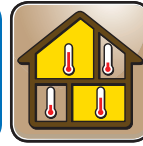


# tekmar<sup>®</sup>

## tekmarNet<sup>®</sup> Thermostat 557



Zoning

557\_D

09/14

Replaces: 09/13

# Installation & Operation Manual

## Introduction

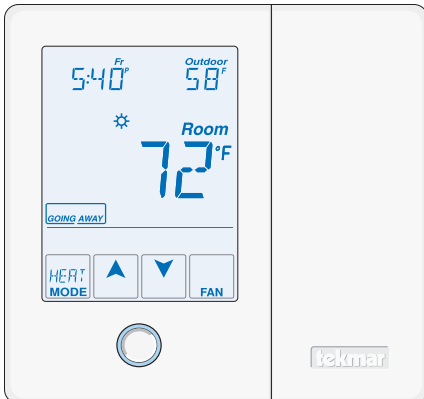
The tekmarNet<sup>®</sup> Thermostat 557 is a communicating touchscreen thermostat designed to operate either: a hydronic radiant floor with a two stage heat pump (water-to-air or air-to-air) for heating & cooling and an emergency backup heating system; or two stages of heating and two stages of cooling. There are three auxiliary sensor inputs that can be used to measure room, floor, outdoor or duct temperature. The optional floor sensor allows precise heating of radiant floors. Relative humidity level can be measured and controlled using either the built-in or external humidity sensor. The large touchscreen display allows you to easily adjust 7-day programmable schedules and room temperatures to optimize comfort and energy savings. The 557 can connect to tekmarNet<sup>®</sup> controls using two or four wires or it can operate as a stand-alone device.

## Energy Saving Features

- Programmable Schedule
- Zone Synchronization
- Zone Post Purge
- Warm Weather Shut Down
- Cooling Interlock
- Auto Heating Cycle
- Temporary Hold
- Away Scene Key

## Additional Features

- 3 Auxiliary Sensor Inputs
- Air Group Master
- Backlight
- Daylight Savings Time
- Exercising
- Freeze Protection
- Heat / Cool Priority
- Network Schedule Master or Member
- Optimum Start
- Outdoor & Floor Temperature Display
- Radiant Floor Heating & Cooling
- Relative Humidity Control
- Room Temperature Limiting
- Scenes
- Touchscreen Technology
- tekmarNet<sup>®</sup> Communication Compatible



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## Important Safety Information

It is your responsibility to ensure that this thermostat is safely installed according to all applicable codes and standards. tekmar is not responsible for damages resulting from improper installation and/or maintenance.



This is a safety-alert symbol. The safety alert symbol is shown alone or used with a signal word (DANGER, WARNING, or CAUTION), a pictorial and/or a safety message to identify hazards.

When you see this symbol alone or with a signal word on your equipment or in this Manual, be alert to the potential for death or serious personal injury.



This pictorial alerts you to electricity, electrocution, and shock hazards.

### **WARNING**

This symbol identifies hazards which, if not avoided, could result in death or serious injury.

### **CAUTION**

This symbol identifies hazards which, if not avoided, could result in minor or moderate injury.

### **NOTICE**

This symbol identifies practices, actions, or failure to act which could result in property damage or damage to the equipment.

### **WARNING**



Read Manual and all product labels BEFORE using the equipment. Do not use unless you know the safe and proper operation of this equipment. Keep this Manual available for easy access by all users. Replacement Manuals are available at [tekmarControls.com](http://tekmarControls.com)

### **WARNING**

- It is the installers responsibility to ensure that this thermostat is safely installed according to all applicable codes and standards.
- Improper installation and operation of this thermostat could result in damage to the equipment and possibly even personal injury or death.
- This thermostat is not intended for use as a primary limit control. Other controls that are intended and certified as safety limits must be placed into the control circuit.

### **NOTICE**

Do not attempt to service the thermostat. There are no user serviceable parts inside the thermostat. Attempting to do so voids warranty.

## Getting Started

Congratulations on the purchase of your new tekmar® thermostat.

This manual will step through the complete installation, programming and sequence of operation for this control. At the back, there are tips for control and system troubleshooting.

# Installation

## Preparation

### Tools Required

- tekmar or jeweller screwdriver
- Wire Stripper
- Phillips head screwdriver

### Materials Required

- 18 AWG LVT Solid Wire  
(Low Voltage Connections)

### Installation Location

Choose the placement of the thermostats early in the construction process to enable proper wiring during rough-in.

### NOTICE

Consider the following:

- Interior Wall.
- Keep dry. Avoid potential leakage onto the control.
- Relative Humidity less than 90%. Non-condensing environment.
- No exposure to extreme temperatures beyond 32-122°F (0-50°C).
- No draft, direct sun, or other cause for inaccurate temperature readings.
- Away from equipment, appliances, or other sources of electrical interference.
- Easy access for wiring, viewing, and adjusting the display screen.
- Approximately 5 feet (1.5 m) off the finished floor.
- The maximum length of wire is 500 feet (150 m).
- Strip wire to 3/8" (10 mm) for all terminal connections.
- Use standard 8 conductor, 18 AWG wire.

### NOTICE

- Do not use in the presence of ammonia (barn animals), methanol, ethanol or acetone. Damage to the internal sensor may result.

## ⚠ WARNING



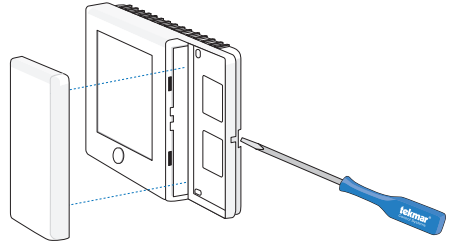
To prevent the risk of personal injury and/or death, make sure power is not applied to the thermostat until it is fully installed and ready for final testing. All work must be done with power turned off to the circuit being worked on.

Please be aware local codes may require this thermostat to be installed or connected by an electrician.

## Removing The Wiring Cover

To remove the thermostat's wiring cover:

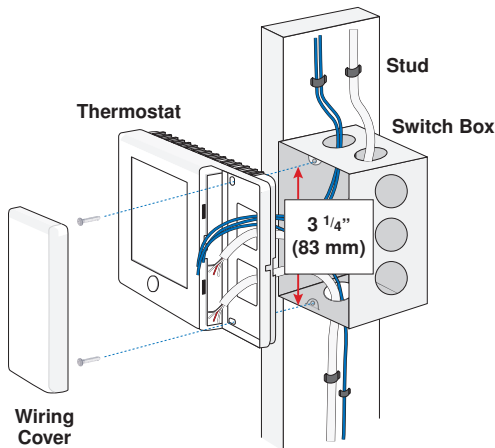
- Locate the slotted hole on the right side of the thermostat.
- Insert a screwdriver in the slotted hole to depress the latch.
- Remove the wiring cover from the thermostat.



## Mounting The Thermostat

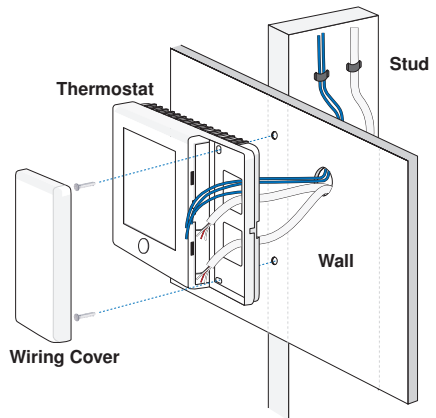
If a single gang box is used:

- Feed the wiring through the large holes of the thermostat.
- Fasten the base of the thermostat to the gang box using two screws.
- Terminate wiring to the wiring strip.
- Re-install the wiring cover.



If a gang box is not used:

- Feed the wiring through the large holes in the thermostat.
- Use screws in the screw holes to fasten the thermostat to the wall. At least one of the screws should enter a wall stud or similar rigid material.
- Terminate wiring to the wiring strip.
- Re-install the wiring cover.



## Thermostat Wiring

The thermostat operates a single heating system zone and can be wired in three different ways.

**Stand Alone** - Similar to tekmarNet®4 wiring with tN4 wiring terminal not used. First stage heating relay (Rh1 - W1) can be wired directly to switching relays.

**tekmarNet®4** - Allows the thermostat to be wired using 4 wires to a tN4 Wiring Center or Zone Manager point-to-point. Alternatively, the thermostat can operate the heating and cooling equipment locally and the tN4 communication bus can be daisy-chained from one thermostat to another.

**tekmarNet®2** - Allows the thermostat to be wired point-to-point using 2 wires to a tN2 Wiring Center, House Control, or Zone Manager. This allows easy wiring for retrofit applications.

*Application specific wiring diagrams are provided in the 557\_A brochure.*

## Compatible Sensors

The thermostat is compatible with Indoor Sensor type 076, 077, 084, Slab Sensor type 072, 073, 079, Outdoor Sensor type 070, Duct Sensor type 083 and Humidity & Temperature Sensor type 086.

## Testing the Thermostat Wiring

### CAUTION

Only qualified personnel should perform testing procedures. A licensed electrician is recommended.

## Testing tekmarNet®2 Wiring

### Testing the Power

If the thermostat display turns on, this indicates that the thermostat is operating correctly and there are no electrical issues. In the event that the display is off, or the display is cycling on and off:

1. Remove the thermostat wiring cover.
2. Check to ensure that the tN2 wires on the thermostat are connected to a zone on a House Control, Wiring Center, or Zone Manager.
3. Use an electrical meter to measure DC voltage between the tN2 terminals.
  - If the DC voltage is 0 V (dc) for at least 20 seconds, then there is an open or short circuit in the tN2 wires.
  - If the DC voltage is 0 V (dc) for 10 seconds and then is 23 to 24 V (dc) for 5 seconds, this indicates the wiring is correct.

- If the thermostat display is off, or is cycling on and off, move the thermostat to the next available zone on the House Control, Wiring Center, or Zone Manager.
- If the thermostat display remains permanently on, there may be a fault with the previously tried zone on the House Control, Wiring Center, or Zone Manager.
- If the thermostat display continues to be off, or is cycling on and off, there may be a fault on the thermostat.

If a fault is suspected, contact your tekmar sales representative for assistance.

## Testing tekmarNet®4 and Stand Alone Wiring

### Testing the Power

- Remove the front cover from the thermostat.
- Use an electrical test meter to measure (ac) voltage between the R and C terminals. The reading should be 24 V (ac) +/- 10%.
- Install the front cover.

### Testing the Relay Outputs

The thermostat includes a User Test to check if the thermostat's relays are operating and that the thermostat is wired correctly to the HVAC equipment. The User Test setting can be located in the Toolbox menu. Either Heat or Cool test can be selected.

Cancel button - Exits the user test and returns the Toolbox menu.

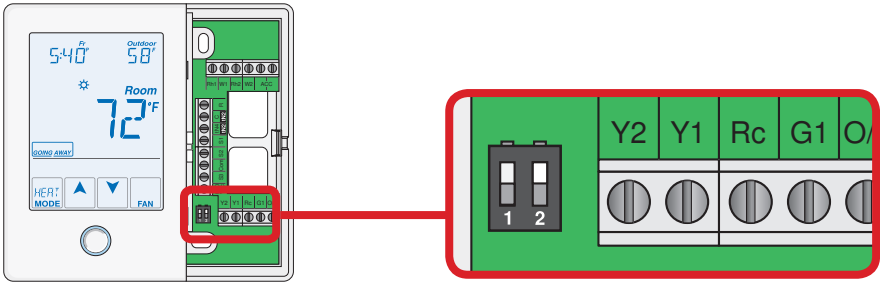
Hold button - Pauses the user test step for up to 5 minutes.

Next Item button - Advances the user test to the next test step.

