

TSTPHA01, Côr® 5
 TSTWHA01, Côr® 5C
 TSTPRH01, Côr® 7
 TSTWRH01 Côr® 7C
 Residential Thermostats



Advanced Installation and Configuration Instructions



Côr®7 Non-Wi-Fi,
 Côr®7C Wi-Fi Series
 (Humidity Control)



Côr®5 Non-Wi-Fi,
 Côr®5C Wi-Fi
 (No Humidity Control)


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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 you see this symbol on the equipment and 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 may result in minor personal injury or product and property damage. **NOTE** is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

INTRODUCTION

The Côr 5 series and Côr 7 series thermostat models are 7-day, 5/2-day, 1-day programmable wall-mounted, low-voltage controls. The Côr 7 and Côr 7C combines temperature and humidity control in the units. The Côr Thermostats have no need for batteries to store user-configured settings in memory. During power loss its internal memory saves settings for unlimited time, and the clock continues to run for at least 12 hours.

A Two-Wire Relay Module option for the Côr 7 series thermostats allows them to connect to a system using only two thermostat wires at the wall. The Two-Wire Relay Module is located near the indoor equipment and two wires are used between the thermostat and the Two-Wire Relay Module.

HOW TO USE THIS DOCUMENT

The advanced installation and configuration instructions are intended to supplement the standard installation instructions shipped with the thermostat or available for download on www.HVACpartners.com. The advanced settings and configuration options detailed in this document are intended for professional installers only. Incorrect configuration may lead to improper operation and equipment damage.

Each section of this document is outlined in the following structure:

Section Title

Location of this section within the thermostat menus.


Image showing available features in this section on the thermostat.

Feature Title

Feature Description

- Default Configuration
- Configuration Options

Image showing screen on the thermostat


WARNING

ELECTRICAL OPERATION HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.

⚠ CAUTION

ELECTRICAL OPERATION HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Improper wiring or installation may damage the thermostat. Check to make sure wiring is correct before proceeding with installation or turning on unit.

WIRING DIAGRAMS

The following pages provide wiring diagrams for multiple heating and cooling equipment configurations.

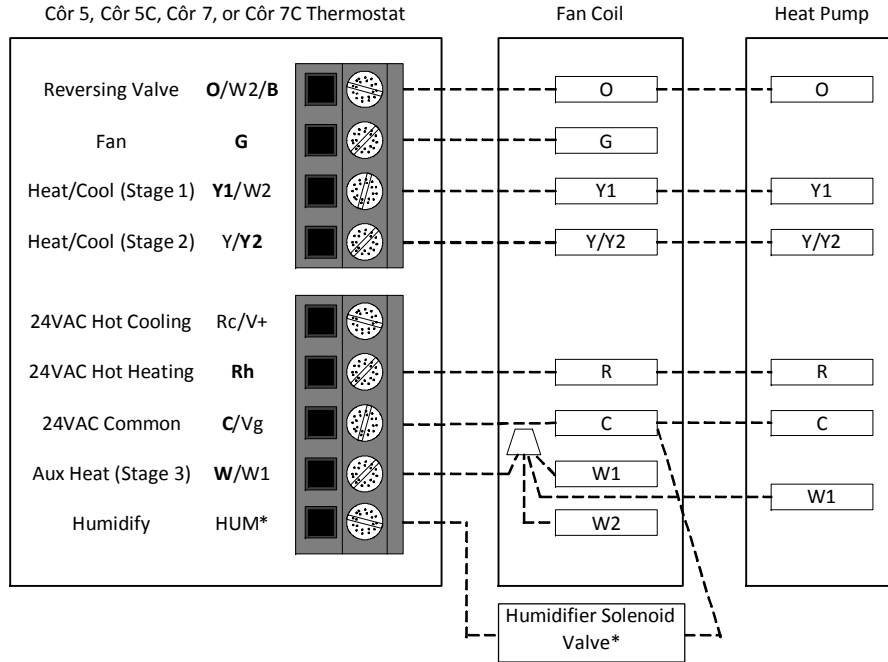


Fig. 1 - FV/FK Fan Coil with 2-Stage Heat Pump

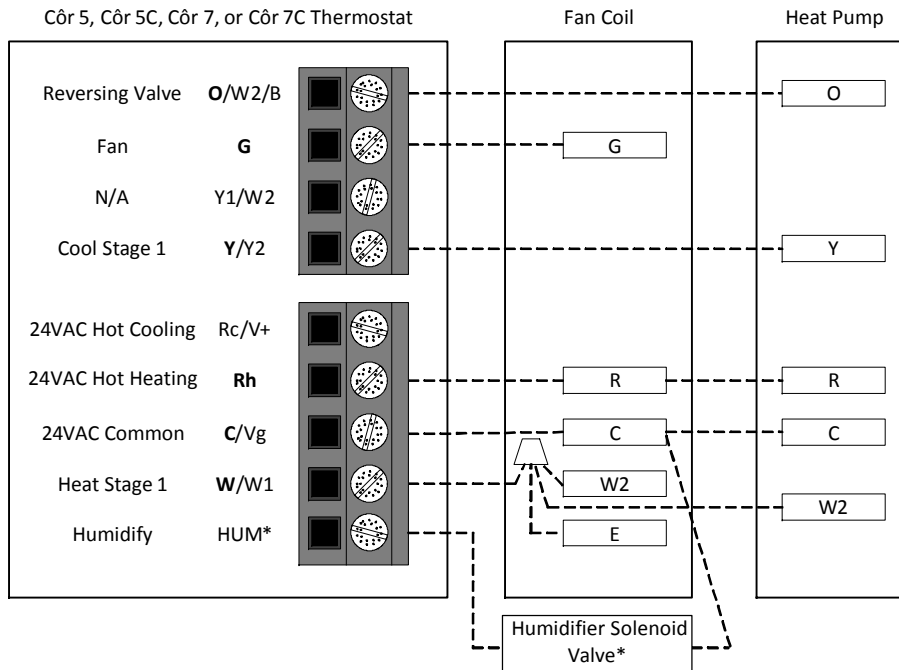
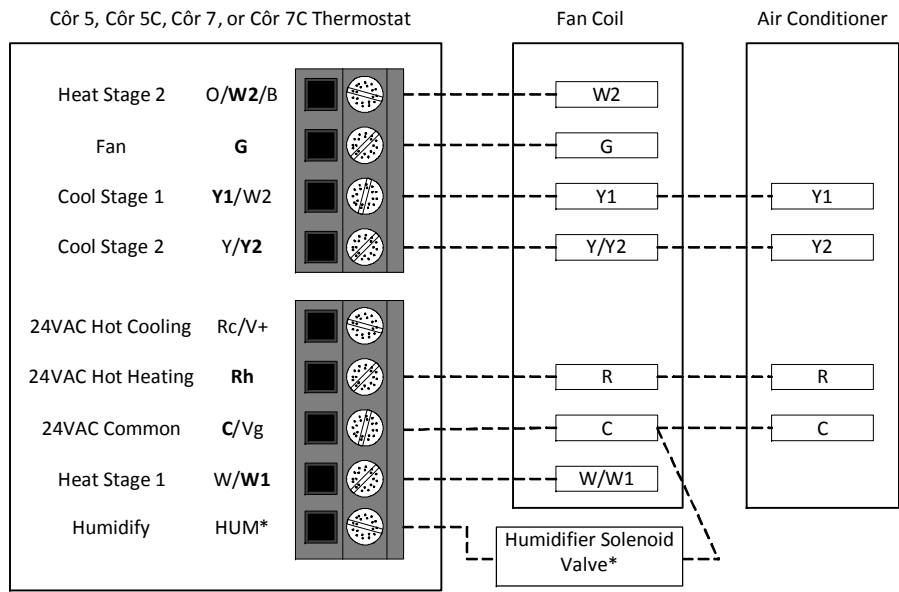
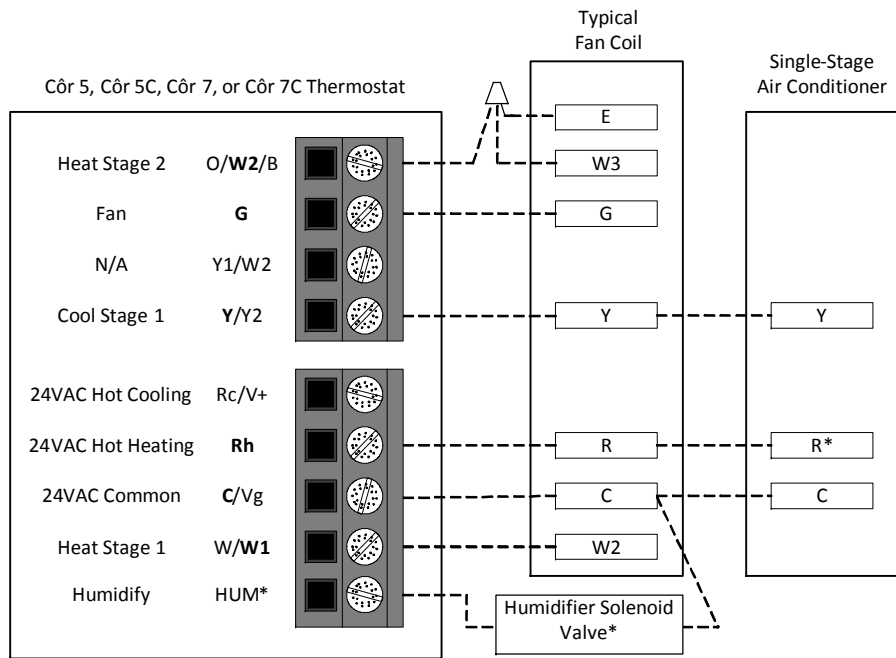


Fig. 2 - Typical Fan Coil with Heat Pump



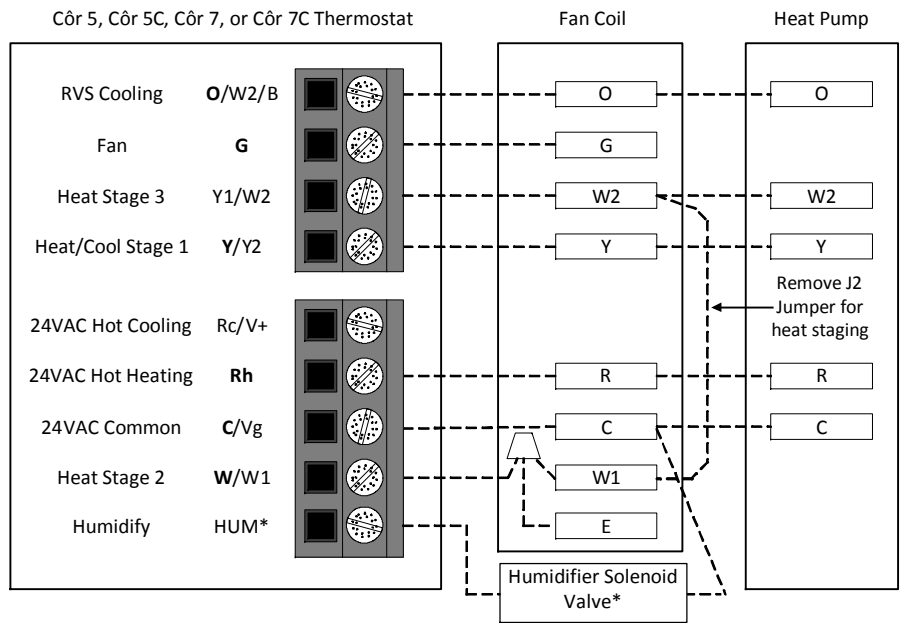
* Indicates connection may not be required /available

Fig. 3 - FV/FK Fan Coil with 2-Stage Air Conditioner



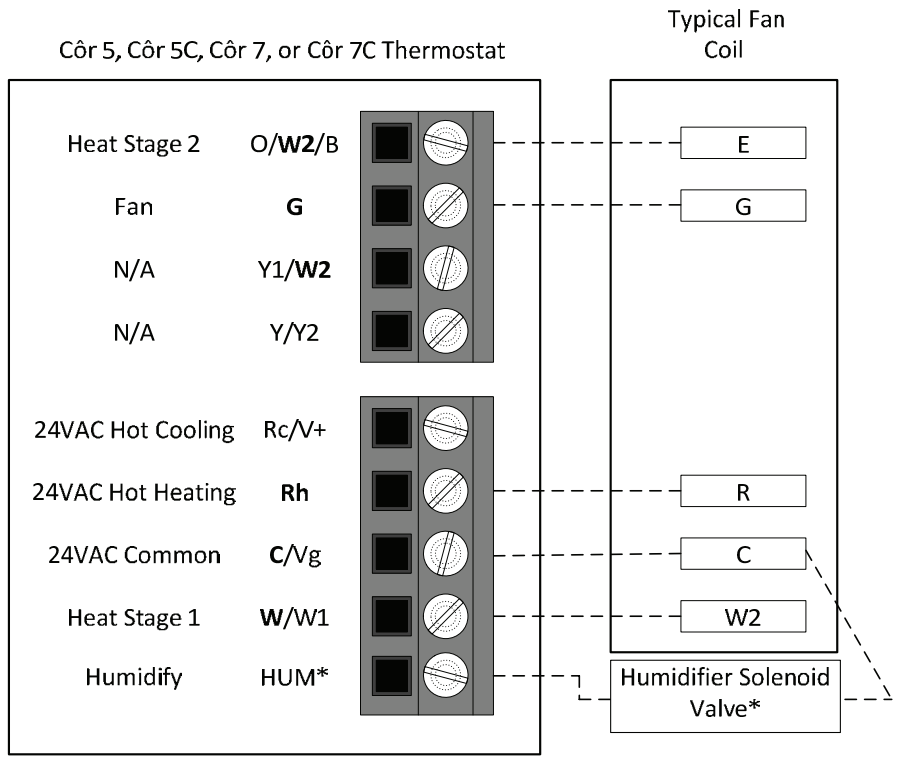
* Indicates connection may not be required /available

Fig. 4 - Typical Fan Coil with Air Conditioner



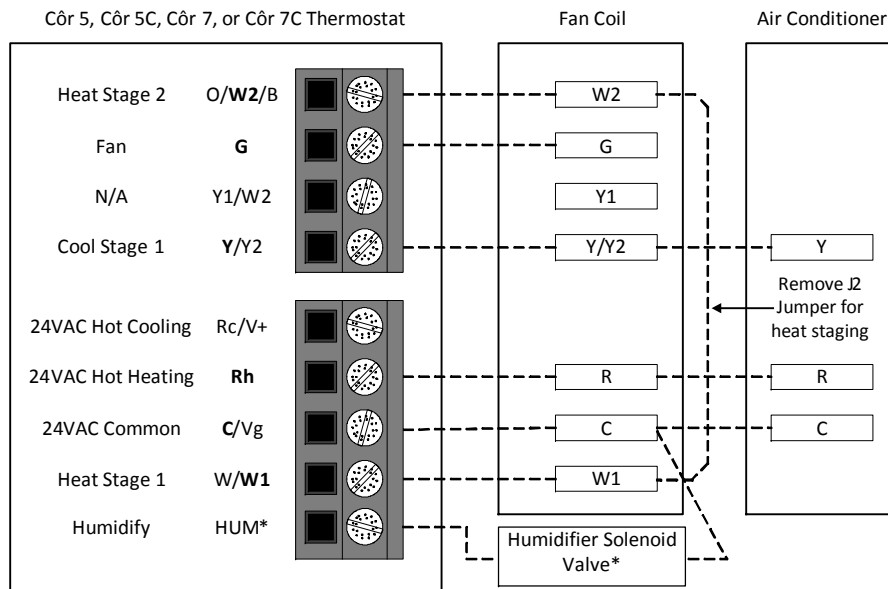
* Indicates connection may not be required /available

