INSTALLATION INSTRUCTIONS AND HOMEOWNER'S MANUAL: ELECTRIC FURNACE



MODULATING

(ECM MOTOR)





Models:

SUPXX-M240V12 SUPXX-M240V20



INSTALLER / SERVICE TECHNICIAN:

USE THE INFORMATION IN THIS MANUAL FOR THE INSTALLATION AND SERVICING OF THE FURNACE AND KEEP THE DOCUMENT NEAR THE UNIT FOR FUTURE REFERENCE.

HOMEOWNER:

PLEASE KEEP THIS MANUAL NEAR THE FURNACE FOR FUTURE REFERENCE.

Attention:

Do not tamper with the unit or its controls. Call a qualified service technician.

Manufactured by: Dettson Industries Inc. Sherbrooke, Qc, Canada www.dettson.com

Table of content

1	SA	FETY	2
	1.1	DANGER, WARNING AND CAUTION	2
	1.2		2
	1.3	DANGER OF FREEZING	2
2	INS [.]	TALLATION	3
	2.1	POSITIONING THE FURNACE	3
	2.2	CLEARANCES TO COMBUSTIBLE MATERIAL	
			3
	2.3	CONFIGURATIONS	3
	2.4	ELECTRICAL SYSTEM	4
	2.5	INSTALLATION OF THE THERMOSTAT	4
	2.6	INSTALLATION OF ACCESSORIES	5
3	SOF	TWARE SETTINGS	6
	3.1	CONFIGURATION MENU	6
	3.2	INSTALLER MENU	6
4	OPE	ERATION	9
	4.1	START-UP	9
	4.2	LEGACY OPERATING SEQUENCE	9
	4.3		10
5	MAI	NTENANCE	10
	5.1	AIR FILTER	10
	5.2	MOTOR LUBRICATION	10
6	FUI	RNACE INFORMATION	11
7	TEC	HNICAL SPECIFICATIONS	12

List of figures

Figure 1:	Upflow Configuration	3
Figure 2:	Downflow Configuration	3
Figure 3:	Horizontal Configuration	4
Figure 4:	Conversion from two to one supply wires	4
Figure 5:	Communicating thermostat connection	5
Figure 6:	Modulating thermostat connection	5
Figure 7:	Placement of interface board	6
Figure 8:	Navigation in menus	8
Figure 9:	Furnace Dimensions	13
Figure 10:	Electrical diagram, SUPREME Modulating	14
Figure 11:	Parts list, SUPREME Modulating	15

List of tables

Table 1:	Installer Parameters	7
Table 2: Table 3:	Technical specifications (240V) Heating Airflow (CFM), SUPREME	12
	Modulating	13
Table 4:	Parts List, SUPREME Modulating	16
Table 5:	Accessories	17

1 SAFETY

1.1 DANGER, WARNING AND CAUTION

The words **DANGER**, **WARNING and CAUTION** are used to identify the levels of seriousness of certain hazards. It is important that you understand their meaning. You will notice these words in the manual as follows:



Immediate hazards which WILL result in death or serious bodily and/or material damage.

Hazards or unsafe practices which CAN result in death or serious bodily and /or material damage.

Hazards or unsafe practices which CAN result in minor bodily and /or material damage.

1.2 IMPORTANT INFORMATION

Non-observance of the safety regulations outlined in this manual will potentially lead to consequences resulting in death, serious bodily injury and/or property damage.

Installation and repairs performed by unqualified persons can result in hazards to them and to others. Installations must conform to local codes or, in the absence of such codes, to codes of the country having jurisdiction.

The information contained in this manual is intended for use by a qualified technician, familiar with safety procedures and who is equipped with the proper tools and test instruments.