User Test Sequence			
Heat Test		Cool Test	
Step	Relay(s) Closed	Step	Relay(s) Closed
O Relay OFF	Rc-O/B is opened	O Relay ON	Rc-O/B
B Relay ON	Rc-O/B	B Relay OFF	Rc-O/B is opened
Fan	Rc-G	Fan	Rc-G
Y1 Heat	Rc-Y1 and Rc-G	Y1 Cool	Rc-Y1 and Rc-G
Y2 Heat	Rc-Y1 and Rc-Y2 and Rc-G	Y2 Cool	Rc-Y1 and Rc-Y2 and Rc-G
W2 Heat	Rh2-W2	W2 Cool	Rh2-W2
W1 Heat	Rh1-W1	Humidify*	ACC-ACC
Humidify*	ACC-ACC	Dehumidify*	ACC-ACC or Rc-Y2
Dehumidify*	ACC-ACC or Rc-Y2	HRV*	Rc-Y2
HRV*	Rc-Y2	Valve*	ACC-ACC or Rc-Y2
Valve*	ACC-ACC or Rc-Y2		

*\*availability of test step and additional relay closures based upon Setup menu settings.*

# Switch Settings



## Switch Position Action

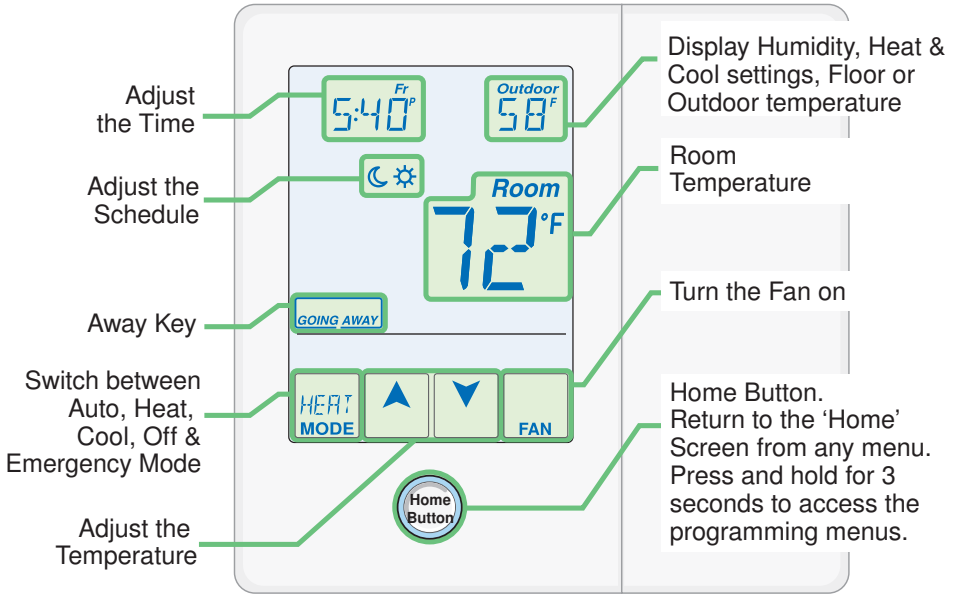
Switch Position Action		
1	ON	<b>LOCK ACCESS LEVEL</b> Thermostat is locally locked and the access level cannot be changed. Set to Lock when installation has been completed.
	OFF	<b>UNLOCK ACCESS LEVEL</b> Thermostat is unlocked and the access level may be changed. Go to the Toolbox menu to change the access level. Set to Unlock during the installation process. tekmarNet® system controls include a Global Lock that locks all connected thermostats. Set the tekmarNet® system control to unlock to allow access level adjustment on all connected thermostats.
2	ON	Not used
	OFF	Not used



# User Interface

## Home Screen

The touchscreen of the 557 provides one touch access to these settings.



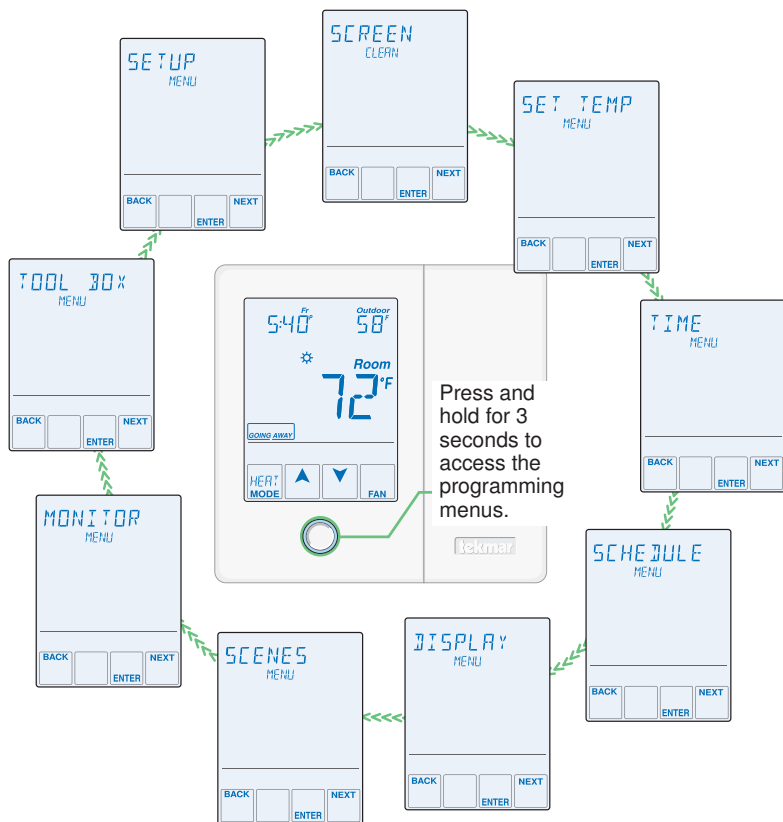
## Symbols Description

<i>Heat On</i>	<b>HEAT ON</b> Heat is turned on.		<b>WARNING SYMBOL</b> Indicates an error is present.
<i>Cool On</i>	<b>COOL ON</b> Cooling is turned on.		<b>ARROWS</b> Adjust the displayed setting.
	<b>FAN</b> The fan is turned on.	<i>SCENE AWAY</i>	<b>SCENE AWAY</b> Operating at Away temperature.
<i>%RH ↑</i>	<b>%RH</b> Humidifying	<i>HOLD 3hr</i>	<b>TEMPORARY HOLD</b> Holds temperature for 3, 6, 9 or 12 hours.
<i>%RH ↓</i>	<b>%RH</b> Dehumidifying	<i>WWS↓</i>	<b>WWS↓</b> Warm Weather Shut Down.
	<b>SUN</b> Operating at the occupied (day) temperature.	<i>COOL</i>	<b>COOL</b> Cooling system is on.
	<b>MOON</b> Operating at the unoccupied (night) temperature.	<i>MIN MAX</i>	<b>MIN or MAX</b> Reached the room min or max.
	<b>tekmarNet®</b> Communication is present.	<i>MIN FL MAX FL</i>	<b>MIN FL or MAX FL</b> Reached the floor min or max.

# Programmable Settings

## Programming Menus

Press and hold the Home button for 3 seconds to enter the programming menus. The thermostat returns to the last programming menu previously used.



### Select a Programming Menu

- Touch “NEXT” to advance (clockwise in above illustration) to the next menu.
- Touch “BACK” to go backwards (counterclockwise in above illustration) through the menus.
- Touch “ENTER” to enter a menu.






### Setting Items

- Touch ▲ or ▼ arrow to adjust the setting if required.
- Touch “NEXT ITEM” to advance to the next item within the menu.
- Touch “BACK ITEM” to go backwards to the previous item within the menu.
- To return to the parent menu after changing a setting, press and release the Home button.
- To return to the Home screen, press and release the Home button twice or wait 30 seconds to automatically return to the Home screen.

Set Temp Menu (1 of 4)	
Setting	Display
<b>SET HEAT ROOM ☼</b> Set the room heating temperature for the ☼ event.	<b>SET HEAT Room</b> ☼
Access Level: Installer, User	Range: 40 to 95°F (4.5 to 35.0°C)
Conditions: Always available	Default: 70°F (21.0°C)
<b>SET HEAT ROOM ☾</b> Set the room heating temperature for the ☾ event.	<b>SET HEAT Room</b> ☾
Access Level: Installer, User	Range: 40 to 95°F (4.5 to 35.0°C)
Conditions: Schedules are in use or Scenes are set to All or Guest.	Default: 65°F (18.5°C)
<b>SET HEAT ROOM AWAY</b> Set the room heating temperature for the Away scene.	<b>SET HEAT Room</b> AWAY
Access Level: Installer, User	Range: 40 to 95°F (4.5 to 35.0°C)
Conditions: Scenes is set to Away, All or Guest.	Default: 62°F (16.5°C)
<b>HEAT MINIMUM ROOM LIMIT</b> Set the minimum room heating limit.	<b>HEAT MIN Room</b> LIMIT
Access Level: Installer	Range: 40 to 95°F (4.5 to 35.0°C)
Conditions: Schedules are in use or Scenes are set to All or Guest.	Default: 40°F (4.5°C)
<b>HEAT MAXIMUM ROOM LIMIT ☼</b> Set the maximum room heating limit for the ☼ event.	<b>HEAT MAX Room</b> LIMIT ☼
Access Level: Installer	Range: 40 to 95°F (4.5 to 35.0°C)
Conditions: Always available	Default: 85°F (29.5°C)
<b>HEAT MAXIMUM ROOM LIMIT ☾</b> Set the maximum room heating limit for the ☾ event.	<b>HEAT MAX Room</b> LIMIT ☾
Access Level: Installer	Range: 40 to 95°F (4.5 to 35.0°C)
Conditions: Schedules are in use or Scenes are set to All or Guest.	Default: 85°F (29.5°C)
<b>WARM WEATHER SHUT DOWN ☼</b> Set the outdoor air temperature at which heating is suspended during the ☼ event.	<b>WWS D</b> ☼
Access Level: Installer	Range: CTRL (control), 40 to 100°F (4.5 to 38.0°C), OFF
Conditions: An outdoor sensor must be available.	Default: CTRL

Set Temp Menu (2 of 4)	
Setting	Display
<b>WARM WEATHER SHUT DOWN ☾</b> Set the outdoor air temperature at which heating is suspended during the ☾ event.	<b>WWS D</b> ☾
Access Level: Installer	Range: CTRL (control), 40 to 100°F (4.5 to 38.0°C), OFF
Conditions: An outdoor sensor must be available and Schedules are in use or Scenes is set to All or Guest.	Default: CTRL
<b>SET COOL ROOM ☼</b> Set the room cooling temperature for the ☼ event.	<b>SET COOL</b> Room ☼
Access Level: Installer, User	Range: 50 to 100°F (10.0 to 38.0°C)
Conditions: Always	Default: 78°F (25.5°C)
<b>SET COOL ROOM ☾</b> Set the room cooling temperature for the ☾ event.	<b>SET COOL</b> Room ☾
Access Level: Installer, User	Range: 50 to 100°F (10.0 to 38.0°C)
Conditions: Requires that Schedules are in use or Scenes is set to All or Guest.	Default: 85°F (29.5°C)
<b>SET COOL ROOM AWAY</b> Set the room cooling temperature during the Away scene.	<b>SET COOL</b> Room AWAY
Access Level: Installer	Range: 50 to 100°F (10.0 to 38.0°C)
Conditions: Scenes is set to Away, All or Guest.	Default: 85°F (29.5°C)
<b>COOL MINIMUM ROOM LIMIT ☼</b> Set the minimum room cooling limit while in the ☼ event.	<b>COOL MIN</b> Room LIMIT ☼
Access Level: Installer	Range: 50 to 100°F (10.0 to 38.0°C)
Conditions: Always available.	Default: 50°F (10.0°C)
<b>COOL MINIMUM ROOM LIMIT ☾</b> Set the minimum room cooling limit while in the ☾ event.	<b>COOL MIN</b> Room LIMIT ☾
Access Level: Installer	Range: 50 to 100°F (10.0 to 38.0°C)
Conditions: Always available.	Default: 50°F (10.0°C)

Set Temp Menu (3 of 4)	
Setting	Display
<b>COOL MAXIMUM ROOM LIMIT</b> Set the maximum room cooling limit.	<b>COOL MAX</b> <i>Room</i> LIMIT
Access Level: Installer	Range: 50 to 100°F (10.0 to 38.0°C)
Conditions: Always available	Default: 100°F (38.0°C)
<b>FLOOR MINIMUM ✱</b> Set the floor heating temperature while in the ✱ event.	<b>FLOOR MIN</b> ✱
Access Level: Installer, User	Range: OFF, 40 to 122°F (4.5 to 50.0°C)
Conditions: Sensor 1, 2 or 3 is set to Floor, and W1 Terminal is set to HRF1, HRF2 or Othr.	Default: 72°F (22.0°C)
<b>FLOOR MINIMUM ☾</b> Set the floor heating temperature while in the ☾ event.	<b>FLOOR MIN</b> ☾
Access Level: Installer, User	Range: OFF, 40 to 122°F (4.5 to 50.0°C)
Conditions: Sensor 1, 2 or 3 is set to Floor, and W1 Terminal is set to HRF1, HRF2 or Othr, & Schedules are in use or Scenes are set to All or Guest.	Default: OFF
<b>FLOOR MAXIMUM</b> Set the floor maximum temperature in order to protect the floor covering. Suggested settings: Tile = 90°F (32°C) Hardwood Floor = 85°F (29°C)	<b>FLOOR MAX</b>
Access Level: Installer	Range: 40 to 122°F (4.5 to 50.0°C), OFF
Conditions: Sensor 1, 2 or 3 is set to Floor, & W1 Terminal is set to HRF1, HRF2 or Othr.	Default: 85°F (29.5°C)
<b>TEMPORARY HOLD</b> Temperature adjustment in the home menu can result in either permanent temperature setting change or temporary temperature setting change that lasts 3, 6, 9, 12 hours or until the next scheduled event.	<b>TEMPORARY</b> HOLD
Access Level: Installer	Range: OFF or ON
Conditions: None	Default: OFF

