

## *Forced Air Zone Controls*

Excellence Without Compromise

**EVC<sup>®</sup>**  
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*Proudly Manufacturing in the USA*

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## About EWC Inc.

In early 1961, EWC Incorporated was formed as a manufacturing company of power transformers for military and commercial use. Today, EWC Inc., transformers are located on smart guided missile systems, helicopters, airplanes, the space shuttle and many other applications. The successful growth of this business allowed EWC to expand its manufacturing capabilities and enter into the HVAC industry.

Our vast experience in designing and manufacturing military components and power transformers for all applications led us to form EWC Controls in 1988. Today, homeowners, wholesalers and contractors rely on our vast expertise and experience to provide the most reliable comfort solutions for all applications.

Seven (7) of the last Eight (8) years, EWC Controls has won the Prestigious Dealer Design Awards by offering top quality, innovative products. The Dealer Design Awards are judged by industry professionals and awarded to Industry setting products. In 2000, EWC introduced the first zone damper with directional LEDs'. 2004 saw EWC introduce the most complete comfort guide and package for wholesalers and contractors.

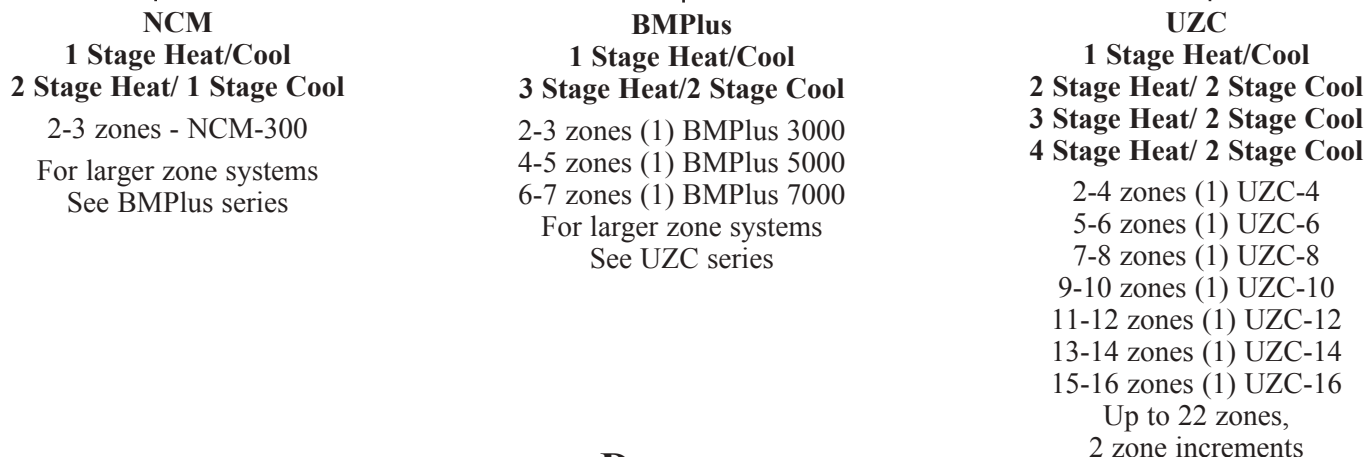
In 2011, EWC Controls introduced the first Communicating Zone panel built on the ClimateTalk open protocol. This industry setting, cutting edge product is well advanced of any current product offering. Once again, as recognized by our peers, EWC Controls was awarded the Dealer Design Award for this advancement in technology. In 2012 EWC Controls partnered with ACCA to help develop Manual Zr, an ANSI approved residential zoning guide. In 2016 we created the first ever Smart By-Pass.

For decades, EWC has developed and enhanced our product offering for the betterment of the industry. As we continue to grow, all of us at EWC look forward in continuing those developments of future comfort solutions and enhancements.



# How To Order An Ultra-Zone System

## Control Panel



## Dampers



**Round**

4"-20" URD (3-wire PO/PC))  
 4"-20" RSD (2-wire spring return)



**Round**

(Retrofit)  
 4"-10" SID (3-wire PO/PC)



**Rectangular**

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

## By-Pass Dampers (If Necessary)



**Smart By-Pass**  
 8"-20" SBD (Round)  
 W"xH" SBD (Rectangular)  
 Any Size (Call Factory)

**Electronic (Modulating)**  
 8"-20" EBD (Round)  
 W"xH" EBD (Rectangular)  
 Any Size (Call Factory)

**Round Barometric**  
 8"-16" CLBD  
**Rectangular Barometric**  
 W"xH" PRD

## Zone Thermostats



**Digital Programmable  
 Wireless Touchscreen**  
 EWT-955

**Digital Programmable  
 Touchscreen Auto Changeover**  
 EWT-721

**Digital Non-Programmable**  
 EWT-601-2

## Transformer



40VA for every (20) URD, ND, and SID dampers  
 40VA for every (5) RSD and ND-RSD dampers

## *Ultra-Zone controls - 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 utilizes motorized dampers controlled by room thermostats to selectively control the temperature for each zone of the home or building. This is called “zoning.”

