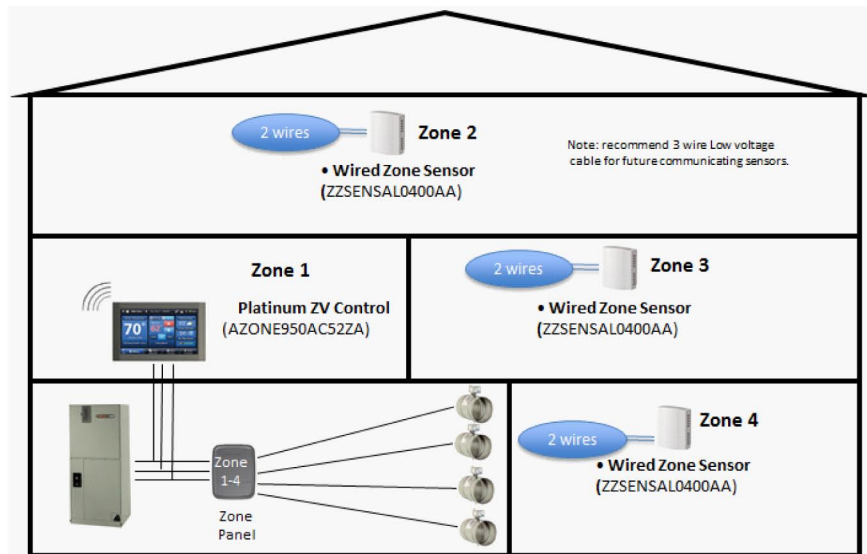


# ZONING APPLICATION / SELECTION GUIDE



# ACCULINK PLATINUM ZV ZONING SYSTEM

## COMPONENTS:

AZONE950AC52ZA	Platinum 950 Control
ZZONEPNLAC52ZA	Zone Panel Kit up to 4 zones Included: Discharge Air Temp sensor Static Pressure Transducer Transducer enclose 2- Static pressure Probes Clear tubing 8ft
AZONE940	Zone Sensor with display (wired)
ZZONEEZPAC52ZB	Zone Expander 5-8 Zones

## Zone Dampers

Up to 4 dampers per zone

24 VAC Modulating

Available in Round, Retro-Fit Round & Rectangular Bottom or Side mount

NOTE: Actuator is always located on the second dimension of the model #

Example: ZDAMPSMMA1412A will have the actuator mounted on the 12" side

Three wire connection-18 gauge

1.5VA damper actuator with 60 second travel time

18 in lbs of torque

Manual gear release

Screw terminal blocks

97-98% Leak proof rating

See Quick Reference Guide for available sizes

## APPLICATION GUIDE

AccuLink™ Platinum ZV Zone Systems  
CNT-APG004-EN

*American Standard*  
HEATING & AIR CONDITIONING



### A. AccuLink™ Platinum ZV Zoning System

The Platinum ZV zoning system is intended for use with American Standard Heating and Air Conditioning manufactured HVAC systems that utilize a variable speed indoor fan motor. This system will control up to eight fully modulating dampers in order to maximize the comfort and efficiency of the applied system. In addition, excess air is managed via an intelligent relief strategy without the need for bypass air. This manual contains information needed to properly apply and install the Platinum ZV zoning solution.

#### Requirements:

- American Standard Heating and Air Conditioning indoor unit with variable speed blower
- 950 AccuLink™ II control
- Zone Panel/Zone Expander
- Relay Panel for non-communicating HVAC equipment
- Communicating or non-communicating zone sensors
- Power open / power closed dampers with a damper travel time between 15 and 60 seconds.

*Note: All dampers shall have the same travel time.*

### B. Design Considerations

**I. Each “Thermal Zone” must be served by a separate unitary heating / cooling equipment system.** A thermal zone is a group of rooms or zones that have the same conditioning requirements (all requiring cooling or heating at the same time). Do not mix

thermal zones on a single equipment zone system (i.e. Don't apply zoning to a group of rooms or zones requiring simultaneous cooling and heating from a single non-multi zoned equipment system.)

**2. A room-by-room and a zone-by-zone heating and cooling load calculation is required in order to determine the quantity of conditioned air necessary for each room and each zone as well as to size equipment.** Use ACCA's Manual "J" or an equivalent procedure to determine equipment sizing and room (zone) airflow quantities. ACCA Manual J 8th Edition Version 2.00 provides two separate load calculations to assist with zoning design:

- a) The average block load condition is used to size the HVAC system.
- b) The hourly peak load condition is used to design the branch duct system in zoning applications. Since the load conditions change throughout the day, the branch duct system must be sized large enough handle and absorb peak load conditions. The duct dampers will reduce air flow during reduced load conditions.

