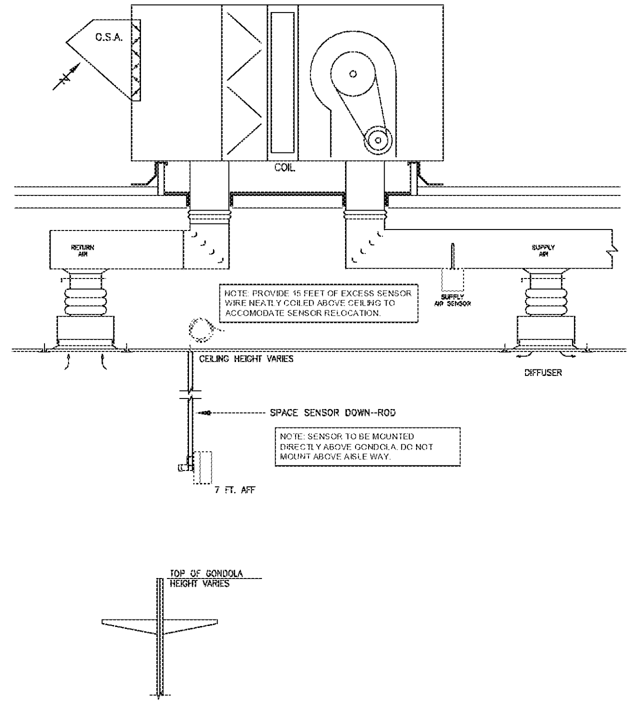
UPDATED 06/29/16



6 REMOTE SENSOR MOUNTING DETAIL

SPACE TEMPERATURE SENSOR PLACEMENT INSTRUCTIONS

For the systems with concentric diffusers, sensors shall be placed:
- A minimum of 15'-0" from diffusers (10 ton systems or smaller)
- A minimum of 20'-0" from diffusers (systems larger than 10 ton)
- See general instructions.

For the systems with ducted returns, sensors shall be placed:
- as close to return air grille as possible.
- See general instructions.

For the systems with non-ducted (plenum) returns, sensors shall be placed:
- Place at least one egg crate return grille over from each sensor location.
- See general instructions.

General Instructions:
- On new construction jobs, install sensors on drop-poles per detail.
- Locate sensors fully within the zone of the rooftop unit it controls.
- Do not place a sensors on an outside wall or tenant common wall.
- Do not place sensors near doors, windows, or other sources of heat, cold, or drafts.
- If a sensor is placed on an architectural or structural surface (Columns, etc..) it must be insulated from the finished surface and wire penetrations must be made airtight.
- DO NOT place sensor higher than 7'-0" AFF.
- Conduct sensor location test:
  - Run all units in fan mode.
  - Test all sensors locations to determine if any are getting hit by air from a supply diffuser (tissue, balloon, or smoke test). If so. relocate sensor (preferred) or offending diffuser.

Stockroom sensor placement shall be over stockroom door within stockroom area.

DEMAND CONTROL VENTILATION (DCV) - SETUP & CHECKOUT PROCEDURE

The Mechanical Contractor and Air Balancer will need to use this procedure to establish test conditions to adjust the Minimum OA damper position, the DCV Maximum damper position, and the DCV Setpoint potentiometers.

This checkout procedure is intended for use with the following pieces of equipment. Carrier rooftop unit, with W7212 Economizer controller (HH63AW001). The equipment required to complete this test are five jumper wires, 9 volt battery, multi-meter and small common screwdriver.

