FIELDCONTROLS
VENTILATION

INSTALLATION MANUAL

BALANCED AIR CONTROL SYSTEM (ALTERNATIVE TO ZONING SYSTEM)

Model: EVENAIR 2.0

READ THESE INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE PROCEEDING WITH THE INSTALLATION

This device MUST be installed by a qualified agency in accordance with the manufacturer's installation instructions. The definition of a qualified agency is: any individual, firm, corporation or company which either in person or through a representative is engaged in, and is responsible for, the installation and operation of HVAC appliances, who is experienced in such work, familiar with all the precautions required, and has complied with all the requirements of the authority having jurisdiction. Please retain these instructions after installation.

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The EvenAir 2.0 Balanced Air Control System you have purchased has been designed to be simple to install, operate, and maintain. **Read this manual before you install the EvenAir 2.0 system.**

This product should be installed according to local and national codes and standards.

Parts included in the EvenAir 2.0 System package:

1. EvenAir 2.0 Control
2. Two Temperature Sensors
3. Installation Manual

Additional parts required (not included)

1. Modulating Dampers
   Round or Rectangular
2. Temperature Sensor (for 3rd area)

Replacement Parts

1. TS51 Temperature Sensor Assembly (580011301)
2. AMT Actuator 24VAC 3-Terminal (580011401)

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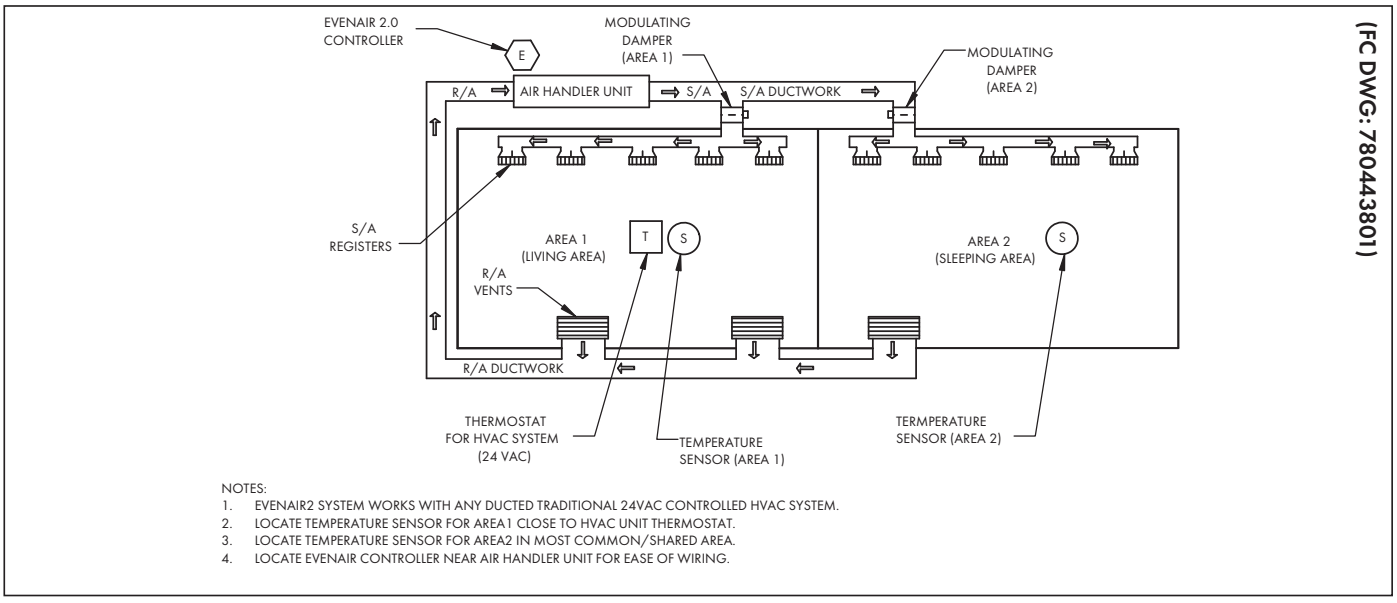
SAFETY CONSIDERATIONS

1. To reduce the risk of fire, electric shock, or injury to people, observe the following:
   A. Use this system only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
   B. Only connect 24VAC power to this system.
   C. Before servicing or cleaning the unit, turn the power off at the service panel and lock out the service panel disconnecting means to prevent power from being switched on accidentally. When a service panel without lockout handle configuration is not installed, a permanent warning device, such as a tag, can be securely fastened to the service panel.
2. To reduce the risk of fire, electric shock, or injury to people, DO NOT use replacement parts that have not been recommended by the manufacurer (ie. substitute electrical components).
3. Read all instructions before beginning installation.
4. Improper installation may cause property damage or injury. Installation, service, and maintenance must be performed by a qualified service technician.
5. System is intended for residential and light commercial installation only.
6. The modulating dampers are intended to be installed in compliance with all local and national codes including National HVAC Ducting Standard published by SMSCNA.
7. All electrical wiring and connections shall be installed by a qualified professional.

HOW IT WORKS

The EvenAir 2.0 Balanced Air Control System is designed to monitor up to three areas (or zones) supplied by a single HVAC system. The control system comes standard for a two area system with two temperature sensors and the EvenAir2.0 controller. You will need to select and purchase at least two Field Controls manufactured modulating dampers for a two area system. Additional temperature sensor and dampers are available for three (3) area system control. When properly installed, the EvenAir2.0 system will balance the air flow between each area during a heating or cooling event thus eliminating large temperature swing differences within each area throughout the day

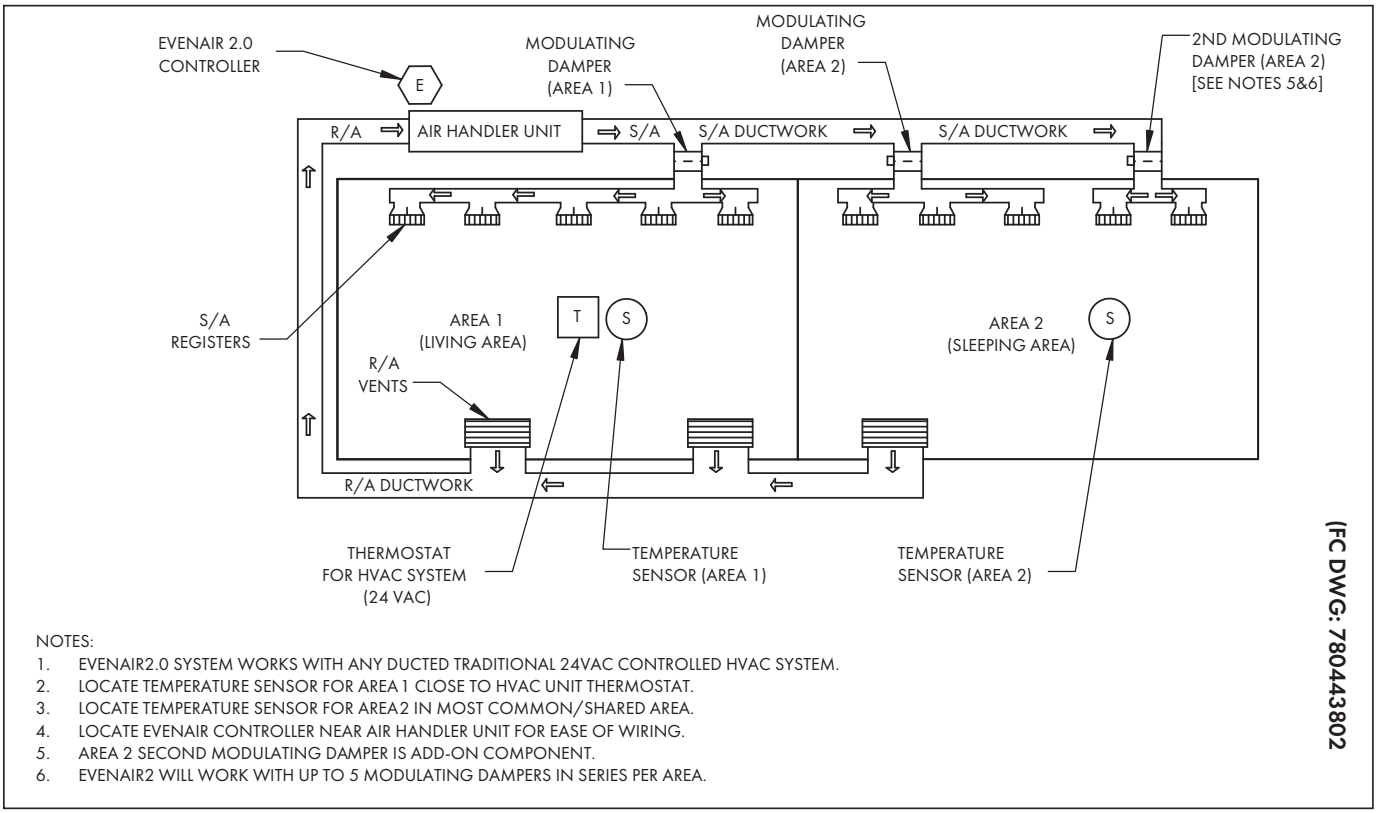
An example of two area system is shown in Figure 1. Area 1 should be main living area which contains the HVAC system thermostat. Evenair area 1 temperature sensor shall be located as close as possible to the actual thermostat to allow the temperature sensor to accurately monitor the temperature in this area based on thermostat temperature set points for heating and cooling events. The Evenair Modulating Damper for area 1 should be installed on the main HVAC system supply air duct to this area. Area 2 should be the sleeping area which has a temperature sensor for area 2 centrally located in this area where you want to control the area's temperature. The Evenair Modulating Damper for area 2 should installed on the main HVAC system supply air duct to this area. The Evenair Controller is normally located near the HVAC air handler unit for ease of interconnecting thermostat wiring purposes.