**3. Do not oversize equipment. Equipment sensible and latent capacities should meet at least 95% of the load calculation requirements at the design conditions.** ACCA's Manual J 8th Edition Version 2.00 and J8AE version 1.00 in Section 10-4 recommends matching the calculated load values by  $\pm 5\%$ . Oversized equipment compounds the "excess air dilemma" and increases the complexity of maintaining equipment control as well as comfort control. The equipment selection should match the heat load calculation as closely as possible. Multi capacity and variable speed equipment is recommended since the system modulates to better meet the needs of the individual calling zones and minimize excess air.

**4. When possible, utilize equipment with airflow and BTUH capacity control.** Staged equipment affords a major reduction in delivered airflow and equipment BTUH on lower stage(s) while at reduced loads. These reductions are designed into the equipment by the manufacturer and may decrease the excess air and the need for additional control methods while increasing the design and system flexibility. Using staged equipment with airflow and capacity reductions designed into the equipment by the manufacturer simplifies the "excess air" control dilemma.

**5. Zone size and the number of zones are dependent and contingent on the home floor plan layout, number of stories, equipment capacity, airflow control and the type of**

**heating equipment.** All zones should also be fairly equal in size to minimize excess air issues (any zone sized less than 25% will be automatically set as a non-voting zone). Please refer to Table 1 - recommended maximum number of zones in the Excess Air section of this document.

**6. Damper placement should be as far away as possible from the supply outlets to minimize noise and improve the air pattern. Dampers generate turbulence and noise when throttled.**

**7. Supply Diffuser / Registers should be selected at 60 to 70% of design airflow when using fully modulating dampers.** The supply diffusers / registers need to be selected and optimized for mid-range performance. The majority of operational time will require 45 to 75% of the Manual "J" design CFM maximum. The limited time at minimum or maximum airflow requirements must be analyzed but should not override the mid-range operational requirements. The manufacturers data should be analyzed to assure the registers will provide sufficient throw, performance and room mixing at 40% to 50% airflow, while noise levels and drafts should be verified at design requirements of 100%.

**8. Return Duct requirements: One or more returns per zone are required for optimum results.** When one return per zone is not possible, the return air travel path from other zones should not pass near another zone's thermostat (or sensor). The return air path can influence sensing capabilities within the zone. Remember that there must be sufficient return air capability or flow through the zone and near the zone thermostat / sensor to allow the thermostat / sensor to adequately sense the zone conditions.

## **CAUTION**

*Exceeding the equipment design limitations may force the safety limits to cycle during normal run cycles, thus causing equipment damage and potential loss of operation.*

## **C. Excess Air Management**

1. Platinum ZV zoning manages excess air without the need for a bypass damper or position stops in the supply dampers. The first method of managing excess air is to eliminate or greatly reduce the excess.

- a) Equipment Stage Control

1) On equipment with multi-stage capacity the 950 control will only deliver the stage of capacity that the calling zones can manage. The sum of the calling zones sizes must be greater than the current stage before allowing the system to stage up.

b) Air Flow Reduction

1) For cooling or compressor heating applications the air flow can be reduced by up to 30%. This air flow reduction does not apply to gas/oil heat or during electric heat operation. If the Platinum ZV control still calculates excess air, then the excess air will be managed via the relief strategy.

c) Relief Strategy

*Note: The minimum damper position during relief and normal operation is 25% open*

Strategy 1 – Manage excess air through the calling zones by delivering more capacity than the zones are currently requesting

Strategy 2 – Once all calling zones dampers are 100% open and excess air remains, the excess will be delivered evenly to the zones that are in the same calling mode but have no demand

Strategy 3 – Once all calling zone dampers are 100% open and all non-calling same mode zone dampers are 100%, and excess air remains, the excess will be delivered evenly to the zones which are in the opposite mode of operation

***Reference Table 1 for recommended maximum number of zones based on system type.***

Platinum ZV zoning relief strategy is effective in managing excess air when implemented on a properly applied system. Below is a short list of issues which can cause the relief strategy to over condition the non-calling zones:

a) Zone sizes are disproportionate (large and small zones in the same system)

b) Too many zones for the applied system (installed system lacks staging or air flow reduction capabilities)

c) Branch duct system is not sized to handle expected load conditions in heating and cooling mode.

Listed below are the recommended limitations for number of zones

<b>Table 1</b>				
<b>Recommended Maximum Number of Zones Based on System Type</b>				
<b>Outdoor Unit Type</b>	<b>Compressor Stages</b>	<b>Heating type</b>	<b>Heating Stages</b>	<b>Maximum Zones</b>
none		gas heat	2	4
		gas heat	modulating	6
		electric heat	all stages	4
		oil heat	1	3
		hot water		8
Clg / HP	1	none		4
	2			8
	variable			8
Clg / HP	1	electric	all stages	4
	2			
	variable			
Clg / HP	1	natural / LP	2	4
	2		modulating	6
	variable		2	4
	variable		modulating	6
Clg / HP	1	hot water		4
	2			8
	variable			8
Clg / HP	1	oil	1	3
	2		1	3

*For more explanation of the Platinum ZV zoning system please reference publication CNT-APM001-EN - Zoning Application Manual*