

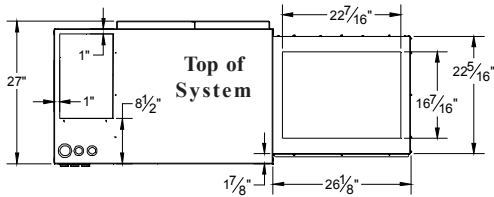
# Technical Data Sheet

## Comfort Plus Forced Air Electric Thermal Storage Heating System

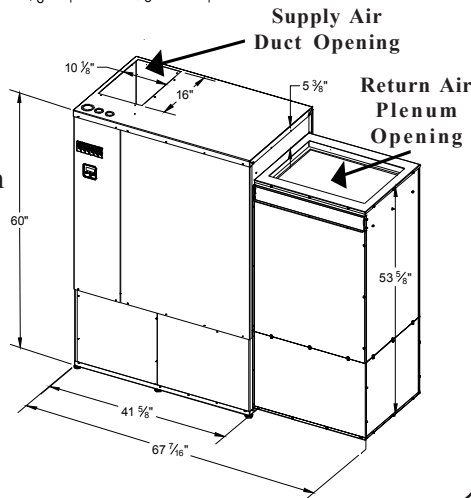
Model 3120



### Unit and Duct Opening Dimensions

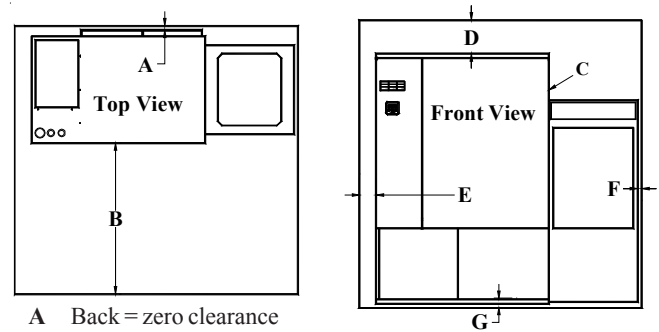


- Unit is factory configured for right-to-left air flow pattern only.
- Return air plenum is included with the unit.



### Placement and Clearances

- The area in which the Comfort Plus unit is installed must remain free of debris and adequate ventilation is required to maintain room temperature of less than 85°F.
- Adhere to all national and local electrical and building code placement requirements for electric heating appliances.



- A Back = zero clearance
- B Front = 36 inches
- C Right Side = 8 inches (from combustible material)
- D Top = 8 inches (from combustible material)
- E Left Side = 4 inches
- F Outer Sides of Return and Supply Ducts = zero clearance
- G Bottom = zero clearance

### Specifications

(For standard 240V systems. 208 and 277 charging input voltages also available as special factory order. Blowers/system controls must be field connected to 240V or 208V.)

**NOTE 1:** Standard configuration (240V) systems can be field connected to 208V; however, the charging input of the system will be derated by 25%.

**NOTE 2:** Unit is factory configured to be field connected to multiple line voltage circuits. If single feed to the element and blowers/system controls circuits is desired, an optional single feed kit is available to order.

**NOTE 3:** The size and heating capability of the system required for an installation is dependent on the heat loss of the area and the power company's off-peak hours. In addition, if the unit is not installed within the heated area, heat lost statically must be taken into account when sizing a system. Contact Steffes Corporation for assistance in selecting an appropriately sized system.

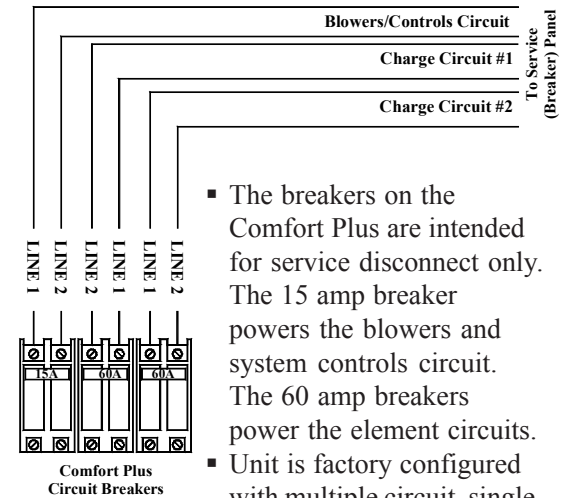
**NOTE 4:** The indoor coil and outdoor compressor of an air conditioner or heat pump are not included with the ETS system. The factory supplied return air plenum is configured for housing an indoor coil. Dimensions listed are that of the inner coil area in this plenum. For larger coils, field provisions to the factory built plenum are necessary or one will need to be custom built by the installer. (In heat pump applications, the indoor coil MUST be placed on the return air side.)

