



# GE Zoneline<sup>®</sup> vertical packaged terminal air conditioners

2010 Architects and Engineers Data Manual



# Specifications

230/208 Volt Models	Electric resistance heat			Heat pumps			Cool only		
	AZ85E09DAC	AZ85E12DAC	AZ85E18DAC	AZ85H09DAC	AZ85H12DAC	AZ85H18DAC	AZ85W09DAC	AZ85W12DAC	AZ85W18DAC
<b>Features</b>									
BTUH	9,000/8,800	11,700/11,500	17,900/17,700	8,800/8,600	11,700/11,500	17,800/17,700	9,000/8,800	11,700/11,500	17,900/17,700
E.E.R. (BTUH/Watt)	10.5/10.5	10.6/10.6	9.3/9.3	10.5/10.5	10.6/10.6	9.3/9.3	10.5/10.5	10.6/10.6	9.3/9.3
Dehumidification (pints/hr.)	2.5	3.2	5.0	2.5	3.2	5.0	2.5	3.2	5.0
Universal Heater (kW @ 230 volts)	2.61/3.42/4.81	2.61/3.42/4.81	2.61/3.42/4.81	2.61/3.42/4.81	2.61/3.42/4.81	2.61/3.42/4.81	N/A	N/A	N/A
Reverse cycle (BTUH)	N/A	N/A	N/A	8,200/8,000	10,400/10,300	16,400/16,200	N/A	N/A	N/A
COP @ 47°	N/A	N/A	N/A	3.4	3.4	3.0	N/A	N/A	N/A
SHR	0.81	0.79	0.71	0.83	0.79	0.69	0.81	0.79	0.71
Indoor CFM (Hi/Med/Low) 0.0" ESP	520/460/360	590/500/380	600/520/400	520/460/360	590/500/380	600/520/400	520/460/360	590/500/380	600/520/400

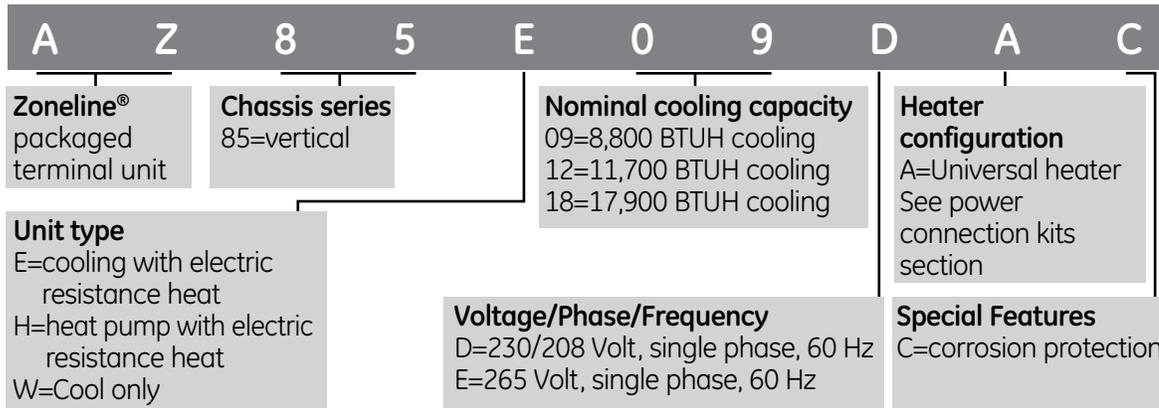
265 Volt Models	Electric resistance heat			Heat pumps		
	AZ85E09EAC	AZ85E12EAC	AZ85E18EAC	AZ85H09EAC	AZ85H12EAC	AZ85H18EAC
<b>Features</b>						
BTUH	9,000	11,700	17,900	8,800	11,700	17,800
E.E.R.	10.5	10.6	9.3	10.5	10.6	9.3
Dehumidification (pints/hr.)	2.5	3.2	5.0	2.5	3.2	5.0
Universal Heater (kW)	2.71/3.55/5.03	2.71/3.55/5.03	2.71/3.55/5.03	2.71/3.55/5.03	2.71/3.55/5.03	2.71/3.55/5.03
Reverse Cycle (BTUH)	N/A	N/A	N/A	8,200	10,400	16,400
COP @ 47°	N/A	N/A	N/A	3.4	3.4	3.0
SHR	0.82	0.80	0.70	0.83	0.79	0.70
Indoor CFM (Hi/Med/Low) 0.0" ESP	520/460/360	590/500/380	600/520/400	520/460/360	590/500/380	600/520/400

265 Volt available by special order.

## Zonline® Vertical Unit Nomenclature

The Zonline vertical unit is identified by a model number defining the type of unit, cooling capacity, and electrical information. When specifying or ordering the Zonline Vertical unit the use of this nomenclature will assure receiving the correct unit.

### EXAMPLE



Other components are necessary for a complete installation - see System Essential Components section.



Listed by Underwriters Laboratories.



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### Important Notice

Equipment used as a primary source for heating or cooling is an integral part of the building in which it is installed. Proper application is essential for satisfactory performance over a wide range of operating conditions. It is strongly recommended that a professional engineer determine proper application.

If this unit is a replacement unit, its specifications and performance may differ from those of the unit it is replacing. For that reason, we again strongly recommend that a professional engineer determine proper application.

## Introduction

Today, guests in lodging properties, assisted living facilities and apartments desire rooms with a more home-like appearance. They expect the comforts they are accustomed to, whether they spend one night or many years. Toward that end, many lodging properties provide refrigerators, microwave ovens and remote control televisions. Many assisted living facilities provide full-size kitchen appliances in each individual apartment. All of these improvements are an attempt to improve the comfort and satisfaction of the occupant by providing a more home-like environment.

Upgrading the air conditioning and heating provides another opportunity to enhance guest comfort. Years ago, an acceptable means of creating a comfortable environment was to install a window air conditioner and an electric heater mounted on the wall. The GE Zoneline® was the first packaged terminal air conditioner introduced to the market, and it led the way in improving comfort and efficiency. And they are still used extensively as an alternative to large, expensive central systems.

However, there are some inherent issues with packaged terminal units. First, since all of the components are contained in the chassis, the compressor and fan sounds can be heard in the room. In addition, since the units are usually mounted under the window there are limitations to furniture placement and curtains cannot hang to the floor. Finally, some people find the controls difficult to adjust for the desired temperature.

## The Vertical Packaged Terminal Air Conditioner



To address these issues, GE introduced the Vertical Zoneline. It is still a through-the-wall, packaged terminal unit, but instead of being 42" wide and installed in the middle of the room, it has a vertical configuration and is installed in a closet-like corner enclosure. The GE Zoneline Vertical Packaged Terminal Air Conditioner (ZVAC) is approximately 24" x 24" and has a top air discharge that is ducted into a single room or multiple rooms. It is controlled by a wall-mounted thermostat similar to those found in most homes.

Because the new ZVAC is installed in a closet, it provides a more home-like appearance to the room as well as quieter operation. And guests prefer the wall thermostat because it provides more precise settings. Since the vertical Zoneline is not installed under a window in the middle of the room, curtains can hang all the way to the floor, and more versatile room designs are possible. Because the unit is ducted, it can serve a single room or multiple rooms.

The GE Zoneline Vertical Packaged Terminal Air Conditioner is a great option to standard PTACs for cooling and heating a variety of rooms. It provides the costs benefit of packaged terminal units with the aesthetics, quieter operation and flexibility of a central system.

## The GE Zoneline® Vertical Packaged Terminal Air Conditioner

The GE Zoneline® vertical air conditioner is available in 8,800 BTUH, 11,700 BTUH or 17,800 BTUH cooling capacity with either resistance heat, cool only or heat pump units with resistance heat backup. Each cooling capacity is available in a dual rated unit that operates on either 230 volts or 208 volts and in a unit designed to operate on 265 (277) volts. All units, except cool only models are equipped with a 3-element universal heater that provides electric heat backup when connected with the appropriate 9-pin power connection kit to 208-volt, 230-volt or 265(277) volt power. See page 12 for information on the power connection kits.

### System Features

The ZVAC has a number of features that help distinguish it as the leader in the vertical unit industry. Each feature is discussed in detail in the Features and Benefits section.

