

RCS

**Model TR60
RS485 Thermostat**



OPERATION MANUAL

DCN: 141-01761-01

3/23/09

Model: TR60

RS485 Thermostat

This manual applies to the following product revisions or later revisions up to the next manual revision release:

Product	Part No:	Firmware Revision
TR60 RS485 Thermostat	001-01761	
Includes		
TS60 Wall Display Unit	001-01760	
ZCV1 HVAC Control Unit	001-01065	

Document Revision History

Revision	Date	Changes
01	3/23/09	Original release

Product Specifications

Product Model: TR60
Product: Thermostat for Heating and Cooling HVAC System control.
RS485 Half Duplex 2 wire (plus gnd) communications

Wall Display Unit

Model: TS60
Size: 5.7" wide x 4.0" height x 1.2" depth
Display: Graphical LCD, 2.75" x 1.5", 64x128 pixel
Backlight: Yes, Blue/white, Controllable, on, off, timeout
Contrast: Adjustable on screen
Buttons: 6
LEDs: 4 (3 green, 1 red)
Remote Sensors: 2, two wire, remote primary, averaging
Power: 12VDC from HVAC Control Unit

HVAC Control Unit

Model: ZCV1
Size: 8" x 6" x 1.5"
HVAC System Type Compatible: Standard (gas/electric) or Heat Pump
Multistage System Compatible:
Standard HVAC Systems: 2 stage heating, 2 stage cooling
Heat Pump Systems: 3 stage heating (2 compressor, 1 aux heat), 2 stage cooling
Heat Pump change over valve: Selectable change over with cool or with heat (O or B)
Communications: RS485 Half Duplex 2 wire (plus gnd)
Power: 24VAC from HVAC system

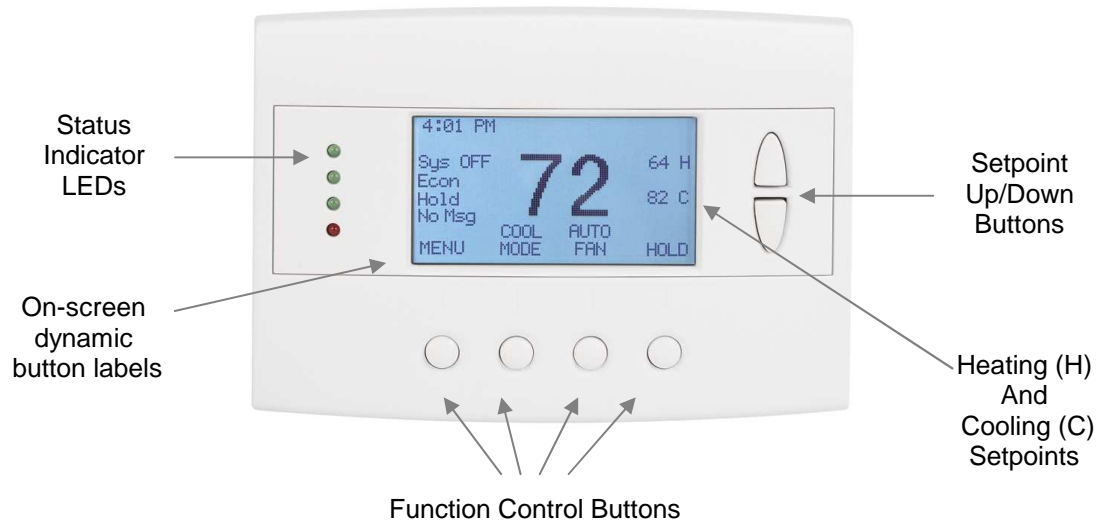
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RS485 Thermostat

The TR60 thermostat provides typical thermostat control of a central heating and cooling HVAC system plus has the added feature of RS485 communications for remote control. The TR60 is a two part thermostat with a Wall Display Unit and a HVAC Control Unit.

The Wall Display Unit (WDU) has a large, backlit graphical display, control buttons, status LEDs and a temperature sensor. The WDU can display multiple screens for different functions of the thermostat. In the default thermostat control screen, shown below, it displays the current room temperature, heating and cooling setpoints, system mode, manual fan mode, time, and status information.



Display operation

Thermostat control screen

Normally the thermostat displays the thermostat control screen as shown above. Using the “Menu” button, you can access other screens and functions of the thermostat.

Minimized Display Mode

Optionally, you can set the thermostat to show only the temperature in a “minimized” display mode. This mode can be set on or off in the thermostat “Users Settings” menu.

Backlight

The thermostat has a backlit display for low light and night visibility. It can be set to remain on constantly, or to turn off after a 20-120 second delay. These are selectable in the User Settings menu.

Status LEDs

The thermostat has four LED’s that displays status information. The LEDs have dynamic “on-screen” labels that change with the screen being displayed.

Function Control Buttons

The thermostats buttons are “Soft Keys” meaning that they change functions when you change screens. The function of the button is defined by “on-screen labels” that are dynamic and change when you change screens

Thermostat Control Screen

Minimized Screen



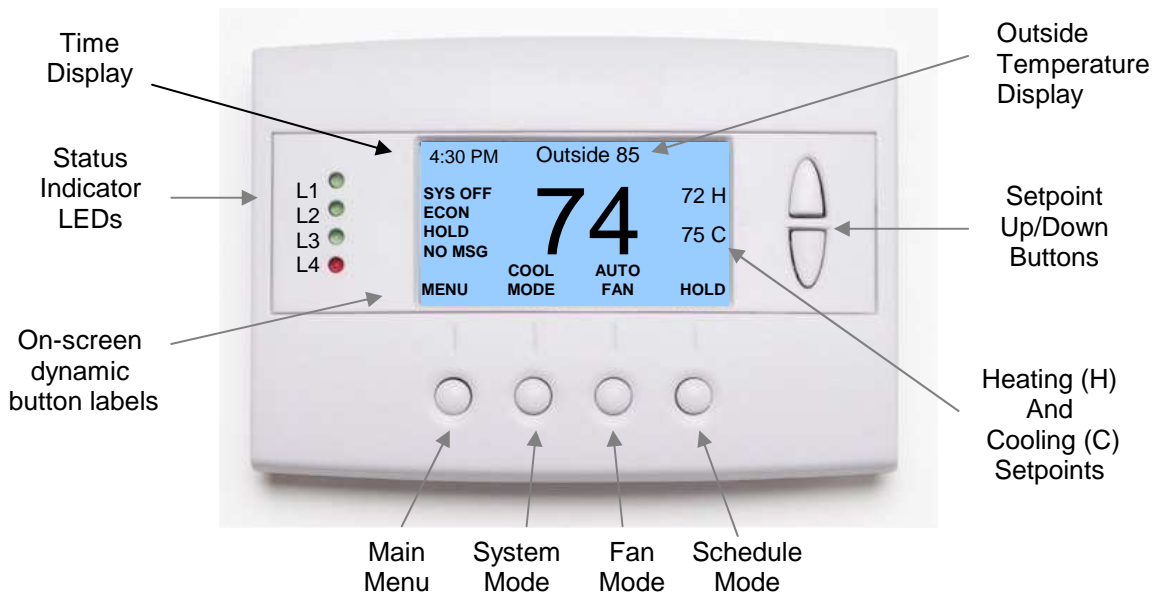
The Minimized Screen shows only the room temperature.

It is displayed if you set the "Screen Timeout" in the User Settings Menu to a time greater than 0.

If set to 0, the minimized screen is disabled, and the main thermostat screen is normally displayed

Press any button to return to the thermostat control screen

Main Thermostat Control Screen



The main Thermostat Control Screen is the screen that is normally displayed on the thermostat.

Temperature Display

The thermostat will normally display the current room temperature from the internal temperature sensor (or a remote sensor, if installed).

Outside Temperature Display

If the thermostat has an outside temperature sensor installed, the outside temp will be displayed.

Setpoint Display

The current heating and cooling setpoints are displayed next to the Setpoint Up/Down buttons.

Thermostat Operation Buttons

Pressing these buttons will take you to the following screens:

- **Menu** – go to the Main Menu Screen to select other thermostat settings screens.
- **System Mode** – go to the System Mode screen to set thermostat operating mode.
- **Fan Mode** – go to the Fan mode screen to set the fan mode.
- **Schedule Mode** – go to the Schedule mode screen to set schedule mode or setback.

Setpoint Up/Down Buttons

Press either the Up or Down buttons to go to the Heating or Cooling Setpoint screen.

NOTE: If the thermostat is in the OFF mode, pressing the setpoint Up/Down buttons will take you to the System Mode Screen. You must first select an operating mode to be able to change the setpoint for that mode.

Time Display

The current time is displayed in the upper left corner of the main screen. Set the clock from the User Settings Menu. The time will blink when the clock has not been set.

LED Displays

The Thermostat Control Screen has the following LEDs and on-screen labels.

LED L1 Green: System Operation mode.

