



# CONTROLLER INSTALLATION OPERATION & QUICK START

**Bard CompleteStat™  
CS9B-THO, CS9B-THOC  
CS9BE-THO, CS9BE-THOC**



Manual: 2100-566  
Supersedes: **NEW**  
File: Tab 19  
Date: 02-13-12

# TABLE OF CONTENTS

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## **Installation**

|                               |        |
|-------------------------------|--------|
| Note .....                    | Page 3 |
| Controller Installation ..... | Page 3 |
| Controller Connections .....  | Page 3 |

## **Basic Operation**

|  |            |
|--|------------|
| Note .....                                 | Page 4     |
| Quick-Start Programming .....              | Page 4 & 5 |
| Auxiliary Heat / Electric Heat Setup ..... | Page 5     |
| Compressor Lockout Temperature .....       | Page 5 & 6 |
| System Enable .....                        | Page 6     |
| Temperature Setpoints .....                | Page 6     |
| Terminal Descriptors .....                 | Page 6     |
| Sequence of Operation .....                | Page 7 & 8 |

## **Wiring Diagrams**

|                                    |               |
|------------------------------------|---------------|
| Wiring Diagram Table (Index) ..... | Page 9        |
| Wiring Diagrams .....              | Pages 10 - 20 |

**\*INSTALL NOTE:** For optimum temperature sensor performance, the **Bard CompleteStat™** must be mounted on an interior wall and away from any heat sources, sunlight, windows, air vents, air circulation obstructions, and/or any other cause of erratic or false temperature sensing.

**Controller Installation: Mounting Controller**

1. Complete rough-in wiring using a minimum 18 AWG solid-conductor control wiring, see Low Voltage Wiring Manual for exact number of conductors.
2. Turn the hex screws in the bottom and top of the controller clockwise (inward) until they clear the cover. Remove base plate from controller.
3. Route completed wiring through base plate.
4. With the embossed "UP" arrows of the base plate pointing in the appropriate direction, fasten the base plate to the desired wall location or vertical/horizontal 2x4 wall handybox.
5. Make appropriate control wire connections (see Low-Voltage Wiring Manual) to terminal blocks.
6. Replace controller over base plate, being careful not to pinch/dislodge connections.
7. Turn hex screws in bottom/top of controller counter-clockwise (outward) to secure cover.

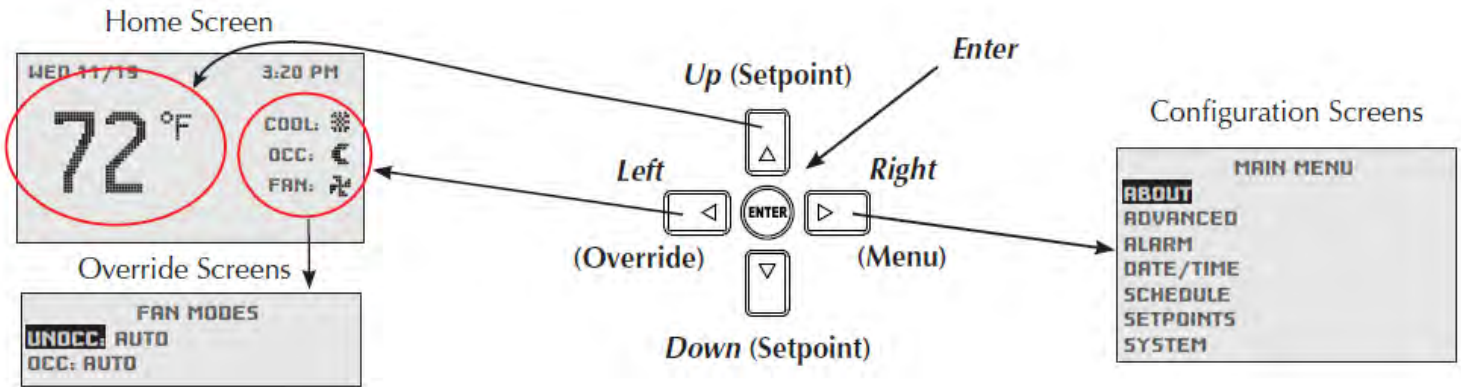
| Models       | Dimensions in Inches (mm) |             |             |
|--------------|---------------------------|-------------|-------------|
|              | A                         | B           | C           |
| CS9B(E)-THO  | 1.125 (29)                | 5.551 (141) | 4.192 (106) |
| CS9B(E)-THOC | 1.437 (36.5)              |             | 5.192 (132) |



**Controller Connections: Terminal legend**

| Terminal | Function                                 | Type   | Form                       |
|----------|--|--------|----------------------------|
| D        | Dehumidification                         | Output | 24VAC SPST RELAY           |
| SC       | 24VAC to Relay Outputs D, A, W2          | Power  |                            |
| A        | Ventilation Call                         | Output | 24VAC SPST RELAY           |
| W2       | 2 <sup>nd</sup> Stage Heating            | Output | 24VAC SPST RELAY           |
| W1/E     | 1 <sup>st</sup> Stage Heating/Emer. Heat | Output | 24VAC SPST RELAY           |
| SC       | 24VAC to Relay Outputs W1/E, Y2, Y1      | Power  |                            |
| Y2       | 2 <sup>nd</sup> Stage Compressor         | Output | 24VAC SPST RELAY           |
| Y1       | 1 <sup>st</sup> Stage Compressor         | Output | 24VAC SPST RELAY           |
| Y0       | Economizer                               | Output | 24VAC SPST RELAY           |
| SC       | 24VAC to Relay Outputs YO, O/B, G        | Power  |                            |
| O/B      | Reversing Valve                          | Output | 24VAC SPST RELAY           |
| G        | Indoor Blower                            | Output | 24VAC SPST RELAY           |
| IN9      | Not Used                                 |        |                            |
| ROS      | Remote Occupancy Sensor                  | Input  | Dry Contact (Input to GND) |
| GND      |  |        |                            |
| REM      | Remote Temperature Sensor                | Input  | 10K Type II Thermistor     |
| +B       | Communications                           |        |                            |
| -A       | Communications                           |        |                            |
| OAT      | Outdoor Air Temperature Sensor           | Input  | 10K Type II Thermistor     |
| LAS      | Leaving Air Temperature Sensor           | Input  | 10K Type II Thermistor     |
| GND      | Control Ground                           |        |                            |
| L        | Lockout Alarm                            | Input  | Dry Contact (Input to GND) |
| Com      | 24VAC Common                             | Power  |                            |
| 24V      | 24VAC Hot                                | Power  |                            |

**Basic Operation:** Home, Main Menu, and Override Screens



Navigate the menus & change settings by pressing a combination of various arrow buttons/the Enter button. Push the:

- **Enter** button to select and/or exit value editing
- **Up** or **Down** button to move among entries<sup>2</sup>
- **Right** or **Left** button to move among value fields
- **Left** button to return to the home screen

**NOTE<sup>2</sup>:** Although cooling/heating setpoints can be accessed by simply pressing the arrow keys during normal operation, any changes made in this fashion will be for a specific length-of-time as an “override” feature only. This temperature change will not be permanent. See the **Temperature Setpoints** for further information.

**Quick Start Programming:** System Selection, System Enable, Aux. Heat, and Temperature Setpoints.

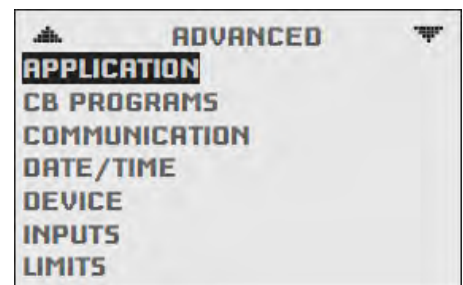
**System Selection** – to select A/C or HP, stages of heating and cooling, and with/without economizer, press:

1. **Right** button to access the **Main Menu** screen
2. **Down** button through entries to highlight **Advanced**
3. **Enter** button to select **Advanced** and enter **Advanced Screen**
4. **Enter** button again to select/enter **Applications Screen**
5. Controller will ask for **Admin Level Password**  
Factory Default Admin Level Password: **BARD**  
Press **Enter**
6. **Enter** button to choose **Degrees Scale (IF NECESSARY)<sup>1</sup>**



**\*NOTE<sup>1</sup>:** On changing temperature scale, the APP category must be set to “NOT CONFIGURED” before the controller will allow you to change scale.

7. **Up/Down** buttons to choose °Fahrenheit or °Celsius
8. **Enter** button to save selection of scale. **See Note A.**
9. **Down** button to highlight **App**
10. **Enter** button to highlight current selection
11. **Up/Down** buttons to choose from available System types:
  - A/C
  - HP
12. **Enter** button to select/save appropriate model
13. **Down** button to highlight **Opt**
14. **Enter** button to highlight current selection
15. **Up/Down** buttons to choose from available System Stages:



- |           |           |
|-----------|-----------|
| <b>AC</b> | <b>HP</b> |
| • 1H/1C   | • 1 Stage |
| • 2H/2C   | • 2 Stage |
| • 1H/2C   |           |
| • 2H/1C   |           |

16. **Enter** button to select/save appropriate model stage
17. **Down** button to highlight **Additional Setup**
18. **Enter** button to select/enter **Additional Setup Screen**
19. **Down** button to highlight **Damper**, press **Enter** button to select

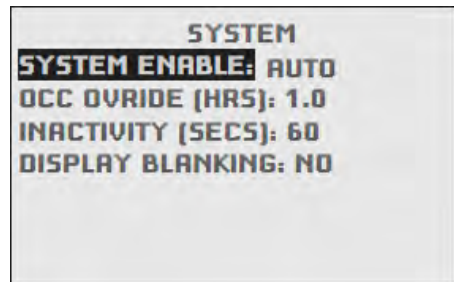
**Note A.** The change from "F" to "C" will not take effect on the Home Screen until the 24VAC power is cycled off and back on.

20. **Enter** button to highlight current economizer selection
21. **Up/Down** buttons to choose from available Economizer options:
  - **None** = No Economizer, or Standard Vent. Pkg. (ERV/CRV/MFAD)
  - **En/Dis (Engage/Disengage)** = Economizer in system
22. **Enter** button to select/save appropriate economizer options
23. **Left** arrow back to additional setup
24. **Down** button to locate & highlight **Valve** (if HP was chosen)
25. **Enter** button to select/enter **Valve** (if HP was chosen)
26. **Right** button to highlight **Valve** options (if HP was chosen)
27. **Up/Down** buttons to choose from **Valve** options: (if HP was chosen)
  - **ACTIVE HTG**
  - **ACTIVE CLG**
28. **Enter** button to save Valve option choice (if HP was chosen)
29. **Left** button (6x) to navigate back to home page



**Auxiliary Heat/Electric Heat Setup** – If a heat pump is chosen, then the electric heat strips must be configured. These steps do not apply to air conditioners or other types of conventional heating. To configure the auxiliary heat from the home screen, press:

1. **Right** button to access the **Main Menu** screen
2. **Down** button through entries to highlight **Advanced**
3. **Enter** button to select **Advanced** and enter **Advanced Screen**
4. **Enter** button again to select/enter **Applications Screen**
5. Controller will ask for **Admin Level Password**  
Factory Default Admin Level Password: **BARD**  
Press **Enter**
6. **Down** button through entries to highlight **Additional Setup**
7. **Enter** button to select/enter **Additional Setup Screen**
8. **Enter** button again to select/enter **Aux Heat**
9. **Enter** button again to highlight **Aux Heat** choices
10. **Up/Down** buttons to toggle through available choices...
  - **None** – no auxiliary strip heat, controller will not energize W2 (factory default)
  - **Comp Lockout** – Auxiliary strip heat will only activate AFTER compressor has been locked out from a **Preset Outdoor Air Temperature (requires optional 8301-061 Outdoor Air Temperature Sensor)**
  - **W/O Lockout** – Auxiliary heat will activate regardless of compressor operation or outdoor air temperature
  - If None is chosen, **Left** button (5x) to return to home screen
  - If Comp Lockout or W/O Lockout is chosen, proceed to set delay-on time
11. **Down** button to highlight **Delay (mins)**
12. **Enter** button to highlight default **Delay** minutes
13. **Up/Down** buttons to select the amount of minutes you would like to delay the electric heat before activation.
14. **Enter** button to save choice.
15. **Left** button (5x) to return to home screen.



