



Installation and Operating Instructions

Part Number 33CS071-01

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IMPORTANT: Read entire instructions before starting the installation.

SAFETY CONSIDERATIONS

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

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

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies a

hazard which could result in personal injury or death. CAUTION is used to identify unsafe practices which would result in minor personal injury or property damage.

GENERAL

The commercial, non-programmable thermostats are wall-mounted, low-voltage thermostats which maintain room temperature by controlling the operation of an HVAC (Heating, Ventilation, and Air Conditioning) system. Separate heating and cooling set points and auto-changeover capability allow flexibility. Dry contacts are available to control the thermostat to occupied and unoccupied set points from an external device for energy savings.

Batteries are not required. During power interruption the internal NEVERLOST™ memory stores the thermostat configuration for an unlimited amount of time.

The thermostat can be configured to accept several different equipment configurations, including heat pump operation.

NOTE: The thermostat is not factory-configured for use in heat pump applications. The advanced setup must be performed to configure the thermostat for use with heat pump units.

INSTALLATION

Select Thermostat Location — The thermostat should be mounted:

- approximately 5 ft from the floor
- close to or in a frequently used room, preferably on an inside partitioning wall
- on a section of wall without pipes or ductwork
- where temperature operating limits are within 41 to 104 F (5 to 40 C)
- where humidity operating range is within 0 to 95% relative humidity, non-condensing

The thermostat should **NOT** be mounted:

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

Install Thermostat

⚠ WARNING

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

1. Turn off all power to unit.
2. If an existing thermostat is being replaced:
 - a. Remove existing thermostat from the wall.
 - b. Disconnect wires from existing thermostat. Do not allow wires to fall back into the wall. As each wire is disconnected, record wire color and terminal connection.
 - c. Discard or recycle old thermostat.

NOTE: Mercury is a hazardous waste and must be disposed of properly.
3. Remove the thermostat cover from wall plate (mounting base) to expose mounting holes. See Fig. 1.
4. Route thermostat wires through large hole in mounting base. Remove outer sheath from wires for added flexibility. Standard solid or multi-conductor thermostat wire should be used from the thermostat to the unit. **Size and length considerations are as follows: for a maximum distance from unit of 36 ft, use 22 AWG (American Wire Gage) wire; for a maximum distance from unit of 100 ft, use 18 AWG wire.**
5. Level mounting base against wall and mark wall through the 2 mounting holes in base.
6. Drill two $\frac{3}{16}$ -in. mounting holes in wall where marked.

⚠ CAUTION

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

7. Secure mounting base to wall with 2 screws and anchors provided. Ensure all wires exit through hole in mounting base.
8. Adjust wire length and routing to allow proper closure of the thermostat. Strip each wire at the end no more than $\frac{1}{4}$ -in. to prevent adjacent wires from shorting together. Match and connect wires to terminals on the thermostat. See Fig. 2-4 and Table 1.

⚠ CAUTION

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

9. Push excess wiring into wall. Seal hole in wall to prevent drafts.
10. Reattach thermostat cover to back plate.
- 11. Turn on power to unit. The thermostat will receive power from the unit. The thermostat will be powered by 24 v, nominal (18 to 30 vac). The following terminals are available: R (+ 24 v), W1/O/B (first stage heat or reversing valve), Y1 (first stage cooling), G (fan relay), C (common), Y2 (second stage cooling), and W2 (second stage heating).

Heat Pump Configuration — To configure the thermostat for heat pump operation, Advanced Setup Steps 3 (Heat Pump Operation) and 4 (Reversing Valve Polarity) must be configured correctly. See the Configure Advanced Setup section for information on configuring these options.

