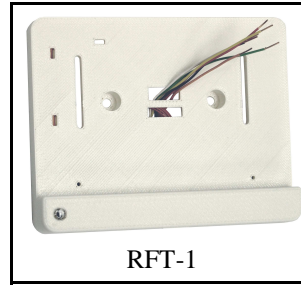# RFKit-5 Installation & Operation Instructions:
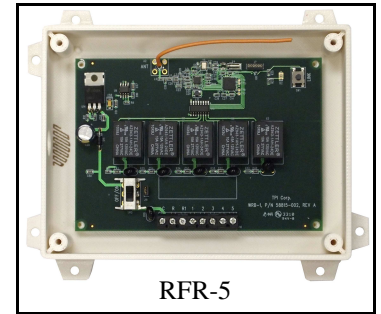
General:

The RFKit-5 is comprised of two pieces, the RFT-1, thermostat interface, and the RFR-5 relay package. Utilizing the RFKit-5 allows standard low voltage thermostats to be used wirelessly to control your HVAC system.

The RFKit-5 has been designed to interface with many types of heating and cooling equipment, including Heat Only, Cool Only, Heat/Cool, Heat Pump, and Multistage Heat and/or Cool. This is accomplished by incorporating 5 relays that can be used for whatever operation that is required by the system and the thermostat.

The RFT-1 Thermostat Interface incorporates a common wire and 5 inputs. Although color coded for a standard 4 wire Heat/Cool thermostat with two additional inputs, the actual operation of each input is determined by its connection to the thermostat. The input wires of the RFT-1 correspond directly to the outputs of the RFR-5. The chart to the right illustrates the wire color of the RFT-1 to the corresponding terminals of the RFR-5.

RFT-1 Installation

Mount the RFT-1 to the wall using the two mounting holes on each side of the wires. Use optional (included) stand legs if the RFT-1 is to be used on a table or desk. The RFT-1 should be placed about 5 feet above the floor in an area that will represent ambient temperature. Placement should avoid heat or cool sources such as lamps, windows, and appliances.

Run the wires from the RFT-1 through the wire hole(s) in the thermostat. Attach thermostat to RFT-1 using screws (included). Use caution not to over tighten screws. Connect the wires to the appropriate terminals using the wiring chart shown to the right. It is critical for the inputs to the RFT-1 match the outputs of the RFR-5 RF Relay System Interface.

RFT-1

RFR-5

RFT-1	Red	White	Yellow	Green	Red/White	Blue/White
RFR-5	R1	1	2	3	4	5

Connections to the thermostat must match the outputs of the RFR-5. If the white wire of the RFT-1 is connected to W on the thermostat, then W from the system must be connected to terminal 1 on the RFR-5 relay interface.

RFT-1	Red	White	Yellow	Green	Red/White	Blue/White
2 Wire Heating	R	W	N/C	N/C	N/C	N/C
3 Wire Cooling	R	N/C	Y	G	N/C	N/C
4 Wire Heat/Cool	R	W	Y	G	N/C	N/C
Heat Pump	R	W2	Y1	G	B or O	E
2-4 Stage Heating	R	W1	W2	G	W3	W4
2-4 Stage Cooling	R	Y4	Y1	G	Y2	Y3
2 Stg Heat 2 Stg Cool	R	W1	Y	G	W2	Y2
3 Wire Zone	R	W	Y	N/C	N/C	N/C
HotPod	R	W	N/C	G	W2	N/C

By connecting the RFT-1 Thermostat Interface to the thermostat using these connections, and applying the associated label to the RFR-5 Relay Interface, wiring will match system connections.

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RFR-5 Installation:

Mount the RFR-5 in a convenient location near the HVAC system. The RFR-5 incorporates an antenna that is used to transmit and receive signals from the RFT-1. The RFR-5 must be located with minimal interference of the radio signals between it and the RFT-1. Avoid metal as much as possible.

Before attaching any wires to the RFR-5, turn off power to the system.

The RFR-5 requires a 24VAC source of power to operate. If both R & C terminals are accessible from the system transformer these should be connected to the R and C terminals on the RFR-5. The J11 jumper is left in place. R1 will not have a wire connected to it. NOTE: The R terminal from the system must be connected to the R terminal of the RFR-5. The C terminal of the system must be connected to the C terminal of the RFR-5. If these are reversed the system will not work.

If both the R and C terminals of the HVAC system are not accessible, a separate 24 volt transformer must be used. If a separate 24VAC transformer is used, connect wires to the R & C terminals, and remove the J11 jumper. The R wire from the system will be connected to R1 on the RFR-5.

