

ULTRA-ZONE FORCED AIR ZONE CONTROLS (EWC)

www.ewccontrols.com

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HOW TO ORDER AN ULTRA-ZONE SYSTEM:

CONTROL PANEL



**1 Stage Heat/Cool
2 Stage Heat/1 Stage Cool**
2-3 zones – NCM-300
For larger zone systems
see BMPlus Series

**1 Stage Heat/Cool
2 Stage Heat/1 Stage Cool**
2-3 zones (1) BMPlus 3000
4-5 zones (1) BMPlus 5000
6-7 zones (1) BMPlus 7000
For larger zone systems
See UZC series

**1 Stage Heat/Cool
2 Stage Heat/2 Stage Cool
3 Stage Heat/2 Stage Cool**
2-4 zones (1) UZC-4
5-6 zones (1) UZC-6
7-8 zones (1) UZC-8
9-10 zones (1) UZC-10
11-12 zones (1) UZC-12
13-14 zones (1) UZC-14
15-16 zones (1) UZC-16
Up to 24 zones
2 zone increments

DAMPERS



Round

4" – 16" URD (3-wire PO/PC)
16" – 20" URD-LM24 (PO/PC)
6" – 16" URD-ESR (2-wire spring return)



Rectangular

W" x H" ND (3-wire PO/PC)
W" x H" ND-ESR (2-wire Spring Return)
Motor is always mounted on 2nd dimension

BY-PASS DAMPERS (IF NECESSARY)



Electronic (Modulating)
10" – 18" EBD Round
W" x H" EBD Rectangular

Round Barometric
8" – 16" PRD-RD

Rectangular Barometric
W" x H" PRD

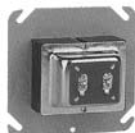
ZONE THERMOSTATS



**Digital Programmable
Auto Changeover**
EWT-AC

**Digital Programmable
Manual Changeover**
EWT-261

Mercury Mechanical
EWT-R5 with TSB-MR



TRANSFORMER

40VA for every (8) URD and ND dampers
40VA for every (5) URD-ESR and ND-ESR dampers

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BENEFITS

Why use an Ultra-Zone system?

The Ultra-Zone zone control systems provide personalized comfort of heating and air conditioning equipment for homes and offices.

The Ultra-Zone system uses motorized dampers controlled by room thermostats to selectively control the temperature for each zone of the home or building. This is called "zoning". Ultra-Zone is zoning off areas so that they can allow tighter control of heating and cooling. This is very similar to the lighting and plumbing systems in a house.

You do not have one main light switch that turns 'on' and 'off' all the lights in the house, nor do you have one faucet that turns 'on' and 'off' all of the water in the house. Each system has separate controls for each room and fixture.

The Ultra-Zone system will allow that same degree of control for your heating and cooling.

Total Comfort

The Ultra-Zone system permits personalized comfort of each zone – providing temperature control where you want it... when you want it...

Added Convenience

No more running 'up' and 'down' stairs to control the temperature. Ultra-Zone will provide thermostats in each zone.

Energy Savings

Ultra-Zone systems can reduce energy costs by 25–30% or more. By using setback thermostats, you only pay for the heating and cooling when you want it.

Common Sense

The heating and cooling equipment makes up the largest part of the monthly utility bill. Why not control these items the same way you do with your lighting and plumbing?

Why use an Ultra-Zone system over TWO units?

Some contractors are installing two heating and cooling units to try and satisfy the comfort needs of homeowners. This is an expensive alternative to an Ultra-Zone system. Two units cost more to install and maintain. One unit and a damper system is far less expensive than the cost of the second furnace. The cost of two units drastically increases when an additional air conditioner is installed. For example, in place of using two 2 ton heating-cooling systems, an Ultra-Zone system can be used with one 4 ton unit to an average savings of 30–35% of the overall cost. This cost reduction comes from eliminating duplicate work and installations. With one unit, the installation is much faster and the material will cost less. With lower costs to the homeowner and more comfort features as its benefit, the Ultra-Zone system is highly recommended over installing two units.

How the Ultra-Zone System works

The purpose of the Ultra-Zone system is to provide total comfort in the home and office. Motorized dampers are "opened" or "closed" by thermostats based on the temperature set point of the homeowner. The damper system will control the airflow through the ductwork and deliver only the desired air to the desired location. Each thermostat has the ability to turn on and shut off the heating and cooling. The Ultra-Zone system can accommodate over 30 zones. This means that over 30 thermostats can be installed in a home or building to control the temperature in each zone.

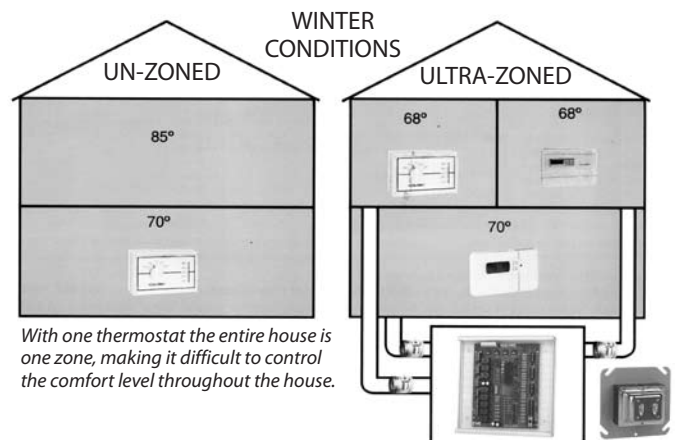
There are very few Ultra-Zone components that are needed to make the zoning system function. The control panel is the "brain" of the system. The zone thermostats allow independent temperature control and the zone dampers control the airflow to the zone thermostats. A transformer is needed to power the system and occasionally a by-pass damper may be required.



The basic components of an Ultra-Zone system are:

1. A Control Panel
2. Zone Thermostats
3. Zone Dampers
4. Dedicated Transformer
5. By-pass Damper (if necessary)

Along with some thermostat wire, the above are the only components that are needed to install an Ultra-Zone system. The following diagram shows a typical installation with all of the components needed for a zoning system.



