



# Installation and Operating Instructions

Part No. 33ZCT58SPT

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## GENERAL

Carrier's T58 communicating room sensors are wall-mounted, low-voltage sensors which maintain room temperature by communicating with the controller that operates the HVAC (heating, cooling and ventilation) equipment. The T58 sensor provides a custom liquid crystal display (LCD) and 4 push-button allowing user interface and feedback capabilities.

During power interruption, the T58 sensor stores configuration parameters in non-volatile memory, allowing coordinated control to resume after power is restored.

NOTE: The T58 sensor must be installed on the same bus as the controller it is communicating with.

## INSTALLATION Package Contents

ITEM	QUANTITY
Sensor	1
Phillips Pan Head Wood Screws (6 x 1)	2
Wall Anchors	2

The T58 sensor is designed for wall surface mount or to mount to a horizontally installed standard junction box with field-supplied hardware. Mounting to a cinder block or cement wall requires appropriate field-supplied anchors. Provisions must be made to allow routing of wires behind the junction box.

**Field-Supplied Hardware** — The following hardware is field supplied:

- One 2 x 4-in. junction box for junction box installation
- Two 6 x 32 machine screws

**Power Requirements** — The T58 requires a 24vac power source (min. 18vac, max 30vac) at 2.4Va (maximum power draw). Carrier recommends a separate, dedicated transformer (24vac). However, power can be shared with another 24vac device. The location of the T58 relative to its target element will normally dictate the most effective power source. Power supply polarity must be maintained if power is shared between the T58 sensor and another communicating device. Failure to maintain polarity can result in serious damage to the T58 sensor or other devices in the system. Carrier recommends separate, isolated power sources for each T58 sensor installed.


**Step 1 — Sensor Location** — The sensor should be mounted:

- approximately 5 ft from the floor
- close to or in a frequently used room, preferably on an inside partitioning wall
- on a section of wall without pipes or ductwork
- where temperature operating limits are within 32 to 104 F (0° to 40 C)

IMPORTANT: Read entire instructions before starting the installation.

## SAFETY CONSIDERATIONS

Read and follow manufacturer instructions carefully. Follow all local electrical codes during installation. All wiring must conform to local and national electrical codes. Improper wiring or installation may damage sensor.

Recognize safety information. This is the safety alert symbol . When the safety alert symbol is present on equipment or in the instruction manual, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies a hazard which could result in personal injury or death. CAUTION is used to identify unsafe practices which would result in minor personal injury or property damage.

- where humidity operating range is within 10 to 95% relative humidity, non-condensing

The sensor should not be mounted:

- close to a window, on an outside wall, or next to a door leading to the outside
- where exposed to direct light and heat from a lamp, the sun, a fireplace, or any other temperature-radiating object which may cause a false reading
- close to or in direct airflow from supply registers or return air grilles
- in areas with poor air circulation (such as behind a door or in an alcove)

## Step 2 — Install Sensor

### ⚠ WARNING

Before installing sensor, turn off all power to the unit. There may be more than one power disconnect. Electrical shock can cause injury or death.

1. Turn off all power to unit.
2. If an existing thermostat or sensor is being replaced:
  - a. Remove existing thermostat or sensor from the wall.
  - b. Disconnect wires from existing thermostat. Do not allow wires to fall back into the wall. As each wire is disconnected, record wire color and terminal connection. New wire may be required to satisfy Carrier Comfort Network (CCN) requirements.
  - c. Discard or recycle old thermostat.

NOTE: Mercury is a hazardous waste and must be disposed of properly.

3. Remove sensor mounting plate to expose mounting holes.

**Step 3 — Wiring Requirements** — The input/output (I/O) specifications for the T58 sensor are in Table 1.

**CCN COMMUNICATION WIRING** — Use CMP (CL2P, CL3P) rated 3-conductor 18 to 20 gage foil-shielded cable for installation in or through plenum ceilings; otherwise, general-purpose CM rated 3-conductor, 18 to 20 gage foil-shielded cable may be used.

