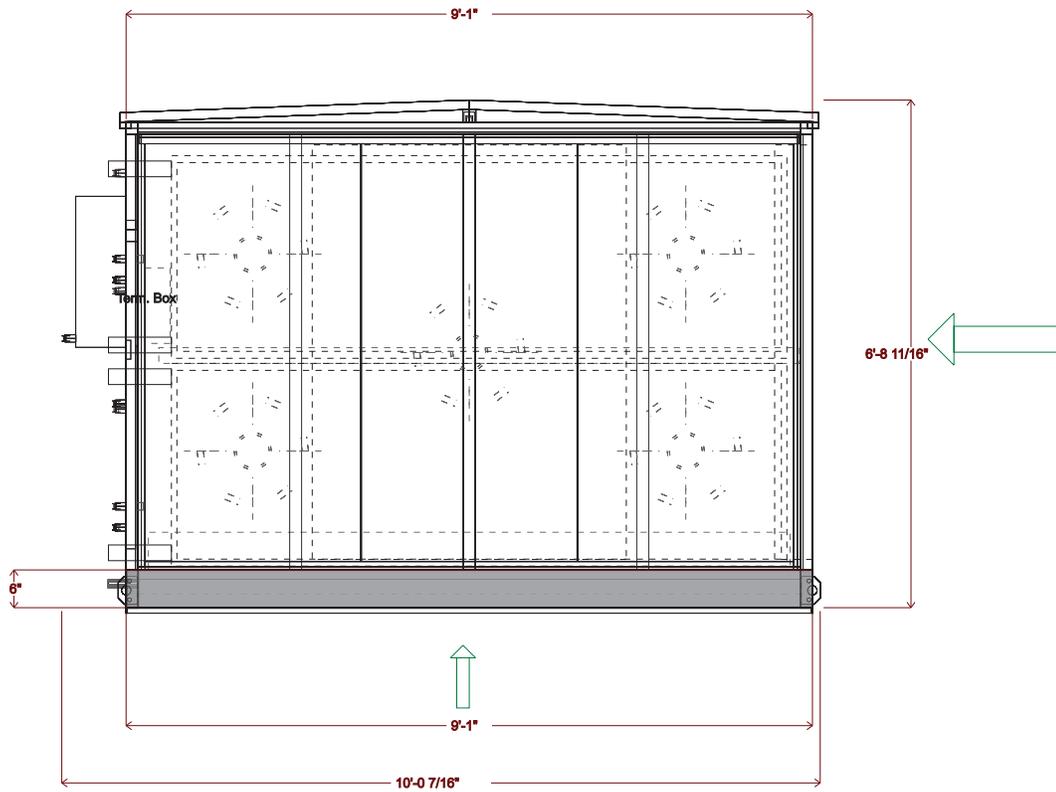


Unit viewed from right side of side elevation view.  
 Unit length: 23'-10 11/16"  
 Return Fan  
 0  
 Bag/Cartridge Filter 6 - 12 IN. Side Loading  
 Qty (4) 12in. x 24in.  
 Qty (8) 24in. x 24in.  
 Pre Filter : 2In. Flat Filter  
 Qty (4) 12in. x 24in.

Qty (8) 24in. x 24in.  
 Chilled Water 6 Row 11 FPI Double Circuit (qty. 2)  
 Draw-Thru Supply Fan  
 0  
 Operating weight: 8130.0 lbs.  
 Upstream Corner Weight (each): 1904.0 lbs.  
 Downstream Corner Weight (each): 2161.0 lbs.



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**39MW**

DATE 12/30/2024	AHUBuilder v7.06	39M Central Station Air-Handler, Size 40W San Bernadino County Sherriff Station AHU: AH 2 Assembly Drawing	REVISION  End View
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Unit height: 6'-8 3/16"  
 Return Fan  
 0  
 Bag/Cartridge Filter 6 - 12 IN. Side Loading  
 Qty (4) 12in. x 24in.  
 Qty (8) 24in. x 24in.  
 Pre Filter : 2In. Flat Filter  
 Qty (4) 12in. x 24in.

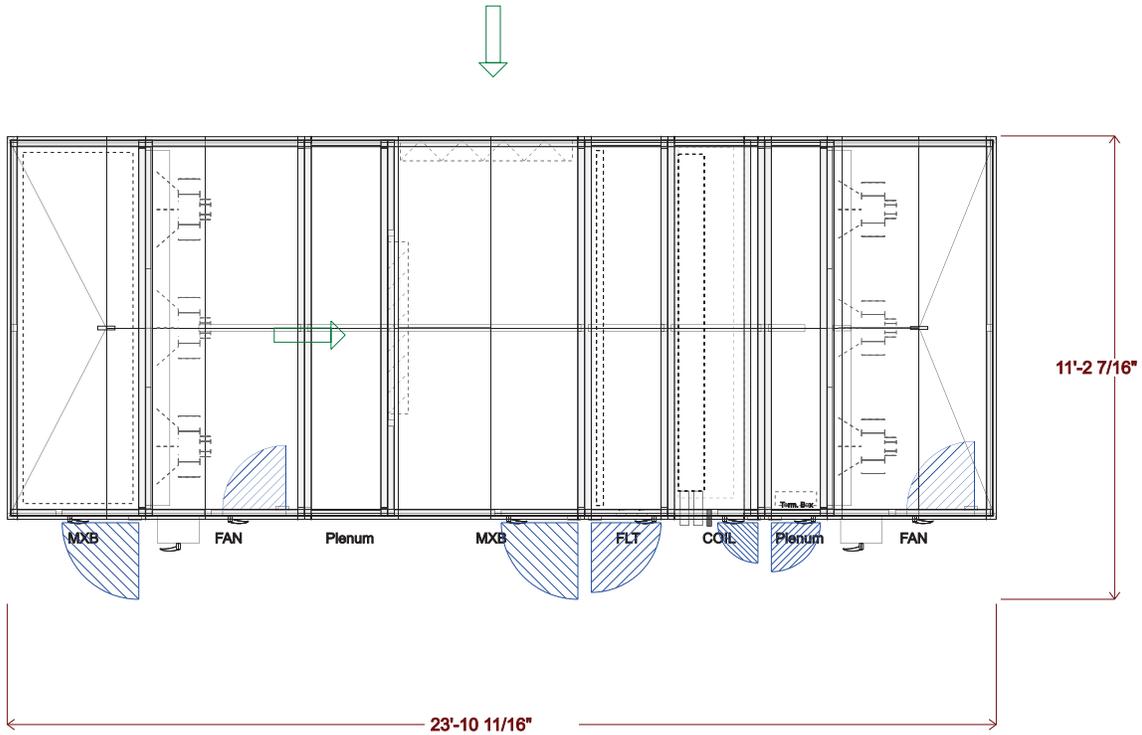
Qty (8) 24in. x 24in.  
 Chilled Water 6 Row 11 FPI Double Circuit (qty. 2)  
 Draw-Thru Supply Fan  
 0  
 Operating weight: 8130.0 lbs.  
 Upstream Corner Weight (each): 1904.0 lbs.  
 Downstream Corner Weight (each): 2161.0 lbs.



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**39MW**



DATE  
12/30/2024

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v7.06

39M Central Station Air-Handler, Size 40W  
 San Bernadino County Sherriff Station AHU: AH 2  
 Assembly Drawing

REVISION  
Top View

Chilled Water 6 Row 11 FPI Double Circuit (qty. 2)

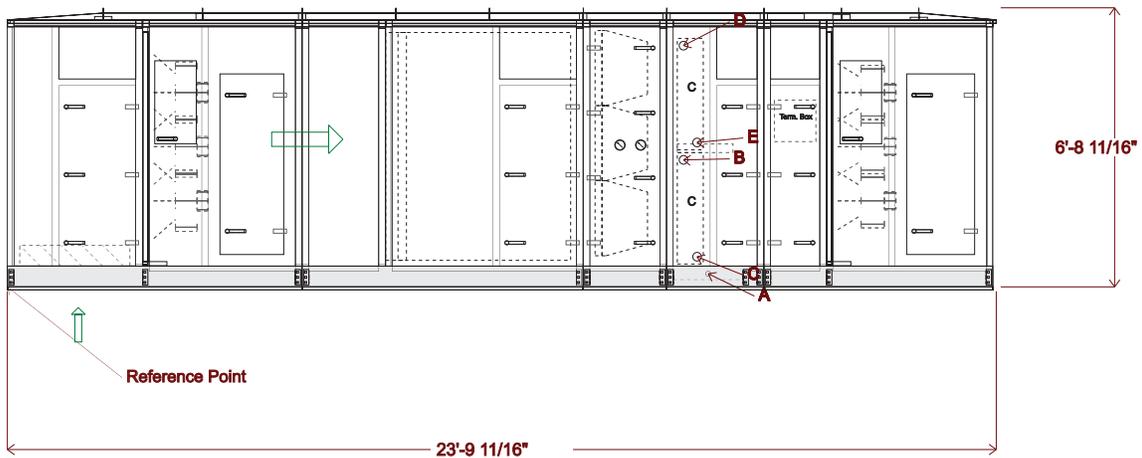


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**39MW**

Pipe	x	y	diameter	Usage
A	16'-10 1/2"	3 13/16"	1 1/2"	DrainPan
B	16'-3 5/16"	3'-0 11/16"	2 1/2"	CW Outlet
C	16'-7 1/4"	8 11/16"	2 1/2"	CW Inlet
D	16'-3 5/16"	5'-9 3/4"	2 1/2"	CW Outlet
E	16'-7 1/4"	3'-5 3/4"	2 1/2"	CW Inlet



DATE  
12/30/2024

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39M Central Station Air-Handler, Size 40W  
San Bernadino County Sherriff Station AHU: AH 2  
Assembly Drawing

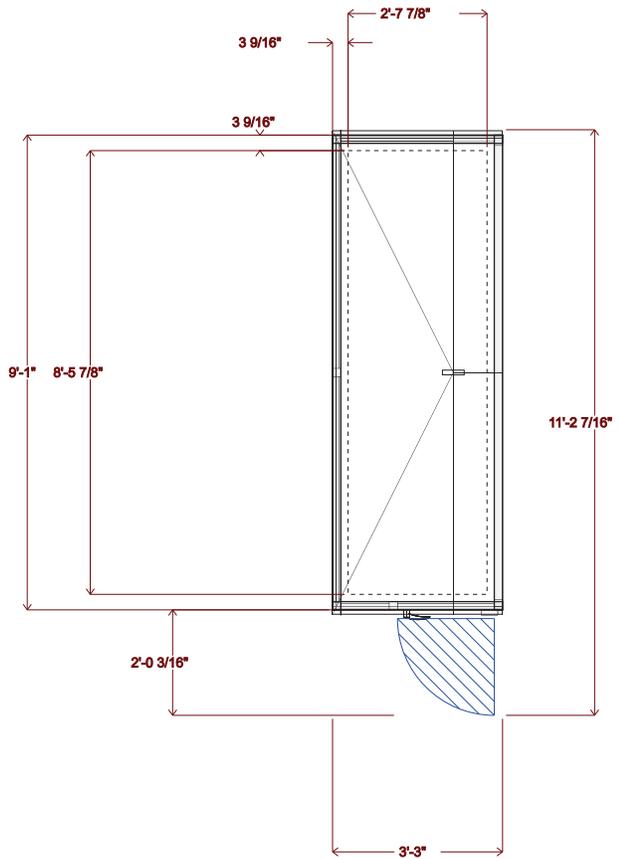
REVISION  
Side View



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**39MW**



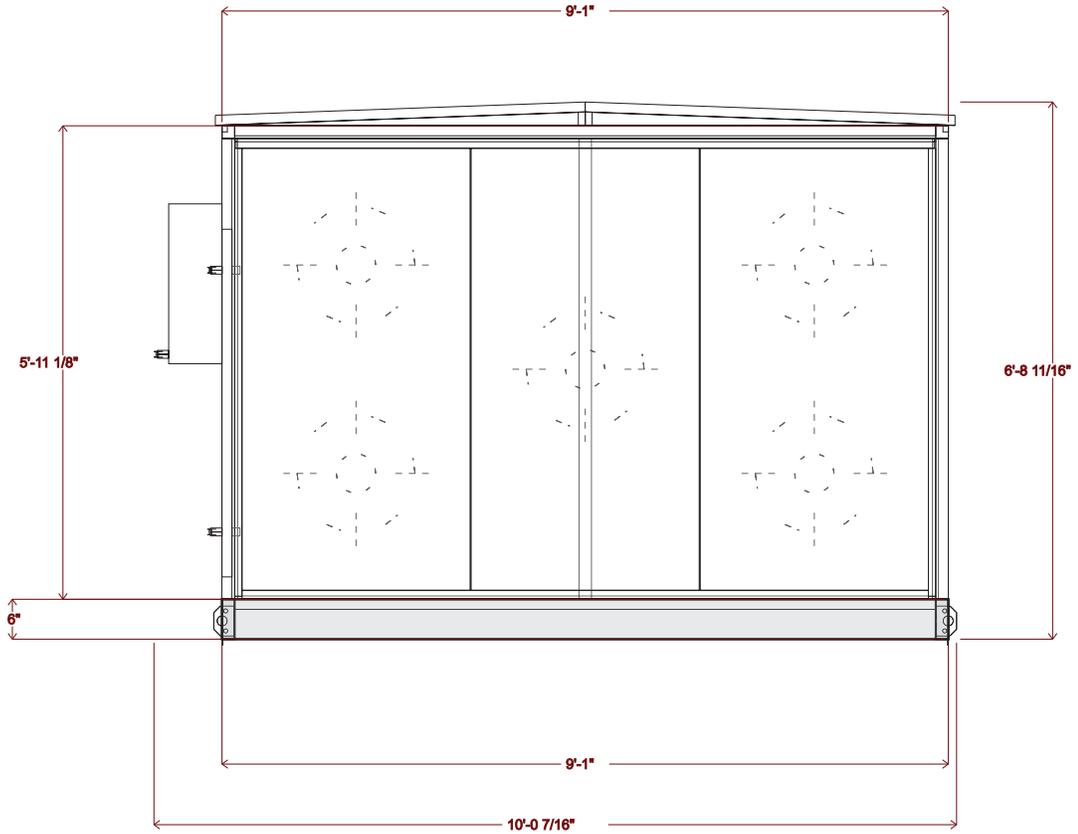
DATE  
12/30/2024

AHUBuilder  
v7.06

39M Central Station Air-Handler, Size 40W  
San Bernadino County Sherriff Station AHU: AH 2  
Mixing Box

REVISION  
Top View

Unit viewed from right side of side elevation view.  
 Return Fan  
 0



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DATE  
12/30/2024

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39M Central Station Air-Handler, Size 40W  
 San Bernadino County Sherriff Station AHU: AH 2  
 Return Fan

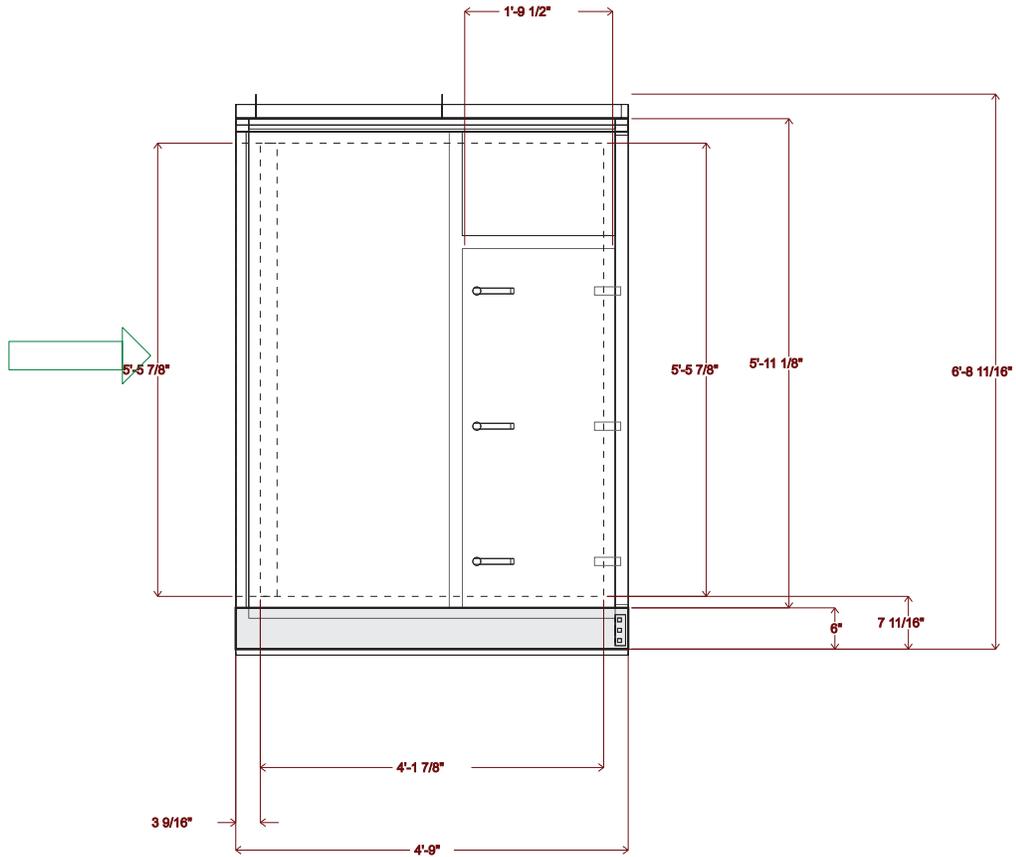
REVISION  
End View



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**39MW**



DATE  
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39M Central Station Air-Handler, Size 40W  
San Bernadino County Sherriff Station AHU: AH 2  
Mixing Box

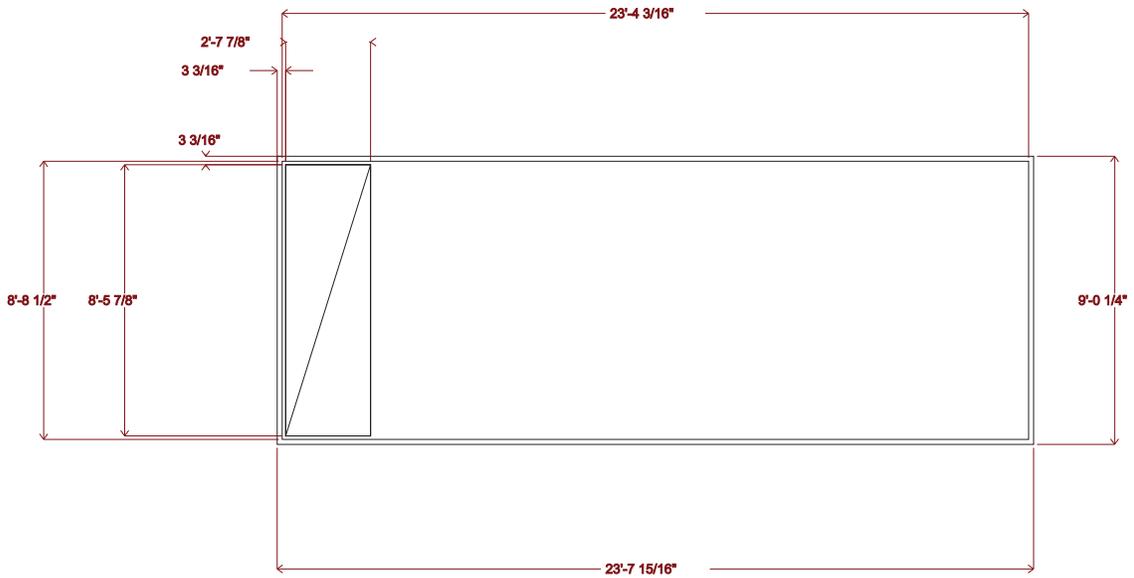
REVISION  
Side View



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39M Central Station Air-Handler, Size 40W  
San Bernadino County Sherriff Station AHU: AH 2  
Ahu Curb

REVISION  
Top View

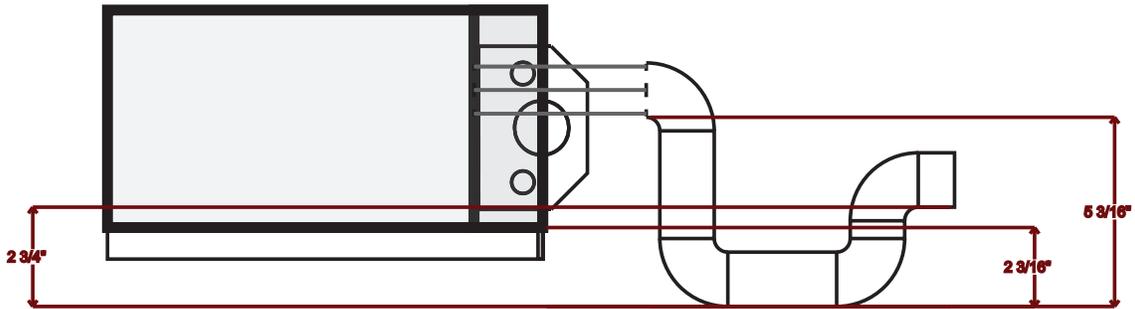


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**39MW**

# DRAW-THRU



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39M Central Station Air-Handler, Size 40W  
San Bernadino County Sherriff Station AHU: AH 2  
Condensate Trap Dimensions

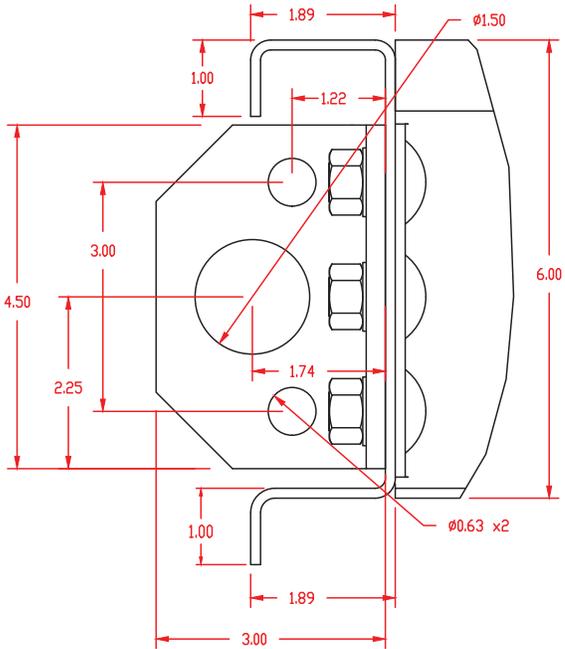
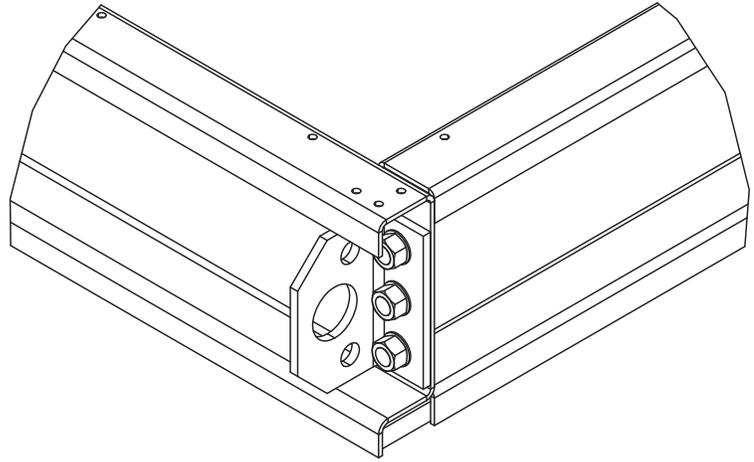
REVISION  
End View



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39M Central Station Air-Handler, Size: 03 - 110  
6" Base rail and Lifting Lug Detail

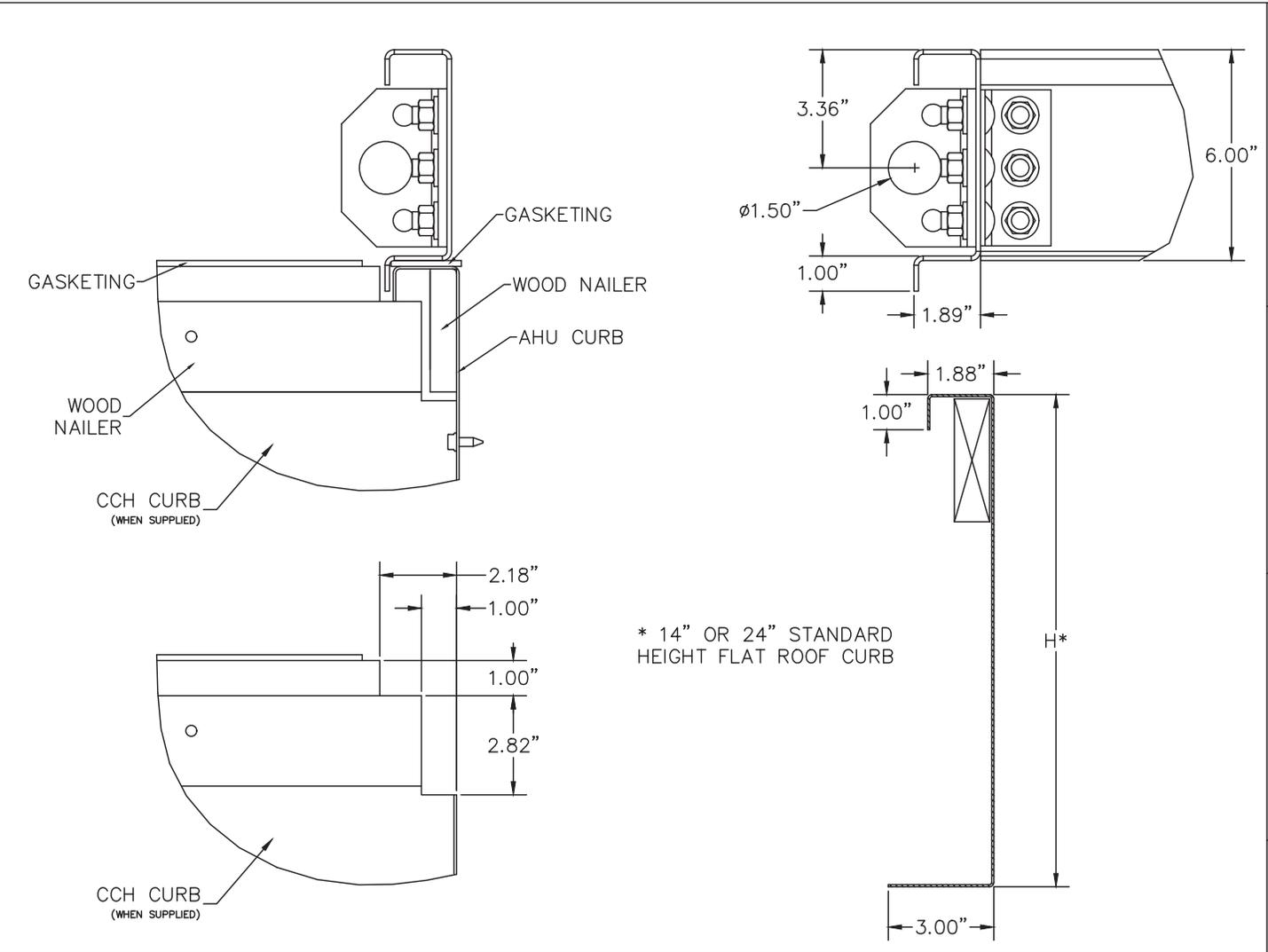
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\* 14" OR 24" STANDARD HEIGHT FLAT ROOF CURB

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39M Central Station Air-Handler, Size: 03 - 110  
Curb, Baserail and Lifting Lug Detail

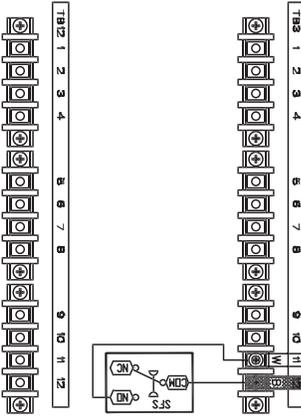
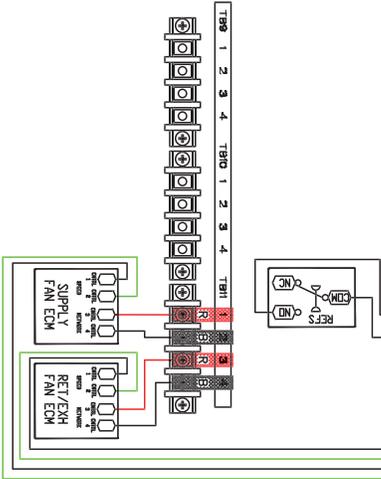
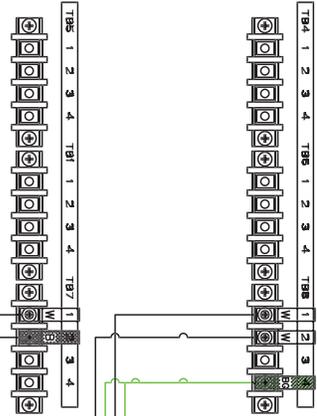
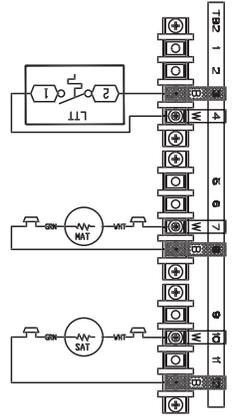
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39M



- LEGEND
- TERMINAL MARKED
  - SPICE FIELD
  - ▭ WIRING FIELD
  - ▭ WIRING FIELD CONTROL
  - AL/A2 BLACK CONTACTOR COIL
  - RG BLACK DR GREEN
  - 24VAC CONTACTOR COIL
  - COM COMMON
  - COIL COIL VALVE#
  - EF EXHAUST FAN
  - EX EXHAUST EXHAUST WHEEL
  - END END
  - FAB FACE & BRASS DAMPER
  - FAN FAN
  - FLTS FILTER STATUS SWITCH 2
  - FLTS2 FILTER STATUS SWITCH 2
  - HCY HEATING COIL VALVE
  - HM HUMIDIFIER ENABLE
  - HUM HUMIDIFIER ENABLE
  - LTT LOW TEMPERATURE THERMISTAT (FREEZESTAD)
  - LIQ LIQUID AIR TEMPERATURE
  - MAV MAIN AIR TEMPERATURE
  - NC NORMALLY CLOSED
  - NO NORMALLY OPEN
  - PREHEAT PRE-HEAT
  - PREHEAT VALVE PRE-HEAT VALVE
  - RET RETURN EXHAUST FAN
  - RET RETURN EXHAUST FAN STATUS
  - RET RETURN EXHAUST FAN STATUS
  - SAT SUPPLY AIR TEMPERATURE
  - SAT SUPPLY AIR TEMPERATURE
  - SAT SUPPLY FAN
  - SAT SUPPLY FAN STATUS
  - SAT SUPPLY FAN STATUS
  - START/STOP START/STOP
  - TS TERMINAL BLOCK TERMINAL
  - TS TERMINAL BLOCK TERMINAL
  - VF0 VARIABLE FREQUENCY DRIVE
  - VF0 VARIABLE FREQUENCY DRIVE

DATE  
 2024-12-30

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 v7.06

39M Central Station Air Handler, Size: 03 - 110  
 Factory Wired Controller Wiring Diagram

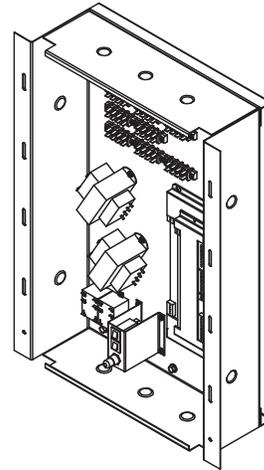
REVISION



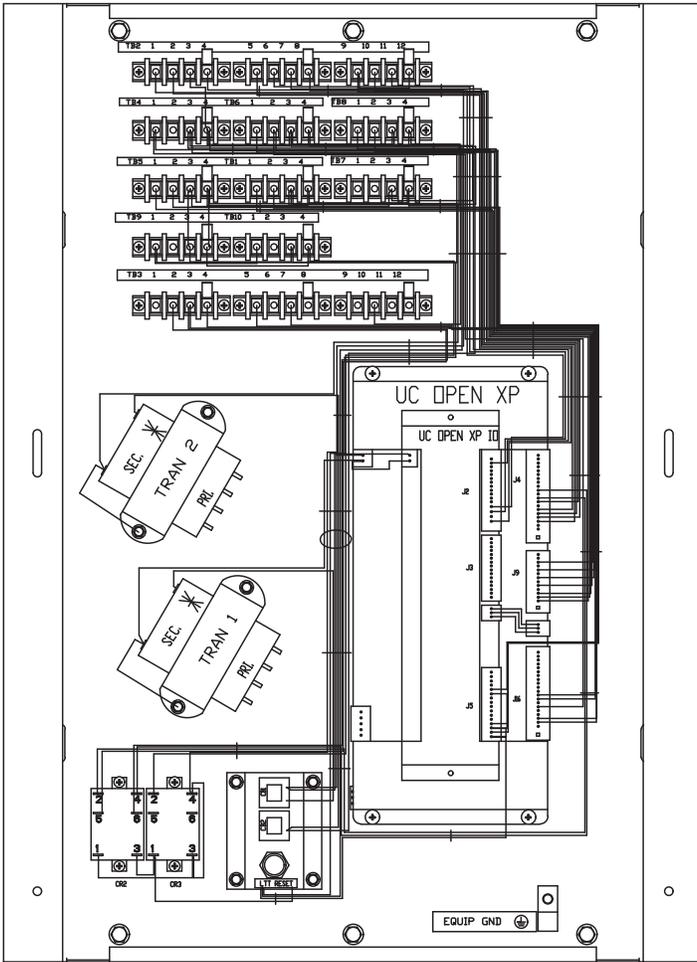
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39M



Component wiring for reference only. When components are factory installed, wiring will be factory installed unless otherwise noted. When components are provided by the factory for field installation, wiring is not included or installed.