NOTES:
1. EVENAIR2 SYSTEM WORKS WITH ANY DUCTED TRADITIONAL 24VAC CONTROLLED HVAC SYSTEM.
2. LOCATE TEMPERATURE SENSOR FOR AREA1 CLOSE TO HVAC UNIT THERMOSTAT.
3. LOCATE TEMPERATURE SENSOR FOR AREA2 IN MOST COMMON/SHARED AREA.
4. LOCATE EVENAIR CONTROLLER NEAR AIR HANDLER UNIT FOR EASE OF WIRING.

Figure 1: Example of a Two Area EvenAir 2.0 Installatio

If your specific area HVAC ductwork is split into two or more supply air branches to that area, then install additional EvenAir Modulating Dampers on each additional branch ductwork to your area. An example of two (2) area system with multiple supply air branch ductwork to area 2 is shown in Figure 2. The EvenAir system will operate with up to 5 Modulating Dampers per area for a total of 15 modulating dampers per system.



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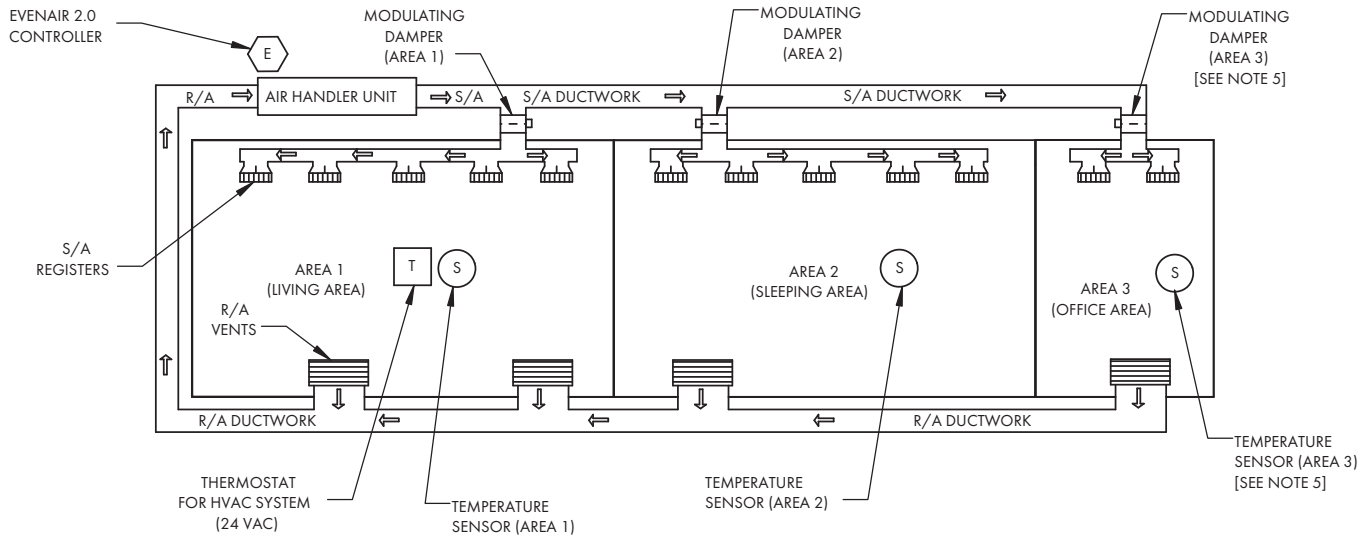
4. LOCATE EVENAIR CONTROLLER NEAR AIR HANDLER UNIT FOR EASE OF WIRING.
5. AREA 2 SECOND MODULATING DAMPER IS ADD-ON COMPONENT.
6. EVENAIR2 WILL WORK WITH UP TO 5 MODULATING DAMPERS IN SERIES PER AREA.

Figure 2: Example of a Two Area EvenAir 2.0 Installation with Multiple Dampers in Area 2

An example of three (3) area system is shown in Figure 3. Area 1 should be main living area which contains the HVAC system thermostat. Area 1 temperature sensor shall be located as close as possible to the actual thermostat to allow the temperature sensor to accurately monitor the temperature in this area based on thermostat temperature set points for heating or cooling events. The main HVAC system supply air duct to each of the three areas shall have an EvenAir 2.0 Modulating Damper installed for each area. Area 2 should be the sleeping area which has the temperature sensor for area 2 centrally located in the area where you want to control the area's temperature. Area 3 is normally the smallest of all the areas and has a temperature sensor mounted in this area. The EvenAir2.0 Controller is normally located near the HVAC air handler unit.



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4. LOCATE EVENAIR CONTROLLER NEAR AIR HANDLER UNIT FOR EASE OF WIRING.
5. TEMPERATURE SENSOR AND MODULATING DAMPER FOR AREA 3 ARE ADD-ON COMPONENTS.

Figure 3: Example of a Three Area EvenAir 2.0 Installation

PRODUCT SPECIFICATIONS

INPUT POWER	DAMPER CONTROL POWER
24VAC, 60Hz, 5.5VA (10.1 W) 225mA	12VDC 750mA Max

Modulating Dampers: 24VAC/ 112-24VDC Rated. All control power (PWM) comes from EvenAir control panel.

Temperature Sensors: 1000 ohm resistance thermistors connected to EvenAir 2.0 controller.

The EvenAir 2.0 Balance Air System is designed to connect to the existing home HVAC unit 24VAC control power provided from the existing HVAC air handler. Verify HVAC system can provide 24 VAC, 20 - 30 VA worth of electrical power.

The following EvenAir 2.0 components will require installation and associated wiring as part of system configuration: EvenAir 2.0 Controller (enclosure), multiple temperature sensors and multiple modulating damper assemblies.

Choose a location for mounting the EvenAir 2.0 Controller enclosure near the HVAC air handler. The control enclosure is designed to be surface mounted using #8 Phillip Head Pan Screws. The screws will mount through the plastic enclosure's four (4) 0.18 inch diameter holes provided as shown in Figure 4. The overall enclosure dimensions are shown in Figure 5. The EvenAir 2.0 enclosure is designed to allow wire access to the panel's terminal blocks by either using side entrance access ports and/or from behind using the recessed wire troughs which are shown in Figure 6.

NOTE: All dimensions are shown in inches.