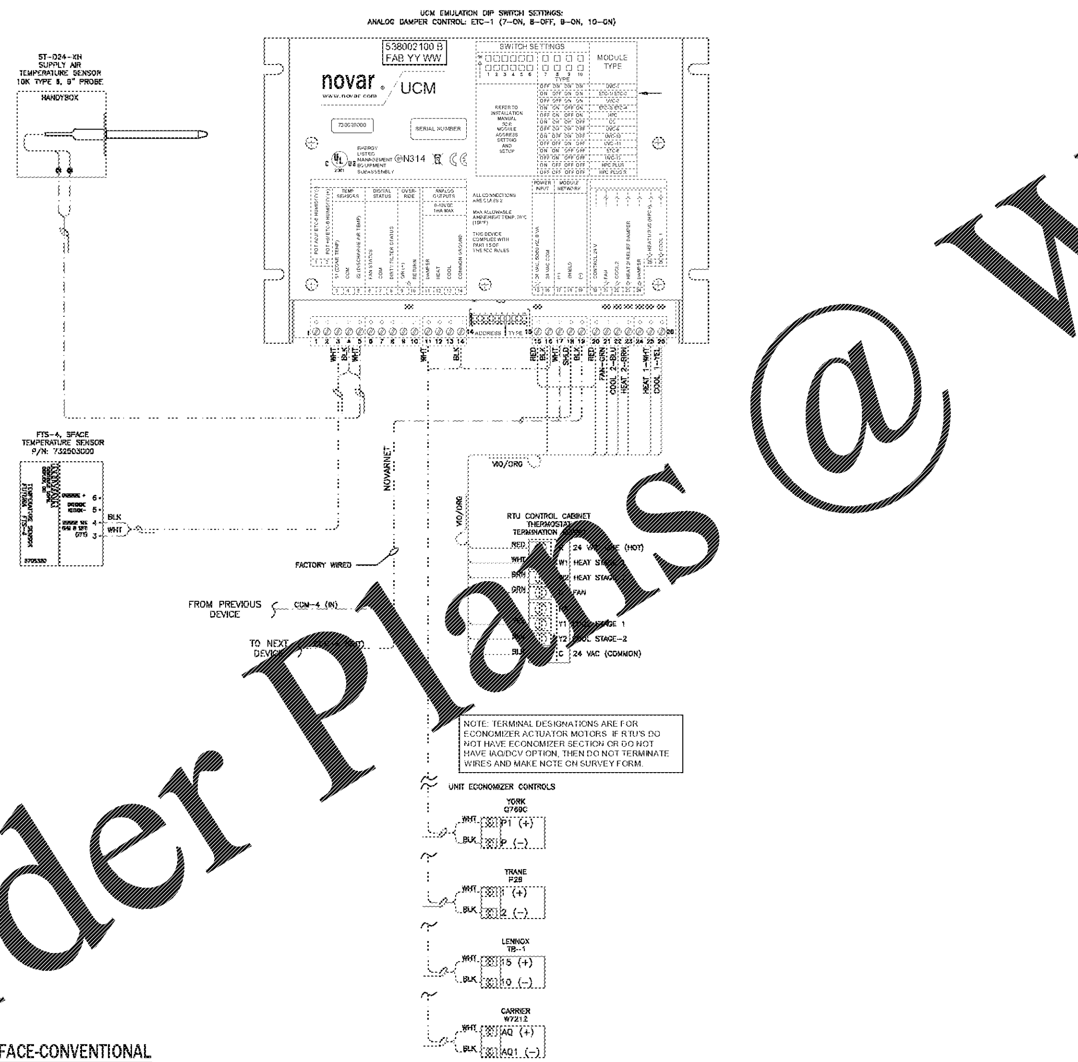
This test procedure verifies that the rooftop unit outside air damper will modulate between the reduced & standard minimum outside air CFM quantity based on CO2 sensor 0-10vdc signal.

Basically, whenever the Space CO2 level is below setpoint (1000 ppm), the RTU will maintain the Minimum OA cfm value of 200 cfm. When the Space CO2 level exceeds setpoint, the RTU will increase to the MAX DCV cfm value of 800 cfm until the space CO2 level drops below setpoint.

