

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

Residential Thermostats

Installation Instructions

Draft Copy do not distribute



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



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

Designed in the USA.



NOTE: Read the entire instruction manual before starting the installation.

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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 the 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 C r 5 series and C r 7 series thermostat models are 7-day, 5/2-day, 1-day programmable control is a wall-mounted, low-voltage controls. The C r 7 and C r 7C combines temperature and humidity control in the units. The C r 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 24 hours.

A Two-Wire Relay Module option for the C r 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 equipment and two wires are used between the thermostat and the Two-Wire Relay Module.

In the C r thermostat programmable configuration, different heating and cooling setpoints and times are programmable for 4 periods per day or 2 periods per day. Programming can be done for 7 days per week, 5/2 days per week, or 1 day. The programmable thermostat can also be user configured as a non-programmable thermostat. When operating as non-programmable, the C r Thermostat will still have temperature control and in the C r 7 series, humidity control. The C r 7 series Thermostat features Touch-N-Go  settings for quick and easy temperature change without complicated programming schedules.

INSTALLATION CONSIDERATIONS

Power

This Thermostat is powered by 24VAC only. It requires 24VAC (Rh and/or Rc and C terminals) of the low-voltage transformer to be connected to it for proper operation. It will not operate without these 2 connections. Rh and Rc are connected via PCB breakout jumper. See Fig. 1. For applications using two 24VAC transformers, one in the indoor unit and one in the outdoor unit, connect the common from each to the C terminal. Connect R from the indoor unit to the Rh terminal. Connect R from the outdoor unit to the Rc terminal. Then, break jumper on the circuit board (fig. 1). The W and HUM signals are taken from the Rh power and the G signal is taken from the Rc power. If Thermostat has been installed in a two--transformer application that is later changed to a single--transformer installation, installer must install a field supplied jumper between Rc and Rh. Depending on the installation, up to 14 wires may be required. Installation with the Two-Wire Relay Module is recommended. Only 2 wires are required for connection between the thermostat on the wall and the Two-Wire Relay Module. These two wires (V+ and Vg) do not provide ordinary 24VAC. They carry a combination of power and communications data that is unique to these products.

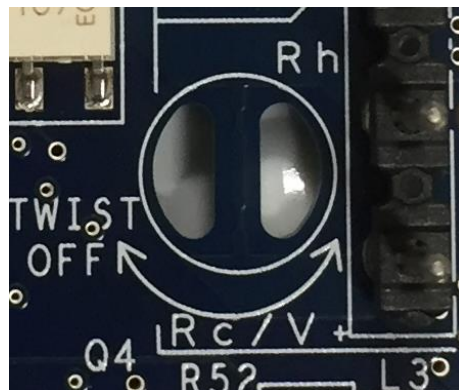


Fig. 1 -- PCB Breakout Jumper

Models

The C r 5 and C r 5C models are temperature control only and the C r 7 and C r 7C are temperature and humidity control. All 4 can be configured for AC or HP, 1 or 2-speed

compressor, and for Hybrid Heat installations. These thermostats may be configured as non-programmable if user desires.

Humidify Equipment and Connections

The humidify output connects directly to 24VAC operated humidifiers. An isolation relay may be required when using powered humidifiers. No other connection or interlock is required. Any of several installer-selectable operating modes are available.



WARNING

ELECTRICAL OPERATION HAZARD

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

DO NOT connect furnace HUM terminal directly to Thermostat Control HUM terminal. This will bypass furnace safety controls. See Low Voltage Wiring Diagrams and notes for proper connection.

Why delete the warning?

Dehumidify Equipment and Connections

On the two-wire relay option see (Insert the Title of those instructions here). 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. The dry contact must be configured for dehumidification in setup SW19. See Wiring Diagrams for more information.

Outdoor Temperature Sensor (TSTATCCSEN01--B)

Outdoor air temperature sensor is a separate accessory for units installed with the Two-Wire Relay Module. Optimum performance is obtained when an outdoor temperature sensor is used with the Côt 7 series thermostat. Plan installation so that 2 wires can be run from the Two-Wire Relay Module to an outdoor location, preferably on the north side of the house or refer to Installation Instructions included with the outdoor temperature sensor for simplified connection. The sensor can be mounted to the outdoor unit and existing control wires may be used for its connection. Details are provided in sensor instructions.

Remote Indoor Temperature Sensor

A remote temperature sensor may be used with the Two-Wire Relay Module, where it is desirable to install the Côt 7 series thermostat in a limited access location while measuring the temperature in the living space. The remote room sensor may be used as a standalone or averaged with the thermostat's local sensor.

Wiring

For all wiring applications, use 22 AWG or larger wire. Continuous wire lengths over 100 ft. (30.5 m) should use 20 AWG or larger. Wire lengths are not to exceed 250 ft. (76 m) per run.

INSTALLATION



CAUTION

UNIT DAMAGE HAZARD

Failure to follow the recommended wiring practices could result in damage to the wall control and personal property.

Improper wiring or installation may damage Thermidistat Control. Check to make sure wiring is correct before proceeding with installation or turning on power.

Installation Notes:

- No part of the Thermostat should be installed directly outdoors or in a cabinet outdoors.
- Never remove the thermostat board from the plastic housing. Doing so could warp and damage the components on the board.
- The mounting plate should be mounted to the wall before wires are attached.
- During thermostat installation, provide sufficient excess wiring behind the mounting plate. Coil the wiring, creating a service loop, and place in mounting box or behind the wall to remove strain against the terminal strip. See Fig. 2.



Fig. 2 -- Coil Excess Wiring

Carton contains the following components.

1. Thermostat (Côr 5 or 7 series)
2. Screws(2)
3. Anchors (2)
4. Quick start guide
5. Installation instructions

Thermostat Location

The thermostat should be mounted:

- Approximately 5 ft. (1.5m) from floor.
- Close to or in a frequently used room, preferably on an inside partitioning wall.
- On a section of wall without pipes or duct work.

The thermostat should NOT be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Exposed to direct light or heat from a lamp, sun, fireplace, or other temperature-radiating objects which could cause a false reading.
- Close to or in direct airflow from supply registers and return-air registers.
- In areas with poor air circulation, such as behind a door or in an alcove.

Install Thermostat



WARNING

ELECTRICAL OPERATION HAZARD

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

Before installing Thermidistat Control, turn off all power to equipment. There may be more than 1 power disconnect.



CAUTION

UNIT DAMAGE HAZARD

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

Improper wiring or installation may damage Thermidistat Control. Check to make sure wiring is correct before proceeding with installation or turning on power.

1. Turn off all power to equipment.
2. If an existing thermostat is being replaced:
 - a. Remove existing Thermostat from wall.
 - b. Disconnect wires from existing thermostat, 1 at a time.
 - c. As each wire is disconnected, record wire color and terminal marking.
 - d. New or additional wires may be needed to accommodate C wire or added humidity output on Côt 7 series.
 - e. Discard or recycle old Thermostat.



CAUTION

ENVIRONMENTAL HAZARD

Failure to follow this caution may result in environmental damage.

Mercury is a hazardous waste. Federal regulations require that Mercury be disposed of properly.

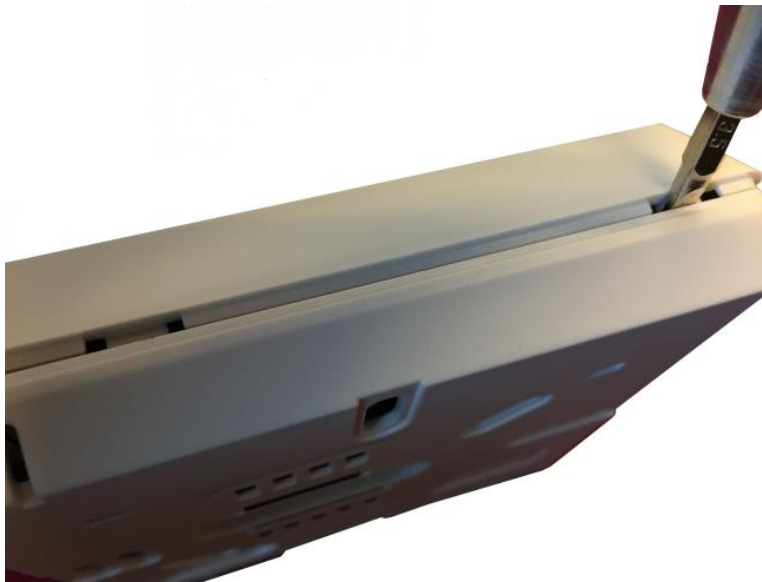


Fig. 3 –Release Tabs to Remove Backplate

1. Use a small screwdriver to release tabs when removing the backplate (Fig. 3).
2. Route wires through large hole in mounting base. Level mounting base against wall (for aesthetic value only—Thermostat need not be leveled for proper operation) and mark wall through mounting holes. With the additional mounting holes you might be able to reuse existing mounting locations.

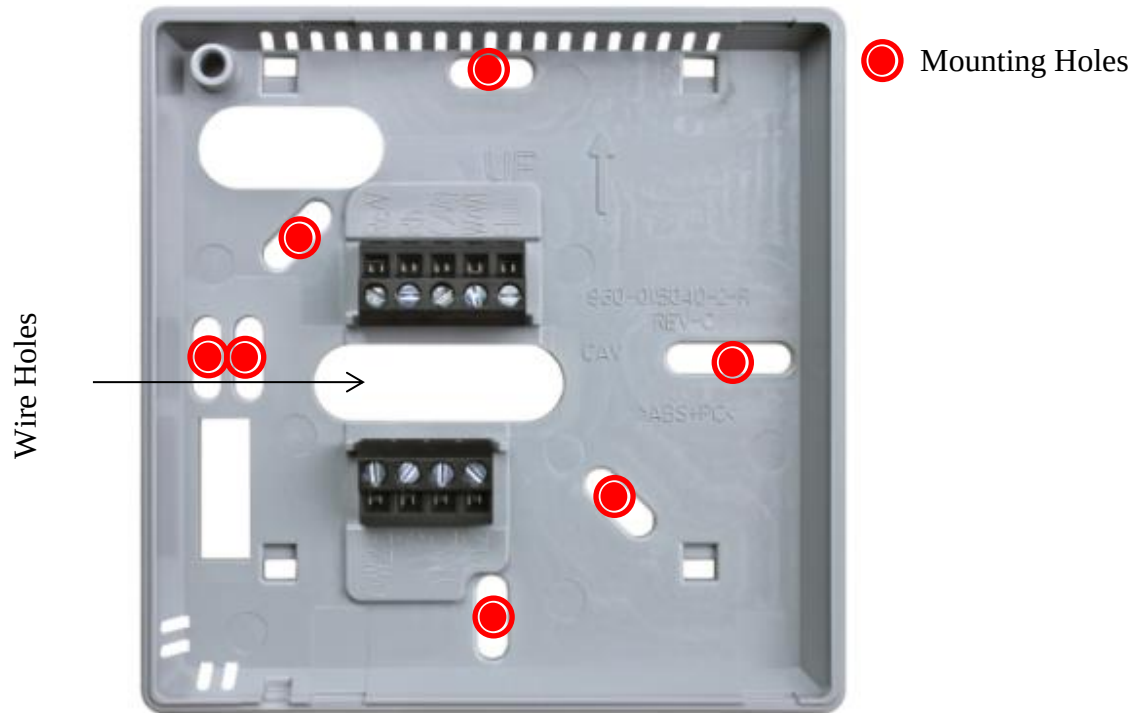
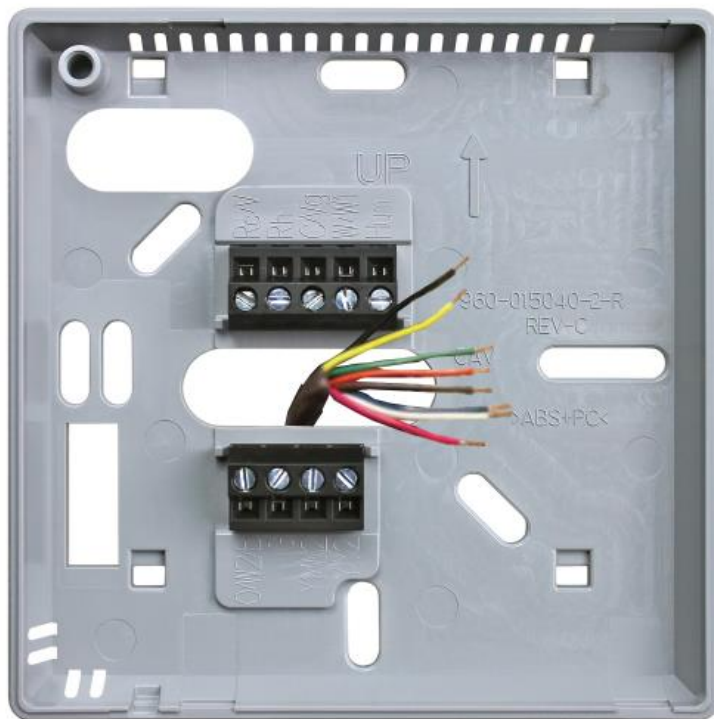


Fig. 4 -- Backplate Mounting

3. Drill 3/16--in. mounting holes in wall where marked. Thermostat may be mounted to a standard junction box, if desired. Hole pattern on the Thermostat mounting base matches junction box mounting holes.
4. Secure plastic mounting base to wall with screws and anchors provided. Use 2 screws and 2 anchors provided for a secure attachment. Make sure all wires extend through hole in mounting base.
5. Adjust length and routing of each wire to reach proper connector block and terminal on mounting base with 1/4--in. (6 mm) extra wire.
6. Match and connect equipment wires to proper terminals of each connector block, being careful not to over tighten the screws.



