



\*There is no standard for which color wire controls each function. When wiring, each wire should be identified by what terminal(s) it connects, it may be necessary to go to the HVAC system and look at the designations on the control board. Consult your owners/install guide for wiring examples and systems compatible with your thermostat\*. The thermostat uses one wire to control the primary functions of your HVAC system, such as heating, cooling, and fan. See the diagram below for the role of each wire in your systems. S Indoor and Outdoor Wired SensorsY Compressor Stage 1 (Cooling)Y2 Compressor Stage 2 (Cooling)G FanC CommonU Humidifier, Dehumidifier, or Ventilator controlL/A A Input for heat pump faultO/B Reversing valve for Heat Pump systemsE Emergency HeatAux / W2 Heat Stage 2 (Heating)W Heat Stage 2 (Heating)R 24vac (Heating)R 24vac (Cooling transformer)Rc 24vac (Cooling transformer) \*Trade model thermostats must operate dual-fuel systems, which use a heat pump for the first 1 or 2 stages and a gas or oil furnace for backup/emergency heating. If you have a dual-fuel system, or are unsure, pause and contact a Professional HVAC Contractor. Follow the instructions below to guide you through basic wiring: To protect your equipment, turn off the power at the breaker box or switch that controls your heating and cooling. To confirm your system is off, change the temperature on your existing thermostat, so the system starts heating or cooling. If you dont hear or feel the system turn on within 5 minutes, the power is off. You can skip this step if you have a digital thermostat with a blank display. Next, remove your existing thermostat from the wall plate. Most thermostats pull directly off the wall. However, some lift from the bottom and lever off, and others have a locking tab. Take a picture of your wiring. Make sure the terminal markings are visible. Review your picture and confirm. Your new thermostat may not be directly compatible if you see terminals labeled A B C, or 1 2 3, as your system requires a communicating thermostat. If you see thick, black, or red wires, you have a line voltage thermostats. If you see wires connected to terminals labeled G1 G2 G3, you need a thermostat capable of controlling multiple fan speeds; none of our retail thermostats are compatible with this system type. G is compatible, but not G1, G2, or G3. You should typically see an 18-gauge solid core wire. The most common configuration is five wires. However, you could see as few as two and many as ten. Make a note of any present wire not connected to a terminal. Do not label these wires. Referring to your photo, remove and label each wire. If a terminal has multiple designations like W and O/B, it will be labeled as W and O/B and not just one or the other. After removing and labeling all wires, unscrew the old thermostats wall plate and mount the new thermostats wall plate and mount the new thermostats wall plate. plate. If we recommend placing a wire in a terminal, do not move it to another terminal if we address it later in the guide, you will not move this wire, as weve already instructed you to place it in O/B.)Now, lets cover wiring configurations.Identify any wires labeled R, RH, or RC. You typically have one or two of those three. If you have one wire even if its labeled RC it goes into the R terminal, setting the jumper connecting terminals R and RC in place. Thermostats may have a jumper switch, metal staple, or plug. The jumper may also be a wire connecting the two terminals. If you have two wires, R or RH go into the R terminal and RC into the RC terminal. If you have more than one wire (for example, you have a wire labeled R and another wire labeled Rc), remove any jumpers between the R and RC terminals or push the switch to open the RC terminal to insert a wire. Next, lets talk about the C or common wire. If you have a Trane model thermostat and a wire labeled X or B, refer to your thermostat manual. In some cases, one of those wires is your common. If you have a C wire, place it into the C terminal on your wall plate. C wire adapters are available here. Lets look at the G wire. This wire goes to the G terminal on your wall plate. new thermostat. Of the Y, Y1, and Y2 wires, Y or Y1 go to the Y terminal and Y2 to the Y2 terminal. The O/B wire can have many configurations. It can be W-O/B, O/B, W-O, W-B, or even separate O and B wires. If you have separate O and B wires, tape off the B wire so it doesn't make contact and connect the O wire to the O/B terminal. If your O or B terminal shares a label with another wire typically W identify whether you have a heat pump system or not. A heat pump runs your compressor for both heating and cooling. If you dont know your system type, place this wire in the W terminal. If you have a heat pump system, put it in the O/B terminal. Locate any unconnected wire labeled W or W1. If you identified an O, B, or O/B wire connecting to the O/B terminal in the previous step and it has a separate W wire, place it into the W2 terminal. Check your thermostat wiring compatibility. Was this article helpful? Yes No Thanks for your feedback!Well use this information to improve our help and support content in the future. Knowing how to wire a heat pump thermostat makes it easy to get your system running. This page includes a heat pump thermostat color code wiring diagram to assist you as you wire your single stage or 2 stage heat pump thermostat. It works for most brands including popular nest and Honeywell thermostats. First is the basic wiring diagram. Then different wiring setups are discussed such as using Emergency and/or Auxiliary heating and air conditioning. The heat pump wiring diagram shows the wiring colors to attach to each terminal. This is the most common wiring setup for a standard heat