Raychem

Specifications

Approvals

Technical Data

Supply voltage	120 V, 208 V, 240 V, 60 Hz
Maximum switching current	15 A
GFCI	Class A, 5 mA trip level
Ambient setpoint range (A/AF mode)	40°F to 86°F (5°C to 30°C)
Floor setpoint range (F mode)	40°F to 104°F (5°C to 40°C)
Floor limit setpoint range (AF mode)	40°F to 104°F (5°C to 40°C)
Operating temperature range	32°F to 120°F (0°C to 50°C)
Storage temperature range	−4°F to 120°F (−20°C to 50°C)

Kit Contents

A	1	QuickStat-TC thermostat
B	2	Mounting screws
C	1	Floor temperature sensor 15 ft (4.6m)
D	5	Wire nuts
E	1	Screwdriver

General Information

Use of this Manual

This manual covers the installation and operation of the Raychem QuickStat-TC thermostat and must be used with the following document:

- *QuickNet System Installation Manual* (H57704)

Important: For the Tyco Thermal Controls warranty and agency approvals to apply, the instructions included in this manual and product packages must be followed.

Features

The QuickStat-TC is an electronic thermostat that must be used with the Raychem QuickNet floor heating mats.

QuickStat-TC provides the following features:

- Integrated Class A, Ground-Fault Circuit Interrupter (GFCI).

- Operates at 120 V, 208 V, 240 V, 60 Hz.

- Switches on your heating system at predetermined times on different days of the week.

- Offers 4 periods each day that you can set at different temperatures.

- Comes with a preprogrammed schedule that is suitable for most installations. However, you can customize this program any time you wish.

- Allows you to reset the thermostat to factory settings.

- Changes the start time of a heating period automatically so that the desired temperature is reached at the time that you set.

- Multiple temperature control options so users can control the system based on floor temperature (F), ambient air temperature (A), or both (AF).

- On/Off switch to turn off thermostat during summer months.
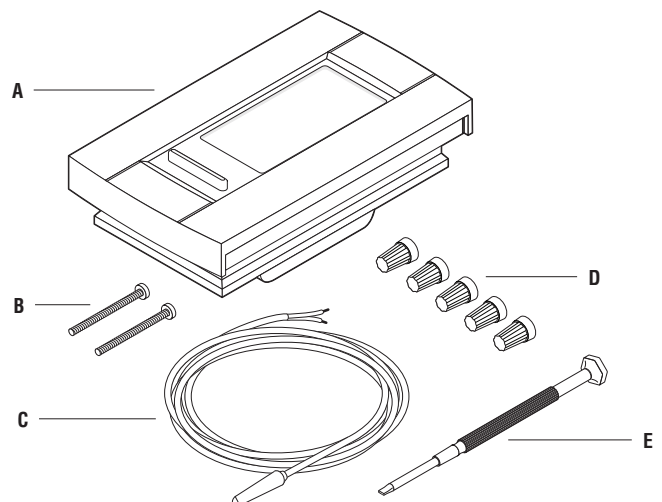
QuickStat-TC Installation & Operation Manual

Installation

Important: This thermostat must be installed according to all national and local electrical codes. The installation must be performed by qualified personnel.

### Locating the floor temperature sensor

The floor temperature sensor is installed under the floor surface. See the *QuickNet System Installation Manual (H57704)*, Section 6, for more details. Perform the Sensor Resistance Test prior to terminating the floor sensor to the thermostat. See the *QuickNet System Installation Manual (H57704)*, Section 7, for more details.

Wiring the thermostat

⚠ **WARNING: TURN OFF THE POWER TO THE CIRCUIT AT THE MAIN POWER PANEL TO AVOID ELECTRIC SHOCK.**
⚠ **WARNING: SHOCK HAZARD. TO PREVENT SHOCK, THE QUICKNET FLOOR HEATING MAT MUST BE CONNECTED TO GROUND.**