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Fig. 5 -- Secure Wires to Terminal Strip

7. Push any excess wire into wall and against mounting base. Seal hole in wall to prevent air leaks. Leaks can affect operation and cause incorrect temperature and/or humidity measurement.
8. Reattach thermostat front to mounting base by first setting on at top of mounting base and then push bottom corners of Display Module to snap into place. See Fig. 11.



Fig. 6 -- Attach Display to Backplate

9. Turn on power to equipment. On power up, all display segments will light for 5 sec. and a two digit code appears on the center of the display which identifies the thermostat equipment type configuration.

- a. A1 — 1--stage air conditioner with furnace or fan coil
- b. H1 — 1--stage heat pump with fan coil
- c. A2 — 2--stage air conditioner with furnace or fan coil
- d. H2 — 2--stage heat pump with fan coil
- e. h1 — Hybrid Heat system with 1--stage heat pump
- f. h2 — Hybrid Heat system with 2--stage heat pump
- g. HT — heating only system
- h. CL — cooling only system

Set Thermostat Configuration

Configuration options enable the installer to configure the Thermostat for a particular installation. Most are not presented to the homeowner and therefore must be properly set by the installer. (Only those marked with an asterisk * below are available to the homeowner.) The homeowner configurations are described in the owner's manual. A special procedure allows entry into the configuration mode. Selections can be made while in configuration mode. Description of each selection and how to use the configuration mode follows (See page xx).

There are two ways to perform Installer Setup

1. Through the menus on the thermostat.
2. Using a Smart Device to setup the thermostat.

1. Installer Setup using the thermostat

TO ENTER CONFIGURATION MODE

Press and hold MENU button for approximately 5 sec.

Note: Thermostat will automatically exit this mode if no button is pressed for 3 minutes. Pressing the DONE (Côr 5 series) or START (Côr 7 series) button will exit configuration mode immediately.

WHILE IN CONFIGURATION MODE

Press UP/DOWN button to select which option to MODIFY. Option will flash while it is active. (CONFIGURATION OPTIONS – DESCRIPTION SUMMARY See page xx).

- Once option is selected press NEXT to activate option values. Option values will flash when active.
- Use UP/DOWN to change the values of the option.
- Press DONE (Côr 5 series) or START (Côr 7 series), once all necessary options have been modified, to exit.

Note: All changes made are saved at the time of selection and will be saved in the event of the 3 minute time-out or when installer exits from the configuration menu.

Configuring Wi-Fi from the thermostat

From the thermostat control, press START to get to the home screen on the Côr 7C.

- Select MENU
- UP/DOWN until Wi-Fi is blinking
- Press NEXT on Côr 5C or SELECT on Côr 7C
- Press UP/DOWN to until Wi-Fi Enable is blinking
 - Press Next on Côr 5C or SELECT On Côr 7C
 - Press UP/DOWN to change from ENABLED Or DISABLED
- Press MENU to go back.
- Continue to use up/down arrows to scroll through the options to select Wi-Fi Scan List or manually set the Wi-Fi Name (SSID).

Note: Wi-Fi names and passwords are case sensitive. When editing names or passwords, extra characters can be removed by replacing them with a blank space. The alpha numeric list is in this order when pressing the UP arrow: lowercase, uppercase, blank space, special characters then numbers when pressing the UP arrow. Order reversed when pressing the DOWN arrow.

- Enter Router PSK. (Enter router password using UP/DOWN arrows and NEXT.)

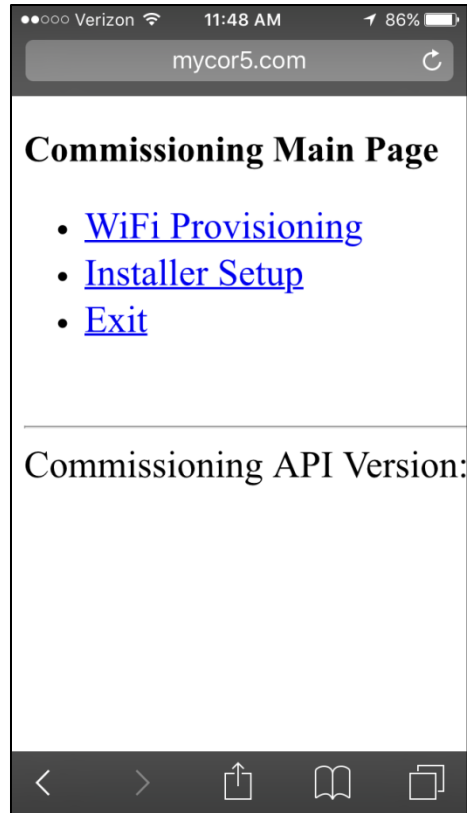
Note: All other options are only required if you want to set it up differently due to specific advanced router options.

- Press DONE on the Côt 5C to exit and save. Press START on the Côt 7C to exit and save.

2. Configuring Thermostat and Provision Wi-Fi Using a Smart Device

From the thermostat control, press START to get to the home screen on the Côt 7C.

- Select MENU
- Press UP/DOWN until Wi-Fi is blinking
- NEXT
- UP/DOWN until 05 Easy Setup
- NEXT
- UP/DOWN to Enable Easy Setup
- Wait for about 10 seconds
- On your smartphone, look for available Wi-Fi connections
- Connect to “**Cor5/7 S/N <serial number>**” (Example: **Cor5 S/N CEC79F2E1C2**)
- Enter Password: 12345678
- You should see a Wi-Fi connection established with the thermostat.
- Open a web browser and type in the URL: mycor5.com. The Commissioning Main Page will be displayed.



- **Wi-Fi Provisioning** and **Installer Setup** can be done by navigating the menu.
- After all settings have been made, check “Connect to Router after Submit” and press the SUBMIT button. The thermostat will automatically disconnect from the smartphone and connect to the router.

Verify the thermostat is connected to the router

- Select MENU
- UP/DOWN until Wi-Fi is blinking
- NEXT
- UP/DOWN until Wi-Fi Status is blinking
 - No connect – thermostat not connected to router
 - To Router – thermostat is connected to router but not connected to the server
 - To Server – thermostat is connected to the server

Register the thermostat (Associate the thermostat with the mobile app)

- From an Android device go to the Play Store or from an Apple device go to the App Store. Search and Download the “Côr 5C/7C Thermostat” app.
- When you first open the app you will be asked if you have the thermostat already running. If you haven’t gone through setup process on the thermostat, select “No”. If you have, select “Yes” and proceed.

- After a Wi-Fi connection has been established, it's time to create an account to register your Côt 5C or Côt 7C Wi-Fi, or add another thermostat to your existing account.
- Once the thermostat has been connected to your Wi-Fi network record the four digit registration code that appears on the thermostat display.

To find this code:

- Select MENU
 - UP/DOWN until Wi-Fi is blinking
 - NEXT
 - UP/DOWN until 06 Account PIN
 - NEXT
 - Thermostat will display "Requesting"
 - The account pin will be displayed
- Select a new account and enter your email address and create a password (must be at least 8 characters in length), then reconfirm your password and click "Create Web Portal."
 - Enter the four digit registration code you recorded earlier and click register.

Congratulations your new Côt 5C/7C Thermostat is now connected to the mobile app! Allowing you to control the thermostat through your smart device from almost anywhere.

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 (programmable models 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
- SW15 — Enable Auto Mode
- SW16 — Cycles Per Hour
- SW17 — Time Between Stages
- SW18*— Backlight Configuration
- SW19 — Dry Contact
- 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: HP2, AC2, 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 H2.

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).

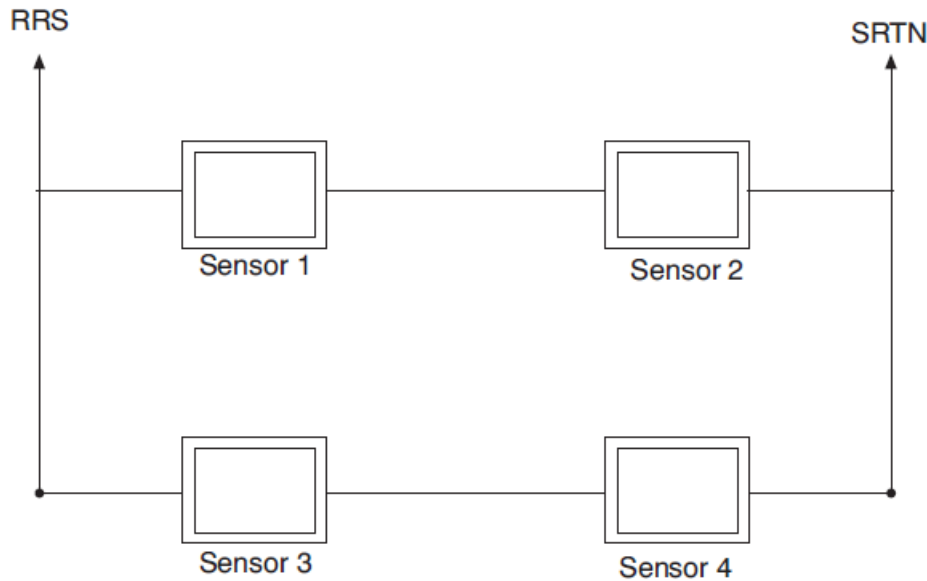
SW04 —Fan (G) On With W/W1

This selection determines whether fan (G) output is to be On or OFF when any W/W1 (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. 17.



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Fig. 17 -- 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.

When emergency heat mode is selected, only auxiliary heat will operate.

Default is OFF

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 energized 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 90

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 —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 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 DAY and SLEEP are available

4 Per — Periods WAKE, DAY, EVE, 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. This selection is only available on programmable Thermostat

OFF — Programmable fan is disabled and the homeowner must manually select “Auto” or “On” for fan operation.

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 OFF

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

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

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

Default is 1.

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, hh, 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 CHECKOUT

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 test capability called 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 model 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.

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 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.

Final Settings

Be sure to press DONE or START to exit installer setup mode. If the system is to be left in operation after installation is complete, use (HEAT/COOL) button to select between HEAT, COOL, or AUTO to provide desired operation of heating, cooling, or auto. On the programmable models, the default setpoints and programmed schedule conform to the Energy Starr requirements of the U.S. Department of Energy for both heating and cooling. These provide energy saving temperature settings. Refer to Table 1.