Fig. 5 - FV/FK Fan Coil with 1-Stage Heat Pump



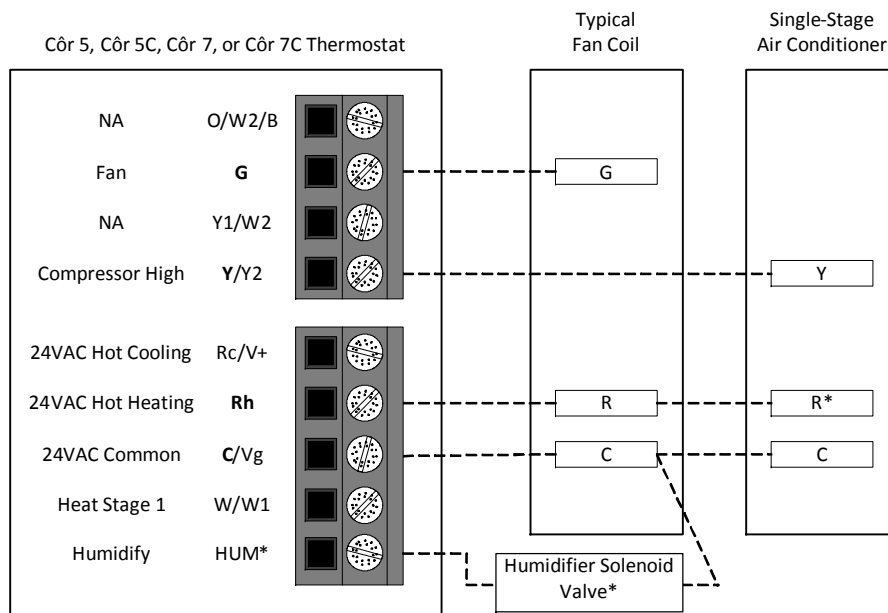
*Indicates connection may not be required/available

Fig. 6 - Typical Fan Coil Heating Only



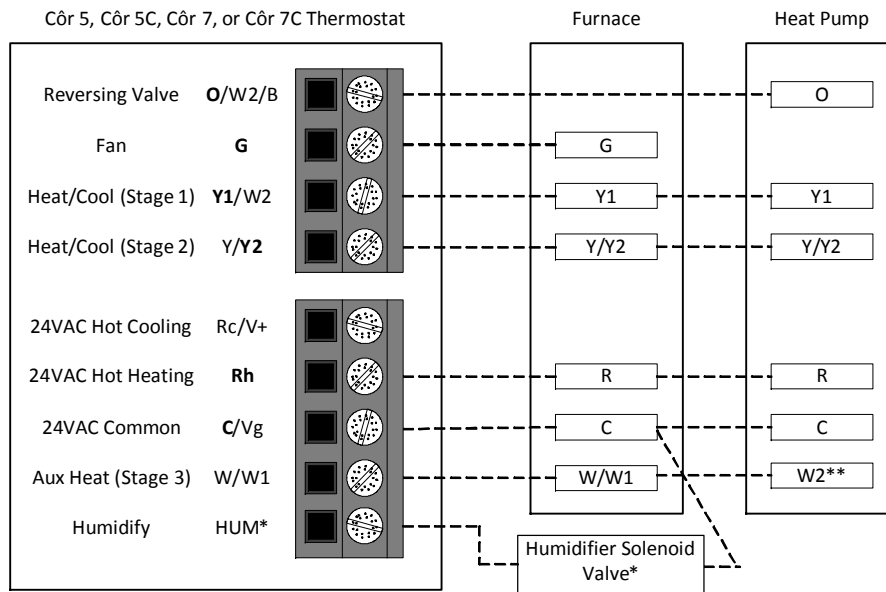
* Indicates connection may not be required /available

Fig. 7 - FV/FK Fan Coil with 1-Stage Air Conditionner



* Indicates connection may not be required /available

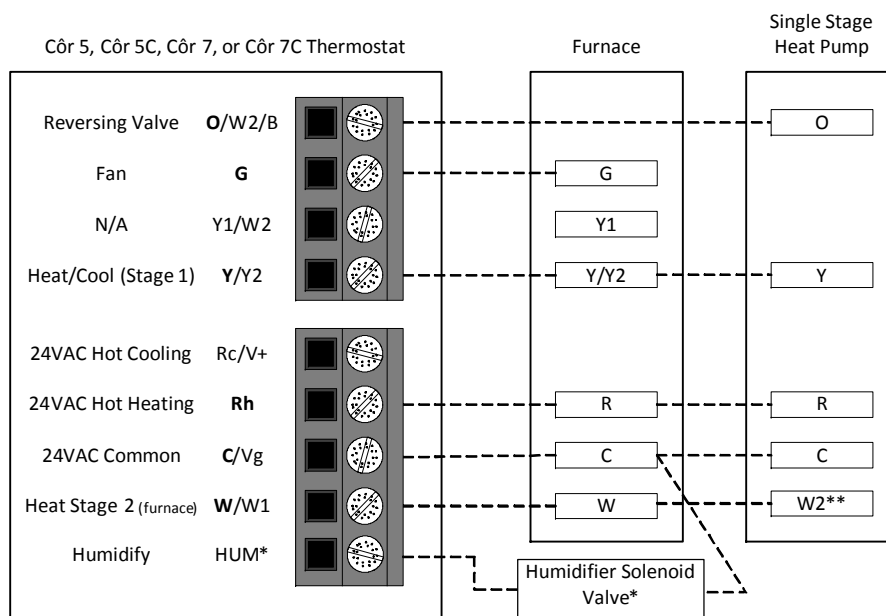
Fig. 8 - Typical Fan Coil Cooling Only



* Indicates connection may not be required /available

** Some heat pumps may designate W 1

Fig. 9 - Variable Speed, Multi-Stage, Stage Modulating and Single-Stage Furnace with 2-Stage Heat Pump



* Indicates connection may not be required /available

** Some heat pumps may designate W 1

Fig. 10 - Single-Stage Furnace with Heat Pump (Hybrid Heat)

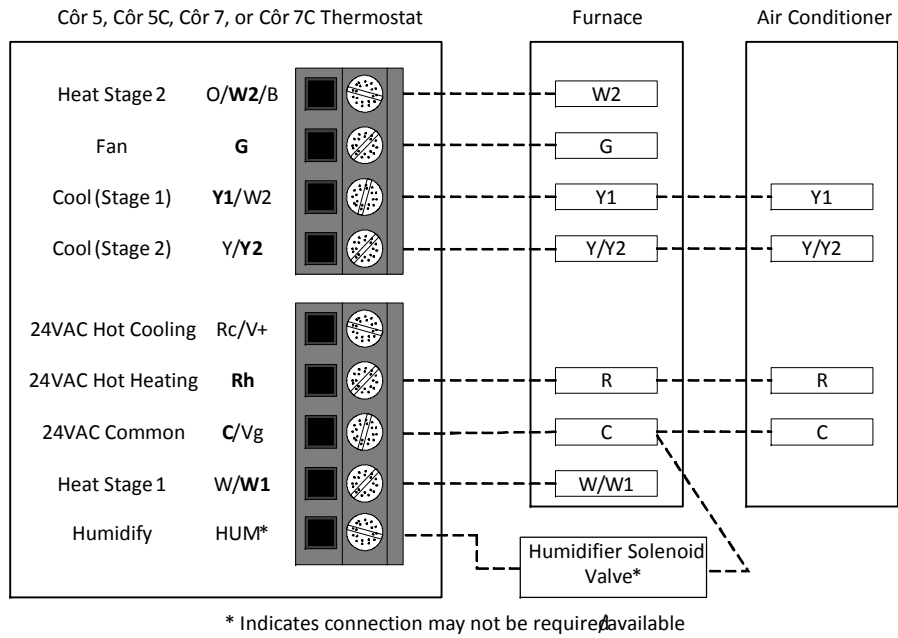


Fig. 11 - Variable Speed, Step Modulating, Multi-Stage and Single-Stage Furnace with Two-Stage Air Conditioner

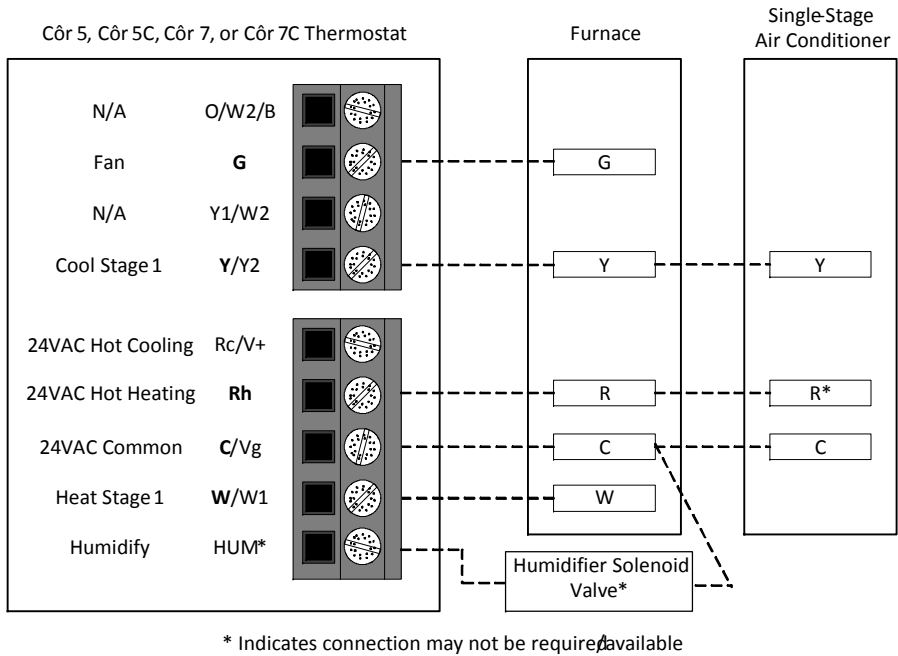


Fig. 12 - Single-Stage Furnace with Single-Speed Air Conditioner

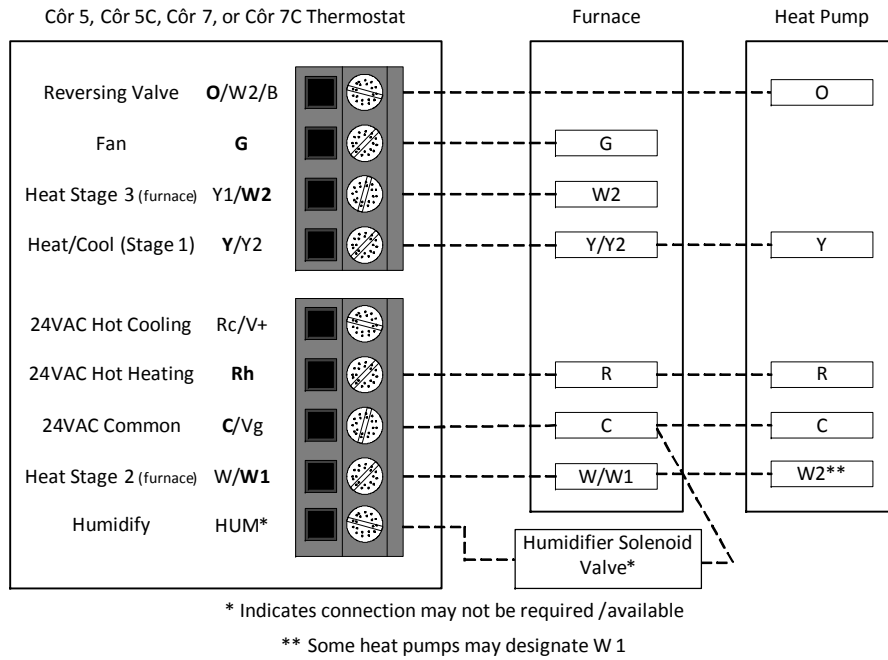


Fig. 13 - Variable Speed, Multi-Stage and Modulating Furnace with Single-Stage Heat Pump

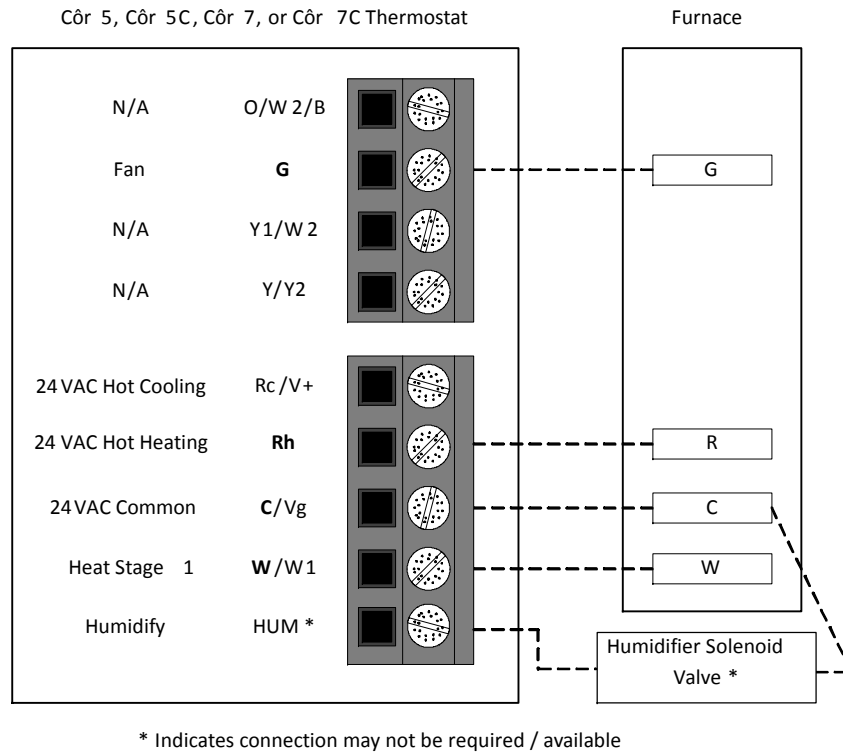
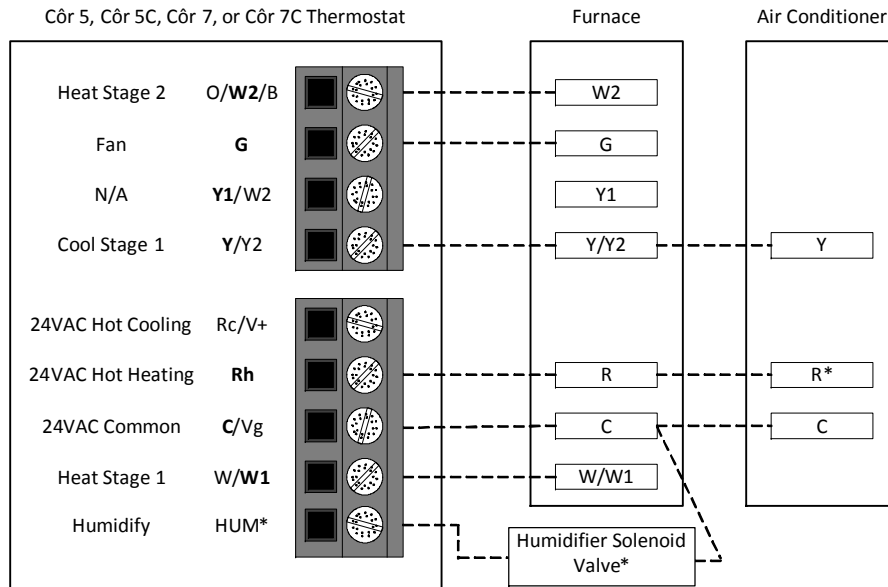
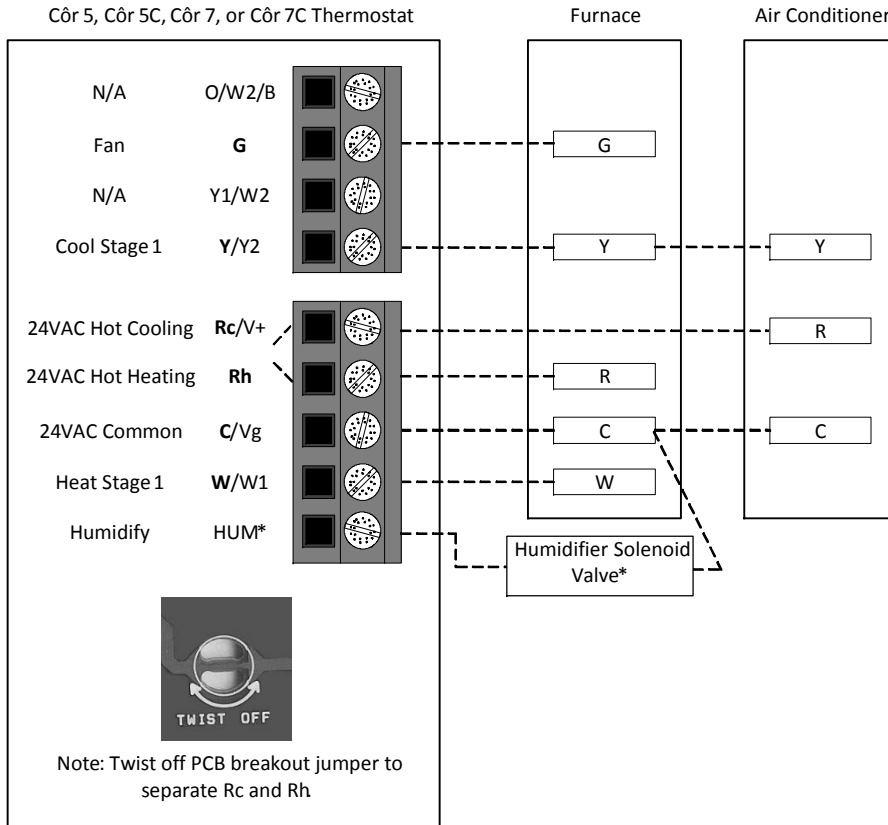


Fig. 14 - Single-Stage Furnace Heating Only



* Indicates Connection may not be required /available.