The T58 sensor can be wired anywhere in the network, providing it is on the same bus as its target element. The CCN bus connection must be wired with three conductor, twisted, shielded cable. The bus connection must be continuous and grounded in one and only one location. Refer to the CCN Installation and Start-Up Manual for more information.

NOTE: The T58 sensor must be connected to the controller that it is communicating with. See Fig. 1.

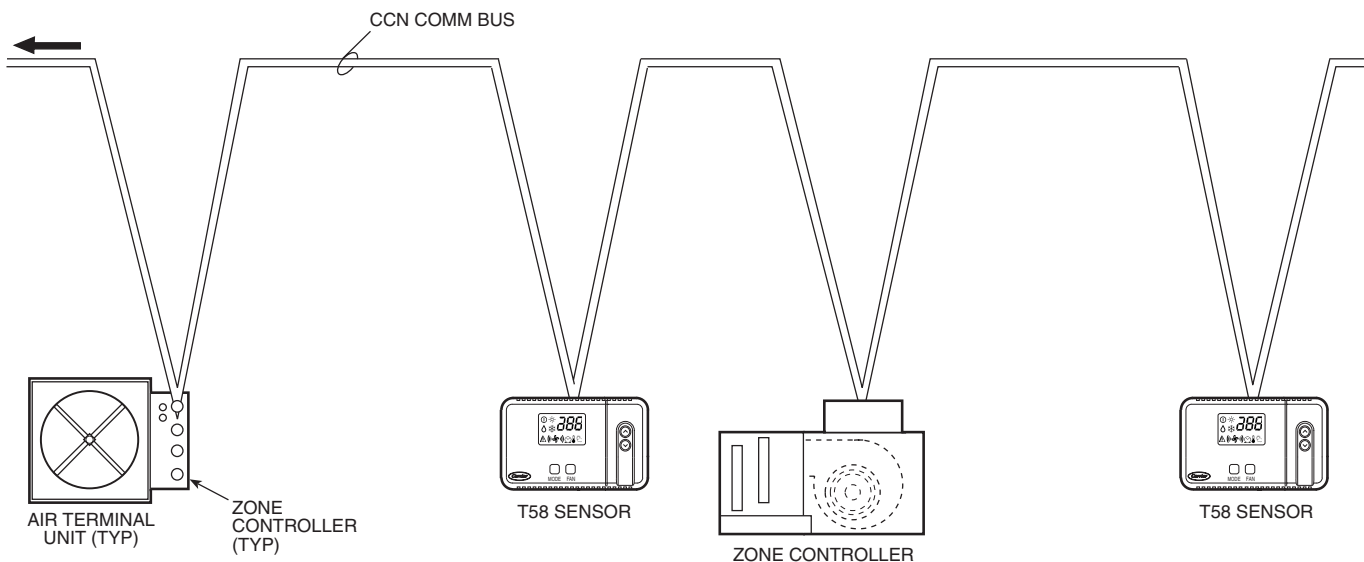
**POWER WIRING SENSOR TO CONTROL** — Power wiring must be routed separately from communications wiring. DO NOT run power and communications in a single, jacketed, multi-conductor cable. Power and communication wires should be separated by as much space as possible allowed by the installation constraints.

**Table 1 — T58 Input/Output Specifications**

I/O TYPE	# OF CIRCUITS	DESCRIPTION
Thermistor	1	10K ohms at 25° C (±3%), Type III curve
LCD	30 segments	3 backplane, 10 segment, 1/3 duty cycle, custom LCD.
Power and Comm I/O	1	6-position header with mating terminal block mounted in black plastic. Five positions used 24 VAC hot, 24 VAC common, and RS-485 +,- and ground connections.
Button Inputs	4	Four tactile buttons, INC ^, DEC v, MODE, and FAN.

LEGEND

LCD — Liquid Crystal Display



**Fig. 1 — Communicating Bus Wiring to Air Terminal Unit and Zone Controller**

## Step 4 — Mounting the Sensor

1. Unsnap plastic mounting plate on back of sensor.
2. Level mounting base against wall and mark wall through the 2 mounting holes in base.
3. Drill two  $\frac{3}{16}$ -in. mounting holes in wall where marked.