Table 1 – Energy Star Default Schedule

SCHEDULE	HEAT	COOL
Wake 6:00 AM	68°F/20°C	78°F/26°C
Day 8:00 AM	60°F/16°C	85°F/29°C
Evening 5:00 PM	68°F/20°C	78°F/26°C
Sleep 10:00 PM	60°F/16°C	82°F/28°C

If the programmed schedule is to be used, make sure one of the Touch-N-Go icons is visible without the hold button during idle mode (press start to toggle from active screen to idle screen). Pressing the HOLD button will display the hold options and then the up/dn arrows will scroll through options based on current selection. Touching Select will either accept the hold option or go to the next level of options for that specific hold.

Hold options:

- Hold till next period – at the time of the next period the schedule will resume
- Hold until time (configurable) after reaching the time entered the schedule will resume
- Permeant – keeps the setpoints entered until the user makes a change
- Cancel or No Hold – The schedule will resume immediately

The FAN button on the home screen may be used to select between AUTO (fan on only with equipment) and On (fan on continuously) fan modes. The fan can also be put into “Air Circulation” mode by selecting Menu > Settings > up/dn arrow until you see Circulation > Select then up/dn arrow to change minutes per hour. That will allow the user to select the number of minutes per hour the fan will run even if there is not call for heat or cooling. If the user needs to have different min/hr of air circulation then they program that under user schedule by going to home screen > Menu > Schedule > Circulation.

For further information on temperature selection and programming, refer to Homeowner’s Guide.

Setting The Clock, Calendar and Schedule

To set the clock, press MENU > Next until Settings is blinking the press Select. Use the up/dn arrows to move to time then press Select. The Clock will be displayed at the bottom of the screen. Use the up/dn arrows and next button to adjust the time. Setting the date may be changed by navigating to MENU > Next until Settings is blinking the press Select. Use the up/dn arrows to move to Date then press Select. The UP/DOWN buttons are used to change the Month, Day, and Year setting when the numbers are blinking.

To change the schedule, from the home screen press MENU > Schedule then Select > up/dn arrows to move through the following options to modify.

PROFILES	Wake, Away, Home, Sleep Temperatures
PROGRAM	All days, Weekdays, Weekends, Individual days
NUM PERIODS	2 or 4 Periods
HOLD PREFER	sched perm timed
PRGM ENABLE	Enabled / Disabled
CIRCULATION	0 to 60 minutes (steps of 5) per activity
TOUCH-N-GO	Enabled / Disabled

ALL PROGRAM PERIODS (WAKE, AWAY, HOME, SLEEP) MUST OCCUR WITHIN THE SAME 24 HOUR PERIOD.

Humidity Control Features

The various humidity control features of the Côr 7 thermostat are explained below. They are grouped into 2 sections, humidification and dehumidification. Instructions on how to select each feature are given at the end of each section.

Humidification

The Côr 7 thermostat can control a standard 24VAC humidifier to control humidification in the home. A humidify setpoint between 10 and 44% relative humidity in 2% increments is selected by the homeowner. When humidity in the home drops below setpoint, humidifier will be turned on to raise humidity level. See Table 2 for reference.

Table 2 – Humidification Selections

Selection	Humidify Setpoint Range
Normal Humidify	10 – 44% Steps of 2%
Auto Humidify (Window Protect™)	Level 1 - 9
Humidify with Fan	Off, On
Hum Off	Off

To get to settings for Humidity

From the home screen press Menu > Settings > up/dn arrow to get to Humidify > Select then scroll through options with up/dn arrows.

1. Normal Humidify

In normal humidify, the humidifier will be turned on if there is humidity demand and any heating equipment is on. This will include furnace, heat pump, or auxiliary heat. The humidifier will only operate when the heating equipment is operating.

2. Auto Humidify

The Thermostat will automatically adjust the humidity setpoint according to the outdoor temperature. As the outdoor temperature decreases, the humidity setpoint also decreases. Settings ranging from 1 to 9 (1 being the lowest and 9 the highest) will be visible to the homeowner. See Fig. 18 for outdoor temperature/indoor humidity relationship in auto humidify mode. Outdoor Air Temperature Sensor must be connected or Wi-Fi internet weather setup.

3. Humidify with Fan

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

4. Hum Off

This turns off the humidifier operation.

Additional Humidify Comments

The humidifier is actually turned on when humidity is 1% below setpoint and turned off when it reaches 1% above setpoint. This built--in hysteresis prevents humidify output from toggling on and off when humidity level is near setpoint.

Dehumidification

Dehumidification is done only during cooling. Depending on type of equipment used, compressor speed, blower speed, setpoint adjustment, and equipment cycling are modified to provide added dehumidification. A dehumidification setpoint (separate from humidification setpoint) is available to the homeowner. It can range from 46% to 66% relative humidity. When actual humidity is higher than setpoint, a dehumidification demand exists. The Côt 7 Thermostat responds by activating the dry contact (when enabled in SW19). It may also control the compressor and blower, depending on equipment type and dehumidify selection choice. The 3 available selections are described below. A mandatory 5 minute blower off delay will be enforced if there has been a call for dehumidification during a cooling call. The amount of extra dehumidification available is very dependent on the type of equipment in the home. Without a variable--speed blower, the system's ability to adjust dehumidification is very limited.

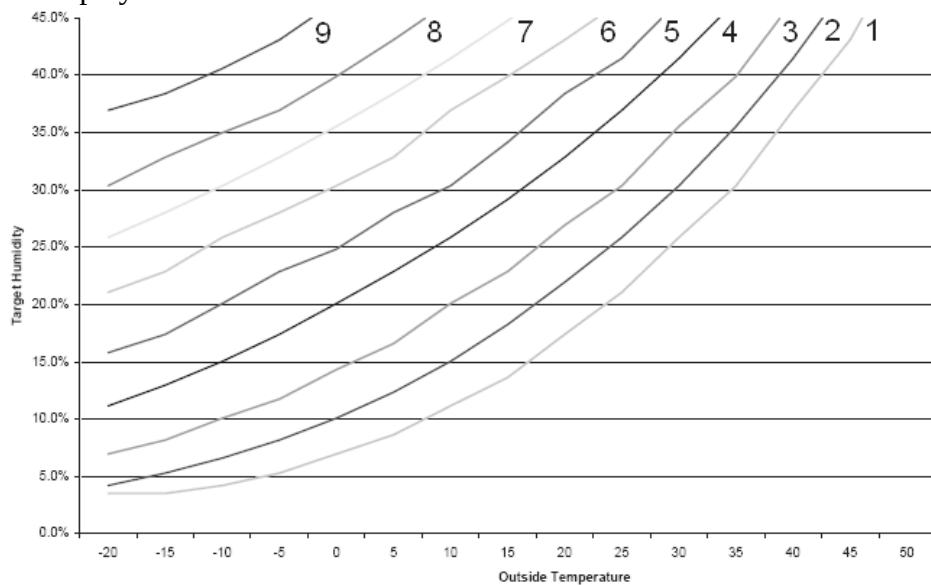
1. Normal Dehumidify Operation

When normal dehumidify is selected, the compressor will not turn on without a cooling demand. If dehumidify demand exists while cooling, dry contact will also be active (24VAC removed). This output commands variable-- speed blowers to reduce their airflow, which improves water removal from the cooled air.

2. Cool to Dehumidify

The cool to dehumidify selection tells the system to operate the compressor, within limits, when there is a dehumidify demand even if there is no cooling demand. The

limits are that the system may overcool up to 3°, but no more, while attempting to satisfy a dehumidify demand. Within this 3° range, there is an additional balance between overcooling and humidity satisfaction. When overcooling must occur, the dehumidify setpoint is adjusted upward by 2% per degree of overcooling. For example, a cooling setpoint of 76°F/24°C and a dehumidify setpoint of 60% is equivalent to a cooling setpoint of 75°F/24°C and a dehumidify setpoint of 62%. This dehumidify set 51 point change is internal to the Thermostat and is not shown on the display.



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Fig. 18 -- Auto Humidity

3. Dehumidify Off

Dehumidification can be turned off completely. This can be done without changing existing setpoints.

To Select Dehumidification (programmable -- between NORMAL, OVERCOOL, and OFF)

From the home screen press Menu > Settings > up/dn arrow to get to Dehumidify > Select then scroll through options with the up/dn arrows.

Additional Dehumidify Comments

Dehumidification can be enhanced (with some efficiency loss) by turning blower off immediately at the end of each cooling cycle (eliminating normal 90 sec blower off delay). Where maximum humidity removal is desired, this should be done. Fan coils have the capability of removing this off delay. On FK or FV Fan Coils, set delay tap to 0/0. On standard fan coils, a jumper can be cut to disable off delay. Refer to fan coil Installation Instructions for details. If FAN is set for continuous operation (Fan On selected), G output is turned off for 5 minutes at the end of each cooling cycle as long as dehumidify demand exists. Like humidify, dehumidify actions are initiated when humidity is 1% above setpoint and are terminated when humidity drops to 1% below setpoint. This prevents unnecessary toggling of dehumidify actions when humidity is near setpoint.

Dehumidify Output and Equipment Connections

When there is a dehumidify demand, dry contact is activated, meaning that a 24VAC signal is removed from the DHUM or DH output terminal. In other words, dehumidify output logic is reversed -- output is turned On when no dehumidify demand exists and is turned OFF when demand exists. Carrier FK and FV series variable--speed fan coils, all variable--speed furnaces, and select single and multi-stage furnaces with the dehumidify connection have dehumidify inputs which connect directly to Two-Wire Relay Module dry contact. Refer to the furnace literature for dehumidification options and the Two-Wire Relay Module instructions. The FK and FV series fan coils have a terminal marked DH which should be connected to the Two-Wire Relay Module dry contact output. Jumper J1 on fan coil MUST be removed. It is located behind the DH terminal. Additionally blower delay tap on fan coil should be set to 0/0 (no On delay and no OFF delay) when using cool to dehumidify. With this selection, the blower stops when G signal is removed, preventing re-evaporation of water from the coil which would occur during the normal 90 sec blower off delay. See fan coil installation instructions for more information.

The furnace dehumidify input acts differently depending on which style of variable speed, select single-stage or multi-stage furnace control you have.

Vacation

A vacation mode is set specifically for times where the home will not be occupied for an extended period. Vacation mode is created the day your will be leaving as a continuous hold for more than a day. While in Vacation mode, the system provides temperature and humidity protection for the home in the selected mode, but not comfort.

Set Vacation Mode

To set vacation mode from the home screen you will use the up/dn arrows to set your desired temperature, then the hold menu will be displayed. Use the up/dn arrows to scroll to the Hold until time option. Set the time of day you will return using the next button and up/dn arrows. Once the time is set the Next button will go to the date. Enter the date you will return then the final next will take you back to the home screen. To exit vacation mode you can press any of the Hold button and select resume schedule.

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.

During second stage compressor operation a “2” will be displayed with the HEAT or COOL icon. This is displayed when the Thermostat is configured as H2, A2, or h2.

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 C r 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. If the thermostat power is cycled quickly, one can witness an immediate increase in the actual temperature displayed due to this added offset. The thermostat display will return to the actual room temperature after several minutes of operation.

TROUBLESHOOTING

If the display module doesn't power up after power is applied, check the Rc/Rh and C terminals for 24VAC. If 24VAC is present, 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 red pigtail being wired to Rc or Rh and the black pigtail being wired to C. If so, remove the two--wire pigtail and connect to the V+ and Vg terminals.

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. When replacing a failed component such as an equipment control module or a display module, the installer should replace both parts as a matched set. It is very easy to accidentally mix an A/C or HP display with a PRH equipment control module. When this happens, some functions appear in the setup while others do not. This can be very confusing to troubleshoot. Verify that both parts have the same model and serial number when troubleshooting the thermostat.