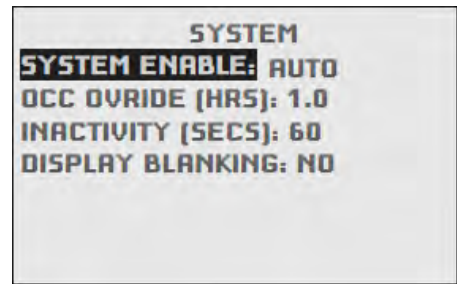
**Compressor Lockout Temperature** – If you have chosen auxiliary heat strip configuration “**Comp Lockout**,” an optional outdoor air temperature sensor will have to be installed/configured to specifically set the temperature at which the compressor will no longer be allowed to operate. To install the 8301-061 Outdoor Air Temperature Sensor, attach the leads to terminals “OAT” and “GND.” To set the compressor outdoor air temperature from the home screen, press...

1. **Right** button to access the **Main Menu** screen
2. **Down** button through entries to highlight **Advanced**
3. **Enter** button to select **Advanced** and enter **Advanced Screen**
4. **Down** button through entries to highlight **Limits**
5. **Enter** button to select **Limits** and enter **Limits Screen**
6. **Down** through entries to highlight **Comp OAT Low**
7. **Enter** button to select current Comp OAT Low setting
8. **Up/Down** button to desired outdoor air temperature for compressor lockout

9. **Enter** button to save choice
10. **Left** button (3x) to home screen.

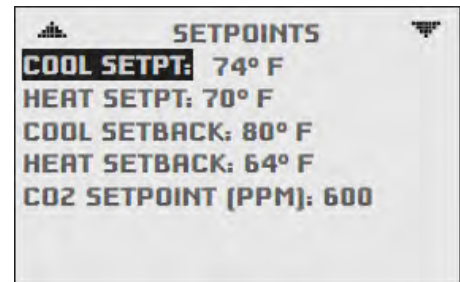
**System Enable** – to enable heating / cooling from home screen, press:

1. **Right button** to access the **Main Menu Screen**
2. **Down** button through entries to highlight **System**
3. **Enter** button to select System and enter **System Screen**
4. **Enter** button again to highlight current **System Enable** choice
5. **Up/Down** buttons to choose from available System Enable options
  - **Auto:** System is in “Auto-Changeover” mode. HVAC system will cycle heating and cooling automatically to stay within preset heating and cooling setpoints.
  - **Heating:** System is in “Heating-Only” mode. HVAC system will cycle heating in reference to Heating Setpoint only. Unit will not activate cooling sequence.
  - **Cooling:** System is in “Cooling-Only” mode. HVAC system will cycle cooling in reference to Cooling Setpoint only. Unit will not activate heating sequence.
  - **Emer HT:** HP mode only.
  - **Off:** HVAC system is inactive.
6. **Enter** button to select/save appropriate mode selection
7. **Left** button (2x) to navigate back to home page.



**Temperature Setpoints** – to access temperature setpoints from the home screen, press:

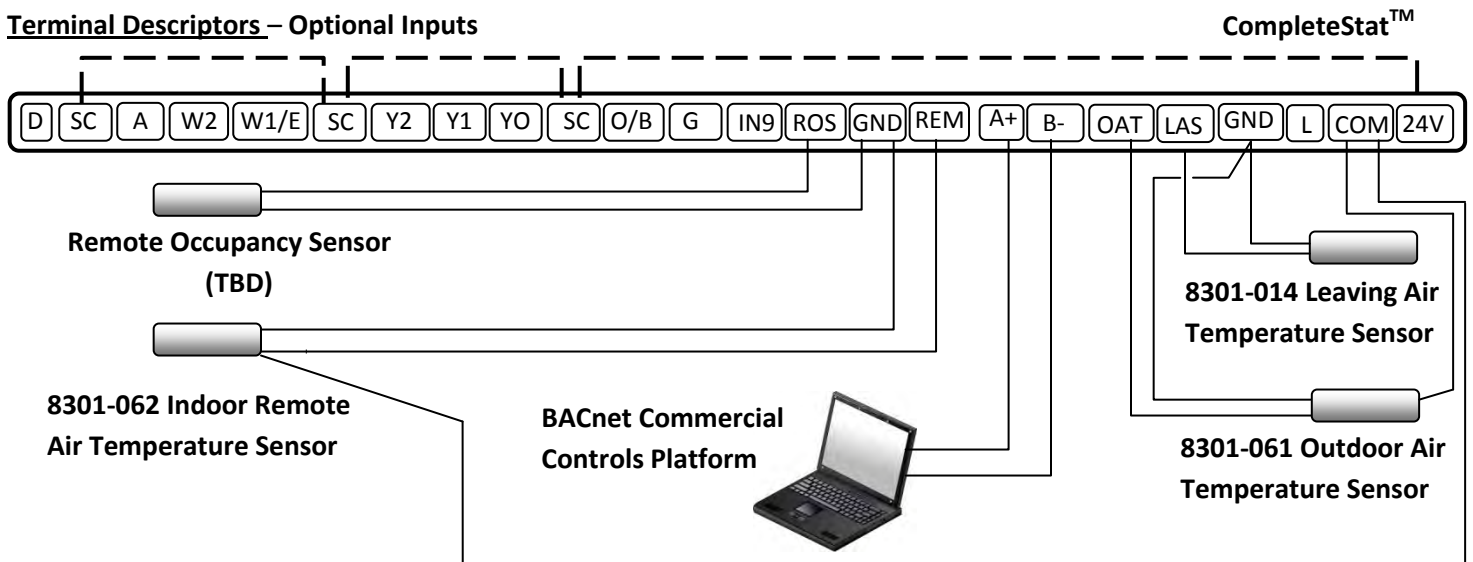
1. **Right** button to access the **Main Menu Screen**
2. **Down** button through entries to highlight **Setpoints**
3. **Enter** button to select **Setpoints** and enter **Setpoints Screen**
4. **Enter** button to select **Cool Setpt**<sup>3</sup>
5. **Up/Down** buttons to enter appropriate cooling setpoint
6. **Enter** button to save new **Cool Setpt**<sup>4</sup>
7. **Down** button to highlight **Heat Setpt**
8. **Enter** button to select **Heat Setpt**
9. **Up/Down** buttons to enter appropriate heating setpoint.
10. **Enter** button to save new **Heat Setpt**
11. **\*REPEAT STEPS IN LIKE FASHION FOR COOL SETBACK & HEAT SETBACK TEMPERATURES, DEHUM SETPOINT & SPAN, & FOR CO<sub>2</sub> SETPOINT IN PARTS PER MILLION & CO<sub>2</sub> SPAN OF CONTROL IN PARTS PER MILLION (IF AVAILABLE).\***
12. **Left** button (2x) to navigate back to home page



**NOTE**<sup>3</sup>: The controller will not allow heating/cooling setpoints to contradict one another, or to be within a degree of conflicting operation.

**NOTE**<sup>4</sup>: Any system start-up with indoor ambient temperatures lower than 56° F., or above 86° F. will experience an internal Low-Temperature or High-Temperature alarm. This will not affect normal operation, and can be cleared easily.

**Terminal Descriptors – Optional Inputs**



**NOTE:** Use twisted shielded pair for optional outdoor and indoor air sensors. Connect shield (drain) to 24V common.



**Sequence of Operation:** Conventional 1H/1C, 2H/1C, 1H/2C, or 2H/2C without Economizer

| Operation                                   | G              | Y/O | Y1 | Y2 | W1/E | W2 | O/B | D | A |
|---|----------------|-----|----|----|------|----|-----|---|---|
| Fan Only                                    | X              |     |    |    |      |    |     |   |   |
| 1 <sup>st</sup> Stage Cooling               | X              |     | X  |    |      |    |     |   |   |
| 2 <sup>nd</sup> Stage Cooling (if employed) | X              |     | X  | X  |      |    |     |   |   |
| 1 <sup>st</sup> Stage Heating               | X              |     |    |    | X    |    |     |   |   |
| 2 <sup>nd</sup> Stage Heating (if employed) | X              |     |    |    | X    | X  |     |   |   |
| Dehumidification                            |                |     |    |    |      |    |     | X |   |
| Ventilation <sup>1</sup>                    | X <sup>1</sup> |     |    |    |      |    |     |   | X |

**NOTE<sup>1</sup>:** **CS9B(E)-THOC** (CO<sub>2</sub> Sensing Capability) Models will activate both G and A terminals upon a ventilation call, however the **CS9B(E)-THO** (NON-CO<sub>2</sub> Sensing) Models will activate the A terminal only if there is an existing call for the indoor blower, whether through space conditioning, or through constant fan operation.

**Sequence of Operation:** Conventional 1H/1C, 2H/1C, 1H/2C, or 2H/2C with Economizer

| Operation                                   | G              | Y/O | Y1 | Y2 | W1/E | W2 | O/B | D | A |
|---|----------------|-----|----|----|------|----|-----|---|---|
| Fan Only                                    | X              |     |    |    |      |    |     |   |   |
| 1 <sup>st</sup> Stage Cooling (Economizer)  | X              | X   |    |    |      |    |     |   |   |
| 2 <sup>nd</sup> Stage Cooling               | X              | X   | X  |    |      |    |     |   |   |
| 3 <sup>rd</sup> Stage Cooling (if employed) | X              | X   | X  | X  |      |    |     |   |   |
| 1 <sup>st</sup> Stage Heating               | X              |     |    |    | X    |    |     |   |   |
| 2 <sup>nd</sup> Stage Heating (if employed) | X              |     |    |    | X    | X  |     |   |   |
| Dehumidification                            |                |     |    |    |      |    |     | X |   |
| Ventilation <sup>1</sup>                    | X <sup>1</sup> |     |    |    |      |    |     |   | X |

**NOTE<sup>1</sup>:** **CS9B(E)-THOC** (CO<sub>2</sub> Sensing Capability) Models will activate both G and A terminals upon a ventilation call, however the **CS9B(E)-THO** (NON-CO<sub>2</sub> Sensing) Models will activate the A terminal only if there is an existing call for the indoor blower, whether through space conditioning, or through constant fan operation.

**Sequence of Operation:** One-Stage Heat Pump, no Economizer

| Operation                     | G              | Y/O | Y1 | Y2 | W1/E | W2             | O/B            | D | A |
|-------------------------------|----------------|-----|----|----|------|----------------|----------------|---|---|
| Fan Only                      | X              |     |    |    |      |                |                |   |   |
| 1 <sup>st</sup> Stage Cooling | X              |     | X  |    |      |                |                |   |   |
| 1 <sup>st</sup> Stage Heating | X              |     | X  |    |      |                | X <sup>2</sup> |   |   |
| 2 <sup>nd</sup> Stage Heating | X              |     | X  |    |      | X <sup>3</sup> | X <sup>2</sup> |   |   |
| Emergency Heat                | X              |     |    |    | X    | X <sup>3</sup> |                |   |   |
| Dehumidification              |                |     |    |    |      |                |                | X |   |
| Ventilation <sup>1</sup>      | X <sup>1</sup> |     |    |    |      |                |                |   | X |

**NOTE<sup>1</sup>:** **CS9B(E)-THOC** (CO<sub>2</sub> Sensing Capability) Models will activate both G and A terminals upon a ventilation call, however the **CS9B(E)-THO** (NON-CO<sub>2</sub> Sensing) Models will activate the A terminal only if there is an existing call for the indoor blower, whether through space conditioning, or through constant fan operation.

**NOTE<sup>2</sup>:** CompleteStat™ controller can be configured to energize reversing valve in cooling (See **System Selection**).

