

SMARTZONE™

EASY-TO-READ
DISPLAY

SIMPLE SETUP AND
CONFIGURATION

SCREWLESS
WIRING TERMINALS

SUPPLY AIR TEMP
SENSOR INCLUDED

THERMOSTATS:
HEAT PUMP
OR
GAS/ELECTRIC

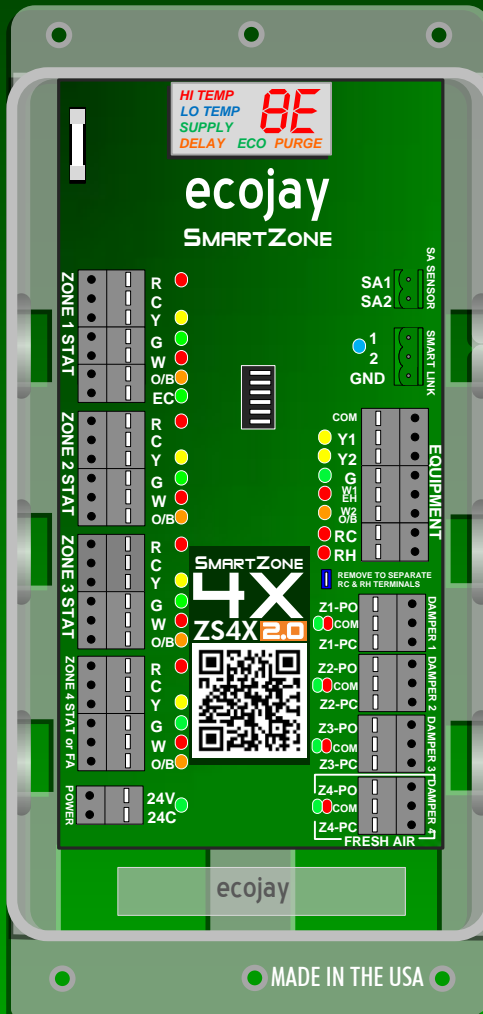
EXPANDABLE
TO 20 ZONES
(4X ONLY)

LEDs SHOW
HEAT & COOL
CALLS
(NO VOLTMETER
REQUIRED)

EQUIPMENT:
GAS/ELECTRIC or
HEAT PUMP
(Inc. DUAL FUEL)
2-STAGE Cooling
3-STAGE Heating

FRESH AIR CONTROL
(4X ONLY)

DAMPERS:
2-WIRE or 3-WIRE
LEDs SHOW
POSITION
RED = CLOSED
GREEN = OPEN



PART # ZS4X-2.0 (4-ZONE) PICTURED
PART # ZS2X-2.0 (2-ZONE) AVAILABLE

INSTALLATION &
OPERATION VERSION 8E
FIRMWARE



SMARTZONE GUIDE

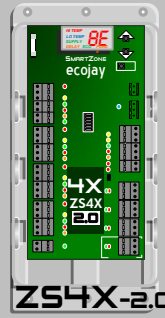
VERSION 8E FIRMWARE



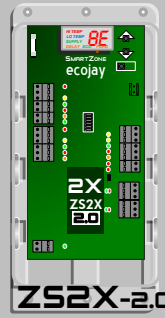
5 YEAR LIMITED WARRANTY

MADE IN THE USA

ecojay.com
888-523-3265



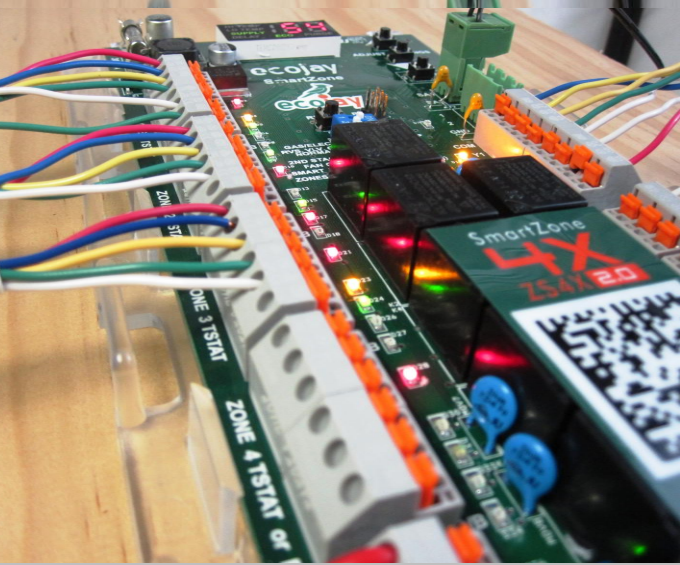
4 ZONE



2 ZONE

SPECIFICATIONS

| | | |
|----------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| POWER | SMARTZONE-2X SMARTZONE-4X | 14VA MAX (375 MA @ 24VAC) [2X = 12VA] IF MULTIPLE TRANSFORMERS ARE USED IN SMARTLINK SYSTEM, PRIMARY & SECONDARY POLARITIES MUST BE THE SAME FOR BOTH TRANSFORMERS AND ON ALL ZS4X BOARDS. |
| | SYSTEM | 14VA + STATS (2VA EA.) + DAMPERS (3- 10 VA EA.) = TOTAL TRANSFORMER SIZE |
| | PROTECTION | INTEGRATED 5X20MM 250MA FUSE- ONE REPLACEMENT ALSO INCLUDED. (FIELD SUPPLIED TRANSFORMER SHOULD ALSO BE FUSED) |
| OUTPUTS | EQUIPMENT | 10 AMP @ 24VAC CONTACT RATING RH – 24VAC HOT FROM HEATING TRANSFORMER ON EQUIPMENT (RED) RC – 24VAC HOT FROM COOLING TRANSFORMER ON EQUIPMENT (RED) C – 24VAC COMMON FROM TRANSFORMER ON EQUIPMENT (NONE) Y1 – 1 ST STAGE COMPRESSOR (YELLOW) Y2 – 2 ND STAGE COMPRESSOR (YELLOW) G – FAN (GREEN) W1/EH – 1 ST STAGE HEAT OR EMERGENCY HEAT (RED) W2/OB – 2 ND STAGE HEAT OR REVERSING VALVE (ORANGE) |
| | DAMPERS | 10 AMP @ 24VAC CONTACT RATING (40VA) POWER-CLOSE / SPRING-OPEN DAMPERS (10VA) POWER-OPEN / SPRING-CLOSE DAMPERS (10VA) POWER-OPEN / POWER-CLOSE DAMPERS (3VA) |
| | SMARTLINK (4X) | COMM – 3 WIRE COMMUNICATIONS TO SMARTLINK (BLUE LED) [USE CAT3/5/6] (4X ONLY) |
| INPUTS | THERMOSTAT | <u>LABEL – DESCRIPTION (LED COLOR)</u> R – 24VAC HOT (RED) C – COMMON (NONE) Y – COMPRESSOR (YELLOW) G – FAN (GREEN) W – HEAT OR EMERGENCY HEAT (RED) O/B – REVERSING VALVE (ORANGE) EC – ECONOMY INPUT (GREEN) - ZONE ONE ONLY |
| | TEMPERATURE | 10K TYPE III THERMISTOR (INCLUDED) SA SENSOR – 4" SUPPLY AIR TEMPERATURE SENSOR STAINLESS STEEL PROBE |
| SETTINGS | HI LIMIT LO LIMIT | HEAT CUT-OUT [DEFAULT = 135 GAS / 120 HEAT PUMP] RANGE: COOL CUT-OUT [DEFAULT = 48] RANGE: |
| | AUX HEAT LIMIT | AUX HEAT CUT-OUT [DEFAULT = 90 HEAT PUMP ONLY] RANGE: 90 - 94 |
| | ECONOMIZER LIMIT | ECONOMIZER CUT-OUT [DEFAULT = 60] RANGE: 58 - 68 |
| | THERMOSTAT TYPE | GE = GAS/ELECTRIC, HP = HEAT PUMP, G2 = 2 STAGE GE, H2 = 2 STAGE HP, FA = FRESH AIR |
| | FRESH AIR TIME | # OF MINUTES PER HOUR FRESH AIR RUN TIME [DEFAULT = 0] RANGE: 0 - 60 |