### ⚠ CAUTION

Be careful not to drill into wiring in wall. Electrical shock could result.

4. Secure mounting base to wall with 2 screws and anchors provided. Pull all wires through hole in mounting base.

## Step 5 — Wiring the Sensor

1. Turn OFF power to unit.
2. Adjust wire length and routing to allow proper closure of the sensor. Strip each wire at the end no more than  $\frac{1}{4}$ -in. to prevent adjacent wires from shorting together. Match and connect wires to terminals on the sensor. See Fig. 2.

### ⚠ CAUTION

Improper wiring or installation may cause damage to the sensor. Check to ensure wiring is correct before proceeding with installation of unit.

3. Push excess wiring into wall. Seal hole in wall to prevent drafts.
4. Snap sensor onto mounting plate.
5. Turn on power to unit. Turn on power to sensor power supply. Power consumption is less than 100 ma at 24 vac RMS.
6. Once the T58 sensor is powered up, all of the graphic icons on the LCD display will be energized for a few seconds. The graphical icons will then turn off and the T58 sensor will energize the three-digit numeric display. The value “58” will be displayed for two seconds. After 2 seconds, the LCD will display the default space temperature value.

### FIELD WIRING

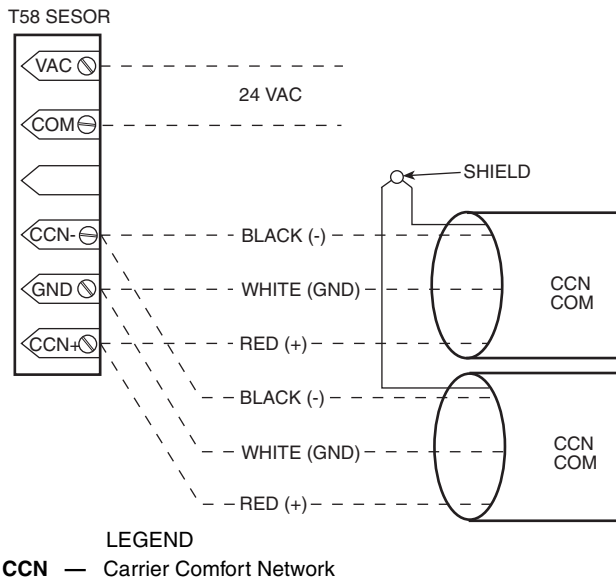


Fig. 2 — Daisy Chain Terminal Block Wiring

**Step 6 — Select/Change Installer Setup Options** — The FAN button will toggle the display between the installer setup option (i.e., “1—”, “2—”, etc.) and the stored value. The Increment/Decrement (INC/DEC) buttons change either the option or the selected value of the option, whichever is displayed at the time. The INC button (up arrow on sensor) will advance from the lowest option entry (1—) to the highest (10—) and the DEC button (down arrow on sensor) will move from the highest option entry (10—) to the lowest (1—). See Table 2.

1. To enter Installer Setup mode, hold the FAN button down for 5 seconds. After 5 seconds, a “1—” will appear in the LCD display, indicating that the user is setting the first option.
2. To check the value of option 1, press the FAN button again. The value will be displayed.
3. To change the current value, use the INC/DEC buttons.
4. To advance to the next option, press the FAN button again and “1—” will be displayed again.
5. Press the INC button to advance to the next option. Press the DEC button to return to the previous option. For example, if “2—” is displayed in the LCD, pressing the INC button will display “3—” on the LCD and pressing DEC will display “1—” on the LCD.
6. Press the MODE button to exit Installer Setup mode. This mode will exit automatically after 20 seconds if buttons are not pressed.

NOTE: Once an installer setup value is changed, the displayed value will be the new stored data for that selection. The only way to undo a change is to modify the item back to its original value.

If the Installer Setup Options mode times out while a value is displayed, then the last value displayed is what is stored for that Installer Setup Option.

