

# INSTALLATION AND MAINTENANCE



**MODEL: KRF-B-KIT**

**Wireless 24V Multi-System RF Thermostat Kit with Backup Line Voltage Electric Heat Control**



**KRFB-B:** RF Thermostat



**KRFR-24V:** 24V HVAC Relay

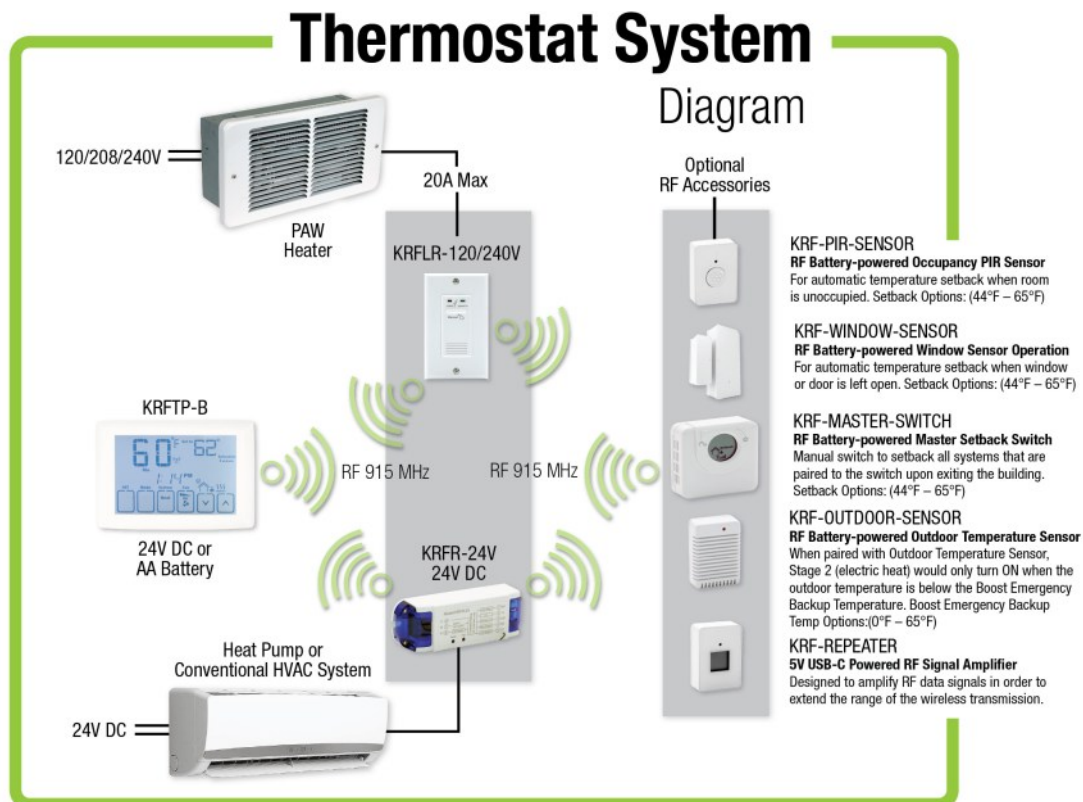


**KRFLR-120/240V:**  
20A Heating Relay



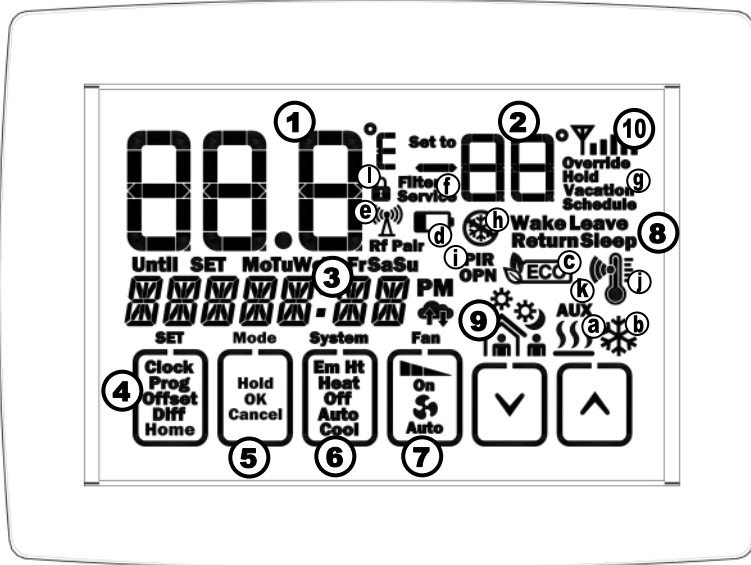
**READ CAREFULLY** - These instructions will help prevent difficulties that might arise during thermostat installation. Studying the instructions first may save considerable time and money later. Observing the following procedures will keep installation time to a minimum. Save these instructions for future use.

## KRF-B-KIT SYSTEM DIAGRAM W/ OPTIONAL SENSORS



# GETTING TO KNOW YOUR THERMOSTAT

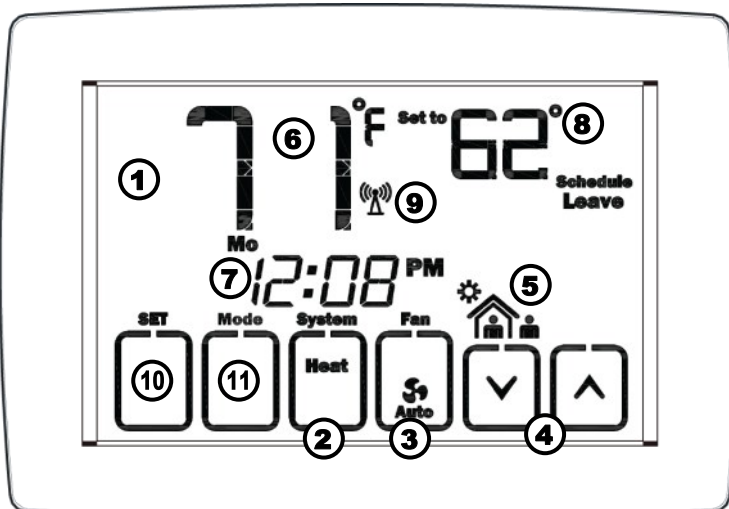
## ALL SYSTEM ICONS DIAGRAM



KRFTP-B: RF Thermostat

1. Current Room Temperature
  2. Setpoint: User Defined setpoint temperature
  3. Time & Day Of The Week
  4. Set/Program Menu Button: Show different options during programming.
  5. MODE/HOLD Button: Displays HOLD when permanent hold is set.
  6. System Button: COOL, HEAT, AUTO, EM HT (emergency heat) or OFF icon will display based on the current mode.
  7. Fan Button: ON, FAN or AUTO icon will display based on the current fan mode.
  8. Setback Mode - WAKE, LEAVE, RETURN, or SLEEP icon will display based on current setback period.
  9. Period Icons - WAKE, LEAVE, RETURN, or SLEEP icon will display based on the current period.
  10. Signal Indicator - Strength of RF signal from relays.
- a. Heat Active Icon
  - b. Cooling Active Icon
  - c. ECO Setback Icon
  - d. Battery Indicator
  - e. RF Signal Indicator
  - f. Change Filter Reminder Icon
  - g. Status Icons—OVERRIDE, HOLD, VACATION or SCHEDULE icon displays based on current status.
  - h. Freeze Protection Mode Icon
  - i. Window/Door Open or PIR Room Unoccupied Icon
  - j. Electric/Emergency Heat Active Icon
  - k. AUX: Second Stage Heating/Cooling Active Icon
  - l. Display Lock Icon