SIZE 03-06 (SHOWN)

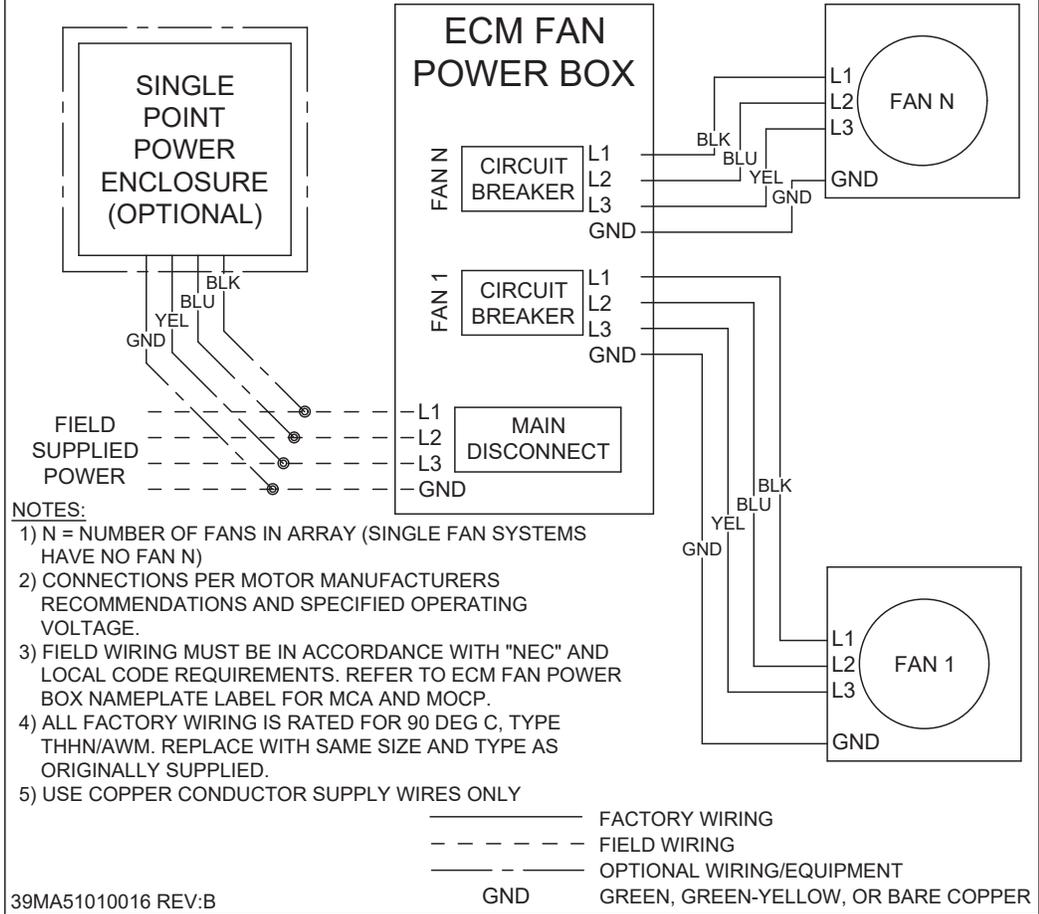
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2024-12-30

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39M Central Station Air-Handler, Size: 03 - 110  
Factory Wired Controller

REVISION

# POWER WIRING DIAGRAM ECM FAN 3 PHASE

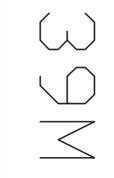


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39M Central Station Air-Handler, Size: 03 - 110  
ECM Three Phase Wiring Detail

REVISION

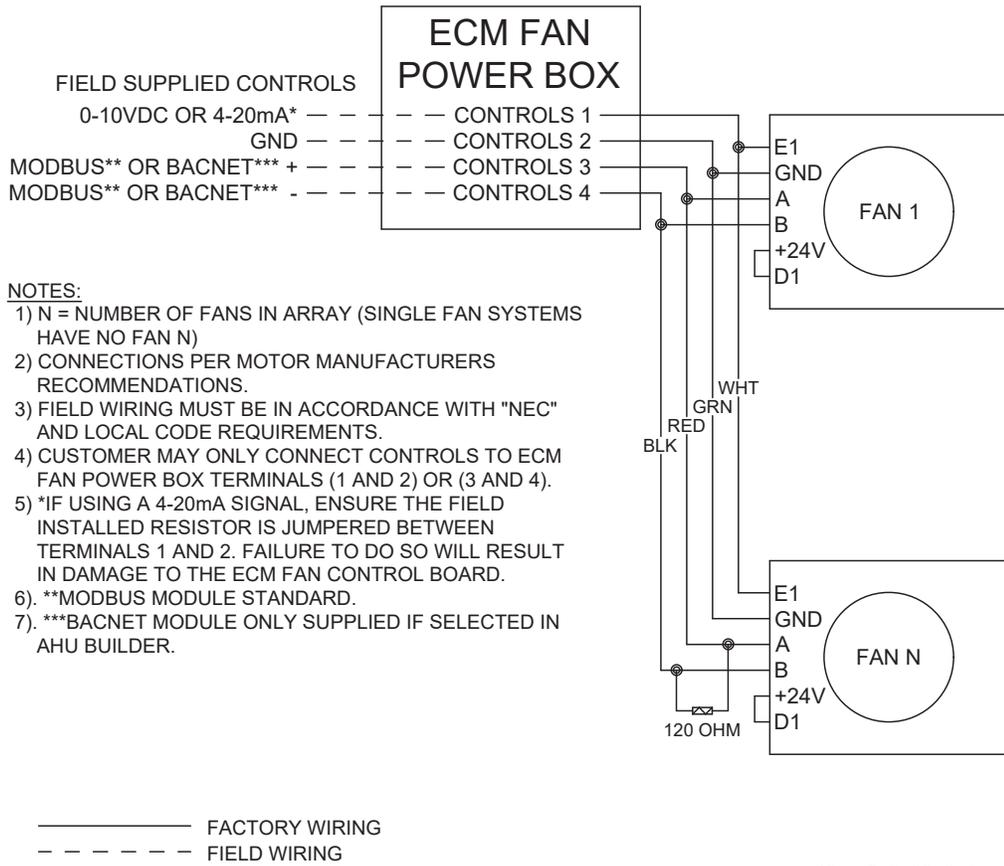


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39M

# CONTROLS WIRING DIAGRAM ECM FAN, ZIEHL-ABEGG



39MA51010019 REV:C

Component wiring for reference only.  
When components are factory installed, wiring will be factory installed unless otherwise noted.  
When components are provided by the factory for field installation, wiring is not included or installed.

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39M Central Station Air-Handler, Size: 03 - 110  
ECM Controls Wiring Diagram - Ziehl-Abegg

REVISION

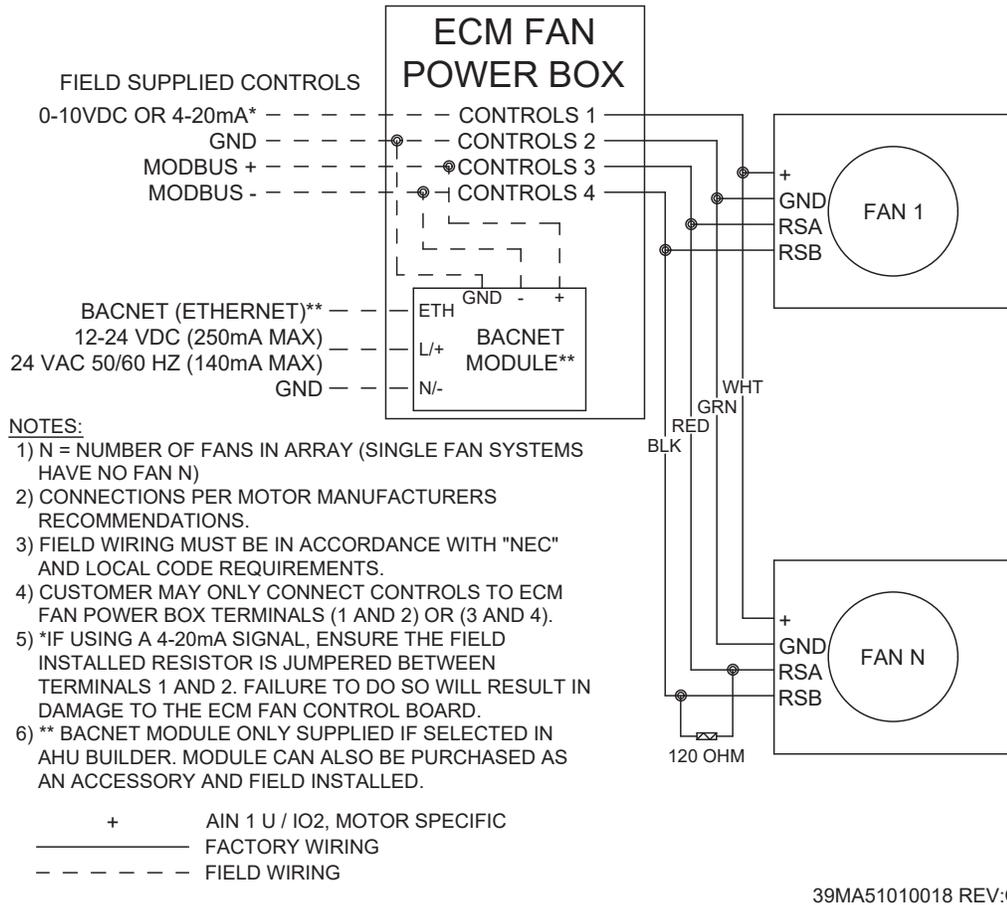


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39M

# CONTROLS WIRING DIAGRAM ECM FAN, EBM-PAPST



Component wiring for reference only.  
 When components are factory installed, wiring will be factory installed unless otherwise noted.  
 When components are provided by the factory for field installation, wiring is not included or installed.

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2024-12-30

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v7.06

39M Central Station Air-Handler, Size: 03 - 110  
ECM Controls Wiring Diagram - EBM Pakst

REVISION

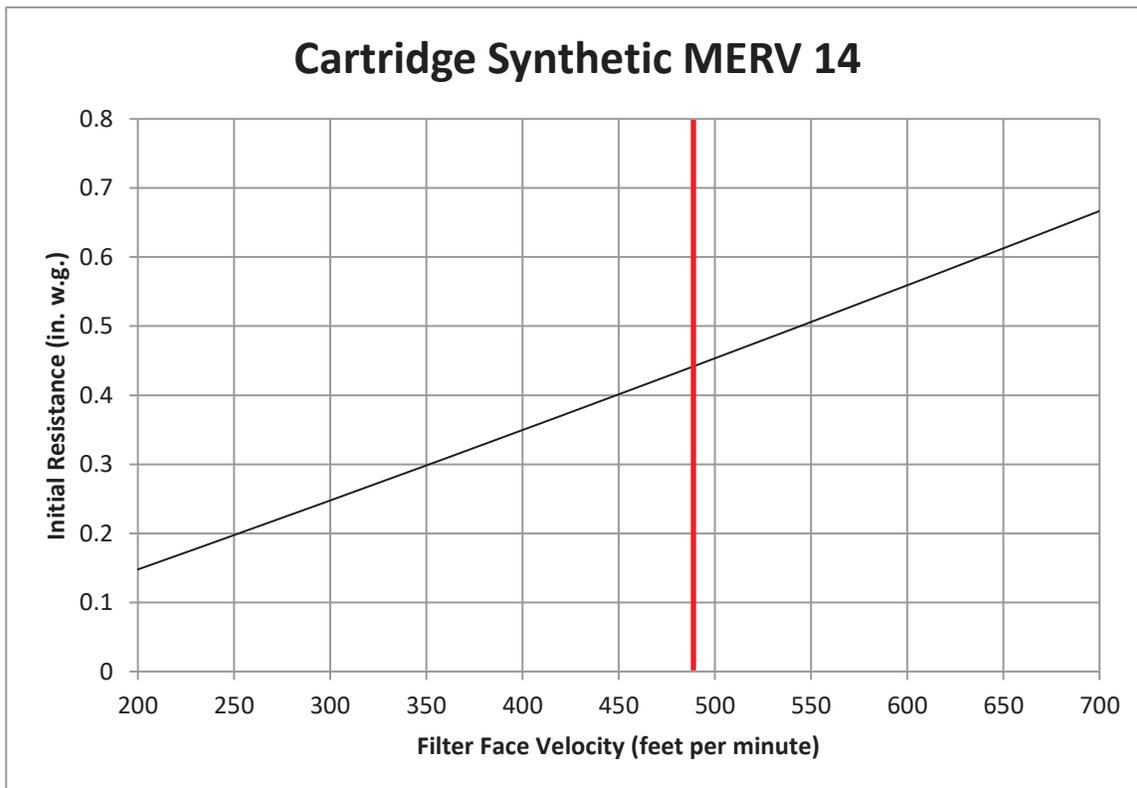
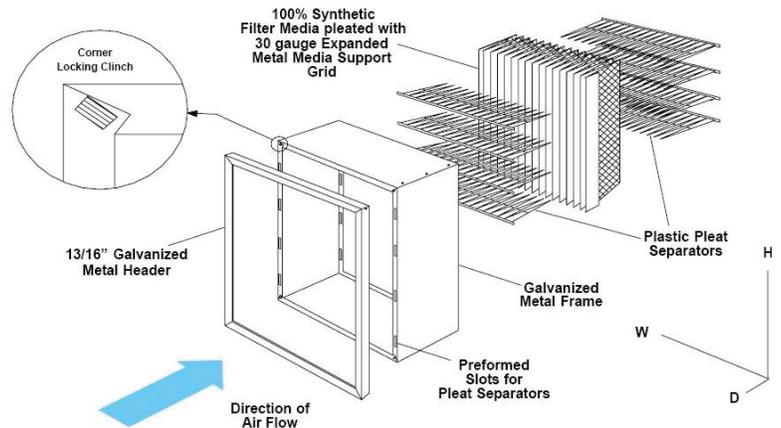
## Air Filter Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 2

Carrier Part Number ..... 31KB50412240824244  
 Kit Description ..... Filter Kit  
 Unit Airflow, CFM ..... 19600  
 Filter Velocity, FPM ..... 490  
 Filter Sizes and Quantities ..... Qty (4) 12in. x 24in., Qty (8) 24in. x 24in.

### DFpro Synthetic Cartridge Filter

DFpro rigid filters are designed to provide consistent high efficiency filtration in constant and variable air volume systems. Deep pleats are held firmly in place with plastic separators and expanded metal backing. Every edge of the media pack is glued inside the periphery of the frame to prevent air and dust bypass. The media and separators are 100% polypropylene to resist moisture damage, microbial growth, and puncture damage. Heavy gauge galvanized frame resists corrosion and maintains its structural integrity for extended months of service.



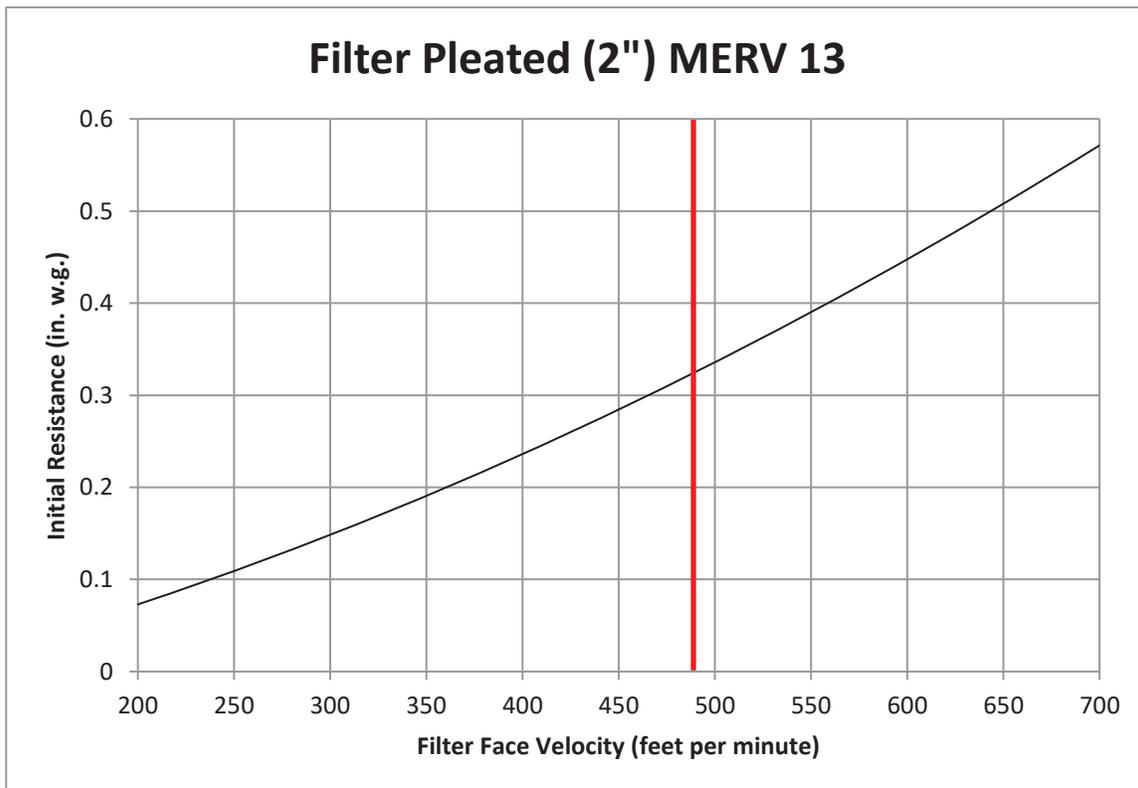
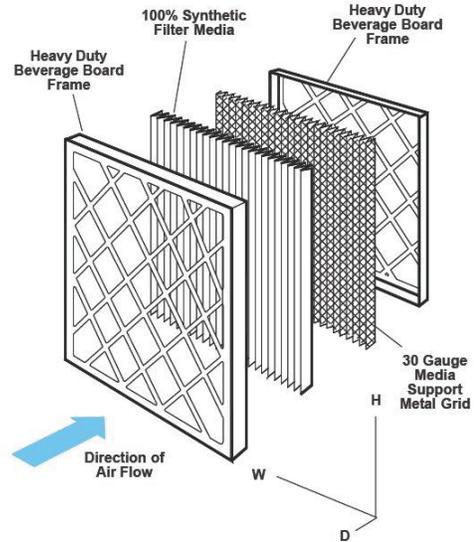
## Air Filter Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 2

Carrier Part Number ..... 31K2C0412240824244  
 Kit Description ..... Filter Kit  
 Unit Airflow, CFM ..... 19600  
 Filter Velocity, FPM ..... 490  
 Filter Sizes and Quantities ..... Qty (4) 12in. x 24in., Qty (8) 24in. x 24in.

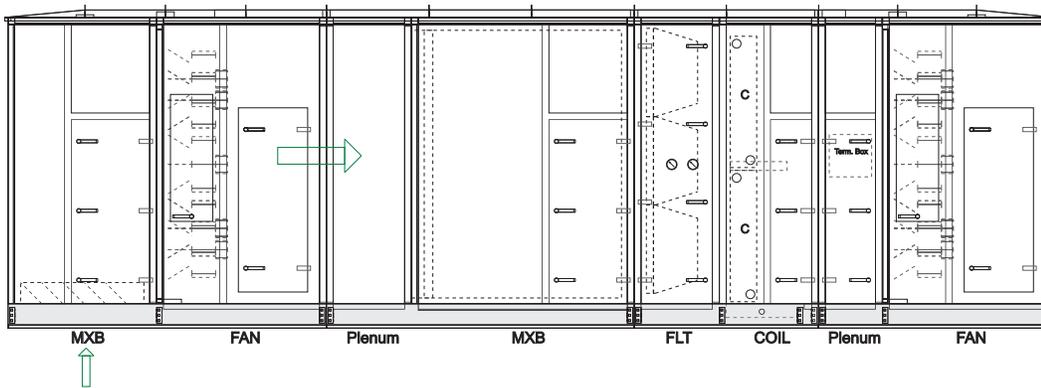
### DFpro MERV 13 Pleated Filter

The 100% synthetic graduated density media is continuously bonded to a 30 gauge galvanized, corrosion resistant, expanded metal support grid with an effective open area of 96%. The media is resistant to a wide range of chemicals, does not absorb moisture and will not support microbial growth. The controlled pleat spacing maximizes surface area and dust holding capacity and is bonded to the enclosure frame to prevent dust bypass. The enclosure frame is constructed of high wet strength moisture resistant beverage board. The diagonal support members of the frame are bonded to the entering and exiting apexes of each pleat to prevent pleat collapse and filter bowing.



## Unit Report AH 3

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 3



### Unit Parameters

Aero Outdoor Air Handler  
39MW Size 50W  
Insulation: R-13 Double Wall Sealed Panel  
Exterior Finish: Painted Exterior Panels  
Interior Finish: Galvanized Interior Panels  
Level II Thermal Break  
6 inch tall Base Rail  
Field Supplied Curb

### Mixing Box

Damper: Bottom Premium Parallel  
Door Right Side

### Return Fan

Shipping Split After  
Rear Inlet  
Fan Sled  
Plenum Fan B PEBM0105  
Direct Drive Fans  
Fan Count 7  
1977 fanRPM Class III  
Full Open Discharge  
ECM Control Box (Standard)  
Piezometer and Transducer (1 fan)  
Voltage Selected - 460/3/60  
Full Load Amps - 7.7 Each  
FLA/MCA/MOCP 53.9/55.8/60  
Return/Exhaust Fan Status (DI)  
Door Right Side

### Plenum

Length 24 inches

### Mixing Box

Shipping Split After  
Damper: Left Side Premium Opposed  
Damper: Rear Premium Parallel  
Mixed Air Temperature Sensor (AI)  
Door Right Side

## Unit Report AH 3

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 3

### Bag/Cartridge Filter

Bag/Cartridge Filter 6 - 12 IN. Side Loading  
12" Cartridge w/ Header (Synthetic) MERV 14  
Qty (3) 12in. x 24in.  
Qty (12) 24in. x 24in.  
Pre Filter : 2In. Flat Filter  
2" Pleated MERV 13 Filter  
Qty (3) 12in. x 24in.  
Qty (12) 24in. x 24in.  
Door Right Side  
Minihelic Differential Pressure Gage 0-2" w.c. Right Side  
Minihelic Differential Pressure Gage 0-2" w.c. Right Side

### Chilled Water Coil and Plenum

Shipping Split After  
Low Temperature Thermostat (DI)  
304 Stainless Steel Drain Pan Right Side  
Chilled Water 50.56 sq.ft 6 Row 8 FPI Full Circuit  
Coil Connection Right Side  
1/2 in. Tube Diameter  
Fin Thickness: 0.0060  
AL fins Galv. Casing  
Steel Header  
No Coating  
Door Right Side

### Control Plenum

Length 18 inches  
Unprogrammed Carrier UC Open XP Controller Located in Control Plenum  
Door Right Side

### Draw-Thru Supply Fan

Rear Inlet  
Fan Sled  
Plenum Fan B PEBM0105  
Direct Drive Fans  
Fan Count 7  
2411 fanRPM Class III  
Field Supplied Discharge  
ECM Control Box (Standard)  
Piezometer and Transducer (1 fan)  
Voltage Selected - 460/3/60  
Full Load Amps - 7.7 Each  
FLA/MCA/MOCP 53.9/55.8/60  
Supply Fan Status (DI)  
Supply Air Temperature Sensor (AI)  
Door Right Side

### Weights and Dimensions

(LxWxH in ft in) 24' 10" x 9' 11" x 7' 6" \*\*  
Operating 9467 LB \*\*

### Warranty Part Number(s) (NET PRICING)

## Unit Report AH 3

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 3

39LMR-SU-FIRST Qty 1.0 First 39 Series Start-up

### Configuration Notes

An Outdoor Plenum fan may not discharge through the roof of the unit.

If a bottom connection is required, use an Inlet Plenum Section.

An Outdoor Plenum fan may not discharge through the roof of the unit.

Discharge duct(s) must be gasketed and screwed directly to the discharge panel of the unit.

### Warranty Part Number(s) (NET PRICING)

QTY 1.0 First 39 Series Start-up

\*\* Weights and Dimensions are approximate. Weights include base unit weight, coils (wet & dry), fans and fan motors, and other components, but does not include filters, drives and skids. Approximate dimensions are provided primarily for shipping purposes, for exact dimensions, refer to submittal drawings. Shipping skids are not included.

All filter media efficiency ratings are for the filter media only.

## Chilled Water Coil Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3



Cooling Application's Balance Criteria: Fluid Flow

Coil Model.....	<b>28MC</b>
Number of Coils.....	<b>2</b>
Row / FPI / Circ.....	<b>6 / 8 / FL</b>
Fin Thickness.....	<b>.0060</b> in
Fin Type.....	<b>Sine Wave</b>
Face Area Type.....	<b>Large</b>
Coil Face Area.....	<b>50.56</b> sqft
Face Velocity.....	<b>454.9</b> fpm
Fin-Casing Material.....	<b>Al-Galv.</b>
Tube Diameter.....	<b>0.5</b> in
Tube spacing: Stf x Str.....	<b>1.25 x 0.781</b> in
Tube Wall Thickness.....	<b>0.016</b> in
Actual Airflow.....	<b>23000</b> CFM
Site Altitude.....	<b>0</b> ft
Standard Airflow (adj. to std. dry atmosphere).....	<b>22007</b> SCFM
Total Cooling Capacity.....	<b>860.40</b> MBH
Sensible Cooling Capacity.....	<b>720.75</b> MBH
Fluid Flow Rate.....	<b>115.6</b> gpm
Fluid Pressure Drop.....	<b>10.8</b> ft wg
Fluid Velocity.....	<b>3.5</b> ft/s
Entering Fluid Temperature.....	<b>43.00</b> F
Leaving Fluid Temperature.....	<b>57.89</b> F
Fluid Temperature Rise.....	<b>14.9</b> F
Entering Air Dry Bulb.....	<b>85.30</b> F
Entering Air Wet Bulb.....	<b>66.90</b> F
Entering Air Enthalpy.....	<b>31.38</b> BTU/lb
Leaving Air Dry Bulb.....	<b>54.97</b> F
Leaving Air Wet Bulb.....	<b>54.24</b> F
Leaving Air Enthalpy.....	<b>22.7</b> BTU/lb
Air Friction.....	<b>0.57</b> in wg
Brine.....	<b>FW</b>
Brine Concentration.....	<b>0</b> %
Fouling Factor.....	<b>0.0</b> (hr-sqft-F)/BTU

NOTE: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory ([www.ahridirectory.org](http://www.ahridirectory.org)).

LEGEND:

- Stf -- Tube spacing across coil face
- Str -- Tube spacing in direction of airflow

## Unit Acoustics Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 3

### Unit Acoustics Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	81	76	73
125 Hz _____	82	78	75
250 Hz _____	92	88	85
500 Hz _____	93	87	84
1000 Hz _____	96	88	85
2000 Hz _____	94	85	81
4000 Hz _____	88	84	79
8000 Hz _____	82	74	71

Sound power levels are rated in accordance with AMCA 300.

### Unit Acoustics A-weighted Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	55	49	47
125 Hz _____	66	62	59
250 Hz _____	83	79	76
500 Hz _____	90	84	81
1000 Hz _____	96	88	85
2000 Hz _____	95	86	82
4000 Hz _____	89	85	80
8000 Hz _____	81	73	69

Sound power levels are rated in accordance with AMCA 300.

### Sound contributed by Supply and Return Fans Unit Acoustics PART-LOAD Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	76	73	70
125 Hz _____	77	75	71
250 Hz _____	83	83	78
500 Hz _____	87	84	79
1000 Hz _____	89	84	79
2000 Hz _____	87	82	76
4000 Hz _____	81	80	75
8000 Hz _____	76	71	66

Sound power levels are rated in accordance with AMCA 300.

## Unit Acoustics Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 3

Unit Acoustics PART-LOAD A-weighted Sound Power Level:

	<b>Discharge Inlet Casing</b>		
63 Hz _____	<b>50</b>	<b>47</b>	<b>44</b>
125 Hz _____	<b>61</b>	<b>59</b>	<b>55</b>
250 Hz _____	<b>74</b>	<b>74</b>	<b>69</b>
500 Hz _____	<b>83</b>	<b>81</b>	<b>76</b>
1000 Hz _____	<b>89</b>	<b>84</b>	<b>79</b>
2000 Hz _____	<b>88</b>	<b>83</b>	<b>78</b>
4000 Hz _____	<b>82</b>	<b>81</b>	<b>76</b>
8000 Hz _____	<b>75</b>	<b>70</b>	<b>64</b>

Sound power levels are rated in accordance with AMCA 300.

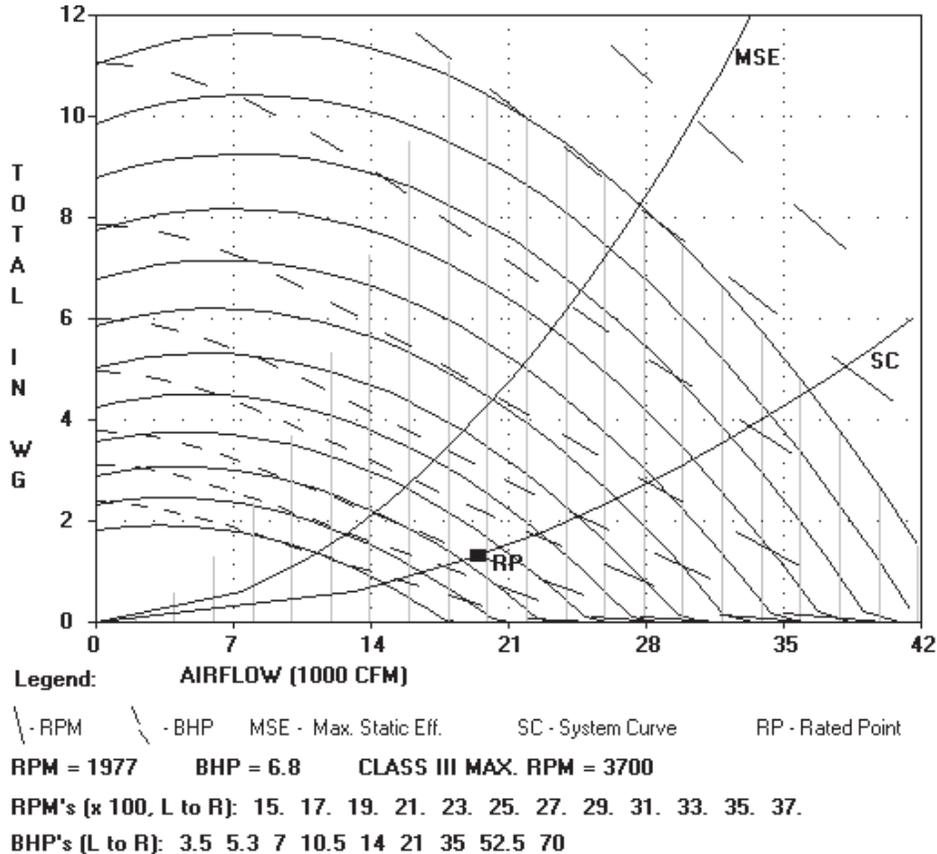
Sound contributed by Supply and Return Fans

## Return Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Fan Model	<b>NC-39M5007HPEE</b>
Unit Size	<b>50W</b>
Fan Type	<b>ECM</b>
<b>DIRECT DRIVE PLENUM (EBM-05) (Return)</b>	
Fan Wheel Diameter	<b>15.7</b>
Fan Class	<b>III</b>
Static Efficiency (%)	<b>59</b>
Fan Application	<b>Return Fan</b>
Orientation	<b>Horizontal</b>
Actual Airflow, CFM	<b>19400</b>
Site Altitude, , ft	<b>0</b>
Total Upstream Static Losses, in wg	<b>1.31</b>
Number of Fans	<b>7</b>
Fan RPM / Max RPM	<b>1977/3700</b>
Each Fan BHP	<b>1.0</b>
Fan Total BHP	<b>6.8</b>
(n-1) Airflow, CFM	<b>32583</b>
(n-1) Redundancy (%)	<b>168</b>
Fan Electrical Power, kW	<b>6.5</b>
ECM Setting, VDC	<b>5.3</b>

Unit is outside of the scope of AHRI Standard 430/431.