- Excellent efficiency and dehumidification
- Unique sleeve design for easier installation and service
- Three-way slide-out chassis service/maintenance flexibility
- Electronic Temperature Limiting (requires room air temperature sensor accessory - RAVRMS)
- Freeze Sentinel™ (requires room air temperature sensor accessory - RAVRMS)
- Constant ON fan (required in nursing homes in some states)
- Permanently Lubricated Fan Motors
- Standard Size Air Filter (20 x 20 x 1)
- Central Desk Control Capability
- Occupancy Sensor Interface
- HI and LOW fan speeds controlled by remote thermostat
- 3-Speed Indoor Fan Motor for selectable HI and LOW speeds
- Corrosion Protection Treatment Standard
- Slinger Ring Condensate Removal
- Indoor Frost Control
- Automatic Compressor Random Restart
- Compressor Restart Delay
- Quick Heat Recovery (On Heat Pump Units)
- Extended Heat Pump Operation
- Reverse Cycle Heat Pump Defrost
- Warranty (including both parts and labor)

### System Essential Components

- Installation Platform (field supplied)
- Wall Plenum
- Exterior Grille
- Chassis
- Case
- Power Connection Kit
- Remote Thermostat
- Filter (field supplied)
- Return Air Grille
- Ductwork (field supplied)
- Supply Register (field supplied)

# Features and Benefits

## Excellent efficiency and dehumidification

GE recognizes the importance of energy efficiency and dehumidification in an air conditioning system and uses EER (Energy Efficiency Rating) as a means of reporting the relative cooling efficiency of the unit.

EER is the rating system used for Packaged Terminal Air Conditioners and Heat Pumps.

The GE Zoneline® Vertical Packaged Terminal Heat Pump has outstanding COP ratings. The measurement of the efficiency of the heat pump output, when compared to electric resistance heat, is called the Coefficient of Performance (COP). This number provides a basis not only for comparing the heat pump output to electric resistance heat, but also the ability to directly compare heat pumps with the same range of capacity to one another.

## Unique Sleeve Design

The ZVAC case is installed on a field supplied platform and attached to the wall plenum with field supplied screws. See pages 10 and 16 for platform construction details.

The chassis slides into the sleeve, allowing for easy removal of the unit for servicing and cleaning without the need to remove condensate lines.

## Three-Way Slide-Out Chassis

The case is designed to allow the installation of the chassis from the front or either side of the case. This provides greater flexibility in building and room design and unit placement. If access to the front of the unit is restricted by a wall or furniture placement, the chassis can slide in from either side of the case. If an alcove or offset is designed into the building facade, the three-way slide-out chassis enables the unit to be easily installed and removed for service.

## Electronic Temperature Limiting

Although the vertical unit is controlled by a wall mounted thermostat, there may be a need to prevent the temperature from being set to extreme energy wasting settings. The ZVAC unit has seven independent programmable heating and cooling temperature limits. A wide selection of limits eliminates the need to reset the limits seasonally. **The Temperature Limiting feature requires the use of the optional room air temperature sensor, model RAVRMS.** Designed to be mounted on the wall of the unit enclosure closet, the Room Air Temperature Sensor allows any compatible thermostat to be used with the unit and provide Temperature Limiting.

The limits are set by dip switches located on the ZVAC unit and are not accessible by the room occupant. Location of the dip switches and the temperature settings are shown on page 14.

## Cooling Temperature Limits degrees F.

Min	60°	64°	66°	68°	70°	72°	74°	76°
Max	85°	85°	85°	85°	85°	85°	85°	85°

## Heating Temperature Limits degrees F.

Min	60°	60°	60°	60°	60°	60°	60°	60°
Max	85°	80°	78°	76°	74°	72°	70°	65°

## Freeze Sentinel™

To prevent damage to plumbing and room furnishings by freezing temperatures, the ZVAC unit can provide Freeze Sentinel which turns the resistance heaters on at 41° F., warms the indoor air to 46° F., and shuts the heater off.

**The Freeze Sentinel feature requires the use of the optional Room Air Temperature Sensor, model RAVRMS.**

Designed to be mounted on the room side wall of the unit enclosure closet, the Room Air Temperature Sensor allows any compatible thermostat to be used with the unit and provide Freeze Sentinel protection. The Freeze Sentinel protection is automatic with the installation of the RAVRMS.

Even if the unit is connected to a Central Desk Control system or a Room Occupancy Sensor system, and the unit is turned off by the controlling system, Freeze Sentinel is still active to provide protection. It may be defeated by switching the unit's ON/OFF switch to the OFF position, removing the power supply to the unit or putting #2 dip switch in DOWN position.

## Constant ON fan

Some localities may require the indoor fan on Packaged Terminal Air Conditioners to operate at all times, even when the wall primary control would normally turn the unit off. To accommodate this requirement and provide the feature for use by anyone wanting to operate the unit in this manner, GE has provided a switch on the ZVAC that will allow this mode of fan operation.

If the controlling dip switch (#3) is set in the UP setting, the fan will run unless the unit's ON/OFF switch is set to the OFF position or power is removed from the unit.

## Features and Benefits

### Permanently Lubricated Fan Motors

The ZVAC has two permanently lubricated, totally enclosed fan motors. The motors are permanently lubricated to reduce maintenance and totally enclosed to keep dirt and water out of the motor windings.

### Standard Size Air Filter

A number of filters, providing varying degrees of filtering efficiency are available on the market today. GE has designed the ZVAC to accommodate a number of filter placement options. All of the options designed for the unit use a standard size 20" x 20" x 1" filter. Since the filter is field supplied, GE has allowed the owner or property manager to decide which type of filter to use with the unit.

A different size filter may also be used in a field supplied frame installed in a return air grille mounted in the closet enclosure door or wall. *If a different size filter is used, it must be at least 20" x 20" x 1" and provide no more restriction to air flow than the standard 20" x 20" x 1" filter.*

**The unit must not be operated without a filter in place, even during construction.**

GE provides three filter placement options for design and installation flexibility. A filter bracket is provided in the front panel of the ZVAC case, which allows the use of a louvered closet door. The bracket is mounted to allow the filter to be inserted from the top of the bracket rather than sliding in from the side, where the enclosure wall may interfere with filter removal.

An access panel, accessory model number RAVRG1, for the closet enclosure is the second filter placement option. The access panel requires a 28" wide by 48" high cutout in the unit closet enclosure wall and provides access to the unit for servicing and removal. The access panel should be located in the wall such that the centerline of the access panel matches the centerline of the case to allow for removal of the chassis. The bottom of the access panel should be at least 1" below the unit support platform to allow for easy removal of the ZVAC unit.

The third filter placement option provided by GE is incorporated in a return air grille, accessory model number RAVRG2, designed to be mounted in a flat closet access door. The door must have a minimum clear opening of 24" to allow for installation and removal of the unit. GE recommends a 28" wide door. A 20 3/8" wide by 20 3/8" high cutout is required in the door to accommodate the grille and filter bracket.

**Only one filter is to be used in the installation.** Multiple filters will reduce the air flow and affect unit performance. A clean filter is essential to efficient unit operation. The filter should be checked at least every 30 days and replaced if dirty.

### Central Desk Control

Terminals are provided on the unit to allow a Central Desk Control system to be interfaced with the unit. The most common installation of this type of system is a switch mounted at the registration desk; and, upon guest check-in, a switch is activated to allow the air conditioner to operate.

Likewise, when the guest checks out, the device is switched to the "OFF" setting so the unit will not operate when the room is not rented. In some resort areas, devices are connected to sliding glass doors, and opening the doors causes a contact to close, turning the air conditioner off. This prevents the unit from running and wasting energy with the sliding glass open.

#### Important CDC Notes:

- 1) The unit requires the use of a normally open switch. Closing the circuit interrupts power to the unit.
- 2) Both wires comprising the circuit must connect to the CDC terminals on the unit and to the controlling switch. **Do not use a common buss (at the unit or at the switch panel) in the wiring.**
- 3) A 24-volt transformer is contained within the ZVAC unit. **No external voltage may be applied to the unit through the CDC terminals.**
- 4) Minimum wire size for CDC wiring:

Wire Size # AWG	Maximum Allowable Length
#22	600 Ft.
#20	900 Ft.
#18	1500 Ft.
#16	2000 Ft.

### Occupancy Sensor Interface

The ZVAC is equipped with a terminal connection to allow it to interface with a motion sensor and a door sensor to allow a room occupancy detection system to be connected to the unit. Various companies market and install room occupancy systems as a means of reducing the operating cost of the unit. GE does not market or install these systems but provides the interface terminals on the unit and logic within the microprocessor controls to permit these systems to be installed at a minimum cost to the property owner.