pump. Below is a list of wire colors and what they are used for in standard thermostat wiring for heat pumps. No, the colored housings are the same. But using a standardized list of wiring colors for each task the thermostat performs gives technicians and future users the same information to work with. Y Yellow: Cooling this wire energizes the control for the second heating/cooling stage. G Green: Fan this is for the blower in the air handler. R Red: 24 Volt Power Your air handler is powered by 110V, but it is converted to 24V for the thermostat. C Blue: Common wire for continuous 24 volt power from the thermostat to the air handler. E White (optional): Emergency Heat. Most heat pump air handler doesn't have heating strips, you wont have this wire or you wont need to use the white wire or wires. Aux White (optional): Auxiliary Heat. This powers heating strips too, if your air handler has them. But Aux is used in two scenarios. First, when the heat pump is working but cant keep up with extreme cold temperatures, the heating strips are energized to provide supplemental heat. Secondly, Aux is powered when extra heat is needed immediately, for example, if the thermostat setting is increased significantly, such as from 72F to 76F. O/B Orange or Dark Blue: If orange, the Reversing Valve is powered in Cool mode. The reversing valve is the valve that changes the direction of refrigerant flow, so that your system can switch from Cool to Heat mode. If dark blue, the thermostat is for one of the minority of heat pumps like Rheem or Ruud that power the Reversing Valve in Heat mode. Extras: Black and Brown wires remain for use if theres an issue with one of the terminals. They can also be used if you intend to use an outdoor temperature sensor and wire it all the way back to the thermostat. Wire the thermostat. Wire the thermostat using the same wiring colors and terminals on the old thermostat. If this is a new heat pump thermostat. Then take a new heat pump thermostat. If this is a new heat pump thermostat. picture of the connected wiring on the old thermostat before removing it. This ensures that the new thermostat will be wired the same terminals on the new unit. Its important because in rare cases, the old thermostat wiring colors and terminal combinations might be different (non-standard). To wire a single stage heat pump thermostat, connect these wiring colors to the K terminal White to the Aux terminal White to the Aux terminal White 2 to the E terminal White 2 to the Aux terminal White 2 to the E terminal White 2 to the E terminal White 3 to the Aux terminal White 4 to the Aux terminal White 4 to the Aux terminal White 5 to the E terminal is used for both Aux and Emergency heat. When the wires are jumped, the functions dont work independently. They are both either ON or OFF. Wiring tip: Use separate wires for Aux and E if they are provided by your heat pump installer, even if the old thermostat used a jump wire. If your heat pump is a 2 stage model, meaning it has low and high Heat and Cool modes, then youll need a 2 stage thermostat. A 2 stage thermostat has both a Y terminal (stage 1 cooling) and a Y2 terminal (stage 1 cooling) and a Y2 terminal (stage 2 cooling), and both terminals receive wires. While both wires are typically yellow, wiring colors may vary. \*Old thermostat replacement: Use the same color wires on Y and Y2 on the new thermostat as on the old. \*New installation: Use the thermostat wiring diagram provided in the heat pump Installation Manual every new heat pump comes with one. Or check our thermostat for any number of wires. Miswiring a thermostat may seem like a minor mistake, but it can lead to a range of issues with system. If the wires are connected incorrectly or if the wrong terminals are used, it can cause your heat pump to malfunction or even damage the system over time. Below are some common problems you may face if you miswire your thermostat: What Happens: If the thermostat wiring is incorrect, it may prevent the thermostat from receiving power or sending the correct signals to your HVAC system. This could result in your thermostat even when the system is powered on. Inability to change temperature settings or to switch between heating and cooling modes. Constantly running system or complete lack of operation. How It Happens: If the R (24V power) wire isnt correctly connected, the thermostat from completing the power circuit. Loose or misconnected wires to the terminals can cause the thermostat to stop working altogether. Solution: Ensure that the R and C wires are connected to their proper terminals, and check for any loose connections. What Happens: When the thermostat is miswired, the system may turn on and off rapidly, a condition known as short cycling. This occurs because the thermostat is receiving incorrect signals, confusing the system into thinking that its reaching the desired temperature when it isnt. What to Look For: Your HVAC system seems to turn on and off within a short time frame (a few minutes). The thermostat displays inconsistent or fluctuating readings that dont match the actual temperature in the room. How It Happens: A misconnection at the Y, Y2, or G terminals can lead to the system cycling inappropriately. For example, if the Y2 wire (stage 2 cooling) is connected incorrectly, the system may think it needs to activate the second cooling stage too early, leading to unnecessary cycles. A faulty G wire connection, which controls the fan, can cause the blower to run without the compressor, leading to short cycling. Solution: Verify that the wires connected to the Y, Y2, and G terminal, which controls the reversing valve, can cause your heat pump to fail when switching between heating and cooling modes. This means that your system may either stay stuck in one mode or fail to switch