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Crossover Zoning Wiring Instructions

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Schematic

Sample Ductwork

Wiring Diagram

Outdoor Unit Wiring

Indoor Unit Wiring

Zone Board Wiring

Supply Air Sensor

Thermostat Wiring

Dampers Wiring

Transformer Wiring

Leak Sensor Trip Wiring

RES Crossover Zoning – List of Equipment



Zoning Controller

TL-EZ4F - Four-Zone System



Third Party 24V Thermostat



Dampers

DAMPRND06INC – Zone Dampers

DAMPBAR10INC – Bypass Barometric Damper

Compatible ICP Air Handlers

ICP Air Handlers*	Model Family	Cooling Stages	Motor
QuietComfort (Mid)	FTMA5	2	VS ECM
	FHMA5	1	MS ECM
Performance (Entry)	FMA5X	1	MS ECM
	F5MA5	2	MS ECM
	FMA5L	1	PSC
Ceiling Mount	FM(U,C)5Z	1	MS ECM

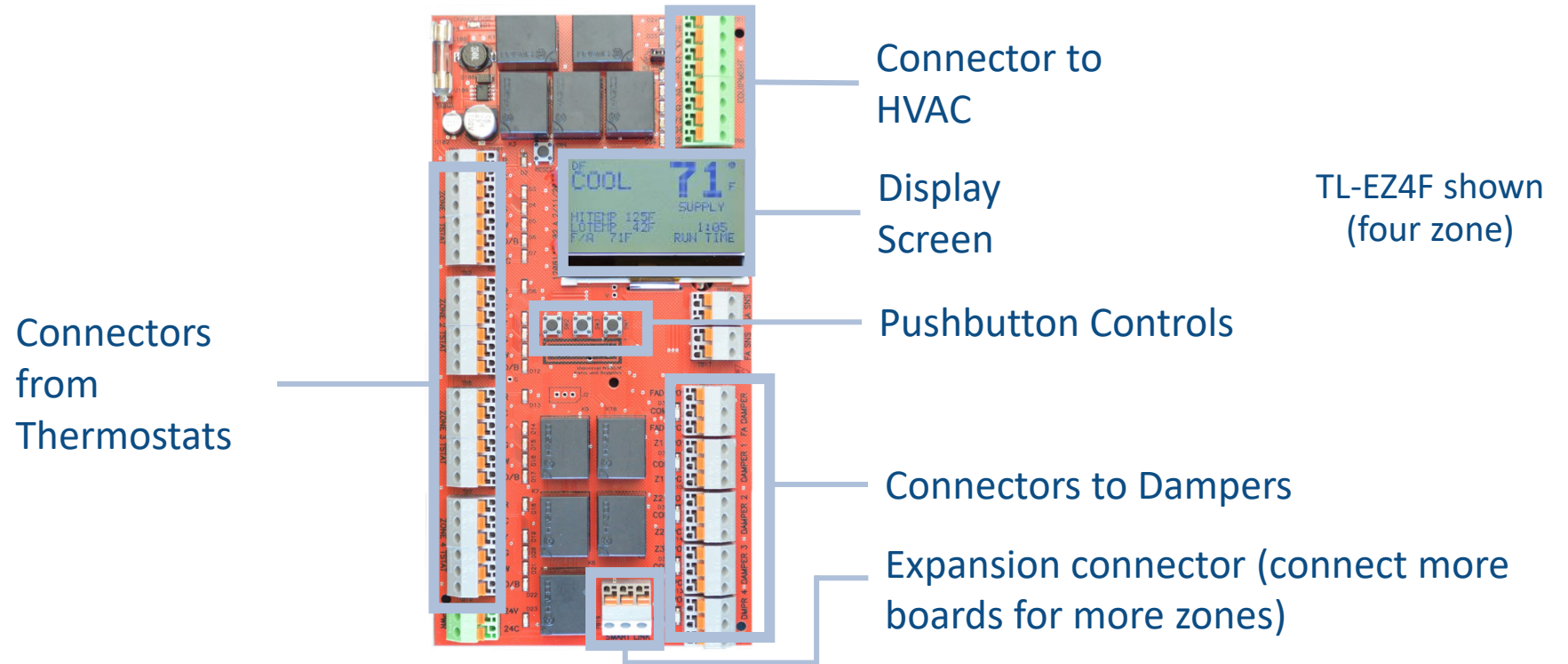
*Refer to AHRI for complete list of compatible indoor units.

Note:

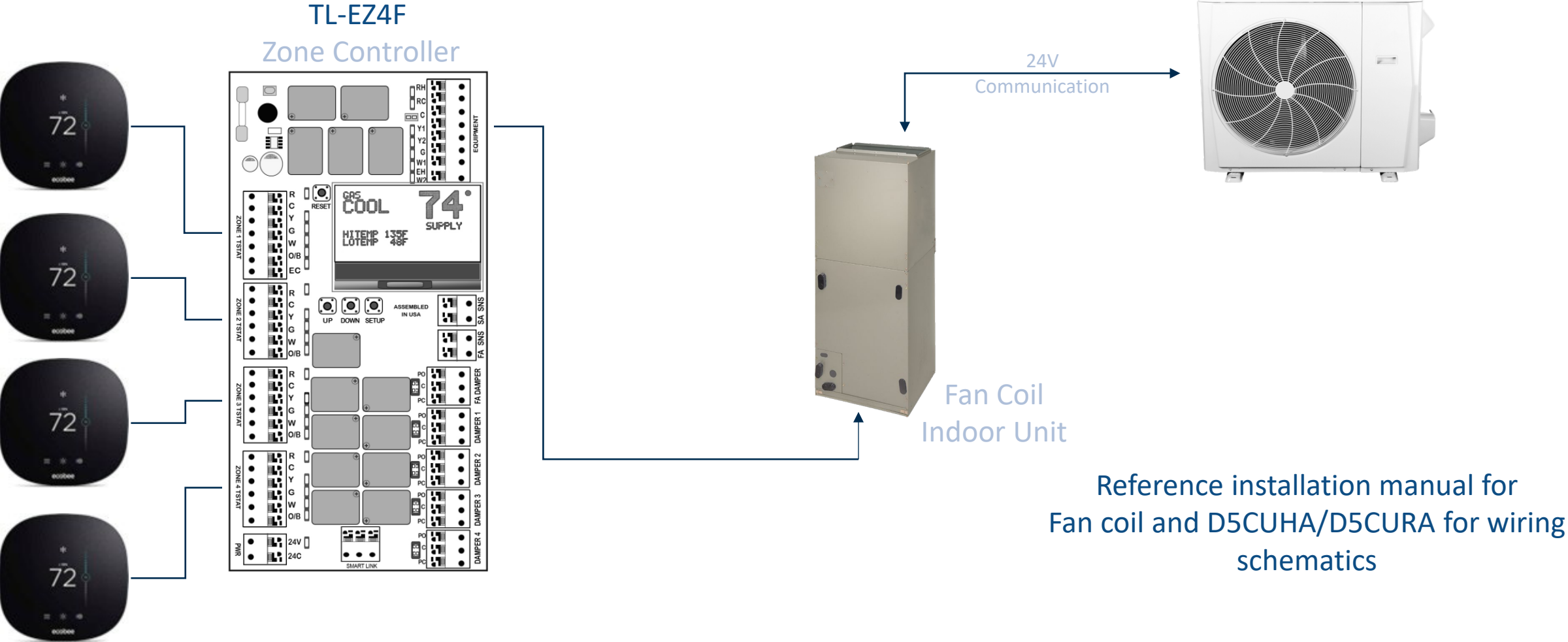
All wiring diagrams based on FTMA5.
ICP Crossover zoning is compatible with any rated fan coil.

