only using an external floor temperature sensor.

Advanced setup options (ISU)

# ISU	ISU Name	ISU Options (factory defaults in bold)	Notes
370	Heating Cycle Rate (Cycles per hour)	1 - 12	This ISU allows you to limit the maximum number of times the system can cycle in a 1 hour period measured at a 50% load. For example, when set to 3 CPH, at a 50% load, the most the system will cycle is 3 times per hour (10 minutes on, 10 minutes off). The system cycles less often when load conditions are less than or greater than a 50% load. The recommended (default) cycle rate settings are below for each heating equipment type selected: Hot Water Radiant Heat = 3 CPH; Hot Water Radiant Floor Heat in A or AF mode = 1CPH; Hot Water Radiant Floor Heat in F mode = 3CPH; Steam = 1CPH
388	Minimum On Time (Boiler short cycling protection)	0 = Off 2 = 2min 5 = 5min 15 = 15min	This ISU allows you to set minimum on time to protect equipment from short cycling.
425	Adaptive Intelligent Recovery	0 = No 1 = Yes	Adaptive Intelligent Recovery (AIR) is a comfort setting. Heating equipment will turn on earlier, ensuring the indoor temperature will match the setpoint at the scheduled time.
431	Maximum Heat Setpoint	<i>A/AF mode:</i> 40 °F to 90 °F (90 °F); 4.5 °C to 32.0 °C (32.0 °C) <i>F mode:</i> 40 °F to 99 °F (85 °F); 4.5 °C to 38.0 °C (29.5 °C)	The user cannot set the heating temperature above this level. Air heating temperature in A/AF mode, Floor heating temperature in F mode.
432	Minimum Heat Setpoint	<i>A/AF mode:</i> 40 °F to 90 °F (50 °F); 4.5 °C to 32.0 °C (10 °C) <i>F mode:</i> 40 °F to 99 °F (50 °F); 4.5 °C to 38.0 °C (10 °C)	The user cannot set the heating temperature below this level. Air heating temperature in A/AF mode. Floor heating temperature in F mode.
435	Keypad Lockout	0 = Off 1 = Partial 2 = Full	Unlocked: User has access to all thermostat settings. Partially Locked: User can modify only temperature settings. Fully Locked: User cannot modify any settings. Screen will be locked by default "1234" factory code and cannot be changed.
500	Wired Indoor Air Temperature Sensor	0 = No 1 = Yes	This ISU is only displayed if no Wired Floor Temperature Sensor (ISU 129) is configured.
515	Wired Indoor Air Temperature Sensor Type	0 = 10k 1 = 20k	Choose resistance type of Wired Indoor Air Temperature Sensor. This ISU is only displayed if Wired Indoor Air Temperature Sensor (ISU 500) is configured.
520	Which Indoor Air Temperature Sensor will be used for TEMPERATURE Control? (Multiple Sensors are Averaged)	1 = Thermostat Only 2 = Wired Only 3 = Average	You can choose what Air temperature source to be used or you can ask thermostat to use both thermostat and remote wired sensors for higher accuracy of measurement. This ISU is only displayed if Wired Indoor Air Temperature Sensor (ISU 500) is configured.

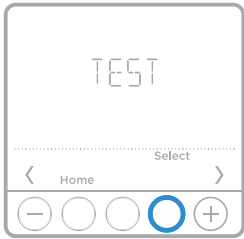
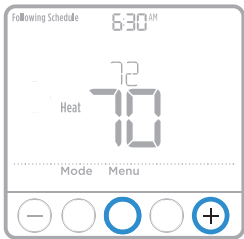
Advanced setup options (ISU)

# ISU	ISU Name	ISU Options (factory defaults in bold)	Notes
575	Minimum Floor Temperature Limit	40 °F to 89 °F* (72 °F); 4.5 °C to 31.5 °C* (22.2 °C)	*If the floor temperature is below that limit, the heating will be activated regardless of the ambient Air temperature. This ISU is only displayed if Temperature Control Mode (ISU 299) is set to AF mode. The minimum floor temp limit setting cannot be set higher than 10 degrees below the maximum floor temp limit setting.
576	Maximum Floor Temperature Limit	50 °F* to 99 °F (85 °F); 10 °C* to 38 °C (29.5 °C)	*If the floor temperature is above that limit, the heating will turn off regardless of the ambient Air temperature. This ISU is only displayed if Temperature Control Mode (ISU 299) is set to AF mode. The maximum floor temp limit setting cannot be set lower than 10 degrees above the minimum floor temp limit setting.
577	Floor Economy Mode	0 = Off 1 = On	If enabled, Low Floor Temperature Limit (ISU 575) will be disabled during Away and Sleep period. This ISU is only displayed if Temperature Control Mode (ISU 299) is set to AF mode and (ISU 120) is set to programmable.
578	Freeze protection temperature	<i>A mode:</i> 40 °F to 50 °F (40 °F); 4.5 °C to 10.0 °C (4.5 °C) <i>A/AF mode:</i> 40 °F (4.5 °C) to Min. Floor Temp. Limit <i>F mode:</i> 40 °F (4.5 °C) to Min. Heat Temp. Setpoint	The thermostat operates the heat whenever the room or floor temperature falls below that limit, even when the system mode is set to Off. Default setting is 40 °F (4.5 °C) for all A/AF/F regulation modes. Freeze protection temperature cannot be set above the minimum floor temperature limit in AF mode or above the minimum heat temperature setpoint in F mode.
1400	Backlighting	0 - On Demand 1 - Continuous	Common wire needed for Continuous Backlight
1401	Inactive Backlight Brightness	1 - 5	This ISU is only displayed if Continuous Backlight selected. 1=minimum, 5=maximum inactive backlight brightness
1410	Clock Format	12 / 24	
1415	Daylight Saving Time	0 = Off 1 = On	Set to Off in areas that do not follow Daylight Saving Time.
1420	Temperature Display Offset	-3 - 3 °F (0) -1.5 to 1.5 °C (0)	0°F - No difference in displayed temperature and the actual room temperature. The thermostat can display up to 3 °F (1.5 °C) lower or higher than the actual measured temperature.

