# BELIMO ZIP CONTROLLER

# WIRING INSTRUCTIONS

NOTE: 2-STAGE THERMOSTAT NECESSARY FOR OPERATION


**FOR CARRIER UNITS WITH CENTRAL TERMINAL BOARD (CTB) TURN TO PAGE 15 FOR WIRING INSTRUCTIONS**

**FOR CARRIER UNITS 2008 OR OLDER (UNITS WITHOUT CTB)**

IF INSTALLING ECONOMIZER 1022911, 1022912, OR 1022936 TURN TO PAGE 25, STEP B

IF INSTALLING ECONOMIZER 1022355, 1022356, OR 1022558 WITH A PURCHASED 9800296 HARNESS (RETROFIT) SEE PAGE 24

IF REWIRING ECONOMIZER 1022355, 1022356, OR 1022558 FOR USE IN UNIT WITHOUT CTB TURN TO DIAGRAM ON PAGE 23

## READ COMPLETELY BEFORE INSTALLING!!!

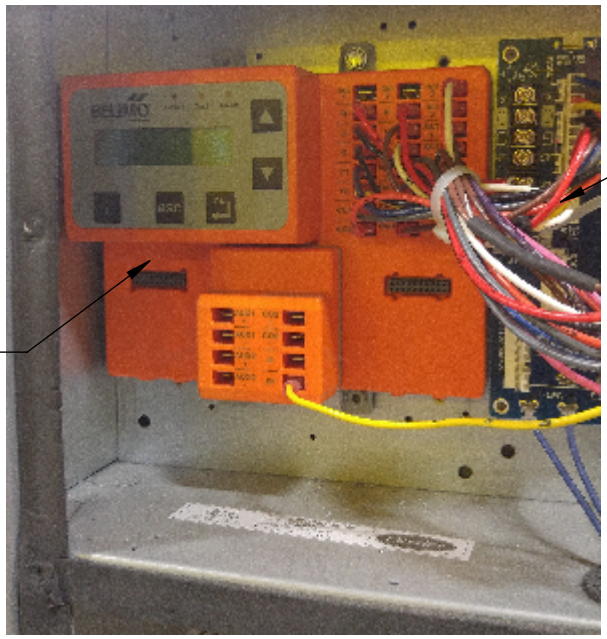
CAMBRIDGEPORT IS NOT RESPONSIBLE FOR IMPROPERLY INSTALLED EQUIPMENT

# BELIMO ZIP CONTROLLER WIRING INSTRUCTIONS

CAMBRIDGEPORT WHERE THE BEST ARE BUILT

## STEP 1: MOUNT CONTROLLER

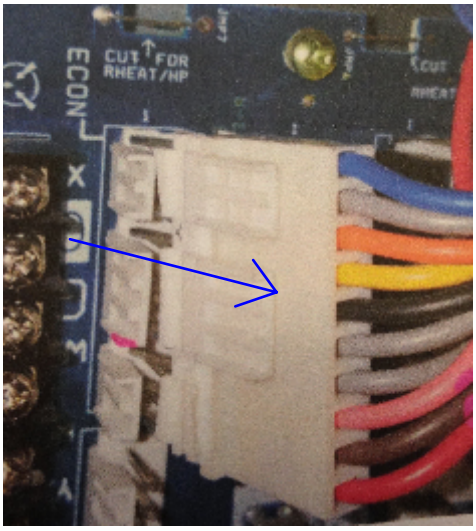
MOUNT BELIMO ZIP CONTROLLER INSIDE ELECTRICAL PANEL OF THE RTU USING SUPPLIED #10 SELF-TAPPING SCREWS.



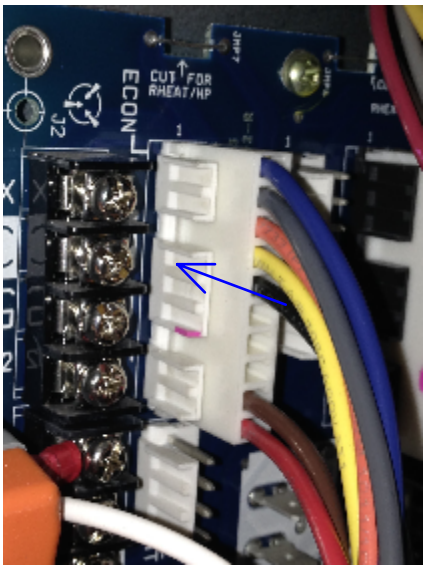

## STEP 2: HARNESS

DISCONNECT FACTORY INSTALLED ECONOMIZER HARNESS FROM THE CENTRAL TERMINAL BOARD (CTB). CONNECT THE 10 PIN (7 WIRE) HARNESS FROM THE ZIP CONTROLLER TO THE CTB. ATTACH AT SAME LOCATION THAT PREVIOUS HARNESS WAS DISCONNECTED.