## HOME SCREEN DIAGRAM



KRFTP-B: RF Thermostat

1. Touch Screen LCD Display
2. System Mode Button
3. Fan Mode Button
4. Up & Down Buttons
5. Period Icons
6. Current Room Temperature
7. Current Day & Time
8. Temperature Setpoint
9. RF Signal Connection Icon
10. Set/Program Menu Options Button
11. Mode Button (Hold)

# INSTALLATION AND MAINTENANCE

## APPLICATION GUIDE

| Description                             |     |
|-----------------------------------------|-----|
| Gas or Oil Heat                         | Yes |
| Electric Furnace                        | Yes |
| Heat Pump (No Aux. or Emergency Heat)   | Yes |
| Heat Pump (With Aux. or Emergency Heat) | Yes |
| Multi-Stage Systems                     | Yes |
| Heat Only Systems                       | Yes |
| Cool Only Systems                       | Yes |
| Millivolt                               | No  |
| Humidity                                | No  |
| Dual Fuel                               | No  |

### **Warning:**

**A trained, experienced technician must install this product.**

Carefully read these instructions. You could damage this product or cause a hazardous condition if you fail to follow these instructions.

## POWER TYPE

### **KRFTP-B:** RF Thermostat

1. Battery Power\*
2. Hardwire (Common Wire)
3. Hardwire (Common Wire) w/ Battery Backup

### **KRFR-24V:** HVAC Relay

1. Hardwire (Common Wire)

### **KRFLR-120/240V:** Heat Relay

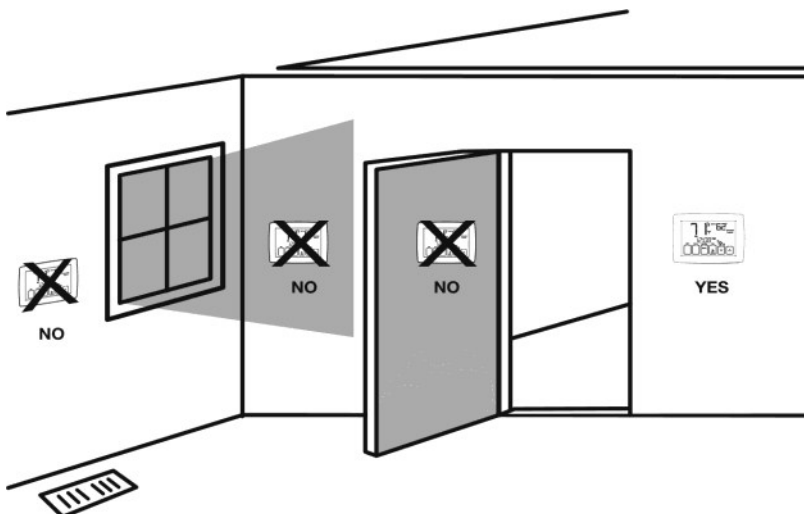
1. Hardwire (Common Wire)

| Main Components | Description                  |
|-----------------|------------------------------|
| KRFTB-B         | RF 24V Thermostat            |
| KRFR-24V        | RF 24V HVAC Relay            |
| KRFLR-120/240V  | RF 20A 120/240V Heater Relay |

| Optional Accessories | Description                                     |
|----------------------|-------------------------------------------------|
| KRF-PIR-SENSOR       | RF Battery-powered Occupancy PIR Sensor         |
| KRF-WINDOW-SENSOR    | RF Battery-powered Window/Door Sensor Operation |
| KRF-MASTER-SWITCH    | RF Battery-powered Master Setback Switch        |
| KRF-OUTDOOR-SENSOR   | RF Battery-powered Outdoor Temperature Sensor   |
| KRF-SIGNAL REPEATER  | RF USB Powered Signal Extender (+30ft)          |

## INSTALLATION TIPS - WALL LOCATIONS

The thermostat should be installed approximately 4 to 5 feet above the floor. Select an area with average temperature and good air circulation. Pick an installation location that is easy for the user to access. The temperature of the location should be representative of the building.



### **Do not install thermostat in these locations:**

- Close to hot or cold air ducts
- That are in direct sunlight
- With an outside wall behind the thermostat
- In areas that do not require conditioning
- Where there are dead spots or drafts (in corners or behind doors)
- Where there might be concealed chimneys or pipes

# KRFTP-B RF THERMOSTAT INSTALLATION



**KRFTP-B:** RF Thermostat

## WARNINGS

1. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.
2. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
3. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
4. 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) must accept any interference received, including interference that may cause undesired operation.

## SPECIFICATIONS

**Supply Voltage:** 24V, 50-60Hz Rating: 0.5A

**Wireless Operation:** Rf Connect Button

**Working Frequency:** 915.055 MHz

**Working Distance:** 30 Meters

**Heat Pump Control:** (Heating and Cooling).

**Touch Screen:** Touch Sensitive

**Temperature Display Range:** 0°F to 95°F (-17°C to 35°C)

**Temperature Control Range:** 44°F to 90°F (07° C to 32°C)

**Display Accuracy:** ± 1°F

**Optimal Start/Stop:** Optimal Start ensures that the set temperature is reached at the scheduled time, while Optimal Stop shuts down the system early upon PROG transition to achieve energy savings.

**Deadband:** Adjustable 4 to 6 Degrees. (Default 5)

**Differential:** adjustable from 0.5°F to 2.0°F (Default 1°F)

**2nd Stage Offset:** adjustable from 2°F to 5°F (Default 3°F)

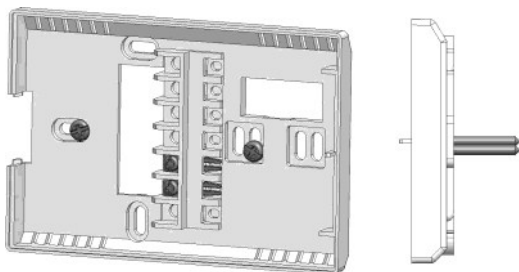
**Boost Emergency Heat Stage (Electric) Time Variable:** 5 minutes - 30 minutes range. (default 15 min)

**Heat Schedule Options:** 5+2 / 5+1+1/ 7 (Default: 5+2)

## MOUNTING INSTRUCTIONS

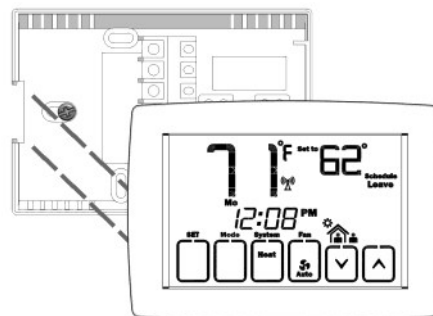
### Attach Mounting Plate To Wall:

Horizontal Mount Only. Secure one screw on the left and one screw on the right side of the thermostat.



