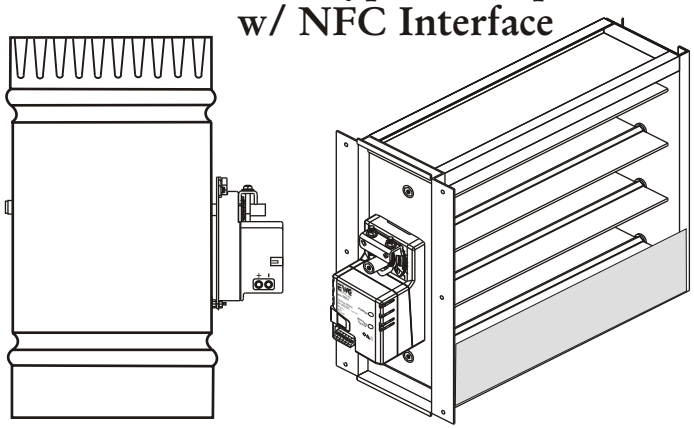
ULTRA-ZONE™
Forced Air Zone Controls

SUBMITTAL SHEET
Model SBD2
Self-Balancing
Smart Bypass Damper
w/ NFC Interface



SBD Motor Actuator Specifications:

Operating Range - .1" - 1.8" 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
Interface: NFC - Near Field Communication
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 SBD2 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 accessories needed for field installation. If desired, a smart phone can be used to access the SBD's powerful features.

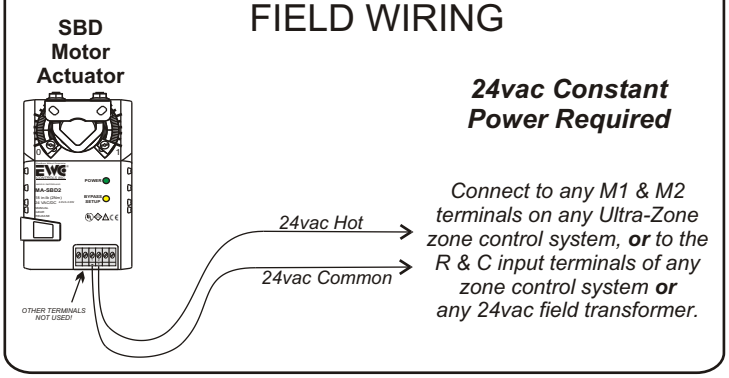
Submittal Specifications:
Furnish and install a Model SBD2 self-balancing bypass damper manufactured by EWC Controls. Round SBD2's are fabricated from 24 gauge galvanized steel. Rolled shells include one female end and one male (crimped) end, with rigid stiffening beads. Includes pressure drop baffling for improved damper authority and linear response. Round SBD's are equipped with a Poron® gasket on the blade.
***Specify model SBD2 - 8", 10" , 12", 14", 16",18", 20"**

Furnish and install a Model SBD2 self-balancing bypass damper manufactured by EWC Controls. Rectangular SBD2'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 SBD2 - 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.***

"SBD2" SMART BYPASS DAMPER FIELD WIRING



SUBMITTAL FORM

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

Excellence Without Compromise
EWC® CONTROLS INC.
385 Hwy. 33
Englishtown, NJ 07726
Ph: 800-446-3110
Fx: 732-446-5362

P/N 090377A0320 REV. B 03.12.20

Installing the SBD2 Bypass Damper:
Power up the SBD2 after installing it. The SBD2 will default closed and remain closed until you are ready for setup.

The pitot tubes and reference tubing are included with the SBD2. ***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 SBD2, 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 SBD2 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 SBD2 motor actuator.

Upon power-up, the SBD2's Power LED will glow solid green. The yellow Bypass Setup button LED will blink, to indicate the SBD2 is ready and waiting for you to press the by-pass setup button LED and start the *"Automatic 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) *Ancillary devices such as ERV's and bypass type Humidifiers are off-line and isolated.*
(6) *The system air filter is new or clean.*

Proceed to the Smart Bypass Setup Procedure!