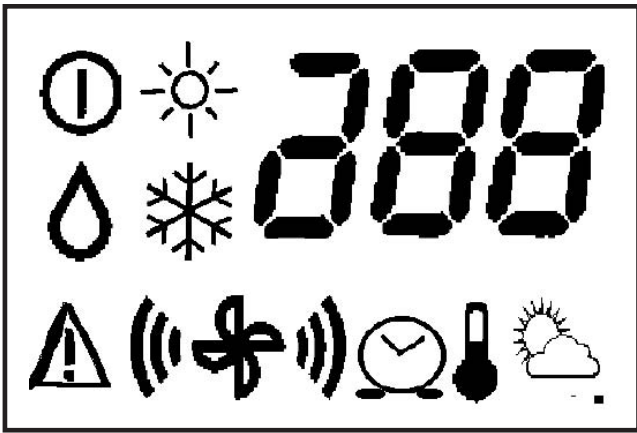
## Step 7 — Controller Operation

**DISPLAY SPACE TEMPERATURE** — The default display of the T58 sensor shows the sensed temperature from its on-board thermistor, which represents the Space or Room Air Temperature. Any configured “trim” from the attached device will not have an effect on this temperature value. See Table 3. This value is updated every second by the T58 software and is sent out to the attached device every minute or whenever its value changes by .3 F. Temperature values will be stored with a precision of .1 F. The Space Temperature value will also be sent to the attached device during any P-O-R (power on reset) operation.

If the on-board thermistor fails, then the LCD will display a value of “E1”, indicating that the thermistor is no longer working. The T58 sensor will continue to try to read the thermistor every second. The sensor will AUTO the Space Temperature Force in the attached device and detach itself whenever a Thermistor failure mode occurs.

**FAN COIL CONTROLLER** — To read the current fan speed:

To enter fan speed selection, press the FAN button while *not* in Installer Setup mode. The present fan position will be read in from the attached device. If the fan is OFF, then the FAN graphic with no curved lines will be displayed. See Fig. 3. If the fan is ON, then the graphic will show one set of curved lines around the fan to represent LOW SPEED, two lines for MEDIUM SPEED, and three lines for HIGH SPEED. See Fig. 3.



NOTE: Refer to Tables 4-6 for icon descriptions.

**Fig. 3 — T58 Sensor Display Icons**

To change fan mode when User Control Mode is enabled:

1. Press the INC/DEC buttons to cycle through the various FAN modes until reaching the desired fan setting. The modes will be displayed in the following wraparound order — OFF, LOW, MEDIUM, HIGH, and AUTO. AUTO mode can be set by the T58 sensor, but when reading the FAN mode, only the current fan speed or OFF will be displayed. AUTO mode will be indicated by a blinking “fan” icon with no curved lines.
2. Press the FAN button again to terminate the operation and send the new FAN mode value to the attached device. The selected “fan” icon will also disappear from view denoting the end of the operation. If no button is pushed for 10 seconds after initiating FAN mode, then the “fan” icon will disappear and no change will be implemented.

NOTE: Some fans may only be single-speed (OFF/ON) or two-speed (LOW/HIGH). In either of those cases, if the desired fan selection is higher than the top selection, the fan will be driven to its highest setting. As an example, if a single-speed fan is commanded to go to MEDIUM or HIGH SPEED, then that command will be interpreted to turn on the fan. If a two-speed fan is commanded to go to MEDIUM or HIGH SPEED, then that command will be interpreted to drive the fan to its highest possible speed setting.

AIR TERMINAL CONTROLLER AND ROOFTOP CONTROLLER — To read the current fan speed:

To enter fan speed selection, press the FAN button while *not* in Installer Setup mode. The present fan position is read in from the attached device. If the fan is OFF, then the “fan” icon without curved lines will be displayed. If the fan is ON the “fan” icon and the first set of bars will be displayed. Mode is enabled:

1. Press the INC/DEC buttons to cycle between the FAN ON, FAN OFF and AUTO. A blinking “fan” icon indicates AUTO mode (FAN only — no curved lines).
2. Press the FAN button again to terminate the operation and send the new FAN mode value to the attached device. If AUTO mode is selected, an auto command for the fan will be sent to the attached device. The selected “fan” icon will also disappear from view denoting the end of the operation. If no button is pushed for 10 seconds after initiating FAN mode, then the “fan” icon will disappear and no change will be implemented.