**NOTE<sup>3</sup>:** Electric Heat must be configured for a Heat Pump application, see **Auxiliary Heat/Electric Heat Setup**

**Sequence of Operation:** Two-Stage Heat Pump, no Economizer

| Operation                     | G              | Y/O | Y1 | Y2 | W1/E | W2             | O/B            | D | A |
|-------------------------------|----------------|-----|----|----|------|----------------|----------------|---|---|
| Fan Only                      | X              |     |    |    |      |                |                |   |   |
| 1 <sup>st</sup> Stage Cooling | X              |     | X  |    |      |                |                |   |   |
| 2 <sup>nd</sup> Stage Cooling | X              |     | X  | X  |      |                |                |   |   |
| 1 <sup>st</sup> Stage Heating | X              |     | X  |    |      |                | X <sup>2</sup> |   |   |
| 2 <sup>nd</sup> Stage Heating | X              |     | X  | X  |      |                | X <sup>2</sup> |   |   |
| 3 <sup>rd</sup> Stage Heating | X              |     | X  | X  |      | X <sup>3</sup> | X <sup>2</sup> |   |   |
| Emergency Heat                | X              |     |    |    | X    | X <sup>3</sup> |                |   |   |
| Dehumidification              |                |     |    |    |      |                |                | X |   |
| Ventilation <sup>1</sup>      | X <sup>1</sup> |     |    |    |      |                |                |   | X |

**NOTE<sup>1</sup>:** **CS9B(E)-THOC** (CO<sub>2</sub> Sensing Capability) Models will activate both **G** and **A** terminals upon a ventilation call, however the **CS9B(E)-THO** (NON-CO<sub>2</sub> Sensing) Models will activate the **A** terminal only if there is an existing call for the indoor blower, whether through space conditioning, or through constant fan operation.

**NOTE<sup>2</sup>:** CompleteStat™ controller can be configured to energize reversing valve in cooling (See **System Selection**).

**NOTE<sup>3</sup>:** Electric Heat must be configured for a Heat Pump application, see **Auxiliary Heat/Electric Heat Setup**

**Sequence of Operation:** Single-Stage Heat Pump, with Economizer

| Operation                     | G              | Y/O | Y1 | Y2 | W1/E | W2             | O/B            | D | A |
|-------------------------------|----------------|-----|----|----|------|----------------|----------------|---|---|
| Fan Only                      | X              |     |    |    |      |                |                |   |   |
| 1 <sup>st</sup> Stage Cooling | X              | X   |    |    |      |                |                |   |   |
| 2 <sup>nd</sup> Stage Cooling | X              | X   | X  |    |      |                |                |   |   |
| 1 <sup>st</sup> Stage Heating | X              | X   | X  |    |      |                | X <sup>2</sup> |   |   |
| 2 <sup>nd</sup> Stage Heating | X              | X   | X  |    |      | X <sup>3</sup> | X <sup>2</sup> |   |   |
| Emergency Heat                | X              |     |    |    | X    | X <sup>3</sup> |                |   |   |
| Dehumidification              |                |     |    |    |      |                |                | X |   |
| Ventilation <sup>1</sup>      | X <sup>1</sup> |     |    |    |      |                |                |   | X |

**NOTE<sup>1</sup>:** **CS9B(E)-THOC** (CO<sub>2</sub> Sensing Capability) Models will activate both **G** and **A** terminals upon a ventilation call, however the **CS9B(E)-THO** (NON-CO<sub>2</sub> Sensing) Models will activate the **A** terminal only if there is an existing call for the indoor blower, whether through space conditioning, or through constant fan operation.

**NOTE<sup>2</sup>:** CompleteStat™ controller can be configured to energize reversing valve in cooling (See **System Selection**).

**NOTE<sup>3</sup>:** Electric Heat must be configured for a Heat Pump application, see **Auxiliary Heat/Electric Heat Setup**

**Sequence of Operation:** Two-Stage Heat Pump, with Economizer

| Operation                     | G              | Y/O | Y1 | Y2 | W1/E | W2             | O/B            | D | A |
|-------------------------------|----------------|-----|----|----|------|----------------|----------------|---|---|
| Fan Only                      | X              |     |    |    |      |                |                |   |   |
| 1 <sup>st</sup> Stage Cooling | X              | X   |    |    |      |                |                |   |   |
| 2 <sup>nd</sup> Stage Cooling | X              | X   | X  |    |      |                |                |   |   |
| 3 <sup>rd</sup> Stage Cooling | X              | X   | X  | X  |      |                |                |   |   |
| 1 <sup>st</sup> Stage Heating | X              | X   | X  |    |      |                | X <sup>2</sup> |   |   |
| 2 <sup>nd</sup> Stage Heating | X              | X   | X  | X  |      |                | X <sup>2</sup> |   |   |
| 3 <sup>rd</sup> Stage Heating | X              | X   | X  | X  |      | X <sup>3</sup> | X <sup>2</sup> |   |   |
| Emergency Heat                | X              |     |    |    | X    | X <sup>3</sup> |                |   |   |
| Dehumidification              |                |     |    |    |      |                |                | X |   |
| Ventilation <sup>1</sup>      | X <sup>1</sup> |     |    |    |      |                |                |   | X |

**NOTE<sup>1</sup>:** **CS9B(E)-THOC** (CO<sub>2</sub> Sensing Capability) Models will activate both **G** and **A** terminals upon a ventilation call, however the **CS9B(E)-THO** (NON-CO<sub>2</sub> Sensing) Models will activate the **A** terminal only if there is an existing call for the indoor blower, whether through space conditioning, or through constant fan operation.

**NOTE<sup>2</sup>:** CompleteStat™ controller can be configured to energize reversing valve in cooling (See **System Selection**).

**NOTE<sup>3</sup>:** Electric Heat must be configured for a Heat Pump application, see **Auxiliary Heat/Electric Heat Setup**

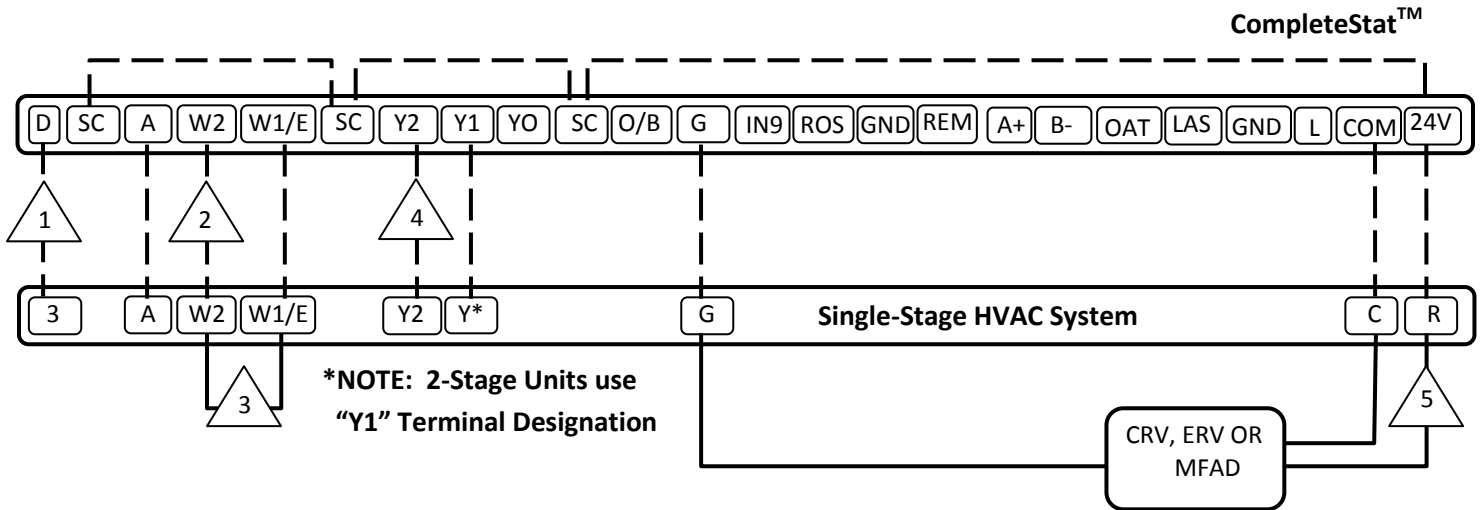


## Wiring Diagram Table

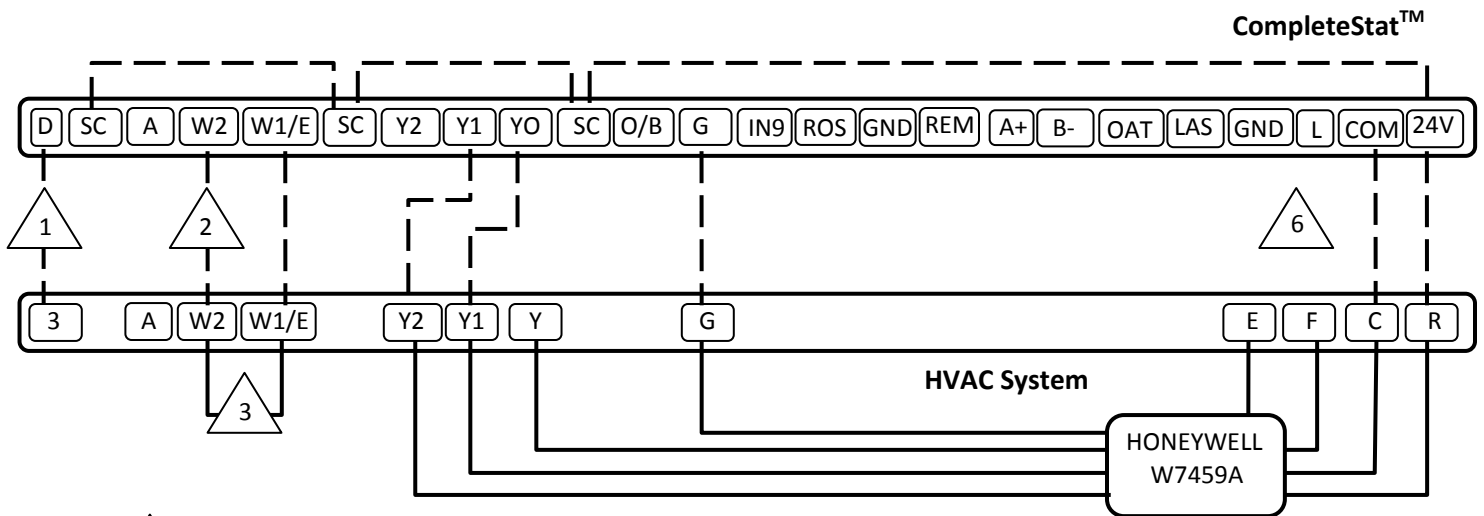
| Wiring Diagram No. | Unit Type    | (Note A) CompleteStat™ Model CS9B(E)- | CompleteStat™ System Type | System Stages Setting | Economizer Setting | Use with Bard Units                   | Ventilation System  | Vent Control Type |
|--------------------|--------------|---------------------------------------|---------------------------|-----------------------|--------------------|---------------------------------------|---|-------------------|
| 1                  | A/C          | THO, THOC                             | A/C                       | 2H/2C                 | None               | 1 or 2-Stage A/C w/ or w/o Elec. Heat | CRV, ERV, MFAD  | On/Off            |
| 2                  | A/C          | THO, THOC                             | A/C                       | 2H/2C                 | EN/DIS             | 1-Stage A/C with or w/o Elec. Heat    | EIFM Factory "E" Economizer w/W7459 Control               | On/Off            |
| 3                  | A/C          | THO, THOC                             | A/C                       | 2H/2C                 | EN/DIS             | 1-Stage A/C with or w/o Elec. Heat    | ECONWM Factory "T" or "W" Economizer w/JADE W7220 Control | On/Off            |
| 4                  | A/C          | THO, THOC                             | A/C                       | 2H/2C                 | EN/DIS             | 2-Stage A/C with or w/o Elec. Heat    | EIFM Factory "E" Economizer w/W7459 Control               | On/Off            |
| 5                  | A/C          | THO, THOC                             | A/C                       | 2H/2C                 | EN/DIS             | 2-Stage A/C with or w/o Elec. Heat    | ECONWM Factory "T" or "W" Economizer w/JADE W7220 Control | On/Off            |
| 6                  | HP           | THO, THOC                             | HP                        | 1 Stage               | None               | 1-Stage HP with or w/o Elec. Heat     | CRV, ERV, MFAD  | On/Off            |
| 7                  | HP           | THO, THOC                             | HP                        | 2 Stage               | None               | 2-Stage HP with or w/o Elec. Heat     | CRV, ERV, MFAD  | On/Off            |
| 8                  | HP           | THO, THOC                             | HP                        | 1 Stage               | EN/DIS             | 1 & 2-Stage HP with or w/o Elec.      | EIFM Factory "E" Economizer w/W7459 Control               | On/Off            |
| 9                  | HP           | THO, THOC                             | HP                        | 1 Stage               | EN/DIS             | 1-Stage HP with or w/o Elec. Heat     | ECONWM Factory "T" or "W" Economizer w/JADE W7220 Control | On/Off            |
| 10                 | HP           | THO, THOC                             | HP                        | 2 Stage               | EN/DIS             | 2-Stage HP with or w/o Elec. Heat     | EIFM Factory "E" Economizer w/W7459 Control               | On/Off            |
| 11                 | HP           | THO, THOC                             | HP                        | 2 Stage               | EN/DIS             | 2-Stage HP with or w/o Elec. Heat     | ECONWM Factory "T" or "W" Economizer w/JADE W7220 Control | On/Off            |
| 12                 | Gas/Electric | THO, THOC                             | A/C                       | 1H/1C                 | None               | 1-Stage A/C with Gas Heat             | CRV, ERV, MFAD  | On/Off            |
| 13                 | Gas/Electric | THO, THOC                             | A/C                       | 1H/2C                 | None               | 2-Stage A/C with Gas Heat             | CRV, ERV, MFAD  | On/Off            |
| 14                 | Gas/Electric | THO, THOC                             | A/C                       | 1H/1C                 | EN/DIS             | 1-Stage A/C with Gas Heat             | EIFM Factory "E" Economizer w/W7459 Control               | On/Off            |
| 15                 | Gas/Electric | THO, THOC                             | A/C                       | 1H/2C                 | EN/DIS             | 2-Stage A/C with Gas Heat             | EIFM Factory "E" Economizer w/W7459 Control               | On/Off            |
| 16                 | I-TEC HP     | THO, THOC                             | HP                        | 2 Stage               | None               | 2-Stage HP with or w/o Elec. Heat     | None  | On/Off            |
| 17                 | I-TEC HP     | THO, THOC                             | HP                        | 2 Stage               | None               | 2-Stage HP with or w/o Elec. Heat     | CRV, ERV  | On/Off            |
| 18                 | I-TEC HP     | THO                                   | HP                        | 2 Stage               | None               | 2-Stage HP with or w/o Elec. Heat     | Modulating ERV, use –THO plus 8403-067 CO2 controller     | Modulating        |
| 19                 | Q-TEC QA     | THO, THOC                             | A/C                       | 2H/1C                 | None               | 1-Stage A/C with or w/o Elec. Heat    | CRV, ERV  | On/Off            |
| 20                 | Q-TEC QH     | THO, THOC                             | HP                        | 1 Stage               | None               | 1-Stage HP with or w/o Elec. Heat     | CRV, ERV  | On/Off            |
| 21                 | QWS          | THO, THOC                             | HP                        | 2 Stage               | None               | 2-Stage Geo/Water Source HP           | CRV, ERV  | On/Off            |







