

**ZONEFIRST**<sup>®</sup>



Controlled Comfort Room by Room

Residential and  
Commercial Systems

from 1 to 103

**Zones**



**GREEN COMFORT**

**SUSTAINABLE SAVINGS**

**TABLE OF CONTENTS**

- 2. Why Zoning?
- 3. How Does Zoning Work?
- 3. Why Partner With ZONEFIRST?
- 4. Zoning System Design
- 5. Designing the Duct System
- 5. Variable Speed HVAC
- 5. Why Should I Sell Zoning?
- 6. How to Begin Your Zoning Design
- 6. Putting a Zoning System Together
- 7. Zoning Design Resources
- 7. Zoning vs. the Alternatives
- 8. ZONEFIRST Damper Models
- 9. ZONEFIRST Damper Models
- 10. Zone Control Panels
- 11. Zone Control Panels
- 12. The Plug-In Advantage
- 14. By-Pass Dampers
- 15. By-Pass Eliminator
- 16. Thermostats
- 17. Accessories & Damper Motors
- 18. Accessories & Damper Motors
- 19. Freshex
- 20. Selection Guide

# WHY ZONING?

Zoning improves the overall comfort in every room of your home or business, while conserving energy – which saves you money!

Unlike traditional HVAC systems that typically feature a single thermostat situated in a central area, HVAC systems with ZONEFIRST's state-of-the-art zoning and zone controls enable you to divide your home or business into separate zones, creating room by room temperature control and comfort.

Do you use one central light switch to control all of the lights in your home or office? Of course not! Even modern vehicles feature multiple zones to accommodate passengers' needs.

When used properly, zoning can save you as much as 30 percent, versus systems without zoning, and 60 percent of surveyed homeowners indicated that they WANT zoning. Why not give consumers what they want?

Visit [ZONEFIRST.com/hvac-zoning-energy-savings/](http://ZONEFIRST.com/hvac-zoning-energy-savings/) to learn more.

## TRADITIONAL



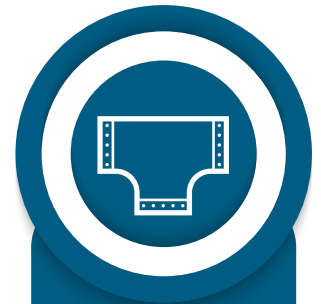
One Central  
Thermostat

Heats/Cools  
Whole House

Multiple Units  
for Zoning

High Energy  
Cost

## ZONEFIRST



Thermostat for  
each zone

Only Heats/Cools  
Occupied Zones

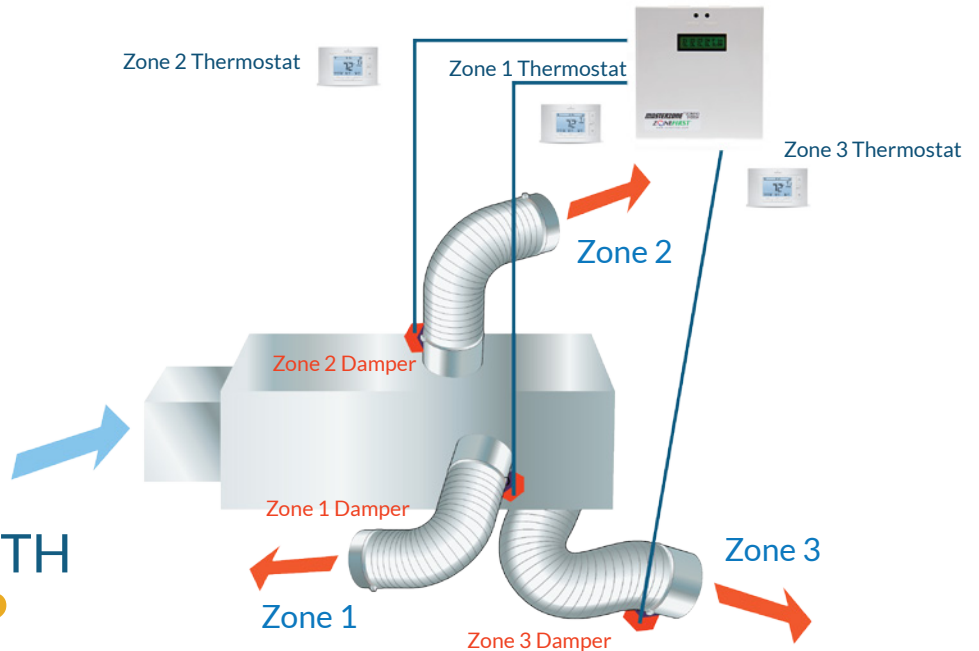
Single HVAC  
Unit with  
Zone Dampers

Very  
Economical



# HOW DOES ZONING WORK?

Zoning essentially involves dividing a central HVAC duct system into zones, such as living rooms and bedrooms or center offices and perimeter offices, to accommodate differing loads, uses, occupancies and desired temperatures for those zones. Zoning systems work via motorized dampers that are installed into the ducts and can be opened and closed via the thermostat in each zone. This allows you to set the temperature you want, where you want it and when you want it. Visit [ZONEFIRST.com](http://ZONEFIRST.com) to learn more.



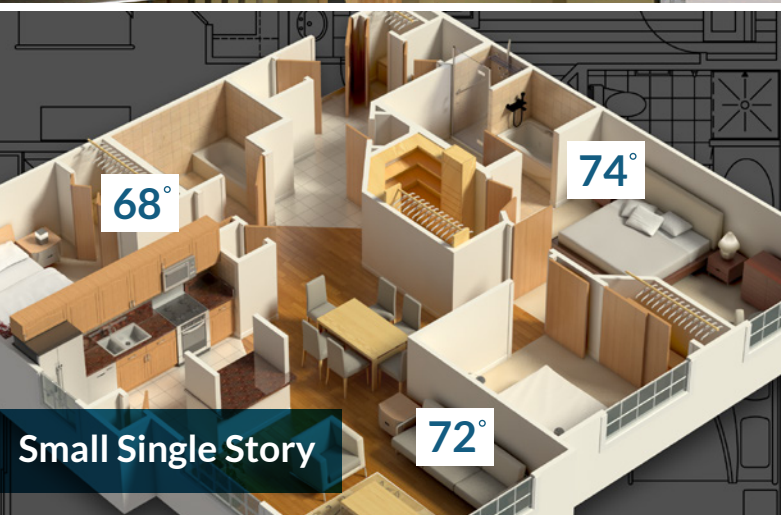
# WHY PARTNER WITH ZONEFIRST®?