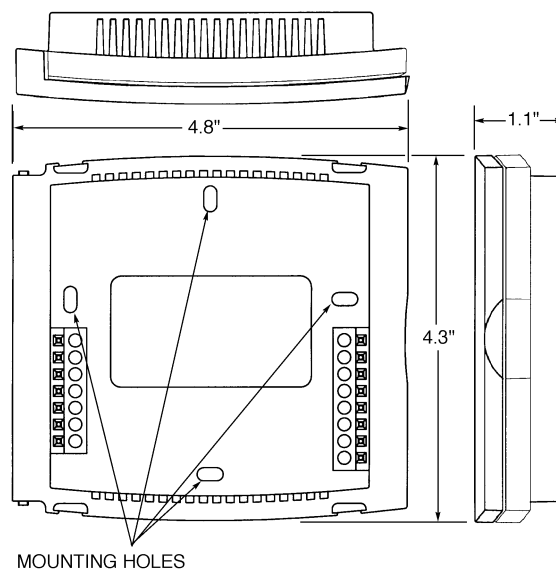


Fig. 1 — Thermostat Mounting

NOTE: Some large commercial rooftop heat pump units (50HJQ,TJQ,EJQ) must be configured with Advanced Setup Step 3 (Heat Pump Operation) set to OFF. Refer to the base unit instructions for more information.

→ **Table 1 — Thermostat Wiring Terminations**

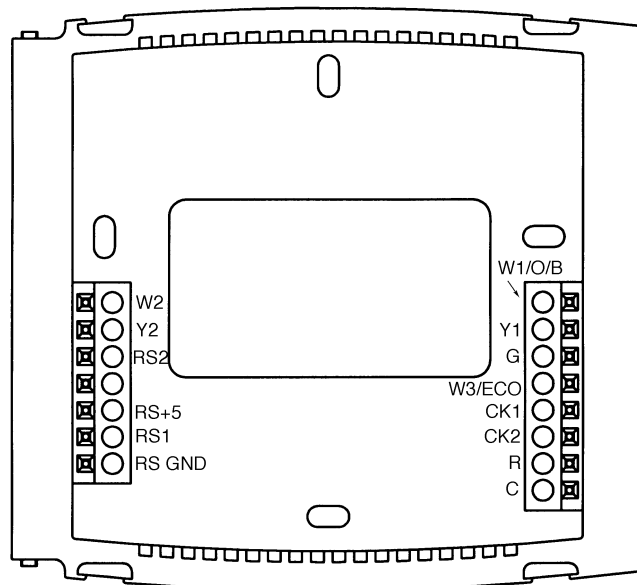
EXISTING WIRE DESIGNATION	FUNCTION	TERMINAL CONNECTION
G or F	Fan	G
Y1, Y, or C	Cooling	Y1
W1, W, or H	Heating	W1/O/B
Rh, R, M, Vr, or A	Power (24 v)	R
C	Common	C
O/B	Reversing Valve	W1/O/B*
Y2	Second Stage Cooling	Y2
W2	Second Stage Heating	W2
RS+5	Remote Sensor (5 vdc)	RS+5
RS	Remote Sensor Signal	RS
RS G	Remote Sensor Ground	RS G
CK1	Dry Contact Switch 1	CK1
CK2	Dry Contact Switch 2	CK2

*Used on Heat Pump applications only.

Configure Advanced Setup — To enter into the advanced setup screens of the thermostat, press the Mode and Backlight buttons at the same time. The Advanced Setup Step number is shown in the top right corner of the thermostat screen. Use the Mode button to advance through the steps. There are 17 Advanced Setup Steps. See Table 2. Press the Backlight button at any time to exit the Advanced Setup mode.

UNOCCUPIED COOLING AND HEATING SET POINTS (Steps 1 and 2) — When the thermostat is used in conjunction with an external device wired to the dry contacts, the thermostat is placed in unoccupied mode when the contacts open or close (depending on the configuration of advanced setup Step 9). The thermostat will control cooling and heating to the Unoccupied Cooling and Heating Set Points.

The Unoccupied Cooling Set Point is configured in Step 1. The acceptable range of values is 35 to 99 F. The configuration can also be set to OF (does not allow unoccupied cooling). After the desired temperature has been configured, press the Mode button to continue to Step 2.