- "SYS OFF" displayed > HVAC system is OFF. LED Off.
- "SYS MOT" displayed > Minimum Off Time (MOT) delay On is active. LED Off.
- "HEAT ON" displayed > HVAC system is heating. LED On.
- "COOL ON" displayed > HVAC system is cooling. LED On.
- "HEAT MRT" displayed > HVAC system is Heating and Minimum Run Time (MRT) delay off is active. LED On.
- "COOL MRT" displayed > HVAC system is Cooling and Minimum Run Time (MRT) delay off is active. LED On.

LED L2 Green: System Stage mode

- No Display > system is off. LED Off
- "1st Stg" displayed > Stage 1 heating or cooling is on. LED Off.
- "2nd Stg" displayed > Stage 2 heating or cooling is on. LED On.
- "3rd Stg" displayed > Stage 3 heating is on. LED On.
- "EHEAT" displayed > Emergency Heat mode selected (for Heat Pump systems). LED flashing.

LED L3 Green: Schedule mode. Shows state of Schedule Run/Hold Mode.

- "Run" displayed > Setback schedule is running. LED Off.
- "Hold" displayed > Schedule is off, temperature setpoint hold in effect. LED On.
- "Home" displayed > Home Setback mode is on. LED flashing.
- "Away" displayed > Away setback mode is on. LED flashing.
- "Vac" displayed > Vacation setback mode is on. LED flashing.

LED L4 RED: Alert LED. Used for system alerts

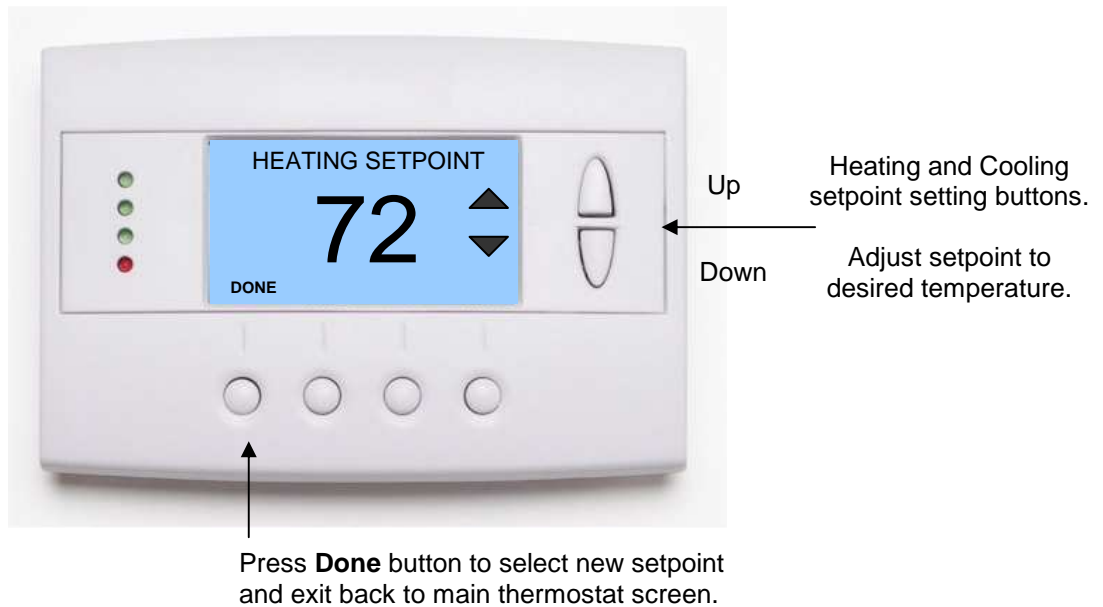
- No display > No alerts. LED Off.
- Alert Text displayed > Specific alert text (Filter, Maint). LED On.
- "No Msg" displayed > If messaging enabled, msg indicators will be displayed. LED flashing.

Setting Heating or Cooling Setpoints

Setpoint Up and Down Buttons

Press either the Up or Down button in the main Thermostat Control Screen to go to the current system operating mode (Heating or Cooling) Setpoint screen, as shown below.

Heating /Cooling Setpoint Adjustment Screen



The **UP** and **DOWN** buttons adjust the setpoint temperature. Pressing the UP button will increment the setpoint value by one degree and conversely, pressing the Down button will decrement the setpoint one degree. Pressing and holding a button will cause the setpoint to continuously change until the button is released.

Setpoint Range: The setpoints can be set from 50°F to 90°F (4°C to 32°C) for heating or 55°F to 99°F (10°C to 37°C) for cooling.

Setpoint Push: Note that you cannot lower the cooling setpoint below the heating setpoint. The thermostat will “push” the heating setpoint lower if you try to lower the cooling setpoint below the heating setpoint. It maintains a 4 degree separation between the heating and cooling setpoint. The same is true for raising the heating setpoint above the cooling setpoint. Again the thermostat will “push” the cooling setpoint up to maintain the 4 degree separation. (Setpoint delta is adjustable in the Installer Settings)

NOTE: *If the system mode is OFF, pressing either the Up or Down buttons will take you to the System Mode screen. You must first set an operating mode before you can change the setpoints.*

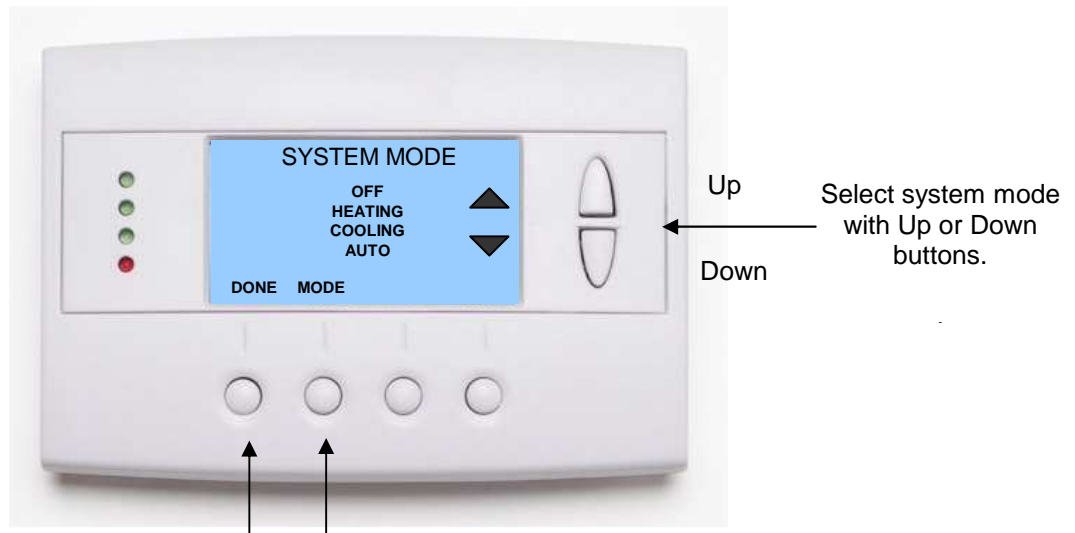
To change the Heat Setpoint you must be in Heating mode, to change the Cool Setpoint you must be in the Cooling mode. If you are in Auto mode, the mode of the last system call will be the setpoint screen displayed.

Setting the System Mode

In the main Thermostat Control Screen, press the System Mode button to display the System Mode selection screen, as shown below.

Select the mode desired with the Up/Down buttons. Press the Done button to select and exit.

System Mode Screen



Press **DONE** button to select mode and exit back to main thermostat screen.

Pressing the **MODE** button will also step through the mode selections.

Mode Operation

OFF Mode: System is off. No heating or cooling will come on. If system was on, it will turn off.

HEATING Mode: Only heating will occur.

COOLING Mode: Only cooling will occur.

AUTO Mode: Heating or cooling will come on according to the heating and cooling setpoints. The system will automatically switch between heating and cooling modes as needed to maintain the setpoints.

Special Heat Pump Mode

EHEAT Mode: An additional system mode, "EHEAT" for Emergency Heat will be displayed if the HVAC system type is set to Heat Pump. If there is a compressor failure with the Heat Pump system, setting the mode to EHEAT will allow the stage 3 supplemental or aux heat (W1) to come on first whenever there is a call for heating. It also disables the compressor outputs (Y1/Y2) to prevent further damage to the HVAC system.