With one thermostat the entire house is one zone, making it difficult to control the comfort level throughout the house.

With multiple thermostats (zoning), occupants can maintain their desired temperature set point upstairs and downstairs independently of each other.

BENEFITS (cont'd)

Ultra-Zone Duct Design

When laying out a duct system for a job that will include an EWC Controls zoning system, many people think that there needs to be drastic changes to accommodate the zoning feature, this is not so. The ducts still need to deliver an adequate amount of CFM to the zoned area as they would if it were not zoned. The square footage of the home or building is not changing. What will change is the amount of square footage that will need to be heated or cooled at the same time. With zoning allowing for setback thermostats and different temperature settings throughout the home or building during the day and night, demand on the heating and cooling equipment should be a lot less due to zoning off areas that will not need to be heated or cooled during certain times of the day.

Since the heating and cooling requirements are now going to be controlled through zones, the concern is the excess pressure, or build up of pressure, from closed zones. What this means is that when some zones are in setback mode, the airflow to those zones will be shut off. The airflow will cause a pressure build up in the duct system which will be dealt with by using a form of "By-pass" to alleviate that pressure build-up. There are several ways of dealing with this excess pressure and what works for one contractor may not work for another, but EWC has some long standing rules that should be followed. These rules are important to follow to insure proper airflow throughout the system and to insure proper operation of the EWC Controls zoning system.

- 100% of the rated CFM must always move through the Air Handler when zoning with Heat Pumps and High cooling demand areas (i.e. Florida).
- Always assume the worst case scenario, which is the smallest zone will be the only one to call at any given time.
- EWC Controls recommends the use of the EBD (Electronic By-pass Damper) on all zoning installations. EWC Controls highly recommends the use of the EBD on all 3 zones or more applications, as well as systems that will exceed 2000 CFM.

As stated previously, there are several ways to accomplish these rules. EWC Controls recommends two types of methods for two different types of applications. The first application is on 2 and some 3 zone jobs when there is no room to install a by-pass damper. On these jobs it is possible to oversize the supply ducts to handle the increased pressure of closed zones. For example, oversize each zone supply duct to handle 65% – 70% of the CFM. This way when the other zones close, the one calling can handle the pressure safely. The supply ducts should never be oversized more than 20% of their intended capacity. (This method will reduce the velocity of the system so it is important to know your customer's expectations of the system).

The BEST method for relieving excess pressure in a zoning system is the By-pass damper. This method will take the excess pressure from the supply duct and return it back to

the return duct. This is done by tapping into the supply air and running a duct back to the return air and mounting a by-pass damper in that run (see below). EWC Controls By-pass dampers are PRD & PRD-RD (barometric) and the EBD (electronic).

When tapping back into the return duct, the tap is recommended to be at least 6 ft. away from the equipment. The farther the better. This is done to ensure that the hot or cold air coming off the plenum has time to mix with the return air before going across the coil again. Temperature sensors are mandatory when using the by-pass method. The sensors will prevent any damage to the equipment from overheating or coil freeze-up. EWC Controls includes the SAS (Supply Air Sensor) with every Ultra-Zone control panel.

Figure 1

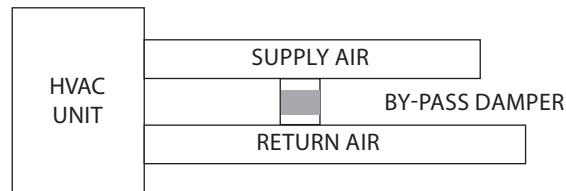
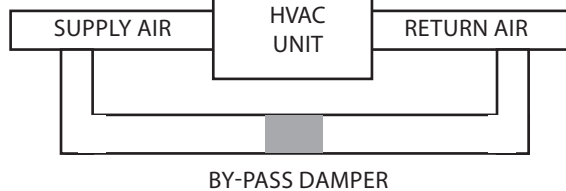


Figure 2



If the by-pass is used, it would be sized to handle the excess pressure build up under the worst case scenario rule. The reason we use the worst case scenario is that this is the worst possible condition of airflow. This condition will cause the most excess pressure build up that is possible. The calculation is done by taking the total CFM capacity of the smallest zone, let's say 600 CFM, and subtract that from the total CFM of the system, let's say 2000 CFM.

Total system CFM	2000
Less smallest zone's CFM	-600
By-pass amount CFM	1400

The by-pass duct would be sized to handle the 1400 CFM which would be the excess pressure when only that one zone calls. The excess air can also be routed through the by-pass damper and "dumped" into an area that has access to an open return. This method will not provide the efficiency of the By-Pass Method. For by-pass damper CFM capacities, see the chart on the following page.

(cont'd on next page)

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BENEFITS (cont'd)

Ultra-Zone Duct Design (cont'd)

BY-PASS DAMPERS AND THEIR CFM CAPACITY	
RECTANGULAR	ROUND
12"×8" PRD 1,000 CFM	8" PRD-RD 400 CFM
12"×10" PRD 1,200 CFM	10" PRD-RD 750 CFM
12"×12" PRD 1,400 CFM	12" PRD-RD 1,200 CFM
20"×8" PRD 1,600 CFM	14" PRD-RD 1,800 CFM
20"×10" PRD 3,000 CFM	*CFM amounts calculated at .3" w.c.

The dump-zone method, which should only be used when it is not possible to install a connection between the supply and return, will provide some of the same benefits as the By-Pass Method. This method will still use a by-pass damper, but it will not go through the return duct. The dump zone will take the excess pressure build-up and dump it into a non-critical area of the home. Non-critical can be interpreted many ways, what EWC Controls has seen most commonly used are basements, entrance foyers, work shops or mechanical rooms. These areas are considered non-critical because they are non-living areas where temperature control is not as important. This method should be used responsibly by the installer. Determining what is a non-critical area is not to be taken lightly, this should be a thought-out process keeping the homeowners needs and expectations in mind.

