

IntelliZone™

Comfort Zoning System Four Zone Capability

Installation Information

Damper Installation

Thermostat Installation

Electrical

Startup Procedures

Wiring Schematic



IntelliZone™



IntelliZone – What's New?

Staging

Effective July 2006, the company introduced a software upgrade to the IntelliZone that allows 4 different comfort staging options. The available configuration options are *Normal*, *Quicker*, *Faster* and *Faster w/Timer*. (The *Slower* staging option has been removed from the new version of the IntelliZone.)

Normal – This “as-shipped” mode will upstage the blower and compressor normally and remains unchanged from the current IntelliZone.

Quicker – This mode will upstage the blower, compressor and auxiliary electric heat more expediently than *Normal* mode for increased comfort.

Faster – This mode will upstage the blower and auxiliary electric heat slightly faster than *Quicker* mode. Cooling operation is same as *Quicker* mode.

Faster w/ Timer – This mode allows for a timed element in compressor and electric heat upstaging for situations in which normal staging is inadequate. Cooling operation is same as *Quicker*. **This staging position should be reserved for the most demanding and aggressive situations.**

Configuring the IntelliZone for *Quicker*, *Faster* or *Faster w/Timer* will give added comfort but will also result in **increased system operating costs and should be used only when necessary**.

A kit is available for purchase that will include a microchip and instructions for retrofitting older IntelliZone systems with the enhanced operation logic. The kit's part number is IRC.

Downstaging

Dual stage (E-Series and Envision) units have the ability via DIP switch SW3-2 to satisfy a call normally (Y2 downstage to Y1 to finish) or finish on second stage (Y2 runs to finish the call). The units are shipped from the factory with DIP switch SW3-2 OFF which will enable the unit to finish a call with normal downstaging. When using the IntelliZone it is necessary to ensure that SW3-2 is in the OFF position so that downstaging will work properly.

Minimum Airflow Setting

Envision dual capacity units have 70% low capacity, compared to E Series dual capacity and older Premier two speed units with 50% low capacity. This will change the minimum zone CFM from 25% of nominal (400 CFM/ton) to 40% of nominal. Therefore, when using the IntelliZone with an Envision dual capacity or Synergy3D unit, the zone branch ducts must be sized to handle **MORE** airflow.

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General Installation Information

Safety Considerations

Installing and servicing heating and air conditioning equipment can be hazardous due to system electrical components. Only trained and qualified service personnel should install, repair or service heating and air conditioning equipment. When working on equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves.



WARNING: Before performing service or maintenance operations on the system, turn off main power switches to the indoor unit. Turn off accessory heater power switch if applicable. Electrical shock could cause serious personal injury.

Delivery Information

When the equipment is received, all items should be carefully checked against the bill of lading to be sure all crates and cartons have been received. Examine the contents for shipping damage, removing them from the cartons if necessary. If any damage is noted, the carrier should make the proper notation on the delivery receipt, acknowledging the damage.

General rules to follow when installing a zone system:



CAUTION: When installing the IntelliZone in a structure with fossil fuel (oil, gas, propane) appliances, it is **important** that both supply and return dampers are used in each zone to avoid potential back-drafting of fossil-fueled appliances.

- Up to four zones with dual capacity units (two with single-speed units).
- All dampers should be located as close to the main trunk as possible to limit the amount of pressurized trunk line and thus limit air leakage.
- No less than three branch runs in a zone to prevent a single branch obstruction (curtains or clothes etc.) from affecting unit airflow.
- Insulate and seal around rectangular dampers to prevent leakage.
- All dampers must be wired with 18-gauge wire.

Note: Crimp connections should never be used on solid conductor wire.

- Insure that the transformer can handle the power requirements of the system.
- No more than three dampers per zone.
- Ductboard-mounted dampers should be supported within six inches of the damper due to the weight and stress on the ductboard.
- Unit DIP switch #3-3 should be in the NO RPM mode.
- Unit DIP switch #3-2 should be in the OFF position when used with a zone control system.
- Unit DIP switch #2-8 should be in the ON position (continuous 'L' signal) when used with a zone control system.

Installation and Design Steps

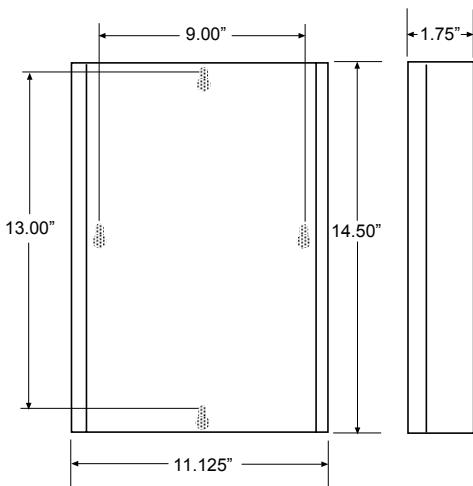
1. Decide which areas of a home or office will comprise each of the individual zones. A maximum of four individual zones (two with single-speed equipment) can be chosen.
2. Calculate loads using software or other recognized methodology.
3. Use software to determine the equipment size and performance based on the total heating and cooling demands of the building, not the sum of the individual zone demands.
4. Find the peak heating and cooling demands and the peak CFM required for each of the zones.
- Note:** Dual Capacity Envision has a 70% low capacity output, therefore minimum CFM required per zone is 40% of nominal CFM, significantly higher than the E Series with a 50% low capacity output.
5. Determine zone design air flow and zone size settings using IntelliZone Calculator software.
6. Lay out and size the supply air ductwork and IntelliZone dampers. Care should be taken to avoid under sizing either the supply air systems, return air systems, or diffusers.
7. Decide where to locate the thermostats.
8. Install the unit and the IntelliZone Comfort Zoning system.

General Installation Information (cont.)

IntelliZone Control Panel

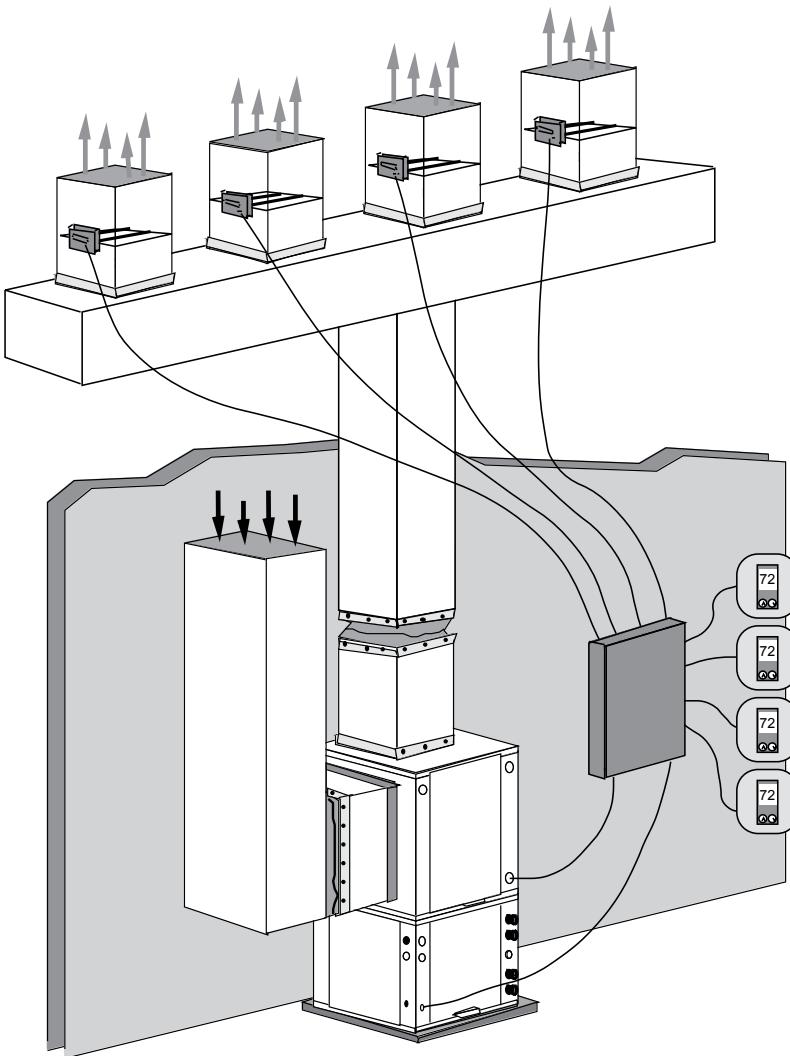
Locate the IntelliZone panel in an indoor area that has enough space for service personnel to perform maintenance or repair. Provide sufficient room to make electrical connection(s). The IntelliZone is not approved for outdoor installation and, therefore, must be installed inside the structure being conditioned. Do not locate the control panel in areas where ambient conditions are not maintained within 45°F to 95°F and are greater than 75% relative humidity. The IntelliZone control panel should be mounted on or as close to the unit as possible by using the sheet metal screws provided. See Figure 1 for mounting hole locations.

Figure 1: IntelliZone Control Panel Mounting



Notes: Use longer screws (not provided) to penetrate through drywall into stud.