ZONEFIRST, started by Richard Foster, was the first company to successfully develop and market motorized dampers and registers for HVAC systems in the late 1950s, and has been in the zoning industry leader for more than 50 years.

<p><b>1950s</b></p> <ul style="list-style-type: none"> <li>- Hot water zone valves are developed for the hydronic market.</li> <li>- Richard Foster designs the first motorized air registers, diffusers and dampers for forced air heating market.</li> <li>- ZONE-A-TROL™ manufactures and sells Foster's new products.</li> </ul>	<p><b>1960s</b></p> <ul style="list-style-type: none"> <li>- Trolex® Corporation is founded and begins marketing and selling products under Trol-A-Temp® tradename (1964).</li> <li>- Trol-A-Temp® designs the first multizone controls for both heating and cooling systems.</li> </ul>	<p><b>1970s</b></p> <ul style="list-style-type: none"> <li>- The first heat pump is zoned (1972).</li> <li>- Trol-A-Temp® introduces first low-cost economizer damper systems (1976).</li> </ul>	<p><b>1980s</b></p> <ul style="list-style-type: none"> <li>- Trol-A-Temp® expands into manufacturing dampers in-house.</li> <li>- Trol-A-Temp® introduces Printed Circuit Control Panels.</li> </ul>	<p><b>1990s</b></p> <ul style="list-style-type: none"> <li>- Trol-A-Temp® and Honeywell® form strategic alliance (1991).</li> <li>- Trol-A-Temp® introduces automatic change over zoning control.</li> <li>- Honeywell® acquires the assets of Trol-A-Temp® (1999).</li> </ul>	<p><b>2000s</b></p> <ul style="list-style-type: none"> <li>- Trolex® continues to manufacture dampers under private label for several OEMs.</li> <li>- Trolex® reenters zoning market as ZONE-A-TROL™, which subsequently becomes ZONE-FIRST® (2004).</li> </ul>	<p><b>Today</b></p> <ul style="list-style-type: none"> <li>- ZONEFIRST® introduces first pre-wired, plug and play zone dampers.</li> <li>- ZONEFIRST® becomes the fastest growing zoning company.</li> </ul>
--	--	--	--	--	--	--

Today, there are many competitors who follow the standards created by ZONEFIRST®. Visit [ZONEFIRST.com](http://ZONEFIRST.com) to learn more about our story.

Trol-A-Temp® and Honeywell® are registered trademarks of Honeywell International. ZONEFIRST®, ZONE-A-TROL™ and other tradenames contained within are trademarks of Trolex Corporation.



## ZONING SYSTEM DESIGN

When designing a zoning system for any residential or commercial building, it is important to first develop a “zoning plan.” This plan includes identifying which areas will be zoned, and there are several other factors to consider when designing your zoning system:

- **Types of Zones:** Residential - living areas, bedrooms, recreation areas, etc. Commercial - individual offices, conference rooms, reception areas, file/storage rooms, etc.
- **Zone Size:** Square footage and ceiling height, which impact volume of various zones.
- **Zone Occupancy:** Usage and occupancy levels may vary across zones; e.g., not all zones are always fully utilized.
- **Levels:** Warm air rises, cold air falls and each level may carry a different load; e.g., basements versus third floor bedrooms. Multi-level townhomes are a perfect example to make each floor a zone.
- **Load Factors:** A variety of factors, such as people, appliances, fireplaces, lighting and windows, affect load.
- **Building Orientation:** Sun and wind exposure can affect a building’s temperature, as well as direction. Each direction will have differing loads at varying times of the day.



## DESIGNING THE DUCT SYSTEM

Once you have identified your desired zones, the next step is to design the duct system. There are two basic scenarios; existing HVAC systems with a duct system already in place, and new construction where the duct system can be designed with zoning in mind.

- **Existing Buildings:** When dealing with HVAC systems in existing buildings, particularly residential buildings, you'll often find that physical duct plans are not available. In such cases, you will need to map out the duct system yourself in order to identify the location and sizes of the existing ducts, and determine the size of the HVAC unit. Once you've mapped out the duct system, you can move on to determining placement of zone dampers. In many cases, multiple dampers may be used for the same zone. Using this plan, you can create a list of required dampers and determine your zoning cost.

- **New Construction:** With new construction it is easier to design the duct system to accommodate zoning because you can do so from the start. Ideally, if all zones are similar in size and load, you should size each zone to handle two-thirds of the system's total CFM (cubic feet per minute). When dealing with two to three zones, ZONEFIRST recommends utilizing a separate trunk duct to supply each zone. Each zone trunk should have several branch runs, typically five to six outlets, in order to disperse air into the individual rooms. With systems featuring four or more zones, you should increase the size of each zone duct by about 20 percent and size a by-pass duct and damper to relieve any excess air. You can also use ZONEFIRST's new By-pass Eliminator™ (BPE), which can control your system's static pressure to ensure that it does not surpass your systems upper and lower limit set points .

## VARIABLE SPEED HVAC

One of the most commonly asked questions regarding zoning is, "How does zoning work with newer variable speed equipment?" The answer is GREAT! Zoning and variable speed equipment work well together because the variable speed blower, two-stage furnace and two-speed compressor can vary the output when all zones are not in use.

HVAC systems are sized for extreme design conditions, but how often are they operating during such conditions? More often than not, HVAC systems are operating less than 10% of the time during the extreme heat and humidity of summer and cold of winter. Therefore, HVAC equipment is oversized for most of the season. Couple that with zoning, where less than the whole home or building needs simultaneous conditioning, and the need for full HVAC unit capacity is even less. Zoning and variable speed can work together to match the output of the HVAC to the load of zones, substantially reducing the energy use of the HVAC Unit.

## WHY SHOULD I SELL ZONING?

First, savvy customers want zoning! Consumer surveys show that when consumers learn of zoning and its benefits, more than 62% are interested in purchasing a zoning system. Contractors and builders have an opportunity to educate their customer base and give customers what they want.