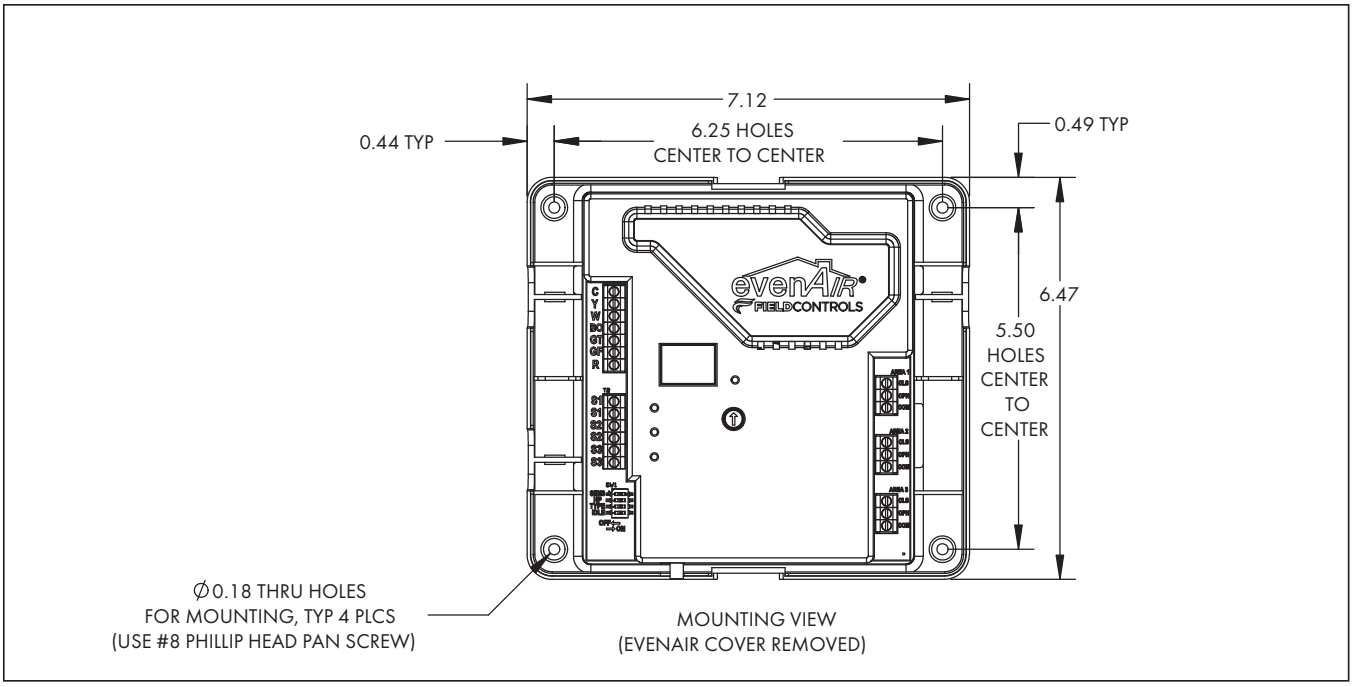

Figure 4: Mounting Hole Dimensions of EvenAir 2.0 Control Enclosure with Outer Cover Removed

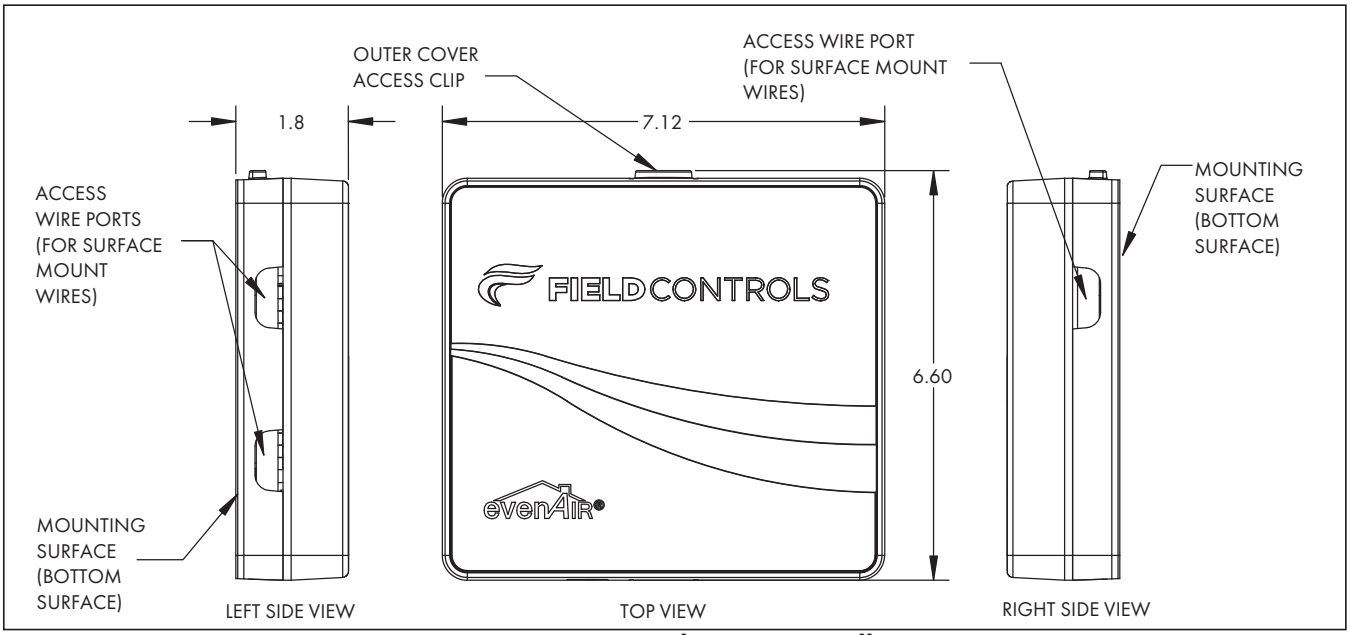

Figure 5: EvenAir 2.0 Enclosure Overall Dimensions

NOTE: All dimensions are in inches.