## Supply Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Fan Model	<b>39M5007HPEE-U</b>
Unit Size	<b>50W</b>
Fan Type	<b>ECM DIRECT DRIVE PLENUM (EBM-05)</b>
Fan Wheel Diameter	<b>15.7</b>
Fan Class	<b>III</b>
Fan Application	<b>Supply Fan</b>
Orientation	<b>Horizontal</b>
Actual Airflow, CFM	<b>19600</b>
Site Altitude, ft	<b>0</b>
Upstream Ext. Static, in wg	<b>0.00</b>
Downstream Ext. Static, in wg	<b>2.00</b>
Cooling Coil Static, in wg	<b>0.57</b>
Heating Coil Static, in wg	<b>0.00</b>
Total Accessory Static, in wg	<b>0.56</b>
Total Static Pressure, in wg	<b>3.13</b>
Calculated Fan RPM / Motor RPM	<b>2411 / 0</b>
Class III Max. RPM	<b>3700</b>
Static Efficiency (%)	<b>68</b>
Number of Fans	<b>7</b>
Each Fan BHP	<b>2.0</b>
Fan Total BHP	<b>14.3</b>
(n-1) Airflow, CFM	<b>27914</b>
(n-1) Redundancy (%)	<b>142</b>
Fan Electrical Power, kW	<b>12.8</b>
ECM Setting, VDC	<b>6.5</b>



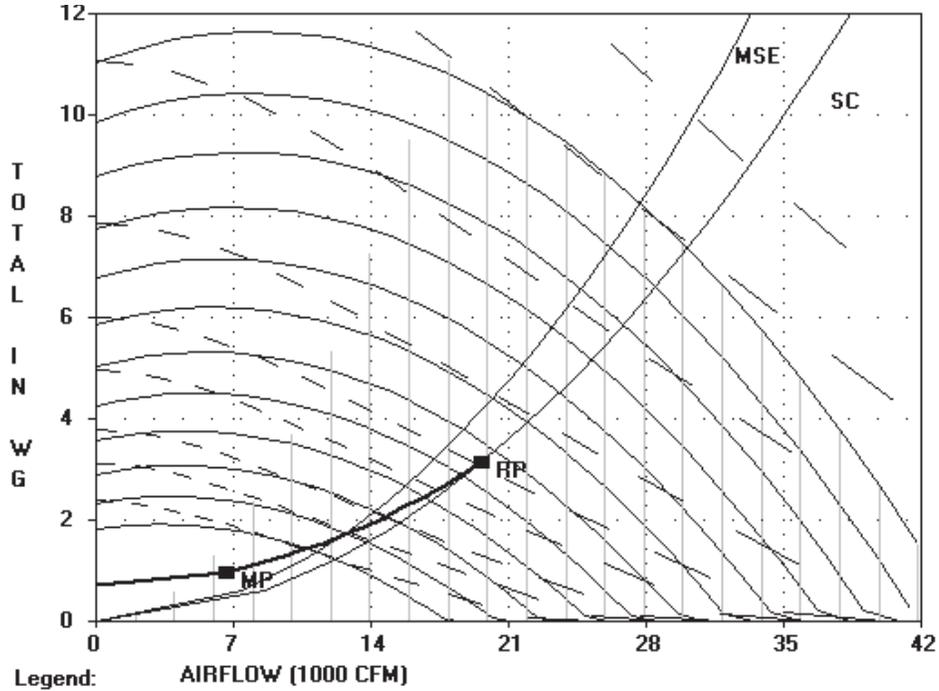
**Accessories:**

- (1) Flat Synthetic (2") MERV 13 [0.21]
- (1) CARTRIDGE LONG/SHORT Synthetic MERV 14 [0.30]
- (1) Side Mixing or Exhaust Box [0.05]

NOTE: Certified in accordance with the AHRI Central Station Air-Handling Unit Certification Program, which is based on AHRI Standards 430/431. Certified units may be found in the AHRI Directory at [www.ahridirectory.org](http://www.ahridirectory.org)

# Supply Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3



Legend:      AIRFLOW (1000 CFM)

\ - RPM      \ - BHP      MSE - Max. Static Eff.      SC - System Curve      RP - Rated Point

**RPM = 2411      BHP = 14.3      CLASS III MAX. RPM = 3700**

**RPM's (x 100, L to R): 15. 17. 19. 21. 23. 25. 27. 29. 31. 33. 35. 37.**

**BHP's (L to R): 3.5 5.3 7 10.5 14 21 35 52.5 70**

## Sensor and Actuator Points List

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 3

Name	AI	AO	DI	DO
Return/Exhaust Fan Status			X	
Mixed Air Temperature Sensor	X			
Low Temperature Thermostat			X	
Supply Fan Status			X	
Supply Air Temperature Sensor	X			

# Controller Submittal

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 3

Carrier Part Number ..... OPN-UCXP  
Manufacturer ..... Carrier

## I-VU® UC Open XP Unit Controller

**BACnet Support** – Advanced application controller (B-AAC), as defined in BACnet 135-2001 Annex L

**BACnet Communication Port** – EIA-485 port for BACnet MS/TP communications (baud rate is DIP switch selectable)

**Local Access Communication Port** – For system start-up and troubleshooting (115.2 kbps)

**Rnet Communication Port** – For connecting Carrier communicating room sensors and Carrier's touchscreen user interface

**Inputs** – 12 inputs: Configurable for 0-10V, RTD/Thermistor/Dry contact, or 0-20mA. Inputs 1 and 2 may be used for pulse counting. All analog inputs have 12 bit A/D resolution.

**Outputs** – 6 binary outputs: Configured as dry contact, normally open or normally closed. All binary outputs must be powered from a Class 2 power source.

6 analog outputs: 1 and 2 are configurable for 0-10V or 0-20mA; 3-6 are 0-10V only. Analog outputs have 8 bit D/A resolution.

**Protection** – Incoming power and network connections are protected by non-replaceable internal solidstate polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected against voltage transient and surge events.

**Real Time Clock** – Battery-backed real time clock keeps track of time in event of power failure.

**Battery** – 10-year Lithium CR2032 battery provides a minimum of 10,000 hours of trend data & time retention during power outages.

**Status Indicators** – LED status of power, running, and errors. LED indicators for transmit/receive for BACnet port and for each of the 12 outputs.

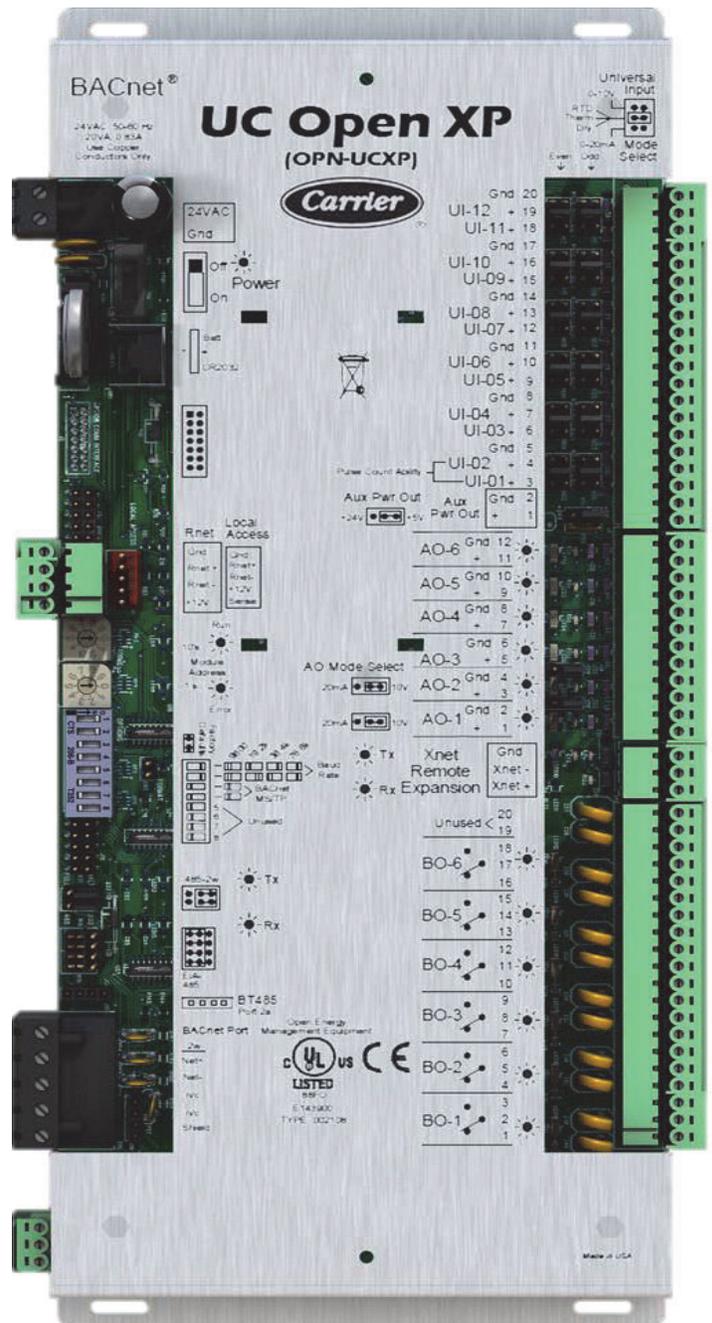
**Controller Addressing** – Rotary DIP switches set BACnet MS/TP MAC address of controller.

**Listed By** – UL-916, FCC Part 15-Subpart B- Class A, CE EN50082-1997

**Operating/Storage Range** – -24° to 140°F (-30° to 60°C), 10-90% relative humidity, non-condensing

**Power Requirements** – 24VAC +/- 10%, 50-60Hz  
20VA power consumption

Single Class 2 source only, 100VA or less



# Controller Expansion Board Submittal

Project: San Bernadino County Sherriff Station AHU

Unit Tag: AH 3

Carrier Part Number ..... OPN-UCXPIO  
Manufacturer ..... Carrier

## I-VU® UC Open XPIO Unit Controller Expansion Board

**Communication Ports** – Xnet Remote Expansion port:  
For connecting to a UC XP Controller via the Xnet network.

**Inputs** – 8 binary inputs: Inputs 1-8 are binary only and support pulse counting up to 10 Hz.

8 analog inputs: Inputs 9-16 are universal inputs, jumper selectable between thermistor/dry contact and 0-5VDC. All analog inputs have 10 bit A/D resolution.

**Outputs** – 8 binary outputs: Configured as dry contact, normally open, and must be powered from a Class 2 power source.

**Protection** – Incoming power and network connections are protected by non-replaceable internal solidstate polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected.

**Status Indicators** – LED status of power, outputs, running and errors.

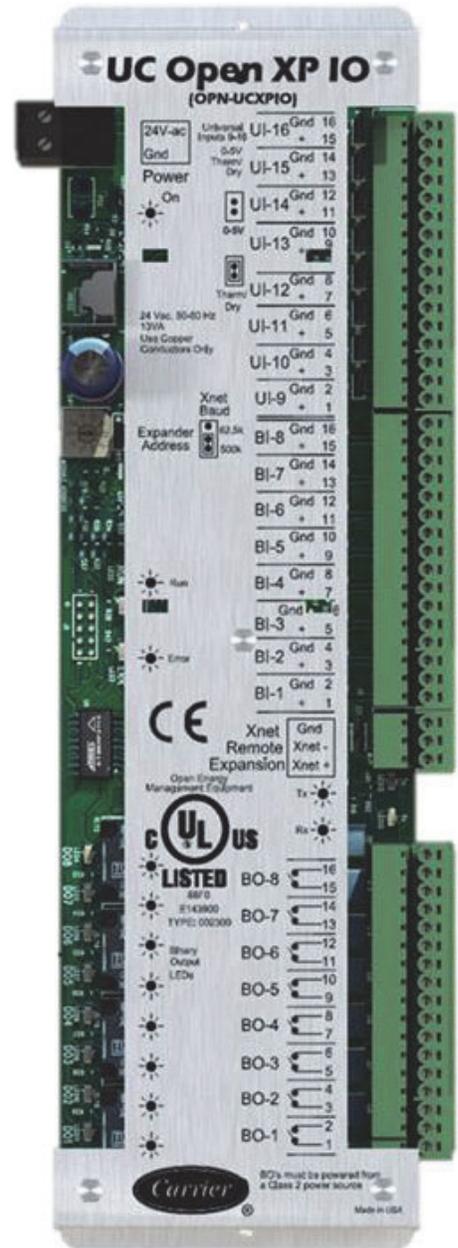
**Listed By** – UL916 (Canadian Std. C22.2 No. 205-M 1983), CE, FCC Part15-Subpart B - Class A

**Operating/Storage Range** – -20°F to 140°F (-29° to 60°C), 10-90% relative humidity, non-condensing

**Power Requirements** – 24VAC +/- 10%, 50-60Hz  
13VA power consumption

26VDC (25V min, 30V max)

Single Class 2 source only, 100VA or less



# Supply Air Temperature (SAT) Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Carrier Part Number ..... 33ZCSENSAT  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... ACI/10K-CP-D4  
 Cable ..... 1  
 Channel ..... UI-2  
 Terminal/Signal ..... TB2-10 / 10K Thermistor AI  
 Terminal/Signal ..... TB2-12 / Signal Ground

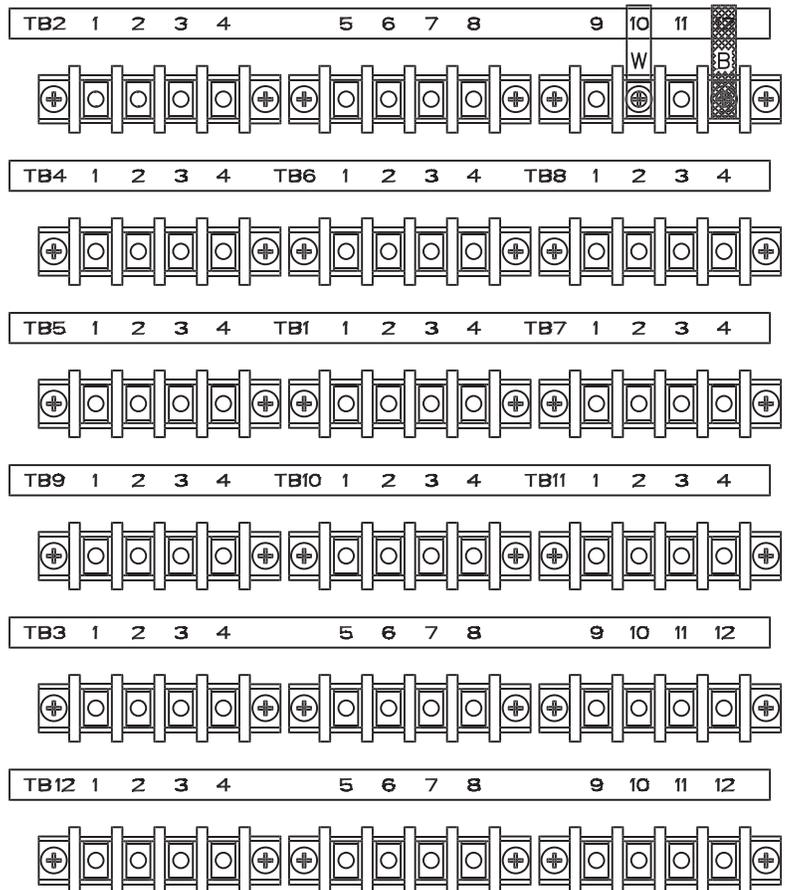


## SAT Supply Air Temperature Sensor

The SAT sensor consists of a thermistor encased within a stainless steel probe.

The thermistor has a temperature range of -245° to 185° F with a nominal resistance of 10,000 ohms at 77° F.

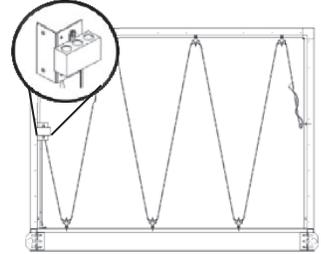
### Wire Terminations



# Mixed Air Temperature (MAT) Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Carrier Part Number ..... HH79NZ041  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... ACI/10K-CP-A24  
 Cable ..... 4  
 Channel ..... UI-3  
 Terminal/Signal ..... TB2-7 / 10K Thermistor AI  
 Terminal/Signal ..... TB2-8 / Signal Ground



## MAT Mixed Air Temperature Sensor

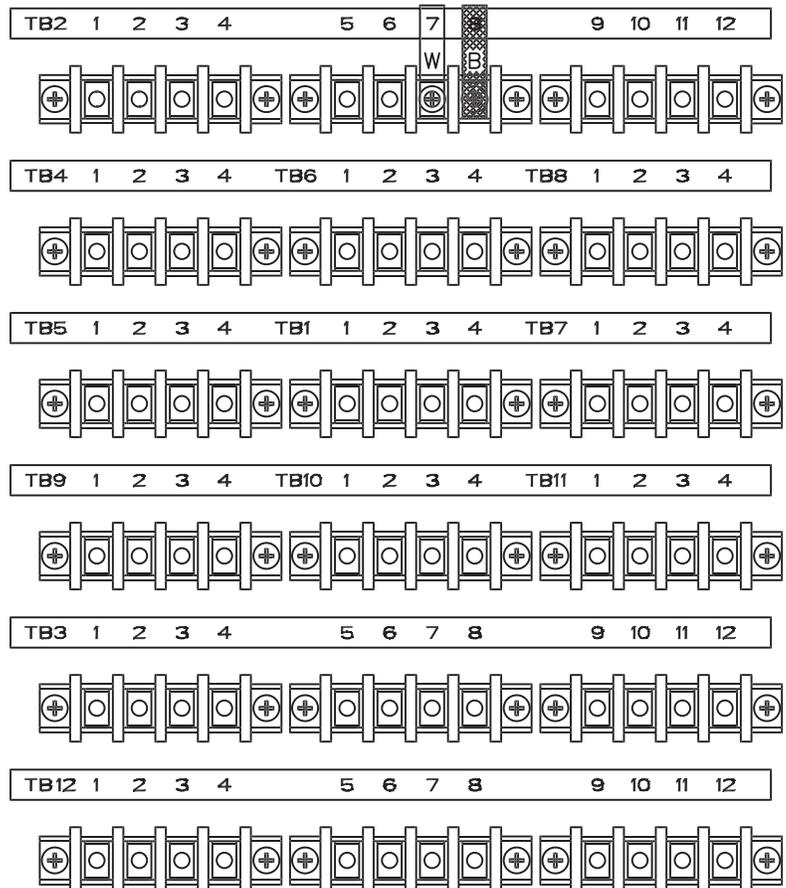
The MAT sensor consists of multiple, evenly spaced thermistors encased within a flexible copper tube.

Mechanical and electrical averaging is used to achieve the temperature measurement over the entire element length.

The MAT sensor has a range of -40° to 185° F with a nominal resistance of 10,000 ohms at 77° F.

The sensor is located in the last mixing box in the airflow.

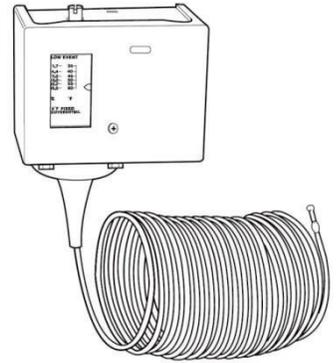
### Wire Terminations



# Low Temperature Thermostat Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Carrier Part Number ..... HH22BZ001  
 Manufacturer ..... Schneider Electric  
 Manufacturer Part Number ..... TC-5231-702  
 Cable ..... 2  
 Channel ..... UI-5  
 Terminal/Signal ..... TB2-4 / Dry Contact DI  
 Terminal/Signal ..... TB2-3 / Signal Ground



## LTT Low Temperature Thermostat

20 ft. element senses temperature over a large area. Control responds to the coldest one-foot section of the sensor.

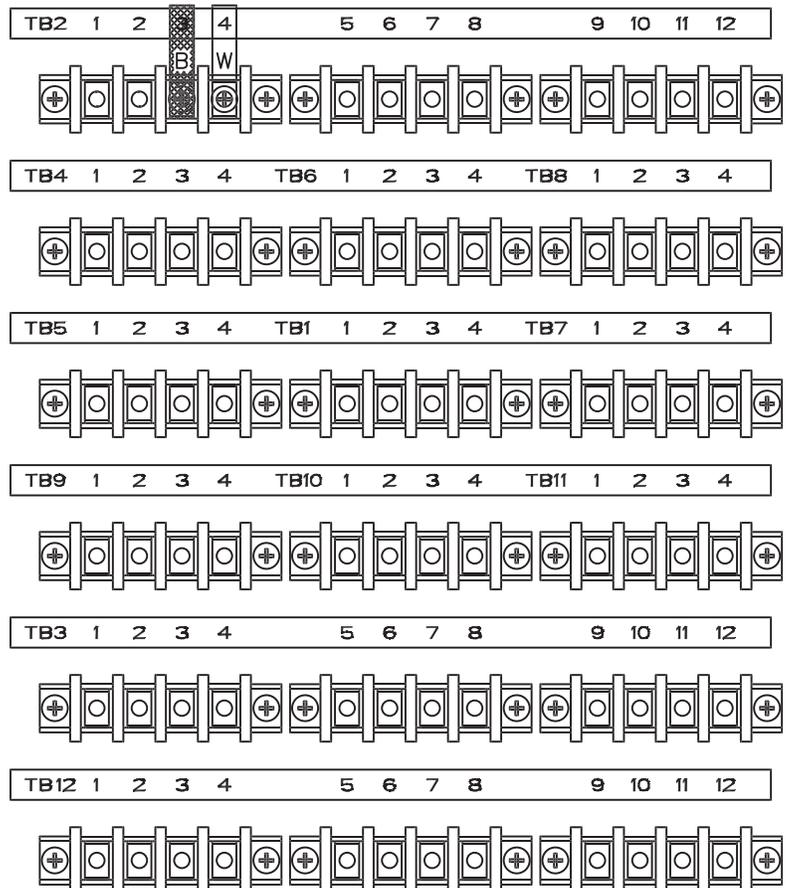
Adjustable setpoint from 35° F to 60° F with 5° F fixed differential.

Rated for use at 17 full load amps (120/208/240 Vac), 24 non-inductive amps (120/208/240 Vac), and 16 non-inductive amps (24 Vac).

Enclosure rating: NEMA Type 1.

Approvals: UL & CSA.

### Wire Terminations



# Supply Fan Status Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Carrier Part Number ..... 39MA51000021  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... A/MCS-A  
 Cable ..... 21  
 Channel ..... UI-6  
 Terminal/Signal ..... TB3-11 / Dry Contact DI  
 Terminal/Signal ..... TB3-12 / Signal Ground



## SFS Supply Fan Status Sensor

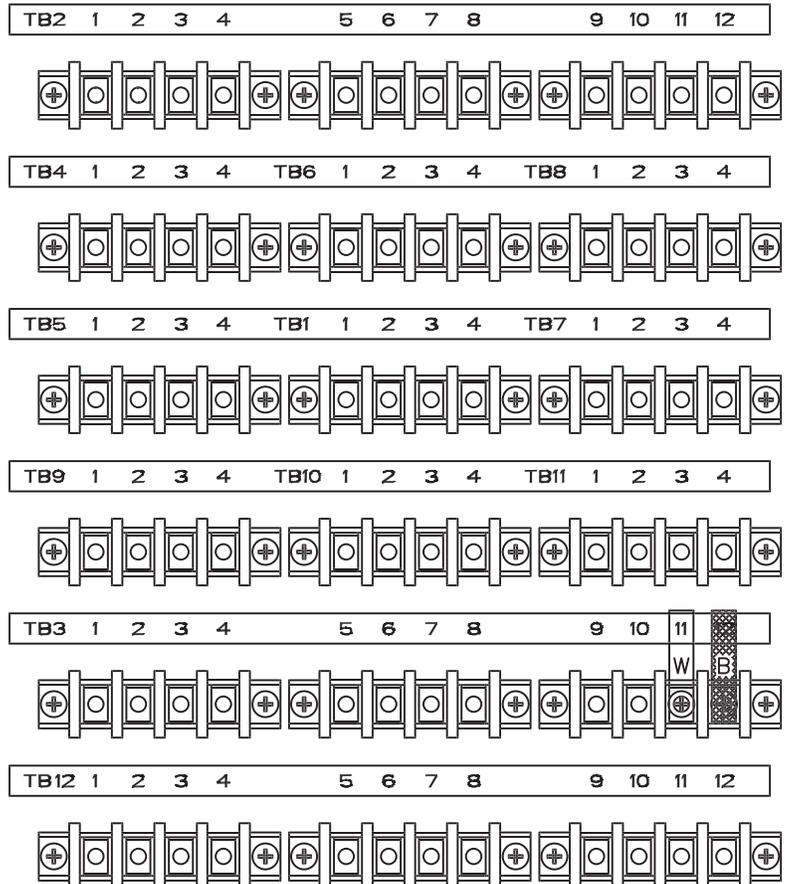
The A/MCS-A is a normally open (N/O) solid state adjustable current switch.

Outputs are non-polarity sensitive, N/O solid-state contacts for switching both AC and DC circuits up to 36 volts.

Unit includes two Status LED indicators, which signal three states:

1. Tripped on
2. Current present but below trip point
3. Current off or below the low end of the adjustable trip point range.

### Wire Terminations



# Return/Exhaust Fan Status Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Carrier Part Number ..... 39MA51000021  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... A/MCS-A  
 Cable ..... 19  
 Channel ..... EXIN-1  
 Terminal/Signal ..... TB7-1 / Dry Contact DI  
 Terminal/Signal ..... TB7-2 / Signal Ground



## RFS/EFS

### Return/Exhaust Fan Status Sensor

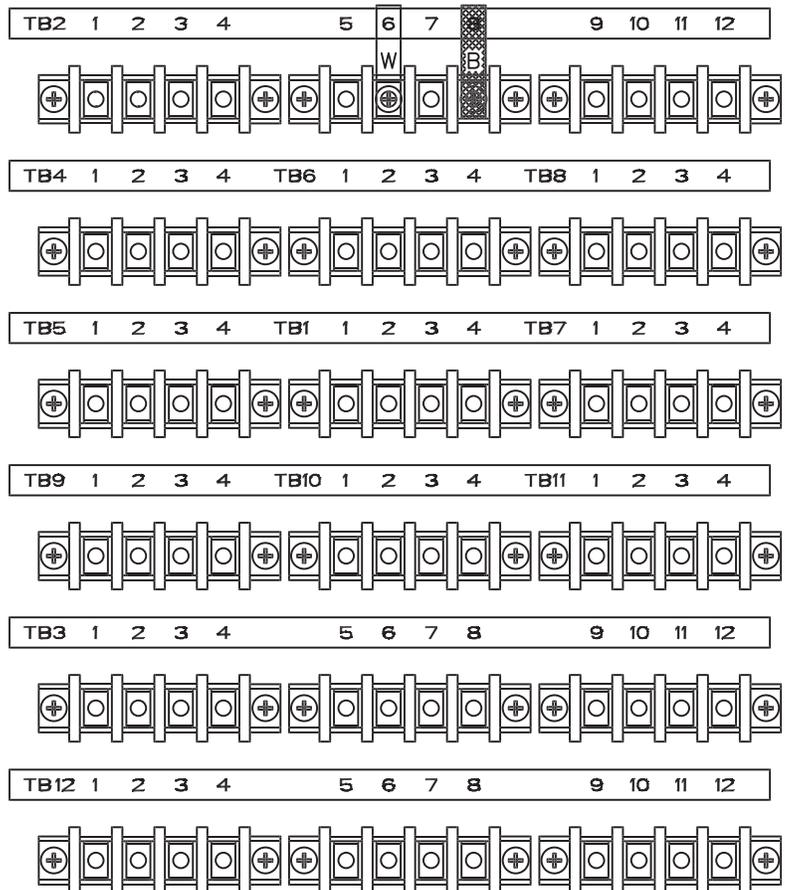
The A/MCS-A is a normally open (N/O) solid state adjustable current switch.

Outputs are non-polarity sensitive, N/O solid-state contacts for switching both AC and DC circuits up to 36 volts.

Unit includes two Status LED indicators, which signal three states:

1. Tripped on
2. Current present but below trip point
3. Current off or below the low end of the adjustable trip point range.

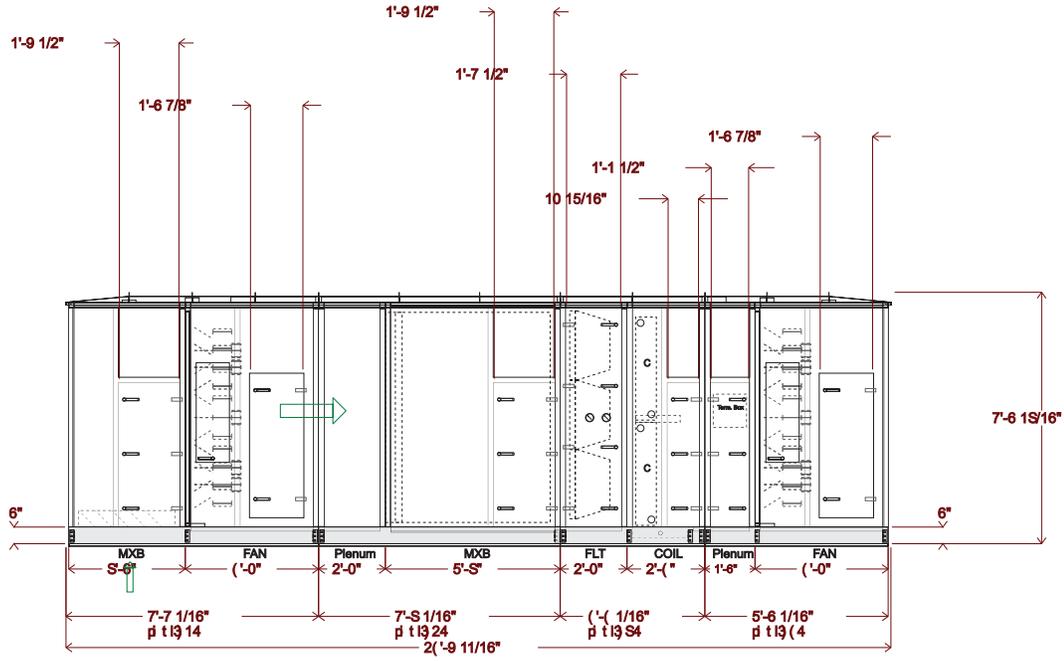
### Wire Terminations



Unit weight: 9'-11" plenum lugs  
 Return Fan  
 0  
 Bag/Carrier Weight: 6 - 12 IN. 1.3 lb Load  
 Qty: 1242 (3) x 2 (3)  
 Qty: 1242 (3) x 2 (3)  
 Pre Filter: 21in. Flat Filter  
 Qty: 1242 (3) x 2 (3)

Qty: 1242 (3) x 2 (3)  
 Chilled Water Row 8 FPI Full Capacity: 24  
 Draw-Thru Unit Fan  
 0  
 Operating weight: 9 (67.0 lbs.  
 Upstream Corner Weight: each 2179.0 lbs.  
 Downstream Corner Weight: each 2555.0 lbs.

Item	Away Length	Weight lbs.
Item 14	7'-7 1/16"	2572
Item 24	7'-5 1/16"	1901
Item S4	7'-1 1/16"	2805
Item 4	5'-6 1/16"	2180



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DATE  
12/30/2021

AHUBu3der  
v7.06

S9M Central Air Handler, Size 50W  
 in an Bernadino County Sheriff's Air Handler AHU: AH S  
 Assembly Drawing

REVISION  
in View

Unit viewed from right side of side elevation view.

Unit length: 2'-9 11/16"

Return Fan

0

Bag/Carrier Filter 6 - 12 IN. 1 3/4 Load

Qty #54123. x 2 (3)

Qty #1242(3). x 2 (3)

Pre Filter : 2In. Fla) Filter

Qty #54123. x 2 (3)

Qty #1242(3). x 2 (3)

Chilled Water 6 Row 8 FPI Full Circuit Qty. 24

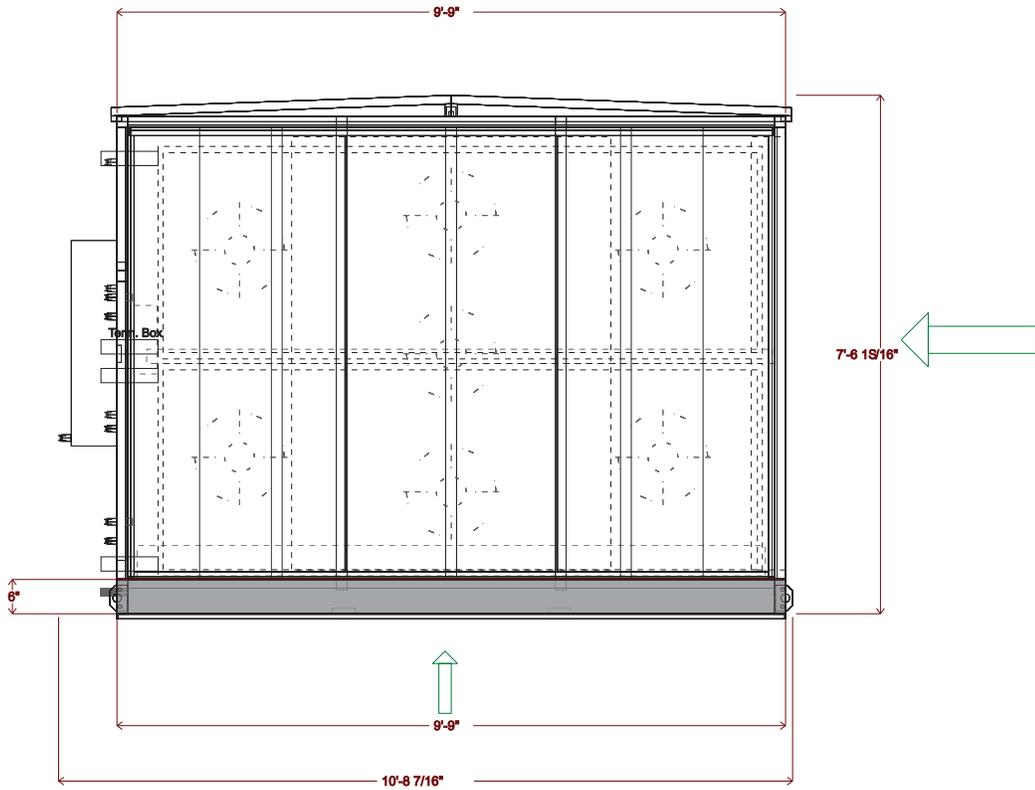
Draw-Thru Unit Fan

0

Operating weight: 9(67.0 lbs.

