

HEAT CONTROLLER

# OWNER'S MANUAL

## Packaged Terminal Air Conditioners & Heat Pumps

7,000-15,000 BTUH

### **Cooling with Electric Heat**

EKTC07-1G      EKTC07-2G

EKTC09-1G      EKTC09-2G

EKTC12-1G      EKTC12-2G

EKTC15-1G      EKTC15-2G

### **Heat Pump with Electric Heat**

EKTH07-1G      EKTH07-2G

EKTH09-1G      EKTH09-2G

EKTH12-1G      EKTH12-2G

EKTH15-1G      EKTH15-2G

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The figures in this manual may be different with the material objects, please refer to the material objects for reference.

 This symbol stands for the items should be forbidden       This symbol stands for the items should be followed



Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.

# Safety Considerations

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: **DANGER**, **WARNING**, and **CAUTION**. These words are used with the safety-alert symbol.

**DANGER** identifies the most serious hazards which will result in severe personal injury or death.

**WARNING** signifies hazards which could result in personal injury or death.

**CAUTION** is used to identify unsafe practices which may result in minor personal injury or product and property damage.

**NOTE** is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

 **WARNING**

**PERSONAL INJURY AND/OR PROPERTY DAMAGE HAZARD**

Failure to follow this warning could result in personal injury, death and/or property damage. For your safety, the information in this manual must be followed to minimize the risk of fire or explosion, electric shock, or to prevent property damage, personal injury, or loss of life.

- This unit must be properly installed in accordance with the Installation Instructions before it is used.
- Immediately repair or replace all electric service cords that have become frayed or otherwise damaged.
- Unplug or disconnect the unit at the fuse box or circuit breaker before making any repairs.

**NOTE:** We strongly recommend that any servicing be performed by a qualified individual.

# GENERAL INFORMATION

Heat Controller package terminal air conditioners and heat pumps provide a high standard of quality in performance, workmanship, durability and appearance as they heat and cool the occupied air space year round.

This manual provides information for ease of installation, operation and maintenance. All models are designed for through-the-wall installation. Separate installation instructions are included with all accessory components.

## BEFORE YOU BEGIN

*Read these instructions completely and carefully.*

**IMPORTANT:** Save these instructions for local inspector's use.

**IMPORTANT:** Observe all governing codes and ordinances.

## NOTE TO INSTALLER

Be sure to leave these instructions with the owner.

## NOTE TO OWNER

Keep these instructions for future reference. Be sure to write down the model and serial number of unit on space provided on back page. The model and serial number can be located on the serial number plate attached to unit. These numbers are required for service. See Fig. 1.



**Fig. 1 – Sample Data Information Plate**

## UNIT FEATURES

This unit has many exciting features which are different than those found on standard PTAC models. The owner must be familiar with these features in order to fully understand the operation and capability of the unit.

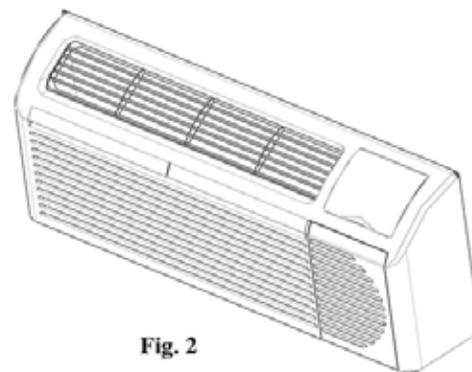


Fig. 2

- **SELF DIAGNOSTICS**—The unit has an onboard computer that utilizes real-time diagnostics to prolong the life of your unit. There is an LED indicator on the control board located behind the front panel, that will flash an error code if the unit has detected some kind of fault condition. In many cases, the unit will automatically clear the fault condition and continue operating with no interruption. In some cases, the condition cannot be cleared and the unit will require service. In those cases, an “Fx” failure mode will be displayed on the digital display. For a detailed list of all error codes and “Fx” conditions, see *Table 6—Status LED Indicator Definitions* for further details.
- **AUTO RESTART**—If power is lost, all of the control settings (setpoint, mode, fan speed, on/off and configuration) are stored. So when power is restored, the unit will start back up in the mode (and configuration) it was in when power was lost.
- **QUIET OPERATION**—The unit has 2 fan motors and a tangential blower wheel to reduce noise. The indoor fan will always run a minimum of 10 seconds before the compressor, to help reduce any compressor starting noise.
- **RANDOM COMPRESSOR RESTART**—To help prevent power surges after a power outage (from many of your PTAC/HPs starting at the same time), the compressor is equipped with a 2:45 to 3:15 minute random restart delay feature. Whenever the unit is plugged in, or power has been restarted, a random compressor restart will occur between the random restart time frame.
- **COMPRESSOR PROTECTION**—To prevent short cycling of the compressor and maximize its life, there is a random start-up delay of 3 minutes on the compressor and a minimum compressor run time of 3 minutes.
- **AUTOMATIC ROOM FREEZE PROTECTION**—The unit will automatically will keep the temperature in the room from getting too cold, where water pipes might freeze. If the unit is configured for the freeze protection feature to be active (which is the default condition), and while power is supplied to the unit, if the unit senses temperature below 40° F, the fan motor and electric heater are turned on and will warm the room to 50° F. If Freeze protection is not required, change the configuration switch to turn the feature off (see section on unit configuration).
- **AUTOMATIC DEFROST PROTECTION (FOR HEAT PUMP MODELS ONLY)**—When the outdoor temperature gets too cold (approx. 35° F) and the unit can no longer effectively heat with the compressor, the unit will automatically switch to electric heating. The unit will then heat with electric heat until the outside temperature rises enough (approx. 40° F), so the compressor can be used to effectively heat again.
- **AUTOMATIC QUICK WARM-UP (FOR HEAT PUMP MODELS ONLY)**—If the room temperature falls to 5° F below the set point temperature, the reverse cycle heat is shut off and the electric strip heat is turned on for one cycle, until heating is satisfied.
- **LED INDICATOR'S AND BUTTONS**—The touch pad has buttons for MODE, FAN SPEED, ON/OFF, SETPOINT UP and SETPOINT DOWN. It also has LEDs that correspond to the mode, fan speed and setpoint operation, to indicate the unit's status. The LEDs below the mode button, FAN, COOL, and HEAT, indicate which operating mode is active. The LEDs below the Fan button, Low, Med and Hi, indicate the fan speed that is selected. The LED located in the lower right corner is the unit On/Off status LED. If the unit is in ON mode, the LED will be green. If the unit is OFF, the LED will be red.
- **CONFIGURE FAN TO OPTIMIZE SELECTED APPLICATION**—This unit can be optimized to specific applications by configuring the fan to run in a continuous mode or to cycle on and off with the compressor and electric heater (can be different for both heating and cooling modes). In cycle mode, fan will continue to run after compressor or electric heater stops in order blow off any residual heat or cool left on coil. In continuous mode, the fan remains on at all times even when the compressor is off.