### HIGH and LOW Fan Speeds

If the ZVAC is connected to a wall thermostat without the ability to provide two fan speeds, the fan speed will be determined by connecting the wire controlling the fan to either the Low Speed Fan terminal or the High Speed Fan terminal on the unit.

# Features and Benefits

## 3-Speed Indoor Fan Motor for selectable HIGH and LOW speeds

Since the ZVAC discharge air may be routed through duct work for air distribution into the room and into other rooms, the units are equipped with a 3-speed fan to provide greater air movement, to compensate for the additional duct length. GE recommends an HVAC engineer be consulted to determine the best fan speed for the application.

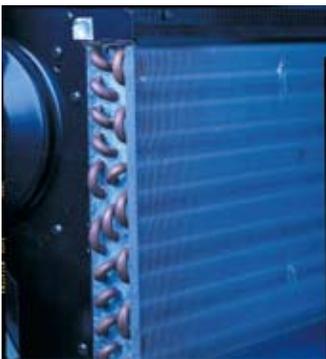
A switch on the unit (dip switch #5-duct) adjusts the two-speed fan system to different settings. With the switch in the UP position, the system will operate using high and medium fan speeds. With the switch in the DOWN position, the system will operate using the medium and low fan speeds.

For example, on the 9,000 BTUH unit, the three fan speeds at 0.2" ESP provide 220 CFM on the lowest fan speed, 370 CFM on the medium fan speed, and 480 CFM on the highest fan speed.

With the switch down, the unit would provide 220 CFM on LOW speed and 370 CFM on HIGH speed. With the switch up, the unit would provide 370 CFM on LOW speed and 480 CFM on HIGH speed.

Higher CFMs tend to increase the operating sound level, both from fan noise and from the air noise in the duct. Higher CFMs also reduce the dehumidification rate of the unit, while lower CFMs provide quieter operation and better dehumidification. However, if the CFMs are not high enough to adequately move the air through the duct system, the unit will not be able to provide a comfortable room.

## Corrosion Protection Treatment (Standard)



All ZVAC units are protected against damage from seacoast area corrosion. Components that are in contact with the salt air have special coatings or are made of non-corroding materials to help withstand the corrosive effects of the environment. This protection includes the use of totally enclosed fan motors with painted casings, a special

coating on the outdoor coil, use of stainless steel screws and brackets, and additional paint on components like the base pan.

## Slinger Ring Condensate Removal

Condensate water removed from the indoor air is dispersed into the air stream by the outdoor fan slinger ring and deposited on the hot outdoor coil. The water helps cool the refrigerant in the outdoor coil and increases the efficiency of the air conditioner.

## Indoor Coil Frost Control

Under certain operating conditions, frost can form on the indoor coil of an air conditioner, reducing air flow, and causing a lack of cooling complaint. In order to prevent frost from forming, the ZVAC has an automatic frost control on the indoor coil. When frost begins to form on the coil, the compressor stops until the coil temperature increases and the frost dissipates.

At this time, the compressor resumes operation and cooling continues. The indoor fan remains running during the time the compressor is off to help warm the coil with room temperature air.

## Automatic Compressor Random Restart

In the event of a power interruption, all compressors attempting to restart immediately when power is restored can result in a power surge that can cause another power failure. The microprocessor in the ZVAC unit has a random restart logic system that prevents all compressors from restarting at the same instant.

## Compressor Restart Delay

ZVAC units are designed to provide a minimum of three minutes of compressor off time to allow refrigerant pressures to equalize before attempting to restart. Attempting to restart against a high head pressure shortens compressor and overload protector life.

The units are also designed to provide a minimum of three minutes of compressor run time to prevent short cycling from disturbing the room occupant.

## Quick Heat Recovery (On Heat Pump Units)

Heat pumps save money compared to electric resistance heat, but if the unit cannot provide room occupant comfort, the savings may be of questionable benefit. GE has years of experience with designing Zonline heat pumps to solve the problem of guest complaints.

The heat pump unit incorporates a two-stage heat/one-stage cooling thermostat that utilizes the resistance heat to bring the room temperature to within 2°F. of the thermostat set point before initiating heat pump operation. This method addresses the two major complaints about heat pump operation: taking too long to warm the room and low discharge air temperature. Full electric resistance heat is utilized when the unit is first turned on or when the unit is operating in heat pump mode and the temperature in the room falls more than 2°F. below the thermostat set point.

## Extended Heat Pump Operation/Reverse Cycle Defrost

Heat exists in the outdoor air at temperatures even below 0°F. Many central systems, with larger outdoor coils, operate in the heat pump mode down to temperatures in the mid-teens or even to single-digit temperatures. Central systems are able

## Features and Benefits

to operate this low because of the larger outdoor coil area and because central system heat pumps have a reverse cycle defrost mode that melts accumulated frost off the outdoor coil.

Other vertical packaged terminal heat pump units terminate heat pump operation and switch to more expensive resistance heat at outdoor temperatures in the 40°F. to 45°F. range. They must terminate heat pump operation before a frost build-up occurs on the outdoor coil since they have no way of eliminating the frost.

GE offers a reverse cycle defrost system, like the central systems, on all Zoneline Packaged Terminal Heat Pumps. This provides the owners with the savings realized by the ability to operate in heat pump mode to lower outdoor temperatures. GE has adapted the reverse cycle heat pump defrost system to the ZVAC for greater savings in heat pump mode.

The ZVAC will provide heat pump savings down to a 25°F. outdoor temperature. At temperatures below 25°F., the unit will automatically switch to electric heat. When the outdoor temperature rises to 32°F., the unit will automatically switch back to heat pump operation. As long as the heat pump output is able to maintain the room temperature within 2°F. of the thermostat set point, the unit will run in heat pump mode down to 25°F. outdoor air temperature. The resistance heater and the heat pump do not operate simultaneously.

If the outdoor temperature is above 25°F. and if the room temperature falls more than 2°F. below the set point, the thermostat automatically switches the unit to resistance heat.

If frost develops on the outdoor coil at temperatures above 25°F., the unit initiates the reverse cycle defrost operation to warm the outdoor coil and allow the unit to resume heat pump operation.

Prior to initiating the defrost sequence, the electric heaters will be energized to bring the room to the thermostat set point. Immediately after the defrost is completed, the electric heaters are energized to bring the room back to room temperature. The defrost sequence is terminated when the outdoor coil reaches 68°F. or when nine minutes has elapsed.

### Concealed Manual Vent Control

Open ventilation doors on GE Vertical Zoneline® Packaged Terminal Air Conditioners and Heat Pumps allow outside air to enter the room through a screen-covered opening in the weather barrier that separates the indoor and outdoor sections of the unit. For each cfm of air to enter the room, an equal amount of air must be removed through exhaust fans in the bathroom or roof tops. Outside ambient air entering the room through this screened vent opening is not conditioned. This unconditioned air becomes mixed with the conditioned air that is circulated by the ZVAC indoor fan. This air mixture generates an additional heat load/heat loss that causes the unit to run longer and may translate into higher operating costs.

A concealed lever located behind the front cover of the ZVAC is used to open and close the vent door. **Zoneline vent openings are not intended to be the source of make-up air for building ventilation systems due to the additional heating or cooling loads generated.**

Ventilation CFM at various ESP points:

Ventilation (CFM)			
static pressure inch water	9000 BTU 230V	12000 BTU 230V	18000 BTU 230V
0.0	62	68	72
0.1	52	61	70
0.2	46	57	69
0.3	41	52	64
0.4	34	45	57

### Warranty (including both parts and labor)

GE has provided the most comprehensive warranty available, without additional charge, on a vertical packaged terminal unit.

The entire warranty covering the ZVAC unit is printed in the back of this manual but the highlights are:

- **Limited One-Year Warranty - covering any part that fails as a result of a defect in materials or workmanship - parts, labor, and on-site service free of charge.**
- **Limited Additional Four-Year Warranty - covering any part of the sealed refrigerating system (Compressor, condenser, evaporator, and all connecting tubing) that fails due to a defect in materials or workmanship - parts, labor, and on-site service free of charge.**
- **Limited Parts Warranty for 2nd - 5th Year - covering fan motors, switches, heater, heater protectors, compressor overload, solenoids, circuit boards, auxiliary controls, thermistors, frost controls, capacitors and resistors. This is a limited warranty and does not include labor or cartage.**

## System Essential Components and Installation

Each Zoneline Vertical Packaged Terminal Air Conditioner or heat pump requires an installation platform, wall plenum, exterior grille, chassis including case, power connection kit, remote thermostat, filter and a return air grille, ductwork and supply registers.

