

Unit Overview

Unit Function	Tonnage	EER @ AHRI	IEER @ AHRI	System Power	Elevation
No Heat, Extended Casing	75 ton Air cooled	10.7 EER	16.3 EER	105.13 kW	
Installed Weight					
11823.9 lb					

Unit Features

Capacity/Efficiency Option	High efficiency unit
Filters	M8 Hi-Eff TA / Cart M16 FF
Filters	Bag filters (position 2)
Agency Approval	cULus



Unit Electrical

Voltage/Phase/Frequency	460/60/3
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Condenser Fans FLA	10.80 A
Supply Fan FLA	24.70 A
Supply Fan Motor Count	2
Exhaust/Return Fan FLA	9.80 A
Other FLA	2.00 A

Compressor 1 RLA	37.20 A
Compressor 1 Count	2.00 Each
Compressor 2 RLA	25.40 A
Compressor 2 Count	2.00 Each

Circuit 1			
MCA	MOP	DSS	RDE
206.50 A	225.00 A	226.00 A	225.00 A

Condensing Section

Capacity/Efficiency Option	High efficiency unit	Ambient Control	Standard ambient control
Refrigerant Type	R-410A refrigerant	Design Ambient Dry Bulb	95.00 F
Refrigerant Charge Circuit 1	52.0 lb	Outdoor Fan Type	Prop
Refrigerant Charge Circuit 2	50.5 lb	Outdoor Fan Drive	Direct

Heating Section

Function	No Heat, Extended Casing
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Cooling Coil (DX) Section

Evaporator Type	Cu-Al	Cooling Performance	
Evaporator Face Area	43.00 sq ft	Leaving Coil Dry Bulb	53.60 F
Evaporator Face Velocity	512 ft/min	Leaving Coil Wet Bulb	52.82 F
Inputs		Leaving Unit Dry Bulb	57.39 F
		Leaving Unit Wet Bulb	54.37 F
Design Airflow	22000 cfm	Gross Total Capacity	953.48 MBh
Entering Dry Bulb	80.00 F	Gross Sensible Capacity	665.44 MBh
Entering Wet Bulb	67.00 F	Gross Latent Capacity	288.04 MBh
		Net Total Capacity	861.41 MBh
		Net Sensible Capacity	573.37 MBh
		Net Sensible Heat Ratio (%)	66.56 %

Supply Fan

Supply Fan Type	DDP 80	Performance	
Supply Fan Count	2.00 Each	Design Airflow	22000 cfm
Supply Fan Motor HP	40 hp DDP 80% width	Supply Duct Static Pressure	2.000 in H2O
Supply Motor Count	2	Total Supply Static Pressure	5.941 in H2O
Supply Fan Motor Drive	1900 rpm	Total Supply BHP	32.64 bhp
System Control	VAV (DTC) SF & EF/RF VFD w/ Bypass	Operating Speed (RPM)	1887 rpm
Isolator Option	2.00" [51mm] Spring isolators	Supply Fan Efficiency	63.01 %
		Supply Fan Motor Heat	92.07 MBh

Outside Air & Relief Sections

Outside Air Section		Relief Section	
Outside Air Option	0-100% Economizer w/ Traq & DCV	Airflow	17600 cfm
Outside Air Control	Economizer control w/dry bulb	Return Duct Static Pressure	1.000 in H2O
Damper Option	Ultra Low Leak Damper	Fan Option	100% -Exhaust 7.5 Hp w/Statitrac
		Actual BHP	6.22 bhp
		Operating Speed (RPM)	609 rpm
		Motor Drive	600 rpm
		Isolator Option	2.00" [51mm] Spring isolators

Weights

Total Installed Weight	11823.9 lb	Installed Point Load Weight 1	805.4 lb
Center of Gravity - X	17.72 ft	Installed Point Load Weight 2	884.7 lb
Center of Gravity - Y	4.98 ft	Installed Point Load Weight 3	984.0 lb
Installed Point Load X1 Location	4.000 in	Installed Point Load Weight 4	1063.3 lb
Installed Point Load X2 Location	101.000 in	Installed Point Load Weight 5	1142.4 lb
Installed Point Load X3 Location	187.000 in	Installed Point Load Weight 6	1221.7 lb
Installed Point Load X4 Location	274.000 in	Installed Point Load Weight 7	1302.6 lb
Installed Point Load X5 Location	370.000 in	Installed Point Load Weight 8	1381.9 lb
Installed Point Load Y1 Location	4.000 in	Installed Point Load Weight 9	1479.3 lb
Installed Point Load Y2 Location	112.000 in	Installed Point Load Weight 10	1558.7 lb

