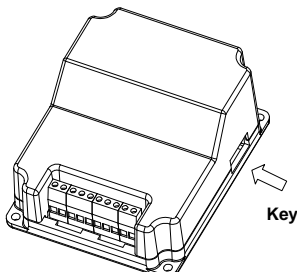


RV01-W manual



RV01-W

GENERAL

The set is designed to control the room temperature in industrial, commercial and residential environments. It includes an A3900 and an RV01-W. Wireless data communication between the thermostat and controller enables temperature control.

Read This Before Installing Controller

OPERATION

The RV01-W receives the signal from the Wireless Thermostat without any wires and controls the cooling and heating equipment.

YOUR THERMOSTAT REPLACES

Description	
Heat Pump (No Aux. or Emergency Heat)	Yes
Heat Pump (with Aux. or Emergency Heat)	Yes
Standard Heating & Cooling Systems	Yes
Two Stage Heating & Two Stage Cooling	Yes
Standard Heating Only Systems	Yes
Millivolt Heating Only Systems– Floor or Wall Furnaces	Yes
Standard Central Air Conditioning	Yes
Gas or Oil Heating	Yes
Electric Furnace	Yes
Hydronic (Hot Water) Zone Heat-2 Wires	Yes
Hydronic (Hot Water) Zone Heat-3 Wires	No

This Controller will NOT control 110/220Volt systems.

POWER SUPPLY

The RV01-W must be powered by 24 VAC.

MATCHING

The thermostat matched with the Controller at the factory. Simply Power up the Controller and operate the Thermostat. Follow the instructions below only if you find the Thermostat and Controller are not communicating.

- Step 1** Make sure the thermostat mode is in the OFF position.
Step 2 Press "PROG" key for 3 seconds until the screen changes to the menu screen.
Step 3 Press "PROG" key to scroll through the menu until the LCD displays "CRES".
Step 4 Press the Matching Key on the controller.
Step 5 Use the UP key on the thermostat to change the parameter "CRES" to "1" immediately. The thermostat will force the controller to match. Press the Hold/Run Key to return to the normal screen.
Step 6 Test by selecting Fan ON in the Thermostat screen. Wait for the radio signal icon to flash once on the screen.

TESTING

- Similar to menu setting.
Step 1 Press the "PROG" key, until it displays "TEST", change the parameter to "2" by pressing the "up" key. The relays will open one by one.
Step 2 Testing is finished, press the "RUN" key to exit the setting state.
NOTE: This item is only for testing, not for normal output. If the wires are left connected this test may be dangerous.
NOTE: The distance between the thermostat and controller should be longer than 1m, if not it may fail to communicate, requiring a return to the first step.

In the event that the Thermostat and Controller haven't matched, press and hold the key on the right side of the controller for at least 3 seconds. Relays will open and close one by one. The program will exit testing after 3 cycles. This test can be terminated by pressing and holding the button on the side for 3 seconds.

Technical Data

Power	AC24V±10%, 50/60Hz
Working environment	32°F~120°F (0℃~50℃)
Range	5~95%RH(non-condensing)
Shell	Fire retardant PC ABS
Dimension	4.5x3.8x1.8 in (116x98x45 mm) (HxWxD)
Connection interface	Each terminal is capable of accepting 2 × 18 AWG solid copper wires
Wireless carrier wave frequency	433MHz
Communication baud rate	10kbps
Wireless channels	1~6channels
Communication distance	Beeline distance 300ft in the field (The distance will reduce to 100ft if through walls and floors)

COMPRESSOR PROTECTION

The thermostat provides a 4 minutes delay after shutting off the heating or cooling system before it can be restarted. This delay will prevent damage to your compressor caused by rapid cycling. Note that this delay also applies to the heating system control. It does not provide a delay when there are power outages. You can select the function of "on" or "off" from the configuration.