The installation platform, ductwork and supply registers are field supplied. Each of the other components is ordered separately. The wall plenum, exterior grille and power connection kit are specifically designed to interface with the GE ZVAC unit and must be purchased from the same source as the unit.

The remote thermostat and the return air grille are offered as accessories by GE, but may be purchased from a source other than GE. If a non-GE thermostat or return air grille is used, they must have the minimum requirements to work properly with the unit. The filter is a standard 20" x 20" x 1" filter available where air conditioner filters are sold. The room temperature sensor is an optional GE accessory available from the same source as the unit.

# System Essential Components and Installation

## Wall Plenum



Since the unit itself does not install in the wall opening, the use of a plenum is necessary to contain and separate the outdoor air paths. The plenum must be able to hold water in the bottom without leaking into the wall cavity. It also must have a "splitter" to separate the outdoor air paths and prevent the discharge air from being drawn back into the unit.

The wall plenum is the first component to be installed. The wall opening location for the plenum needs to extend 1" below

the top of the Installation Platform. Since the platform must be a minimum of 8" off the floor, the cutout for the plenum must be a minimum of 7" plus the thickness of the platform base, off the interior finished floor. GE offers four plenums, and the choice of the correct plenum is determined by the thickness of the building exterior wall. Each of the plenums is 19 3/4" wide by 32" high and require a 20" wide by 32 1/4" high cutout in the wall.

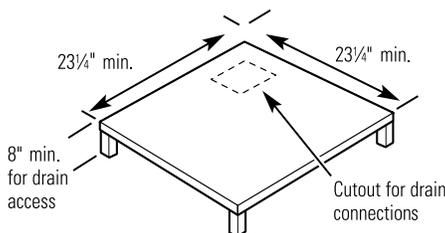
The plenum is to be installed square and level in the opening and secured to the wall construction with screws or nails in the sides located a minimum of 2" from the bottom of the plenum. No nails or screws may be used in the bottom or top of the plenum to ensure against water entering the wall cavity.

The plenum is not load bearing, so a proper header needs to be installed above the plenum the same as over any window opening in the wall. If the building construction is brick, concrete block, or other non self-supporting material, a lintel must be installed over the plenum opening. The plenum must be caulked to the wall, both to the outdoor wall face and to the interior wall, along all four sides to prevent air and water infiltration. The installation of flashing, with a 45° drip lip, is recommended under the plenum.

Wall plenum models:

- RAVWP6 - For installations with walls up to 6" thick
- RAVWP8 - For installations with walls up to 8" thick
- RAVWP12 - For installations with walls up to 12" thick
- RAVWP15 - For installations with walls up to 15" thick

## Installation Platform



The ZVAC requires a field supplied installation platform. The installation platform must be a minimum of 23 1/4" square, with legs to raise the platform a minimum of 8" (12"

recommended), and have a minimum load bearing capacity of 175 pounds. The platform legs must be positioned so access to the unit drain connection is not blocked. Cut out in platform for future access to drain lines to be determined in field.

The closet enclosure needs to be large enough to provide the following clearances for the platform (assuming the minimum 23 1/4" square platform).

Unit installed from the front of the case - 4" minimum clearance from front of platform to inside of closet door - 3" minimum clearance on each side.

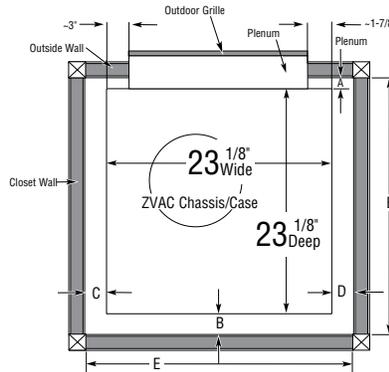
Unit installed from the side of the case - 5" minimum clearance from the installation side wall or door - 5" minimum in the front of the unit - 3" minimum on the side opposite the installation side.

**When determining the closet depth, consideration must be given to the fact that the plenum will protrude into the closet because the plenum is thicker than the exterior wall.**

The platform is positioned against the plenum, and secured to the floor with brackets and screws. The platform needs to be secured to the floor to prevent the platform from shifting since the unit is secured to both the plenum and the mounting platform.

## Closet Sizing Guide

Since the most critical aspect of installing a GE Vertical PTAC/PTHP is the closet size, here are a few hints to prevent installation, application, and operational problems.



## Important Notes

'A' dimension determined by wall thickness and plenum size selected

'B' dimension minimum 4" for front installation

'C' and 'D' dimensions minimum 3" for front installation

'C' and 'D' dimensions minimum 5" for side installation

'E' dimension minimum for 28" door - 33"

'E' dimension minimum for RAVRG1 Access Panel - 30"

**NOTE: For easier installation and removal, door or access panel should be centered on Zoneline.**

## Exterior Grille



The architectural louver exterior grille is mounted to the exterior flange of the plenum and held in place with four screws inserted from inside enclosure closet. The grille is designed specifically for use with the ZVAC unit and the use of any other grille must be approved by GE Air Conditioning Applications Engineering.

## System Essential Components and Installation



### Unit including sleeve and front panel

The unit is packaged with the case and the front panel in place (filter not included). Installation begins by removing the front panel and pulling the unit out of the case. The empty case is positioned on the platform in the closet with the outdoor side facing the wall plenum opening

(remove the side panel if a side installation is to be made) and secured to the plenum with six field supplied screws (stainless recommended).

Level the case using the four leveling legs and, using the holes in the bottom of the case as guides, drill holes in the mounting platform to secure the case to the platform. Use four field-supplied bolts, washers and nuts to secure the case to the mounting platform. Do not tighten the bolts to the point of distorting the case.

Failure to secure the case to the platform may result in excessive unit vibration and increased noise level. Install the unit into the case, either through the front or side panel opening. With the unit in position in the case, replace the side panel (if removed) and the front panel. Ground the unit to the case by installing the front unit-to-case hex bolt and/or the case-to-unit side screw (only on side installs).

The drain connection is made by connecting a 90° PVC elbow to the unit's female 3/4" NPT drain connector. The other end of the elbow is used to run the drain to either the internal or external drain.

The unit is shipped with a secondary drain hole. This drain hole is shipped open and must either be plugged or connected to an independent drain system. If a secondary drain system is used, attach a 90° schedule 40 PVC elbow to the secondary drain hole directed toward the secondary drain system. If a secondary drain system is NOT used, install a 3/4" schedule 40 PVC plug to cap the hole. **Ensure drain lines going out the plenum are sloped downward to allow water to drain out.**

A 10" diameter flange on the top of the unit is used to connect to field supplied, insulated, flexible or rigid transition duct with an adjustable ring clamp.

Flexible duct may be used for transitions only. Rigid duct must be used for 90° bends and tees. Do not use flexible duct for unsupported runs of five feet or more.

### Power Connection Kit

The ZVAC units have a universal heater assembly that is capable of producing electric resistance heat that can operate on a 15-amp, 20-amp, or 30-amp circuit. The amount of resistance heat is determined by the selection of the correct power connection kit. This is the same type of connection used by GE for years in the Premium and Deluxe series of the Zoneline units.

Units installed on 230 or 208-volt circuits may be line cord connected by plugging the line cord into a wall-mounted receptacle in the enclosure closet or directly connected. All ZVAC units come with a unit mounted junction box to contain the wiring connections if a direct connection installation is required. The same power connection kit is used for line cord connection or to make a direct connection. Instructions for making a direct connection on 230 or 208-volt circuits are included in the unit installation instructions.

Units installed on a 265-volt circuit must be direct connected in accordance with National Electrical Code. All ZVAC units come with a unit mounted junction box to contain the wiring connections when direct connection installation is made. For more information, see Power Connection kits on page 12.



### Return air grille, access panel or louvered closet door

The return air from the room to the unit may enter the enclosure closet through one of four ways. A louvered door may be installed on the closet to allow return air to enter the closet through the louvers. When a louvered door is used, the filter would be installed in the filter bracket on the front panel of the unit.

A wall-mounted access panel may be used instead of the louvered door. In this

installation access to the unit is through a wall-mounted access panel rather than a door. The return air is through the panel. The access panel, model RAVRG1, requires a 28" wide by 48" high cutout in the wall and there is a filter bracket behind the grille louvers.

The return air grille, model RAVRG2, may also be used and is designed to be installed in a 20 3/8" by 20 3/8" cutout in a flush closet door. In this installation, a filter can fit into the bracket in the RAVRG2.