### Attach Thermostat to Mounting Plate:

Align the 2 tabs on the thermostat face with corresponding slots on the mounting plate, then push gently until it snaps in place.



**Note:** To ensure a solid fit between the thermostat and the mounting plate:

1. Mount mounting plate to a flat wall.
2. Use screws provided.
3. Drywall anchors should be flush with the wall.
4. Wires should be pushed into the wall.

# KRFTP-B RF WIRING INSTRUCTIONS



## Caution: Electrical Hazard

Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.



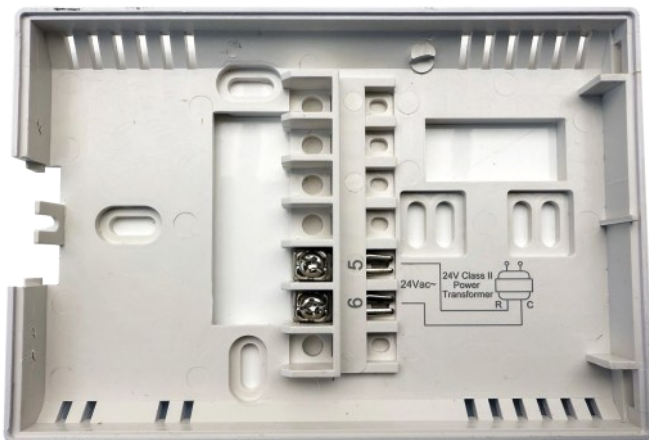
## Warning:

All components of the control system and the thermostat installation must conform to Class II circuits per the NEC Code.

**Caution:** Turn off power at the circuit breaker before performing any work on the electrical connections. None of the electrical connections must be live until the installation has been completed and the housing is closed. Only a qualified electrician or authorized technician are permitted to open the terminal box.

### Wiring requires a Phillips screwdriver

1. If you are replacing a thermostat, make note of the terminal connections on the thermostat that is being replaced. In some cases the wiring connections will not be color coded. For example, the green wire may not be connected to the G terminal.
2. Loosen the terminal block screws. Insert wires then retighten the terminal block screws.
3. Place nonflammable insulation into the wall opening to prevent drafts.



5

6



## WIRING TIPS

### C Terminal

The C (common wire) terminal does not have to be connected when the thermostat is powered by batteries.

### Wire Specifications

Use shielded or non-shielded 18-22 gauge thermostat wire.

## BATTERY INSTALLATION

Battery installation is optional. Battery Power can be used as primary or as emergency battery backup power for 24V power.

Important: High quality alkaline batteries are recommended. Rechargeable batteries or low quality batteries do not guarantee optimal lifespan.



Insert 2 x AA Alkaline Batteries

# KRFR-24V HVAC RELAY INSTALLATION



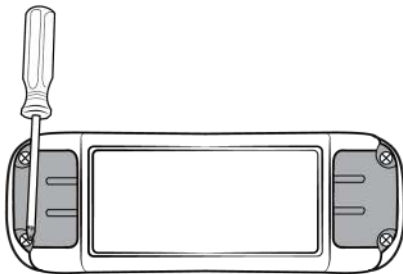
**KRFR-24V:** 24V HVAC Relay

## Specifications:

Power supply type: 24VAC  
 Rating: 24VAC/2A  
 Wireless Connect: Rf Connect Button  
 Two-way Communication  
 Working frequency: 915 MHz  
 Working distance: 30 Meters (98.5 feet)  
 Dimension: 120\*40\*28 mm

## WIRING INSTRUCTIONS

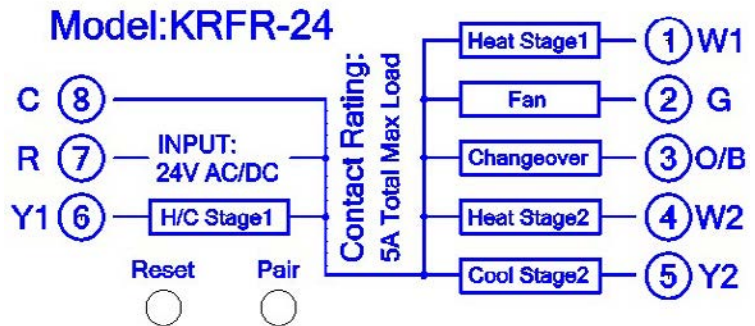
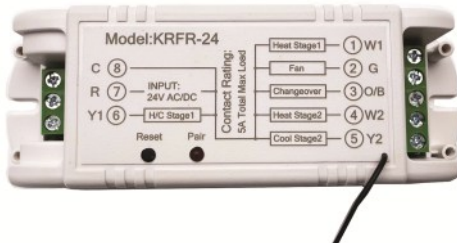
**Step 1:** Remove Blue Covers Screws (4) With Screwdriver



**Step 2:** Remove Blue Covers To Expose Terminals



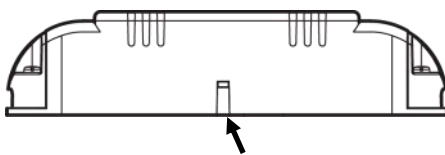
**Step 3:** Wire Terminals Per Diagram Below



## GENERAL NOTES

1. A single KRFTP-B Thermostat can be paired with multiple KRFR-24V relays, provided each relay is within range of the RF signal.
2. Each relay controls one or more 24V HVAC unit within its zone, without exceeding the relay's maximum amperage rating.
3. All paired KRFR-24V relays operate in sync - turning on and off simultaneously.

## PAIRING INSTRUCTIONS

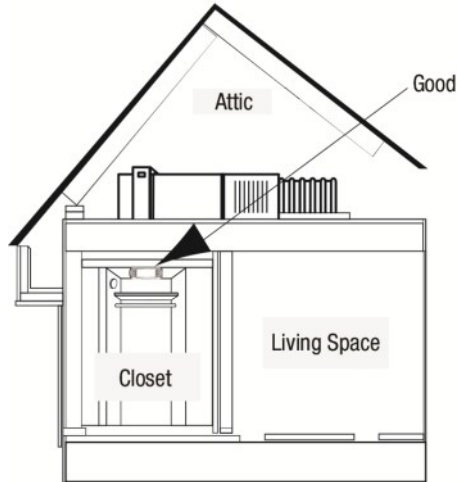


RF Pairing Button

- Step 1:** Press and hold the KRFR-24V Pairing Button for 5 seconds. The LED flashes when it is in pairing mode.
- Step 2:** Press and hold the MODE button on the KRFTP-B thermostat for 3 seconds to pair.
- A. When KRFR-24V receives a signal, the LED will flash three times.
- B. If not paired, the LED will remain on.
- Step 3:** Once pairing is successful, the KRFTP-B thermostat will display the device name + the device signal strength, e.g. "KRFLR66".
- Note:** "66" represents -66 dBm. A higher number indicates a weaker signal.
- Step 4:** Repeat steps 1 thru 3 to pair additional KRFR-24V relays to the system.