1. Remove the control module from the power base by loosening the captive screw underneath the base.

2. Connect the floor heating cold leads to the load wires (two inner wires) using the supplied wire nuts.

3. Connect the power supply leads to the power base wires (two outer wires) using the supplied wire nuts.

4. Connect the floor heating cold lead braid (ground) to the supply ground in the electrical junction box.


Load / Floor heating mat
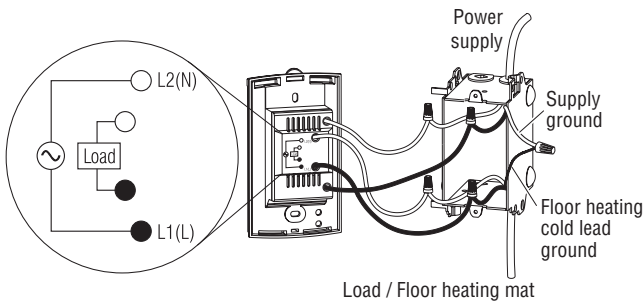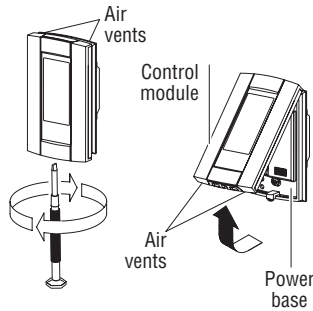
5. Insert the floor sensor cable through one of the two openings on the power base and connect to **terminals 1 and 2** (no polarity). Position the sensor cable such that it does not come in contact with the floor heating wires.

Floor temperature sensor
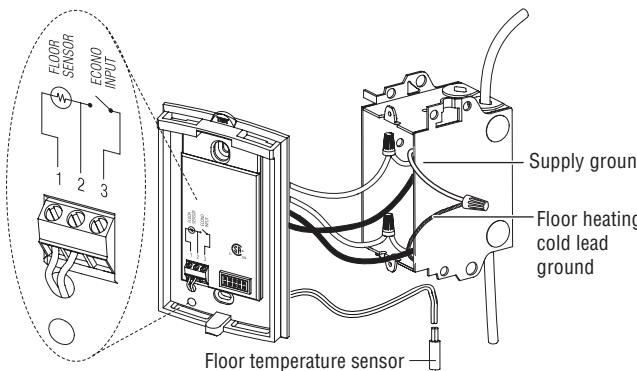
6. Push the excess length of the wires back inside the electrical junction box

7. Secure the power base to the electrical junction box using the provided mounting screws

8. Verify the settings of the configuration switches on the back of the control module. Default settings for the configuration switches are highlighted below.

✎ *Important: If your system is installed underneath laminate or engineered wood flooring, you MUST use AF mode with the default settings. Note the factory default is AF mode.*
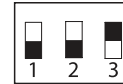
No.	Configuration	Up	Down
1	Display format	°F/12 hr	°C/24 hr
2	Early Start[1]	Enable	Disable
3	Temperature control mode[2]	F	AF

[1] Early Start can be used in Automatic mode only. When this function is enabled, the thermostat calculates the optimal time to start heating in order to obtain the desired temperature by the set time. The thermostat re-assesses the start time daily based on the previous day's results.

✎ *Note: If you wish to use only 2 periods, set periods "1 and 4" or periods "2 and 3". Early Start will not work if you set periods "1 and 2" or periods "3 and 4".*

[2] To select floor sensing mode, place the switch to the F position. To select floor sensing and ambient sensing mode, place the switch to the AF position and ensure that the remote temperature sensor is connected to the thermostat. To select the A mode, place the switch in the AF position and ensure that the remote temperature sensor is NOT connected to the thermostat.

9. Install the control module onto the power base.

Thermostat Controls and Display

The following figure shows the thermostat controls. The thermostat has three temperature control modes:
- AF mode: (Default mode) Controls the system based on the ambient air temperature and ensures that the floor temperature does not exceed the desired limits using an external floor temperature sensor
- F mode: Controls the floor temperature using an external floor sensor
- A mode: Controls the system based on the ambient air temperature (does not use floor sensor)
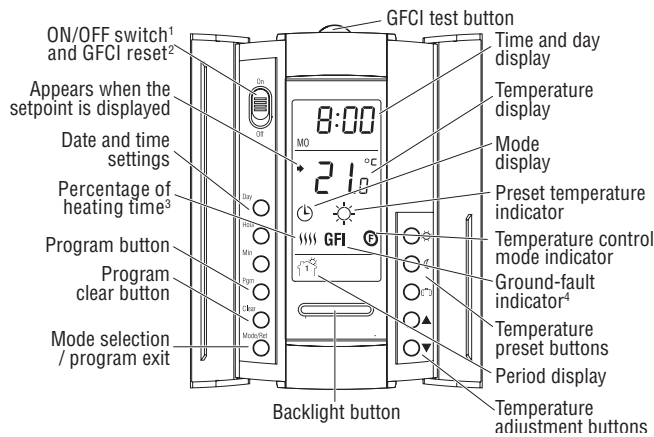
[1] Place the switch in Standby to cut power to the heater when not in use (e.g., in the summer). This will not affect the time and temperature settings.