**IMPORTANT: NOTE ORIENTATION OF NEW HARNESS!!!!!**




DISCONNECT FACTORY INSTALLED ECONOMIZER HARNESS

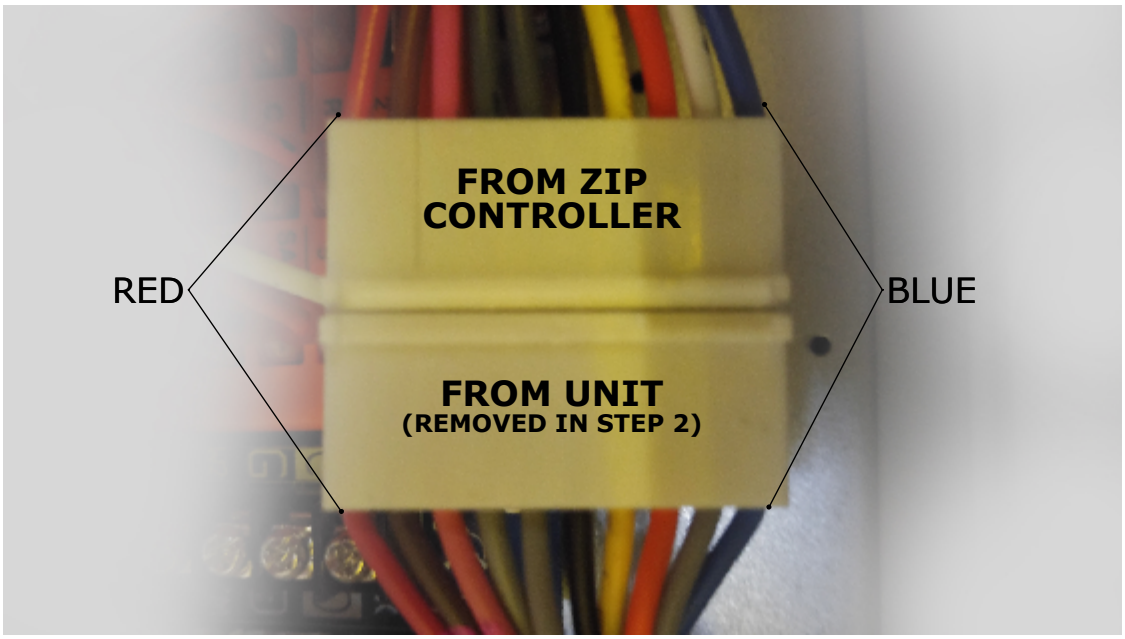



CONNECT 10-PIN 7-WIRE HARNESS FROM ZIP MODULE IN ORIENTATION SHOWN

## STEP 3: HARNESS

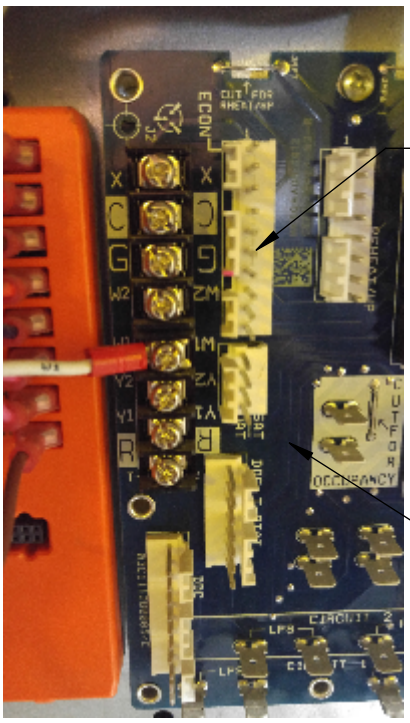
CONNECT THE 10-PIN (10-WIRE) HARNESS FROM ZIP CONTROLLER TO THE FACTORY ECONOMIZER HARNESS THAT WAS DISCONNECTED FROM CTB IN BEGINNING OF STEP 2.