We are zoning off areas so that we can allow tighter control of the 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. We 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**

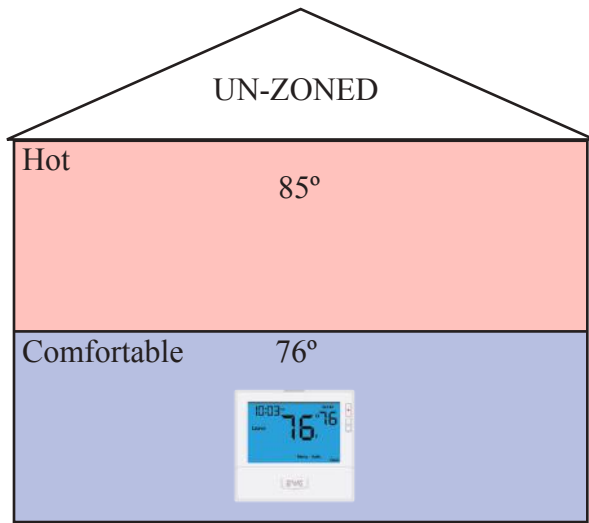
The heating and cooling equipment makes up the largest part of the monthly utility bill. Why not control these items the same way you do with your lighting and plumbing?

### **Why use an ULTRA-ZONE system over TWO units!**

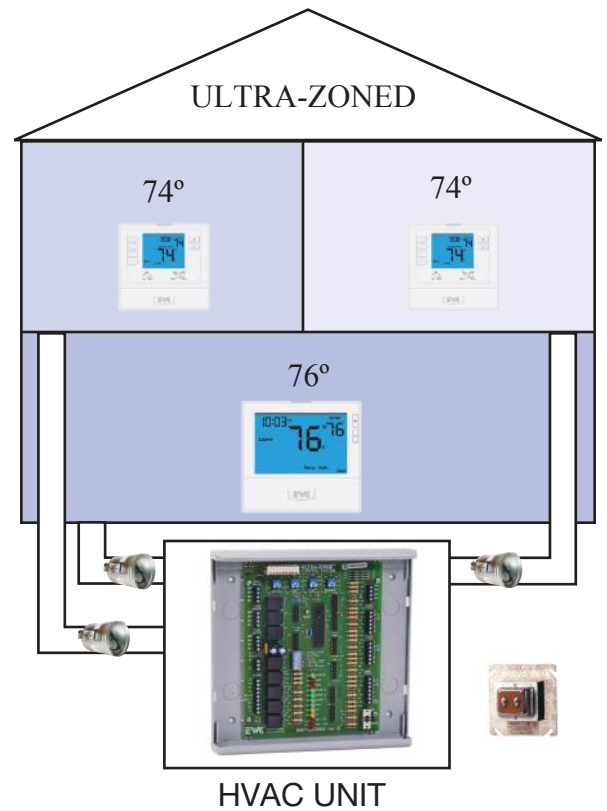
Some contractors are installing two heating and cooling units to try and satisfy the comfort needs of homeowners. This is an expensive alternative to an Ultra-Zone system. Two units cost more to install and maintain. One unit and a damper system is far less expensive than the cost of the second furnace. 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 sys-

tems, an Ultra-Zone system can be used with one 4 ton unit at 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.

## WINTER CONDITIONS



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.*

### 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 20 zones. This means that over 20 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 above diagram shows a typical installation with all of the components needed for a zoning system.

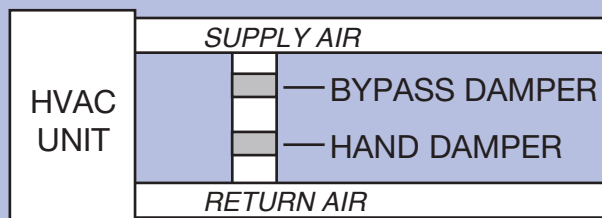
# Ultra-Zone Duct Design

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 "Bypass" 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 ensure proper airflow throughout the system and to ensure proper operation of the EWC Controls zoning system. EWC Controls follows the principles outlined in the ACCA Manual Zr zoning guide.

- When using a "By Pass" back to the Return it is suggested to use a Volume Control Hand Damper. Model # ND-HD or RD-HD in the ByPass Return Run.