ICP Four-Zone Board

Control boards are the “brains” of the zoning system – they receive heat or cool calls from the thermostat, then turn on the HVAC system and controls the dampers so that only the appropriate zone gets heated or cooled

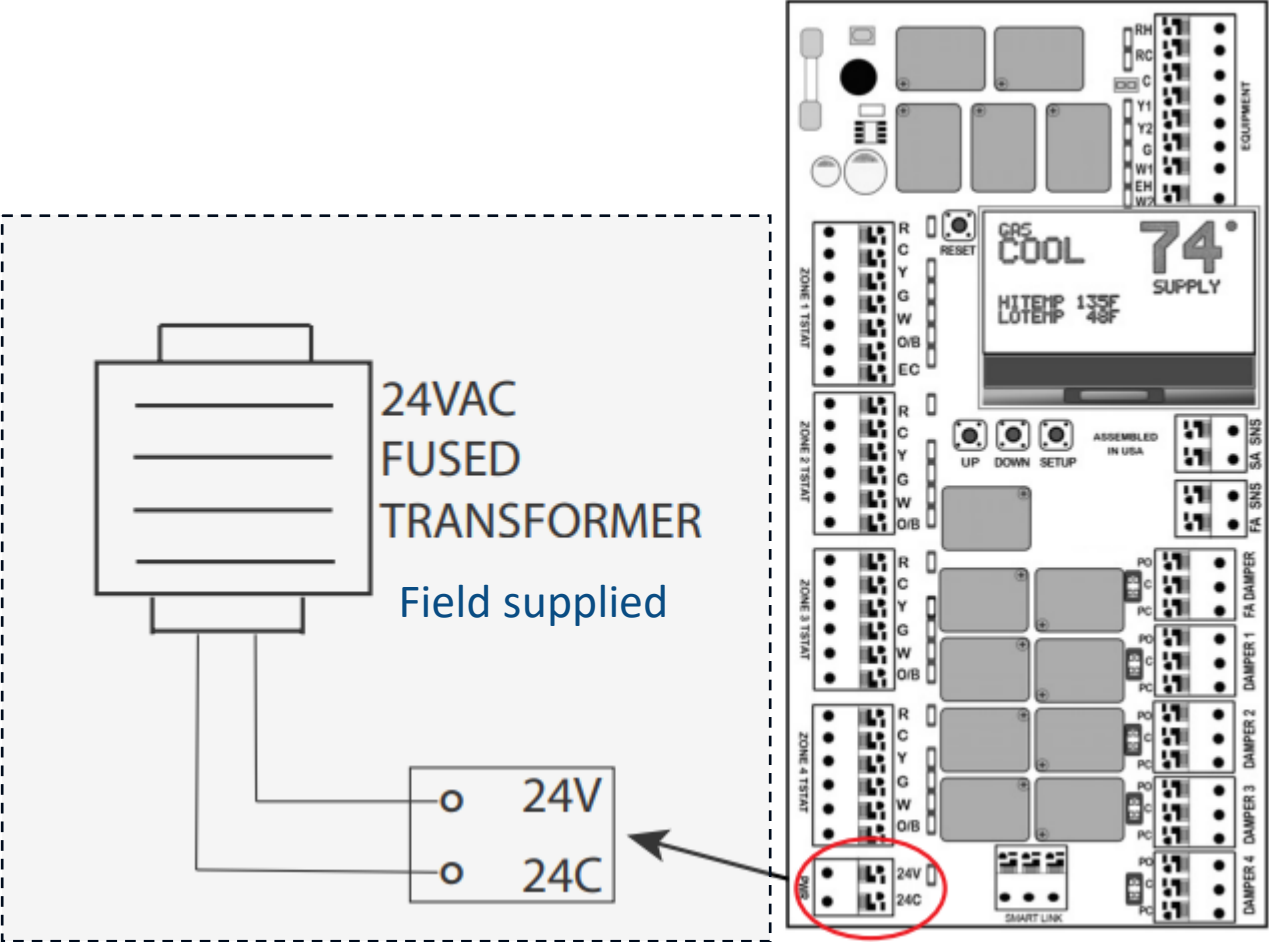


RES Crossover Zoning Schematic



Wiring Diagram – Power Zoning Controller

TL-EZ4F
Zone Controller



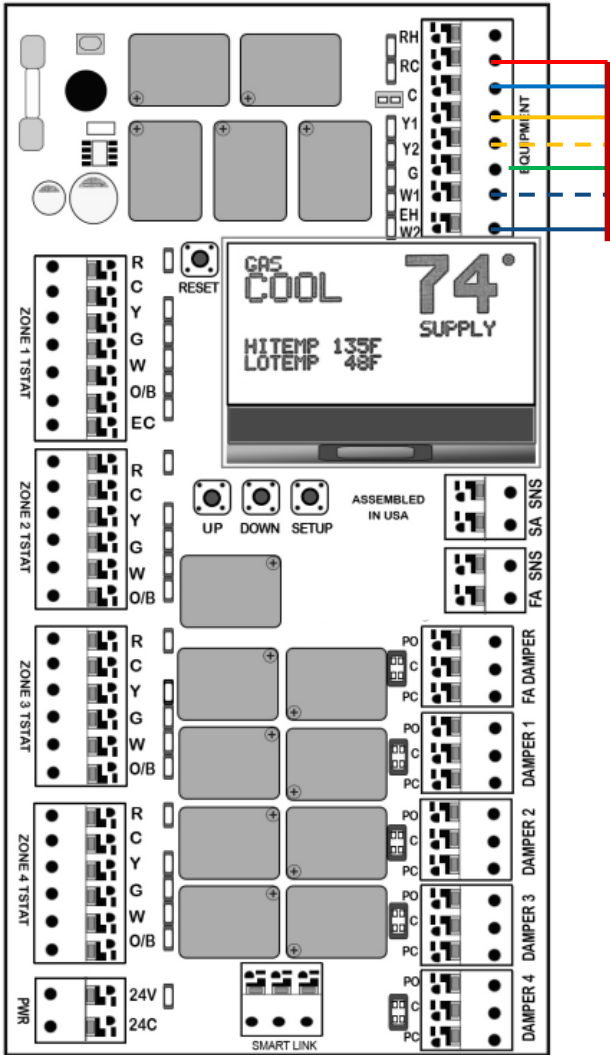
Follow Zone Controller
Installation Instructions