when needed. What to Look For: The system is stuck in either mostat setting on the thermostat setting or cooling mode, regardless of the thermostat setting. miswired, the thermostat may fail to send the correct signal to the reversing valve. This valve is responsible for reversing the refrigerant flow between heating mode, but wiring errors can cause the valve to remain in one position. Solution: Check the wiring for the O/B terminal and ensure it is connected to the right terminal for your system. Refer to the manufacturers wiring guide for clarification if necessary. What Happens: If your thermostat is wired incorrectly, the auxiliary or emergency heat feature may fail to engage when its needed most. This is especially important during colder months when the heat pump cant keep up with heating demands, and auxiliary heat should kick in. What to Look For: The thermostat fails to activate the auxiliary heat pump cant keep up. Emergency heat isnt engaged when the heat pump breaks down, leaving the home colder than expected. How It Happens: Miswiring the Aux and E terminals (for auxiliary and emergency heat as a single function, leading to inconsistent or nonexistent heat. If your heat pump uses separate wiring for auxiliary and emergency heat, both functions need to be wired independently to allow them to function as intended. Solution: Double-check that the Aux and E wires are jumped between the two. What Happens: If your thermostat is miswired, it might cause erratic or unresponsive temperature control, meaning the thermostat may fail to maintain the desired room temperature. This could lead to the home being too hot or too cold, or the system might not react to changes in the thermostat is set to a lower temperature. The thermostat displays fluctuating or incorrect temperatures despite no significant changes in the room. How It Happens: Incorrect wiring of the Y, Y2, or G terminals could cause the thermostat to send conflicting signals about the temperature setting. A faulty C wire connection could cause erratic behavior due to inconsistent voltag supply. Solution: Test each wire connection and ensure all terminals are correctly wired. You may also want to test the thermostat with a multimeter to ensure its receiving the proper signals. What Happens: In some cases, improper wiring can not only cause operational issues but may also damage your HVAC system. For example, if the wires are crossed or placed incorrectly, it can send faulty signals to components like the compressor, reversing valve, or fan motor. What to Look For: Unusual noises coming from the HVAC system, such as buzzing, clicking, or grinding. Components (like the compressor or fan) not turning on or operating at full capacity. The system feels unusually warm or cool, indicating malfunctioning parts. How It Happens: Connecting the wires to incorrect terminals can result in electrical short circuits or power surges that damage sensitive HVAC components. Overloading certain terminals with incorrect wires can cause excessive wear or even burn out components like the reversing valve or blower motor. Solution: If you suspect damage, immediately turn off the system and inspect all connections. If the issue persists or if youre unsure about the wiring, its best to contact an HVAC technician to inspect and 5-7 wires are the most commonly used. See the wiring colors above. Here are the most common options and their functions. 5 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt power, Heat, Cool, Fan, Common, jumped Aux and Emergency 7 wires: 24 volt po Common, Aux, Emergency and Outdoor temperature sensor 4 wires: Thermostats like nest, ecobee and smart Honeywell thermostats have smart thermostats also typically use 4 wires a Common, Power and two Communicating terminals. Nest and Honeywell 4-wire thermostats are not communicating thermostats. What wire should I use for a heat pump thermostat? The best choice is 18-8 wire. This means the wire is 18 gauge in thickness, which is pretty thin but adequate for thermostat use. And it has 8 separate wires within the housing. Even if you dont use all the wires, youll have extras if one of the wires fails and you have to substitute one of the extra wires for it. Does my heat pump use an O or B wire? Most heat pumps use the B wire and terminal for this purpose. What voltage is a heat pump thermostat? 24 volt power is used, converted from 110V that powers the air handler. Figuring out how to wire a Honeywell thermostat to the correct terminals on the new thermostat. Double-check the wire connections to ensure they match the correct terminals on the thermostat. Are you ready to take control of your homes temperature and enjoy the comfort of a well-functioning heat pump? Figuring out how to wire a Honeywell thermostat with a heat pump can seem daunting, but with the right guidance, its a manageable task. This comprehensive guide will walk you through the process step-by-step, equipping you with the knowledge and confidence to tackle this project. Understanding the Basics: Heat Pumps and Thermostats in your homes heating and cooling system. Heat Pumps: These are energy-efficient systems that transfer heat instead of generating it. They work by absorbing heat from the outside air (even in winter) and transferring it indoors for heating. In summer, they reverse the process, drawing heat from inside your home and releasing it outside. Honeywell Thermostats: These are control centers for your HVAC system. They monitor the indoor temperature, compare it to your setpoint, and send signals to the heat pump to adjust its operation. Essential Tools and Materials for the Wiring JobTo ensure a smooth and successful wiring process, gather these essential tools and materials: New Honeywell Thermostat: Choose a model compatible with your heat pump system. Wire Strippers: For safely removing insulation from wires. Wire Cutters: For neatly trimming wires. Voltage Tester: To verify power is disconnected before working on the wiring. Phillips Screwdriver: For opening the thermostat and accessing the wiring t process, ensuring clarity and safety:1. Power Down: Before touching any wires, turn off power to your HVAC system at the breaker box. Double-check with a voltage tester to confirm no electricity is present.2. Locate the Existing Thermostat: Identify the location of your current thermostat, typically near a doorway or hallway.3. Remove the Old Thermostat: Carefully detach the old thermostat from the wall. Take note of the wire colors. 