**Note A;** Either THO or THOC version can be used. For THO the vent output "A" limits vent operation to Occupied periods. For THOC the vent output "A" operates vent based on CO2 level.


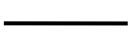
**Wiring Diagram 1:** Conventional 1H/1C, 1H/2C, 2H/1C, or 2H/2C, with or without dehumidification and ventilation.



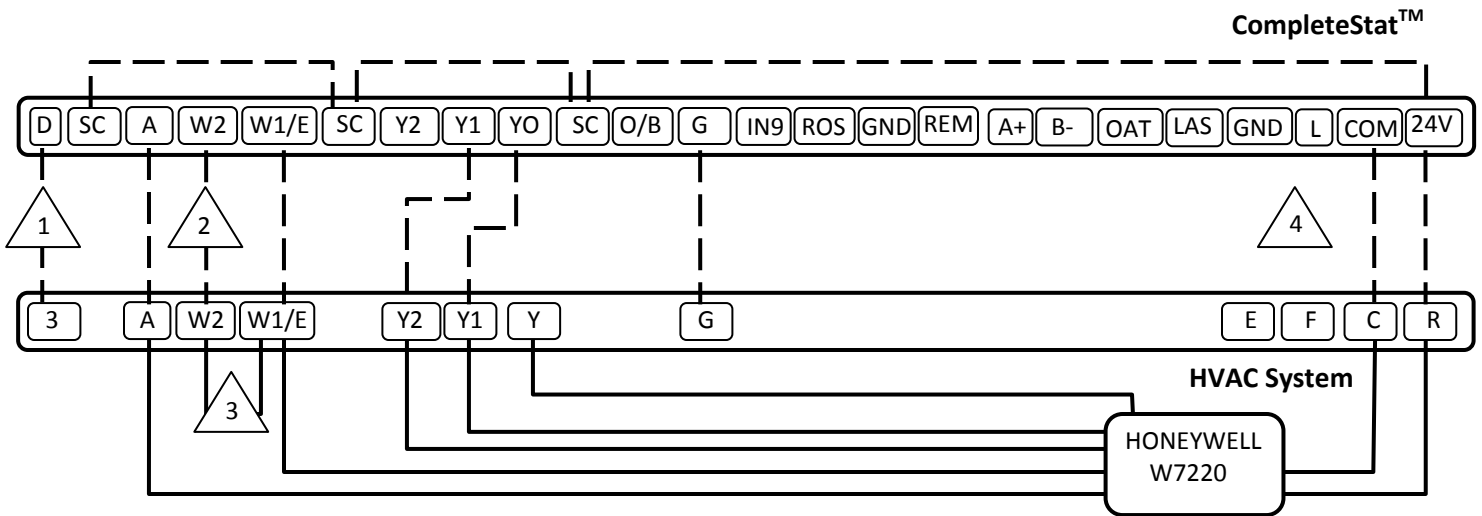
**Wiring Diagram 2:** Conventional 1H/1C, 2H/1C with Honeywell W7459A Control Economizer, with or w/o dehum.



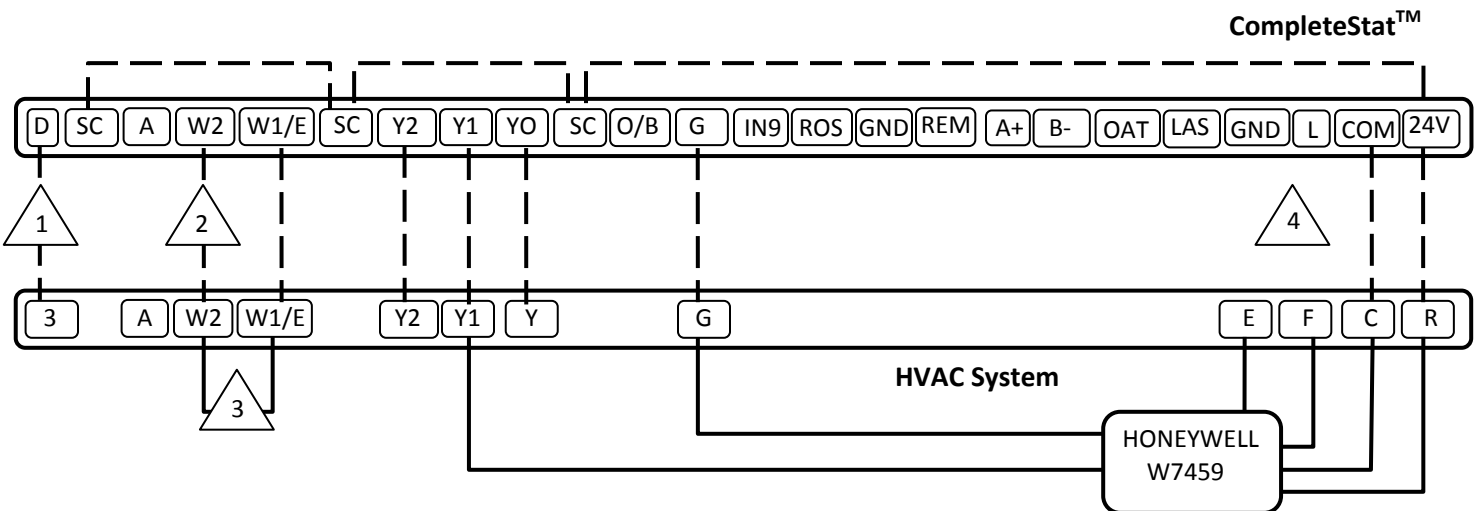
-  1 Wire for Dehumidification Units Only
-  2 Wire only for 2-Stg. Heating, if available (15kW or more)
-  3 Remove jumper for 2-Stg. heat (15kW or more)
-  4 Wire only for 2-Stg. Cooling, if available
-  5 Wire not used on MFAD Ventilation option
-  6 CompleteStat programmed for Damper/Economizer: EN/DIS

-  Field-installed wires and jumpers
-  Factory-installed wires and jumpers

**Wiring Diagram 3:** Conventional 1H/1C, 2H/1C with Honeywell W7220 Jade™ Control Economizer, with or w/o dehum.



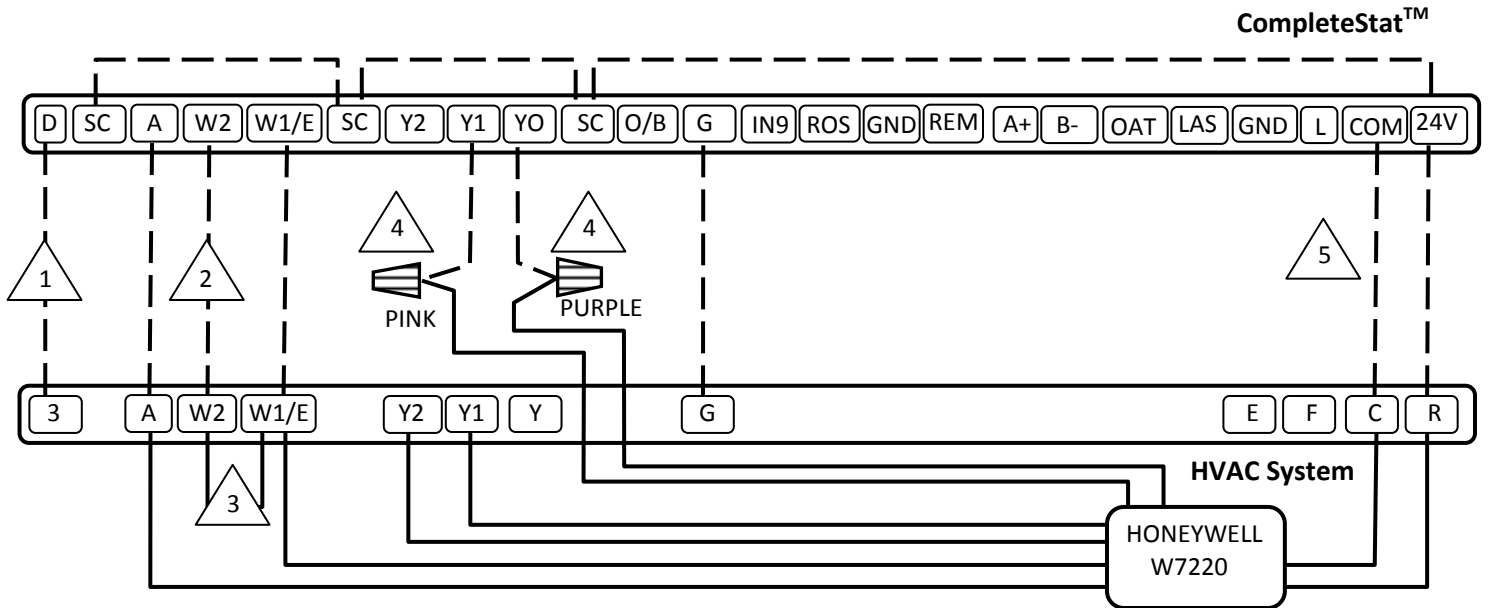
**Wiring Diagram 4:** Conventional 1H/2C, 2H/2C with Honeywell W7459A Control Economizer, with or w/o dehum.