Upstream Corner Weight) each 4 2179.0 lbs.

Downstream Corner Weight) each 4 2555.0 lbs.



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**S9MWW**

DATE  
12/30/2021

AHUBu3der  
v7.06

S9M Central Unit AHU-Handler, Size 50W  
in an Bernadino County in Herrick Unit AHU: AH S  
Assembly Drawing

REVISION  
End View

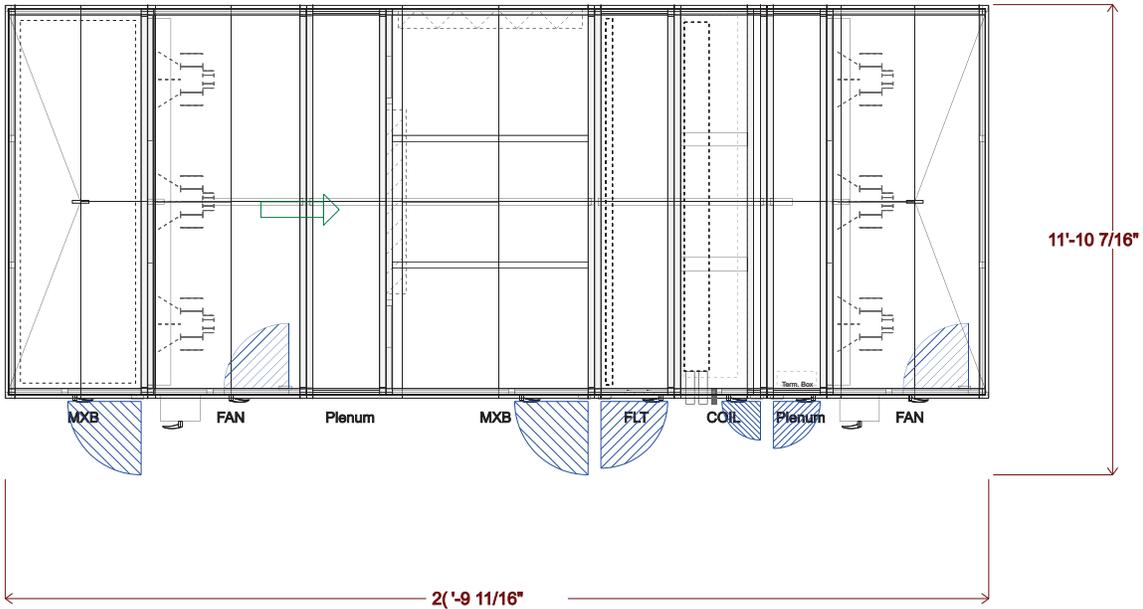
Unit height: 7'-6 5/16"  
 Return Fan  
 0  
 Bag/Carrier Size Filter 6 - 12 IN. I Size Loading  
 Qty p64123. x 2( 3).  
 Qty p1242( 3). x 2( 3).  
 Pre Filter : 2In. Flat Filter  
 Qty p64123. x 2( 3).

Qty p1242( 3). x 2( 3).  
 Chilled Water 6 Row 8 FPI Full Capacity. 24  
 Draw-Thru Utility Fan  
 0  
 Operating weight: 9( 67.0 lbs.  
 Upstream Corner Weight) each 4 2179.0 lbs.  
 Downstream Corner Weight) each 4 2555.0 lbs.



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DATE  
 12/30/2021

AHUBu3der  
 v7.06

S9M Central Air Handler, Size 50W  
 in an Bernadino County Sheriff's Air AHU: AH S  
 Assembly Drawing

REVISION  
 Tot View

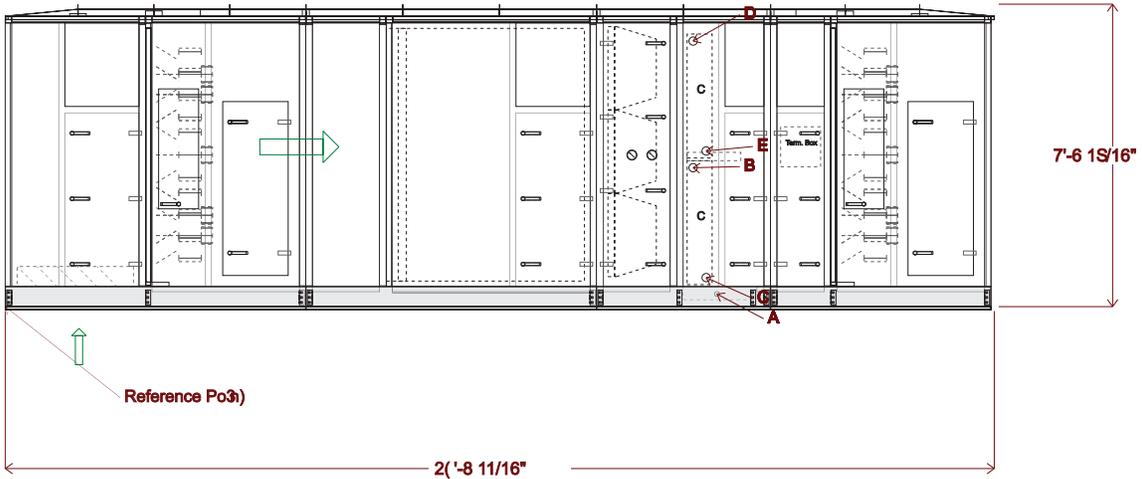


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**S9MW**

Part	x	y	Dimension	Usage
A	17'-9 1/2"	5 15/16"	1 1/2"	Drain Pan
B	17'-2 5/16"	5 11/16"	2 1/2"	CW Outlet
C	17'-6 1/4"	8 11/16"	2 1/2"	CW Inlet
D	17'-2 5/16"	6'-7 5/8"	2 1/2"	CW Outlet
E	17'-6 1/4"	5'-10 5/8"	2 1/2"	CW Inlet



DATE  
12/30/2021

AHUBorder  
v7.06

S9M Central Air Handler, Size 50W  
in an Bernadino County Sheriff's Air AHU: AH S  
Assembly Drawing

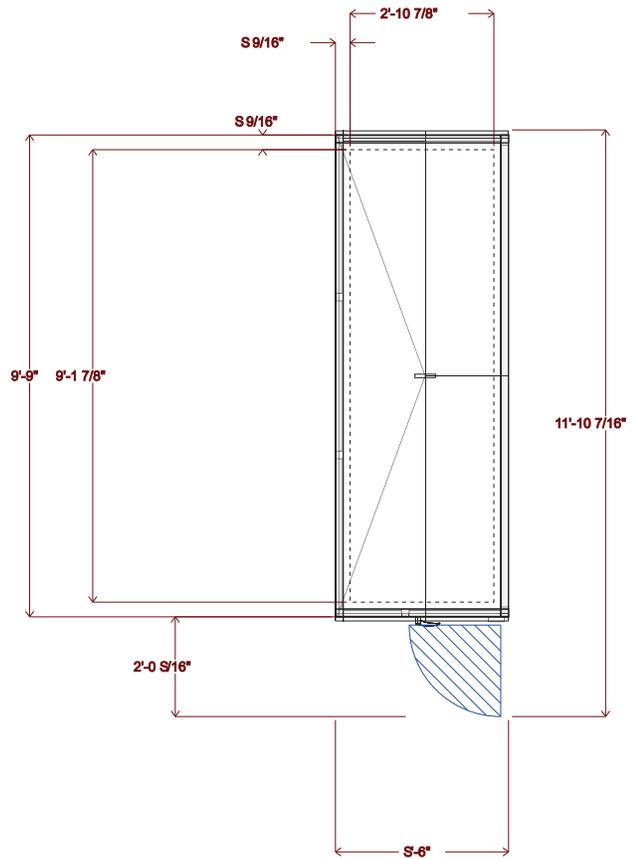
REVISION  
in View



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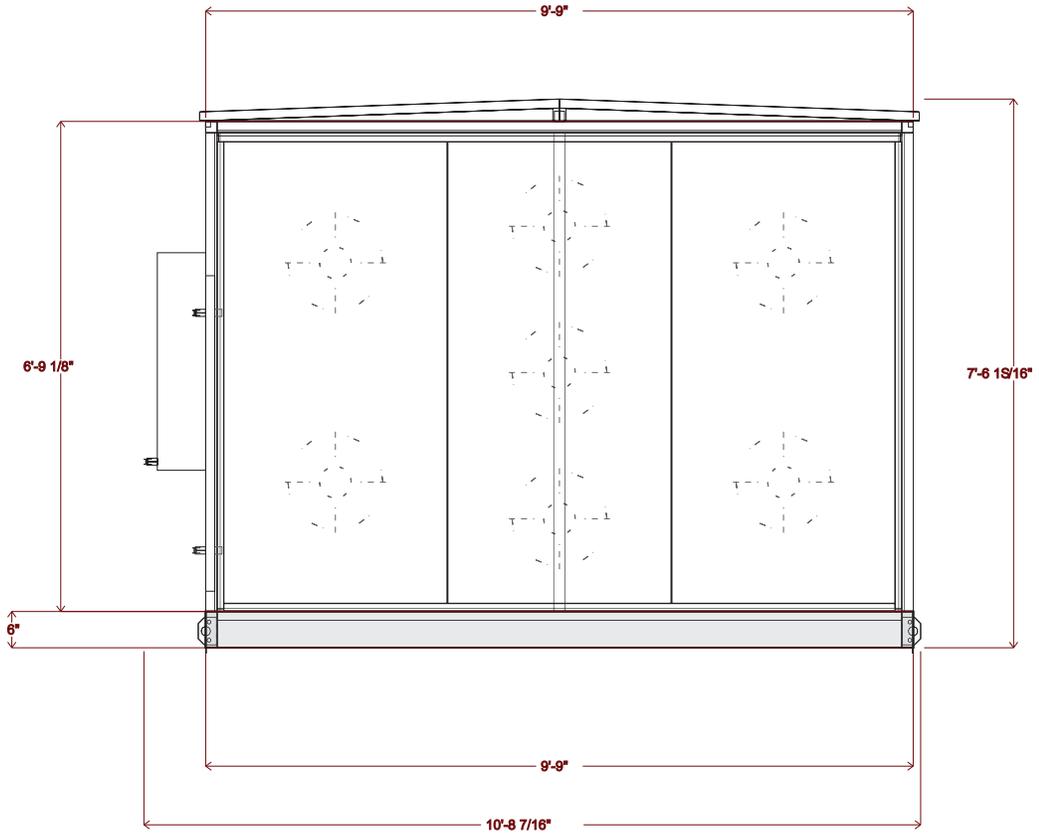
DATE  
12/30/2021

AHUBu3der  
v7.06

S9M Central Station A3-Handler, Size 50W  
in an Bernadino County Sheriff's Station AHU: AH S  
M33g Box

REVISION  
Tot View

Un3 v3wed from r3(h) s3le of s3le elev3)3n v3w.  
 Re)um Fan  
 0



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DATE  
12/30/2021

AHUBu3der  
v7.06

S9M Central 3)3n A3-Handler, i 3e 50W  
 i an Bernad3)3n County i herra3 i 3)3n AHU: AH S  
 Re)um Fan

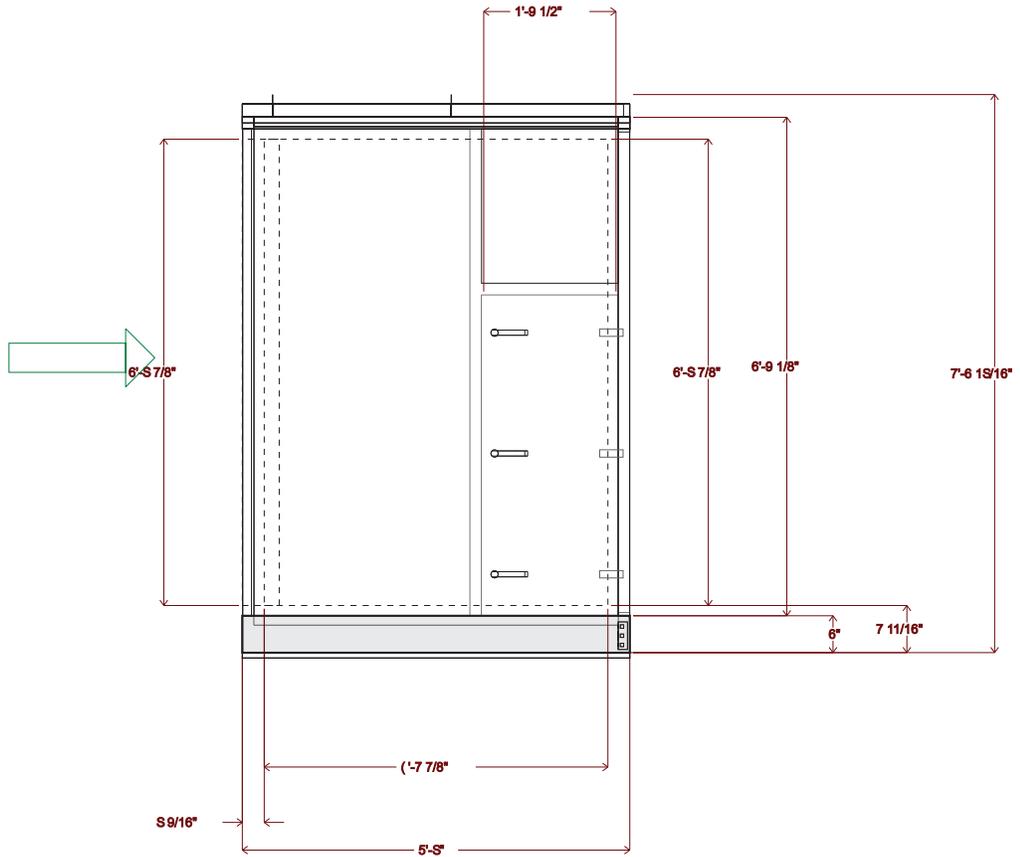
REVISION  
End View



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AHUBu3der  
v7.06

S9M Central i )a)on A3-Handler, i Ze 50W  
i an Bernadno County i herri i )a)on AHU: AH S  
M33g Box

REVISION  
i 3le V3w



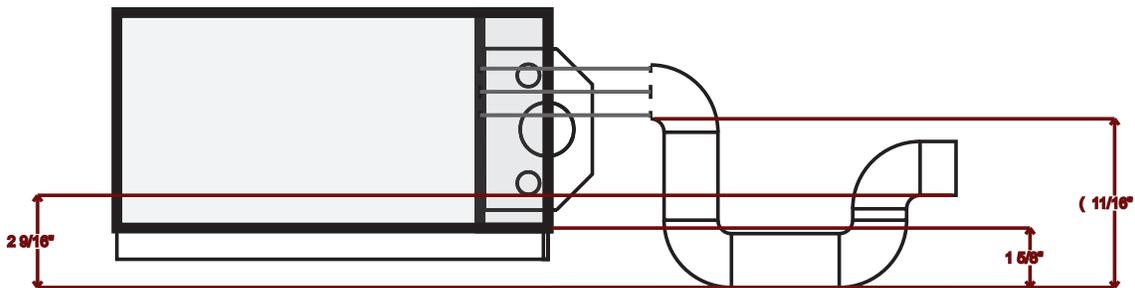


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**S9MW**

# DRAW-THRU



DATE  
12/30/2021

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S9M Central In-Line Air-Handler, 30 to 50W  
In-Line Bernadino County In-Line In-Line AHU: AH S  
Condensate Trap Dimensions

REVISION  
End View

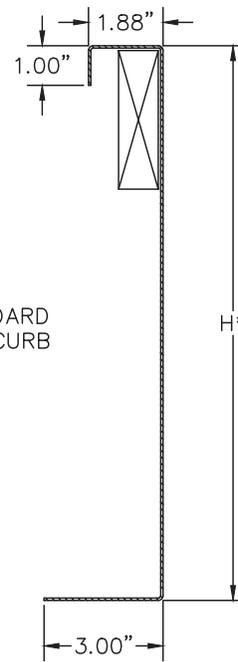
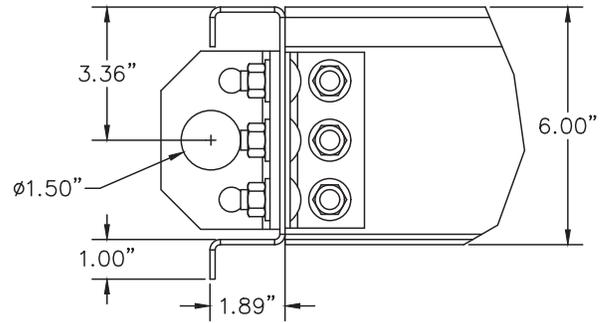
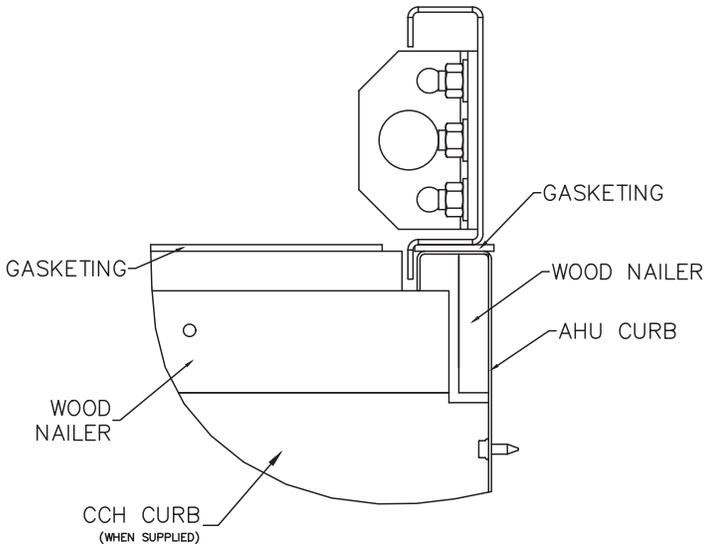




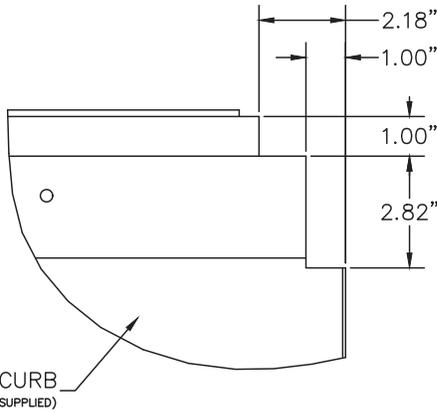
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39MW



\* 14" OR 24" STANDARD HEIGHT FLAT ROOF CURB



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39M Central Station Air-Handler, Size: 03 - 110  
Curb, Baserail and Lifting Lug Detail

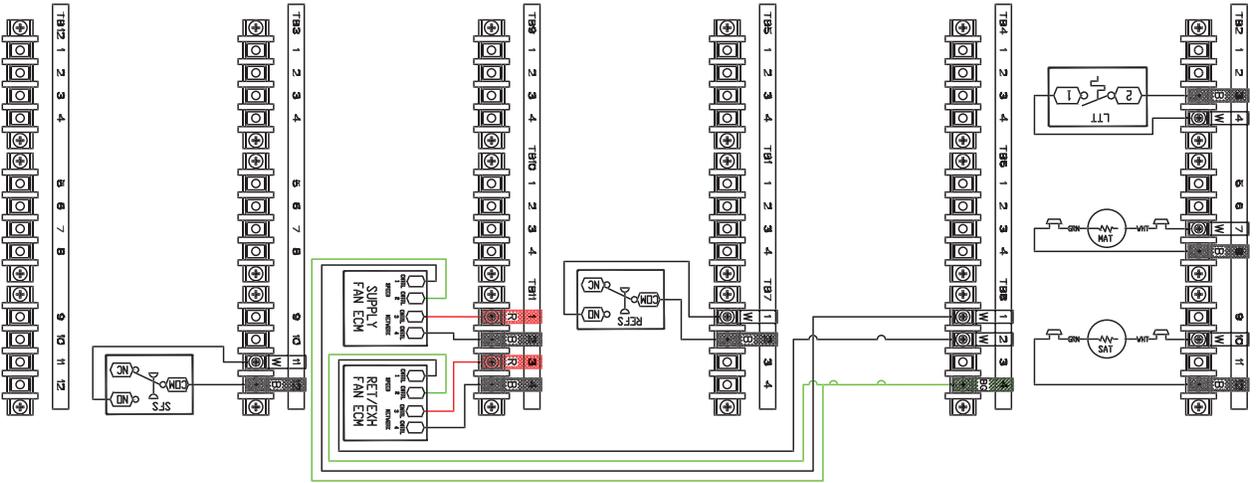
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39M



- LEGEND
- TERMINAL MARKED
  - SPlice FIELD
  - VARIING FIELD
  - VARIING FIELD CONTROL
  - AL/A2 BLACK OR GREEN
  - RG 24VAC CONTACTOR COIL
  - COM COMMON
  - COIL COIL VALVE\*
  - EF EXHAUST FAN
  - EX EXHAUST EXHAUST WHEEL
  - END END
  - FAB FACE & BRASS WAMPER
  - FBI FAN FILTER
  - FLTSZ FILTER STATUS SWITCH 2
  - HCY HEATING COIL VALVE
  - HDM HUMIDIFIER ENABLE LINE
  - LTT LOW TEMPERATURE THERMISTAT (FREEZESTAD)
  - MAV MESH AIR DAMPER
  - NC NORMALLY CLOSED
  - NO NORMALLY OPEN
  - PREHEAT PRE-HEAT VALVE
  - PRV RETURN EXHAUST FAN
  - REFS RETURN EXHAUST FAN STATUS
  - RET RETURN FAN
  - SAT SUPPLY FAN TEMPERATURE
  - SFS SUPPLY FAN STATUS
  - SFS SUPPLY FAN STATUS
  - START/STOP START/STOP
  - TS TERMINAL BLOCK TERMINAL
  - VF0 VARIABLE FREQUENCY DRIVE
  - FIELD SHIELD

DATE  
 2024-12-30

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39M Central Station Air Handler, Size: 03 - 110  
 Factory Wired Controller Wiring Diagram

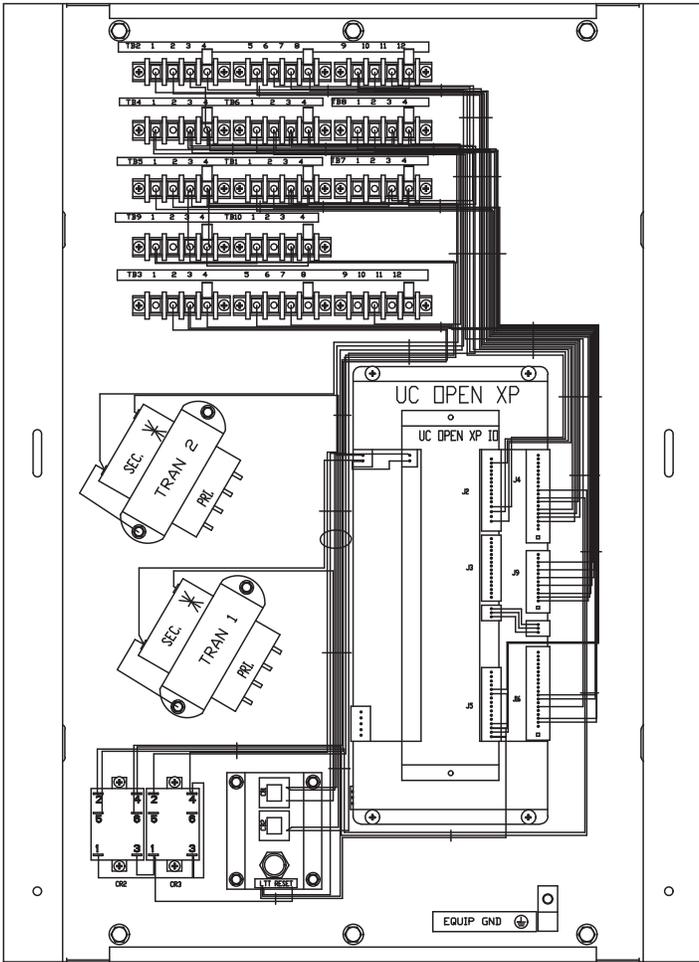
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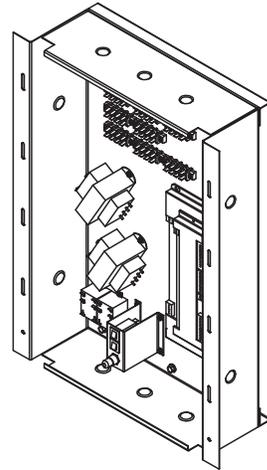
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39M



SIZE 03-06 (SHOWN)



Component wiring for reference only. When components are factory installed, wiring will be factory installed unless otherwise noted. When components are provided by the factory for field installation, wiring is not included or installed.

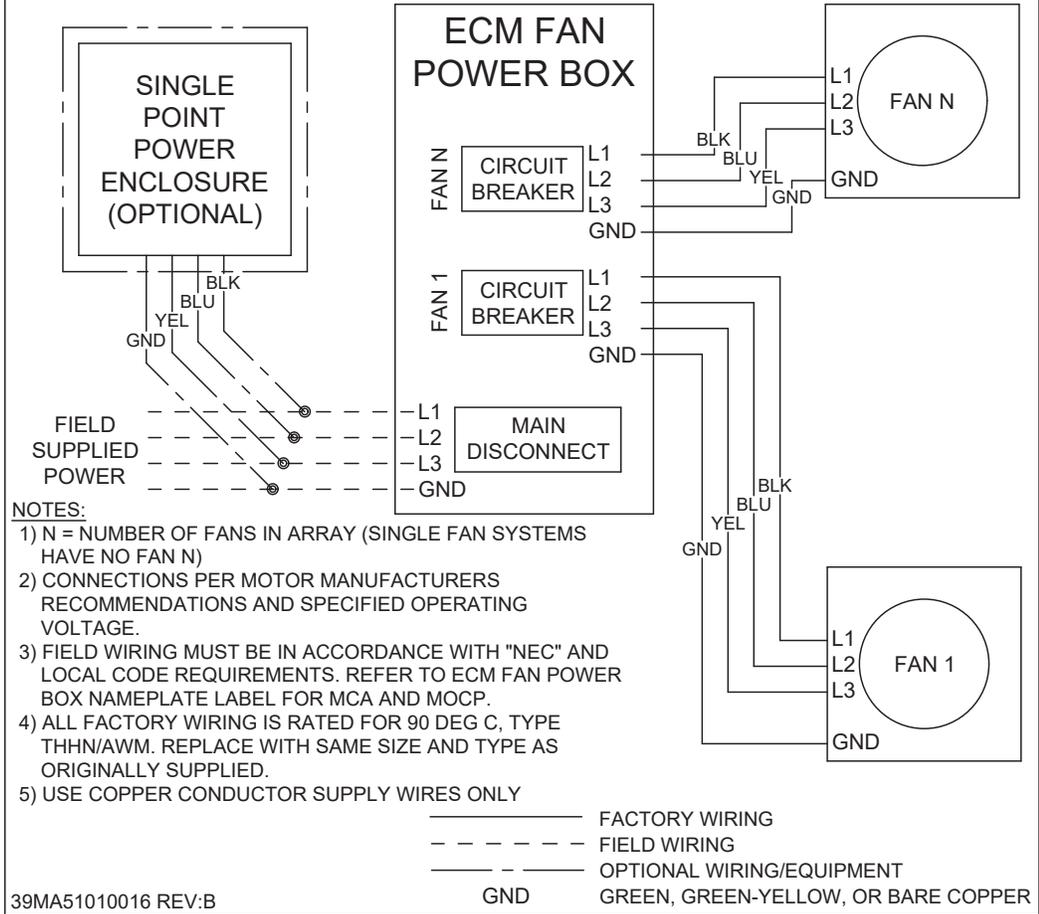
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39M Central Station Air-Handler, Size: 03 - 110  
Factory Wired Controller

REVISION

# POWER WIRING DIAGRAM ECM FAN 3 PHASE

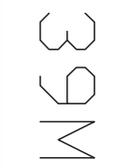


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39M Central Station Air-Handler, Size: 03 - 110  
ECM Three Phase Wiring Detail

REVISION

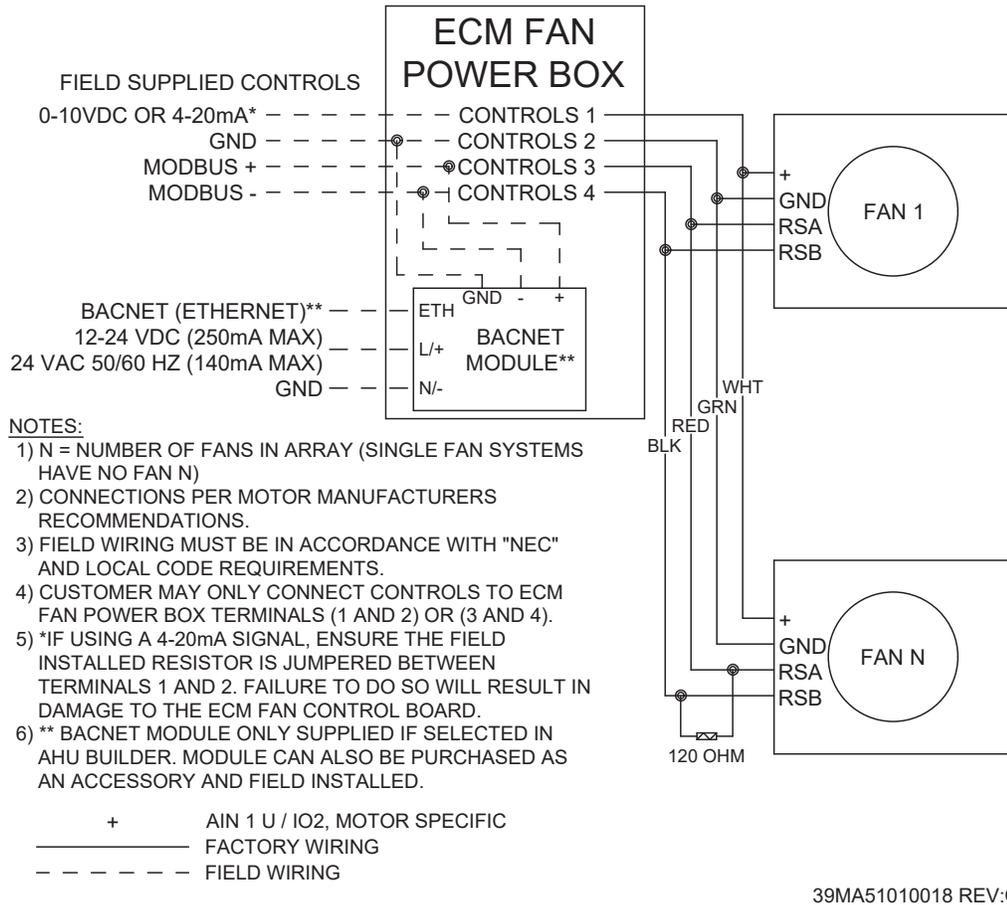


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39M

# CONTROLS WIRING DIAGRAM ECM FAN, EBM-PAPST



39MA51010018 REV:C

Component wiring for reference only.  
 When components are factory installed, wiring will be factory installed unless otherwise noted.  
 When components are provided by the factory for field installation, wiring is not included or installed.