Set Temp Menu (4 of 4)	
Setting	Display
<b>FAN ✱</b> Set the minimum percentage the fan should operate while in the ✱ event. This provides ventilation for the building. Each 10% is 6 minutes per hour.	<b>FAN</b> 
Access Level: Installer, User	Range: Auto, 10 to 90%, ON
Conditions: Always available. 10 to 90% available when Ventilation Mode is On.	Default: Auto
<b>FAN ☾</b> Set the minimum percentage the fan should operate while in the ☾ event or Away scene. This provides ventilation for the building. Each 10% is 6 minutes per hour.	<b>FAN</b> 
Access Level: Installer, User	Range: Auto, 10 to 90%, ON
Conditions: Schedules used or Scenes set to Guest or All. 10 to 90% available when Ventilation Mode is On.	Default: Auto
<b>HUMIDITY MINIMUM ✱</b> Set the minimum humidity level during the ✱ event.	<b>HUMIDITY</b> MIN 
Access Level: Installer, User	Range: OFF, 20 to 80%
Conditions: Humidify Mode set to HM1, 2, 3.	Default: 40%
<b>HUMIDITY MAXIMUM ✱</b> Set the maximum humidity level during the ✱ event.	<b>HUMIDITY</b> MAX 
Access Level: Installer, User	Range: 20 to 80%, OFF
Conditions: Dehumidify Mode set to DHM1, 2, 3, 4, 5.	Default: 60%
<b>HUMIDITY MAXIMUM AWAY</b> Set the maximum humidity level during Away scene.	<b>HUMID MAX</b> AWAY
Access Level: Installer	Range: 20 to 80%, OFF
Conditions: Dehumidify Mode set to DHM1, 2, 3, 4, 5.	Default: OFF
<b>HUMIDITY ☾</b> Select if the humidification or dehumidification system should operate during the ☾ event or away scene.	<b>HUMIDITY</b> 
Access Level: Installer	Range: OFF or On
Conditions: Humidity Mode set to DHM1, 2, 3 or Dehumidify Mode set to DHM1, 2, 3, 4, 5.	Default: OFF

Time Menu (1 of 2)	
Setting	Display
<b>MINUTES</b> Select the current time minutes.	<b>12:00</b>
Access Level: Installer, User	Range: 00 to 59
Conditions: Always available.	Default: 00

<b>Time Menu (2 of 2)</b>	
<b>Setting</b>	<b>Display</b>
<b>HOURS</b> Select the current time hours.	12:00
Access Level: Installer, User	Range: 12 AM to 11 PM or 00 to 23
Conditions: Always available.	Default: 12 AM
<b>DAY OF WEEK</b> Select the current day of the week.	SUNDAY
Access Level: Installer, User	Range: Sunday to Saturday
Conditions: Always available.	Default: Sunday
<b>MONTH</b> Select the current month.	JANUARY 1
Access Level: Installer, User	Range: JANUARY to DECEMBER
Conditions: Always available.	Default: JANUARY
<b>DAY OF MONTH</b> Select the day of the current month.	JANUARY 1
Access Level: Installer, User	Range: 1 to 31
Conditions: Always available.	Default: 1
<b>YEAR</b> Select the current year.	2011
Access Level: Installer, User	Range: 2012 to 2255
Conditions: Always available.	Default: 2012
<b>DAYLIGHT SAVINGS TIME</b> Select if daylight savings time is observed.	DAYLIGHT SAVE
Access Level: Installer, User	Range: OFF or ON
Conditions: Always available.	Default: ON
<b>TIME MODE</b> Select either 12 or 24 hour time format.	TIME MODE
Access Level: Installer, User	Range: 12 or 24 hour
Conditions: Always available.	Default: 12 hour
<b>CLOCK</b> Select whether to show the time clock on the display.	CLOCK
Access Level: Installer, User	Range: OFF or ON
Conditions: The time is always shown when a schedule is used and the clock setting option is no longer available.	Default: OFF

## Schedule Menu (1 of 2)

The schedule menu can operate on a 24 hour or 7 day repeating schedule. When a 24 hour schedule is selected, "SuMoTuWeThFrSa" is shown on the top of the screen to show that the event time applies to all days of the week. When a 7 day schedule is selected, each individual day of the week is shown with the event time.

Setting	Display
<b>EVENT 1</b> The first programmable schedule time period of the day. The ☼ temperature settings are used during this time period.	SuMoTuWeThFrSa EVENT 1 ☼
Access Level: Installer, User	Range: 12:00 AM to 11:50 PM, SKIP or 00:00 to 23:50, SKIP
Conditions: Schedule setting is set to Zone or Master 1, 2, 3, 4 and Event/Day is set to 2 or 4.	Default: 6:00 AM
<b>EVENT 2</b> The second programmable schedule time period of the day. The ☾ temperature settings are used during this time period.	SuMoTuWeThFrSa EVENT 2 ☾
Access Level: Installer, User	Range: 12:00 AM to 11:50 PM, SKIP or 00:00 to 23:50, SKIP
Conditions: Schedule setting is set to Zone or Master 1, 2, 3, 4 and Event/Day is set to 2 or 4.	Default: 10:00 PM when Event/Day is 2 8:00 AM when Event/Day is 4
<b>EVENT 3</b> The third programmable schedule time period of the day. The ☼ temperature settings are used during this time period.	SuMoTuWeThFrSa EVENT 3 ☼
Access Level: Installer, User	Range: 12:00 AM to 11:50 PM, SKIP or 00:00 to 23:50, SKIP
Conditions: Schedule setting is set to Zone or Master 1, 2, 3, 4 and Event/Day is set to 4.	Default: 6:00 PM
<b>EVENT 4</b> The fourth programmable schedule time period of the day. The ☾ temperature settings are used during this time period.	SuMoTuWeThFrSa EVENT 4 ☾
Access Level: Installer, User	Range: 12:00 AM to 11:50 PM, SKIP or 00:00 to 23:50, SKIP
Conditions: Schedule setting is set to Zone or Master 1, 2, 3, 4 and Event/Day is set to 4.	Default: 10:00 PM



Schedule Menu (2 of 2)	
Setting	Display
<p><b>SCHEDULE</b>            Select if the thermostat should change the temperature automatically using a programmable schedule.            OFF = Programmable schedule is not used.            Zone = Applies to this thermostat only.            Master 1, 2, 3, 4 = In charge of one of four available network schedules.            Member 1, 2, 3, 4 = Follows selected network schedule.</p>	SCHEDULE
Access Level: Installer, User	Range: OFF, Zone, Master 1, 2, 3, 4, Member 1, 2, 3, 4
Conditions: In a tekmarNet® system, settings adjustable in Installer access level only.	Default: OFF
<p><b>EVENT PER DAY</b>            Select the number of temperatures per day.</p>	EVENT / DAY
Access Level: Installer, User	Range: 2 or 4
Conditions: Schedule setting is set to Zone or Master 1, 2, 3, 4.	Default: 2
<p><b>24 HOUR / 7 DAY</b></p>	24hr / 7DAY
Access Level: Installer, User	Range: 24 hour or 7 day
Conditions: Schedule setting is set to Zone or Master 1, 2, 3, 4.	Default: 24 hour
<p><b>OPTIMUM START</b>            Select whether or not to use optimum start. The thermostat learns the heat up and cool down rates of the room and starts heating or cooling in advance of Event 1 or Event 3.</p>	OPTIMUM START
Access Level: Installer, User	Range: OFF or ON
Conditions: A schedule must be in use.	Default: ON

Display Menu (1 of 2)	
Setting	Display
<p><b>UNITS</b>            Select Fahrenheit or Celsius as the temperature units.</p>	UNITS IN
Access Level: Installer, User	Range: °F or °C
Conditions: Always available.	Default: °F

## Display Menu (2 of 2)

Setting	Display
<b>BACKLIGHT</b> Select how the display backlight operates. ON = Always full brightness. DIM = Dim when inactive, on when touched. DIM ☼ = Dim in ☼, off in ☾. On when touched. ON ☼ = On in ☼, off in ☾. On when touched. OFF = Off when inactive, on when touched.	BACKLIGHT
Access Level: Installer, User	Range: DIM, ON, DIM ☼, ON ☼, OFF
Conditions: Always available.	Default: DIM ☼
<b>SECONDARY ITEM</b> Determine the default item in the upper right hand corner of the Home screen.	SECONDARY ITEM
Access Level: Installer, User	Range: NONE, OUT (outdoor), FLOR (floor), HUM (Humidity), TEMP (Heat and Cool Temperature)
Conditions: Always available.	Default: OUT (outdoor)

## Scenes Menu (1 of 1)

Setting	Display
<b>SCENES</b> Enable or disable the use of scenes (building overrides) on this thermostat.	SCENES
Access Level: Installer, User	Range: NONE, AWAY, ALL, GUEST
Conditions: Settings ALL and GUEST only available in Installer access level.	Default: NONE
<b>SCENE 4</b> Select how the thermostat should respond to scene 4.	SCENE 4
Access Level: Installer	Range: SCHD, ☼, ☾, Away
Conditions: Scenes is set to All.	Default: SCHD (Schedule)
<b>AWAY KEY</b> Enable or disable the away touch key on the home screen.	AWAY KEY
Access Level: Installer, User	Range: OFF or ON
Conditions: Scenes is set to ALL, AWAY, or GUEST.	Default: OFF
<b>LOCAL NETWORK GROUP</b> Select if scenes and time clock are shared when connected to a tekmarNet® system. OFF = Send and receive messages. ON = Receive messages only.	LOCAL NET GROUP
Access Level: Installer	Range: OFF or ON
Conditions: Always available.	Default: OFF

<b>Monitor Menu (1 of 5)</b>	
<b>Setting</b>	<b>Display</b>
<b>ROOM AVERAGE</b> Current room temperature. Displays the average if there are multiple room sensors.	<b>ROOM AVG</b>
Access Level: Installer	Range: -58 to 212°F (-50.0 to 100.0°C)
Conditions: Sensor 1, 2 or 3 is set to ROOM.	Default: Not applicable.
<b>FLOOR AVERAGE</b> Current floor temperature. Displays the average if there are multiple floor sensors.	<b>FLOOR AVG</b>
Access Level: Installer	Range: -58 to 212°F (-50.0 to 100.0°C)
Conditions: Sensor 1, 2 or 3 is set to FLOR.	Default: Not applicable.
<b>AIR GROUP AVERAGE</b> Average room temperature of the thermostat and all air group member thermostats.	<b>AIR GROUP AVG</b>
Access Level: Installer	Range: -58 to 212°F (-50.0 to 100.0°C)
Conditions: Setup menu setting Air Group Master must be set to 1 through 16.	Default: Not applicable.
<b>W1 SUPPLY</b> First stage heating supply water temperature.	<b>W1 SUPPLY</b>
Access Level: Installer	Range: -22 to 266°F (-30.0 to 130.0°C)
Conditions: Setup menu setting W1 TERM set to HRF1, HRF2.	Default: Not applicable.
<b>ROOM LOCAL</b> The built-in room sensor temperature measurement.	<b>ROOM LOCAL</b>
Access Level: Installer	Range: -58 to 212°F (-50.0 to 100.0°C)
Conditions: Setup menu setting Room Sensor is set to ON.	Default: Not applicable.
<b>SENSOR 1</b> The temperature measurement from the sensor 1 input wiring terminals.	<b>SENSOR - 1</b>
Access Level: Installer	Range: -22 to 266°F (-30.0 to 130.0°C)
Conditions: Setup menu setting Sensor 1 is set to ROOM, FLOR, or DUCT.	Default: Not applicable.

## Monitor Menu (2 of 5)

Setting	Display
<b>SENSOR 2</b> The temperature measurement from the sensor 2 input wiring terminals.	<b>SENSOR--2</b>
Access Level: Installer	Range: -22 to 266°F (-30.0 to 130.0°C)
Conditions: Setup menu setting Sensor 2 is set to ROOM, FLOR, or OUT.	Default: Not applicable.
<b>SENSOR 3</b> The temperature measurement from the sensor 3 input wiring terminals.	<b>SENSOR--3</b>
Access Level: Installer	Range: -22 to 266°F (-30.0 to 130.0°C)
Conditions: Setup menu setting Sensor 3 is set to ROOM, FLOR, or HUM.	Default: Not applicable.
<b>HUMIDITY LOCAL</b> The built-in relative humidity sensor measurement.	<b>HUMIDITY</b> LOCAL
Access Level: Installer	Range: 0 to 100%
Conditions: Setup menu setting Humidity Sensor is set to On.	Default: Not applicable.
<b>HUMIDITY EXTERNAL</b> The relative humidity measurement from the external humidity sensor.	<b>HUMIDITY</b> EXT
Access Level: Installer	Range: 0 to 100%
Conditions: Setup menu setting Sensor 3 is set to HUM.	Default: Not applicable.
<b>OUTDOOR HIGH</b> The highest recorded outdoor air temperature measurement. Touch the number and the ENTER key to reset.	<b>OUT DOOR</b> HIGH
Access Level: Installer, User	Range: -76 to 149°F (-60.0 to 65.0°C)
Conditions: An outdoor temperature is available.	Default: Not applicable.
<b>OUTDOOR LOW</b> The lowest recorded outdoor air temperature measurement. Touch the number and the ENTER key to reset.	<b>OUT DOOR</b> LOW
Access Level: Installer, User	Range: -76 to 149°F (-60.0 to 65.0°C)
Conditions: An outdoor temperature is available.	Default: Not applicable.