FOLLOW ALL LOCAL AND STATE CODES WHEN INSTALLING SMARTZONE

ZONING CHECKLIST

SMARTZONE & THERMOSTATS

- CALCULATE MINIMUM 24VAC TRANSFORMER VA CAPACITY (PAGE 5)
- CHECK PRIMARY AND SECONDARY VOLTAGE FOR ZONING TRANSFORMER
*MAKE SURE SEPARATE TRANSFORMER AND CIRCUIT IS USED (DO NOT USE EQUIPMENT TRANSFORMER)
- SELECT MOUNTING LOCATION THAT PROVIDES SPACE AND EASY PATH TO RUN WIRES
- MOUNT THERMOSTATS WHERE NOT EXPOSED DIRECTLY TO AIR STREAM FROM SUPPLY AIR GRILLS, RADIANT HEAT FROM WINDOWS OR SKYLIGHTS, OR TOO CLOSE TO RETURN AIR
- USE THERMOSTATS THAT ARE NOT 'POWER STEALING' OR TRIAC BASED
- GAS/ELECTRIC OR HEAT PUMP STATS CAN BE USED ON HEAT PUMP EQUIPMENT (HEAT PUMP STAT IS REQUIRED ON ZONE 1 ONLY IF EMERGENCY HEAT CONTROL IS NEEDED) *NOTE: USE ONLY GAS/ELECTRIC STATS WITH GAS/ELECTRIC EQUIPMENT*

DUCT & DAMPERS

- DESIGN ALL ZONES TO BE SIMILAR IN CFM CAPACITY AS MUCH AS POSSIBLE (BALANCED ZONES = LESS PRESSURE RELIEF NEEDED)
- AVOID CREATING SMALL ZONES (< 20% OF TOTAL CAPACITY)
- PROVIDE SUPPLY AIR DUCT PRESSURE RELIEF (SURPLUS AIR-FLOW MANAGEMENT) USING THESE TECHNIQUES –BYPASS DUCT/DAMPER, DUMP ZONE(S) OR SET MAX CLOSE ON DAMPER TO ALLOW LEAKAGE
- ECOJAY RECOMMENDS THE USE OF A BYPASS DUCT/DAMPER THAT IS LARGE ENOUGH TO ACCOMMODATE THE TOTAL SYSTEM CFM CAPACITY MINUS THE CFM CAPACITY OF THE SMALLEST ZONE AND THE CFM PROVIDED BY ANY ADDITIONAL PRESSURE RELIEF
- REFER TO DUCT DESIGN & BYPASS (PAGE 3 & 4)

HVAC EQUIPMENT

- PERFORM BASIC EQUIPMENT CHECK INCLUDING COMPRESSOR, REFRIGERANT CHARGE, BLOWER, FURNACE, FILTER BEFORE INSTALLING OR STARTING UP SMARTZONE SYSTEM.

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DESIGN & PRE-INSTALL

SMARTZONE DUCT SYSTEM

A ZONING SYSTEM CAN TYPICALLY USE THE SAME DUCT SIZING AS A TRADITIONAL SINGLE-THERMOSTAT SYSTEM IF THE PRESSURE RELIEF IS INSTALLED CORRECTLY AND THE SYSTEM IS 4 OR LESS ZONES. TO MINIMIZE BYPASS AIR FLOW, INCREASE THE DUCT CAPACITY BY ONE SIZE FOR EACH ZONE LESS THAN 25% OF THE TOTAL SYSTEM AIR FLOW CAPACITY FOR SYSTEMS WITH MORE THAN 4 ZONES, INCREASING THE DUCT & DAMPER SIZES OF THE SMALLER ZONES (OR ALL THE ZONES) WILL MINIMIZE THE AMOUNT OF PRESSURE RELIEF NEEDED WHEN ONLY THE SMALLEST ZONE IS OPEN.

NOTE: CONNECT DAMPERS DIRECTLY TO THE PLENUM WHEN POSSIBLE AND BRANCH OFF SMALLER DUCTS GOING TO DIFFERENT AREAS WITHIN THE ZONES. USING THIS TRUNK/BRANCH DUCT DESIGN WILL MINIMIZE COST AND REDUCE AIR NOISE.

BYPASS - PRESSURE RELIEF

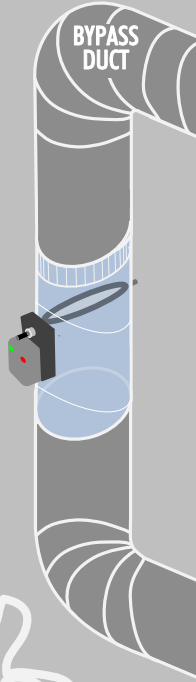
A PROPERLY SIZED BYPASS DAMPER AUTOMATICALLY MAINTAINS CONSTANT PRESSURE INSIDE THE SUPPLY AIR DUCT WHEN ZONES OPEN AND CLOSE. WHEN THE CORRECT SIZE BYPASS DAMPER IS INSTALLED AND ADJUSTED ACCURATELY, IT WILL BE FULLY CLOSED WHEN ALL ZONES ARE CALLING (NO AIR BYPASSING) AND WILL OPEN PROPORTIONATELY AS ZONE DAMPERS CLOSE.

BYPASS SIZING

SELECT A DAMPER SIZE WITH A **MAX CFM** GREATER THAN THE **CFM-NEEDED** TO BYPASS. USE THE FORMULA BELOW TO CALCULATE CFM NEEDED TO BYPASS AND THE ROUND DAMPER CFM CHART TO CHECK MAX CFM.

TYPICALLY 400 **CFM PER TON** → **EQUIPMENT AIRFLOW CAPACITY IN CFM (HIGH SPEED)**

| | | | | |
|-------------|----------|----------|-----------------------------|------------------------------------------------------|
| 800 | 2 | - | CFM OF SMALLEST ZONE | USE "NORMAL CFM" |
| 1200 | 3 | | | |
| 1600 | 4 | = | CFM-NEEDED TO BYPASS | USE A BYPASS DAMPER THAT HAS LARGER "MAX CFM" |
| 2000 | 5 | | | |



ROUND CFM CHART

| DAMPER SIZE | NORMAL CFM | MAX CFM |
|-------------|------------|---------|
| 6" | 100 | 200 |
| 7" | 150 | 250 |
| 8" | 200 | 300 |
| 9" | 300 | 450 |
| 10" | 400 | 600 |
| 12" | 600 | 900 |
| 14" | 900 | 1400 |
| 16" | 1400 | 2000 |

RECTANGULAR CFM

* **SURFACE AREA IN SQ. FT. =**
 ("HEIGHT" X "WIDTH") / 144

NORMAL CFM =
 (SURFACE AREA IN SQ. FT.*) X 600 FPM

MAX CFM =
 (SURFACE AREA IN SQ. FT.*) X 900 FPM

BYPASS DAMPER "RULE OF THUMB"

BELOW CHART ASSUMES 400 CFM PER TON *USE NEXT SIZE UP ROUND BYPASS DAMPER FOR ANY SYSTEM WITH A SINGLE ZONE LESS THAN 200 CFM.

| UNIT SIZE (TONS) | ROUND DAMPER SIZE (INCHES)* |
|------------------|-----------------------------|
| 2-2.5 | 10" |
| 3-3.5 | 12" |
| 4-4.5 | 14" |
| 5 | 14-16" |

EXAMPLE

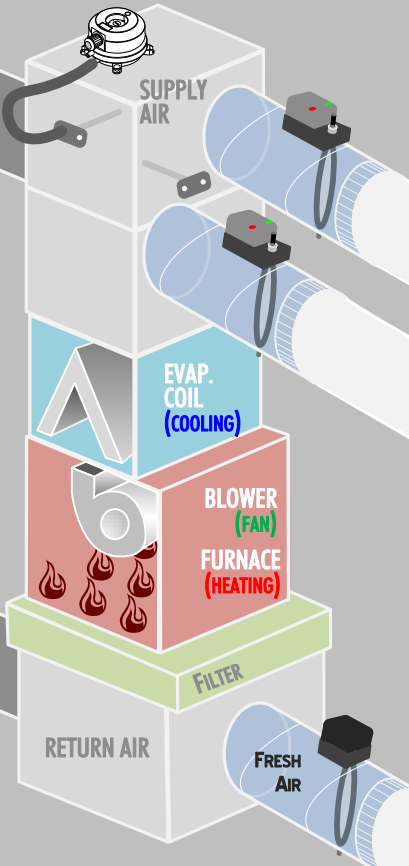
ASSUME 4-TON EQUIPMENT WITH 10" ROUND SMALLEST ZONE

$$\begin{array}{r}
 1600 \text{ CFM (EQUIPMENT)} \\
 - 400 \text{ CFM (SMALLEST ZONE - NORMAL CFM)} \\
 \hline
 = 1200 \text{ CFM NEEDED}
 \end{array}$$

SO, FROM THE ROUND DAMPER MAX CFM, A 14" ROUND DAMPER SHOULD BE USED FOR BYPASS.

ZONE BALANCING

TO MAINTAIN OPTIMAL EQUIPMENT PERFORMANCE IN A TYPICAL ZONING APPLICATION, IT IS PREFERABLE TO DESIGN ALL ZONES TO BE CLOSE TO EQUAL IN SIZE. (IN TERMS OF CFM). THIS DOES NOT MEAN THAT EVERY ZONE MUST HAVE EXACTLY THE SAME CFM REQUIREMENTS BUT THE SYSTEM WILL WORK MOST EFFICIENTLY IF THEY ARE APPROXIMATELY THE SAME SIZE. FOLLOWING THIS GUIDELINE WILL MINIMIZE THE AMOUNT OF PRESSURE RELIEF (BYPASS) NECESSARY. FOR MOST RESIDENTIAL ZONING INSTALLATIONS USING SINGLE SPEED EQUIPMENT, AVOID CREATING MORE THAN THREE ZONES WITH NO ZONE SMALLER THAN 20% OF THE TOTAL EQUIPMENT CFM CAPACITY.