Table 4 – 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	1	Opt	--	Y/Y2	--	W/W1	--	--	--	--	--

Furnace	Stage AC	1=AC									
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=H2	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=H2	RVS=B Opt 10=H	Y1/W2	Y1/W2, Y/Y2	Y1/W2 , O/W2/B	Y1/W2 , Y/Y2, 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	Opt 1=A2	--	Y1/W2	Y1/W2,	W/W1	W/W1,	--	--	--	--

	AC				Y/Y2		O/W2/ B				
2 Stage Furnace	1 Stage HP	Opt 1=hh	RVS=O Opt 10=C	Y/Y2 O/W2 /B	--	Y/Y2	W/W1	W/W1, Y1/W2	--	W/W1	W/W1 , Y1/W 2
2 Stage Furnace	1 Stage HP	Opt 1=hh	RVS=B Opt 10=H	Y/Y2	--	Y/Y2 O/W2/ B	W/W1	W/W1, Y1/W2	--	W/W1	W/W1 , Y1/W 2
1 Stage Furnace	2 Stage HP	Opt 1=h2	RVS=O Opt 10=C	Y1/W 2 O/W2 /B	Y1/W 2, Y/Y2, O/W2/ B	Y1/W2	Y1/W2 , Y/Y2	W/W1	--	W/W1	--
1 Stage Furnace	2 Stage HP	Opt 1=h2	RVS=B Opt 10=H	Y1/W 2	Y1/W 2, 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=hh	RVS=O Opt 10=C	Y/Y2 O/W2 /B	--	Y/Y2	W/W1	--	--	W/W1	--
1 Stage Furnace	1 Stage HP	Opt 1=hh	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=H	--	--	--	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=C	--	Y/Y2	Y1/W 2, Y/Y2 2SPD Only	--	--	--	--	--	--

LIST OF WIRING DIAGRAMS

Diagrams for Côt 5, Côt 5C and Côt 7 and Côt 7C thermostats:

Fig. 19 -- Display to Equipment Control Module Connection* (This diagram is shown in the optional 2-wire relay installation instructions)

Fig. 20 -- FV/FK Fan Coil with 2--Stage Heat Pump

Fig. 21 -- Typical Single Stage Furnace or Fan Coil with Single Stage Heat Pump

Fig. 22 -- Fan Coil Shown w/Aux. Connection #1 (Heat Pump/Air Conditioner removed for clarity.)*

Fig. 23 -- FV/FK Fan Coil w/2--Stage Air Conditioner

Fig. 24 -- Typical Fan Coil with Air Conditioner

Fig. 25 -- Fan Coil Shown with Aux. Connection #2 (Heat Pump/Air Conditioner removed for clarity.)*

Fig. 26 -- FV/FK Fan Coil with 1--Stage Heat Pump

Fig. 27 -- Typical Fan Coil Heating Only

Fig. 28 -- Thermostat Control w/Dry Contact Control for Fan Run Time*

Fig. 29 -- FV/FK Fan Coil with 1--Stage Air Conditioner

Fig. 30 -- Typical Fan Coil Cooling Only

Fig. 31 -- Variable Speed, Multi--Stage, Stage Modulating and Single-Stage Furnace with 2--Stage Heat Pump

Fig. 32 -- Single--Stage Furnace with Heat Pump (Hybrid Heat)

Fig. 33 -- Variable Speed, Step Modulating, Multi--Stage and Single-Stage Furnace with Two--Stage Air Conditioner

Fig. 34 -- Single--Stage Furnace with Single--Speed Air Conditioner

Fig. 35 -- Variable Speed, Multi--Stage and Step Modulating Furnace with Single--Stage Heat Pump

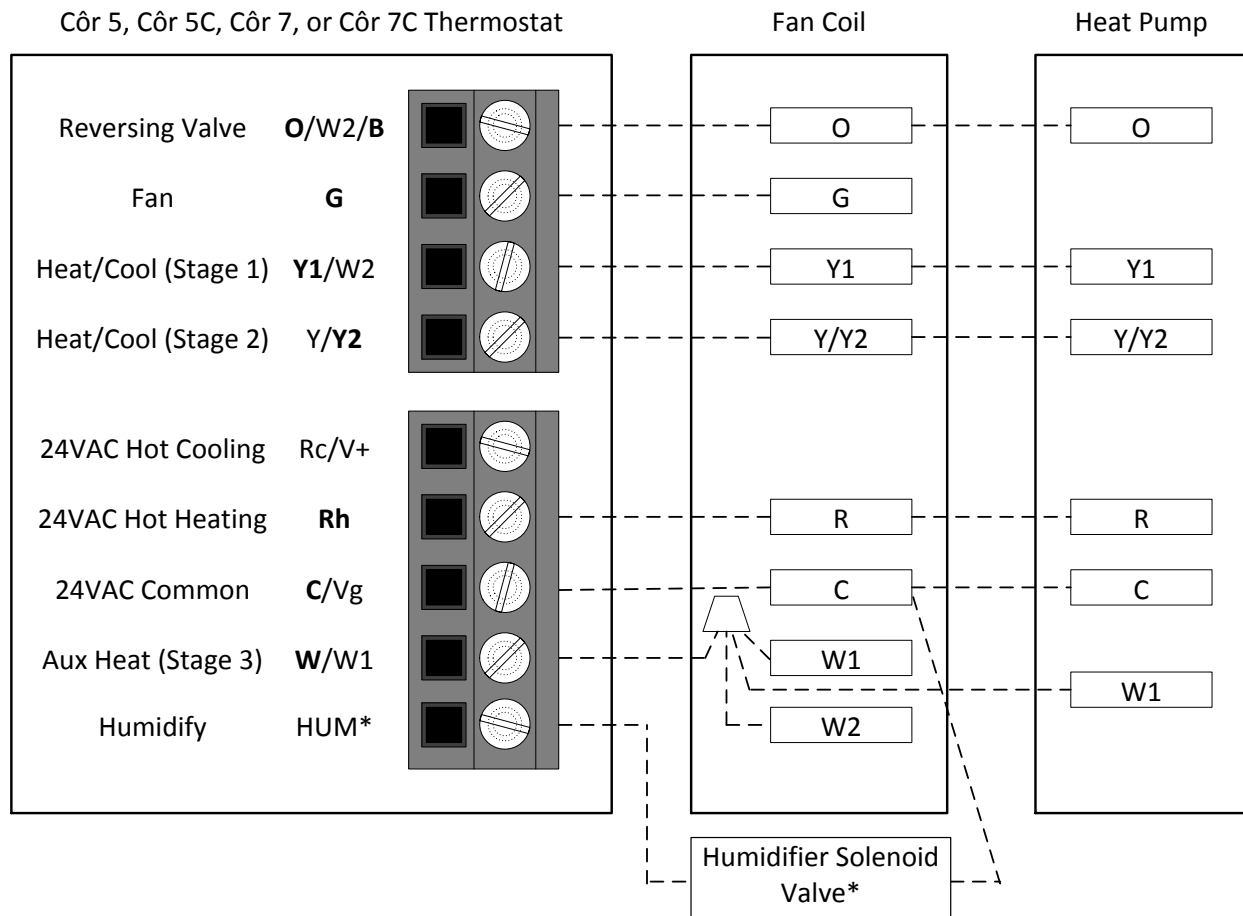
Fig. 36 -- Single--Stage Furnace Heating Only

Fig. 37 -- Variable Speed, Multi--Stage, Step Modulating and Single-Stage Furnace with Single--Stage Air Conditioner

Fig. 38 -- Single--stage Furnace with Air Conditioner and Split Power

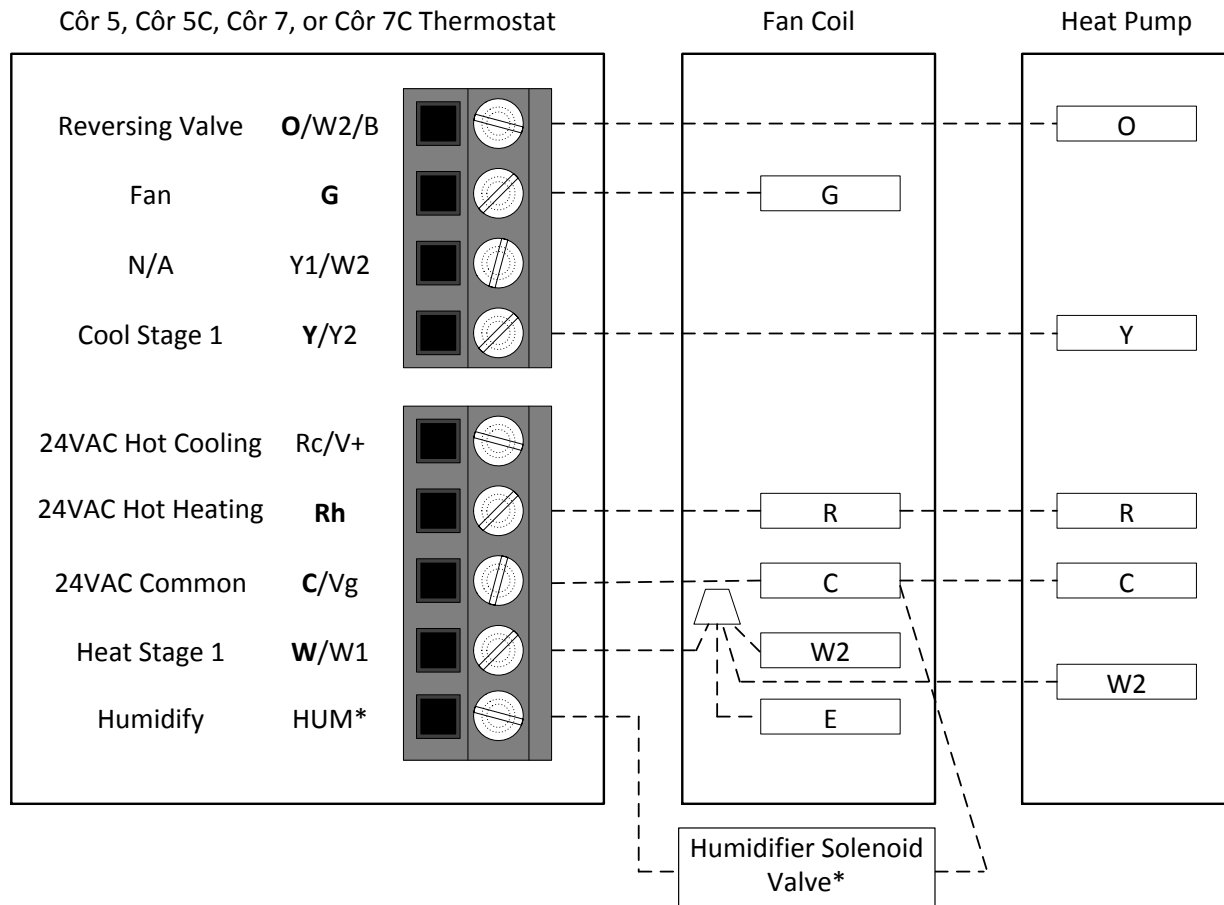
***Fig. 19, Fig 22, Fig. 25, and Fig 28 are all shown in the 2-wire relay installation instructions.**