<b>Monitor Menu (3 of 5)</b>	
<b>Setting</b>	<b>Display</b>
<b>ROOM HIGH</b> The highest recorded room temperature measurement. Touch the number and the ENTER key to reset.	<b>ROOM</b> HIGH
Access Level: Installer, User	Range: -76 to 149°F (-60.0 to 65.0°C)
Conditions: Setup setting Room Sensor is set to ON or Sensor 1, 2 or 3 is set to ROOM.	Default: Not applicable.
<b>ROOM LOW</b> The lowest recorded room temperature measurement. Touch the number and the ENTER key to reset.	<b>ROOM</b> LOW
Access Level: Installer, User	Range: -76 to 149°F (-60.0 to 65.0°C)
Conditions: Setup setting Room Sensor is set to ON or Sensor 1, 2 or 3 is set to ROOM.	Default: Not applicable.
<b>FLOOR HIGH</b> The highest recorded floor temperature measurement. Touch the number and the ENTER key to reset.	<b>FLOOR</b> HIGH
Access Level: Installer, User	Range: -76 to 149°F (-60.0 to 65.0°C)
Conditions: Setup menu setting Sensor 1, 2 or 3 is set to FLOR.	Default: Not applicable.
<b>FLOOR LOW</b> The lowest recorded floor temperature measurement. Touch the number and the ENTER key to reset.	<b>FLOOR</b> LOW
Access Level: Installer, User	Range: -76 to 149°F (-60.0 to 65.0°C)
Conditions: Setup menu setting Sensor 1, 2 or 3 is set to FLOR.	Default: Not applicable.
<b>FILTER HOURS</b> The total number of hours the fan has been operating since the air filter was last replaced. Touch the number and the ENTER key to reset and clear the Change Filter warning message.	<b>FILTER</b> HOURS
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Always available.	Default: 0000 hours
<b>HEAT Y1 HOURS</b> The total number of hours the first stage of heat pump has been in heating operation. Touch the number and the ENTER key to reset.	<b>HEAT Y1</b> HOURS
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu setting Y1 TYPE is set to HP1.	Default: 0000 hours

## Monitor Menu (4 of 5)

Setting	Display
<p><b>HEAT Y2 HOURS</b> The total number of hours the second stage of heat pump has been in heating operation. Touch the number and the ENTER key to reset.</p>	<p>HEAT Y2 HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu setting Y2 TYPE is set to HP2.	Default: 0000 hours
<p><b>HEAT W1 HOURS</b> The total number of hours the W1 relay has been operated for heating. Touch the number and the ENTER key to reset.</p>	<p>HEAT W1 HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu W1 TERM is set to HRF1, HRF2 or OTHR.	Default: 0000 hours
<p><b>BACKUP W2 HOURS</b> The total number of hours the Backup W2 relay has been operated for heating. Touch the number and the ENTER key to reset.</p>	<p>BACKUP W2 HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu setting BACKUP W2 TERM is set to CONV, COIL, FURN, or OTHR.	Default: 0000 hours
<p><b>COOL Y1 HOURS</b> The total number of hours the first stage of heat pump has been in cooling operation. Touch the number and the ENTER key to reset.</p>	<p>COOL Y1 HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Always available.	Default: 0000 hours
<p><b>COOL Y2 HOURS</b> The total number of hours the second stage of heat pump has been in cooling operation. Touch the number and the ENTER key to reset.</p>	<p>COOL Y2 HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu Y2 TYPE is set to HP2.	Default: 0000 hours
<p><b>COOL W1 HOURS</b> The total number of hours the W1 relay has been operated for cooling. Touch the number and the ENTER key to reset.</p>	<p>COOL W1 HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu setting Floor Cool is set to ON and W1 TERM is set to HRF1 or HRF2.	Default: 0000 hours

Monitor Menu (5 of 5)	
Setting	Display
<p><b>COOL W2 HOURS</b> The total number of hours the W2 relay has been operated for cooling. Touch the number and the ENTER key to reset.</p>	<p>COOL W2 HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu setting BACKUP W2 SOURC is set to TANK and BACKUP W2 TERM is set to COIL.	Default: 0000 hours
<p><b>FAN HOURS</b> The total number of hours the fan has been operated. Touch the number and the ENTER key to reset.</p>	<p>FAN HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Always available.	Default: 0000 hours
<p><b>HUMIDIFY HOURS</b> The total number of hours the humidifier has been operated. Touch the number and the ENTER key to reset.</p>	<p>HUMIDIFY HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu setting ACC RELAY is set to HUM.	Default: 0000 hours
<p><b>DEHUMIDIFY HOURS</b> The total number of hours the dehumidifier has been operated. Touch the number and the ENTER key to reset.</p>	<p>DEHUMIDIFY HOURS</p>
Access Level: Installer, User	Range: 0000 to 9999 hours
Conditions: Setup menu setting ACC RELAY is set to DHUM or Y2 RELAY is set to DHUM.	Default: 0000 hours

Toolbox Menu (1 of 3)	
Setting	Display
<p><b>ACCESS LEVEL</b> Selects the access level of the thermostat, which determines which menus and items are available.</p>	<p>ACCESS LEVEL</p>
Access Level: Installer, User, Limited, Secure	Range: INST (installer), USER, LTD (limited), SEC (secure)
Conditions: Adjustable only when thermostat switch setting set to UNLOCK OR tekmarNet® system control switch setting set to UNLOCK.	Default: INST

## Toolbox Menu (2 of 3)

Setting	Display
<b>STATUS INFO</b> Displays the current status of the thermostat including any overrides from the tekmarNet® system control. Toggles between “Status Info” and the current status.	<b>STATUS</b> INFO
<b>System Normal</b> = Thermostat operating normally.	<b>SYSTEM</b> NORMAL
<b>Override W1</b> = The tekmarNet® system control is either forcing the W1 relay on or off.	<b>VERRIDE</b> W1
<b>Cooling Floor</b> = Floor cooling is in effect.	<b>COOLING</b> FLOOR
<b>WWSD</b> = Warm Weather Shut Down is in effect.	<b>WWS]</b>
<b>CWSD</b> = Cold Weather Shut Down is in effect.	<b>CWS]</b>
<b>Optimum Start Heat or Cool</b> = The heating or cooling system is started early in order to meet ✱ temperature setpoint at Event 1 or Event 3.	<b>OPTIMUM</b> START
<b>Floor Max</b> = The floor has reached its maximum temperature. Some under heating could occur.	<b>FLOOR MAX</b>
<b>Floor Min</b> = The floor is operating at its minimum temperature. Some over heating could occur.	<b>FLOOR MIN</b>
<b>Baseload On</b> = Baseload heating is on even though the room temperature is satisfied. Reduces heat up time when the sun sets in the evening.	<b>BASELOAD</b> ON
<b>Hydronic Heat Off</b> = The air group master is in cooling mode and air group member thermostats’ heating is shut off.	<b>HYDRONIC</b> HEAT
<b>Interlock Wait</b> = The thermostat is switching between heating to cooling or from cooling to heating.	<b>INTERLOCK</b> WAIT
<b>Priority Heat</b> = Air group members are calling for heat. Cooling is suspended.	<b>PRIORITY</b> HEAT
Access Level: Installer, User Conditions: Always available.	Range: See Description Default: System Normal
<b>ADDRESS</b> The tekmarNet® address of this thermostat. To manually set the address, use the up or down arrow buttons while in the Installer access level.	<b>ADDRESS</b>
Access Level: Installer	Range: AUTO, 01 to 24, b:01 to b:24, 1:01 to 1:24, 2:01 to 2:24, 3:01 to 3:24
Conditions: tekmarNet®2 or 4 detected.	Default: AUTO
<b>SOFTWARE AND TYPE VERSION</b> Displays the software version and the tekmar type number.	<b>SW J1215A</b> TYPE
Access Level: Installer, User, Limited, Secure	Range: 557
Conditions: Always available.	Default: 557



<b>Toolbox Menu (3 of 3)</b>	
<b>Setting</b>	<b>Display</b>
<b>DEVICE COUNT</b> Provides a count of all the tekmarNet® thermostats and setpoint controls on the tekmarNet® system.	<b>DEVICE</b> COUNT
Access Level: Installer	Range: 1 to 24
Conditions: Must be connected to a tekmarNet® system.	Default: 1
<b>USER TEST</b> Use the up or down arrow keys to select either the heat or cool test sequence, then press the NEXT key to begin. Press HOLD to pause at step for 5 minutes. Press NEXT to advance to the next step.	<b>USER TEST</b>
Access Level: Installer	Range: OFF, HEAT or COOL
Conditions: Always available.	Default: OFF
<b>OFFSET ROOM</b> Manual offset correction of the room temperature measurement.	<b>OFFSET</b> ROOM
Access Level: Installer	Range: -5 to +5°F (-3.0 to +3.0°C)
Conditions: Always available.	Default: 0°F (0.0°C)
<b>OFFSET HUMIDITY</b> Manual offset correction of the room humidity measurement.	<b>OFFSET</b> HUM
Access Level: Installer	Range: -10 to +10%
Conditions: Always available.	Default: 0%
<b>FILTER CHANGE HOURS</b> Select the amount of time the fan operates before the air filter requires maintenance.	<b>FILTR CHG</b> HOURS
Access Level: Installer	Range: OFF, 200 to 2000 hours
Conditions: Always available.	Default: OFF
<b>LOAD FACTORY DEFAULTS</b> Touch Enter to load the factory defaults settings.	<b>DEFAULTS</b> LOAD??
Access Level: Installer	Range: None
Conditions: Always available.	Default: Keep existing settings
<b>ERROR HISTORY 1 THROUGH 5</b> Displays a history of the last 5 errors that have occurred on the thermostat in the past 30 days. Touch Enter to manually clear the error code.	<b>HISTORY - 1</b>
Access Level: Installer	Range: See Troubleshooting section
Conditions: An error must have occurred.	Default: Not applicable

Setup Menu (1 of 7)	
Setting	Display
<b>SENSOR 1</b> Select to the type of sensor connected to auxiliary sensor input 1.	<b>SENSOR 1</b>
Access Level: Installer	Range: OFF, ROOM, FLOR (floor), DUCT
Conditions: Always available.	Default: OFF
<b>SENSOR 2</b> Select to the type of sensor connected to auxiliary sensor input 2.	<b>SENSOR 2</b>
Access Level: Installer	Range: OFF, ROOM, FLOR (floor), OUT (outdoor)
Conditions: Always available.	Default: OFF
<b>SENSOR 3</b> Select to the type of sensor connected to auxiliary sensor input 3.	<b>SENSOR 3</b>
Access Level: Installer	Range: OFF, ROOM, FLOR (floor), HUM (humidity)
Conditions: Always available.	Default: OFF
<b>ROOM SENSOR</b> Select whether the built-in room temperature sensor is on or off.	<b>ROOM SENSOR</b>
Access Level: Installer	Range: OFF or ON
Conditions: Only available when Sensor 1, 2 or 3 is set to ROOM or FLOR.	Default: ON
<b>HUMIDITY SENSOR</b> Select whether the built-in humidity sensor is on or off.	<b>HUMIDITY SENSOR</b>
Access Level: Installer	Range: OFF or On
Conditions: Only available when Sensor 3 is set to HUM.	Default: On
<b>W1 TERMINAL UNIT</b> Select the terminal unit type of the first stage of heat W1. HRF1 = High mass hydronic radiant floor HRF2 = Low mass hydronic radiant floor OTHR = Other than hydronic heating	<b>W1 TERM</b>
Access Level: Installer	Range: NONE, HRF1, HRF2, OTHR
Conditions: Always available. HRF1 and HRF2 only available when connected to a tekmarNet® System Control.	Default: NONE