Failure to carefully read and follow all instructions in this manual can result in death, bodily injury and/or property damage.

a) It is the homeowner's responsibility to engage a qualified

technician for the installation and subsequent servicing of this furnace;

- b) Do not use this furnace if any part of it was under water. Call a qualified service technician immediately to assess the damage and to replace all critical parts that were in contact with water;
- c) Do not store gasoline or any other flammable substances, such as paper or carton, near the furnace;
- d) Never block or otherwise obstruct the filter and/or return air openings;
- e) Ask the technician installing your furnace to show and explain to you the following items:
 - i. The main disconnect switch or circuit breaker;
 - ii. The air filter and how to change it (check monthly and clean or replace if necessary);
- f) Before calling for service, be sure to have the information of section 5 of your manual close by in order to be able to provide the contractor with the required information, such as the model and serial numbers of the furnace.

IMPORTANT: All local and national code requirements governing the installation of central electric heating equipment, wiring and the flue connection MUST be followed. Some of the codes that may apply are: **ANSI/NFPA 70**: National Electrical Code **CSA C22.1 or CSA C22.10**: Canadian Electrical Code Only the latest issues of these codes may be used, and are available from either:

> The National Fire Protection Agency 1 Batterymarch Park Quincy, MA 02269 or The Canadian Standards Association 178 Rexdale Blvd. Rexdale, Ontario M9W 1R3

1.3 DANGER OF FREEZING

If your furnace is shut down during the cold weather season, water pipes may freeze, burst and cause serious water damage. Turn off the water supply and bleed the pipes.

If the heater is left unattended during the cold weather season, take the following precautions:

- a) Close the main water valve in the house and purge the pipes if possible. Open all the faucets in the house;
- b) Ask someone to frequently check the house during the cold weather season to make sure that there is sufficient heat to prevent the pipes from freezing. Tell this person to call an emergency number if required.

2 INSTALLATION

This furnace is a true multi-position unit, in that it will function in an upflow, downflow or horizontal configuration to the left or the right. Only a few modifications are required during installation to change from one position to another. The unit is shipped in the upflow configuration and instructions as to how to change to the other positions are included in this manual.

The unit requires a 120/240 - 208 VAC power supply to the control panel, thermostat hook-up as shown on the wiring diagram.

2.1 POSITIONING THE FURNACE

FIRE AND EXPLOSION HAZARD

The furnace must be installed in a level position, never where it will slope toward the front. Do not store or use gasoline or any other flammable substances near the furnace.

Non-observance of these instructions will potentially result in death, bodily injury and/or property damage.

This furnace is not watertight and is not designed for outdoor installation. It must be installed in such a manner as to protect its electrical components from water. Outdoor installation will lead to a hazardous electrical condition and to premature failure of the equipment.

If the furnace is installed in a basement or on a dirt floor, in a crawl space for example, it is recommended to install the unit on a cement base 2.5 cm to 5.0 cm (1" to 2") thick.

In addition, the heater should also be located close to the center of the air distribution system.

2.2 CLEARANCES TO COMBUSTIBLE MATERIAL

2.2.1 Heating unit

The furnace is approved for zero clearance to combustible material regardless of the heating capacity.

2.2.2 Supply air ducts

Ducts can be installed with a zero clearance to combustible material.

2.3 CONFIGURATIONS

This furnace requires suitable ductwork.

2.3.1 Upflow installation

The return duct may be installed to the back, to the bottom, on the left side or on the right side of the unit. The supply duct shall be installed on the top of the unit. Care should be taken not to damage the wires inside, while cutting the opening. Instal the filter rack that is supplied with the unit. It is also recommended to install the blower door before handling or moving the unit. Refer to Figure 1 for additional details.





2.3.2 Downflow installation

The return duct may be installed to the back, on the left side, on the right side or under the unit. The supply duct shall be installed on the top of the unit.

When the furnace is installed in the downflow position on a combustible floor, the downflow base DFB-SUP can be used. Refer to Figure 2 and the installation instructions provided with the base.



Figure 2: Downflow Configuration

2.3.3 Horizontal installation

The return duct may be installed to the back, on the left side, on the right side or under the unit. The supply duct shall be installed on the top of the unit.

When the furnace is installed in the horizontal position, either suspended or on a combustible floor with a choice of right or left discharge, the clearances from combustible material must be adhered to. Refer to Figure 3 for additional details.