Table 1 – Ratings

Input Ratings	Voltage: 18-40 VAC 50/60 HZ transformer of 40 VA or more
Current Draw	• Zone Controller: 10 VA • PO/PC Dampers: 3 VA • All VA specifications at 24 VAC
Fuse	5 x 20mm 30 ma Slo-Blo
Temperature Ratings	Shipping: -20° to 150° F Operating: -20° to 165° F
Humidity Ratings	5% to 95% RH non-condensing
Wiring	18-gauge SOLID wire

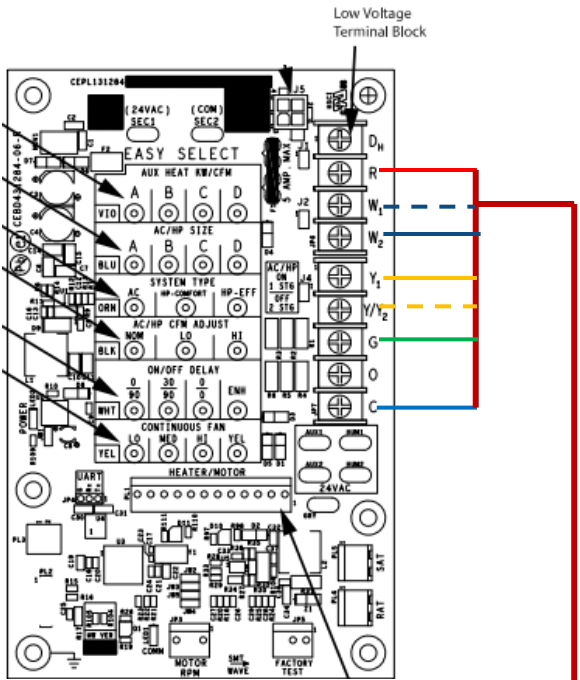
Indoor Wiring

TL-EZ4F
Zone Controller



24V Connection from Zoning Controller to Air Handler

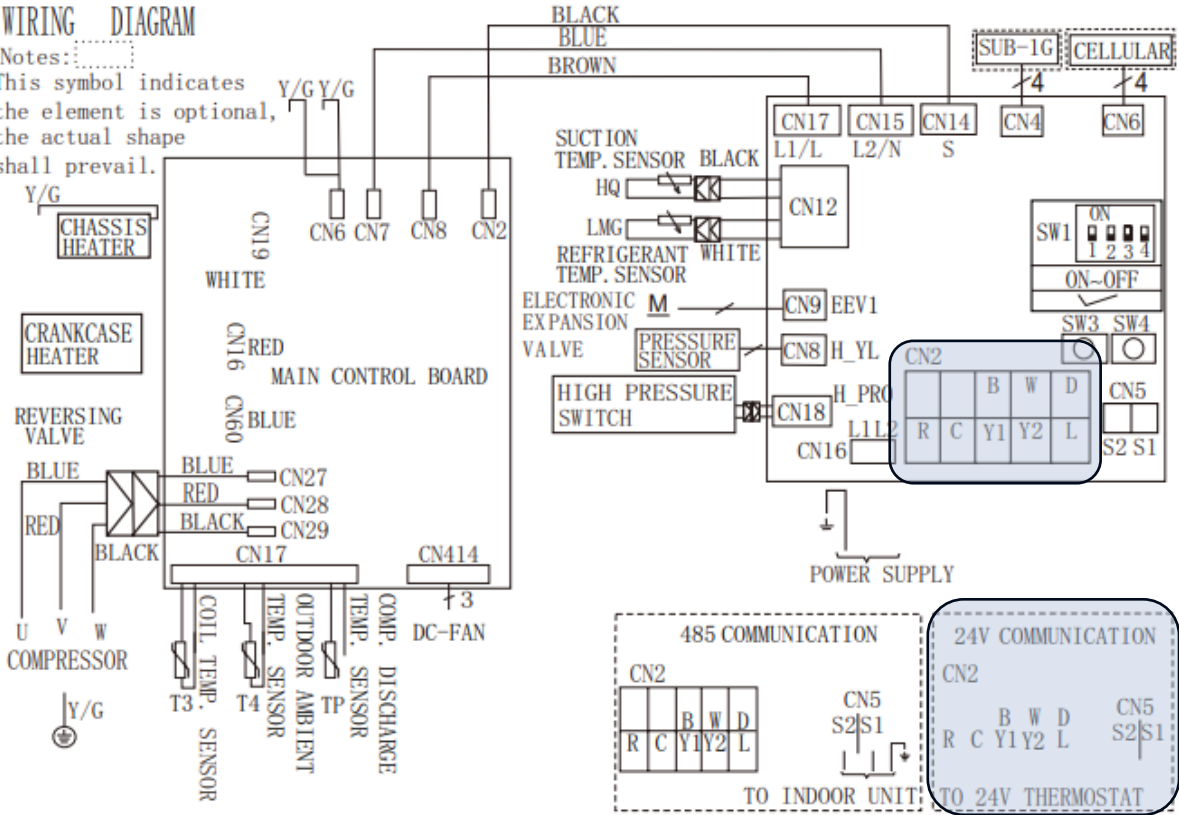
18-gauge solid thermostat wire



Wiring diagram shown is
Residential FTMA5 Air Handler

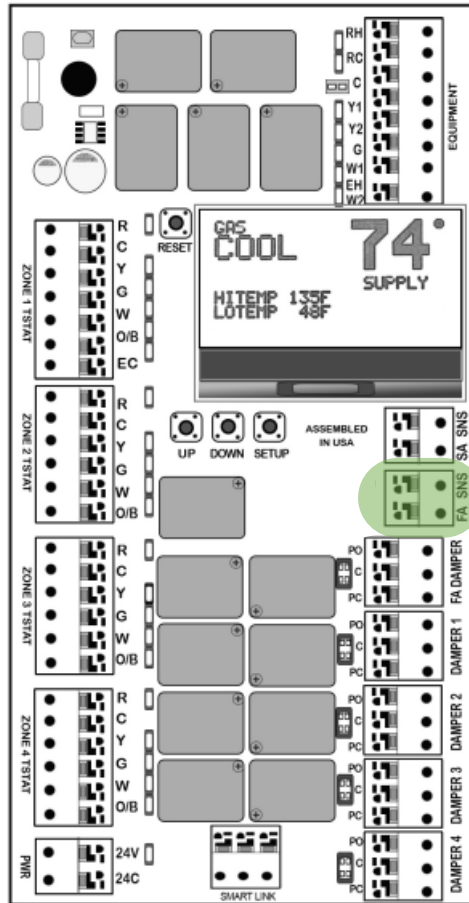
Outdoor Wiring

24V Connection from residential air handler to Crossover