A field-supplied return air grille, with a minimum dimension of 20" by 20", may be used if mounted in a cutout in the door or wall. When employing this method for return air, the filter is installed in the bracket mounted on the unit.



### Remote Thermostat

The ZVAC units are controlled by a wall-mounted thermostat. GE offers a complete line of thermostats to interface with the units or most 24-VAC thermostats may be used. If a non-GE

thermostat is used, the compatibility of the thermostat with the unit is the responsibility of the installer. The unit has an integral transformer and no external voltage or transformer may be used.

# System Essential Components and Installation

## Resistance Heat - Single Stage Cooling/ Single Stage Heating Thermostats

GE Thermostat Model Number	Type	Low Voltage Conductors
RAK164D1	Digital	5
RAK164P1	Programmable	5

## Heat Pump - Single Stage Cooling/ Two Stage Heating Thermostats

GE Thermostat Model Number	Type	Low Voltage Conductors
RAK148P1	Programmable	6
RAK148D1	Digital	6

One of the customer-requested features on the ZVAC unit is the ability for the user to select either HIGH or LOW fan speed operation at the thermostat. See information on pages 7 and 8.

Maximum wiring length and wire size - AWG 18 up to 66 feet - AWG 20 up to 66 feet - AWG 24 up to 40 feet.

## Standard Size Filter (field supplied)

The ZVAC unit uses a standard size 20" by 20" by 1" air conditioner/furnace filter. The filter is not provided with the unit, but can be purchased at any building supply or maintenance equipment supplier. The standard size filter allows the use of special filters if the owner desires. Regardless of the installation and the return air method, only one filter may be used in the installation.

## Optional: Room Air Temperature Sensor (RAVRMS)

The Room Air Temperature Sensor accessory, model number RAVRMS, is available as an option to allow Temperature Limiting and Freeze Sentinel protection. The Room Air Temperature Sensor has a nine-foot wiring harness designed to allow the sensor to mount on the room side of the closet wall. Terminal connectors are located on the terminal block inside the unit to permit easy connection of the Room Air Temperature Sensor conductors.

## Ductwork (field supplied)

## Supply Registers (field supplied)

Ductwork and supply registers are mentioned here as System Essential Components, because they are necessary to complete the installation. These components are field supplied since each installation may have different requirements for the ductwork and supply registers.

## Electrical Information - General

Zoneline Vertical Packaged Terminal Air Conditioners are to be connected to a single-phase 60 hertz power. Units with the voltage designator "D" in the 8th character of the model number may be operated on either nominal 230-volt or 208-volt power. The units are designed to operate properly on power sources from 197 volts to 253 volts. Units with the voltage designator "E" in the 8th character of the model number are to be operated on nominal 265-volt power. This unit is also used on 277-volt power. The units are designed to operate properly on power sources from 238 volts to 292 volts.

For all installations, feeder, sub-feeder, branch circuit and electrical protective devices must conform to all local codes. In the absence of a local code, the National Electrical Code should be followed.

Each unit should be installed on a single branch circuit. More than one unit per branch circuit is not recommended. All wiring, including installation of receptacle, must conform to local electrical regulations and codes. When in doubt, consult the National Electrical Code.

## Power Connection Kits are Required on Vertical Zoneline® Chassis (See chart below.)

The correct kit for the installation is determined by the voltage and amperage of the electrical circuit and the means of connecting the unit to the building wiring. If the unit is to be plugged into a receptacle, a power cord kit would be used; if the unit is to be permanently connected, a direct connection kit would be used.



### Power Connection Kits

See specification sheet for heater kW and branch circuit ampacity.

RAK3152/3202/3302  
230/208 Volt Cord Connection Kit

230/208 Volt	Line Cord Connected Units		
Power Connection	RAK3152	RAK3202	RAK3302
Heater kW	2.61/2.19	3.42/2.87	4.81/4.07
Heater Amps	12.0/11.0	15.6/14.4	22.0/20.2
Minimum Circuit Amps	15	20	30
Recommended Protective Device	15 Amp Time Delay Fuse or Breaker	20 Amp Time Delay Fuse or Breaker	30 Amp Time Delay Fuse or Breaker

230/208 Volt	Direct Connected Units		
Power Connection	RAK4157	RAK4207	RAK4307
Heater kW	2.61/2.19	3.42/2.87	4.81/4.07
Heater Amps	12.0/11.0	15.6/14.4	22.0/20.2
Minimum Circuit	15	20	30
Recommended Protective Device	15 Amp Time Delay Fuse or Breaker	20 Amp Time Delay Fuse or Breaker	30 Amp Time Delay Fuse or Breaker

265/277 Volt	Direct Connected Units		
Power Connection	RAK5157	RAK5207	RAK5307
Heater kW	2.71	3.55	5.03
Heater Amps	10.6	13.9	19.6
Minimum Circuit Amps	15	20	30
Recommended Protective Device	15 Amp Time Delay Fuse or Breaker	20 Amp Time Delay Fuse or Breaker	30 Amp Time Delay Fuse or Breaker

## Complete Accessory List

Kit Number	Description	For Additional Information Refer to Pages
RAK3152	Line cord power connection kit - 230/208 V - 2.61/2.19 kW - 15 amp	11 & 12
RAK3202	Line cord power connection kit - 230/208 V - 3.42/2.87 kW - 20 amp	11 & 12
RAK3302	Line cord power connection kit - 230/208 V - 4.81/4.07 kW - 30 amp	11 & 12
RAK4157	Direct connect power connection kit - 230/208 V - 2.61/2.19 kW - 15 amp	11 & 12
RAK4207	Direct connect power connection kit - 230/208 V - 3.42/2.87 kW - 20 amp	11 & 12
RAK4307	Direct connect power connection kit - 230/208 V - 4.81/4.07 kW - 30 amp	11 & 12
RAK5157	Direct connect power connection kit - 265 volt - 2.71 kW - 15 amp	11 & 12
RAK5207	Direct connect power connection kit - 265 volt - 3.55 kW - 20 amp	11 & 12
RAK5307	Direct connect power connection kit - 265 volt - 5.03 kW - 30 amp	11 & 12
RAK148D1	Digital thermostat for heat pump - single stage cool - two stage heat	11 & 12
RAK148P1	Digital programmable t'stat for heat pump - single stage cool - two stage heat	11 & 12
RAK164D1	Digital t'stat for resistance heat unit - single stage cool - single stage heat	11 & 12
RAK164P1	Digital programmable t'stat - resistance heat unit- single stage cool - single stage heat	11 & 12
RAVAL1	Exterior grille	10 & 15
RAVRG1	Access panel for return air	11 & 15
RAVRMS	Freeze Sentinel™/temperature limiting room air sensor	6 & 12
RAVRG2	Return Air Grille for flush door	11 & 15
RAVWP6	Wall Plenum for walls up to 6" thick	10 & 15
RAVWP8	Wall Plenum for walls up to 8" thick	10 & 15
RAVWP12	Wall Plenum for walls up to 12" thick	10 & 15
RAVWP15	Wall Plenum for walls up to 15" thick	10 & 15
RAVHW1	Hydronic kit, single row heat; exchanger - 9k and 12k models only	14
RAVHW2	Hydronic kit, double row heat; exchanger - 9k, 12k and 18k models only	14
RAVHW3	Hydronic kit, triple row heat; exchanger - 12k and 18k models only	14

## Unit Specifications

	AZ85E09DAC	AZ85E12DAC	AZ85E18DAC	AZ85H09DAC	AZ85H12DAC	AZ85H18DAC
<b>230/208 Volt Models</b>	<b>Electric resistance heat</b>			<b>Heat pumps</b>		
<b>Features</b>						
BTUH	9,000/8,800	11,700/11,500	17,900/17,700	8,800/8,600	11,700/11,500	17,800/17,700
Watts	860/840	1105/1090	1870/1850	840/820	1105/1090	1860/1850
E.E.R.	10.5/10.5	10.6/10.6	9.3/9.3	10.5/10.5	10.6/10.6	9.3/9.3
Cool Amps	4.1/4.4	5.2/5.7	8.9/9.8	4.1/4.4	5.2/5.7	8.9/9.8
Dehumidification (pints/hr.)	2.5	3.2	5.0	2.5	3.2	5.0
SHR	0.81	0.79	0.71	0.83	0.79	0.69
Reverse Cycle (BTUH)	N/A	N/A	N/A	8,200/8,000	10,400/10,300	16,400/16,200
COP @ 47°	N/A	N/A	N/A	3.4/3.4	3.4/3.4	3.0/3.0
Indoor CFM (Hi/Med/Lo)	520/460/360	590/500/380	600/520/400	520/460/360	590/500/380	600/520/400
Unit Width (in.)	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8
Unit Depth (in.)	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8
Unit Height (in.)	32-1/4	32-1/4	32-1/4	32-1/4	32-1/4	32-1/4
Ship Wt.	159	161	178	162	165	179
Net Wt.	146	148	165	149	152	166