WIRING DIAGRAMS



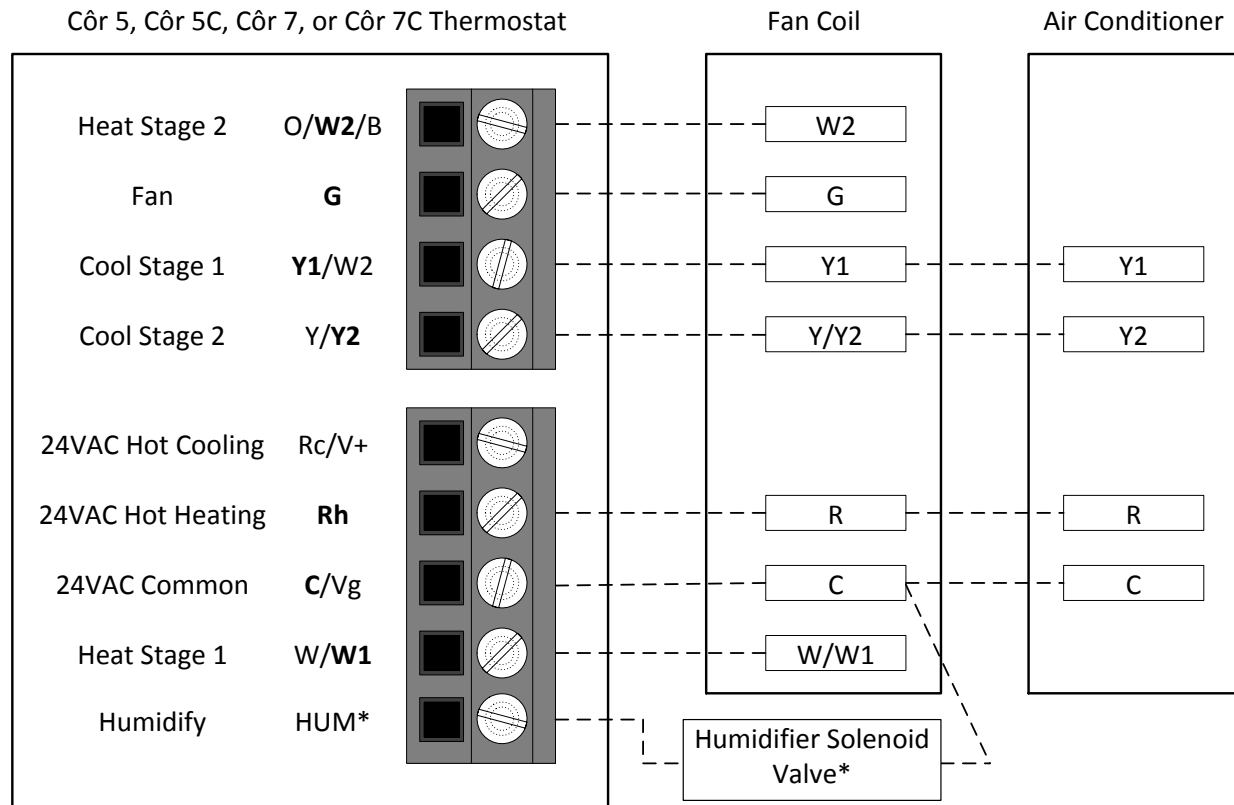
* Indicates connection may not be required/available

Fig. 20 -- FV/FK Fan Coil with 2--Stage Heat Pump



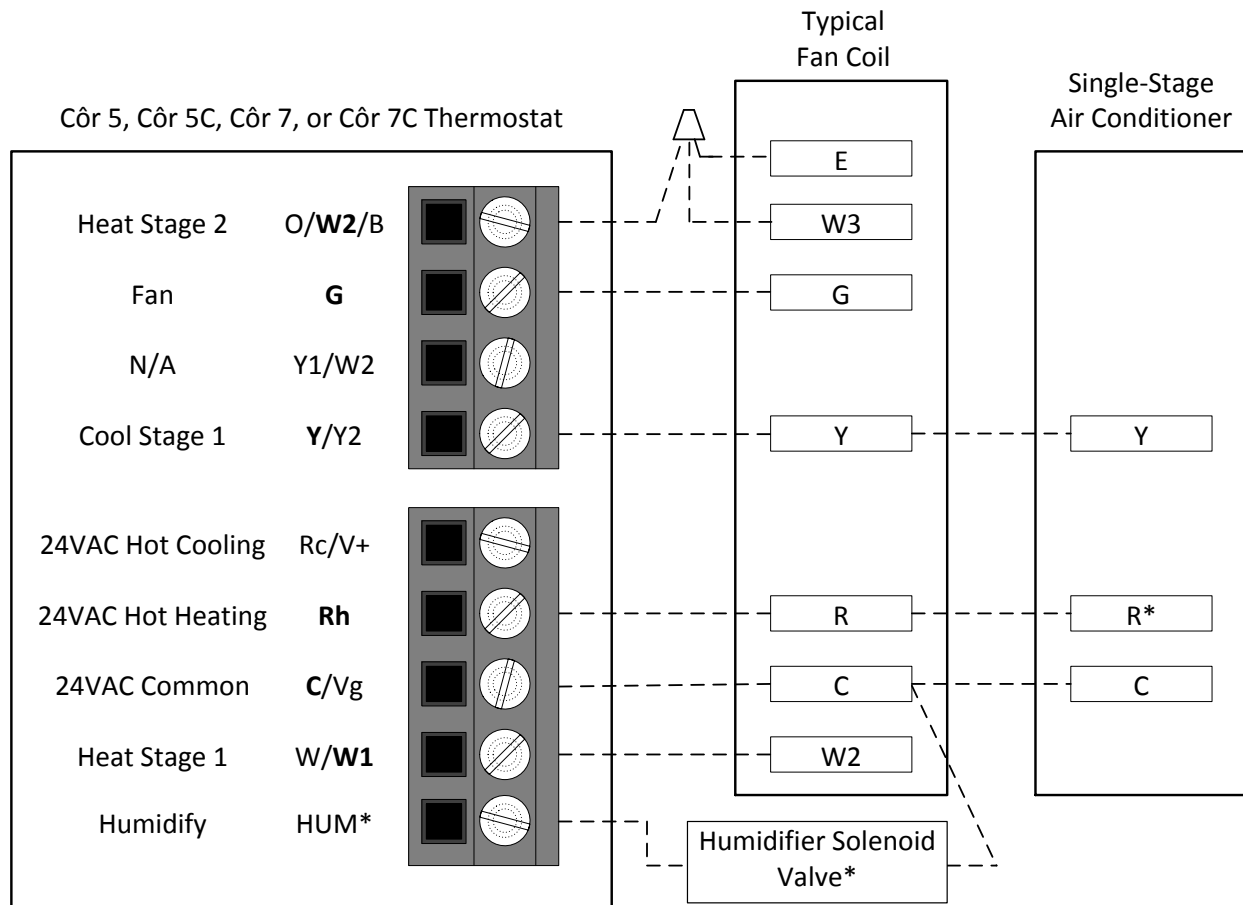
* Indicates connection may not be required/available

Fig. 21 -- Typical Fan Coil with Heat Pump



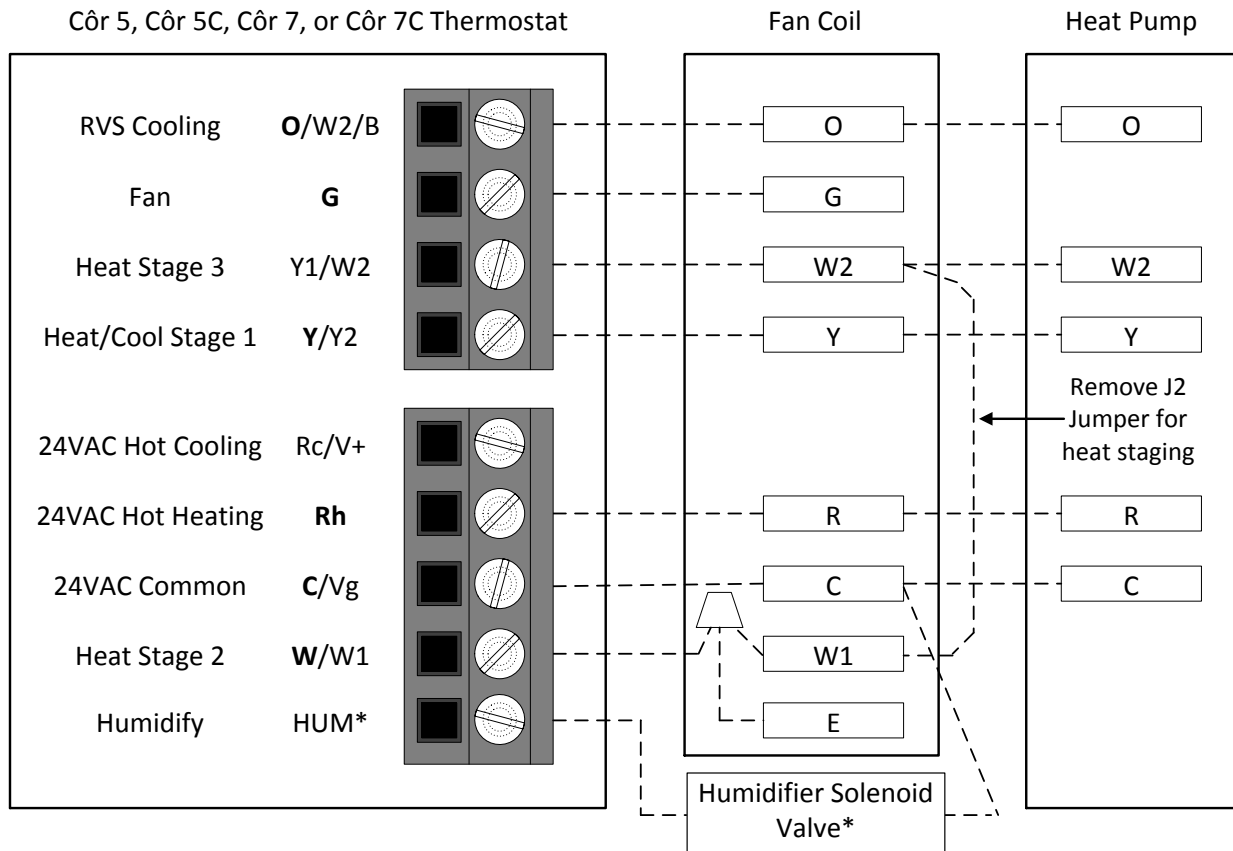
* Indicates connection may not be required/available

Fig. 23 -- FV/FK Fan Coil w/2--Stage Air Conditioner



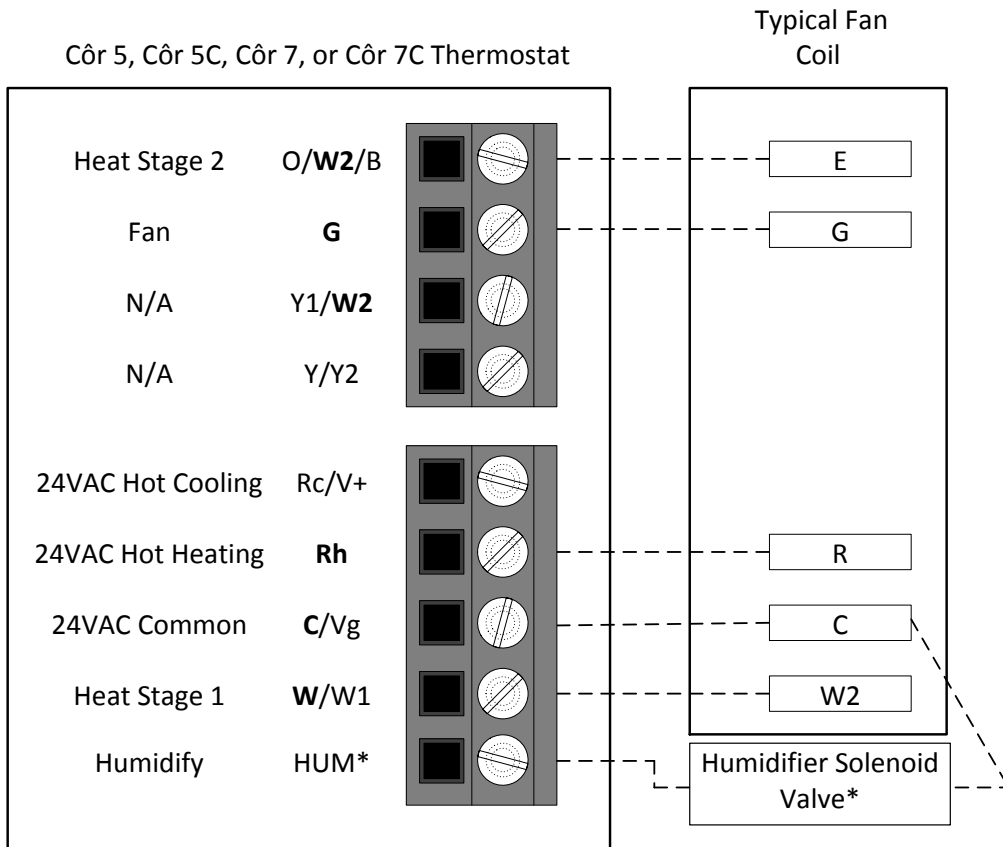
* Indicates connection may not be required/available