DATE  
2024-12-30

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39M Central Station Air-Handler, Size: 03 - 110  
ECM Controls Wiring Diagram - EBM Pakst

REVISION

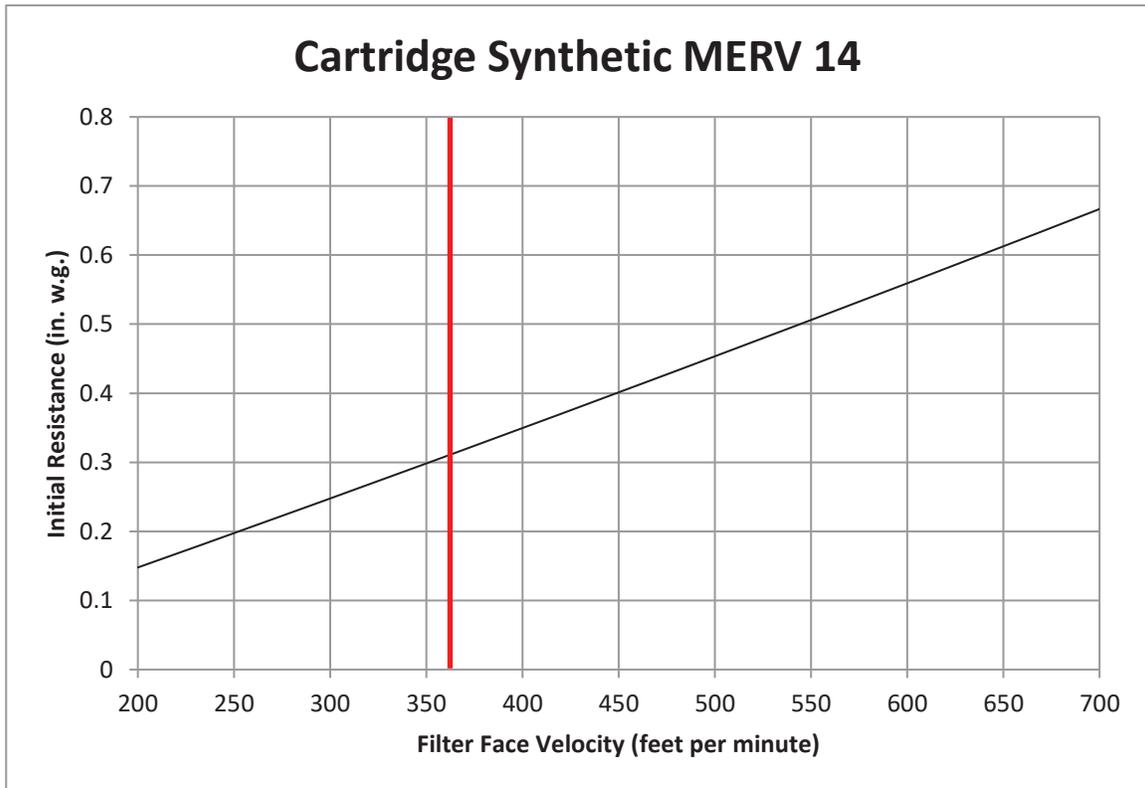
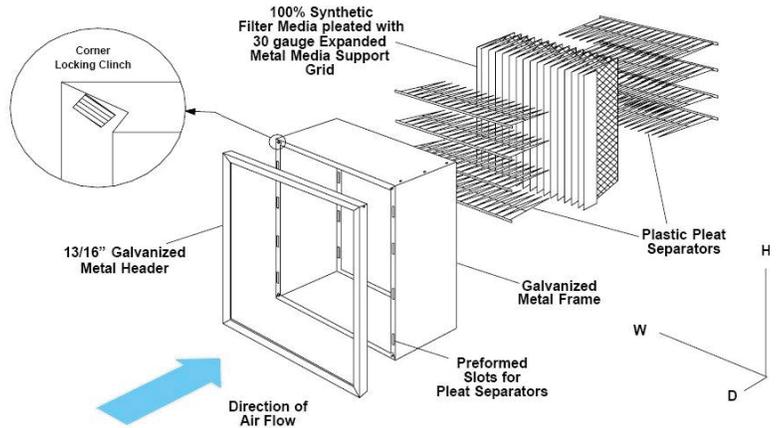
## Air Filter Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Carrier Part Number ..... 31KB50312241224244  
 Kit Description ..... Filter Kit  
 Unit Airflow, CFM ..... 19600  
 Filter Velocity, FPM ..... 363  
 Filter Sizes and Quantities ..... Qty (3) 12in. x 24in., Qty (12) 24in. x 24in.

### DFpro Synthetic Cartridge Filter

DFpro rigid filters are designed to provide consistent high efficiency filtration in constant and variable air volume systems. Deep pleats are held firmly in place with plastic separators and expanded metal backing. Every edge of the media pack is glued inside the periphery of the frame to prevent air and dust bypass. The media and separators are 100% polypropylene to resist moisture damage, microbial growth, and puncture damage. Heavy gauge galvanized frame resists corrosion and maintains its structural integrity for extended months of service.



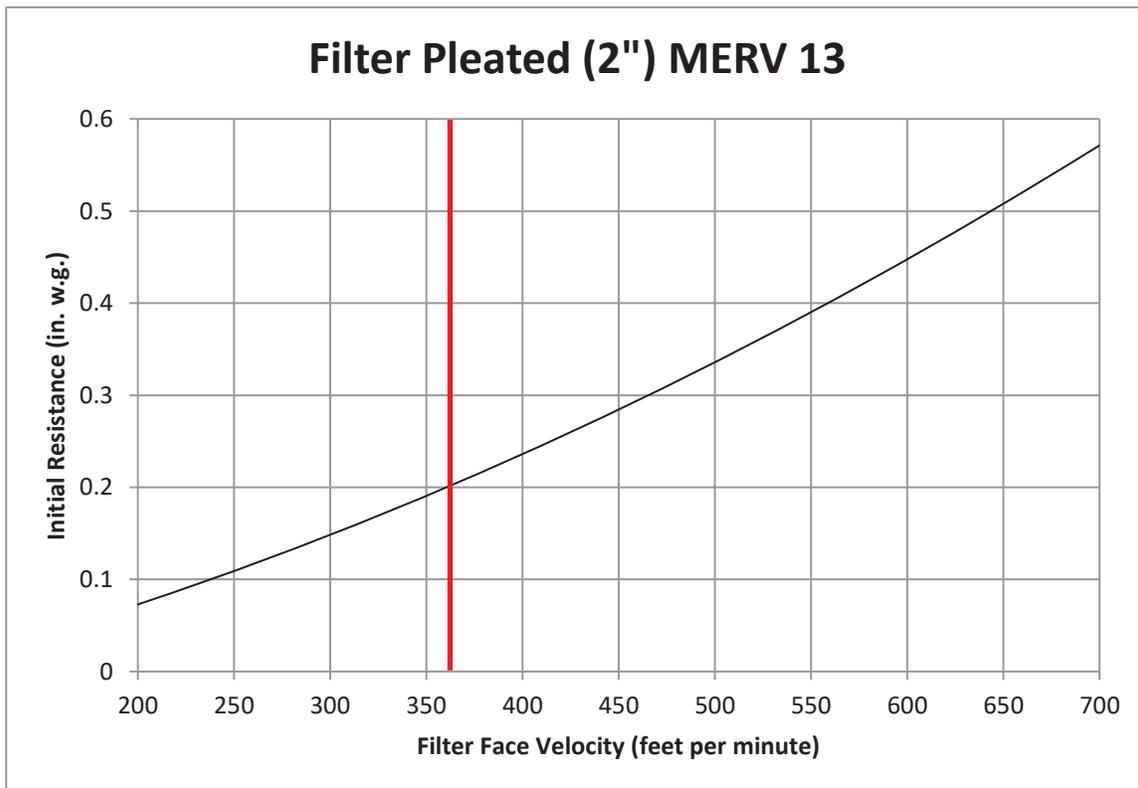
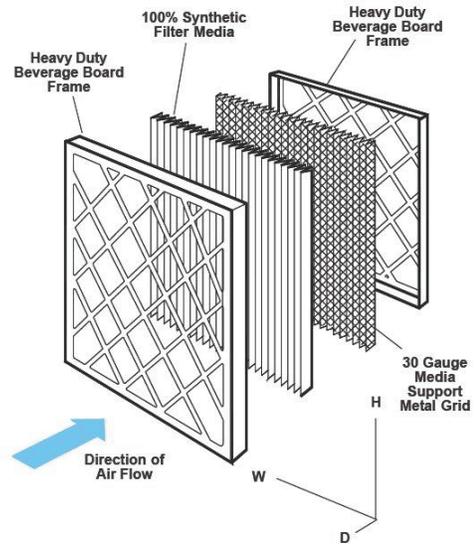
## Air Filter Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 3

Carrier Part Number ..... 31K2C0312241224244  
 Kit Description ..... Filter Kit  
 Unit Airflow, CFM ..... 19600  
 Filter Velocity, FPM ..... 363  
 Filter Sizes and Quantities ..... Qty (3) 12in. x 24in., Qty (12) 24in. x 24in.

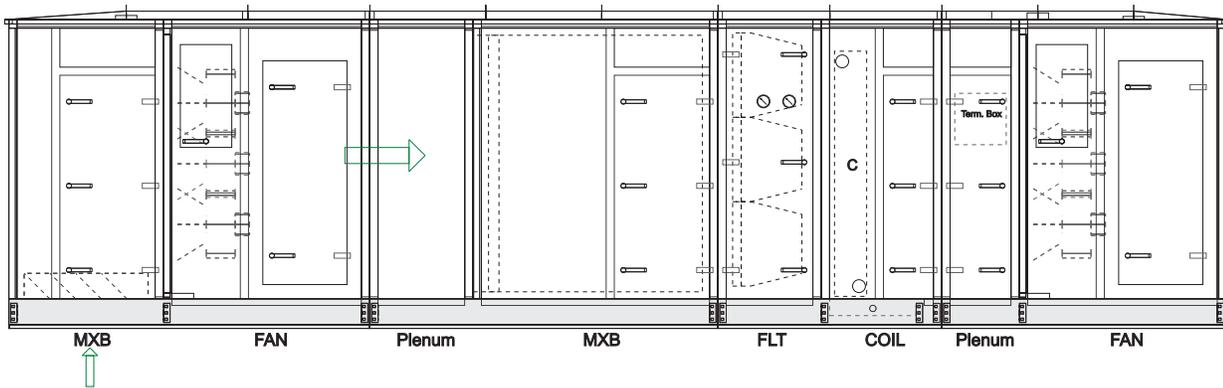
### DFpro MERV 13 Pleated Filter

The 100% synthetic graduated density media is continuously bonded to a 30 gauge galvanized, corrosion resistant, expanded metal support grid with an effective open area of 96%. The media is resistant to a wide range of chemicals, does not absorb moisture and will not support microbial growth. The controlled pleat spacing maximizes surface area and dust holding capacity and is bonded to the enclosure frame to prevent dust bypass. The enclosure frame is constructed of high wet strength moisture resistant beverage board. The diagonal support members of the frame are bonded to the entering and exiting apexes of each pleat to prevent pleat collapse and filter bowing.



## Unit Report AH 4

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4



### Unit Parameters

Aero Outdoor Air Handler  
39MW Size 36W  
Insulation: R-13 Double Wall Sealed Panel  
Exterior Finish: Painted Exterior Panels  
Interior Finish: Galvanized Interior Panels  
Level II Thermal Break  
6 inch tall Base Rail  
Field Supplied Curb

### Mixing Box

Damper: Bottom Premium Parallel  
Door Right Side

### Return Fan

Shipping Split After  
Rear Inlet  
Fan Sled  
Plenum Fan B PEBM0105  
Direct Drive Fans  
Fan Count 5  
2156 fanRPM Class III  
Full Open Discharge  
ECM Control Box (Standard)  
Piezometer and Transducer (1 fan)  
Voltage Selected - 460/3/60  
Full Load Amps - 7.7 Each  
FLA/MCA/MOCP 38.5/40.4/45  
Return/Exhaust Fan Status (DI)  
Door Right Side

### Plenum

Length 24 inches

### Mixing Box

Shipping Split After  
Damper: Left Side Premium Opposed  
Damper: Rear Premium Parallel  
Mixed Air Temperature Sensor (AI)  
Door Right Side

## Unit Report AH 4

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4

### Bag/Cartridge Filter

Bag/Cartridge Filter 6 - 12 IN. Side Loading  
12" Cartridge w/ Header (Synthetic) MERV 14  
Qty (4) 12in. x 24in.  
Qty (8) 24in. x 24in.  
Pre Filter : 2In. Flat Filter  
2" Pleated MERV 13 Filter  
Qty (4) 12in. x 24in.  
Qty (8) 24in. x 24in.  
Door Right Side  
Minihelic Differential Pressure Gage 0-2" w.c. Right Side  
Minihelic Differential Pressure Gage 0-2" w.c. Right Side

### Chilled Water Coil and Plenum

Shipping Split After  
Low Temperature Thermostat (DI)  
304 Stainless Steel Drain Pan Right Side  
Chilled Water 36.67 sq.ft 6 Row 11 FPI Double Circuit  
Coil Connection Right Side  
1/2 in. Tube Diameter  
AL fins Galv. Casing  
Steel Header  
No Coating  
Door Right Side

### Control Plenum

Length 18 inches  
Unprogrammed Carrier UC Open XP Controller Located in Control Plenum  
Door Right Side

### Draw-Thru Supply Fan

Rear Inlet  
Fan Sled  
Plenum Fan B PEBM0105  
Direct Drive Fans  
Fan Count 5  
3304 fanRPM Class III  
Field Supplied Discharge  
ECM Control Box (Standard)  
Piezometer and Transducer (1 fan)  
Voltage Selected - 460/3/60  
Full Load Amps - 7.7 Each  
FLA/MCA/MOCP 38.5/40.4/45  
Supply Fan Status (DI)  
Supply Air Temperature Sensor (AI)  
Door Right Side

### Weights and Dimensions

(LxWxH in ft in) 23' 10" x 9' 3" x 6' 2" \*\*  
Operating 7765 LB \*\*

### Warranty Part Number(s) (NET PRICING)

39LMR-SU-FIRST Qty 1.0 First 39 Series Start-up

## Unit Report AH 4

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4

### Configuration Notes

An Outdoor Plenum fan may not discharge through the roof of the unit.

If a bottom connection is required, use an Inlet Plenum Section.

An Outdoor Plenum fan may not discharge through the roof of the unit.

Discharge duct(s) must be gasketed and screwed directly to the discharge panel of the unit.

### Warranty Part Number(s) (NET PRICING)

QTY 1.0 First 39 Series Start-up

\*\* Weights and Dimensions are approximate. Weights include base unit weight, coils (wet & dry), fans and fan motors, and other components, but does not include filters, drives and skids. Approximate dimensions are provided primarily for shipping purposes, for exact dimensions, refer to submittal drawings. Shipping skids are not included.

All filter media efficiency ratings are for the filter media only.

## Chilled Water Coil Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4



Cooling Application's Balance Criteria: Fluid Flow

Coil Model.....	<b>28MC</b>
Number of Coils.....	<b>1</b>
Row / FPI / Circ.....	<b>6 / 11 / DB</b>
Fin Thickness.....	<b>.0042</b> in
Fin Type.....	<b>Sine Wave</b>
Face Area Type.....	<b>Large</b>
Coil Face Area.....	<b>36.67</b> sqft
Face Velocity.....	<b>490.9</b> fpm
Fin-Casing Material.....	<b>Al-Galv.</b>
Tube Diameter.....	<b>0.5</b> in
Tube spacing: Stf x Str.....	<b>1.25 x 0.781</b> in
Tube Wall Thickness.....	<b>0.016</b> in
Actual Airflow.....	<b>18000</b> CFM
Site Altitude.....	<b>0</b> ft
Standard Airflow (adj. to std. dry atmosphere).....	<b>17264</b> SCFM
Total Cooling Capacity.....	<b>628.92</b> MBH
Sensible Cooling Capacity.....	<b>556.54</b> MBH
Fluid Flow Rate.....	<b>83.1</b> gpm
Fluid Pressure Drop.....	<b>3.7</b> ft wg
Fluid Velocity.....	<b>2.2</b> ft/s
Entering Fluid Temperature.....	<b>43.00</b> F
Leaving Fluid Temperature.....	<b>58.09</b> F
Fluid Temperature Rise.....	<b>15.1</b> F
Entering Air Dry Bulb.....	<b>84.30</b> F
Entering Air Wet Bulb.....	<b>66.10</b> F
Entering Air Enthalpy.....	<b>30.76</b> BTU/lb
Leaving Air Dry Bulb.....	<b>54.92</b> F
Leaving Air Wet Bulb.....	<b>54.06</b> F
Leaving Air Enthalpy.....	<b>22.6</b> BTU/lb
Air Friction.....	<b>0.68</b> in wg
Brine.....	<b>FW</b>
Brine Concentration.....	<b>0</b> %
Fouling Factor.....	<b>0.0</b> (hr-sqft-F)/BTU

NOTE: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory ([www.ahridirectory.org](http://www.ahridirectory.org)).

LEGEND:

- Stf -- Tube spacing across coil face
- Str -- Tube spacing in direction of airflow

## Unit Acoustics Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4

### Unit Acoustics Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	86	80	78
125 Hz _____	87	82	80
250 Hz _____	98	94	91
500 Hz _____	100	96	93
1000 Hz _____	102	92	90
2000 Hz _____	100	89	86
4000 Hz _____	95	89	86
8000 Hz _____	90	82	80

Sound power levels are rated in accordance with AMCA 300.

### Unit Acoustics A-weighted Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	60	54	52
125 Hz _____	71	66	64
250 Hz _____	90	85	83
500 Hz _____	97	92	90
1000 Hz _____	102	92	90
2000 Hz _____	101	90	87
4000 Hz _____	96	90	87
8000 Hz _____	89	81	79

Sound power levels are rated in accordance with AMCA 300.

### Sound contributed by Supply and Return Fans Unit Acoustics PART-LOAD Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	76	75	72
125 Hz _____	78	76	72
250 Hz _____	84	84	79
500 Hz _____	87	84	79
1000 Hz _____	90	84	79
2000 Hz _____	88	83	77
4000 Hz _____	83	84	78
8000 Hz _____	79	75	69

Sound power levels are rated in accordance with AMCA 300.

## Unit Acoustics Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4

Unit Acoustics PART-LOAD A-weighted Sound Power Level:

	<b>Discharge Inlet Casing</b>		
63 Hz _____	<b>50</b>	<b>49</b>	<b>46</b>
125 Hz _____	<b>62</b>	<b>60</b>	<b>56</b>
250 Hz _____	<b>76</b>	<b>76</b>	<b>71</b>
500 Hz _____	<b>84</b>	<b>81</b>	<b>76</b>
1000 Hz _____	<b>90</b>	<b>84</b>	<b>79</b>
2000 Hz _____	<b>90</b>	<b>84</b>	<b>78</b>
4000 Hz _____	<b>84</b>	<b>85</b>	<b>79</b>
8000 Hz _____	<b>78</b>	<b>74</b>	<b>68</b>

Sound power levels are rated in accordance with AMCA 300.

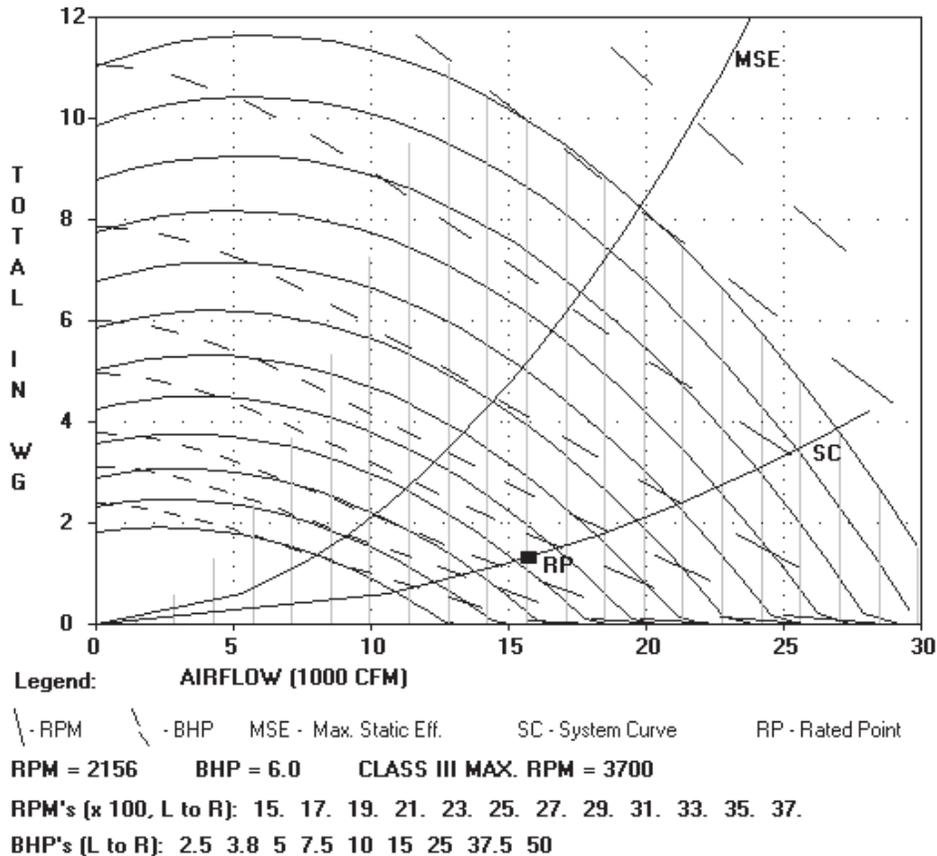
Sound contributed by Supply and Return Fans

## Return Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Fan Model	<b>NC-39M3605HPPEE</b>
Unit Size	<b>36W</b>
Fan Type	<b>ECM</b>
<b>DIRECT DRIVE PLENUM (EBM-05) (Return)</b>	
Fan Wheel Diameter	<b>15.7</b>
Fan Class	<b>III</b>
Static Efficiency (%)	<b>54</b>
Fan Application	<b>Return Fan</b>
Orientation	<b>Horizontal</b>
Actual Airflow, CFM	<b>15700</b>
Site Altitude, , ft	<b>0</b>
Total Upstream Static Losses, in wg	<b>1.31</b>
Number of Fans	<b>5</b>
Fan RPM / Max RPM	<b>2156/3700</b>
Each Fan BHP	<b>1.2</b>
Fan Total BHP	<b>6.0</b>
(n-1) Airflow, CFM	<b>22718</b>
(n-1) Redundancy (%)	<b>145</b>
Fan Electrical Power, kW	<b>5.5</b>
ECM Setting, VDC	<b>5.8</b>

Unit is outside of the scope of AHRI Standard 430/431.



## Supply Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4

Fan Model	<b>39M3605HPEE-U</b>
Unit Size	<b>36W</b>
Fan Type	<b>ECM DIRECT DRIVE PLENUM (EBM-05)</b>
Fan Wheel Diameter	<b>15.7</b>
Fan Class	<b>III</b>
Fan Application	<b>Supply Fan</b>
Orientation	<b>Horizontal</b>
Actual Airflow, CFM	<b>18000</b>
Site Altitude, ft	<b>0</b>
Upstream Ext. Static, in wg	<b>0.00</b>
Downstream Ext. Static, in wg	<b>5.00</b>
Cooling Coil Static, in wg	<b>0.68</b>
Heating Coil Static, in wg	<b>0.00</b>
Total Accessory Static, in wg	<b>0.76</b>
Total Static Pressure, in wg	<b>6.44</b>
Calculated Fan RPM / Motor RPM	<b>3304 / 0</b>
Class III Max. RPM	<b>3700</b>
Static Efficiency (%)	<b>69</b>
Number of Fans	<b>5</b>
Each Fan BHP	<b>5.3</b>
Fan Total BHP	<b>26.5</b>
(n-1) Airflow, CFM	<b>18252</b>
(n-1) Redundancy (%)	<b>101</b>
Fan Electrical Power, kW	<b>22.4</b>
ECM Setting, VDC	<b>8.9</b>



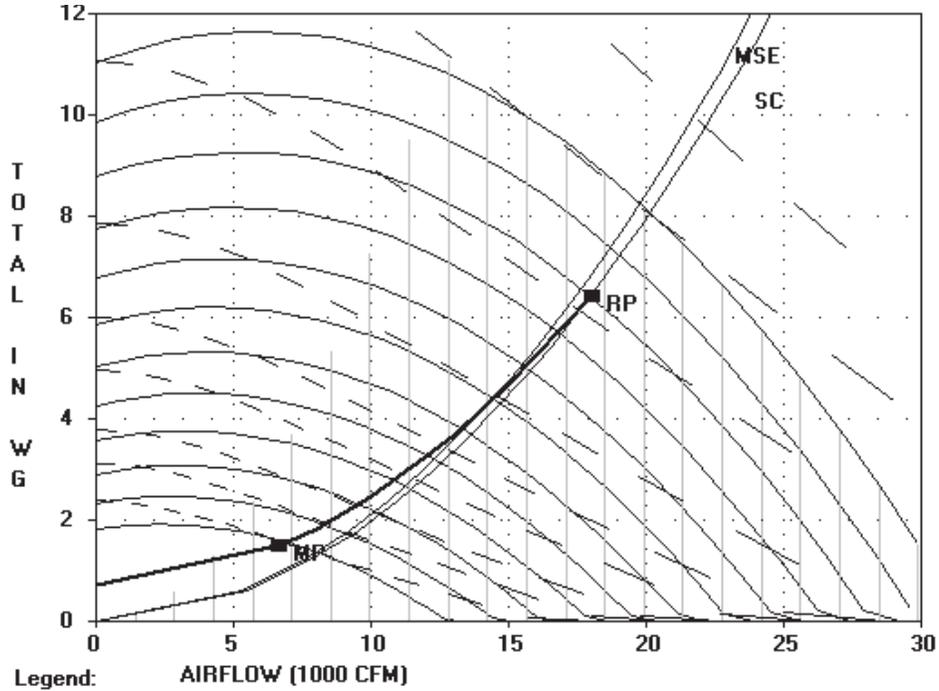
### Accessories:

- (1) Flat Synthetic (2") MERV 13 [0.27]
- (1) CARTRIDGE LONG/SHORT Synthetic MERV 14 [0.41]
- (1) Side Mixing or Exhaust Box [0.08]

NOTE: Certified in accordance with the AHRI Central Station Air-Handling Unit Certification Program, which is based on AHRI Standards 430/431. Certified units may be found in the AHRI Directory at [www.ahridirectory.org](http://www.ahridirectory.org)

# Supply Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4



**Legend:** AIRFLOW (1000 CFM)

\ - RPM    \ - BHP    MSE - Max. Static Eff.    SC - System Curve    RP - Rated Point

**RPM = 3304    BHP = 26.5    CLASS III MAX. RPM = 3700**

**RPM's (x 100, L to R): 15. 17. 19. 21. 23. 25. 27. 29. 31. 33. 35. 37.**

**BHP's (L to R): 2.5 3.8 5 7.5 10 15 25 37.5 50**

## Sensor and Actuator Points List

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4

Name	AI	AO	DI	DO
Return/Exhaust Fan Status			X	
Mixed Air Temperature Sensor	X			
Low Temperature Thermostat			X	
Supply Fan Status			X	
Supply Air Temperature Sensor	X			

# Controller Submittal

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 4

Carrier Part Number ..... OPN-UCXP  
Manufacturer ..... Carrier

## I-VU® UC Open XP Unit Controller

**BACnet Support** – Advanced application controller (B-AAC), as defined in BACnet 135-2001 Annex L

**BACnet Communication Port** – EIA-485 port for BACnet MS/TP communications (baud rate is DIP switch selectable)

**Local Access Communication Port** – For system start-up and troubleshooting (115.2 kbps)

**Rnet Communication Port** – For connecting Carrier communicating room sensors and Carrier's touchscreen user interface

**Inputs** – 12 inputs: Configurable for 0-10V, RTD/Thermistor/Dry contact, or 0-20mA. Inputs 1 and 2 may be used for pulse counting. All analog inputs have 12 bit A/D resolution.

**Outputs** – 6 binary outputs: Configured as dry contact, normally open or normally closed. All binary outputs must be powered from a Class 2 power source.

6 analog outputs: 1 and 2 are configurable for 0-10V or 0-20mA; 3-6 are 0-10V only. Analog outputs have 8 bit D/A resolution.

**Protection** – Incoming power and network connections are protected by non-replaceable internal solidstate polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected against voltage transient and surge events.

**Real Time Clock** – Battery-backed real time clock keeps track of time in event of power failure.

**Battery** – 10-year Lithium CR2032 battery provides a minimum of 10,000 hours of trend data & time retention during power outages.

**Status Indicators** – LED status of power, running, and errors. LED indicators for transmit/receive for BACnet port and for each of the 12 outputs.

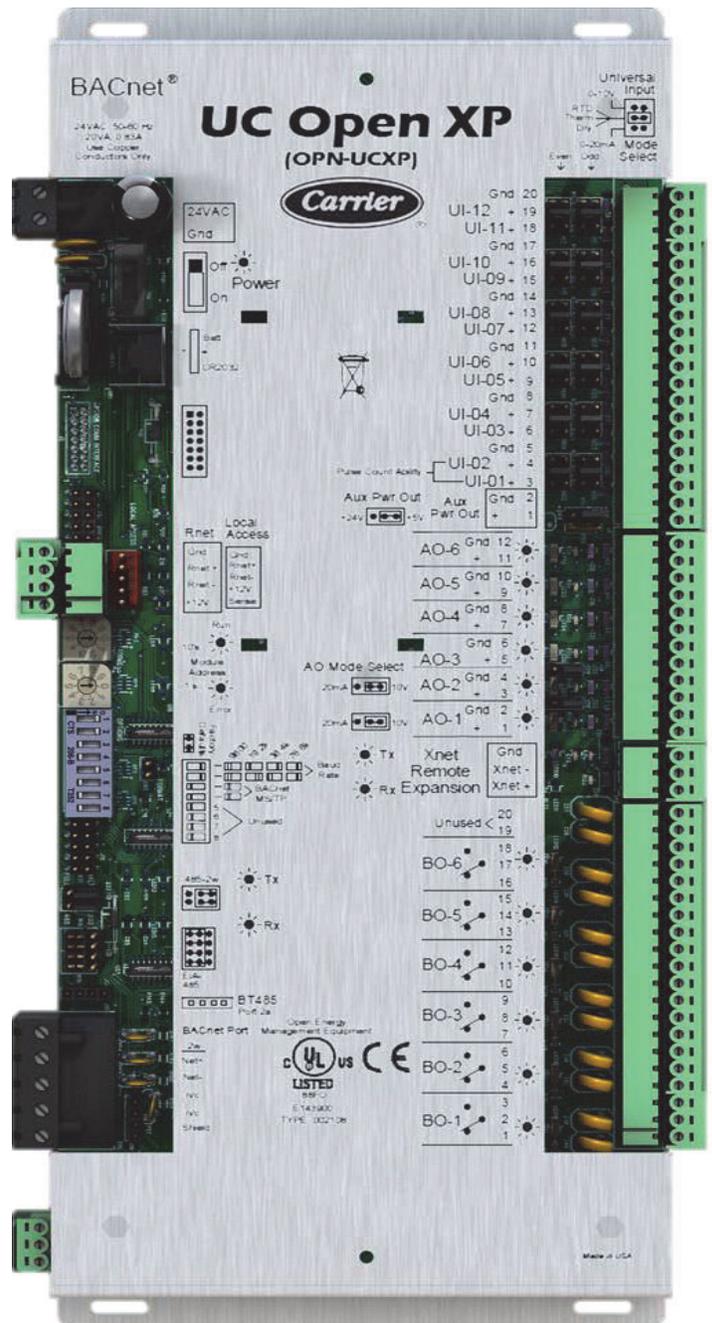
**Controller Addressing** – Rotary DIP switches set BACnet MS/TP MAC address of controller.

**Listed By** – UL-916, FCC Part 15-Subpart B- Class A, CE EN50082-1997

**Operating/Storage Range** – -24° to 140°F (-30° to 60°C), 10-90% relative humidity, non-condensing

**Power Requirements** – 24VAC +/- 10%, 50-60Hz  
20VA power consumption

Single Class 2 source only, 100VA or less



# Controller Expansion Board Submittal

Project: San Bernadino County Sherriff Station AHU

Unit Tag: AH 4

Carrier Part Number ..... OPN-UCXPIO  
Manufacturer ..... Carrier

## I-VU® UC Open XPIO Unit Controller Expansion Board

**Communication Ports** – Xnet Remote Expansion port:  
For connecting to a UC XP Controller via the Xnet network.

**Inputs** – 8 binary inputs: Inputs 1-8 are binary only and support pulse counting up to 10 Hz.

8 analog inputs: Inputs 9-16 are universal inputs, jumper selectable between thermistor/dry contact and 0-5VDC. All analog inputs have 10 bit A/D resolution.

**Outputs** – 8 binary outputs: Configured as dry contact, normally open, and must be powered from a Class 2 power source.

**Protection** – Incoming power and network connections are protected by non-replaceable internal solidstate polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected.