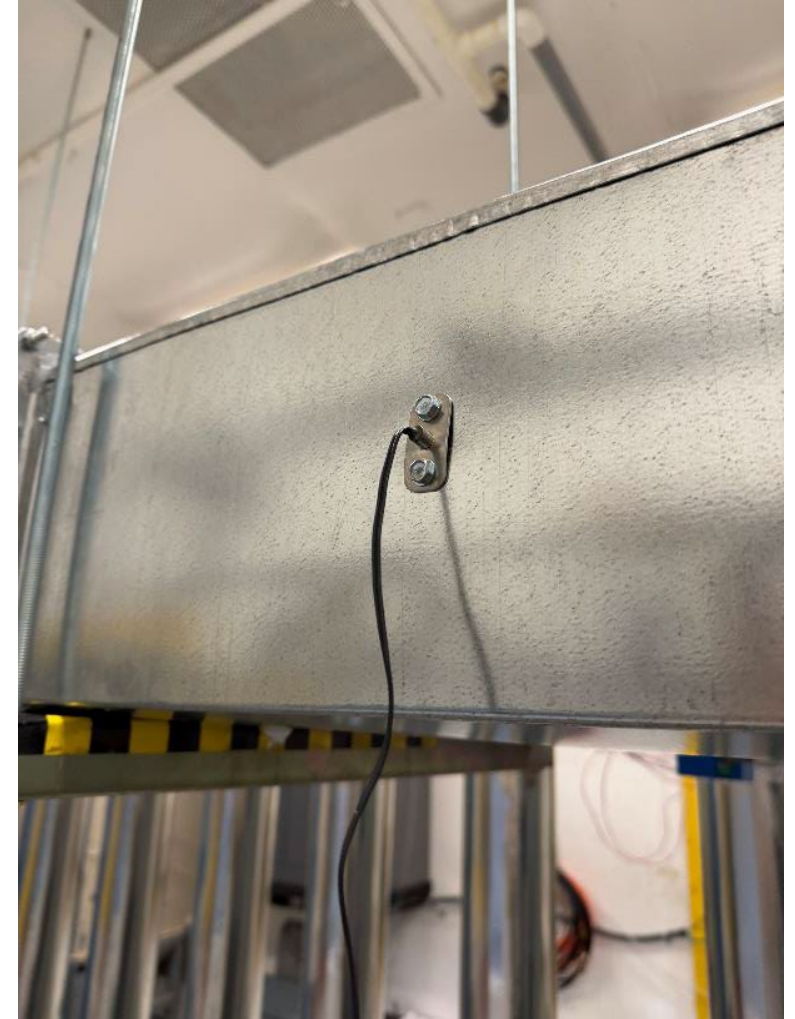


Supply Air Sensor

TL-EZ4F Zone Controller

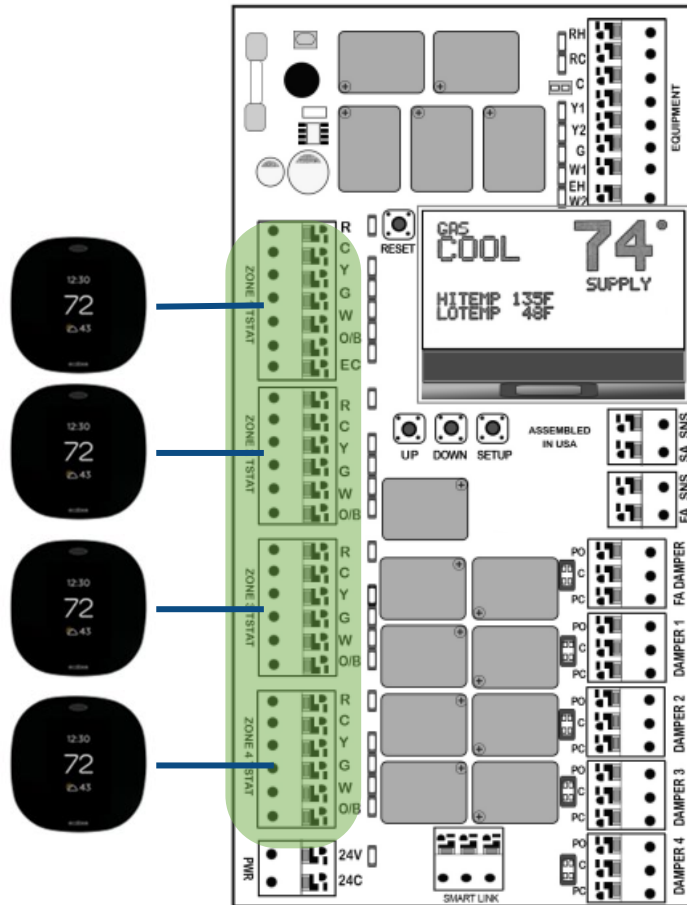


- SA SNS : Stands for Supply Air Sensor. Zone board comes with one. Needs to be connected to the side of the main duct.
- Example on the right is how it is installed in test labs

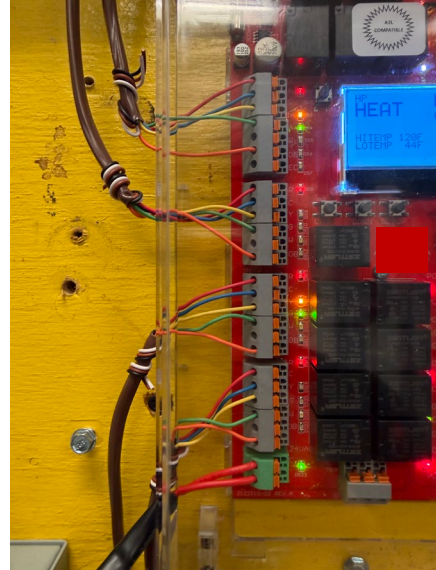


Thermostat Wiring – Up to 4 Zones

TL-EZ4F
Zone Controller



- Thermostat Wire. Depending on number of zone each zone is marked on the board. Lights on the board as well light up to tell you which wire is energized.
- Example below is how it is installed in test labs



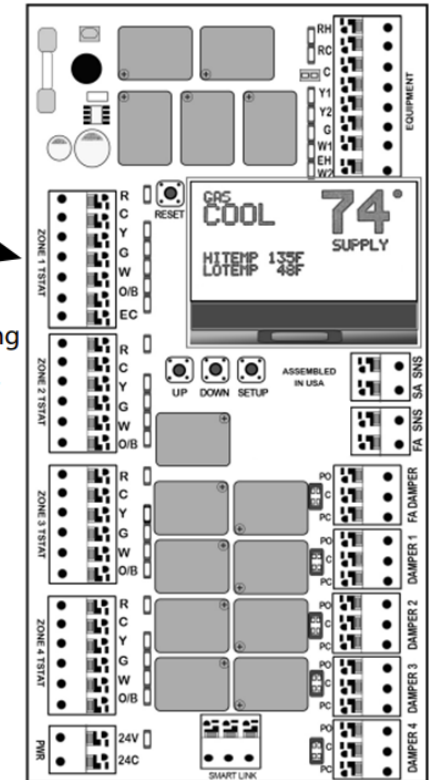
Heat Pump Thermostat



R
C
Y
G
W
O/B

Connect to matching terminals on board.