Figure 3: Horizontal Configuration



2.3.4 Suspended installation

The furnace can be hanged to the ceiling in either upflow, downflow or horizontal. Make sure to mount it appropriately and to respect the clearances to combustible material.

The furnace must be properly secured especially when installed above living space.

Failure to follow this rule can result in death, bodily injury and/or property damage.

2.4 ELECTRICAL SYSTEM

The SUPREME furnace is completely pre-wired and all field wiring must be connected to the terminal blocks on the unit. It requires 2 service wires of 240 - 208 volts.

RISK OF FIRE

The conductor sizing must conform to the last edition of the local or national codes.

Failure to follow this rule can result in death, bodily injury and/or property damage.

Power supply to the unit can be done using copper or aluminum wires. The wire size must be decided in accordance to unit power consumption, the over current protection type and capacity, the wire type and length, and the environment where the unit is installed. If an aluminum wire is used, other precautions must be taken to insure the conformity of the installation. In all cases, all the factors affecting the wire gauge must be considered and the installation codes followed. The exterior of the unit must have an uninterrupted ground to minimize the risk of bodily harm. A ground terminal is supplied with the control box for that purpose. A connector is supplied on the ground terminal to ground an added accessory.

In the event that wires inside the unit require replacement, these must be copper wires only with same temperature rating and sizes as originals.

2.4.1 Conversion from two wires to one wire supply for models 25kW and more

Only for single-phase models.



RISK OF FIRE

When using one terminal block on models of 25kW and higher, the installation must be performed with copper wire ONLY in order to comply with the Canadian electrical code. The usage of an aluminum or copper wire is acceptable on models 25kW and lower.

Move all wires from the two pole terminal to the three pole terminal following the corresponding colors as shown in Figure 4.

The breaker and the supply conductors must be sized by adding the ampacities of the two terminals indicated on the nameplate. Refer to the electrical diagram Figure 10.

Figure 4: Conversion from two to one supply wires



2.4.2 208V Power Supply

If a 208VAC Power Supply is used, the connector at the primary of the transformer must be changed to the 208V position.

2.5 INSTALLATION OF THE THERMOSTAT

2.5.1 Communicating system with heat pump

The thermostat must be connected to terminals 1, 2, R and C of the furnace. The interface board must be installed as specified in the supplied manual and connected with the RJ11 wire also supplied with the interface board.

Figure 5: Communicating thermostat connection



2.5.2 Modulating thermostat

The thermostat must be connected to V/W2, C, R, G terminals and optionally to Y1, Y2, O and DH terminals if the there are options of cooling or heat pump.





2.5.3 Ducts and filters

The ducts must be sized to accommodate the specified airflow and the available static pressure. Refer to the applicable local and/or national installation codes. Insulate the ducts that lead through non-heated areas. Use flexible supply and return air connectors to avoid the transmission of vibration. To make the unit run even quieter, the installer should:

- 1. Use two elbows between each outlet and the supply and return air plenum;
- 2. Cover the vertical sections of the supply and return air duct with soundproofing material;
- 3. Use baffles in short radius elbows;
- 4. Use flexible hang

ers to suspend the ducts. The SUPREME furnace is equipped with a filter frame for the blower compartment. It must be installed on the outside of one of the three sides or the bottom of the furnace. Once the location of the installation has been determined, use the four square knockouts for ease of cutting the opening. A heat pump or an air conditioner can be added to this furnace, in either the supply or return air duct. Carefully follow the instructions provided with these appliances to ensure proper installation and hook-up to the electric furnace. Refrigerant and drainage pipes must in no way hinder access to the furnace panels.

2.6 INSTALLATION OF ACCESSORIES



ELECTRICAL SHOCK HAZARD

Turn OFF electrical power at the fuse box or service panel before making any electrical connection and ensure that a proper ground connection is made before connecting line voltage.

Failure to do so can result in death or bodily injury.

2.6.1 Dehumidify capability with standard humidistat connection

Latent capacities for systems using this unit are better than average systems. If increased latent capacity is an application requirement, the field wiring terminal block provides a connection terminal (DH) for use of a standard humidistat. The furnace control will detect the humidistat contact opening on increasing humidity and reduce its airflow to approximately 80% of nominal cooling mode airflow. This reduction will increase the system latent capacity until the humidity falls to a level which causes the humidistat contact to close its contacts.