**Status Indicators** – LED status of power, outputs, running and errors.

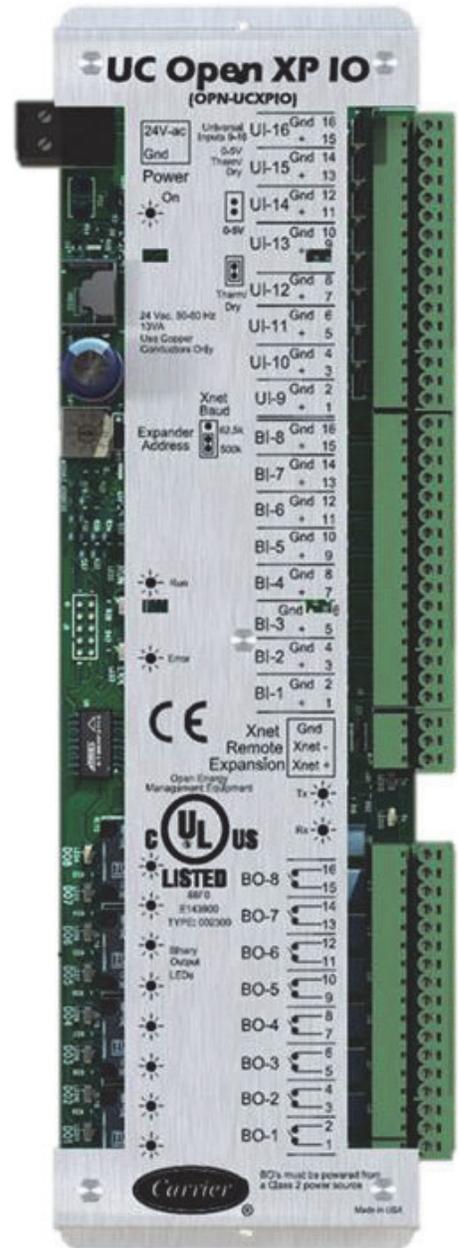
**Listed By** – UL916 (Canadian Std. C22.2 No. 205-M 1983), CE, FCC Part15-Subpart B - Class A

**Operating/Storage Range** – -20°F to 140°F (-29° to 60°C), 10-90% relative humidity, non-condensing

**Power Requirements** – 24VAC +/- 10%, 50-60Hz  
13VA power consumption

26VDC (25V min, 30V max)

Single Class 2 source only, 100VA or less



# Supply Air Temperature (SAT) Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Carrier Part Number ..... 33ZCSENSAT  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... ACI/10K-CP-D4  
 Cable ..... 1  
 Channel ..... UI-2  
 Terminal/Signal ..... TB2-10 / 10K Thermistor AI  
 Terminal/Signal ..... TB2-12 / Signal Ground

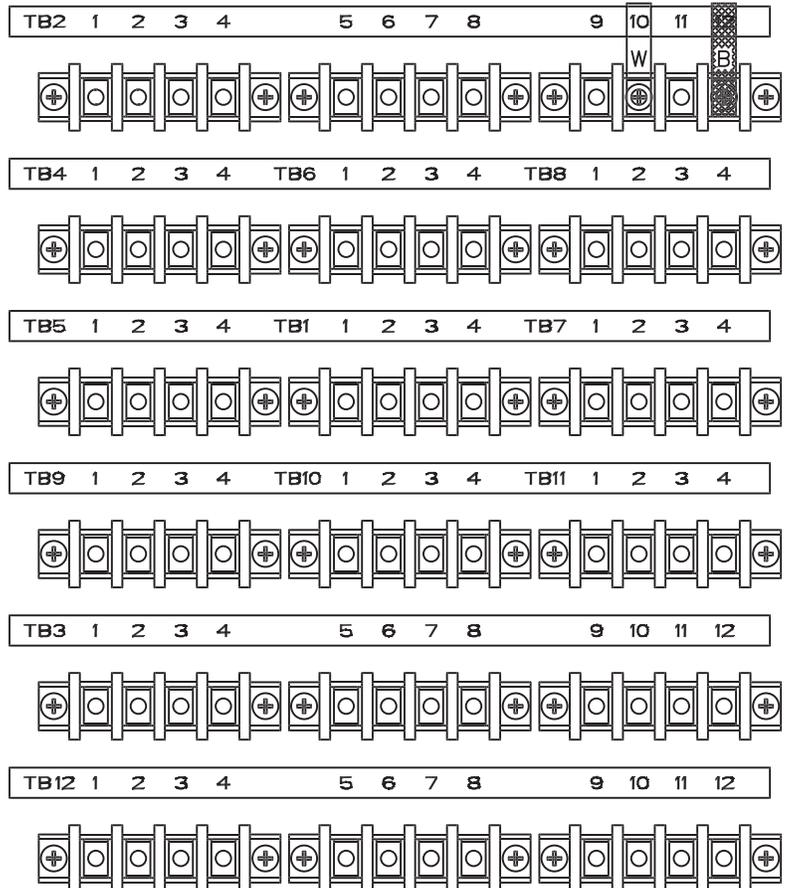


## SAT Supply Air Temperature Sensor

The SAT sensor consists of a thermistor encased within a stainless steel probe.

The thermistor has a temperature range of -245° to 185° F with a nominal resistance of 10,000 ohms at 77° F.

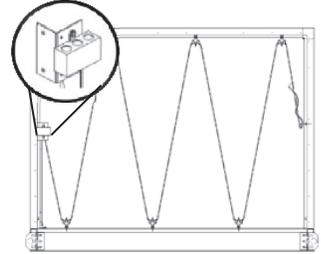
### Wire Terminations



# Mixed Air Temperature (MAT) Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Carrier Part Number ..... HH79NZ041  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... ACI/10K-CP-A24  
 Cable ..... 4  
 Channel ..... UI-3  
 Terminal/Signal ..... TB2-7 / 10K Thermistor AI  
 Terminal/Signal ..... TB2-8 / Signal Ground



## MAT Mixed Air Temperature Sensor

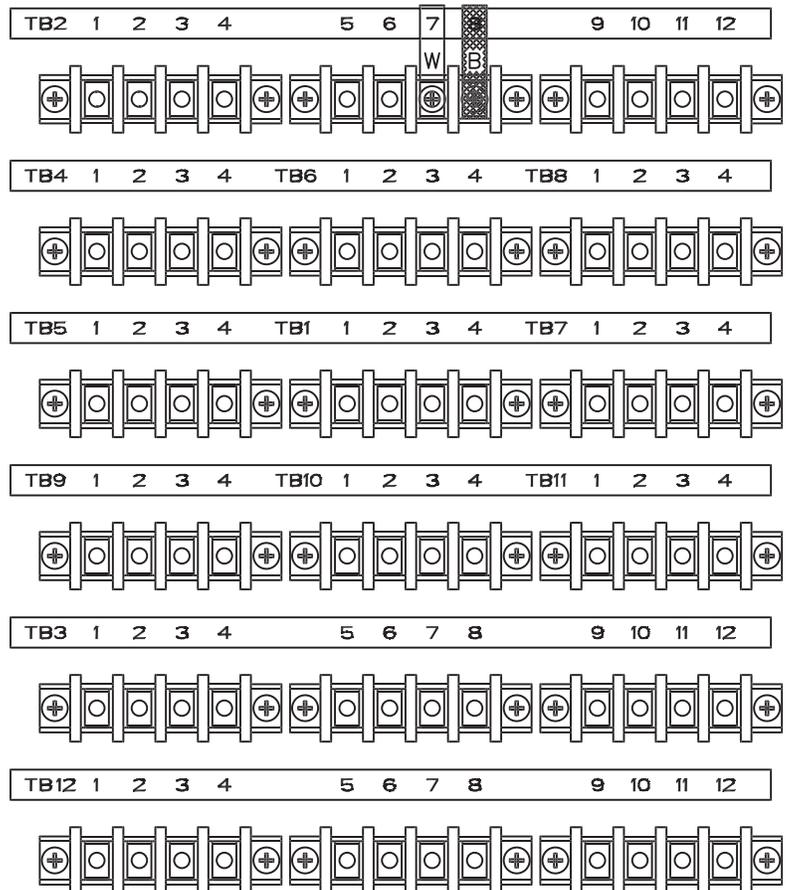
The MAT sensor consists of multiple, evenly spaced thermistors encased within a flexible copper tube.

Mechanical and electrical averaging is used to achieve the temperature measurement over the entire element length.

The MAT sensor has a range of -40° to 185° F with a nominal resistance of 10,000 ohms at 77° F.

The sensor is located in the last mixing box in the airflow.

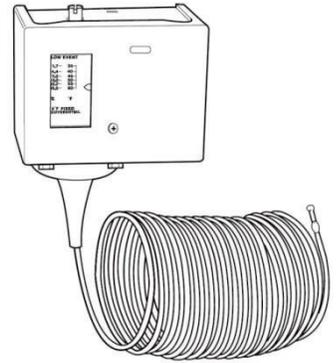
### Wire Terminations



# Low Temperature Thermostat Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Carrier Part Number ..... HH22BZ001  
 Manufacturer ..... Schneider Electric  
 Manufacturer Part Number ..... TC-5231-702  
 Cable ..... 2  
 Channel ..... UI-5  
 Terminal/Signal ..... TB2-4 / Dry Contact DI  
 Terminal/Signal ..... TB2-3 / Signal Ground



## LTT Low Temperature Thermostat

20 ft. element senses temperature over a large area. Control responds to the coldest one-foot section of the sensor.

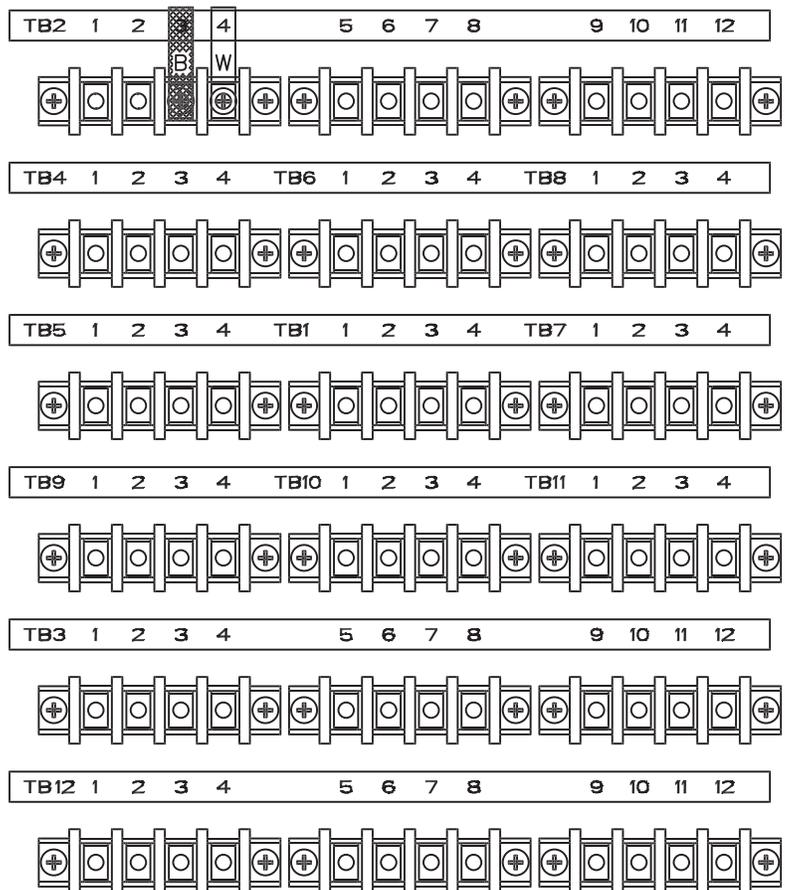
Adjustable setpoint from 35° F to 60° F with 5° F fixed differential.

Rated for use at 17 full load amps (120/208/240 Vac), 24 non-inductive amps (120/208/240 Vac), and 16 non-inductive amps (24 Vac).

Enclosure rating: NEMA Type 1.

Approvals: UL & CSA.

### Wire Terminations



# Supply Fan Status Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Carrier Part Number ..... 39MA51000021  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... A/MCS-A  
 Cable ..... 21  
 Channel ..... UI-6  
 Terminal/Signal ..... TB3-11 / Dry Contact DI  
 Terminal/Signal ..... TB3-12 / Signal Ground



## SFS Supply Fan Status Sensor

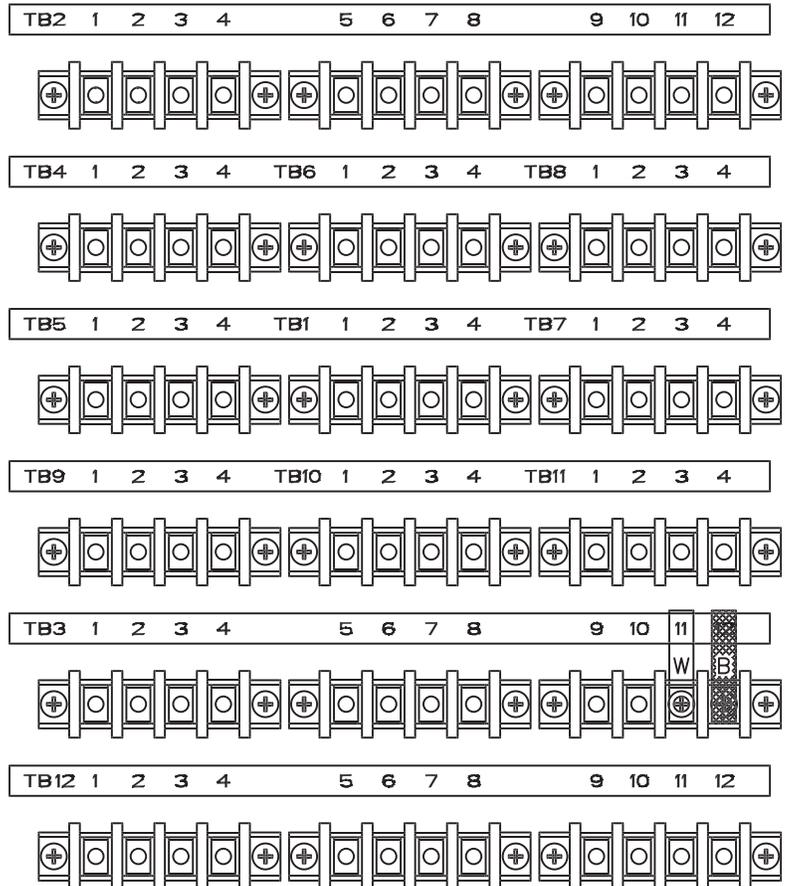
The A/MCS-A is a normally open (N/O) solid state adjustable current switch.

Outputs are non-polarity sensitive, N/O solid-state contacts for switching both AC and DC circuits up to 36 volts.

Unit includes two Status LED indicators, which signal three states:

1. Tripped on
2. Current present but below trip point
3. Current off or below the low end of the adjustable trip point range.

### Wire Terminations



## Return/Exhaust Fan Status Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Carrier Part Number ..... 39MA51000021  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... A/MCS-A  
 Cable ..... 19  
 Channel ..... EXIN-1  
 Terminal/Signal ..... TB7-1 / Dry Contact DI  
 Terminal/Signal ..... TB7-2 / Signal Ground



### RFS/EFS

#### Return/Exhaust Fan Status Sensor

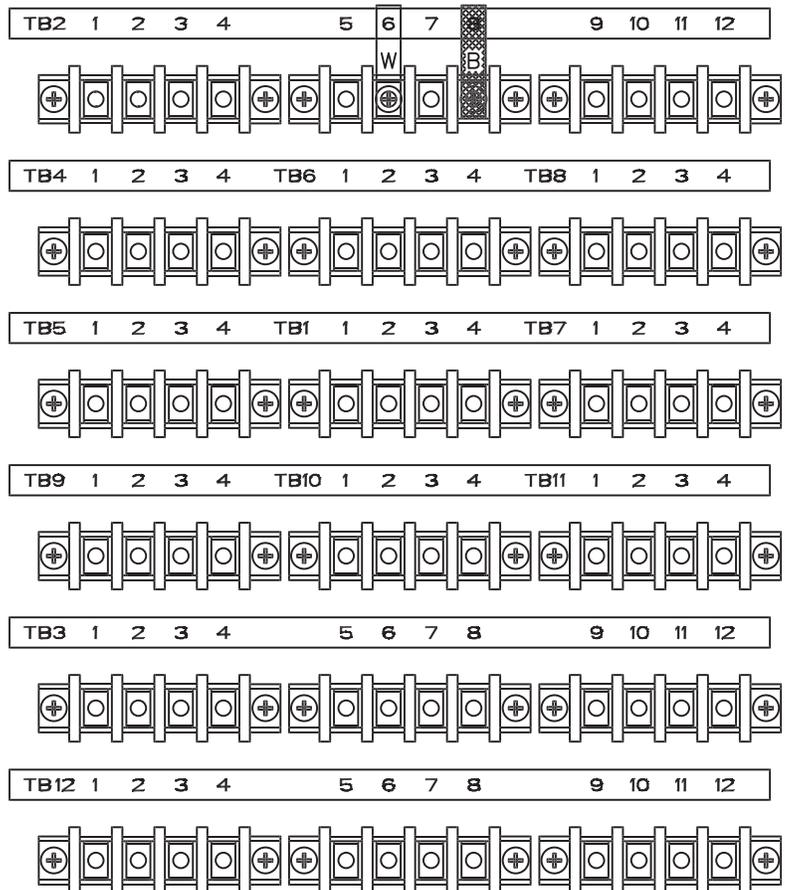
The A/MCS-A is a normally open (N/O) solid state adjustable current switch.

Outputs are non-polarity sensitive, N/O solid-state contacts for switching both AC and DC circuits up to 36 volts.

Unit includes two Status LED indicators, which signal three states:

1. Tripped on
2. Current present but below trip point
3. Current off or below the low end of the adjustable trip point range.

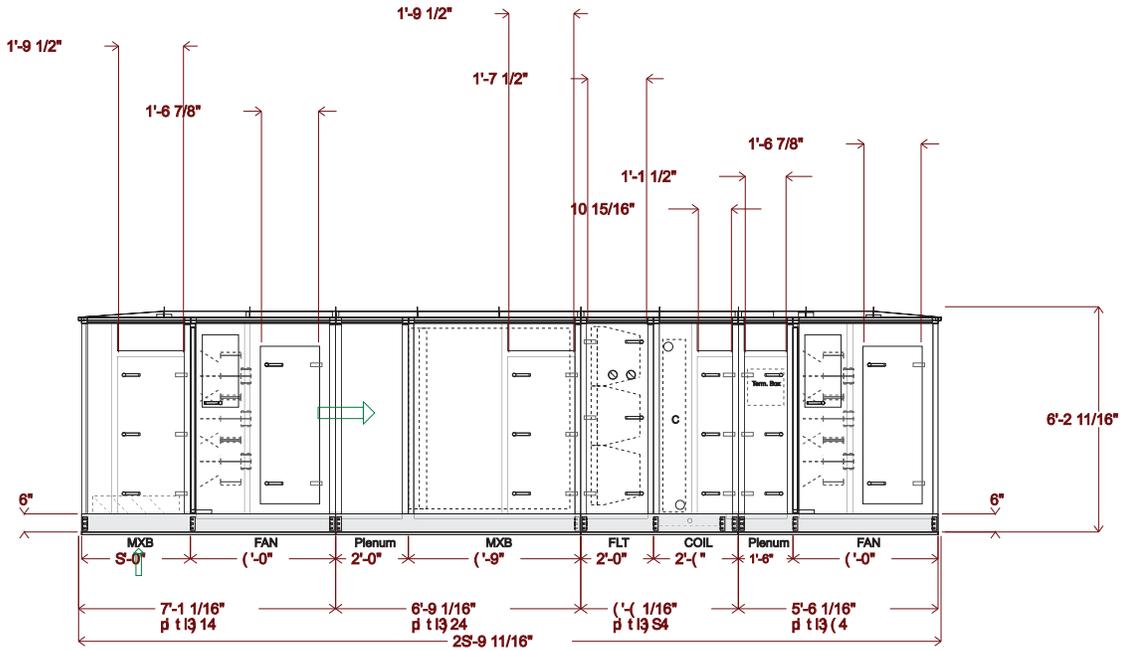
#### Wire Terminations



Unit width: 9'-5" plus shipping lugs  
 Return Fan  
 Bag/Carrier Filter 6 - 12 IN. I 3e Load  
 Qty 4123. x 2(3)  
 Qty 842(3). x 2(3)  
 Pre Filter : 2In. Fia Filter  
 Qty 4123. x 2(3)  
 Qty 842(3). x 2(3)

Chilled Water 6 Row 11 FPI Double Circuit, 14  
 Draw-Thru Utility Fan  
 0  
 Operating weight: 7765.0 lbs.  
 Upstream Corner Weight each 1828.0 lbs.  
 Downstream Corner Weight each 205(.0 lbs.

Filter	Airway Length	Weight lbs.
Filter 14	7'-1 1/16"	2087
Filter 24	6'-9 1/16"	1685
Filter S4	5'-1 1/16"	2280
Filter 4	5'-6 1/16"	1815



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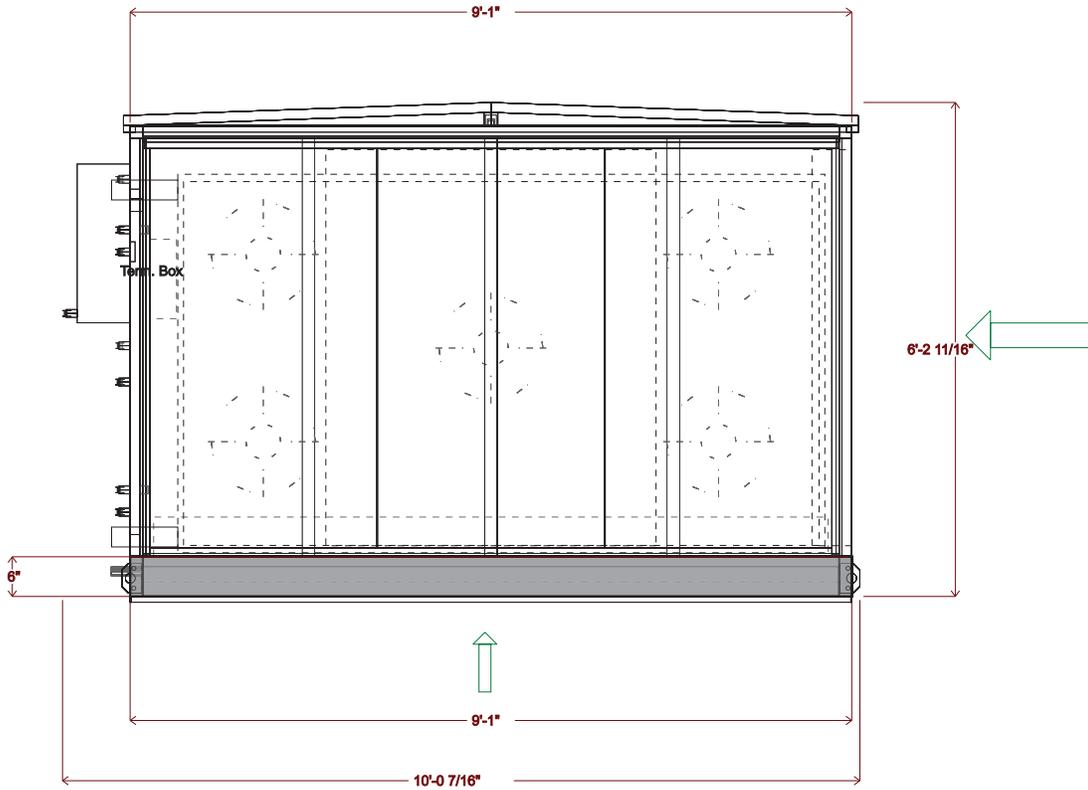
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DATE 12/30/2021	AHUBu3der v7.06	S9M Central i 3a)3n A3-Handler, i 3e S6W i an Bernad3o County i herra i 3a)3n AHU: AH ( Assembly Draw3ng	REVli ION i 3e V3w
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Un3 v3w3d from r3(h) s3le of s3le elev3)n v3w.  
 Un3 leng(h): 2S-9 11/16"  
 R3jurn Fan  
 Bag/Carj3r3ge F3j3er 6 - 12 IN. i 3le Load3ng  
 Qjy r( 4123. x 2( 3.  
 Qjy r342( 3. x 2( 3.  
 Pre F3j3er : 2In. Fla) F3j3er  
 Qjy r( 4123. x 2( 3.

Qjy r342( 3. x 2( 3.  
 Ch3l3ed Wa)er 6 Row 11 FPI Double C3cu3) r3jy. 14  
 Draw-Thru i ut tly Fan  
 0  
 Ot era)ng we3(h): 7765.0 lbs.  
 Ut s)ream Comer We3(h) r3ach4 1828.0 lbs.  
 Downs)ream Comer We3(h) r3ach4 205(.0 lbs.



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AHUBu3)der  
 v7.06

S9M Cen)ral i 3a)3n A3-Handler, i 3e S6W  
 i an Bernad3no County i herra) i 3a)3n AHU: AH ( Assembly Draw3ng

REVli ION  
 End V3w

Unit height: 6'-2 5/16"  
 Return Fan  
 Bag/Carry Size Filter 6 - 12 IN. I Size Loading  
 Qty 4123. x 2(3).  
 Qty 842(3). x 2(3).  
 Pre Filter : 2In. Flat Filter  
 Qty 4123. x 2(3).  
 Qty 842(3). x 2(3).

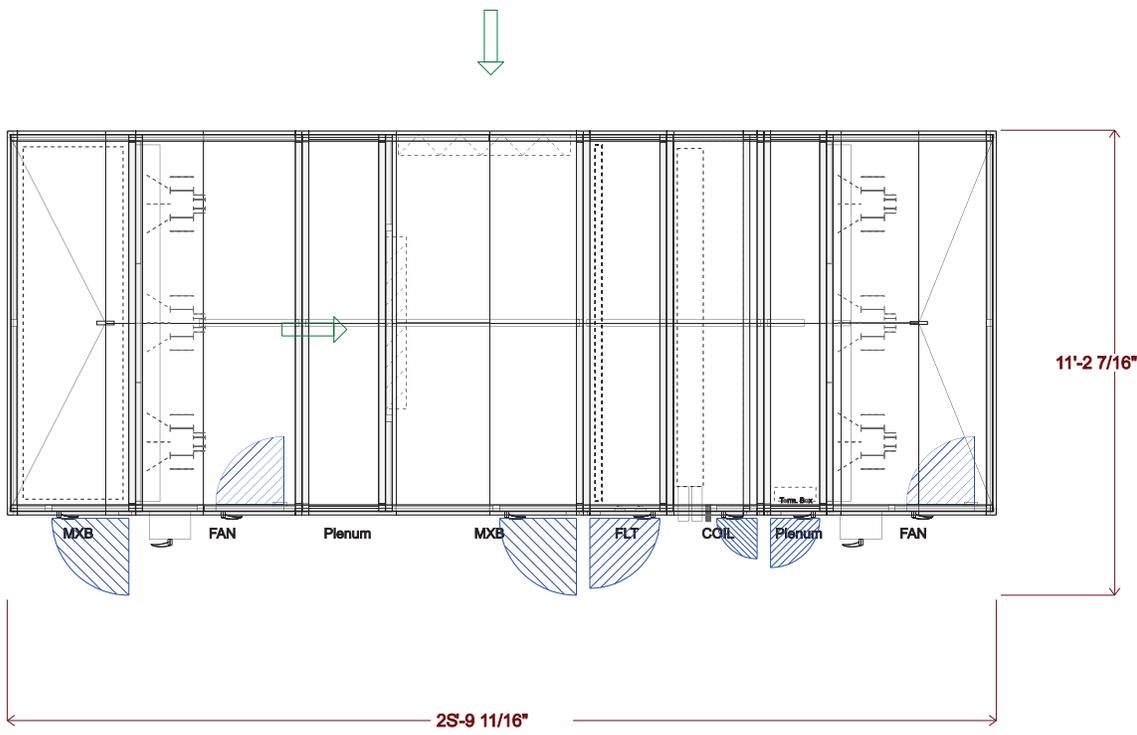
Chilled Water 6 Row 11 FPI Double Circuit Qty. 14  
 Draw-Thru Utility Fan  
 0  
 Operating weight: 7765.0 lbs.  
 Upstream Corner Weight each 1828.0 lbs.  
 Downstream Corner Weight each 205(.0 lbs.



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**S9MW**



DATE 12/30/2021	AHU Buyer v7.06	S9M Central Station A3-Handler, Size S6W in an Bernadino County Sheriff's Station AHU: AH (Assembly Drawing)	REVISION Tot View
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Chilled Water 6 Row 11 FPI Double Coil Unit, 14

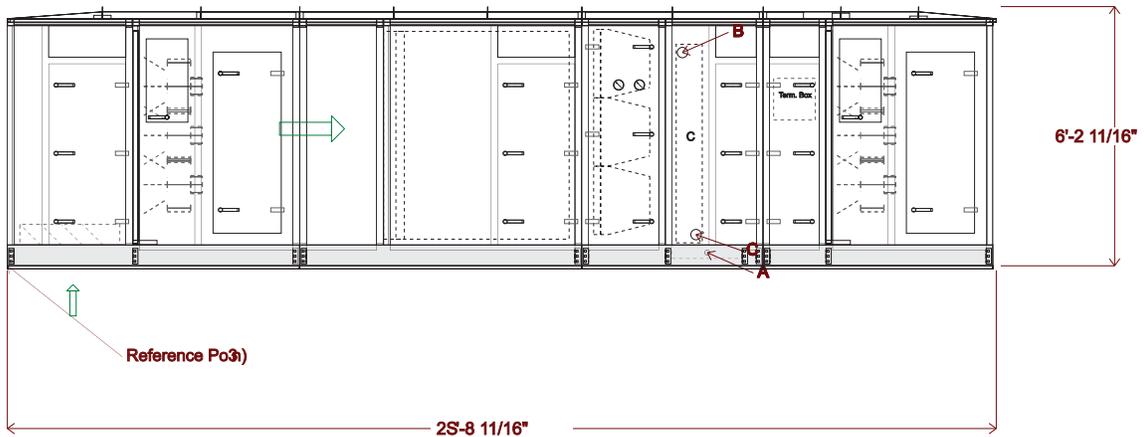


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**S9MW**

Point	x	y	Dimension	Usage
A	16'-9 1/2"	5'-11 1/16"	1 1/2"	Drain Pan
B	16'-2 5/16"	5'-1 7/16"	5"	CW Outlet
C	16'-6 1/16"	9"	5"	CW Inlet



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12/30/2021

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v7.06

S9M Central Air Handler, 14 S6W  
in an Bernadino County in Herrick Air Handler AH ( Assembly Drawing

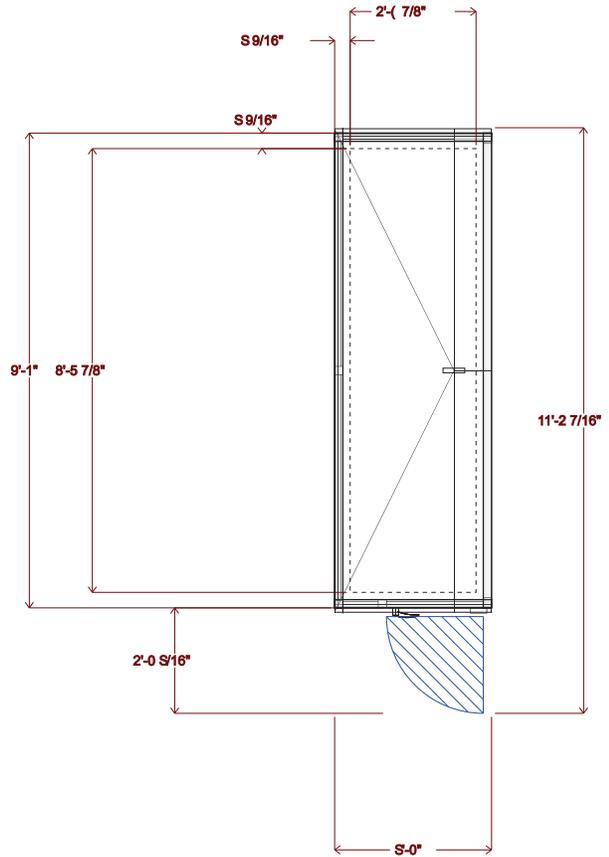
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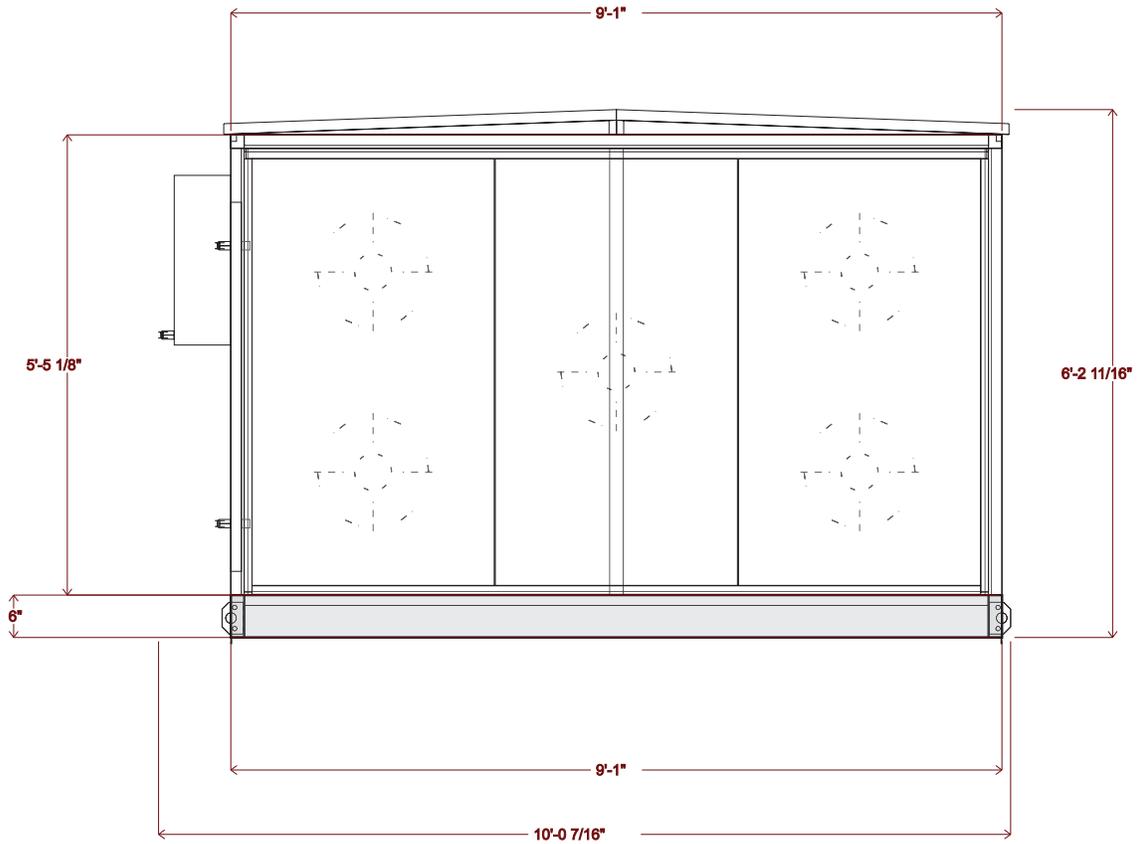
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v7.06