Setting the Fan Mode

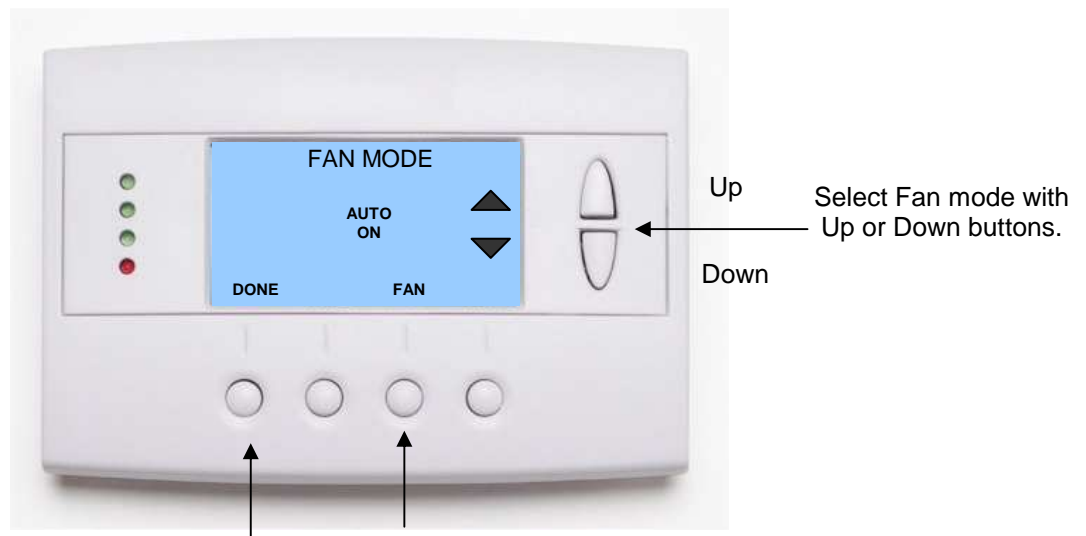
The **FAN** button controls the HVAC system's **MANUAL** fan mode. The current manual fan mode is displayed above the button, Auto or On.

Normally the FAN mode is in the Auto mode (the system fan is automatically controlled by HVAC system). If you want the FAN on manually, select the ON mode. The fan will run continuously until it is turned off by selecting AUTO mode.

In the main Thermostat Control Screen, press the FAN button to go to the FAN MODE selection screen, as shown below.

Select the mode desired with the Up/Down buttons. Press the Done button to select and exit.

Fan Mode Screen



Press **DONE** button to select mode and exit back to main Thermostat Control Screen.

Pressing the **FAN** button will also step through the fan modes.

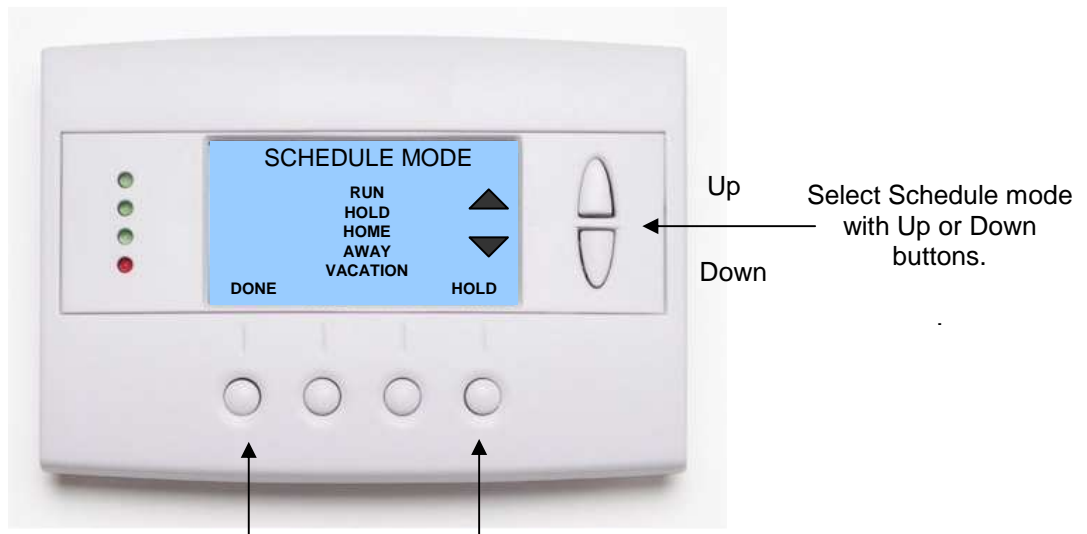
Setting the Schedule Mode

The **Schedule** button sets the schedule operation to RUN or HOLD mode. It also allows you to select three different setback modes, HOME, AWAY and VACATION.

Pressing the Schedule button in the main Thermostat Control Screen will take you to the SCHEDULE MODE menu screen as shown below.

Select the mode desired with the Up/Down buttons and press the Done button to select and exit.

Schedule Mode Screen



Press **DONE** button to select mode and exit back to main thermostat Control screen.

Pressing the Schedule button will also step through the Schedule modes.

Schedule Modes:

RUN Mode. In the run mode, the thermostat schedule is running and setpoints will change according the times and temperatures in the internal schedule.

HOLD Mode. This holds the current temperature setpoint settings. The schedule operation is disabled.

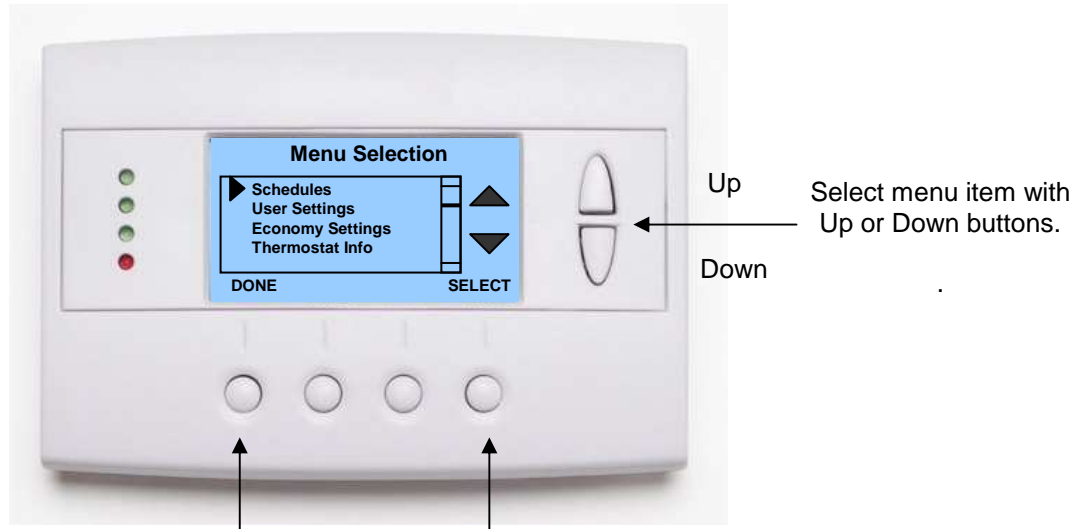
HOME Mode. This is an energy saving setback mode. When selected, the HOME mode setback heating and cooling setpoints are used. It also inhibits schedule operation. HOME mode setpoints are set in the Main Menu "Economy Settings" submenu.

AWAY Mode. This is an energy saving setback mode. When selected, the AWAY mode heating and cooling setback setpoints are used. It also inhibits schedule operation. AWAY mode setpoints are set in the Main Menu "Economy Settings" submenu.

VACATION Mode. This is an energy saving setback mode. When selected, the VACATION mode heating and cooling setback setpoints are used. It also inhibits schedule operation. VACATION mode setpoints are set in the Main Menu "Economy Settings" submenu.

The Menu button on the main Thermostat Control Screen selects the MAIN MENU screen. The Main Menu is a list of the primary thermostat setting screens. Selecting these items will take you to additional submenu screens for specific settings.

Note: Some Menu items are optional and may or may not show up in the Main Menu list, depending on whether or not they have been enabled in the Installer Settings.



Press **DONE** button to exit back to main thermostat screen.

Press **SELECT** button to go to the submenu screen.

Main Menu Selections

Schedules. This screen is used to view and set the programmable setback schedules of the thermostat.

User Settings. This screen is used to set the Clock, Filter Service, Maintenance Service, Screen Timeout, F/C mode, Sensor Calibration and Backlite/Display settings.

Economy Settings. Sets the energy savings Home, Away and Vacation setback heating and cooling setpoints.

Thermostat Info Screen: This screen shows the firmware versions of the Thermostat's Wall Display Unit and HVAC Control Unit, HVAC system type setup and RS485 network address.

Optional Menu Items.

For these to show up in the main menu list, they must be enabled in the Installer Settings.

SmartVent. Control screens for the optional SmartVent fresh air venting system.

Messaging. A messaging system to send messages to the TR60 via the RS485 network.

Thermostat Schedule Selection

The thermostat has a day and time heating and cooling setpoint temperature adjustment scheduler. It provides a 4x7 schedule, which has four times a day for each day of the week, for which separate heating and cooling setpoints can be programmed.