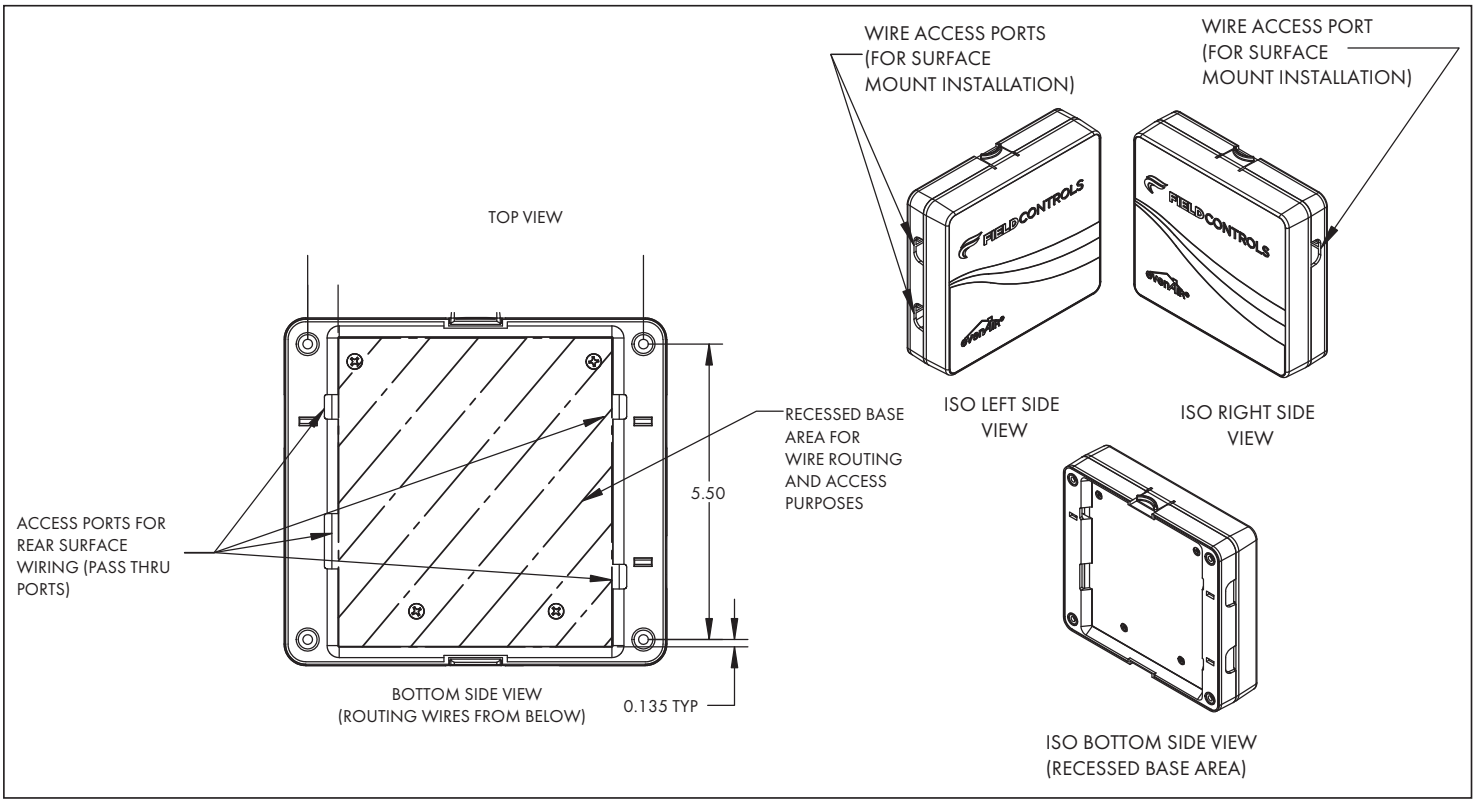

Figure 6: EvenAir 2.0 Wire Access Ports and Rear Surface Recessed Wire Throughs

CONTROL PANEL

The EvenAir 2.0 Control Panel is divided up into 10 specific areas which highlight terminal connections, various switches, LED's and functionality. These areas are explained and detailed.

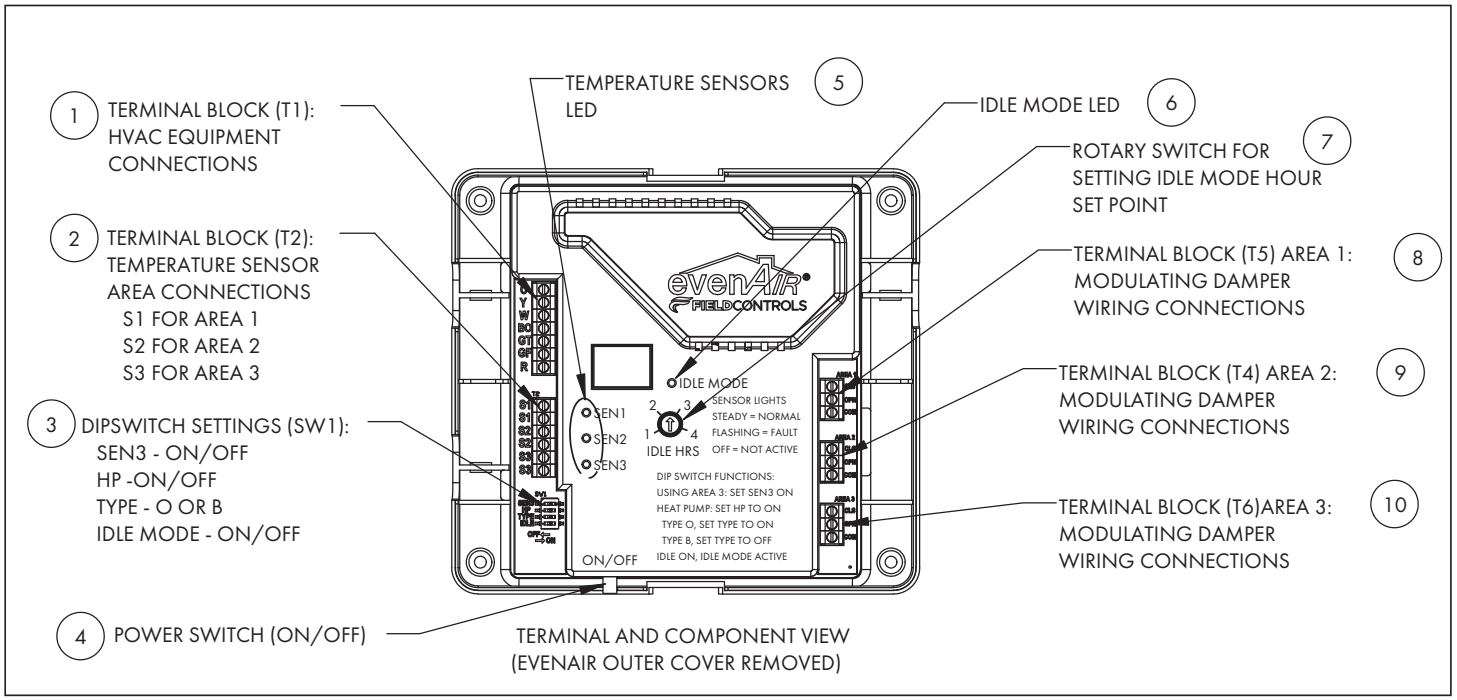

Figure 7: Detail View of EvenAir 2.0 Control Panel with External Cover Removed

10 Areas of Control Panel:

1. Terminal Block (T1) - HVAC Equipment Terminal Location (C-24VAC Common, Y-Cooling, W-Heating, BO-Heat Pump Valve, GT-Central Fan Control from Thermostat, GF-Central Fan Control from Air Handler, R-24VAC (Incoming Power)
2. Terminal Block (T2) - Temperature Sensor Terminal Location for all areas (Terminals S1 - S1 for Area 1, Terminals S2 - S2 for area 2, Terminals S3 - S3 for Area 3)
3. Dipswitch Settings (SW1) - Four Position Dipswitch for Configuration of System (SEN3 - ON/OFF, HP-ON/OFF, TYPE - O or B, Idle Mode - ON/OFF). Refer to Dipswitch Configuration Settings for additional information.
4. Power Switch (ON/OFF) - Allows the EvenAir 2.0 System to be disabled (OFF) or enabled (ON). The power switch is accessible with or without the outer cover installed over the controller panel.
5. Temperature Sensors LEDs - Allows for direct visual indication if the various installed area temperature sensors are properly installed and working. (When LED is Solid ON, sensor is working fine, if LED is flashing, indicates sensors have an issue and if LED is OFF, EvenAir 2.0 system or Temperature Sensor is not active.)
6. Idle Mode LED - Allows for direct visual indication if IDLE MODE is energized and active.
7. Rotary Switch for Setting Idle Mode Hour Set Point - Selectable 1 to 4 hours. Refer to IDLE MODE Operation for additional information.
8. Terminal Block (T5) for Area 1 - Terminals for connecting to Area 1 Modulating Dampers (Terminals - CLS, OPN, and COM). Refer to Modulating Damper section for additional information.
9. Terminal Block (T4) for Area 2 - Terminals for connecting to Area 2 Modulating Dampers (Terminals - CLS, OPN, and COM). (Refer to Modulating Damper section for additional information.
10. Terminal Block (T6) for Area 3 - Terminal for connecting to Area 3 Modulating Dampers (Terminals - CLS, OPN, and COM). Refer to Modulating Damper section for additional information

DIPSWITCH CONFIGURATION SETTINGS (SW1)

The EvenAir 2.0 control panel is factory set for a Two (2) Area set up (POS1 DIPSWITCH labeled as SEN3 is set to OFF position). For a THREE (3) Area set up, change POS1 DIPSWITCH labeled as SEN3 to ON position.

A heat pump HVAC System requires setting the EvenAir 2.0 Control Panel Dipswitches (POS2 & 3 of Dipswitch labeled HP-ON/OFF and TYPE O or B) based on the following configurations:

1. Set POS2 Dipswitch to ON position if Heat Pump HVAC is installed in home. Switch comes from factory in OFF position indicating no Heat Pump installed in HVAC system.
2. If Heat Pump is installed and POS2 is set to ON position, then set POS3 for which type of operation the heat pump reversing valve operates at, O energizes reversing valve during cooling mode or B energizes the reversing valve during heating mode.