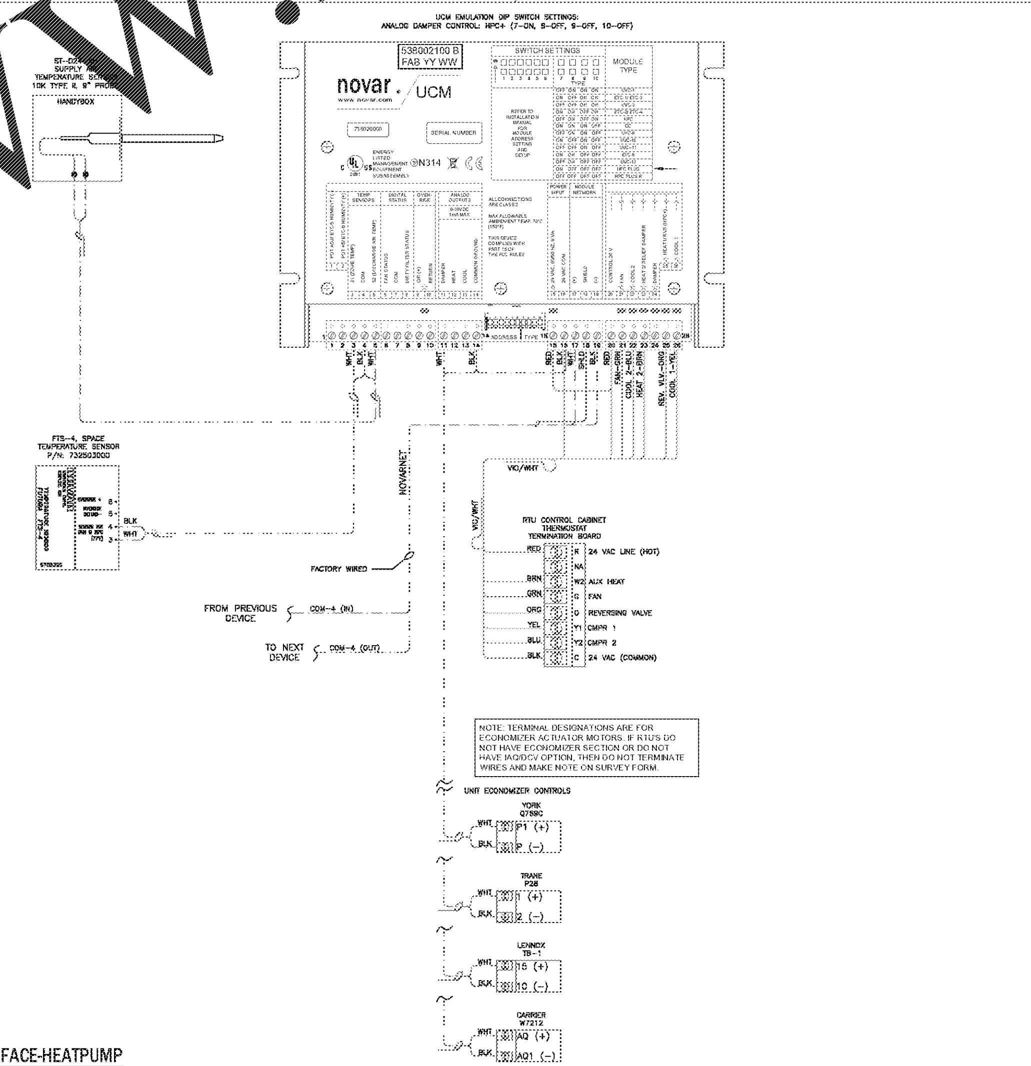
Step#1 - Preliminary Setup & Checkout of the Carrier Economizer controller CO2/DCV system operation
1. Disconnect power to the rooftop unit.
2. Locate the Carrier Economizer controller (HH63AW001) and complete the following steps:
   2.1. If the outside air temperature is below 55°F, install a jumper between terminals T & T1.
   2.2. Set the Min Pos and DCV Setpoint potentiometers fully counterclockwise (CCW).
   2.3. Set the DCV Maximum Position potentiometer fully clockwise (CW).
   2.4. Set the enthalpy potentiometer to D.
   2.5. Before removing any existing CO2 sensor wires [illegible] terminals AQ & AQ1 please record the voltage, note wire color code & polarity. The voltage should be between [illegible], if not then troubleshoot for wiring or sensor problems. [illegible] remove wires located on terminals AQ & AQ1.
3. Apply power to the rooftop unit. Allow approximately 3 minutes for the rooftop unit to complete its start-up process. Observe the dampers, they should be closed and the DCV LED should be off.
4. Return to the Carrier Economizer controller (HH63AW001) and complete the following steps:
   4.1. Install jumper wire from the AQ1 terminal to the 9 volt battery negative post.
   4.2. [illegible] jumper wire from the AQ terminal to the 9 volt battery positive post. The DCV LED should turn on. The actuator should modulate [illegible] 95% open.
   4.3. Turn the DCV setpoint potentiometer CW until the DCV LED turns off. The actuator should drive to the reduced minimum outside air damper position.