LEGEND

W2	—	Second-Stage Heat	W1/O/B	—	First-Stage Heat or Reversing Valve
Y2	—	Second-Stage Compressor	Y1	—	First-Stage Compressor
RS2	—	Second Remote Sensor (Not Used)	G	—	Fan
RS+5	—	+5 vdc	W3/ECO	—	Economizer (Not Used)
RS1	—	Remote Sensor	CK1	—	Dry Contact
RS GND	—	Ground	CK2	—	Dry Contact Ground
			R	—	24 vac Transformer
			C	—	24 vac Transformer Common

Fig. 2 — Thermostat Wiring

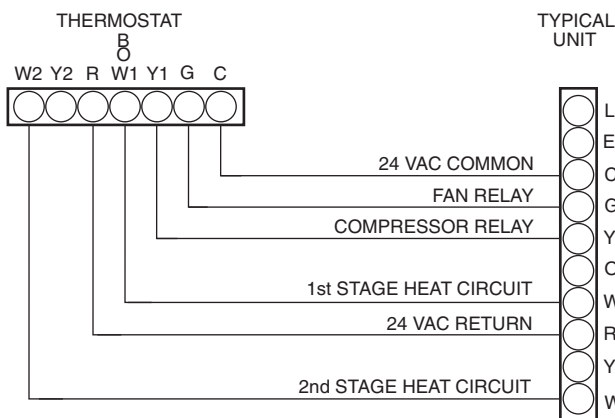


Fig. 3 — Typical Wiring (Single-Stage Cooling Units and Two-Stage Heat Units)

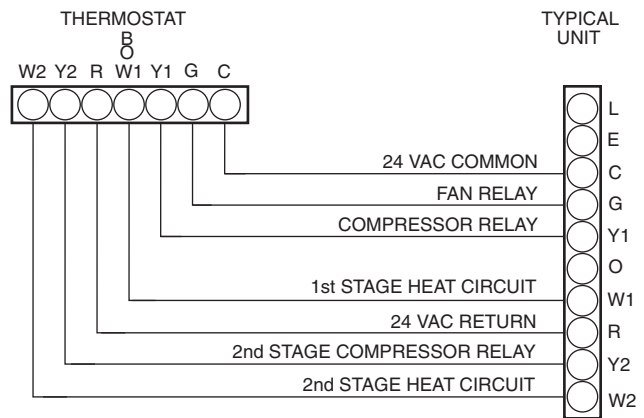


Fig. 4 — Typical Wiring (Two-Stage Cooling Units and Two-Stage Heat Units)

→ The Unoccupied Heating Set Point is configured in Step 2. The acceptable range of values is 35 to 99 F. The configuration can also be set to OF (does not allow unoccupied heating). After the desired temperature has been configured, press the Mode button to continue to Step 3.

HEAT PUMP CONFIGURATION (Steps 3 and 4) — To set the thermostat for heat pump operation, Advanced Setup Step 3 must be configured to ON. Use the UP and DOWN ARROW buttons to configure the step. The default is OFF. Press the mode button to continue to Step 4. Step 4 is used to set the reversing valve polarity for the heat pump. The variable can be set to either “B” or “O.” Set the reversing valve polarity to the correct value depending on the application. The default is “O.”

NOTE: Step 4 will appear only if Step 3 is set to ON. Step 5 will appear only if Step 3 is set to OFF.

ELECTRIC HEAT CONFIGURATION (Step 5) — Step 5 is used to configure the thermostat for electric heat. The variable can be configured ON or OFF. The default is OFF.

NOTE: Step 5 will appear only if Step 3 is set to OFF.

DEADBAND (Step 6) — The Deadband is the difference in temperature above the cooling set point or below the heating set point that the thermostat will wait before turning on the first stage of heating or cooling. For example, if the cooling set point is 82 F (28 C) and the deadband is 2 degrees, the first stage of cooling will not be energized until the temperature reaches 84 F (30 C). The range of values is 1 to 6 degrees. The default is 2 degrees.

SET POINT MINIMUM DIFFERENCE (Step 7) — The minimum difference between heating and cooling set points can be user-configured. The range is from 0 to 6 degrees. The default

is 2 degrees. The minimum difference is enforced during Autochangeover operation.

CYCLES PER HOUR LIMIT (Step 8) — The number of times that heating or cooling can be energized per hour can be configured. Set the variable to “d” for no limit. Set the variable to “d1” to disable the 5 minute compressor lockout. The variable can also be set from 2 to 6 cycles per hour. The default is 6 cycles per hour.

⚠ CAUTION

Damage to compressor could result if 5-minute compressor lockout is disabled or compressor is allowed unlimited cycles. Do not set thermostat Advanced Setup Step 8 to “d” or “d1” unless specifically recommended for the application.

DRY CONTACT CONFIGURATION (Step 9) — The Dry Contact configuration is used to set the thermostat dry contacts to normally open or normally closed. This should be set to match the configuration of the external device (if present).