Using some method of by-pass is the most effective way to zone a home or building. By-passing will accommodate the homeowners or occupants demand for a controlled environment. Some zoning systems call for by-passing the air into a zoned area, this will NOT allow for maximum comfort. This method allows the by-passed air to over shoot the thermostats temperature set point. What this type of system does is leave the zone dampers partially open when they should be fully closed, allowing for the by-pass air to flow into an already satisfied zone. This will negate the effect of zoning and drastically reduce the comfort level, and savings potential of the home. Zoning is the control of the airflow from the HVAC equipment that allows for Individual Room Temperature Control. With proper installation there is no reason why an individual room cannot maintain a one degree differential from set point.

Duct design will be uniquely different from one zoning job to another and because of that, unfortunately there is no single way of laying out a zoning system. What EWC Controls has tried to do is to give you the critical information that is needed before a zoning system can be installed. We have also tried to show a few common techniques that are being used by others who are installing the EWC Controls zoning systems. These are just a few suggestions, other methods and techniques can be used if they are more successful for your applications.

UNIVERSAL ZONE CONTROL SYSTEMS

MODEL UZC-4 (REVISION 4) AND MODEL ZXM-2 (EXPANSION PANEL)

The Ultra-Zone Model UZC is a 4 zone control panel that features auto changeover between heating and cooling modes. The UZC will accept the first call of heating or cooling and turn the system on and close the dampers to the non-calling zones. If another zone calls for the opposite mode, the UZC will hold that call until the first call is satisfied or until a 20 minute timer has passed. Once accomplished, the UZC will go through a time delay to purge the conditioned air out of the system.

The purge time is the total time the fan will remain on with the last calling dampers remaining open. This can be either 1-1/2 or 3 minutes or turned off. The automatic changeover time is fixed at 4 minutes including the purge time. At the end of this time the system will activate the opposite mode of the HVAC system.

The UZC will control Single Stage 2, 3, and 4 Stage conventional, geothermal or Dual Fuel heat pumps, without the need for dual fuel kits. Also single or multi-stage gas, oil, and hydronic HVAC systems with either single or two stage cooling and constant or variable speed fan systems. Any and all of these systems can be controlled with most any off the shelf thermostats.

The UZC allows for the use of any type of thermostat on any zone with any type of HVAC equipment. This is done with a staging timer built into the UZC. A field adjustable timer between 7 – 42 minutes will energize the staging up when necessary if zones are not satisfying based upon the time set on the timer. This feature allows the installer to use single stage thermostats with multi-stage equipment, a very user friendly feature.

There are two (2) energy saving features that the UZC incorporates that can save homeowners more than 40% on utility bills. The first is our 50% rule. This feature will not allow staging up to occur if less than 50% of the zones are in demand. This will prevent the HVAC system from consuming unneeded energy. The second is using our OAS sensor with the UZC to sense the outside air temperature and also limit the staging up process if the temperature is too mild. The OAS works with an adjustable setting between 7 and 42 degrees, if the temperature is above the set point, again the UZC will prevent the use of unneeded energy consumption.

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UNIVERSAL ZONE CONTROL SYSTEMS (cont'd)

MODEL UZC-4 (REVISION 4) AND MODEL ZXM-2 (EXPANSION PANEL) (cont'd)

The UZC also features two (2) safety controls built into the panel. The first is its ability to have a "Fire Alarm Interlock". If the UZC is wired into the fire alarm system and a signal is detected the UZC will shutdown the HVAC system and close all dampers. The second safety feature is "Demand Based Ventilation". This allows the UZC to wire into a CO 2 monitor and control Fresh Air if needed. If the UZC detects a signal from the Carbon Dioxide monitor the panel will open all dampers, open the Fresh Air damper and turn the HVAC fan on, helping to vent the gas.

Other Industry setting features include:

Electronic Bypass Damper Interface

Achieves "Latent Cooling" and "Quiet Mode" start up

Adjustable Supply Air Sensor

Prevents over heating or cooling

Adjustable Heat Differential Potentiometer

Allows the SAS to be mounted in any location

One Zone Feature

Allows one thermostat to control multiple zones for set back

Computer Watchdog Circuitry

Prevents lock-ups from power failures and power interruptions.

Manual and Automatic Thermal Circuit Breakers

Protects the UZC from wiring shorts

Dehumidify Interface

Auxiliary contacts to help increase comfort operations

Return Air Monitoring

Enhanced HVAC energy savings

STOCK #	MODEL	DESCRIPTION	PRICE/EA
769811	UZC-4	4-Zone Control Panel	\$1,066.00
C769740	UZC-6	6-Zone Control Panel	P.O.A.
C769740	UZC-8	8-Zone Control Panel	P.O.A.
C769740	UZC-10	10-Zone Control Panel	P.O.A.
C769740	UZC-12	12-Zone Control Panel	P.O.A.
C769740	UZC-14	14-Zone Control Panel	P.O.A.
C769740	UZC-16	16-Zone Control Panel	P.O.A.
769793	SAS	Supply Air Sensor	84.00
769792	OAS	Outdoor Air Supply	84.00
769808	ZXM-2	Expansion Panel	437.00

NOTE: For systems larger than 16 zones, call your local ECCO Supply Sales Branch for pricing.



Model
UZC-4



Model
ZXM-2

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ZONE CONTROL SYSTEMS

BMPLUS SERIES

The BMPlus control panel is a single stage, two stage, dual fuel, and heat pump compatible panel controlling up to seven zones. The system features automatic changeover and fan control from any zone with a built in computer "watchdog circuit" to insure proper operation. The BMPlus is supplied with an SAS sensor for high and low temperature limit control that has field adjustable temperature limits.

The control panel is compatible with any 3 or 4 wire thermostat on any zone and allows for single stage thermostats to control heat-pump or multi-stage equipment. The optional RES switch can control the emergency heat function from a location other than the thermostat. Our unique 50% rule (if set) will inhibit second stage if less than half of the total number of zones are calling. The intelligent design of the BMPlus eliminates the need for a dual fuel kit for heat pumps. The panel can control staging based on time or outdoor temperature with the optional OAS sensor.

