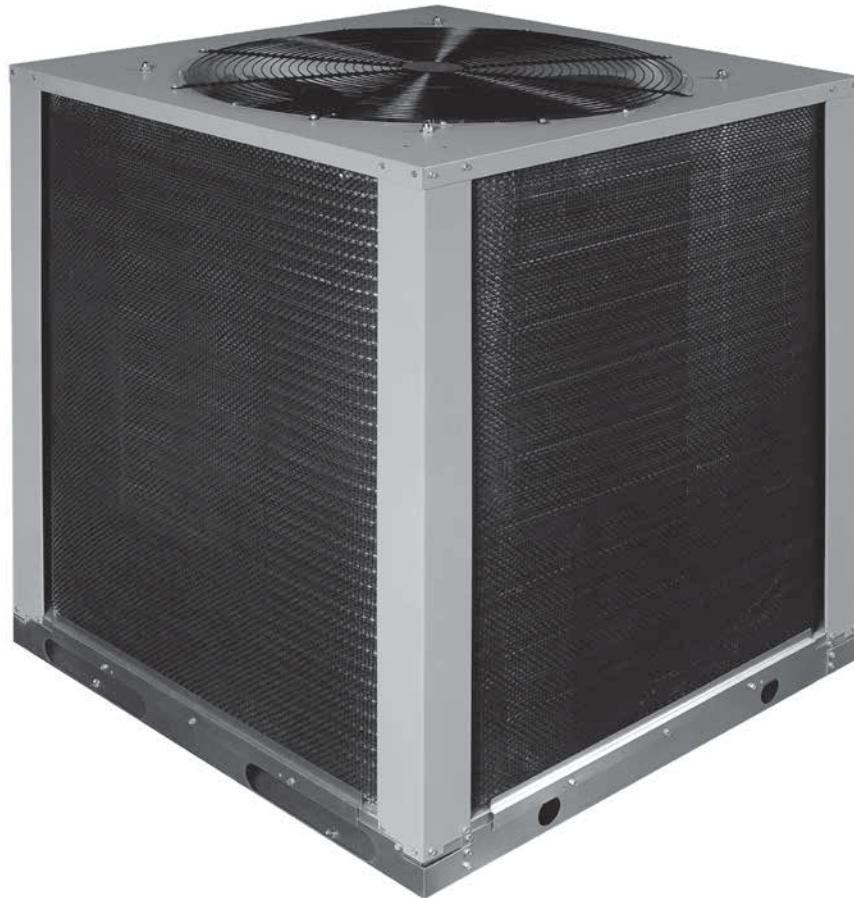


USER'S MANUAL

Split System Heat Pump - 2-Stage, 3-Phase, R-410A



⚠ WARNING

- Under no circumstances should the appliance owner attempt to install and/or service this equipment. Some local codes require licensed installation / service personnel for this type of equipment. Improper service, adjustment, or maintenance may cause explosion, fire, electrical shock or other hazardous conditions which may result in personal injury or property damage.
- Read these instructions thoroughly before using the equipment. Follow all precautions and warnings contained within these instructions and on the unit.
- Improper installation, adjustment, alteration, service, or maintenance can cause personal injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified installer or service agency.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

DO NOT DESTROY. PLEASE READ CAREFULLY & KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

IMPORTANT SAFETY INFORMATION

Please read all information in this manual thoroughly and become familiar with the capabilities and use of your appliance before attempting to operate or maintain it. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored.

WARNING indicates a potentially hazardous situation that if not avoided, could result in personal injury or death.

CAUTION indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

Keep this literature where you have easy access to it in the future. If a problem occurs, check the instructions and follow recommendations given. If these suggestions don't eliminate your problem, call your servicing contractor. **Do not attempt to repair or service this unit yourself!**

WARNING:

This equipment contains liquid and gaseous refrigerant under pressure. Installation and servicing should only be attempted by qualified, trained personnel thoroughly familiar with the equipment and safe responsible refrigerant handling procedures. Failure to comply with this warning could result in equipment damage, personal injury, or death.

WARNING:

To avoid possible equipment damage, fire, or death, the following instructions must be observed regarding unit maintenance and operational procedures.