Use the chart to the right to connect remaining wires from system. NOTE: Connections to the RFR-5 must match the RFT-1 connections to the thermostat. Please note that we have included several terminal designator labels for the most common applications to be applied to the RFR-5 circuit board to help simplify installation. Apply the label to the RFR-5 circuit that matches your system.

RFR-5	C	R	R1	1	2	3	4	5
Harness Colors	Blue	Red		White	Yellow	Green	Black	Brown
2 Wire Heating	C	R	R1	W				
3 Wire Cooling	C	R	R1		Y	G		
4 Wire Heat/Cool	C	R	R1	W	Y	G		
Heat Pump	C	R	R1	W2	Y1	G	B/O	E
2-4 Stage Heating	C	R	R1	W1	W2	G	W3	W4
2-4 Stage Cooling	C	R	R1	Y4	Y1	G	Y2	Y3
2 Stg Heat 2 Stg Cool	C	R	R1	W1	Y1	G	W2	Y2
3 Wire Zone	C	R	R1	W	Y			
HotPod	C	R		W1		Y/G	W2	

The RFR-5 comes pre-wired with a wiring cable. If longer cable is needed, remove the installed cable.

By connecting the RFT-1 Thermostat Interface to the thermostat using these connections, and applying the associated label to the RFR-5 Relay Interface, wiring will match system connections.

Note: There is no wire connected to R1 of the RFR-5. If a separate transformer is used, connect Blue and Red wires to the separate transformer. Run an additional wire to connect system power (R) to R1. Remove J11 jumper.

Operation:

Power up:

Install batteries in the RFT-1. When batteries are first installed in the RFT-1 the LED will stay on for 1 second, and then blink 3 times. When power is applied to the RFR-5 The LED will stay on for 1 second and blink 3 times.

LED Indicators:

Both the RFT-1 and the RFR-5 have LED indicators. The RFT-1 uses the LED to indicate loss of communication, low battery, and pairing mode. The RFR-5 LED indicates when there has been a loss of communication and is also used for pairing.

RFT-1 LED Indicators:

Loss of communication: LED blinks twice every 5 seconds. Note: Anytime there is a power outage there will be a loss of communication between the RFT-1 and the RFR-5. Once power is restored, communication between the RFT-1 and RFR-5 will automatically be restored.

Low Battery:

The 2 AAA batteries will typically last between 2 and 3 years. When the battery voltage reaches a low level the LED will blink 4 times every 5 seconds. Once the low battery LED is activated you will have up to 30 days to replace the batteries before the RFT-1 will stop functioning.

Pairing:

The RFT-1 and the RFR-5 are sold as a set that has already been paired at the factory. Once paired to each other, pairing will not be required again. If however, either the RFT-1 or the RFR-5 is replaced, the new unit will need to be paired to the other unit. To pair the RFT-1 to the RFR-5:

1. Apply 24VAC to the R and C terminals of the RFR-5.
2. Install 2 AAA batteries into the RFT-1.
3. Press and hold the "Link" button on the RFR-5 for two seconds. The LED will turn on and stay on.
4. Press and hold the "Link" button on the RFT-1 for two seconds. The LED will stay on until it communicates to the RFT-5.
5. If pairing is successful, the LED will blink 5 times followed by the LED turning off and staying off.

NOTE: If the pairing is not successful, the LED will blink twice every 5 seconds, indicating loss of communication. If this happens, move the units closer together and repeats steps 1-5.

If the units are not within range or there are obstructions between the RFT-1 and the RFR-5, they may need to be moved closer together to pair. Metal between the two units will block the radio signal.

LED   Install Batteries as shown   LINK Button
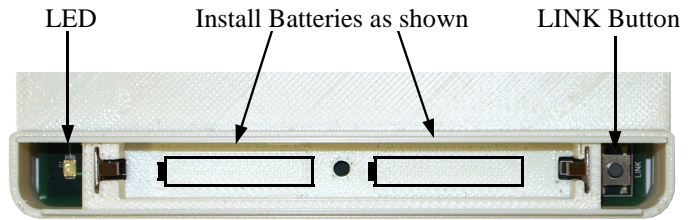
RFT-1 Battery Compartment with LED and Link Button
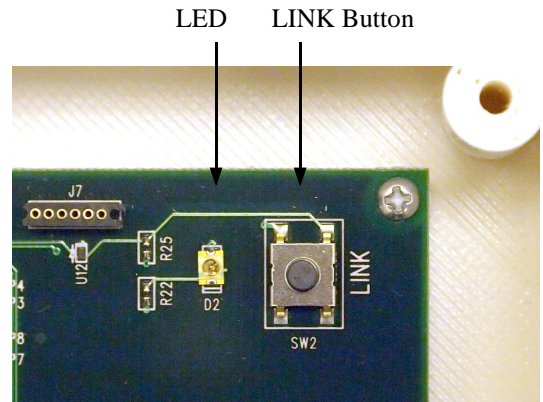
LED   LINK Button