Figure 1

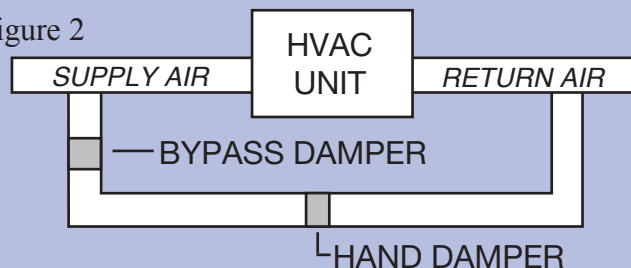


- 100% of the rated CFM must always move through the Air Handler when zoning with Heat Pumps and High cooling demand areas (i.e. Florida).
- Always assume the worst case scenario, which is the smallest zone will be the only one to call at any given time.
- EWC Controls recommends the use of the SBD (Smart Balancing By-pass Damper) on all zoning installations. EWC Controls highly recommends the use of the SBD 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 (not recommended for high cooling demand areas) is on 2 and some 3 zone jobs when there is no room to install a bypass 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 Bypass 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 bypass damper in that run (see below). EWC Controls by-pass dampers are PRD & CLBD (barometric) and the EBD (electronic), and the SBD (Smart Balancing By-Pass Damper).

Figure 2



# Duct Sizing with Ultra-Zone

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 bypass 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. The use of a Hand Damper is recommended to be installed in the ByPass Return Run.

If the bypass 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
<u>Less smallest zone's CFM</u>	<u>-600</u>
Bypass amount CFM	1400

The bypass 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 bypass 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 below.

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 bypass 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 bypass is the most effective way to zone a home or building. Bypassing will accommodate the homeowners or occupants demand for a controlled environment. Some zoning systems call for bypassing the air into a zoned area, this however will NOT allow for maximum comfort. This method allows the bypassed 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 bypass 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 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. EWC Controls always recommends following ACCA Manual Zr specifications

Bypass Damper CFM Capacity			
Rectangular	By-Pass CFM	Round	By-Pass CFM
12"x8"	1000	8"	400
12"x10"	1200	10"	700
12"x12"	1400	12"	1100
20"x8"	1600	14"	1700
20"x10"	2000	16"	2200
20"x12"	3000 @ 1400 fpm or .3" w.c.		@ 1400 fpm or .3" w.c.

As a barometer use 1400 Fpm to achieve smaller by-pass runs at higher velocities.

(See Pages 14 & 15)

# ULTRA-TALK™ *Communicating Zone System*



EWC Controls has built a truly innovative, plug-n-play 4 wire communicating zone system for any application. The UT-3000's design allows the zoning system to “Talk” to the equipment and thermostats to reduce labor time and optimize performance. This “Talk” feature allows the system to auto-configure itself without installer programming or setting dip switches.

The highly advanced UT-3000 is compatible with all communicating HVAC systems that are built on the ClimateTalk™ open protocol. The UT-3000, 3 zone system and expandable up to 5 zones, will also work with non-communicating 2 heat / 1 cool or 1 heat / 1 cool systems. This Hybrid design allows for maximum flexibility with one zone panel.

The UT-3000 produces a true proportional signal to control BTU capacity during operation. The output signal for the system is based on how many zones are calling and the temperature of the supply air. Based on these readings this unique feature will allow an ECM motor operating on the ClimateTalk™ protocol to function at it's lowest possible Cfm output, reducing the need for a by-pass damper to control static pressure. Any multi-stage or modulating hi-efficiency HVAC system that functions in ClimateTalk™ mode, will be operated in a manner that maximizes temperature control and minimizes blower speed and reduces by-pass function.

By monitoring the Supply Air temperature the UT-3000 will stage the HVAC equipment to optimize the comfort level while reducing energy consumption. Based on the demand for heating or cooling, i.e. how many zones are calling, how far out of range the supply air is from set point and the type of thermostats installed, the UT-3000 will produce the required amount of supply air to satisfy the demand. The flexibility of the UT-3000 allows the installer to change that demand level based on the customers expectations of the staging function.

The Supply Air Sensor feature is a constant monitoring device that sends vital data back to the UT-3000 in order for the system to function efficiently. Adjustable target set-points on the supply air sensor allow staging to occur in shorter or longer increments, as well as, allow system capacity to increase or decrease based on the target set-points. The adjustable set points allow for greater flexibility for all operating conditions giving the installer the ability to maximize energy savings and comfort.