The convenient "One Zone Mode" allows for the entire zoning system to be programmed from one location. This can be controlled by the thermostat or the optional VAC switch. This is great for vacation periods or night set back applications.



BMPlus-3000

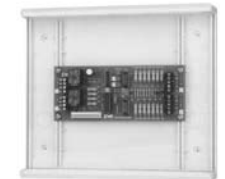


SAS Included

STOCK #	MODEL	DESCRIPTION	PRICE/EA
769801	BMPlus-3000	Control Panel	\$550.00
769798	BMPlus-5000	Control Panel	740.00
C769740	BMPlus-7000	Control Panel	P.O.A.
769793	SAS	Supply Air Sensor	84.00
C769740	RES	Remote Emergency Switch	P.O.A.
769792	OAS	Outdoor Air Supply	84.00
C769740	VAC	Occupied/Unoccupied Switch	P.O.A.

XM-2 (EXPANSION PANEL)

The XM-2 is the expansion panel for the BMPlus series control panels. The XM-2 will allow the original three (3) zone panel to expand two (2) zones at a time. The XM-2 comes with a "plug-and-play" cable that will connect to the main panel.



STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	XM-2	Expansion Panel	P.O.A.

MODEL ST-2/ST-3 REV. E

Model ST series panels are for single stage heating and cooling with manual changeover. Zone 1 is the "master" zone which controls the heating and cooling mode and also the fan operation. The ST-2 is a 2 zone panel and the ST-3 is a 3 zone panel. Zones 2 and 3 will only operate in the same mode that the zone #1 thermostat is in. Each thermostat can turn the system "on" and "off", but only in the same mode. It is recommended that zones 2 and 3 have no switching subbases for the thermostats. The ST panels can be used with mechanical or digital programmable thermostats that are non-power stealing.

Open-Close switches on the control panels near the damper terminal blocks allow for continuous air circulation. This switch controls the damper position when the heating and air conditioning system is at rest. The ST panels can be wired together to create larger zoning systems up to 8 zones.



ST-2/ST-3

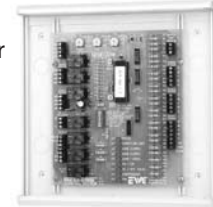
STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	ST-2E	Control Panel	P.O.A.
C769740	ST-3E	Control Panel	P.O.A.

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ZONE CONTROL SYSTEMS (cont'd)

NCM-300

The NCM-300 control panel is compatible with single stage, dual fuel and heat pump systems. The panel is configured for 2 or 3 zones and non-expandable. This is ideal for residential new construction allowing a very competitive product to be sold to the homebuilder. The NCM-300 features automatic changeover and fan control from any zone with a built in computer “watchdog circuit” to ensure proper operation. The panel is shipped with an SAS sensor for high and low limit protection control. The SAS has adjustable potentiometers for the heating and cooling limits for different geographical locations. The NCM-300 control panel is compatible with any 3 or 4 wire thermostat on any zone and allows for single stage thermostats to control heat pumps or multi-stage systems with an adjustable timer. The “One Button Contractor Test” puts the panel into an automatic check out procedure to allow the installer to troubleshoot without the need to run to each thermostat location.



The opposing system timer ensures that no zone will starve for needed conditioned air, this can also be turned off to allow for maximum run times. The “One Zone” allows the occupants to flip a switch (VAC) and put the panel into vacation mode. This mode sets the zoning system based on the program of the zone one thermostat allowing the whole system to be programmed from one location. The LED bank allows for instant recognition and detection of system status for the installer.

The NCM-300 allows for dual transformer systems (ex. hydro-air, oil burners, hot water coils, etc.) to wire up without the need for additional relays. EWC has incorporated an isolation relay on the NCM-300 to allow for easy wiring to these systems.

STOCK #	MODEL	DESCRIPTION	PRICE/EA
769796	NCM-300	Control Panel	\$462.00
C769740	VAC	Occupied/Unoccupied Switch	P.O.A.
C769740	RES	Remote Emergency Switch	P.O.A.

MOTORIZED DAMPERS

The Ultra-Zone round dampers can be used to control the airflow in any flexible or rigid round duct. The dampers are made of heavy gauge steel and control the air flow with a single blade. They can be used with any of the Ultra-Zone control panels or as a stand alone control for a single zone.

EWC Controls is the only zoning company to offer the larger size round dampers.

The Ultra-Zone round dampers are made up to 20" in diameter and larger if requested. We are also the only company to offer round dampers with both motor options: Power Open/Power Close and a Spring Return. This makes the Ultra-Zone line of dampers the most versatile in the zoning industry.



Model URD

MODEL URD AND URD-ESR ROUND DAMPERS

Model URD and URD-ESR are round, single blade dampers with a shutoff seal that gives the damper a 98% closure. The motor for the URD has no moving switches or parts to burn out. The actuator possesses 17" lbs. of torque, manual gear release and a powered open/powered close operation. The URD features “fail safe” LED’s that will indicate the position of the blade without the need to cut holes or remove the damper from the duct work. The positional LED’s will only illuminate when the blade is in the full open or full closed position. The URD-ESR is a spring return motor with an “end switch” to allow for maximum flexibility. The URD-ESR has an LED that will illuminate when the actuator is energized. The damper is field reversible from power closed/spring open to power open/spring closed.