If the configuration is set to normally open, the thermostat will enter Unoccupied mode when the contacts close. If the configuration is set to normally closed, the thermostat will enter Unoccupied mode when the contacts open. The default is normally open.

→ **SERVICE FILTER (Steps 10 and 11)** — Step 10 allows the user to reset the Service Filter counter to zero and remove the “SERVICE FILTER” icon (if displayed on the thermostat screen). Press the Fan button while in Advanced Setup Step 10 and the counter is reset to zero. Press the Mode button to adjust the number of hours the blower will run before the “SERVICE FILTER” icon is displayed. The range is 0 to 1950 hours. The set point is adjusted in intervals of 50 hours. Set the variable to 0 to disable this function. The default is 500 hours.

SOFT START (Step 12) — The soft start is used when multiple units are used in an application. The soft start staggers the start-up times of the units in the event of power loss and restart. Each unit should be assigned a unit ID number. The 30-second delay time is multiplied by the unit ID number to get the total soft start delay time for each unit. For example, if the unit ID number is 10, set the Soft Start function to 10, the start-up

delay time is 30 seconds x 10 = 300 seconds (5 minutes). The range is 0 to 99 (ID numbers). A value of 0 disables the function. The default is 0 (ID number).

FAHRENHEIT/CELSIUS OPERATION (Step 13) — The thermostat can be set to operate in Fahrenheit or Celsius degrees. Set the variable to “F” for Fahrenheit operation. Set the variable to “C” for Celsius operation. The default is “F.”

SENSOR TYPE (Step 14) — The Sensor Type setting configures the thermostat for use with a remote room sensor, outside temperature sensor, or duct temperature sensor. The Sensor Type can be set to Yes or No.

When the Sensor Type is set to Yes, the outside or duct temperature can be **viewed** by pressing and holding the Mode button for 2 seconds. If a sensor has not been installed, no temperature will be displayed.

When the Sensor Type is set to No, the thermostat will detect and use an installed sensor as a remote temperature sensor to **control** thermostat operation. If a sensor has not been installed, the thermostat will use its internal temperature sensor.

SECURITY LEVEL (Steps 15 to 17) — The Security Level limits the actions that the user can perform at the thermostat. There are 4 security levels. When the security level is set to “0,” no security will be in effect. When the security level is set to “1,” the set point range is limited by the settings of Steps 16 and 17. When the security level is set to “2,” the set point range is limited by the settings of Steps 16 and 17 and the thermostat operation mode cannot be changed. When the security level is set to “3,” the set point range is limited by the settings of Steps 16 and 17, the thermostat operation mode cannot be changed, and set point changes are prohibited. The default is 0.

Security Maximum Heat Set Point (Step 16) — If the Security Level is not set to 0, the maximum heating set point will be in effect. The user will not be allowed to set the heating set point over the specified value. The range of values is 35 to 99 F (1 to 37 C). The default is 80 F (27 C).

Security Minimum Cool Set Point (Step 17) — If the Security Level is not set to 0, the minimum cooling set point will be in effect. The user will not be allowed to set the cooling set point below the specified value. The range of values is 35 to 99 F (1 to 37 C). The default is 65 F (18 C).

Table 2 — Advanced Set Up Configuration

STEP	DESCRIPTION	RANGE	DEFAULT
1	Unoccupied Cooling Set Point	35 - 99 F / OF	85 F
2	Unoccupied Heating Set Point	35 - 75 F / OF	55 F
3	Heat Pump	Off/On	Off
4	Reversing Valve Polarity	O / B	O
5	Electric Heat	Off/On	Off
6	Deadband	1 - 6 degrees	2
7	Forced Minimum Temperature Difference	0 - 6 degrees	2
8	Cycles per Hour	d, d1, 2 - 6	6
9	Dry Contact Switch	Normally Open / Normally Closed	Normally Open
10	Reset Service Filter Icon	—	—
11	Service Filter Run Time	0-1950 hrs	500 hrs
12	Soft Start	0 - 99	0
13	Temperature Units	F / C	F
14	Sensor Type	Yes / No	No
15	Security Level	0 - 3	0
16	Maximum Allowable Heat Set Point	35 - 99 F (1 - 37 C)	80 F (27 C)
17	Minimum Allowable Cooling Set Point	35 - 99 F (1 - 37 C)	65 F (18 C)

Install Accessories — The following accessories can be used with this thermostat:

- remote temperature sensor (33CSSEN-WB)
- outdoor temperature sensor (33CSSEN-01)
- duct temperature sensor (33CSSEN-DS)
- Add-a-Wire™ accessory (33CSACC-AW)

Refer to the accessory installation instructions for more information.