[2] To reset the ground-fault protection, switch the thermostat to Standby and back to On.

[3] The thermostat displays the percentage of heating time required to maintain the desired temperature. For example, ⑤⑤ is displayed when heating is activated 40 percent of the time.

Display	⑤	⑤⑤	⑤⑤⑤	⑤⑤⑤⑤	⑤⑤⑤⑤⑤
% of heating time	1 to 24%	25 to 49%	50 to 74%	75 to 99%	100%

[4] **GFI** appears when the ground-fault protection has tripped.

The display illuminates for 12 seconds when the backlight button is pressed. When either of the ▲▼ buttons are pressed, the display also illuminates. The setpoint temperature appears for 5 seconds, then the actual measured temperature is displayed.

Date and Time Setting

The first time you power up the thermostat, the time and date will flash and must be set.
1. Press the **Hour** button to set the hour.
2. Press the **Min** button to set the minutes.
3. Press the **Day** button to set the day.
4. Press **Mode/Ret** to exit.

Daylight Savings Time

The QuickStat-TC can automatically adjust for Daylight Savings Time. When this function is enabled, the thermostat switches to Daylight Savings Time on the second Sunday of March and to normal time on the first Sunday of November.

✎ *Note: This function is disabled (default setting) when the clock loses its setting*

To enable Daylight Savings Time:

1. Press and hold the **Day** button for 3 seconds until DLS appears on the screen.

2. Press the up/down ▲▼ buttons to toggle between On (enabled) and Off (disabled).

3. Press the **Day** button. The year setting is displayed.

4. Use the up/down ▲▼ buttons to set the current year.

5. Press the **Day** button. The month setting is displayed.

6. Use the up/down ▲▼ buttons to set the current month.

7. Press the **Day** button. The date setting is displayed.

8. Use the up/down ▲▼ buttons to set the current date.

9. Press **Mode/Ret** to exit.

Ground-Fault Protection

The QuickStat-TC has a built-in GFCI (5 mA trip level). This protects users against risks of electrocution by cutting off the power to the floor heating system when the leakage current exceeds 5 mA. If a ground-fault has occurred, the **TEST** light on the top of the thermostat will illuminate red and GFI will appear on the screen.

Testing the GFCI

Users should test the GFCI after the installation of the QuickNet floor heating system is complete to ensure that the ground-fault protection is in working order. Users should test the GFCI on a monthly basis thereafter.

1. The GFCI can only be tested if the thermostat has a heating demand. Increase the setpoint temperature above the current measured temperature. Wait several seconds to allow the thermostat to adjust to the new set point and the heating symbol ⑤⑤⑤⑤ appears.

2. Press the **TEST** button.

The test is successful if the **TEST** light on top of the thermostat illuminates red and GFI appears on the screen.

The test has failed if the **TEST** light on top of the thermostat does not illuminate red. In this case, turn the power off to the floor heating system and check the installation of the thermostat.

Resetting the GFCI

If the GFCI has tripped, reset it by switching the thermostat to **Standby** and back to **On**. The **TEST** light on top of the thermostat will go off.

If the GFCI trips in normal operation without pressing the **TEST** button, there could be a ground-fault. To check whether it is a ground-fault or nuisance tripping, reset the GFCI. If the GFCI does not trip after the reset, it was nuisance tripping and the system is functioning properly. If the GFCI trips again after the reset, there is a ground-fault. The user should contact a qualified electrician to troubleshoot the issue.

QuickStat-TC Installation & Operation Manual

Programming

The QuickStat-TC comes with a pre-programmed default schedule. The schedule consists of 4 periods per day which represents a typical week day.

Period	Description	Associated temperature setting
☼↑	Wake-up	☼
↑↑☀	Away from home	☾
↑↑	Return home	☼
☼↑	Sleep	☾

Default Programming

The following shows the pre-programmed default schedule in the QuickStat-TC.