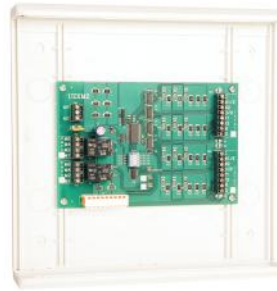
# Universal Zone Control Systems

## MODEL UZC-4 (up to 4 heat & 2 cool)

SAS Included



## MODEL ZXM-2 (Expansion Panel) (maximum 22 zones)



## MODEL UZC (Revision 4)

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. 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, & 4 Stage conventional, geothermal or Dual Fuel heat pumps, without the need for dual fuel kits. Also single or multi-stage gas, oil, & 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 (2) two 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.

The UZC also features (2) two 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<sub>2</sub> 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 building.

### 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 or Humidify Interface

Auxiliary contacts to help increase comfort operations

#### Return Air Monitoring

Enhanced HVAC energy savings

#### Variable Speed Interface

Slows down fan speed if less than 25% of zones are calling

For systems larger than 16 zones, call factory for pricing.

Product	List Price	Product	List Price
UZC-4	\$752.00	UZC-14	\$2,065.00
UZC-6	\$980.00	UZC-16	\$2,375.00
UZC-8	\$1,202.00	SAS	\$55.00
UZC-10	\$1,455.00	OAS	\$55.00
UZC-12	\$1,730.00	ZXM-2	\$310.00
		OAS-GT*	\$55.00

\*Geothermal Applications

# Zone Control Systems



## BMPlus Series (up to 3 heat & 2 cool)

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 ensure 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 BMPlus is also compatible with any two stage heat pump thermostat which can be used in all zones. 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.

SAS Included



Model	List Price	Model	List Price
BMPlus-3000	\$380.00	XM-2	\$315.00
BMPlus-5000	520.00	SAS	\$55.00
BMPlus-7000	725.00	OAS	\$55.00
		VAC	\$60.00



## XM-2 (Expansion Panel) (maximum 7 zones)

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

Model	List Price
XM-2	\$315.00

## OAS



## VAC



## Accessories

Model	List Price
OAS	\$55.00
VAC	\$60.00



## NCM-300

The NCM-300 control panel is compatible with single stage systems, two stage heat systems 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 NCM-300 is also compatible with two-stage heat pump and dual fuel thermostats.

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. We have incorporated an isolation relay on the NCM-300 to allow for easy wiring to these systems.

Model	List Price
NCM-300	\$325.00
VAC	\$60.00
RES	\$60.00

SAS Included



# Motorized Dampers

## MODEL URD



## MODEL RSD



### PRICING FOR BOTH URD & RSD

Size	List Price	Size	List Price
4 URD	\$227.00	12 URD	\$252.00
6 URD	\$230.00	14 URD	\$289.00
7 URD	\$232.00	16 URD	\$334.00
8 URD	\$235.00	18 URD	\$405.00
9 URD	\$239.00	20 URD	\$455.00
10 URD	\$241.00		
		18 RSD	\$657.00
		20 RSD	\$685.00

## Model URD & RSD Round Dampers

Model URD and RSD 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 18 in. lbs. of torque, manual gear release and powered open/powered close operations. 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 ductwork.

The positional LED’s will only illuminate when the blade is in the full open or full closed position. The RSD is a spring return motor. The damper is field reversible from power closed/spring open to power open/spring closed. The motor possesses 3" lbs. of torque. The 18" and 20" RSD’s have a motor with 18" lbs. of torque. The RSD has NO LEDS.

### Options:

URD-SRE	24V Spring Return w/end switch	Add \$250.00
URD-SRE120	120V Spring Return w/end switch	Add \$250.00
URD-TF24	24V - 18 in LBS - Spring Return	Add \$375.00
URD-TF120	120V - 18 in LBS - Spring Return	Add \$400.00
URD-LF24	24 Volt - 35 in LBS - Spring Return	Add \$400.00
URD-LF120	120 Volt - 35 in LBS - Spring Return	Add \$425.00
URD-LM24SR-T	Modulating Motor	Add \$275.00
S1A	End Switch for URD	List \$150.00
URD-L	Round Damper with NO motor - 5/8" round shaft	Deduct \$30.00
URD-LM24-T	45 in LBS Motor 24 Volt	Add \$250.00
URD-MA15S	15 Second Motor	Add \$25.00

## MODEL SID



### The Retrofit Solution

The SID (Slip-In-Damper) is the most user friendly retrofit damper available. The 1.5VA actuator allows up to 20 SID’s on one EWC Controls zone panel with a 40va transformer. With a single cut the SID can be installed in seconds. The optional S1A (see page 17) end switch allows for increased flexibility.