Fig. 24 -- Typical Fan Coil with Air Conditioner



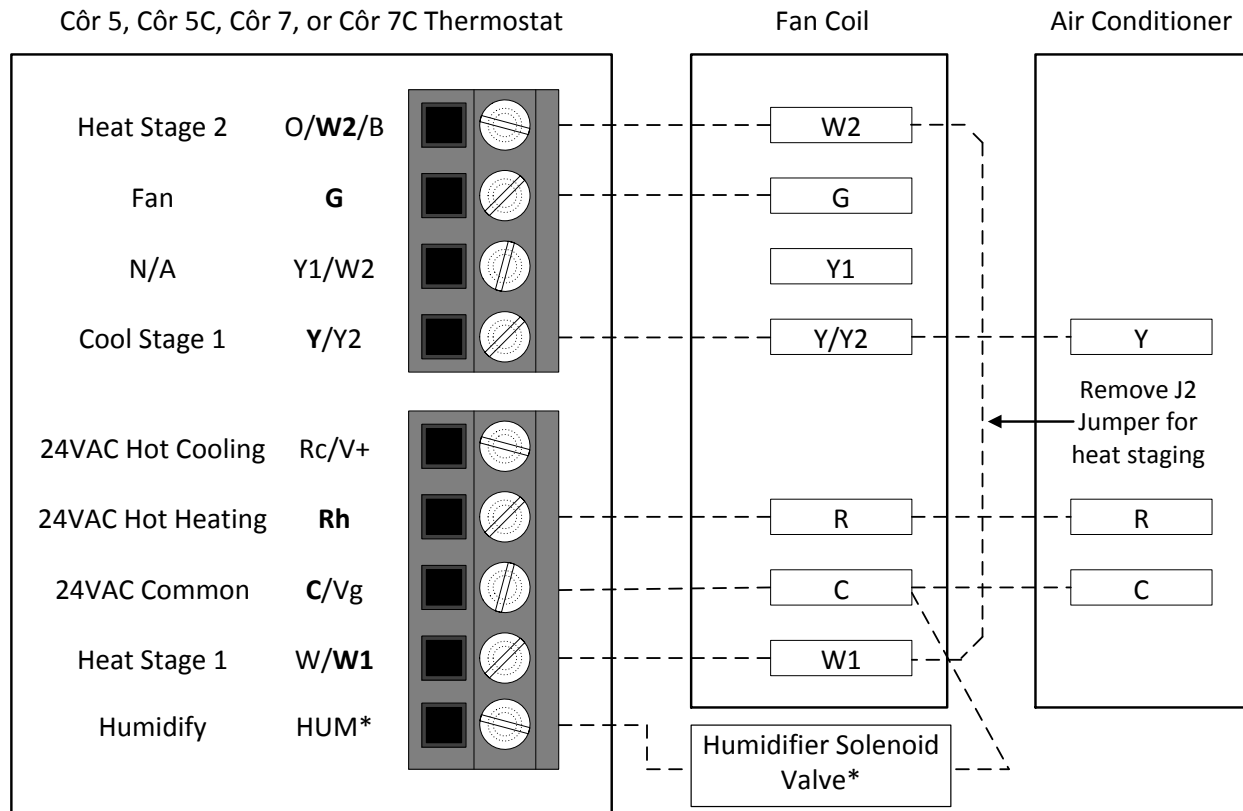
* Indicates connection may not be required/available

Fig. 26 -- FV/FK Fan Coil with 1--Stage Heat Pump



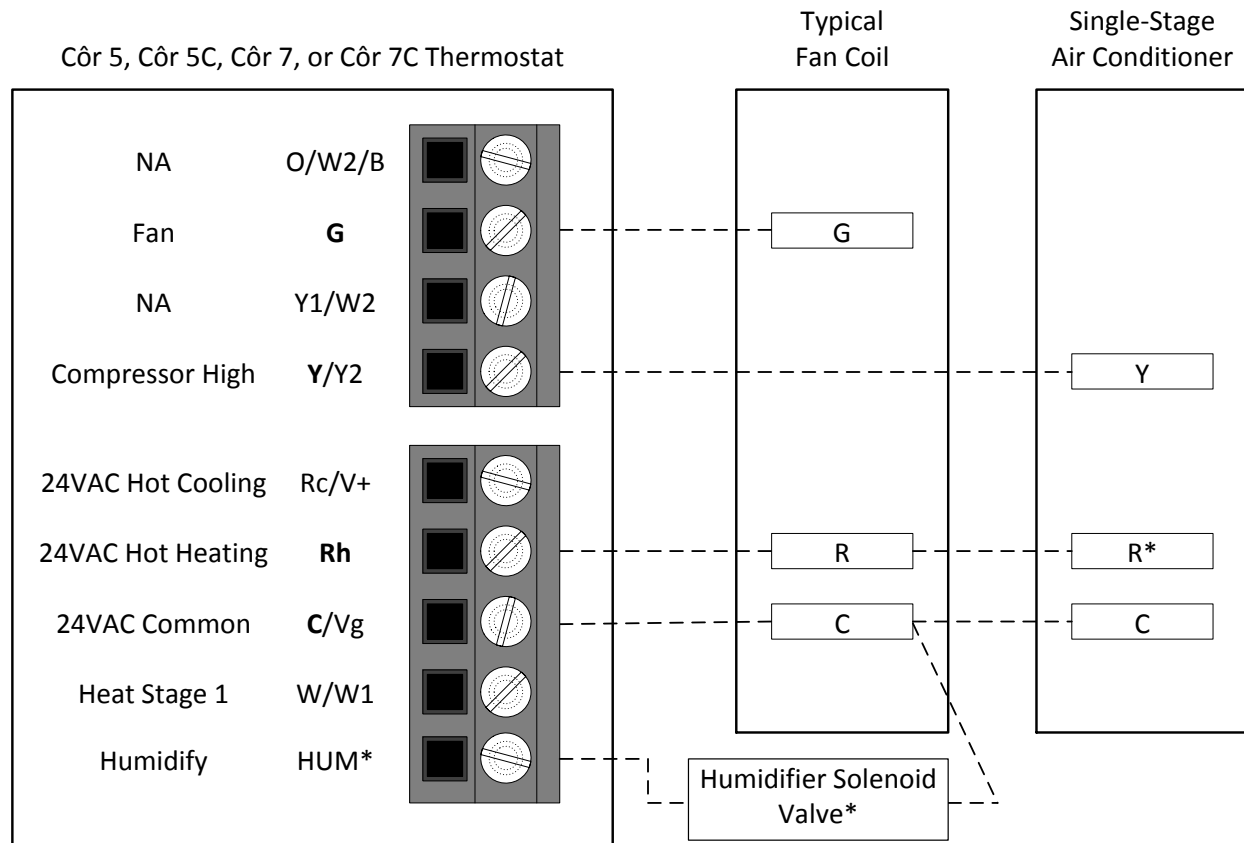
* Indicates connection may not be required/available

Fig. 27 -- Typical Fan Coil Heating Only



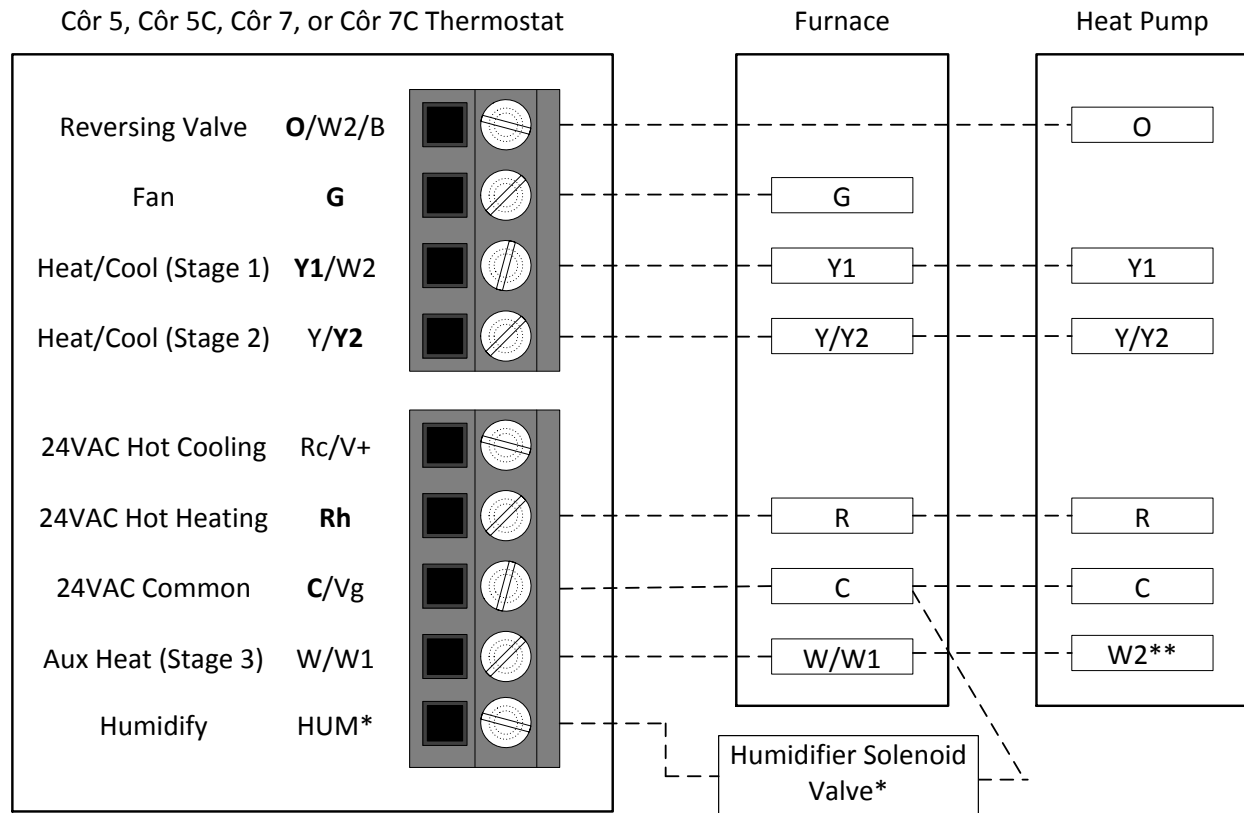
* Indicates connection may not be required/available