RFR-5 LED and Link Button

FCC ID: ZIN-58815001   Model RFT-1
IC ID: 9673A-58815001

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

FCC ID: ZIN-58815002   Model RFR-5
IC ID: 9673A-58815002

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

HotPod Instructions:

The RFKit-5 comes with everything you need to connect the RFT-1 to the UT8003 HotPod thermostat, as well as the cable used to connect the RFR-5 to the HotPod unit.

Connecting the RFT-1 to the UT8003 Thermostat:

Determine where the RFT-1 is to be mounted. Attach to the wall with the included screws and wall anchors, or use the included pieces for freestanding. There are six wires coming out of the RFT-1. The only wires needed to connect to the UT8003 are the Red, White, Green, and Red/White striped wire. Cut the remaining two (Yellow and White/Blue) as short as possible, so they won't be in the way.

Run the wires through the holes as shown, and attach the UT8003 to the RFT-1. Cut off excess wire, strip 1/4" and connect to terminals as shown.

Connecting the RFR-5 to the HotPod

Use the included cable to connect the RFR-5 to the HotPod Harness connector. The cable includes extra wires. Use the terminal label for the HotPod to help simplify installation. Use the chart to the right to wire the cable to the proper RFR-5 terminals.

The other end of the cable will be connected to the HotPod Harness. Connector is two pieces that simply pull apart. Pull the two pieces apart and insert wires from the RFR-5 into the connector as shown. Strip wires about 1/4", and insert the wires into the connector as shown.

Red must go into terminal 1.
White must go into terminal 2.
Black must go into terminal 3.
Green must go to terminal 4.
Blue must go into terminal 5.

Make sure each wire has been inserted securely by pulling on each one separately to see if it holds. Reconnect to other half of the connector.

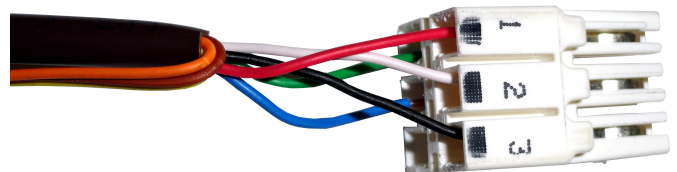Follow instructions on Page 3 for operation of the RFKit-5.

Mount the RFT-1 Thermostat Interface to the wall, or use the included desk stand attachments.

Mounting Holes
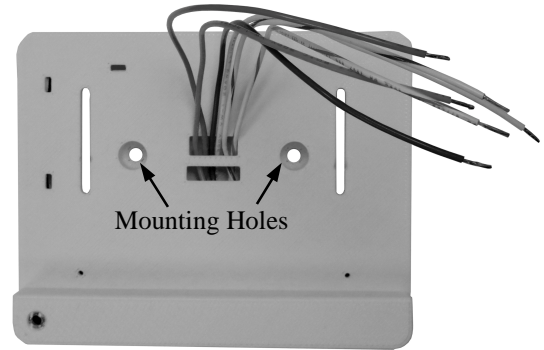
Run the wires through the three holes in the board and attach to the appropriate terminals.

White to W.
Green to G.
Red to R.
Red/White to W2.
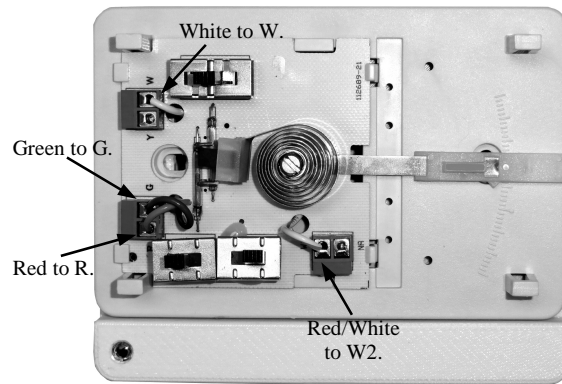
HotPod Wiring Chart								
RFR-5	**C**	**R**	**R1**	**1**	**2**	**3**	**4**	**5**
Cable	Blue	Red	N/C	White	N/C	Green	Black	
HotPod	C	R		W1		Y/G	W2	
Harness	5	1		2		4	3	