Setup Menu (2 of 7)	
Setting	Display
<p><b>W1 PUMP</b> Select whether the primary or mix system pump on a tekmarNet® system control should operate while the first stage of heat W1 is operating.</p>	<p>W 1 PUMP</p>
Access Level: Installer	Range: OFF or ON
Conditions: Only available when a tekmarNet® system control is connected and the Setup menu setting W1 TERM is set to HRF1, HRF2.	Default: ON
<p><b>W1 THERMAL MOTOR</b> Select whether the first stage of heat W1 operates a thermally actuated zone valve (wax actuator). When set to ON, there is a 3 minute delay before operating the pump and any heat sources.</p>	<p>W 1 THERM MOTOR</p>
Access Level: Installer	Range: OFF or ON
Conditions: Only available when a tekmarNet® system control is connected and the Setup menu setting W1 TERM is set to HRF1, HRF2.	Default: OFF
<p><b>BACKUP W2 TERMINAL</b> Select the type of backup heating. CONV = baseboard convectors COIL = hydronic fan coil FURN = forced air furnace OTHR = non-hydronic heating that does not require the fan to operate</p>	<p>BACKUP W2 TERM</p>
Access Level: Installer	Range: NONE, CONV, COIL, FURN, OTHR
Conditions: Always available.	Default: NONE
<p><b>BACKUP W2 SOURCE</b> Select the water temperature of the hydronic backup heating.</p>	<p>BACKUP W2 SOURCE</p>
Access Level: Installer	Range: BOIL, TNK1, MIX1, MIX2, MIX3
Conditions: BACKUP W2 TERMINAL is set to CONV or COIL.	Default: BOIL
<p><b>BACKUP W2 PUMP</b> Select whether the primary or mix system pump on a tekmarNet® system control should operate while the backup stage of heat W2 is operating.</p>	<p>BACKUP W2 PUMP</p>
Access Level: Installer	Range: OFF or ON
Conditions: BACKUP W2 TERMINAL is set to CONV or COIL.	Default: ON

## Setup Menu (3 of 7)

Setting	Display
<p><b>BACKUP W2 THERMAL MOTOR</b></p> <p>Select whether the backup stage of heat W2 operates a thermally actuated zone valve (wax actuator). When set to ON, there is a 3 minute delay before operating the pump and any heat sources.</p>	<p><b>BACKUP THRM</b> MOTOR</p>
Access Level: Installer	Range: OFF or ON
Conditions: BACKUP W2 TERMINAL is set to CONV or COIL.	Default: OFF
<p><b>BACKUP W2 DELAY</b></p> <p>The minimum amount of time that the first stage W1 and the heat pump must be operating before the backup second stage W2 can turn on. AUTO = Automatic PID staging OVR = W2 only turns on when Mode is set to EMER.</p>	<p><b>BACKUP DLY</b> min</p>
Access Level: Installer	Range: AUTO, 10 to 180 min, OVR
Conditions: BACKUP W2 TERMINAL is set to CONV, COIL, FURN, or OTHR.	Default: 60 minutes
<p><b>BACKUP W2 DIFFERENTIAL</b></p> <p>Select the backup W2 differential turn on point from the previous heat stages.</p>	<p><b>BACKUP DIFF</b></p>
Access Level: Installer	Range: 0.0 to 8.0°F (0.0 to 8.0°C)
Conditions: BACKUP W2 TERMINAL is set to CONV, COIL, FURN, OTHER.	Default: 1.0°F (0.6°C)
<p><b>LOCKOUT W2</b></p> <p>The outdoor temperature above which the backup heat W2 is disabled. When Mode is set to EMER (emergency), the W2 is allowed to turn on.</p>	<p><b>LOCKOUT</b> W2</p>
Access Level: Installer	Range: 40 to 65°F, OFF (4.5 to 18.5°C)
Conditions: BACKUP W2 TERMINAL is set to CONV, COIL, FURN, or OTHR.	Default: 60°F (15.5°C)
<p><b>Y1 RELAY</b></p> <p>Select the cooling equipment the Y1 relay operates. HP1 = Heat pump AC1 = Air conditioner W2 = W2 turned on together with Y1. Used for 2-pipe hot / chilled water fan coils. The backup W2 relay activates the pump or zone valve for the fan coil for both heating and cooling. Only available when Backup W2 Source is set to TNK1.</p>	<p><b>Y1 RELAY</b></p>
Access Level: Installer	Range: HP1, AC1, W2
Conditions: Always available.	Default: HP1

## Setup Menu (4 of 7)

Setting	Display
<b>Y2 RELAY</b> Select the equipment the Y2 relay operates. HP2 = Second stage heat pump AC2 = Second stage air conditioner HRV = Heat recovery ventilator DHUM = Dehumidifier VALV = Hydronic valve for building loop	Y2 RELAY
Access Level: Installer	Range: OFF, HP2, AC2, HRV, DHUM, VALV
Conditions: Always available.	Default: OFF
<b>ACCESSORY RELAY</b> Select the equipment the accessory relay operates. HUM = Humidifier DHUM = Dehumidifier VALV = Hydronic valve for building loop	ACC RELAY
Access Level: Installer	Range: OFF, HUM, DHUM, VALV
Conditions: Always available.	Default: OFF
<b>O/B VALVE</b> Select the heat pump operation of the O / B relay. O = Turn on during cooling, turn off during heating B = Turn off during cooling, turn on during heating	O/B VALVE
Access Level: Installer	Range: O or B
Conditions: Y1 RELAY is set to HP1.	Default: O
<b>HP SOURCE</b> Select the type of source for the heat pump. AIR = Air source heat pump GEO = Geothermal source heat pump LOOP = Building hydronic loop heat pump	HP SOURCE
Access Level: Installer	Range: AIR, GEO, LOOP
Conditions: Y1 RELAY is set to HP1.	Default: AIR
<b>Y MINIMUM OFF</b> Select the compressor minimum off time.	Y MIN OFF m i n
Access Level: Installer	Range: 0:30 to 10:00 minutes
Conditions: Always available.	Default: 5:00 minutes
<b>Y2 DIFFERENTIAL</b> Select the Y2 differential on point.	Y2 DIFF
Access Level: Installer	Range: 0.0 to 4.0°F (0.0 to 4.0°C)
Conditions: Y2 RELAY is set to HP2 or AC2.	Default: 0.5°F

## Setup Menu (5 of 7)

Setting	Display
<b>Y2 DELAY</b> Select the amount of time that must elapse after the Y1 relay is turned on before the Y2 relay is allowed.	Y2 DELAY min
Access Level: Installer	Range: AUTO, 5 to 180 minutes
Conditions: Y2 RELAY is set to HP2 or AC2.	Defaults: AUTO minutes
<b>COOLING CWSD</b> Select the outdoor temperature below which the cooling system is disabled.	COOLING CWSI
Access Level: Installer	Range: OFF, 35 to 75°F (OFF, 1.5 to 24.0°C)
Conditions: Always available.	Default: 55°F (13.0°C)
<b>INTERLOCK</b> Select the amount of time for the heat - cool interlock. Applies only when Mode is set to Auto. Reduces excessive heat-cool switchovers.	INTERLOCK min
Access Level: Installer	Range: 10 to 180 minutes
Conditions: Always available.	Default: 30 minutes
<b>BALANCE POINT SCHEDULE</b> Select if the heat pump balance point should change based upon a programmable schedule.	BALANCE PT SCHED
Access Level: Installer	Range: OFF, ZONE, MEMBER 1 to 4
Conditions: Y1 RELAY is set to HP1 and outdoor temperature is available.	Default: OFF
<b>BALANCE POINT ☼</b> Heat pump balance point during the ☼ time period.	BALANCE POINT ☼
Access Level: Installer	Range: OFF, 10 to 70°F (OFF, -12.0 to 21.0°C)
Conditions: Y1 RELAY is set to HP1 and an outdoor temperature is available.	Default: OFF
<b>BALANCE POINT ☾</b> Heat pump balance point during the ☾ time period.	BALANCE POINT ☾
Access Level: Installer	Range: OFF, 10 to 70°F (OFF, -12.0 to 21.0°C)
Conditions: Y1 RELAY set to HP1, BALANCE POINT is set to schedule and outdoor temperature is available.	Default: OFF

Setup Menu (6 of 7)	
Setting	Display
<p><b>W1 HEAT WWSJ</b> Select the outdoor temperature above which the radiant floor heating is shut off.</p>	<p>W1 HEAT WWSJ</p>
Access Level: Installer	Range: OFF, 32 to 80°F (0 to 26.5°C)
Conditions: W1 TERMINAL is set HRF1, HRF2, or OTHR and outdoor temperature is available.	Default: 60°F (15.5°C)
<p><b>W CYCLES PER HOUR</b> Select the number of heating cycles per hour. SYNC = 20 minute zone synchronization. AUTO = Automatic cycles per hour to minimize temperature swings.</p>	<p>W CYCLES/ HOUR</p>
Access Level: Installer	Range: SYNC, AUTO, 2 to 12
Conditions: Setup menu setting W1 TERMINAL is set to OTHR (other) or the thermostat is not connected to a tekmarNet® system control.	Default: SYNC
<p><b>Y DURING W2</b> Select whether the heat pump compressor can operate when backup heat or cool W2 is on. When Mode is set to EMER (emergency), the heat pump compressors Y1 and Y2 are always shut off.</p>	<p>Y DURING W2</p>
Access Level: Installer	Range: OFF or ON
Conditions: BACKUP W2 TERMINAL is set to CONV, COIL, FURN, or OTHR.	Default: OFF
<p><b>BASELOAD</b> Select the level of radiant floor baseload heating. This warms the floor so that solar gain and / or air heating systems do not cause cold floors.</p>	<p>BASELOAD</p>
Access Level: Installer	Range: OFF, LOW, MED, HIGH
Conditions: Only available when a tekmarNet® system control is connected and the Setup menu setting W1 TERM is set to HRF1 or HRF2 and SENSOR 1, 2 or 3 is not set to FLOR (floor).	Default: OFF
<p><b>FLOOR COOL</b> Select whether or not the thermostat operates W1 for radiant floor cooling.</p>	<p>FLOOR COOL</p>
Access Level: Installer	Range: OFF or ON
Conditions: Setup menu setting W1 TERM is set to HRF1 or HRF2 and the thermostat must be connected to a tekmarNet® heat pump or chiller system control.	Default: OFF

## Setup Menu (7 of 7)

Setting	Display
<b>AIR GROUP MASTER</b> Select if the thermostat is a master of an air group.	<b>AIR GROUP MASTER</b>
Access Level: Installer	Range: NONE, 1 to 16
Conditions: The thermostat must be connected to other thermostats using tekmarNet®.	Default: NONE
<b>PRIORITY</b> Select either heating or cooling priority.	<b>PRIORITY</b>
Access Level: Installer	Range: HEAT or COOL
Conditions: Air Group Master is set to 1 to 16.	Default: COOL
<b>VENTILATION MODE</b> Select whether the fan provides ventilation.	<b>VENT MODE</b>
Access Level: Installer	Range: OFF or ON
Conditions: Always available.	Default: OFF
<b>HEAT PURGE</b> Select the fan coil heating purge based upon either time or on duct air temperature.	<b>HEATPURGE</b>
Access Level: Installer	Range: 0:00 to 3:00 minutes (no duct sensor) or 70 to 160°F, OFF (21.0 to 71.0°C, OFF) (with duct sensor)
Conditions: Always available.	Default: 0:30 min or 100°F (38.0°C)
<b>COOL PURGE</b> Select the fan coil cooling purge based upon either time or on duct air temperature.	<b>COOLPURGE</b>
Access Level: Installer	Range: 0:00 to 3:00 minutes (no duct sensor) or OFF, 40 to 70°F (OFF, 4.5 to 21.0°C) (duct sensor required)
Conditions: Always available.	Default: 0:00 min or 60°F (15.5°C)
<b>HUMIDIFY MODE</b> Select the humidifier operation mode.	<b>HUMIDIFY MODE</b>
Access Level: Installer	Range: OFF, HM1, HM2, HM3
Conditions: ACC RELAY is set to HUM.	Default: OFF
<b>DEHUMIDIFY MODE</b> Select the dehumidifier mode.	<b>DEHUMIDIFY MODE</b>
Access Level: Installer	Range: OFF, DHM1 to DHM5
Conditions: ACC RELAY is set to DHUM or Y2 RELAY is set to DHUM or HRV.	Default: OFF



# Sequence of Operation

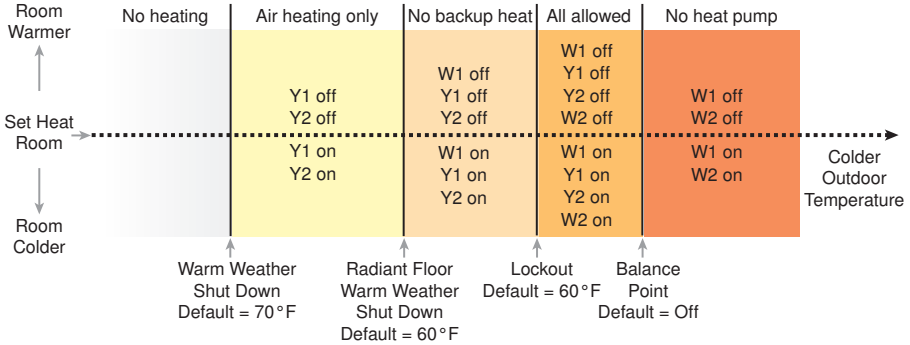
## Heating Operation

## Section A

### Set Heat Temperature

The 557 can operate radiant floor heating, heat pump stage 1 and stage 2, and a backup heat source to provide heating in different combinations depending on the outdoor air temperature. The illustration below shows when each of the available heating units are available. The “Heat On” symbol is shown on the display when the thermostat is heating. If not operating a heat pump, the first and second stage of heat (W1 and W2) are allowed to turn on below the Warm Weather Shut Down to maintain the Set Heat Room temperature.