Fig. 15 - Variable Speed, Multi-Stage, Step Modulating and Single-Stage Furnace with Single-Stage Air Conditioner



* Indicates connection may not be required/available

Fig. 16 - Single-Stage Furnace with Air Conditioner and Split Power

INSTALLATIONS WITHOUT A COMMON (C) WIRE

If your current thermostat does not have a wire connected to the C, the following options are available:

1. Repurpose the G wire as a C wire per the instructions below.
2. Use the Add-A-Wire for the Côr 5/5C or Use the Two Wire Relay Module for the Côr 7/7C thermostats.
3. Run an additional wire from the equipment to the thermostat.

Repurposing the G wire for the C wire – Single Stage Equipment

NOTE: Repurposing G wire for the C wire will result in the loss of continuous fan operation and air circulation feature of the thermostat.

IMPORTANT: This is only recommended on single stage Gas, Oil or Propane Furnace equipment applications with 4 wires running the thermostat (R, W, Y, G) and Carrier/Bryant Fan Coils.

1. Use the G wire for the C wire at the equipment.
2. Add a jumper wire from Y (or Y1) to G on the furnace board or Fancoil wiring to allow the blower to turn on during cooling operation.
3. Connect repurposed wire to the Thermostat.
4. Follow standard installation instructions to complete installation.

NOTE: There will no longer be a wire connected to the G terminal at the thermostat.

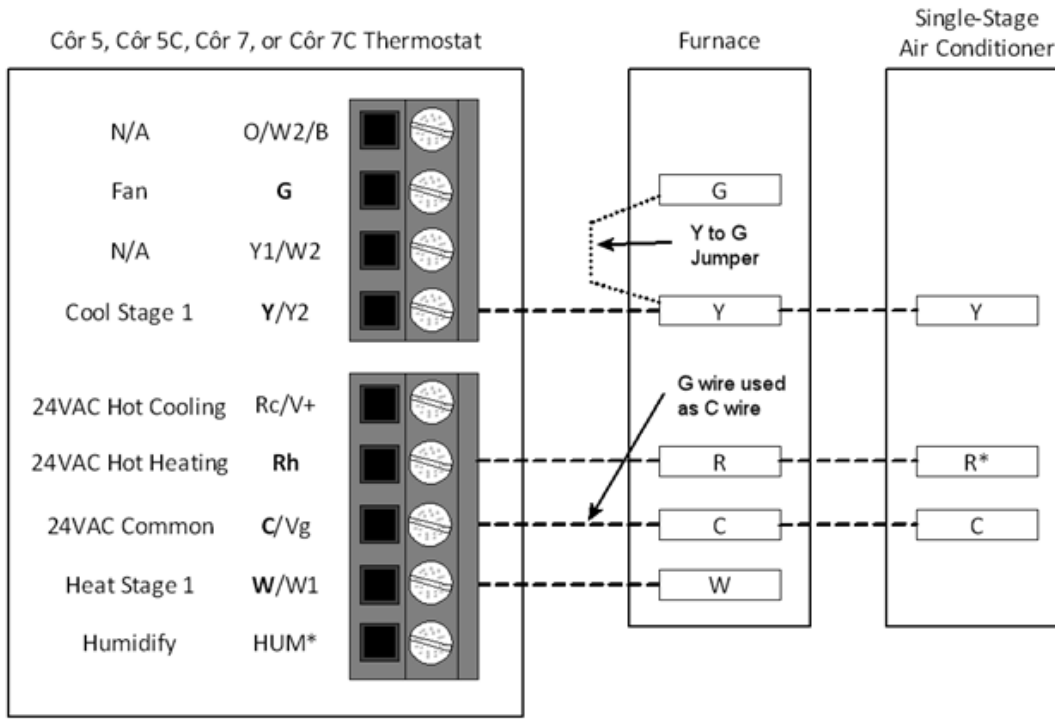


Fig. 17 - Wiring Diagram – Furnace and AC

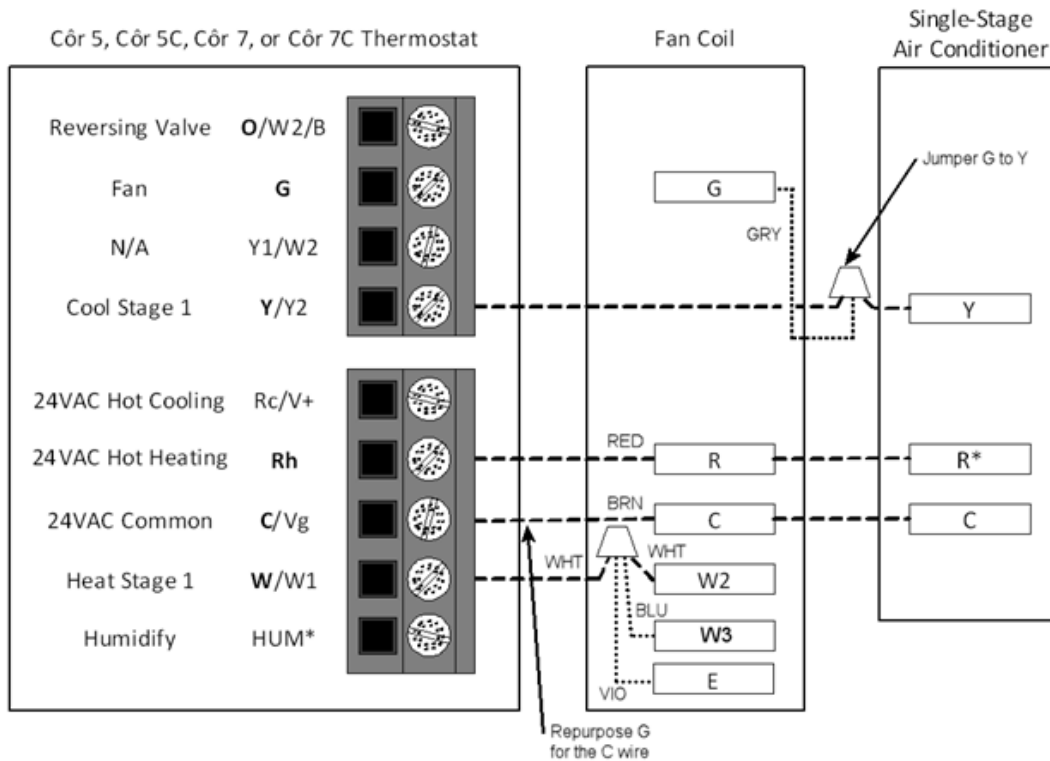


Fig. 18 - Wiring Diagram – Fan Coil

⚠ CAUTION

OPERATION AND SYSTEM HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Advanced settings and configuration options are located in the dealer options menu. These settings are intended for professional installers only. Incorrect configuration of the system may lead to improper operation and system damage.

EQUIPMENT CONFIGURATION

Accessing the Dealer Options Menu

On the thermostat

1. On the Côr 7/7C thermostats press START if the MENU button is not visible.
2. On the main screen touch and hold the MENU button (about 5 seconds) until the Options Menu is showing SW01 blinking.

Configuration Options - Description Summary

Only those marked with an asterisk (*) are available to the homeowner through the standard menu's.

**CONFIGURATION
OPTIONS****DESCRIPTION SUMMARY**

Only those marked with an asterisk (*) are available to the homeowner.

SW01	–	Equipment Type
SW02	–	Clean Filter Timer Adjustment
SW03*	–	Fahrenheit/Centigrade Selection
SW04	–	Fan (G) on with W/W1 Selection
SW05	–	Room Air Temperature Sensing (Côr 7/7C only)
SW06	–	Cooling Lockout Below 55°F/13°C Selection (only available if outdoor air sensor is present)
SW07	–	Zoning
SW08	–	Auxiliary Heat Lockout Temperature Setting (only available when heat pump is used and when outdoor air temperature sensor is present)
SW09	–	Heat Pump Lockout Temperature Balance Point (only available when outdoor air temperature sensor is present)
SW10	–	Reversing Valve
SW11	–	Adjustable Setpoint Deadband (not available on heat only and cool only systems)
SW12	–	Smart Recovery
SW13	–	Room Temperature Offset Adjustment
SW14	–	Humidity Offset Adjustment (Only on Côr 7)
SW15	–	Enable Auto Mode
SW16	–	Cycles Per Hour
SW17	–	Time Between Stages
SW18*	–	Backlight Configuration (Only on Côr 7)
SW19	–	Dry Contact (Only on Côr 7)
SW20	–	Outdoor Air Temperature Offset Adjustment
SW21*	–	Keypad Lockout
SW22	–	High Cool Latch Temperature
SW23	–	High Heat Latch Temperature
SW24*	–	Programmable/Non—Programmable
SW25*	–	Number of Programmable Periods per Day
SW26	–	Minimum Cooling Setpoint
SW27	–	Maximum Heating Setpoint
SW28	–	UV Light Reminder
SW29	–	Humidifier Pad Reminder
SW30*	–	Programmable Fan
SW31*	–	Daylight Savings Time Configuration
SW32	–	Furnace Heat Staging
SW33	–	Single or Two-Piece Installation
SW34	–	Hybrid Heat Furnace Latch
SW35	–	Advanced Smart Setback
SW40	–	Fan Humidify
SW41	–	Variable Speed Blower
SW42	–	Variable Speed Super Dehumidification
SW43	–	Intelligent Heat Staging
SW44	–	Super Comfort Heat
SW99	–	Reset to Factory Defaults

Configuration Options–Selection

SW01–Equipment Type

Range: H2, A2, HP1, AC1, HH1, HH2, HT, CL

- HP2 – operates a two-speed heat pump with a fan coil
- HP1 – operates a single-speed heat pump with a fan coil
- AC2 – operates a two-speed AC with a fan coil or furnace
- AC1 – operates a single-speed AC with a fan coil or furnace
- HH1 – operates a single-speed heat pump with a furnace
- HH2 – operates a two-speed heat pump with a furnace
- HT – operates a heat-only system. Furnace or fan coil only; no outdoor unit.
- CL – operates a cool only-system. Outdoor AC unit with an indoor fan coil with no strip heaters.

Default is HP2.

SW02 - Clean Filter Timer

Select number of months before CHECK FILTER is displayed in the text box on the screen. With OFF selected, the reminder will never come on, disabling this feature. Time selection can range from 1 to 9 months by selecting numbers 1 through 9. For filter time recommendations, please consult filter's Installation Instruction for details.

SW03 - Fahrenheit/Centigrade

Select between Fahrenheit (F) and Centigrade (C) operation.

Factory default is Fahrenheit (F).

SW04 - Fan (G) on with W/WI

This selection determines whether fan (G) output is to be On or OFF when any W/WI (furnace or strip heat) output is On. Most furnaces and fan coils manage their own blowers and do not require separate G signal. For these applications, select OFF. Some auxiliary heaters require separate G signal to turn on blower. In this case, select On. Select On for geothermal applications.

Default is OFF.

SW05 - Room Air Temperature Sensing (with Two-Wire Relay Module installed)

The remote room sensor may be installed as a single sensor or multiple sensors may be installed for further averaging functionality. See Fig. 19.

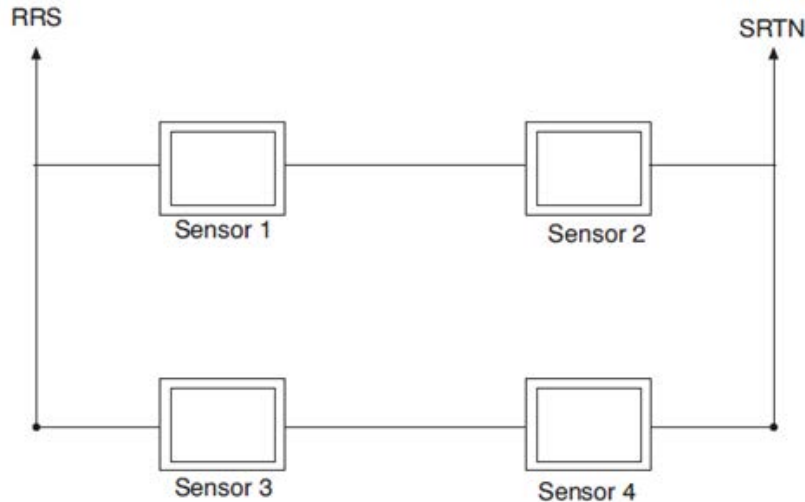


Fig. 19 - Remote Room Sensor - Parallel Wiring

This selection determines which sensor the Thermostat will use for measuring room air temperature. Room air temperature can be sensed in one of three ways; the local sensor (L) located on the Display Module, the remote room air sensor (r), or the average of local and remote sensors (Lr). Settings are L, r, Lr.

Default is L.

SW06 —Cooling Lockout Below 55°F /13°C

This selection disables cooling when outdoor temperature is below 55°F /13°C. It requires an outdoor temperature sensor or Wi-Fi connection with internet weather (internet through Wi-Fi is required and the unit must be registered with location information entered to obtain internet weather). Setting is not available if valid outdoor sensor is not connected or the thermostat not receiving internet weather information. Set to OFF to allow cooling below 55°F /13°C. Set to On to prevent cooling below 55°F /13°C.

Factory default is OFF.

SW07 —Zoning

This selection should be set to On when the Thermostat is to be used as part of a zoning system. It is assumed that the zoning equipment will take care of time guard and cycle timers. The minimum On time is still controlled by the Thermostat.

Default is OFF.

SW08 —Auxiliary Heat Lockout Temperature

This selection is available on heat pump systems with a valid outdoor temperature sensor connected or Wi-Fi connection with internet weather setup. Available settings are: Off, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55.

OFF - function is disabled. Auxiliary heat is allowed to operate whenever sufficient demand for heat is available.

5 to 55°F (-15 to 13°C) - Outdoor temperature above which the auxiliary heat is not allowed to operate (unless MODE is set to Emergency Heat). If room temperature falls below 45°F (7°C), the auxiliary heat will be allowed to turn on and will continue to run until demand is satisfied.

Default is OFF.

SW09 —Heat Pump Lockout Temperature Balance Point

Only available when heat pump is used and when outdoor air temperature sensor is present or Wi-Fi connection with internet weather (internet through Wi-Fi is required and the unit must be registered with location information entered to obtain internet weather).

This selection is only available on Hybrid Heat systems. A Hybrid Heat system is selected via the SW1 Equipment Type configuration. Configurations settings are: OFF, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55.

OFF — the heating cycle will always start with heat pump heating.

5 to 55°F (-15 to 13°C) — the outdoor temperature below which heat pump operation is not allowed.

This selection determines which sensor the Thermostat will use for measuring room air temperature. Room air temperature can be sensed in one of three ways; the local sensor (L) located on the Display Module, the remote room air sensor (r), or the average of local and remote sensors (Lr). Settings are L, r, Lr.

Default is L.

SW10 —Reversing Valve

This selection is only available on heat pump systems. “O” terminal can be configured to be energized in either heating mode or in cooling mode, depending on heat pump operation. “O” is used to describe a heat pump system that energizes its reversing valve in cooling. “B” is used to describe a heat pump system that energizes its reversing valve in heating.

H — Reversing valve output (O/W2/B) is energized when HEAT mode is selected.

C — Reversing valve output (O/W2/B) is energized when COOL mode is selected.

Default is C.

SW11 —Deadband Setting Between Heat & Cool

This option is NOT available on Heat Only and Cool Only systems. The selection allows the installer to choose how much differential exists between the heating and cooling setpoints. Allowable selections are 1 thru 6.

Default is 2.

SW12 —Smart Recovery

Smart Recovery OFF means setpoints change precisely at setback recovery time. 30, 60, or 90 selects the number of minutes recovery starts before programmed recovery time. Recovery takes place smoothly during the selected recovery time, ending at the recovery time and temperature which is programmed. Not available when thermostat is configured as non-programmable.

Default is 60.

SW13 —Room Air Temperature Offset Adjust

The number of degrees to be added to the displayed temperature to calibrate or deliberately miscalibrate the measured room temperature (-5 to +5°F).

Default is 0.

SW14 —Humidity Display Offset Adjust

The percentage to be added to the displayed humidity to calibrate or deliberately miscalibrate the measured room humidity (-9% to +9% RH).