# KRFR-24V RELAY MOUNTING TIPS

If the HVAC Unit is an attic installation, instead of placing the KRFR-24V Relay in the attic, locate the KRFR-24V relay in the closest closet within the living space to the HVAC unit and mount on the wall inside the closet or on the ceiling of the closet. This location will insure the relay is below the 150°F maximum ambient temperature specification.



**Do not install the KRFR-24V Relay in locations:**

- That are behind a chimney
- Where temperature could exceed 150°F
- Where rain or snow or extreme hot or cold is possible

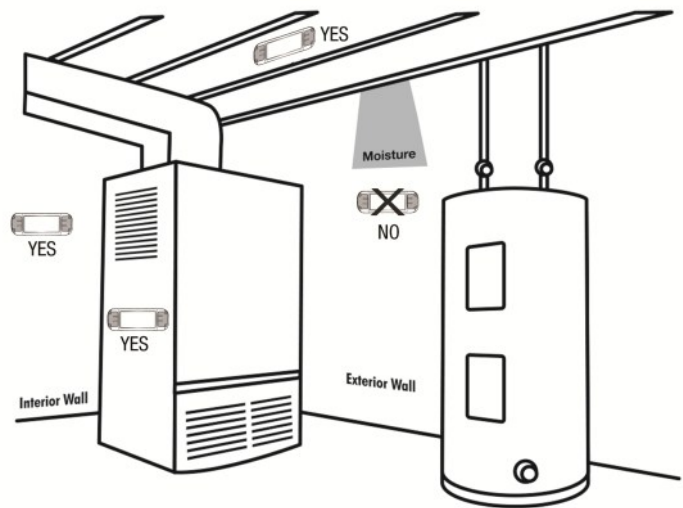
**Note:** This KRFR-24V Relay is **NOT** weatherproof.

## KRFR-24V Relay Range

Range between the thermostat and the KRFR-24V Relay is up to 98.5 feet with no obstructions and approximately 50 feet in standard residential construction.

To extend the range try replacing the relay unit higher if in a basement or further away from large metal objects.

Or add the optional **#KRF-REPEATER**, *which is an* RF Extender module to extend the range.



## Follow these steps for a simple wireless communication setup.

1. **Locate all components in an area near the HVAC equipment.**
2. **Wire KRFR-24V relay with 8ft pigtail and temporarily mount.**

If you are not able to establish communication, this will allow you to relocate the module to an area with less obstruction, without having to rewire.

**A.** Follow the pairing instructions in this manual

**B.** Establish communication between devices

**Install thermostat in final location.**

**Turn on fan from thermostat to ensure communication.**

Once communication is established, permanently mount KRFR-24V Relay.

### **Troubleshooting:**

If there is no communication between the thermostat and KRFR-24V Relay that are less than 50ft. apart, utilize an 8ft. pigtail to relocate and reduce interference. If there is not communication and devices are over 50ft. apart, add a KRF-REPEATER - Wireless Repeater.

# TERMINAL DESCRIPTIONS BY SYSTEM TYPE

## Conventional Systems

### 2-Stage Conventional System with Emergency Heat

| Terminal | 1 Heat 1 Cool Conventional System | 1 Heat 2 Cool Conventional System | 2 Heat 1 Cool Conventional System     | 2 Heat 2 Cool Conventional System     |
|----------|-----------------------------------|-----------------------------------|---------------------------------------|---------------------------------------|
| C        | Transformer common                | Transformer common                | Transformer common                    | Transformer common                    |
| R        | Transformer power (24V)           | Transformer power (24V)           | Transformer power (24V)               | Transformer power (24V)               |
| G        | Fan relay                         | Fan relay                         | Fan relay                             | Fan relay                             |
| W1       | First stage of heat               | First stage of heat               | First stage of heat                   | First stage of heat                   |
| W2/AUX   | N/A                               | N/A                               | Second stage of heat / Auxiliary heat | Second stage of heat / Auxiliary heat |
| Y1       | First stage of cool               | First stage of cool               | First stage of cool                   | First stage of cool                   |
| Y2       | N/A                               | Second stage of cool              | N/A                                   | Second stage of cool                  |
| E        | Emergency Heat                    | Emergency Heat                    | Emergency Heat                        | Emergency Heat                        |

## Heat Pump Systems

| Terminal | 1 Heat 1 Cool Heat Pump System                  | 2 Heat 1 Cool Heat Pump System                  | 2 Heat 2 Cool Heat Pump System                  | 3 Heat 2 Cool Heat Pump System                  |
|----------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| C        | Transformer common                              | Transformer common                              | Transformer common                              | Transformer common                              |
| R        | Transformer power (24V)                         | Transformer power (24V)                         | Transformer power (24V)                         | Transformer power (24V)                         |
| G        | Fan relay                                       | Fan relay                                       | Fan relay                                       | Fan relay                                       |
| O/B      | Heat pump changeover valve energized in cooling | Heat pump changeover valve energized in cooling | Heat pump changeover valve energized in cooling | Heat pump changeover valve energized in cooling |
| W1       | N/A                                             | N/A                                             | N/A                                             | N/A                                             |
| W2/AUX   | N/A                                             | Second stage of heat / Auxiliary heat           | N/A                                             | Third stage of heat / Auxiliary heat            |
| Y1       | First stage of cooling and heating              | First stage of cooling and heating              | First stage of cooling and heating              | First stage of cooling and heating              |
| Y2       | N/A                                             | N/A                                             | Second stage of cooling and heating             | Second stage of cooling and heating             |
| E        | Emergency Heat                                  | Emergency Heat or Second Stage Heating          | Emergency Heat                                  | Emergency Heat or Third Stage Heating           |

## Electric Heat Only Systems

| Terminal | 1 Heat Electric Heat Only System     |
|----------|--------------------------------------|
| C        | Common (Thermostat Only)             |
| R        | Power 24V (Thermostat Only)          |
| E        | 120/240V Electric Heating with KRFLR |

