

# USER'S MANUAL

## Variable Speed, Inverter Driven - Single Package Gas Heating / Electric Cooling Unit



**IMPORTANT!** 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 this unit. 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 service this unit yourself!

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.

### WARNING:

#### FIRE OR EXPLOSION HAZARD

- Failure to follow safety warnings exactly could result in serious injury or property damage.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

#### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Leave the building immediately.
- Immediately call your gas supplier from a neighbors phone. Follow the gas suppliers instructions.
- If you cannot reach your gas supplier, call the fire department.

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

## IMPORTANT SAFETY INFORMATION

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### **WARNING:**

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

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- 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 gas heating / electric cooling unit and the vicinity of any other gas 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.
- 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 control system and any gas control which has been under water.
- Familiarize yourself with the controls that shut off the gas and electrical power to the unit. If the unit is to be shut down for an extended period of time, turn off both the gas and electrical power. For your safety always turn off both the gas and electrical power before performing service or maintenance on the furnace. If the gas supply to the unit must be shut off, refer to the gas valve label (Figure 2, page 5).

### **Combustion Air Supply**

The gas heating/electric cooling unit needs an adequate supply of combustion and ventilation air for proper and safe operation. Do not block or obstruct air openings on the unit or air openings supplying the area where it is installed.

If the unit is operated with inadequate combustion air supply, the flame roll-out control switch located above the burners will open, turning off the gas supply to the burners. The flame roll-out control is a manual reset device. Do not attempt to reset this device yourself! Call your servicing contractor.

### **WARNING:**

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**Combustion air must not be drawn from a corrosive atmosphere.**

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To maximize heat exchanger life, the combustion air must be free of chemicals which form corrosive acidic compounds in the combustion gases.

**IMPORTANT NOTE:** Do not store any chemicals with flammable or caustic vapors near the vent termination. Some examples of these chemicals are:

- Gasoline/Kerosene
- Permanent wave solutions
- Chlorinated waxes and cleaners
- Chlorine based swimming pool chemicals
- Water softening chemicals
- De-icing salts or chemicals
- Carbon tetrachloride
- Halogen type refrigerants
- Cleaning solvents
- Cements, glues, paint removers, varnishes, etc.
- Hydrochloric acid
- Masonry acid washing materials

### **Ductwork**

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### **WARNING:**

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**Failure to prevent products of combustion from being circulated into the occupied space can create potentially hazardous conditions including carbon monoxide poisoning that could result in personal injury or death.**

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The duct connections must be physically sound and sealed to the unit's casing to prevent products of combustion from entering the occupied space.

The return air and circulating air ductwork must not be connected to any other heat producing device such as a fireplace insert, stove, etc. Doing so may result in fire, explosion, personal injury, carbon monoxide poisoning, or property damage.

### **Troubleshooting**

Before you call a Technician, 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 unit and make sure it is clean and not covered with grass or leaves.
- If the items above don't resolve your problems, then call your nearest service technician.

## ABOUT THE GAS HEATING / ELECTRIC COOLING UNIT

This gas heating unit with electric cooling has been designed and built to 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. A regular service and maintenance schedule should be established to ensure efficient and safe operation of the unit. See System Maintenance on page 5

### OPERATING INSTRUCTIONS

Thermostat styles vary. Some models may not include an auto heat/cool changeover mode and others will have the auto heat/cool changeover in addition to HEAT & COOL. Please refer to the thermostat's User manual for detailed programming instructions.

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.

A two-Stage cooling/heating thermostat is required to obtain optimal intended performance.

#### Cooling Operation (2 Stage Operation)

1. Set the thermostat system mode to COOL and the thermostat fan mode to AUTO. See Figure 1.
2. Set the thermostat temperature selector to the desired temperature level. The outdoor fan, compressor, and indoor blower will all cycle on and off to maintain the indoor temperature at the desired cooling level.
3. The unit will operate at 1 of 5 available speeds predetermined for a balance of optimum capacity and efficiency. These speeds depend on several factors including:
  - Whether first or second stage operation is called for by the thermostat which MUST be two stage capable.
  - The outdoor ambient temperature.
  - The length of time, unit has been operating during current cycle.
  - The operating speed history for both the current and the previous operating cycles.
  - **EXAMPLE:** With a first stage call, if the setpoint was satisfied quickly, the unit will restart the next time at a lower speed. At a low or intermediate speed, if the setpoint is not satisfied within 60 minutes, the speed will be increased. If the unit cycles off after having a speed increase, the complete next cycle will be at a higher speed. Also, for first startup and between

cycles there will always be a 5 minute minimum off time (start delay) imposed.