	AZ85E09EAC	AZ85E12EAC	AZ85E18EAC	AZ85H09EAC	AZ85H12EAC	AZ85H18EAC
<b>265 Volt Models</b>	<b>Electric resistant heat</b>			<b>Heat pumps</b>		
<b>Features</b>						
BTUH	9,000	11,700	17,900	8,800	11,700	17,800
Watts	860	1105	1870	840	1105	1860
E.E.R.	10.5	10.6	9.3	10.5	10.6	9.3
Cool Amps	3.5	4.5	7.8	3.5	4.5	7.8
Dehumidification (pints/hr.)	2.5	3.2	5.0	2.5	3.2	5.0
SHR	0.82	0.80	0.70	0.83	0.79	0.70
Reverse Cycle (BTUH)	N/A	N/A	N/A	8,200	10,400	16,400
COP @ 47°	N/A	N/A	N/A	3.4	3.4	3.0
Indoor CFM (Hi/Med/Lo)	520/460/360	590/500/380	600/520/400	520/460/360	590/500/380	600/520/400
Unit Width (in.)	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8
Unit Depth (in.)	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8	23-1/8
Unit Height (in.)	32-1/4	32-1/4	32-1/4	32-1/4	32-1/4	32-1/4
Ship Wt.	159	161	178	162	165	179
Net Wt.	146	148	165	149	152	166

265 Volt available by special order only.

# ZVAC Hydronic Kit Specifications

	RAVHW1		RAVHW2			RAVHW3	
<b>Performance specifications for hydronic heating kits applied to AZ85W-series ZVAC models: The ZVAC hydronic heat kits are matched up (applied) to the AZ75W-series models as shown below:</b>							
	RAVHW1 (1-Row Kit)		RAVHW2 (2-Row Kit)			RAVHW3 (3-Row Kit)	
ZVAC cool-only PTAC model—matched to hydronic kit as shown	AZ85W09DAC	AZ85W12DAC	AZ85W09DAC	AZ85W12DAC	AZ85W18DAC	AZ85W12DAC	AZ85W18DAC
Voltage (60 Hertz)	230/208	230/208	230/208	230/208	230/208	230/208	230/208
Heating capacity designed to meet standard ARI rating conditions of 200°F water entering temp/180°F water exiting temp/70°F entering air temp	17,300/16,200	200,200/19,100	25,900/23,500	29,400/27,600	34,700/32,900	33,200/31,100	39,600/37,300
External static pressure	0.25"	0.25"	0.25"	0.25"	0.25"	0.25" (Max.)	0.25" (Max.)
Air flow (SCFM)	297/256	385/344	297/256	364/328	470/430	362/330	467/426
Water flow rate (GPM)	1.8/1.7	2.1/2.0	2.7/2.4	3.0/2.8	3.5/3.3	3.4/3.2	4.1/3.8
Water press drop* (ft. of water)	2.7/2.4	3.6/3/3	3.7/3.1	5.0/4.3	6.7/6.0	6.5/5.7	9.2/7.9
Face velocity (ft./min.)	238/205	308/275	238/205	291/262	376/262	290/264	374/341
Heat exchanger fin height (in.)	12	12	12	12	12	12	12
Heat exchanger finned length (in.)	15	15	15	15	15	15	15
Heat exchanger - fin per inch	11	11	11	11	11	10	10
Heat exchanger - fin material	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
<b>Weight/Dimensions for hydronic kits:</b>							
<b>Hydronic heat kit model #</b>	<b>RAVHW1</b>		<b>RAVHW2</b>			<b>RAVHW3</b>	
Hydronic heat kit height, inches	13-5/8		13-5/8			13-5/8	
Hydronic heat kit width, inches	19		19			19	
Hydronic heat kit depth, inches	22		22			22	
Shipping weight, pounds	32		35			38	
Net weight, pounds	27		30			33	

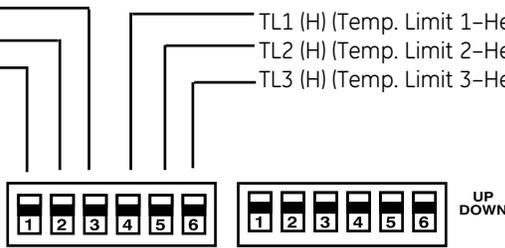
## Air Flow Table

ESP	AZ85(H/E)09			AZ85(H/E)12			AZ85(H/E)18		
	Duct select switch			Duct select switch			Duct select switch		
	Up	Medium CFM	Down	Up	Medium CFM	Down	Up	Medium CFM	Down
0.0	High CFM	Medium CFM	Low CFM	High CFM	Medium CFM	Low CFM	High CFM	Medium CFM	Low CFM
0.0	520	460	360	590	500	380	600	520	400
0.1	500	415	290	570	465	325	585	485	340
0.2	480	370	220	550	430	270	570	450	280
0.3	440	265	—	480	345	—	510	375	—
0.4	400	160	—	410	260	—	450	300	—

## Dip Switch Locations

TL3 (C) (Temp. Limit 3-Cool)  
 TL2 (C) (Temp. Limit 2-Cool)  
 TL1 (C) (Temp. Limit 1-Cool)

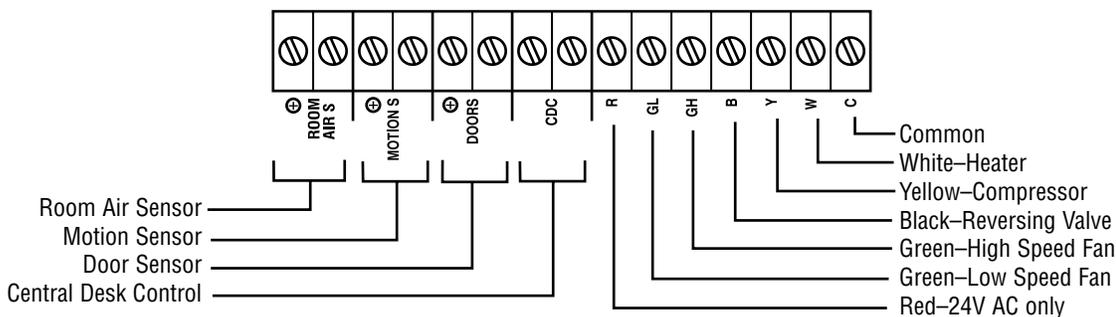
TL1 (H) (Temp. Limit 1-Heat)  
 TL2 (H) (Temp. Limit 2-Heat)  
 TL3 (H) (Temp. Limit 3-Heat)



ALL I²R (All Electric Heat) (Heat-pump models only)  
 FREEZ S (Freeze Sentinel)  
 CONST FAN (Constant ON Fan)

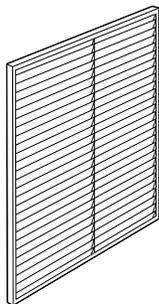
No Function (Reserved for future use)  
 DUCT (Blower Fan)  
 OCCUPIED (Occupancy Sensor)

## Terminal Block Location

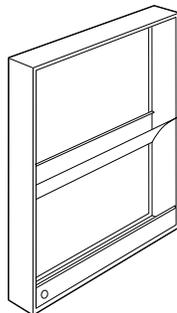


## Required Accessories

(Check the "Essential Elements" label on the unit.)