# KRFLR-120/240V HEAT RELAY INSTALLATION



**KRFLR-120/240V:** 20A Heating Relay

## SPECIFICATIONS

**Power Supply:** 120/240VAC /50-60Hz

**Max Power Consumption:** 4800W

**Relay contact rating:** 240Vac/20Amp

**Wireless Operation:** Rf Connect Button

**Working Frequency:** 915.055 MHz

**Working Distance:** 30 Meters

## WIRING INSTRUCTIONS

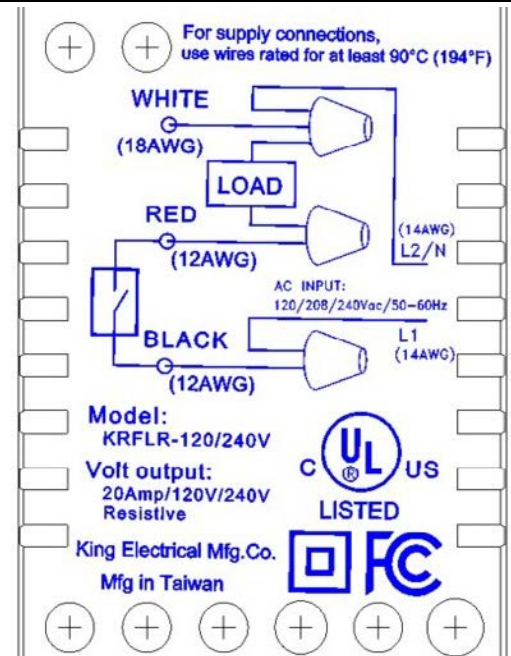
Follow the instructions printed on the back of the case to make the connections. Connect the receiver to mains power and equipment via color-coded wires.

**NOTE:** The white wire from the KRFLR-120/240V must be connected to the incoming **L2 or Neutral** to supply power to the internal components. This wire does **not** carry any heater load.

After wiring is complete, install the receiver into junction box and tighten the mounting screws through the mounting holes on the unit. In case of a malfunction, press "MANUAL" button on Receiver to manually turn on heating system.

### Emergency Heat On/OFF Conditions

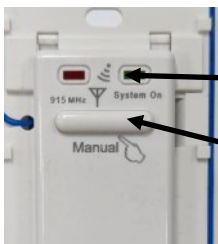
| Condition  | ON                                             | OFF                  |
|------------|------------------------------------------------|----------------------|
| Em-Ht      | Y1/W1 on                                       | Y1/W1 off            |
| ELEC 2 = Y | Outdoor <= EMH temp. - Diff & 2nd Stage Offset | Outdoor >= EMH temp. |
| ELEC 2 = N | Y2/W2 on and EMH time out                      | Y2/W2 off            |



## GENERAL NOTES

1. A single KRFTP-B Thermostat can be paired with multiple KRFLR-120/240V relays, provided each relay is within range of the RF signal.
2. Each relay controls one or more electric heaters within its zone, without exceeding the relay's maximum amperage rating.
3. All paired KRFLR-120/240V relays operate in sync - turning on and off simultaneously.

## PAIRING INSTRUCTIONS



**ON/OFF Indicator**

Green Light On = Heat On

**Emergency Manual Switch:**  
Only works if transmitter failure occurs or if system is manually unpaired.

Press Manual Button to turn heat ON until transmitter power returns.

**Step 1:** Press and hold the KRFLR-120/240V Pairing Button for 5 seconds. The LED flashes when it is in pairing mode.

**Step 2:** Press and hold the MODE button on the KRFTP-B thermostat for 3 seconds to pair.

**Step 3:** Once pairing is successful, the KRFTP-B thermostat will display the device name + the device signal strength, e.g. "KRFLR66".

**Note:** "66" represents -66 dBm. A higher number indicates a weaker signal.

**Step 4:** Repeat steps 1 thru 3 to pair additional KRFLR-120/240V relays to the system.

# QUICK OPERATION INSTRUCTIONS

## PAIRING MODE: HVAC RELAY / ELECTRIC HEAT RELAY

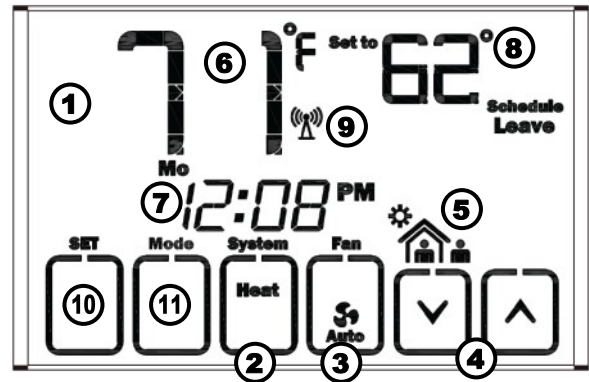
- (1) Press and hold the KRFR-24V or KRFLR-120/240V relay's pairing button for 5 seconds, and the LED flashes 2Hz to enter pairing mode
- (2) Press and hold **MODE** button on the KRFTP-B for 3 seconds to pair
- (3) After pairing, KRFTP-B displays **device name + signal strength**.

## OVERRIDE

- (1) Press  $\triangle$  /  $\nabla$  to set Override Temperature
- (2) Press **OK** to confirm
- (3) Press **CANCEL** to release

## FAN

- (1) Press **FAN** to switch FAN On/Auto Mode



## SYSTEM

- (1) Press **System** button to switch Heat / OFF / Auto / Cool / Em Ht

## HOLD/VACATION

- (1) Press **MODE** to enter the HOLD / HOLIDAY setting mode
- (2) Press  $\triangle$  /  $\nabla$  to adjust the settings
- (3) Press **OK** to confirm

1. Touch Screen LCD Display
2. System Mode Button
3. Fan Mode Button
4. Up & Down Buttons
5. Period Icons
6. Current Room Temperature
7. Current Day & Time
8. Temperature Setpoint
9. RF Signal Connection Icon
10. Set/Program Menu Options Button
11. Mode Button / OK / HOLD

## KEYPAD LOCK

- (1) Press and hold **SET** button and then quickly press the  $\triangle$  button for 3 seconds to switch Key Lock On/OFF.

## UNPAIR HEAT PUMP / ELECTRIC HEAT RELAYS

- (1) Press and hold the pair button of the wireless devices for 10 seconds to unpair.

## SHOW OUTDOOR TEMPERATURE (with Optional Outdoor Sensor in System)

- (1) Press and hold **SET** button and then quickly press the  $\nabla$  button to show outdoor temperature.