Default is 0.

SW15 —Enable Auto Mode

This selection is not available if the Thermostat is configured as Heat Only or Cool Only in SW1. This allows the homeowner to select auto changeover mode in addition to heat and cool. This allows the Thermostat to automatically change between heating mode and cooling mode when sufficient demand for heating or cooling exists.

ON — Auto mode is available.

OFF — Auto mode is not available.

Default is ON

SW16 —Maximum Cycles Per Hour

This selection limits the number of cycles per hour that the Thermostat allows the system to operate. Selections are 2, 4, 6.

2 — The heating and cooling outputs will be energized no more than 2 times per hour. When an output is energized, it will not be energized again for 30 minutes.

4 — The heating and cooling outputs will be energized no more than 4 times per hour. When an output is energized, it will not be energized again for 15 minutes.

6 — The heating and cooling outputs will be energized no more than 6 times per hour. When an output is energized, it will not be energized again for 10 minutes.

Default is 4.

SW17 —Minimum Time Between Equipment Stages

This selection is only available for heat pump systems. This determines the minimum number of minutes of equipment operation on the highest compressor stage before allowing the transition to auxiliary heat. Available selections are 10, 15, 20, and 25. The minimum time between stages of any individual piece of equipment, such as low speed and high speed compressor or fan coil stages, will be fixed at 10 minutes.

Default is 15.

SW18 – not used

SW19 —Dry Contact Configuration (With optional Two-Wire Relay Module)

There are 3 available selections, OFF, 1 and 2.

OFF — The dry contact is always de-energized.

VENT — The dry contact will be energized for the specified number of minutes per hour. This selection is programmable by period. When this selection is changed from OFF to VENT, Ventilation will be available in the homeowners menu under schedule (from the home screen tap menu, select when schedule is blinking then the up/dn arrow to ventilation). Wake will be shown above the min/hr. the up/dn arrow will adjust min/hr between 0 and 60. Press Next to move through the four periods and set the times per period. See Operational Information and Wiring Diagrams for further explanation of dry contact configuration and use in the Two-Wire Relay Module installation instructions.

DEHUM — The dry contact will operate as a DH relay. This relay is reverse logic. When the humidity level is above the dehumidify setpoint, the dry contact D1-D2 will be opened. When the humidity level is below the dehumidify setpoint, D1-D2 will be closed. There is a +/- 2% hysteresis around the dehumidify setpoint to prevent rapid on/off cycling of the DH output. When configured for dehumidification, the Rc terminal must be connected to one of the dry contact terminals. This provides power to energize the dehumidify terminal on the cooling equipment when the dry contact is closed. See Wiring Diagrams for more information.

Default is OFF.

SW20 —Outdoor Air Temperature Offset Adjustment

This selection allows the calibration, or deliberate miscalibration of the outdoor air temperature sensor reading. The selection ranges from -5 to +5°F.

Default is 0.

SW22 —High Cool Latch Temperature

Only available if outdoor sensor is present or Wi-Fi weather is setup for the high cool latch feature.

This selection is only available when SW1 is set to H2, A2, or h2 and when SW7 (zoning) is set to OFF. Configuration settings are OFF, 80, 85, 90, 95, 100, 105, 110, On.

OFF — Cooling always starts in low stage (Y1) and stages up to high stage (Y1 and Y/Y2) when demand is sufficient and staging timer constraints have been satisfied.

80 to 110°F (27 to 43°C) — Outdoor temperature above which both first and second stages of the compressor are energized to satisfy all cooling demands. When a cycle starts under a high cool latch, it will finish the cooling cycle on high stage. If the cooling equipment is energized to satisfy a dehumidify demand only (no cooling demand), the latch will not be applied.

ON — The Y1 and Y/Y2 outputs are simultaneously energized to satisfy all cooling demands.

Default is OFF.

SW23 —High Heat Latch Temperature (only available if outdoor sensor is present)

This selection is only available when SW1 is set to H2, or h2 and SW7 (zoning) is set to OFF. Configuration settings are OFF, 20, 25, 30, 35, 40, 45, 50, On.

OFF — Heating always starts in low stage (Y1) and stages up to high stage (Y1 and Y/Y2) when demand is sufficient and staging timer constraints have been satisfied.

20 to 50°F (-7 to 10°C) — Outdoor temperature below which both first and second stages of the compressor are energized to satisfy all heating demands. When a cycle starts under a high heat latch, it will finish the heating cycle on high stage.

On — The Y1 and Y/Y2 outputs are simultaneously energized to satisfy all heating demands.

Default is OFF.

SW24 —Programmable/Non-Programmable

This selection allows the installer to configure the Thermostat as either programmable or non-programmable. Selections are P, nP.

Default is P.

SW25 —Number of Programmable Periods

This selection allows the installer to configure the Thermostat for two or four periods per day. Two periods is a common commercial application and four periods is more common for residential. This selection is not available if SW24 has been set to nP to configure the Thermostat for non—programmable operation.

2 PER — Periods WAKE and SLEEP are available

4 PER — Periods WAKE, AWAY, HOME, and SLEEP are available.

Default is 4.

SW26 —Minimum Cooling Setpoint

This selection allows the installer to configure the minimum cooling setpoint that the user is allowed to set. The range is based on the value of the adjustable deadband SW11, such that the minimum of the range is 50°F/10°C plus the adjustable deadband and the maximum is 90°F/32°C.

Default is 52°F/11°C (based on the adjustable deadband default = 2).

SW27 —Maximum Heating Setpoint

This selection allows the installer to configure the maximum heating setpoint. The range is based on the adjustable deadband value SW11, such that the minimum of the range is 50°F/10°C and the maximum is 90°F/32°C minus the deadband.

Default is 88°F/31°C (based on the adjustable deadband default = 2).

SW28 —UV Light Reminder

This selection allows the installer to select the number of months after which the UV Light reminder will be displayed to indicate to the homeowner that it is time to call the dealer to have the UV Lights replaced. Selections available are OFF, 6, 12, 18, 24, 30, 36, 42, 48.

OFF — The UV Light reminder is turned off and will never be displayed.

6 - 48 — The number of months after which the UV Light reminder will be displayed.

Default is OFF.

SW29 —Humidifier Pad Reminder

This selects the number of months after which the Humidifier Pad Reminder will be displayed. This is not based on run time.

OFF — The Humidifier Pad Reminder is disabled and will never be displayed.

1-24 — The number of months after which the Humidifier Pad Reminder icon will be displayed.

Default is OFF.

SW30 —Programmable Fan

This selection allows the homeowner to program the fan selection to “Auto” or “On” fan operation for each of the program schedule periods. Also they can program air circulation by period.

OFF — Programmable fan is disabled and the homeowner must manually select “Auto” or “On” for fan operation and there is no option for air circulation.

On — Programmable fan is enabled. The homeowner can program “Auto” or “On” fan operation along with the heat and cool setpoints for each programmed period. When the program schedule is running, the programmed heat setpoint, cool setpoint, and fan selection for that period will be used. If the homeowner “overrides” the programmed fan setting by pressing the fan button, the override selection will remain in effect until the next programmed period time.

Default is ON.

SW32 —Furnace Heat Staging Control (available only when the Thermostat is configured to operate AC or A2 equipment).

FURN – The Thermostat controls W1 output only and furnace controls the turn on and turn off of higher stages of heat.

TSTAT – The Thermostat will control the W1 and O/W2/B outputs.

Default is FURN.

SW34 — Hybrid Heat Furnace Latch

This selection allows a Hybrid Heat system to finish a heating cycle using the furnace.

On – Once the furnace is on, it will finish the heating cycle with the furnace. If a heat pump defrost occurs, the heating cycle will finish with the furnace.

OFF – The system will stage from furnace back to heat pump if heating demand dictates, or 2 minutes after a defrost has ended.

Default is On.

SW35 – Advanced Smart Setback

This selection enables the Advanced Smart Setback algorithm.

On – When transitioning from the Away profile to the Home profile, the system will calculate the amount of time needed to efficiently reach the desired home setpoint on-time.

OFF – When transitioning from the Away profile to the Home profile, the system will ramp according to the Smart recovery algorithm (30, 60, or 90 minute recovery).

Default is On.

SW40 —Humidify Fan

This selection controls whether humidification can only be done when a heating demand is present. If the homeowner turns humidification OFF, this configuration operates as if the selection was set to OFF.

OFF – The humidity output will only energize when there is a humidity demand and the heating equipment is energized.

On – The humidity output and the fan will energize anytime humidification is needed during heating mode regardless of the state of the heating equipment.

Factory default is OFF.

SW41 —Variable Speed Blower

This selection allows the installer to select between a single speed or variable motor. In a system with a two speed compressor (A2, h2, H2), if a dehumidification demand exists and the compressor is energized for cool to dehumidify, cooling, or both, and the system has a PSC blower (SW41 = OFF), then both Y/Y2 and Y1/W2 are energized.

OFF – The system has a single speed (PSC) blower.

On – The system has a variable speed blower.

Select OFF for geothermal applications.

Factory default is OFF.

SW42 —Variable Speed Super Dehumidification

This option will only be available if the Variable Speed Blower setup (SW41) has been set to ON.

OFF – The fan output (G) is energized when the compressor is on for cool to dehumidify functionality.

On – The fan output (G) is de-energized when the compressor is running for cool to dehumidify functionality. In this setup the fan will run at very low speed because a Y/Y2 or Y1/W2 is present but the G signal is not. The fan output (G) will be energized any time the compressor is energized in response to a cooling demand.

Factory default is OFF.

SW43 —Intelligent Heat Staging

This function is only available if the equipment configuration is a single speed heat pump (SW01 = HP).

OFF – Electric heat will not be staged.

On – Three stages of electric heat will be staged.

This switch should be set to On if the HVAC equipment has two banks of strip heaters. When electric heat is required, the thermostat will energize the smallest bank first (W1 only), then the larger bank (turning the smaller bank off - Y1/W2 only), and then both banks together (both W1 and Y1/W2). When power is cycled to the thermostat, this unit configuration will be displayed as HS.

Factory defaults is OFF.

SW44 —Super Comfort Heat

This option is only available on heat pump units HP (HP, H2, hh1, and h2) when SW41 (Variable Speed Blower) is set to On and the system has a valid outdoor air temperature sensor or Wi-Fi connection with weather setup

OFF – Comfort Heat is off.

On – Comfort Heat feature is on.

If the outdoor air temperature is between 12 to 40°F (-11 to 4°C) and the compressor is running in heating, then the fan output is turned off. This will signal the variable speed blower to reduce the air speed. The fan output is turned off even if the user has the fan selection set to continuous fan. The fan output will be turned back on in this temperature range if the maximum capacity of auxiliary heat is on due to system demand (auxiliary heat on in response to a defrost signal shouldn't cause the fan to turn back on).

If the outdoor air temperature is below 12°F/-11°C and there is sufficient demand for the equipment to be on, then the fan output is turned back on and the W/W1 output is energized. In a two speed unit the Y/Y2 output should be energized in addition to the W/W1 output. This logic does not apply to a Hybrid Heat system. In the unlikely event that the installer has selected a heat pump lockout temperature (SW09) of 5°F/-15°C in a Hybrid Heat system and the comfort heat feature is on, then the comfort heat feature will turn the W/W1 on and the compressors off when the outdoor air temperature drops below 12°F/-11°C instead of at the lower temperature of 5°F/-15°C.

NOTE: All temperature boundaries have a +/- 2° hysteresis.

Factory default is OFF.

SW99 —Reset to Factory Defaults

Use this capability to reset the Thermostat to “out of the box” conditions. BEWARE! All configuration settings, program settings, clock, and calendar which have been manually entered will be lost! When this option is selected, the configuration number (SW99), will appear on the left and 10 will appear on the right. To perform the reset, first use the NEXT key to move the box from the SW99 to the 10. Then press and hold the DOWN key. The 10 will start counting down toward zero. If the DOWN key is kept pressed until the count reaches zero, the reset will be performed. When the value reaches zero, the room air temperature shall display Fd and “RESETTING..” in the text box. When the factory defaults have been restored, the Thermostat will act as if power was cycled and return to normal operation. If the DOWN key is released early, the number will return to 10 and the reset will not occur.

NOTE: If you reset to factory defaults you will need to reconfigure the thermostat for the connected equipment. To reset homeowner preferences exit the dealer setup menu and select menu from the home screen then select settings and go to item 14 “RST DEFAULT” to reset user preferences.

SYSTEM START-UP AND TEST EQUIPMENT

The Thermostat is designed with a built-in installer test capability. It allows easy operation of equipment without delays or setpoint adjustments to force heating or cooling. To enable installer Output Test mode, press and hold the fan button for 10 seconds. Pressing the Heat/Cool button will change the system operating mode to test the heating and cooling equipment based on the equipment setup. Auto Mode is not available during Installer Test Mode. If no buttons are pressed for 15 minutes, the installer test mode will be terminated. Pressing Heat/Cool mode button will stop the test but remain in Output Test mode. Pressing DONE or START at any time will exit installer test mode.

Aux Heat – The first stage of Aux Heat will be energize for three minutes, then the first and second stages (if a second stage exists) will turn on for an additional three minutes. The Aux Heat icon at the top of the screen will be displayed and a text message on the screen will display STG 1 and count down from 180 seconds. After three minutes the thermostat will go back to Heat/Cool mode to Off. If no buttons are pressed for 15 minutes, the installer test mode will be terminated.

Heat – The first stage of heating will be energized for three minutes, then the first and second stages (if a second stage exists) will turn on for an additional three minutes. During the first stage of heating, the HEAT icon will be displayed along with the text “STG 1”. During the second stage of heating (if one exists), the “STG 2” text will be displayed if the system has a two-stage compressor (A2, h2, or H2 unit types). The “auxiliary heat on” icon will be displayed if the second stage is electric heat (HP unit type). While the heating test is active, the fan output (accessory output on the Côt 7 series) can be toggled by pressing Menu then the up/dn arrows to select.

Cool – Output Test for cooling is the same as described for heating above. The COOL icon and the stage text will be displayed during cooling in Installer Test Mode. While the cooling test is active, the fan output (and accessory output on the Côt 7 series) can be toggled by pressing Menu then the up/dn arrows to select and toggle them on/off.

To Test Fan

Fan – The fan button switches FAN icon between AUTO and On. While On is displayed, G output will be energized, turning fan on. On some fan coils, fan continues to operate for 90 sec after G signal is removed.

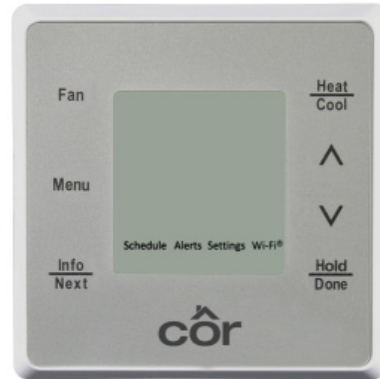
Accessing the Standard Menus

On the thermostat

1. On the Côt 7/7C thermostats press START if the MENU button is not visible.
2. On the main screen touch MENU button for standard Menus.
3. Menu options are: Schedule, Alerts, Settings, and Wi-Fi®.
4. Use the up or down arrows to move through the 4 menu options.
5. Côt 5 touch Next to go into that menu and on Côt 7 touch Select.