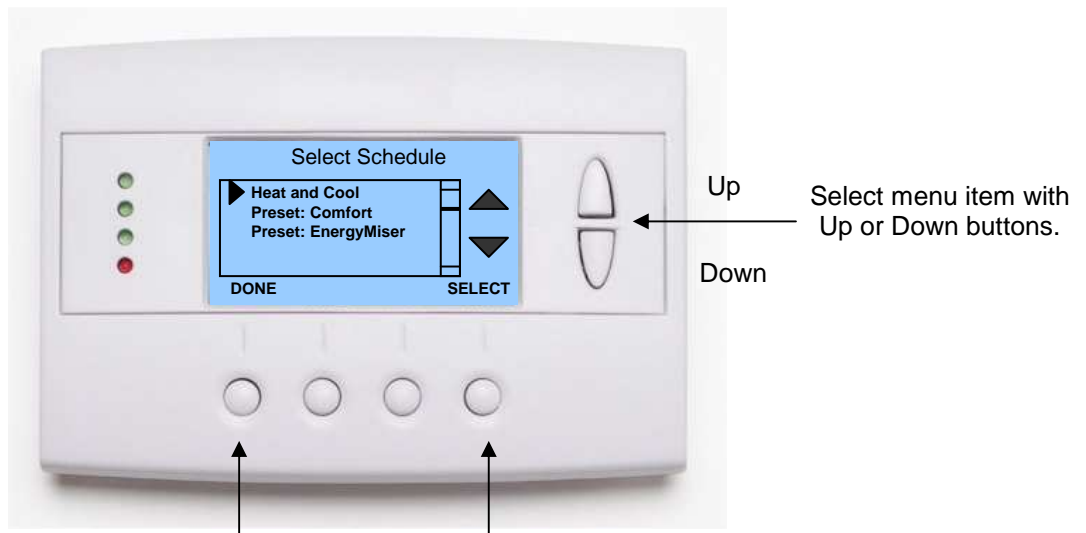
When the schedule mode is set to "Run" mode, the programmed heating and cooling setpoint will be changed daily according to the schedule.

When set to "Hold" mode, the schedule operation is stopped and the thermostat holds the current setpoints until changed manually or by network commands.

The thermostat come preloaded with the "Comfort" schedule. The user can customize this schedule as desired for each day, time and heating/cooling setpoint. There are also two preset preprogrammed schedules that can be reloaded at any time.

From the Main Menu screen, select Schedules to go to the Select Schedule screen. Using the Up/Down buttons, select to edit the existing Heat and Cool schedule, or to select one of the two preset schedules. Press Select button go the schedule edit or load screen. Press Done button to return to the Main Menu.

Schedules Screen



Press **DONE** button to exit back to main thermostat screen.

Pressing **SELECT** button will also step through the schedule options.

Menu Options

- **Heat and Cool:** You can change the individual day/hour and setpoints for the Heating and Cooling schedule by selecting this menu item.
- **Preset: Comfort:** This is a preset schedule with mild setbacks. Select this menu item to load the Comfort schedule into the thermostat. Confirmation screen will be displayed for Yes/No entry.
- **Preset: EnergyMiser:** This is a preset schedule with deeper setbacks. Select this menu item to load the EnergyMiser schedule into the thermostat. Confirmation screen will be displayed for Yes/No entry.

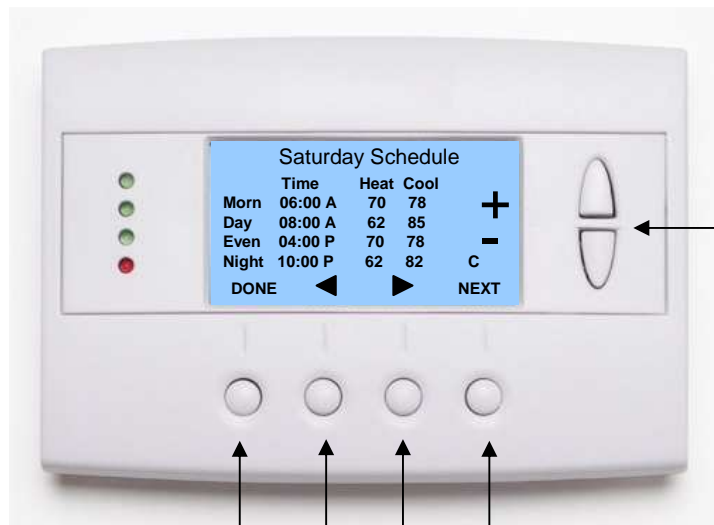
Main Menu - Schedules - Heat and Cool Schedule Screen

Schedule Edit Screen

When you select the Heat and Cool menu item in the Schedules screen, the “day” schedule programming screen opens and the schedule for the current day will be displayed. You can navigate around to the time and setpoint temperatures in each of the four daily time groups, and adjust as desired.

When done with one day, you can move to the next day by pressing the “Next” button. When done editing the schedule, press the “Done” button to save all changes and exit back to the previous screen.

Schedule Edit Screen



Increase or decrease the time or temperature setting with the Up/Down buttons.

Press **DONE** button to exit back to Main Menu screen.

Press **NEXT** button to go to the next day (or if Copy is selected, go to Copy Schedule screen).

Use the scroll buttons to navigate forwards or backwards through the time and temperature settings.

Schedule Editing

Use the left/right scroll buttons to highlight the time or temperature to be modified. Once the data has been highlighted, use the +/- buttons to change the value of the data.

Press the “Next” button to go to the next day’s schedule.

When done editing, press the “Done” button to save changes and exit.

Copy a schedule to another day.

To copy a days schedule to another day or group of days, move the cursor to “c” on the bottom right of the schedule screen. When you highlight the “c”, the button below will become “Copy”. Press this button to change to the Copy Schedule Screen.

Main Menu - Schedules - Heat and Cool - Copy Schedule

Copying a Day Schedule to another Day

The Copy Schedule screen allows you to copy one day's schedule to another day or group of days.

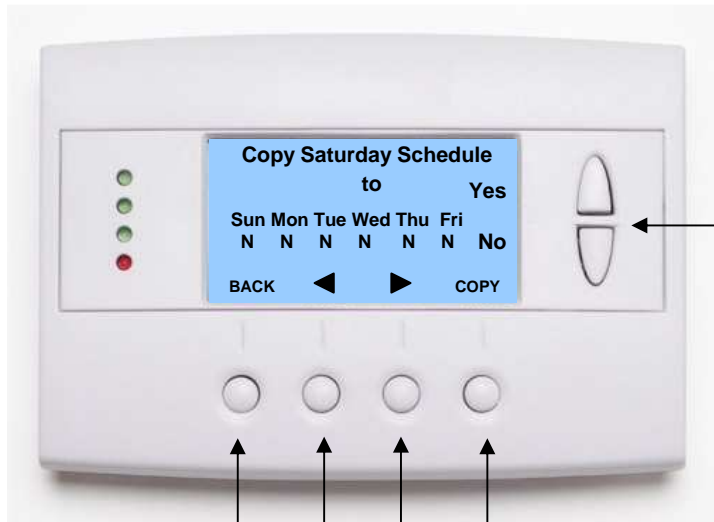
First **select the day** to be copied in the previous Heat and Cool, Edit Schedule screen. Scroll to the "c" at the bottom of the day's Schedule screen to highlight it. The "Next" button will change to the "Copy" button. Press the "Copy" button to open the Copy Schedule screen, as shown below.

Scroll through the days and select which days you want to copy the selected day's schedule to by changing the "N" under each day to "Y" by using the Yes/No buttons.

After selecting all the days desired, press the "COPY" button.

Press the "BACK" button save the schedule changes and exit back to the previous screen.

Copy Schedule Screen



Select Yes or No for each day to copy schedule to using Up/Down buttons.

Press **BACK** button to exit back to day schedule screen.

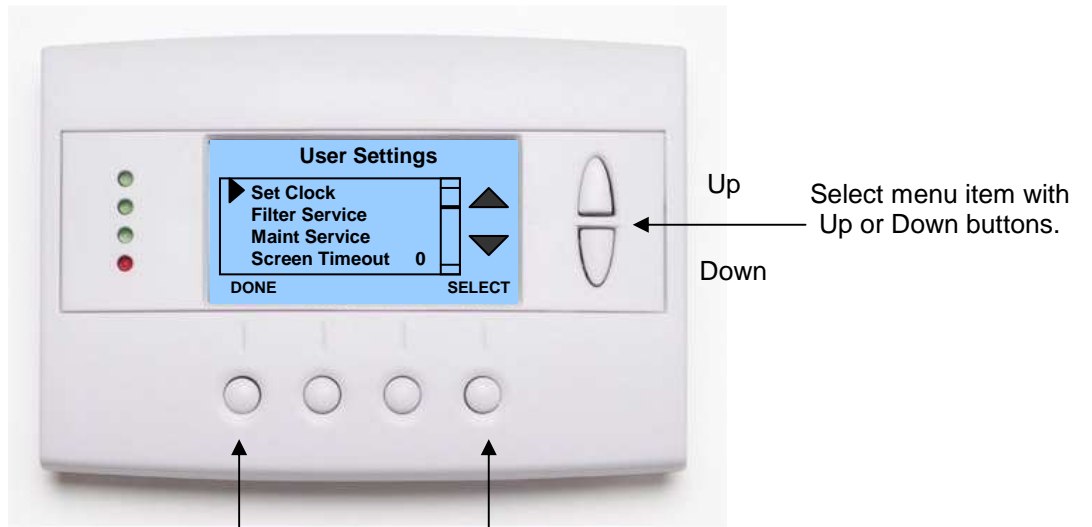
Press **COPY** button to copy the schedule to the days with Y selected.