5. Match Wires to the wire c Terminals: Connect the wires from the old thermostat to the corresponding terminals on the new thermostat. Heres a common wiring configuration for a heat pump system: Red Wire: Typically connected to the G terminal (fan). White Wire: Typically connected to the W terminal (heating). Orange Wire: Typically connected to the O terminal (auxiliary heating). Brown Wire: Typically connected to the C terminal (common). Note: The specific wire colors and terminal connections may vary depending on your heat pump system and Honeywell thermostat model. Consult the installation instructions for your specific model for accurate wiring information.6. Secure Connections: Tighten the screws on the terminals to ensure a secure the connections, if desired.7. Mount the Thermostat: Attach the new thermostat to the wall using the provided mounting plate and screws.8. Turn Power Back On: Carefully restore power to your HVAC system at the breaker box.9. Test the System: Turn the thermostat on and test all heating and cooling functions. Ensure the heat pump responds appropriately to temperature changes and that the fan operates correctly. Troubleshooting Common Wiring IssuesIf you encounter problems after wiring your Honeywell thermostat, here are some common issues and troubleshooting tips: No Power: Verify that power is connected at the breaker is not tripped. Incorrect Wiring: Double-check the wire connections to ensure they match the fuse or circuit breaker is not tripped. installation manual for your specific model.Faulty Thermostat: If the thermostat itself is malfunctioning, try replacing the battery or contacting Honeywell for support. Heat pump is not operating correctly, it may require professional service. Once youve successfully wired your thermostat, here are some additional tips for optimizing its performance: Programmable Features: Utilize the programmable features of your Honeywell thermostat to set different temperatures for various times of the day or days of the week. This can help save energy and improve comfort. Remote control and monitoring from your smartphone or tablet. Filter Reminders: Some Honeywell thermostat, such as automatic fan settings, temperature adjustments based on outdoor conditions, and programmable schedules. Congratulations! By following these steps, youve successfully wired your Honeywell thermostat with your heat pump. Now you can enjoy the comfort and additional tips. What You Need to Learn1. Can I wire a Honeywell thermostat myself, or do I need a professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its recommended to seek professional? While its possible to wire a Honeywell thermostat yourself, its possible to wire a Honeywell thermostat yourself, its possible to wire a Honeywell thermostat yourself, its possible to wire a a different wiring configuration? Consult the installation manual for your specific heat pump system and Honeywell thermostat typically last for 10-15 years, but factors like usage and environmental conditions can affect their lifespan. If your thermostat is malfunctioning or showing signs of wear, its time for a replacement.4. What are the benefits of using a Honeywell thermostat with a heat pump?Honeywell thermostat with a heat pump?Hone energy, and improve comfort.5. What if I encounter problems after wiring my thermostat? If you experience issues, double-check your wiring, consult the installation manual, and consider contacting a qualified HVAC technician for assistance. Understanding how to wire your Honeywell thermostat for a heat pump can seem like a daunting task, but it doesnt have to be. This guide will help you break down the process step-by-step. By the end, youll feel confident enough to tackle the installation yourself, saving you both time and money. Ready? Lets jump right in! The joy of learning is the best that can happen. Dont fear the wiring; embrace it! Before you begin wiring your Honeywell thermostat for your heat pump, it is important to gather the necessary tools and materials. Heres a quick list to help you prepare: Honeywell Thermostat: Ensure you have a compatible model for heat pumps. Screwdriver Set: A Phillips and flathead screwdriver will come in handy. Wire Strippers: These help you prepare the wires for connections. Drill: If you need to make new holes for mounting. Level: To ensure your thermostat is mounted straight. Tape Measure: For accurate placement. Electrical Tape: To secure wire connections. Before diving into the wiring, lets clarify what a heat pump is and how it operates. A heat pump is and how it operates. heat between the indoors and outdoors. Unlike traditional systems that rely solely on either heating or cooling, heat pumps are versatile and often more efficient. A thermostat, like those from Honeywell, acts as the command center, allowing you to adjust the indoor temperature according to your comfort needs. Correct wiring ensures that the thermostat functions effectively with the heat pump. Honeywell Heat Pump Thermostat Wiring: An Easy Guide 3 Heat pump systems configuration is vital to ensure proper