When the contact closes again, the airflows comes back to 100% of the cooling airflow selected.

2.6.2 Use of a heat pump

This system is able to operate simultaneously the heat pump and the electric elements when using a communicating system. This operation mode requires the coil to be installed in the return of the furnace. Refer to section 3.2 for further information.

2.6.3 Placement of interface board

Dettson's modulating heat pump unit is a great addition to the Modulating SUPREME. In order to install the interface board to the SUPREME using the included plastic standoffs, consult Figure 7 placement of interface board. Please refer to the heat pump manual for connection diagrams.

Figure 7: Placement of interface board



3 SOFTWARE SETTINGS

Configuration and installer menus allow to modify both display and operational parameters of the furnace. Navigation within the menus can be achieved using the up, down and select buttons. The up and down buttons allow to change menu, line or to modify a value. The center button allows to select or validate a parameter.

3.1 CONFIGURATION MENU

The configuration menu allows only the modification of the display language and access to the "Troubleshoot" menu. Once the cursor is aligned with the "Language" line, press the center button in order to toggle from French to English.

3.1.1 Troubleshoot menu

Information only

This menu allows to see the various operating parameters of the appliance and is protected by a password. In order to enter the Troubleshoot menu, the following password must be entered: Left, Center, Right and Center.



STATUS Menu

This menu displays the operating parameters associated with the air handler:

• CMD: The percentage of the electric elements requested

- CMDMOT: The airflow requested in CFM
- ACC: Not used

AB STATUS Menu (Auto-backup)

This menu displays the operating information associated with the auto-backup function.

- ERR DT: The temperature difference between the thermostat temperature and the thermostat setpoint in °F
- **CFM AB**: The number of CFM required for electric auto backup

HEAT PUMP Menus

These two screens allow to access the following information:

- T°EXT: Displays the outdoor temperature in °F
- · SIZE: The capacity of the Alizé unit in TONS
- **CFM HEAT**: The number of CFM per TON in heating mode
- **CFM COOL**: The number of CFM per TON in cooling mode
- **CFM DRY**: The number of CFM per TON in dehumidification mode
- **MODE**: The current mode of the Alizé unit (Heat, Cool, Dry, Nothing)
- **CFM HP**: The indoor airflow required by the outdoor unit.
- % **COMP**: Percentage of the max frequency of the compressor
- **MODE O**: Operation mode (HRV, Heat Pump or Air Cond)

3.2 INSTALLER MENU

The installer menu allows to modify the various operating parameters of the air handler. This menu is password protected because only a qualified installer should modify the following variables. The password to access the installer menu is left, center, right and center