Fig. 29 -- FV/FK Fan Coil with 1--Stage Air Conditioner



* Indicates connection may not be required/available

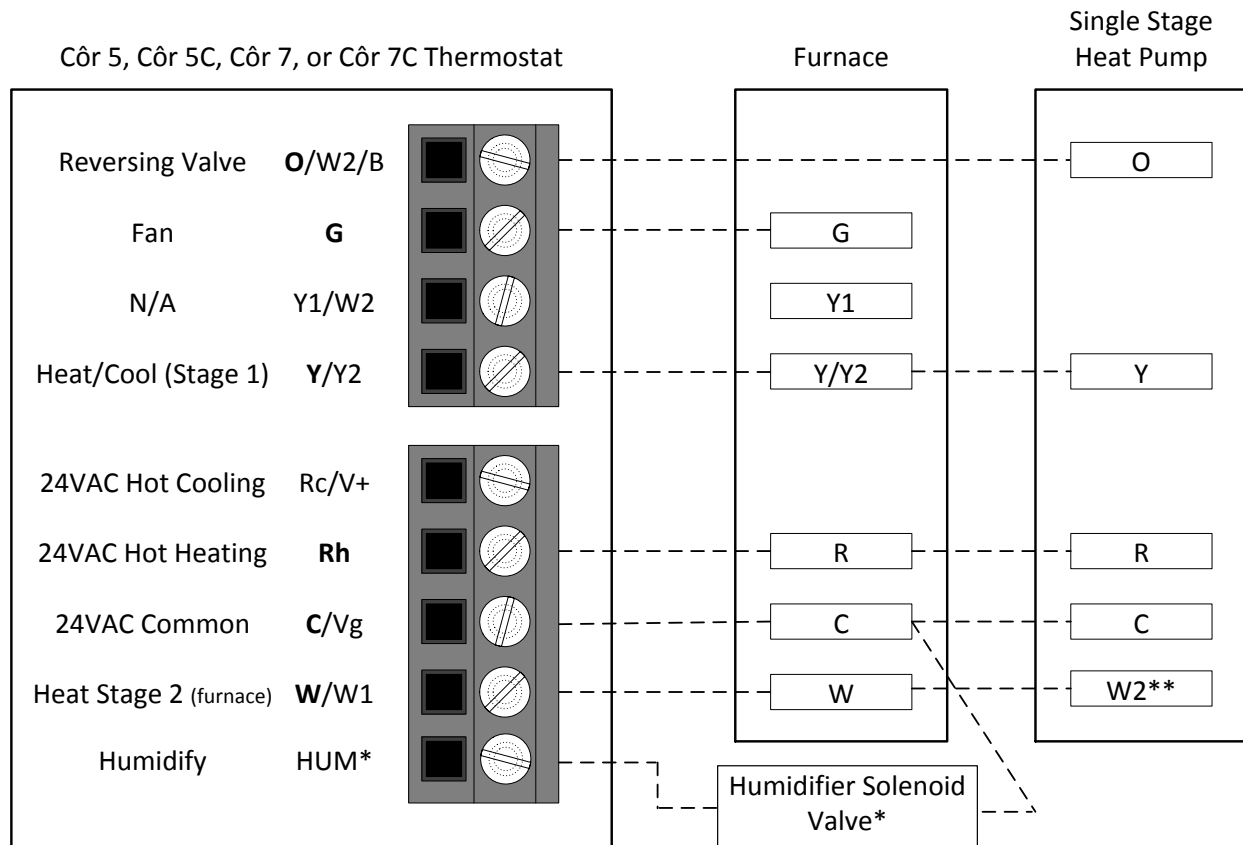
Fig. 30 -- Typical Fan Coil Cooling Only



* Indicates connection may not be required/available

** Some heat pumps may designate W1

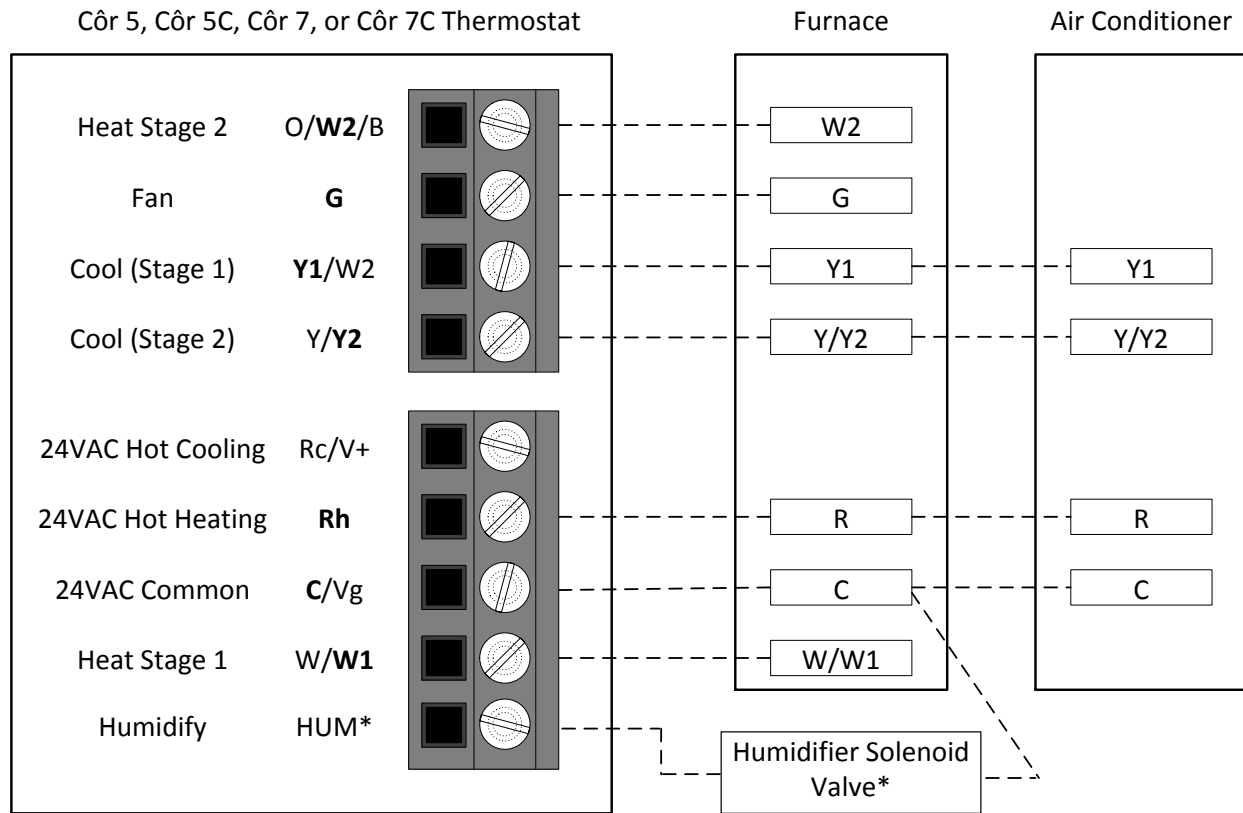
Fig. 31 -- Variable Speed, Multi--Stage, Stage Modulating and Single--StageFurnace with 2--Stage Heat Pump



* Indicates connection may not be required/available

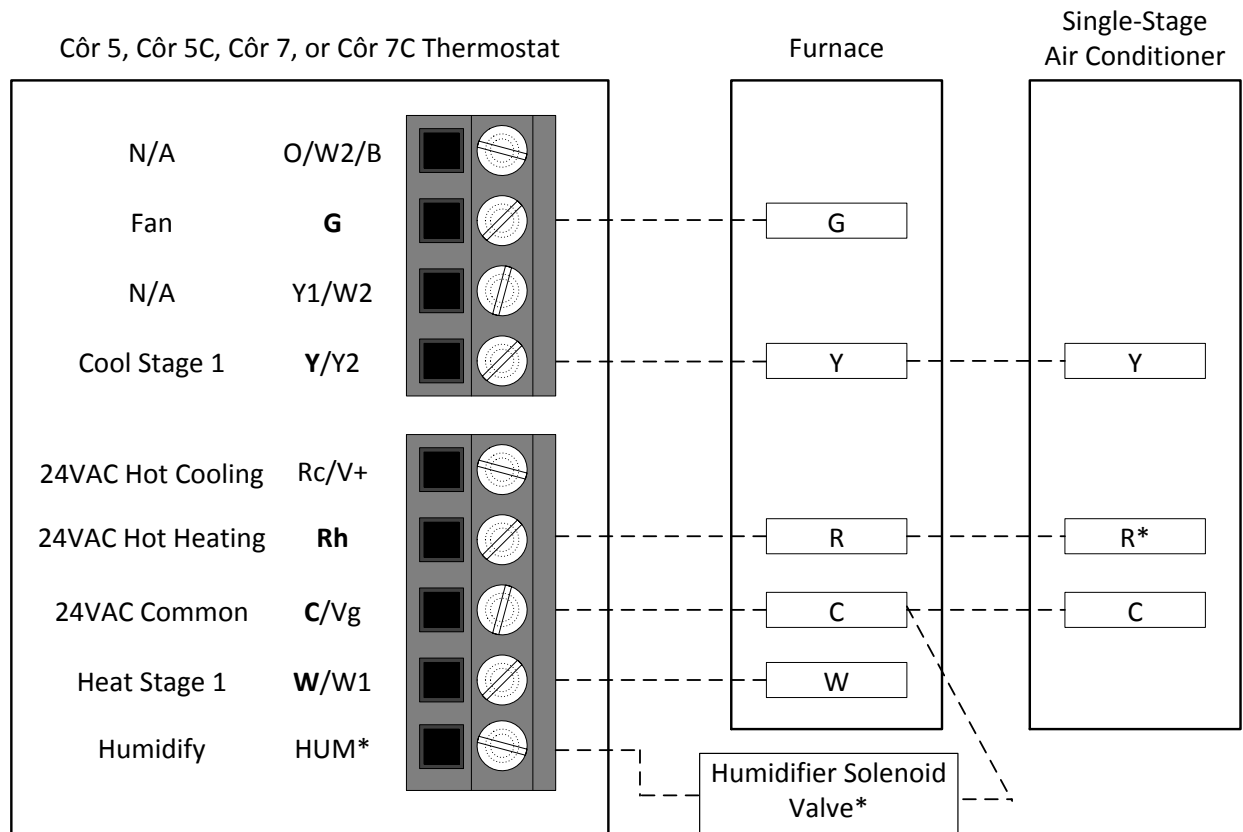
** Some heat pumps may designate W1

**Fig. 32 -- Single--Stage Furnace with Heat Pump
(Hybrid Heat)**



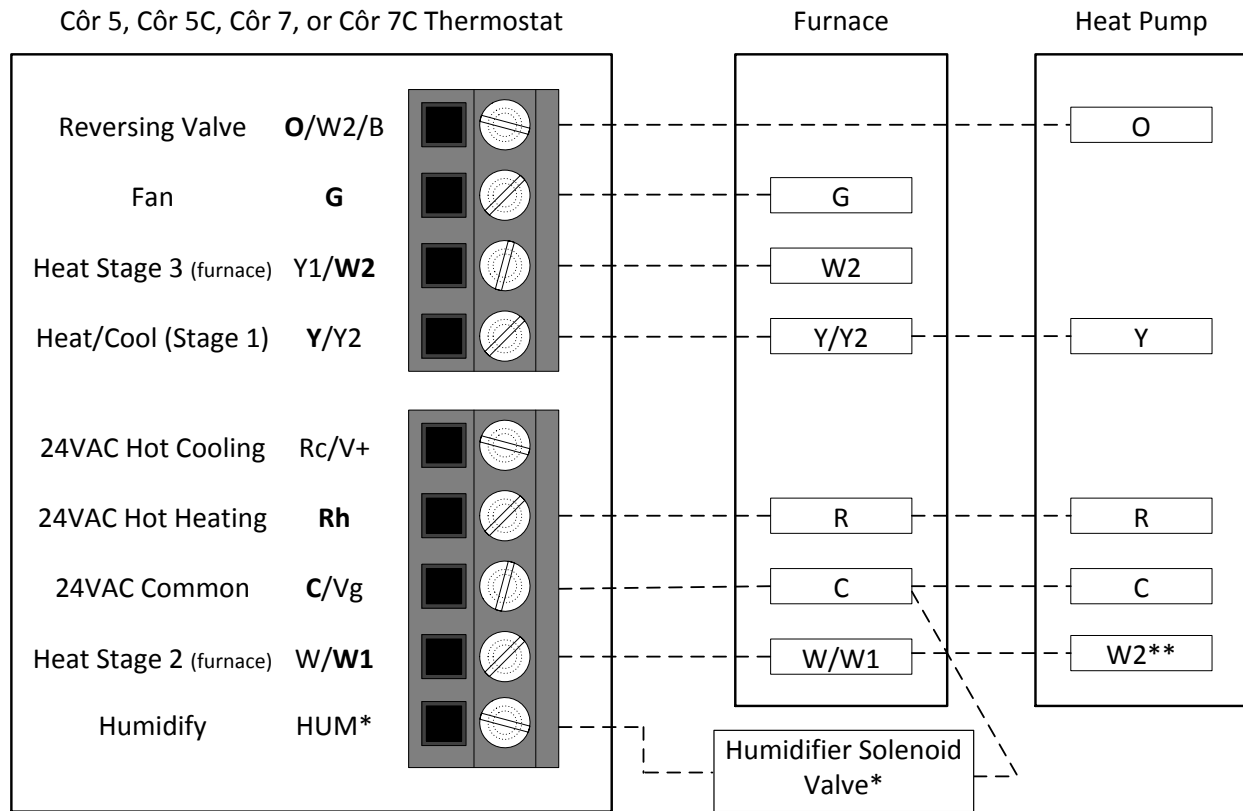
* Indicates connection may not be required/available