**Table 6—STATUS LED Indicator Definitions**

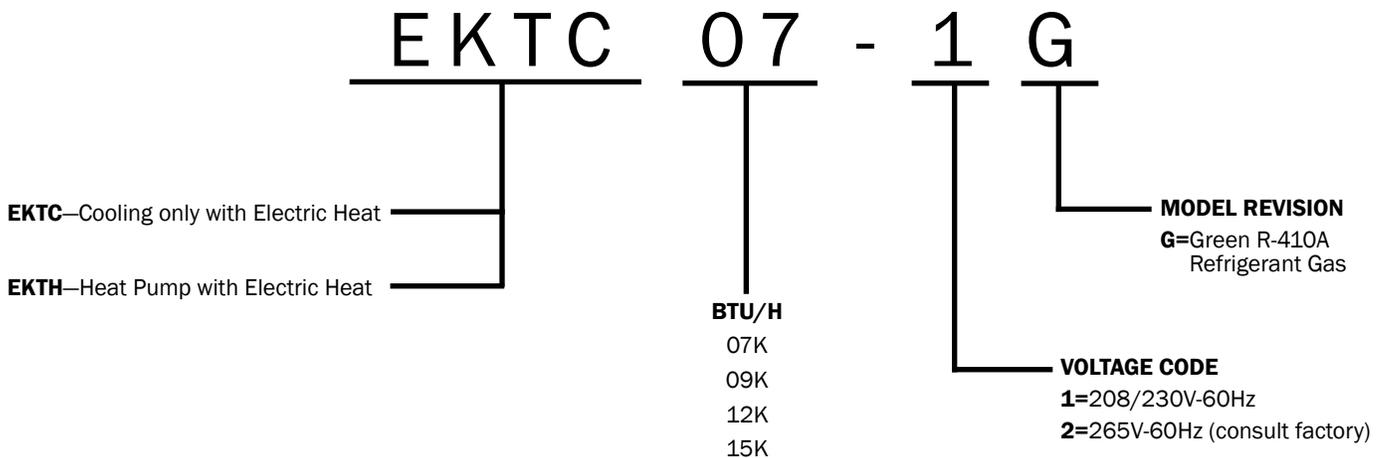
1	Indoor air temp sensor open/short 7	Segment display 'F1', with STATUS light flash 1 time, off 2 seconds
2	Indoor coil sensor open/short 7	Segment display 'F2', with STATUS light flash 2 times and off 2 seconds
3	Outdoor coil sensor open/short 7	Segment display 'F4', with STATUS light flash 4 times and off 2 seconds
4	Freeze Guard protection 7	Segment display 'FP'
5	Thermostat wiring error	STATUS light flash 9 times and off 3 sec, repeat
6	Indoor coil high temp protection	STATUS light flash 8 times and off 3 sec, repeat
7	Defrost (heat pump type)	STATUS light flash 7 times and off 3 sec, repeat
8	Outdoor coil high temp protection	STATUS light flash 6 times and off 3 sec, repeat
9	Indoor coil freeze protection	STATUS light flash 5 times and off 3 sec, repeat

**NOTE:** When status light is flashing, it will be ON for 0.5 seconds and OFF for another 0.5 seconds.

## Unit Features CONTINUED

- **Unit Configuration**—There are many different configuration possibilities, through both dipswitches and the digital keypad, that allow you to configure the unit for your exact application. See section on unit configuration for more details. Following are the configuration selections that have not previously been mentioned:
  - **°F or °C**—The unit can display in either °F or °C
  - **Indoor Temperature Sensor Biasing**—Optimize the room temperature sensor reading to your exact application (one for cooling and another for heating).
  - **Emergency Heat (for Heat Pump Only)**—Disable the compressor during heating mode operation (heat only with Electric Heat).
  - **Display Setpoint OR Room Temperature**—The unit can be configured to display the room temperature OR setpoint only, during heating and cooling modes. See section on unit configuration for more details.
  - **Limit the Setpoint Range**—The unit can be configured to limit the controlling setpoint range. The display will always show the complete setpoint range, but the controlling setpoint will be limited to the configured minimum and maximum setpoint selected. See section on unit configuration for more details.
  - **Energy Management**—Sometimes known as Front Desk Control, an input is provided so that the unit can be manually disabled from a different location. If the unit detects 24 vac on this input, it will automatically turn itself off. If no voltage is detected on the input, the unit will run normally.
  - **Wall Thermostat Control**—A wired wall thermostat can be connected to the unit. If it is, the unit must be configured to disable the keypad. See section on wired inputs and unit configuration for more details.

## UNIT NOMENCLATURE



**Fig. 3 – Unit Nomenclature**

## ELETRICAL DATA

### **WARNING**

#### **ELECTRICAL SHOCK HAZARD**

Failure to follow this warning could result in personal injury or death and/or property damage. DO NOT alter cord or plug or use an extension cord.

### **POWER CONNECTION OPTIONS**

Appropriate power cord accessory kit is determined by the voltage, and amperage of the branch circuit. **The unit does not come with a power cord (or hard wire kit).** An accessory power cord kit must be ordered to connect the unit to the outlet. If the unit is to be hard wired, an accessory hard wire kit must be ordered.

**IMPORTANT:** For 265V units, if a power cord is selected, it must plug into the 265V subbase accessory.

Be sure that your outlet matches the appropriate blade configuration of the plug and that it is within reach of the service cord. All wiring, including installation of the receptacle, must be in accordance with the NEC and local codes, ordinances and regulations. National codes require the use of an arc fault or leakage current detection device on all 208/230V power cords. Be sure to select the correct cord for your installation.

### **ALL UNITS**

#### **Wire Size**

Use recommended wire size given in Table 1 and install a single branch circuit. All wiring must comply with local and national codes. All units are designed to operate off ONE single branch circuit only.

**NOTE:** Use copper conductors only.

**Table 1—SUGGESTED BRANCH CIRCUIT WIRE SIZES\***

NAMEPLATE AMPS	AWG WIRE SIZE †
7.0 to 12	14
12.1 to 16	12
16.1 to 24	10

#### **LEGEND**

AWG — American Wire Gauge

\* Single circuit from main box.