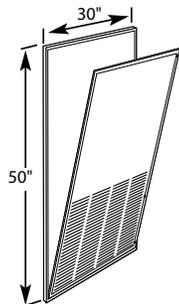
Architectural Louver  
RAVAL1



Cutout  
Dimensions:  
20"W x 32-1/4"H

Wall Plenum

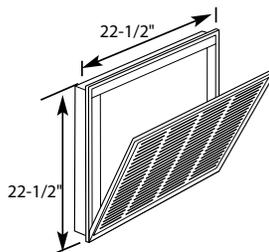
- RAVWP6 - 6"D x 19-3/4"W x 32"H
- RAVWP8 - 8"D x 19-3/4"W x 32"H
- RAVWP12 - 12"D x 19-3/4"W x 32"H
- RAVWP15 - 15"D x 19-3/4"W x 32"H



Cutout  
Dimensions:  
28"W x 48"H

Access Panel with  
Return Air Grille  
RAVRG1

OR



Cutout  
Dimensions:  
20-3/8"W x 20-3/8"H

Return Air Grille  
RAVRG2



Wall Thermostat

Model Type	Electronic Thermostat
Heat/Cool/Hydronic Models	5-wire
Heat Pump Models	6-wire

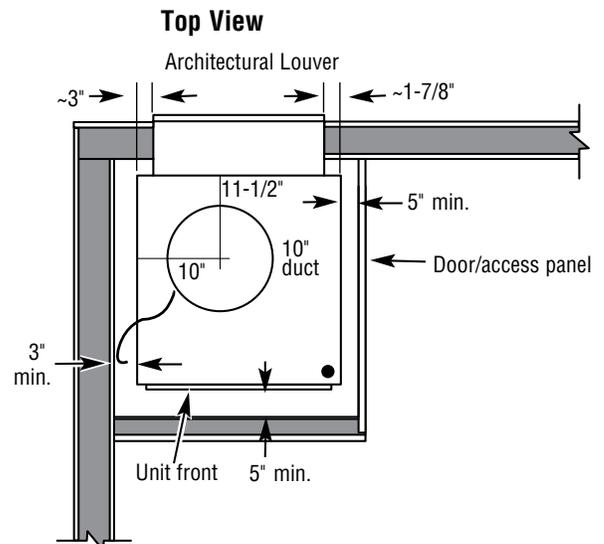
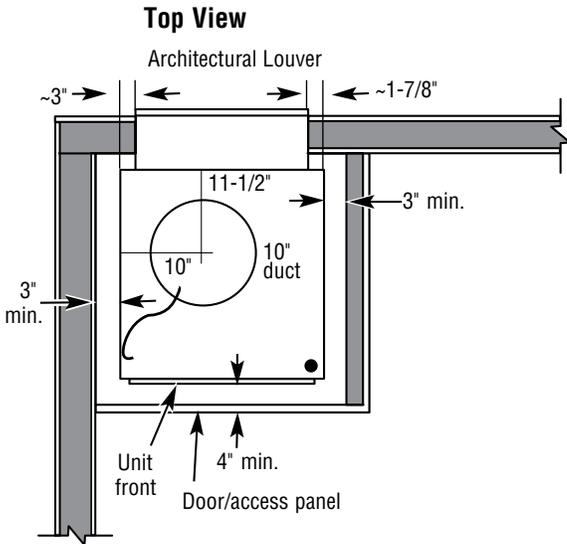
Check the thermostat instructions for correct wiring and installation requirements.

## Components of the Zonline® System



## UNIT INSTALLED THROUGH FRONT OF CASE

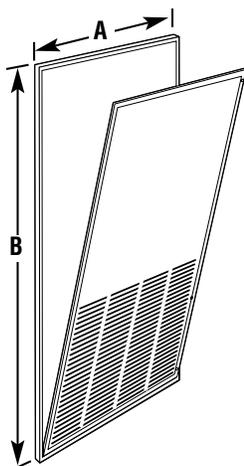
## UNIT INSTALLED THROUGH SIDE OF CASE



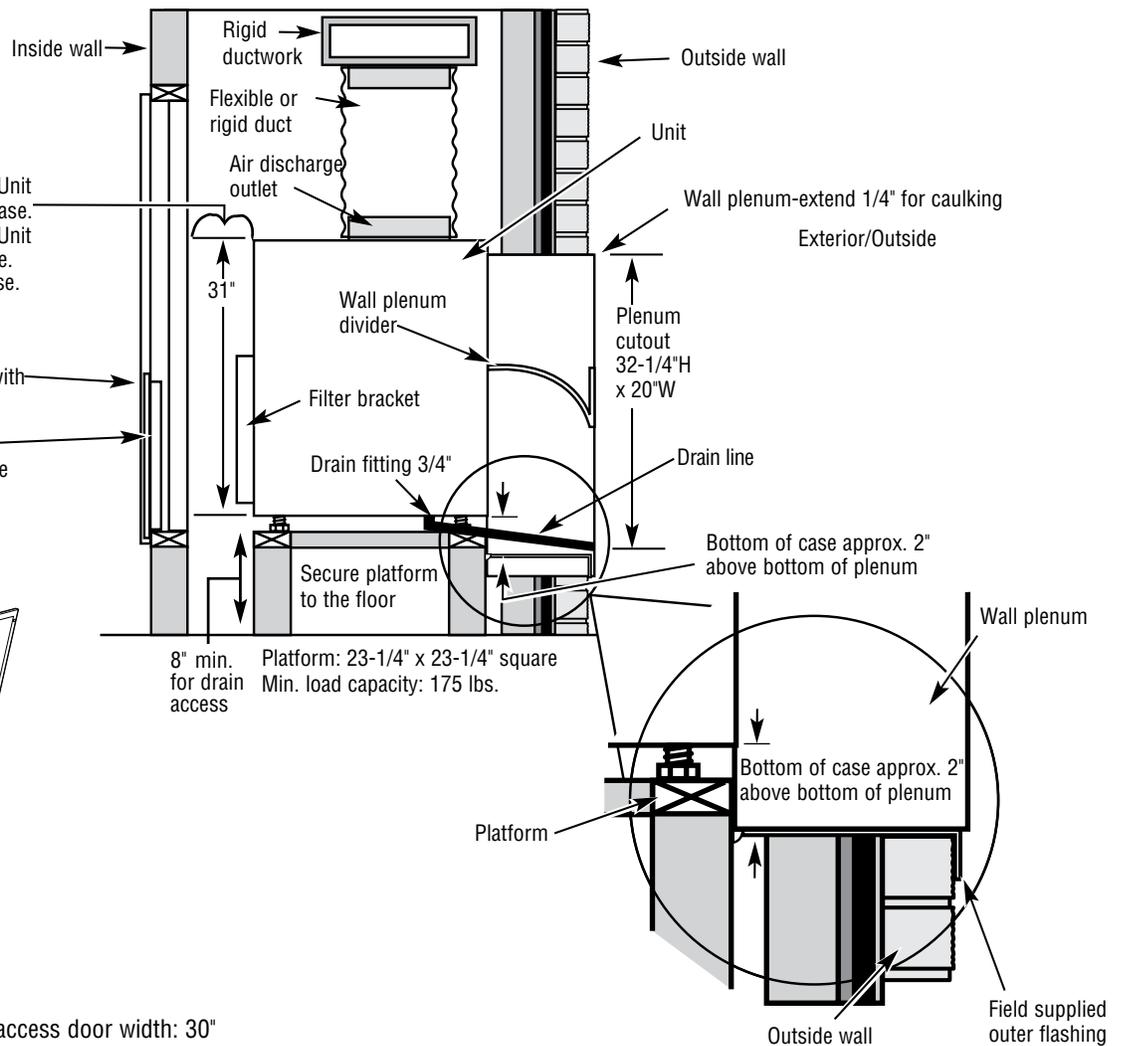
## Side View

- 4" min. from front of case – Unit installed through **FRONT** of case.
- 5" min. from front of case – Unit installed through **SIDE** of case.
- 3" min. from two sides of case.

- Option 1  
Access panel with return air grille
- Option 2  
Return air grille



- A Minimum recommended access door width: 30"
- B Minimum recommended access door height: 50"



## Suggested Bid Form Specifications

The following are suggested specifications for the 8500 Series Vertical Packaged Terminal Air Conditioners and Heat Pumps:

The contractor shall furnish Vertical Packaged Terminal Air Conditioners or Heat Pumps of the sizes and capacities shown on the schedule or in the specifications. The units shall be located as shown on the drawings and each shall consist of a chassis, appropriately sized wall plenum, outdoor grille, remote wall thermostat, support platform, and closet access panel or door.

Units shall be listed by UL and cUL, certified to ARI standard 310/380 and 390, and shall be GE Vertical Zoneline models or equal. Unit dimensions shall not exceed 23 1/8" x 23 1/8" x 32".

### Chassis

The air conditioner chassis shall be the standard product of the manufacturer and shall be shipped in protective cartons to prevent damage. Cartons shall be appropriately marked with factory wording sufficient to warn handlers against dropping, improper stacking, upending, or rolling.

The chassis shall be slide-in type, ready to operate after installation.

The chassis shall be protected against the harmful effects of airborne chemicals and saltwater corrosion.