**NOTE ORIENTATION OF PLUGS!!!**




## STEP 4: WHITE WIRE

CONNECT END OF WHITE WIRE LABELED "W1" HANGING FROM ZIP MODULE TO "W1" TERMINAL ON CTB.

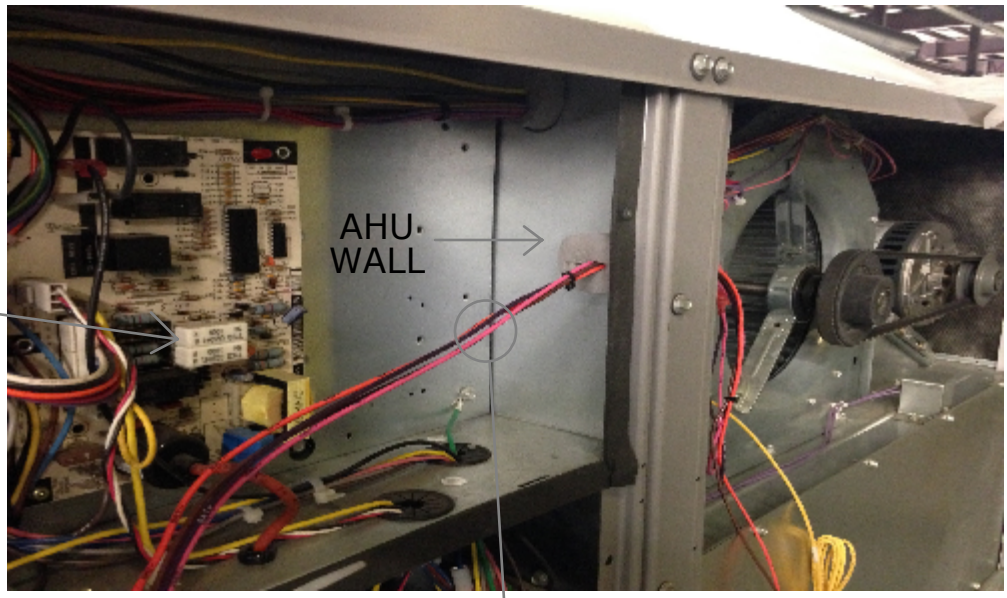


# BELIMO ZIP CONTROLLER WIRING INSTRUCTIONS

CAMBRIDGEPORT WHERE THE BEST ARE BUILT

## STEP 5: WIRE PLACEMENT

LOCATE 4 WIRES RUNNING FROM ZIP MODULE THAT ARE ZIP TIED TOGETHER. (ORANGE SAT-, BROWN SAT+, PURPLE OAT+, PINK OAT-). RUN ALL WIRES THROUGH AHU WALL.





WIRE BUNDLE

## STEP 6: WIRE ATTACHMENT

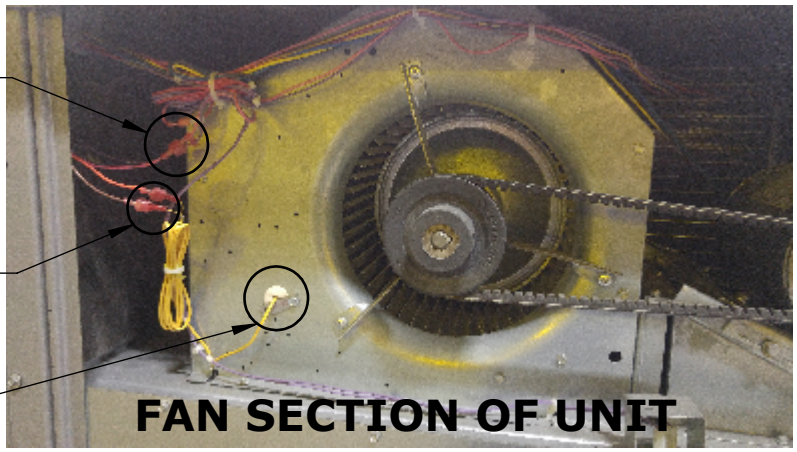
INSTALL S/A SENSOR FOUND IN HARDWARE BAG. USE PRE-DRILLED HOLES IN SUPPLY FAN SECTION AND ATTACH WITH 2 SCREWS PROVIDED.