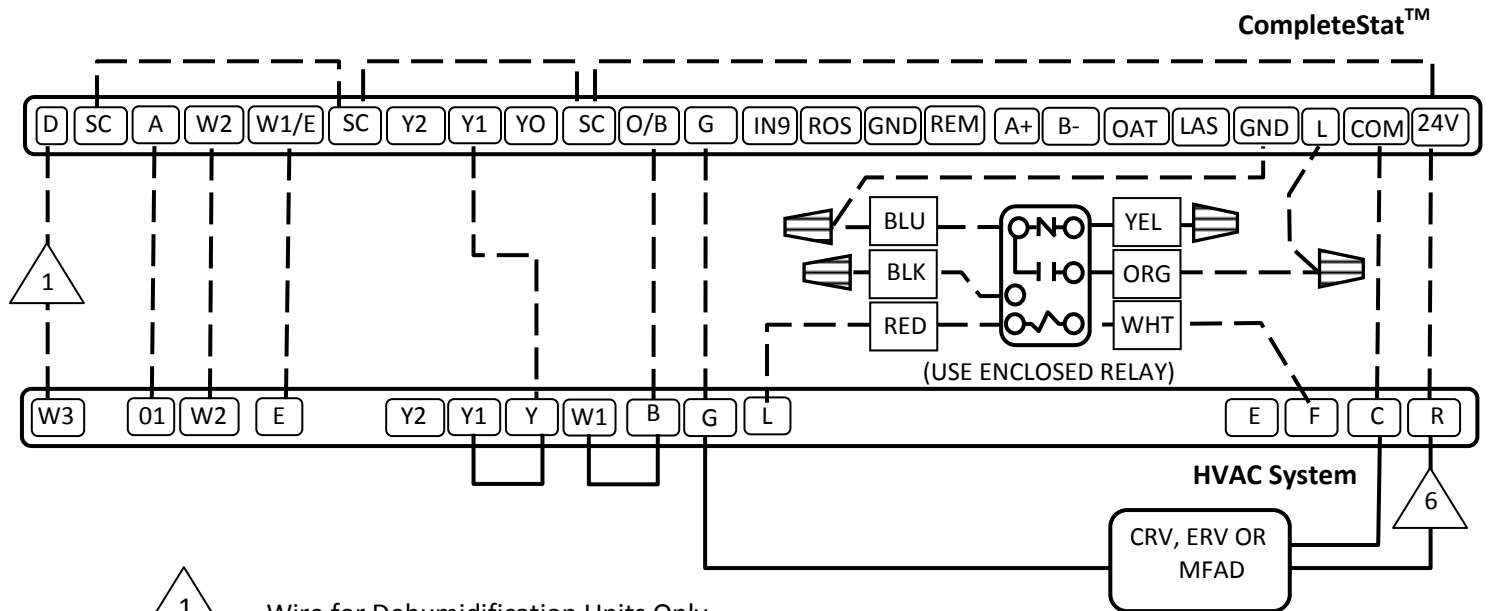
- △ 1 Wire for Dehumidification Units Only
- △ 2 Wire only for 2-Stg. Heating, if available (15kW or more)
- △ 3 Remove jumper for 2-Stg. heat (15kW or more)
- △ 4 CompleteStat programmed for Damper/Economizer: EN/DIS

- Field-installed wires and jumpers
- Factory-installed wires and jumpers

**Wiring Diagram 5:** Conventional 1H/2C, 2H/2C with Honeywell W7220 Jade™ Control Economizer, with or w/o dehum.



**Wiring Diagram 6:** Heat Pump 1-Stage, with or without dehumidification and ventilation.



Wire for Dehumidification Units Only



Wire only for 2-Stg. Heating, if available (15kW or more)



Remove jumper for 2-Stg. Aux. heat (15kW or more)



Field-Installed Wire Nut



CompleteStat programmed for Damper/Economizer: En/Dis



Wire not used on MFAD Ventilation option

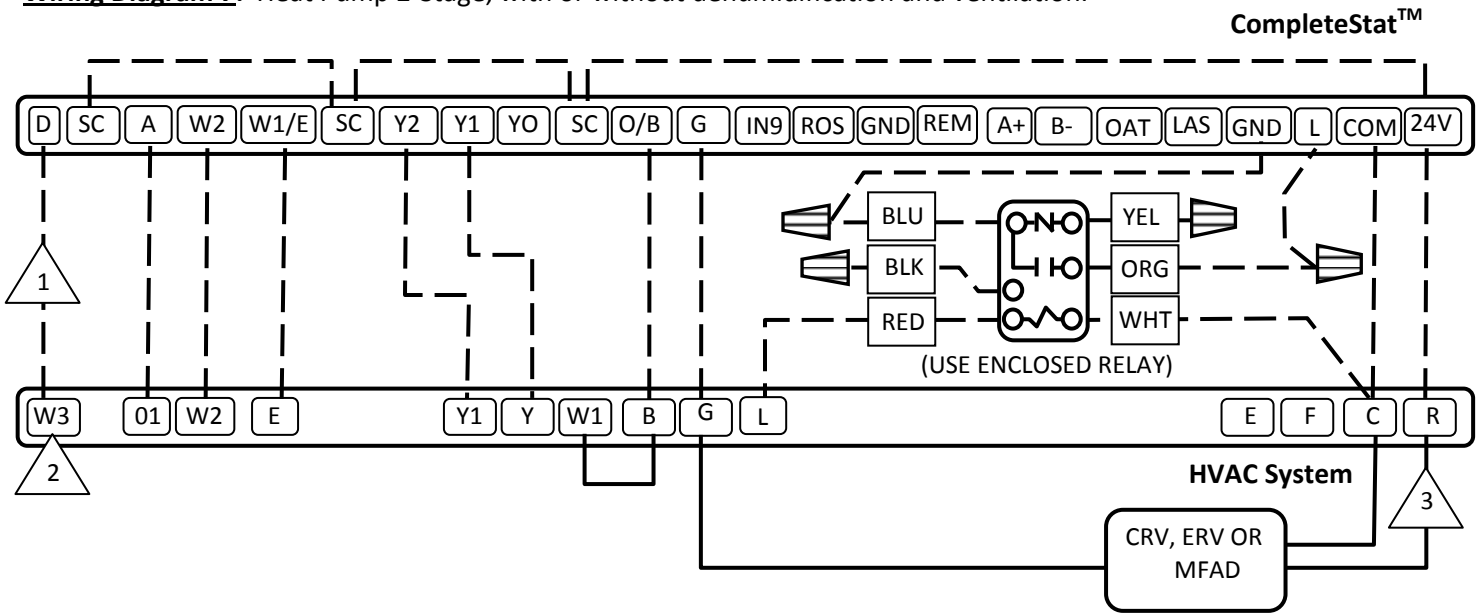


Field-installed wires and jumpers

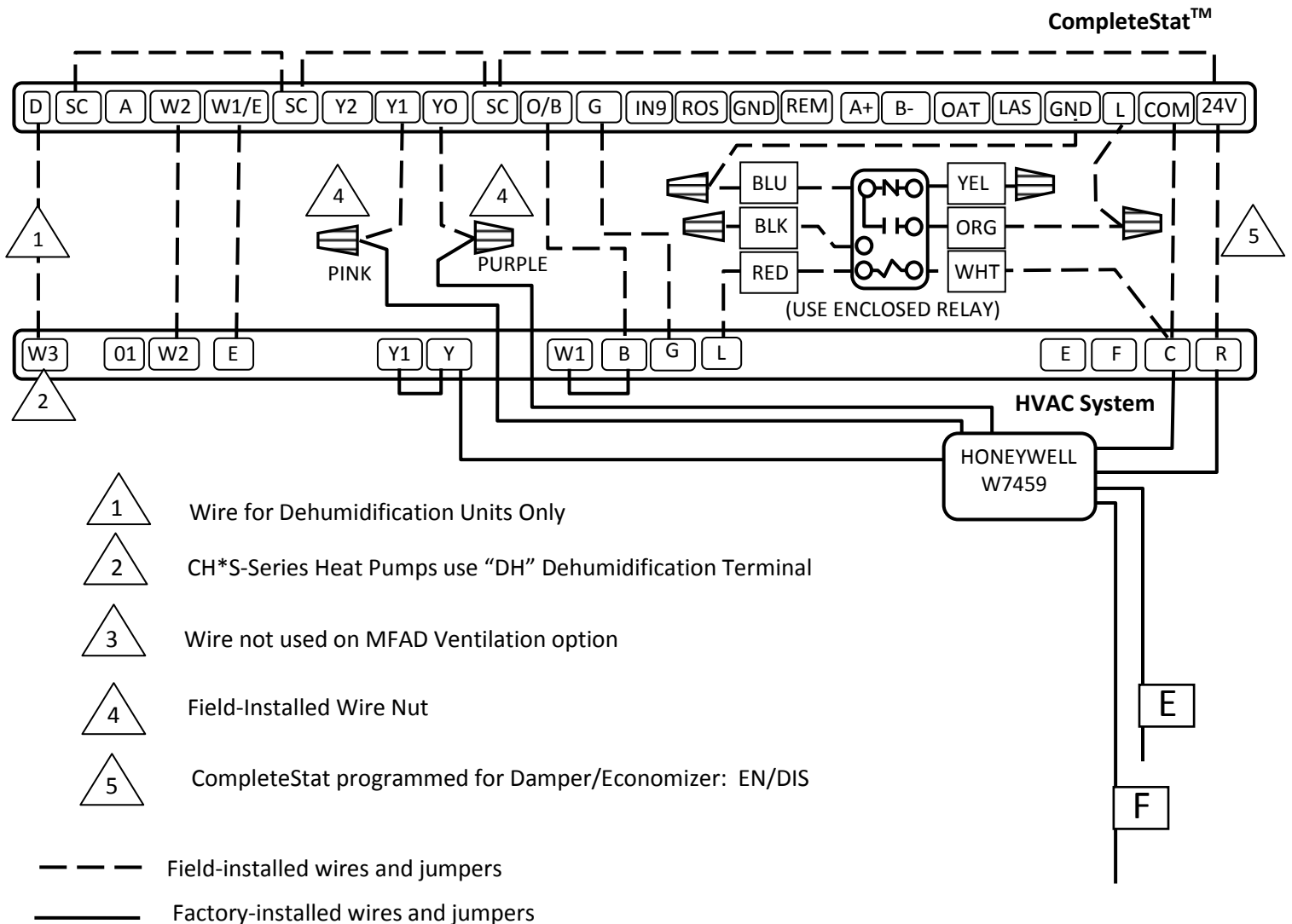


Factory-installed wires and jumpers

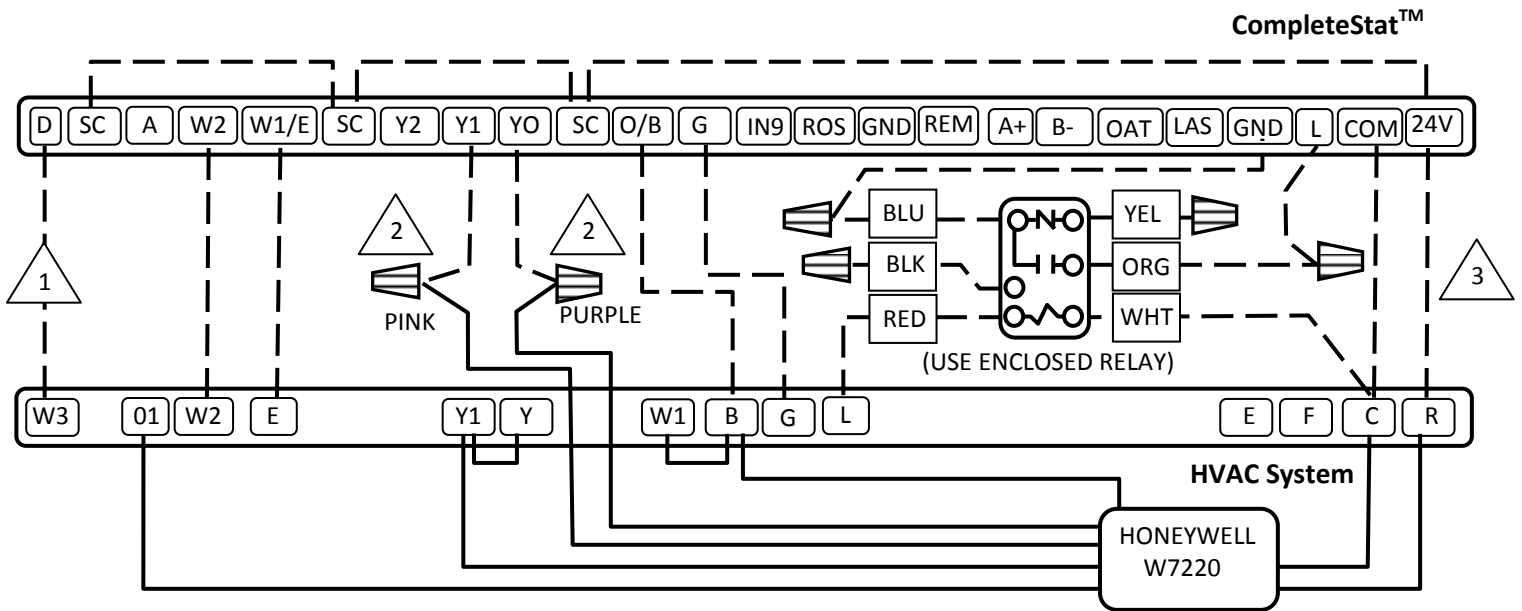
**Wiring Diagram 7:** Heat Pump 2-Stage, with or without dehumidification and ventilation.