Size	List Price
4"	\$168.00
5"	\$170.00
6"	\$172.00
7"	\$175.00
8"	\$184.00
9"	\$200.00
10"	\$220.00

### Options:

SID-15S	15 Second Motor	Add \$25.00
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# Motorized Dampers

## Old Fashion Reliability With NEW State of the Art Technology

- Heavy Duty Frame
- Nylon Bushings for Quieter Operation
- Revolutionary Motor with greater Reliability
- LED's to Show Damper Operation
- Low Leakage
- Simple 3-wire Hook-up
- Motor is always mounted on second dimension specified

### MODEL ND



### MODEL ND-RSD



### ND SERIES DAMPERS

The ND series of Ultra-Zone dampers was designed with the installer and homeowners in mind. This damper is easy to install and easy to checkout. The LED display allows the installer to visually check the damper operation. With a sturdier frame, the damper installs in the duct much faster and easier and the nylon bushings ensure quieter operation. This is a feature that homeowners will never hear about! Quieter operation and a longer life motor equals NO call backs.

The motor for the ND damper is driven by 18" lbs. of torque, possesses a manual gear release, 3 wire power open/power closed operation and fail-safe LED's for quick diagnostic checks. The motor is UL listed and NEMA Class 2 certified. The easy access, quick connecting terminal block eliminates the need for wire nuts and allows for trouble free use.

The ND damper has a 97% leak proof rating. Overlapping blades and a strong positive shut-off motor ensures accurate control of all zones. The ND dampers combined with an Ultra-Zone zoning system provides the most comfortable and reliable system in the industry.

The ND is available in 8" x 6" thru 30" x 30" in even inch increments. The motor will be mounted on the second dimension when ordered. For example, a 16" x 8" damper will have the motor mounted on the 8" dimension, while an 8" x 16" will have the motor mounted on the 16" dimension. This will alleviate the confusion between side mount and bottom mount dampers.

For added flexibility, ND dampers can also be provided with a spring return style motor. (Model ND-RSD). The ND-RSD is driven by 3" lbs. of torque without LEDs.

Note: Specify "spring closed" or "spring open" when ordering

### Options

ND-SRE	24V Spring Return w/end switch	Add \$250.00
ND-SRE 120	120V Spring Return w/end switch	Add \$250.00
ND-TF24	18" lbs Spring Return	Add \$375.00
ND-TF120	120V 18" lbs Spring Return	Add \$400.00
ND-LF24	24V Spring Return 35" lbs	Add \$400.00
ND-LF120	120V Spring Return 35" lbs	Add \$425.00
ND-LM24SR-T	Modulating Motor	Add \$275.00
ND-LM24-T	45 in. lbs. motor 24volt	Add \$250.00
ND-MA15S	15 Second Motor	Add \$25.00
S1A	End Switch (for ND only)	List \$150.00
ND-L	5/8" round shaft-no motor	Deduct \$30.00
ND-MQ	Manual Quadrant-No motor	Deduct \$35.00

To purchase these items separately, add \$100.00

## Duct Board Adapters



The brackets are used to mount ND and ND-RSD style dampers to fiberglass duct boards. The brackets are 1" thick. Add the number "5" to the part number for 1.5" thick duct board. (Ex. DBA-10-5)

Model	List Price	Model	List Price
DBA-6"	\$26.00	DBA-16"	\$50.00
DBA-8"	\$28.00	DBA-18"	\$52.00
DBA-10"	\$32.00	DBA-20"	\$54.00
DBA-12"	\$38.00	DBA-22"	\$56.00
DBA-14"	\$49.00	DBA-24"	\$58.00