The chassis shall have a hermetically sealed refrigerant system with an external vibration isolated rotary compressor. Indoor coils shall have copper tubing with aluminum fins. Outdoor coils shall have copper tubing with aluminum fins treated to resist the effects of airborne chemicals and salt-water corrosion. All refrigerant coil fins will have the necessary enhancements to achieve EER and COP ratings of the unit. Refrigerant system metering shall be done with capillaries.

Airflow system shall consist of one permanently lubricated fan motor for the outdoor side and a separate permanently lubricated three-speed motor for the indoor blower. Outdoor fan shall be multi-blade axial-flow design made of non-corrosive material. Indoor fan shall be blower type to optimize airflow and minimize air noise. All motors on the exterior side of the weather barrier shall be painted and enclosed to reduce the effects of moisture and corrosion.

Units will have a positive cooling condensate disposal system, which meets the test requirements of applicable A.R.I. standard 310/380 and 390. The disposal system shall have a slinger ring on the outdoor fan to dispose of condensate water and to assist in cooling the outdoor coil.

Unit indoor and outdoor airflows must match the capacity of the coils for efficient heat transfer and meet latent and sensible heat requirements. Water blow-off shall not occur on the indoor coil.

Unit shall have a sensor to prevent indoor coil freeze up.

### Wall Plenum

Wall Plenums shall be constructed of heavy gauge, zinc coated, phosphated steel with a baked on enamel finish.

Plenums shall be installed through the exterior wall where shown on the plans and shall be of correct depth to allow sealing to exterior and interior walls.

### Exterior Grilles

Each unit shall be equipped with a standard exterior grille that has been designed to allow operation in high ambient conditions.

Special exterior grilles or custom louver sections supplied by others will conform to minimum free area requirements and shall be submitted to the manufacturer, if requested, for feasibility and air flow characteristics.

### Electrical

Units shall be designed to operate on 230/208 or 265-volts, 60 Hz, single-phase power.

Units shall have means of electrical connection listed by Underwriters Laboratories and compatible with the units required voltage and ampacity in conformance with National Electrical Code (NEC) and all local codes.

### Features

Unit must have a positive-closing fresh air ventilation system with a concealed manual control.

Unit must be compatible with 2-wire Central Desk Control systems.

Units must be compatible with Mechanical and Electronic Class-2 remote wall thermostats.

Units must have available connections to interface with occupancy sensors.

Using optional kit, unit shall have Electronic Temperature Limiting with seven independent heating and cooling settings to limit maximum and minimum room temperature settings.

Using optional kit, unit shall be equipped with Freeze Sentinel™ to automatically activate the electric heaters and appropriate fan motors to warm and circulate indoor air to prevent damage due to freezing temperatures. Freeze Sentinel™ shall operate when unit is connected to a powered electrical circuit and the unit shall have the ability to disable this feature.

## Additional Specifications For GE Vertical Zoneline® Heat Pumps

Heat pump unit shall automatically switch from heat pump operation to electric resistance heat when it is unable to provide sufficient heat to maintain room temperature or when the outdoor temperature falls below 25°F.

Unit shall be equipped with a temperature activated valve to allow condensate water generated during defrost cycles to drain into the specified drain system.

Unit shall have a concealed switch to allow heat pump operation to be overridden and heat provided by electric resistance heaters regardless of outdoor temperatures.

Heat pump unit shall have Reverse Cycle (hot gas) Defrost system to maximize heat pump operation and minimize energy consumption.

To minimize energy consumption, units shall have electric heaters locked out when outdoor temperatures are above 46°F. Heating will be provided by heat pump operation only.

In the event of a compressor failure during heat pump operation, the unit shall automatically switch to electric resistance heat to maintain selected room temperature regardless of outdoor temperatures.

When the heat mode is selected or when the unit is switched from off to on in heat mode, the unit shall energize electric heaters to quickly warm the room to wall thermostat set point. Heat pump operation will resume on subsequent heating requirements.

Unit shall have an indoor coil temperature sensor to protect the compressor when the outdoor temperatures are too high for heat pump operation.

## Additional Specifications Service

Submit complete information with bid covering service availability, to whom service on units will be assigned, complete address and phone number, including phone number of emergency service personnel.

### **Startup, Adjust, Demonstrate**

Contractor shall be responsible for the initial starting of units, adjustments thereto, cleaning, etc.; to place the units in required operating condition. Contractor shall demonstrate to the owner, or his representative, the operation of units for both summer and winter functions.

### **Limited Warranty**

For one year from date of original purchase, manufacturer will provide, free of charge, parts and service labor on site to repair or replace any part of the Zoneline that fails because of a manufacturing defect.

For an additional four years from the date of original purchase, manufacturer will provide, free of charge, parts and on-site service labor to repair or replace any part of the sealed refrigerating system (compressor, condenser, evaporator, and all connecting tubing) that fails due to a manufacturing defect.

For the second through fifth year from the date of original purchase, the manufacturer will provide a limited parts warranty. The manufacturer will provide, free of charge, parts that fail as a result of a manufacturing defect. Parts covered are fan motors, switches, heater, heater protectors, compressor overload, solenoids, circuit boards, auxiliary controls, thermistors, frost controls, capacitors, and varistors. This limited parts warranty does not include labor or transportation to and from the service shop.

All warranty service is to be provided by manufacturers factory service centers or by their authorized servicers during normal working hours.

## Zoneline® warranty

Staple sales slip or cancelled check here. Proof of original purchase date is needed to obtain service under warranty. For service in the U.S., call 800-GE-CARES. In Canada, contact: Gordon Williams Corp. at 1-888-209-0999.

### What is covered

#### Limited one-year warranty

For one year from date of original purchase, we will provide, free of charge, parts and service labor on site to repair or replace any part of the Zoneline unit that fails because of a manufacturing defect.

#### Limited additional four-year sealed refrigerating system warranty

For four years from the date of original purchase, we will provide, free of charge, parts and on site service labor to repair or replace **any part of the sealed refrigerating system** (the compressor, condenser, evaporator and all connecting tubing) that fails because of a manufacturing defect.

#### Limited 2nd through 5th year parts warranty

For the second through the fifth year from date of original purchase, General Electric will provide, free of charge, parts that fail as a result of a manufacturing defect. Parts covered are fan motors, switches, thermostat, heater, heater protectors, compressor overload, solenoids, circuit boards, auxiliary controls, thermistors, frost controls, capacitors, varistors, and indoor blower bearing. This is a limited parts-only warranty, and does not include labor or transportation to and from the service shop.

### What is not covered

- Service trips to your site to teach you how to use the product.
- Improper installation.

If you have an installation problem, or if the air conditioner is of improper cooling capacity for the intended use, contact your dealer or installer. You are responsible for providing adequate electrical connecting facilities.

- Replacement of fuses or resetting of circuit breakers.
- In commercial locations, labor necessary to move the unit to a location where it is accessible for service by an individual technician.
- Failure of the product resulting from modifications to the product or due to unreasonable use including failure to provide reasonable and necessary maintenance.
- Failure or damage resulting from corrosion due to installation in an environment containing corrosive chemicals.
- Failure or damage resulting from corrosion due to installation in a coastal environment, except for models treated with special factory-applied anti-corrosion protection as designated in the model number.
- Damage to product caused by improper power supply voltage, accident, fire, floods or acts of God.
- Incidental or consequential damage to personal property caused by possible defects with this air conditioner.

### Warrantor: General Electric Company. Louisville, KY 40225

This warranty is extended to the original purchaser and any succeeding owner for products purchased for use within the USA and Canada. In Alaska, the warranty excludes the cost of shipping or service calls to your site.

Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. To know what your legal rights are in your state, consult your local or state consumer affairs office or your state's Attorney General.

*Equipment used as a primary source for heating or cooling is an integral part of the building in which it is installed. Proper application is essential for satisfactory performance over a wide range of operating conditions. It is strongly recommended that a professional engineer determine proper application.*

*If this unit is a replacement unit, its specifications and performance may differ from those of the unit it is replacing. For that reason, we again strongly recommend that a professional engineer determine proper application.*

*GE has a policy of continuous improvement on its products and reserves the right to change materials and specifications without notice.*



## 100 years of innovation and we're just getting started

For more than a century, GE has been committed to producing innovative products that change the way people live. The result of thorough research and rigorous testing, GE appliances are designed for years of dependable performance.

Today, the GE tradition of quality and innovation continues.

Before purchasing an appliance, read important information about its estimated annual energy consumption or energy efficiency rating that is available from your retailer or [geappliances.com](http://geappliances.com)

GE has a policy of continuous improvement of its products and reserves the right to change materials and specifications without notice.

**GE**  
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