ATTACH BROWN (SAT+) AND ORANGE (SAT-) WIRES TO YELLOW S/A SENSOR WIRE BUNDLE AND INSTALL SENSOR IN SUPPLY AIR STREAM OF UNIT.

PURPLE (OAT-)/PINK (OAT+) WIRE CONNECTION

BROWN (SAT+)/ORANGE (SAT-) WIRE CONNECTION

S/A SENSOR



**FAN SECTION OF UNIT**

ATTACH PURPLE (OAT+) AND PINK (OAT-) WIRES TO THE TWO FACTORY CONNECTORS HANGING IN THE FAN SECTION.

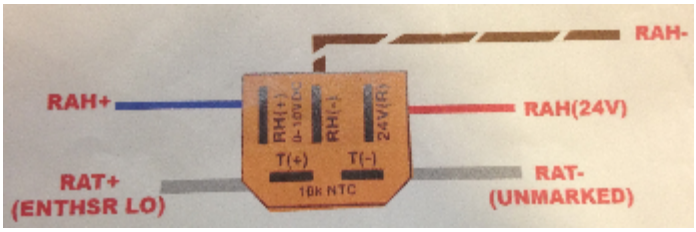
USE ENCLOSED ZIP TIES TO ROUTE AND SECURE ALL WIRES AS REQUIRED.

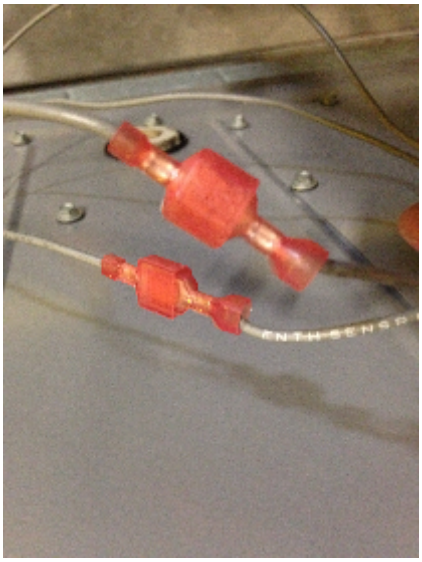
# BELIMO ZIP CONTROLLER WIRING INSTRUCTIONS

CAMBRIDGEPORT WHERE THE BEST ARE BUILT

## STEP 7 (FOR DUAL ENTHALPY APPLICATIONS ONLY!): ENTHALPY SENSOR

DISCONNECT TWO GREY WIRES IN FILTER SECTION OF THE RTU. THESE WIRES ARE LOCATED IN THE FACTORY WIRING BUNDLE (PL-6). ONE IS LABELED "ENTH SENSR" AND THE OTHER IS UNLABELED. ONCE REMOVED CONNECT FEMALE ENDS TO R/A SENSOR AS SHOWN BELOW.



## STEP 8 (FOR POWER EXHAUST APPLICATIONS ONLY!):

LOCATE YELLOW WIRE LABELED "EX" AND BLACK COMMON WIRE FROM ECONOMIZER WIRING HARNESS. CONNECT BOTH WIRES TO POWER EXHAUST CONTACTOR COIL.

## STEP 9: BELIMO ZIP CONTROLLER SETUP

*****REQUIRED*****
**UNIT WILL ALARM AND NOT FUNCTION PROPERLY IF SKIPPED**

POWER UP UNIT AND SET UP ZIP CONTROLLER AS SHOWN BELOW. USE "UP" AND "DOWN" ARROWS TO SCROLL, "OK" BUTTON TO ENTER, AND "ESC" BUTTON TO GO BACK.


PRESS "OK"


PRESS "OK"


PRESS "OK"
USE UP/DN TO FIND #
PRESS "OK" TO ENTER EACH #
PRESS "ESC" TO GET BACK TO ZIP CODE SCREEN


PRESS DOWN ARROW UNTIL YOU GET TO "VENT MIN POS" SCREEN

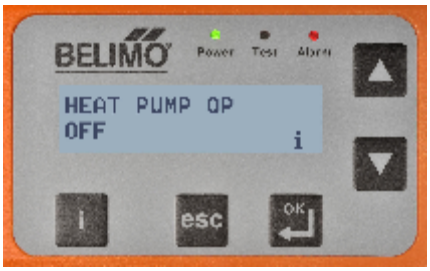

PRESS "OK" AND USE ARROWS TO SET MIN OUTSIDE AIR % (10-15% RECOMMENDED)
PRESS "OK" WHEN DONE

# ...STEP 9 CONTINUED

FOR STANDARD UNIT OPERATION (NO HEAT PUMP OR DEMAND CONTROL VENTILATION [DCV]) SKIP TO PAGE 21 FOR SERVICE AND COMMISSIONING PROCEDURE.