installation. In a single-stage heat pump, you typically have just one heating and one cooling operation. The common wiring colors for a single-stage heat pump thermostat include: R or Rc (Red Wire): Power (24V) Y or Y1 (Yellow Wire): Reversing valve (for cooling mode, if Cooling signal G (Green Wire): Reversing valve (for cooling mode, if Cooling signal G (Creen Wire): Reversing valve (for cooling mode, if Cooling signal G (Creen Wire): Reversing valve (for cooling signal G (Creen Wire): Reversing valve (for cooling mode, if Cooling signal G (Creen Wire): Reversing valve (for cooling signal G (Creen Wire): Reversing valve (for cooling mode, if Cooling signal G (Creen Wire): Reversing valve (for cooling mode, if Cooling signal G (Creen Wire): Reversing valve (for cooling signal G (Creen Wire)) applicable) Multi-stage systems involve more than one compressor or fan, requiring additional wiring: R or Rc (Red Wire): First stage cooling W1 (White Wire): First stage heating W2 (White Wire): Second stage heating W2 (White Wire): Second stage heating G (Green Wire): Fan operation O (Orange Wire): Reversing valve (for heat mode) B (Blue Wire): Reversing valve (for cooling mode, if applicable) Honeywell Heat Pump Thermostat Wiring, its crucial to turn off the power to your heating and cooling systems to avoid any shocks or damage. Safety first! Screwdriver Wire stripper Drill (if needed) Voltage testerTurn Off Power: Safety first! Make sure to turn off the power to your heating and cooling system at the breaker box. Remove the Old Thermostat: Take off the faceplate of your old thermostat, carefully unscrewing any wires connected to it. Take note of each wires color and corresponding terminal. Match Your New Honeywell Thermostat: Identify the terminals on your Honeywell thermostat. You should see labels that correspond to the wires you just noted. Connect the Wires: Connect the Wires: Connect the Wires you just noted. theW1,W2wires based on your system type. Connect theGwire for the fan operation. Connect theO/Bwire to the reversing valve terminal. Fix the Thermostat onto the wall plate and secure it. Turn the Power Back On: Restore power to your heating and cooling system at the breaker box. Set the Thermostat: Configure your Honeywell thermostat according to the manufacturers instructions, and ensure it recognizes your heat pump system. Test the System: Switch between heating and cooling modes to ensure everything is functioning correctly. Heres a simple visual representation of what your wiring might look like: TerminalWire ColorFunctionRRedPower from the transformerYYellowCompressor (for cooling)WWhiteHeating (auxiliary heat)GGreenFanO/BOrange/BlueReversing valveEBrownEmergency heat (if applicable) If youre experiencing issues post-installation, you might encounter some common problems. Here are some troubleshooting tips: Thermostat not powering on: Check if the circuit breaker is off or if the wiring connections are secure. Heat not working: Ensure the W and Y wires are connected properly, and that the G/B terminal. Fan not functioning: Verify that the G/B terminal. Fan not functioning: Verify that the G/B terminal. wire is properly connected. No, always check compatibility. Some models are specifically designed for heat pumps. Check the thermostat specifications in the user manual or on the Honeywell website. At minimum, you will need a screwdriver, wire strippers, and electrical tape. Yes! Always turn off the power to avoid shocks and potential damage. If youre uncertain or uncomfortable, its best to consult a professional HVAC technician. Wiring your Honeywell thermostat for your heat pump can feel like a chore, but it can be straightforward and manageable. Keeping these tips in mind will enable you to tackle the installation with confidence! And remember, its always better to ask for help if youre feeling unsure. Your thermostat should regulate your homes climate efficiently, making it all worthwhile in the end. Now, go ahead and enjoy the comfort of your well-controlled space! About the Author Alan Williams Popular Posts By Alan Williams Upgrading or installing a new thermostat for your heat pump system can seem like a daunting taskespecially when you open up that wall panel and see a colorful maze of wires staring back at you. If youre dealing with a Honeywell thermostats are a great match for heat pumps. The trick is wiring it correctly. Whether youre replacing an old thermostat installing a smart model, or just want to understand your current setup better, this in-depth guide will walk you through everything you need to know about Honeywell thermostat wiring for heat pump systems. No fluffjust real, actionable guidance.Lets jump in.Why Heat Pump Thermostats Are DifferentBefore we get into the wiring, lets clear up a common misconception: not all thermostats are created equal, especially when it comes to heat pumps. Unlike traditional HVAC systems that have separate units for heating and cooling, a heat pump does both. It works by moving heat instead of generating itpulling warmth from outside air (even in winter) and moving it indoors. In the summer, it reverses that process and cools your home. Because of this dual-purpose functionality, heat pump systems require thermostats that can manage: Heating and cooling cyclesA reversing valve (to switch between heat and cool modes) Auxiliary heat (a backup heat source for very cold days) Emergency heat (manual backup if the heat pump fails) Regular thermostats usually cant handle all these responsibilities. Thats why Honeywell offers models designed specifically to work with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well with heat pumps. A Quick Overview of Honeywell has an excellent range of thermostats that work well well has an excellent thermostate the thermostates