# Motorized Dampers

## Pricing for both ND & ND-RSD

### Side Mounts

ND 8x6	\$299.00	ND 24x6	\$342.00
ND 8x8	\$302.00	ND 24x8	\$346.00
		ND 24x10	\$375.00
ND 10x6	\$300.00	ND 24x12	\$387.00
ND 10x8	\$305.00	ND 24x14	\$405.00
ND 10x10	\$307.00	ND 24x16	\$425.00
		ND 24x18	\$440.00
ND 12x6	\$308.00	ND 24x20	\$459.00
ND 12x8	\$312.00	ND 24x22	\$484.00
ND 12x10	\$330.00	ND 24x24	\$513.00
ND 12x12	\$334.00		
		ND 26x6	\$356.00
ND 14x6	\$314.00	ND 26x8	\$361.00
ND 14x8	\$317.00	ND 26x10	\$389.00
ND 14x10	\$334.00	ND 26x12	\$403.00
ND 14x12	\$347.00	ND 26x14	\$426.00
ND 14x14	\$351.00	ND 26x16	\$447.00
		ND 26x18	\$460.00
ND 16x6	\$320.00	ND 26x20	\$480.00
ND 16x8	\$322.00	ND 26x22	\$495.00
ND 16x10	\$343.00	ND 26x24	\$517.00
ND 16x12	\$350.00	ND 26x26	\$536.00
ND 16x14	\$360.00		
ND 16x16	\$372.00	ND 28x6	\$361.00
		ND 28x8	\$369.00
ND 18x6	\$322.00	ND 28x10	\$398.00
ND 18x8	\$326.00	ND 28x12	\$411.00
ND 18x10	\$348.00	ND 28x14	\$435.00
ND 18x12	\$360.00	ND 28x16	\$455.00
ND 18x14	\$364.00	ND 28x18	\$471.00
ND 18x16	\$376.00	ND 28x20	\$489.00
ND 18x18	\$380.00	ND 28x22	\$508.00
		ND 28x24	\$526.00
ND 20x6	\$331.00	ND 28x26	\$542.00
ND 20x8	\$333.00	ND 28x28	\$558.00
ND 20x10	\$360.00		
ND 20x12	\$366.00	ND 30x6	\$368.00
ND 20x14	\$370.00	ND 30x8	\$375.00
ND 20x16	\$389.00	ND 30x10	\$410.00
ND 20x18	\$403.00	ND 30x12	\$434.00
ND 20x20	\$418.00	ND 30x14	\$460.00
		ND 30x16	\$489.00
ND 22x6	\$333.00	ND 30x18	\$514.00
ND 22x8	\$338.00	ND 30x20	\$527.00
ND 22x10	\$366.00	ND 30x22	\$553.00
ND 22x12	\$376.00	ND 30x24	\$571.00
ND 22x14	\$383.00	ND 30x26	\$603.00
ND 22x16	\$406.00	ND 30x28	\$654.00
ND 22x18	\$432.00	ND 30x30	\$685.00
ND 22x20	\$456.00	Note: Motor is always mounted on second dimension specified.	
ND 22x22	\$484.00		

### Bottom Mount

ND 6x10	\$310.00
ND 8x10	\$315.00
ND 8x12	\$320.00
ND 8x14	\$325.00
ND 8x16	\$330.00
ND 8x18	\$333.00
ND 8x20	\$343.00
ND 8x22	\$349.00
ND 8x24	\$357.00
ND 8x26	\$373.00
ND 8x28	\$380.00
ND 8x30	\$385.00
ND 10x12	\$342.00
ND 10x14	\$343.00
ND 10x16	\$350.00
ND 10x18	\$354.00
ND 10x20	\$371.00
ND 10x22	\$375.00
ND 10x24	\$387.00
ND 10x26	\$399.00
ND 10x28	\$410.00
ND 10x30	\$420.00
ND 12x14	\$358.00
ND 12x16	\$363.00
ND 12x18	\$372.00
ND 12x20	\$378.00
ND 12x22	\$389.00
ND 12x24	\$399.00
ND 12x26	\$414.00
ND 12x28	\$424.00
ND 12x30	\$445.00
ND 14x16	\$372.00
ND 14x18	\$376.00
ND 14x20	\$381.00
ND 14x22	\$395.00
ND 14x24	\$417.00
ND 14x26	\$437.00
ND 14x28	\$448.00
ND 14x30	\$473.00
ND 16x18	\$388.00
ND 16x20	\$401.00
ND 16x22	\$417.00
ND 16x24	\$438.00
ND 16x26	\$460.00
ND 16x28	\$467.00
ND 16x30	\$502.00
ND 18x20	\$415.00
ND 18x22	\$445.00
ND 18x24	\$453.00
ND 18x26	\$474.00
ND 20x22	\$470.00
ND 20x24	\$472.00

## Pricing for both ND & ND-RSD

\*Custom sizes in 1" increments are available, please call factory.

# Static Pressure Control

The Smart By-Pass Damper automatically measures, monitors and maintains the designed operating static pressure of all HVAC systems in all modes of operation. The SBD will capture the total static pressure of the system during non-zoned mode, and modulate to maintain that static pressure during zoned mode. As zone dampers open and close the static pressure will fluctuate in the HVAC system. The SBD is designed to sense that static pressure fluctuation and will modulate to maintain the proper operating static pressure during zoning modes.