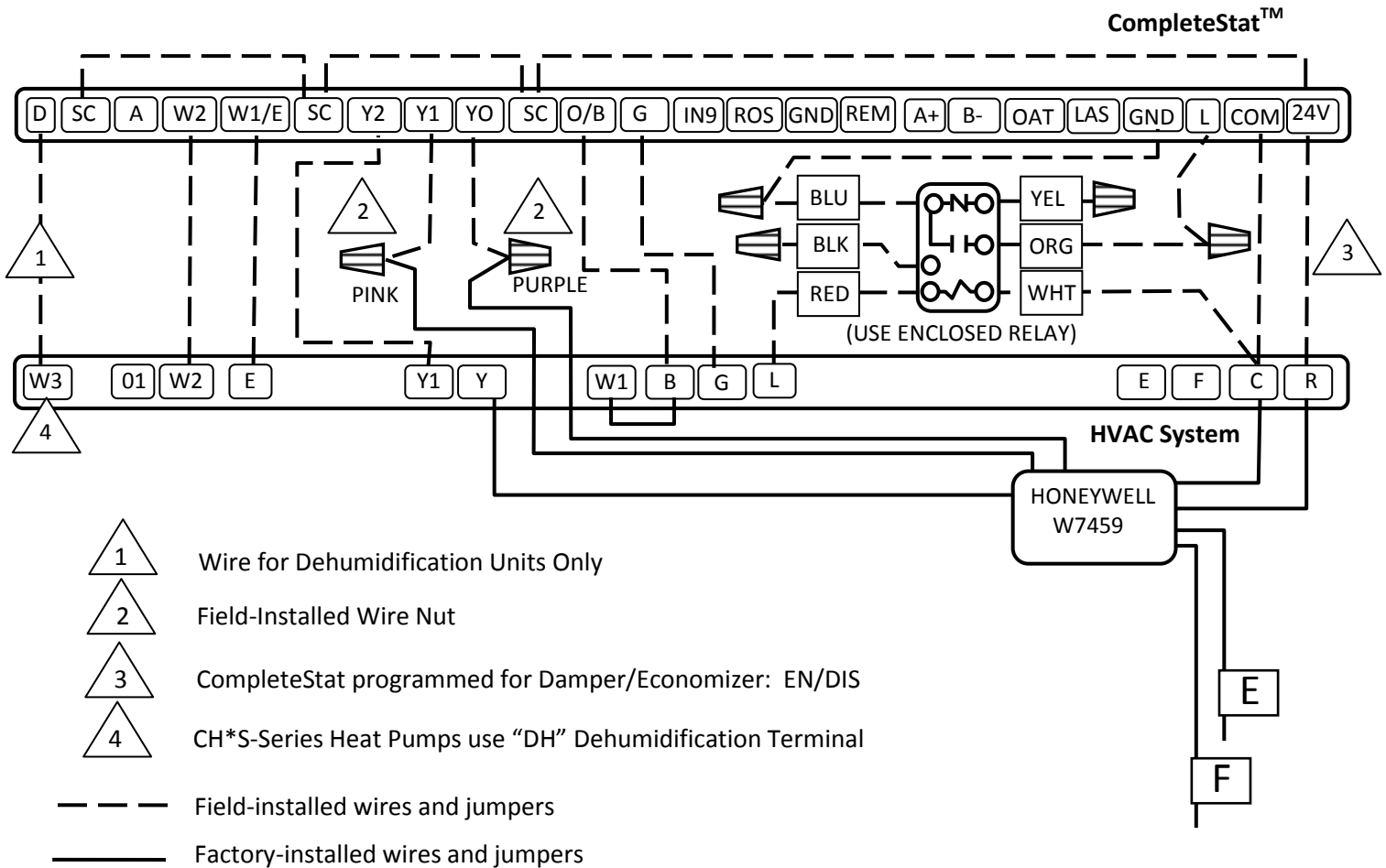
**Wiring Diagram 8:** Heat Pump 1-Stage, with Honeywell W7459A Control Economizer, with or w/o dehum.



**Wiring Diagram 9:** Heat Pump 1-Stage, with Honeywell W7220 Jade™ Control Economizer, with or w/o dehum.



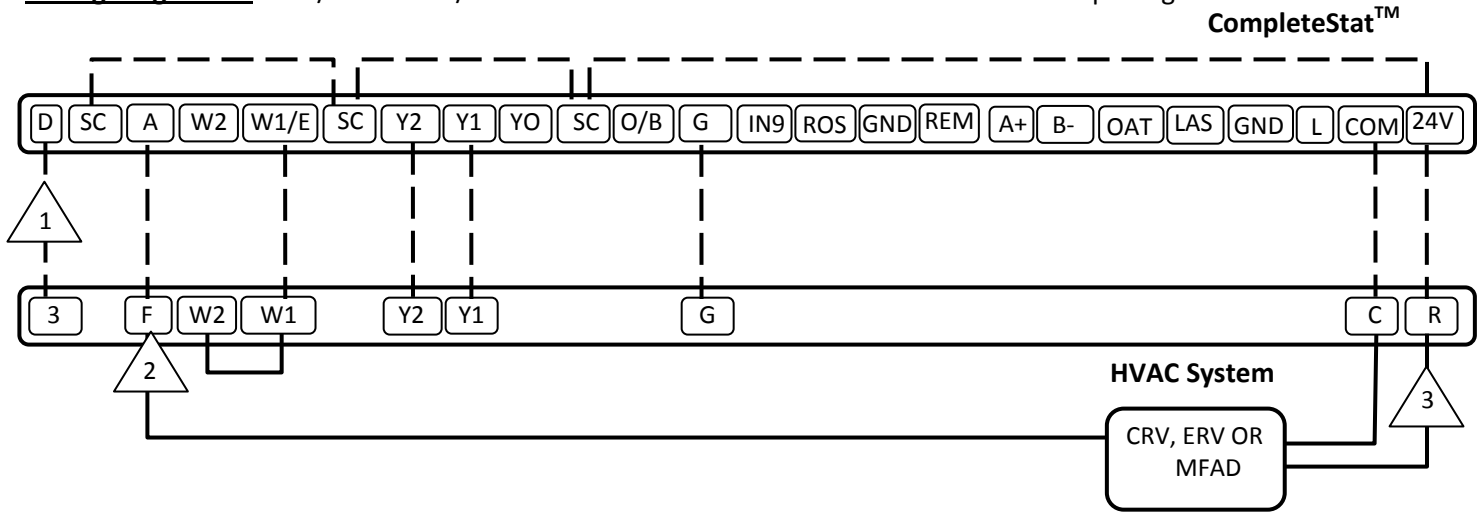
**Wiring Diagram 10:** Heat Pump 2-Stage, with Honeywell W7459A Control Economizer, with or w/o dehum.



