

# ULTRA-ZONE™

Forced Air Zone Controls

## SUBMITTAL SHEET

### Model SBD

### Self-Balancing

### Smart Bypass Damper

#### SBD Motor Actuator Specifications:

**Operating Range** - .1" - 2.4" W.C.  
**Pressure Sensor** - Belimo D3 Dynamic Response  
**Air Pressure Connectors** - 1/4" OD barbs integrated x2  
**Power** - 24vac @ 4.0 volt/amp / 2.0 watt  
**Wiring** - 18 AWG copper  
**Case** - NEMA 3S, IP54  
**Gear Release** - Manual  
**Maintenance:** No Maintenance Required  
**Memory:** Non-Volatile  
**Listings** - UL, CE **Compliance** - ACCA Manual Zr  
**Pitot Tubes** - Included x2  
**Pressure Tubing** - 1/4" ID x 16' (NSF-51) Included x1  
**Mounting** - The SBD can be mounted horizontally, vertically, or any other position required in the field.

#### Description of the SBD Motor Actuator:

The Smart Bypass Motor Actuator is a digital differential pressure controller with an integrated PI loop and intelligent software. **The Smart Bypass Damper is the only industry bypass solution that can automatically measure, monitor and maintain the designed operating static pressure of the HVAC system in all modes of operation.**

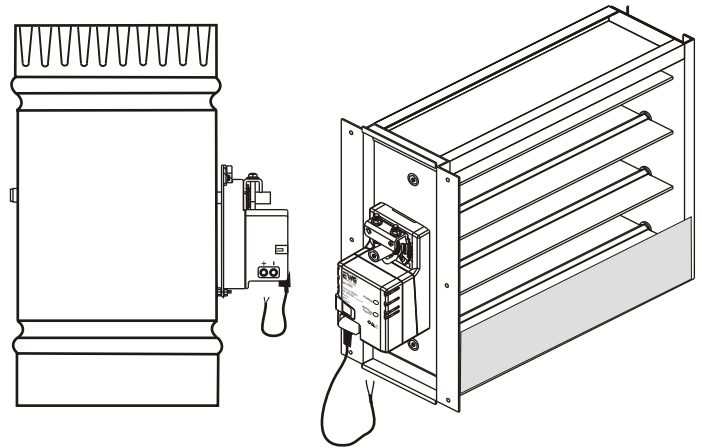
The Smart Bypass Damper includes all of the accessories needed for field installation.  
**No measuring instruments are required.**

#### Submittal Specifications:

Furnish and install a Model SBD self-balancing bypass damper manufactured by EWC Controls. Round SBD's are fabricated from 24 gauge galvanized steel. Rolled shells include one female end and one male (crimped) end, with rigid stiffening beads. Includes pressure drop baffling for improved damper authority and linear response. Round SBD's are equipped with a Poron® gasket on the blade.  
**\*Specify model SBD - 8", 10", 12", 14", 16", 18", 20"**

Furnish and install a Model SBD self-balancing bypass damper manufactured by EWC Controls. Rectangular SBD's shall be fabricated from mill finished, extruded 080" aluminum and glass filled nylon bearings. Includes pressure drop baffling for improved damper authority and linear response.  
**\*Specify model SBD - 12x8, 12x10, 12x12, 20x8, 20x10, 20x12, etc.**

*\*Custom sizing is available, call for details.*

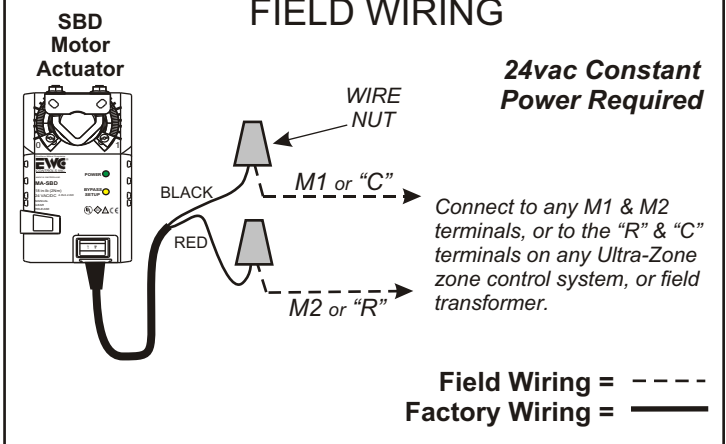


#### How the Smart Bypass Damper Works:

The Ultra-Zone *Smart Bypass Damper* captures *(with the push of a button)* the total static pressure of the HVAC system during non-zoned mode, and modulates to maintain that same static pressure value, during zoned mode. As individual zone dampers open or close, the HVAC system static pressure will fluctuate. In order to maintain the true static pressure of the HVAC duct system during zoned HVAC operations, a bypass duct with a reliable bypass damper and a smart motor actuator must be installed.  
**No other bypass damper is easier to setup, than the Ultra-Zone Smart Bypass Damper.**

#### "SBD" SMART BYPASS DAMPER

##### FIELD WIRING



#### SUBMITTAL FORM

SUBMITTED BY: \_\_\_\_\_  
 JOB: \_\_\_\_\_  
 ARCHITECT: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_

Excellence Without Compromise



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# SUBMITTAL SHEET

## Model SBD Self-Balancing Smart Bypass Damper

### Installing the SBD Bypass Damper:

Power up the SBD after installing it. The SBD will default closed and remain closed until you are ready for setup.