Four Zone System Representational Layout



Damper Installation

Installing Rectangular Dampers in Metal Ductwork

1. Cut out dimensions A and B as shown in Figure 2 below by using sheet metal snips.

Note: Dimensions A and B are listed in the table to the right.

2. Use foam insulation tape on the top and bottom of the zone damper to prevent excessive air leakage. Also check the cross emboss for excessive air leakage (see Figure 2).
3. Slide the zone damper into the ductwork making sure no obstructions will interfere with damper blade operation.
4. Use the screws provided to mount the damper flange to the ductwork. Four to six mounting holes are provided as shown in Figure 3 below.
5. Use drive cleats or regular duct mounting brackets to attach ductwork to joist within six inches on both sides of the damper (see Figure 3).
6. Check damper blade operation for obstructions by holding the manual release button and rotating the damper shaft CW (Open) and CCW (Closed) 3 Wire only as shown in Figure 4 below.

Dimensional Examples

Damper Model	H	W	A	B
ZDR1024	10"	24"	10"	3.75"
ZDR0812	8"	12"	8"	3.75"

Figure 2: Foam Taping Zone Damper

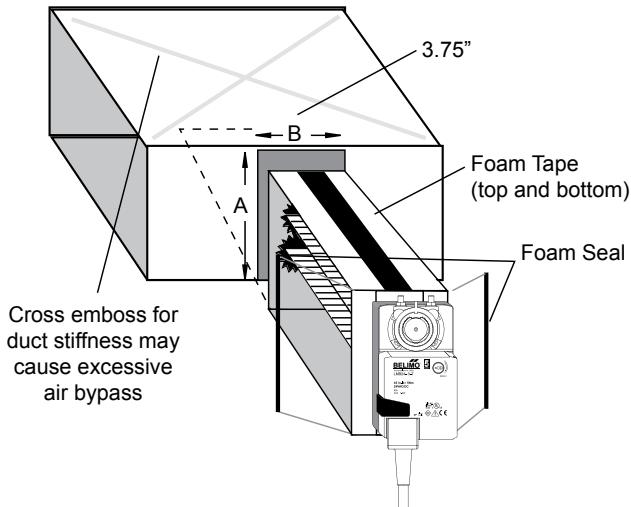


Figure 3: Mounting Damper

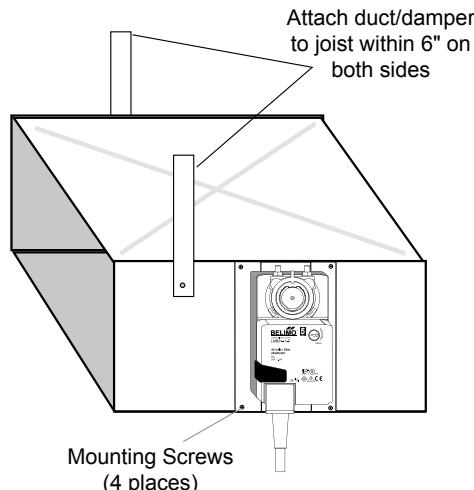
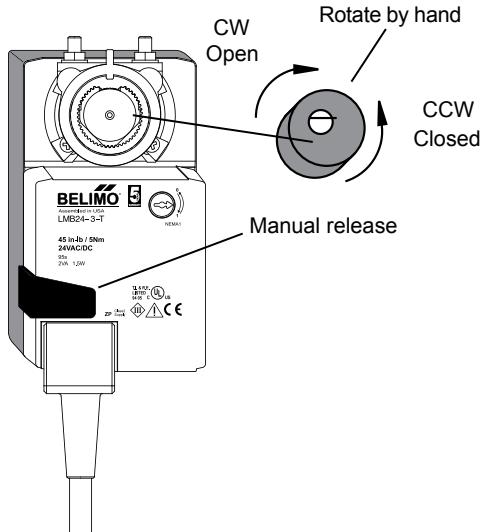


Figure 4: Checking Damper Blade for Obstructions

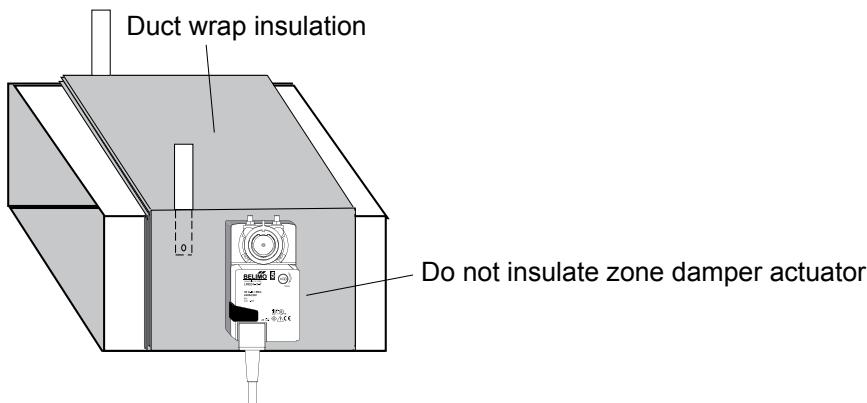


Damper Installation (cont.)

Insulating Rectangular Dampers in Metal Ductwork

Insulate ductwork as shown in Figure 5 below. All metal must be covered. Care must be taken not to obstruct the shaft from rotating when insulating. Do not insulate the zone damper actuator.

Figure 5: Insulating Rectangular Metal Ductwork



Installing Rectangular Dampers in Ductboard

1. Cut out dimensions A and B by using a ductboard knife. Note: Dimensions A and B are listed in the Table on page 6.
2. A ductboard spacer should be installed on the end of the damper frame as shown in Figure 7 to prevent excessive air bypass. For example: A one-inch-thick, 8" x 20" ductboard and a 8" x 20" zone damper would have a one-inch gap at the end of the frame once it is installed without a ductboard spacer. Use the piece cut out for installation.
3. Foam insulation tape should be used on the top and bottom of the zone damper to prevent excessive air leakage as shown in Figure 7.
4. Slide the zone damper into the ductboard making sure no obstructions will interfere with damper blade operation.
5. Tape the damper face flange to the ductboard using foil tape making sure the damper is secure and air tight as shown in Figure 8 below.
6. Support the full length of the ductboard underside within six inches and on both sides of the damper as shown in Figure 8.
7. Check the damper blade operation for obstructions by holding the manual release button and rotating the damper shaft CCW and CW (see Figure 4 on page 6).

Figure 8: Taping Damper Flange to Ductboard

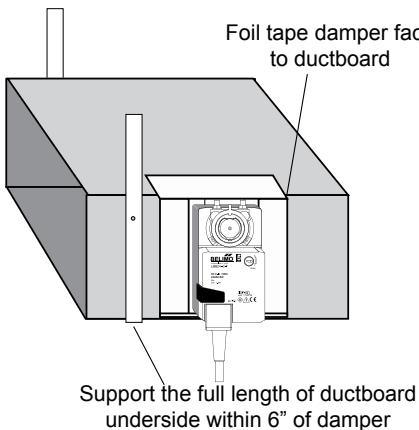
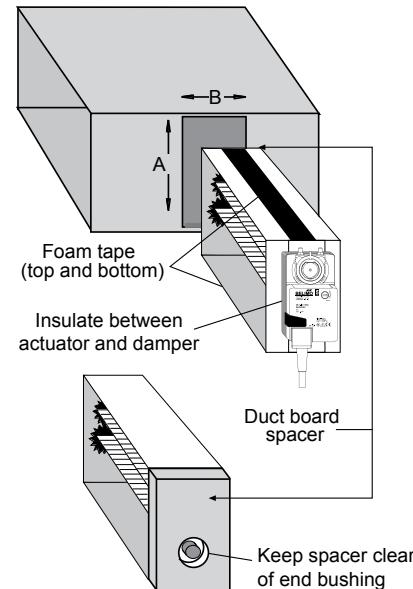


Figure 7: Taping Zone Damper with Foam Tape



Damper Installation (cont.)

Insulating Rectangular Ductboard/Metal Sleeve

Care must be taken not to obstruct the shaft from rotating when insulating. Do not insulate the zone damper actuator.

Installing Circular Dampers in Round Metal Duct

1. Crimp the end of the duct that is the supply air to damper. Insert into circular damper no more than 1.5 inches.
2. Fasten the duct to the damper with three screws. Screws installed more than one inch from either end may obstruct damper blade rotation.
3. Seal completely around the duct with metal duct tape or mastic to prevent air leakage as shown in Figure 10 below.
4. Check the damper blade operation for obstructions by holding the manual release button and rotating damper shaft CCW and CW (3 wire only). See Figure 4 on page 6.
5. Support the duct to joist within six inches of the damper as shown in Figure 9.

Insulating Circular Dampers in Round Metal Duct

Insulate ductwork as shown in Figure 10. All metal must be covered to prevent condensation. Care must be taken not to obstruct the shaft from rotating when insulating. Do not insulate the zone damper actuator.