TL-EZ4F
Zone Controller



Leak Sensor Trip Wiring

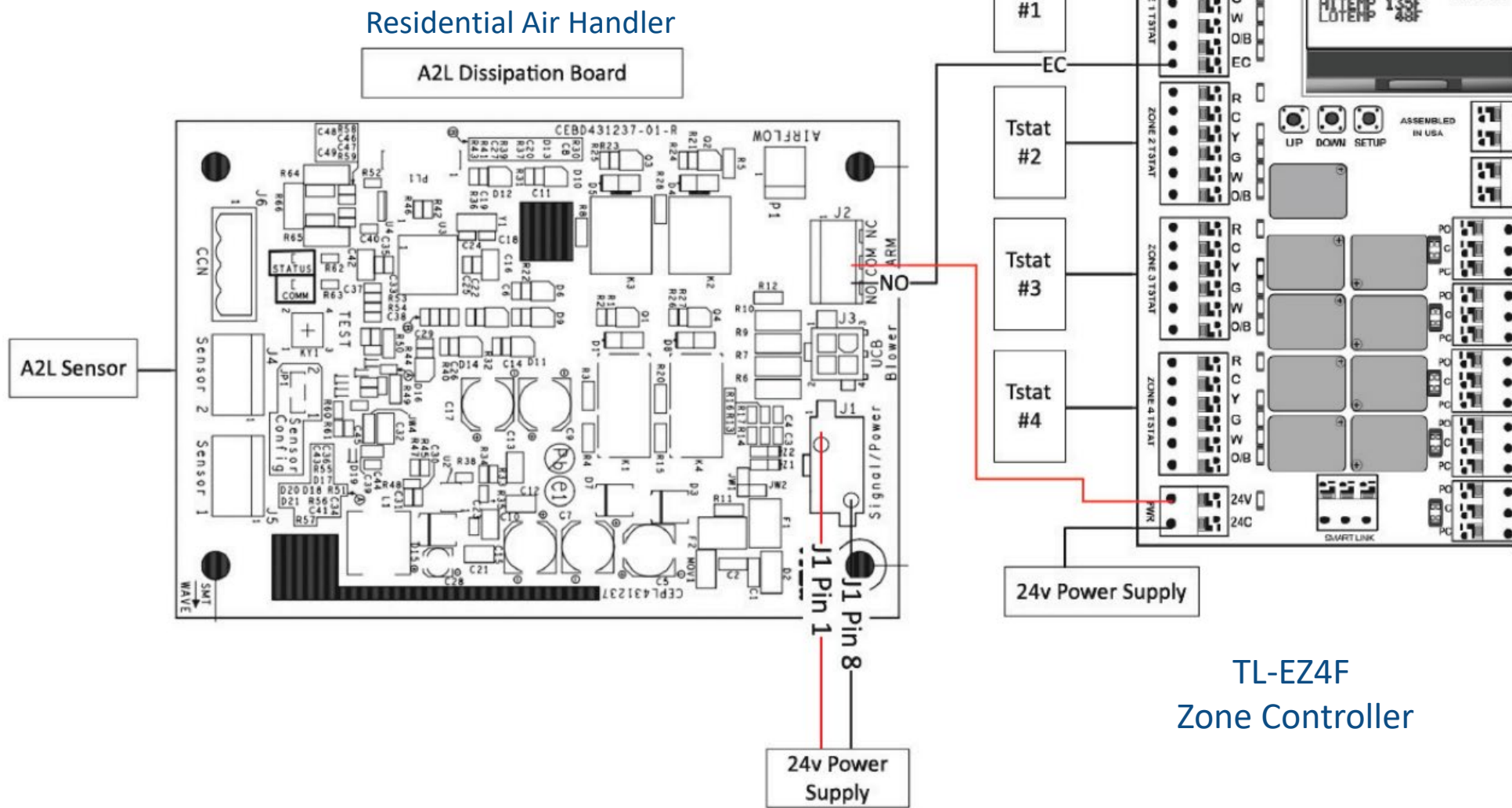


Fig. 3 – Dissipation Control Wiring

Damper Wiring

TL-EZ4F Zone Controller

Follow Zone Dampers Installation Instructions IM-DAMP-17

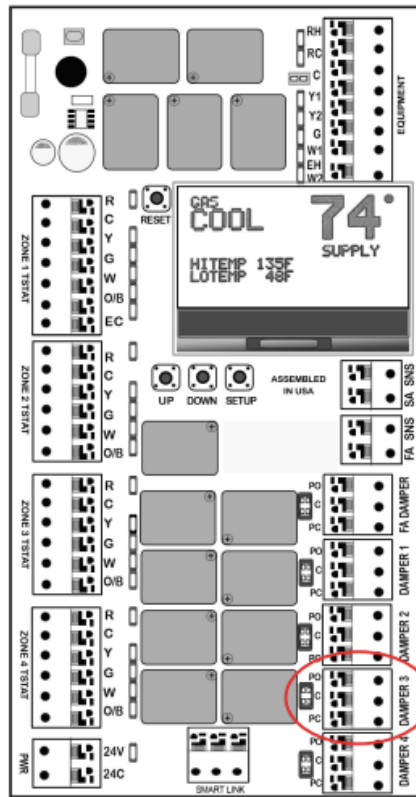


Fig. 3 – Controller Wiring

Power Open/Power Close 3-Wire Dampers

1. Use 18/3 solid core wire
2. Strip 1/2 inch of insulation from each wire.
3. Hold down the orange button on the Damper 1 terminal block and push the three wires for the zone damper into the SCREWLESS terminals. Use WHITE for Common (C), GREEN for Power Open (PO) and RED for Power Close (PC).
4. Connect the other end of the wires to the terminals on the zone damper, using the same color code.
5. Repeat steps 3 and 4 for the Zone 2 damper.

Connect 3-wire damper
to FA damper.

Connect 3-wire damper
to damper 1, 2, 3 and 4.

Connect to matching
terminals on board.

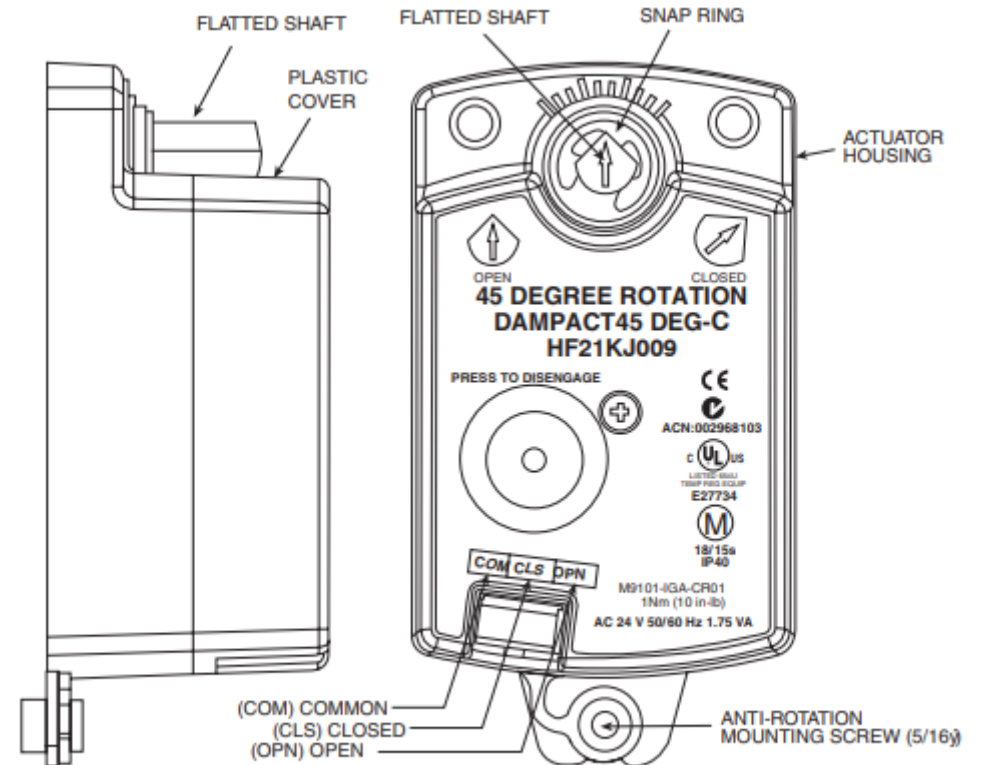
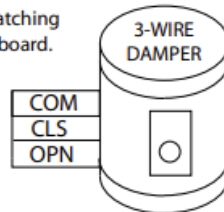