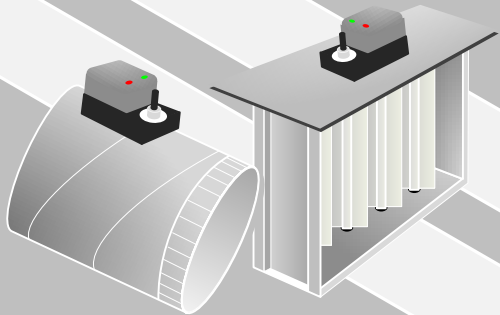


AIR NOISE

TO MINIMIZE AIR NOISE INSTALL THE DAMPERS AS CLOSE AS POSSIBLE TO THE SUPPLY PLENUM. A GOOD RULE FOR ACCEPTABLE AIR NOISE AND STILL MAINTAINING ADEQUATE THROW, IS THAT THE SUPPLY DUCT SHOULD BE DESIGNED TO PROVIDE 600 TO 700 FPM VELOCITY AIRFLOW. USE THE "NORMAL CFM" CHART TO CHECK ROUND DUCT SIZE(S) THAT WILL ACHIEVE THIS VELOCITY RANGE.

▶ FOR ZONES WITH MULTIPLE DAMPERS, THE TOTAL ZONE CFM IS THE SUM OF ALL THE DAMPERS "NORMAL CFM"

▶ FOR RECTANGULAR DUCT SYSTEMS USE THE RECTANGULAR CFM EQUATION PROVIDED FOR "NORMAL CFM"



ROUND AND RECTANGULAR DAMPERS

POWER DAMPERS POWER OPEN /POWER CLOSE DAMPERS USE THREE WIRES TO POWER THE DAMPER OPEN OR POWER IT CLOSED. THE ZONE PANEL IS RESPONSIBLE FOR SUPPLYING A 24VAC SIGNAL TO EITHER THE PO (POWER OPEN) OR PC (POWER CLOSED) TERMINAL OF THESE DAMPERS. PRIMARY ADVANTAGES OF POWER OPEN/POWER CLOSE DAMPERS INCLUDE LOWER POWER CONSUMPTION, QUIET OPERATION AND GREATER RELIABILITY. (2.5 TO 3VA)

SPRING DAMPERS USE A MOTOR TO POWER THE DAMPER BLADE IN ONE DIRECTION AND A SPRING TO MOVE THE BLADE IN THE OPPOSITE DIRECTION. WHEN POWER IS APPLIED TO THE DAMPER, THE MOTOR MOVES THE BLADE. WHEN POWER IS REMOVED, THE SPRING MOVES THE BLADE IN THE OPPOSITE DIRECTION.

WARNING: SPRING DAMPERS CONSUME MORE ELECTRICITY THAN POWER-OPEN/POWER-CLOSE DAMPERS. (10 TO 12 VA WHEN POWERED)

RETURN AIR

UNDERSIZED RETURN AIR DUCTS/REGISTERS CAN RESULT IN PROBLEMS DUE TO INSUFFICIENT AIRFLOW (CFM & VELOCITY) SUCH AS INCREASED RUN TIME, EVEN EQUIPMENT FAILURE. TO ENSURE THE RETURN AIR IS LARGE ENOUGH, VERIFY THAT ITS SURFACE AREA IS SUFFICIENT TO PASS FULL SPEED BLOWER CFM. ENSURE ALL ZONES HAVE UNRESTRICTED AIRFLOW PATH "BACK" TO A RETURN AIR GRILL EQUIVALENT TO THE ZONE CFM.

INSTALLATION

1 DIP SWITCHES

- 1 EQUIPMENT: GAS / ELECTRIC (STANDARD HEAT-COOL)
- 2 REVERSE VALVE ON IN COOLING
- 3 AUX HEAT = COMPRESSOR & ELECTRIC HEAT STRIPS
- 4 2ND STAGE ACTIVE (NORMAL)
- 5 ENERGIZES FAN AFTER 90 SECOND DELAY WITH HEATING
- 6 ALWAYS TO THE LEFT EXCEPT FOR 5 THROUGH 20 ZONES (DETAILS IN ZONING GUIDE)

- GAS/ELECT
- RVS. VLV. 0
- NORMAL
- 2nd STAGE
- FAN GAS
- SMART LINK ZONES (1 - 4)

- 1 HEAT PUMP
- 2 B
- 3 DUAL FUEL
- 4 LOCKOUT
- 5 ELECTRIC
- 6 ZONES (5 - 20)

WARNING: INCORRECT CONFIGURATION OF DIP SWITCHES CAN RESULT IN EQUIPMENT FAILURE OR EVEN DAMAGE. CONFIGURE BEFORE CONNECTING SMARTZONE TO POWER.

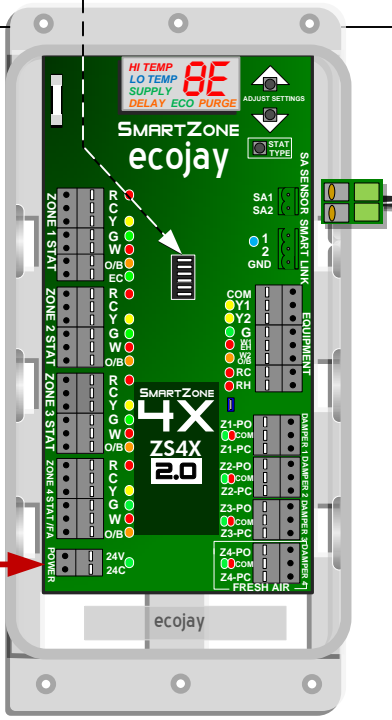
3 POWER

TRANSFORMER SIZING

24VAC TRANSFORMER (NOT INCLUDED) MUST BE SIZED AND FUSED BASED ON THE SMARTZONE CONTROLLER, TOTAL DAMPERS AND THERMOSTATS

| ECOJAY Device | POWER (MAX) |
|-------------------------|-------------|
| SmartZone-4X | 14 VA |
| SmartZone-2X | 12VA |
| Power Open/Close Damper | 3 VA |
| Spring Return Damper | 10 VA |
| Typical Thermostat | 2 VA |

CONNECT ONLY AFTER ALL OTHER WIRING HAS BEEN COMPLETED
TRANSFORMER



EXAMPLE

TRANSFORMER CALCULATION:

1 SMARTZONE-4X (14 VA)
 + 5 POC DAMPERS (3 VA X 5)
 + 4 THERMOSTATS (2 VA X 4)
 = 37 VA

FOR THIS EXAMPLE OF A BASIC 4-ZONE SYSTEM, A 40VA TRANSFORMER WITH A 2 AMP FUSE CAN BE USED. SEE PAGE 7 FOR MORE INFO ABOUT FUSE SIZE.

2 MOUNTING

EQUIPMENT: HEAT PUMP
(INCLUDING DUAL FUEL)

REVERSE VALVE ON IN HEATING

AUX HEAT-GAS HEAT ONLY [W1]
(NO COMPRESSOR [Y1,Y2])

2ND STAGE ENERGIZES ONLY IF
MORE THAN ONE ZONE IS OPEN

ENERGIZES FAN IMMEDIATELY
WITH HEATING

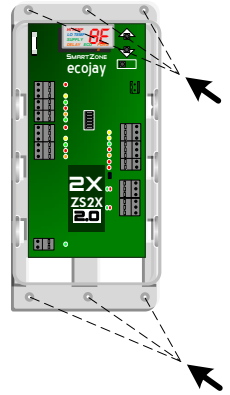
ALWAYS TO THE LEFT, EXCEPT
FOR 5 THROUGH 20 ZONES
(DETAILS PAGE 14)