Second, multiple units cost thousands more than a single unit with zoning. You can help consumers enjoy increased comfort and convenience throughout their home, as well as up to 30% in energy savings.

Third, you can partner with ZONEFIRST to help your customers enjoy greater comfort, convenience and savings, while differentiating yourself from the competition and having an opportunity to make more money on every job.

## HOW TO BEGIN YOUR ZONING DESIGN

Zoning is simple and much easier to implement than you may think. Here are a few basic steps to help you get started:

- 1. Determine the size and type of HVAC equipment to be zoned.** ZONEFIRST's systems are compatible with just about any forced air system.
- 2. Determine the number of zones you will be installing,** which will also determine the number of thermostats you will need. We recommend wireless thermostats for retrofit jobs, in order to eliminate the need to run thermostat wires to each room/zone.
- 3. Select a compatible control panel** that will satisfy the number of zones you will be creating and type of dampers you will be using. Also, choose a panel that will work with your equipment.
  - a. The control panel is the central control system, which reads a thermostat call, energizes the appropriate HVAC equipment and then activates the correct motorized dampers to either close or stay open; depending on the specific zone thermostat call. You set up your control panel during installation and no further manual control is required.
  - b. The control panel must also be compatible with the type of motor you use with the dampers. ZONEFIRST offers three motors from which to choose: Our MDM motor, which is a three-wire, 24VAC power close/power open; our MSS motor, which is a two-wire, 24VAC power close/spring open; and our MP12M, which is the most popular. The MP12M is a 12VDC motor and it is connected through modular RJ 11 phone cords. This makes ZONEFIRST's zoning systems the easiest and fastest to install on the market!
- 4. Determine the number, type and size of dampers you will need.** ZONEFIRST's Plug-In Dampers can be daisy-chained together, allowing for up to 10 dampers on each zone. The 24V, Two and Three wire motors can also be slaved together, however the transformer VA may need to be increased based on the number of motors.
- 5. Determine if a By-Pass is needed.** On many systems based on the size of the HVAC Unit's CFM and the size of smaller zones, a by-pass may be needed in order to maintain the air flow thru the HVAC Unit to maintain its efficiency.

## PUTTING A ZONING SYSTEM TOGETHER

There are two basic types of zoning methods: Independent zoning and system zoning. The method you choose depends on whether or not you will have control of the HVAC equipment.

- **Independent zoning**, used to solve a problem room or zone that gets too much conditioning, involves using a damper and thermostat to shut off ducts once a desired zone temperature is reached. An independent zone has no control over the HVAC system, and opens/closes dampers from independent thermostats. It is important to ensure that no more than 20% of air flow is affected when independent zones are closed. If more than 20% of the system is controlled independently, add a control panel and make it a system.
- **System zoning** uses a zone control panel that controls the HVAC equipment. This zone control panel cycles the heating, cooling and fan, based on the demands of the zone thermostat, and opens and closes the zone dampers accordingly. ZONEFIRST offers several MasterZone™ control panels that can control two to 103 zones for virtually any type of HVAC system.

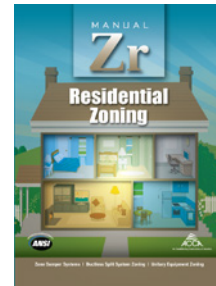
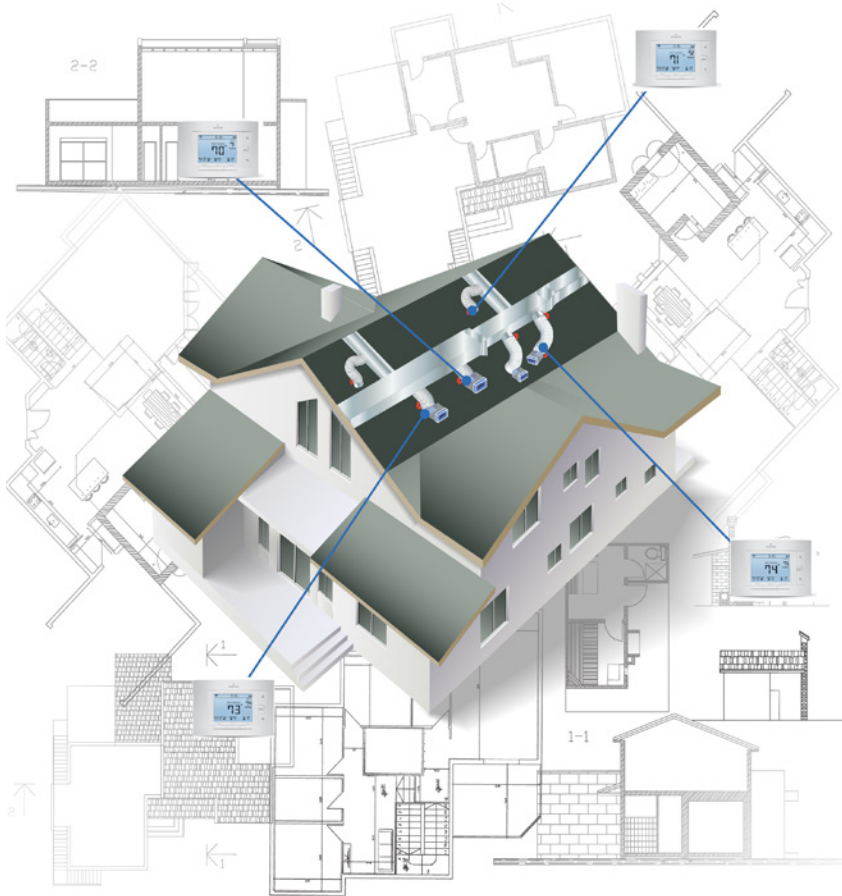
**When ordering a zone system, check to make sure you have the following:**

- **MasterZone Control Panel:** For type of equipment being zoned, number of zones. Kits with sensors and a transformer are available.
- **Zone Damper(s) for Each Zone:** May be one or more dampers. Up to five 24V dampers/40VA transformer.
- **Zone Thermostat(s) for Each Zone:** Any standard thermostat using Y-G-R-W or similar terminals.
- **By-pass Controls:** Based on size of system and smallest zone. Barometric and modulating versions are available.