- WIRELESS Modulation:** GFSK
WIRELESS Tx/Rx Datarate: 10KBaud
WIRELESS Tx/Rx Deviation: 19KHZ
WIRELESS CHANNEL

Wireless Channel	Communications Center Frequency	Allowable Frequency Differences
1	433.594 MHZ	±30KHZ
2	433.794 MHZ	±30KHZ
3	433.994MHZ	±30KHZ
4	434.194 MHZ	±30KHZ
5	434.394 MHZ	±30KHZ
6	434.594 MHZ	±30KHZ

THERMOSTAT OUTPUT

Standard Terminal Outputs:
Refer to equipment manufacturers' instructions for specific system wiring information. You can configure the controller for use with either multi-stage electric heat systems or multi-stage gas systems. When configured for electric heat, the G terminal (blower/fan) will be energized on a call for heat. This thermostat is designed to operate a single-transformer system. If you have a two-transformer system, cut and tape off one transformer. If the transformer safety circuits are in only one of the systems, remove the transformer of the system with NO safety circuits. If required, replace the remaining transformer with a 75VA Class II transformer. After disconnecting one transformer, the two commons must be connected together. Use the terminal output information below to help you wire the thermostat properly for your multi-stage system. After wiring see CONFIGURATION section for proper thermostat configuration.

THERMOSTAT TERMINALS		
SYSTEM	Single-stage	Multi-stage
C	24 Volt (Common)	
R	24 Volt Emergency (hot)	
E/W1	Heat mode 1st stage	
W2	No output	Heat Mode 2nd stage
Y1	Cool Mode 1st stage	
Y2	No output	2nd stage compressor
G	Blower/Fan Energized on call for Cool (and Heat if configured to Electric Heat)	
O	No output	
B	No output	

Heat Pump Terminal Outputs

Refer to equipment manufacturers' instructions for specific system wiring information.

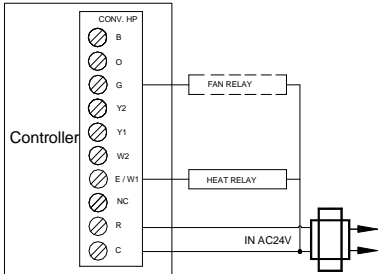
You can configure the thermostat for use with the following heat pump system types: Single stage compressor system; gas or electric backup. This thermostat is designed to operate a single-transformer system. If you have a two-transformer system, cut and tape off one transformer. If transformer safety circuits are in only one of the systems, remove the transformer of the system with NO safety circuits. If required, replace remaining transformer with a 75VA Class II transformer. After disconnecting one transformer, the two commons must be connected together. Use the terminal output information below to help you wire the thermostat properly for your heat pump system. After wiring, see CONFIGURATION section for proper thermostat configuration.

THERMOSTAT TERMINALS (HEAT PUMP)		
SYSTEM	Heat Pump 1	Heat Pump 2
C	24 Volt (Common)	
R	24 Volt (hot)	
E/W1	Emergency heat output	
W2	Auxiliary	
Y1	Heat and Cool mode 1st stage (compressor)	
Y2	No output	2nd stage compressor
G	Blower/Fan Energized on call for Heat and Cool	
O	Energized in Cool Mode	
B	Energized in Heat mode	

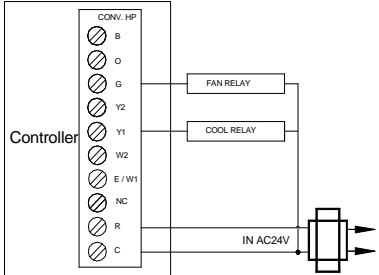
WIRING

- All wiring diagrams are for typical systems only. Refer to equipment manufacturers' instructions for specific system wiring information.
NOTE:
1. The BOLD lines are what you should be connecting to the terminals on this new controller.
2. The DASHED lines are optional depending upon your system type.
3. The terminal "NC" means "no connection". It is no use for user. You needn't connect it to anything.

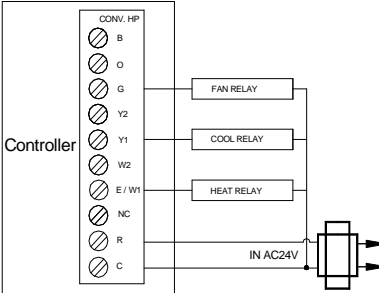
Heat only system



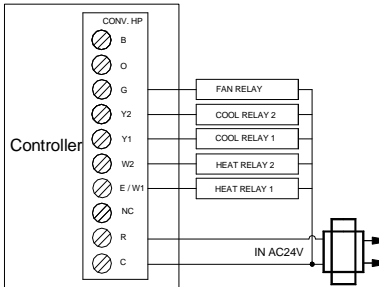
Cool only system



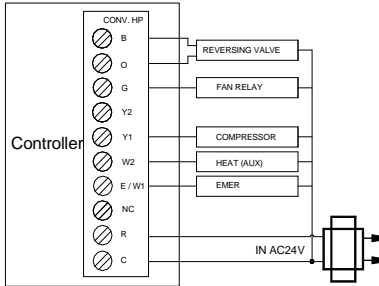
1-stage cooling , heating system for normal mode