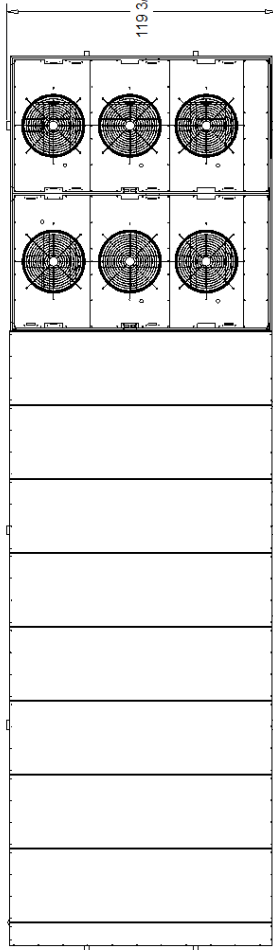
Controls & Service Options

Controls		Service	
Communication Protocol	BACnet communication interface module	Cabinet Options	IRU w/ galv - w/ access doors
Control Expansion Option	0-5 volt GBAS	Service Options	Grease lines

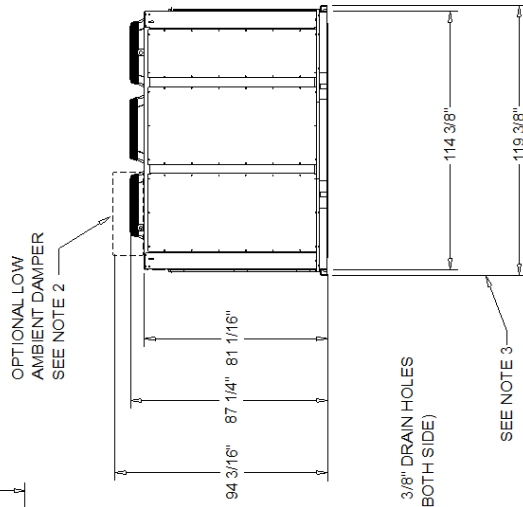
AHRI Certification

Packaged Rooftop units cooling, heating capacities and efficiencies are rated within the scope of the Air-Conditioning, Heating & Refrigeration Institute (AHRI) Certification Program and display the AHRI Certified® mark as a visual confirmation of conformance to the certification sections of AHRI Standard 340-360 (I-P) and ANSI Z21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces. Certified units may be found in the AHRI directory at www.ahridirectory.org

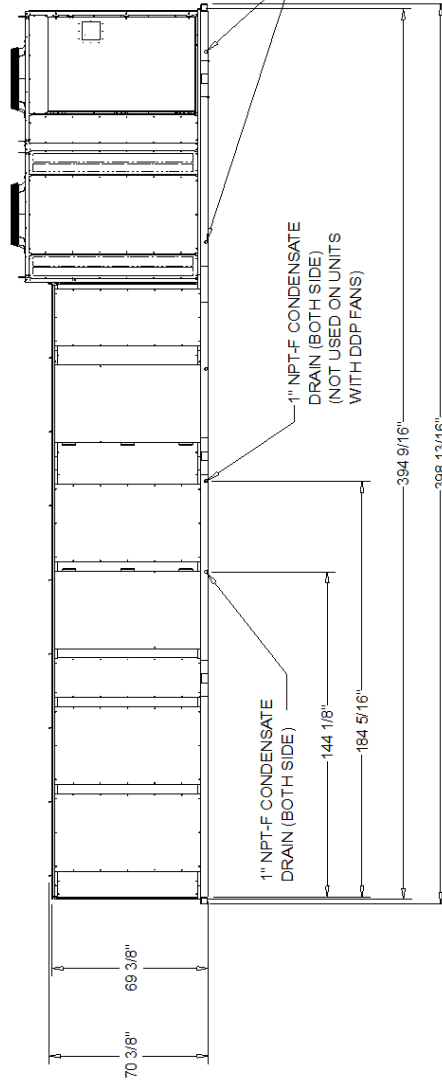
- NOTES:
1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION.
 2. LOW AMBIENT DAMPER ONLY COMES WITH SELECTED UNIT.
 3. OVERALL UNIT WIDTH INCREASES 5/8" BEYOND LIFTING LUG WITH ULTRA LOW LEAK POWER EXHAUST DAMPERS.
 4. RETURN AIR OPENING CONFIGURATION FOR USES WITH NO AIR OPTION, BAROMETRIC RELIEF, AND EXHAUST FAN.
 5. IF FIELD CONVERTING SUPPLY & RETURN OPENING(S) TO HORIZONTAL OR VERTICAL AIRFLOW, FACTORY MUST VERIFY IF UNIT OPTIONS WILL ALLOW IT. FACTORY INSTALLATION IS ALWAYS RECOMMENDED.