NOTE: If there is no attached device an error code of “E2” will be displayed in the numeric portion of the LCD area. See Table 7.

**IMPORTANT:** The blinking fan icon must be displayed for the fan to remain in AUTO mode. If not the fan will revert to the last displayed value when the increase or decrease buttons are pressed

READ CURRENT OPERATING MODE — Perform the following to read the current operating mode of the attached device:

1. Press the MODE button while *not* in Installer Setup mode. The present operating mode condition will be read in from the attached device. A graphical icon will represent the operating mode. See Fig. 3. A list of possible modes with the accompanying icons for different attached devices is shown in Tables 4-6. The current operating mode icon will be displayed for ten seconds then disappear denoting the end of the operation.

NOTE: If there is not an attached device or if the attached device is not supported by CCN, then an error code of “E2” will be displayed in the numeric portion of the LCD area. See Table 7.

2. Press the MODE Button. If there is not a response from the CCN communications request, then an error code of “E3” will be shown in the numeric portion of the LCD area. Any error indication will terminate after 10 seconds, and return to the default Space Temperature display.

**Table 2 — Installer Setup Options**

OPTION	VALUE RANGE	DEFAULT VALUE	FUNCTION	DESCRIPTION
1 —	0 - 239	0	T58 Bus Number	<ul style="list-style-type: none"> <li>This option allows the user to select the CCN bus number for the T58 sensor.</li> <li>The range of valid bus numbers is 0 to 239.</li> <li>The default value is 0. This function will support fast scrolling when the INC or DEC button is held down.</li> </ul>
2 —	1 - 239	1	T58 Address	<ul style="list-style-type: none"> <li>This option allows the user to select the CCN address for the T58 sensor.</li> <li>The range of valid address numbers is 1 to 239.</li> <li>The default value is 1. This function will support fast scrolling when the INC or DEC button is held down.</li> </ul>
3 —	96 19 38	96	Baud Rate: 96 = 9600 19 = 19.2K 38 = 38.4K	<ul style="list-style-type: none"> <li>This option allows the user to select the desired baud rate for the communications port.</li> <li>Valid entries include "96", "19" and "38". A value of "96" indicates 9600 baud, a value of "19" indicates 19.2K, and a value of "38" denotes 38.4K speed.</li> </ul>
4 —	F or C	F	Degrees Fahrenheit or Celsius	<ul style="list-style-type: none"> <li>This option allows the user to select unit of degrees displayed.</li> <li>C — indicates that all temperatures will be displayed in degrees Celsius.</li> <li>F — indicates that all temperatures will be displayed in degrees Fahrenheit.</li> <li>All displayed temperature values are automatically adjusted for the new temperature scale when this configuration item is altered.</li> </ul>
5 —	0 - 3	0	Attached Device Type: 0 = None 1 = Air Terminal 2 = Fan Coil 3 = Rooftop	<ul style="list-style-type: none"> <li>This option allows the user to select the specific device type to which this T58 sensor is being "attached".</li> <li>The range is limited in this product release to three valid CCN device types VAV Air or Fan Terminal, Fan Coil, and Retrofit Rooftop/Economizer.</li> <li>The default value is "0", which indicates there is no attached device configured.</li> </ul>
6 —	0 - 239	0	Attached Device Address	<ul style="list-style-type: none"> <li>This option allows the user to select the CCN address for the attached device.</li> <li>The range of valid address numbers is 1 to 239.</li> <li>The default value is 0, which indicates that the T58 sensor has not yet been attached to another device on the CCN. This function will support fast scrolling when the INC or DEC button is held down.</li> </ul>
7 —	0 - 1	0	User Control Mode: 0 = Disabled 1 = Enabled	<ul style="list-style-type: none"> <li>Setting the User Control Mode to "Disabled" prohibits the end user from modifying the Set Point values or changing the current Fan speed setting.</li> <li>Setting the User Control Mode to "Enabled" activates the thermostat for all functions.</li> <li>In all cases, the T58 sensor will allow a user to initiate the Time Schedule Override function.</li> <li>"0" will represent the User Control Disabled state and "1" will equate to User Control Enabled.</li> </ul>
8 —	-5 to +5	0	Thermistor trim (F)	<ul style="list-style-type: none"> <li>This value represents the adjustment (F) that is automatically applied to the on-board thermistor value. This setting is used to offset the actual temperature reading when the thermistor needs an adjustment to give a more precise reading.</li> </ul>
9 —	40-90	75	Heat setpoint Hi Limit	<ul style="list-style-type: none"> <li>This value represents the high limit when adjusting the heat setpoint.</li> </ul>
10 —	45-99	68	Cool setpoint Lo Limit	<ul style="list-style-type: none"> <li>This value represents the low limit when adjusting the cool setpoint.</li> </ul>