# ZONING DESIGN RESOURCES

ZONEFIRST is pleased to offer a Zoning System Design Manual, which is available for download from our website: [ZONEFIRST.com/design](http://ZONEFIRST.com/design). ZONEFIRST also offers a By-Pass Calculator, which is great for sizing a By-Pass Damper and available by calling ZONEFIRST at 1.877.FIRSTZONE (347-7896). We also recommend the ACCA's (Air Conditioning Contractors of America) new Manual Zr, which explains the science behind zoning system design and may be ordered online at [ACCA.org/store](http://ACCA.org/store).



ACCA Manual Zr



ZONEFIRST Design Guide



ZONEFIRST By-Pass Calculator

# ZONING VS. THE ALTERNATIVES

For many people, HVAC zoning simply implies adding a second unit to a home— to the upstairs, for example. However, zoning with dampers is a much less expensive alternative to adding a second unit. In most cases, the cost of a multizone damper system is much lower than the cost of either a second furnace or condensing unit, for several reasons. First, only one electrical disconnect is required, versus having to add additional power for the second unit. Second, maintenance costs are cut in half as you only need one of everything, such as a filter and humidifier. Finally, you avoid the operating costs of running additional units when both zones are calling.

When there is already an existing duct system, many installers will often offer a minisplit to solve a problem. But a minisplit requires additional electrical work and obtaining a permit. A zone damper system requires none of this and the existing duct system can be used. The smart way to savings is to fix the existing duct system, modify it if necessary, seal it and ZONE it—versus adding more HVAC equipment to the job.



# ZONE DAMPER MODELS

ZONEFIRST offers a complete array of dampers, in various sizes and styles, for zoning and other applications. See our complete selection of dampers here.

Wherever there is a duct system, there's a need for a damper.

## Control Dampers

Dampers with 1/2" X 4" length shaft.

## Manual Dampers

Manually adjustable dampers.

## Low Leakage Dampers

With added blade and jamb seals. 24VAC spring return motor. Normally closed, call factory for other options.

Side Mount



CDSwwhh



MDSwwhh



LDSwwhh

Bottom Mount



CDBhww



MDBhww



LDBhww

Round In-Line



CDdd



MDdd



RDSdd

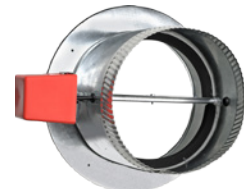
Round Take-Off



CTdd



MTdd



RTSdd

Retro Round Insert



CRRdd



MRRdd

Retro-round dampers not typically applicable with spring return motors.



## Line Voltage Spring Return

With 110/120VAC motor. Ships normally closed unless otherwise specified.



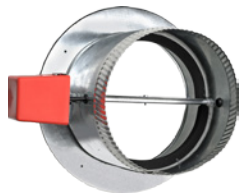
ZDLSwwhh



ZDLBwwhh



RDLdd



RTLdd

## 24V Spring Return

With 24VAC spring return motor. Ships normally open unless otherwise specified.



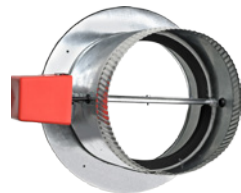
ZDSwwhh



ZDBwwhh



RDSdd



RTSdd

## 24V Power Open-Close

With 24VAC Three Wire Motor. Power open - closed with LED position indication.



ZDSMwwhh



ZDBMwwhh



RDMdd



RTMdd

## Plug-In Dampers

With plug-in damper motor and 25' modular cord, LED position indication.



ZDSPwwhh



ZDBPwwhh



RDPdd



RTPdd

## Outlet Zone Damper - Model OZD

Opposed blade damper with Plug-In Motor and includes 100' plenum rated modular cord. Inserts into the outlet of the duct when there is no access to duct. Inserts into typical outlet boot. Makes zoning retrofits easy.



RRMdd



RRPdd

# ZONE CONTROL PANELS

24V Control Panels

## Two and Three Zones Single Stage



### | MODEL MMZ3

This electronic, 2- or 3-zone, single-stage heating/cooling control panel works with standard thermostats, features simple functions and state-of-the-art surface mount technology for electronic components. Push-in connection terminal blocks enable simple wiring and easy, affordable zoning with standard 4/5 wire (Y-G-R-W-C) thermostats.

## Two and Three Zones Multi-Stage and Heat Pump



### | MODEL H32

This 3-zone panel, with multi-function capability via settable DIP switches controls single-stage, 2-stage and heat pump systems. Built-in fossil fuel kit enables use of dual fuel heat pumps. Adjustable second-stage timer eliminates need for two-stage thermostats, reducing system cost. Compatible with conventional/heat pump thermostats.

Plug-in 12VDC



### | MODEL MMP2/3

Mini-MasterZone® Zoning Panel is a 2-zone only, electronic, single-stage heating/cooling control panel. Using Y-G-R-W-C, it provides simple functions and works with all standard thermostats. The MMP3 controls only new Plug-in Zone Motors that use modular cords, supplied with dampers, and can be used with 2- or 3-zone systems.



### | MODEL H32P

3-zone panel, with multi-function capability via settable DIP switches, controls single-stage, 2-stage and heat pump systems. Built-in fossil fuel kit enables use of dual fuel heat pumps. Adjustable second-stage timer eliminates need for two-stage thermostats, reducing system cost. Compatible with conventional/heat pump thermostats.

## All-In-One Expandable



### | MODEL MZS4

Control 2, 3 or 4 zones in a single panel for up to three stages of heating and two stages of cooling in conventional and heat pumps systems. (Dual fuel heat pumps require separate dual fuel control). The MZS4 can use either all single stage or all heat pump thermostats to control either type of system. The MZS4 is expandable up to 10 Zones using multiple MZA2.

## Zone-Adder™ Expansion Panels



### | MODEL MZA2

The MZA2 is a two-zone expansion panel used specifically with the MZS4. When more than four (4) zones are required, the MZA2 is used with the MZS4 to add extra zones. A maximum of three (3) MZA2 panels can be used to get up to 10 zones total. For more zones, use the MDP3 and MDP4 adder panels for up to 103 zones.



### | MODEL MDP3

NEW Digi-Zone™, Model MDP3 panel controls two or three zones on any HVAC system; up to three stages of heating, and two stages of cooling. Also controls heat pumps and dual fuel, as well as many geothermal heat pumps. Menu-driven digital display guides installer through settings for each type of system, and accurately sets timings and sensor temperature settings.