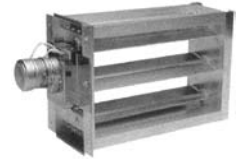
Model URD-ESR

STOCK #	MODEL	DESCRIPTION	PRICE/EA
769748	URD	4" Round Damper	\$325.00
769750	URD	6" Round Damper	328.00
C769740	URD	7" Round Damper	P.O.A.
769752	URD	8" Round Damper	335.00
C769740	URD	9" Round Damper	P.O.A.
769754	URD	10" Round Damper	343.00
769756	URD	12" Round Damper	358.00
769758	URD	14" Round Damper	412.00
769760	URD	16" Round Damper	478.00

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MOTORIZED DAMPERS (cont'd)

ND SERIES DAMPERS — SIDE MOUNT



STOCK #	MODEL	SIZE (")	PRICE
C769740	ND	8 × 6	P.O.A.
769761	ND	8 × 8	\$429.00
C769740	ND	10 × 6	P.O.A.
769812	ND	10 × 8	434.00
769762	ND	10 × 10	451.00
C769740	ND	12 × 6	P.O.A.
769814	ND	12 × 8	444.00
769815	ND	12 × 10	469.00
C769740	ND	12 × 12	P.O.A.
C769740	ND	14 × 6	P.O.A.
769817	ND	14 × 8	451.00
769818	ND	14 × 10	476.00
769819	ND	14 × 12	493.00
769769	ND	14 × 14	499.00
C769740	ND	16 × 6	P.O.A.
769821	ND	16 × 8	457.00
769822	ND	16 × 10	486.00
C769740	ND	16 × 12	P.O.A.
C769740	ND	16 × 14	P.O.A.
C769740	ND	16 × 16	P.O.A.
C769740	ND	18 × 6	P.O.A.
769824	ND	18 × 8	462.00
C769740	ND	18 × 10	P.O.A.
C769740	ND	18 × 12	P.O.A.
C769740	ND	18 × 14	P.O.A.
C769740	ND	18 × 16	P.O.A.
C769740	ND	18 × 18	P.O.A.
C769740	ND	20 × 6	P.O.A.
769827	ND	20 × 8	473.00
C769740	ND	20 × 10	P.O.A.
769829	ND	20 × 12	518.00
C769740	ND	20 × 14	P.O.A.
C769740	ND	20 × 16	P.O.A.
C769740	ND	20 × 18	P.O.A.
C769740	ND	20 × 20	P.O.A.
C769740	ND	22 × 6	P.O.A.
769828	ND	22 × 8	479.00
769831	ND	22 × 10	518.00
C769740	ND	22 × 12	P.O.A.
C769740	ND	22 × 14	P.O.A.
C769740	ND	22 × 16	P.O.A.
C769740	ND	22 × 18	P.O.A.

NOTE: Motor is always mounted on second dimension specified.

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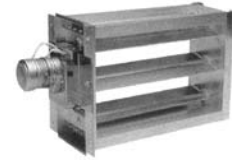
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MOTORIZED DAMPERS (cont'd)

ND SERIES DAMPERS — SIDE MOUNT (cont'd)



STOCK #	MODEL	SIZE (")	PRICE
C769740	ND	22 × 20	P.O.A.
C769740	ND	22 × 22	P.O.A.
C769740	ND	24 × 6	P.O.A.
769836	ND	24 × 8	\$491.00
769838	ND	24 × 10	533.00
C769740	ND	24 × 12	P.O.A.
C769740	ND	24 × 14	P.O.A.
C769740	ND	24 × 16	P.O.A.
C769740	ND	24 × 18	P.O.A.
C769740	ND	24 × 20	P.O.A.
C769740	ND	24 × 22	P.O.A.
C769740	ND	24 × 24	P.O.A.
C769740	ND	26 × 6	P.O.A.
C769740	ND	26 × 8	P.O.A.
C769740	ND	26 × 10	P.O.A.
C769740	ND	26 × 12	P.O.A.
C769740	ND	26 × 14	P.O.A.
C769740	ND	26 × 16	P.O.A.
C769740	ND	26 × 18	P.O.A.
C769740	ND	26 × 20	P.O.A.
C769740	ND	26 × 22	P.O.A.
C769740	ND	26 × 24	P.O.A.
C769740	ND	26 × 26	P.O.A.
C769740	ND	28 × 6	P.O.A.
C769740	ND	28 × 8	P.O.A.
C769740	ND	28 × 10	P.O.A.
C769740	ND	28 × 12	P.O.A.
C769740	ND	28 × 14	P.O.A.
C769740	ND	28 × 16	P.O.A.
C769740	ND	28 × 18	P.O.A.
C769740	ND	28 × 20	P.O.A.
C769740	ND	28 × 22	P.O.A.
C769740	ND	28 × 24	P.O.A.
C769740	ND	28 × 26	P.O.A.
C769740	ND	28 × 28	P.O.A.
C769740	ND	30 × 6	P.O.A.
C769740	ND	30 × 8	P.O.A.
C769740	ND	30 × 10	P.O.A.
C769740	ND	30 × 12	P.O.A.
C769740	ND	30 × 14	P.O.A.
C769740	ND	30 × 16	P.O.A.
C769740	ND	30 × 18	P.O.A.

NOTE: Motor is always mounted on second dimension specified.

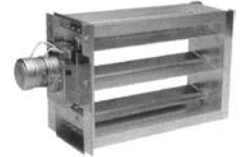
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MOTORIZED DAMPERS (cont'd)

ND SERIES DAMPERS — SIDE MOUNT (cont'd)

STOCK #	MODEL	SIZE (")	PRICE
C769740	ND	30 × 20	P.O.A.
C769740	ND	30 × 22	P.O.A.
C769740	ND	30 × 24	P.O.A.
C769740	ND	30 × 26	P.O.A.
C769740	ND	30 × 28	P.O.A.
C769740	ND	30 × 30	P.O.A.



NOTE: Motor is always mounted on second dimension specified.