**NOTES:**

1. If the attached device type or device address is 0, all communications with the attached device will be disabled. An error indication "E2" will be displayed every five seconds whenever a communication is requested.

2. When the T58 sensor is first used, all communications are disabled because the default value for the Attached Device Type is "0", indicating that there is no attached device.
3. If the attached device type or address is changed, the T58 sensor will detach from the previous device by removing any forces it may have imposed.

**Table 3 — Temperature Sensor Resistance vs. Temperature Values**

TEMPERATURE		OHMS
F	C	
30	-1	34,480
32	0	32,630
34	1	30,760
36	2	29,220
38	3	27,470
40	4	26,020
42	6	24,680
44	7	23,320
46	8	22,070
48	9	20,910
50	10	19,830
52	11	18,820
54	12	17,870
56	13	16,920
58	14	16,160
60	16	15,260
62	17	14,530
64	18	13,790
66	19	13,090
68	20	12,480
70	21	11,860
72	22	11,270
74	23	10,750

TEMPERATURE		OHMS
F	C	
76	24	10,250
78	26	9,750
80	27	9,300
82	28	8,840
84	29	8,432
86	30	8,042
88	31	7,668
90	32	7,310
92	33	6,993
94	34	6,661
96	36	6,368
98	37	6,085
100	38	5,811
102	39	5,571
104	40	5,313
106	41	5,088
108	42	4,869
110	43	4,660
112	44	4,450
114	46	4,268
116	47	4,091
118	48	3,918
120	49	3,750

**Table 4 — VAV Air Terminal Controller**

VAV MODE	T58 ICON
OFF (0)	CIRCLE with enclosed
HEAT (1)	SUNSHINE
WARM-UP (2)	SUNSHINE
VENT (3)	FAN ALONE
FAN & VENT (4)	FAN with 2 lines
COOL (5)	SNOWFLAKE
DEHUMID (6)	WATER DROPLET
REHEAT (7)	SUNSHINE
PRESSURE (8)	TRIANGLE with enclosed!
EVAC (9)	TRIANGLE with enclosed!
ZEROCAL (10)	CIRCLE with enclosed   BLINK 1 SEC RATE
COMMISS (11)	CIRCLE with enclosed   BLINK 1 SEC RATE
T58 ACTION	T58 DISPLAY
DEFAULT DISPLAY	DISPLAY SPACE TEMP with NO ICONS
SET POINT RESET	THERMOMETER ICON, DISPLAY HEAT/COOL SET POINT VALUE, FLASHING SNOWFLAKE OR SUNSHINE
FAN SPEED (READ ONLY)	FAN ALONE = OFF, LO, MED, HI SPEED, FAN ALONE BLINKING = AUTO
TIME SCH OVERRIDE	CLOCK ICON DISPLAYS FOR DURATION OF OVERRIDE PERIOD
DISPLAY OAT	SUN & CLOUDS ICON, DISPLAY LAST RECEIVED OAT