# USER-DEFINED SETTINGS ON THERMOSTAT

## USER MENU

**Step 1:** Press **SET** to enter the User Settings Menu to set user-defined parameters.

**Step 2:** Press  $\triangle$  /  $\nabla$  to adjust the settings

**Step 3:** When multiple parameters are required for a Setting **OK** appears. Press **OK** go to next parameter.

**Step 4:** Press **SET** to confirm and proceed to next Setting.

**Step 5:** Press and hold **SET** for 3 sec to exit setting mode.

| UserMenu Setup Steps         |                                                                             | LCD Will Show                                   | Adjustment Options                                                                                          | Default      |
|------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| Clock                        | Set Current Day                                                             | Set <b>Mo</b><br>(flashing)                     | <b>Set Day of Week</b><br>Mo / Tu / We / Th /<br>Fr / Sa / Su                                               | <b>Mo</b>    |
| -Press OK<br>Clock<br>step 2 | Press OK:<br>Set Current<br>Time                                            | Set <b>12:00</b><br>(flashing)                  | <b>Set Current Time</b><br>Set Hour<br>Press OK to Set<br>Minutes                                           | <b>12:00</b> |
| Prog                         | Program Day<br>of Heating<br>Schedule                                       | Set <b>Mo</b><br><b>DAY</b><br>(flashing)       | <b>Set Day of Week To<br/>Program Schedule</b><br>Mo / Tu / We / Th /<br>Fr / Sa / Su                       | <b>Mo</b>    |
| -Press OK<br>Prog<br>step 2  | Press OK:<br>Program Time<br>For Each Period<br>of Heating<br>Schedule      | Set <b>6:00</b><br>(flashing)                   | <b>Set Time</b><br>Set Hour<br>Press OK to Set<br>Minutes                                                   | <b>6:00</b>  |
| -Press OK<br>Prog<br>step 3  | Press OK:<br>Program Temp<br>For WAKE<br>Period of<br>Heating<br>Schedule   | Set <b>78°F</b><br>WAKE<br>(flashing)           | <b>Choose Set Temp for<br/>Wake Period</b><br>Range of 44°F to 90°F<br>Press OK to move to<br>next Period   | <b>78°F</b>  |
| -Press OK<br>Prog<br>step 4  | Press OK:<br>Program Temp<br>For LEAVE<br>Period of<br>Heating<br>Schedule  | Set <b>85°F</b><br>LEAVE<br>(flashing)          | <b>Choose Set Temp for<br/>Return Period</b><br>Range of 44°F to 90°F<br>Press OK to move to<br>next Period | <b>85°F</b>  |
| -Press OK<br>Prog<br>step 5  | Press OK:<br>Program Temp<br>For RETURN<br>Period of<br>Heating<br>Schedule | Set <b>78°F</b><br>RETURN<br>(flashing)         | <b>Choose Set Temp for<br/>Sleep Period</b><br>Range of 44°F to 90°F<br>Press OK to move to<br>next Period  | <b>78°F</b>  |
| -Press OK<br>Prog<br>step 6  | Press OK:<br>Program Temp<br>For SLEEP<br>Period of<br>Heating<br>Schedule  | Set <b>82°F</b><br>Leave<br>SLEEP<br>(flashing) | <b>Choose Set Temp for<br/>Leave Period</b><br>Range of 44°F to 90°F<br>Press OK to move to<br>next Period  | <b>82°F</b>  |

| User Menu Setup Steps<br>CONTINUED |                                                                                                                                       | LCD Will Show                          | Adjustment Options                                       | Default    |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------|------------|
| Display<br>Temp<br>Offset          | Changes the<br>calibration of<br>room temp<br>display.<br>E.g. Display reads<br>70° and you want<br>it to read 72° then<br>select +2. | Set<br><b>OFFSET</b>                   | Select from range of<br>-5°F to 5°F                      | <b>0°F</b> |
| Differential                       | Temperature<br>range between<br>the stat<br>switch-on and<br>switch-off<br>points                                                     | Set<br><b>DIFF</b>                     | Select from range of<br>1°F to 2°F                       | <b>1°F</b> |
| Contrast                           | Set the display<br>contrast                                                                                                           | Set<br><b>CONT:7</b>                   | Select from range of<br>1 (dimmiest) to 7<br>(brightest) | <b>7</b>   |
| C/F                                | Display<br>temperatures in<br>either Fahren-<br>heit or Celsius                                                                       | Set<br><b>SCALE</b>                    | Select °F or °C                                          | <b>°F</b>  |
| Beep                               | When ON an<br>audible beep<br>will sound                                                                                              | Set<br><b>BEEP:OF</b>                  | Select OF for Off<br>Select ON for On                    | <b>OF</b>  |
| Filter<br>Service<br>Time          | Filter Service<br>Reminder Time.                                                                                                      | Filter<br>Service<br>Set<br><b>OFF</b> | Select between:<br>Off -100 - 9000 hours                 | <b>OFF</b> |

### NOTE: Compressor Delay Times For Heat Pump Systems

| Type | System    | Delay |
|------|-----------|-------|
| 1H1C | Heat pump | 3 min |
| 2H1C | Heat pump | 3 min |
| 2H2C | Heat pump | 3 min |
| 3H2C | Heat pump | 3 min |

# INSTALLER/ TECHNICIAN SETUP MENU

This thermostat has a technician setup menu for easy installer configuration. To set up the thermostat for your particular application:

- (1) Press and hold **SET** for 5 seconds to enter the Technician Setup Options Menu.
- (2) Enter Pin code (ID) and Press **OK**. **TIP:** Use  $\triangle$  to change digit. Use  $\nabla$  to switch to next digit.
- (3) Press  $\triangle$  /  $\nabla$  to adjust the settings.
- (4) Press **OK** to confirm and proceed to next Setting.
- (5) Press **CONT** to exit setting mode .

## HOW TO FIND PIN CODE (ID)?

1. Turns System OFF
2. Touch bottom LEFT + bottom RIGHT corner of the display. The Pin Code will appear on the display.

| Installer Menu Setup Steps                              | LCD Will Show                                                                             | Adjustment Options                                                                                                                                                                                                                                                                      | Default                                                                                                                                                 |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Mode / Stages                                    | T<br><br>This feature is required to set the system type being used with desired stages.  | Set<br><br><b>1H1C-HP</b><br><br><b>Choose between:</b><br><br>1H1C (heat pump)<br>2H1C (heat pump)<br>- HEAT2: W2 / EH<br>2H2C (heat pump)<br>3H2C (heat pump)<br>- HEAT3: W2 / EH<br>1H1C (conventional)<br>1H2C (conventional)<br>2H1C (conventional)<br>2H2C (conventional)<br>1H0C | <b>1H1C-HP</b>                                                                                                                                          |
| 2H1C Only<br>2nd Stage Heat: Heat Pump or Electric Heat | Option to set 2nd stage of heat to be 24V Controlled Heat Pump or 120/240V Electric Heat  | Set<br><b>HEAT2: W2</b>                                                                                                                                                                                                                                                                 | Select between:<br>W2 (24V Heat)<br>EH (Electric Heat)<br><br><b>W2</b>                                                                                 |
| 3H2C Only<br>3rd Stage Heat: Heat Pump or Electric Heat | Option to set 3rd stage of heat to be 24V Controlled Heat Pump or 120/240V Electric Heat  | Set<br><b>HEAT3: W2</b>                                                                                                                                                                                                                                                                 | Select between:<br>W2 (24V Heat)<br>EH (Electric Heat)<br><br><b>W2</b>                                                                                 |
| Heating Schedule Options                                | You can configure this thermostat to have a 7 day program, a 5+1+1 program or 5+2 program | Set<br><b>PROG: 7D</b>                                                                                                                                                                                                                                                                  | Select<br><b>7D</b> for 7 day schedule or select <b>52</b> for 5-2 / 5 day + weekend or select <b>51</b> for 5-1-1 / 5 day + Sat + Sun<br><br><b>7D</b> |
| Manual Emergency Heat Mode                              | Enable or Disable Manual Emergency Heat Option                                            | Set<br><b>EM HT: Y</b>                                                                                                                                                                                                                                                                  | Select Y for Enabled<br>Select N for Disabled<br><br><b>Y</b>                                                                                           |
| Auto Change – Over                                      | This thermostat can automatically switch between Heat and Cool Modes                      | Set<br><b>AUTO: N</b>                                                                                                                                                                                                                                                                   | Select Y for Enabled<br>Select N for Disabled<br><br><b>N</b>                                                                                           |
| 2nd Stage Offset                                        | Adjustable from 2°F to 5°F                                                                | Set<br><b>3°F</b><br><br><b>STAGE 2</b>                                                                                                                                                                                                                                                 | Select between Range: 2°F to 5°F<br><br><b>3°F</b>                                                                                                      |