To enable IDLE MODE functionality, change POS4 Dipswitch labeled IDLE MODE-ON/OFF to ON position. The EvenAir 2.0 Control panel comes from the factory in OFF position (disabled).

IDLE MODE OPERATION/FEATURE

Idle Mode feature is designed to balance out the air temperatures within the multiple areas within the home when the central fan is de-energized and there has been no call for heat or cooling for an extended period time. The extended period of time is customer settable using the rotary dial (balloon item #7 in Figure 7) selecting from 1 from 4 hour time period. The Dipswitch (SW1) POS4 (IDLE) must be turned to ON position for IDLE MODE to operate. The IDLE MODE switch setting comes from the factory in OFF position (disabled). The Idle Mode will operate for a maximum time of 20 minuted during each operating time period. The temperatures from the active areas are measured then the central fan is started. The damper will modulate air flow to areas until the average area temperature based on initial temperature measurements is achieved or 20 minute time limit is reached, then the central fan will turn off. If there is a call for heat or cooling while the Idle Mode is activated, the control panel algorithm will shift the control temperature point back to area 1 control temperature, run the standard air balance routine and discontinue the IDLE Mode operation for that cycle.

TEMPERATURE SENSORS

The temperature sensors are two (2) wire 10K ohm thermistor design sensors developed to be surface mounted directly to 1-gang plastic box for new construction or old work construction style box mounted to stud or directly to drywall. The area 1 temperature sensor should be mounted beside the HVAC thermostat. All subsequent area 2 and area 3 temperature sensors should be mounted centrally within each of their areas. Avoid mounting temperature sensors in direct sunlight and on outside walls due to the extreme indirect temperature influences. Run a minimum of 18 gage solid strand thermostat wire, minimum of 2 conductors between each temperature sensor and control panel. It is recommended to run at least 3 or more conductor wire in case one wire is damaged during installation. Connect each pair of temperature sensor wires to the two (2) screw terminals at each temperature sensor PCB Board and the other end to appropriate area sensor terminals at control panel designated as terminal block T2. The control panel has SEN1, SEN2, and SEN3 LED's which indicated the operational function of each temperature sensor. When LED is solid ON, indicates temperature sensor operating normally. When LED is flashing ON/OFF, there is a problem with temperature sensor circuit. When LED is OFF, temperature sensor in not active or controller is turned off at ON/OFF switch.

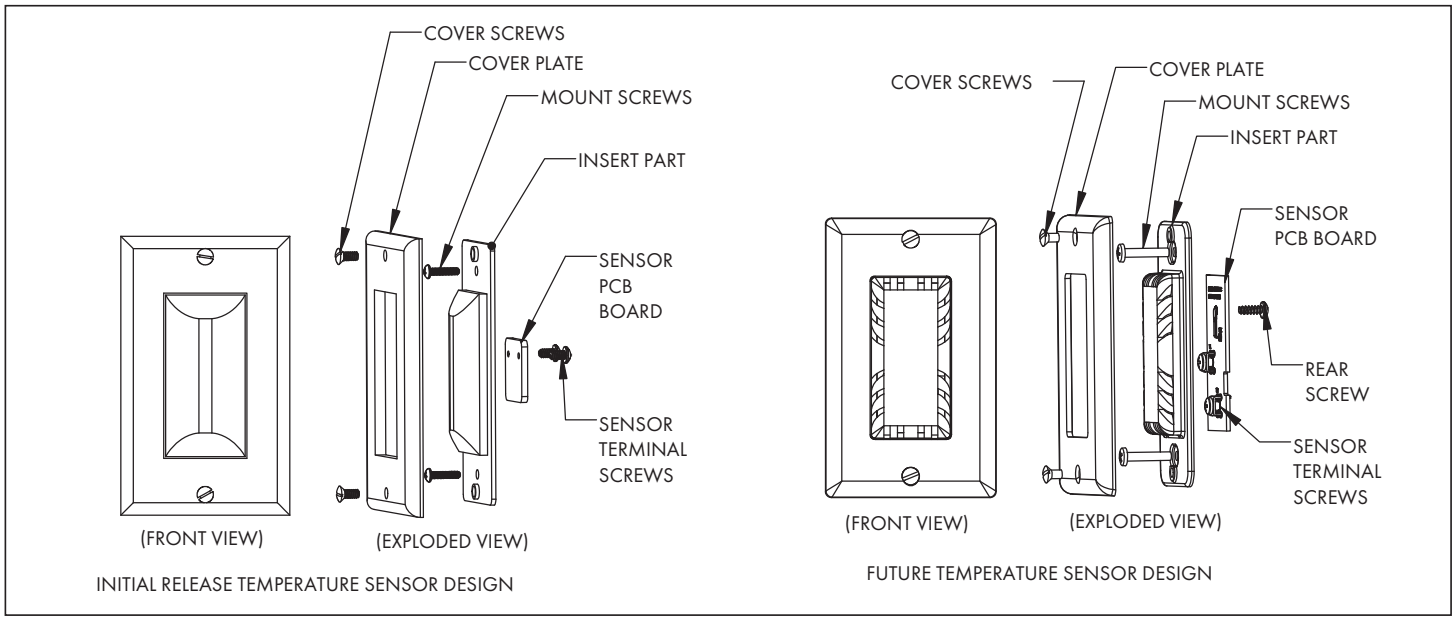

Figure 9: Temperature Sensors (Initial Release on Left / Future Release on Right

MODULATING DAMPER(S)

The EvenAir 2.0 system works with a proprietary design modulating damper assembly built by Field Controls. The modulating damper assembly comes in various standard industry sizes in either round or rectangular configurations. Refer to Figure 10 to view the damper actuator. It has a 3-wire terminal design with LED lights to indicate when the damper is fully open (Green Lite) or in a fully closed position (Red Lite). The EvenAir2.0 system requires a minimum of one (1) modulating damper to be installed on the supply air ductwork to each area with a maximum of up to five (5) dampers per area. Use 18 gage solid copper wire to connect damper actuator to EvenAir2.0 control panel. Match up terminal designations (CLS, OPN and COM) when wiring at each end termination (ie: CLS to CLS, OPN to OPN and COM to COM) and match wire terminals for AREA 1 damper to control panel AREA 1 terminal, match wire terminals for AREA 2 damper to control panel AREA 2 terminals and match wire terminals for AREA 3 damper to control AREA 3 terminals. For areas with multiple dampers installed, connect same area multiple dampers wiring in series (or daisy-chain) method from damper to damper. Refer to electrical wiring diagram in Figure 11 to see how to daisy-chain wire additional area dampers. The controller sends signal to each area damper telling it to open or close. This signal is sent separately to one area then the next area and then the final area. At no time, are all area dampers modulating at the same time. At the end of each call for heat or cooling, the modulating dampers will move to its fully OPEN position and the green light will illuminate on each damper actuator for 1/16 of a second. Remember to install foil seal tape to all joints connecting damper to ductwork and insulate exposed damper surfaces to eliminate ductwork sweating/condensation during cooling cycle. The modulating dumpers are intended to be installed in compliance with all local and national codes including National HVAC Ducting Standard published by SMACNA.