Fig. 2–Actuator Detail (45° round shown)

Barometric Damper Installation

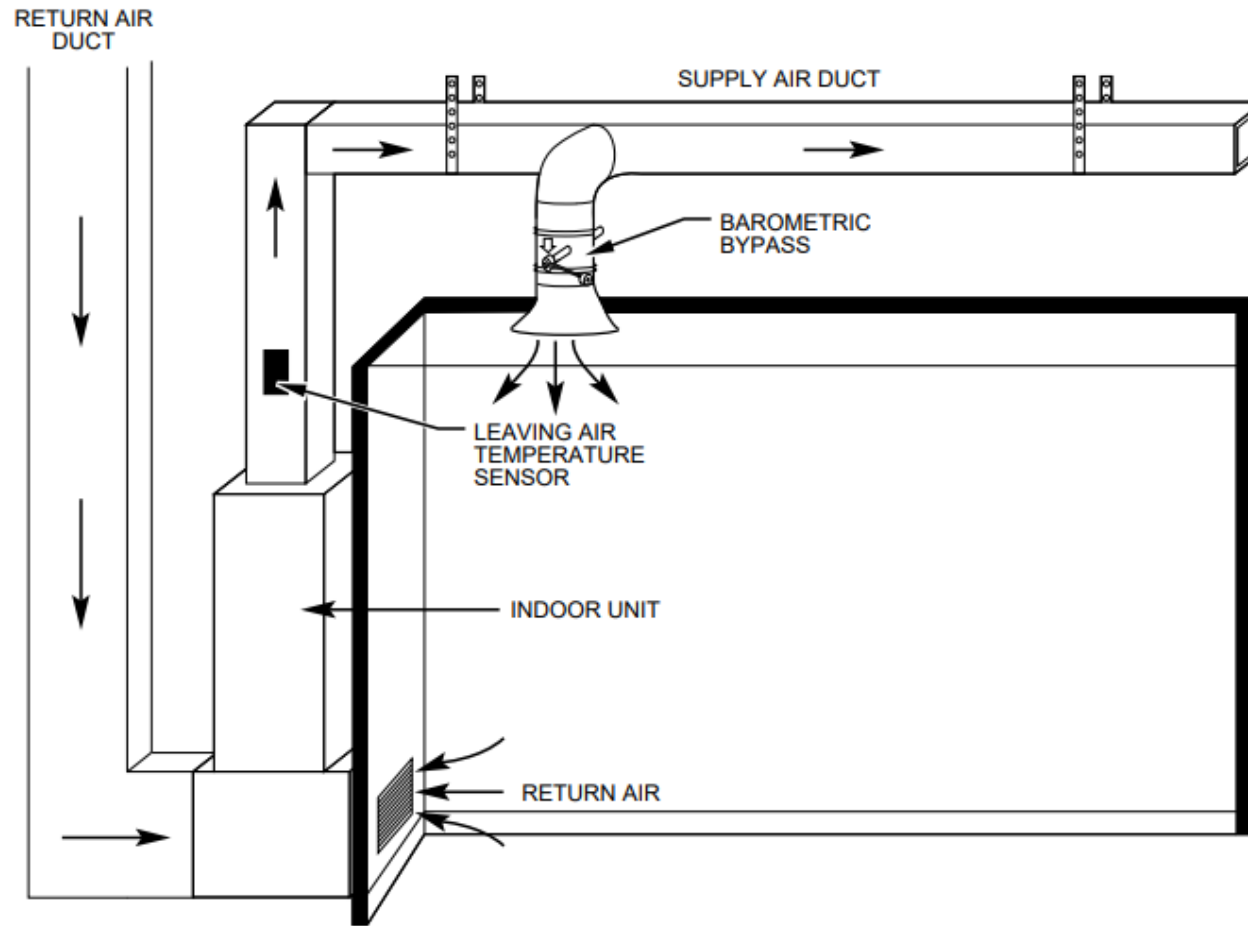


Fig. 3—Dump Zone Installation

Follow Barometric Damper
Installation Instructions
Ej: [IM-DAMP-08](#)

Use Dump Zone
Installation
Method

Best Practices

Proper System Design

Oversized systems or poorly balanced loads can lead to comfort complaints and equipment inefficiency.

Consider:

- Ensure room-by-room loads are used to calculate system sizing
 - Evaluate south-facing rooms, basements, upper floors, and open-floor plans
- Match zone capacities to system minimum/maximum output to avoid short cycling

Airflow Management

High static pressure can result in unnecessary equipment wear and noise.

Consider:

- Crossover zoning requires a “dump zone” installation
- Design ducts to handle airflow when the minimum number of zones are calling
 - Low Pressure Systems < .3 in. WC
 - Med. Pressure Systems .3-.6 in. WC
 - High Pressure Systems .6-1.0 in. WC