† Based on copper wire at 60°C temperature rating.

#### **Grounding**

For safety and protection, the unit is grounded through the service cord plug or through separate ground wire provided on hard wired units. Be sure that the branch circuit or general purpose outlet is grounded.

#### **VOLTAGE SUPPLY**

Check voltage supply at outlet. For satisfactory results, the voltage range must always be within the ranges found on the data information plate.

#### **Cord-connected Units**

The 250V field supplied outlet must match the plug for the standard 208/230V units and be within reach of the service cord. The standard cord-connected 265V units require an accessory electrical subbase for operation. *Refer to Table 2 for proper receptacle and fuse type.*

#### **Power Cord Protection**

The power cord for 230/208v units provide power cord fire protection. Unit power automatically disconnects when unsafe conditions are detected. Power to the unit can be restored by pressing the reset button on plug head. Upon completion of unit installation for 230/208V models, an operational check should be performed using the TEST/RESET buttons on the plug head.

**NOTE:** The 265V models do not incorporate this feature as they require use of the electrical subbase accessory.

**Table 2—RECEPTACLES AND FUSE TYPES: 250, 265 VOLTS**

RECEPTACLE						
AMPS	15	20	30	15	20	30
RATED VOLTS	250	250	250	265	265	265
TIME-DELAY TYPE FUSE (or HACR Circuit Breaker)	15	20*	30	15	20	30

#### **LEGEND**

HACR—Heating, Air Conditioning, Refrigeration

\* May be used for 15 amp applications

## INSTALLATION

Proper installation is the responsibility of the installer.

Product failure due to improper installation is not covered under the Warranty. See the warranty card enclosed with your unit for more details.

### CHASSIS INSTALLATION

Units are shipped without a sleeve. In applications where unit is a replacement, it is recommended that a Heat Controller sleeve be used.

These units can retrofit General Electric, Amana, Carrier, Trane, Friedrich and many other field installed sleeves/grilles (be sure outdoor grille is installed on the sleeve). See Table 3 for details.

For any sleeve retrofit applications, be sure that the foam seals (factory-installed on the tube sheets) provide a good seal between the grille and outdoor coil tube sheets. These foam seals provide a barrier to separate outdoor coil leaving air from mixing with the outdoor incoming air (known as air recirculation).



### CAUTION

#### UNIT DAMAGE AND/OR OPERATION HAZARD

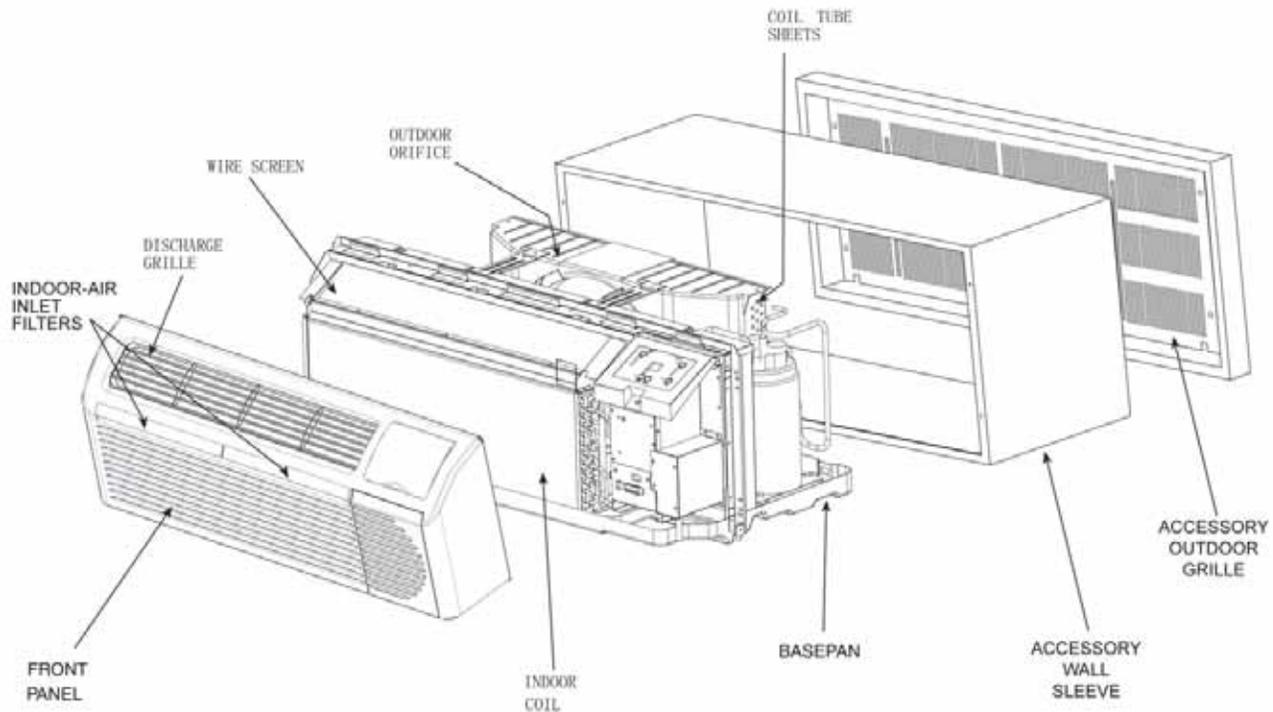
Failure to follow this caution may result in equipment damage or improper operation.

For retrofit applications, foam seals on outdoor coil tube sheets must make a seal between the coil and the grille or loss of performance and premature damage to the major components can result.

**Table 3—Retrofit Wall Sleeves**

Manufacturer	Wall Sleeve Part Number
General Electric	Metal Sleeve RAB71
	Plastic Sleeve RAB77
Carrier	Metal Sleeve SLEEVE-STEEL-1PK
	Plastic Sleeve SLEEVE-INSUL-1PK
Amana	Metal Sleeve WS900B
Trane	Metal Sleeve SLV149
Friedrich	T--Series Metal 111/2--in. Deep Wall Sleeve*
	Standard Depth Wall Sleeve 16 X 42 X 133/4--in. PXWS

\* FR-SLEEVE-EXT accessory is required for retrofit into Friedrich (T -Series) wall sleeves.