Côt®7 Non-Wi-Fi,
Côt®7C Wi-Fi Series
(Humidity Control)



Côt®5 Non-Wi-Fi,
Côt®5C Wi-Fi
(No Humidity Control)

Fig. 20 - Côt Thermostats

Table 1 – Thermostat Standard Menu Map and Options*

		Options:
Schedule	PROFILES	Enter Heat To and Cool To temperatures by period
	PROGRAM	All Days, Weekdays/Weekends, Individual days
	NUM PERIODS	2 or 4 periods (Wake, Sleep) or (<u>Wake, Away, Home, Sleep</u>)
	HOLD PREFER	Timed Hold, Permanent, <u>until next Schedule Change</u>
	PRGM ENABLE	<u>Enabled</u> / Disabled
	TOUCH-N-GO	<u>Enabled</u> / Disabled
	CIRCULATION	Minutes / Hr By period
Alerts	AIR FILER	Off or <u>Number of Months</u> , Dismiss (Yes/No)
	UV FILTER	<u>Off</u> or Number of Months, Dismiss (Yes/No)
	HUM FILTER	<u>Off</u> or Number of Months, Dismiss (Yes/No)
	LOW TEMP	Enable (Yes/ <u>No</u>), Limit (50-90°F), Dismiss (Yes/No)
	HIGH TEMP	Enable (Yes/ <u>No</u>), Limit (50-90°F), Dismiss (Yes/No)
	AUX RUNTIME	Enable (Yes/ <u>No</u>), Limit (1-8 hours), Dismiss (Yes/No)
	LO HUMIDITY	Enable (Yes/ <u>No</u>), Limit (5-95%), Dismiss (Yes/No)
	HI HUMIDITY	Enable (Yes/ <u>No</u>), Limit (5-95%), Dismiss (Yes/No)
	BAD DEFROST	Enable (<u>Yes/No</u>), Dismiss (Yes/No)
	EQUIP ISSUE	Enable (Yes/ <u>No</u>), Dismiss (Yes/No)
	EQUIP FAIL	Enable (Yes/ <u>No</u>), Dismiss (Yes/No)
Settings	DATE	Date
	TIME	Time
	DST SETUP	(Daylight Savings Time) Eastern, Central, etc... (US and Canada zones)
	HUMIDIFY	Normal (10-44%), Auto (Level 1-9 “window protect”), <u>Off</u>
	DEHUMIDIFY	Overcool (46-66%), Normal, <u>Off</u>
	DST SETUP	Daylight Savings Time - Off, <u>On</u> (select dates)
	TEMP UNITS	<u>Fahrenheit</u> , Celsius
	BACKLIGHT	Level 1-5 per period (1=dim, <u>5=bright</u>)
	SCREEN LOCK	<u>Off</u> , Level 1, Level 2 (plus password if enabled)
	SCRN CLEAN	(30 second countdown timer, no buttons)
	SCRN COLORS	White, Yellow, Pink, Red, <u>Cyan</u> , Green, Blue
	RST DEFAULT	(Reset Default preferences) Hold for 10 seconds for default settings (excludes system/equipment setup settings)
	SERIAL NUM	11-digit serial number
	SW VERSION	Software version
Wi-Fi®	SETUP N APP	<u>Disable</u> , Enable (make thermostat an Access Point)
	SCAN Wi-Fi	Lists available Wi-Fi networks in the area
	Wi-Fi NAME	View, Edit, Change
	Wi-Fi PASSWD	View, Edit, Change
	Wi-Fi SECUR	<u>WPA2</u> , WEP, Open
	REG CODE	Requests the Registration code from Server
	Wi-Fi STATUS	Displays - No Connect, To Router, To Server
	CHK UPDATE	Yes - Forces update of firmware if available
	UPDATE INFO	Shows status of the firmware update if available
	POSTAL CODE	Enter postal code for internet weather
	Wi-Fi ON/OFF	<u>Enable</u> , Disable
MAC ADDRESS	Displays the thermostats MAC Address	

NOTE: The default settings are underlined if applicable.

*Instructions for most of the setting above are located in the Owner’s Manuals online or the installation instructions.

OPERATIONAL INFORMATION

Timers

Five-Minute Compressor Timeguard

This timer prevents compressor from starting unless it has been off for at least 5 minutes. It can be overridden for 1 cycle by simultaneously pressing FAN and UP buttons.

Cycle Timer

Based on the selection of 2, 4, or 6 cycles per hour, this timer is set to 30, 15, or 10 minutes. This much time must elapse from the start of one cycle before another cycle can start. It serves to impose the cycles per hour limits. It can be defeated for one cycle by simultaneously pressing the FAN and UP buttons.

Ten-Minute Staging Timer

In multistage heating or cooling, this timer prevents any higher stage from turning on until preceding stage has been on for 10 minutes. When staging between compressor and electric heat or between compressor and furnace heat, the time is configurable. The timer is configurable via SW17. This timer is overridden if temperature error is greater than 5° (usually due to a large change in desired temperature) and equipment stages up in 60 second intervals.

The ten-minute staging timer does not require the thermostat to change to a higher stage after 10 minutes. If the system is able to meet the demand (maintain setpoint) it may not change stages after the 10 minute timer has expired. If there is sufficient demand for a higher stage at the end of 10 minutes or at any time after the 10 minute timer has expired, the thermostat will energize the next higher stage.

Defrost

When defrost occurs in a Hybrid Heat system, the furnace will operate during the defrost cycle. At the end of the defrost cycle, the furnace and heat pump will be de-energized while the fan is energized for 2 minutes allowing the heat exchanger to cool down. If SW34, Hybrid Heat Furnace Latch is set to Off, at the end of the 2 minute time, the heat pump will be re-energized if a call for heat still exists. If SW34 is set to On (default), the furnace will remain on until the end of the heating cycle.

Defrost detection is not available if the installer has configured the O/W2/B output to function as a B output. During heat pump heating, a defrost signal shall be considered valid if the compressor output is energized and the defrost signal has been active for less than 15 consecutive minutes. Any defrost signal present for longer than 15 minutes shall be considered invalid. Heat pump/fan coil and Hybrid Heat systems shall use this input to:

- Detect that defrost is in progress and energize the auxiliary heat to provide homeowner comfort during the defrost cycle
- Allow a defrost cycle to run to completion regardless of the system demand

Three-Minute Minimum on Time

In normal operation, when a stage turns on, it will not turn off for a minimum of 3 minutes. In Hybrid Heat systems, the minimum on time for the furnace is 5 minutes. If the setpoint is changed, this timer is canceled, allowing the equipment to turn off immediately when the demand is removed. The 3 minute minimum on timer applies to all stages of heating and cooling, except Hybrid Heat. A stage will run for a minimum of 3 minutes before the thermostat will be allowed to stage to a lower stage.

Heat/Cool Setpoints (Desired Temperature)

A minimum difference of 1° and maximum of 6° is enforced between heating and cooling desired temperatures. This is done by allowing 1 setting to “push” the other, to maintain this difference. This difference is adjustable via Configuration SW11.

Equipment On Indicators

When cooling equipment is on, a COOL icon is displayed. While cooling equipment operation is delayed by the time guard or cycle timer, COOL will flash. The same is true for HEAT icon.

When the W is energized in a heat pump or Hybrid Heat system, the “auxiliary heat” icon will be displayed.

Auto Changeover

When auto changeover mode is selected, a change from heat to cool (or vice versa) will not occur until an opposite mode demand has existed for 20 minutes. If setpoint is changed, 20 minute requirement is deleted.

Emergency Heat Mode

When Thermostat Control is configured as a heat pump and emergency heat is selected, all Y signals are locked out, and W becomes energized upon a call for heat.

Programmable Fan

The fan output can be programmed based on period of the day. When programming for each day and period the fan can be set to On or AUTO. If the fan button is pressed to change from On to Auto or vice versa when programmable fan has been enabled, the manual change will only remain in effect until the next program period, when the programmable fan setting will be changed per the scheduled setting.

Dry Contact

On the Côr 7 series thermostats with the optional Two-Wire Relay Module, the dry contact that can be used for control of an auxiliary device. The dry contact may be configured to be closed for a specific number of minutes per hour for each period of the program schedule. This can be used to operate a ventilator, damper, system blower, or other auxiliary device. There are two terminals, D1 and D2.

On both the programmable and non-programmable models, when configured as a dehumidify output, it will operate cooling equipment capable of dehumidify function. When configured for dehumidification, the Rc terminal must be connected to one of the dry contact terminals. The other dry contact terminal is connected to the dehumidify terminal on the furnace or fan coil. This provides power to energize the dehumidify terminal on the cooling equipment when the dry contact is closed.

If it is desired to operate a ventilator or other device, the D1 and D2 terminals can be connected directly to the equipment. This will provide a closed contact for the specified number of minutes per hour. See SW19.

If timed control of the system blower is required, the dry contact can be used for this function. The G terminal can be connected to one of the dry contact terminals with the other terminal being connected to Rc and/or Rh for timed control of the fan. Note that this is not the same as programmable fan SW30.

See Wiring Diagrams for more information.

Temperature Offset After Power Cycle

To compensate for internal heat build-up from the electronics in the thermostat, the thermostat will add an offset to the actual temperature that it measures. After a short power cycle, there should be no noticeable increases in displayed temperature. The thermostat display will return to the actual room temperature after several minutes of operation.

Dehumidification Options

Dehumidification Options for Most Cooling Equipment (Only available on the Côr 7 or Côr 7C).

Overcool to Dehumidify

Overcool to dehumidify can be used on any product. This feature simply over cools until there is no longer a call to dehumidify or until the indoor temperature reaches a calculated over cool temperature with our advanced Cool to Dehumidify Algorithm.

Below is a graph showing Overcool to Dehumidify operation without a dehumidification accessory (e.g. whole home dehumidifier).

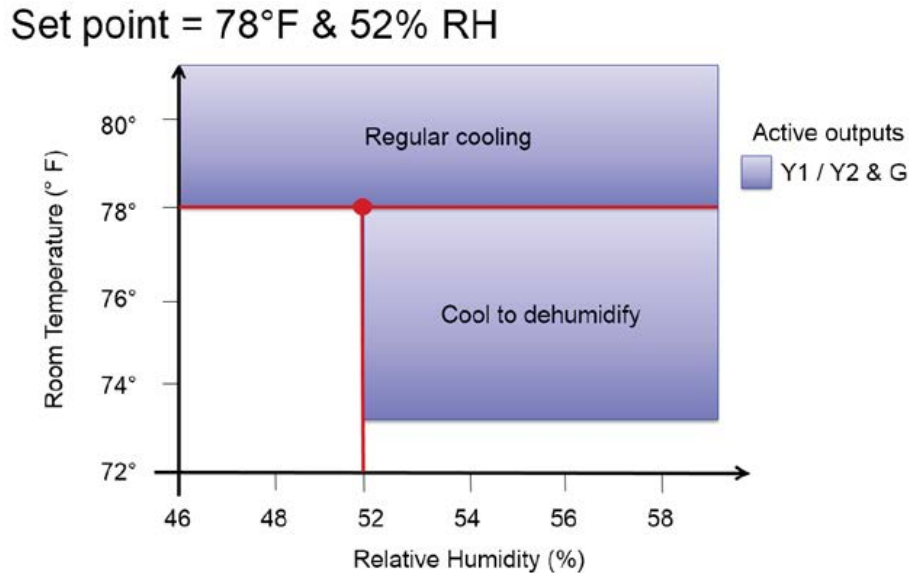


Fig. 21 - Overcool to Dehumidify

On Thermostat:

Select Menu > Settings > Dehumidify

- Default: overcool / 60% (option: 46 – 66% humidity in 2% steps)
- Normal (option: 46 – 66% humidity in 2% steps) requires the Two-Wire Relay Module with a separate whole home dehumidifier connected.
- Off

Dehumidification Options with Variable Speed Carrier/Bryant equipment

NOTE: See below for capable equipment. Requires the Côr 7/7C thermostat with the Two-Wire Relay Module.

Standard Dehumidification

This feature uses the Dehum terminal on the indoor control board to slow the fan speed down (80% – 90%) when there is a call for dehumidification. This feature is engaged by connecting the Dehum terminal on the indoor unit to the dry contact terminal on the Two-Wire Relay Module. The dry contact output connects to the dehumidify input on variable-speed furnaces and fan coils. Additional dehumidification is done by controlling the compressor. A variety of operating modes are available on the Côr 7 Series Thermostats. The dry contact must be configured for dehumidification. See Wiring Diagrams for more information in the two wire installation instructions.

Standard Dehumidification can also be configured to extend below setpoint to over at the slower speed for moisture removal.

Below is a graph showing both standard dehumidification and Overcool to dehumidify when a Dehumidifier is installed with the Two-Wire Relay Module.

Set point = 78°F & 52% RH

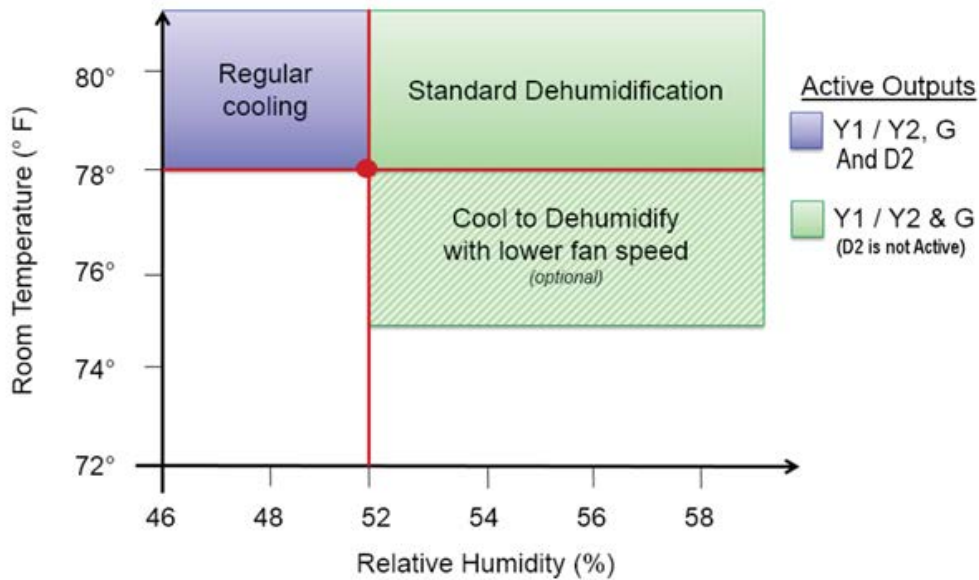


Fig. 22 - Standard Dehumidification with Overcool to Dehumidify

Perfect® Humidity / Ideal® Humidity System technology (Standard Dehumidification + Super Dehumidification)

1. Standard Dehumidification – Outlined above
2. Super Dehumidification – When there is a demand for dehumidification without a demand for cooling, the thermostat will run the equipment in cooling mode at 50-65% of cooling speed (dependent on the equipment).
3. Smart Evap™ - the blower will shut down within 5 seconds after cooling cycle to prevent re-evaporation of the water on the coil back into the home. When in continuous fan, the blower will start again after 5 minutes.

NOTE:

- Some equipment has a timer limit on Super Dehumidification operation.
- When Super dehumidification is enabled, this feature cannot be overridden.

⚠ CAUTION

PROPERTY DAMAGE HAZARD

Failure to follow this caution may result in property damage.

Super dehumidification may cause the system/duct work to sweat in some unconditioned installations in high humidity areas.

Perfect® Humidity / Ideal® Humidity System Technology with FK/FV Fan Coils

Standard Dehumidification: When there is a call for cooling and a call for dehumidification, the fan coil delivers airflow which is approximately 80% of the nominal cooling airflow to increase the latent capacity of the system.

Super Dehumidification: When there is no call for cooling but a call for dehumidification, airflow is reduced to 50% of the cooling airflow set up and the unit is automatically set to overcool up to 3°F.

The blower delay needs to be set to zero off delay to prevent re-evaporation of the water on the coil. It is advisable to always set the off delay to zero and allow the thermostat control the off delay.

Set up Perfect® Humidity / Ideal® Humidity System Technology on an FK/FV Fan Coil:

1. Dry Contact D1 should be connected with R on the Fan Coil. D2 should be connected to the DH terminal on the Fan Coil.
2. Remove jumper on easy-select board.
 - a. Remove J1 jumper to allow for standard dehumidification control.
 - b. Remove J1 and J2 for applications where two stages of heating are configured on the thermostat (W1 and W2).
3. Set the blower delay to 0/0 on the board. This turns blower off immediately at the end of each cooling cycle to prevent re-evaporation of water on the coil.