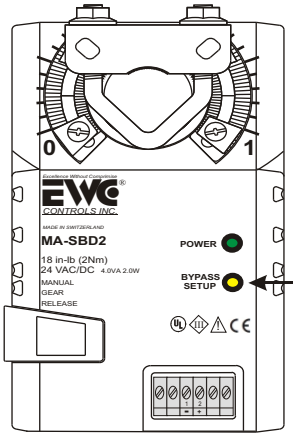
SUBMITTAL SHEET
Model SBD2 Self-Balancing Smart Bypass Damper w/NFC

Smart Bypass Setup Procedure:

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

1. *With a pencil or pen, press the Bypass Setup button LED one time only! The Setup LED will light up solid, indicating an active Automatic Setup routine.*

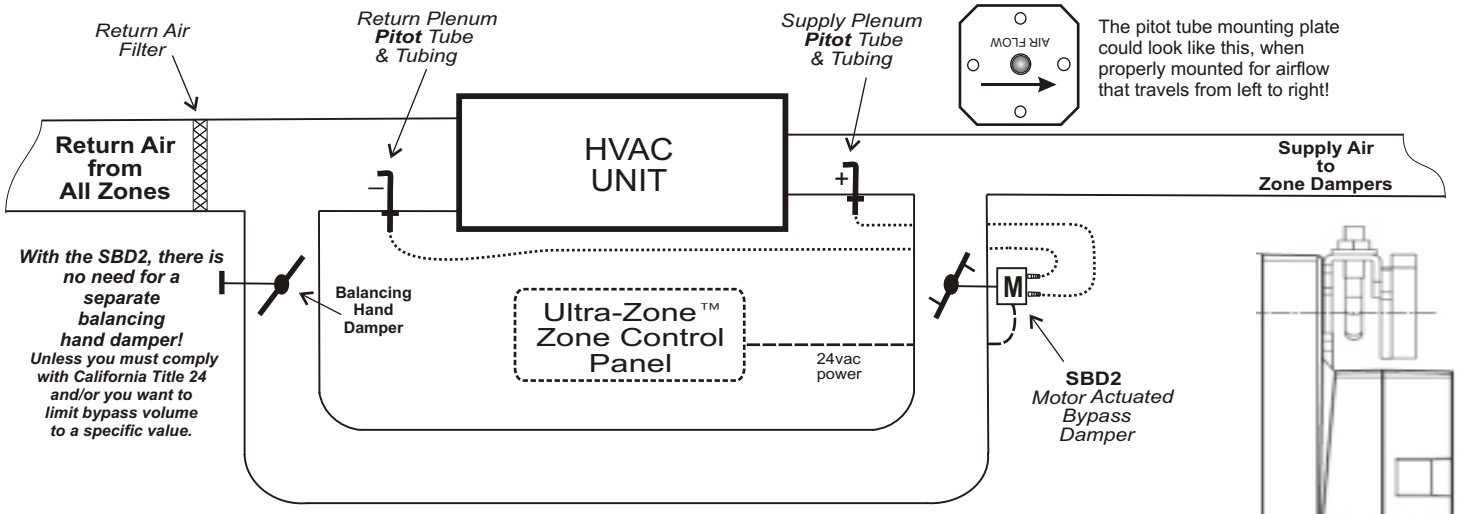
A*. The SBD2 will open and measure the system's total static pressure.*
B. *The SBD2 will close and measure the system's total static pressure.*
C. *If successful, the Bypass Setup LED will go out.* ***You are Done!***
D. *If your SBD resumes blinking, double check the hoses and pitot tubes for proper installation, repair any issues and then try again.*
E. *Once the Setup LED stops blinking, you are done. The SBD2 will now control the system static pressure in all modes of operation.*
F. *During idle periods, the SBD2 will stroke partially open. The SBD will close or modulate as necessary, when the blower starts back up again.*



If your SBD does not "Auto Setup", use the ***Belimo Assistant APP*** *to manually select a Static Pressure set-point!*

Press the Bypass Setup button LED to "Auto Setup"

EWC Controls Recommended Bypass Duct Configuration



Note: *This drawing of the Indoor Blower, Smart Bypass Damper, and Bypass duct-work is intended to serve as a guide. Your actual duct configuration may differ. If required, call EWC Controls Technical Support for assistance.*

Connect the pitot/tubing from the Supply plenum to the + port.