Installer system test

To perform a System Test:

- 1 Press and hold **CENTER** and **+** buttons for approximately 3 seconds to enter advanced menu.
- 2 Use **+** to go to **TEST**. Press **Select** to enter System Test.
- 3 Use **+** to change between Heat or Ver (thermostat version information). Press **Select**.
- 4 Press **+** to turn heat on. Press **-** to turn heat off.
- 5 Use the **Home** button to exit the System Test.



Alerts

Active alerts are displayed via the alert  symbol and alert number in the clock area on the home screen. You can read more information about active alerts, snooze or dismiss non-critical alerts in **MENU/ALRT**.

Number	Alert/Reminder	Definition
170	Internal Memory Error	The memory of the thermostat has encountered an error. Please contact dealer for assistance.
171	Set the Date and Time	Set the date and time on your thermostat. The date and time are required for certain features to operate, like the program schedule.
173	Thermostat Temperature Sensor Error	The sensor of the thermostat has encountered an error. Please contact dealer to replace the Thermostat.
177	Indoor Temperature Sensor Error	Wired indoor temperature sensor is not connected or there is a wiring short. Please contact dealer for assistance.
252	AC Power Lost	No AC power detected. Please check the AC circuit breaker.
405	Battery Low	Battery low. Please turn the system mode to off and replace the batteries.
407	Battery Critical	Battery critical. Thermostat cannot control your system. Please replace the batteries immediately.
514	Floor Temperature Sensor Failure	Wired floor temperature sensor is not connected or there is a wiring short. When the thermostat has been configured for AF mode, the thermostat will still control the ambient air temperature but will ignore the floor temperature limits. When the thermostat has been configured to F mode, heating will stop. However, when the air temperature drops to, or below freeze protection temperature limit, heating will be activated and control the ambient air temperature.
535	High Floor Temperature	The measured temperature is above maximum floor temperature limit.
536	Freeze Protection	The measured temperature is below freeze protection temperature limit.

Specifications

Temperature Setpoint and Limit Ranges

See ISU settings 431, 432, 575, 576, and 578 starting on page 8.

Working Ambient Temperature

32 °F to 120 °F (0 °C to 48.9 °C)

Operating Ambient Temperature

37 °F to 102 °F (2.8 °C to 38.9 °C)

Shipping Temperature

-20 °F to 120 °F (-28.9 °C to 48.9 °C)

Operating Relative Humidity

5% to 90% (non-condensing)

Physical Dimensions in inches (mm) (H x W x D)

4-1/16" H x 4-1/16" W x 1-5/32" D

103.5 mm H x 103.5 mm W x 29 mm D

Electrical Ratings

Terminal	Voltage (50/60Hz)	Running Current
W Heating	20-30 Vac	0.02-1.0 A

**CAUTION: ELECTRICAL HAZARD**

Can cause electrical shock or equipment damage. Disconnect power before beginning installation.

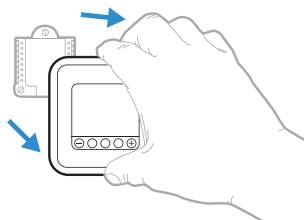
**CAUTION: MERCURY NOTICE**

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 proper disposal.

Customer assistance

For assistance with this product, please visit **customer.honeywell.com**.

Or call Honeywell Customer Care toll-free at **1-800-468-1502**.



Pull to remove the thermostat from the UWP.

Home and Building Technologies

In the U.S.:

Honeywell

715 Peachtree Street NE

Atlanta, GA 30308

customer.honeywell.com

Honeywell

* U.S. Registered Trademark.

© 2017 Honeywell International Inc.

33-00340-01 M.S. 09-17

Printed in U.S.A.



33-00340-01