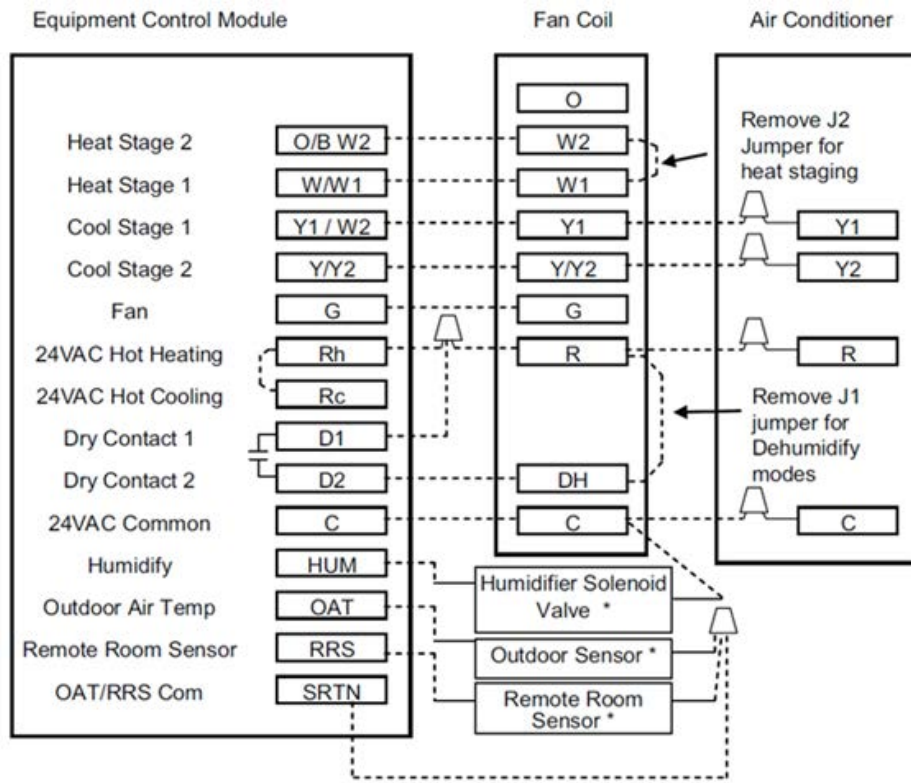


Fig. 23 - FK-FV Fan Coil Dehum Wiring

Always remove jumper J1 to allow for standard dehumidification control.
 Only remove jumper J2 when Two Stage Heat is configured on the thermostat (W1 & W2)

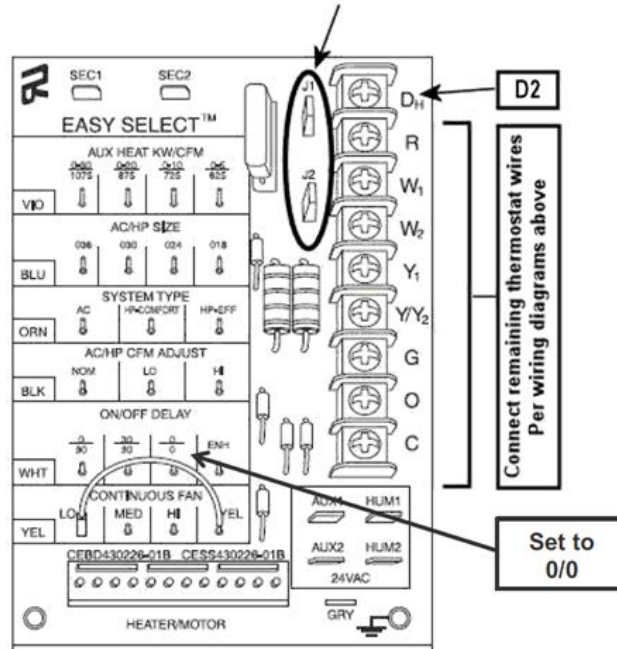


Fig. 24 - FK-FV Fan Coil Circuit Board

Set the dehumidify option under Menu > Settings > Dehumidify > Normal. This will allow you to set the RH% desired for the home.

NOTE: The DHUM on the fan coil control board is active in the open state. The dry contact is active open for dehumidification. In other words, dehumidify output logic is reversed – output is turned On when no dehumidify demand exists and is turned Off when demand exists.

Set the accessory to Dehum. On variable speed equipment it is necessary to ensure the thermostat is set for variable speed. To make these settings you need to enter the dealer menu.

1. Touch and hold the menu button until the dealer install menu is visible.
2. Use the up arrow to move to SW19 (Dry Contact Configuration).
3. Use the next button so Off/On is blinking.
4. Use the up arrow to change to Dehum.
5. Touch next to go back to SW19 (it should be blinking).
6. Use the up arrow to move to SW41 (variable speed).
7. Use the next button so Off/On is blinking.
8. Use the up arrow to change to On.
9. Touch next to go back to SW41 (it should be blinking).
10. Touch up arrow to go to SW42 (Super Dehum).
11. Use the next button so Off/On is blinking.
12. Use the up arrow to change to On.
13. Touch Start to exit back to the home screen.

Standard Dehumidification with FV/FK Fan Coils

Enhanced dehumidification is achieved by reducing the blower speed to 80% of the cooling blower speed during a call for dehumidification. You can also choose to use Overcool to Dehumidify and set the cooling off delay to 0 to prevent re-evaporating water on the coil after a cooling cycle.

Set point = 78°F & 52% RH

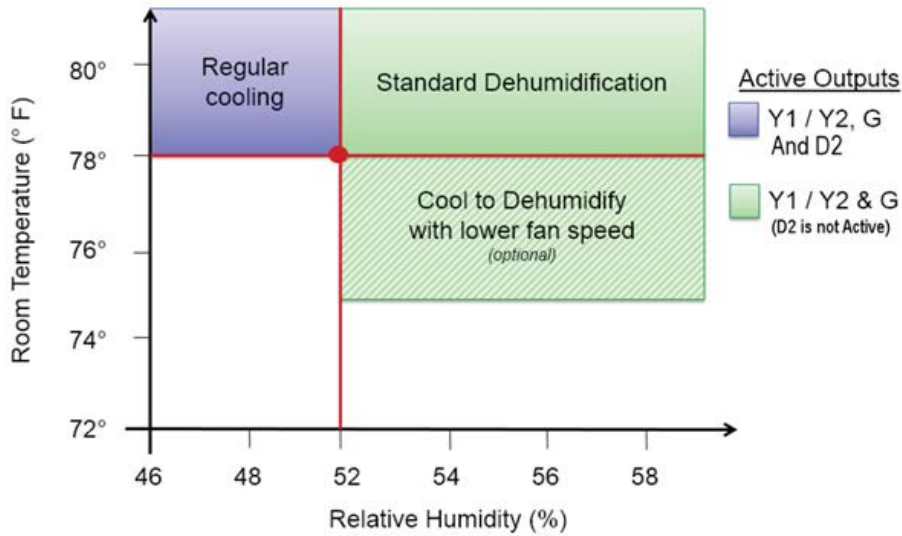


Fig. 25 - Standard Dehumidification with Overcool to Dehumidify

Set up Standard Dehumidification on an FK-FV Fan Coil

1. Dry Contact D1 should be connected with R on the Fan Coil. D2 should be connected to the DH terminal on the Fan Coil.

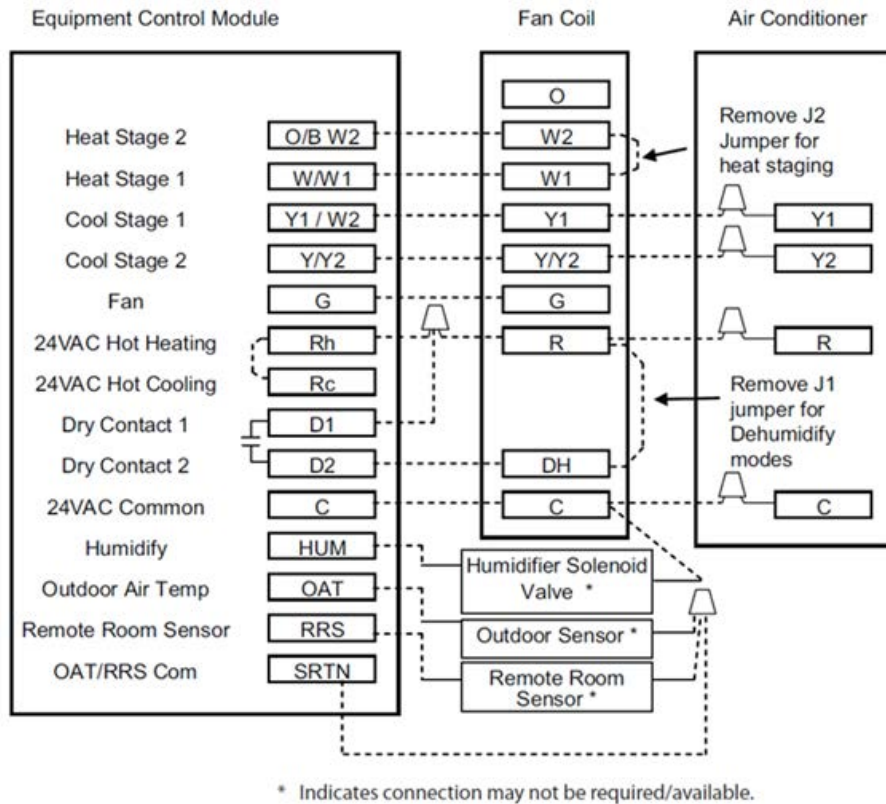


Fig. 26 - FK-FV Fan Coil Dehum Wiring

2. Remove jumper on easy-select board.
 - a. Remove J1 jumper to allow for standard dehumidification control.
 - b. Remove J1 and J2 for applications where two stages of heating are configured on the thermostat (W1 and W2).
3. If you want no off delay, set the blower delay to 0/0 on the board. This turns blower off immediately at the end of each cooling cycle to prevent re-evaporation of water on the coil.

Always remove jumper J1 to allow for standard dehumidification control.
 Only remove jumper J2 when Two Stage Heat is configured on the thermostat (W1 & W2)

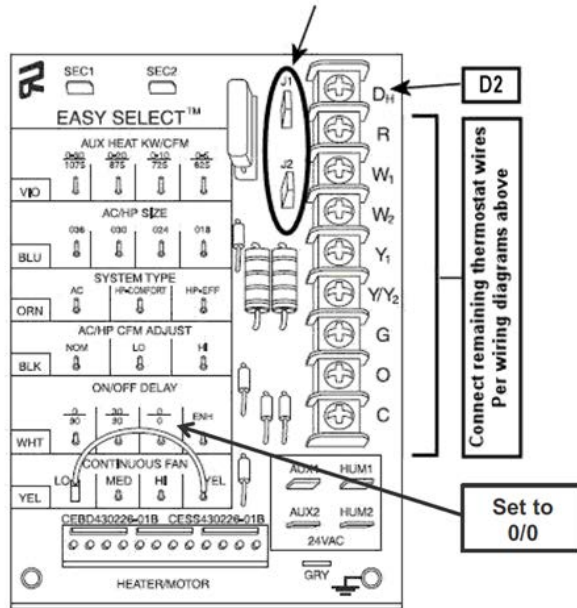


Fig. 27 - FK-FV Coil Circuit Board

Set the dehumidify option under Menu > Settings > Dehumidify > Normal. This will allow you to set the RH% desired for the home.

NOTE: The DHUM on the fan coil control board is active in the open state. The dry contact is active open for dehumidification. In other words, dehumidify output logic is reversed – output is turned On when no dehumidify demand exists and is turned Off when demand exists.

4. (Optional) Configure Overcool to Dehumidify
 - a. On Thermostat: Select Menu > Settings > Dehumidify
 - b. Use the arrow key to scroll through options
 - c. When Overcool is blinking touch next to change setting
 - d. Overcool / 60% (option: 46 – 66% humidity in 2% steps)
 - e. Touch Start to return to Home Screen

If Overcool to Dehumidify is disabled, you will get the following operation.

Set point = 78°F & 52% RH

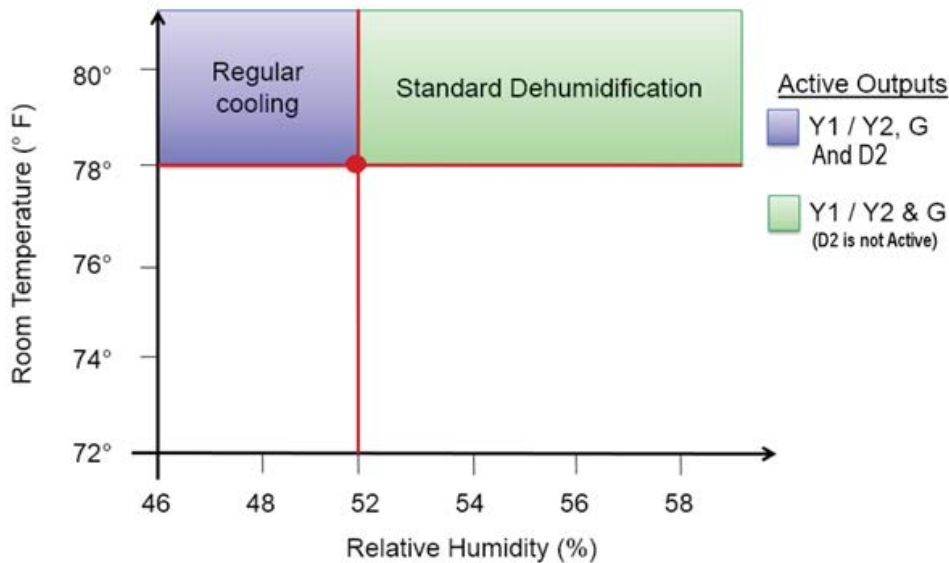


Fig. 28 - Standard Dehumidification

Standard Dehumidification with FX4 Multi-tap ECM Fan Coils

For better Dehumidification, the D2 terminal on the Two-Wire Relay Module can be used to control a speed tap when there is a no call for dehumidification. The G terminal will be used to control a speed tap when there is a call for Dehumidification. The D2 terminal will need to be set up properly for dehumidification through the thermostat setup menu.

NOTE: Multi-tap ECM motors have multiple speed taps that need to be set properly when commissioning a system. It is the responsibility of the installation/service technician to ensure the equipment is maintaining a minimum of 315 CFM per ton. See the Fan Coil installation instructions for setting the speed taps correctly.

Set point = 78°F & 52% RH

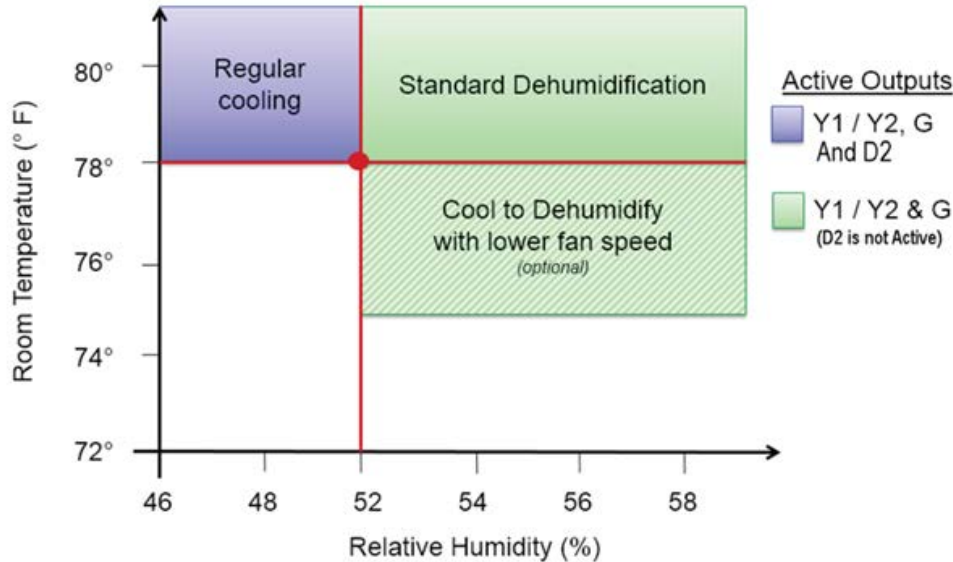


Fig. 29 - Standard Dehumidification with Overcool to Dehumidify

Set Up Standard Dehumidification on an FX4 Fan Coil

1. Connect the D2 terminal on the Two-Wire Relay Module to the speed tap designed for cooling when there is NO demand for dehumidification. Recommended minimum of 350 CFM/ton (i.e. “cooling speed” tap).
2. The G terminal should be connected to the “Dehumidification speed” tap. (Required minimum of 315 CFM/ton)

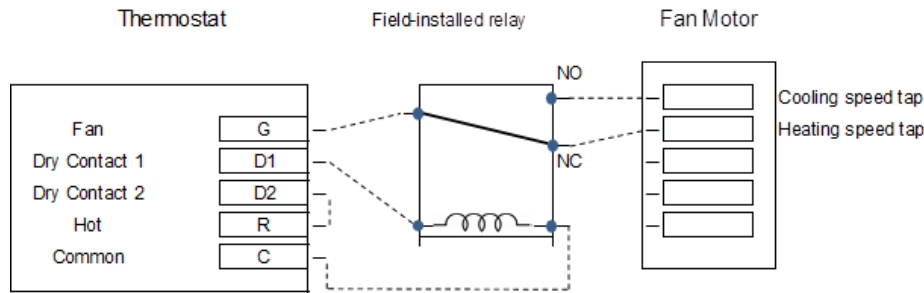


Fig. 30 - FX4 Fan Coil Wiring

3. Set up the thermostat with the Two-Wire Relay Module so the dry contact is configured for Dehum.
 - a. Touch and hold the menu button until the dealer install menu is visible.
 - b. Use the up arrow to move to SW19 (Dry Contact Configuration).
 - c. Use the next button so Off/On is blinking.
 - d. Use the up arrow to change to Dehum.
 - e. Touch Start to exit back to the home screen.