Figure 9: Taping Round Duct to Circular Damper

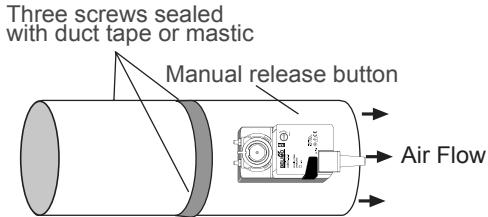
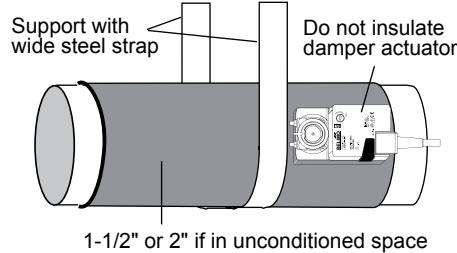


Figure 10: Supporting and Insulating Circular Damper



Installing Circular Dampers in Flexible Duct

1. Slide flexible duct two to three inches over the damper pipe past the damper rib as shown in Figure 11 below.
2. Fasten duct to damper with a nylon duct strap, screwing the strap to the pipe to prevent the duct from slipping off. Screws installed more than one inch from either end may obstruct damper rotation.
3. Seal completely around the duct with metal duct tape or mastic to prevent any air leakage.
4. Check the damper blade operation for obstructions by holding the manual release button and rotating damper shaft CW (Open) and CCW (Closed) - 3 wire only. See Figure 4 on page 6.
5. Support the damper to joist within six inches on both sides of the damper as shown in Figure 12.

Insulating Damper Actuators

Insulate the damper as shown in Figure 12 below. All metal must be covered to prevent condensation. When insulating, care must be taken not to obstruct the shaft from rotating. Do not insulate the zone damper actuator.

Figure 11: Attaching Flexible Duct to Damper

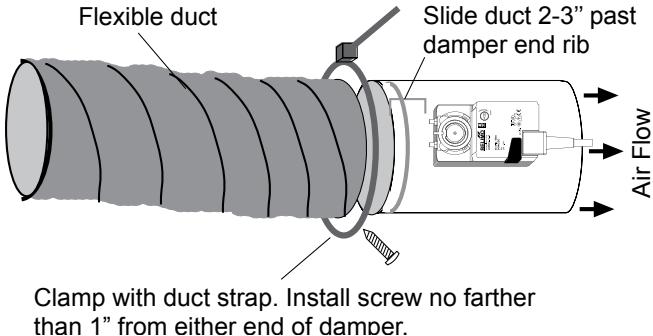
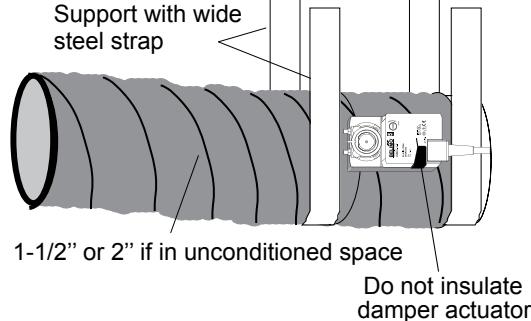


Figure 12: Supporting and Insulating Circular Damper

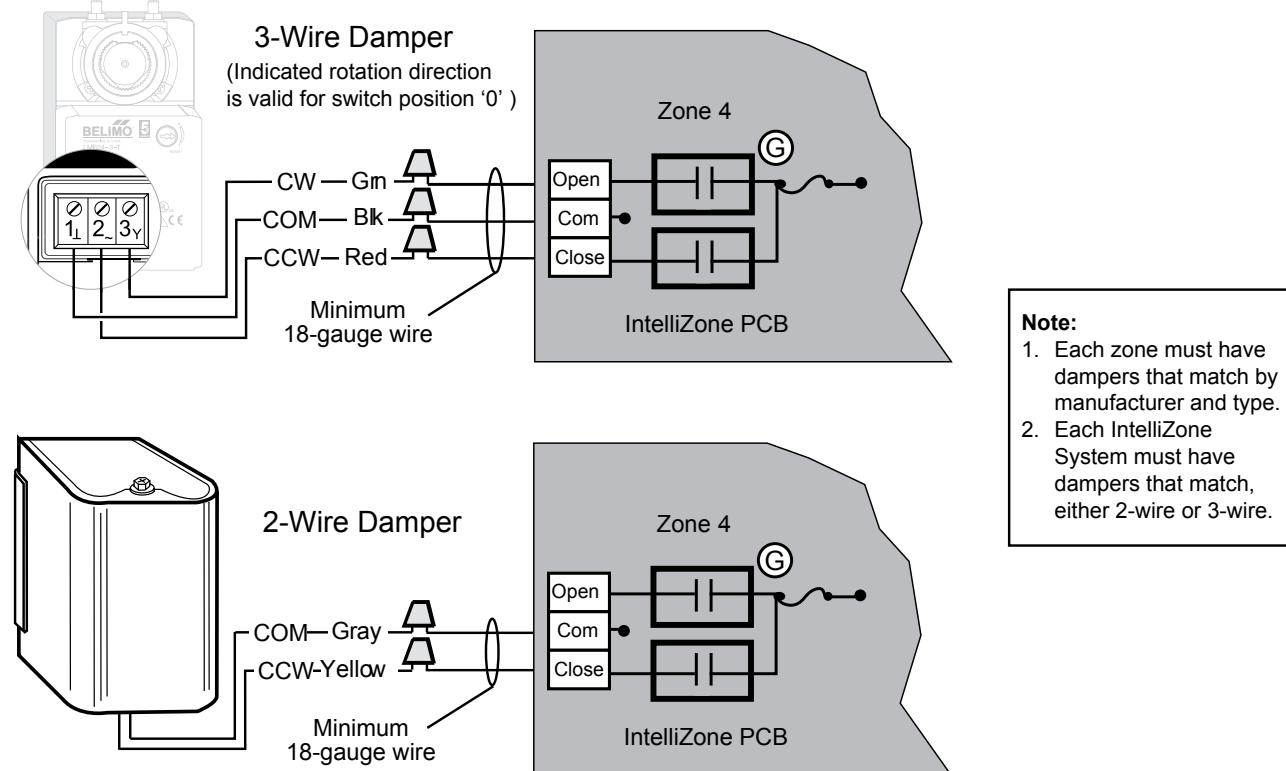


Electrical Wiring

Wiring Damper Actuators

All wiring must comply with local and state codes. Disconnect the power supply before beginning to wire to prevent electrical shock or equipment damage. All wiring should be run back to the control panel. Keep wires a minimum of 12 inches from any high voltage lines. Follow the damper wiring schematic as shown in Figure 13. Verify that damper rotation direction is correct. The 3-wire damper rotation direction is reversible with switch on front cover.

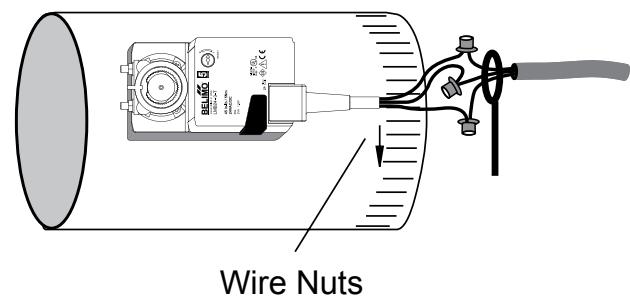
Figure 13: Damper Actuator Wiring



Damper Actuator Wiring Notes:

1. Minimum of 18-gauge thermostat wire is recommended.
2. Use wire nuts to connect the thermostat wire to the actuator wire (solid wire to stranded wire) as shown in Figure 14 below.
3. The actuator wiring should be secured using a wire tie to prevent the wires from being separated (see Figure 14).

Figure 14: Actuator Wiring



Electrical Wiring (cont.)

Transformer Sizing

Providing adequate transformer power (VA) to supply the system is an important requirement. Each IntelliZone 3-wire damper requires 3.0 VA at nominal voltage. Each IntelliZone 2-wire damper requires 7.0 VA at nominal voltage. The standard transformer available is a 75VA with circuit breaker (Part # ZTK240).