that work well well has an excellent thermostate thermostates the thermostates the thermostates thermostates the smart thermostats, theres an option for every type of user. Some popular models include: Honeywell T6 Pro A programmable, reliable thermostat designed for pros and DIYers alike. Honeywell VisionPRO 8000 Great for complex systems and Google Assistant. Honeywell T9 and T10 Pro Smart thermostats with room sensors, perfect for homes that need precise temperature zoning. The good news? Most of these thermostats are compatible with both standard HVAC systems and heat pumpsyou just need to wire and configure them correctly. Lets Talk Wires: Whats Behind the Wall? When you remove your old thermostat, youll likely see several wires coming out of the wall, each connected to a terminal on the thermostat base. These wires are usually color-coded, but the color alone is not enough to determine its functionyou must look at the label on the terminal it connected to a terminal on the thermostat base. and what they typically do:R or Rc Power from the 24V transformer (usually red wire)C Common wire, used to complete the circuit (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often orange)G Fan control (usually green)W or AUX Auxiliary heat (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often orange)G Fan control (usually green)W or AUX Auxiliary heat (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function, usually yellow)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function)O/B Reversing valve that switches between heating and cooling (often blue or black)Y Controls the compressor (cooling function)O/B Reversing valve that switches b white)E Emergency heat (sometimes brown or black)L System monitor light (used on some advanced systems)Keep in mind that not all systems use every wire. And in older homes or non-standard installations, wire colors may be totally different. Thats why its critical to label the wires based on their terminals before disconnecting anything. Step-by-Step Guide to Wiring a Honeywell Thermostat for a Heat PumpLets walk through how to wire a Honeywell thermostat to a heat pump systems. If youre unsure or dealing with a complex setup (like dual fuel), its always smart to call a professional.1. Turn Off the PowerFirst things firstshut off power to your HVAC system at the breaker. This is critical for safety and to avoid shorting out your equipment. Double-check that your old thermostat is no longer powered before touching any wires.2. Take a Picture of the Old WiringBefore disconnecting anything, take a clear photo of how the wires are currently connected to your old thermostat. This will be your lifeline if anything gets confusing later.3. Label the Wires Use masking tape or wire labels to mark each wire based on the terminal it connects to (e.g., Y, R, O/B, etc.). Dont just go by color!Unscrew the base of the old thermostat and carefully pull the wires through. Be sure not to let the wires fall back into the wallwrap them around a pencil or use a wire holder.5. Mount the New Thermostat BaseAlign the Honeywell thermostats base on the wall. Use a level if you want it perfectly straight. Drill pilot holes, insert wall anchors if needed, and screw the base securely to the wall.6. corresponding terminal on the new Honeywell thermostat. Heres how that might look for a basic heat pump system: R terminal (if present) Tighten each terminal C terminal (if present) Tighten each terminal C ter short.7. Attach the Thermostat FaceplateSnap the thermostat faceplate onto the base. If its a smart model, it may take a moment to power up.8. Turn the Power Back OnFlip the breaker back on and wait for the thermostat to light up.9. Configure the System SettingsThis is a key step: make sure to tell the thermostat that youre using a heat pump system. Most Honeywell models will walk you through a setup wizard that asks about: System type (select Heat Pump)Whether you have auxiliary or emergency heatReversing valve operation (O or B)If you configure this part incorrectly, your system wont work properlyso read your models manual carefully or check Honeywells website if youre unsure.Common Heat Pump Wiring ScenariosLets break down a few typical wiring scenarios you might encounter based on your system setup:Wires used: R, C, Y, G, O/BThis is the most basic heat pumps compressor for both heating and cooling, with no backup heat source.Wires used: R, C, Y, G, O/B, AUXWhen the outdoor temperature drops too low for the heat pump to operate efficiently, the auxiliary electric heat (sometimes called heat strips) kicks in automatically. Scenario 3: Heat Pump with Emergency Heat OptionWires used: R, C, Y, G, O/B, AUX, EThis setup allows you to manually activate emergency heat (usually via a button on the thermostat) if the heat pump fails.Scenario 4: Dual Fuel System (Heat Pump + Furnace)Wires used: Varies depending on systemDual fuel systems are more complex. They use a heat pump for moderate temps and switch to a gas furnace when it gets too cold. Not all thermostats support dual fuelmake sure yours does before attempting this setup.Troubleshooting: When Things Dont Work as ExpectedDont panic if your thermostat isnt behaving correctly after installation. Here are some common issues and how to fix them. Thermostats need it). Make sure power is restored at the breaker. Use a multimeter to verify 24V between the R and C terminals.System Blows Cold Air in Heat ModeThis usually means the reversing valve setting is incorrect. Some systems use the O signal to energize the valve in cooling mode; others use B for heating. Check your heat pump documentation or thermostat setup to fix this. Check your outdoor sensor, if installedit may be malfunctioning. Confirm that AUX setting is correct and not stuck on. Make sure the