NOTE: The DHUM on the fan coil control board is active in the open state. The dry contact is active open for dehumidification. In other words, dehumidify output logic is reversed – output is turned On when no dehumidify demand exists and is turned Off when demand exists.

4. (Optional) Configure Overcool to Dehumidify.
 - a. On Thermostat: Select Menu > Settings > Dehumidify.
 - b. Use the arrow key to scroll through options.
 - c. When Overcool is blinking touch next to change setting.
 - d. Overcool / 60% (option: 46 – 66% humidity in 2% steps).
 - e. Touch Start to return to Home Screen.

If Overcool to Dehumidify is disabled, you will get the following operation.

Set point = 78°F & 52% RH

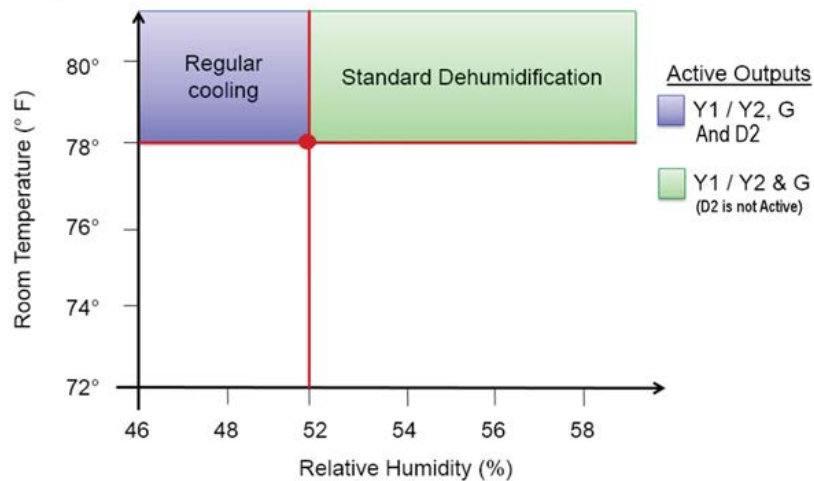


Fig. 31 - Standard Dehumidification

Ideal Humidity® / Perfect Humidity® System Technology with Infinity® / Evolution® Furnaces

Infinity® and Evolution® units are capable of full Ideal Humidity® / Perfect Humidity® System Technology which included Super Dehumidification.

1. Dehumidification: When there is a call for cooling and a call for dehumidification, the furnace delivers airflow which is 86% of the nominal cooling.
2. Super Dehumidification: When there is a demand for dehumidification without a demand for cooling, the furnace will run at 65% of the nominal cooling speed for a maximum of 10 min per cycle. After 10 min, the furnace blower speed will revert back to the dehumidification speed of 86%. Normal staging algorithms between low-stage and high-stage cooling are applied during Super Dehumidification. Super Dehumidification setting automatically over cools up to 3°F.
3. SmartEvap™: The blower will shut down within 5 seconds after a cooling call to prevent re-evaporation of the water on the coil.

NOTE: When Super Dehumidification is enabled, this feature cannot be overridden.

Set up Ideal Humidity® / Perfect Humidity® System Technology on an Infinity® / Evolution® Furnace

1. Dry Contact D1 should be connected with R on the Furnace board. D2 should be connected to the DH terminal on the Furnace board.
2. Set up the thermostat with the Two-Wire Relay Module so the dry contact is configured for Dehum, Variable speed and Super Dehum.
 - a. Touch and hold the menu button until the dealer install menu is visible.
 - b. Use the up arrow to move to SW19 (Dry Contact Configuration).
 - c. Use the next button so Off/On is blinking.
 - d. Use the up arrow to change to Dehum.
 - e. Touch next to go back to SW19 (it should be blinking).
 - f. Use the up arrow to move to SW41 (variable speed).
 - g. Use the next button so Off/On is blinking.
 - h. Use the up arrow to change to On.
 - i. Touch next to go back to SW41 (it should be blinking).
 - j. Touch up arrow to go to SW42 (Super Dehum).
 - k. Use the next button so Off/On is blinking.
 - l. Use the up arrow to change to On.
 - m. Touch Start to exit back to the home screen.

NOTE: The DHUM on the fan coil control board is active in the open state. The dry contact is active open for dehumidification. In other words, dehumidify output logic is reversed – output is turned On when no dehumidify demand exists and is turned Off when demand exists.

3. (Optional) Configure Overcool to Dehumidify
 - a. On Thermostat: Select Menu > Settings > Dehumidify
 - b. Use the arrow key to scroll through options.
 - c. When Overcool is blinking touch next to change setting.
 - d. Overcool / 60% (option: 46 – 66% humidity in 2% steps)
 - e. Touch Start to return to Home Screen.

Furnace Dehumidification with Performance / Preferred Furnaces

Enhanced dehumidification is achieved by reducing the blower speed to 90% of the cooling blower speed during a call for dehumidification. You can also choose to use Overcool to Dehumidify and set the cooling off delay to 0 to prevent re-evaporating water on the coil after a cooling cycle.

When the call for cooling is satisfied and there is a demand for dehumidification, the cooling blower-off delay is decreased from 90 seconds to 5 seconds. If the unit is in continuous fan, there will not be an off delay.

Set Up dehumidification on Performance / Preferred Furnaces

1. Dry Contact D1 should be connected with R on the Fan Coil. D2 should be connected to the DH terminal on the Fan Coil.
2. Set up the thermostat with the Two-Wire Relay Module so the dry contact is configured for Dehum., Variable speed and Super Dehum.
 - a. Touch and hold the menu button until the dealer install menu is visible.
 - b. Use the up arrow to move to SW19 (Dry Contact Configuration).
 - c. Use the next button so Off/On is blinking.
 - d. Use the up arrow to change to Dehum.
 - e. Touch Start to exit back to the home screen.

NOTE: The DHUM on the fan coil control board is active in the open state. The dry contact is active open for dehumidification. In other words, dehumidify output logic is reversed – output is turned On when no dehumidify demand exists and is turned Off when demand exists.

3. (Optional) Configure Overcool to Dehumidify
 - a. On Thermostat: Select Menu > Settings > Dehumidify
 - b. Use the arrow key to scroll through options.
 - c. When Overcool is blinking touch next to change setting.
 - d. Overcool / 60% (option: 46 – 66% humidity in 2% steps)
 - e. Touch Start to return to Home Screen.

If Overcool to Dehumidify is disabled, you will get the following operation.

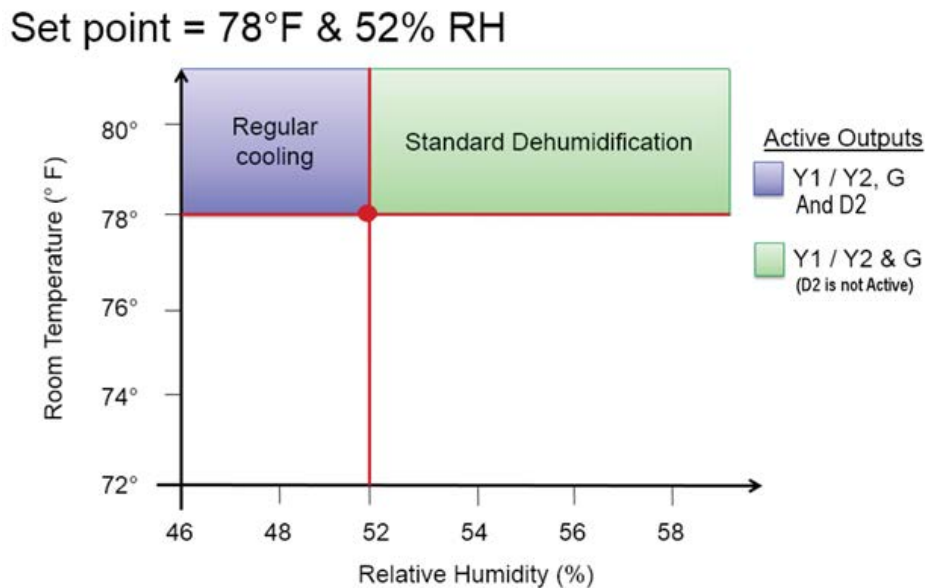


Fig. 32 - Standard Dehumidification

Furnace Dehumidification with Tapped ECM Motors

Dehumidification on these furnaces is enabled by dropping the blower motor speed from COOL to HEAT for a maximum of 10 minutes before reverting back to the COOL speed. If there is still a demand for dehumidification after 20 minutes, the blower will revert back to the HEAT speed. This alternating of 10 minute cycles will continue as long as there is a call for cooling and dehumidification. If Overcool to Dehumidify is being engaged, the blower continues to alternate until thermostat humidity is satisfied or the “Overcool” setpoint is reached (Overcool setpoint is determined by an Algorithm on the thermostat). When the call for cooling is satisfied and there is still a demand for dehumidification, the cooling speed is also the HEAT speed and the high stage Dehum speed.

NOTE: It is important and the responsibility of the installation/service technician to ensure the equipment is maintaining the proper airflow. Some speed taps now serve dual purposes and the airflow must be adequate for both purposes. The HEAT speed tap is also used for dehumidification speed and low stage cooling. Therefore; this tap must be within the heating rise range and adequate for low stage cooling and high stage dehumidification (315 CFM/ton).

Set Up Dehumidification on Furnaces with Tapped ECM Motors

1. Dry Contact D1 should be connected with R on the Fan Coil. D2 should be connected to the DH terminal on the Fan Coil
2. Set up the thermostat with the Two-Wire Relay Module so the dry contact is configured for Dehum., Variable speed and Super Dehum.
 - a. Touch and hold the menu button until the dealer install menu is visible.
 - b. Use the up arrow to move to SW19. (Dry Contact Configuration)
 - c. Use the next button so Off/On is blinking.
 - d. Use the up arrow to change to Dehum.
 - e. Touch Start to exit back to the home screen.

NOTE: The DHUM on the fan coil control board is active in the open state. The dry contact is active open for dehumidification. In other words, dehumidify output logic is reversed – output is turned On when no dehumidify demand exists and is turned Off when demand exists.

3. (Optional) Configure Overcool to Dehumidify
 - a. On Thermostat: Select Menu > Settings > Dehumidify
 - b. Use the arrow key to scroll through options.
 - c. When Overcool is blinking touch next to change setting.
 - d. Overcool / 60% (option: 46 – 66% humidity in 2% steps)
 - e. Touch Start to return to Home Screen.

If Overcool to Dehumidify is disabled, you will get the following operation.

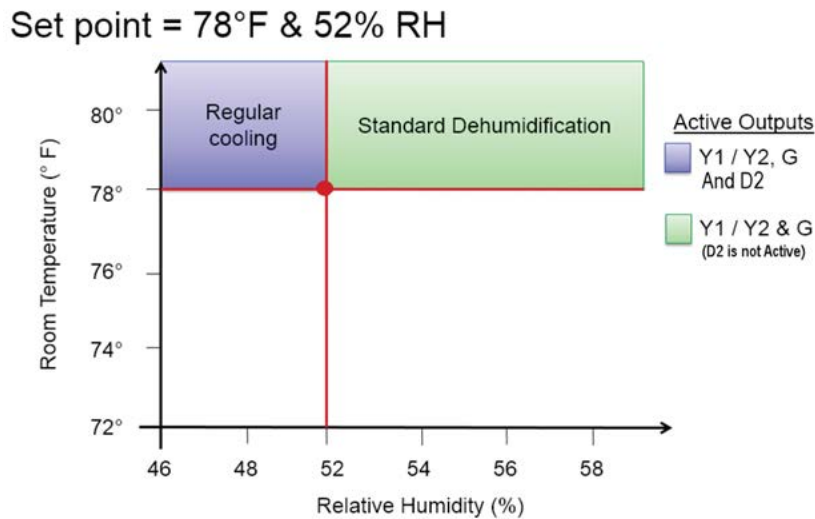


Fig. 33 - Furnace with Tapped ECM Motors

Furnace Dehumidification with Carrier 58DLA/DLX, 58CTA/58CTX Models and Bryant 312A(J), 311A(J) Models

These furnaces are equipped with the Dehum terminal on the control board. However; they are equipped with PSC motors. These motors do not hold CFM with high static ductwork like the ECM motors. Therefore, it is critical to get the blower motor speed taps correct. See furnace installation for motor performance.

Some places with very low humidity like to run AC units at higher airflow. This high airflows limits the amount of moisture removed by the air conditioner. Under most conditions, this is OK. However; sometimes when people are boiling water, etc. humidity can become an issue. This furnace allows you to run high airflow when no moisture removal is preferred and normal or lower airflow under high humidity conditions.

Setup and operation sequence for this furnace is the same as the setup for the Performance or Preferred furnaces. Follow those instructions once speed tap selections are chosen.

Standard Dehumidification with Geothermal

Ideal Humidity® / Perfect Humidity® System Technology and Super Dehumidification are not available on Geothermal at this time. However; extra dehumidification is available by slowing the fan speed (70 – 80%) when there is a call for cooling and dehumidification. Overcooling to dehumidify is also available. Dehumidification mode will not activate unless a relay like shown below is added.

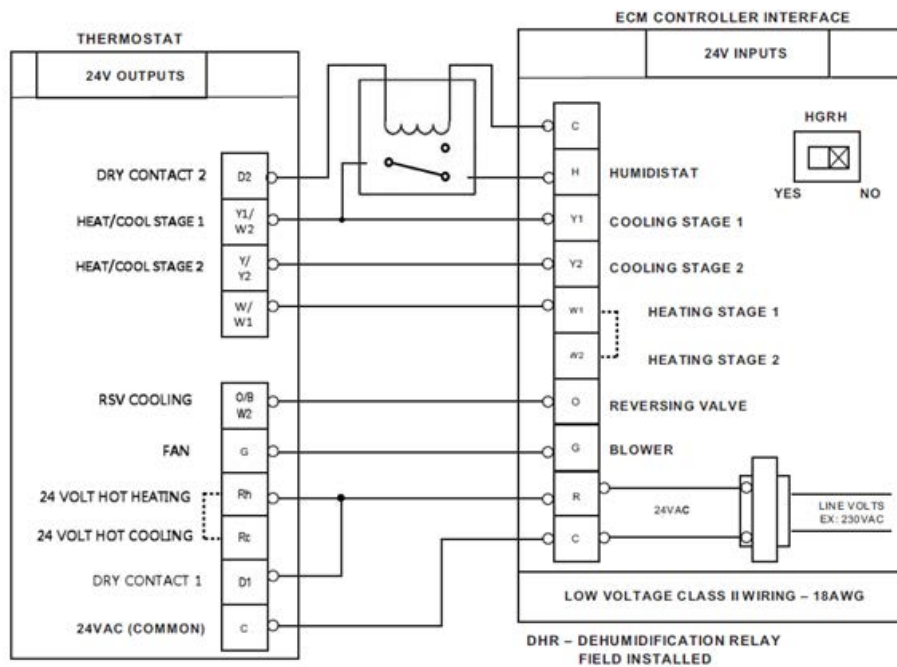


Fig. 34 - Geothermal

SINGLE POLE FAN RELAYS- SIMILAR TO TYPE 84 FAN RELAYS



- Fan control
- Appliances
- Business Machines
- Photoelectric control and general purpose switching

PART NO	DESCRIPTION	CONTACT RATING 125/250 VAC
P283-0290	SPST, 24 V COIL	8AMPS(IND.)16 AMPS(RES.)
P283-0291	SPST, 110 V/120 V COIL	CONTINUOUS
P283-0292	SPST, 208/240 V COIL	25 AMPS INRUSH
P283-0293	SPDT, 24 V COIL	8 AMPS (IND.) 8 AMPS (RES.)
P283-0294	SPDT, 110/120 V COIL	CONTINUOUS
P283-0295	SPDT, 208/240 V COILS	18 AMP INRUSH

Fig. 35 - Relay for Dehumidification (Geothermal)

NOTE:

- Dehum mode will not activate unless the relay is added.
- Note: If dehum mode is not being used, “Do Not” connect the H terminal on the ECM or the fan will only operate in low speeds.
- Logic in Geothermal ECM is active High verses the residential fan coils active Low
- Super dehumidification should NOT be used with the geothermal heat pumps

Dehumidification with an Accessory Dehumidifier

When using an accessory dehumidifier, the dehumidify options in the menu will include Overcool to Dehumidify, Normal or Off. If you select Overcool to Dehumidify the dehumidifier accessory will not operate. To get the dehumidifier accessory to operate you need to select Normal through the menu as follows:

1. Touch Menu.
2. Up/Down arrow to move to Dehumidify.
3. Touch Select.
4. Up/Down arrow to move to Normal.
5. Touch Next to change humidity level.
6. Up/Down arrow to change humidity %.
7. Touch Start to return to the Home Screen.