S9M Central i )a)on A3-Handler, i 3e S6W  
i an Bernad3o County i herr3 i )a)on AHU: AH (  
M33g Box

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Un3 v3wed from r3(h) s3le of s3le elev3)3n v3w.  
Re)um Fan



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S9M Central i )a)3n A3-Handler, i 3e S6W  
i an Bernad3o County i herra3 i )a)3n AHU: AH (Re)um Fan

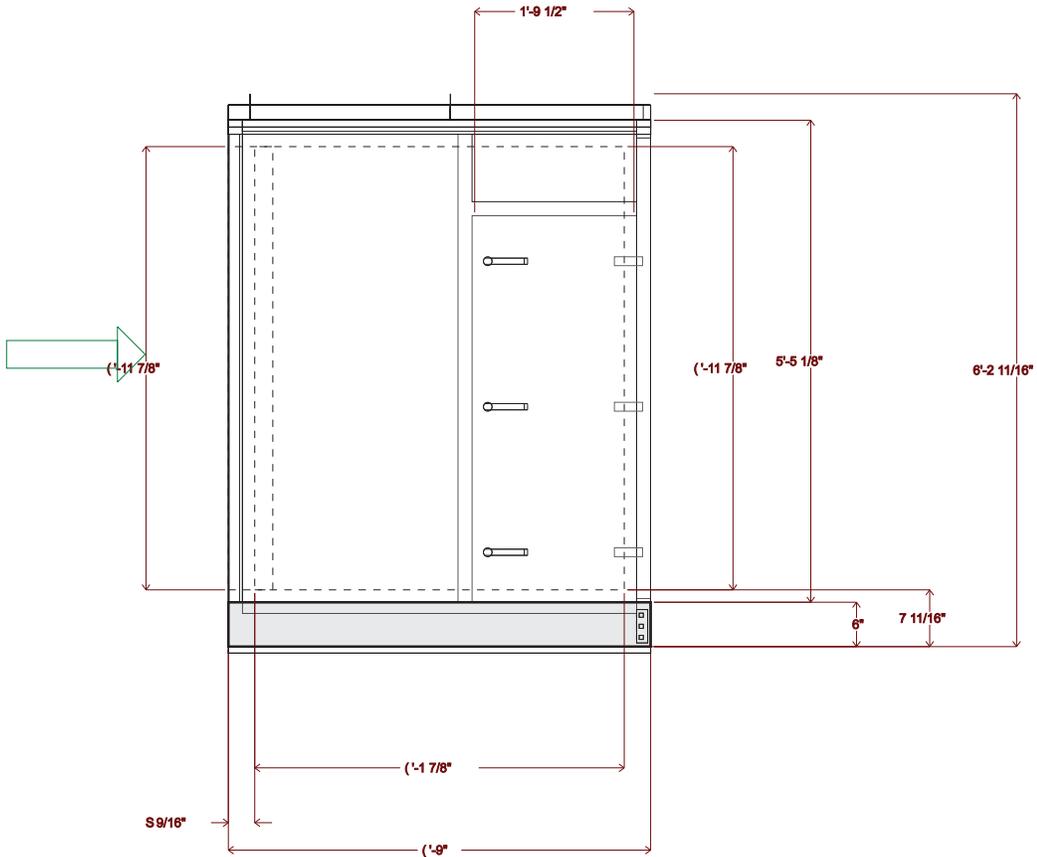
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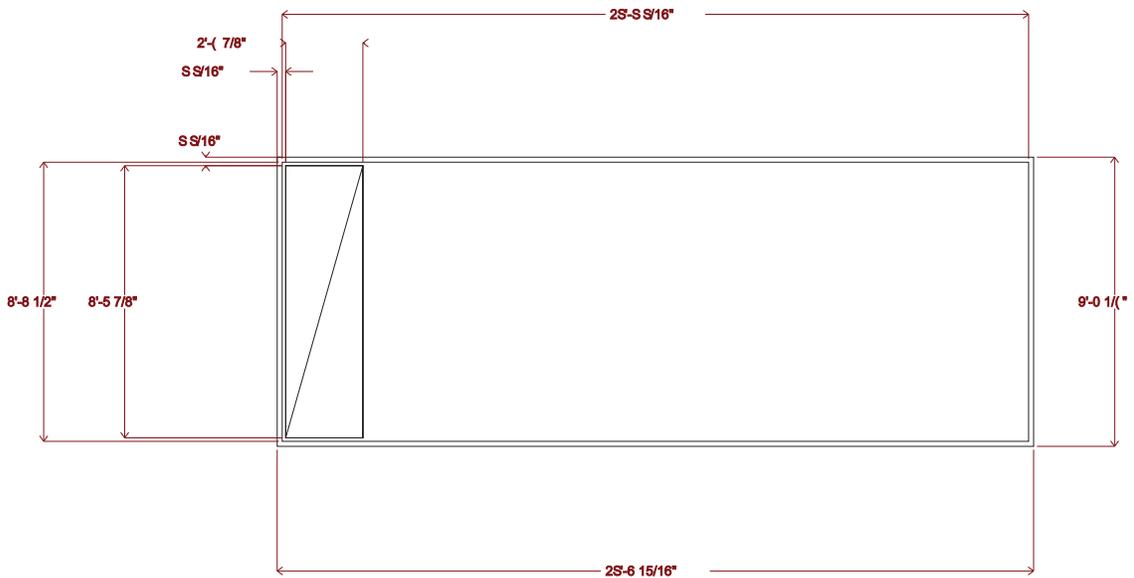
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S9M Central Station A3-Handler, 3e S6W  
in an Bernadino County in her3f i Station AHU: AH (Ahu Curb

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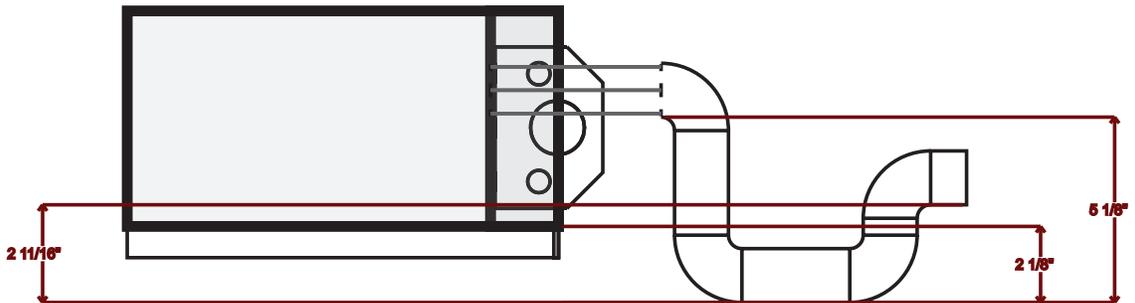


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# DRAW-THRU



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v7.06

S9M Central In-Line Air-Handler, 36 S6W  
In-Building Condensate Drain AHU: AH (Condensate Treatment Dimensions)

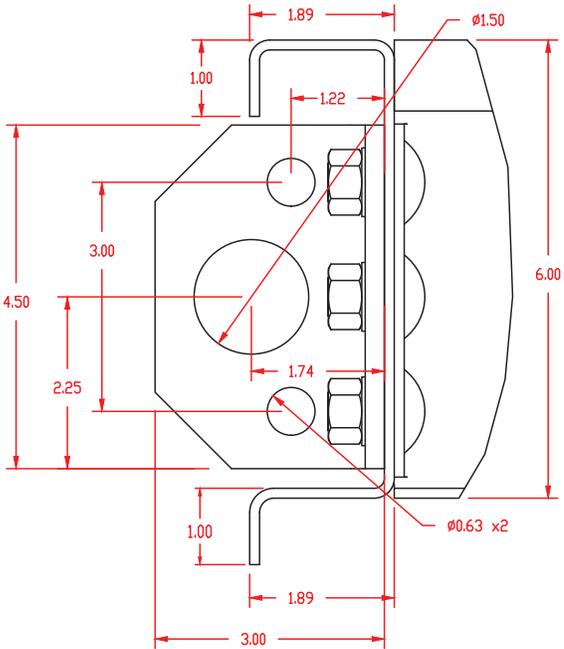
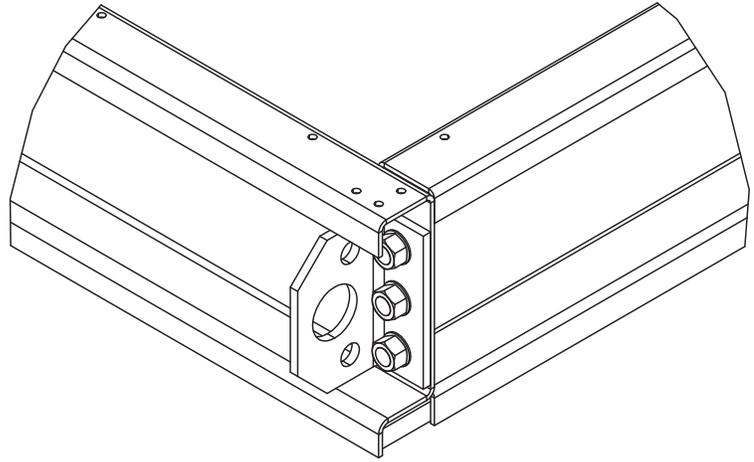
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39MW



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39M Central Station Air-Handler, Size: 03 - 110  
6" Base rail and Lifting Lug Detail

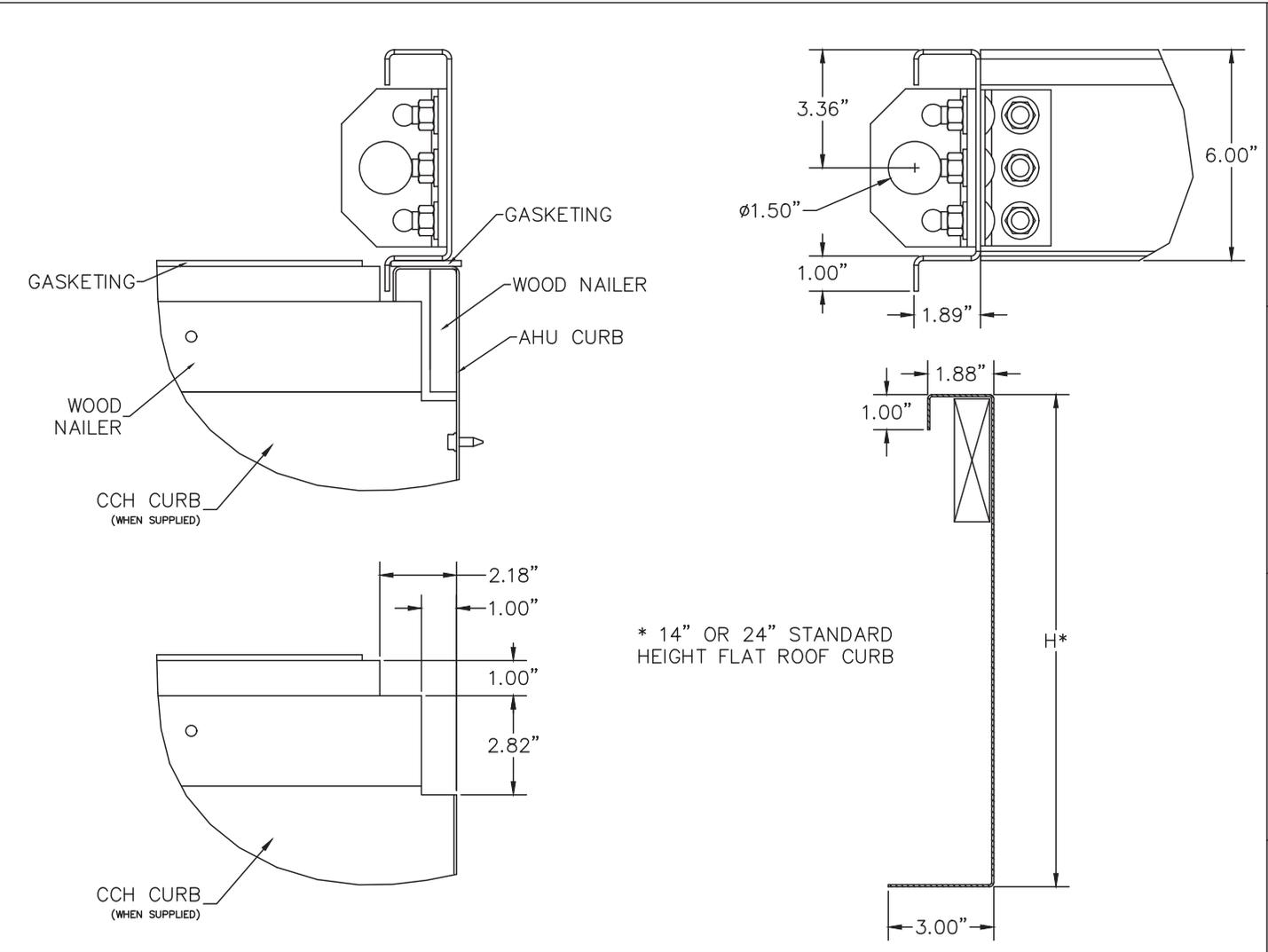
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39M Central Station Air-Handler, Size: 03 - 110  
Curb, Baserail and Lifting Lug Detail

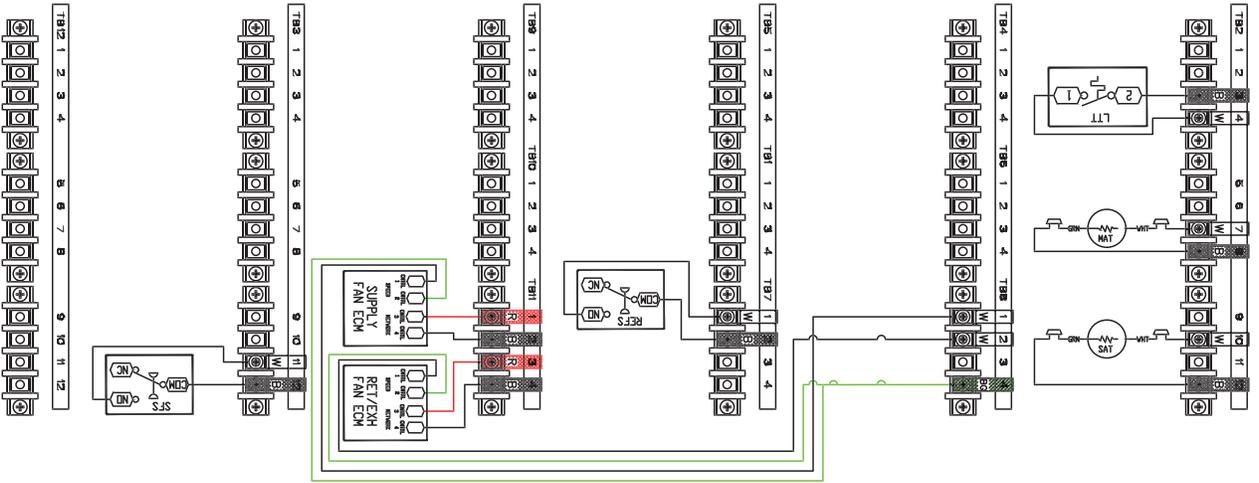
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- LEGEND
- TERMINAL MARKED
  - SPlice FIELD
  - VARIING FIELD
  - VARIING FIELD CONTROL
  - AL/A2 BLACK OR GREEN
  - RG 24VAC CONTACTOR COIL
  - COM COMMON
  - COM1 COMMON
  - EF EXHAUST FAN
  - EX EXHAUST EXHAUST FAN
  - END EXHAUST EXHAUST WHEEL
  - FBI FAN & BYPASS SWAPPER
  - FLTSZ FILTER STATUS SWITCH 2
  - HCY HEATING COIL VALVE
  - HUM HUMIDIFIER ENABLE
  - LTT LOW TEMPERATURE THERMOSTAT (FREEZESTAD)
  - MAV MAINT AIR SWAPPER
  - NC NORMALLY CLOSED
  - NO NORMALLY OPEN
  - PREHEAT PRE-HEAT VALVE
  - PREHEAT PRE-HEAT VALVE
  - RET RETURN EXHAUST FAN
  - RET RETURN EXHAUST FAN STATUS
  - RF RETURN EXHAUST FAN STATUS
  - SAT SUPPLY AIR TEMPERATURE
  - SAT SUPPLY AIR TEMPERATURE
  - SAT SUPPLY FAN
  - SAT SUPPLY FAN STATUS
  - START/STOP START/STOP
  - TS TERMINAL BLOCK TERMINAL
  - VF0 VARIABLE FREQUENCY DRIVE
  - VF0 FIELD SWITCHED

DATE  
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39M Central Station Air Handler, Size: 03 - 110  
Factory Wired Controller Wiring Diagram

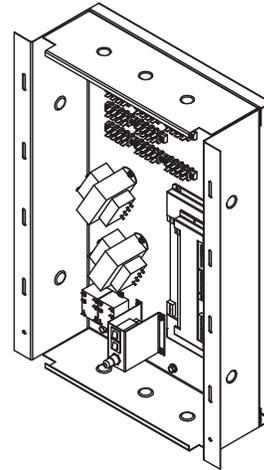
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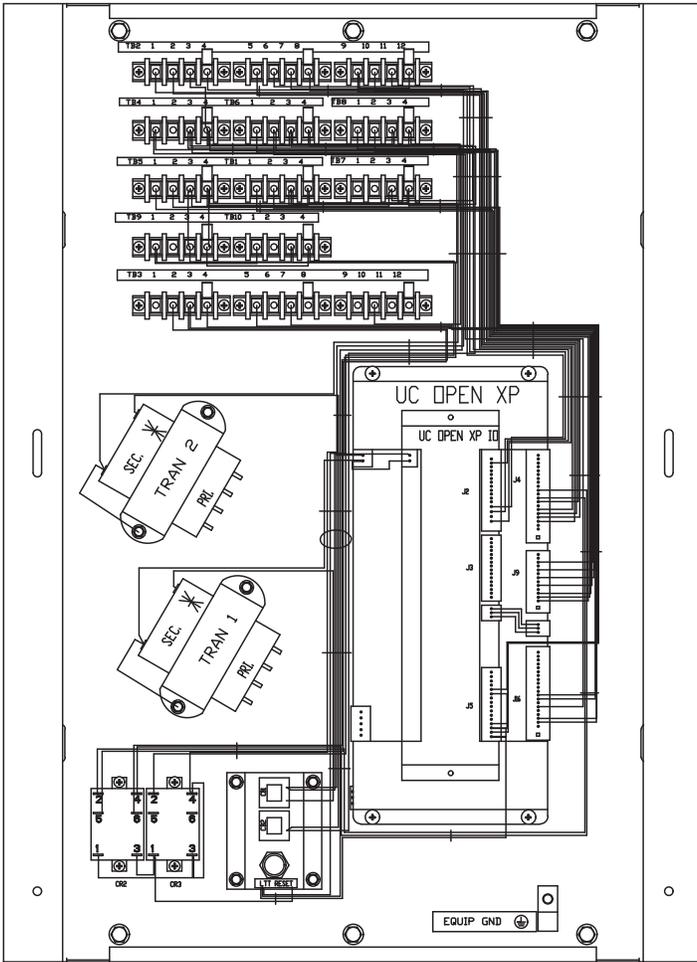
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Component wiring for reference only. When components are factory installed, wiring will be factory installed unless otherwise noted. When components are provided by the factory for field installation, wiring is not included or installed.



SIZE 03-06 (SHOWN)

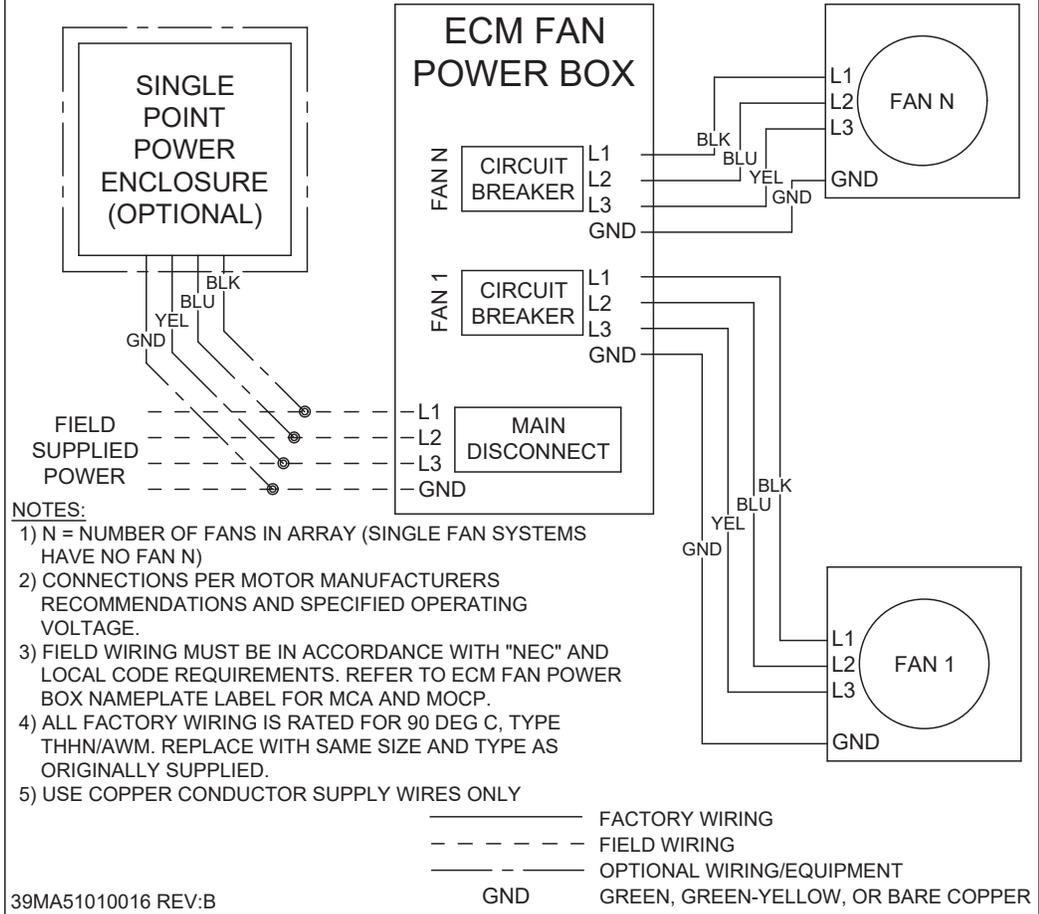
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2024-12-30

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39M Central Station Air-Handler, Size: 03 - 110  
Factory Wired Controller

REVISION

# POWER WIRING DIAGRAM ECM FAN 3 PHASE

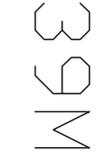


Component wiring for reference only.  
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39M Central Station Air-Handler, Size: 03 - 110  
ECM Three Phase Wiring Detail

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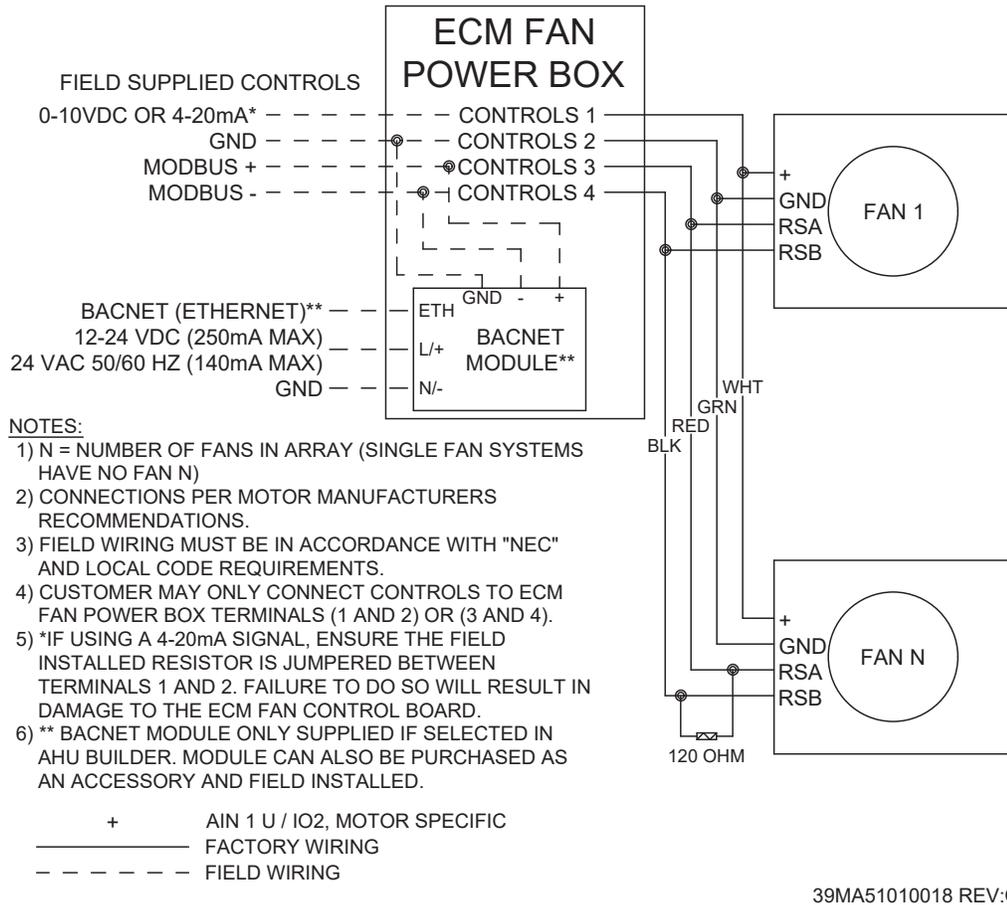


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39M

# CONTROLS WIRING DIAGRAM ECM FAN, EBM-PAPST



**NOTES:**

- 1) N = NUMBER OF FANS IN ARRAY (SINGLE FAN SYSTEMS HAVE NO FAN N)
- 2) CONNECTIONS PER MOTOR MANUFACTURERS RECOMMENDATIONS.
- 3) FIELD WIRING MUST BE IN ACCORDANCE WITH "NEC" AND LOCAL CODE REQUIREMENTS.
- 4) CUSTOMER MAY ONLY CONNECT CONTROLS TO ECM FAN POWER BOX TERMINALS (1 AND 2) OR (3 AND 4).
- 5) \*IF USING A 4-20mA SIGNAL, ENSURE THE FIELD INSTALLED RESISTOR IS JUMPERED BETWEEN TERMINALS 1 AND 2. FAILURE TO DO SO WILL RESULT IN DAMAGE TO THE ECM FAN CONTROL BOARD.
- 6) \*\* BACNET MODULE ONLY SUPPLIED IF SELECTED IN AHU BUILDER. MODULE CAN ALSO BE PURCHASED AS AN ACCESSORY AND FIELD INSTALLED.

+ AIN 1 U / IO2, MOTOR SPECIFIC  
 \_\_\_\_\_ FACTORY WIRING  
 - - - - - FIELD WIRING

39MA51010018 REV:C

Component wiring for reference only.  
 When components are factory installed, wiring will be factory installed unless otherwise noted.  
 When components are provided by the factory for field installation, wiring is not included or installed.

DATE  
2024-12-30

AHUBuilder  
v7.06

39M Central Station Air-Handler, Size: 03 - 110  
ECM Controls Wiring Diagram - EBM Pakst

REVISION

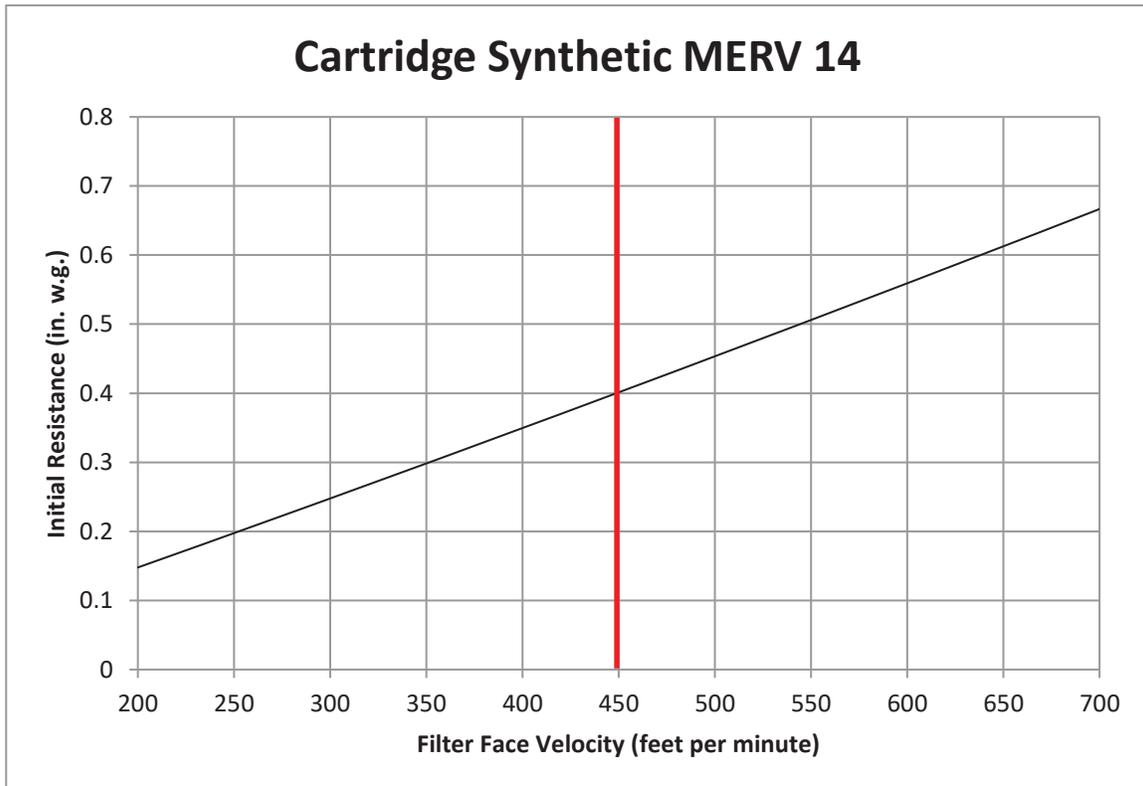
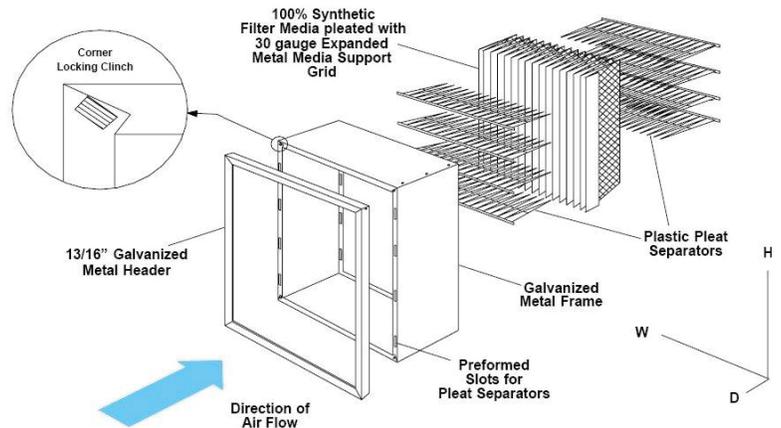
## Air Filter Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Carrier Part Number ..... 31KB50412240824244  
 Kit Description ..... Filter Kit  
 Unit Airflow, CFM ..... 18000  
 Filter Velocity, FPM ..... 450  
 Filter Sizes and Quantities ..... Qty (4) 12in. x 24in., Qty (8) 24in. x 24in.

### DFpro Synthetic Cartridge Filter

DFpro rigid filters are designed to provide consistent high efficiency filtration in constant and variable air volume systems. Deep pleats are held firmly in place with plastic separators and expanded metal backing. Every edge of the media pack is glued inside the periphery of the frame to prevent air and dust bypass. The media and separators are 100% polypropylene to resist moisture damage, microbial growth, and puncture damage. Heavy gauge galvanized frame resists corrosion and maintains its structural integrity for extended months of service.