thermostat isnt set to Emergency Heat mode by mistake. Fan Wont Turn OnConfirm the G wire is connected and properly seated. Check system settings to see if the fan is set to Auto or On. Inspect blower motor fuse or relay in the air handler. Do You Need a C Wire? If youre installing a Wi-Fienabled Honeywell thermostat like the T9 or RTH9585WF, youll almost certainly need a C wire, to the thermostat. If your current setup doesn't have a few options: Use a Honeywell C-wire adapter (included with some models) Pull a new wire from your air handler (if accessible) Hire an HVAC pro to helpPro Tips to Make Installation EasierAlways take photos of your original wiring before disconnecting anything. Dont assume wire colorslabel them based on the terminal. Read the installation manual specific to your thermostat model. Use the Honeywell Home app for guided installation if your model supports it. Test each system mode (heat, cool, fan) after setup to make sure everything is working. Final Thoughts: A Smarter Way to Stay ComfortableWiring a Honeywell thermostat for a heat pump system might sound complicated at first, but its completely doable with a little patience and the right information. Once installed correctly, your Honeywell thermostat can help you enjoy year-round comfort, better energy efficiency, and even smart home integration. Just remember: wiring is only part of the process. Configuration matters just as much. Be sure to tell your thermostat exactly what kind of system you have so it knows how to control it properly. Still feeling unsure? Its perfectly okay to call a licensed HVAC technicianespecially if you have a dual-fuel setup or your wiring doesnt match standard conventions. When done right, a new thermostat can make a huge difference in your comfort, energy bills, and even peace of mind. Honeywell thermostats are built to work seamlessly with heat pumps, so once its wired and configured, you can sit back, relax, and enjoy a home that feels just rightwhether its 20F or 95F outside. You might also like, Ready to take charge of your homes comfort? Look no further! Our ultimate guide to Honeywell thermostat wiring is here to empower you. Say goodbye to confusion and hello to seamless installation or replacement. From single-stage simplicity to multi-stage mastery, weve got you covered. Honeywell Thermostat Wiring For Heat Pumps 2 Before we go into the actual wiring tutorials lets look at the honeywell thermostat wiring code just to familiarize yourself with the wire colors and the function. Wire ColorTerminalFunctionRedR/Rh/RcPower (24VAC)BlueCCommon (24VAC)BlueCCOM (24VAC 2)GreenGFan relayYellowY/Y1Compressor contactor (Stage 1)Light blue/ othersY2Compressor contactor (Stage 2)OrangeO/O/BReversing valve (Cooling/Heat Pump)BrownE/Aux/W2Emergency heatNot fixedUUnused Here are some notes on preparing your thermostat for wiring: 1. Turn Off Power: Ensure that the power to your heating and cooling system is turned off. This can usually be done by switching off the circuit breaker that controls the HVAC system. It is crucial to prevent any electrical accidents during the wiring process. 2. Remove Old Thermostat: Carefully remove the old thermostat from the wall. Take note of the wires connected to each terminal and their corresponding labels. 3. Take a Photo: Before disconnecting any wires, take a clear photo of the wiring configuration. This will serve as a reference during the installation of the Nest thermostat. 4. Label Existing Wires: If you are replacing an existing thermostat, label each wire according to its terminal designation. This will help you match the wires correctly to the corresponding terminals on your new thermostat. Read also: Honeywell AC not cooling 5. Secure the Wires: To prevent the wires from falling back into the wall, use a small piece of tape to secure them to the wall temporarily. Alternatively, you can use a pen or pencil to gently thread the wires through and secure them in place. 6. Mount the Nest Base: Install the Nest thermostat base on the wall using the provided screws and a screwdriver. Make sure it is securely mounted and level. Prepare Wires: If needed, strip the ends of the wires to expose a sufficient length for proper connection at least inches. Remove any excess insulation and ensure that the wire strands are neat and undamaged. Read also: Nest Thermostat that supports that type. There are also some thermostats that support only heat pumps. For example, you may only have 3 wires on your thermostat. Usually thermostats that support heat pumps only will not have the W terminal for heat. With a first stage heat pump system you will typically have 6 wires. These wires will include the Fan relay for controlling the fan, the O/B reverse valve responsible for switching between the heat and cool mode. However, with a single stage heat pump system you should only have 1 Y wire for the compressor relay. This wire is responsible for energizing the compressor. If your wiring comes with separate R wires (R and Rc) then connect both of them onto the separate thermostat terminals. However if you only have wire R wire, you are going to connect it to one of the terminals and put a jumper between them. For Honeywell pro series thermostats, If there is only one R wire, and it is connected to the R, Rc, or RH terminal, set the slider to the R terminal, set the slider to the down position (2 wires) Read also: Carrier Infinity Thermostat Wiring To Nest or Honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system This is also known as a 7 wire honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system This is also known as a 7 wire honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system This is also known as a 7 wire honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system This is also