#### NOTES:

If first stage cooling does not satisfy the thermostat demand, then second stage cooling will energize. The compressor, outdoor fan, and indoor blower will ramp up to a higher speed.

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

#### Heating Operation (2 Stage Operation)

1. Set the thermostat system mode to Heat and the thermostat fan mode to AUTO. See Figure 1.
2. Set the thermostat temperature selector to the desired temperature level. The indoor blower and gas heat module will cycle on and off to maintain the indoor temperature at the desired heating level.

If first stage heat does not satisfy the thermostat demand, second stage heat will energize. The indoor blower motor and inducer motor will ramp to high speed.

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### WARNING:

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**If overheating occurs, or the gas supply fails to shut off, shut off the gas valve to the unit before shutting off the electrical supply.**

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#### Continuous Indoor Blower Operation

The continuous indoor blower operation is typically used to circulate the indoor air to equalize a temperature imbalance due to a solar load, cooking, or fireplace operation.

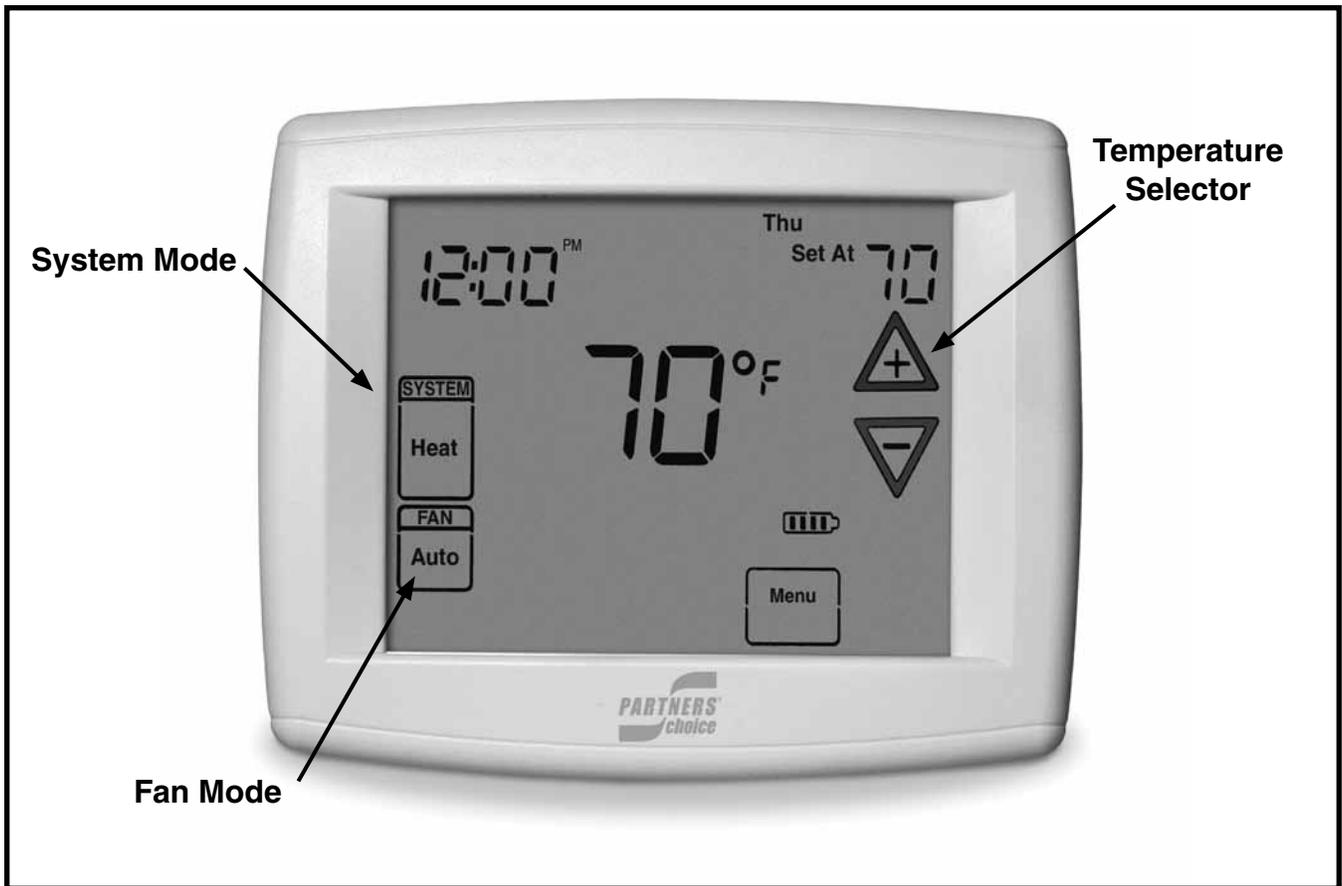
Set the thermostat fan mode from AUTO to ON (see Figure 1). The indoor blower will start immediately and will run continually at 50% of nominal CFM until the fan switch is reset to AUTO.