### Heat Pump - Heating Mode



### Air Temperature Heating

When using only a room temperature sensor, the thermostat operates the heating system to maintain the Set Heat Room temperature.

### Floor Heating

When using both a room and a floor temperature sensor, the thermostat always maintains the Floor Minimum temperature, even when the air temperature is satisfied. When the air temperature is below the Set Heat Room temperature, the thermostat operates the heating system to maintain the Set Heat Room temperature. The floor is never heated above the Floor Maximum setting in order to protect the floor covering.

#### NOTICE

Suggested Floor Maximum settings are 90 °F (32 °C) for tile, stone, or concrete floors and 85 °F (29 °C) for wood floors.

## **Radiant Floor Baseload**

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When the terminal unit is selected to be a Hydronic Radiant Floor (HRF1 or HRF2) and no floor temperature sensor is installed, the thermostat has option to provide baseload heating. This allows the radiant floor to be heated even though the room air temperature is satisfied. This is useful in areas where a radiant floor heating zone is overlapped by an air heating system. The radiant floor heating is overwhelmed by the quick heat up rate of the air heating system, resulting in a radiant floor heating zone that rarely turns on. The radiant baseload option allows the radiant floor to counteract the air heating system by heating the floor at a reduced output even when the room air temperature is satisfied. This is also useful in areas that experience large solar gains through windows. The radiant baseload is automatically shut off in the summer by the warm weather shut down feature.

## **Warm Weather Shut Down**

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When the outdoor air temperature exceeds the Warm Weather Shut Down (WWSD) setting on the tekmarNet<sup>®</sup> main control, the heating system is shut off.

A W1 HEAT WWSD setting is available to allow the heat pump to heat the building while the radiant floor heat system is shut off during mild outdoor temperatures. This is advantageous in the spring and fall when heating is required at night and cooling is required during the day. As the outdoor temperature falls below the W1 HEAT WWSD setting, the radiant floor becomes the primary heat source and the heat pump provides supplemental heating.

## **Balance Point**

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An air source heat pump's Coefficient Of Performance (COP) decreases with colder outdoor temperature. This affects the heating output capacity of the heat pump to heat the building. When the COP is equal to 1, the heat pump no longer provides an economic advantage over electric heating elements or other supplemental heating fuel. The outdoor temperature at which this occurs is known as the balance point. When the outdoor temperature falls below the balance point, the heat pump is shut off and the backup supplemental heat source is operated to heat the building. The 557 has the ability for the balance point setting change based upon a programmable schedule. This is useful in cases where the electrical utility offers lower different energy pricing throughout the day.

## **Backup W2 Differential**

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The backup heat source operated by W2 has an adjustable differential. The differential is relative to the previous heating stage.

### **No radiant floor heating, no heat pump (no W1, no Y1, no Y2)**

The W2 relay's differential is  $\pm 1^{\circ}\text{F}$  ( $0.5^{\circ}\text{C}$ ) centered around Set Heat.

### **Radiant floor heating, no heat pump (W1, no Y1, no Y2)**

The W2 relay turns on at Set Heat - Backup Differential.

### **Single Stage Heat Pump (W1, Y1, no Y2)**

The W2 relay turns on at Set Heat -  $1^{\circ}\text{F}$  ( $0.5^{\circ}\text{C}$ ) - Backup Differential.

### **Two Stage Heat Pump (W1, Y1, Y2)**

The W2 relay turns on at Set Heat -  $1^{\circ}\text{F}$  ( $0.5^{\circ}\text{C}$ ) - Y2 Differential - Backup Differential.

## **Freeze Protection**

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The thermostat operates the heat whenever the room or floor temperature falls below  $40^{\circ}\text{F}$  ( $4.5^{\circ}\text{C}$ ) even when the mode is set to off.

## Set Cool Temperature

The 557 can operate a two-stage heat pump or air conditioner to provide cooling depending on the outdoor air temperature. In some cases, cooling is provided by a chilled water fan coil. The illustration below shows when each of the available cooling units are available. The “Cool On” symbol is shown on the display when the thermostat is cooling.

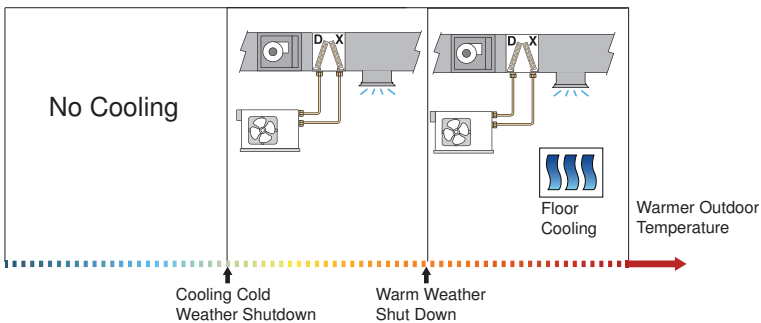
## Floor Cooling

Floor cooling is designed to cool a building together with an air cooling system. Floor cooling reduces part of the sensible cooling load, while the air cooling equipment must cool the latent load (dehumidification) and the remaining sensible load.

The thermostat has the option to support floor cooling when connected to a heat pump control using tekmarNet® communication. The terminal unit type must be set to be HRF1 or HRF2, the floor cooling setting must be set to On and the heating system must be in Warm Weather Shut Down (WWSD). When the thermostat is set to Mode Cool, the floor cooling turns on 1.0°F (0.5°C) below the Set Cool setpoint. This allows the floor cooling to operate for long periods of time while the air cooling system cycles on and off to maintain the cooling setpoint. Floor cooling does not operate below 64°F (18.0°C).

## Cooling Cold Weather Shut Down

When the outdoor air temperature falls below the Cooling Cold Weather Shut Down (CWSD) setting on the thermostat, the cooling system is shut off.



Heating and cooling minimum and maximum temperature settings are available in the Set Temp menu. These allow the installer to select start and stop limits for the temperature settings in both heating and cooling for the User and Limited access levels. This is useful in commercial installations and child / guest bedrooms where availability of the full temperature setting range may not be desirable.

**Exercising**

When connected to a tekmarNet® system control, the thermostat exercises the heat relay for 10 seconds every 3 days. Exercising helps prevent zone valves or zone pumps from failing due to precipitate buildup. During exercising, the thermostat shows “TEST” on the display.

**Flushing**

The flushing feature is for open-loop systems that use a domestic hot water tank as a heat source. Flushing ensures that fresh potable water is circulated through the system once each day. If the thermostat is connected to a tekmarNet® system control with the Flushing feature turned on, the thermostat display will display “FLUSHING” for the duration of the flushing operation.

**Hydronic System Supply Pump**

When connected to a tekmarNet® system control, the thermostat’s W1 Pump setting affects how the primary pump or mix pump on the system control operates. When connected to the boiler bus, the boiler system or primary pump is operated. When connected to the mix bus, the mix system pump is operated.

If the thermostat operates a motorized or thermal motor zone valve, the W1 Pump setting should be set to On.

If the thermostat operates a thermal motor (wax actuator) zone valve, set the W1 Thermal Motor setting to On. This provides a three minute delay to allow the zone valve to open before the primary or mix pump is turned on.

In special applications with multiple zoning manifolds, the W1 Pump setting can be set to Off. This allows a Zone Group Pump located on the Zone Manager, or Wiring Center to operate the pump for the manifold.

**DHW Tank Priority**

When a tekmarNet® system control is heating an indirect Domestic Hot Water (DHW) tank, the thermostat may shut off the heating zones to allow the DHW tank to recover quickly. This is determined by the DHW priority of the tekmarNet® system control.

The fan operates together with the air heating or cooling systems. The user can also select to operate the fan manually by pressing the Fan button. This allows the user to choose between Auto and On. "Auto" allows the fan to operate together with heating or cooling but normally the fan is off. "On" forces the fan to operate continuously.

### **Ventilation Fan**

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In order to provide ventilation to the building, the fan can also operate for additional time beyond what is required for the heating and cooling systems. Ventilation allows the user to select the fan to operate for a minimum percentage out of each hour. Options are 10 to 90%, in 10% (6 minutes per hour) increments, as well as Auto and On. This is available when the Vent Mode setting in the Setup menu is set to On.

Once Ventilation is set to On, the Fan minimum run time percentage during the ☼ and ☾ events can be set so that the fan can operate on a schedule and/or together with scenes.

### **Fan Post Purge**

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The fan relay includes a post purge feature that operates the fan after the heating or cooling system has shut off. When a duct temperature sensor is installed the length of post purge is based on the air duct temperature and the Heatpurge or Coolpurge temperature settings. When there is no duct temperature sensor installed, the length of post purge is based upon the Heatpurge and Coolpurge time settings.

Relative Humidity (RH) is controlled by maintaining the Minimum Humidity using humidification and by maintaining Maximum Humidity using dehumidification. The RH is maintained within a 5% differential. The differential is applied above the minimum setpoint, and applied below the maximum setpoint. When the mode is set to off, the humidification and dehumidification systems do not operate.

To avoid condensation on windows, the minimum relative humidity setting can be changed according to the following outdoor temperatures.

Outdoor Temperature	-10°F (-23°C)	0°F (-18°C)	10°F (-12°C)	20°F (-7°C)	30°F (-1°C)
Suggested RH Min	20%	25%	30%	35%	35%

The thermostat has three humidification modes.

Operation	Mode	Required Relay(s)	Sensor Required
<p><b>Stand Alone Humidifier</b> Humidifier operates independently of the HVAC system. Available in all modes except off.</p>	HM1	ACC RELAY = HUM	None
<p><b>Humidifier with Fan</b> Humidifier ducted together with HVAC system. The system fan is operated whenever the humidifier is operating. Available in all modes except off.</p>	HM2	ACC RELAY = HUM	None
<p><b>Humidifier with Air Heating</b> Humidifier ducted together with HVAC system. The air system must be heating (heat pump, furnace, electric or hydronic fan coil) in order to allow the humidifier to operate. Available when heating.</p>	HM3	ACC RELAY = HUM	None

The thermostat has up to five dehumidification modes.

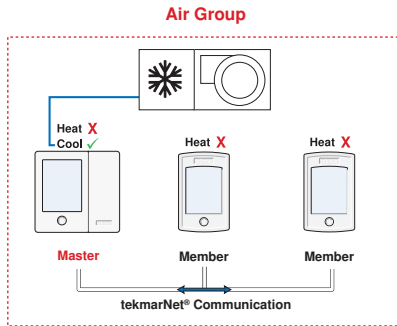
Operation	Mode	Required Relay(s)	Sensor Required
<p><b>Stand Alone Dehumidifier</b> Dehumidifier operates independently or the HVAC system. Available in all modes except off.</p>	DHM1	ACC RELAY = DHUM <b>or</b> Y2 RELAY = DHUM	None
<p><b>Coil Dehumidification</b> A duct temperature sensor is required. A DX or chilled water coil is operated to maintain a discharge air temperature of 45°F (7°C). The room air temperature is allowed to fall up to 3°F (1.5°C) below the cooling setpoint while coil dehumidification is operating, at which point dehumidification is shut off. The fan relay (G) is not turned on, rather the ACC or Y2 relay provides a signal to the air handler unit to operate the fan at low speed. Available only when cooling.</p>	DHM2	ACC RELAY = DHUM <b>or</b> Y2 RELAY = DHUM	Duct Sensor 083
<p><b>HRV Dehumidification (only available with single stage heat pumps or air conditioners)</b> The HRV is operated based upon indoor dew point and outdoor air temperature. The HRV operates when the indoor dew point is 5.5°F (3.0°C) above the outdoor temperature. The HRV is shut off when the indoor dew point falls to 2°F (1.0°C) above the outdoor temperature. Available in all modes except off.</p>	DHM3	Y2 RELAY = HRV	Outdoor Sensor 070
<p><b>Stand Alone + HRV Dehumidification (only available with single stage heat pumps or air conditioners)</b> During cooling mode, a stand alone dehumidifier is operated in the same manner as DHM1. During heating mode, an HRV provides dehumidification in the same manner as DHM3. Available in all modes except off.</p>	DHM4	ACC RELAY = DHUM <b>and</b> Y2 RELAY = HRV	Outdoor Sensor 070
<p><b>Coil + HRV Dehumidification (only available with single stage heat pumps or air conditioners)</b> During cooling mode, a coil dehumidifier is operated in the same manner as DHM2. During heating mode, an HRV provides dehumidification in the same manner as DHM3. Available in all modes except off.</p>	DHM5	ACC RELAY = DHUM <b>and</b> Y2 RELAY = HRV	Duct Sensor 083 <b>and</b> Outdoor Sensor 070



In order to prevent heating and cooling at the same time, this thermostat can operate together with other thermostats on a tekmarNet<sup>®</sup> system to form an air group. On older model thermostats the air group functionality was previously described as a cool group. In an air group, one thermostat is assigned as the air group master. The air group master operates the cooling equipment for the group. When operating as an air group, the air temperature readings of all the air group member thermostats are communicated to the air group master thermostat and an average temperature is determined. When the air group master is in cooling operation, the air group member thermostats do not operate the heating system for air heating.