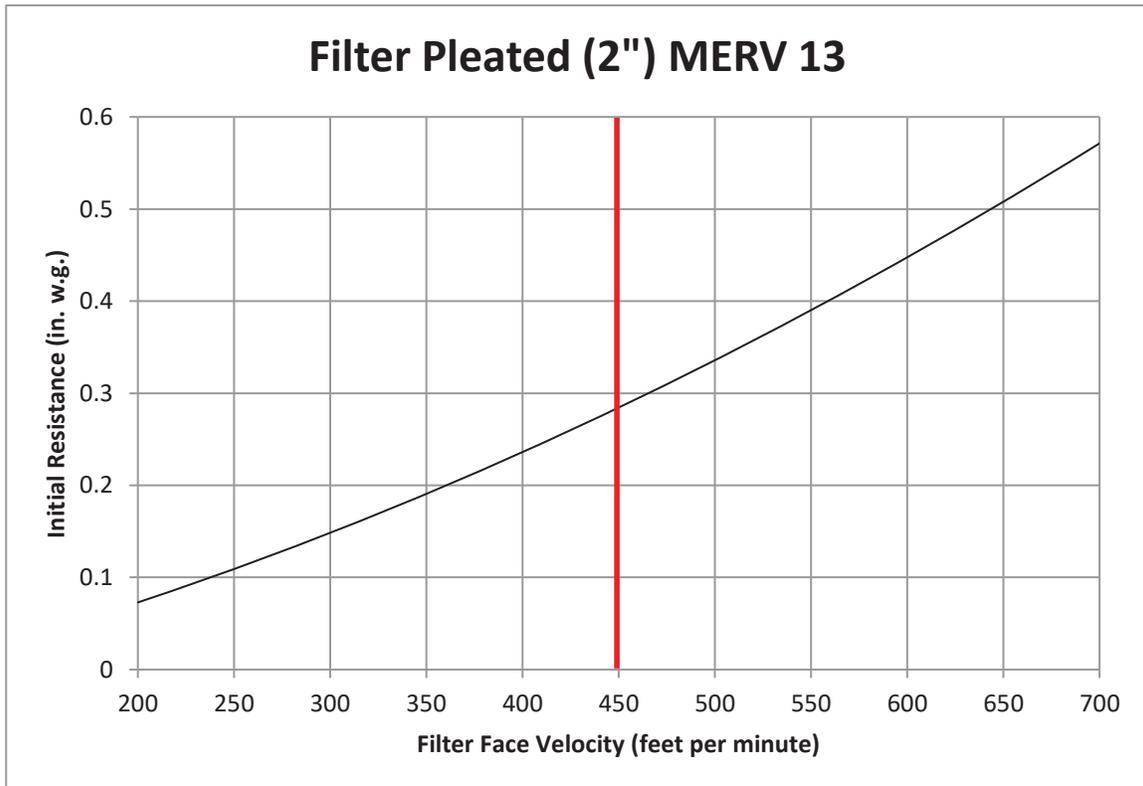
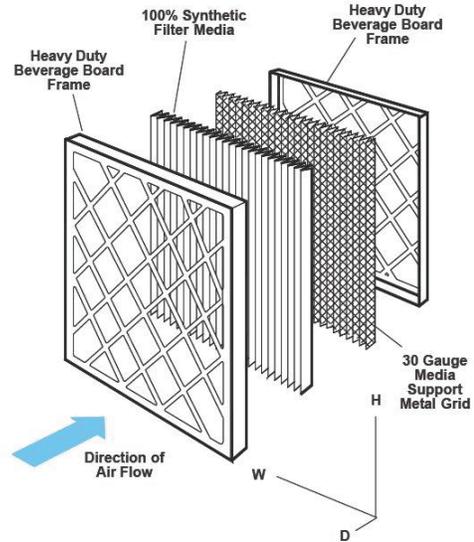
## Air Filter Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 4

Carrier Part Number ..... 31K2C0412240824244  
 Kit Description ..... Filter Kit  
 Unit Airflow, CFM ..... 18000  
 Filter Velocity, FPM ..... 450  
 Filter Sizes and Quantities ..... Qty (4) 12in. x 24in., Qty (8) 24in. x 24in.

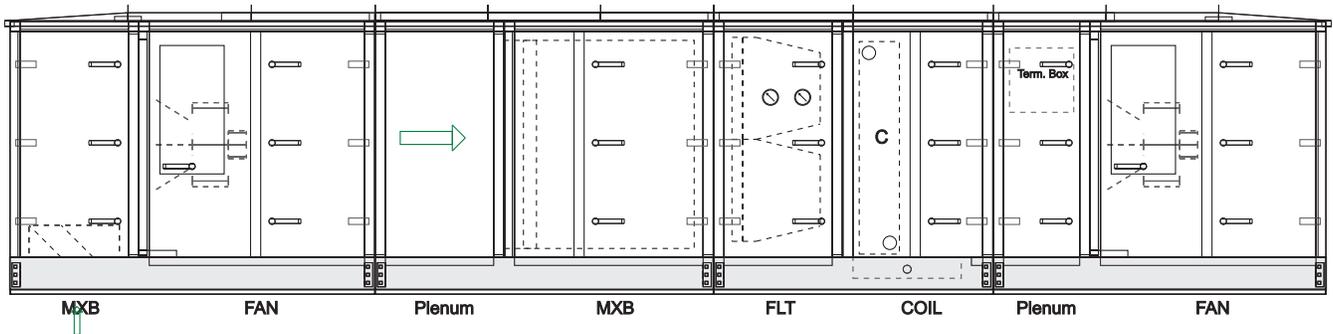
### DFpro MERV 13 Pleated Filter

The 100% synthetic graduated density media is continuously bonded to a 30 gauge galvanized, corrosion resistant, expanded metal support grid with an effective open area of 96%. The media is resistant to a wide range of chemicals, does not absorb moisture and will not support microbial growth. The controlled pleat spacing maximizes surface area and dust holding capacity and is bonded to the enclosure frame to prevent dust bypass. The enclosure frame is constructed of high wet strength moisture resistant beverage board. The diagonal support members of the frame are bonded to the entering and exiting apexes of each pleat to prevent pleat collapse and filter bowing.



## Unit Report AH 5

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5



### Unit Parameters

Aero Outdoor Air Handler  
39MW Size 17W  
Insulation: R-13 Double Wall Sealed Panel  
Exterior Finish: Painted Exterior Panels  
Interior Finish: Galvanized Interior Panels  
Level II Thermal Break  
6 inch tall Base Rail  
Field Supplied Curb

### Mixing Box

Damper: Bottom Premium Parallel  
Door Right Side

### Return Fan

Shipping Split After  
Rear Inlet  
Fan Sled  
Plenum Fan B PEBM0105  
Direct Drive Fans  
Fan Count 3  
1933 fanRPM Class III  
Full Open Discharge  
ECM Control Box (Standard)  
Piezometer and Transducer (1 fan)  
Voltage Selected - 460/3/60  
Full Load Amps - 7.7 Each  
FLA/MCA/MOCP 23.1/25.0/30  
Return/Exhaust Fan Status (DI)  
Door Right Side

### Plenum

Length 24 inches

### Mixing Box

Shipping Split After  
Damper: Left Side Premium Opposed  
Damper: Rear Premium Parallel  
Mixed Air Temperature Sensor (AI)  
Door Right Side

## Unit Report AH 5

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5

### Bag/Cartridge Filter

Bag/Cartridge Filter 6 - 12 IN. Side Loading  
12" Cartridge w/ Header (Synthetic) MERV 14  
Qty (3) 24in. x 24in.  
Qty (3) 12in. x 24in.  
Pre Filter : 2In. Flat Filter  
2" Pleated MERV 13 Filter  
Qty (3) 24in. x 24in.  
Qty (3) 12in. x 24in.  
Door Right Side  
Minihelic Differential Pressure Gage 0-2" w.c. Right Side  
Minihelic Differential Pressure Gage 0-2" w.c. Right Side

### Chilled Water Coil and Plenum

Shipping Split After  
Low Temperature Thermostat (DI)  
304 Stainless Steel Drain Pan Right Side  
Chilled Water 16.93 sq.ft 6 Row 11 FPI Full Circuit  
Coil Connection Right Side  
1/2 in. Tube Diameter  
Fin Thickness: 0.0060  
AL fins Galv. Casing  
Steel Header  
No Coating  
Door Right Side

### Control Plenum

Length 18 inches  
Unprogrammed Carrier UC Open XP Controller Located in Control Plenum  
Door Right Side

### Draw-Thru Supply Fan

Rear Inlet  
Fan Sled  
Plenum Fan B PEBM0105  
Direct Drive Fans  
Fan Count 3  
2969 fanRPM Class III  
Field Supplied Discharge  
ECM Control Box (Standard)  
Piezometer and Transducer (1 fan)  
Voltage Selected - 460/3/60  
Full Load Amps - 7.7 Each  
FLA/MCA/MOCP 23.1/25.0/30  
Supply Fan Status (DI)  
Supply Air Temperature Sensor (AI)  
Door Right Side

### Weights and Dimensions

(LxWxH in ft in) 20' 8" x 6' 9" x 4' 5" \*\*  
Operating 4463 LB \*\*

### Warranty Part Number(s) (NET PRICING)

## Unit Report AH 5

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5

39LMR-SU-FIRST Qty 1.0 First 39 Series Start-up

### Configuration Notes

An Outdoor Plenum fan may not discharge through the roof of the unit.

If a bottom connection is required, use an Inlet Plenum Section.

An Outdoor Plenum fan may not discharge through the roof of the unit.

Discharge duct(s) must be gasketed and screwed directly to the discharge panel of the unit.

### Warranty Part Number(s) (NET PRICING)

QTY 1.0 First 39 Series Start-up

\*\* Weights and Dimensions are approximate. Weights include base unit weight, coils (wet & dry), fans and fan motors, and other components, but does not include filters, drives and skids. Approximate dimensions are provided primarily for shipping purposes, for exact dimensions, refer to submittal drawings. Shipping skids are not included.

All filter media efficiency ratings are for the filter media only.

## Chilled Water Coil Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 5



Cooling Application's Balance Criteria: Fluid Flow

Coil Model.....	<b>28MC</b>
Number of Coils.....	<b>1</b>
Row / FPI / Circ.....	<b>6 / 11 / FL</b>
Fin Thickness.....	<b>.0060</b> in
Fin Type.....	<b>Sine Wave</b>
Face Area Type.....	<b>Large</b>
Coil Face Area.....	<b>16.93</b> sqft
Face Velocity.....	<b>484.3</b> fpm
Fin-Casing Material.....	<b>Al-Galv.</b>
Tube Diameter.....	<b>0.5</b> in
Tube spacing: Stf x Str.....	<b>1.25 x 0.781</b> in
Tube Wall Thickness.....	<b>0.016</b> in
Actual Airflow.....	<b>8200</b> CFM
Site Altitude.....	<b>0</b> ft
Standard Airflow (adj. to std. dry atmosphere).....	<b>7845</b> SCFM
Total Cooling Capacity.....	<b>332.90</b> MBH
Sensible Cooling Capacity.....	<b>260.63</b> MBH
Fluid Flow Rate.....	<b>44.3</b> gpm
Fluid Pressure Drop.....	<b>4.6</b> ft wg
Fluid Velocity.....	<b>2.5</b> ft/s
Entering Fluid Temperature.....	<b>43.00</b> F
Leaving Fluid Temperature.....	<b>57.99</b> F
Fluid Temperature Rise.....	<b>15.0</b> F
Entering Air Dry Bulb.....	<b>84.70</b> F
Entering Air Wet Bulb.....	<b>67.80</b> F
Entering Air Enthalpy.....	<b>32.11</b> BTU/lb
Leaving Air Dry Bulb.....	<b>54.48</b> F
Leaving Air Wet Bulb.....	<b>54.04</b> F
Leaving Air Enthalpy.....	<b>22.6</b> BTU/lb
Air Friction.....	<b>0.76</b> in wg
Brine.....	<b>FW</b>
Brine Concentration.....	<b>0</b> %
Fouling Factor.....	<b>0.0</b> (hr-sqft-F)/BTU

NOTE: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory ([www.ahridirectory.org](http://www.ahridirectory.org)).

LEGEND:

- Stf -- Tube spacing across coil face
- Str -- Tube spacing in direction of airflow

## Unit Acoustics Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5

Unit Acoustics Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	84	78	77
125 Hz _____	85	81	79
250 Hz _____	97	94	91
500 Hz _____	97	92	89
1000 Hz _____	98	88	85
2000 Hz _____	95	84	81
4000 Hz _____	90	83	80
8000 Hz _____	85	77	74

Sound power levels are rated in accordance with AMCA 300.

Unit Acoustics A-weighted Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	58	52	51
125 Hz _____	69	64	62
250 Hz _____	89	85	83
500 Hz _____	93	89	86
1000 Hz _____	98	88	85
2000 Hz _____	97	86	82
4000 Hz _____	91	84	81
8000 Hz _____	83	76	73

Sound power levels are rated in accordance with AMCA 300.

Sound contributed by Supply and Return Fans  
Unit Acoustics PART-LOAD Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	81	76	74
125 Hz _____	82	78	76
250 Hz _____	94	90	88
500 Hz _____	92	86	83
1000 Hz _____	94	85	82
2000 Hz _____	91	81	77
4000 Hz _____	85	79	75
8000 Hz _____	78	71	68

Sound power levels are rated in accordance with AMCA 300.

## Unit Acoustics Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5

Unit Acoustics PART-LOAD A-weighted Sound Power Level:

	<b>Discharge</b>	<b>Inlet</b>	<b>Casing</b>
63 Hz _____	<b>55</b>	<b>49</b>	<b>48</b>
125 Hz _____	<b>66</b>	<b>62</b>	<b>59</b>
250 Hz _____	<b>85</b>	<b>82</b>	<b>79</b>
500 Hz _____	<b>89</b>	<b>83</b>	<b>80</b>
1000 Hz _____	<b>94</b>	<b>85</b>	<b>82</b>
2000 Hz _____	<b>92</b>	<b>82</b>	<b>79</b>
4000 Hz _____	<b>86</b>	<b>80</b>	<b>76</b>
8000 Hz _____	<b>77</b>	<b>70</b>	<b>67</b>

Sound power levels are rated in accordance with AMCA 300.

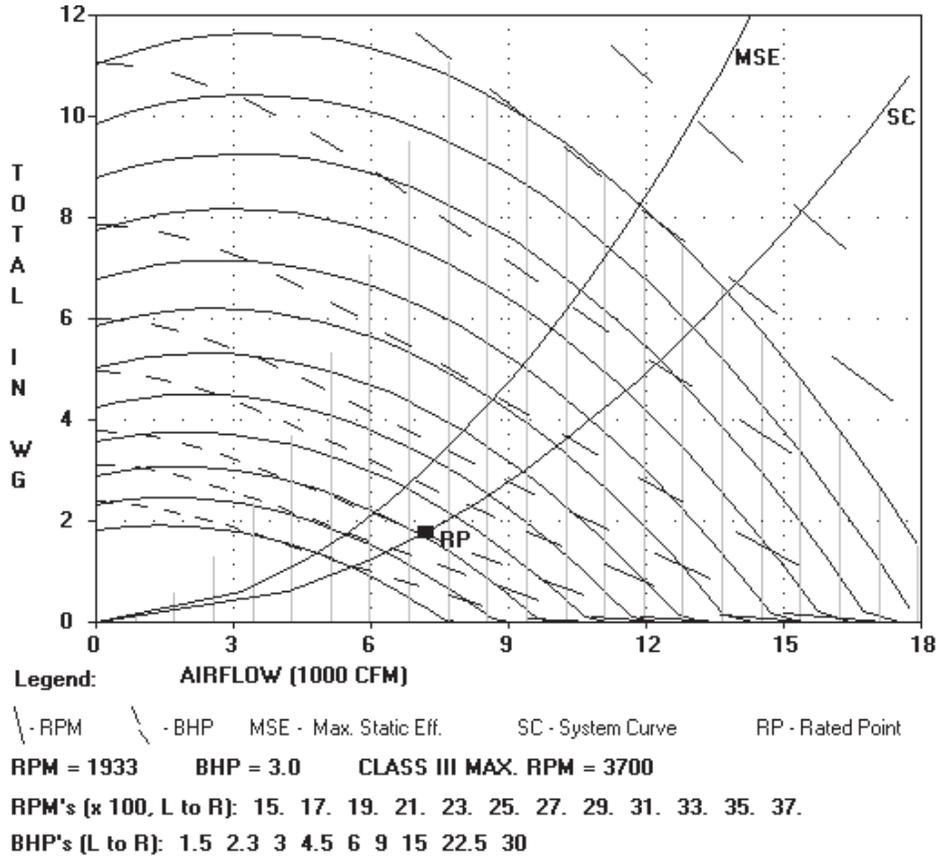
Sound contributed by Supply and Return Fans

## Return Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 5

Fan Model	<b>NC-39M1703HPPEE</b>
Unit Size	<b>17W</b>
Fan Type	<b>ECM</b>
<b>DIRECT DRIVE PLENUM (EBM-05) (Return)</b>	
Fan Wheel Diameter	<b>15.7</b>
Fan Class	<b>III</b>
Static Efficiency (%)	<b>66</b>
Fan Application	<b>Return Fan</b>
Orientation	<b>Horizontal</b>
Actual Airflow, CFM	<b>7200</b>
Site Altitude, , ft	<b>0</b>
Total Upstream Static Losses, in wg	<b>1.78</b>
Number of Fans	<b>3</b>
Fan RPM / Max RPM	<b>1933/3700</b>
Each Fan BHP	<b>1.0</b>
Fan Total BHP	<b>3.0</b>
(n-1) Airflow, CFM	<b>10725</b>
(n-1) Redundancy (%)	<b>149</b>
Fan Electrical Power, kW	<b>2.9</b>
ECM Setting, VDC	<b>5.2</b>

Unit is outside of the scope of AHRI Standard 430/431.



## Supply Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5

Fan Model	<b>39M1703HPEE-U</b>
Unit Size	<b>17W</b>
Fan Type	<b>ECM DIRECT DRIVE PLENUM (EBM-05)</b>
Fan Wheel Diameter	<b>15.7</b>
Fan Class	<b>III</b>
Fan Application	<b>Supply Fan</b>
Orientation	<b>Horizontal</b>
Actual Airflow, CFM	<b>8200</b>
Site Altitude, ft	<b>0</b>
Upstream Ext. Static, in wg	<b>0.00</b>
Downstream Ext. Static, in wg	<b>4.50</b>
Cooling Coil Static, in wg	<b>0.76</b>
Heating Coil Static, in wg	<b>0.00</b>
Total Accessory Static, in wg	<b>0.84</b>
Total Static Pressure, in wg	<b>6.10</b>
Calculated Fan RPM / Motor RPM	<b>2969 / 0</b>
Class III Max. RPM	<b>3700</b>
Static Efficiency (%)	<b>67</b>
Number of Fans	<b>3</b>
Each Fan BHP	<b>3.9</b>
Fan Total BHP	<b>11.8</b>
(n-1) Airflow, CFM	<b>8820</b>
(n-1) Redundancy (%)	<b>108</b>
Fan Electrical Power, kW	<b>10.1</b>
ECM Setting, VDC	<b>8.0</b>



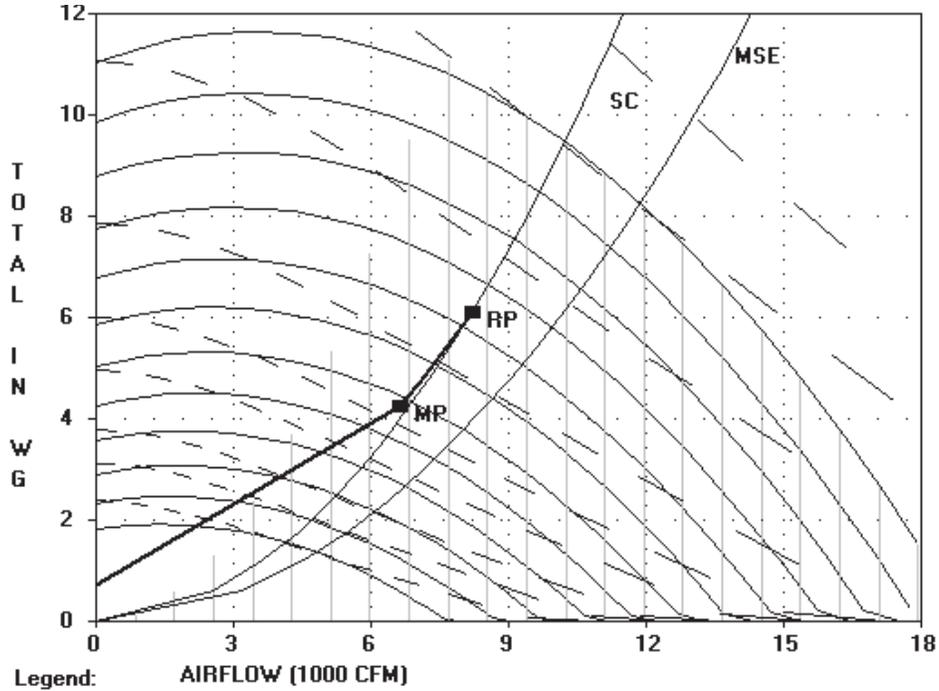
### Accessories:

- (1) Flat Synthetic (2") MERV 13 [0.33]
- (1) CARTRIDGE LONG/SHORT Synthetic MERV 14 [0.42]
- (1) Side Mixing or Exhaust Box [0.10]

NOTE: Certified in accordance with the AHRI Central Station Air-Handling Unit Certification Program, which is based on AHRI Standards 430/431. Certified units may be found in the AHRI Directory at [www.ahridirectory.org](http://www.ahridirectory.org)

# Supply Fan Performance Summary

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 5



**Legend:**      AIRFLOW (1000 CFM)

\ - RPM      \ - BHP      MSE - Max. Static Eff.      SC - System Curve      RP - Rated Point

**RPM = 2969      BHP = 11.8      CLASS III MAX. RPM = 3700**

**RPM's (x 100, L to R): 15. 17. 19. 21. 23. 25. 27. 29. 31. 33. 35. 37.**

**BHP's (L to R): 1.5 2.3 3 4.5 6 9 15 22.5 30**

## Sensor and Actuator Points List

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5

Name	AI	AO	DI	DO
Return/Exhaust Fan Status			X	
Mixed Air Temperature Sensor	X			
Low Temperature Thermostat			X	
Supply Fan Status			X	
Supply Air Temperature Sensor	X			

# Controller Submittal

Project: San Bernadino County Sherriff Station AHU  
Unit Tag: AH 5

Carrier Part Number ..... OPN-UCXP  
Manufacturer ..... Carrier

## I-VU® UC Open XP Unit Controller

**BACnet Support** – Advanced application controller (B-AAC), as defined in BACnet 135-2001 Annex L

**BACnet Communication Port** – EIA-485 port for BACnet MS/TP communications (baud rate is DIP switch selectable)

**Local Access Communication Port** – For system start-up and troubleshooting (115.2 kbps)

**Rnet Communication Port** – For connecting Carrier communicating room sensors and Carrier's touchscreen user interface

**Inputs** – 12 inputs: Configurable for 0-10V, RTD/Thermistor/Dry contact, or 0-20mA. Inputs 1 and 2 may be used for pulse counting. All analog inputs have 12 bit A/D resolution.

**Outputs** – 6 binary outputs: Configured as dry contact, normally open or normally closed. All binary outputs must be powered from a Class 2 power source.

6 analog outputs: 1 and 2 are configurable for 0-10V or 0-20mA; 3-6 are 0-10V only. Analog outputs have 8 bit D/A resolution.

**Protection** – Incoming power and network connections are protected by non-replaceable internal solidstate polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected against voltage transient and surge events.

**Real Time Clock** – Battery-backed real time clock keeps track of time in event of power failure.

**Battery** – 10-year Lithium CR2032 battery provides a minimum of 10,000 hours of trend data & time retention during power outages.

**Status Indicators** – LED status of power, running, and errors. LED indicators for transmit/receive for BACnet port and for each of the 12 outputs.

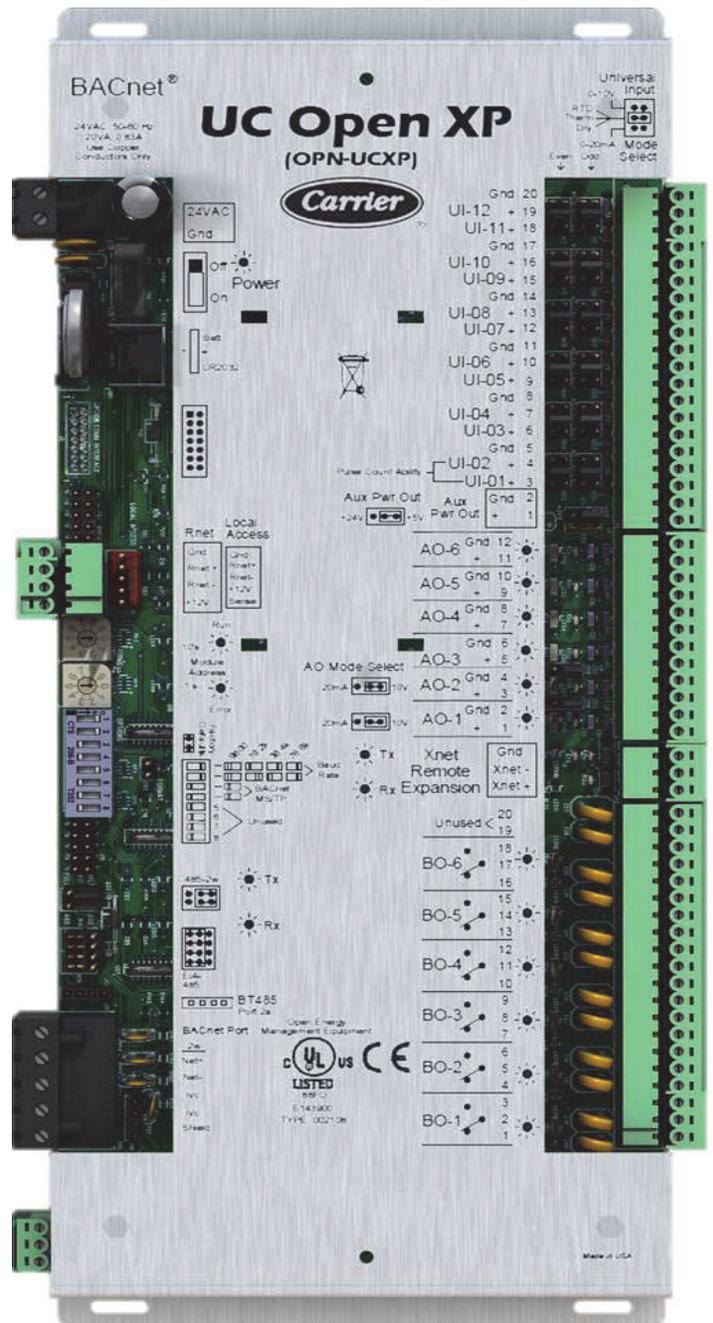
**Controller Addressing** – Rotary DIP switches set BACnet MS/TP MAC address of controller.

**Listed By** – UL-916, FCC Part 15-Subpart B- Class A, CE EN50082-1997

**Operating/Storage Range** – -24° to 140°F (-30° to 60°C), 10-90% relative humidity, non-condensing

**Power Requirements** – 24VAC +/- 10%, 50-60Hz  
20VA power consumption

Single Class 2 source only, 100VA or less



# Controller Expansion Board Submittal

Project: San Bernadino County Sherriff Station AHU

Unit Tag: AH 5

Carrier Part Number ..... OPN-UCXPIO  
Manufacturer ..... Carrier

## I-VU® UC Open XPIO Unit Controller Expansion Board

**Communication Ports** – Xnet Remote Expansion port:  
For connecting to a UC XP Controller via the Xnet network.

**Inputs** – 8 binary inputs: Inputs 1-8 are binary only and support pulse counting up to 10 Hz.

8 analog inputs: Inputs 9-16 are universal inputs, jumper selectable between thermistor/dry contact and 0-5VDC. All analog inputs have 10 bit A/D resolution.

**Outputs** – 8 binary outputs: Configured as dry contact, normally open, and must be powered from a Class 2 power source.

**Protection** – Incoming power and network connections are protected by non-replaceable internal solidstate polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected.

**Status Indicators** – LED status of power, outputs, running and errors.

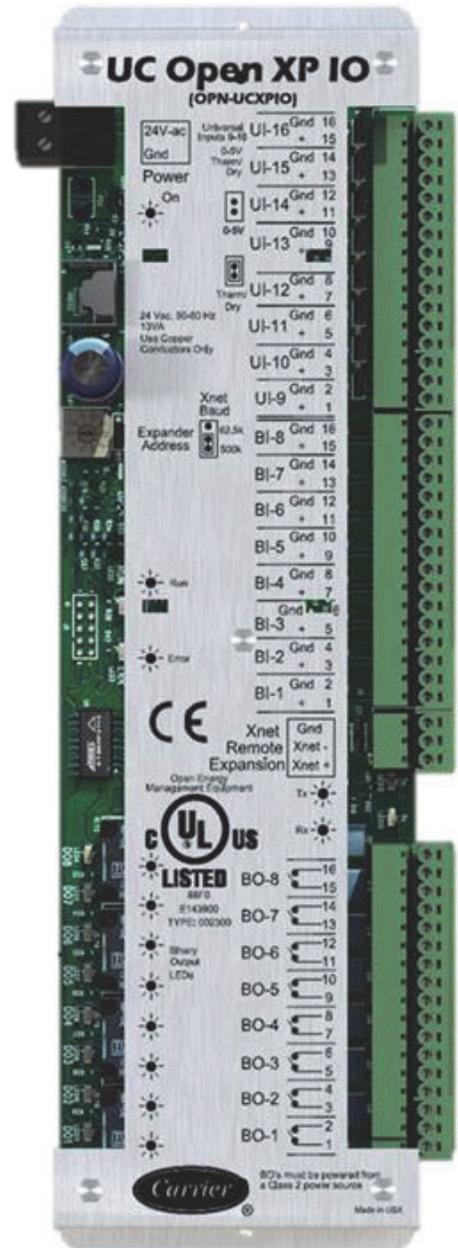
**Listed By** – UL916 (Canadian Std. C22.2 No. 205-M 1983), CE, FCC Part15-Subpart B - Class A

**Operating/Storage Range** – -20°F to 140°F (-29° to 60°C), 10-90% relative humidity, non-condensing

**Power Requirements** – 24VAC +/- 10%, 50-60Hz  
13VA power consumption

26VDC (25V min, 30V max)

Single Class 2 source only, 100VA or less



# Supply Air Temperature (SAT) Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 5

Carrier Part Number ..... 33ZCSENSAT  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... ACI/10K-CP-D4  
 Cable ..... 1  
 Channel ..... UI-2  
 Terminal/Signal ..... TB2-10 / 10K Thermistor AI  
 Terminal/Signal ..... TB2-12 / Signal Ground

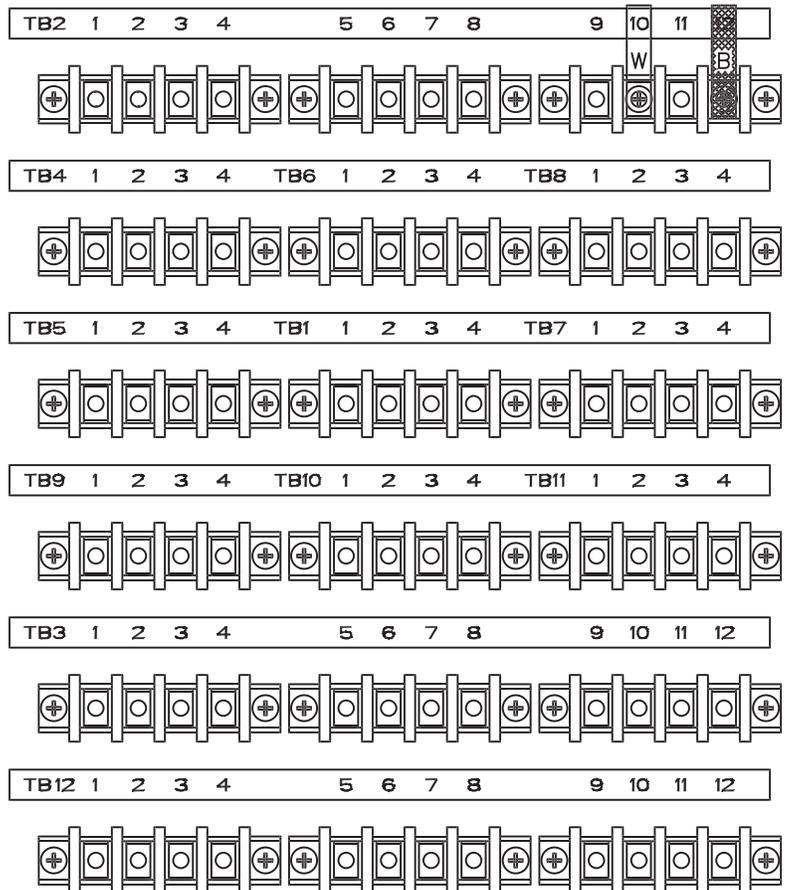


## SAT Supply Air Temperature Sensor

The SAT sensor consists of a thermistor encased within a stainless steel probe.

The thermistor has a temperature range of -245° to 185° F with a nominal resistance of 10,000 ohms at 77° F.

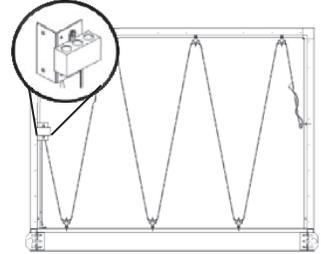
### Wire Terminations



# Mixed Air Temperature (MAT) Sensor Submittal

Project: San Bernadino County Sherriff Station AHU  
 Unit Tag: AH 5

Carrier Part Number ..... HH79NZ041  
 Manufacturer ..... Automation Components, Inc.  
 Manufacturer Part Number ..... ACI/10K-CP-A24  
 Cable ..... 4  
 Channel ..... UI-3  
 Terminal/Signal ..... TB2-7 / 10K Thermistor AI  
 Terminal/Signal ..... TB2-8 / Signal Ground



## MAT Mixed Air Temperature Sensor

The MAT sensor consists of multiple, evenly spaced thermistors encased within a flexible copper tube.

Mechanical and electrical averaging is used to achieve the temperature measurement over the entire element length.

The MAT sensor has a range of -40° to 185° F with a nominal resistance of 10,000 ohms at 77° F.

The sensor is located in the last mixing box in the airflow.

### Wire Terminations