Step#2 - Air Balancer Setup of the Carrier Economizer controller CO2/DCV system, Min Pos, DCV setpoint, and DCV maximum potentiometers

With the conditions set as defined in items above, please complete the following:
1. Adjust the DCV setpoint potentiometer to the 11 o'clock position, this equates to a CO2 level of approximately 1000 ppm.
2. Verify that the jumper wire from AQ terminal to the positive post of the 9 volt battery is disconnected. The DCV LED should be off.
3. Adjust the Min Pos potentiometer to 25% of the minimum outside air cfm value as noted on the mechanical equipment schedule for that rooftop unit.
4. Then connect the jumper wire from the AQ terminal to the positive post of the 9 volt battery. The DCV LED should be on.
5. Adjust the DCV Max potentiometer to 100% of the minimum outside air cfm value as noted on the mechanical equipment schedule for that rooftop unit.
6. Use a marker to permanently indicate the proper settings for the Min Pos, DCV Setpoint, and DCV Max potentiometers.
7. This concludes the setup & checkout of the Carrier Economizer controller CO2/DCV system. Disconnect power to the rooftop unit. Please remove all jumper wires from previous steps and reinstall the CO2 sensor wires to terminals AQ & AQ1 as appicable.



7 UCM-RTU INTERFACE-CONVENTIONAL



8 UCM-RTU INTERFACE-HEATPUMP

MODIFICATION		INITIAL	DATE
Revision	01	RLJ	10/15/15
Revision	02	RLJ	01/25/16
Revision	03	RLJ	05/06/16
Revision	04	RLJ	06/29/16

LEGEND

- (#) NOTE-THIS SHEET
- (1) DETAIL NUMBER
- DETAIL: DEVICE ID NUMBER OVER DEVICE CATEGORY NUMBER
- (#) WIRE ID
- • DESIGNATED WIRE SPLICE
- SECURED SPARE CONDUCTOR FOR FUTURE USE

WIRE/CABLE TYPES

ALL TYPES MAY NOT APPLY.

- (A) 22/2 AWG SHIELDED GROUND * BELDON 8761
- (B) 22/3 AWG SHIELDED GROUND * WINDY CITY 004330
- (C) 18/2 AWG SHIELDED GROUND * HONEYWELL 3320 10 01
- (D) 18/9 AWG STRANDED CABLE PLENUM RATED
- (E) LINE VOLTAGE WIRING IN CONDUIT
- (F) 20/2 AWG SHIELDED AND 18/2 AWG, * BELDEN 9155
- (G) 12 TO 18 AWG STRANDED WIRE * THHN.

* OR EQUIVALENT.

LOW VOLTAGE CABLING REQUIREMENTS:

1. WIRE SPLICES ARE UNACCEPTABLE.
2. THE COMMUNICATIONS BUSS WILL BE TERMINATED AT THE CONTROLLER.
3. INSTALLED NEATLY AND CONCEALED WITHIN THE BUILDING STRUCTURE.
4. SLEEVED IN CONDUIT UP TO CEILING OR BAR JOIST.

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DOLLAR TREE

Energy Management Plan

Application Eng:	Project/Program Mgrs:
R. James	CR / GN
Date: 11/13/2014	USE No: U-

RTU Wiring Details

Scale:	Dwg. No:
N.T.S.	EM-3