Table 1: Installer Parameters

Menu	Affects	Parameter	Description	Range	Default	Note
0		AC/HP TONS	Tonnage of outdoor unit	0.75-10	0	
DOLING/H	لا م	CFM/TON	Select CFM/Ton	300-500	400	
	2-stg erati	DEHUM ON STATE	DH signal is active when ON (High) or OFF (Low)	HIGH/LOW	HIGH	
	l d g ⊊	DEHUM RATIO	Cooling airflow ratio for dehum	50-100%	85%	
Ŭ		AC Y1 RATIO	First stage cooling (Y1) airflow ratio	50-90%	70%	
z	nace	CONT FAN RATIO	Airflow in continuous fan mode	15-100%	50%	Of max CFM (see table 2)
FAI	Fur	RISE (DELTA T)	Temperature rise with electric elements	20-80°F	65°F	
AYS	-stg eration I-Y2)	AC/HP ON	Wait time before starting the fan on a call for Y1 or Y2	5-120	5	Seconds
DEL	, Spe	AC/HP OFF	Wait time before stopping the fan after a call for Y1 or Y2	5-240	90	Seconds
		RATIO MAX PWR	Limit on the maximum capacity of the unit	0-100%	100%	Does not allow using smaller wire or breaker
	Furnace	ACCESSORY	Not used	-	-	
Σ		DUAL HEAT	Auxiliary/Emergency heating behaviour: NORMAL: The heatpump is stopped HEAT PUMP: Only the heat pump is used DOUBLE: Operate both heat pump and furnace	*	NORMAL	NORMAL is recommended
SYSTE		FURNACE MODEL	To select the model of the furnace			Used when the control board is replaced
		ORIENTATION	Change the screen orientation (UPFLOW/DOWNFLOW)	*	NORMAL	
		RESET SYSTEM	Reinitialize all parameters to factory defaults			
		DISABLED/ENABLED	Enables or disabled the auto-backup feature		DISABLED	
ď	ating	MODE	CALM: Electric elements activated to compensate the heat pump capacity (lower airflow, longer to reach set point) FUSION: Electric elements activated to the max system capacity	*	CALM	
ÇK	Inpc	TMR BEF BACKUP	Time before powering the electric elements	0-30	5	Minutes
AUTOBA	Ŭ Ž	UPDATE SPEED	Calculation frequency of the required capacity	1-30	5	Seconds
	2-stg &	SET PT OFFSET	Min temperature offset between set point and room temperature to start auto-backup	-5 - +5°F	-1 °F	
		LOCKOUT TEMP	Temperature ext. above which the auto-backup will be disabled	-20 - 20℃	10℃	
		RISE(DELTA T)	Temperature elevation when running in auto- backup	20-80°F	65°F	

Figure 8: Navigation in menus



4 **OPERATION**

4.1 START-UP

Before starting up the unit, be sure to check that the following items are in compliance:

- 1. The electrical installation and ventilation are conform;
- 2. The blower access door is in place and the blower rail locking screws are well tightened;
- 3. The blower speed adjustments for heating and air conditioning are appropriate and in accordance with to the specifications in this manual;
- 4. The thermostat of the room is in heating mode and is set higher than the ambient temperature;
- 5. The breakers on front panel are set on the "ON" position.

To start the unit, turn the main electrical switch on.

4.2 LEGACY OPERATING SEQUENCE

The blower motor is a true variable speed motor designed to deliver constant CFM. Constant CFM is valid for systems with total external static pressure between 0.1 and 0.8 inches water column.

4.2.1 Continuous fan

- a. Thermostat closes circuit R to G.
- b. Blower runs at continuous fan airflow.

4.2.2 Cooling mode - single stage

NOTE: For single stage systems, do not use the Y1 terminal.

- a. If indoor temperature is above temperature set point and humidity is below humidity set point, thermostat closes circuits R to G, R to Y/Y2 and R to O.
- b. Furnace delivers single stage cooling airflow.

4.2.3 Cooling mode - two stage

- First stage (low) cooling: Thermostat closes circuits R to G, R to O, and R to Y1. Furnace delivers low stage cooling airflow.
- Second stage (high) cooling: Thermostat closes circuits R to G, R to O, R to Y1 and R to Y/Y2. Furnace delivers high stage cooling airflow.

4.2.4 Cooling mode – dehumidification

NOTE: Remove jumper « J1 » on board to activate this function. (Refer to Figure 10 and Figure 16)

- a. If indoor temperature is above temperature set point and humidity is above humidity set point, thermostat closes circuits R to G, R to Y/Y2 and R to O and humidistat opens circuit R to DH.
- b. The furnace delivers airflow which is approximately 80% of the nominal cooling airflow to increase the latent capacity of the system.

4.2.5 Electric heating mode - modulating thermostat

The thermostat sends a heating demand in the form of a pulse width modulated wave that varies between 5 and 100%. The heating unit will apply this power ratio to the maximum available power. The electrical elements will modulate to the required power and the fan will adjust itself automatically in order to reach the required temperature rise.

4.2.6 Electric heating mode -Communicating thermostat

The thermostst sends a heating demand from 5 to 100% using a communicating protocol. The heating unit will apply this power ratio to the maximum available power. The electrical elements will modulate to the required power and the fan will adjust itself automatically in order to reach the required temperature rise.