SMARTZONE

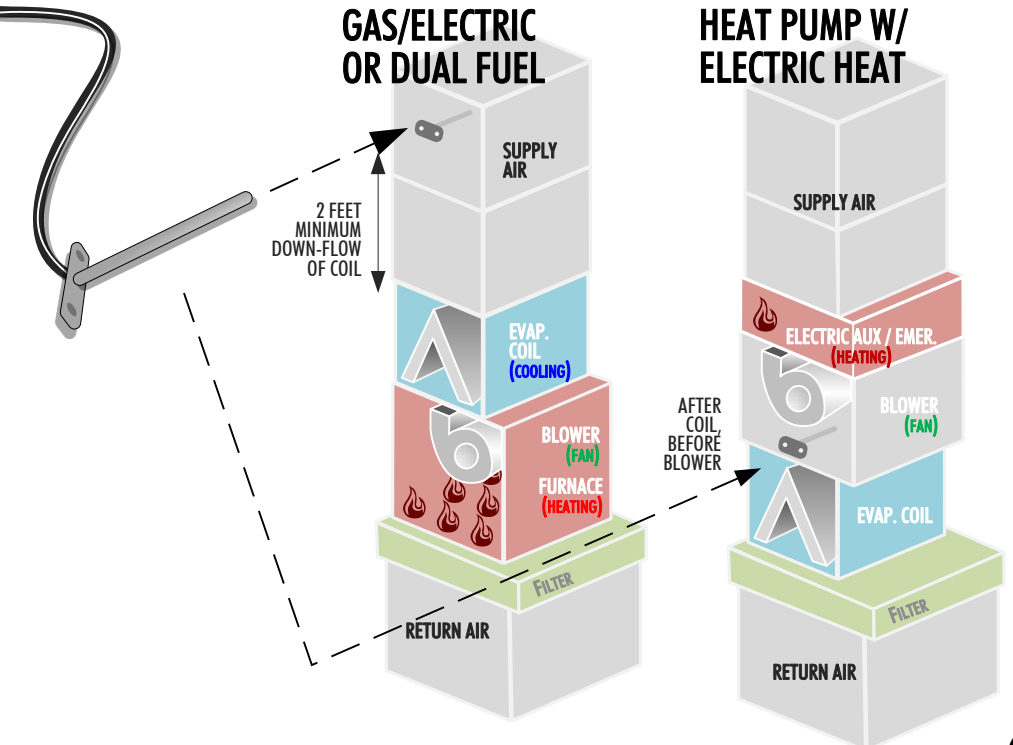
MOUNT TO A STABLE SURFACE USING
AT LEAST TWO SCREWS

ALSO MOUNT SECURELY BEFORE
PROCEEDING WITH INSTALLATION:

- TRANSFORMER
- DAMPERS
- THERMOSTATS



4 TEMP SENSOR PLACEMENT



INSTALLATION

5 WIRING

HEAT PUMP THERMOSTAT

| TERMINAL | COLOR |
|-----------------------|----------|
| 24VAC (HOT) | RED |
| 24VAC (COMMON) | BLUE/BLK |
| COMPRESSOR (COOLING) | YELLOW |
| FAN (BLOWER) | GREEN |
| EMERGENCY HEAT | WHITE |
| O / B (REVERSING VLV) | ORANGE |

HI TEMP
LO TEMP
SUPPLY
DELAY ECO PURGE

HP

18-20 AWG SOLID WIRE

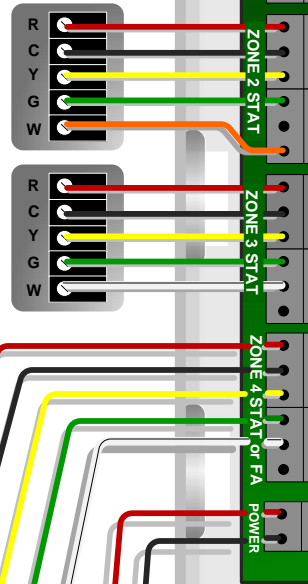
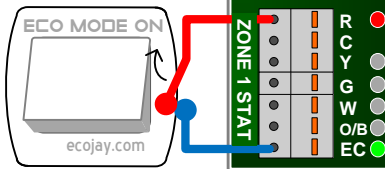
ECO / AWAY MODE

(OPTIONAL ACCESSORY)

CLOSE SWITCH TO ACTIVATE ECO MODE. A STANDARD WALL-SWITCH OR A SENSOR WITH DRY CONTACT CAN BE USED. WHEN ECO MODE ACTIVATED, ONLY ZONE 1 THERMOSTAT WILL BE ABLE TO ENERGIZE THE EQUIPMENT.

WHEN ZONE 1 ENERGIZES THE EQUIPMENT, ALL OTHER ZONES THERMOSTATS WILL OPERATE DAMPERS NORMALLY BUT WILL NOT BE ABLE TO MAKE EQUIPMENT CALLS.

ECO MODE SWITCH AVAILABLE FROM ECOJAY (PART # AESW)



GAS/ELECTRIC THERMOSTAT

| TERMINAL | COLOR |
|----------------------|----------|
| 24VAC (HOT) | RED |
| 24VAC (COMMON) | BLUE/BLK |
| COMPRESSOR (COOLING) | YELLOW |
| FAN (BLOWER) | GREEN |
| HEAT (ELECT. OR GAS) | WHITE |

HI TEMP
LO TEMP
SUPPLY
DELAY ECO PURGE

GE

DO NOT CONNECT POWER UNTIL ALL WIRING IS COMPLETE



DO NOT USE EQUIPMENT TRANSFORMER
NOTE: ALWAYS DISCONNECT POWER TO SMARTZONE WHILE MAKING ANY WIRING CHANGES.

TRANSFORMER FUSE SIZE
RULE OF THUMB

| TRANSFORMER (24V) | FUSE SIZE |
|-------------------|-----------|
| 40 VA | 2A |
| 75 VA | 3A |
| 100 VA | 4A |



SEE NEXT PAGE

SUPPLY TEMP

EXPAND TO
-20 ZONES
(SEE PAGE 14)

EQUIPMENT

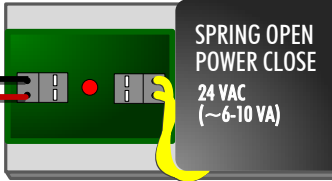
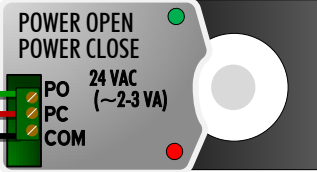
UP TO 2-STAGE COOL & 3-STAGE HEAT

| | | | |
|----|----------------------------------|-----|-------------------|
| C | 24VAC (COM) EQUIPMENT | EH | [EMERGENCY HEAT] |
| Y1 | 1 ST STAGE COMPRESSOR | O/B | [REVERSING VALVE] |
| Y2 | 2 ND STAGE COMPRESSOR | | |
| G | FAN (BLOWER) | | |
| W1 | 1 ST STAGE HEAT | | |
| W2 | 2 ND STAGE HEAT | | |
| Rc | 24VAC (R-COOLING) | | |
| Rh | 24VAC (R-HEATING) | | |

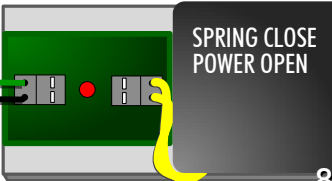
• **RC / RH JUMPER** (FACTORY INSTALLED) ONLY REMOVE IF THE EQUIPMENT REQUIRES SEPARATE TRANSFORMERS FOR HEAT AND COOL.
NOTE: RELAYS: [Y1, Y2, & G] SEPARATE FROM RELAYS: [W1/EH & W2/OB]

DAMPERS

24VAC DAMPERS CAN BE USED INCLUDING TWO-WIRE OR THREE-WIRE DAMPERS. 40 VA PER ZONE MAX.



IF ZONE 4 USED FOR FRESH AIR A SPRING CLOSE DAMPER CAN BE USED TO "FAIL CLOSE"



HI TEMP
LO TEMP
SUPPLY
DELAY ECO PURGE

8E

ADJUST SETTINGS

ecojay
SMARTZONE

STAT TYPE

SA1
SA2

S/S SENSOR

1
2

SMART LINK

GND

GAS/ELECTRY
RVS. VLV. O
NORMAL
2ND STAGE
FAN GAS
SMART LINK
ZONES (1-4)

HEAT PUMP
DUAL FUEL
LOCKOUT
ELECTRIC
ZONES (4-20)

R C Y G W O/B EC
R C Y G W O/B
R C Y G W O/B
R C Y G W O/B

SMARTZONE
4X
ZS4X2.0



COM
Y1
Y2
G
W1
EH
W2
O/B
RC
RH

REMOVE TO SEPARATE RC & RH TERMINALS

Z1-PO
COM
Z1-PC
Z2-PO
COM
Z2-PC
Z3-PO
COM
Z3-PC
Z4-PO
COM
Z4-PC
FRESH AIR

DAMPERS
1 FAN ER
2 DAM ER
3 FAN ER
4 FAN ER

ecojay

BUILT-IN
FRESH AIR
CONTROL
(IAQ)
SEE PAGE 13

CONFIGURATION

1 SET THERMOSTAT TYPE

ON HEAT PUMP EQUIPMENT ONLY, EITHER GAS/ELECTRIC OR HEAT PUMP THERMOSTATS CAN BE USED. THE SMARTZONE CONTROLLER MUST BE SET FOR THE THERMOSTAT TYPE BEING USED OR THE EQUIPMENT WILL NOT OPERATE PROPERLY WITH POTENTIAL RISK OF DAMAGE. SET THE THERMOSTAT TYPE AS SHOWN BELOW USING THE "STAT TYPE" AND "ARROW" BUTTONS. **NOTE: WHEN CONFIGURED FOR GAS/ELECTRIC EQUIPMENT (SEE DIP SWITCHES), ONLY GAS/ELECTRIC THERMOSTATS CAN BE USED. NOTE 2: WHEN USING SMARTLINK FOR 5+ ZONE SYSTEM, SECONDARY CONTROLLER STAT TYPE MUST ALSO BE SET USING THE SAME METHOD.**



PRESS THE STAT TYPE BUTTON...