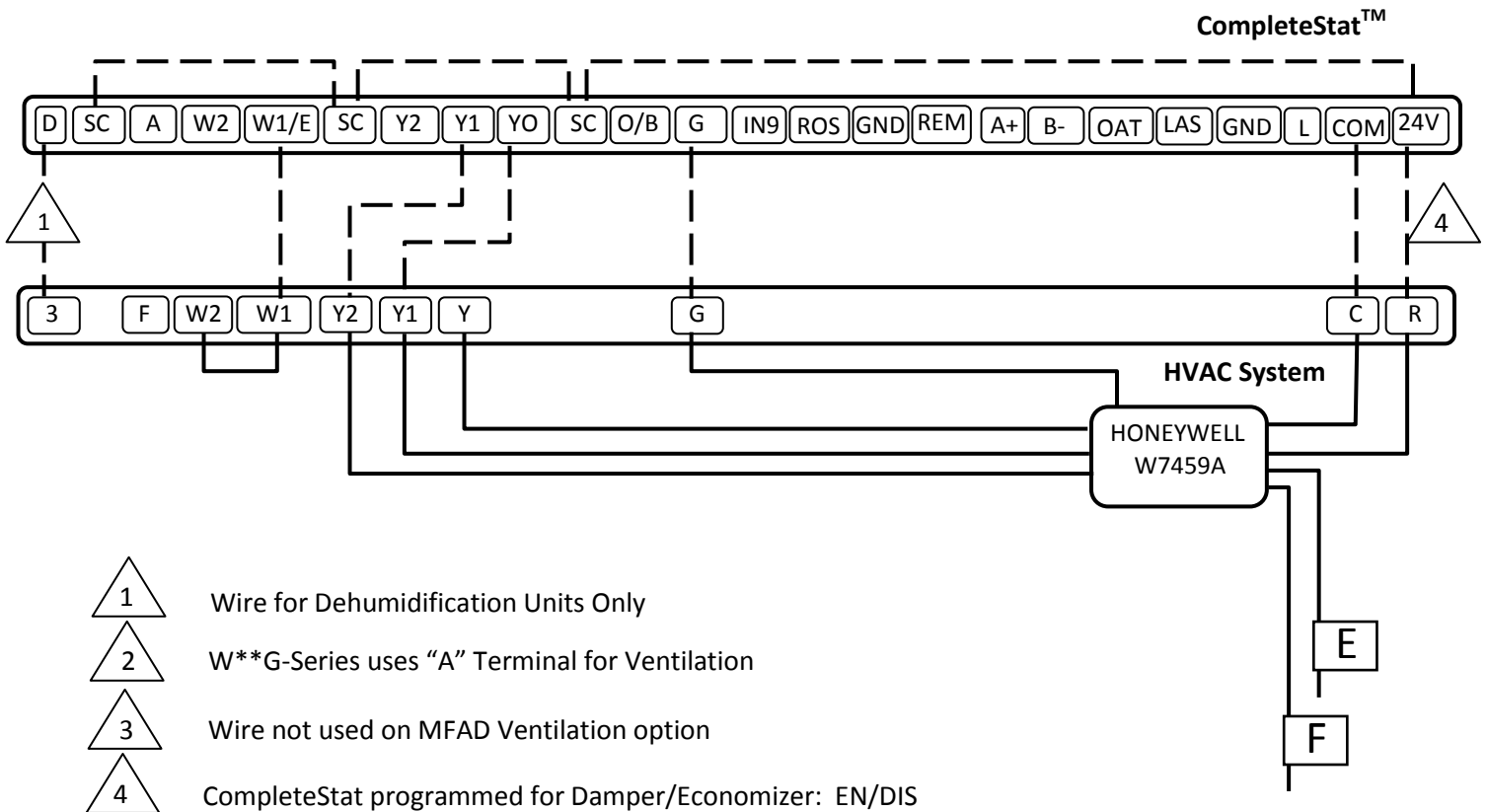










**Wiring Diagram 13:** Gas/Electric 1H/2C with or without dehumidification and ventilation package

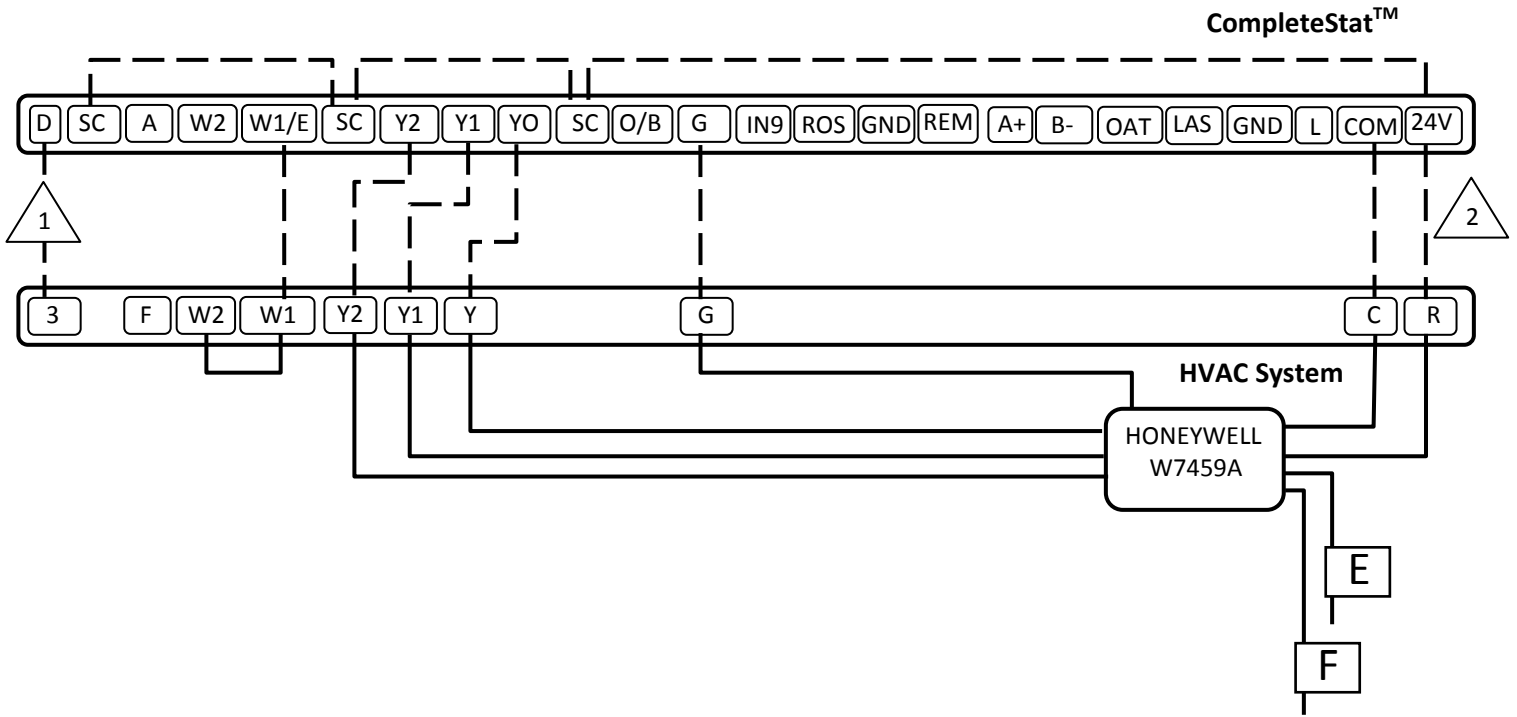


**Wiring Diagram 14:** Gas/Electric 1H/1C with Honeywell W7459A Control Economizer, with or w/o dehum.

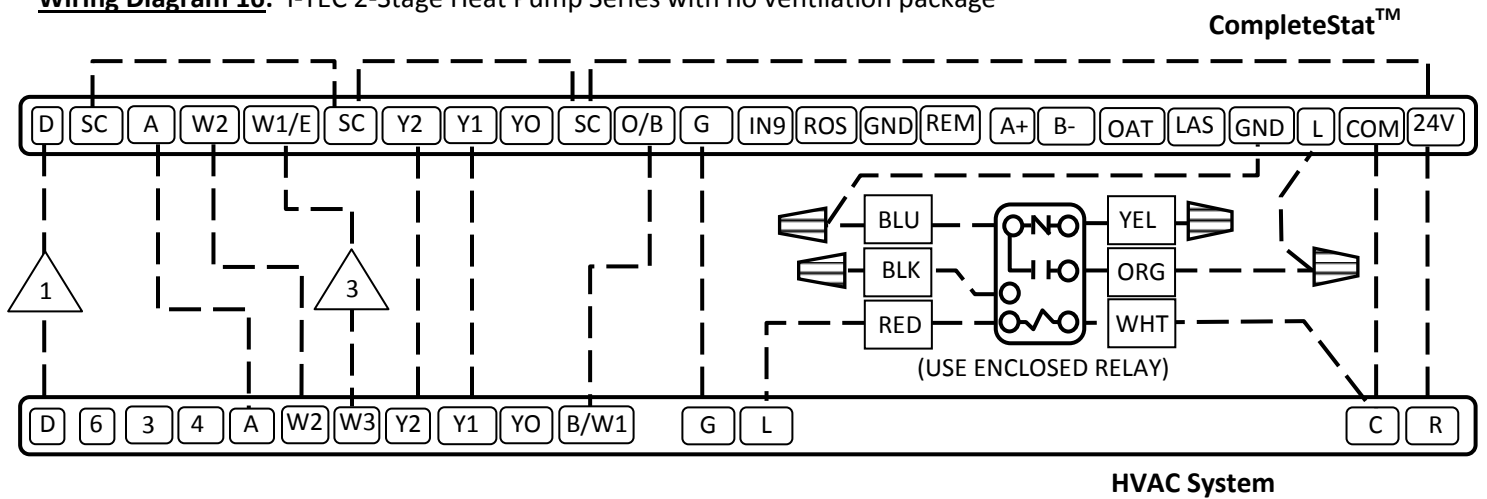


-  Wire for Dehumidification Units Only
-  W\*\*G-Series uses "A" Terminal for Ventilation
-  Wire not used on MFAD Ventilation option
-  CompleteStat programmed for Damper/Economizer: EN/DIS
-  Field-installed wires and jumpers
-  Factory-installed wires and jumpers