ND SERIES DAMPERS — BOTTOM MOUNT

STOCK #	MODEL	SIZE (")	PRICE
769772	ND	8 × 8	\$420.00
769764	ND	8 × 10	434.00
769766	ND	8 × 12	444.00
769768	ND	8 × 14	451.00
769770	ND	8 × 16	457.00
769771	ND	8 × 18	462.00
769776	ND	8 × 20	473.00
769850	ND	8 × 22	479.00
769775	ND	8 × 24	491.00
C769740	ND	8 × 26	P.O.A.
C769740	ND	8 × 28	P.O.A.
C769740	ND	8 × 30	P.O.A.
769763	ND	10 × 12	469.00
769765	ND	10 × 14	476.00
769777	ND	10 × 16	486.00
769778	ND	10 × 18	494.00
769774	ND	10 × 20	511.00
769852	ND	10 × 22	518.00
769779	ND	10 × 24	533.00
C769740	ND	10 × 28	P.O.A.
C769740	ND	10 × 26	P.O.A.
C769740	ND	10 × 28	P.O.A.
C769740	ND	10 × 30	P.O.A.
769767	ND	12 × 14	493.00
769854	ND	12 × 16	498.00
C769740	ND	12 × 18	P.O.A.
769773	ND	12 × 20	518.00
C769740	ND	12 × 22	P.O.A.
C769740	ND	12 × 24	P.O.A.
C769740	ND	12 × 26	P.O.A.
C769740	ND	12 × 28	P.O.A.
C769740	ND	12 × 30	P.O.A.
C769740	ND	14 × 16	P.O.A.
C769740	ND	14 × 18	P.O.A.

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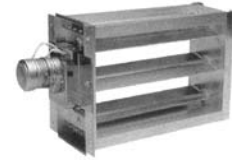
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MOTORIZED DAMPERS (cont'd)

ND SERIES DAMPERS — BOTTOM MOUNT (cont'd)

STOCK #	MODEL	SIZE (")	PRICE
C769740	ND	14 × 20	P.O.A.
C769740	ND	14 × 22	P.O.A.
C769740	ND	14 × 24	P.O.A.
C769740	ND	14 × 26	P.O.A.
C769740	ND	14 × 28	P.O.A.
C769740	ND	14 × 30	P.O.A.
C769740	ND	16 × 18	P.O.A.
C769740	ND	16 × 20	P.O.A.
C769740	ND	16 × 22	P.O.A.
C769740	ND	16 × 24	P.O.A.
C769740	ND	16 × 26	P.O.A.
C769740	ND	16 × 28	P.O.A.
C769740	ND	16 × 30	P.O.A.
C769740	ND	18 × 20	P.O.A.
C769740	ND	18 × 22	P.O.A.
C769740	ND	18 × 24	P.O.A.
C769740	ND	18 × 26	P.O.A.
C769740	ND	20 × 20	P.O.A.
C769740	ND	20 × 24	P.O.A.



OPTIONS FOR ND SERIES DAMPERS

STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	ND-L	5/8" Round Shaft – No Motor	P.O.A.
C769740	ND-MQ	Manual Quadrant – No Motor	P.O.A.
C769740	ND-LM24	35" lbs. Motor 24 Volt	P.O.A.
C769740	ND-LM24SR-T	Modulating Motor	P.O.A.
C769740	ND-MA155	15 Second Motor	P.O.A.

STATIC PRESSURE CONTROL DAMPERS

The EBD style by-pass are self-contained units that give you the static control mounted to the damper. It is an "all-in-one" design that makes the installation process much easier than most electronic by-pass dampers. The static pressure can be adjusted in the field between 0.1" to 4" of pressure. This is done by the turn of a set-screw. Requires 24VAC to operate. Tubing and pitot tube are included.



MODEL EBD – ROUND

STOCK #	SIZE (")	PRICE/EA
769802	8	\$772.00
769804	10	772.00
769806	12	839.00
C769740	14	P.O.A.
C769740	16	P.O.A.
C769740	18	P.O.A.

NOTE: Model EBD is for use with ND or URD style dampers.

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STATIC PRESSURE CONTROL DAMPERS (cont'd)

MODEL EBD – RECTANGULAR

STOCK #	SIZE (")	PRICE/EA
C769740	12 × 8	P.O.A.
769862	12 × 10	\$847.00
C769740	12 × 12	P.O.A.
C769740	20 × 8	P.O.A.
C769740	20 × 10	P.O.A.
C769740	20 × 12	P.O.A.
769880	PS-4 Pressure Switch Only	420.00



Model EBD – Rectangular



Model PS-4

NOTE: Use with ND and URD style dampers — please refer to index.

MODEL PRD

Model PRD pressure regulating damper is a single blade, steel, barometric damper with a counter balanced weighted arm. The PRD provides an economical solution for by-passing excess air when zone dampers close. Damper adjustment is done by adjusting the supplied weights and by offsetting the arm.

STOCK #	SIZE (")	CFM	PRICE/EA
769790	12 × 8	1000	\$227.00
769791	12 × 10	1200	236.00
769788	12 × 12	1400	254.00
769789	20 × 8	1600	279.00
C769740	20 × 10	2000	P.O.A.
C769740	20 × 12	3000	P.O.A.
769742	16" Damper Arm with weight		34.00
769882	Weights for PRD		20.00



NOTE: Other sizes available upon request.

MODEL PRD-RD

Model PRD-RD pressure regulating damper is a single blade, round variation of a barometric relief damper. This is the simplest, most economical way of by-passing excess static pressure in multi-zone applications. Resistance is controlled by offsetting the arm and adjusting the weights. The arm can be inserted into either side of the damper for added versatility.

STOCK #	SIZE (")	CFM	PRICE/EA
769780	8	400	\$219.00
769782	10	750	229.00
769784	12	1200	237.00
769786	14	1800	254.00
769787	16	2400	587.00
769742	16" Damper Arm with weight		34.00
769882	Weights for PRD		20.00



NOTE: Other sizes available upon request.