**Fig. 4—Unit Components**

**RETROFIT SLEEVE PREPARATION**

**IMPORTANT:** Inspect wall sleeve thoroughly prior to installation. Manufacturer does not assume responsibility for costs or damages due to defects in sleeve or for improper installation.

**WARNING****ELECTRICAL SHOCK HAZARD**

Failure to follow this warning could result in personal injury or death.

Disconnect all power to unit to avoid possible electrical shock during installation.

**NOTE:** See installation instructions included with wall sleeve for information on installation.

**NOTE:** Wall sleeves with a depth of 13.75" to 13.88" can be used in combination with competitive grilles.

## INSTALL UNIT INTO WALL SLEEVE

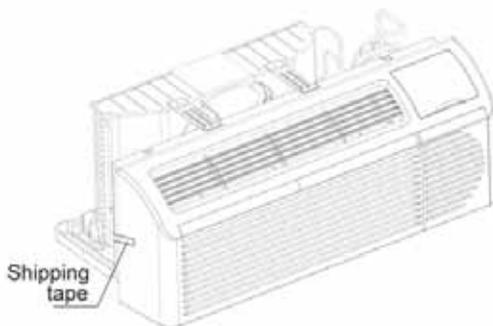
1. Carefully remove shipping tape from the front panel and vent door. See Fig. 5.
2. Remove shipping screw from the vent door, if present. See Fig. 6.
3. Remove front panel. See Fig. 7.
4. Lift unit level and slide unit into wall sleeve until foam seal rests firmly against front of wall sleeve.
5. Secure with four screws (supplied) through the unit flange holes. See Fig. 8.
6. Reinstall front panel. See Fig. 9.

### ⚠ CAUTION

#### UNIT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

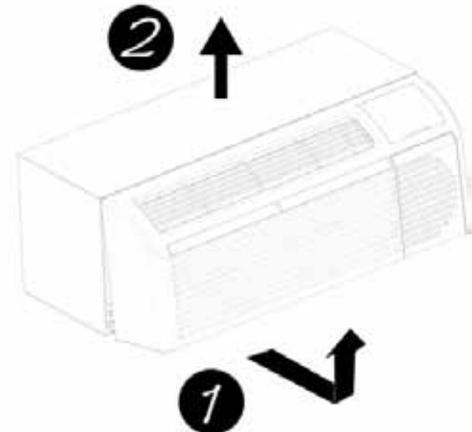
Failure to remove shipping tape and screw will prevent fresh air vent door from opening and may result in damage to vent door cable



**Fig. 5—Shipping Tape Location**

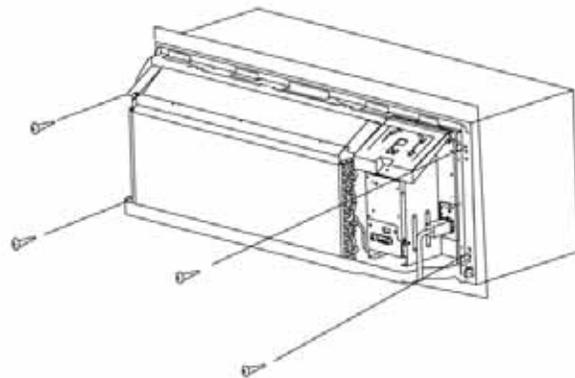


**Fig. 4—Shipping Screw Location**

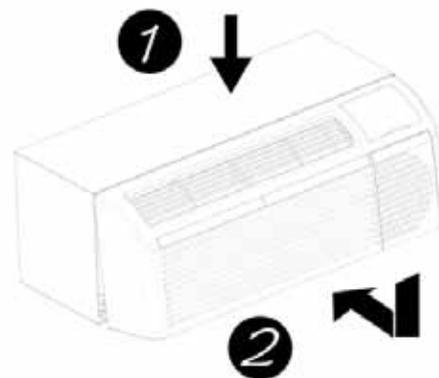


Pull out at the bottom to release it from the tabs (1). Then lift up (2).

**Fig. 7—Removing Front Panel**



**Fig. 8—Securing Unit**



Place tabs over top rail (1). Push Inward at bottom until panel snaps into place (2).

**Fig. 9—Replacing Front Panel**

# HOW TO CONNECT

**IMPORTANT:** Please read following electrical safety data carefully.

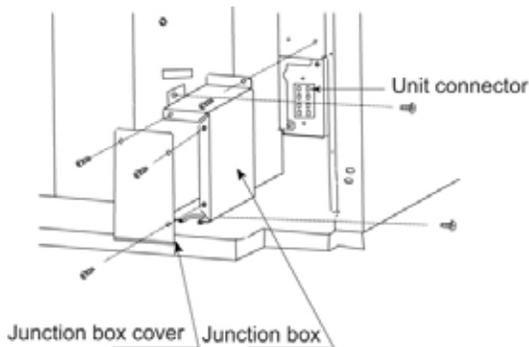
## ⚠ **WARNING**

### ELECTRICAL SHOCK AND/OR UNIT OPERATION AND DAMAGE HAZARD

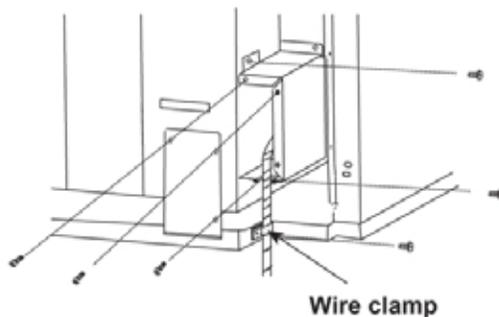
Failure to follow this warning could result in personal injury or death and/or unit operation and damage.

- Follow the National Electrical Code (NEC) or local codes and ordinances.
- For personal safety, this unit **MUST BE** properly grounded.
- Protective devices (fuses or circuit breakers) acceptable for unit installations are specified on the nameplate of each unit.
- **Do not use an extension cord with this unit.**
- Aluminum building wiring may present special problems – consult a qualified electrician.
- **When unit is in STOP position, there is still voltage to electrical controls.**
- Disconnect power to unit before servicing by:
  1. Removing power cord (if it has one) from wall receptacle.
  2. Removing branch circuit fuses or turning circuit breakers off at panel.