Transformer 'VA' Calculation (3-wire actuator)

Zone 1 dampers	Power to 2 IntelliZone Damper	6.0 VA
Zone 2 dampers	Power to 1 IntelliZone Damper	3.0 VA
Zone 3 dampers	Power to 2 IntelliZone Damper	6.0 VA
Zone 4 dampers	Power to 3 IntelliZone Damper	9.0 VA
Total VA Draw		24 VA

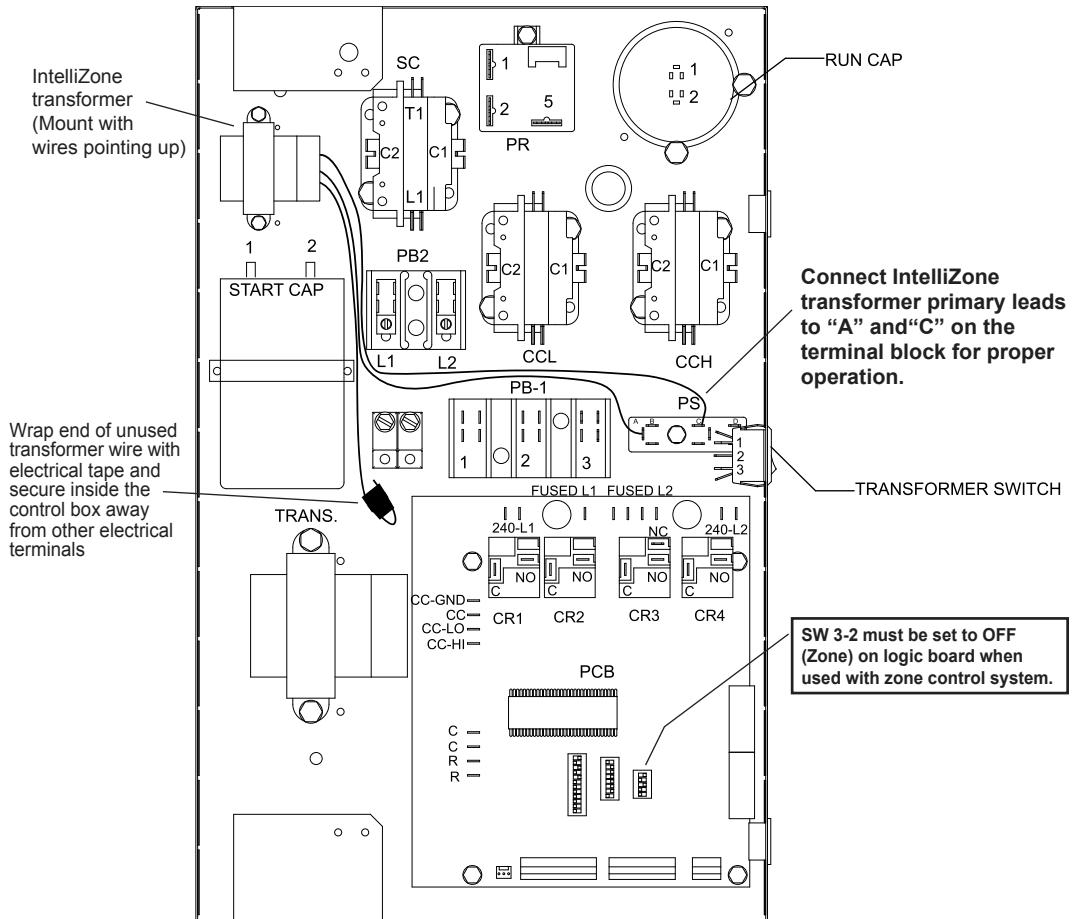


WARNING: All wiring must comply with local and state codes. Disconnect the power supply before beginning to wire to prevent electrical shock or equipment damage.

Mount the transformer onto the side of the unit's control box by inserting and tightening screws (provided) into the pre-punched holes. Thread all transformer wires through the hole with bushing and follow the wiring schematic for connecting the transformer primary leads as shown in Figure 15 below.

For 208 volt operation, the red and blue transformer wires must be switched. Follow the wiring schematic in Figure 16 on page 11 for the secondary side of the transformer. Use wire nuts only for connections to thermostat wire.

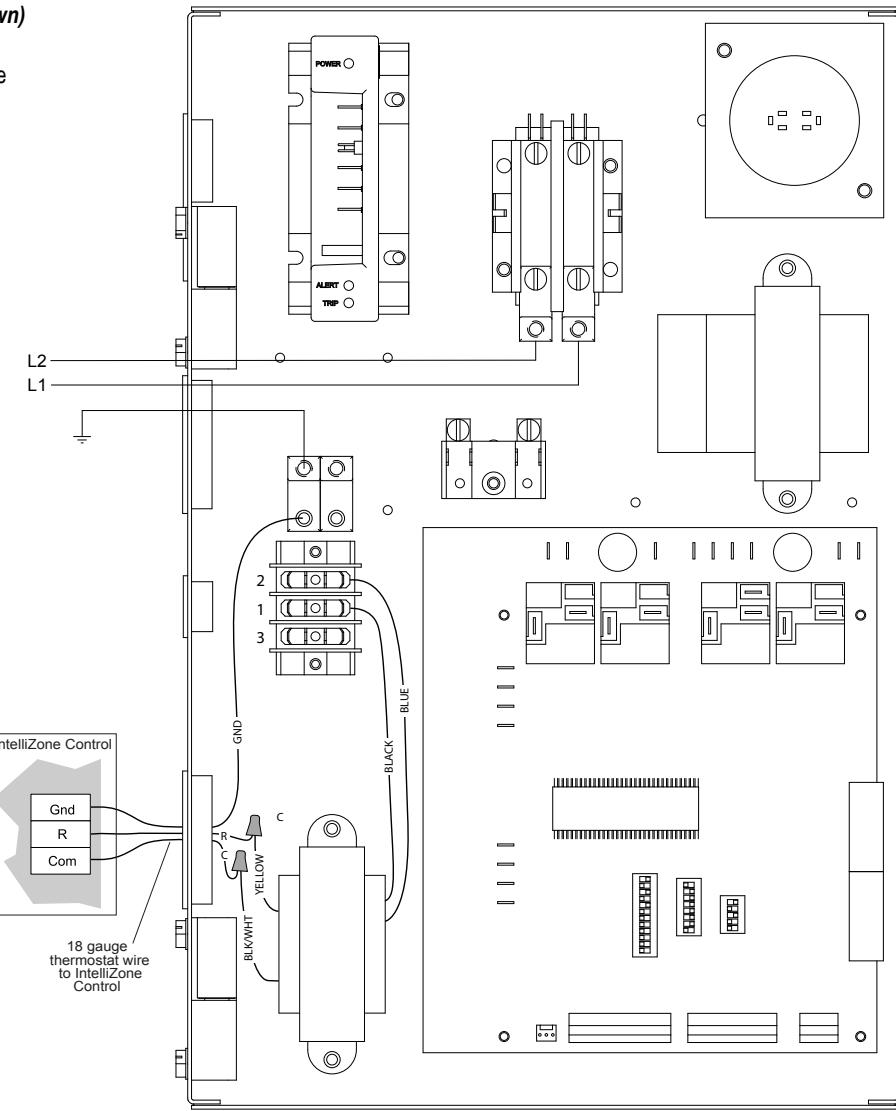
Figure 15: Mounting Transformer to Control Box (E Series shown)



Electrical Wiring (cont.)

Figure 16: 24 Volt Transformer Wiring (Envision shown)

Note: The IntelliZone control board must be grounded to the unit to operate properly.

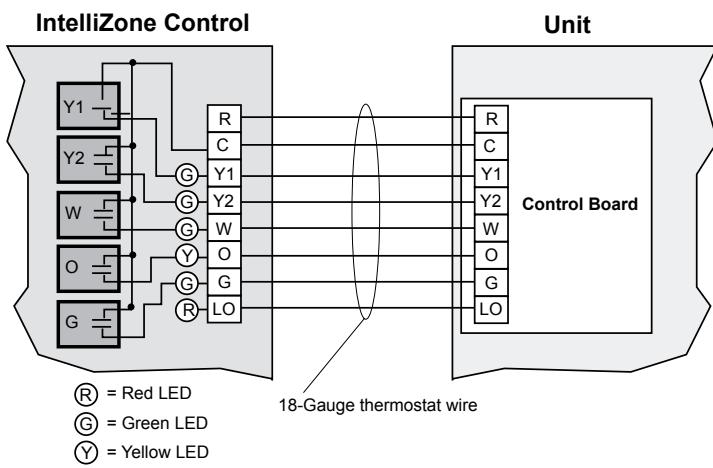


Wiring IntelliZone to the Unit

WARNING: All wiring must comply with local and state codes. Disconnect the power supply before beginning to wire to prevent electrical shock or equipment damage.

Follow the wiring schematic in Figure 17 for unit control connections. Strip the wires back 1/4 inch (longer strip lengths may cause shorts) and insert the thermostat wires into the unit's connector as shown in Figure 17. Tighten the screws to ensure tight connections. Use a minimum of 18-gauge thermostat wire for connections. SW 3-2 must be set to OFF on the logic board when used with a zone control system. **SW 2-8 must be set to ON (continuous 'L' signal) when used with a zone control system.**

Figure 17: IntelliZone to Premier Control Wiring



Thermostat Installation

Locating the Thermostats

The thermostats must be located in the room or zone that each controls. Locate a thermostat about five feet above the floor. Do not locate a thermostat where it may be exposed to direct sunlight, drafts or direct supply air. Do not place a thermostat on an outside wall. Follow the same guidelines that apply with standard thermostat installation. If two or more rooms are on a single zone, locate the thermostat in a hallway or area where it can sense the return air from all rooms.

Figure 18: Four Zone Thermostat Location



Thermostat Installation (cont.)

Mounting and Wiring the Thermostat

Position the thermostat subbase against the wall so that it is level and the thermostat wires protrude through the middle of the subbase. Mark the position of the subbase mounting holes and drill holes with a 3/16-inch bit. Install supplied anchors and secure base to the wall. Thermostat wire must be eight-conductor 18 AWG. Strip the wires back 1/4 inch (longer strip lengths may cause shorts) and insert the thermostat wires into the IntelliZone connector as shown in Figure 19 at right. Tighten the screws to ensure tight connections. The thermostat has the same type connectors, requiring the same wiring. Caulk the hole in the wall where the wires enter the thermostat.