Connect the pitot/tubing from the Return plenum to the - port.

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SUBMITTAL SHEET

Model SBD2 Self-Balancing Smart Bypass Damper w/NFC Interface

A powerful feature of the next generation Smart Bypass Motor Actuator is the (NFC) Near Field Communication interface capability built into it. Using your Android or iOS Smart Phone and the Belimo® Assistant APP, you now have the ability to manually configure your Smart Bypass damper in the field.

You will also have access to valuable information and tools such as:

- Observing the total Static pressure (Differential pressure) of the HVAC system in real time.
- Observing the active position of the Smart Bypass damper in real time.
- See the "Closed & Open" static pressure (Dp) values, captured during Automatic "learning" Setup.
- Manually change the "learned" Static pressure (Dp) set-point to a new set-point of your choice.
- See the total number of hours the Smart Bypass damper has been actively modulating.
- See the total number of hours the Indoor Fan has been actively running.
- Select the "Trend" icon and observe/create a graph of the HVAC system Static pressure (Dp) versus the SBD2's Static pressure (Dp) set-point *and* the active position of the damper in real time.
- Email the trending graph file (.png) to yourself, a customer or a colleague for analysis.
- Personalize every installation by giving the SBD2 a name or location *eg. Smith residence or Upstairs unit or Basement system.*

* Android phones with the NFC feature enabled, can access the SBD2 by directly placing the phone on top of the SBD2, after opening the Belimo® Assistant APP. The SBD provides a momentary "snap shot" of all relevant data and the APP settings. As soon as you remove the phone away from the SBD2, the NFC link is broken. Place your phone on top of the SBD2 again, to obtain an update and observe new data and/or to make any desired changes.

* iOS phones can access the SBD2 by using the Belimo® ZIP-BT-NFC converter, which is placed on top of the SBD2 rather than the phone, which allows the user some freedom to move about.

*NFC communication is not "User Enabled" in iOS phones, so the ZIP-BT-NFC converter is required to communicate with the SBD2.

*The ZIP-BT-NFC converter uses NFC to communicate with the SBD2 and communicates to the iOS phone via Blue-tooth. If you move too far away from the converter, the blue-tooth link is broken. Moving back into range will prompt the link to re-establish. You may need to periodically force the link to refresh by touching the refresh icon on the APP screen.

*Android users can also use the ZIP-BT-NFC converter if they choose to do so. Either method provides a stable and reliable means to access the powerful features of the SBD2.

*For more detailed information, download the SBD2 Technical Bulletin P/N 090375A0269 rev A.

P/N 090377A0320 REV. B 03.12.20

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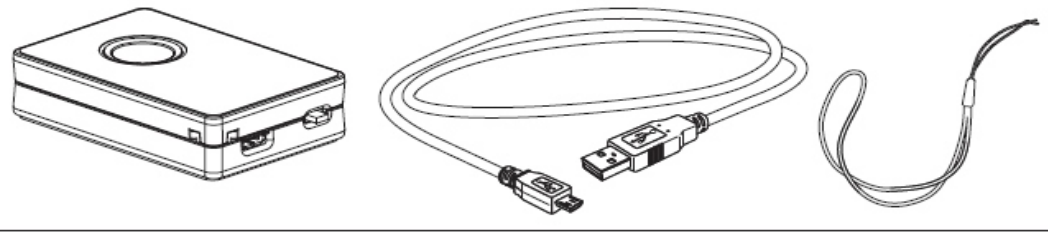

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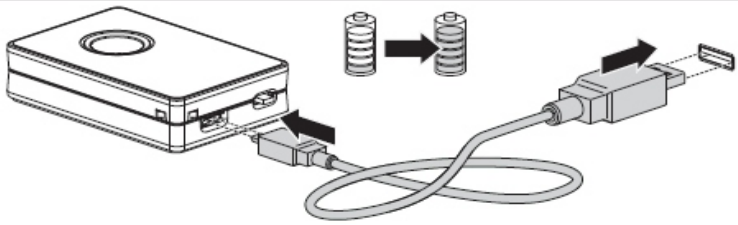