- To achieve optimum performance and minimize equipment failure, it is recommended that periodic maintenance be performed on this unit. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. Please consult your dealer for maintenance information and availability of maintenance contracts.
- The area around the unit and the vicinity of any other appliances must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids. Do not store or use flammable items such as paint, varnish, or strippers in the vicinity of the unit.
- Do not use the area around the unit as a storage area. This area must be kept clean and clear of loose or exposed insulation materials. Examine the unit's area when it is installed or when insulation is added, since some insulation materials may be combustible.
- The top and sides of the unit must be open and clear of obstructions for proper airflow. Do not place anything on top of the fan grille or within 18 inches of all 4 sides of the unit. These clearances must be maintained to achieve rated performance. Do not use the area around the unit as a storage area.
- Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect

the unit and to replace any part of the electrical control system that has been under water.

- Familiarize yourself with the controls that shut off the electrical power to the unit. If the unit needs to be shut down for an extended period of time, turn off the electrical power. For your safety always turn off the electrical power before performing maintenance on the heat pump.

ABOUT THE HEAT PUMP

Your heat pump is a unique, all weather comfort-control appliance that will heat and cool your building year round and provide energy saving comfort. It's an unknown fact that heat is always in the air, even when the outside temperature is below freezing. The heat pump uses basic laws of physics to provide energy saving heat during the winter months.

In colder temperatures, the heat pump performs like an air conditioner run in reverse. Available heat energy outside the building is absorbed by the refrigerant and exhausted inside the building. This efficient process means you only pay for "moving" the heat from the outdoors to the indoor area. You do not pay to generate the heat, as is the case with more traditional furnace designs.

During summer, the heat pump reverses the flow of the heat-absorbing refrigerant to become an energy-efficient, central air conditioner. Excess heat energy inside the building is absorbed by the refrigerant and exhausted outside the building.

This heat pump has been tested for capacity and efficiency in accordance with AHRI Standards and will provide many years of safe and dependable comfort, providing it is properly installed and maintained. With regular maintenance, this unit will operate satisfactorily year after year. Abuse, improper use, and/or improper maintenance can shorten the life of the appliance and create unsafe hazards.

OPERATING INSTRUCTIONS

A 2-Stage heat pump thermostat is required for proper operation of this equipment. The thermostat should be mounted about 5 feet above the floor on an inside wall and not on an outside wall or other location where its operation may be adversely affected by radiant heat from fireplaces, sunlight, or lighting fixtures, and convective heat from warm air registers or electrical appliances.

Thermostat styles vary. Some models may not include the AUTO mode and others will have the AUTO in place of the HEAT and COOL. Others may include all three. Please refer to the thermostat's User Manual for detailed programming instructions.

NOTE: If the temperature level is re-adjusted, or the system mode is reset, the fan and compressor in the outdoor unit may not start immediately. A protective timer circuit holds the compressor and the outdoor fan off for approximately 5 minutes following a previous operation or the interruption of the main electrical power.

Cooling Operation (2 Stage)

1. Set the thermostat's system mode to COOL or AUTO and change the fan mode to AUTO. See Figure 1
2. Set the thermostat temperature selector to the desired temperature level. Stage 1 cooling (low speed) will energize the outdoor fan, compressor, and indoor blower. compressor and indoor blower will operate on low speed and will cycle on and off to maintain the indoor temperature

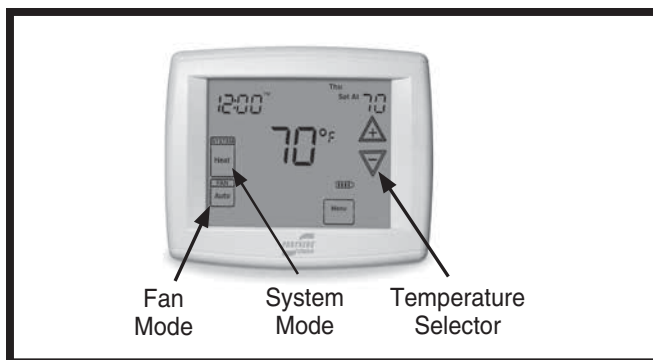


Figure 1. Digital Thermostat

at the desired cooling level. If indoor temperature is not satisfied the thermostat will energize Stage 2 and the compressor and indoor blower motor will ramp to high speed operation until load conditions are met and cycle as required.