Note: See the instructions enclosed in the thermostat for detailed installation and operation information.

Thermostat Indicator Light Function

“Fault” or “Service Needed” will be displayed on the thermostat. This text illuminates when a fault condition has occurred. A light on the front lower panel of the unit will also illuminate to indicate what condition caused the fault (except airflow).

A slowly flashing “fault” light during unit operation indicates a thermostat wiring problem. A rapidly flashing fault light indicates an airflow fault.

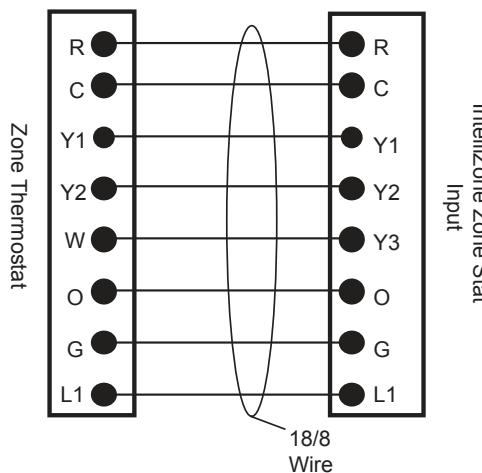
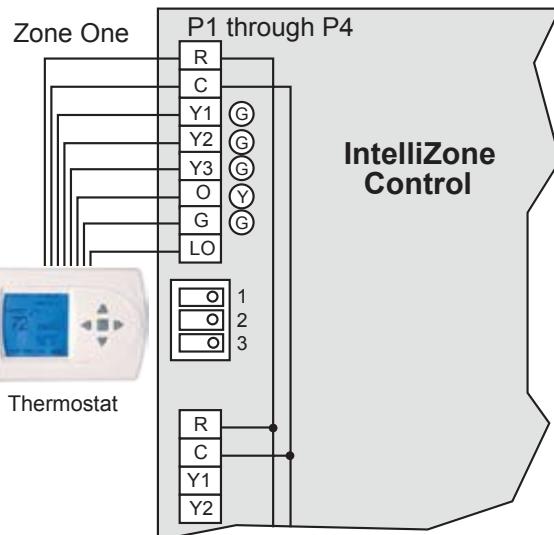
The thermostat may indicate a call for auxiliary heat when a high heat demand is sensed in a zone. This does not necessarily indicate that auxiliary heat is being energized in a zone system.

Note: ComforTalk or FaultFlash thermostat features are NOT available with IntelliZone control boards.

Indicator Light Function

Operation Modes	IntelliZone Outputs				
	Y1	Y2	W	O	G
Heating - 1st Stage	ON	OFF	OFF	OFF	ON
Heating - 2nd Stage	ON	ON	OFF	OFF	ON
Heating - 3rd Stage	ON	ON	ON	OFF	ON
Heating - Emergency	OFF	OFF	ON	OFF	ON
Cooling - 1st Stage	ON	OFF	OFF	ON	ON
Cooling - 2nd Stage	ON	ON	OFF	ON	ON
Constant Fan	OFF	OFF	OFF	OFF	ON

Figure 19: Wiring the Thermostat to the IntelliZone



IntelliZone Zone Stat
Input

Blower Motor Wiring Harness Installation



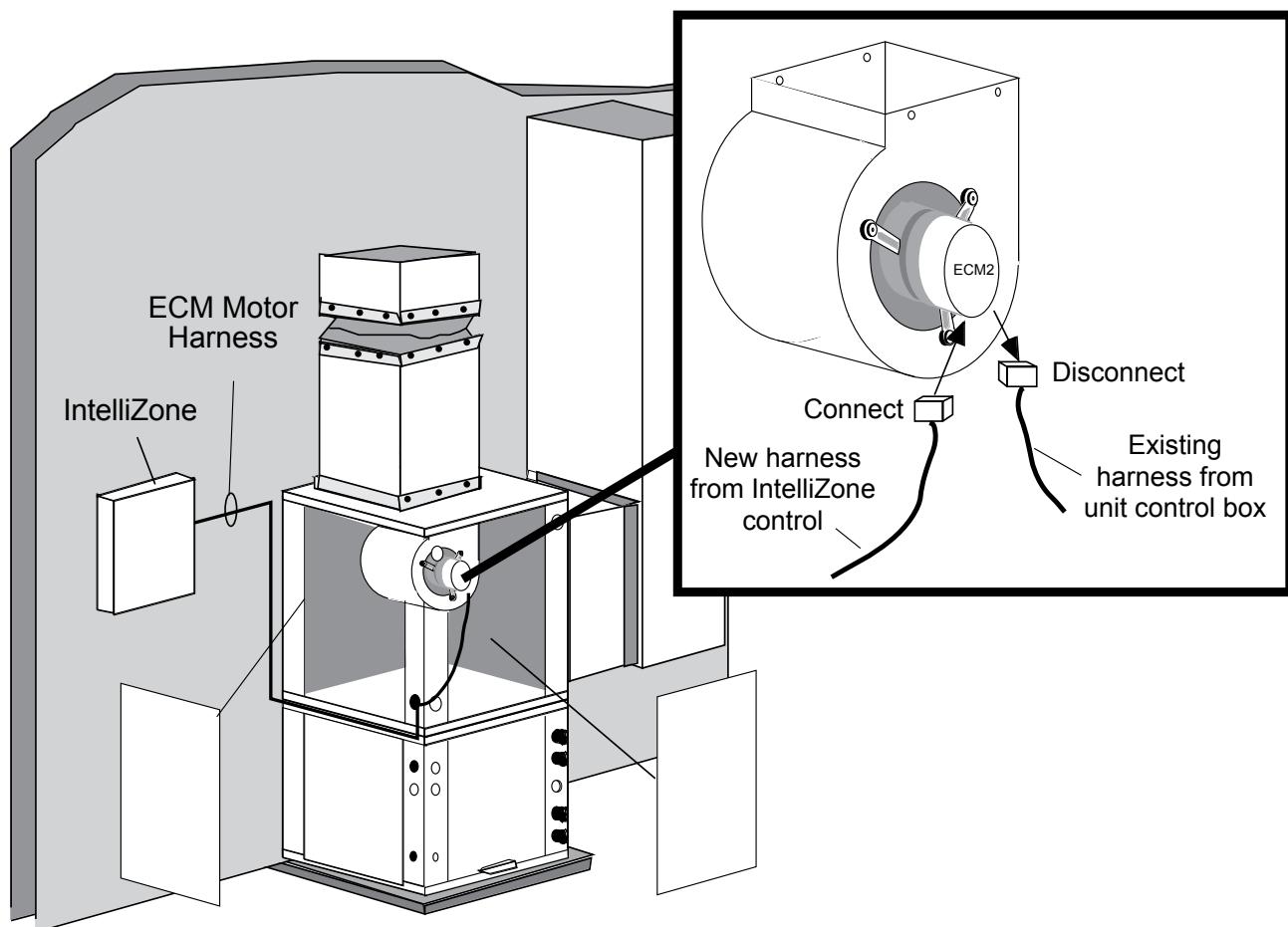
WARNING: Disconnect the power supply before beginning to wire to prevent electrical shock or equipment damage.

Thread the ECM2 motor harness through the knockout in the air handler section of the unit. Use the 3/4-inch romex connector provided for strain relief and to seal the blower compartment from ambient air. Place a section of cork tape from the inside to the back of the Romex connector for additional sealing. Disconnect the existing blower harness.

Connect the new harness to the blower motor as shown in Figure 20, below. Strap the original harness to the new one so that it is free of shorting/obstructing the blower wheel.

Thread the IntelliZone end of the harness through the zone cabinet and connect to the IntelliZone printed circuit board (See Page 22).

Figure 20: Connecting New Wiring Harness to Blower Motor Wiring Harness



Notes: An ECM motor harness extension (ZBHE is available separately). Switch SW3-3 on the unit must be in the NO RPM setting.

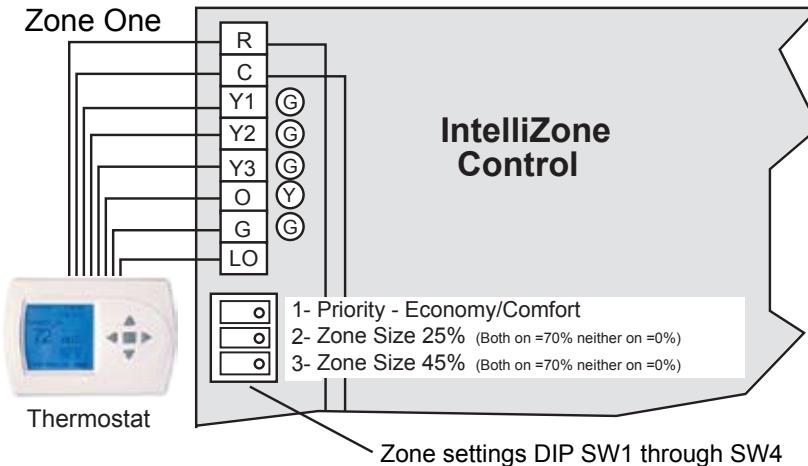
DIP Switch Setup

IntelliZone Slide Switch Setup (SW1 Through SW4)

A three-position DIP switch package located on each zone section of the IntelliZone control allows the following field selectable zone options.