Controls Strategy

Reduce call backs with a well-designed controls and damper configuration

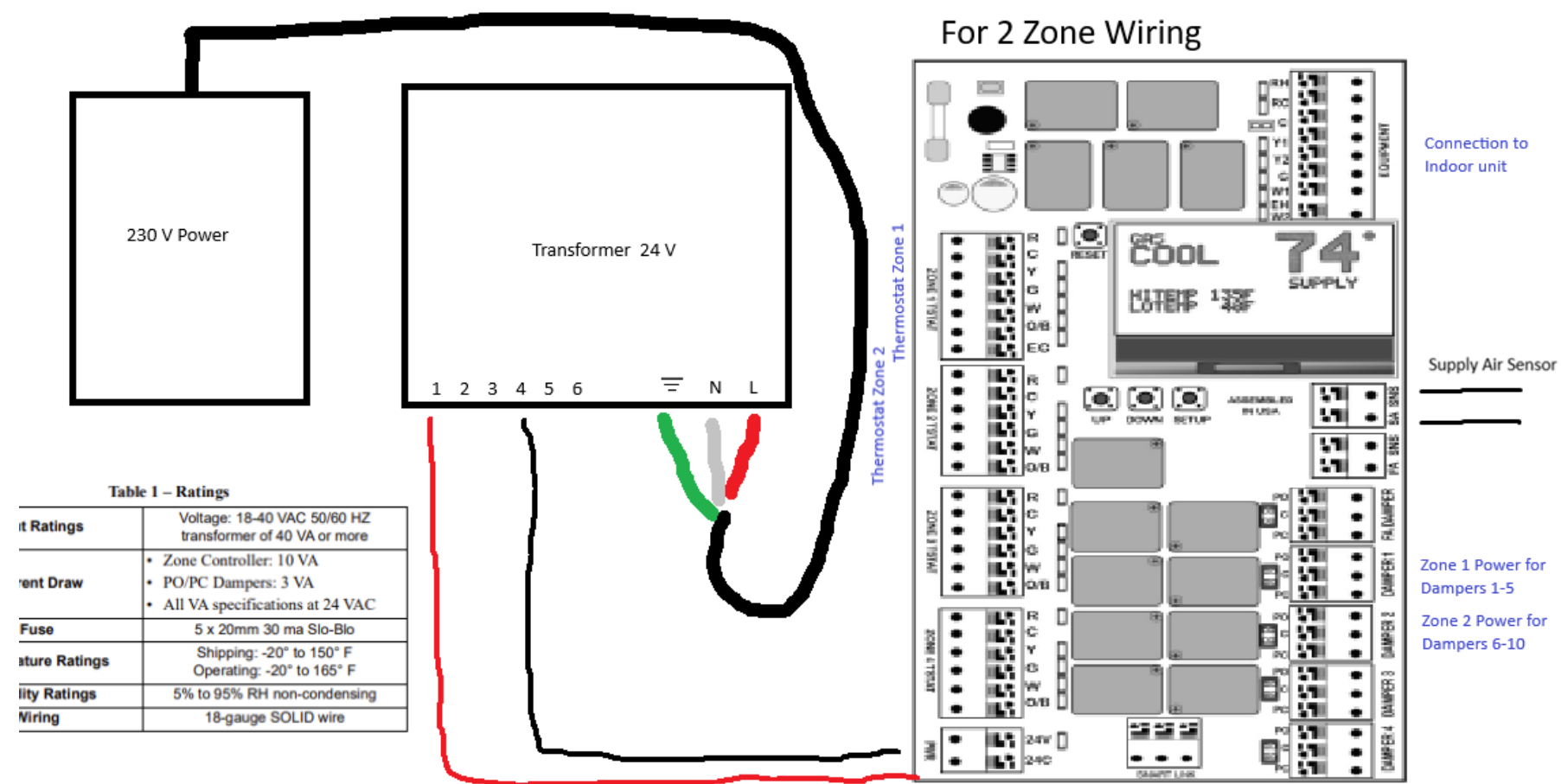
Consider:

- Occupancy patterns: bedrooms and living spaces can often be separated, where infrequently utilized rooms can be placed on independent schedules
- Balance the dampers and adjust control settings as needed for optimal comfort and performance.

Back-up

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Wiring Diagram - Transformer



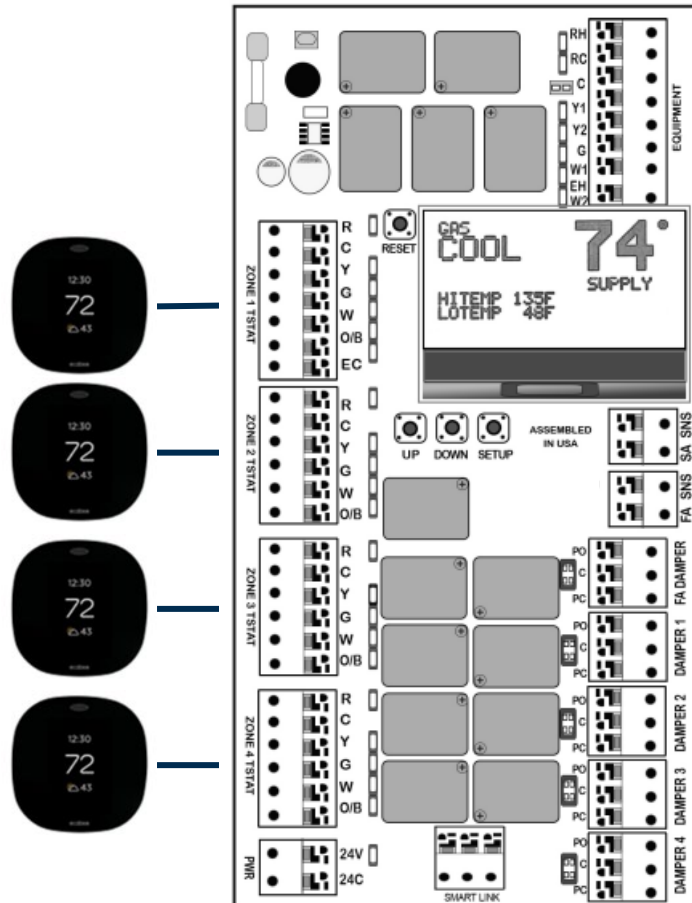
- Example for 2 Zone setup with 10 dampers.
- 5 Dampers for first zone 5 for second

Sample Ductwork (In-Lab)

