# SZT-4000 Thermostat

Introduction

The SZT-4000 thermostat communicates with the SZM-4000 Master control panel through the associated zone damper's Motor Controller Board (MCB). The SZT-4000 thermostat has several features including 2-hour night set-back override, 24-hour trend logging, and damper test mode. The set point and ambient temperatures can be viewed locally, or remotely on a PC when used with the Starcom Hub and Starcom Building Software.

Figure 2.4   SZT-4000 Thermostat

Wiring the thermostat is done by running a 5-conductor non-shielded, twisted, solid 18 gauge wire to the associated AVD zone damper Motor Controller Board (MCB).

Display
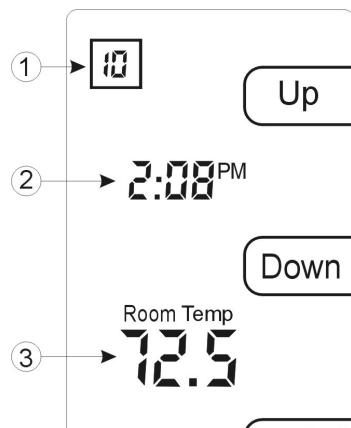
Figure 2.5   Display

Zone number – To communicate with the Master Controller each room sensor must be given a unique channel number from 1-32 (sub-menu option #4). When more than one Master Controller exists it may be preferred to display the thermostat's zone number (1-99). This number can be set through menu option #7. Setting the zone number in menu option #7 to 00 will revert the display back to the channel number selected from menu option #4.

 When selecting any of the 6 sub-menus this number will indicate the current menu option that has been selected.

 Current time – Once the SZT-4000 thermostat has established communication with the SZM-4000 Master, the current system time will be displayed. When the system is first powered up, or if there is a communications problem, the time will remain frozen at 12:00PM.

Room temp – This temperature is the current space or ambient temperature that is being measured by the room sensor.

Set point – This temperature indicates the current set point that the system will control the room temperature to.

Buttons
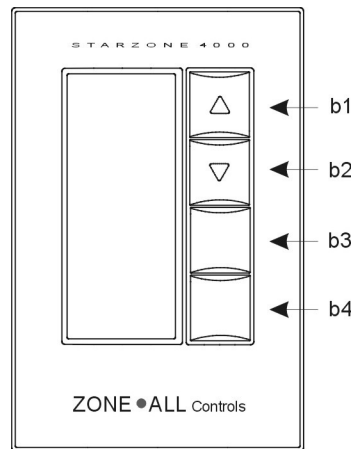
Figure 2.6   Thermostat buttons

b1&2) UP/DOWN Displays – During normal operation when the 'UP' and 'DOWN' is displayed these buttons can be used to adjust the room's set point. A blank display indicates that either the buttons or the set point has been locked out and the ability to locally adjust the room's temperature has been disabled.

b3) HEAT/COOL Enabled – The room thermostat's ability to respond to heating and cooling demands can be limited to being either heat or, cool only, or both heating and cooling disabled. If the thermostat's demand capability has been overridden from the computer then the word 'ENABLED' will be blanked out and the setting cannot be changed locally at the sensor. It should be noted that disabling heating or cooling will prevent the thermostat from generating a heating or cooling demand but does not prevent the zone damper from responding to demands generated by other zones.

b4) OVERRIDE/SET – During evenings and weekends or whenever the SZM-4000 Master controller is operating in the 'UNOCCUPIED' mode a user may provide a 2-hour 'override' condition where the space temperature for that one zone only will be returned to the sensor's normal set point temperature. After the 2-hour period has elapsed that zone will return back to its normal 'unoccupied' setting. The 2-hour override condition is indicated by the 'OVERRIDE' display flashing.

Sub-Menu Options

There are 8 sub-menu options available to access different features. Simultaneously pressing the UP and DOWN buttons will place the room sensor into the first menu option #1 – Trend Log. Using the 'SET' button the user can scroll through the available menu options. At any time B3 can be pressed to return the room sensor back to normal operation.

Menu Option #1 – 24 Hour Trend Log

Pressing the UP/DOWN buttons allows you to effectively scroll back in time for the past 24 hours of operation. The set point and room temperatures will be displayed in 5-minute increments.

Menu Option #2 – Set Time

Pressing the UP/DOWN buttons allows you to adjust the system's current time. Once an adjustment has been made the new time will be transferred to the Master control panel and all other zone sensors connected to that Master Controller. Once the time has been changed on one sensor that change will be reflected on all other sensors that are connected to the same Master. This change will not be reflected on thermostats that are connected to other SZM-4000 Masters.

Menu Option #3 – Damper Test Mode

In damper test mode the user can override the damper to the full open or closed position, and also turn on and off the auxiliary heat contact. Pressing the Up button opens the damper, and turns on the auxiliary heat contact while pressing the Down button closes the damper and turns off the auxiliary heat. The damper's current position will be displayed as a percentage ranging from 0% (closed) to 100% (fully open).

Menu Option #4 – Set Stat Number (1-32)

Each room sensor must be assigned a unique communication channel between 1 and 32 for each Master control panel. While the stat number is flashing, pressing the Up/Down buttons will adjust the stat number between 1 and 32.

Menu Option #5 – Thermostat De-calibration

At times when the thermostat's location is not ideal, it may be beneficial to de-calibrate the stat to better represent an average or adjacent location's temperature. This option allows the ambient temperature to be increased or decreased by several degrees.

Menu Option #6 – Set point range adjustment

When several zones are shared with a common AHU it is best to have a restricted range of set point values so that the difference in temperature between two adjacent zones is not so great as to cause a conflict. However if a wider set point range is desired the range can be widened from 68–77°F (20–25°C) to 66–80°F (19–27°C).

Menu Option #7 – Set Zone Number (1–99)

When connecting a system to a PC each thermostat is assigned a unique zone number. When there are more than one Master control panels it makes sense to label each thermostat with a unique number corresponding to the zone number. Whenever a zone number greater than 00 is entered, the display will show the zone number and not the individual channel number selected from menu option #4. It should be noted that setting the Zone ID number has no affect on the operation of the system and it is still necessary to set the Stat number in menu option #4.

Menu Option #8 – Restore Factory Defaults

When changes to the thermostat's defaults have been made through software this menu allows the user to clear all settings and restore the thermostat to its original settings. Simultaneously pressing the UP and DOWN buttons will restore all factory settings.

DIP Switches

Located on the back of the room sensor are 4 dip switches that can be used to configure the operation of the sensor.

Dip Switch #1 – Fahrenheit/Celsius display. [Up = °C; Down = °F]

Dip Switch #2 – Keyboard lockout. This option allows the keyboard to be disabled, preventing the user from making any changes. [Up = Locked out; Down = Keyboard Enabled.]

Dip Switch #3 – This dip switch provides the option of locking out menu options 4-8. [Up =Menus 4-8 Enabled; Down 4-8 Disabled.]

Dip Switch #4 – Termination resistor. Normally this dip switch should be left in the down position. However on long communication runs the last room sensor on the communication line should be terminated by the dip switch. [Up = Line terminated (last stat only); Down = No termination (normal)]