Zone setting DIP switches are located below each thermostat's connections as shown in Figure 21 below.

Figure 21: Setting Zone DIP Switches



Switch 1: Comfort/Economy Mode

This DIP switch allows the selection in each individual zone for either "Comfort" or "Economy" mode to provide maximum savings in areas that allow it (such as workshops and basements), but still maintains comfort in the zones where accurate temperature is most desired (such as bedrooms and baths).

Comfort mode - A single zone call (Y1) for conditioning will engage the compressor and minimize set point variation thus providing ultimate comfort.

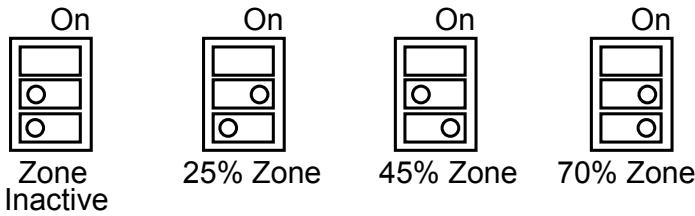
Economy mode - The economy mode will attempt to satisfy the zone demand without initiating a compressor call. A Y1 call from a zone in the economy mode position will open the damper to the zone and call for the fan. It will use the return air from the remaining zones to condition this zone. If the thermostat cannot be satisfied in this manner, the thermostat will deliver a Y2 call starting the compressor in low capacity.

Switches 2 & 3: Zone Percentage

These DIP switches allow the field selection of the zone percentage of the load as shown in Figure 22 below.

- If both DIP 2 and 3 are off, the zone is inactive and dampers will be closed.
- If DIP 2 is on and 3 is off, the zone load percentage is 25%.
- If DIP 2 is off and 3 is on, the zone load percentage is 45%.
- If both DIP 2 and 3 are on, the zone load percentage is 70% ($25\% + 45\% = 70\%$).

Figure 22: Zone Percentage Selection by DIP Switch



DIP Switch Setup (cont.)

Selecting Zone Priority and Percentages

Selecting the zone percentage should be accomplished by using the Zone Calc Software. This percentage is an approximation of the maximum heating and cooling load of the zone. The IntelliZone allows 0, 25, 45 and 70% selections. Below are some general rules to follow when selecting percentages:

- Pick a larger percentage for major living areas such as family rooms, etc.
- Pick a smaller percentage for minor living areas such as dens or bedrooms.
- Pick a larger percentage if more branches are required than the load indicates due to large area per load (unfinished basement).
- The total should always add up to over 100%.

Settings DIP Switch 6 (SW6)

An 8-position DIP switch package on the IntelliZone control allows the following field selectable options:

1 - Service Test Mode

This DIP switch allows field selection of “Normal” or “Test” operational modes (**Test=OFF / Normal Speed=ON**). The test mode accelerates most timing functions, including the damper timing, 16 times to allow faster troubleshooting.

Note: Three-wire dampers will not have enough time to open in test position.

2 - Central Zone Mode

This DIP switch allows field selection of “Central” or “Multi-zone” operational modes (**Central Zone=OFF / Multizone=ON**). The central mode opens all dampers and operates the control as a central zone using the zone 1 (main) thermostat inputs. This mode, which operates like a system without zone control, allows simplified operation during testing or during emergencies. In multi-zone mode, the control allows each active zone to be controlled by its respective thermostat inputs.

3 - No RPM/RPM Mode

This DIP switch configures the control to monitor the RPM output of the ECM2 blower motor (**No RPM=OFF / RPM=ON**). When using a PSC blower motor, the control should be configured for “No RPM” sensing.

4 - Dehumidification Mode

This DIP switch allows field selection of “Dehumid” or “Normal” operational modes. The “Dehumid” mode uses the logic of reduced cooling fan speeds 1 and 2 for stage one compressor (Y1 on single-speed), and fan speed 3 and 4 for dual-capacity compressor (Y2 on single-speed). The “Normal” mode uses the logic of normal cooling fan speeds 2 and 3 for stage one compressor (Y1 on single-speed), and fan speeds 4 and 5 for stage two compressor (Y2 on single-speed).

5 - Dual capacity/Single-Speed

This DIP switch configures the control for single-speed or dual capacity unit operation (**Single-Speed=OFF / Dual Capacity =ON**). Single-speed units are limited to two zones. Dual capacity units can operate up to four zones.

6 & 7 - Staging Options

Normal - This “as shipped” mode will upstage the blower and compressor normally.

Quicker - This mode will upstage the blower, compressor and auxiliary electric heat more expediently than “normal” mode for increased comfort.

Faster - When heating, this mode will upstage the blower and auxiliary electric heat slightly faster than “quicker” mode. Cooling operation same as “quicker” mode.

Faster with Timer - This mode allows for a timed element in compressor and electric heat upstaging in 45% and 70% zones for situations in which normal staging is inadequate when heating. **This staging position should be reserved for the most demanding and aggressive situations.** Cooling operation remains the same as “quicker” mode.

Example 1: The heat pump is already operating in first stage. Second stage will be activated after a 15-minute continuous Y3 zone call from a 45% or 70% zone until the zone call is reduced to a Y2. Airflow will be increased to speed tap 3 or 4 during this period.

Example 2: The heat pump is already operating in second stage. Third stage will be activated after a 15-minute Y3 zone call from a 45% or 70% zone until the zone call is reduced to a Y2. Airflow will be increased to speed tap 5 during this period.

DIP Switch Setup (cont.)

8 - Damper Timing

This DIP switch configures the control for IntelliZone "3-wire" or other "2-wire" damper operation (**Dampers-Spring [2-wire]=OFF / Dampers-Intellizone [3 wire]=ON**).

"3-wire" dampers require motorized opening and closing. In this position, opening and closing damper relays energize for 90 seconds allowing plenty of time for complete movement of the damper to either the open or closed position.

"2-wire" dampers typically use a "stall" motor to close and a spring to open. In this position, the opening and closing damper relays are continually energized to power close the dampers for maximum close off pressure.

SW8 (Jumper)

This is to match the Intellizone with the thermostats being used. It should be on the center post and "AT" when a TA32E12 thermostat is used. When using a 24 volt AC thermostat, it should be on the center post and "24V".

Emergency Heat DIP Switch 7 (SW7)

When conditions call for emergency heat, the unit automatically locks out and the electric heat is energized.

To engage emergency electric heat manually, remove the cover from the IntelliZone board. At the board, push and hold the black emergency reset button, SW7, located on the middle of the board. Hold for three seconds then release. This will place the unit into the emergency heat mode.

To turn off emergency heat, push and hold SW7 for three seconds, then release. This will disengage the emergency heat mode and return the unit into the normal operating mode.

Note: This function cannot be performed from the thermostat.

Selecting Airflow DIP Switches (SW5)

A 12-position DIP switch package on the IntelliZone control (shown in Figure 24 below) allows the airflow levels to be set. ECM2 fan motors have 12 different speeds. There are five airflow levels at which the ECM2 will operate depending on the current load level of the structure. If the IntelliZone is controlling a dual capacity unit, there are two levels each for both low and high capacity compressor operation. With a single-speed unit, there is one level for Y1 operation and two levels for Y2.

Only five DIP switches can be in the ON position. The first ON switch determines the continuous fan operation; the second, the low speed; the third, the medium-low speed; the fourth, the medium-high speed and the fifth, the high speed.

To change speeds, consult Figure 24 for specific airflow and switch information.

Figure 24: IntelliZone Control Board DIP Switches Fan Settings

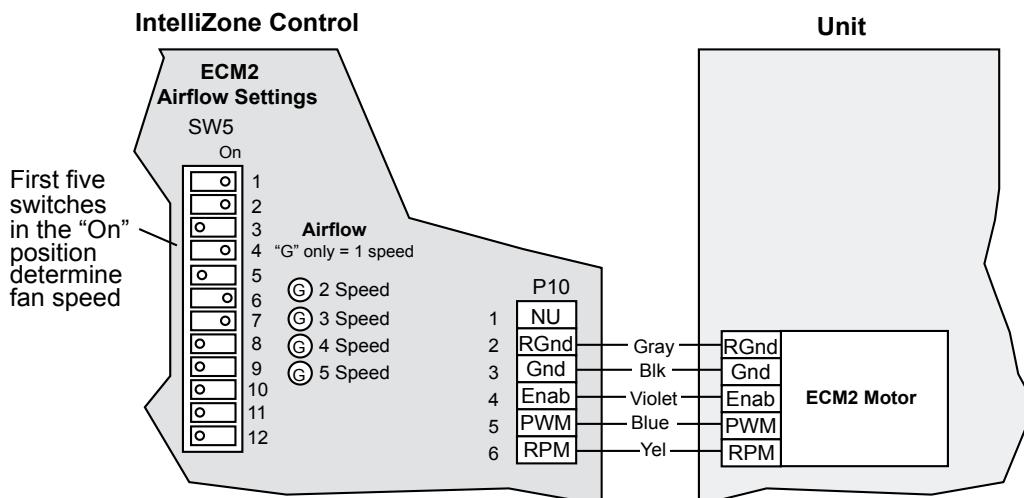


Figure 23: DIP Switch System Settings

SW6	System Settings
Off	1 - Test/Normal Speed
On	2 - Central Zone/Multizone
Off	3 - NO RPM/RPM
On	4 - Dehumid/Normal
Off	5 - Single-Speed/Dual Capacity
On	6 - Staging Options (See Configuration Table)
Off	7 - Staging Options (See Configuration Table)
On	8 - Dampers—Spring (2-wire)/IntelliZone (3-wire)