Period	Setting	MO	TU	WE	TH	FR	SA	SU
☼↑	☼	6:00A	6:00A	6:00A	6:00A	6:00A	6:00A	6:00A
↑↑☀	☾	8:30A	8:30A	8:30A	8:30A	8:30A	--:--	--:--
↑↑	☼	5:00P	5:00P	5:00P	5:00P	5:00P	--:--	--:--
☼↑	☾	11:00P	11:00P	11:00P	11:00P	11:00P	11:00P	11:00P

The Comfort (☼) temperature is used in periods 1 and 3 and the Economy (☾) temperature is used in periods 2 and 4. For example, when the period changes from 1 to 2, the setpoint automatically changes from Comfort (☼) temperature to Economy (☾) temperature.

Preset Temperatures

The QuickStat-TC comes with 3 preset temperatures shown as Comfort (☼) temperature, Economy (☾) temperature and Vacation (⌂) temperature. The following table shows the intended use and the default setting of each preset temperature.

Icon	Intended use	A/AF modes	F mode
☼	Comfort (when at home)	70°F (21°C)	82°F (28°C)
☾	Economy (when asleep or away from home)	63°F (17°C)	68°F (20°C)
⌂	Vacation (during prolonged absence)	50°F (10°C)	50°F (10°C)

Users can also change a preset temperature by:

1. Set the desired temperature using the ▲▼ buttons.

2. Press and hold the corresponding preset button (☼ , ☾ , or ⌂) until the corresponding icon is displayed.

Floor Temperature Limit (AF Mode Only)

The default temperature limits are 41°F to 82°F (5°C to 28°C).

Important: If your system is installed underneath laminate or engineered wood flooring, you MUST use AF mode with the default settings. Note the factory default is AF mode.

Modifying the Schedule Programming

The user can change the programming to better meet their lifestyle. To do so:

1. Press **Pgm** to access the programming mode. Period 1 will be displayed.

2. Press **Day** to select the day to program for the selected period. To select the entire week, press and hold the **Day** button for 3 seconds until all days are selected.

3. Press **Hour** and **Min** to set the start time of the selected period, or press **Clear** if you want to skip the period (--:-- is displayed).

   Note: If you wish to use only 2 periods, set periods "1 and 4" or periods "2 and 3". Early Start will not work if you set periods "1 and 2" or periods "3 and 4".

4. Press **Pgm** to select another period, or press Day to select another day. They repeat step 3. Repeat steps 3 & 4 until programming is complete.

5. Press **Mode/Ret** to exit the programming mode.

Operating Modes

The QuickStat-TC has three operating modes:

Automatic Mode ☉

In this mode, the QuickStat-TC follows the programmed schedule. To place the QuickStat-TC in this mode:

1. Press the **Mode/Ret** button until the ☉ icon appears on the display.

2. To disable Automatic mode, press the **Mode/Ret** button to change the mode to Manual mode ✎ .

Temporary Manual Override (in Automatic Mode ☉ **)**

Users can temporarily override the scheduled programming of the QuickStat-TC. The new temperature setpoint will be used until the beginning of the next period. To temporarily override the QuickStat-TC:

1. Press the ▲▼ , ☼ or ☾ button, while the thermostat is in the Automatic mode, to the new desired setpoint. Once the new setpoint is accepted, the ☉ icon will begin to flash.

2. To cancel the temporary override, press the **Mode/Ret** button.

Manual Mode ✎

In this mode, the programmed schedule is not used and the setpoint temperature must be set manually. To place the QuickStat-TC in this mode:

1. Press the **Mode/Ret** button until the ✎ icon appears on the display.

2. Set the temperature using the ▲▼ , ☼ or ☾ button.

3. To disable Manual mode, press the **Mode/Ret** button to change the mode to Automatic mode ☉ .

Vacation Mode ⌂

In this mode, the QuickStat-TC is set to the Vacation setpoint temperature and will override all programming until Vacation mode is disabled. To place the QuickStat-TC in this mode:

1. Press the ⌂ button, and the ⌂ icon appears on the display.

2. To disable Vacation mode, press the **Mode/Ret** button to change the mode to Automatic ⊕ or Manual ♨ .

To reset the QuickStat-TC to factory default settings:

3. Turn the thermostat to **Off.**

4. Press the up button ▲ and switch the thermostat **On.**

5. After the thermostat setup is completed, release the up button ▲ .

Error Messages

LO The measured temperature is below the thermostat's display range. Heating is activated.

HI The measured temperature is above the thermostat's display range. Heating is deactivated.

Er Verify the floor sensor connection to the thermostat.

tyco

Thermal Controls

400-115-052