**Wiring Diagram 15:** Gas/Electric 1H/2C with Honeywell W7459A Control Economizer, with or w/o dehum.



**Wiring Diagram 16:** I-TEC 2-Stage Heat Pump Series with no ventilation package



Wire for Dehumidification Units Only



CompleteStat programmed for Damper/Economizer: EN/DIS

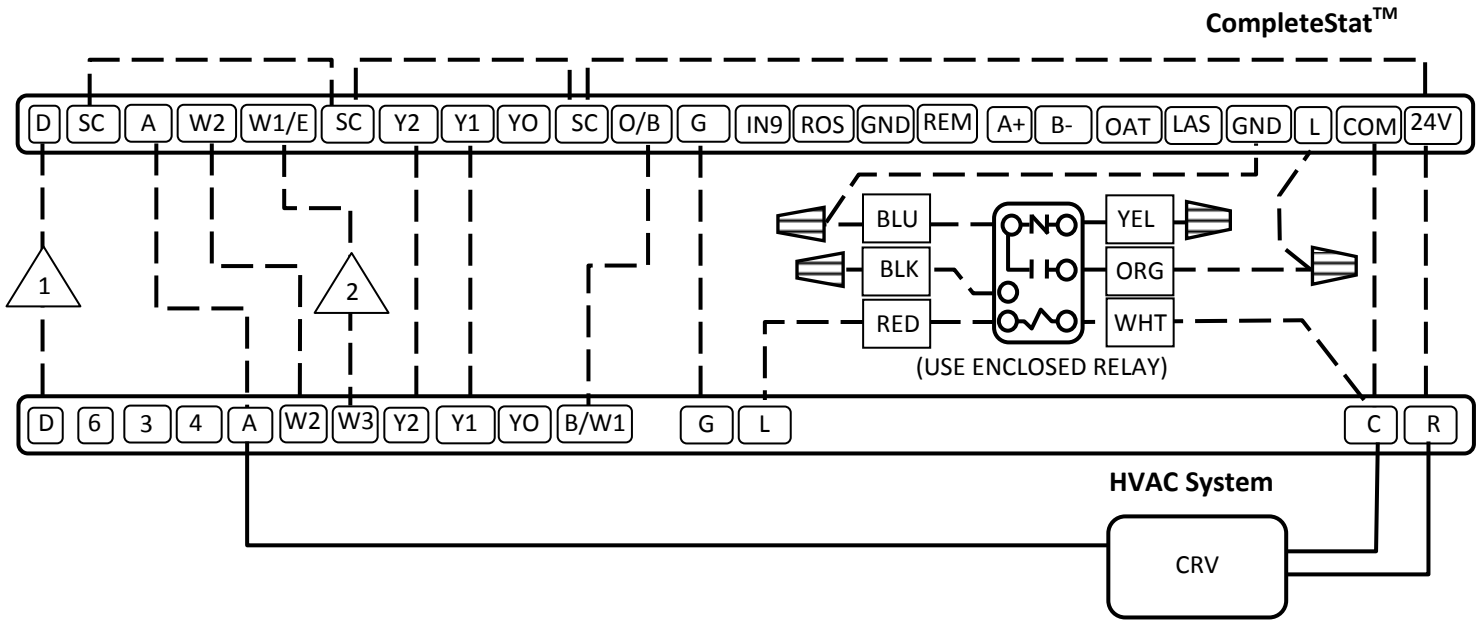


Wire not needed if Aux. Heat Strip is 10kW or less

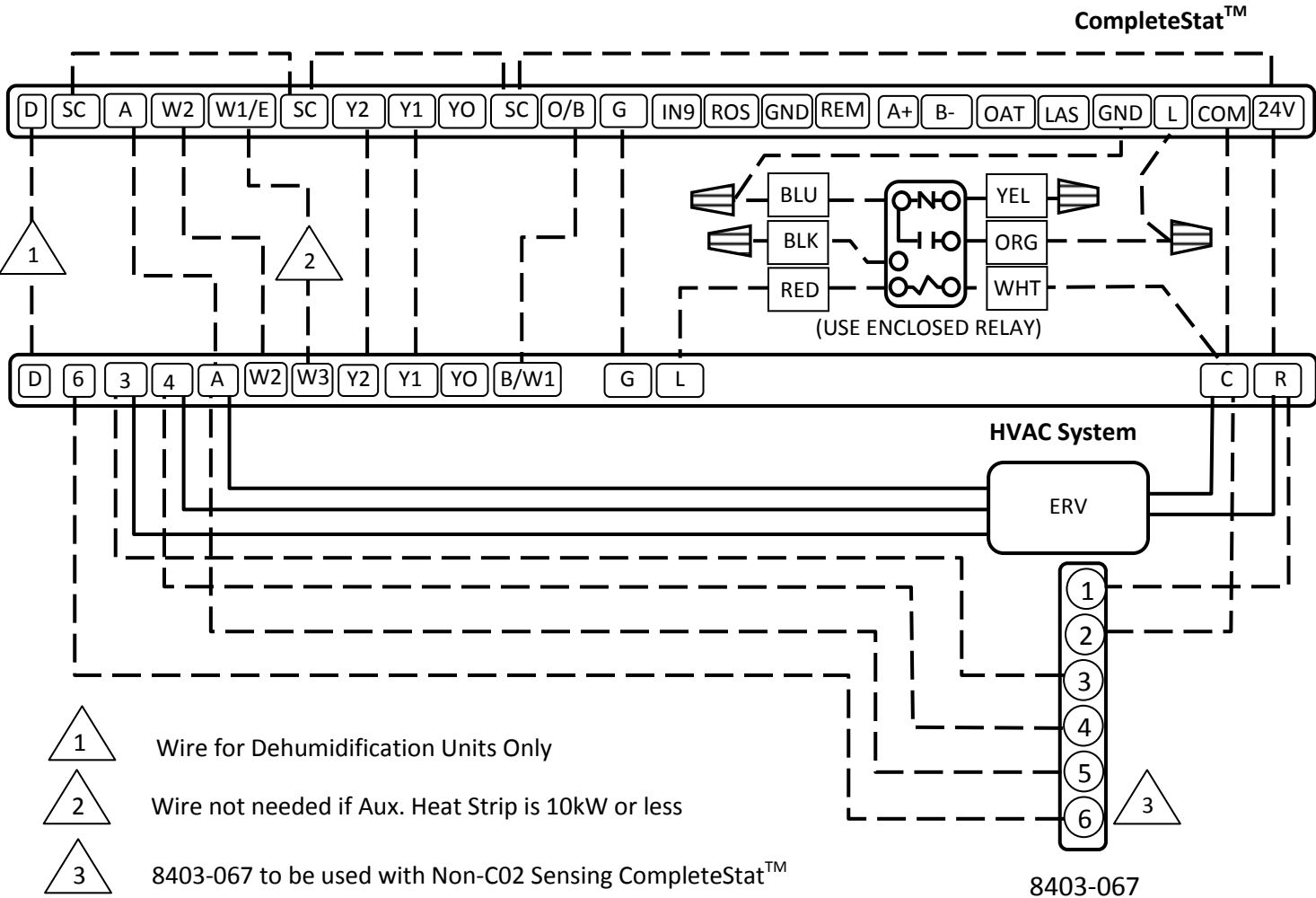
--- Field-installed wires and jumpers




— Factory-installed wires and jumpers

**Wiring Diagram 17:** I-TEC 2-Stage Heat Pump Series with CRV ventilation package



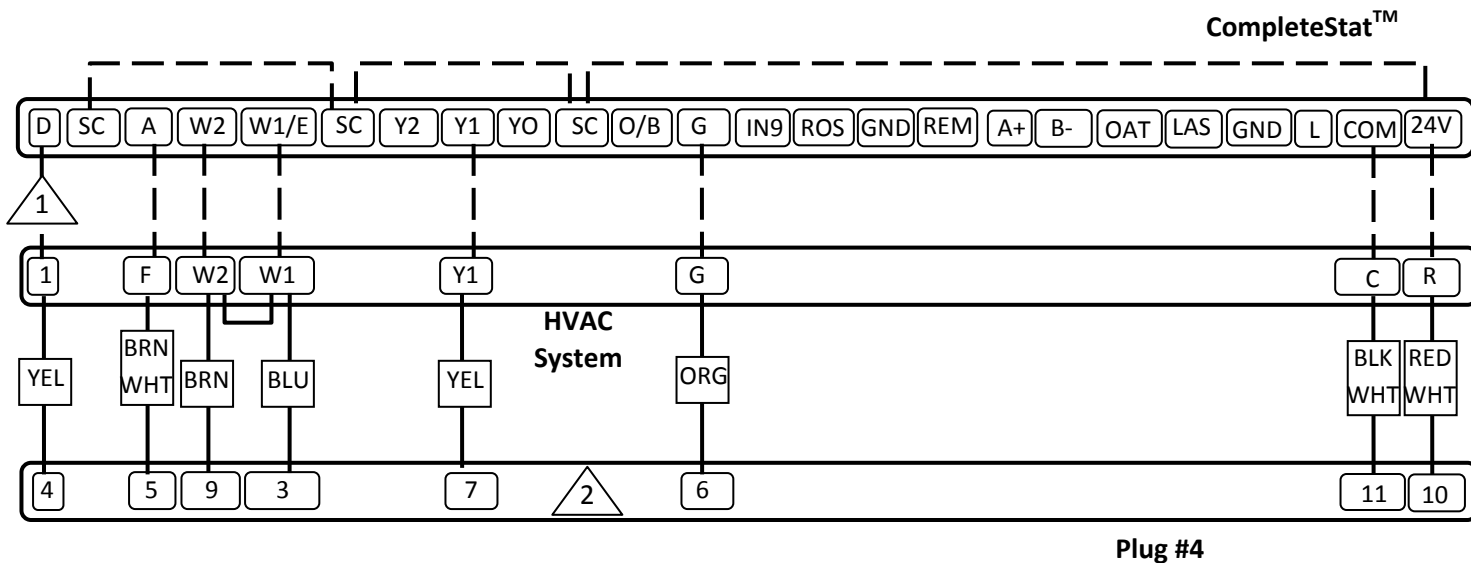
**Wiring Diagram 18:** I-TEC 2-Stage HP Series with ERV ventilation package & 8403-067 CO<sub>2</sub> Detector (fully modulating)



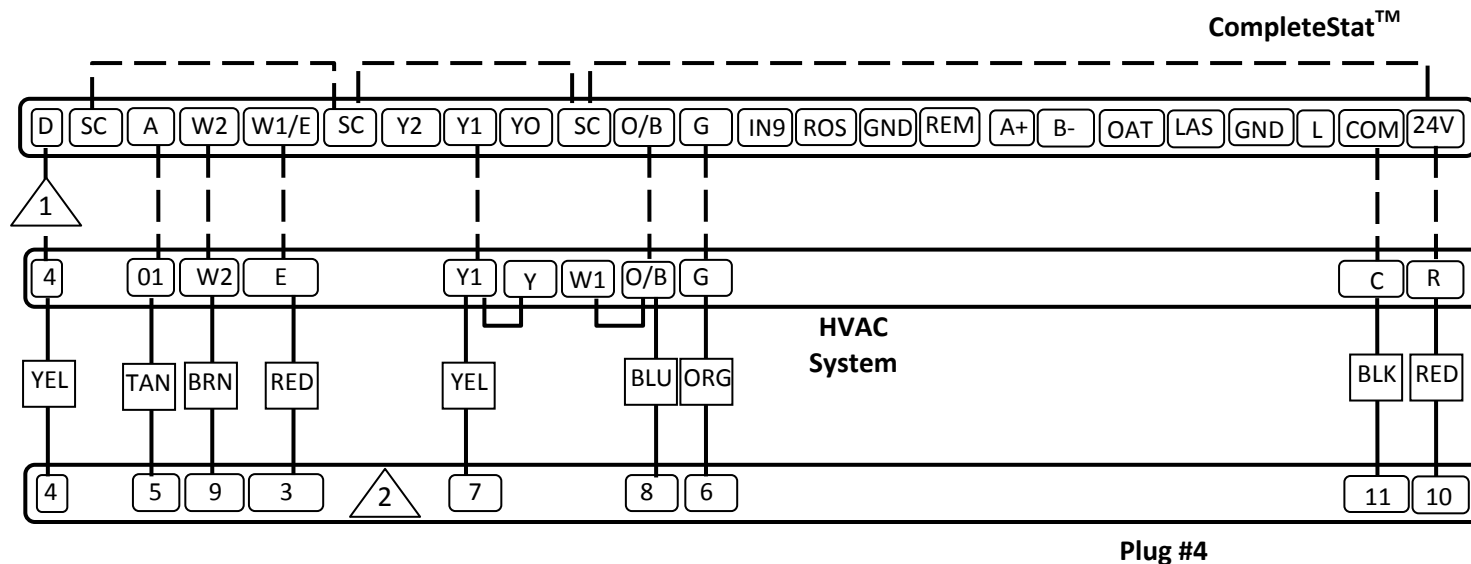
-  1 Wire for Dehumidification Units Only
-  2 Wire not needed if Aux. Heat Strip is 10kW or less
-  3 8403-067 to be used with Non-CO<sub>2</sub> Sensing CompleteStat™

--- Field-installed wires and jumpers  
 ——— Factory-installed wires and jumpers

**Wiring Diagram 19:** Q-TEC QA\*\*/Q\*\*A-Series 1-Stage Air Conditioners, with or without ventilation and dehumidification



**Wiring Diagram 20:** Q-TEC QH\*\*/Q\*\*H Series 1-Stage Heat Pump, with or without ventilation and dehumidification



Wire for Dehumidification Units Only

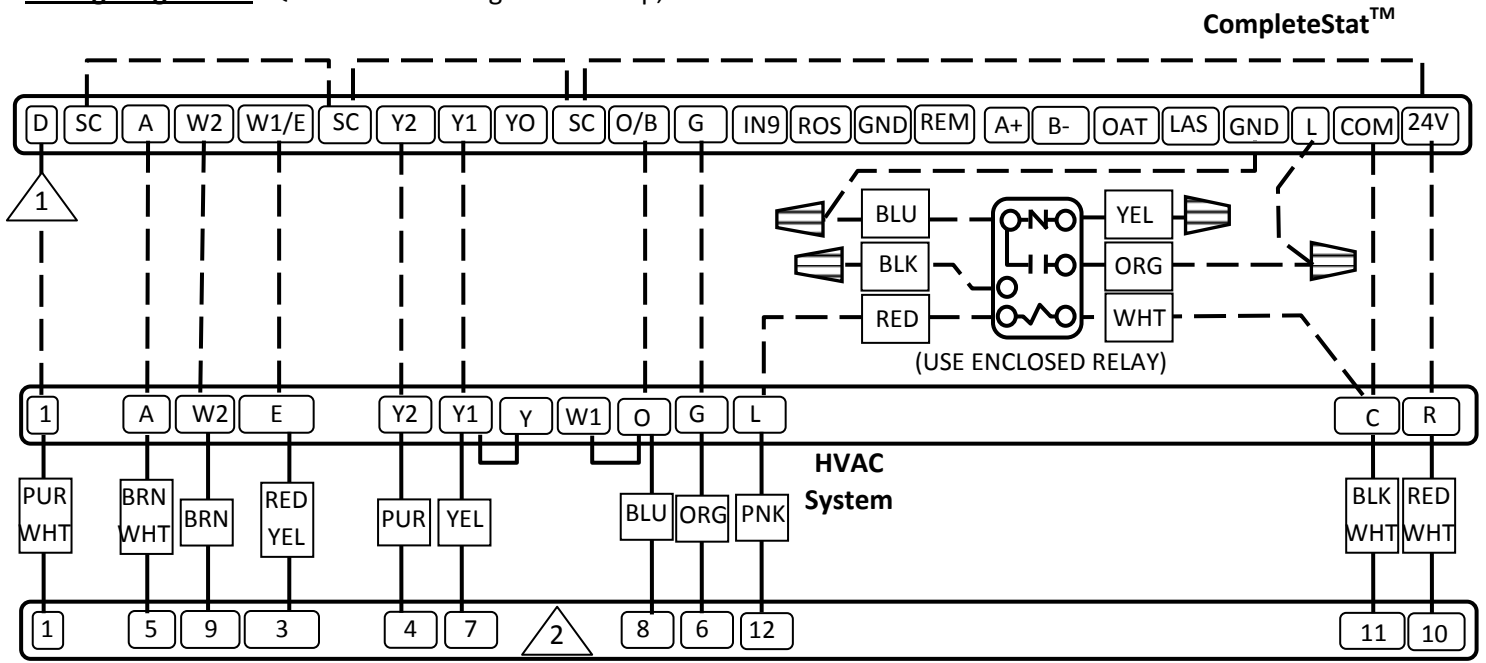


Q-Series with factory installed thermostat had no terminal board and were wired directly From Plug#4. Use provided colors to wire CompleteStat™



--- Field-installed wires and jumpers

— Factory-installed wires and jumpers

**Wiring Diagram 21:** QW\*S-Series 2-Stage Heat Pump, with or without ventilation and dehumidification



**Plug #4**

-  Wire for Dehumidification Units Only
-  Q-Series with factory installed thermostat had no terminal board and were wired directly From Plug#4. Use provided colors to wire CompleteStat™
- Field-installed wires and jumpers
- Factory-installed wires and jumpers

**Bard CompleteStat™** should be fully operational at this point. For further controller enhancement or operation detail, please consult the Advanced Programming section.