known as a 7 wire honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system This is also known as a 7 wire honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system This is also known as a 7 wire honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system This is also known as a 7 wire honeywell[Complete Guide] WireFunctionRPowerRcR+Rc joined by Jumper or Slider TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system TabYCompressor contactorC24VAC common0/BChangeover valveGFan relayWNot needed in heat pump system only 1 Y wire. This is the wire that controls the first stage compressor relay. In addition to the OB/ wire and R wires, you will have an Aux/E wire. The difference between the Aux and the E is that E can only be turned on manually while auxiliary heat turns on automatically in extreme weather conditions where the heat pump can not heat adequately. In case you have an L terminal, this is a heat pump fault input wire and is responsible for the indicator lights on your thermostat. Read also: Amazon Smart Thermostat. there are other problems with your heat pump system. The L wire is one responsible for controlling those indicator lights. WireFunctionRPowerRc[R+Rc joined by Slider Tab]YCompressor contactorC24VAC commonO/BChangeover valveG Fan relayAux/EAuxiliary heat/ Emergency heat relayLHeat pump fault inputWDo not use this terminal for heat pumpapplications! If you have a two stage heat pump system without secondary heating, you will have two Y wires that need to be connected. One wire is for the compressor contactor stage 2. WireFunctionRPowerRc[R+Rc joined by Slider Tab]YCompressor contactor stage 1 while the other for the compressor contactor stage 1. contactor (stage 1)C24VAC commonO/BChangeover valveGFan relayY2Compressor contactor (stage 2)LHeat pump fault inputWDo not use this terminal for heat pump with 2 stage heating with 2 compressor relay stage 2) In addition to this, you will need to have the AUX/W1 connected. This wire controls the heat steps or secondary heat. See how the wiring should be done in the chart below: WireFunctionRPowerRc[R+Rc joined by Slider Tab]YCompressor contactor (stage 1)C24VAC commonO/BChangeover valveGFan relayAux/EAuxiliary heat /heat relayY2Compressor contactor (stage 2)LHeat pump fault inputWDo not use this terminal for heat pumpapplications! Read also: Old Trane Thermostat [Full Guide] WireFunctionRR PowerRcRc [R+Rc joined by Slider Tab]YY Compressor contactor (stage 1)CC 24VAC commonO/BO/B Changeover valveG Fan relayAuxAuxiliary heatEEmergency heat relayY2Compressor contactor (stage 2 ifneeded)LHeat pump fault inputSS Outdoor sensorWW Do not use this terminal for heat pumpapplications! A typical 5 wire honeywell thermostat wiring for a furnace and air conditioner will have Y wire( for the air conditioner will have Y wire( for the air conditioner will have Y wire). are listed in the chart below. WireFunctionRR PowerRcRc [R+Rc joined by Slider Tab] [2]YY Compressor contactorCC 24VAC commonWW Heat relayGG Fan relay For a radiant heating system only, there are 3 wires basically as shown in the chart below. WireFunctionRPowerCC 24VAC commonWW Heat relay Remember to set the system type to radiant heat. WireFunctionRSeries 20 valve terminal RYSeries 20 valve terminal WC24VAC commonWSeries 20 valve terminal B You wont need the Rc (power for cooling). If you are using a honeywell pro series thermostat, move the slider tab to the top position R (setting). WireFunctionRPowerWValveC24VAC common Read also: conditioner is a pretty straightforward process. It should typically have red (R), yellow (Y), green (G), and sometimes blue (C). Connect the red wire to the R terminal for cooling control. Connect the red wire to the R terminal for fan operation. If available, connect the blue wire to the C terminal for a common connection. WireFunctionRPowerRc[R+Rc joined by Slider Tab]YCompressor contactorC24VAC commonGFan relay To wire a Honeywell thermostat for an air conditioner, Connect the red wire (R) to the R terminal for power The yellow wire (Y) to the R terminal for cooling control, The green wire (G) to the G terminal for fan operation, and The blue wire (C) to the C terminal for the second stage of heating, the second stage of heating, the second stage of heating, and the second stage of heating for the second stage of heating. Always consult the specific thermostats manual for accurate wiring instructions. WireFunctionRPowerRc[R+Rc joined by Slider Tab]YCompressor contactor (stage 2) The K is a combination of the Y and the G wire wire and is to be connected to the C terminal of thermostats that require the C wire. It is a honeywell module saver which you can form if your system does not provide the C wire but your thermostat requires one. In conclusion, we hope that our comprehensive guide to Honeywell thermostat requires one. In conclusion, we hope that our comprehensive guide to Honeywell thermostat requires one. In conclusion, we hope that our comprehensive guide to Honeywell thermostat requires one. thermostat. By understanding the wiring principles, preparing your thermostat, and following the correct connections, you are now empowered to take control of your homes comfort. We would also like to encourage you to refer back to this guide whenever you need assistance or clarification during the installation process. If you have questions pertaining to your specific model please write your question in the comment section or send us a message through the email address provided on our website.

Honeywell thermostat instructions english. How to wire a honeywell thermostat with 6 wires heat pump. How to wire a thermostat with heat pump. Honeywell wireless koppelen. Honeywell home wireless koppelen. Honeywell home thermostat how to use english. Honeywell wireless verbinden.