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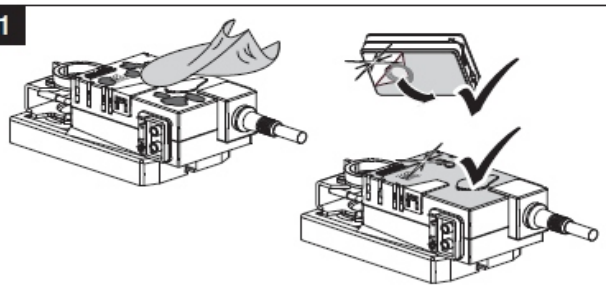

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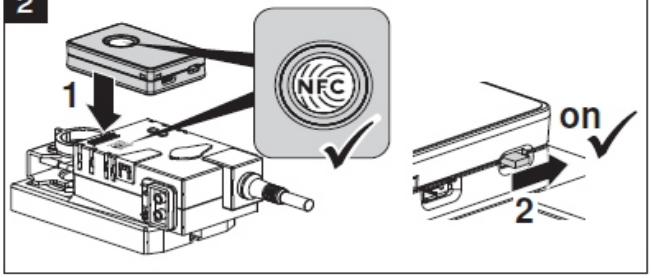

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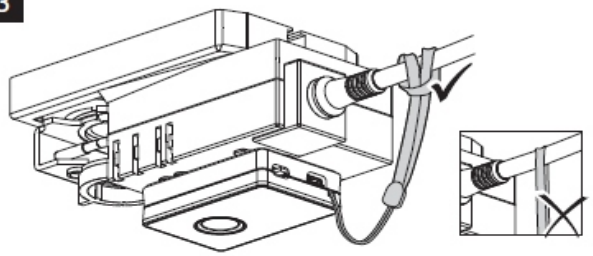

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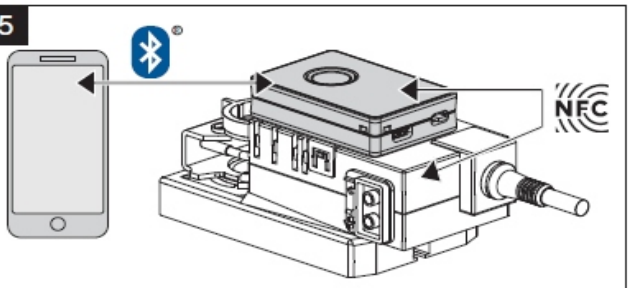

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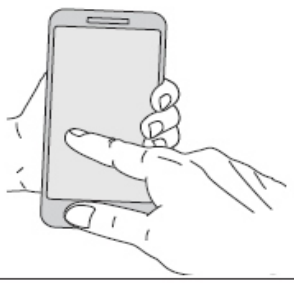

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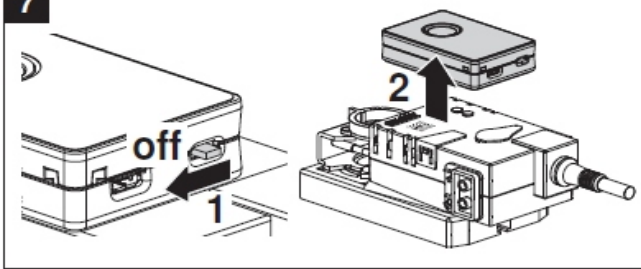

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ULTRA-ZONE™
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Model SBD2 Round CFM
less 30% Baffle Plate Factor

SBD2 NOMINAL DIMENSIONS & CFM

MODEL #	Diameter	Length	.1" WC
SBD - 8	8.00"	12.00"	161 CFM
SBD - 10	10.00"	12.00"	287 CFM
SBD - 12	12.00"	14.00"	455 CFM
SBD - 14	14.00"	16.00"	700 CFM
SBD - 16	16.00"	20.00"	980 CFM
SBD - 18	18.00"	20.00"	1400 CFM
SBD - 20	20.00"	20.00"	1750 CFM