ZONE:



PRESS THE UP AND DOWN ARROWS



H2 AND G2 ONLY ON ZONE 1 ALLOW THERMOSTAT TO CONTROL STAGING. SEE ZONE 1 STAGING FOR DETAILS

GE = GAS / ELECTRIC

HP = HEAT PUMP

RECOMMENDED

G2 = 2 STAGE GAS/ELECTRIC

H2 = 2 STAGE HEAT PUMP

ZONES:



GE OR HP

ZONE:



IF FA IS SELECTED, ZONE 4 DAMPER WILL OPERATE AS A FRESH AIR DAMPER. SEE FRESH AIR FOR DETAILS

**GE OR HP
FA = FRESH AIR**

2 ADJUST HI AND LO LIMIT

FOR PROTECTION, THE EQUIPMENT WILL NOT RUN ABOVE HI OR BELOW LO LIMITS. SEE EQUIPMENT STAGING FOR DETAILS. STRONGLY RECOMMENDED TO LEAVE AT DEFAULT SETTINGS UNLESS APPLICATION DEMANDS ADJUSTMENT.

SET HIGH TEMP LIMIT (CUT-OUT)

PRESS & RELEASE THE ▲ "UP" ARROW BUTTON WHEN THE DISPLAY IS SHOWING SUPPLY TEMPERATURE. THE "HI TEMP" INDICATOR WILL FLASH AND THE DIGITS WILL SHOW THE CURRENTLY SET TEMPERATURE. THIS HIGH LIMIT CUT-OUT CAN BE ADJUSTED UP OR DOWN USING THE ▲ ▼ BUTTONS. SEE EQUIPMENT STAGING BELOW FOR MORE DETAILS.



SET LOW TEMP LIMIT (CUT-OUT)

PRESS & RELEASE THE ▼ "DOWN" ARROW BUTTON WHEN THE DISPLAY IS SHOWING SUPPLY TEMPERATURE. THE "LO TEMP" INDICATOR WILL FLASH AND THE DIGITS WILL SHOW THE CURRENTLY SET TEMPERATURE. THIS LOW LIMIT CUT-OUT CAN BE ADJUSTED UP OR DOWN USING THE ▲ ▼ BUTTONS. SEE EQUIPMENT STAGING BELOW FOR MORE DETAILS. **NOTE: CHANGING EITHER THE LOW OR HIGH TEMP LIMIT WILL ALSO AFFECT THE STAGING CUT-IN AND CUT-OUT TEMPERATURES SETTINGS. ADJUSTING THESE CAN CAUSE STAGING TO OCCUR SOONER OR LATER. SEE EQUIPMENT STAGING FOR MORE DETAILS.**



HOLD SET AUX. HEAT LIMIT (CUT-IN)

PRESS & HOLD THE ▲ "UP" ARROW BUTTON FOR 5 SECONDS WHEN THE DISPLAY IS SHOWING SUPPLY TEMPERATURE. WHEN RELEASED THE "HI LIMIT" AND "DELAY" INDICATORS WILL FLASH AND THE DIGITS WILL SHOW THE CURRENTLY SET TEMPERATURE (DEFAULT = 90, ADJUSTABLE FROM 90 TO 94 USING ▲ ▼ BUTTONS)



HOLD SET ECONOMIZER MODE LIMIT (CUT-OUT)

PRESS & HOLD THE ▼ "DOWN" ARROW BUTTON FOR 5 SECONDS WHEN THE DISPLAY IS SHOWING SUPPLY TEMPERATURE. WHEN RELEASED THE "HI LIMIT" AND "ECO" INDICATORS WILL FLASH AND THE DIGITS WILL SHOW THE CURRENTLY SET TEMPERATURE (DEFAULT = 60, ADJUSTABLE FROM 58 TO 68 USING ▲ ▼ BUTTONS)



ZONE 1 STAGING

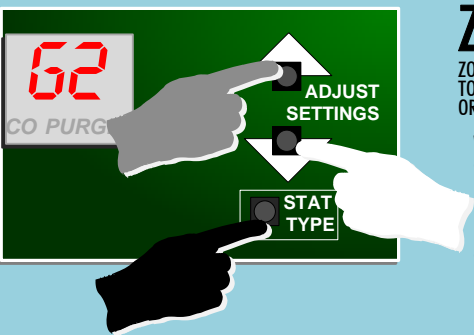
ZONE 1 STAGING CONTROL ALLOWS A MULTI-STAGE THERMOSTAT CONNECTED TO ZONE 1 TO CONTROL UP TO 2 COOL AND 3 HEAT STAGES. G2 (GAS/ELECTRIC) OR H2 (HEAT PUMP) THERMOSTAT TYPE CAN BE SELECTED IN HEAT PUMP MODE.

WITH ZONE 1 "STAT TYPE" SET TO G2 OR H2, DIP # 4

- **OFF (DEFAULT)** – SMARTZONE'S ONBOARD STAGING CONTROL [TIME&TEMP] WILL CONTINUE TO OPERATE 2ND STAGE. ZONE 1 STAT WILL BE ABLE TO ENERGIZE 2ND STAGE EARLY BUT WILL NOT PREVENT 2ND STAGE FROM OCCURRING.
- **ON (LOCKOUT)** – SMARTZONE'S ONBOARD STAGING CONTROL DISABLED AND ZONE 1 THERMOSTAT WILL BE ABLE TO CONTROL STAGING. (THIS INCLUDES AUXILIARY HEAT FOR HEAT PUMP)

NOTE: SMARTZONE WILL DELAY 60 SECONDS BETWEEN 1ST STAGE START AND 2ND STAGE START. ALSO, A 3 MINUTE MINIMUM OFF TIME IS IMPLEMENTED FOR ALL EQUIPMENT CALLS. STAGING FROM ZONE 1 THERMOSTAT WILL NOT OVER-RIDE THESE TIME DELAYS.

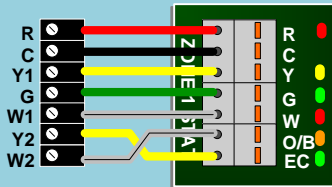
NOTE 2: WHEN ZONE 1 STAT TYPE IS SET TO G2 OR H2, "ECO MODE" IS DISABLED. TO ENABLE ECO MODE, SET ZONE 1 STAT TYPE TO GE OR HP.



GAS/ELECTRIC MULTI-STAGE THERMOSTAT

HI TEMP
LO TEMP
SUPPLY
DELAY ECO PURGE

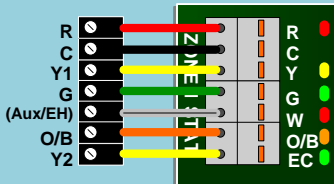
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HEAT PUMP MULTI-STAGE THERMOSTAT

HI TEMP
LO TEMP
SUPPLY
DELAY ECO PURGE

H2



WARNING:

USING THIS FEATURE REDUCES THE EFFECTIVENESS OF SMARTZONE'S ENERGY SAVING STAGING CONTROLS AND MAY INCREASE ENERGY USAGE.

DISPLAY OPERATION

MULTI-FUNCTION DIGITS SHOW SUPPLY TEMPERATURE, CUT-OUT TEMPERATURES (HIGH AND LOW), ZONE THERMOSTAT TYPES, FRESH-AIR TIME.

LO TEMP

(ON)

LOW TEMP LIMIT SENSED, SMARTZONE CONTROLLER DE-ENERGIZES EQUIPMENT COOL OUTPUT FOR A MINIMUM OF 3 MINUTES (FAN [G] AND DAMPER OUTPUTS CONTINUE TO OPERATE)

(FLASH)

SETTING LOW TEMP LIMIT – PRESS THE UP OR DOWN ARROW BUTTONS TO ADJUST THE LOW TEMP LIMIT (FACTORY DEFAULT 48° F)

HI TEMP

(ON)

HIGH TEMP LIMIT SENSED, SMARTZONE CONTROLLER DE-ENERGIZES EQUIPMENT HEAT OUTPUT FOR A MINIMUM OF 3 MINUTES (FAN [G] AND DAMPER OUTPUTS CONTINUES TO OPERATE)

(FLASH)

SETTING HIGH TEMP LIMIT – PRESS UP OR DOWN ARROW BUTTONS TO ADJUST THE HIGH TEMP LIMIT (FACTORY DEFAULT: HEAT PUMP – 120° F; ELECTRIC HEAT – 135° F; GAS HEAT – 135° F)

SUPPLY

SUPPLY AIR TEMPERATURE DISPLAYED NORMALLY

--- = SAS DISCONNECTED

HI TEMP
LO TEMP
SUPPLY
DELAY ECO PURGE

188

5t

= SETTING CHANGES STORED IN MEMORY, THIS WILL SHOW UP AFTER ADJUSTING ANY SETTING INCLUDING STAT TYPE, LIMIT TEMPERATURES, AND FRESH AIR TIME.