### | MODEL MDP4

The MDP4 Ver. 04 is used with the MDP3 Ver. 04 when zones need to be added. Each MDP4 Ver. 04 adds 2 zones and can zone up to 103 zones with the MDP3 Ver. 04.



### | MODEL MZP4

Control 2, 3 or 4 zones in a single panel for up to three stages of heating and two stages of cooling in conventional and heat pumps systems. (Dual fuel heat pumps require separate dual fuel kit, use MDP3 for included dual fuel operation. MZP4 can use either all single stage or all heat pump thermostats to control either type of system. Also features built-in zone damper test buttons for easy checkout. This panel is non-expandable.

# THE PLUG-IN ADVANTAGE



ZONEFIRST's Plug-In-Play Zoning System is the easiest and fastest zoning system to install on the market. Plug-In control panels, used exclusively with our Plug-In dampers, feature EZ Wiring and color-coded terminal blocks, cutting installation time in half. Plug-In dampers use 12VDC motors and are connected to one another using a modular 25-foot cord (supplied with each damper). They can also be daisy chained together, giving you the option to have up to 10 dampers on each zone (as illustrated here).



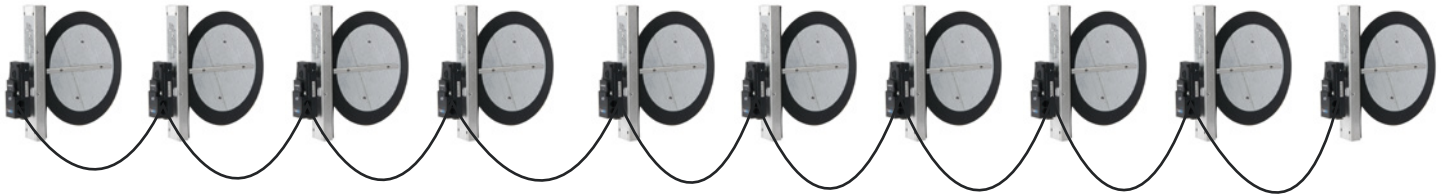
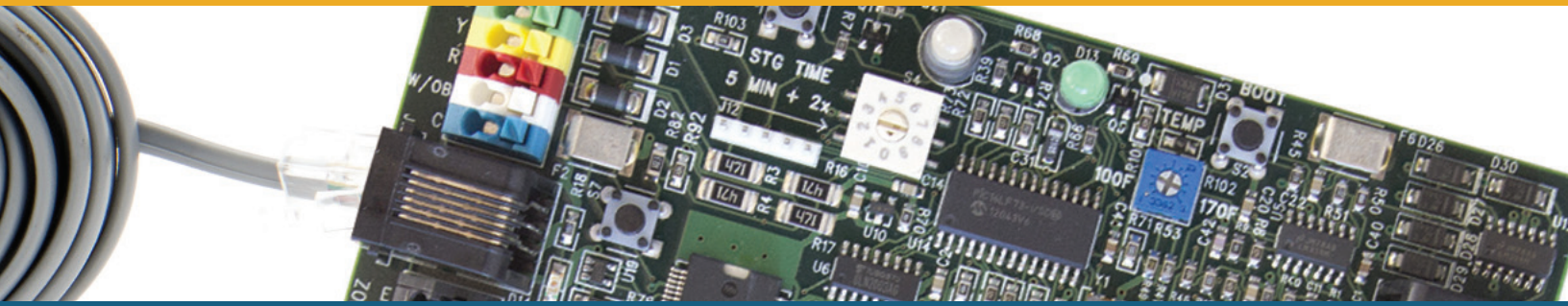
- DIRECT COUPLED ACTUATOR
- SLIM PROFILE
- QUIET, QUICK ACTING
- LONG LIFE, OVER 1,000,000 CYCLES (NOBODY BEATS THAT)
- DUAL WIRING JACKS EASILY ADDS EXTRA DAMPERS
- TWO COLOR VISIBLE LED INDICATING BOTH **OPEN** AND **CLOSED**



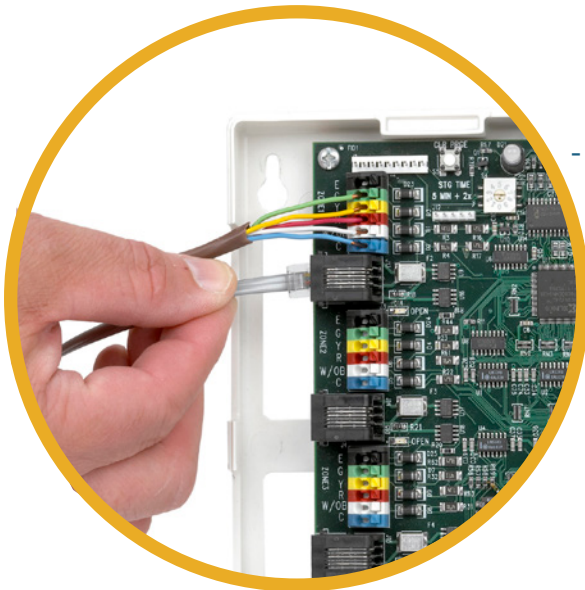
- EACH DAMPER INCLUDES 25' MODULAR CORD
- SIMPLY PLUG-IN TO WIRE
- EACH ZONE CAN CONTROL UP TO 10 DAMPERS



- EASY MINIMUM POSITION ADJUSTMENT
- FLIP DOWN DOOR
- LOOSEN SCREW
- ADJUST CAM
- RE-TIGHTEN SCREW



- EASILY WIRE UP TO 10 DAMPERS TOGETHER ON ONE ZONE
- UP TO 40 DAMPERS CAN BE POWERED FROM ONE 24V, 40VA TRANSFORMER



- EASY PLUG-IN WIRING FOR DAMPERS
- LED INDICATION WHEN ZONE DAMPERS ARE OPEN
- TEST BUTTON ON PANEL TO PRESS TEST FOR DAMPERS TO CLOSE, RELEASE TO RETURN OPEN
- COLOR CODED PUSH-IN