LEGEND

**OAT** — Outdoor-Air Temperature  
**VAV** — Variable Air Volume

**Table 5 — Fan Coil Controller**

FAN COIL MODE	T58 ICON
OFF (0)	CIRCLE with enclosed
OCC COOL (1)	SNOWFLAKE
OCC HEAT (2)	SUNSHINE
FAN ONLY (3)	FAN with 2 LINES
UNOCCOOL (4)	SNOWFLAKE
UNOCHEAT (5)	SUNSHINE
DEHUMID (6)	WATER DROPLET
T58 ACTION	T58 DISPLAY
DEFAULT DISPLAY	DISPLAY SPACE TEMP with NO ICONS
SET POINT RESET	THERMOMETER ICON, DISPLAY HEAT/COOL SET POINT VALUE, FLASHING SNOWFLAKE OR SUNSHINE
FAN SPEED	FAN ALONE = OFF, LO, MED, HI SPEED, FAN ALONE BLINKING = AUTO
TIME SCH OVERRIDE	CLOCK ICON DISPLAYS FOR DURATION OF OVERRIDE PERIOD
DISPLAY OAT	SUN & CLOUDS ICON, DISPLAY LAST RECEIVED OAT

LEGEND

**OAT** — Outdoor-Air Temperature

**Table 6 — Retrofit Rooftop/Economizer Controller**

ROOFTOP MODE	T58 ICON
OFF (0)	CIRCLE with enclosed
OCC COOL (1)	SNOWFLAKE
OCC HEAT (2)	SUNSHINE
FAN ONLY (3)	FAN with 2 LINES
UNOCCOOL (4)	SNOWFLAKE
UNOCHEAT (5)	SUNSHINE
VENT (6)	FAN ALONE
DEHUMID (7)	WATER DROPLET
DEMAND LIMIT (8)	CIRCLE with enclosed   BLINK 1 SEC RATE
PRESSURE (9)	TRIANGLE with enclosed!
EVAC (10)	TRIANGLE with enclosed!
PURGE (11)	TRIANGLE with enclosed!
FIRE SHUTDOWN (12)	TRIANGLE with enclosed!
T58 ACTION	T58 DISPLAY
DEFAULT DISPLAY	DISPLAY SPACE TEMP WITH NO ICONS
SET POINT RESET	THERMOMETER ICON, DISPLAY HEAT/COOL SET POINT VALUE, FLASHING SNOWFLAKE OR SUNSHINE
FAN SPEED (READ ONLY)	FAN ALONE = OFF, LO, MED, HI SPEED, FAN ALONE BLINKING = AUTO
TIME SCH OVERRIDE	CLOCK ICON DISPLAYS FOR DURATION OF OVERRIDE PERIOD
DISPLAY OAT	SUN & CLOUDS ICON, DISPLAY LAST RECEIVED OAT

LEGEND

**OAT** — Outdoor-Air Temperature

## OPERATION

**Read/Modify Current Set Point Value** — The INC/DEC buttons are used to read or modify the configured occupied set points of the attached device. This feature is the same for all controllers.

**TO READ CURRENT SET POINT VALUE** — Press the INC or DEC button once while *not* in Installer Options mode. This will display the set point that will be adjusted. Pressing INC will make the space warmer and pressing DEC will make it cooler.

**TO MODIFY CURRENT SET POINT VALUE** — Once INC or DEC is pressed the “temperature bulb” icon will appear. This indicates the onset of Modify Set Point mode (only if User Control Mode enabled). See Table 8.

The INC/DEC buttons can be used to adjust the displayed set point. The heat set point will have an allowable range between 40 F and the Heat set point Hi limit value configured in installer option 9, within the range defined by the configuration limits in the attached device. The cool set point range goes from the Cool set point Lo limit value configured in installer option 10, to 99 F. If the read set point exceeds its configured limit, the new value will be used as the limit for that particular operation. Wraparound is not enabled for this function. A difference of at least 2 F will be maintained between the occupied heating and cooling set points. If one set point is adjusted to within less than 2 F of the other, the other set point will also be adjusted to maintain the 2 F separation. The appropriate icon for heat (“sunshine” icon) or cool (“snowflake” icon) will blink while adjusting the set point.