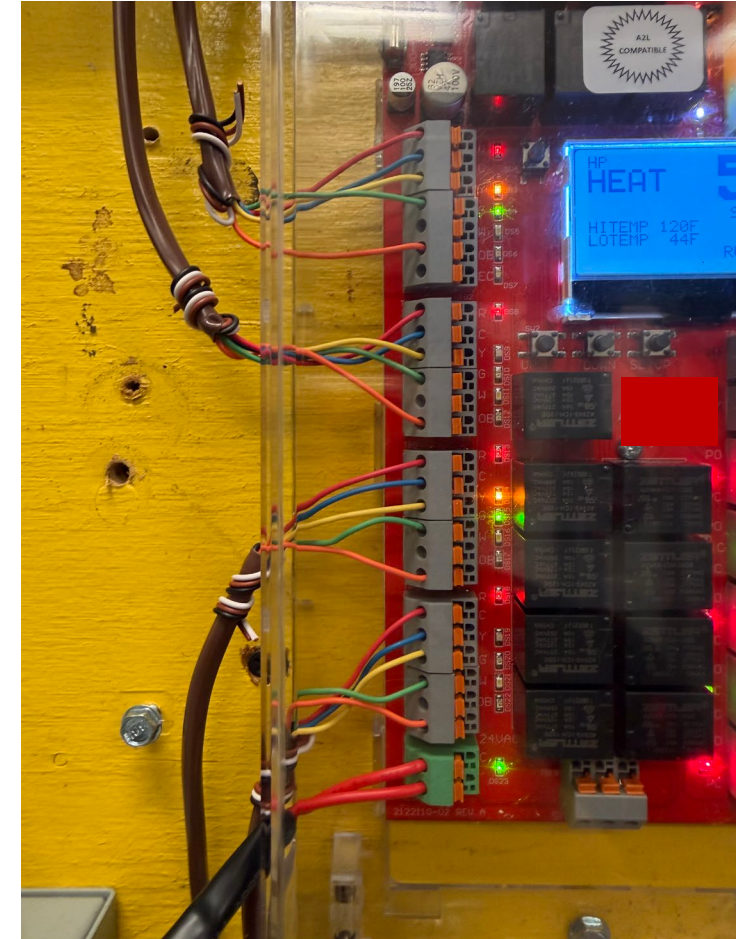


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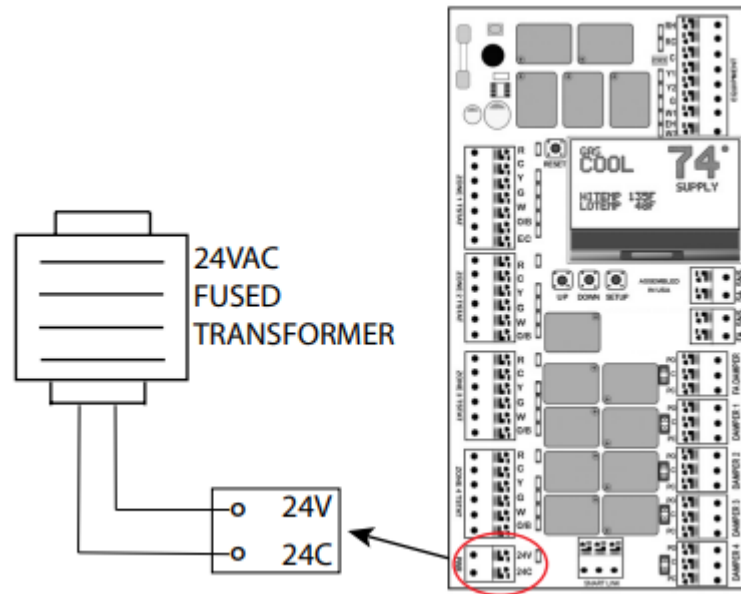
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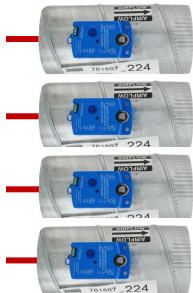
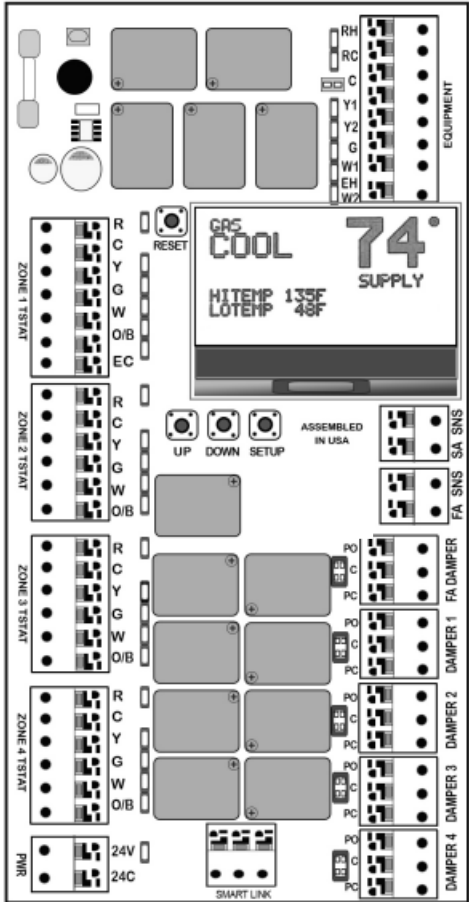
Transformer Wiring



- Top 24V for Hot
- Bottom 24C Common
- DC Transformer



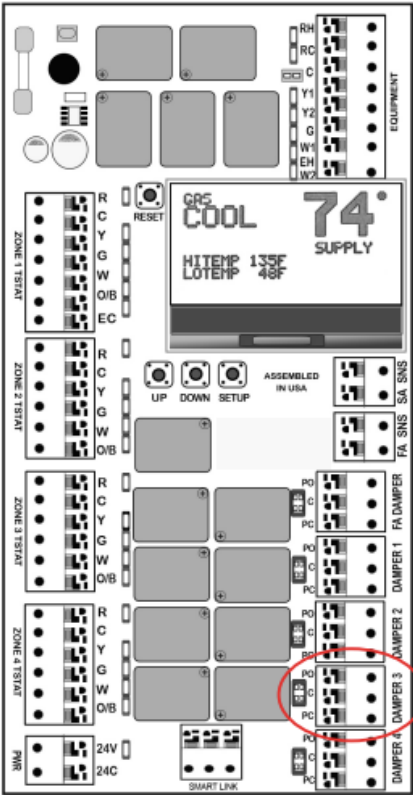
Damper Wiring



- Damper requirement to use 18 gauge SOLID Wire.
- Depending on how many damper each Dampers count for 3 VA (PO/PC)
- Example on the right

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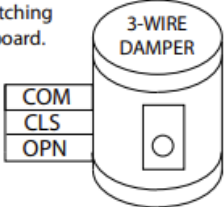
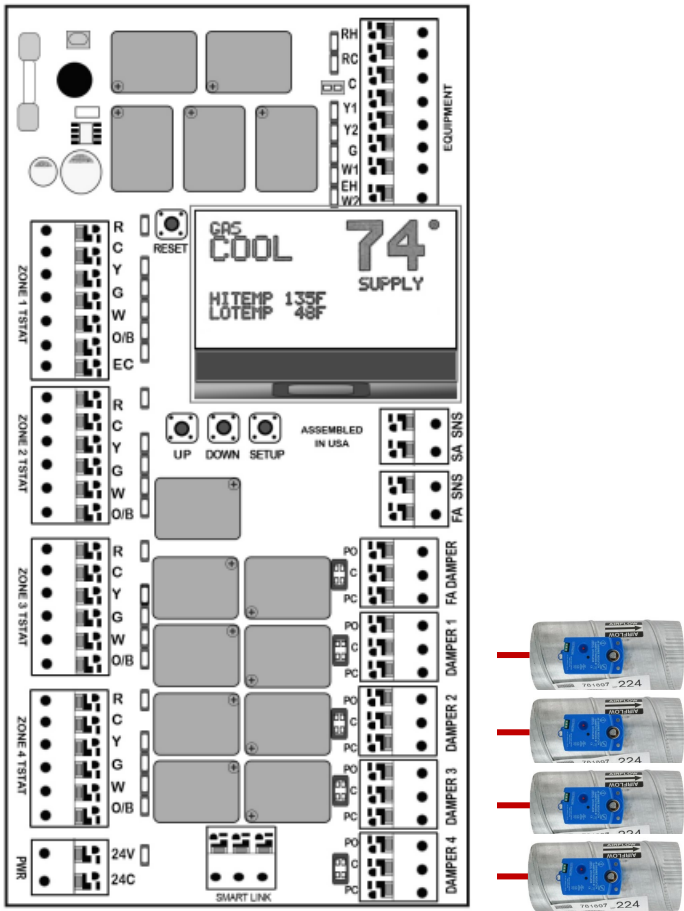


Fig. 3 – Controller Wiring

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