4.2.7 Heat pump heating mode – Modlating thermostat outdoor unit single stage

NOTE: For single stage systems, do not use the Y1 terminal.

- a. Thermostat closes circuits R to G and R to Y/Y2.
- b. Furnace delivers selected heat pump heating airflow.

4.2.8 Heat pump heating mode – Modulating thermostat, outdoor unit two stage

First stage (low) heating: Thermostat closes circuits R to G and R to Y1.

Furnace delivers low stage heating airflow.

• Second stage (high) heating: Thermostat closes R to G, R to Y1 and R to Y/Y2. Furnace delivers high stage heating airflow.

ELECTRICAL SHOCK OR UNIT DAMAGE HAZARD Failure to carefully read and follow this WARNING could result in equipment malfunction, property damage, personal injury and/or death.

Disconnect power to unit before removing or replacing connectors or servicing motor. Wait at least five (5) minutes after disconnecting power before handling.

4.3 AIRFLOW VERIFICATION

Verify the airflow by taking readings of the following points, while the elements are in heating mode:

- a) Total amperage of all the heating elements;
- b) Voltage at the furnace;
- c) Supply air temperature. The point of the reading must not be affected by radiant heat from the elements;
- d) Return air temperature.

From these readings, one can arrive at an approximate calculation of the average airflow. To do that, the following formula should be used:

$$\begin{split} \text{Liter/s} &= \frac{0.82 \times \text{amps.} \times \text{volts}}{\text{Diff. temperature }^\circ\text{C}} \\ \text{CFM} &= \frac{3.1 \times \text{amps.} \times \text{volts}}{\text{Diff. temperature }^\circ\text{F}} \end{split}$$

Table 3 shows estimated airflows for various temperature rises.

4.3.1 High limit verification

After operating the furnace for at least 15 minutes, restrict the return air supply by blocking the filters or the return air register and allow the furnace to shut off on High Limit. The electric heaters must deactivate themselves before the warm air temperature exceeds 200 °F (93 °C).

Remove the obstruction and the elements should restart after a few minutes.

5 MAINTENANCE

ELECTRICAL SHOCK HAZARD Turn OFF power to the furnace before any disassembly or servicing. Failure to do so can result in death, bodily injury and/or property damage.

Preventive maintenance is the best way to avoid unnecessary expense and inconvenience. Have your heating system inspected by a qualified service technician once a year. Do not attempt to repair the furnace or its controls. Call a qualified service technician. Before calling for repair service, check the following points:

- 1. Check fuses or the circuit breakers;
- Check if the 15 A circuit breaker on the furnace is disengaged;
- 3. Set the thermostat higher than room temperature. If the unit does not start up, cut the power and call a qualified service technician.

When calling for service or ordering a replacement part, specify the model and serial number of your appliance.

5.1 AIR FILTER

The disposable filter should be replaced twice a year. The presence of animal hair, dust, etc. may necessitate more frequent changes. Dirty filters have an adverse effect on the performance of the central heating system.

5.2 MOTOR LUBRICATION

Do not lubricate the blower motor, since it is permanently lubricated.

6 FURNACE INFORMATION

Model:	Serial number:
Furnace installation date:	
Service telephone # - Day:	Night:
Dealer name and address:	
START-UP RESULTS	
Voltage:	ElementsTotal current:
Supply air temperature:	Return air temperature:
Supply air duct static pressure:	Return air duct static pressure:
Total pressure:	Calculated air flow:
Current consumed by the blower motor:	Current consumed by the accessories:

7 TECHNICAL SPECIFICATIONS

RATING AND	SUPxx-M240V12						SUPxx-M240V20				
PERFORMANCE			Motor 1/2	HP / 240V				Mot	tor 1 HP / 2	40V	
Capacity	10	15	18	20	23	25	20	23	25	27	30
Power, total @ 240V / 208V (Kw)	10 / 7.5	15 / 11.3	18 / 13.5	20 /15	23 / 17.3	25 / 18.8	20 /15	23 / 17.3	25 / 18.8	27 / 20.3	30 / 22.5
Power, first stage @ 240V / 208V (Kw)	5 / 3.8	10 / 7.5	9 / 6.8	10 / 7.5	13 / 9.8	15 / 11.3	10 / 7.5	13 / 9.8	15 / 11.3	15 / 11.3	15 / 11.3
Net capacity @ 240V (BTU/h) / 208V	34,120 25,628	51,180 38,442	61,420 46,130	68,240 51,256	78,480 58,944	85,300 64,070	68,240 51,256	78,480 58,944	85,300 64,070	92,124 69,195	102,360 76,884
Temperature rise @ 240V (°F) 1						See Table	3		•		
					ELEC	TRICAL SY	STEM				
Volts - Hertz - Phase					2 wire	s 240/208 ·	- 60 - 1				
Electrical element #1 @ 240V / 208V (Kw)	5 / 3.7	5 / 3.7	4 / 3.1	5 /3.7	4 / 3.1	5 / 3.7	5 / 3.7	4 / 3.1	5 / 3.7	5 / 3.7	5 / 3.7
Electrical element #2 @ 240V / 208V (Kw)	5 / 3.7	5 / 3.7	5 / 3.7	5 /3.7	5 / 3.7						
Electrical element #3 @ 240V / 208V (Kw)		5 / 3.7	4 / 3.1	5 /3.7	4 / 3.1	5 / 3.7	5 / 3.7	4 / 3.1	5 / 3.7	5 / 3.7	5 / 3.7
Electrical element #4 @ 240V / 208V (Kw)			5 / 3.7	4 / 3.1	5 / 3.7						
Electrical element #5 @ 240V / 208V (Kw)					5 / 3.7	5 / 3.7		5 / 3.7	5 / 3.7	4 / 3.1	5 / 3.7
Electrical element #6 @ 240V / 208V (Kw)										4 / 3.1	5 / 3.7
Blower motor Consumption @ 240V / 208V (Amp. Max.)	2.3 / 2.7	2.3 / 2.7	2.3 / 2.7	2.3 / 2.7	2.3 / 2.7	2.3 / 2.7	5.2 / 6.0				
Heating Elements Consumption @ 240V / 208V (Amp)	41.4 / 35.9	62.1 / 53.8	75.8 / 65.7	82.8 / 71.8	96.5 / 83.6	103.5 / 89.7	82.8 / 71.8	96.5 / 83.6	103.5 / 89.7	113.6 / 98.5	124.3 / 107.7
Total Consumption @ 240V / 208V (Amp)	43.7 / 38.6	64.4 / 56.5	78.1 / 68.4	85.1 / 74.5	98.8 / 86.3	105.8 / 92.4	88.0 / 77.8	101.7 / 89.6	108.7 / 95.7	118.8 / 104.5	129.5 / 113.7
Ampacity - Terminal block #1 @ $\mathbf{240V}$ / 208V (Amp) 2	54.0 / 47.8	78.6 / 69.2	94.7 / 83.2	103.2 / 90.5	119.3 / 104.5	127.7 / 111.8	106.5 / 94.3	122.7 / 108.3	131.1 / 115.6	53.1 / 48.0	57.3 / 51.7
Ampacity - Terminal block #2 @ $\textbf{240V}$ / 208V (Amp) 2	-	-	-	-	-	-	-	-	-	90.0 / 78.0	98.4 / 85.2
Breaker size - Terminal block #1 @ 240V / 208V (Amp) 2	60 / 50	80 / 70	100 / 90	125 / 90	125 / 125	150 / 125	125 / 100	125 / 125	150 / 125	60 / 50	60 / 60
Breaker size - Terminal block #2 @ 240V / 208V (Amp) 2	-	-	-	-	-	-	-	-	-	90 / 80	100 / 90
	BLOWER DATA										
Motor (HP) / number of speeds			1/2 HP E	CM EON				11	HP ECM EC	NC	
Nominal blower size (diam. X width)	12 x 8 12 x 9										
Maximum CFM - traditionnal ducts / Smart Ducts	1300 / 1000						2100 / 1500				
Maximum cooling capacity - traditionnal ducts / Smart Ducts	3 / 2.5 tons 5 / 3.5 tons										
	GENERAL INFORMATION										
Overall dim. (width x depth x height)	22" x 22" x 36.5"										
Supply	20" x 20"										
Return	18" x 18"										
Filter quantity and size	(1) 20" x 20"										
Shipping weight	48 Kg / 105 lbs										

Table 2: Technical specifications (240V)

Select a blower speed that will generate the specified temperature rise.