| Installer Menu Setup Steps<br>CONTINUED     | LCD Will Show                                                                                      | Adjustment Options                        | Default                                                                      |
|---------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------|
| 3H2C Only<br>3rd Stage Offset               | Adjustable From Stage2 Offset + 1°F to 3°F (3H2C-HP only)                                          | Set<br><b>3°F</b><br><br><b>STAGE 3</b>   | Select between Range: Stage2 Offset +<br>1°F<br>2°F<br>3°F<br><br><b>3°F</b> |
| Optimal Start                               | Ensures set temperature is reached at the scheduled time                                           | Set<br><b>START: 0F</b>                   | Select 0F for Off<br>Select ON for On<br><br><b>0F</b>                       |
| Optimal Stop                                | Turns system off early upon PROG transition to achieve energy savings                              | Set<br><b>STOP: 0F</b>                    | Select Y for Enabled<br>Select N for Disabled<br><br><b>0F</b>               |
| Heating Temp Setpoint Limit                 | Set a maximum heating setpoint limit. The setpoint temperature cannot be raised above this value.  | Set<br><b>90°F</b><br><br><b>LIMIT: H</b> | Select from range of 44°F to 90°F<br><br><b>90°F</b>                         |
| Cooling Temp Setpoint Limit                 | Set a minimum cooling setpoint limit. The setpoint temperature cannot be lowered below this value. | Set<br><b>44°F</b><br><br><b>LIMIT: C</b> | Select from range of 44°F to 90°F<br><br><b>44°F</b>                         |
| PIR Occupancy Sensor                        | Activates PIR Occupancy Sensor Features if being Used in System                                    | Set<br><b>PIR: N</b>                      | Select Y for Enabled<br>Select N for Disabled<br><br><b>N</b>                |
| RF PIR Occupancy Sensor Time Delay (PIR: Y) | Sets the Setback Temperature Time Delay                                                            | Set<br><b>DELAY</b>                       | Select between:<br>10 minutes<br>30 minutes<br>60 minutes<br><br><b>10</b>   |

# INSTALLER/ TECHNICIAN SETUP MENU - Continued

| Installer Menu Setup Steps<br>CONTINUED                          |                                                                                                                          | LCD Will<br>Show    | Adjustment Options                              | Default |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------|---------|
| RF<br>Window/<br>Door Sensor<br>Being Used<br>In System          | Activates RF<br>Window/Door<br>Sensor Being<br>Used In System                                                            | Set<br>WIN: N       | Select Y for Enabled<br>Select N for Disabled   | N       |
| RF<br>Master Set-<br>back Switch<br>Being Used<br>In System      | Activates RF<br>Master Setback<br>Switch Being<br>Used In System                                                         | Set<br>MASTER:<br>N | Select Y for Enabled<br>Select N for Disabled   | N       |
| Heating<br>Setback<br>Temp<br>(PIR/WIN /<br>MASTER<br>SWITCH)    | Sets the<br>Heating<br>Setback<br>Temperature<br>(PIR / WIN /<br>MASTER<br>SWITCH)                                       | 65°F<br><br>SETBACK | Select from range of<br>44°F to 65°F            | 65°F    |
| Cooling<br>Setback<br>Temp.<br>(PIR/WIN /<br>MASTER<br>SWITCH)   | Sets the<br>Cooling<br>Setback<br>Temperature<br>(PIR / WIN /<br>MASTER<br>SWITCH)                                       | 80°F<br><br>SETBACK | Select from range of<br>80°F to 90°F            | 80°F    |
| Outdoor<br>Temperature<br>Sensor<br>Being Used<br>in System      | Outdoor Sensor<br>will be used for<br>Boost Emergency<br>Heat Activation<br>instead of time<br>variable when<br>enabled. | ODSEN:N             | Select Y for Enabled<br>Select N for Disabled   | N       |
| Boost<br>Emergency<br>Heat Stage<br>Time Varia-<br>ble (ELEC2:N) | Emergency<br>Electric Heat<br>will turn on if<br>set point is not<br>reached within<br>(time)                            | 15<br><br>TIME: EH  | Select from range of 5<br>minutes to 30 minutes | 15      |
| LCD<br>Backlight                                                 | Backlight<br>always on –<br>“C” wire<br>required                                                                         | LIGHT: N            | Select Y for Enabled<br>Select N for Disabled   | N       |
| Freeze<br>Protection<br>Mode                                     | Heat will turn<br>on if room<br>temp drops<br>below 40F                                                                  | FROST: Y            | Select Y for Enabled<br>Select N for Disabled   | Y       |

**\*IMPORTANT: SELECT N = Disabled** when operating  
on battery power only to conserve battery life.

## SETTING DATE & TIME

Follow the steps below to set the day of the week and current time:

1. Press the **SET** button to access setup menu. The first setting is to **Set the Day of the Week**.
2. Day of the week is flashing. Use the  $\triangle$  or  $\nabla$  key to select the current day of the week.
3. Press **OK** to move to next step.
4. The current hour is flashing. Use the  $\triangle$  or  $\nabla$  key to select the current hour. When using 12-hour time, make sure the correct a.m. or p.m. choice is selected.
5. Press **OK** to move to next step.
6. Minutes are now flashing. Use the  $\triangle$  or  $\nabla$  key to select current minutes.
7. Press and hold **SET** button for 3 sec to save settings and exit setting mode.