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THERMOSTATS

STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	EWT-261	Digital programmable thermostat for use on all zones on all series of control panels. Simple 5/2 programming. Battery powered (3 "AA" alkaline batteries included).	P.O.A.
C769740	EWT-AC	Digital programmable, automatic change-over thermostat with single stage compatibility. Can be used on any zone of an Ultra-Zone control panel. The EWT-AC requires 3 wires R-Y-W and optional G for independent fan control from any zone. Not for use on "ST" panels.	P.O.A.
C769740	T8602	Single stage, digital programmable thermostat that is field configurable for manual or automatic changeover. Can be used on any zone of the Ultra-Zone series control panels.	P.O.A.
C769740	MCS-DXB	Remote selector switch for use with ST series ULTRA-ZONE control panels. This switch replaces the zone 1 thermostat subbase if separate remote system control is desired. 4 wires required.	P.O.A.
C769740	T8011	Digital programmable heat pump thermostat. Can be used on zone 1 of the UZC, BMPlus, or NCM control panels.	P.O.A.
C769740	T8624	Digital programmable, two stage thermostat that is field configurable for manual or automatic changeover. Can be used on any zone of the UZC series control panels	P.O.A.



MOTORIZED REGISTERS AND DIFFUSERS

MODEL REG-H AND REG-V — MOTORIZED REGISTERS (H=HORIZONTAL; V=VERTICAL)

Models REG-H & REG-V are motorized, anodized aluminum registers with manually adjusted vertical deflection and motorized horizontal blades. Model REG-H is for horizontal motor mounting. Model REG-V is for vertical motor mounting. These motorized registers allow for control when access to ductwork is limited and for individual room control from the register.

Ordering information: Example: REG-H 10 x 6



STOCK #	WIDTH	HEIGHT				
		4"	6"	8"	10"	12"
C769740	8"	P.O.A.	P.O.A.	P.O.A.		
C769740	10"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	
C769740	12"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	P.O.A.
C769740	14"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	P.O.A.
C769740	16"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	P.O.A.
C769740	18"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	P.O.A.
C769740	20"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	P.O.A.
C769740	22"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	P.O.A.
C769740	24"	P.O.A.	P.O.A.	P.O.A.	P.O.A.	P.O.A.

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MOTORIZED REGISTERS AND DIFFUSERS (cont'd)

MODEL RCD — ROUND CEILING DIFFUSER

Model RCD is a round ceiling diffuser. The actuator is attached to the butterfly damper behind the diffuser. Model RCD allows for motorized control of individual ceiling diffusers. Model RCD is available in 6" through 12" even size dampers.

Ordering information: Example: RCD 10

STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	RCD6	6" Diameter	P.O.A.
C769740	RCD8	8" Diameter	P.O.A.
C769740	RCD10	10" Diameter	P.O.A.
C769740	RCD12	12" Diameter	P.O.A.



FRESH AIR INTAKE AND ECONOMIZER SYSTEMS

MODEL HK2000

Finally, a control that gives meaning to the letter "V" in HVAC, the cure for "sick building syndrome." Helps meet local building codes and "ASHRAE" ventilation standards.

The HK2000 Fresh Air and Economizer panel provides intelligent and economical control of residential and commercial heating and cooling systems. In the **Fresh Air Mode**, the HK2000 has the flexibility to bring in as much, or as little Fresh Air as needed. The cycle timer is adjustable from 0 (off) to 12 cycles (continuous) per hour. When the cycle timer is set to 4 cycles per hour, representing 20 minutes of Fresh Air, the HK2000 will activate the Fresh Air mode for 5 minutes every 1/4 hour (or every 15 minutes).

This feature is designed to minimize the load that could build up on the HVAC system. Other added flexibility of the HK2000 is its ability to control exhaust air and return air as well as fresh air intake. This built-in feature prevents over pressurization in homes and buildings.

The **Economizer mode** of the HK2000 allows for the use of outside air to satisfy the need of indoor cooling. This form of "free cooling" is monitored and controlled using several methods.

Dry bulb method, also known as outdoor temperature method, will sense the outside air temperature and determine if that air alone could satisfy the cooling demand. The determining temperature range for this method is field adjustable between 42°F and 78°F. The outdoor air sensor (OAS) is included with each panel for this function.

If the outside air is too warm, the HK2000 will start the air conditioning unit. If the dry bulb mode uses outside air, the HK2000 will also monitor its success. If the cooling is not satisfied within 15 minutes using outside air, the HK2000 will shut down and start the air conditioning unit.

During **Enthalpy mode** an optional enthalpy control (EC) can be used to sense the outside air for appropriate conditions. The EC will either satisfy the cooling with outside air or turn on the air conditioning unit using its own settings.

The most economical advantage of the HK2000 is the **Mechanical Cooling Assistance mode**. This will allow the HK2000 to monitor the return air temperature with the use of an optional return air sensor (same as OAS) and compare it to the outdoor air temperature. If conditions allow, the HK2000 will bring in outside air and mix it with return air and use this as cooling. This again reduces the load on the HVAC unit.

STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	HK2000	Outside Air Timing System	P.O.A.
769792	OAS	Outdoor Air Supply	\$84.00



MODEL EC — ENTHALPY CONTROL

Enthalpy control provides the means to sense outside air temperature and humidity. When these conditions are acceptable fresh air can be used instead of cooling.

STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	EC	Enthalpy Control	P.O.A.



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CONTROL DAMPERS

PAOB CONTROL DAMPERS — PARALLEL BLADE — LOW LEAKAGE

This series of control dampers are designed for commercial applications where low leakage and durable construction are required. The motors are designed for higher static pressure and higher velocity ratings than in normal residential installations. The dampers can be made in many sizes including sizes larger than on this page. EWC can also supply a round adapter for added convenience in installation.

STOCK #	MODEL	SIZE (")	DESCRIPTION	PRICE/EA
C769740	PAOB	8	Round Damper	P.O.A.
C769740	PAOB	10	Round Damper	P.O.A.
C769740	PAOB	12	Round Damper	P.O.A.
C769740	PAOB	14	Round Damper	P.O.A.
C769740	PAOB	16	Round Damper	P.O.A.
C769740	PAOB	18	Round Damper	P.O.A.
C769740	PAOB	20	Round Damper	P.O.A.



NOTE: Rectangular Dampers — P.O.A.