Use the scroll buttons to navigate forwards or backwards through the days of the week.

Main Menu - User Settings

The User Settings screen allows you to set or change various user options of the thermostat such as the Clock, Filter and Maintenance service timers, Minimized Screen timeout, Fahrenheit/Celsius mode, Sensor Calibrations, and Display settings.

User Settings Screen



Press **DONE** button to exit back to Main Menu screen.

Press **SELECT** button to go to the submenu screen.

Menu items:

Set Clock: Go to the Clock setting screen.

Filter Service: Go to the Filter Service Screen. Sets/resets the filter timer/alert.

Maint Service: Go to the Maintenance Service Screen. Sets/resets the maintenance timer/alert.

Screen Timeout: Set the display timeout time in seconds. Options are 0 or 15 to 120 (default set to 0 seconds). This is the time before the main thermostat screen reverts to the **Minimized Screen** (temperature display only), after the last button press. Minimized Screen feature is disabled by setting this time to "0".

F/C Settings: Go to the F/C Settings Screen. Select which temperature display mode you desire, Fahrenheit (F) or Celsius (C).

Sensor Calibration: Go to the Sensor Calibration Screen. This screen allows you to set the calibration of the internal and remote temp sensors.

Backlite/Display: Go to the Backlite/Display settings screen. This menu allows you to set the backlight timeout period and adjust the display contrast.

Main Menu - User Settings - Set Clock

The Set Clock screen allows you to set the Thermostat's internal clock.

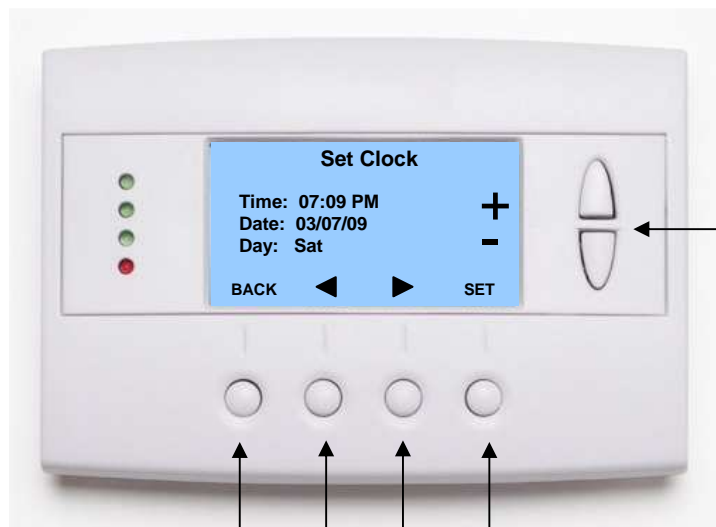
To set the Time and Date, move the cursor with the navigation arrows until the data you want to change is highlighted.

Using the + and – buttons to increment or decrement the data to the desired setting.

When finished, press the **SET** button to return to the Main Menu screen or wait for screen to timeout.

NOTE: If the clock has been reset by an extended power outage, the Clock display on the thermostat screen will be blinking. Pressing the MENU button will take you directly to this screen to set the clock.

Set Clock Screen



Increase or decrease the time or date setting with the Up/Down buttons.

Press **BACK** button to exit back to User Settings screen **without setting the time.**

Press **SET** button to set the time and Exit.

Use the scroll buttons to navigate forwards or backwards through the time and date settings.

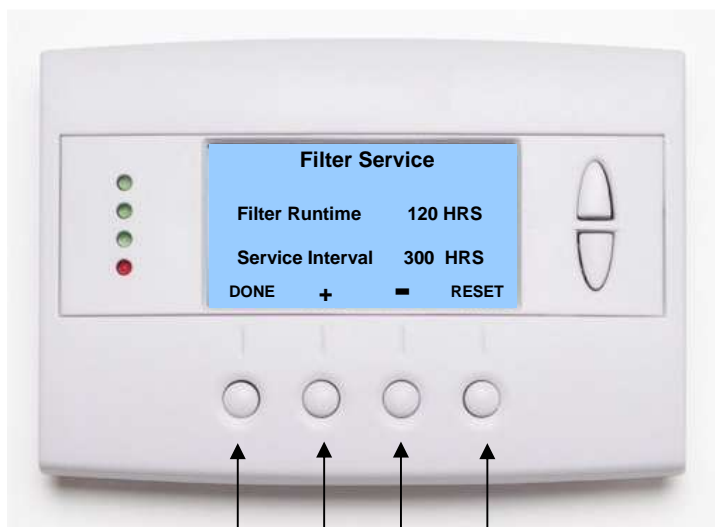
Main Menu - User Settings - Filter Service

The Filter Service screen will show the accumulated Filter Runtime hours as well as the Service Interval that will be used to trigger a Filter Message. Any type of HVAC operation that causes the HVAC system fan to run will cause the Filter Runtime value to increase.

When the Runtime hours equals the Service Interval hours, the Red LED will flash along with a "Filter" message to remind you to replace the filter. Pressing the Menu button will take you to the Filter Service screen. Once the filter has been replaced, press the Reset button to reset the Filter Runtime value to zero.

The Service Interval period can be changed using the +/- buttons.

Filter Service Screen



Press **DONE** button to exit back to User Settings screen.

Press **RESET** to reset the runtime counter and exit.

Use +/- buttons to increase or decrease the service interval hours.

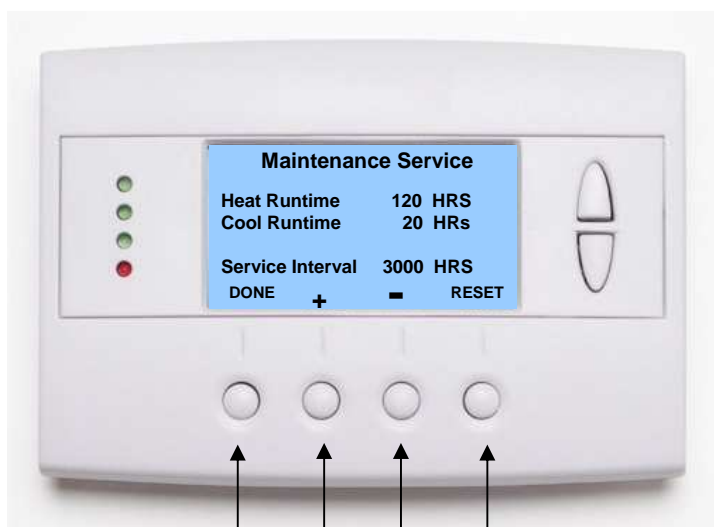
Main Menu - User Settings - Maint Service

The Maintenance Service screen will show the accumulated Heat and Cool Runtime hours as well as the Service Interval that will be used to trigger a Maintenance Message. Any HEAT or COOL type of HVAC operation will cause the respective Runtime values to increase.

When the combined HEAT and COOL Runtime hours equals the Service Interval hours, the Red LED will flash along with a "Maint" message to remind you your HVAC system may require periodic maintenance. Pressing the Menu button will take you to the Filter Service screen. The Reset button can be pressed and the HEAT and COOL Runtime values will be reset to zero.

The Service Interval period can be changed using the +/- buttons.

Maintenance Service Screen



Press **DONE** button to exit back to User Settings screen.

Press **RESET** to reset the runtime counters.

Use +/- buttons to increase or decrease the service interval hours.

Main Menu - User Settings - Sensor Calibration

The Sensor Calibration screen allows you to change the temperature calibration of the internal temperature sensor, a remote sensor or the outside sensor. You can change the temperature calibration by +/- 7 degrees.

When the Sensor Calibration screen is selected it will show the current temperature calibration of the internal and any connected remote or outside sensors. If the sensor shows n/a, that indicates that the control unit did not detect it, presumably because it is not installed/connected. If a remote or outside sensor is installed and it shows up as n/a, then something is wrong. Check wiring/connections.

The current calibrated temperature for the sensor is shown in the brackets, like the (75) in the example screen shown below. Following the current temperature is number of degrees of offset that is applied.

Changing Sensor calibration.

To change the sensor calibration, use the Up/Down buttons to select the sensor to be calibrated. Once selected, use the + and - buttons to change the temperature calibration to the desired setting.