REMOTE TEMPERATURE SENSOR — A remote temperature sensor may be provided to read the temperature from a space. If a remote temperature sensor is connected, the thermostat will ignore the reading of its internal sensor. When the thermostat is using a reading from a remote sensor, the degree symbol above the temperature reading will blink.

When installing a remote sensor, do not run wiring in the same conduit as the HVAC equipment control wires, fire alarm wiring, or other high voltage wiring. Do not use the building metalwork as a ground. Use only unshielded wire.

NOTE: Sensors can only be averaged when using a wireless remote sensor (33CSRFS-RC/RE).

OUTDOOR TEMPERATURE SENSOR — An outdoor temperature sensor may be provided to read the outside temperature. The thermostat will not control to the outside temperature sensor. Outside temperature can be viewed by pressing and holding the Mode button for 2 seconds.

NOTE: Advanced Setup Step 14 must be configured to Yes in order to view outside temperature.

DUCT TEMPERATURE SENSOR — A duct temperature sensor may be provided to either view the duct temperature or to control to duct temperature (based on the setting of Advanced Setup Step 14). If Advanced Setup Step 14 is set to Yes, then the duct temperature sensor reading can only be viewed and the duct sensor is not used to control the thermostat. Press and hold the Mode button for 2 seconds to view duct temperature. If Advanced Setup Step 14 is set to No, then the duct temperature would control thermostat operation.

ADD-A-WIRE — The Add-A-Wire accessory is used to repair a broken wire on a thermostat or to add an extra terminal for cooling or heat pump operation.

Sensor Calibration — Every thermostat is factory calibrated. Under normal circumstances there will never be a need to re-calibrate the thermostat. If re-calibration must be done, perform the following procedure:

1. Hold down the Mode and Fan buttons for 5 seconds. All of the icons on the display screen will appear. Release the buttons. Press the UP and DOWN ARROW buttons simultaneously.
2. Press the UP and DOWN ARROW buttons simultaneously again. The current temperature will be displayed.
3. Use an accurate thermometer to measure room temperature. Press the UP or DOWN ARROW buttons until the number equals room temperature.
4. Press the Mode button to return to normal operation.

Check Thermostat Operation — To check thermostat operation, perform the following procedure:

1. Press the Mode button repeatedly until the Heat icon appears on the display. The thermostat is now in Heating mode.
2. Press the UP ARROW button until the heating set point is 10 F (6 C) higher than the current room temperature. Heating and fan should be energized. The red indicator light should be lit.
3. Press the Mode button repeatedly until the Cool icon appears on the display. The thermostat is now in Cooling mode.

4. Press the DOWN ARROW button until the cooling set point is 10 F lower than the current room temperature. Cooling and fan should be energized. The green indicator light should be lit.
5. Press the Mode button repeatedly until the Off icon appears. Press the Fan button until the display reads Fan On. The fan should energize.
6. If heating, cooling, or fan do not work, check wiring and consult Troubleshooting section.

Final Checklist

1. Put away tools and instruments. Clean up debris and packaging.
2. Review Owner's Guide with occupant or owner.
3. Leave the manuals with owner.

OPERATION

Mode Button Operation — The Mode button selects the operating mode of the thermostat. If OFF is selected, the thermostat will not enter Heating or Cooling mode. If HEAT is selected, the thermostat will only enter Heating mode (if the room temperature is below the heating set point). If COOL is selected, the thermostat will only enter Cooling mode (if the room temperature is above the cooling set point). If AUTO is selected, the thermostat will enter Heating or Cooling mode based on the room temperature and the heating and cooling set points.

AUTO-CHANGEOVER — When the thermostat mode is set to AUTO, the thermostat will provide automatic changeover from Heating to Cooling mode and Cooling to Heating mode when required. The thermostat will automatically switch to maintain the desired temperature setting. The thermostat does not need to be manually changed from heating to cooling or cooling to heating operation.