NOTE – We will make any size SBD. Use with ND or URD style damper. (See Page 11 & 13)

## SBD



Size	List Price
8" SBD	\$575.00
10" SBD	\$600.00
12" SBD	\$645.00
14" SBD	\$678.00
16" SBD	\$871.00
18" SBD	\$950.00
20" SBD	\$990.00

## SBD



Size	List Price
12" X 8" SBD	\$662.00
12" X 10" SBD	\$680.00
12" X 12" SBD	\$684.00
20" X 8" SBD	\$683.00
20" X 10" SBD	\$710.00
20" X 12" SBD	\$716.00

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

## MODEL PRD



**Other sizes available upon request.**

Additional Arms and Weights

**MODEL# PRD-Weight and Arm**

**(List Price \$30.00)**

**Box of 10 Model # PRD-Weights -10**

**(List Price \$120.00)**

Rectangular	List \$	By-Pass CFM
12"x8" PRD	\$155.00	1000
12"x10" PRD	\$161.00	1200
12"x12" PRD	\$174.00	1400
20"x8" PRD	\$190.00	1600
20"x10" PRD	\$196.00	2000
20"x12" PRD	\$203.00	3000
		@ 1400 fpm or .3" w.c.

As a barometer use 1400 Fpm to achieve smaller by-pass runs at higher velocities.

## RESTRICTING HAND DAMPERS

The hand damper is used to restrict airflow through the by-pass trunk during by-pass operation. These were designed to meet ACCA Manual Zr specification performance ratings and California Title 24 requirements.

(Available in all ND sizes. See Page 13)  
Call for pricing.

## RD-HD



Size	List Price
8 RD-HD	\$85.00
10 RD-HD	\$90.00
12 RD-HD	\$101.00
14 RD-HD	\$110.00
16 RD-HD	\$118.00
18 RD-HD	\$128.00

## ND-HD



Size	List Price
12x8 ND-HD	\$130.00
12x10 ND-HD	\$135.00
12x12 ND-HD	\$140.00
20x8 ND-HD	\$155.00
20x10 ND-HD	\$161.00
20x12 ND-HD	\$171.00

# Static Pressure Control

## MODEL EBD



\*Meets ACCA Manual Zr specifications.



## MODEL PS-4



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.

Size	List Price
8"	\$500.00
10"	\$524.00
12"	\$560.00
14"	\$575.00
16"	\$790.00
18"	\$875.00
20"	\$906.00

Size	List Price
12" X 8"	\$612.00
12" X 10"	\$630.00
12" X 12"	\$634.00
20" X 8"	\$633.00
20" X 10"	\$660.00
20" X 12"	\$666.00

To order Pressure Switch **ONLY**

**MODEL PS-4 List Price \$300.00**

**PS-4 Parts Bag List Price \$50.00**

NOTE: We can make any size EBD. Use with ND or URD style damper. (See Page 11 & 13)

The CLBD – Constant Load By-Pass Damper is a revolutionary design that eliminates the guess work of setting a manual by-pass damper. The CLBD will allow the installer to set the desired static pressure of the damper with the simple turn of a setscrew. The damper is adjustable from .3" WC up to .8" WC. By turning the setscrew you can adjust the static pressure. The static pressure indicator window will show the installer what static the damper is adjusted to. During operation, a blade indicator viewing window will show the installer the blade position of the CLBD. The by-pass damper can be installed in any angle and any position which makes it a labor saving, simple design.

## MODEL CLBD



Size	List Price
8" CLBD	\$180.00
10" CLBD	\$188.00
12" CLBD	\$198.00
14" CLBD	\$205.00
16" CLBD	\$221.00

# Fresh Air Intake & Economizer System



## MODEL HK2000

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.

Model	List
HK2000	\$250.00
OAS	\$55.00

## Thermostats

### MODEL EC Enthalpy Control

Senses outside air temperature and humidity. When these conditions are acceptable fresh air can be used instead of cooling. **List \$460.00**



### EWT-601-2



Digital non-programmable, 1H/1C, 2 sq. in. display, battery or 24V hardwire  
Rh, Rc, C, Y, W, G, O, B  
**List \$73.00**

### EWT-725



5+1+1 programmable, 2H/1C heat pump, 4 sq. in. display, battery or 24V hardwire  
R, C, Y, W2, W/E, G, O, B  
**List \$108.00**

### EWT-855



5+1+1 or 7 day or non-programmable, 3H/2C, 8 sq. in. display, battery or 24V hardwire  
Rh, Rc, C, Y, Y2, W/E, W2, G, O, G  
**List \$168.00**

### EWT-855i



Wifi enabled, works with iOS or Android app, 5+1+1 or 7 day or non-programmable, 4H/2C, 8 sq. in. display, 24V hardwired  
Rh, Rc, C, Y, Y2, W/E, W2, G, O, B  
**List \$287.00**

### EWT-955WH



Wireless touchscreen, 5+1+1 or 7 Day or non-programmable with humidify and de-humidify, 3H/2C, 13 sq. in. display, battery or 24V hardwire  
Rh, Rc, C, Y, Y2, W/E, W2, G, O, B, H, D  
**List \$445.00**