## A) UNIT WITH HEAT PUMP ADDITION

NOTE: AFTER SETTING MINIMUM DAMPER POSITION ALARM LIGHT WILL BE ON




RETURN TO SETTINGS MENU SCROLL UP TO "HEAT PUMP OP" PRESS "OK"


USING "UP" AND "DN" ARROWS SET EITHER [B],[O], OR [W1] PRESS "OK"


PRESS "DN" ONCE TO "NO COMPRESSOR DETECTED" SCREEN. PRESS "OK"


CHOOSE APPROPRIATE COMPRESSOR QTY AND SELECT "OK"

IF DEMAND CONTROL VENTILATION IS NOT BEING USED SKIP TO PAGE 21 FOR SERVICE AND COMMISSIONING PROCEDURE

## B) DEMAND CONTROL VENTILATION [DCV] ADDITION


ENTER SETTINGS MENU UNIT WILL DETECT CO2 SENSOR. SELECT "OK"


SET DCV MIN DAMPER VENTILATION RATE IN % DAMPER OPEN


SET DESIRED CO2 CONCENTRATION. SET POINT OF 1000PPM RECOMMENDED

*FOR MORE INFORMATION ON DCV SETUP SEE PAGE 32 OF APPENDIX*

# BELIMO ZIP CONTROLLER WIRING INSTRUCTIONS

CAMBRIDGEPORT WHERE THE BEST ARE BUILT

## C) 2-SPEED FAN ADDITION

IF A 2-SPEED FAN/VFD IS BEING USED:




RETURN TO "SETTINGS" MAIN MENU SCREEN

SCROLL "UP"/"DN" TO ARRIVE AT "2 SPEED FAN"

PRESS "OK"

PRESS "OK" AGAIN AND SELECT "UP"/"DN" FOLLOWED BY "OK"
TO TURN 2 SPEED FAN SETTINGS ON

I) LOW SPEED VENT MIN

SCROLL "DN" TO "LOW SP VENT MIN" SCREEN AND PRESS "OK" TO ENTER LOW SPEED VENT MINIMUM POSITION. THIS VALUE WILL BE GREATER THAN THE VENT MINIMUM POS, HOWEVER EQUAL THE SAME AIRFLOW RATE VALUE.


II) LOW SPEED DCV MIN (C02 SENSOR INSTALLED)

SCROLL "DN" TO "LOW SP DCV MIN POS". PRESS "OK" AND ENTER LOW SPEED DCV MINIMUM POSITION. THIS POSITION WILL BE GREATER THAN DCV MIN POS, HOWEVER EQUAL THE SAME MEASURED AIRFLOW RATE VALUE.

III) LOW EXHAUST FAN POSITION (POWER EXHAUST INSTALLED)

SCROLL "DN" TO "LOW EXH FAN POS". PRESS "OK" AND ENTER LOW EXHAUST FAN ON POSITION. THIS POSITION WILL BE GREATER THAN EXHAUST FAN ON POS, HOWEVER EQUAL THE SAME AIRFLOW RATE VALUE.

**THESE VALUES SHOULD BE SET TO PROVIDE THE SAME AIRFLOW OF OUTSIDE AIR (OA) AND EXHAUST AS WHEN FAN IS OPERATING AT FULL SPEED. DUE TO LESS PRESSURE GENERATED BY THE FAN, THIS VALUE IS TYPICALLY A HIGHER PERCENTAGE OPEN VALUE.**

## ...STEP 9 CONTINUED

ZIP MODULE WILL RUN THROUGH THE FOLLOWING PROMPTS AFTER MINIMUM DAMPER POSITIONING:

SETUP IS NOW COMPLETE...
DAMPER WILL BEGIN CALIBRATION...
DAMPER SCALING COMPLETE...
UNIT WILL START IN 30 SECONDS...