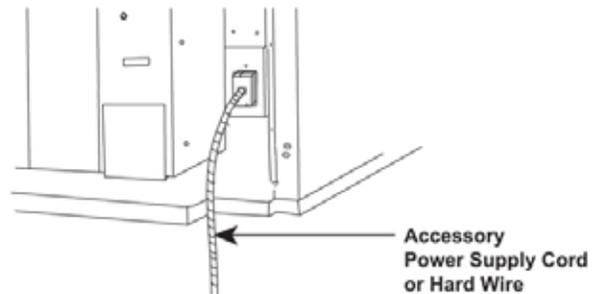
1. Remove front panel. See Fig. 7.
2. Remove junction box.
  - Remove junction box cover by removing three screws from front. Remove junction box by taking out top, rear and side screws. See Fig. 10.
3. Connect accessory power supply cord or hard wire connector to unit connector. See Fig. 11.
  - Units must be installed using the appropriate power supply kit. See Table 4—POWER CONNECTION CHART. These connections must be followed.
4. Reinstall junction box and cover.
- 5 Use wire clamp to attach power cord to basepan. Secure with screws (included) See Fig. 12.
- 6 Replace junction box and cover with screws removed from Step 2. Tighten securely.
7. Replace front panel. See Fig. 9.
8. Connect power to unit.



**Fig. 10—Junction Box Location**



**Fig. 12—Wire Clamp**



**Fig. 11—Power Connection**

**Table 4—Power Connection Chart**

UNIT MODEL	CODE OF POWER SUPPLY KIT		
	30A	20A	15A
	230/208 VOLT	230/208 VOLT	230/208 VOLT
EKTC07-1G	N/A*	7602-520A-230	7602-515A-230
EKTH07-1G			
EKTC09-1G			
EKTH09-1G			
EKTC12-1G			
EKTH12-1G			
EKTC15-1G	7602-530A-230		
EKTH15-1G			
	265 VOLT	265 VOLT	265 VOLT
EKTC07-2G	N/A*	7602-520A-265	7602-515A-265
EKTH07-2G			
EKTC09-2G			
EKTH09-2G			
EKTC12-2G			
EKTH12-2G			
EKTC15-2G	7602-530A-265		
EKTH15-2G			

\* Using 30A on these units could result in damage to your unit.

## SYSTEM CONFIGURATION

### VENTILATION CONTROL

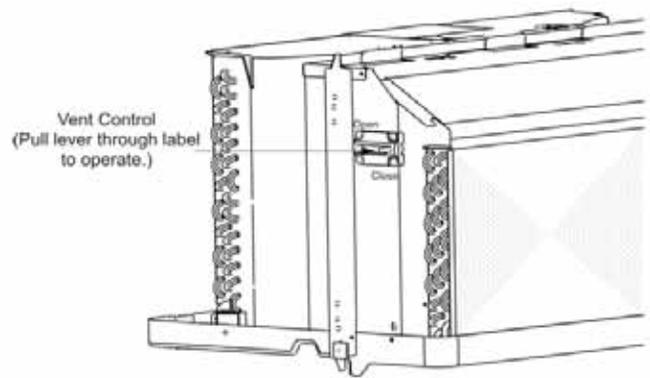
The ventilation control lever is located at left side of unit, behind front panel.

**NOTE:** The vent door shipping hardware must be removed before using vent control lever. See Installation Instructions.

When set at **CLOSE**, only the air inside the room is circulated and filtered.

When set at **OPEN**, some outdoor air will be drawn into room. This will reduce heating or cooling efficiency.

**Energy Tip:** Keep the vent control at **CLOSE**. Room air will be filtered and circulated.

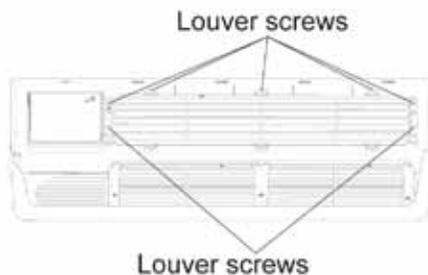


**Fig. 12—Ventilation Control Location**

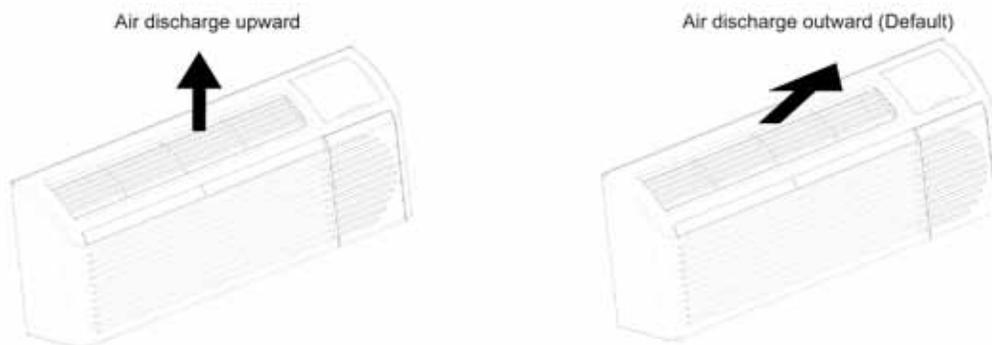
### ADJUSTING AIR DIRECTION

To adjust air direction from outward (default) to upward:

1. Remove front panel. See Fig. 7.
2. Remove louver screws that hold louver insert in place (from back side of front panel). See Fig. 13.
3. Turn louver insert and rotate 180°. See Fig. 14.
4. Replace louver insert.
5. Replace screws and front panel.



**Fig. 13—Backside of Front Panel**



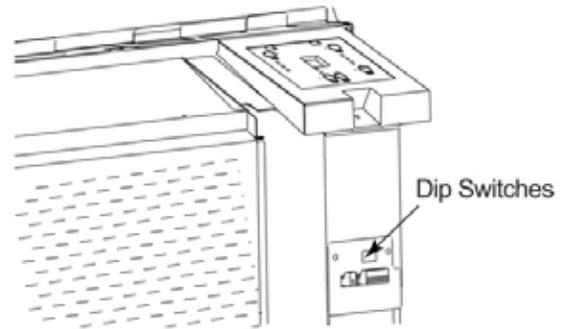
**Fig. 14—Adjusting Louvers**

**DIP SWITCHES**

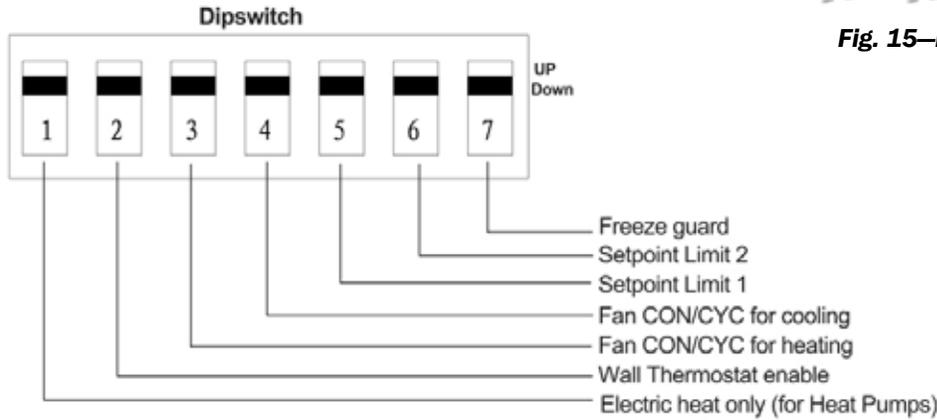
Auxiliary dip switch controls are located behind front panel, through an opening below the control panel. To access, remove front panel. See Fig. 7.