Fan Button — The Fan button is used to configure fan operation. Fan operation can be set to Fan On or Auto (no icon displayed).

When the fan is set to Fan On, the fan will run continuously for better air circulation.

NOTE: If the thermostat is in the Unoccupied or OFF modes, the fan will run only during heating or cooling.

When the fan is set to Auto (no icon displayed), the fan will only energize during heating or cooling operation.

Emergency Heat Button — Emergency heat is available for heat pump applications. To turn on emergency heat, press the Emergency Heat button. An "EH" will be displayed. During emergency heat, the fan will operate and the second stage of heat will be energized (locking out the first stage compressor). To exit emergency heat, press the Emergency Heat button. During emergency heat, only OFF and HEAT modes are available.

Backlight Button — The Backlight button is used to change the setting of the Backlight display. If the configuration is set to Yes, the backlight will be lit continuously. If the configuration is set to No, the display will be lit only after a button is pushed. The display will stay lit until action has ceased.

Reset Filter Button — The Reset Filter button is used to reset the Service Filter icon display while in the Advanced Setup Configuration Step 10.

If the Reset Filter button is pressed, then the number of hours of fan operation is displayed. To reset the filter hours to zero, press the Fan button while the hours are displayed.

→ **Override Button** — If the thermostat is connected to a dry contact and is in Unoccupied mode, a press of the Override button will force the thermostat into the mode it was in before Unoccupied began. For example, if the thermostat was in the Cool mode before the dry contacts forced the thermostat into Unoccupied mode, a press of the Override button will temporarily return the thermostat to the Cool mode for 30 minutes. Each subsequent push of the Override button will add 30 additional minutes to the Override time, up to 4 hours. If the timer displays 4:00 hours, the next press of the Override button will zero out the Override timer, returning the thermostat to Unoccupied mode.

When in Override mode, the Override icon and the mode icon (Off, Heat, Cool, or Auto) appear on the display along with the time remaining in Override mode.

During Override mode, the set points are adjustable provided the keypad is not locked.

NOTE: The Override button can only be used if the dry contact is used to control an Occupied and Unoccupied schedule.

→ **Electric Heat** — When the Electric Heat option in the Advanced Setup is set to ON, the thermostat will turn on the fan immediately any time there is a heat demand. This feature should only be used on first stage electric heating applications. Do not use with gas heat.

Two-Stage Operation — The second stage of heat or cool is turned on when the first stage has been on for a minimum of 2 minutes and the temperature differential from the set point is equal to or greater than the set point plus the deadband plus 2 degrees.

Emergency Heat — Emergency heat is available for heat pump applications. To turn on emergency heat, press the Emergency Heat button. An “EH” will be displayed. During emergency heat, the fan will operate and the second stage of heat will be energized (locking out the first stage compressor). To exit emergency heat, press the Emergency Heat button. During emergency heat, only OFF and HEAT modes are available.

Remote Temperature Sensor — A remote temperature sensor is available to read the temperature from a space. If a remote temperature sensor is connected, the thermostat will ignore the reading of its internal sensor. When the thermostat is using a reading from a remote sensor, the degree symbol above the temperature reading will blink.

NOTE: Sensors can only be averaged when using a wireless remote sensor (33CSRFS-RC/RE).

Keypad Lock — To prevent unauthorized use of the thermostat, the front panel buttons can be disabled. To disable or lock the keypad, press and hold the Mode button. While holding down the Mode button, press the UP and DOWN ARROW buttons simultaneously. The “Locked” icon will appear on the display.

The thermostat is unlocked by performing the same procedure. Press and hold the Mode button. While holding down the Mode button, press the UP and DOWN ARROW buttons simultaneously. The “Locked” icon will be removed from the display.

→ **Dry Contact Switch/External Control** — A dry contact switch is provided to allow an external device to force the thermostat into or out of Unoccupied mode. The external device is wired to contacts CK1 and CK2. See Fig. 5.

NOTE: Twenty-four volt power is not required for CK1 and CK2.

When using the auxiliary input or controlling multiple HVAC units with a single thermostat, it is possible to encounter transformer phasing problems that will interfere with thermostat operation.