ACTUATOR OPTIONS

STOCK #	DESCRIPTION	PRICE/EA
C769740	A—Control Shaft Less Motor	P.O.A.
C769740	B—Manual Quadrant	P.O.A.
C769740	E—24 Volt Variable Volume	P.O.A.
C769740	LM24—24 Volt PO/PC	P.O.A.
C769740	LF24—24 Volt Spring Return	P.O.A.
C769740	LF120—120 Volt Spring Return	P.O.A.
C769740	LM24 SR-T—Modulating (0–10 VDC)	P.O.A.

Ordering Information:

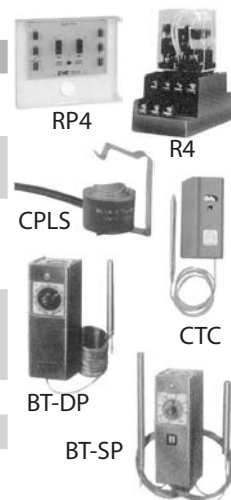
A wide variety of commercial dampers are available. Follow this ordering sequence: The prefix PAOB describes the product family. Round adapters require RA (round adapter). Choose an actuator option listed above. Add the dimensions of the damper. Example: Power Open-Power Close damper/24 VAC actuator/36" x 30" is ordered as PAOB-LM24 36" x 30".

Sizes available: 8" x 8" thru 36" x 32" standard.

NOTE: The second dimension given is always the dimension where the motor will be mounted.

PARTS AND ACCESSORIES

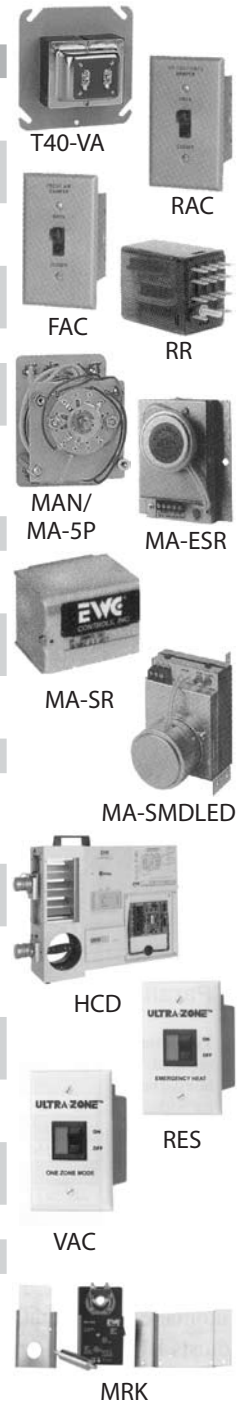
STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	RP4	A 4PDT relay panel with 24V, 60 Hz coil for custom control applications.	P.O.A.
C769740	R4	A compact version of the RP-4. Use for custom control applications.	P.O.A.
C769740	CPLS	Monitors cooling coil temperature and protects against coil freeze-up. Stops compressor below 37°F and restarts above 47°F. (Not adjustable). Mounts on a 3/4" suction line.	P.O.A.
C769740	CTC	Monitors cooling coil temperature and protects against coil freeze-up. Stops compressor below 36°F and restarts above 46°F. Adjustable.	P.O.A.
C769740	BT-DP	Double pole bulb thermostat. 0° to 100° range.	P.O.A.
C769740	BT-SP	Single pole bulb thermostat. 15° to 90° range.	P.O.A.



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PARTS AND ACCESSORIES (cont'd)

STOCK #	MODEL	DESCRIPTION	PRICE/EA
C769740	F1	A 2 AG, 3 amp Slow Blow fuse for replacement on ST and STHP series ULTRA-ZONE control panels. Package contains 5 fuses.	P.O.A.
769800	T40-VA	Plate mounted 24V 40VA transformer for use with ULTRA-ZONE dampers and control systems.	\$50.00
C769740	RAC	A SPDT illuminated switch used to replace a thermostat for manual damper control. Face plate marked "AC Damper".	P.O.A.
C769740	FAC	A SPDT illuminated switch used to replace a thermostat for manual damper control. Face plate marked "Fresh Air Damper".	P.O.A.
C769740	RR	Replacement relay for older style ULTRA-ZONE panels.	P.O.A.
769799	MAN	Two position, power-open, power-closed actuator. Use with standard opposed blade dampers.	236.00
C769740	MA-5P	5 position, power open-power closed actuator. Use with standard opposed blade dampers. Interchangeable with MAN actuators.	P.O.A.
C769740	MA-ESR	Spring return actuator used on ND-ESR and URD-ESR dampers.	P.O.A.
C769740	MA-SR	Two wire spring return actuator. Use on SMD-SR and RD-SR dampers. 24V and 120V available.	P.O.A.
C769740	MA-SMDLED	Two position power-open, power-closed actuator. Used on SMDL & BMDL dampers.	P.O.A.
C769740	HCD	Salesman's display of a complete 2 zone system in a neat, easy-to-carry case.	P.O.A.
C769740	RI	Single-pole, double-throw, 24V relay coil.	P.O.A.
C769740	RES	Remote Emergency illuminated switch for use on Heat Pump systems. Used in place of an emergency switch, located on the thermostat.	P.O.A.
C769740	VAC	One zone illuminated switch provides convenient set back of all zones from one location. Used as an occupied/unoccupied switch.	P.O.A.
769795	MRK	Motor replacement kit used for all styles of ND – URD and RDN dampers. Kit comes complete with all necessary brackets and screws.	252.00
C769740	EWT-P	Modulating Thermostat (0 – 10 VDC). May control up to 10 dampers.	P.O.A.
C769740	MP	Manual Positioning for modulating dampers. May control up to 10 dampers.	P.O.A.
C769740	PC-1, 2, 4	These are 5-position control switches controlling 5-position damper motors.	P.O.A.
C769740	EWT-RS	Non mercury single stage thermostat.	P.O.A.
C769740	TSB-RS	3 wire damper only subbase for EWT-RS.	P.O.A.
C769740	TSB-MR	6 wire subbase for control panel operations with EWT-RS.	P.O.A.



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