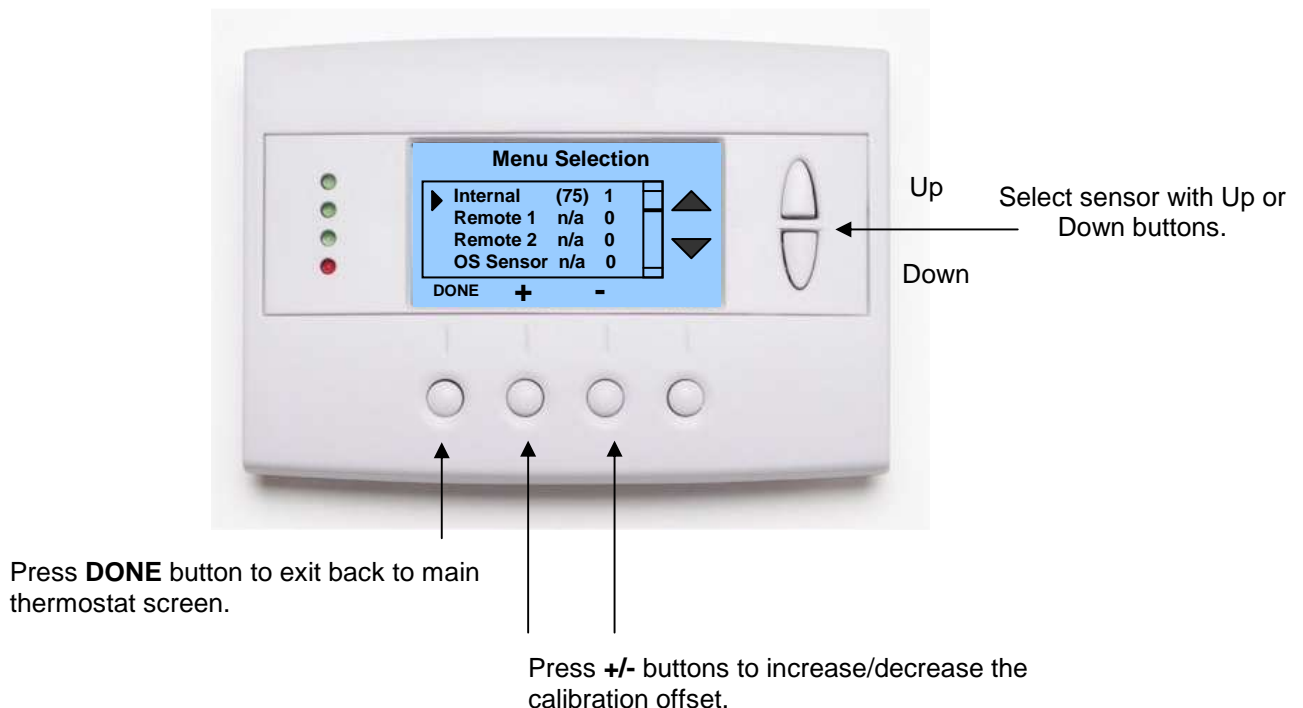
The value shown in the brackets, (xx), is the new calibrated or offset temperature that you want the sensor to show.

For example, if the internal sensor is showing 75 degrees, like the (75) in the example screen below, and you want the temperature to show 76 degrees, press the + button so that the bracket shows (76). The offset would increase from 1 to 2 in this example.

Note: When you open the sensor calibration screen, it takes a snap shot of the current sensor temperatures. This can change while you are in the screen, so if you want to refresh the information being displayed, press the refresh button (the button on the far right (blank)).

When you close this screen, it may take a few seconds for the temperature displayed on the main thermostat screen to update to the new calibrated temperature.

Sensor Calibration Screen



Main Menu - User Settings - Backlite/Display

The Backlite/Display screen allows you to set the Backlite timeout and contrast.

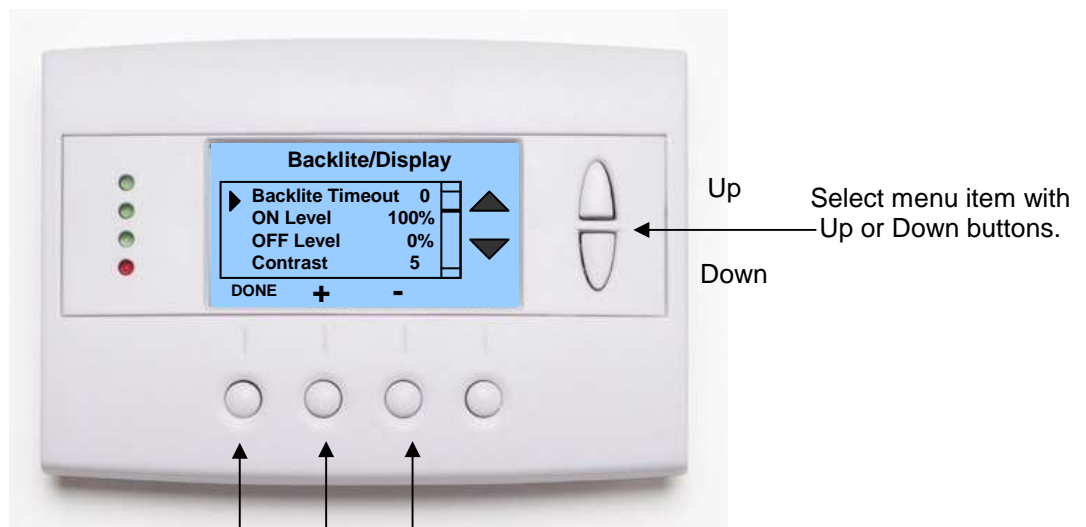
Backlite Timeout: Sets the time from last button press that the backlite will timeout and turn off. The timeout value is adjustable from 0 or 20 to 120 seconds. If set to "0", the Backlite will always be ON. If set in the range of 20 to 120 seconds, the Backlite will turn OFF after the selected time expires.

ON Level: You can vary the brightness of the backlite from 0 to 100%. The brightness varies in 10% steps.

OFF Level: The off level can be adjusted to a minimum level of light even in the OFF state.

Contrast: Sets the contrast level of the LCD display, adjustable from 0 to 10. Use this control to adjust the darkness of the display. Too light and the display looks faded, too dark and dark lines will appear in the display. Typically 5 is the best setting. Adjust as needed.

Backlite Settings Screen



Press **DONE** button to exit back to User Settings screen.

Press **+/-** buttons to increase/decrease the setting.

Main Menu - Thermostat Info

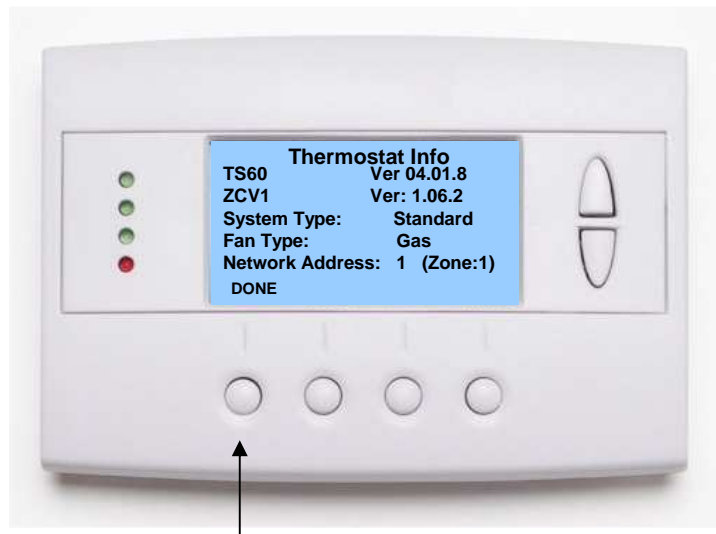
The Thermostat Info screen displays the current configuration of the TR60 Thermostat. This information is useful for quick check of firmware versions and HVAC system setup. It also shows the network address setting. Setup information can only be viewed on this screen and not changed. The HVAC system setup is set by the dipswitch SW1 on the HVAC Control Unit. The RS485 address is set in the “Installer Settings” menu.

Thermostat information displayed is:

- **Wall Display Unit** – Model and firmware version number.
- **HVAC Control Unit** – Model and firmware version number.
- **System Type** - Standard or Heat Pump HVAC system
- **Fan Type** (if HVAC type = Standard): Gas or Electric
OR
- **Changeover Type** (if HVAC type = Heat Pump): Changeover with cool or changeover with heat.
- **Network Address:** shows the RS485 address of the thermostat (and zone number if installed on a zone system)

When finished viewing this screen press the **Done** button to return to the main Menu screen or wait for screen to timeout.

Thermostat Info Screen



Press **DONE** button to exit back to Main Menu screen.

Main Menu – SmartVent (optional)

Note: this is an optional feature of the TR60. It must be enabled in the “Installer Settings” menu to appear in the Main Menu list. Go to Installer Settings/SmartVent to enable SmartVent.

SmartVent is an automatic fresh air ventilation system. It provides manual, timed, scheduled and automatic ventilation. Meets minimum fresh air requirements, improves indoor air quality and provides economized cooling.

Manual Venting turns ON the HVAC system’s fan and opens an outside air vent damper. Venting continues until the mode is set to OFF.