Dip switches are accessible without opening the control box. Unit must be powered OFF to effectively change their status.

Factory settings for dip switches will be in the **DOWN** position. See Table 5—Dip Switch Functions for functions of each dip switch position.



**Fig. 15—Dip Switches**



**Fig. 16—Dipswitch Location on Unit**

**Table 5—DIP SWITCH FUNCTIONS**

No.	UP		DOWN		REMARKS	DEFAULT
1	Electric Heat Only		Heat Pump		For Heat Pump unit only.	DOWN
2	Wall Thermostat Enabled		Control Panel Enabled			DOWN
3	Fan Continuous Run for Heating		Fan Cycle for Heat			DOWN
4	Fan Cycle for Cool		Fan Continuous Run for Cooling			DOWN
5*6	UP*UP 68–75 °F 20–24 °C	UP*DOWN 63–80 °F 18–28 °C	DOWN*UP 65–78 °F 19–26 °C	DOWN*DOWN 61–86 °F 16–30 °C (full range)	Two configurations (5*6) combine to select set point range. When set point limit set, display always shows full range.	DOWN*DOWN 61–86 °F 16–30 °C
7	Freeze Guard Disabled		Freeze Guard Enabled			DOWN

**Electric Heating Only / Emergency Heat (For Heat Pump Units Only)**

This setting is typically used for Emergency Heating.

**Wall Thermostat Enable**

A wired wall thermostat can be connected to the unit. If it is, this dipswitch must be moved to the Wall Thermostat Enable Position, before the wall thermostat will begin control.

**Heat and Cool Fan CON/CYC Dip-switches**

Allows the fan to operate in continuous or cycle modes while the unit is in heating or cooling mode (continuous or cycle):

**CON (Continuous)**

Allows fan to run continuously, circulating air even when the temperature setting has been satisfied. This switch helps to maintain the room temperature closer to the thermostat setting.

**CYC (Cycle)**

This setting allows the fan to cycle on and off with the compressor or electric heater. The fan stops a short time after the temperature setting is satisfied.

**Setpoint Temperature Limits**

Provides a restricted range of temperature control.

**Room Freeze Protection**

If unit senses a room temperature below 40 °F, the fan motor and electric strip heat will turn on and warm the room to 50 °F. The fan stops a short time after the temperature is satisfied.

## KEYPAD CONFIGURATION

Allows further configuration of system to desired application such as whether the unit displays in °F or °C, whether the display shows the set point or room air temperature, and to set controls for sensor biasing. Changes do not take effect until power is cycled on the unit.

### To enter Keypad configuration

Cycle power to unit. Press and hold the Fan Speed Button and the COOLER button for 5 continuous seconds, within 30 seconds of the unit being powered up. If the unit has had power for more than 30 continuous seconds, keypad configuration cannot be entered. When keypad configuration mode is first entered, it will default to Fahrenheit/ Celsius Display Mode.

### To scroll through the Keypad Configuration Options

Press and release the Fan Speed button. The stored value will be displayed.

### To modify configuration settings

Press and release the Setpoint Up or Setpoint Down buttons.

### To exit Keypad Configuration

Keypad Configuration will end on its own 30 seconds after the last button press or when the MODE button on the Keypad is pressed.

#### Fahrenheit/ Celsius Display Switch:

Change between degrees Fahrenheit and Celsius on the display. An "F" indicates Fahrenheit display and 'C' indicates Celsius. Default is degrees "F".

#### Indoor Air Temperature Sensor Biasing for Cooling mode:

Sometimes known as an anticipator, the air temperature sensor bias is used to adjust the room air temperature reading when in cooling mode. (Not normally required.)

#### Indoor Air Temperature Sensor Biasing for Heating mode:

Sometimes known as an anticipator, the air temperature sensor bias is used to adjust the room air temperature reading when in heating mode. (Not normally required.)

#### Indoor Temperature Display:

Change between showing setpoint only on the display during heating and cooling modes "SP" or displaying room temperature during heating and cooling modes "AA". "SP" mode is the default mode.

- If "SP" is selected, only the setpoint will be displayed during heating and cooling modes, regardless of what the real temperature is in the room.
- If "AA" mode is selected, the room temperature will be displayed during heating, cooling and fan only modes.
  - If the mode button has been changed to either heating or cooling modes, setpoint will be displayed for 10 seconds. After the 10 seconds, the room temperature will again be displayed.
  - If the on/off button is depressed (when the unit is off) and the last mode was either cooling or heating mode, the setpoint will be displayed for 10 seconds before displaying room temperature.
  - During heating and cooling modes, if either the up or down setpoint key is depressed, the display will show the setpoint until 10 seconds after the last up or down key press. Then the room temperature will be displayed again.

## OPERATION

### ABOUT THE CONTROLS ON YOUR UNIT

**NOTE:** In case of a power failure, the unit will remember the last programmed settings and will restart to those settings.

**IMPORTANT:** When unit is first started, high humidity conditions can cause condensation to form on discharge grille. Keep doors and windows closed. Room humidity will decrease and moisture will evaporate as the unit operates.