2) Calculated on the basis of standard C22.2-236.



	Power (kW)							
∆T (°F)	10	15	18	20	23	25	27	30
45	690	1030	1240	1380	1580	1720	1860	2070
50	620	930	1120	1240	1430	1550	1670	1860
55	560	850	1010	1130	1300	1410	1520	1690
60	520	780	930	1030	1190	1290	1400	1550
65	480	720	860	950	1100	1190	1290	1430
70	440	660	800	890	1020	1110	1200	1330
75	410	620	740	830	950	1030	1120	1240
80	390	580	700	780	890	970	1050	1160

Table 3: Heating Airflow (CFM), SUPREME Modulating



Figure 10: Electrical diagram, SUPREME Modulating





#	Item	Description	Note
1	B04343-04	Left panel assembly	Insulation included
2	B04344-02	Back panel assembly	
3	B04343-02	Right panel assembly	Insulation included
4	B04302-01	Top front panel	
5	K03079	Electronic card assembly	
6	L01J006	Breaker 60A	
7	B04000-01	Terminal 4 positions	
8	L05F013	Terminal 12 positions	
9	B04550-07	Components support assembly	1 breaker
9	B04550-08	Components support assembly	2 breakers
9	B04550-09	Components support assembly	3 breakers
10	L01J001	Breaker 15A	
11	B04403	Electrical kit breaker	
12	B04350-03	Top door	
13	B04349	Bottom door	
14	Z01I036	Blower 112-9R	20 @ 30kw 1hp
14	Z01I035	Blower 112-8R	10 @ 25kw 1/2hp
15	B01889	Motor support band and legs	C
16	B03811-27	Motor ECM 1/2hp (prog)	10 @ 25kw
16	B03813-18	Motor ECM 1hp (prog)	20 @ 30kw
17	B04415	Electronic wire kit	10kw
17	B04414	Electronic wire kit	15kw
17	B04413	Electronic wire kit	18 @ 20kw
17	B04412	Electronic wire kit	23 @ 25kw
17	B04404	Electronic wire kit	27 @ 30kw
18	B04285	Blower wire kit	-
19	B03141-02	Inductor	
20	B04375	Triac card assembly	
21	B04374-01	Blower assembly	10 @ 25kw 1/2hp
21	B04374-02	Blower assembly	20 @ 30kw 1hp
22	B04420	Fan separator	
23	B04309	Fan slide	
24	B04303	Floor	
25	B04402	Triac wire kit	27 @ 30kw
25	B04408	Triac wire kit	23 @ 25kw
25	B04409	Triac wire kit	18 @ 20kw
25	B04410	Triac wire kit	15kw
25	B04411	Triac wire kit	10kw
26	A00444	Electronic triac kit	
27	B04351-01	Element assembly	4kw
27	B04351-02	Element assembly	5kw
28	B04369-01	Electrical power kit	
29	L01H030	Relay DPST 22VDC	
30	B04308	Hi-limit deflector	
31	R02N028	Hi-limit 100+/-5.5C	
32	B04315-01	Element plate	
33	L01F010	Transformer 208/240/24	
34	L99F007	Terminal block 600V/175A (1423570)	3 positions
35	L99F008	Terminal block 600V/175A (1422570)	2 positions
36	B04306	Deflector	

Table 4: Parts List, SUPREME Modulating

Table 5: Accessories

Item	Description	Note
BRB-SUP	Bottom return base	Ref: B04452
DFB-SUP	Base for downflow	Ref: B03310-03
K03081	Heat pump interface kit	
K06020	Filter rack	