# BY-PASS DAMPERS

## MODEL SPRD - STATIC PRESSURE REGULATING DAMPERS



**MODEL SPRDwwhh**  
(width x height)



**MODEL SPRDddd**  
(diameter)



**MODEL RTBddd**  
(diameter)

These barometric by-pass dampers, adjusted by a counterbalanced, weighted arm, are used to relieve excess air in zoning systems. The weight and arm can be adjusted to add pressure to the damper blade so that it opens as zone dampers close off air to zones. SPRD's should be adjusted so that they are closed when zone dampers are open, and only open when HVAC system air flow decreases as zone dampers close. As systems typically feature varying duct sizes and lengths, it is best to adjust by-pass dampers upon commissioning, with the blower/fan operating at full capacity. The SPRDwwhh, is for in-line duct applications and inserts easily; cut a 2-inch slot in the duct's side, insert the damper and secure it with self-tapping sheet metal screws provided. The SPRDddd can be connected to metal or flex duct. The RTB is a combination take-off collar and damper. It has an adhesive foam seal, to flush mount against plenum or duct, and is connected with duct into the return or common area, or left open into a non-critical conditioned area.

## MODULATING BY-PASS DAMPERS & CONTROLS

Modulating by-pass dampers, used with SPS or SPC to provide control of by-pass air, are similar to ZD and round dampers, except for the motor. The MDM motor used on these dampers is a 24VAC, 3-wire power open/close damper. This reversing motor responds quickly to changes in air pressure in the duct to maintain a constant level of static during changing conditions. These can also be used as two-position open/close dampers and have higher torque values than spring return dampers.



**MODEL SPS**  
STATIC PRESSURE  
SWITCH



**MODEL SPC**  
STATIC PRESSURE  
CONTROL

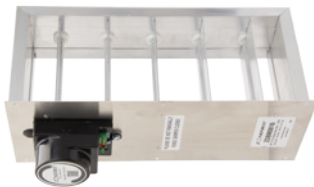
The SPS is used to sense duct pressure and control the modulating damper to provide more accurate control of by-pass air in zoned system. Its two fixed sensors are factory set at 0.2" and 0.3" S.P. The modulating by-pass damper is wired to open above 0.3" and close below 0.2". The damper stops between these pressures.

The SPC also controls modulating dampers, but is adjustable, 0.08" to 1.20" S.P., and has a wider control range. The damper opens above the set point and stops and modulates open or closed to maintain pressure when it drops below the setting.



**MODEL ZDSM**

This 3-wire, 24V power open/close side mount zone damper is usually wired with the SPS or SPC to modulate the damper for by-pass. Sizes: 8"×8"-36"×36" (custom sizes available). Order as: ZDSMwwhh (motor on second dimension).



**MODEL ZDBM**

This 3-wire, 24V power open/close, bottom mount zone damper is usually wired with the SPS or SPC to modulate the damper for by-pass. Sizes: 8"×8"-36"×36" (custom sizes available). Order as: ZDBMwwhh (motor on second dimension).



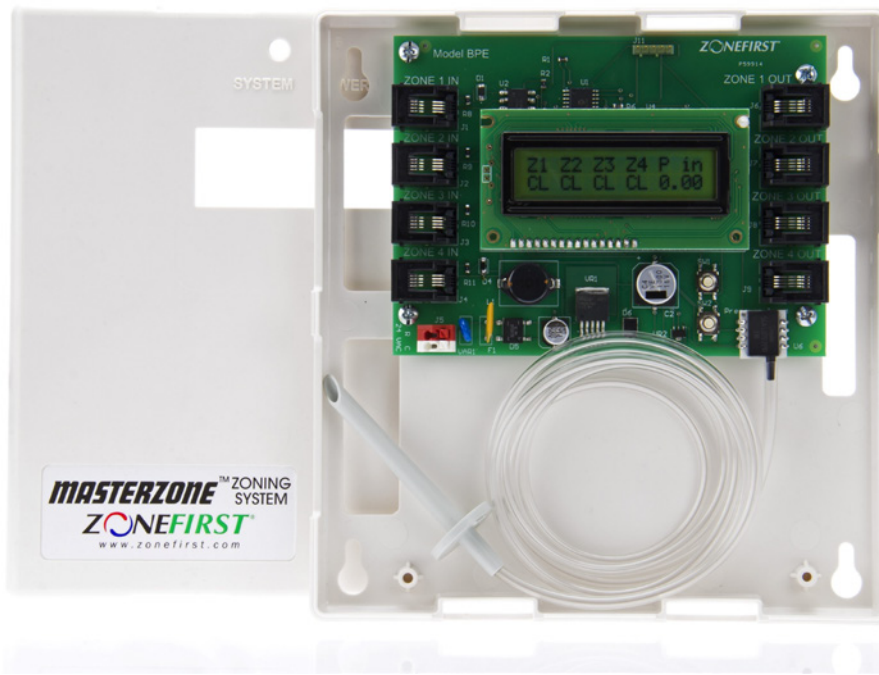
**MODEL RDM**

The RDM, a 3-wire 24V modulating power open/close zone damper, is used with zone control panels, and can also be used with the SPS or SPC for by-pass. Sizes: 4", 5", 6", 7", 8", 9", 10", 12", 14", 16", 18", 20". Order as: RDMdd.



**MODEL RTM**

This combination take-off collar and zone damper has an adhesive back for a tight seal and features a 24V, 3-wire power open/close motor. Sizes: 6", 8", 10", 12", 14". Order as: RTMdd.



# NEW

## By-Pass Eliminator

### MODEL BPEK

The By-Pass Eliminator™, Model BPEK is a digital static pressure control that eliminates a separate by-pass commonly used on zoning systems. The BPEK uses the closed zone dampers to bleed them open when only one or small number zones are calling and the duct systems static exceeds the set-point of the BPEK. Just as the typical by-pass damper opens and relieves air into return, as the pressure increases, the BPEK will begin to open the closed zone dampers to relieve the excess air pressure instead of a central by-pass into the return duct.

The BPEK is for use only with ZONEFIRST's exclusive Plug-In zone dampers which makes wiring literally a snap.