# Parts & Accessories

## S1A



Line Voltage rated End-Switch assembly for all new ND and URD style dampers. Easily attaches over the top of the motor. Can operate blower motor, combustion air, hydronic zone valve or circulator, among other applications  
**List \$150.00**

## R4



A compact version of the RP4 Use for custom control applications.  
**List \$120.00**

## CPLS



Monitors cooling coil temperature and protects against coil freeze-up. Stops compressor below 37° and restarts above 47°. (Not adjustable) Mounts on a 3/4" suction line.  
**List \$40.00**

## BT-SP



Single pole bulb thermostat 15° to 90° range.  
**List \$285.00**

## F1

A 2 AG, 3 amp Slow Blow fuse for replacement on ST and STHP series ULTRA-ZONE control panels. Package contains 5 fuses. **List \$20.00**

Plate mounted (PT) or Foot mounted (F) 24V 40VA transformer for use with ULTRA-ZONE dampers and control systems. **List \$33.00**

## T40-VA-PT



## T40-VA-F



## RAC

A SPDT illuminated switch used to replace a thermostat for manual damper control. Face plate marked "AC Damper."  
**List \$60.00**



## FAC

A SPDT illuminated switch used to replace a thermostat for manual damper control. Face plate marked "Fresh Air Damper."  
**List \$60.00**



## VAC

One zone illuminated switch provides convenient set back of all zones from one location. Used as an occupied / unoccupied switch. **List \$60.00**



## HCD

Salesman's display of a complete 2 zone system in a neat, easy-to-carry case.  
**List \$900.00**



## MCS-DXB

Remote selector switch for use with ST series ULTRA-ZONE Control panels.  
**List \$100.00**

## EWT-P

Modulating Thermostat (0 – 10 VDC). May control up to 10 dampers. **List \$360.00**

## MP

Manual Positioning for modulating dampers. May control up to 10 dampers. **List \$220.00**

# Parts & Accessories

## MAN



Two Position, power-open, power-closed actuator. Use with standard opposed blade dampers. (MAN).  
**List \$250.00**

## MRK



Motor replacement kit used for all styles of ND - URD and RDN dampers.  
**List \$165.00**

## MA-RSD



Replacement motor for ND-RSD and RSD style dampers.  
**List \$145.00**

## RAS



Return air sensor used to monitor temperature of the return duct.  
**List \$55.00**

## MA-SRE



24V and 120V available.  
Two wire spring return actuator. Used on SMD-SR, RD-SR, URD-SR & ND-SRE dampers.  
**List \$275.00**

## R1

Single-pole, double-throw, 24volt relay coil.  
**List \$40.00**



## MA-SBD

Replacement motor for SBD by-pass dampers.  
**List \$485.00**

## RR



Replacement relay for older style ULTRA-ZONE panels.  
**List \$70.00**

## SAS



Supply air sensor used to monitor temperature of the supply air.  
**List \$55.00**

## OAS



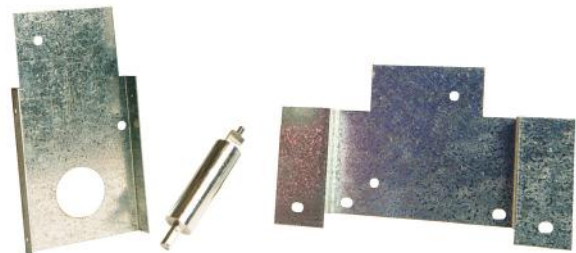
Outdoor air sensor used to monitor temperature of the outside air.  
**List \$55.00**

## DLK

Damper Linkage Kit is used with the old style MAN motor and the SMD / BMD style damper.  
**List \$60.00**

## DHK

Damper Hardware Kit is a package of brackets that allow the MRK to be used when replacing older style motors on various older style dampers.  
**List \$60.00**



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## LIMITED WARRANTY

EWC Controls warrants its products to be free of any defect in material and workmanship for a period of five years from date of installation. All returns are subject to a restocking charge and MUST have prior authorization from EWC Controls to be returned. SPECIAL ORDER AND NON-STANDARD ITEMS ARE NOT RETURNABLE.

EWC Controls will inspect all returned items. If found to be defective in material or workmanship, the item will be replaced or credited per customer request. All items must be sent freight pre-paid.

Any item found not to be defective or out of warranty will be returned freight-collect.

EWC Controls will not be liable for any special, indirect, incidental, or consequential damages, including but not limited to, labor charges of any character in connection with the sale, resale or use of the item.

EWC Controls reserves the right to make changes without notice in design, application, and price in order to effect product improvement.



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