TROUBLESHOOTING

No display

If the display doesn't power up after power is applied, check the Rc/Rh and C terminals for 24VAC. When using the Two-Wire Relay Module on the Côt 7 series thermostats, check the voltage between Vg and V+. This voltage will be approximately 12-20VDC. If voltage is present, check the polarity to make sure it is wired correctly. The display will not power up if polarity is reversed.

If dashes appear for SW01 in config and during reboot, the problem could be the connection to the V+ and Vg terminals is reversed.

ERROR Codes

Comm Error - If the Côt 7 Series Thermostat and the Two-Wire Relay Module cannot communicate via two-wire connection, an Comm Error will be displayed.

HW Failure - If Côt 7 Series Thermostat's internal memory fails, HW Failure will be displayed. Replace Thermostat.

Invalid HUM - If Côt 7 Series Thermostat cannot properly read humidity, Invalid HUM will be displayed. Replace Côt 7 Series Thermostat. If both Humidify and Dehumidify have been set to OFF, the humidity value will be shown as "---" when viewed from the humidity menu, but no Invalid HUM will be shown in the display.

Table 4 can be used as a troubleshooting tool for determining which outputs will be active for a particular configuration and each operating mode.

Table 2 – Equipment Configuration Outputs

IDU	ODU	Equipment Type	Options	Cool Stage 1	Cool Stage 2	Heat Stage 1	Heat Stage 2	Heat Stage 3	Heat Stage 4	EM Heat Stage 1	EM Heat Stage 2
1 Stage Furnace	1 Stage AC	Opt 1=AC	--	Y/Y2	--	W/W1	--	--	--	--	--
Fan Coil 1 Stage Heat	1 Stage HP	Opt 1=HP	RVS=O Opt 10=C	Y/Y2 O/W2/B	--	Y/Y2	Y/Y2, W/W1	--	--	W/W1	--
Fan Coil 1 Stage Heat	1 Stage HP	Opt 1=HP	RVS=B Opt 10=H	Y/Y2	--	Y/Y2 O/W2/B	Y/Y2, W/W1, O/W2/B	--	--	W/W1	--
Fan Coil 1 Stage Heat	2 Stage HP	Opt 1=HP2	RVS=O Opt 10=C	Y1/W2 O/W2/B	Y1/W2, Y/Y2 O/W2/B	Y1/W2	Y1/W2, Y/Y2	Y1/W2, Y/Y2,W/ W1	--	W/W1	--
Fan Coil 1 Stage Heat	2 Stage HP	Opt 1=HP2	RVS=B Opt 10=H	Y1/W2	Y1/W2, Y/Y2	Y1/W2, O/W2/B	Y1/W2, O/W2/B	Y1/W2, Y/Y2, W/W1, O/W2/B	--	W/W1	--
Fan Coil 2 Stage Heat	1 Stage HP	Opt 1=HP	RVS=O Opt 10=C	Y/Y2 O/W2/B	--	Y/Y2	Y/Y2, W/W1	Y/Y2, W/W1, Y1/W2	--	W/W1	W/W1, Y1/W2
Fan Coil 2 Stage Heat	1 Stage HP	Opt 1=HP	RVS=B Opt 10=H	Y/Y2	--	Y/Y2 O/W2/B	Y/Y2, W/W1, O/W2/B	Y/Y2,W/ W1, Y1/W2, O/W2/B	--	W/W1	W/W1, Y1/W2
Fan Coil 3 Stage Heat	1 Stage HP	Opt 1=HP	RVS=O Opt 10=C Opt 43=On (3 stage Heat)	Y/Y2 O/W2/B	--	Y/Y2	Y/Y2, W/W1	Y/Y2,Y1/ W2	Y/Y2, W/W1,Y1 /W2	W/W1	W/W1, Y1/W2
Fan Coil 3 Stage Heat	1 Stage HP	Opt 1=HP	RVS=B Opt 10=H Opt 43=On (3 stage Heat)	Y/Y2	--	Y/Y2 O/W2/B	Y/Y2, W/W1, O/W2/B	Y/Y2,Y1/ W2, O/W2/B	Y/Y2, W/W1, Y1/W2,O/ W2/B	W/W1	W/W1, Y1/W2
2 Stage Furnace	2 Stage AC	Opt 1=AC2	--	Y1/W2	Y1/W2, Y/Y2	W/W1	W/W1, O/W2/B	--	--	--	--
2 Stage Furnace	1 Stage HP	Opt 1=HH1	RVS=O Opt 10=C	Y/Y2 O/W2/B	--	Y/Y2	W/W1	W/W1, Y1/W2	--	W/W1	W/W1, Y1/W2
2 Stage Furnace	1 Stage HP	Opt 1=HH1	RVS=B Opt 10=H	Y/Y2	--	Y/Y2 O/W2/B	W/W1	W/W1, Y1/W2	--	W/W1	W/W1, Y1/W2
1 Stage Furnace	2 Stage HP	Opt 1=HH2	RVS=O Opt 10=C	Y1/W2 O/W2/B	Y1/W2, Y/Y2, O/W2/B	Y1/W2	Y1/W2, Y/Y2	W/W1	--	W/W1	--
1 Stage Furnace	2 Stage HP	Opt 1=HH2	RVS=B Opt 10=H	Y1/W2	Y1/W2, Y/Y2	Y1/W2, O/W2/B	Y1/W2, Y/Y2, O/W2/B	W/W1	--	W/W1	--
1 Stage Furnace	1 Stage HP	Opt 1=HH1	RVS=O Opt 10=C	Y/Y2 O/W2/B	--	Y/Y2	W/W1	--	--	W/W1	--
1 Stage Furnace	1 Stage HP	Opt 1=HH1	RVS=B Opt 10=H	Y/Y2	--	Y/Y2 O/W2/B	W/W1	--	--	W/W1	--
1 Stage Furnace or Fan Coil	No ODU	Opt 1=HT	--	--	--	W/W1	If HP or RH board and Opt 32-2 W/W1, O/W2/B	--	--	--	--
Air Handler	1 or 2 Stage AC	Opt 1=CL	--	Y/Y2	Y1/W2, Y/Y2 2 SPD on-ly	--	--	--	--	--	--

Frequently Asked Questions

I can't connect my thermostat to my commercial router?

There are some configurations of commercial type routers, like a Cisco router, that may not be compatible with the Côr 5C and Côr 7C Thermostat Wi-Fi radios. It depends on how the router is configured and what the settings are (i.e. as a router or an access point). You may need to install a TP-Link router from your distributor to connect the thermostat to the network.

Does this thermostat have an input for an outdoor air temperature sensor?

Yes on the Côr 7 or Côr 7C thermostat a wired outdoor air temperature sensor can be added using the Two-Wire Relay Module accessory. The Côr 5 and Côr 5C thermostats do not support the Two-Wire Relay Module accessory and therefore cannot use a wired outdoor air temperature sensor.

Will the thermostat still work without an Internet connection?

Yes, the thermostat will continue to control the equipment without an Internet connection, although some of its advanced features may be impacted. However, if there is no weather data through the Internet but you have a wired outdoor air temperature sensor, there will be no impact to the advanced features using the outdoor temperature in its calculations.

What happens when weather data is not available?

The Côr 5C and Côr 7C thermostats can use Internet based weather data to generate an outdoor air temperature reading for your home's location. The Côr 7 series thermostats with the Two-Wire Relay Module can use a wired outdoor air temperature sensor to get the outdoor air temperature. Outdoor air temperature is used as an input for a few features (listed below).

Without weather data, the equipment will operate as follows:

- Smart Setback – determines the optimal setback and ramp time between each change in your schedule based on indoor temperature and historical performance.
- Auxiliary Heat Temperature – the system will return to normal staging. Staging is dependent on the Compressor minimum on-time, Compressor stage 2 temperature delta, Compressor stage one maximum run-time, auxiliary heat temperature delta and auxiliary heat minimum delay time.
- Cooling Lockout – unit will try to run whenever there is a call for cooling.

Can I calibrate the thermostat's temperature reading?

Yes, Temperature sensors used in modern thermostats have defined tolerance intervals of normal temperature readings. This means if multiples of the same thermostat models were installed side-by-side, it would be normal for different room temperatures to be displayed (e.g. one at 72°F and one at 71°F). However, there are product features and installation steps you can take to help ensure a comfortable environment.

Installation best practices for temperature and humidity accuracy:

1. Minimize the effect of air leakage, excess wiring should be pushed into the wall and the hole should be sealed to prevent air leakage.
2. Leave the thermostat installed and powered on for at least 30 minutes before checking calibration.

If the thermostat reading still needs adjusting after these two installation steps, adjust the Room Air Offset on the thermostat or in the mobile app. The thermostat is adjustable -5°F to +5°F (-2.5°C to +2.5°C).

On the thermostat:

1. Select and hold Menu for approximately 5 seconds till the settings menu shows.
2. Use the Up/Down arrows to SW13 Room Air Offset.
3. Next to the offset number.
4. Use the Up/Down arrows to adjust the display temperature offset.
5. Touch Done or Start to return to the Home Screen.
The displayed room temperature will change to account for the adjustment you made.

Can I calibrate the thermostat's humidity reading (Côr 7 & Côr 7C only)?

Yes, Temperature and humidity sensors used in modern thermostats have defined tolerance intervals of normal humidity readings. This means if multiples of the same thermostat models were installed side-by-side, it would be normal for different indoor humidity readings to be displayed (e.g. one at 42% and one at 43%). However, there are product features and installation steps you can take to help ensure a comfortable environment.

Installation best practices for temperature and humidity accuracy:

1. Minimize the effect of air leakage, excess wiring should be pushed into the wall and the hole should be sealed to prevent air leakage.
2. Leave the thermostat installed and powered on for at least 30 minutes before checking calibration.

If the thermostat reading still needs adjusting after these two installation steps, adjust the Humidity Offset on the thermostat or in the mobile app. The thermostat is adjustable -9% to +9%.

On the thermostat:

1. Select and hold Menu for approximately 5 seconds till the settings menu shows.
2. Use the Up/Down arrows to SW14 Humidity Offset.
3. Next to the offset number.
4. Use the Up/Down arrows to adjust the humidity offset.
5. Touch Done or Start to return to the Home Screen.
The displayed Indoor Humidity will change to account for the adjustment you made.

The thermostat seems to be short cycling

The Thermostat controls the maximum number of heating or cooling cycles per hour to maintain home comfort to the setpoint. The thermostat can be set at 2, 4 or 6 cycle per hour with 4 being the default from the factory. At 4 cycles per hour the thermostat will run the system no more than once per 15 minutes including the 5 minutes needed for a compressor time guard and the heating or cooling time can't run less than 3 minutes. So, if the system starts at 1pm it must run a minimum of 3 minutes and can't start another heat or cooling cycle until 1:15pm. The system can run longer (fewer cycles per hour) but never more often than the 4 cycles per hour.

Cycles / Hour	Minimum Minutes between Cycle Starts
2	30 Minutes
4	15 Minutes
6	10 Minutes

Why is the thermostat generating an auxiliary heat alert?

The thermostat can be configured to generate alerts when auxiliary heat has been running for a long time or when auxiliary heat is running above a given outdoor temperature. These alerts are intended to be informative and can be adjusted or disabled at any time on the thermostat or in the mobile app.

On the thermostat

1. Select Menu.
2. Use the Up/Down arrows until Alerts is blinking.
3. Next on Côr 5/5C, Select on Côr 7/7C to the alerts menu.
4. Use the Up/Down arrows to Aux Runtime.
5. Next on Côr 5/5C, Select on Côr 7/7C to the selections.
6. With Enabled blinking, Next to change.
7. Use the Up/Down arrows to change between Yes/No.
8. Next so Enabled is blinking.
9. Use the Up/Down arrows to change to Limit.
10. Next so the number is blinking.
11. Use the Up/Down arrows to change the number of hours before alert is sent (1-8 hours).
12. Done or Start to return to the Home screen.

What if I don't have any dehumidification settings available?

If no relay module accessory is installed, the Dehumidify option will not be available. If dehumidification, the accessory relay module must be installed—purchased separately. The operation of the dry contact may be tested by using the installer test feature – see appropriate section of the installation instructions.

Why is my system not dehumidifying?

For dehumidification to operate the actual humidity must be higher than the set point. Also, the thermostat will not overcool more than 3 degrees below the cooling set point in order to dehumidify. Overcooling is not allowed below 70°F.

Why is my thermostat displaying a COMM ERROR?

If a communication error is displayed—only when using the accessory relay module—check the connections to be sure the proper voltage is present. This should be approximately 12-14VDC. Observe proper polarity. If the V+ and Vg wires are reversed, the display will not communicate with the relay module.

Why is my system heating, instead of cooling?

The reversing valve should be tested using the Installer Test Mode to cycle the output. Reasons for the reversing valve not cycling could be thermostat not configured correctly, thermostat not sending 24VAC, broken wire, bad reversing valve solenoid, stuck reversing valve.

What if my indoor fan isn't running when the heat is on?

Refer to the furnace or fan coil installation instructions for information about G input with W. Some units require a G signal from the thermostat when W is energized. If there is no blower operation during heating, check the G with W setup option. A G signal may be required for your indoor unit during heating.

What if my A/C is running during cold weather?

If you experience unintended cooling during low outdoor temperatures, be sure an Outdoor Air Temperature sensor or an internet connection is active for the thermostat to read the outdoor temperature. If no outdoor temperature is available, the thermostat will allow cooling below 55 degrees outdoor air temperature.

I have a Hybrid Heat system and the heat pump doesn't run.

If you have a Hybrid Heating system and you don't have an outdoor sensor or an active internet connection, the thermostat doesn't have a way to determine the outdoor temperature. When this happens, the thermostat will skip over heat pump heating and stage directly to gas furnace operation.

Why is my Heat Pump running at an outdoor temperature that is below my Heat Pump lockout setting?

If the heat pump started heating while the outdoor temperature was above the lockout temperature, then the outdoor temperature dropped below the lockout temperature, the heat pump will continue heating until the temperature set point is satisfied and the system shuts down. If the outdoor air temperature is still below the lockout temperature at the beginning of the next cycle, the gas furnace will run at the beginning of the cycle.

Why is my Gas Furnace running at an outdoor temperature that is above my Aux Heat lockout setting?

If the gas furnace started heating while the outdoor temperature was below the lockout temperature, then the outdoor temperature increased above the lockout temperature, the gas furnace will continue heating until the temperature set point is satisfied and the system shuts down. If the outdoor air temperature is still above the lockout temperature at the beginning of the next cycle, the gas furnace will run at the beginning of the cycle.

Why is my Electric Heat running at an outdoor temperature that is above my Aux Heat lockout setting?

If the thermostat does not have an outdoor air sensor or an active internet connection, it will not be able to lock out the aux heat until the outdoor temperature can be read, either by an outdoor air sensor or by using an active internet connection.

My thermostat says "Recovering". What does that mean?

There is a feature called Smart Recovery built into the thermostat that will begin adjusting the room temperature target either 30, 60, or 90 minutes before the next scheduled activity, in preparation for a more conditioned setting. For example: if you have a Home heating setting of 72 degrees and your sleep setting is 61 degrees, with Smart Recovery set to 90 minutes, the system would start running in heating to adjust the indoor temperature 1 degree for each 10 minutes, starting 90 minutes before the 72 degree temperature is supposed to be in effect. During this 90 minute period, you WILL see the setpoint adjust as it ramps up or down. The display will tell you that the system is Recovering, so you know that this behavior is expected.

Why is my temperature either above my Heating setting or below my Cooling setting?

If your system mode is set to Auto, the thermostat will change from cooling to heating or from heating to cooling automatically. If your last call for conditioning was heat, the indoor temperature will need to reach the cooling set point and remain there for 30 minutes. At the end of 30 minutes, the thermostat will change to cooling and operate cooling to control the temperature. If the last call for conditioning was for cooling, the opposite will be true. The system will need to have a heating demand that lasts for 30 minutes before it will change from cooling to heating and then work to satisfy the heating demand.

Why has my unit been running for 10 minutes or more and has not staged to a higher capacity?

The minimum time between stages timer is 10 minutes. At the end of the 10 minute period, there must be enough demand for higher capacity before the thermostat will energize the next higher capacity. Although the system is allowed to transition to a higher stage after 10 minutes, it is not required to.

Why is the humidifier not running when there is low humidity?

The humidifier will only run in the heating mode. There is a setting to allow the humidifier to run with the fan, but this is only allowed in the heating mode, while there is no heating demand. The humidify with fan feature will not work in the cooling mode or in the off mode. It will only run in the heating mode.