Fig. 33 -- Variable Speed, Step Modulating, Multi--Stage and Single--StageFurnace with Two--Stage Air Conditioner



* Indicates connection may not be required/available

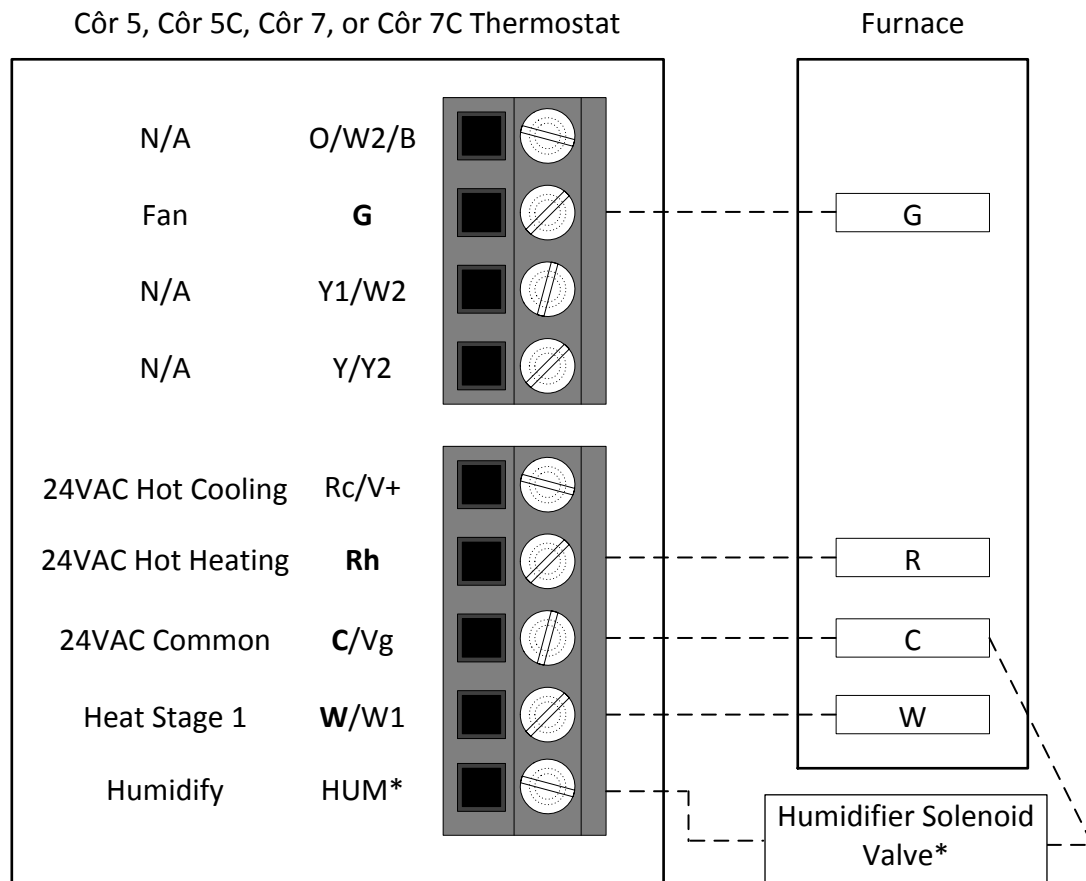
Fig. 34 -- Single--Stage Furnace with Single--Speed Air Conditioner



* Indicates connection may not be required/available

** Some heat pumps may designate W1

Fig. 35 -- Variable Speed, Multi--Stage and Modulating Furnace with Single--Stage Heat Pump



* Indicates connection may not be required/available

Fig. 36 -- Single--Stage Furnace Heating Only

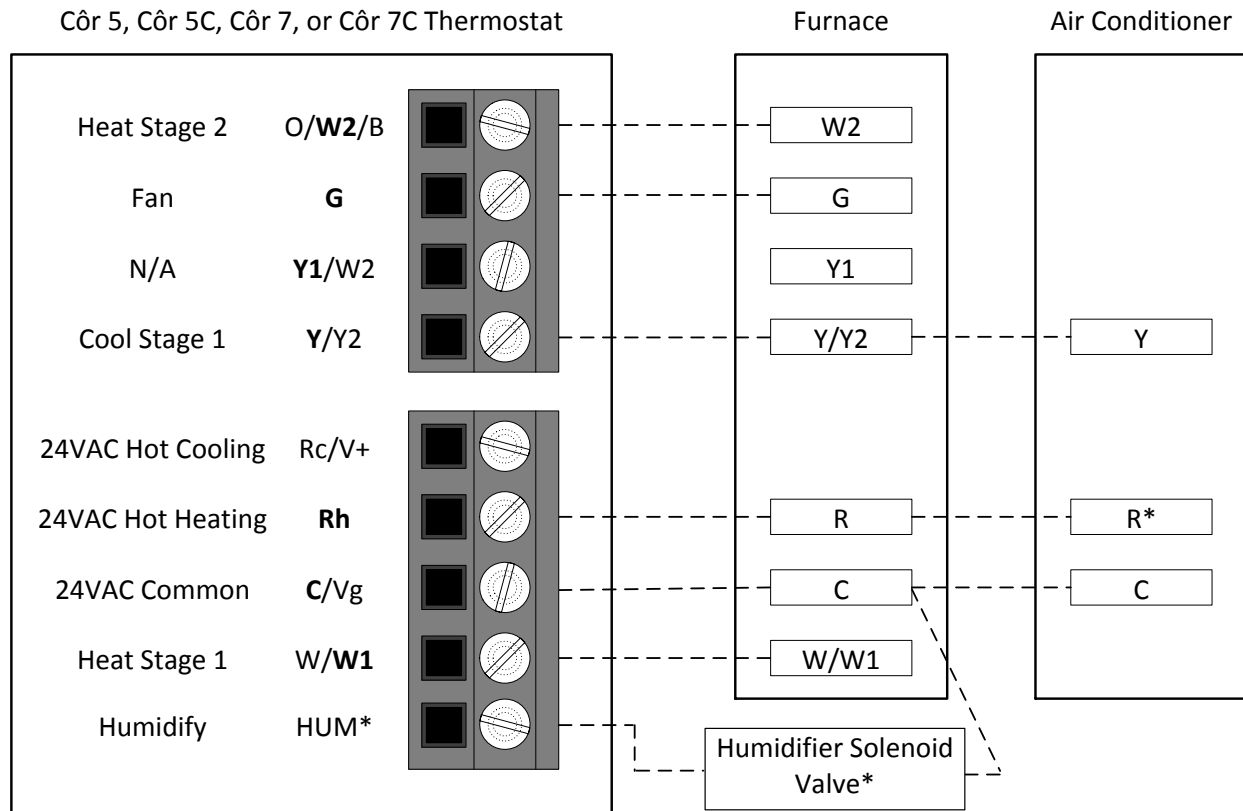
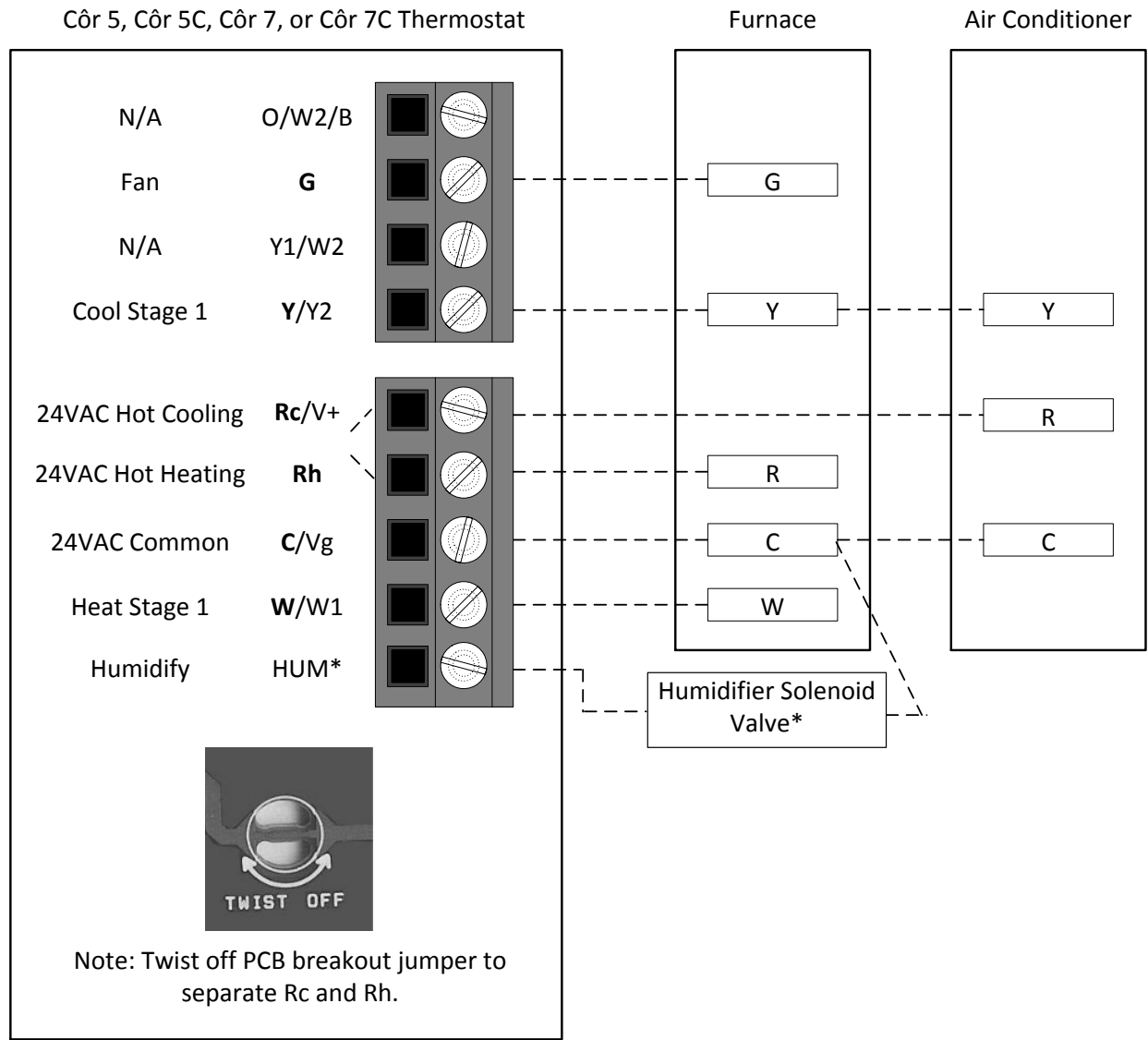


Fig. 37 -- Variable Speed, Multi--Stage, Step Modulating and Single--Stage Furnace with Single--Stage Air Conditioner



* Indicates connection may not be required/available

Fig. 38 -- Single--stage Furnace with Air Conditioner and Split Power

NOTES

NOTES

FCC:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To comply with FCC/IC RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Pour se conformer aux limites d'exposition RF FCC et IC pour la population générale / l'exposition incontrôlée, l'antenne utilisée pour cet émetteur doit être installée pour assurer une distance de séparation d'au moins 20 cm de toutes les personnes et fonctionnant conjointement avec toute autre antenne ou émetteur.

This Device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: 1) this device may not cause interference, and 2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme avec Industrie Canada, exempts de licence standard RSS (s). Son fonctionnement est soumis aux deux conditions suivantes: 1) ce dispositif ne peut pas causer d'interférences, et 2) ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.



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and without obligations.