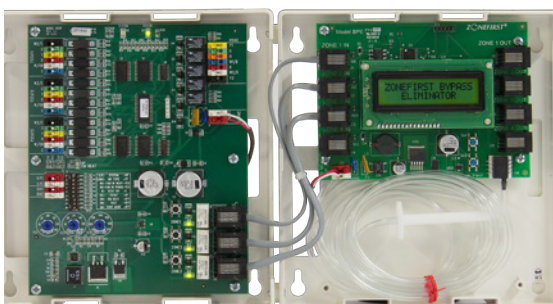
The BPEK's digital display is set with both a high and a low set-point in order to maintain a proper range of static pressure in the duct. When all zone dampers are open, and provided the duct is sized properly, the duct pressure will be low. As zone dampers close as individual zones call and therefore close off the non-calling zones, the systems' duct pressure will rise and there are fewer places for the air to go.

When the duct pressure rises above the high set-point of the BPEK, the close dampers will modulate open in order to relieve the excess pressure. Typically, once the closed dampers open slightly, the duct pressure drops below the high set-point and the dampers remain there until the pressure either drops below the low setting, as others zone dampers call, or they may modulate open more if more zones close down.

The BPEK's digital display monitors each zone's damper position based on a percentage of opening. If, for any reason, dampers move past the 50% mark, the installer may want to look into adding ducts to the calling zone in order to prevent over-conditioning to the zones that were supposed to be closed.

The use of the BPEK is especially useful where codes may limit and hinder the use of direct by-pass into the return. Specifically, California's Title 24 Code asses an energy penalty when homes are modeled with a direct by-pass into the return. The BPEK solves this limitation issue.

The BPEK can be purchased separately or as a combination and factory pre-wired assembly with any of ZONEFIRST's Plug-In Zoning panels.



MMP2B	H32PBK	MZP4B
MMP2BK	MDP3B	MZP4BK
H32PB	MDP3BK	

## THERMOSTATS



### MODEL TDS DIGITAL THERMOSTAT

The TDS is a simple, low cost digital single-stage, heating and cooling thermostat that features manual changeover, single set point and no setback. This thermostat can also be used to control single 24V Spring Return Damper to operate as an independent zone. The terminal connections are Y-O/B-G-R-C-W.



### MODEL TPS PROGRAMMABLE THERMOSTAT

The TPS is a battery-only powered thermostat that can be programmed for 5-1-1 or 5-2 day scheduling. The TPS can be used on any zone of ZONEFIRST's zoning panels for single stage operation. The TPS terminal connections are Y-G-R-W-O/B.



### MODELS TTS/TTH DIGITAL TOUCHSCREEN SINGLE-STAGE & HEAT PUMP

Compatible with older or current zoning systems, the TTS single-stage and TTH heat pump thermostats are touch-screen units with keypad lockout and limited range control features. Both offer flexibility for non-offset or programming for up to seven days, manual or automatic changeover settings, and 24V or battery-powered versatility.



### MODEL WTR WIRELESS THERMOSTAT AND RECEIVER

This digital thermostat and receiver features up to four programmable daily set points and makes it easy to place thermostats in remote zones without running wires through walls. WTR package features a remote wireless thermostat and receiver; receiver is wired to respective zone on the control panel and thermostat is placed in zone.



### MODEL TWFi WI-FI SMART THERMOSTAT

The TWFi is a Wi-Fi-enabled thermostat that allows remote access control via smart phone, tablet or computer. The TWFi is easily set up through the mobile app, it can control multiple thermostats, which is perfect for zoning, and its LCD screen features large, easy-to-read numbers. It is compatible with all ZONEFIRST zoning panels and can be configured for conventional and heat pump operation. The TWFi has the following generic terminals, RC-RH-O/B- Y-G-W/ E-C-L-Y2-W2.





**MODEL MSS**  
SPRING RETURN  
MOTOR

This 2-wire, 24VAC spring return damper motor is used on spring return dampers and can replace spring return actuators, as well as MSR, RDM, RDMH and older Trol-A-Temp™ models. Snap on/off cover makes it easy to enclose damper motor connections. It is virtually silent when the spring returns to normal position.



**MODEL MP12M**  
PLUG-IN  
DAMPER MOTOR

Designed for use with ZONEFIRST's plug-in zoning panels and dampers, the MP12 features dual RJ11 jacks for easy, multiple damper wiring. Up to 10 damper motors can be wired together for one zone. Features plug-in wiring, LED that lights green for open and red for closed and adjustable minimum position.



**MODEL MDM**  
POWER OPEN-  
CLOSED MOTOR

The MDM is a 3-wire, 24VAC, power open-close damper motor with red and green LED lights, to indicate the damper motor's position, and adjustable range stops for min and max positions. Used with ZDSM, ZDBM, RDM, RTM and RRM dampers.



**MODEL MST**  
AOBD  
REPLACEMENT  
MOTOR

The MST is the replacement motor for all current AOBD-style dampers, as well as for old Trol-A-Temp™ dampers, registers and diffusers. The 24VAC motor is a power open-close damper motor and has built-in end switches.

**MODEL CD - CONTROL DAMPERS**



**MODEL CDSwwh**  
(width x height)



**MODEL CDdd**  
(diameter)

The Model CD Control Dampers are the standard square/rectangular parallel and round single-blade dampers, and do not feature a motor.

Both have a 4-foot by 1/2-inch shaft extension for mounting many common direct coupled actuators or motor linkage arms.

Rectangle dampers are ordered as two-digit width and height for insertion into the small side of a duct, or height by width into longer duct side. Round dampers are order by two-digit duct diameter, up to 20 inches.

**MODEL MD - MANUAL BALANCE DAMPERS**



**MODEL MDSwwh**  
(width x height)



**MODEL MDdd**  
(diameter)

Our manual balancing dampers are sometimes used with barometric by-pass dampers to add pressure to the duct system and control the level of by-pass air. Often, when the by-pass is ducted into the return at the plenum, too much air is by-passed through a barometric damper. This can starve longer duct runs for air and cause the ZPS to activate; cutting off the HVAC. The MBD adds pressure to ensure that proper air flow reaches far away zones and only excess air is by-passed. The MBD is referred to as a "hand damper" in the ACCA's New Manual Zr for zoning.