ULTRA-ZONE®
Forced Air Zone Controls

Model SBD2 Rectangular
Net Free area & CFM
less 30% Baffle Plate Factor

SUBMITTAL SHEET
Model SBD2 Bypass Dampers

		8	10	12	14	16	18	20	22	24	26	28	30
6	Free Area (Sq. In.)	19.46	28.08	34.84	41.60	48.35	55.11	63.74	70.49	77.25	84.01	90.76	99.39
	CFM	**105**	**133**	**154**	**182**	**238**	**252**	**287**	**315**	**336**	**378**	**392**	**420**
8	Free Area (Sq. In.)	28.49	41.11	51.00	60.89	70.78	80.67	93.30	103.19	113.08	122.97	132.86	145.49
	CFM	**126**	**189**	**245**	**273**	**329**	**357**	**441**	**511**	**525**	**574**	**588**	**665**
10	Free Area (Sq. In.)	37.51	54.14	67.16	80.19	93.21	106.24	122.86	135.88	148.91	161.93	174.96	191.58
	CFM	**175**	**252**	**315**	**378**	**441**	**504**	**595**	**644**	**728**	**777**	**826**	**910**
12	Free Area (Sq. In.)	46.54	67.16	83.32	99.48	115.64	131.80	152.42	168.58	184.74	200.90	217.06	237.68
	CFM	**217**	**315**	**385**	**483**	**546**	**651**	**756**	**805**	**938**	**987**	**1071**	**1183**
14	Free Area (Sq. In.)	55.56	80.19	99.48	118.77	138.07	157.36	181.98	201.28	220.57	239.86	259.16	283.78
	CFM	**238**	**378**	**483**	**574**	**637**	**749**	**952**	**1043**	**1134**	**1176**	**1253**	**1512**
16	Free Area (Sq. In.)	64.59	93.21	115.64	138.07	160.49	182.92	211.55	233.97	256.40	278.83	301.25	329.88
	CFM	**280**	**441**	**546**	**637**	**784**	**896**	**1127**	**1218**	**1302**	**1428**	**1610**	**1813**
18	Free Area (Sq. In.)	73.62	106.24	131.80	157.36	182.92	208.48	241.11	266.67	292.23	317.79	343.35	375.98
	CFM	**294**	**504**	**651**	**749**	**896**	**1008**	**1253**	**1456**	**1540**	**1666**	**1736**	**2149**
20	Free Area (Sq. In.)	82.64	119.27	147.96	176.66	205.35	234.05	270.67	299.36	328.06	356.75	385.45	422.07
	CFM	**322**	**553**	**693**	**868**	**1015**	**1113**	**1449**	**1575**	**1813**	**1939**	**2058**	**2352**
22	Free Area (Sq. In.)	91.67	132.29	164.12	195.95	227.78	259.61	300.23	332.06	363.89	395.72	427.55	468.17
	CFM	**371**	**616**	**770**	**938**	**1085**	**1288**	**1575**	**1806**	**1974**	**2079**	**2191**	**2954**
24	Free Area (Sq. In.)	100.69	145.32	180.28	215.24	250.21	285.17	329.79	364.76	399.72	434.68	469.65	514.27
	CFM	**359**	**665**	**847**	**1008**	**1148**	**1344**	**1813**	**1974**	**2121**	**2415**	**2569**	**3199**
26	Free Area (Sq. In.)	109.72	158.34	196.44	234.54	272.63	310.73	359.36	397.45	435.55	473.65	511.74	560.37
	CFM	**448**	**742**	**882**	**1106**	**1330**	**1547**	**1939**	**2247**	**2415**	**2611**	**2737**	**3892**
28	Free Area (Sq. In.)	118.75	171.37	212.60	253.83	295.06	336.29	388.92	430.15	471.38	512.61	553.84	606.47
	CFM	**490**	**777**	**1008**	**1169**	**1386**	**1596**	**2219**	**2429**	**2569**	**2737**	**3423**	**4221**
30	Free Area (Sq. In.)	127.77	184.40	228.76	273.13	317.49	361.86	418.48	462.84	507.21	551.57	595.94	652.56
	CFM	**532**	**812**	**1043**	**1205**	**1435**	**1680**	**2352**	**2541**	**2702**	**3430**	**3640**	**4550**

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Job Notes:

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