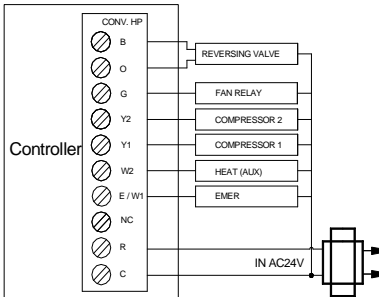
2-stage cooling , heating system for normal mode



1-stage heat pump system with "AUX" heating

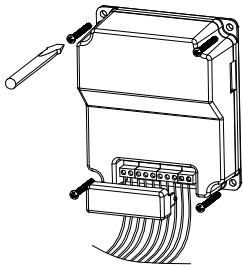


2-stage heat pump system with "AUX" heating



INSTALLATION

Installation guide



What You Need

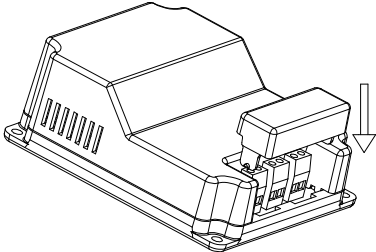
This Controller includes four #8 slotted screws and four wall anchors for mounting. To install your controller, you should have the following tools and materials.
■ Slotted Screwdriver(s) ■ Small Philips screwdriver ■ Hammer
■ Electric drill and 3/16" bit

CAUTION:

To prevent electrical shock and/or equipment damage, disconnect electric power to the system at the main fuse or circuit breaker box until installation is complete.
WARNING
Do not use on circuits exceeding specified voltage. Higher voltage will damage the Controller and could cause shock or fire hazard. Do not short out terminals on gas valve or primary control to test. Shorts or incorrect wiring will damage thermostat and could cause personal injury and/or property damage.

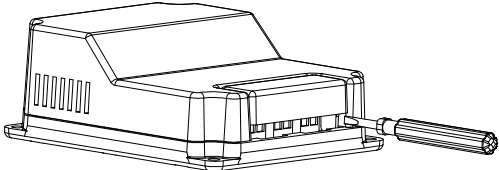
Transparent cover installation:

Press the transparent cover down as shown, until it snaps in place.



Transparent cover uninstall:

Insert the screwdriver between the transparent cover and black cover and gently pry it up.



TROUBLE SHOOTING

Problem	Solution
SCRAMBLED OR DOUBLE DISPLAY (numbers over numbers)	1. Remove clear mylar sticker.
NO DISPLAY	1. Charge Li-battery
ENTIRE DISPLAY DIMS	1. Charge Li-battery
PROGRAM DOES NOT CHANGE AT YOUR DESIRE SETTING	1. Check that the time is set properly to "AM" or "PM" 2. Check that the thermostat is not in "HOLD" mode. 3. Check for the correct day settings.
AUTO/FAN DOES NOT TURN ON	1. Change HE/HG parameter to opposite setting . 2. The thermostat may be in the AUTO Mode. Look for "AUTO" on the LCD display. If the Heat and Cool program temperature are close, then the thermostat requires a larger room temperature change before changing from Heat or Cool. 3. There may be as much as 4 minute delay before the Heat or Cool system turns on. Wait and check. (Compressor protection delay). 4. Check your circuit breakers and switches to ensure there is power to the system. 5. Make sure your furnace blower door is closed properly.
ERRATIC DISPLAY	1. Replace unit.
CONTROLLER NO OUTPUT	1. Check if the thermostat is working, and if the power is supplied to the controller. 2. Check if the communication is correct, the controller will close all the relays if there is no data received in 30 minutes. 3. Match the thermostat and the controller again.
COMMUNICATION FAILED	1. Check if the thermostat is working, if the thermostat is activated, and if the power is supplied to the controller. 2. The distance between the thermostat and controller should be longer than 3ft, shorter than 300ft in the field. 3. Match the thermostat and the controller again.
COMMUNICATION UNUSUAL	1. Need to change channel to re-register.
DISPLAY "E4"	1. Match the thermostat and the controller again.



NOTE:

- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.If this equipment does cause harmful interference to radio or television reception, 3.which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

If you experience any other problems, call us for technical assistance.