When operating a heat pump, the 557 also has the ability to prevent air group member thermostats from heating while the outdoor temperature is between the Warm Weather Shut Down (WWSD) and the Radiant Floor WWSD (W1 WWSD) setting. This allows the air system heat pump to heat the building during mild outdoor weather and avoids heating up the radiant floor slab.

If the Set Heat Room temperature is adjusted while the air group is cooling, COOL is flashed on the display to alert the user that the air group cooling system is presently on and heating is not available. Once the cooling system shuts off, heating is available if required.



The thermostat includes a time clock that is automatically visible in the Home menu when a programmable schedule is used. If the schedule is not used, the user has the option to select whether the time is shown in the Home menu.

**During a loss of power, the thermostat continues to keep the correct time and date for at least 4 hours.** If the power is off for more than 4 hours, the user will need to set the time.

The thermostat supports automatic update for daylight savings time. Simply set Daylight Save to On together with the correct day, month, and year and the time is automatically updated each spring and fall.

When connected to a tekmarNet<sup>®</sup> system, adjustment of the time on one thermostat updates all connected thermostats. This option can be disabled by selecting the Local Network Group setting to be On.

**Permanent Adjustment - No Schedule**

When no programmable schedule is used, touch the up or down arrows to permanently set the “Set Heat Room” or “Set Cool Room” temperature. This thermostat is capable of controlling both air and floor temperature.

**Permanent Adjustment - With Schedule**

When a programmable schedule is used, there are two room heating temperatures available, one for the ☼ time period and another for the ☾ time period. When touching the up or down arrows to change the temperature, only the temperature for the current time period is changed.

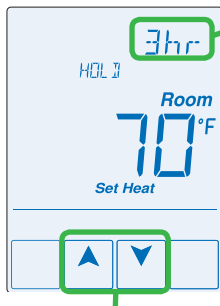
1. To adjust the temperature for both time periods, press and hold the Home button for 3 seconds to enter the programming menus.
2. Enter the “SET TEMP” menu to adjust the following settings:
  - Set Heat Room ☼ (air heating or air heating with floor sensor)
  - Set Heat Room ☾ (air heating or air heating with floor sensor)
  - Set Heat Room AWAY (air heating or air heating with floor sensor)
  - Floor Min ☼ (air heating with floor sensor)
  - Floor Min ☾ (air heating with floor sensor)
  - Set Cool Room ☼ (air cooling)
  - Set Cool Room ☾ (air cooling)
  - Set Cool Room AWAY (air cooling)

**Temporary Hold**

Temporary hold allows a user to change the temperature for a period of time and then automatically return to the permanent temperature setting. This is especially useful in commercial buildings that are in use for short amounts of time. When selected, touching the up or down arrows changes the temperature for either 3, 6, 9 or 12 hours. If the thermostat is using a schedule, ‘Schd’ provides a temporary hold until the next schedule event time. After the temporary hold time expires, the thermostat returns to normal operation. By default, the temporary hold feature is off.

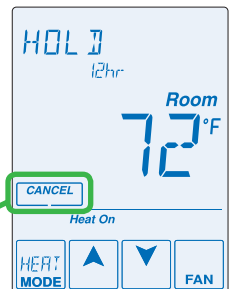


When the temporary hold feature is enabled, touching the up or down arrow displays ‘TEMPORARY HOLD’.



Use the Up or Down arrow to select a temperature.

Tap the hour setting until the preferred length of time is displayed.



Cancel the temporary hold.

‘HOLD’ is displayed while the thermostat is operating at the temporary hold temperature.

Energy savings can be achieved by lowering the heating temperature and increasing the cooling temperature when the building is unoccupied or during the night.

When operating on a programmable schedule, a ☀ or a 🌙 symbol is shown in the home menu. The ☀ or 🌙 indicates the current operating temperature.

**All schedules are stored in permanent memory and are not affected by a loss of power.**

Display	Action
☀	Day temperature
🌙	Night temperature

This thermostat can operate on a programmable schedule in order to automatically lower the room temperature setting. Options include:

- Turning off the schedule (OFF)
- Operate a schedule that applies only to this thermostat zone (ZONE)
- The ability to operate one of the four system-wide schedules as a master (Schedule Master 1 through 4\*)
- Join one of the four system-wide schedules as a member (Schedule Member 1 though 4\*)

\*Requires the thermostat to be connected to a tekmarNet® system.

Once the type of schedule has been selected, the thermostat can support schedules that have either:

- 2 events per day
- 4 events per day

Schedules with four events per day are common for residential use while two events per day are common for commercial installations.

The schedules can be repeated every:

- 24 hours
- 7 days (week)

A 7 day schedule allows a unique time to be set to change the temperature for each day of the week.

The schedule also includes a “SKIP” option that allows the programmable schedule to skip a temperature change and remain at the previous temperature setting. The “SKIP” setting can be found between 11:50 PM (23:50 hours) and 12:00 AM (0:00 hours).

When a programmable schedule is selected, there is a time delay for the room to warm up or cool down from the 🌙 temperature to the ☀ temperature. The thermostat has the option to use Optimum Start to predict the heat up or cool down rate of the room. When Optimum Start is set to On, the heating or cooling is started in advance to allow the room to reach the Set Room ☀ temperature at the time set in the programmable schedule.

Scenes provide an easy way to save energy while away on vacation, or override a programmable schedule when plans change.

**Away Key**

This thermostat includes an Away Key to quickly turn down the heating temperatures and increasing the cooling temperatures on all thermostats and suspend heating the domestic hot water tank to maximize energy savings. To enable, go the Scene menu and set Away Key to on.

To activate the Away scene, touch “Going Away” on the screen.

- Select PERM (permanent) or a number of days using the ▲ or ▼ arrow. Range is 1 to 180 days.
- Press the home button to accept the setting or leave the screen untouched for several seconds.
- “Scene Away” is displayed on the home screen until the number of days expires.
- Touch “Cancel Away” to cancel at any time.



**The temperature is not adjustable while the thermostat is in Away.**

**Additional Scenes**

Additional energy saving scenes are available when a User Switch or Gateway is installed. A complete listing of each scene is shown below.

Scene Number	Scenes = None Operation	Scenes = Away Operation	Scenes = All Operation	Scenes = Guest Operation
1	Permanent ✨ or Schedule	Permanent ✨ or Schedule	Permanent ✨ or Schedule	Permanent ☾
2	Scene 1	Away	Away	Away
3	Scene 1	Scene 1	Permanent ☾	Permanent ☾
4	Scene 1	Scene 1	Configurable	Permanent ☾
5	Scene 1	Scene 1	Permanent ✨ or Schedule	Permanent ✨ or Schedule
6	Scene 1	Scene 1	Temporary ✨ 3 Hours	Permanent ☾
7	Scene 1	Scene 1	Temporary ☾ 4 Hours	Permanent ☾
8	Scene 1	Scene 1	Temporary ✨ 8 Hours	Permanent ☾

## Recommendation on How to Use Scenes

Choosing how to use scenes depends on the needs and lifestyle of the customer using the building.

### Multi-Tenant Apartments

Scenes should be disabled (None) in multi-tenant buildings where each occupant has differing heating requirements.

### Residential Homes

Some residential customers may not require scenes, in which case, scenes can be disabled (None). Home owners that wish to save on energy costs should consider using the Away scene to save energy while away from the property (example: vacation or holidays).

The use of the Guest scene is useful in residential applications where there are a number of spare bedrooms that are occupied on an infrequent basis. Each spare bedroom would be setup to operate on the Guest scene. The remaining thermostats can be setup to operate on the None, Away or All scene configuration. Normally, the spare bedrooms would operate at the moon temperature settings. When guests arrive, scene 5 can be activated through the use a User Switch or Gateway. The spare bedroom then operates at the ☼ temperature settings or operates on a programmable schedule if a schedule has been setup. When guests depart, the scene can be changed back to scene 1 and the spare bedrooms resume operation at the ☾ temperature settings.

### Commercial Buildings

Commercial buildings are typically in use on a predictable schedule and normally the building can operate in scene 1. In order to accommodate staff working overtime or cleaning staff, a 3 or 8 hour temporary override is available when installed in conjunction with a User Switch or Gateway. In these cases, the thermostats should be setup to use the All scene configuration. At the touch of a button, the whole building changes from operating on a programmable schedule (typically at the ☾ temperature setting when not occupied) to operating at the ☼ temperature settings for 3 hours (scene 6) or 8 hours (scene 8). After the timer counts down and expires, the scene changes back to the previous scene.

## Secondary Temperature Display

## Section L

This thermostat can display the outdoor, floor, relative humidity, or the room heating and cooling temperature settings in the smaller number area at the top right of the screen. To toggle the item currently displayed, touch the secondary temperature. Display of the floor or outdoor temperature requires a connection to an outdoor or floor temperature sensor, or the thermostat is connected to a tekmarNet® system that includes an outdoor sensor. The reading of the outdoor sensor connected directly to the thermostat takes precedence over any outdoor sensor reading available on the tekmarNet® system.



The thermostat Toolbox menu supports four access levels: Installer (INST), User (USER), Limited (LTD), and Secure (SEC). The access level can be adjusted when the thermostat is unlocked. There are two locations to lock the thermostat:

1. Locally on the thermostat using the Lock switch located in the wiring area.
2. Globally on the tekmarNet<sup>®</sup> system control using the Lock switch or Access level (if installed)

Both the local and global lock settings must be set to unlock before the thermostat access level is adjustable.

The selection of the access level is dependent on the use of the building and the type of occupants.

**Installer** - Suitable for HVAC installers only. Times out to User access level after 24 hours.

**User** - Suitable for most residential homeowners.

**Limited** - Suitable for rental properties or commercial buildings where some level of temperature adjustment is required.

**Secure** - Suitable for schools, churches, and other public buildings where temperature adjustment is not desired.

When connected to a tekmarNet<sup>®</sup> system, each thermostat will be automatically given an address. The address is useful as a troubleshooting tool to locate thermostats with errors and also allows room naming on a Gateway.

The address consists of the bus water temperature followed by the thermostat device number. Available buses are b (boiler), 1, 2 and 3. Device numbers range from 01 to 24. If the thermostat is used without a tekmarNet<sup>®</sup> system control, the bus number is not shown.

When using the thermostat together with a Gateway, it is important that each address be changed to be manually set. This allows each thermostat to be named on the Gateway.

If two thermostats are manually set to the same address, an error message will appear. The error remains until one of the addresses is manually changed to a vacant address or to Auto.

It is highly recommended to keep a documented list of thermostat addresses. This is extremely helpful when troubleshooting errors. The tekmarNet<sup>®</sup> system control will display the addresses of thermostats that have errors. By referring to the address documentation, it simplifies the process to locate and correct error messages.

Entering the Screen Clean menu allows 30 seconds to clean the thermostat and display with a moist cloth. Do not use solvents to clean the thermostat.

# Troubleshooting

## Error Messages (1 of 5)

Error Message	Description
SETUP <small>SAVE</small> <b>ERR</b>	<b>SETUP MENU SAVE ERROR</b> The thermostat failed to read the Setup menu settings from memory and has reloaded the factory default settings. The thermostat stops normal operation until all settings in the Setup menu are checked except to provide freeze protection. To clear the error, set the access level to Installer and check all settings in the Setup menu.
SET TEMP <small>SAVE</small> <b>ERR</b>	<b>SET TEMP MENU SAVE ERROR</b> The thermostat failed to read the Set Temp menu settings from memory and has reloaded the factory default settings. The thermostat stops normal operation until all settings in the Set Temp menu are checked except to provide freeze protection. To clear the error, set the access level to Installer and check all settings in the Set Temp menu.
MONITOR <small>SAVE</small> <b>ERR</b>	<b>MONITOR MENU SAVE ERROR</b> The thermostat failed to read the Monitor menu settings from memory and has reloaded the factory default settings. The thermostat continues to operate normally while displaying this error. To clear the error, set the access level to Installer and check all settings in the Monitor menu.
SCHEDULE <small>SAVE</small> <b>ERR</b>	<b>SCHEDULE MENU SAVE ERROR</b> The thermostat failed to read the Schedule menu settings from memory and has reloaded the factory default settings. The thermostat continues to operate normally while displaying this error. To clear the error, set the access level to Installer and check all settings in the Schedule menu.
TOOL BOX <small>SAVE</small> <b>ERR</b>	<b>TOOLBOX MENU SAVE ERROR</b> The thermostat failed to read the Toolbox menu settings from memory and has reloaded the factory default settings. The thermostat continues to operate normally while displaying this error. To clear the error, set the access level to Installer and check all settings in the Toolbox menu.
TIME <small>SAVE</small> <b>ERR</b>	<b>TIME MENU SAVE ERROR</b> The thermostat failed to read the Time menu settings from memory and has reloaded the factory default settings. The thermostat continues to operate normally while displaying this error. To clear the error, set the access level to Installer and check all settings in the Time menu.
SCENES <small>SAVE</small> <b>ERR</b>	<b>SCENES MENU SAVE ERROR</b> The thermostat failed to read the Scenes menu settings from memory and has reloaded the factory default settings. The thermostat continues to operate normally while displaying this error. To clear the error, set the access level to Installer and check all settings in the Scenes menu.