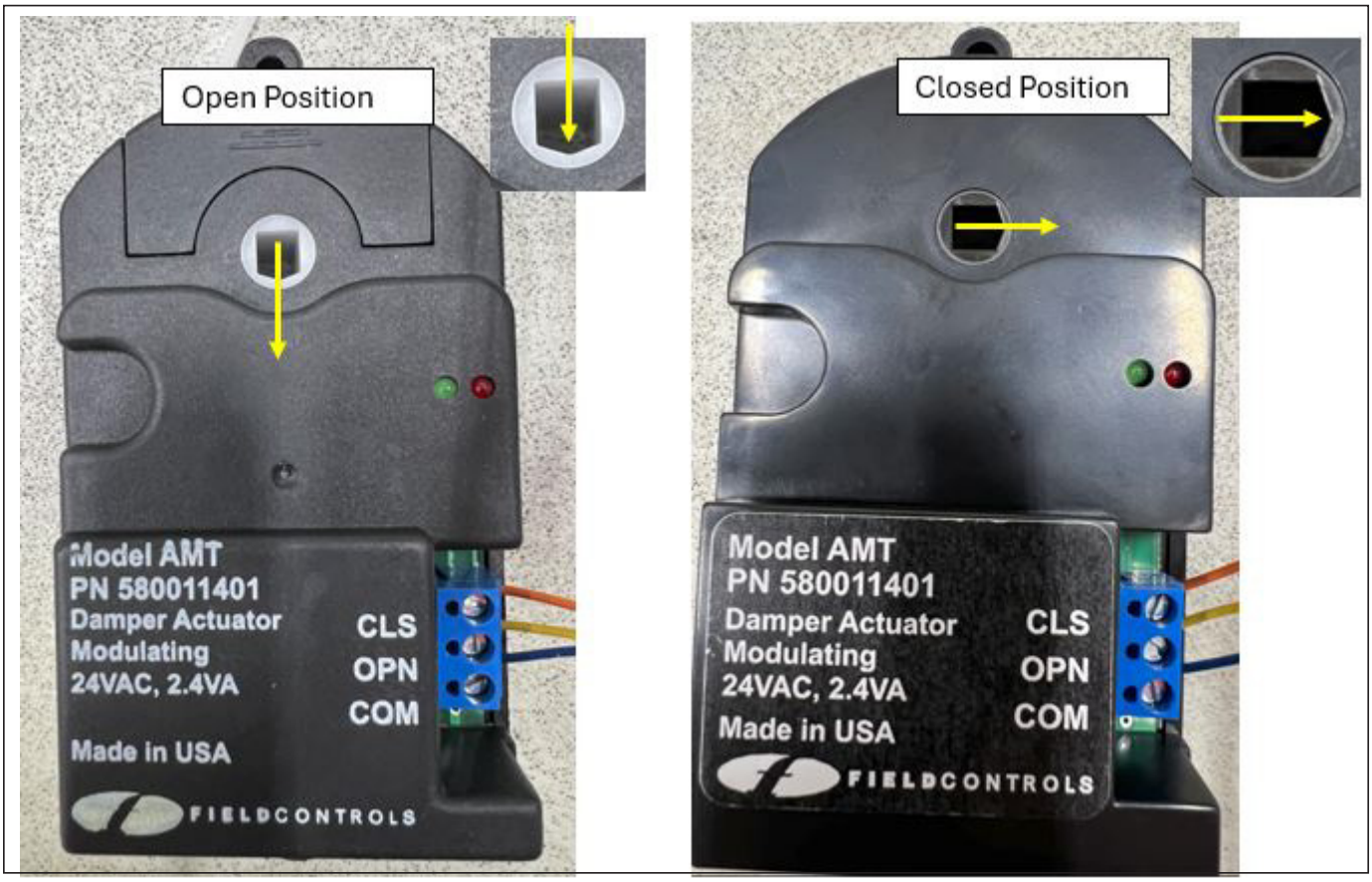

Figure 10: Damper Actuator Terminals and Actuator Open/Closed Shaft Positions Detail

WIRING

EvenAir2.0 Balance Air System should be wired per Figure 11 (EvenAir 2.0 Electrical Wiring Diagram). It is recommended to use 18 gage solid strand copper wire for all wiring. **The HVAC air handler power should be de-energized before making any wiring connections to the EvenAir2 components and accessories.**

Installation and Wiring Check List:

1. Mount EvenAir2.0 Control Panel near HVAC air handler
2. Install modulating dampers for each area on supply air ductwork. Remember to seal and insulate all damper mating seals.
3. Install wiring between air handler and EvenAir2 Control Panel (R,C,Y,W,GF and BO depending on HVAC System)
4. Extend G wire from Thermostat to GT terminal on EvenAir2 Control Panel
5. Install and connect the area temperature sensors and wires to appropriate S terminals on EvenAir2.0 Control Panel
6. Install and connect the area modulating damper wires to appropriate T4-T6 terminals on EvenAir Control Panel
7. Set the DIPSWITCH position settings based on HVAC equipment installation and setup. Refer to DIPSWITCH Configuration Setting (SW1) section for additional information.
8. Any surface mount wiring should include straps or loops or strain relief devices to secure wiring in place within 12 inches of EvenAir2 control panel. All wiring should be in accordance with state, local and national wiring codes and standards.

Damper Actuator: The modulating damper AMT (580011401) is a multi-voltage damper control. It can operate AC or DC power.

AC Specification: 24VAC, 60Hz 2.4vA
DC Specification: 12VDC@1.2W up to 24VDC@2.4W

The EvenAir 2.0 operates the modulating dampers at 12VDC.

CONTROL WIRING SOLUTIONS

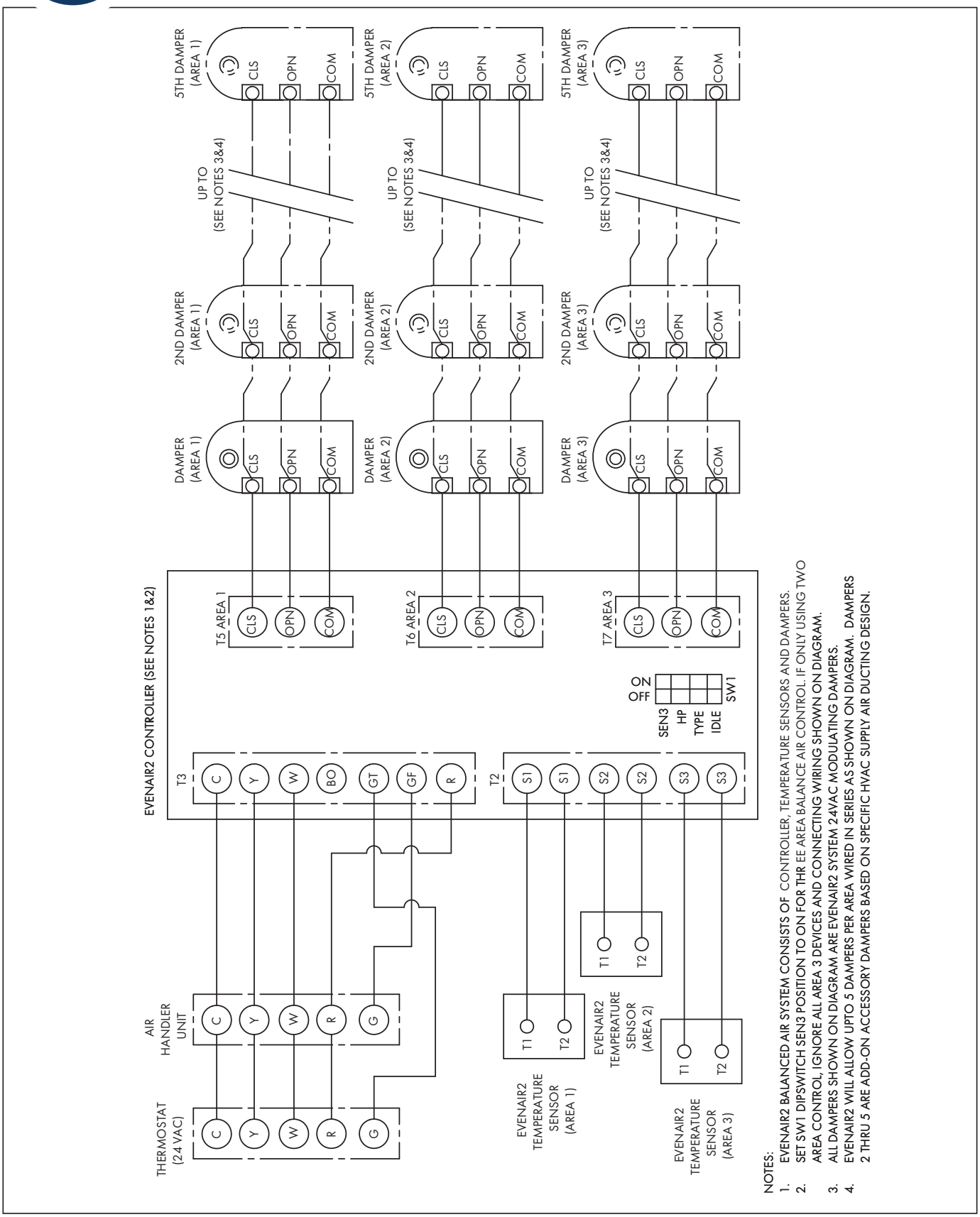

Figure 11: EvenAir 2.0 System Wiring Diagram

SYSTEM CHECK OUT AND START UP PROCEDURE

The following steps shall be completed to verify the EvenAir2.0 Balance Air System is installed properly.