Heating Operation (2-Stage Heat Pump + Optional Electric Heat)

1. Set the thermostat's system mode to HEAT or AUTO and change the fan mode to AUTO. See Figure 1.
2. Set the thermostat temperature selector to the desired temperature level. Stage 1 heating (low speed) will energize the outdoor fan, compressor, and indoor blower. Compressor and indoor blower will operate on low speed and will cycle on and off to maintain the indoor temperature at the desired heating level. If indoor temperature is not satisfied the thermostat will energize Stage 2 and the compressor and indoor blower motor will ramp to high speed operation until load conditions are met and cycle as required.

Emergency Heat

Some thermostats may include a system mode called EM HT or AUX HT, etc. This is a back-up heating mode that should only be used if a problem is suspected. With the mode set to EM HT, etc., the compressor and outdoor fan will be locked off and supplemental heat (electric resistance heating) will be used as a source of heat. Sustained use of electric resistance heat in place of the heat pump will result in an increase in electric utility costs.

Defrost Operation

During cold weather heating operation, the outdoor unit will develop a coating of snow and ice on the heat transfer coil. This is normal and the unit will defrost itself. This unit monitors ambient and coil temperatures to regulate the defrost function accordingly.

At the beginning of the defrost cycle, both the outdoor condenser fan and compressor will turn off. After approximately 30 seconds, the compressor will turn on and begin to heat the outdoor coil causing the ice and snow to melt.

NOTE: While the ice and snow is melting, some steam may rise from the outdoor unit as the warm coil causes the melting frost to evaporate. When defrost is completed, the outdoor fan motor will start, and the compressor will turn off again. In approximately 30 seconds the compressor will start up again and continue normal operation.

Operating the Heat Pump for Automatic Cooling & Heating

1. Set the thermostat system switch to AUTO and the thermostat fan switch to AUTO. See Figure 1.
2. Set the thermostat temperature to the desired temperature level. The outdoor unit and the indoor blower will then cycle on and off in either the heating or cooling mode of operation as required to automatically maintain the indoor temperature within the desired limits.

Operating the Indoor Blower Continuously

The continuous indoor blower operation is typically used to circulate the indoor air to equalize a temperature imbalance due to a solar loads, occupancy fresh air loads, or mechanical equipment operation.

Set the thermostat fan mode to ON (Figure 1). The indoor blower starts immediately, and will run continually on low speed until the fan mode is reset to AUTO.

The continuous indoor blower operation can be obtained with the thermostat system mode set in any position, including OFF.

Shutting the Heat Pump Off

Change the thermostat's system mode to OFF and the fan mode to AUTO. See Figure 1. **NOTE:** The system will not operate, regardless of the temperature selector setting.

HEAT PUMP MAINTENANCE

⚠ CAUTION:

Shut off all electrical power to the unit before performing any maintenance. Failure to comply may result in personal injury or death.

Proper maintenance is most important to achieve the best performance from the appliance. This equipment should be inspected annually by a licensed HVAC technician. Read the maintenance items below and follow the instructions for years of safe, trouble free operation. Routine maintenance should include the following:

Regular Cleaning

⚠ WARNING:

Do not place combustible material on or against the unit cabinet. Do not place combustible materials, including gasoline and any other flammable vapors and liquids, in the vicinity of the unit.

- Keep the outdoor unit clean. Hose off periodically and keep unit fins clear of leaves and grass clippings, being careful not to damage the aluminum fins
- Clean or replace the indoor air filter at the start of each heating and cooling season or when an accumulation of dust and dirt is visible on the air filter. Never operate the appliance without a filter installed in the return air duct. Inspect filters frequently and replace when necessary with filter of same dimensional size.

- Keep the outdoor unit clear of obstructions. Remove any obstructions such as twigs, sticks, etc. DO NOT obstruct airflow with tall plants or shrubs.

TROUBLESHOOTING

If the unit fails to operate, check the following:

- Check the thermostat setting. Make sure the system mode and temperature settings are correct.
- Check the electrical panel for tripped circuit breakers.
- Check the filters for dust accumulation.
- Check the outdoor unit and make sure it is clean and not covered with grass or leaves.

WARRANTY INFORMATION

A warranty certificate with full details is included with the equipment. Carefully review these responsibilities with your dealer or service company. The manufacturer will not be responsible for any costs found necessary to correct problems due to improper setup, improper installation, adjustments, improper operating procedure on the part of the user, etc.

Some specific examples of service calls which are not included in the limited warranty are:

- Correcting wiring problems in the electrical circuit supplying the equipment.
- Resetting circuit breakers or other switches.
- Adjusting or calibrating of thermostat.