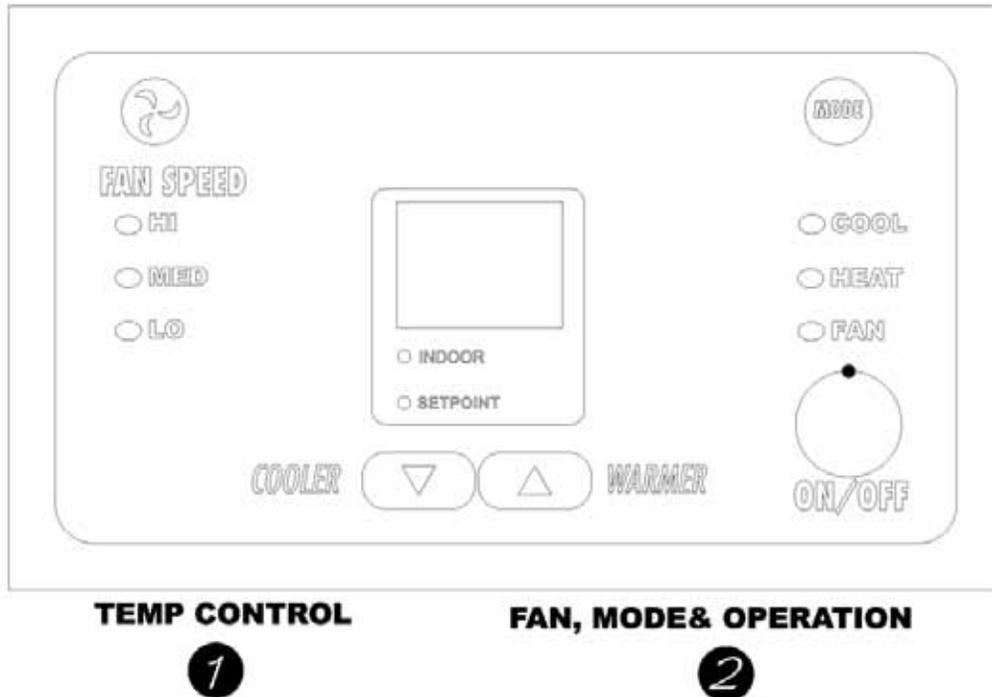


Fig. 17 – PTAC CONTROLS

#### 1. TEMP CONTROL

Temp Control is used to maintain room temperature. Compressor will cycle on and off to keep room at the requested level of comfort.

**COOLER**—Lowers temperature. (Minimum temperature setting is 61°F/16°C)

**WARMER**—Raises temperature. (Maximum temperature setting is 86°F/30°C)

#### 2. FAN SPEED, MODE & ON/OFF

**FAN SPEED**—Set fan operation for HI, MED, or LO speed.

**MODE-COOL**—For cooling

**MODE-HEAT**—For heating

**NOTE:** If unit is a heat pump, raising the heat setting by 5°F will cause unit to use its electric heating elements for one cycle in order to reach the new requested temperature quickly.

**MODE-FAN**—For fan-only operation

**ON/OFF**—Turns the unit on or off.

**NOTE:** The LED above the ON/OFF button will be green when unit is ON and red when the unit is OFF. All other LEDs will be off when unit is set to OFF mode.

**NOTE:** Power remains connected to unit even when the unit is in the OFF mode.

## CARE AND CLEANING

### FRONT PANEL AND CASE

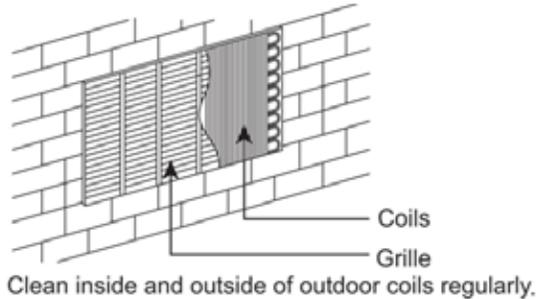
Turn unit off and disconnect power supply.

To clean, use water and a mild detergent. **DO NOT** use bleach or abrasives. Some commercial cleaners may damage the plastic parts.

### OUTDOOR COIL

Coil on outdoor side of unit should be checked regularly. Unit will need to be removed to inspect dirt build-up that will occur on the inside of the coil. If clogged with dirt or soot, coil should be professionally cleaned.

**NOTE:** Never use a high-pressure spray on coil.



**Fig. 18—Outdoor Coil**

### ⚠ CAUTION

#### UNIT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Airflow restriction may cause damage to the unit.

### BASE PAN

In some installations, dirt or other debris may be blown into unit from outside and settle in base pan (bottom of unit). Check base pan periodically and clean, if necessary.

### AIR FILTERS

**IMPORTANT: TURN UNIT OFF BEFORE CLEANING**

### ⚠ CAUTION

#### UNIT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

**Do not** operate unit without filters in place. If a filter becomes torn or damaged, it should be replaced immediately. Operating without filters in place or with damaged filters will allow dirt and dust to reach indoor coil and reduce cooling, heating, airflow and efficiency of unit. Airflow restriction may cause damage to unit.

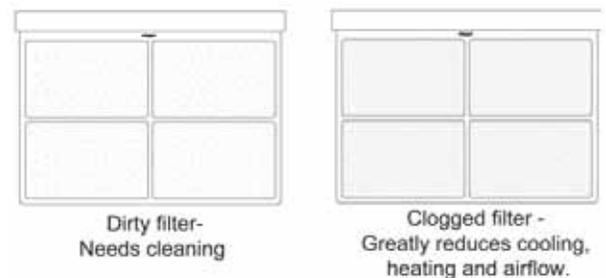
The most important thing you can do to maintain unit efficiency is to clean the filters at least every 30 days (or sooner depending on application). Clogged filters reduce cooling, heating and airflow.

#### Keeping filters clean will:

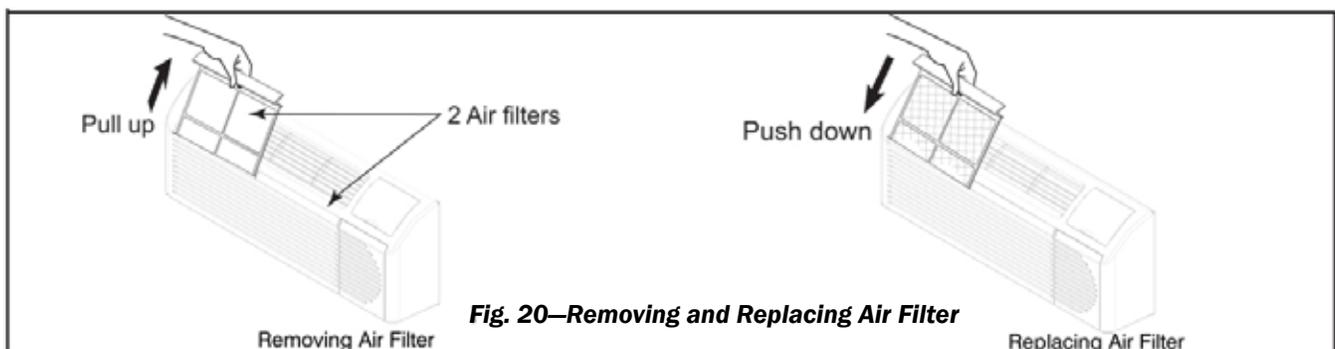
- Decrease cost of operation.
- Save energy.
- Prevent clogging the indoor coil.
- Reduce risk of premature component failure.