- When the desired set point is reached, press the MODE button to cause the new set point value to be saved in the attached device. At the same time, the LCD display will return to the default Space Temperature display, and the SET POINT icon (thermometer) will disappear.
- If the attached device is unoccupied, the T58 will also send a command to initiate a Time Schedule Override in the attached device. This will allow the modified (occupied) set point(s) to take effect immediately. The OVER-RIDE icon (clock) will be displayed while the override is in effect.
- While in Modify Set Point mode, after ten seconds of being idle the LCD will return to the default Space Temperature display and the “Temperature Bulb” icon will disappear. The last displayed set point value will be sent to the attached device.

NOTE: When viewing the set point and no change is desired, make certain the value on the T58 display is set at the original value.

**Initiate Time Schedule Override** — Time Schedule Override is initiated by pressing and holding the MODE button while not in Installer Setup mode. This action will cause a CCN message to be sent which will initiate the Time Schedule Override function in the attached device.

- If the current Occupancy state of the attached device is UNOCCUPIED, then the state will become OCCUPIED for the duration consistent with the configured “Time Schedule Override” value in the attached device. After the override is initiated, the T58 sensor will display a blinking “clock” icon for 60 seconds. The T58 sensor will then display a non-blinking “clock” icon indicating time schedule override is in effect for the attached device.
- If the current Occupancy state of the attached device is OCCUPIED, then this command will act to extend the OCCUPIED state for the duration as configured in the attached device. After the override is initiated, the T58 sensor will display a blinking “clock” icon for 60 seconds. The T58 sensor will then display a non-blinking “clock” icon indicating time schedule override is in effect for the attached device.

**Display Outside Air Temperature** — The network Outdoor Air Temperature (OAT) value is obtained from the broadcaster device on the CCN. The T58 sensor receives the OAT from the broadcaster device on a periodic basis and the data is stored for easy retrieval.

- The value can be displayed on the LCD by pressing the INC and DEC buttons at the same time. The display and accompanying icon will remain lit for 10 seconds, and then the LCD display will return to the default Space Temperature value.
- When a request for OAT is sent, the last OAT value will be displayed in the LCD.
- If there is not an OAT value available, then a display of “--” will be displayed.
- The “cloud in the sky” icon will be lit to indicate that the temperature value displayed represents Outside Air Temp. This display and icon will remain lit for 10 seconds and then the icon will disappear and the LCD will return to the default temperature value.

**Error Codes** — The T58 sensor will provide error information in the LCD window, whenever an error condition occurs during normal operation. See Table 7 for error code descriptions. The Error Code data will remain displayed for 5 seconds, and then the display will return to the default Space Temperature value, if available.

**Table 7 — Troubleshooting**

DIAGNOSTIC CODE	PROBLEM	SOLUTION
E1	Malfunctioning on-board thermistor	Occurs when air temperature is below 0° F (-17 C) or above 146 F (63 C) for 15 seconds or more. This error will clear once the thermistor is in range. The valid temperature is displayed and the error indicator will disappear.
E2	T58 is not attached to valid device	Occurs when a CCN communication is requested and the configured destination address is "0" or the destination device type is 0. No data will go out to the CCN until the Installer Options have been correctly configured to a valid device on the network.
E3	CCN Communication Failure	Occurs whenever the T58 sensor initiates a CCN communication and there is not a successful completion of communication. The user needs to determine the problem and rectify the situation.
E4	Command rejection	Occurs whenever the attached device rejects a command from the T58 sensor. The user needs to determine the problem and rectify the situation.

LEGEND

CCN — Carrier Comfort Network

**Table 8 — Modifying Set Point Values**

SPACE TEMPERATURE	PRESSING INC	PRESSING DEC
> OCC Cooling Set Point	OCC Cooling Set Point	OCC Cooling Set Point
< OCC Heating Set Point	OCC Heating Set Point	OCC Heating Set Point
Between or = to OCC Set Points	OCC Heating Set Point	OCC Cooling Set Point

LEGEND

OCC — Occupied