Connecting transformers that are not phased correctly may result in a direct short, which could damage transformers and/or the thermostat. Phasing problems are likely if the units share a common ground with secondary grounded transformers.

⚠ CAUTION

Determining proper phasing can be difficult without the help of an electrician (especially across different building transformers). Damage to equipment can result if phasing is improperly done. The use of isolation relays is recommended before attempting phasing.

⚠ CAUTION

Do not attempt to rewire equipment internally to phase units. Damage to unit components may occur.

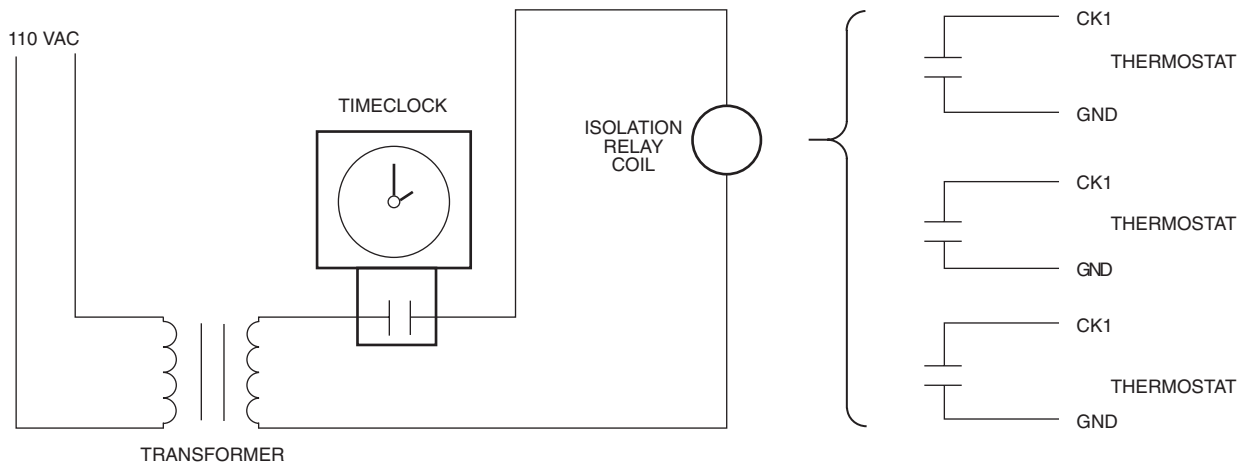
To avoid this problem, if possible, phase all HVAC units together. If phasing is impractical, isolation relays may be used to isolate the transformers. To isolate the auxiliary input, use a separate transformer for the auxiliary control device (usually a timeclock). Connect the device to an isolation relay coil. Connect one set of isolated contacts to each thermostat at CK1 and CK2.

To prevent phasing problems when controlling multiple HVAC units with one thermostat, phase the HVAC units or use isolation relays to isolate the unit transformers. One unit will be connected directly to the thermostat and the unit will power the thermostat. All other units will require one set of isolated contacts for each of the following: Heat, Cool, Fan, and Reversing Valve (if required).

Units that are phased will have the high voltage legs to the 24 VAC power transformer in common. This requires identifying which terminals from the high voltage input lugs are providing power to the transformer. Do not assume that the same terminals will always provide power to the transformer. For each unit, check the unit wiring diagram. See Fig. 6.

SOFT START — When multiple thermostats are controlled by the same external device, a Soft Start option can be used to stagger the turn on times of the HVAC equipment. This feature may cause a delay in operation after entering Unoccupied mode.

10-Watt Resistor — A 10-watt, 270-ohm resistor is provided with the thermostat. This resistor should only be used in applications where it is necessary to use 4 wires in a power-stealing mode when the common wire (C) is not available. It is recommended that a common wire be used whenever possible. Refer to the Troubleshooting section for more information on resistor use and wiring.



NOTE: Additional relays may be used. Relay coils must be connected in parallel.