Staging Configuration

Description	SW6-6	SW6-7
Normal	ON	ON
Quicker	OFF	ON
Faster	ON	OFF
Faster w/Timer	OFF	OFF

Blower Data

Premier and E Series Single-Speed Blower

MODEL	MAX ESP	AIRFLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
E035, P034	0.50	—	—	—	600	700	800	900	1000	1100	1150	1225	1300
					1	2	3	4	5				
E040, P040	0.50	650	750	850	950	1050	1150	1250	1325	1375	1475	—	—
		1	2		3	4	5	4	5	5			
E047, P046	0.50	650	750	850	950	1050	1150	1250	1325	1375	1475	1550	1600
					1	2	3	4	4	5	5	5	
E040, P040 w/1hp*	0.75	750	900	1000	1200	1400	—	—	—	—	—	—	—
		1	2	3	4	5							
E047, P046 w/1hp*	0.75	750	900	1000	1200	1400	1600	1700	—	—	—	—	—
			1	2	3	4	5						
E058, P056	0.75	750	900	1000	1200	1400	1600	1700	1850	2000	2200	2300	2400
				1	2	3	4	5					
E066, P066	0.75	750	900	1000	1200	1400	1600	1700	1850	2000	2200	2300	2400
					1		2	3	4	5			

Notes: Factory settings are at recommended 1-2-3-4-5 DIP switch locations. Factory 1 setting is minimum allowed for cooling. Settings 2-5 must be located within boldface CFM range. CFM is controlled within $\pm 5\%$ up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. Highest 5 DIP switch settings are assumed to be 1, 2, 3, 4, and 5. * With optional one horsepower fan motor.

Premier E Series Dual Capacity Blower

MODEL	MAX ESP	AIRFLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
E036	0.50	600	700	800	900	1000	1100	1200	1300	1400	1500	1550	1600
		1	2	3	4		5						
E048	0.50	600	700	800	900	1000	1100	1200	1300	1400	1500	1550	1600
		1	2	3	4	5		4		5	5		
E048 w/1hp*	0.75	750	900	1000	1200	1400	1600	1700	1850	2000	2200	2300	2400
		1	2	3	4	5		4					
E060	0.75	750	900	1000	1200	1400	1600	1700	1850	2000	2200	2300	2400
		1		2	3	4		4		5			
E072	0.75	750	900	1000	1200	1400	1600	1700	1850	2000	2200	2300	2400
		1		2	3	4		4		5	5		

Notes: Factory settings are at recommended 1-2-3-4-5 DIP switch locations. CFM is controlled within $\pm 5\%$ up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. * With optional one horsepower fan motor.

Blower Data (cont.)

Envision Single Speed ECM

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
036	0.50	650	750	850 1 L	1000 2	1100 3 M	1200 4	1300 5 H	1400	1500			
036 w/1hp*	0.75	800 1	1000 2 L	1100 3 M	1300 4 H	1500 5	1600	1800					
042	0.50	650	800	900 1 L	1050	1150 2 M	1250 3	1350 4	1450 5 H	1550			
042 w/1hp*	0.75	800	900 1 L	1000 2	1200 3 M	1400 4 H	1600 5	1700	1850	2000	2200	2300	2400
048	0.50	650	800	900 1 L	1050	1150	1250 2	1350 3 M	1450 4	1550 5 H			
048 w/1hp*	0.75	800	900	1000 1 L	1200	1400 2 M	1600 3 H	1700 4	1850 5	2000	2200	2300	2400
060	0.75	800	950	1100 1 L	1300	1500 2 M	1750 3	1950 4 H	2100 5	2300			
070	0.75	800	950	1100 1 L	1300	1500 2 M	1750 3	1950 4 H	2100 5	2300			

Notes: Factory settings are at recommended 1-2-3-4-5 DIP switch locations. Factory 1 setting is minimum allowed for cooling. Settings 2-5 MUST be located within boldface CFM range. CFM is controlled within $\pm 5\%$ up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. Highest five DIP switch settings are assumed to be 1, 2, 3, 4 and 5. Factory L-M-H settings shown for comparison purposes only.

Rev. 5/30/06

*With optional 1 horse power fan motor.

Envision Dual Capacity ECM

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
038	0.50	650 1 L	750 2	850 3	1000 4 M	1100	1200	1300 5 H	1400	1500			
038 w/1hp*	0.75	800 1 L	1000 2	1100 3 M	1300 4 H	1500 5	1600	1800					
049	0.50	650 1 L	800 2	900 3	1050	1150 4 M	1250	1350 4 M	1450	1550 5 H			
049 w/1hp*	0.75	800 1 L	900 2	1000	1200	1400 3	1600 4 M	1700 5 H	1850	2000	2200	2300	2400
064	0.75	800 1 L	950 2	1100 3	1300	1500 3 M	1750 4	1950 H	2100 5	2300			
072	0.75	800	950	1100 1 L	1300 2	1500	1750 3 M	1950 4	2100 H	2300 5			

Notes: Factory settings are at recommended 1-2-3-4-5 DIP switch locations. Factory 1 setting is minimum allowed for cooling. Settings 2-5 MUST be located within boldface CFM range. CFM is controlled within $\pm 5\%$ up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. Highest five DIP switch settings are assumed to be 1, 2, 3, 4 and 5. Factory L-M-H settings shown for comparison purposes only.

Rev. 5/30/06

Note: Dual Capacity Envision has a 70% low capacity output, therefore minimum CFM required per zone is 40% of nominal CFM, significantly higher than the E Series with a 50% low capacity output.

Blower Data (cont.)

Envision Air Handler ECM with Envision Split Single Speed

AIR HANDLER MODEL	MAX ESP	SPLIT MODEL	AIR FLOW DIP SWITCH SETTINGS											
			1	2	3	4	5	6	7	8	9	10	11	12
NAH036	0.50	036	300	400	600	800	900	1000	1100	1200	1400			
						1		2	3	4	5			
NAH042	0.75	042	650	850	1100	1300	1500	1700	1850	1950	2100			
				1	2	3	4	5						
NAH048	0.75	048	650	850	1100	1300	1500	1700	1850	1950	2100			
					1	2	3	4	5					
NAH060	0.75	060	650	850	1100	1300	1500	1700	1850	1950	2100			
						1	2	3	4	5				
NAH060	0.75	070	650	850	1100	1300	1500	1700	1850	1950	2100			
							1	2	3	4	5			

NOTES: Factory settings are at recommended 1-2-3-4-5 DIP switch locations. Factory 1 setting is minimum allowed for cooling. Settings 2-5 MUST be located within boldface CFM range. CFM is controlled within +5% up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. Highest five DIP switch settings are assumed to be 1, 2, 3, 4, and 5.

10/27/08

Envision Air Handler ECM with Envision Split Dual Capacity

AIR HANDLER MODEL	MAX ESP	SPLIT MODEL	AIR FLOW DIP SWITCH SETTINGS											
			1	2	3	4	5	6	7	8	9	10	11	12
NAH036	0.50	038	300	400	600	800	900	1000	1100	1200	1400			
					1	2		3	4	5				
NAH048	0.75	049	650	850	1100	1300	1500	1700	1850	1950	2100			
				1	2	3	4	5						
NAH060	0.75	064	650	850	1100	1300	1500	1700	1850	1950	2100			
					1	2	3		4	5				
NAH060	0.75	072	650	850	1100	1300	1500	1700	1850	1950	2100			
					1	2		3		4	5			

NOTES: Factory settings are at recommended 1-2-3-4-5 DIP switch locations. Factory 1 setting is minimum allowed for cooling. Settings 2-5 MUST be located within boldface CFM range. CFM is controlled within +5% up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. Highest five DIP switch settings are assumed to be 1, 2, 3, 4, and 5.

10/27/08

Synergy3D Dual Capacity

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
038	0.50	650	750	850	1000	1100	1200	1300	1400	1500			
		1	L	2	3	4	M		5	H			
038 w/1hp*	0.75	800	1000	1100	1300	1500	1600	1800					
		1 L	2	3 M	4 H	5							
049	0.50	650	800	900	1050	1150	1250	1350	1450	1550			
		1 L	2		3			4 M		5 H			
049 w/1hp*	0.75	800	900	1000	1200	1400	1600	1700	1850	2000	2200	2300	2400
		1 L	2		3	4 M	H	5					
064	0.75	800	950	1100	1300	1500	1750	1950	2100	2300			
		1 L	2		3 M	4	H	5					
072	0.75	800	950	1100	1300	1500	1750	1950	2100	2300			
				1 L	2		3 M	4	H	5			

NOTES: Factory settings are at recommended 1-2-3-4-5 DIP switch locations. Factory 1 setting is minimum allowed for cooling. Settings 2-5 MUST be located within boldface CFM range. CFM is controlled within +5% up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. Highest five DIP switch settings are assumed to be 1, 2, 3, 4, and 5.