Model	3120		
Charging Input (See Note 1)	14.0kW	17.5kW	21.6kW
Element Current Draw	59 AMPS	73 AMPS	90 AMPS
Element Circuits Required (See Note 2)	2 - 40 AMP	2 - 50 AMP	2 - 60 AMP
Blowers/System Controls Circuit Required (See Note 2)	1 - 15 AMPS (6 AMPS maximum load)		
Approximate Installed Weight	1,562 lbs		
Storage Capacity (See Note 3)	86 kWh/293,432 BTU		
Maximum Coil Dimensions - W x D x H (See Note 4)	26" x 22 1/16" x 30 15/16"		
Maximum Maintainable Heat Loss (See Note 3)			
8 Consecutive Charge Hours (BTU/hr)	20,404	23,509	23,509
12 Consecutive Charge Hours (BTU/hr)	30,606	31,356	31,356
18 Consecutive Charge Hours (BTU/hr)	45,926	57,424	62,678

## System Air Delivery Matrix

- Unit configured with a 1/2 HP variable speed ECM supply blower.
- Unit air flow is field selectable.  
CFM options: 1000, 1200, 1400, 1600
- External static pressure should not exceed .75 inches water column.
- When interfaced to a 2-stage air conditioner or heat pump, the ECM motor will operate at 70% of the selected air flow in low speed (stage 1) compressor mode. If 50% air flow is required in low speed, a stage 1 speed adjusting relay must be installed. Steffes recommends the Allen Bradley Relay #700-HA32A24 with Relay Base #700-HN125 or equivalent.
- Ability to accommodate most coils up to 4-ton capacity.

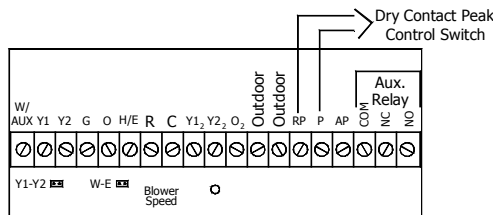
## Line Voltage Field Connections and Circuit Phasing



- The breakers on the Comfort Plus are intended for service disconnect only. The 15 amp breaker powers the blowers and system controls circuit. The 60 amp breakers power the element circuits.
- Unit is factory configured with multiple circuit, single phase connections. If single feed is desired, a single feed kit is available from the factory. Phase balancing is recommended when making connections in 3-phase applications.

## Low Voltage Peak Control Connections

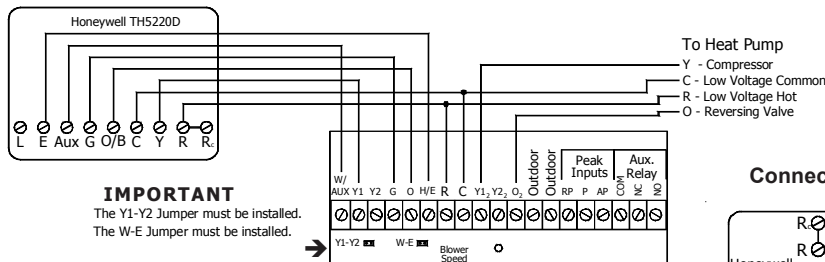
- If using the optional Steffes Power Line Carrier Transceiver or Steffes Time Clock Module for peak control, the direct wiring shown here is not necessary.



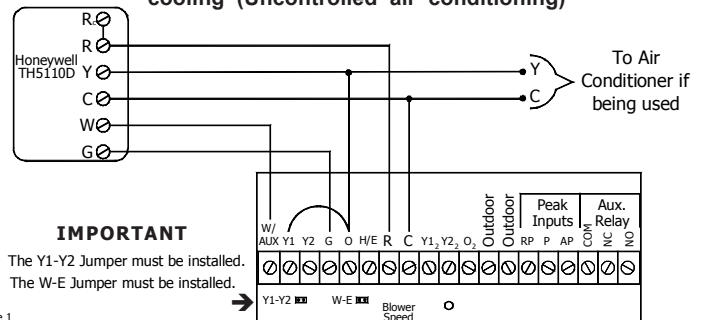
## Low Voltage Wall Thermostat and Sensor Connections

- 24 VAC wall thermostat must be used. Honeywell brands shown in schematics and recommended.
- A digital wall thermostat is recommended for use with Comfort Plus systems. If utilizing a mechanical wall thermostat, it may be necessary to add a load resistor (240 ohm, 5 watt) due to low current draw (.01 amp) on the heat call circuit.
- An outdoor sensor is included with the system to provide outdoor temperatures for automatic charge control (regulation of stored heat).

### Single Stage Heat Pump Application



### Stand Alone Furnace Application Connections shown for single stage heating / single stage cooling (Uncontrolled air conditioning)



### Two Stage Heat Pump Application