NOTE: HVAC system power should be disconnected prior to working on any electrical wiring appliance or equipment to prevent electrocution potential.

1. Verify wiring is installed and properly connected to appropriate terminals (reverse order of wiring installation as detailed in Installation and Wiring Check List under WIRING section.
2. Verify modulating dampers are properly wired and connected to appropriate area terminals on EvenAir2.0 control panel.
3. Turn the EvenAir2 Controller Power Switch to OFF position.
4. Energize power to HVAC system.
5. Turn the EvenAir2.0 Controller Power Switch to ON Position. Allow panel to power up and verify temperature sensor LED's are lit and solidly on. The controller panel will run an internal self-check which includes opening all the dampers. The GREEN LED on each damper should lite up then turn off once damper hits an open position. Verify each damper actuator is in open position. Once all the dampers have cycled to an open position, the temperature sensor LED's on evenair2.0 panel will lite. If a two (2) area system is installed then only SEN1 and SEN2 LED's will lite. If a three (3) area system is installed then SEN1, SEN2 and SEN3 LED's will lite. If any of sensor LED's are not lit or are blinking, then verify sensor wiring is correct because EvenAir2.0 control panel is not receiving signal from non-lit temperature sensor. Refer to Troubleshooting section for additional information.
6. Adjust thermostat to activate air handler for call for heat or cooling cycle with central fan in auto mode. Wait 2 minutes then reset thermostat back to original setting. Verify all dampers go to full open position once call for heat or cooling cycle ends. Wait 2 minutes then adjust thermostat to activate air handler for call for heat or cooling cycle. All dampers will start in open position then start to modulate based on each area temperature sensor reading. As the temperature in the multiple areas start to shift, the dampers in each area will either stay open or start to modulate close to shift more air flow to the other areas as necessary for temperature control.
7. Once satisfied that EvenAir2.0 Controller is functioning properly, install theEvenAir 2.0 outer cover over the enclosure to hide the wiring, terminals and Dipswitch. Reset the thermostat back to normal set point. The EvenAir2.0 Balanced Air System will function automatically going forward. If loss of power to home or HVAC system, the EvenAir2 system will automatically restart once power is restored.

SYMPTOM	CAUSE	SOLUTION
Temperature Sensor LED's are not LIT or Blinking	EvenAir 2.0 Controller Turned OFF or No 24 VAC Power to Controller Panel from HVAC System	• Turn switch on EvenAir 2.0 Controller to ON position and let panel power up. • Verify 24 VAC power at EvenAir 2.0 Control Panel terminals R & C using multimeter. Verify HVAC system circuit breakers are ON. Contact HVAC company to troubleshoot missing 24VAC control power
	Wiring issue - Loose or broken wires	• Verify wiring between temperature sensor and control panel area terminals (T2) are correct. Check area 1 terminal block T2 terminals S1-S1 are wired to area 1 temperature sensor. Verify same corresponding wiring for area 2 and area 3 sensors. • Verify wires are fully inserted in control panel terminals and terminal block screws are tight. • Verify connecting wire at each temperature sensor is wrapped around sensor PCB screw and mounting screw is tight. • Disconnect blinking or not lit temperature sensor wiring at control panel terminal block T2. Connect multimeter to wire set and measure resistance in ohms. Meter should read between 9.5-12 kΩ If meter reads OL, verify temperature sensor is not defective. If temperature sensor is good then broken wire between control panel and temperature sensor. Run new pair of wires.
	SEN3 LED not lit for 3 area system	Area 3 not activated on control panel. Set Dipswitch (SW1) Pos SEN3 to On position.
	Defective temperature sensor	Disconnect blinking or not lit temperature sensor wiring at temperature sensor. Connect multimeter to temp sensor terminal and measure resistance in ohms. Meter should read between10-12 kΩ indicates sensor is fine. If meter read OL, then replace temperature sensor.
System not functioning properly	HVAC system is Heat Pump design.	Verify that EvenAir 2.0 Control Panel is set up as HP. Set Dipswitch (SW1) Pos HP to ON and set Type of Heat Operation Dipswitch Pos OB to match reversing valve operation. See Dipswitch (SW1) section for explanation of switch positions.
	HVAC system is conventional design	Verify EvenAir 2.0 Control Panel is set up not as a HP. Set Dipswitch (SW1) Pos HP to OFF. See Dipswitch section for explanation of switch positions.
	Dampers are not modulating/changing positions	See Damper Actuator not moving section in troubleshooting table.
	Temperature sensor LED's are blinking or OFF	If temperature sensor LED's are blinking or OFF, the EvenAir 2.0 System will go into a hold mode and automatically Open all dampers. See temperature sensor LED's are not lit or blinking section in troubleshooting table.
Damper actuator not moving or No lights	Wiring issue - Loose, broken or Mis-wired	• Verify wiring between damper actuator and control panel are correct - Terminations need to match (CLS to CLS, OPN to OPN, COM to COM) for all dampers to control panel connections. • Verify control panel terminal block T5 is wired to area 1 damper. Verify control panel terminal T3 is wired to area 2 damper. Verify control panel terminal T3 is wired to area 3 damper. Correct any miss wired issues
	No lights on actuator	• The actuator position will activate Green lite when damper is in fully open position. The actuator position will activate RED lite when damper is in Closed position. Actuator lights will only lite up for 1/16 second during start/ending of a call for heat/cooling from the thermostat. Start call for heat/cooling via manually adjusting thermostat and watch damper actuator. Watch for lights to flash ON then go OFF. • Normally 99% of time, no lights are ON at damper actuator.
	Damper Actuator not moving during call for heat/cooling	• The damper actuator position will move from open position to last know position on call for heat/cooling. Last position may have been fully open. Verify damper movement by checking position if shaft on actuator. Refer to Figure 10 for actuator shaft position when fully open or fully closed. • The damper actuator will modulate position normally once every 15 seconds. The rotation or movement of actuator may be very small or very large in movement. Every 20 minutes during an event call, the damper actuator will fully open damper then immediately move damper back to last saved position. • Verify damper actuator shaft location during event call for heat/cooling. Turn OFF EvenAir 2.0 control panel using ON/OFF switch during event. Watch damper actuator for rotation to OPEN position. If each damper moves to OPEN position, then damper actuators are functioning properly. If damper actuator stays in partially open position, check damper control wiring prior to actuator replacement.
	Question if damper actuator is functioning	To verify that is a damper actuator is functional or not, turn OFF the power switch at the EvenAir 2.0 controller. Any partially closed damper will return to its full open state and remember to re-energize control by turning power switch back to ON position.

SPARE PARTS

FIELD CONTROLS	MODEL NUMBER	DESCRIPTION
60323XXXX	WWXHH Rect	WWxHH Rectangular EvenAir Damper Assembly
6032023XX	XX Round	XX Diameter Round EvenAir Damper Assembly

MODULATING ROUND DAMPER SPECIFICATION

NOTE: All dimensions are in inches.