The pitot tubes and reference tubing are included with the SBD. **Make sure you have removed these items from the shipping box before you throw the box away!**

**Due to the unique design and the self-balancing feature of the SBD, there is no need to install and setup a separate bypass balancing hand damper.**

Mount both pitot tubes within 2 feet of the air handler on the center line of the Supply & Return plenums. **Observe the direction of airflow stamped on the pitot tube mounting plate.** (See the graphic below)

Connect each pitot tube to the SBD barbed fittings using the supplied 1/4" ID plastic tubing. **Keep the plastic tubing as short as possible with no kinks, cuts or nicks.** Connect 24vac power to the SBD motor actuator.

Upon power-up, the SBD's Power LED will glow solid green. The yellow Bypass Setup button LED will blink, to indicate the SBD is ready and waiting for you to press the by-pass setup button LED and start the setup routine.

### Preparing for Smart Bypass Setup:

Before pressing the *Bypass Setup button LED*, the installer must confirm the following:

- (1) Both pitot tubes have been properly installed.
- (2) All zone dampers are in the open position.
- (3) The HVAC system is running at full (CFM) speed.
- (4) De-humidification mode/profile is not engaged. Wait 15 minutes after cooling startup, to ensure the enhanced airflow profile function is complete.
- (5) The system air filter is new or clean.

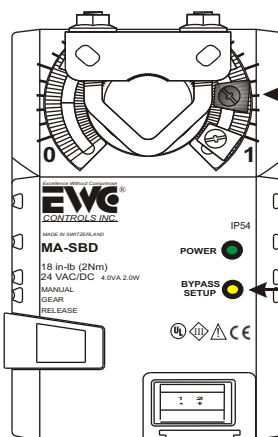
**Proceed to the Smart Bypass Setup Procedure!**

### Smart Bypass Setup Procedure:

Upon power-up, the Bypass Setup button LED is blinking (*waiting for setup routine*).

1. With a pencil or pen, press the Bypass Setup button LED **one time only!**

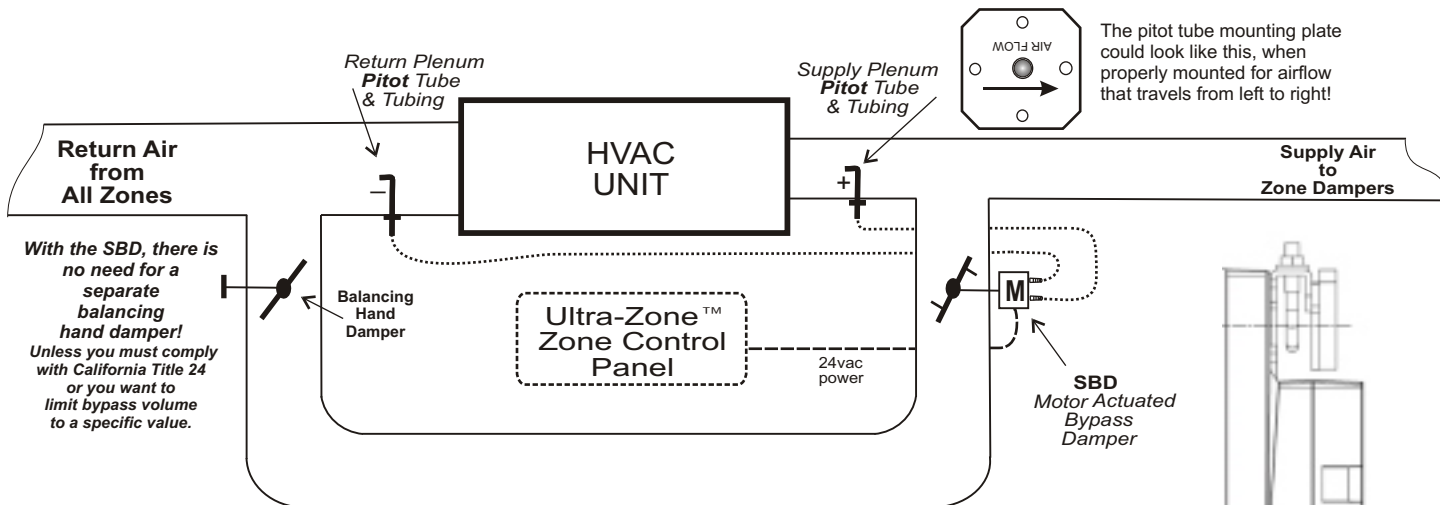
- A. The SBD will open and measure the system's total static pressure.
- B. The SBD will close and measure the system's total static pressure.
- C. The Bypass Setup LED will stop blinking and go out. **You are Done!**
- D. If your SBD does not stop blinking, it may be an indication that your bypass duct is too large. Adjust the "OPEN" travel limiter on the SBD to limit the full open position to 75% (or lower) and try again.
- E. The SBD will now control the system static pressure in all modes.
- F. During idle periods, the SBD will stroke fully open. The SBD will close or modulate as necessary, when the blower starts back up again.



If your SBD does not auto configure, move the "OPEN" Travel Limit "UP" above the 1 mark. Then try again.

Press the Bypass Setup button LED

### EWC Controls Recommended Bypass Duct Configuration



With the SBD, there is no need for a separate balancing hand damper! Unless you must comply with California Title 24 or you want to limit bypass volume to a specific value.

**Note:** This drawing of the Smart Bypass Damper and bypass duct work is intended to serve as a guide. Your actual duct configuration may differ. Just make sure all components are installed and setup correctly. If required, call EWC Controls Technical Support for assistance.

Connect the pitot/tubing from the Supply duct to the + port. Connect the pitot/tubing from the Return duct to the - port.



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