Fig. 5 — Typical Dry Contact Switch Wiring

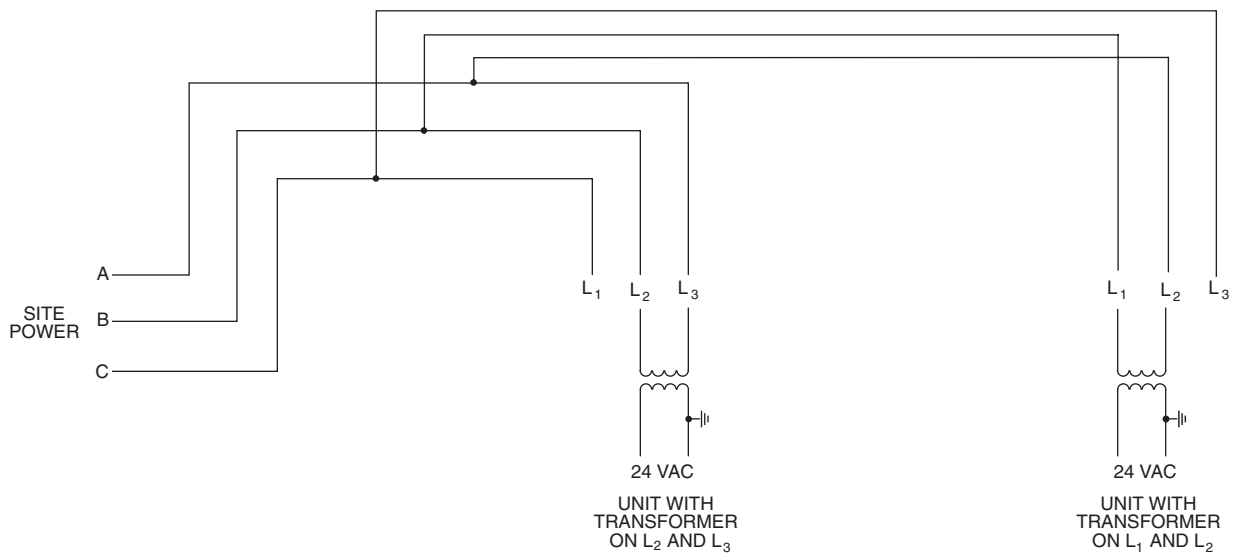


Fig. 6 — Example of Unit Phasing

TROUBLESHOOTING

PROBLEM	SOLUTION
Display on thermostat not illuminated	Check for 24 vac at the R terminal connection. Terminal R must be connected for proper thermostat operation.
"Service Filter" is displayed on thermostat	After the configured number of blower operating hours, the Service Filter message will be displayed. This reminds the owner to replace the filter. Reset the Service Filter feature to reset the blower operation timer to 0 hours.
Cooling will not energize	Select COOL mode. Decrease cooling set point to 10 degrees below room temperature. Check for 24 vac at Y1 terminal with a load connected. If present, thermostat is operating correctly and problem is with wiring or equipment. If 24 vac is not present, replace the thermostat. Check for Compressor Cycle per Hour Limit. Cooling may be locked out.
Heating will not energize	Select HEAT mode. Increase heating set point to 10 degrees above room temperature. Check for 24 vac at W1/O/B terminal with a load connected. If present, thermostat is operating correctly and problem is with wiring or equipment. If 24 vac is not present, replace the thermostat.
When using 4 wires (R,G,W,Y), the cooling equipment tries repeatedly to turn on, but cannot. At times the display dims or disappears.	There is not enough power available. Connect a 270-ohm, 10-watt power resistor at the air-conditioning equipment between terminals W and C (non-heat pump applications only).
When using 4 wires (R,G,W,Y), the heating equipment tries repeatedly to turn on, but cannot. At times the display dims or disappears.	There is not enough power available. Connect a 270-ohm, 10-watt power resistor at the air-conditioning equipment between terminals Y and C (non-heat pump applications only).
When controlling a heat pump, heat comes on during cooling cycle.	Configure thermostat for heat pump operation (Table 2, Step 3).
When calling for cooling, both heating and cooling are energized.	The thermostat is configured for a heat pump. Configure the thermostat for non-heat pump operation (Table 2, Step 3).
When controlling a commercial heat pump unit, unit runs in reverse or heating is always on.	Commercial heat pumps require that Heat Pump Option on thermostat is turned OFF.
The thermostat temperature displays rises to 99 F.	There is not enough voltage to the thermostat. Check wiring and power supply.
The resistor labeled "L3" on the thermostat is burned out and brown. Thermostat will not work.	The thermostat has been wired incorrectly and circuit board is burned out. Thermostat must be replaced.