DELAY

SMARTZONE CONTROLLER HAS SATISFIED ALL CALLS AND WILL DELAY 3 MIN BEFORE INITIATING ANY ADDITIONAL CALLS. COUNTDOWN TIMER ON DIGITS 180 SEC. IF CALL MADE.

PURGE

SYSTEM IS IN PURGE MODE FOR EQUIPMENT CHANGEOVER (FAN [G] AND DAMPERS CONTINUE TO OPERATE, COUNTDOWN TIMER ON DIGITS 180 SEC.)

ECO

(ON)

EC INPUT ON ZONE 1 IS ENERGIZED AND SYSTEM IS IN ECONOMY MODE. ONLY ZONE 1 CAN INITIATE EQUIPMENT CALLS, OTHER ZONES WILL ONLY OPEN AND CLOSE DAMPERS AS NEEDED.

(FLASH)

IF ZONE 4 HAS BEEN CONFIGURED FOR FRESH AIR AND FRESH AIR IS BEING CURRENTLY SATISFIED. FAN SHOULD BE RUNNING AND ZONE 4 (FA DAMPER) ENERGIZED IN THE OPEN POSITION

OPERATION

MODES & STAGING

THE SMARTZONE CONTROLS EQUIPMENT STAGING AUTOMATICALLY BASED ON TIME AND SUPPLY AIR TEMPERATURE. (THIS TEMPERATURE IS READ BY THE INCLUDED SUPPLY AIR TEMP SENSOR – SAS) **NOTE: WITHOUT THIS SENSOR INSTALLED, THE SMARTZONE WILL NOT RUN 2ND STAGE OR OPERATE ANY DAMPERS.** TIME AND TEMPERATURE SETTINGS VARY ACCORDING TO THE TYPE OF EQUIPMENT HI/LO TEMP LIMIT SETTINGS. STAGING WILL OCCUR ONLY WHEN THE MINIMUM RUN-TIME AND TEMPERATURE RANGE CONDITIONS ARE MET. THE FACTORY DEFAULT SETTINGS FOR TEMPERATURE CUT-IN AND CUT-OUT ARE ADJUSTABLE. (SEE “HI & LO LIMIT ADJUST” PAGE 9)

AUTO CHANGEOVER

IT IS POSSIBLE TO SIMULTANEOUSLY HAVE ONE ZONE(S) CALLING FOR COOL AND ANOTHER ZONE(S) CALLING FOR HEAT (CALLED “OPPOSING CALLS”). WHEN OPPOSING CALLS EXIST, EACH ACTIVE MODE RUNNING ON THE EQUIPMENT WILL BE LIMITED TO A MAXIMUM RUN TIME OF 15 MINUTES STARTING WHEN THE OPPOSING MODE CALL IS RECEIVED. IF THE ACTIVE MODE DOES NOT SATISFY THE CALLING ZONE(S) IN THIS 15 MINUTE INTERVAL, SMARTZONE WILL INITIATE A CHANGEOVER PROCESS. CHANGEOVER: DE-ENERGIZE THE ACTIVE MODE AND INITIATING A 3 MINUTE PURGE (SEE BELOW FOR MORE ABOUT PURGE). AFTER PURGE, OPPOSING MODE WILL ENERGIZE IF CALL FROM ZONE FOR THIS MODE STILL REMAINS ACTIVE.

PURGE



A 3 MINUTE PURGE OF THE SUPPLY AIR PLENUM IS INITIATED DURING OPPOSING-CALL CHANGEOVER. (SWITCHING FROM HEAT TO COOL OR COOL TO HEAT) DURING THE PURGE, THE FAN WILL REMAIN ENERGIZED TO PURGE EXISTING SUPPLY AIR TEMPERATURE AND TO ALLOW EQUALIZATION OF HVAC SYSTEM PRESSURES BEFORE ENERGIZING THE OPPOSING MODE CALL. DURING THE PURGE MODE, ZONE(S) CALLING FOR THE OPPOSITE MODE WILL HAVE DAMPER(S) CLOSED. ALL OTHER DAMPERS (NON-CALLING ZONE(S) AND ZONE(S) CALLING FOR MODE LAST ENERGIZED) WILL REMAIN OPEN DURING PURGE MODE. THE DIGITAL DISPLAY WILL SHOW 180 SECOND COUNTDOWN TIMER DURING PURGE PROCESS (SEE “AUTO CHANGEOVER” ABOVE)

TIME DELAY



TIME DELAY IS DESIGNED FOR EQUIPMENT PROTECTION. AFTER CALLS FROM ALL ZONES HAVE BEEN SATISFIED AND THE EQUIPMENT IS DE-ENERGIZED, A 3-MINUTE TIME DELAY WILL BE COMPLETED BEFORE NEW THERMOSTAT CALLS WILL BE PROCESSED. DURING THE DELAY ALL DAMPERS OPEN AND THE EQUIPMENT WILL NOT RUN. DURING DELAY THE DIGITAL DISPLAY WILL COUNT DOWN THE NUMBER OF SECONDS LEFT DURING PURGE TIME IF A NEW CALL IS ENERGIZED. **NOTE: ALTHOUGH SMARTZONE WILL NOT ENERGIZE THE FAN (OR EQUIPMENT) DURING DELAY, THE EQUIPMENT BEING USED MAY HAVE A BUILT IN CONTROL THAT CAUSES THE FAN TO CONTINUE RUNNING.**

HEAT PUMP ONLY: EMERGENCY HEAT

- ▶ EMERGENCY HEAT CAN **ONLY** BE OPERATED BY A HEAT PUMP THERMOSTAT CONNECTED TO THE ZONE 1 THERMOSTAT “W” TERMINAL.
- ▶ IF ZONE 1 THERMOSTAT CALLS FOR EMER. HEAT, THE SMARTZONE SYSTEM WILL BE LOCKED INTO EMERGENCY HEAT.
- ▶ THE COMPRESSOR WILL NOT ENERGIZE AND ONLY HEATING CALLS WILL BE RECOGNIZED FROM ANY ZONE OTHER THAN ZONE 1. ONLY W1/EH AND G WILL BE ALLOWED TO ENERGIZE WHILE SMARTZONE IS LOCKED INTO EMERGENCY HEAT. (I.E. COMPRESSOR & COOLING CALLS WILL BE LOCKED OUT) ALL COOLING CALLS FROM ZONES 2 & UP WILL BE IGNORED AND ANY HEATING CALL FROM ZONES 2 & UP WILL BE TREATED BY THE SMARTZONE SYSTEM AS EMER. HEAT TO THE EQUIPMENT (INCLUDING “W” OR “Y”)
- ▶ TO UNLOCK EMER. HEAT TAKE THE SMARTZONE SYSTEM BACK TO NORMAL OPERATION, REMOVE THE EMER. HEAT CALL FROM THE ZONE 1 THERMOSTAT **AND** MAKE A CALL FOR COMPRESSOR HEAT OR COOLING FROM ZONE 1 THERMOSTAT.

DUAL FUEL (FOSSIL FUEL AUX / EM HEAT)

IN DUAL FUEL MODE, THE COMPRESSOR(S) WILL NOT RUN WHEN AUXILIARY HEAT IS ENERGIZED. SMARTZONE CONTROLS DUAL FUEL OPERATION SO A “DUAL FUEL KIT” AND HEAT PUMP THERMOSTATS ARE NOT REQUIRED. GAS/ELECTRIC THERMOSTATS MAY BE USED WITH A HEAT PUMP SYSTEM, HOWEVER, A HEAT PUMP STAT IS NECESSARY FOR ZONE 1 TO CONTROL EMERGENCY HEAT (DESCRIBED ABOVE). ALWAYS INSTALL THE HEAT PUMP EVAPORATOR DOWNSTREAM OF THE FURNACE, THIS PREVENTS CONDENSATION IN THE HEAT EXCHANGER DURING THE COOLING MODE. SEE **EQUIPMENT STAGING** TO THE RIGHT FOR MORE DETAILS ABOUT DUAL FUEL.

REVERSING VALVE

IN ORDER TO REDUCE UNNECESSARY OPERATION THE REVERSING VALVE WILL REMAIN IN THE SAME STATE THAT WAS LAST CALLED FOR BY A ZONE THERMOSTAT EVEN AFTER THE CALL HAS BEEN SATISFIED AND EQUIPMENT STOPPED RUNNING.