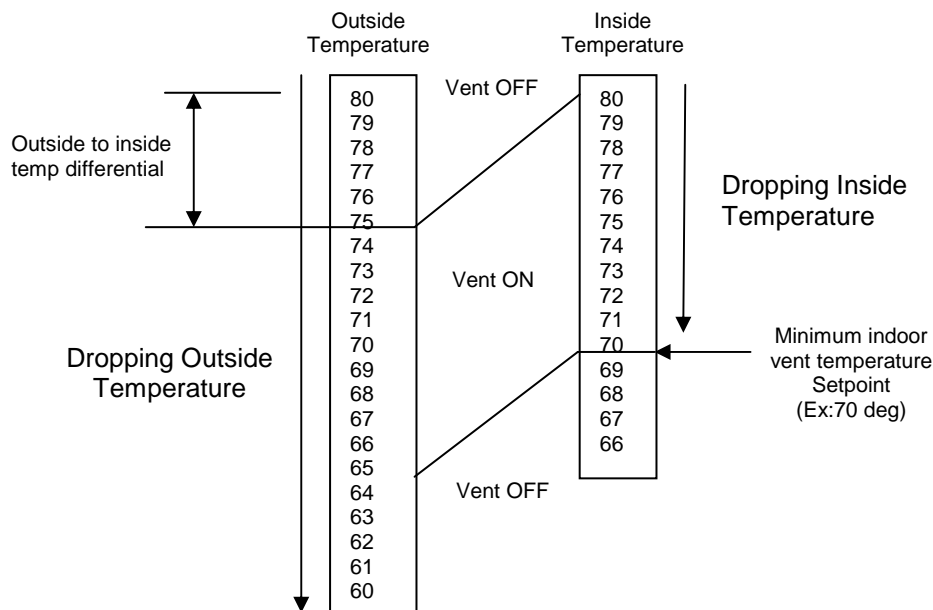
Timed Venting: Convenient one button push to start a time ventilation period. Subsequent button presses increment the vent period in 30 minute intervals to a max of 120 minutes. Venting turns off after the vent period times out.

Scheduled Venting: A daily venting schedule can be programmed. Provides four periods with a start time and a vent duration.

Automatic Venting: Set and forget automatic fresh air venting. In the auto mode, the venting will start and stop automatically when indoor and outdoor temperatures conditions are met.

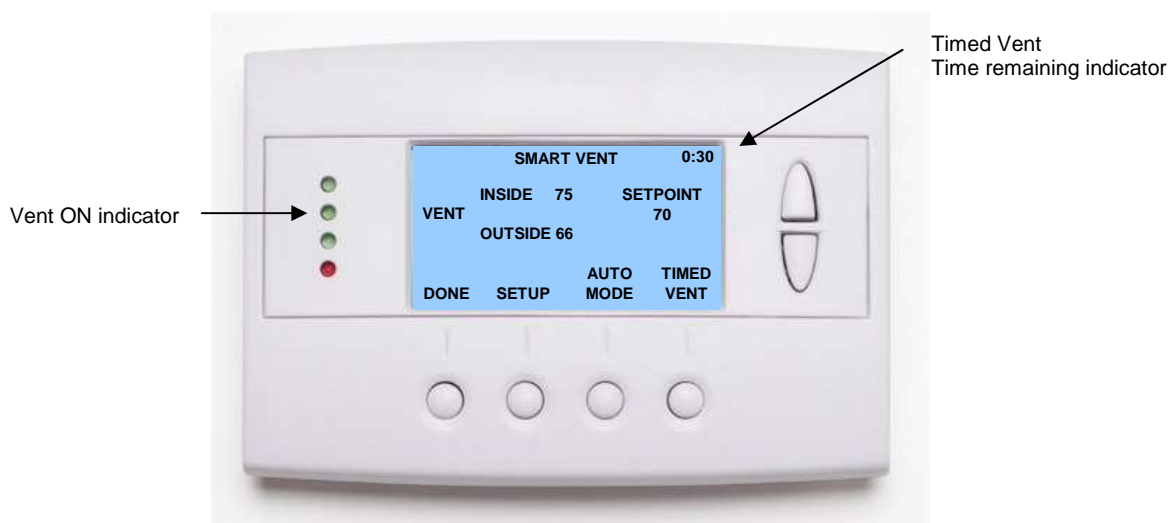
Automatic Operation

When the Smart Vent is set to Auto mode, the vent will turn **ON** when the outside temperature *drops* 5 degrees **below** the Inside temperature and turn **OFF** when the Inside temperature *drops* to the Vent Setpoint **or** the Outside temperature raises above indoor temperature.



Smart Vent Control Screen

The Smart Vent control screen shows the current Smart Vent information and allows you to select operating modes and other functions. The screen information and controls are shown below.



INSIDE Temp: Current inside temperature display

OUTSIDE Temp: Current outside temperature display

SETPOINT: Vent Setpoint (indoor temperature at which venting stops)

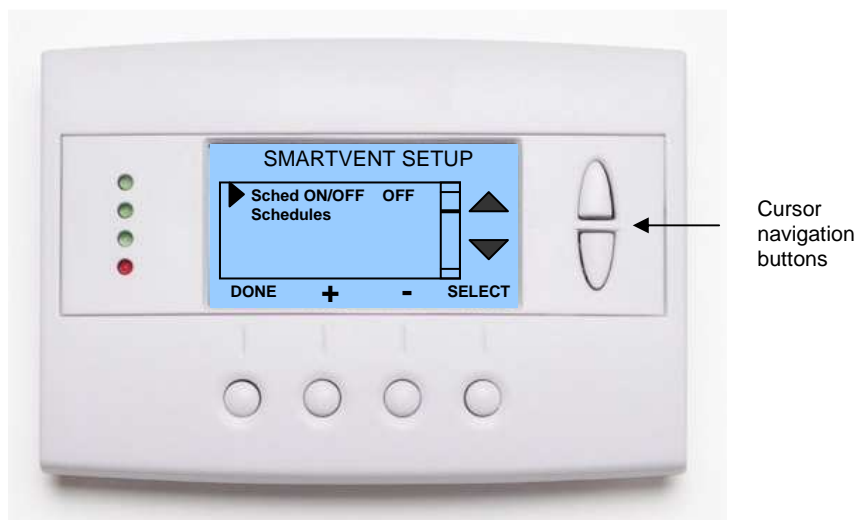
MODE Button: Selects the vent operating mode. Off, Auto or Manual

- Off Mode: no automatic vent operation
- Auto Mode: Will automatically vent if outside temperature is cooler than inside temperature and inside temperature is above the vent setpoint.
- Manual Mode: Turns on venting system. Stays on until set to Off mode.

TIMED VENT Button: This is a one button “quick vent” mode of operation. Pressing the Timed Vent button will turn on the venting system, run for 30 minutes and then turn off. Pressing the button again will add 30 minutes to the vent run time, up to 2 hours. Pressing one more time will turn the timed vent off. Timed Vent time remaining is displayed in the upper right hand corner of the display.

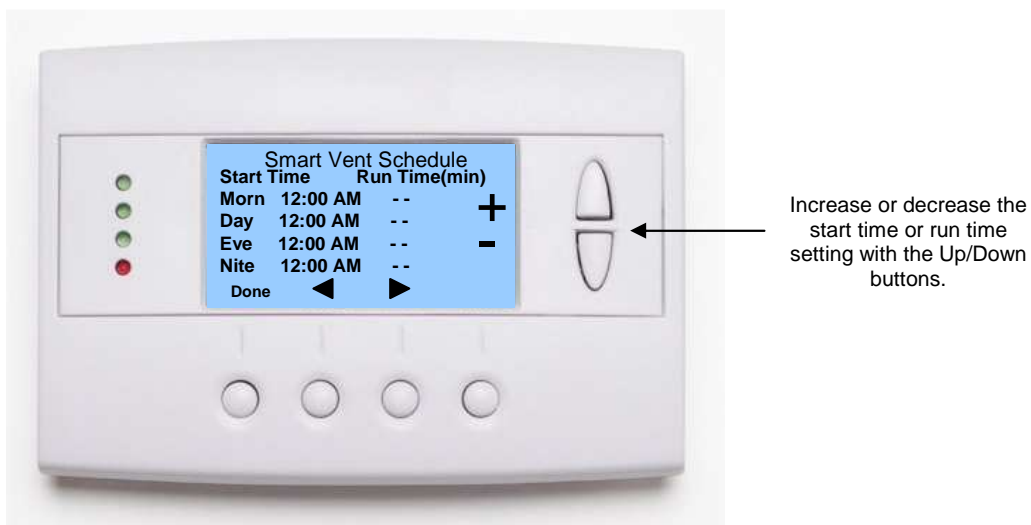
SETUP Button: Takes you to the Smart Vent Setup screen. The Smart Vent can be set to run on a daily schedule of run cycles. The Smart Vent Setup screen allows you to select the Schedule ON/OFF mode and set the daily run time Schedules.

Smart Vent Setup Screen



Select "Schedule ON/OFF" to set the vent schedule to "ON" or "OFF" mode by using the +/- buttons. Select "Schedules" to go to the Smart Vent Schedule Screen to enter Schedule Start and Run times.

Smart Vent Schedule Screen



Schedule Setup

There are four vent cycles per day that can be scheduled. You can use one or all of the vent cycles. To schedule a vent cycle, enter a start time and a run time. Use the arrow buttons to navigate to the desired start time or run time entry. Use the +/- buttons to set the desired start and run times.