## Error Messages (2 of 5)

Error Message	Description
<p><b>DISPLAY</b> SAVE <b>ERR</b></p>	<p><b>DISPLAY MENU SAVE ERROR</b> The thermostat failed to read the Display menu settings from memory and has reloaded the factory default settings. The thermostat continues to operate normally while displaying this error. To clear the error, set the access level to Installer and check all settings in the Display menu.</p>
<p><b>tN2 PORT</b> <b>ERR</b></p>	<p><b>tN2 PORT ERROR</b> The thermostat has been connected to a tN2 zone already in use by a 2-stage zoning control. A 2-stage device requires two tN2 ports to operate. This device may be connected to one such port. To clear the error, move the thermostat's tN2 wires to an unused tN2 port on the zoning control.</p>
<p><b>NO SENSOR</b> ON <b>ERR</b></p>	<p><b>NO SENSOR ON ERROR</b> All of the temperature sensors have been set to Off including the built-in room sensor. To clear the error, the Room Sensor, Sensor 1, 2 or 3 must be set to measure an air or floor temperature.</p>
<p><b>W2 SOURCE</b> BUS <b>CFG</b></p>	<p><b>W2 SOURCE BUS CONFIGURATION ERROR</b> The backup W2 heat source has been changed on the tekmarNet® System Control. To clear the error, check the Backup W2 Source setting in the Setup menu.</p>
<p><b>TEKMARNET</b> COM <b>ERR</b></p>	<p><b>tekmarNet® COMMUNICATION ERROR</b> The tekmarNet® communication bus has either an open or a short circuit. The result is that there are no communications. Check for loose wires between tN4 and C. Check for short circuits between the tN4 and C wires on the House Control, Wiring Center, or Zone Manager. Check for correct polarity between the C and R wires. The error clears automatically once the wiring fault has been corrected. To force the error to clear while allowing a short or open circuit to continue, touch the Cancel key.</p>
<p><b>ADDRESS</b> TAKEN <b>ERR</b></p>	<p><b>ADDRESS ERROR</b> Two thermostats have been manually set to the same address. The thermostat continues to operate with this error but does not communicate with the tekmarNet® system. To clear this error, select an unused tekmarNet® address or select automatic addressing.</p>
<p><b>DEVICE</b> LIMIT <b>ERR</b></p>	<p><b>DEVICE LIMIT</b> More than 24 devices (thermostats or setpoint controls) have been connected to the tekmarNet® communication bus. To clear the error, remove and relocate devices to other available buses until the device count is 24 or less.</p>






## Error Messages (3 of 5)

Error Message	Description
<p>ROOM SHORT ERR</p>	<p><b>ROOM SENSOR SHORT CIRCUIT ERROR</b>            Due to a short circuit, the thermostat is unable to read the built-in room temperature sensor. If Sensor 1, 2 or 3 is set to Room, or the thermostat is connected to a tekmarNet® system control, the thermostat continues to operate, otherwise operation stops.            The error cannot be field repaired. Contact your tekmar® sales representative for repair procedures.</p>
<p>ROOM OPEN ERR</p>	<p><b>ROOM SENSOR OPEN CIRCUIT ERROR</b>            Due to an open circuit, the thermostat is unable to read the built-in room temperature sensor. If Sensor 1, 2 or 3 is set to Room, or the thermostat is connected to a tekmarNet® system control, the thermostat continues to operate, otherwise operation stops.            The error cannot be field repaired. Contact your tekmar® sales representative for repair procedures.</p>
<p>HUMIDITY LOCAL ERR</p>	<p><b>LOCAL HUMIDITY SENSOR ERROR</b>            The built-in humidity sensor is faulty. The error cannot be field repaired. Contact your tekmar® sales representative for repair procedures.</p>
<p>HUMIDITY EXT ERR</p>	<p><b>EXTERNAL HUMIDITY SENSOR ERROR</b>            The external humidity sensor is faulty. Check the external sensor wiring terminations and troubleshoot using the data brochure 086_D. The error will self clear when the humidity sensor is reading correctly. If the external humidity sensor has been intentionally removed, set the Sensor 3 setting in the Setup menu to Off.</p>
<p>SENSOR 1 SHORT ERR</p>	<p><b>SENSOR 1, 2 OR 3 SHORT CIRCUIT ERROR</b>            Due to a short circuit, the thermostat is unable to read auxiliary Sensor 1, 2 or 3. The thermostat stops normal operation if the Sensor is the only active Room or Floor sensor or if a Floor Maximum temperature has been set.            Check the auxiliary sensor wire for short circuits according to the sensor installation manual. It may be necessary to replace the auxiliary sensor. Once the error has been corrected, the error message automatically clears.</p>
<p>SENSOR 1 OPEN ERR</p>	<p><b>SENSOR 1, 2 OR 3 OPEN CIRCUIT ERROR</b>            Due to an open circuit, the thermostat is unable to read auxiliary Sensor 1, 2 or 3. The thermostat stops normal operation if the Sensor is the only active Room or Floor sensor or if a Floor Maximum temperature has been set.            Check the auxiliary sensor wire for short circuits according to the sensor installation manual. It may be necessary to replace the auxiliary sensor. Once the error has been corrected, the error message automatically clears.            If the auxiliary sensor has been intentionally removed, set the applicable Sensor 1, 2 or 3 setting in the Setup menu to Off.</p>

## Error Messages (4 of 5)

Error Message	Description
<p><b>SYSTEM CTRL LOST</b></p>	<p><b>SYSTEM CONTROL LOST ERROR</b></p> <p>The thermostat can no longer communicate to the tekmarNet® system control. Check for open or short circuits in the tekmarNet® communication wiring. The error automatically clears once the tekmarNet® system control has been detected.</p> <p>If the tekmarNet® system control was intentionally removed from the system, remove and then re-apply power to the thermostat to clear the error.</p>
<p><b>NEED DUCT SENSOR ERR</b></p>	<p><b>NEED DUCT SENSOR ERROR</b></p> <p>The dehumidifier mode has been configured to be DHUM2 or DHUM3. These modes require a duct sensor in order to function and no duct sensor has been detected. To clear the error message, either change the dehumidification mode or install a duct sensor to Sensor 1.</p>
<p><b>AIR GROUP MASTER ERR</b></p>	<p><b>AIR GROUP MASTER ERROR</b></p> <p>Two thermostats have been assigned to be the master of the same air group (cool group) number.</p> <p>To clear the error, go to the Setup menu and either select a different air group master number or set the air group master to None.</p>
<p><b>SCHEDULE MASTER ERR</b></p>	<p><b>SCHEDULE MASTER ERROR</b></p> <p>Two thermostats on the tekmarNet® system have been set to the same Schedule Master number. The thermostat operates at the ✱ temperature settings while this error is present.</p> <p>To clear the error, select a different Schedule Master number, set a different Schedule Member number, set the Schedule to Zone, or set the Schedule to None.</p>
<p><b>SCHEDULE MEMBER ERR</b></p>	<p><b>SCHEDULE MEMBER ERROR</b></p> <p>The thermostat can no longer detect its schedule master. The thermostat operates at the ✱ temperature settings while this error is present.</p> <p>To clear the error, select a different Schedule Member number, set the Schedule to Zone, or set the Schedule to None.</p>
<p><b>CHANGE FILTER</b></p>	<p><b>CHANGE FILTER</b></p> <p>The air filter requires cleaning or replacement. Once this has been completed touch the Cancel key in the Toolbox menu. Alternatively, go to the Monitor menu and clear the Filter Hours by touching the number and then touch the ENTER key.</p>
<p><b>FREEZE PROT WARN</b></p>	<p><b>FREEZE PROTECTION WARNING</b></p> <p>The duct temperature has dropped below 45°F (7.0°C). The second stage cooling will be forced off at 40°F (4.5°C) and the first stage cooling will be forced off at 35°F (1.5°C). The warning message self clears once the duct temperature exceeds 45°F (7.0°C).</p>

## Error Messages (5 of 5)

Error Message	Description
 <p>ERROR AT TSTAT 01</p>	<p><b>ERROR AT THERMOSTAT</b> There is an error on a different thermostat or setpoint control connected to the tekmarNet® system and not on this thermostat. 01 to 24 = Thermostat only network Go to the thermostat with the listed address to correct the error.</p>
 <p>ERROR AT TSTAT b:01</p>	<p><b>ERROR AT THERMOSTAT</b> There is an error on a different thermostat or setpoint control connected to the tekmarNet® system and not on this thermostat. b:01 to b:24 = boiler bus 1:01 to 1:24 = bus 1 or mix1 bus 2:01 to 2:24 = bus 2 or mix2 bus 3:01 to 3:24 = bus 3 or mix 3 bus Go to the thermostat with the listed address to correct the error.</p>
 <p>ERROR AT SYSTEM CTRL</p>	<p><b>ERROR AT SYSTEM CONTROL</b> There is an error on the tekmarNet® system control connected to the tekmarNet® system and not on this thermostat.</p>

## Technical Data

### tekmarNet® Thermostat 557; Radiant Floor, 2 Heat Pump/Cool, Backup, Humidity

Literature	557_A, 557_C, 557_D, 557_Q, 557_U
Control	Microprocessor control. This is not a safety (limit) control
Packaged weight	0.9 lb. (400 g)
Dimensions	4-1/2" H x 4-3/4" W x 7/8" D (114 x 120 x 22 mm)
Enclosure	White PVC plastic, NEMA Type 1
Approvals	Meets Class B: ICES & FCC Part 15
Ambient conditions	Indoor use only, 32 to 122°F (0 to 50°C), RH ≤90% non-condensing
Environmental	Compatible with chlorinated swimming pool environments. Do not use in presence of ammonia (animal barns), methanol, ethanol, acetone.
Power supply	24 V ±10%, 60 Hz, 2.0 VA standby, NEC / CEC Class 2
Relays	24 V (ac) 2 A
0-10 V (dc) Output	3.3 V (dc) humidity sensor power, 3.0 mA maximum
Humidity sensor	0 to 90% ± 3% RH
Temperature sensor	NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892
– Included	None
– Optional	tekmar type # 070, 072, 073, 076, 077, 079, 083, 084, 086

## Limited Warranty and Product Return Procedure

**Limited Warranty** *The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same.*

The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with tekmar's instructions, ordinary wear and tear excepted. The pass-through warranty period is for a period of twenty-four (24) months from the production date if the Product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.

The liability of tekmar under the Limited Warranty shall be limited to, at tekmar's sole discretion: the cost of parts and labor provided by tekmar to repair defects in materials and / or workmanship of the defective product; or to the exchange of the defective product for a warranty replacement product; or to the granting of credit limited to the original cost of the defective product, and such repair, exchange or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited Warranty does not cover the cost of the parts or labor to remove or transport the defective Product, or to reinstall the repaired or replacement Product, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold tekmar harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the Product was not installed in compliance with tekmar's instructions and / or the local codes and ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with tekmar's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, DURABILITY OR DESCRIPTION OF THE PRODUCT, ITS NON-INFRINGEMENT OF ANY RELEVANT PATENTS OR TRADEMARKS, AND ITS COMPLIANCE WITH OR NON-VIOLATION OF ANY APPLICABLE ENVIRONMENTAL, HEALTH OR SAFETY LEGISLATION; THE TERM OF ANY OTHER WARRANTY NOT HEREBY CONTRACTUALLY EXCLUDED IS LIMITED SUCH THAT IT SHALL NOT EXTEND BEYOND TWENTY-FOUR (24) MONTHS FROM THE PRODUCTION DATE, TO THE EXTENT THAT SUCH LIMITATION IS ALLOWED BY THE GOVERNING LAW.

**Product Warranty Return Procedure** All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar Representative assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. For more information: [www.watts.com/prop65](http://www.watts.com/prop65)



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