COOLING

ALL TYPES (HP & GE)

1ST STAGE STARTS WITH ANY CALL FROM A THERMOSTAT FOR COOL

*NOTE: O/B WILL ALSO ENERGIZE FOR HEAT PUMP IF DIP SWITCH #2 IS SET TO "0"

- IF SUPPLY TEMP IS COOLER THAN **LO TEMP** (SEE ADJUST LIMITS) FAN WILL RUN BUT Y1 WILL DE-ENERGIZE FOR 3 MINUTES & UNTIL SUPPLY TEMP IS WARMER THAN **LO TEMP** (DEFAULT = 48°F)
- 2ND STAGE OCCURS AFTER 8 MINUTES OF 1ST STAGE, IF SUPPLY TEMP WARMER THAN **LO TEMP** + 10°
- EQUIPMENT WILL RETURN TO 1ST STAGE IF SUPPLY TEMP IS COOLER THAN **LO TEMP** + 4° (2ND STAGE WILL NOT RE-ENERGIZE UNTIL AFTER 3 MINUTES "OFF TIME")

Y1 ●
Y2 ●
G ●
W1 EH ●
*O/B ●

EQUIPMENT

1ST STAGE
8 MIN UNTIL 2ND

CUT OUT: < **LO TEMP**

Y1 ●
Y2 ●
G ●
W1 EH ●
W2 O/B ●

EQUIPMENT

2ND STAGE

CUT IN: > **LO TEMP** + 10°
CUT OUT: < **LO TEMP** + 4°

HEATING

GAS / ELECTRIC

1ST STAGE STARTS WITH ANY CALL FROM A THERMOSTAT FOR HEAT

- IF SUPPLY TEMP IS WARMER THAN **HI TEMP** (SEE ADJUST LIMITS) FAN WILL RUN BUT W1 WILL DE-ENERGIZE FOR 3 MINUTES AND UNTIL SUPPLY TEMP IS COOLER THAN **HI TEMP** (DEFAULT = 135°F)
- 2ND STAGE OCCURS AFTER 8 MINUTES OF 1ST STAGE, IF SUPPLY TEMP COOLER THAN **HI TEMP** - 25°
- EQUIPMENT WILL RETURN TO 1ST STAGE IF SUPPLY TEMP IS WARMER THAN **HI TEMP** - 10° (2ND STAGE WILL NOT RE-ENERGIZE UNTIL AFTER 3 MINUTES "OFF TIME")

Y1 ●
Y2 ●
*G ●
W1 EH ●
W2 O/B ●

EQUIPMENT

1ST STAGE
8 MIN UNTIL 2ND

CUT OUT: > **HI TEMP**

Y1 ●
Y2 ●
G ●
W1 EH ●
W2 O/B ●

EQUIPMENT

2ND STAGE

CUT IN: < **HI TEMP** - 25°
CUT OUT: > **HI TEMP** - 10°

*NOTE: G WILL ENERGIZE IMMEDIATELY WITH 1ST STAGE IF DIP SWITCH #5 IS SET TO "ELECTRIC". IF SET TO THE DEFAULT OF "GAS", G WILL ENERGIZE AFTER 90 SECONDS.

HEATING

HEAT PUMP

1ST STAGE STARTS WITH ANY CALL FROM A THERMOSTAT FOR HEAT

*NOTE: O/B WILL ALSO ENERGIZE IF DIP SWITCH #2 IS SET TO "B"

- IF SUPPLY TEMP IS WARMER THAN **HI TEMP** (SEE ADJUST LIMITS) FAN WILL RUN BUT Y1 WILL DE-ENERGIZE FOR 3 MINUTES AND UNTIL SUPPLY TEMP IS COOLER THAN **HI TEMP** (DEFAULT = 120°F)
- 2ND STAGE OCCURS AFTER 4 MINUTES OF 1ST STAGE, IF SUPPLY TEMP COOLER THAN **HI TEMP** - 15°
- EQUIPMENT WILL RETURN TO 1ST STAGE IF SUPPLY TEMP IS WARMER THAN **HI TEMP** - 5° (2ND STAGE WILL NOT RE-ENERGIZE UNTIL AFTER 3 MINUTES "OFF TIME")
- AUXILIARY HEAT OCCURS AFTER TWO MINUTES 2ND STAGE (6 MINUTES TOTAL) IF SUPPLY TEMP COOLER THAN AUX HEAT CUT IN (90° DEFAULT) [ADJUST: 90 TO 94]
- NORMAL: EQUIPMENT WILL RETURN TO 2ND STAGE IF SUPPLY TEMP IS WARMER THAN 100°

Y1 ●
Y2 ●
G ●
W1 EH ●
*W2 O/B ●

EQUIPMENT

1ST STAGE
4 MIN UNTIL 2ND

CUT OUT: > **HI TEMP**

Y1 ●
Y2 ●
G ●
W1 EH ●
*W2 O/B ●

EQUIPMENT

2ND STAGE
2 MIN UNTIL AUXILIARY

CUT IN: < **HI TEMP** - 15°
CUT OUT: > **HI TEMP** - 5°

DUAL FUEL

Y1 ●
Y2 ●
G ●
W1 EH ●
W2 O/B ●

EQUIPMENT

NORMAL

Y1 ●
Y2 ●
G ●
W1 EH ●
*W2 O/B ●

EQUIPMENT

AUXILIARY
(6 MIN AFTER 1ST STAGE)

CUT IN: < 90°
CUT OUT: > 100°

DUAL FUEL: EQUIPMENT WILL CONTINUE IN DUAL FUEL UNTIL CALL(S) SATISFIED. HI TEMP LIMIT WILL BE THE GAS/ELECT "HI LIMIT" (TEMPORARILY SWITCH DIP SWITCH #1 TO GAS/ELECT TO ADJUST DUAL FUEL "HI LIMIT")

FRESH AIR CONTROL (IAQ)

SMARTZONE-4X CAN AUTOMATICALLY ENERGIZE FAN (G) AND OPEN THE FRESH AIR DAMPER (ZONE 4) FOR A CONFIGURABLE # MINUTES PER HOUR (FRESH AIR RUN TIME)

FRESH AIR OPERATION

FRESH AIR RUN-TIME IS ATTEMPTED DURING EQUIPMENT CALLS BUT WILL BE COMPLETED AT THE END OF THE HOUR AUTOMATICALLY TO SATISFY THE FRESH AIR RUN-TIME SET BY USER EVEN IF EQUIPMENT HAS NOT RUN

FRESH AIR CONFIGURATION

- 

1 PRESS STAT TYPE BUTTON TO SELECT ZONE 4


- 

2 PRESS UP ▲ BUTTON TO SELECT FA


- 

3 PRESS STAT TYPE AGAIN

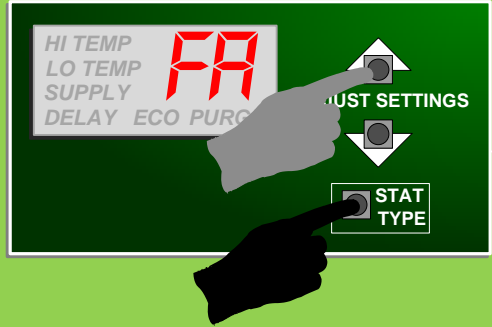

- 

4 PRESS ▲▼ TO SELECT THE # OF MINUTES PER HOUR FOR FRESH AIR RUN TIME (IN 5 MINUTE INCREMENTS)


- 

5 PRESS STAT TYPE AGAIN (OR WAIT 5 SECONDS) TO STORE SETTINGS





ADVANCED FRESH AIR

WHEN ZONE 4 IS CONFIGURED AS FRESH AIR, CONNECTING A SWITCH OR SENSOR (24VAC) TO THE ZONE 4 THERMOSTAT TERMINALS WILL ACTIVATE ADVANCED FRESH AIR FEATURES.
CLOSED = ENABLED, OPEN = DISABLED



FOR BASIC FRESH AIR: DO NOT CONNECT TO THESE TERMINALS.