**NOTE:** On some thermostat models the setting may be called CONT.

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

#### System Shutdown

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



**Figure 1. Two-Stage Digital Thermostat**

MAINTENANCE ITEM	FREQUENCY OF MAINTENANCE		
	BEGINNING OF HEATING SEASON	END OF HEATING SEASON	MONTHLY
Verify area around the unit is free of combustibile materials	X		X
Verify combustion and ventilation air is not restricted	X	X	X
Verify no signs of physical deterioration of the furnace	X	X	X
Inspect unit support	X	X	
Inspect return air connections	X	X	
Clean or replace filter(s)			X

**Table 1. Maintenance Schedule**

## SYSTEM MAINTENANCE

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### CAUTION:

**Verify all electrical power to the unit is disconnected and the gas is shut off before performing the following recommended maintenance.**

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Proper maintenance is most important to achieve the best performance from the appliance and should be performed by a qualified service technician at least once a year. Follow the maintenance schedule and the instructions below for years of safe, trouble free operation.

- Annually inspect the physical support of the unit to ensure that it is physically sound without sagging, cracks, gaps, etc., around the base so as to provide a seal between the support and the base.
  - Annually inspect the return-air connection to ensure that it is physically sound and is still sealed to the casing of the unit. Also inspect the unit, ductwork, and vent system for signs of physical deterioration.
  - Do not operate the unit without all doors and covers in place. Avoid operating the unit when windows and doors are open.
  - Refer to the Maintenance Schedule in Table 1 for recommended maintenance information.
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### CAUTION:

**DO NOT make contact with any of the internal electrical components while cleaning the unit.**

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#### Regular Cleaning

- Remove any leaves and grass clippings from the outdoor coil. Check for and remove any obstructions such as twigs, sticks, etc. **Be careful not to damage the aluminum fins**

## Air Filters

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### WARNING:

**Never operate the unit without a filter in the return air system. Dust and lint in the return air can build up on the internal components, resulting in loss of efficiency, equipment damage, and possible fire risk.**

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This unit is not supplied with air filter(s) and has no means for accommodating internal air filter(s). The installer is responsible for installing a filtration system into the return air duct of this system. The filter(s) of this system should be checked monthly.

It is very important to replace or clean the filter(s) installed in the return air duct of this system. A clogged filter could cause airflow related problems and reduce the overall efficiency of your unit. Depending upon which type of filter was installed with your unit, clean (permanent) or replace (disposable) filter(s) of your system at the beginning of every heating season, the beginning of every cooling season, and when an accumulation of dust and dirt are visible on the filter.

**IMPORTANT: Replace disposable filter(s) installed in your system only with the same size dimensional filters that are being replaced. Clean permanent filter(s) as described by the manufacturer.**

#### 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. 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.

## FOR YOUR SAFETY READ BEFORE OPERATING

**WARNING:** If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.

- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- WHAT TO DO IF YOU SMELL GAS**
- Do not try to light any appliance.
  - Do not touch any electrical switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or move by hand, do not try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

## POUR VOTRE SÉCURITÉ. À LIRE AVANT L'EMPLOI

**ATTENTION!** L'observation de ces instructions peut entraîner un incendie ou une explosion pouvant causer des dommages à votre propriété à votre personne, ou la mort.