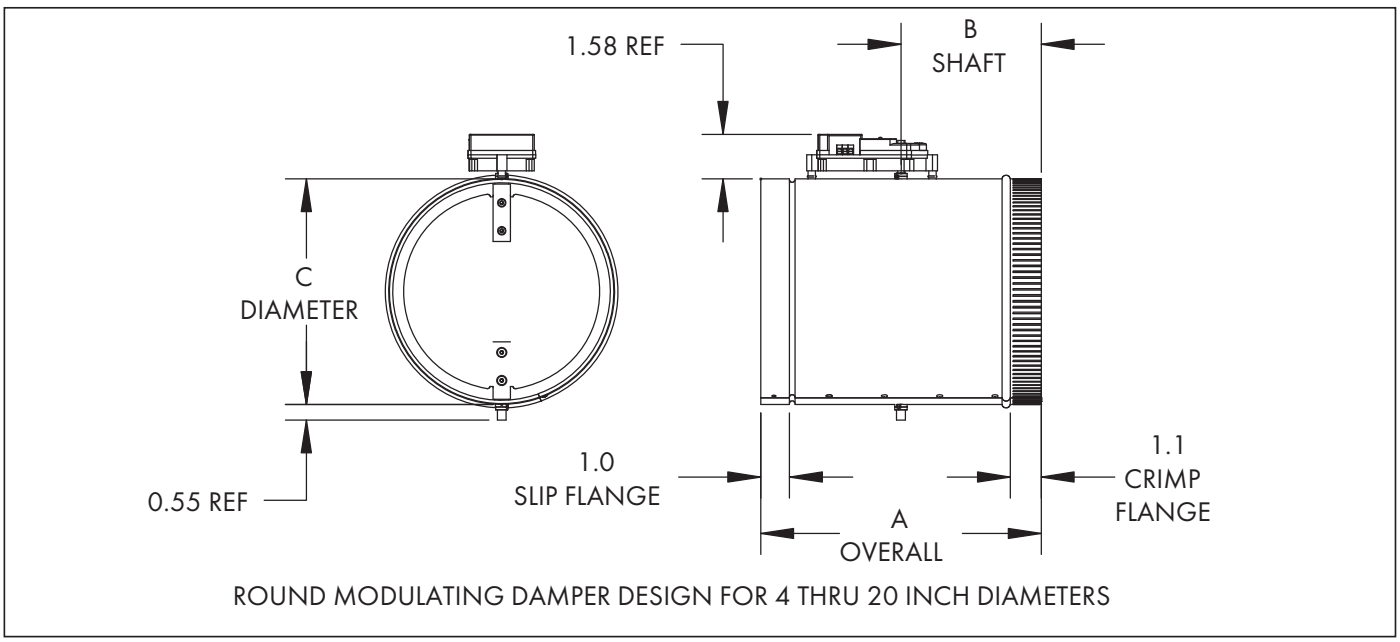

Figure 11: Round Damper Dimensional Data

DAMPER SIZE	PART NUMBER	OVERALL LENGTH A	SHAFT B	PIPE DIAMETER C
4 Round	603202304	10.0	4.0	4
5 Round	603202305	10.0	4.0	5
6 Round	603202306	10.0	4.0	6
7 Round	603202307	10.0	4.0	7
8 Round	603202308	10.0	5.0	8
9 Round	603202309	10.0	5.0	9
10 Round	603202310	10.0	5.0	10
12 Round	603202312	12.0	60.	12
14 Round	603202314	14.0	7.0	14
16 Round	603202316	16.0	8.0	16
18 Round	603202318	18.0	9.0	18
20 Round	603202320	20.0	10.0	20

MODULATING RECTANGULAR DAMPER SPECIFICATIONS

NOTE: All dimensions are in inches.

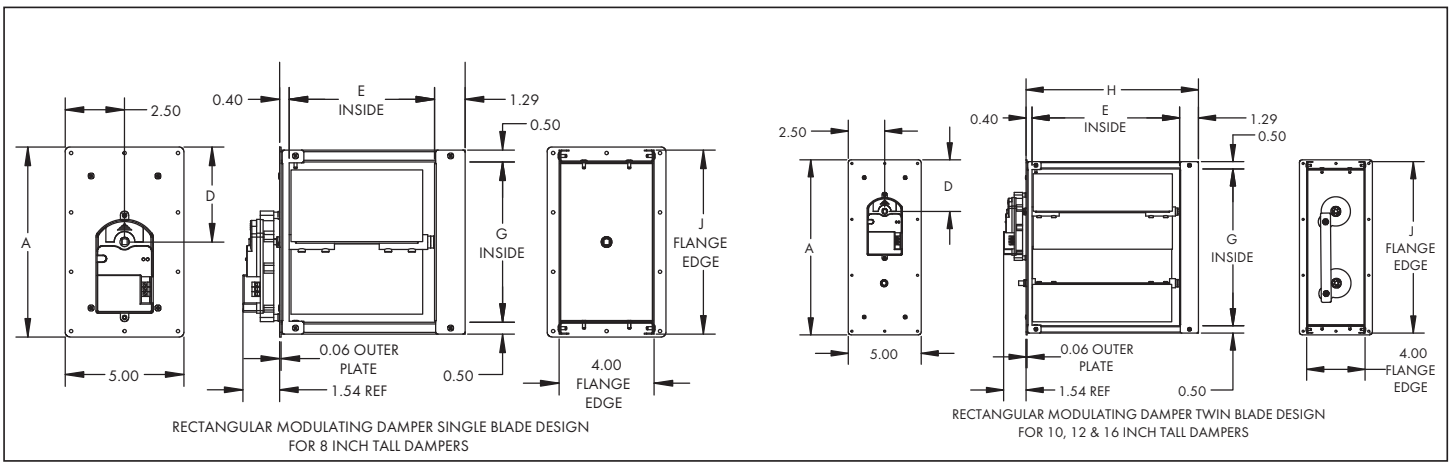

Figure 12: Rectangular Damper Dimensional Data

DAMPER SIZE	PART NUMBER	OUTER COVER PLATE (HEIGHT)	SHAFT	INSIDE DUCTWORK		OVERALL LENGTH	FLANGE HEIGHT
		A	D	E	G	H	J
8x8 RECTANGULAR	603230808	8.00	4.00	6.12	6.75	7.75	7.75
10x8 RECTANGULAR	603231008	8.00	4.00	8.12	6.75	9.75	7.75
12x8 RECTANGULAR	603231208	8.00	4.00	10.12	6.75	11.75	7.75
14x8 RECTANGULAR	603231408	8.00	4.00	12.12	6.75	13.75	7.75
16x8 RECTANGULAR	603231608	8.00	4.00	14.12	6.75	15.75	7.75
18x8 RECTANGULAR	603231808	8.00	4.00	16.12	6.75	17.75	7.75
20x8 RECTANGULAR	603232008	8.00	4.00	18.12	6.75	19.75	7.75
22x8 RECTANGULAR	603232208	8.00	4.00	20.12	6.75	21.75	7.75
24x8 RECTANGULAR	603232408	8.00	4.00	22.12	6.75	23.75	7.75
10x10 RECTANGULAR	603231010	10.00	2.83	8.12	8.75	9.75	9.75
12x10 RECTANGULAR	603231210	10.00	2.83	10.12	8.75	11.75	9.75
14x10 RECTANGULAR	603231410	10.00	2.83	12.12	8.75	13.75	9.75
16x10 RECTANGULAR	603231610	10.00	2.83	14.12	8.75	15.75	9.75
18x10 RECTANGULAR	603231810	10.00	2.83	16.12	8.75	17.75	9.75
20x10 RECTANGULAR	603232010	10.00	2.83	18.12	8.75	19.75	9.75
22x10 RECTANGULAR	603232210	10.00	2.83	20.12	8.75	21.75	9.75
24x10 RECTANGULAR	603232410	10.00	2.83	22.12	8.75	23.75	9.75
12x12 RECTANGULAR	603231212	12.00	3.54	10.12	10.75	11.75	11.75
14x12 RECTANGULAR	603231412	12.00	3.54	12.12	10.75	13.75	11.75
16x12 RECTANGULAR	603231612	12.00	3.54	14.12	10.75	15.75	11.75
18x12 RECTANGULAR	603231812	12.00	3.54	16.12	10.75	17.75	11.75
20x12 RECTANGULAR	603232012	12.00	3.54	18.12	10.75	19.75	11.75
22x12 RECTANGULAR	603232212	12.00	3.54	20.12	10.75	21.75	11.75
24x12 RECTANGULAR	603232412	12.00	3.54	22.12	10.75	23.75	11.75
14x16 RECTANGULAR	603231416	16.00	4.54	12.12	14.75	13.75	15.75
16x16 RECTANGULAR	603231616	16.00	4.54	14.12	14.75	15.75	15.75

This manual may be downloaded and printed from the Field Controls website (www.fieldcontrols.com)

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