#### To Clean Air Filters:

- Vacuum off heavy soil.
- Run water through filters.
- Air dry thoroughly before replacing.



**Fig. 19—Identifying Clogged Filter**



**Fig. 20—Removing and Replacing Air Filter**

## PREVENTATIVE MAINTENANCE

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Preventative maintenance is essential to proper unit operation, efficiency and longevity.

To ensure equipment operates properly, it must be properly maintained. Equipment operation should be checked and verified several times during each year. During regular unit inspection and maintenance, follow the guidelines below:

- Clean both sides of outdoor coil. (Never use high pressure spray on coils.)
- Clean basepan and outdoor vent filter.
- Clean outdoor orifice and fan.
- Clean indoor coil. (Never use high pressure spray on coils.)
- Clean indoor fan, wire screen and front panel.
- Clean or install new indoor-air inlet filter(s).
- Clean wall sleeve and outdoor grille.
- Inspect cord and receptacle.
- Secure electrical connections.
- Ensure front panel is properly mounted and not damaged.
- Ensure wall sleeve is installed properly.
- Ensure heat and cool cycles operate properly.

## TROUBLESHOOTING

POSSIBLE CAUSES	SOLUTIONS
<p><b>UNIT DOES NOT START</b></p> <ul style="list-style-type: none"> <li>Unit may have become unplugged</li> <li>Fuse may have blown</li> <li>Circuit breaker may have tripped</li> <li>Unit may be off or in wall thermostat mode. Check section on dipswitch settings to verify dipswitches are set properly.</li> <li>Unit may be in a protection or diagnostic failure mode. See section on self diagnostics.</li> </ul>	<ul style="list-style-type: none"> <li>Check that plug is plugged securely in wall receptacle. <b>Note</b> :Plug has a test/reset button on it. Make sure that the plug has not tripped.</li> <li>Replace the fuse. See Note 1.</li> <li>Reset circuit breaker. See Note 1.</li> <li>Turn unit on (bottom right button on keypad). <b>Note</b>: If the unit turns on, the LED will be green. If the unit is off, the LED will be red. If there is no LED on, there is a problem with power or damage to the control.</li> <li>Check dipswitch settings</li> </ul>
<p><b>UNIT NOT COOLING/HEATING ROOM</b></p> <ul style="list-style-type: none"> <li>Unit air discharge section is blocked</li> <li>Temperature setting is not high or low enough <b>Note</b>: Setpoint limits may not allow the unit to heat or cool the room to the temperature desired. Check section on dipswitch settings.</li> <li>Unit air filters are dirty.</li> <li>Room is excessively hot or cold when unit is started.</li> <li>Vent door left open</li> <li>Unit may be in protection or diagnostic failure mode. Check section on self diagnostics.</li> <li>Compressor is in time delay mode. There is a protective time delay (approx. 3 minutes) on starting the compressor after a power outage (or restarting after it has been turned off), to prevent tripping of the compressor overload.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure that curtains, blinds or furniture are not restricting or blocking unit airflow.</li> <li>Reset to a lower or higher temperature setting.</li> <li>Remove and clean filters.</li> <li>Allow sufficient amount of time for unit to heat or cool the room. Start heating or cooling early before outdoor temperature, cooking heat or gatherings of people make room uncomfortable.</li> <li>Close vent door.</li> <li>Check dipswitch settings for desired comfort.</li> </ul> <p>Wait approximately 3 minutes for compressor to start</p>
<p><b>DISPLAY HAS STRANGE NUMBERS/CHARACTERS ON IT</b></p>	<ul style="list-style-type: none"> <li>The unit may be in a diagnostic condition. Check self diagnostic section to determine if the unit has had a failure.</li> <li>The unit may be set for °C (instead of °F), see the keypad configuration section</li> </ul>
<p><b>UNIT MAKING NOISES</b></p>	<ul style="list-style-type: none"> <li>Clicking, gurgling and whooshing noises are normal during operation of unit.</li> </ul>
<p><b>WATER DRIPPING OUTSIDE</b></p>	<ul style="list-style-type: none"> <li>If a drain kit has not been installed, condensation runoff during very hot and humid weather is normal. See Note 2. If a drain kit has been installed and is connected to a drain system, check gaskets and fittings around drain for leaks and plugs.</li> </ul>
<p><b>WATER DRIPPING INSIDE</b></p> <ul style="list-style-type: none"> <li>Wall sleeve is not installed level</li> </ul>	<ul style="list-style-type: none"> <li>Wall sleeve must be installed level for proper drainage of condensation. Check that installation is level and make any necessary adjustments.</li> </ul>
<p><b>ICE OR FROST FORMS ON INDOOR COIL</b></p> <ul style="list-style-type: none"> <li>Low outdoor temperature</li> <li>Dirty filters</li> </ul>	<ul style="list-style-type: none"> <li>When outdoor temperature is approximately 55°F or below, frost may form on the indoor coil when unit is in Cooling mode. Switch unit to FAN operation until ice or frost melts.</li> <li>Remove and clean filters.</li> </ul>
<p><b>COMPRESSOR PROTECTION</b></p> <ul style="list-style-type: none"> <li>Power may have cycled, so compressor is in a restart protection.</li> </ul>	<ul style="list-style-type: none"> <li><b>Random Compressor restart</b> – Whenever the unit is plugged in, or power has been restarted, a random compressor restart will occur. After a power outage, the compressor will restart after approximately 3 minutes.</li> <li><b>Compressor Protection</b> – To prevent short cycling of the compressor, there is a random startup delay of 3 minutes and a minimum compressor run time of 3 minutes.</li> </ul>

**NOTES:**

1. If circuit breaker is tripped or fuse is blown more than once, contact a qualified electrician.

2. If unit is installed where condensation drainage could drip in an undesirable location, an accessory drain kit should be installed and connected to drain system.

*Design, specifications, performance data and materials subject to change without notice.*

# HEAT CONTROLLER

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