3/18/08

Dual Capacity Envision has a 70% low capacity output, therefore minimum CFM required per zone is 40% of nominal CFM, significantly higher than the E Series with a 50% low capacity output.

System Startup and Checkout

Before powering the unit, check the following:

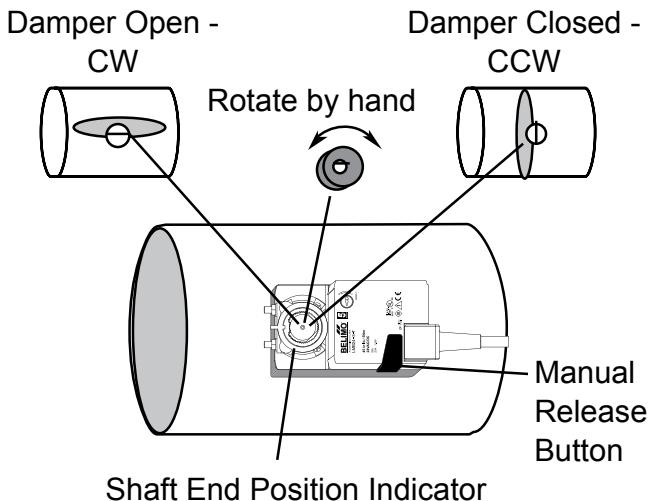
- Fuses, breakers and wire size are correct.
- Low voltage wiring has been completed.
- DIP switches have been set correctly.
- Foam shipping support has been removed and blower rotates freely.
- Blower speed has been set.

Damper and Continuous Fan Checkout

1. Push the "Fan" button to the ON position on all thermostats.
2. All dampers should start to open immediately.
3. The blower should come on continuous fan speed and should illuminate the "G" LED only; all other fan speed LEDs should be off.
4. After approximately 90 seconds, all IntelliZone dampers should be completely opened. Check the shaft position indicator on all damper actuators as shown in Figure 25 below.
5. Push the "Fan" button to the OFF position on all thermostats.
6. The blower and the "G" LED should cycle off.
7. All dampers should start to close immediately. After approximately 90 seconds, all IntelliZone dampers should be completely closed. Check the shaft position indicator on all damper actuators shown in Figure 25.

Notes: To cycle dampers open and closed, switch DIP SW6-2 to the "Central Zone" mode and all dampers will open. While in this mode, open and close the dampers by moving the "Zone Set Up" switch 2 OFF and ON. This will allow the dampers to be cycled opened and closed at the control board.

Figure 25: Checking the Shaft Position Indicator



System Startup and Checkout (cont.)

System Checkout

1. Set all of the zone thermostats to the cooling mode.
2. Reduce the cooling set point to 2° below the actual zone temperature on all thermostats.
3. First stage cooling should energize after a delay. Output LEDs Y1 and O should be on.
4. Be sure the compressor and blower are activated. Check the fan speed LEDs and compare to the table below.
5. Decrease the cooling set point two more degrees and check to see that the fan speed increases and second stage cooling is energized (Y1, Y2, and O LEDs). Check the fan speed LEDs and compare to the table below.
6. Adjust the thermostats until the temperature displayed is 5° higher than the actual temperature on all thermostats.
7. The call for cooling should be canceled after a delay.
8. Set all of the zone thermostats to the heating mode.
9. Increase the heating set point to 2° above the actual zone temperature on all thermostats.
10. After a delay, the unit should start up in the first stage heating mode (Y1). Check the fan speed LEDs and compare to the table below.
11. Increase the heating set points two more degrees and check to see that the fan speed increases and second stage heating is energized (Y1 and Y2). Check the fan speed LEDs and compare to the table above.
12. Increase the heating set point to 4° above the actual zone temperatures. Be sure the auxiliary heat is energized and the fan speed increases (Y1, Y2, and W). Check the fan speed LEDs and compare to the table below.
13. Set system to maintain desired comfort level.
14. Instruct the owner/operator of correct thermostat and system operation.
15. Fill out and forward all warranty registration papers to WaterFurnace.

Notes: Unit check out can be accomplished by switching DIP switch SW6-2 (central zone/multizone mode) in the single zone mode which allows the system to be controlled by Zone #1 thermostat. Any time superheat and subcooling is being checked, the zone system must be in the central zone mode.

Fan Speed

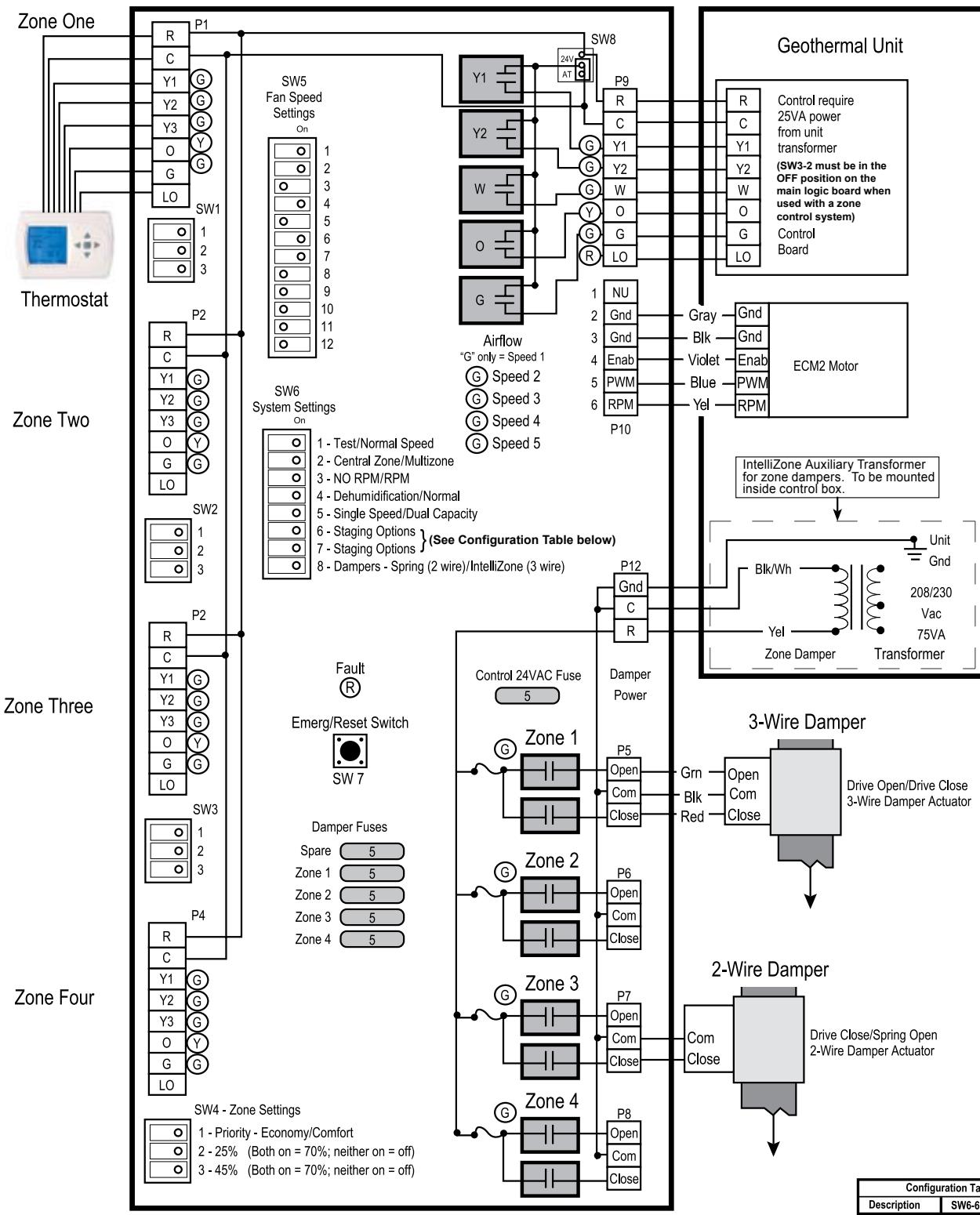
Output Signal	SW6-4 Position	
	Normal Mode	Dehumid Mode
Heating		
Y1, G	2 or 3	na
Y1, Y2, G	4 or 5	na
Y1, Y2, W, G	5	na
W, G	5	na
Cooling		
Y1, O, G	2 or 3	1 or 2
Y1, Y2, O, G	4 or 5	3 or 4
Continuous Fan		
G	1	1

Note: When only the 'G' LEDs illuminate, fan speed 1 is active.

Wiring Schematic

IntelliZone System

97P538B01





Manufactured by
WaterFurnace International, Inc.
9000 Conservation Way
Fort Wayne, IN 46809
www.waterfurnace.com



IM1958 03/09

Product: **IntelliZone™**
Type: Comfort Zoning System
Document: Installation Manual