## ACCESSORIES & DAMPER MOTORS



### MODEL AFC ANTI-FREEZE CONTROL

The AFC, recommended for by-passing air into return ducts, prevents air conditioning coils from freezing due to low air flow/refrigerant pressure, dirty filters, etc. Snaps onto suction line, breaks compressor circuit when suction line drops below 38° F, and recreates circuit at 48°F.



### MODELS ZPS AND OAS

The Zone Plenum Sensor is a duct-mounted sensor used with any current zoning panel and is mounted in the plenum area to avoid over-heating or cooling limits of HVAC system.

The Outdoor Air Sensor is mounted externally, ideally on building's north side and away from direct sunlight, and used with dual-fuel heat pump to switch between heat pump and furnace, depending on outdoor temperature.



### MODEL T24 24 VOLT 40VA TRANSFORMER

The T24 is a plate-mounted, step-down transformer – from typical 110/120VAC line voltage to 24VAC – and is rated at 40VA. It can be used to power all ZONEFIRST panels and 24V dampers.



### MODEL 4PDR 4 POLE DOUBLE THROW RELAY

The 4PDR is a 24VAC, four-pole double-throw relay that can be used whenever special applications require additional control switching or isolation.



### MODEL PIRR 24VAC PLUG-IN REPLACEMENT RELAY

The PIRR is the 24VAC plug-in relay used in the 4PDR accessory relay and can be used with older Trol-A-Temp™ zoning panels.



# Freshex<sup>®</sup>

The Freshex Air Cycler offers economical control for fresh air intake and ventilation, and is used as a low-cost alternative to the more expensive ERV/HRV. By periodically operating the HVAC System fan, the Air Cycler vastly improves the temperature, humidity and filtration system in the home or office.

It provides more circulation throughout the building and eliminates stagnant air and odors by introducing fresh outdoor air. The Air Cycler is considered a “smart” device as it knows when the central fan operates, and only activates the fan after the fan has not operated for a programmed period of time.

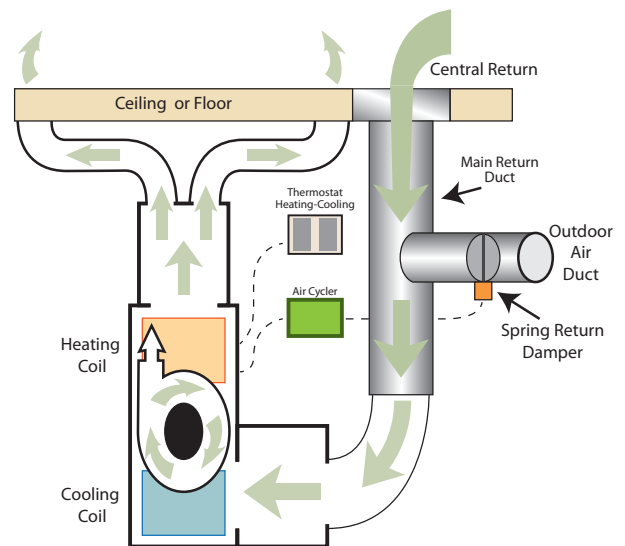
The Air Cycler has a 24VAC output circuit that controls a motorized damper, which is ducted to the outdoors to effectively regulate fresh air ventilation when the Air Cycler is on. The damper is opened for a programmed ON time and closed for a programmed OFF time, repeating while the fan is on.



**MODEL FAC**  
**FRESH AIR CONTROL**

## SPECIFICATIONS

- Operating Voltage - 24VAC
- Fan ON and OFF delay settings
- Vent ON and OFF delay settings
- 1 to 199 minutes in one-minute increments, plus an unlimited setting for both ON and OFF



**MODEL RDSC**  
**FRESH AIR DAMPER**

The RDSC is a 24VAC motorized round spring return damper that powers open and spring returns closed. This is the same damper as the RDS, but it is factory shipped in the normally closed position versus the normally open RDS. The RDSC and RDS dampers can be field converted from normally closed to open, and vice versa. The normally closed operation is ideal when the dampers are used to control outdoor air.



**MODEL VK**  
**VENTILATION DAMPER KIT**

The VK is an integrated pressure switch and RDSC damper that is powered by 24VAC and opens when the damper senses air pressure. The VK is typically used to provide make-up air dampening for exhaust hoods, or any other application where a damper is needed to open according to air pressure. The pressure switch will open the damper when the air pressure is above 0.5" WC. The VK is available with any size RDSC damper, from 4" to 20" in diameter, and is ordered as the Model VKdd, with the dd denoting the diameter of the damper.

# SELECTION GUIDE

## Two Zones

Single-Stage Conventional



**PLUG-IN 24V**      **MMP2**

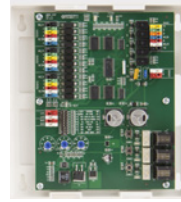
## Two and Three Zones

Single-Stage Conventional



**MMP3**  
**MMZ3**

Multi-Stage and Heat Pump



**H32P**  
**H32**

## Three Zones or More

Single-Stage/Two-Stage/Heat Pump



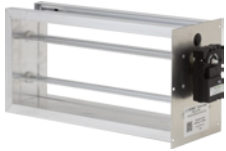
**MDP3**



**MZP4**  
**MZS4**

## Dampers

Side Mount



**PLUG-IN 24V 2 WIRE**      **ZDSP**  
**24V 3 WIRE**      **ZDS**  
**ZDM**

Rectangular/Square Bottom Mount



**ZDBP**  
**ZDB**  
**ZDBM**

Outlet Internal



**OZD**

**IOBD**

Inline



**RDP**  
**RDS**  
**RDM**

Inserts



**RRP**  
**RRM**

Round Take-off



**RTP**  
**RTS**  
**RTM**

## By-Pass Options

Automatic Modulating



**SPS**

OR



**SPC**

OR



**Rectangular/Square SPRD**

Barometric



**Round SPRD**



**Round Take-Off RTB**

OR

By-Pass Eliminator™



**BPEK**

OR



**Rectangular/Square Side Mount ZDSM**

OR



**Rectangular/Square Bottom Mount ZDBM**



**Round RDM**



**Controlled Comfort Room by Room**

20 Bushes Lane  
 Elmwood Park, NJ 07407-3204 USA

[ZONEFIRST.com](http://ZONEFIRST.com) | [info@ZONEFIRST.com](mailto:info@ZONEFIRST.com)