**SERVICE AND COMMISSIONING MUST BE PERFORMED AFTER INITIAL ECONOMIZER SET-UP IS COMPLETED. THIS ACCEPTANCE TEST IS MANDATED TO VALIDATE ECONOMIZER FUNCTIONALITY AND COMPONENT WARRANTY**

*****IMPORTANT*****
**UNIT INDOOR FAN MUST BE RUNNING DURING THIS TEST TO PREVENT COMPRESSOR DAMAGE! EITHER JUMP OUT FAN AT UNIT TERMINAL STRIP OR SET FAN TO "ON" VIA THERMOSTAT**


PRESS DN TILL AT THIS SCREEN AND PRESS "OK"


PRESS DN AT MANUAL MODE TO GET TO THIS SCREEN


PRESS "OK" HERE THEN "OK" AGAIN TO START

FOLLOW PROMPTS TO COMPLETE TEST...YOU MUST CONFIRM AS PROMPTED BY PRESSING "OK" WHEN:

1) THE ECONOMIZER DAMPER FULLY OPENS
2) DAMPER STAYS OPEN AND 1ST STAGE COMPRESSOR STARTS AND RUNS IN INTEGRATED MODE
3) DAMPER FULLY CLOSES
4) DAMPER GOES TO MINIMUM

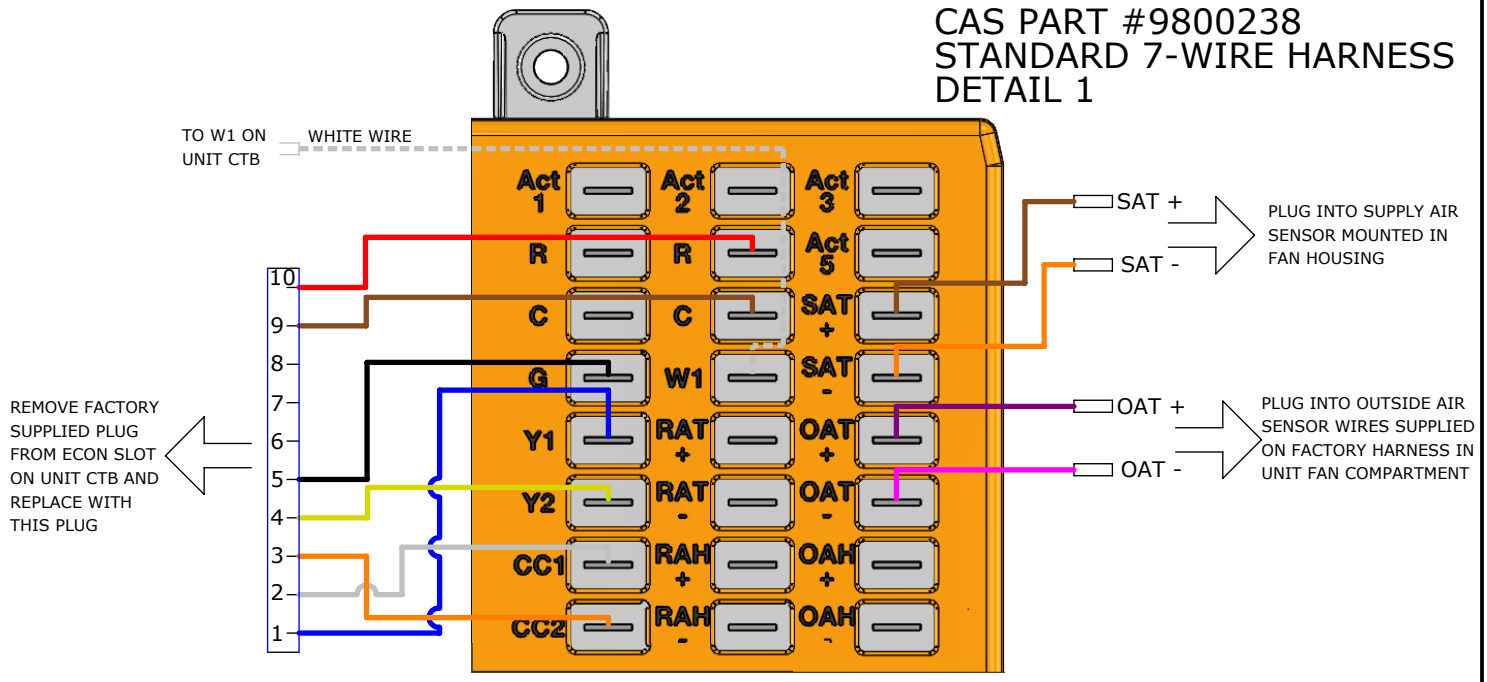

PRESS "OK"