Start Time: Enter the start time for the first vent schedule. Use arrow buttons to navigate to additional start times as desired.

Run Time: Use the + button to enter the run time for the vent cycle. Selectable in 5 minute intervals up to 90 minutes. Set to zero (-) run time to disable schedule entry.

Main Menu – Messaging (optional)

Note: this is an optional feature of the TR60. It must be enabled in the “Installer Settings” menu to appear in the Main Menu list. Go to Installer Settings/WDU options to enable Messaging.

Messaging

The TR60 thermostat has the option to receive and display text messages up to 80 characters in length via the RS485 network. The message screen features navigation buttons to read new and old messages and delete them.

Up to 16 messages can be stored in the thermostat. If more than 16 messages are received, the oldest is erased to make room for the newest message. New messages will turn on and flash the Alert LED and Mail Icon in the main thermostat screen.

Viewing messages makes them “old” and turns off the indicators. If you view some, but not all new messages, the new message notification LED and icon will stay on.

Message Screen



Message Navigation

When you first select the Message Screen, the most recently received message will be displayed as Message 1. If other messages are stored in memory, they can be recalled and viewed or deleted by using the message memory navigation buttons.

Next Button: View next message in memory.

Prev Button: View previous message in memory

Del Button: Delete the current message. (press an hold del to delete all messages)

Done button: Return to Main Menu screen.

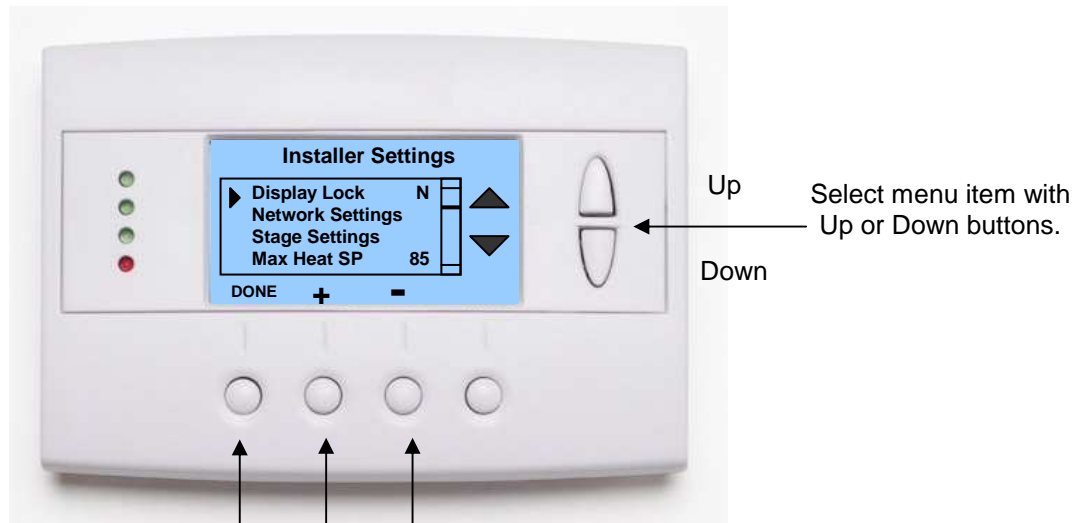
Main Menu > Installer Settings (Hidden Screen)

The Installer Settings screen is a hidden screen designed for installer use only. Do not change any settings in this screen unless you are a qualified service technician. Changing these settings will affect the operation of the heating/cooling system.

To enter this screen, go to the main menu selection screen and press and hold the two inner buttons for 3 seconds until the Installer Settings screen appears.

The Installer Settings screen displays the current internal settings of the thermostat. You can view and change the settings from this screen. Scroll to the desired function and use the +/- buttons to change.

Installer Settings Screen



Press **DONE** button to exit back to Main Menu screen.

Press **+/-** buttons to increase/decrease the setting.

Installer Settings Menu items

Display Lock

Range: Y or N

Default: N

Y = Display LOCKED

N = Display unlocked

Allows you to lock or unlock the thermostat buttons. When the buttons are locked, you can still access the main menu, but you will not be allowed to select any menu options. The Installer Settings hidden button operation is always operational, allowing you to return to this screen and turn Display Lock off.

Network Settings Submenu

Network Address: Range 1 to 254 Default: 1

Sets the RS485 network address.

0 is reserved for host address, 255 is a global address.

Network Type: Range: RCS or CDX Default: RCS

Protocol type selection: RCS is normal. CDX is a special protocol for direct connection to a GE NetworX NX8E security panel.

Autosend: Range: Y or N Default: N

In autosend mode, the thermostat will transmit any changes in temperature, setpoints or modes.

Stage Settings Submenu

H1 Stage Up Range: 0 – 30 minutes Default: 0 (0=disabled)

If setpoint is not met by the stage up time, a forced stage up to stage 2 heating occurs.

H2 Stage Up Range: 0 – 30 minutes Default: 0 (0=disabled)

If setpoint is not met by the stage up time, a forced stage up to stage 3 heating occurs

C1 Stage Up Range: 0 – 30 minutes Default: 0 (0=disabled)

If setpoint is not met by the stage up time, a forced stage up to stage 2 cooling occurs

Number of Heat Stages: Range: 1-3 Default: 2

Number of Cool Stages: Range 1-2 Default: 2

Max Heat SP Range: 40F to 109F (5C-33C) Default: 85F (29C)

Sets the maximum heating setpoint value. Will not ramp or accept setpoints higher than this maximum.

Min Cool SP Range: 44F to 113F (9C-37C) Default: 50F (10C)

Sets the minimum cooling setpoint value. Will not ramp or accept setpoints lower than this minimum.

Minimum Run Time Range: 1- 9 Minutes Default: 3

Sets the minimum run time before a heating/cooling cycle can turn off.

Sets heating/cooling cycle time. Prevents rapid cycling.

Minimum Off Time Range: 5-9 Minutes Default: 5

Sets the minimum off time before another heating/cooling cycle can begin. Provides compressor short cycle protection.

SmartVent Submenu

Vent Enable Range: Y or N Default: N

Enables the SmartVent feature. SmartVent control screen will show up in the Main Menu.

Inside Temp Zone Range: 1-6 Default: 2 (defaults to 1 with the ZCV1)

Vent Time Range: 1- 99 seconds Default: 30

Vent Delta Range: 4-9 Default: 5

Vent MRT Range: 1-120 Default: 4

Vent MOT Range: 1-30 Default: 10

EQ Settings Submenu

Not Applicable to the ZCV1 control Unit

Security System Submenu

Security Enable Range: Y or N Default: N

Setback Enable Range: On or OFF Default: ON

Zone Fan Purge

Range: 0-120 seconds Default: 30

Delta T Settings

Note on Delta Settings : The Delta T setting is the delta, or difference, between the setpoint and current temp for determining when a heat or cool call comes on. The “delta” is the number of degrees away from the current setpoint.

H/C Delta Range: 0 - 15 degrees. Default: 4
 Sets the minimum separation between heating and cooling setpoints. Attempts to lower the cooling below the heating setpoint by this amount will PUSH the heating setpoint down to maintain this separation. Same for setting the heating setpoint above the cooling setpoint, it will PUSH the cooling setpoint up to maintain this separation.

Heating Delta Stage 1 ON Range: 1 to 8 degrees Default: 1
 Sets the delta below setpoint that stage 1 heating starts.

Heating Delta Stage 2 ON Range: 1 to 8 degrees Default: 3
 Sets the delta below setpoint that stage 2 heating starts.

Heating Delta Stage 3 ON Range: 1 to 8 degrees Default: 5
 Sets the delta below setpoint that stage 3 heating starts.

Cooling Delta Stage 1 ON Range: 1 to 8 degrees Default: 1
 Sets the delta above setpoint that stage 1 cooling starts.
 Cooling stage 1 turns on at: Setpoint + Delta Stage 1 On

Cooling Delta Stage 2 ON Range: 1 to 8 degrees Default: 3
 Sets the delta above setpoint that stage 2 cooling starts.
 Cooling stage 2 turns on at: Setpoint + Delta Stage 2 On

Fan Cyclers Submenu

The fan cyclers function cycles the HVAC system fan for an ON period followed by an Off period continuously. Used to provide minimum air ventilation requirements. When the Fan ON time is set to a value greater than 0, an additional "Cycler" FAN mode is present in the FAN Mode screen.

Fan ON Time Range: 0-120 minutes Default: 0 (=OFF)

Fan OFF Time Range: 0-120 minutes Default: 20

Remote Sensors Submenu

RS1 Type Range: A, Type 2, Type 3 Default: Type 2

RS2 Type Range: A, Type 2, Type 3 Default: Type 2

RS2 Location Range: IN only Default: IN

Splash Timer Range: 0-120 seconds Default: 0 (0=Off)
 Turns on the logo splash screen for 3 seconds every set interval.

WDU Settings Submenu

Messaging Enable Range: Y or N Default: N
 Enables messaging feature. Message screen shows up in the Main Menu when enabled.

Restore Defaults Submenu

Restore defaults? Range Y or N Default: N