## ABOUT YOUR HEATING SCHEDULE

Your thermostat can be programmed to have each day of the week programmed uniquely (7 days), all the weekdays the same with a separate program for Saturday and Sunday (5+2), or all the weekdays the same with a separate program for Saturday and a separate program for Sunday (5+1+1). For all options, there are 4 time period per day. (**WAKE, LEAVE, RETURN, SLEEP**)

## PROGRAM CUSTOM 7-DAY HEATING SCHEDULE

Follow the steps below to set the time and temperature for each period of the day:

1. Press the **SET** button to access setup menu. The first setting is to **Set the Clock (see above)**.
2. Press the **SET** button again to start **Programing The Heating Schedule (Day of the Week, Temperature Setpoint and Period Start Time)** for each period of the day. (**WAKE, LEAVE, RETURN, SLEEP**)
3. Day of the week is flashing. Use the  $\triangle$  or  $\nabla$  key to select the day of the week to be programmed.
4. Press **OK** to move to next step.
5. The Time is now flashing. Use the  $\triangle$  or  $\nabla$  key to select the Hour/Minutes for the period Start Time.
6. Press **OK** to move to next step.
7. The Temperature is now flashing. Use the  $\triangle$  or  $\nabla$  key to select desired Temperature Setpoint for the period.
8. Press **OK** to move to next step to program the next period.
9. Repeat the above steps for each Period of the Day.

**Repeat steps 3 through 7 for the remaining days of the week.**

Press and hold **SET** button for 3 sec to save settings and exit setting mode.

| Residential 7-Day Programming<br>MON/TUE/WED/THU/FRI/SAT/SUN Default Schedule              |                                                          |                                                          |                                                          |                                                          |                                                          |                                                          |                                                          |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| 4 Event                                                                                    | Monday                                                   | Tuesday                                                  | Wednesday                                                | Thursday                                                 | Friday                                                   | Saturday                                                 | Sunday                                                   |
| Wake    | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  |
| Leave   | Time: 8:00 am<br>Heat: 62°F (17°C)<br>Cool: 85°F (29°C)  | Time: 8:00 am<br>Heat: 62°F (17°C)<br>Cool: 85°F (29°C)  | Time: 8:00 am<br>Heat: 62°F (17°C)<br>Cool: 85°F (29°C)  | Time: 8:00 am<br>Heat: 62°F (17°C)<br>Cool: 85°F (29°C)  | Time: 8:00 am<br>Heat: 62°F (17°C)<br>Cool: 85°F (29°C)  | Time: 8:00 am<br>Heat: 70°F (17°C)<br>Cool: 78°F (29°C)  | Time: 8:00 am<br>Heat: 70°F (17°C)<br>Cool: 78°F (29°C)  |
| Return  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  |
| Sleep   | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) |

# PROGRAMMING CUSTOM 5-2 HEATING SCHEDULE

Follow the steps below to set the time and temperature for each period of the day:

1. Press the **SET** button to access setup menu. The first setting is to **Set the Clock** (see above).
2. Press the **SET** button again to start **Programing The Heating Schedule (Day of the Week, Temperature Setpoint and Period Start Time)** for each period of the day. (**WAKE, LEAVE, RETURN, SLEEP**)
3. The Week Days (MoTuWeThFri) are flashing. Continue to next step or use the  $\triangle$  or  $\nabla$  key to select the Weekend Days (SaSun) to be programmed.
4. Press **OK** to move to next step.
5. The Time is now flashing. Use the  $\triangle$  or  $\nabla$  key to select the Hour/Minutes for the period Start Time.
6. Press **OK** to move to next step.
7. The Temperature is now flashing. Use the  $\triangle$  or  $\nabla$  key to select desired Temperature Setpoint for the period.
8. Press **OK** to move to next step to program the next period.
9. Repeat the above steps for each Period of the Day.

**Repeat steps 3 through 7 for the remaining Weekend Days (SatSun).**

Press and hold **SET** button for 3 sec to save settings and exit.

# PROGRAMMING CUSTOM 5-1-1 HEATING SCHEDULE

Follow the steps below to set the time and temperature for each period of the day:

1. Press the **SET** button to access setup menu. The first setting is to **Set the Clock** (see above).
2. Press the **SET** button again to start **Programing The Heating Schedule (Day of the Week, Temperature Setpoint and Period Start Time)** for each period of the day. (**WAKE, LEAVE, RETURN, SLEEP**)
3. The Week Days (MoTuWeThFri) are flashing. Continue to next step or use the  $\triangle$  or  $\nabla$  key to select the Saturday or Sunday to be programmed.
4. Press **OK** to move to next step.
5. The Time is now flashing. Use the  $\triangle$  or  $\nabla$  key to select the Hour/Minutes for the period Start Time.
6. Press **OK** to move to next step.
7. The Temperature is now flashing. Use the  $\triangle$  or  $\nabla$  key to select desired Temperature Setpoint for the period.
8. Press **OK** to move to next step to program the next period.
9. Repeat the above steps for each Period of the Day.

**Repeat steps 3 through 7 for Saturday and Sunday**

Press and hold **SET** button for 3 sec to save settings and exit.

| Residential 5-2 Day Programming<br>Weekday/Weekend Default Schedule                        |                                                          |                                                          |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| 4 Event                                                                                    | Weekday                                                  | Weekend                                                  |
| Wake    | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  |
| Leave   | Time: 8:00 am<br>Heat: 62°F (17°C)<br>Cool: 85°F (29°C)  | Time: 8:00 am<br>Heat: 70°F (17°C)<br>Cool: 78°F (29°C)  |
| Return  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  |
| Sleep   | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) |

| Residential 5-1-1 Day Programming<br>Weekday/SAT/SUN Default Schedule                      |                                                          |                                                          |                                                          |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| 4 Event                                                                                    | Weekday                                                  | Saturday                                                 | Sunday                                                   |
| Wake    | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 am<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  |
| Leave   | Time: 8:00 am<br>Heat: 62°F (17°C)<br>Cool: 85°F (29°C)  | Time: 8:00 am<br>Heat: 70°F (17°C)<br>Cool: 78°F (29°C)  | Time: 8:00 am<br>Heat: 70°F (17°C)<br>Cool: 78°F (29°C)  |
| Return  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  | Time: 6:00 pm<br>Heat: 70°F (21°C)<br>Cool: 78°F (26°C)  |
| Sleep   | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) | Time: 10:00 pm<br>Heat: 62°F (17°C)<br>Cool: 82°F (28°C) |

## FILTER CHANGE REMINDER

If your installing contractor has configured the thermostat to remind you when the air filter needs changed, you will see a reminder in the display when your air filter needs changed. the reminder will be shown in the display after your system has run long enough to require an air filter change.

Resetting the filter change reminder: When the reminder is

displayed, you should change your air filter and reset the reminder by holding down the “**Clean**” key on the left side of the thermostat for 3 seconds.

## TEMPORARY AND PERMANENT HOLD FEATURES

**Temporary Hold:** When you adjust the set temperature, the thermostat will display **Override** next to the setpoint temperature on the display. This is a temporary hold. If you do nothing, the temperature will remain at this setpoint temporarily for 4 hours. The program setpoint will then replace the temporary setpoint.

**Permanent Hold:** Press the **MODE** button to access the HOLD menu. Set the desired HOLD temperature and press **OK**. You will see **HOLD** appear next to the setpoint temperature in the display. The thermostat will now permanently stay at this setpoint until manually cancelled.

**To Return To Programmed Schedule** Press the **CANCEL** button at the bottom of the screen to exit temporary and permanent holds.