PRESS "OK"

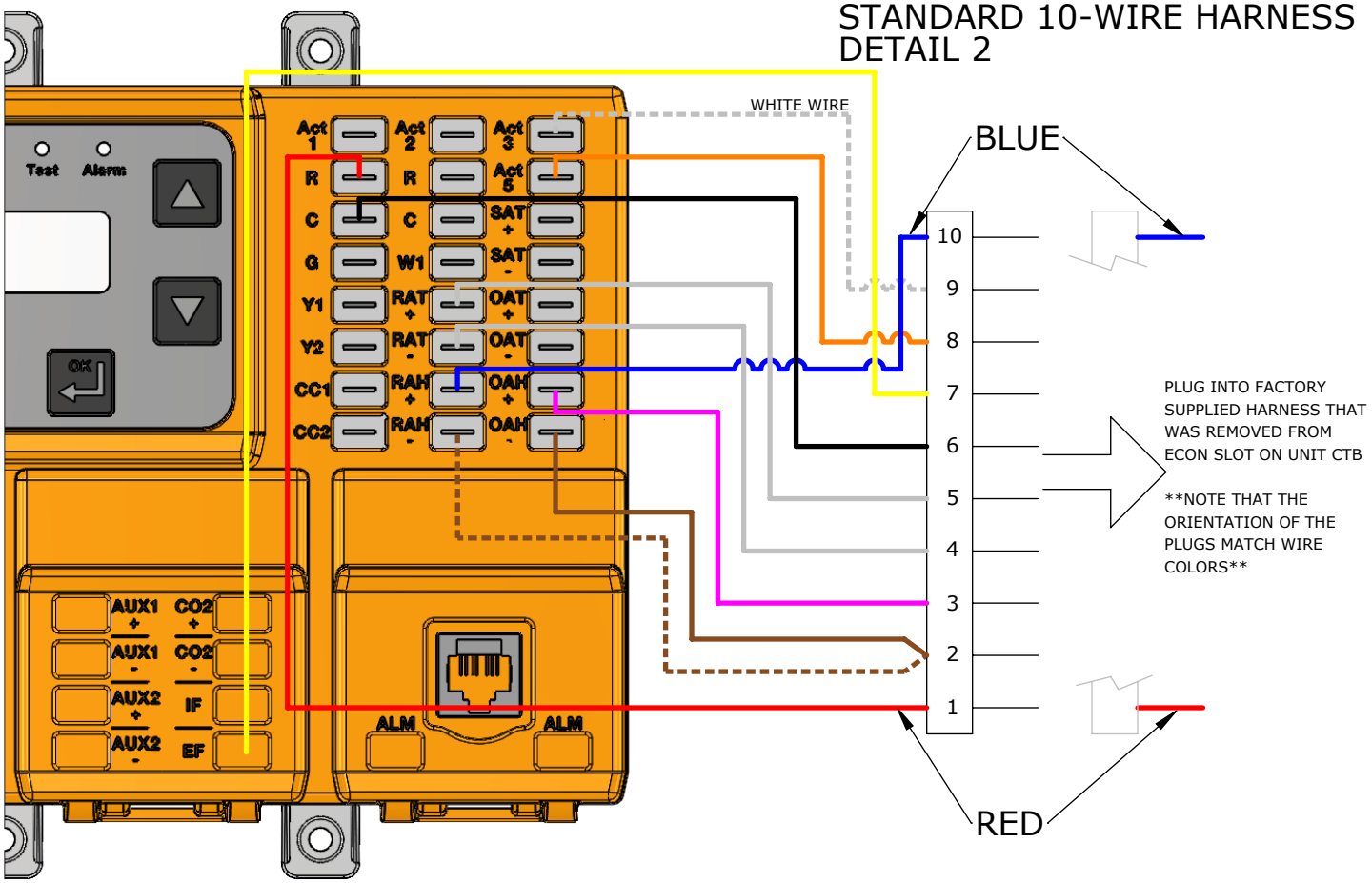
# BELIMO ZIP CONTROLLER WIRING INSTRUCTIONS

## STANDARD OPERATION WIRING SCHEMATICS FOR PART 1022355, 1022356, OR 1022558

### CAS PART #9800238 STANDARD 7-WIRE HARNESS DETAIL 1




### CAS PART #9800238 STANDARD 10-WIRE HARNESS DETAIL 2





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