ASHRAE 62.2 NOTES

- 1** DETERMINE THE FRESH AIR CFM TO COMPLY WITH ASHRAE 62.2 USING THE TABLE BELOW OR THIS FORMULA:

FRESH AIR CFM

| Floor Area | BEDROOMS | | | | |
|------------|----------|-----|-----|-----|-----|
| | 0-1 | 2-3 | 4-5 | 6-7 | >7 |
| < 1500 | 30 | 45 | 60 | 75 | 90 |
| 1501- 3000 | 45 | 60 | 75 | 90 | 105 |
| 3001- 4500 | 60 | 75 | 90 | 105 | 120 |
| 4501- 6000 | 75 | 90 | 105 | 120 | 135 |
| 6001- 7500 | 90 | 105 | 120 | 135 | 150 |
| >7500 | 105 | 120 | 135 | 150 | 165 |

$$[(\text{TOTAL SQ. FT.})/100] + [(\text{\# OF BEDROOMS}+1) \times 7.5]$$

- 2** MEASURE THE CFM PROVIDED BY THE FRESH AIR DAMPER WITH AN ANEMOMETER
- 3** CALCULATE FRESH AIR RUN TIME AND SET THIS # AS DESCRIBED ABOVE IN STEP 4

$$\text{FRESH AIR RUN TIME} = 60 \times \left(\frac{\text{FRESH AIR CFM}}{\text{MEASURED-CFM}} \right)$$

FOR MORE INFORMATION ABOUT ADVANCED FRESH AIR ESPECIALLY ECONOMIZER AND OTHER ACCESSORIES SEE "SMARTZONE FRESH AIR - ECONOMIZER GUIDE" AVAILABLE AT ECOJAY.COM

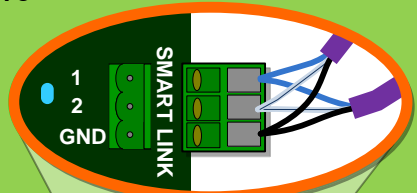
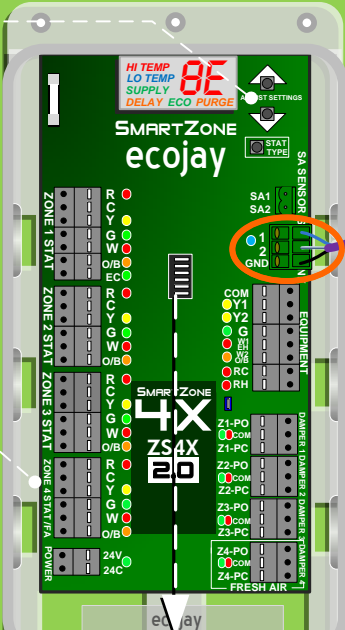


PART # AFET

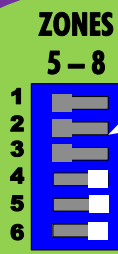
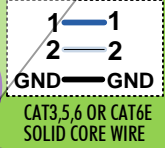
20 ZONES - SMARTLINK

CONNECT UP TO FIVE SMARTZONE-4X BOARDS TO CREATE 8, 12, 16, OR 20 ZONE SYSTEMS

FIRMWARE VERSION MUST MATCH ON ALL BOARDS FOR SMARTLINK FEATURE



ON ZONES 5 THRU 20 BOARDS, CONFIGURE DIP SWITCHES #1 – 3 NORMALLY & #4 – 6 AS SHOWN BELOW



CONNECT EQUIPMENT & SAS ONLY TO MAIN "ZONES (1-4)" SMARTZONE-4X CONTROLLER

BLUE LED FLASHING INDICATES COMMUNICATION ESTABLISHED. IF NOT FLASHING, CHECK SMARTLINK WIRING AND DIP SWITCH SETTINGS

ZONES 1 – 4

ON ZONES 1-4, CONFIGURE DIP SWITCHES #1-5 NORMALLY. SEE DIP SWITCHES

| | | |
|----------------------|----------|-----------------------|
| GAS/ELECT | 1 | HEAT PUMP |
| RVS. VLV. 0 | 2 | B |
| NORMAL | 3 | DUAL FUEL |
| 2nd STAGE | 4 | LOCKOUT |
| FAN GAS | 5 | ELECTRIC |
| SMART LINK | 6 | ZONES (5 – 20) |
| ZONES (1 – 4) | | |

ON ZONES 1-4 MAKE SURE DIP SWITCH #6 IS TO THE LEFT

NOTE: FRESH AIR & ZONE 1 STAGING CONTROLLED THROUGH THE ZONES 1-4 SMARTZONE BOARD. CONNECT EQUIPMENT & SUPPLY TEMP SENSOR ONLY TO ZONES 1-4 SMARTZONE BOARD.



NOTE: IF MULTIPLE TRANSFORMERS ARE USED FOR A SMARTLINK APPLICATION, THE PRIMARY AND SECONDARY POLARITY MUST BE THE SAME ON ALL SMARTZONE-4X BOARDS.

TROUBLESHOOTING

SYMPTOM

- [2, 5, 6] EQUIPMENT CALLS DON'T MATCH THERMOSTAT CALLS
(STAT CALLS FOR HEAT, EQUIPMENT CALLS FOR COOL AND VICA VERSA)
- [5, 6, 7] NO TEMPERATURE ON DISPLAY
- [5, 6, 7] NO DISPLAY
- [5, 7] NO GREEN POWER LED
- [1, 2, 5, 6, 7] STATS ARE CALLING BUT EQUIPMENT IS NOT
- [1, 2, 6, 7] EQUIPMENT IS CALLING BUT STATS ARE NOT
- [1, 3, 4] NOISE AT AIR REGISTER
- [1, 3, 4, 6C] SHORT CYCLING EQUIPMENT
- [1, 3, 4, 6C] CONDENSATION ON PLENUM
- [1, 5, 6, 7] NOT STAGING PROPERLY
- [2, 6, 7] THERMOSTATS NOT CALLING
- [1, 2, 5, 6, 7] EQUIPMENT NOT RUNNING
- [3, 5, 6, 7] DAMPERS NOT OPENING/CLOSING
- [3, 5, 6, 7] DAMPER LEDS NOT CORRECTLY SHOWING OPERATION
- [2, 6, 7] STAT LEDS DO NOT MATCH STAT CALLS
- [1, 3, 4, 6, 7] PLENUM TEMPERATURE NOT READING CORRECTLY
- [1, 3, 4] NOT ENOUGH AIRFLOW IN THE LOAD SPACE
- [1, 3, 4] NOT PROPERLY HEATING OR COOLING SPACE WHEN ALL ZONES CALLING
- [3, 4] NOT PROPERLY HEATING OR COOLING WHEN CERTAIN ZONES CALL
- [6, 7] NOT CHANGING-EQUIPMENT MODES PROPERLY OR AT ALL
- [1, 2, 3, 4, 6] EMERGENCY HEAT NEVER ENERGIZES / AUX. HEAT ENERGIZES TOO SOON

POSSIBLE CAUSE

- 1 HVAC EQUIPMENT**
 - REFRIGERANT CHARGE, FAN SPEED, WIRING, POWER, ETC
(ANY PROBLEM ASSOCIATED WITH THE EQUIPMENT)
- 2 THERMOSTATS**
 - A. INCOMPATIBLE (POWER STEALING/NO COMMON)
 - B. DEFECTIVE THERMOSTAT
 - C. WIRING DEFECT
 - D. "STAT TYPE" SETUP (HEAT PUMP ONLY)
- 3 ZONE DAMPERS/DUCT**
 - A. ACTUATOR FAILURE
 - B. MECHANICAL FAILURE (INCLUDING INSULATION)
 - C. DUCT SIZING (NOT ENOUGH OR TOO MUCH CFM)
 - D. WIRING DEFECT
- 4 PRESSURE BYPASS/RELIEF**
 - A. ACTUATOR FAILURE
 - B. SENSOR (STATIC PRESSURE SENSOR DEFECT)
 - C. MECHANICAL FAILURE
 - D. SETUP (MODULATING CALIBRATION OR WEIGHT ARM SETTING)
 - E. ORIENTATION OF INSTALLATION (SPC OR BAROMETRIC BYPASS)
 - F. IMPROPER SIZING (NOT ENOUGH CFM CAPACITY)
 - G. WIRING DEFECT
- 5 POWER**
 - A. TRANSFORMER FUSE
 - B. WIRING DEFECT
 - C. PRIMARY CIRCUIT PROBLEM (SHARED/CAPACITY, BREAKER)
 - D. IMPROPERLY SIZED TRANSFORMER (NOT ENOUGH VA)
 - E. DEFECTIVE TRANSFORMER
- 6 SMARTZONE SETUP/CONFIG**
 - A. DIP SWITCHES SET INCORRECTLY
 - B. THERMOSTAT "TYPE" (FOR HP MUST MATCH THERMOSTATS)
 - C. TEMPERATURE LIMIT SETTINGS (HI & LO LIMITS SHOULD BE SET TO MATCH APPLICATION)
 - D. TEMPERATURE SENSOR LOCATED INCORRECTLY OR NOT PLUGGED IN
 - E. ECO MODE SETTING
 - F. FRESH AIR SETTINGS
- 7 SMARTZONE CONTROL PANEL**
 - A. WIRING (ENSURE WIRED STRIPPED AT LEAST 1/3")
 - B. FUSE (FIELD REPLACABLE 300 MA, SPARE INCLUDED)
 - C. DEFECTIVE COMPONENT (REPLACE BOARD ONLY IN THIS CASE)

SMARTZONE.ECOJAY.COM



SCAN WITH SMARTPHONE



SMARTZONE
MORE INFORMATION @ ecojay.com



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