- A. Cet appareil ménager n'a pas de veilleuse. Il est doté d'un système d'allumage automatique. Ne pas essayer d'allumer le brûleur manuellement.
- B. AVANT L'USAGE. Attention à une possible odeur de gaz surtout au niveau du plancher où les gaz les plus lourds ont la tendance de se concentrer.
- EN CAS D'ODEUR DE GAZ.**
- Ne mettre en marche aucun appareil électrique.
  - Ne toucher à aucun commutateur électrique, ne pas employer le téléphone.
  - Quitter le bâtiment immédiatement et avvertir la compagnie du gaz en utilisant le téléphone d'un voisin.
  - A défaut de la compagnie du gaz, avvertir le service des pompiers.
- C. Enfoncer ou faire tourner le robinet à gaz à la main seulement. Ne jamais utiliser d'outils. S'il n'est pas possible de faire tourner ou d'enfoncer le robinet à la main, ne pas essayer de le réparer. Faire appel à un spécialiste. Forcer ou tenter de réparer le robinet pourrait être à l'origine d'une explosion ou d'un incendie.
- D. Il est déconseillé d'utiliser cet appareil en contact prolongé avec l'eau. Faire inspecter ou remplacer toute commande par un technicien qualifié si un des systèmes de contrôle du gaz s'est trouvé sous l'eau.

## OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.
2. Set the thermostat to the lowest setting.
3. Turn off all electrical power to the appliance.
4. The appliance's ignition device automatically lights the burner. Do not try to light burner by hand.
5. Remove the control access door/panel (upper door if two-door model).
6. Move the gas control switch to the "OFF" position. (See Figure 1)
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in above information. If you don't smell gas, go to the next step.
8. Move the gas control switch to the "ON" position. (See Figure 1)
9. Replace the control access door/panel (upper door if two-door model).
10. Turn on all electrical power to the appliance.
11. Turn the thermostat to a desired setting.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

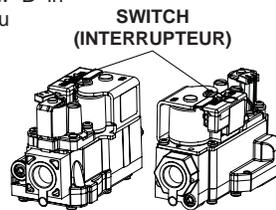


Figure 1

## MODE D'EMPLOI

1. **ATTENTION!** Lire d'abord la liste des mesures de sécurité ci-dessus.
2. Mettre le thermostat à la position minimale.
3. Couper le courant électrique qui mène à l'appareil.
4. Cet appareil ménager étant doté d'un système d'allumage automatique, ne pas essayer d'allumer le brûleur manuellement.
5. Retirer le panneau/volet d'accès de commande (panneau supérieur s'il s'agit d'un modèle à deux panneaux).
6. Réglez l'interrupteur de commande du gaz à la position "OFF". (voir Figure 1).
7. Attendre cinq (5) minutes pour s'assurer de la dissipation du gaz. En cas d'odeur, ARRÊTER LE PROCÉDÉ. Suivre les instructions ci-dessus (Section B). En l'absence de toute odeur de gaz, avancer à l'étape suivante.
8. Réglez l'interrupteur de commande du gaz à la position "ON". (voir Figure 1).
9. Remettre le panneau/volet d'accès de commande en place (panneau supérieur s'il s'agit d'un modèle à deux panneaux).
10. Rebrancher l'appareil sur le réseau électrique.
11. Ajuster le thermostat à la position désirée.
12. Si l'appareil ne fonctionne pas, suivre les "Directives d'arrêt" ci-dessous et appeler le technicien de service.

## TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to the lowest setting.
2. Turn off all electrical power to the appliance if service is to be performed.
3. Remove the control access door/panel (upper door if two-door model).
4. Move the gas control switch to the "OFF" position. Do not use force. (See Figure 1)
5. Replace the control access door/panel (upper door if two-door model).



Figure 2. Gas Valve Label

## DIRECTIVES D'ARRÊT

1. Mettre le thermostat à la position minimale.
2. Débrancher l'appareil en prévision de la réparation.
3. Retirer le panneau/volet d'accès de commande (panneau supérieur s'il s'agit d'un modèle à deux panneaux).
4. Réglez l'interrupteur de commande du gaz à la position "OFF". Ne forcez pas. (voir Figure 1).
5. Remettre le panneau/volet d'accès de commande en place (panneau supérieur s'il s'agit d'un modèle à deux panneaux).

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Through Technician  
Certification by NATE



**IMPORTANT** - This product has been designed and manufactured to meet ENERGY STAR criteria for energy efficiency. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow the manufacturer's refrigerant charging and air flow instructions. Failure to confirm proper charge and airflow may reduce energy efficiency and shorten equipment life. **THIS APPLIES TO 15 SEER MODELS ONLY.**

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