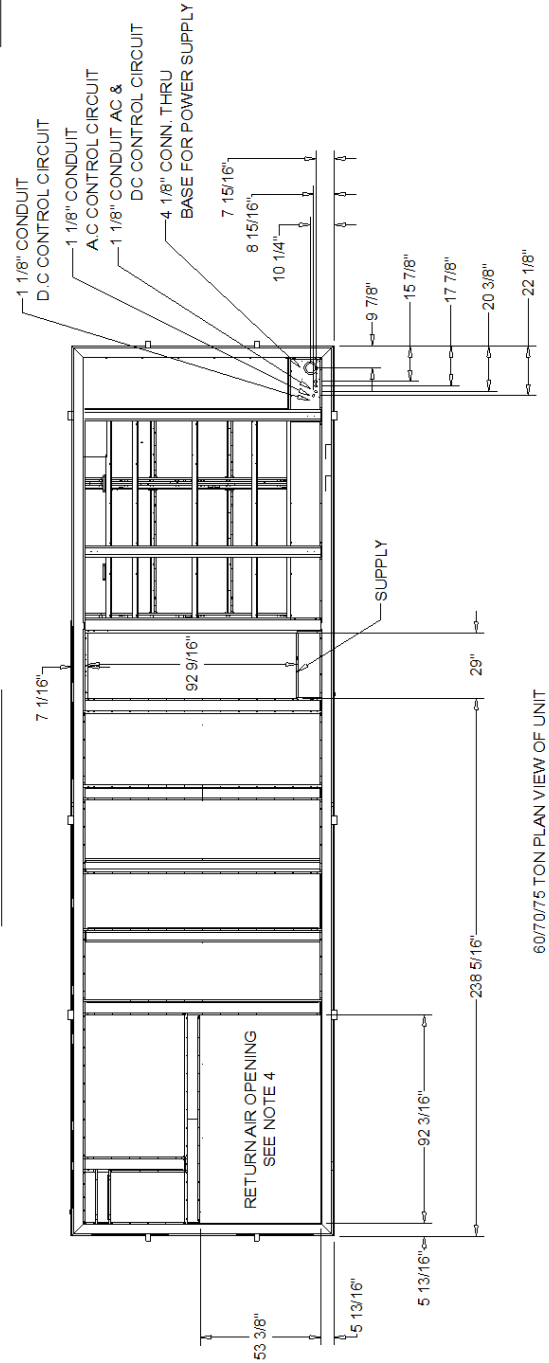
60/70/75 TON PLAN VIEW



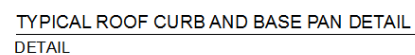
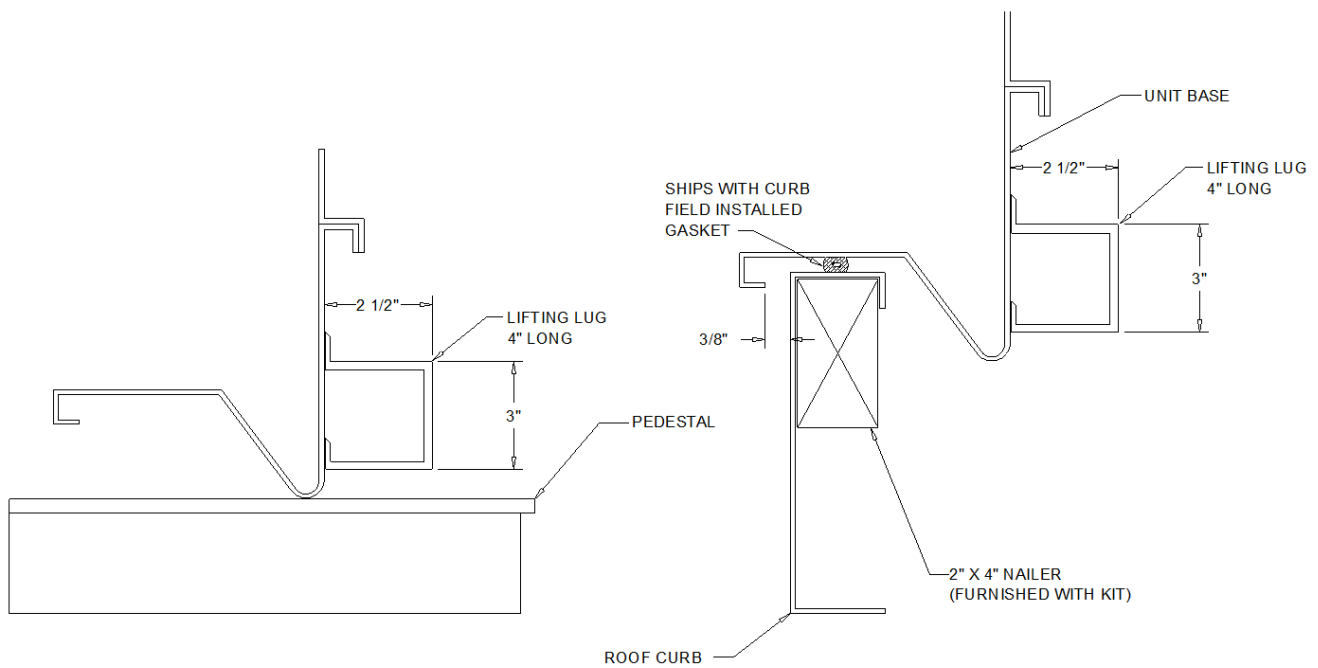
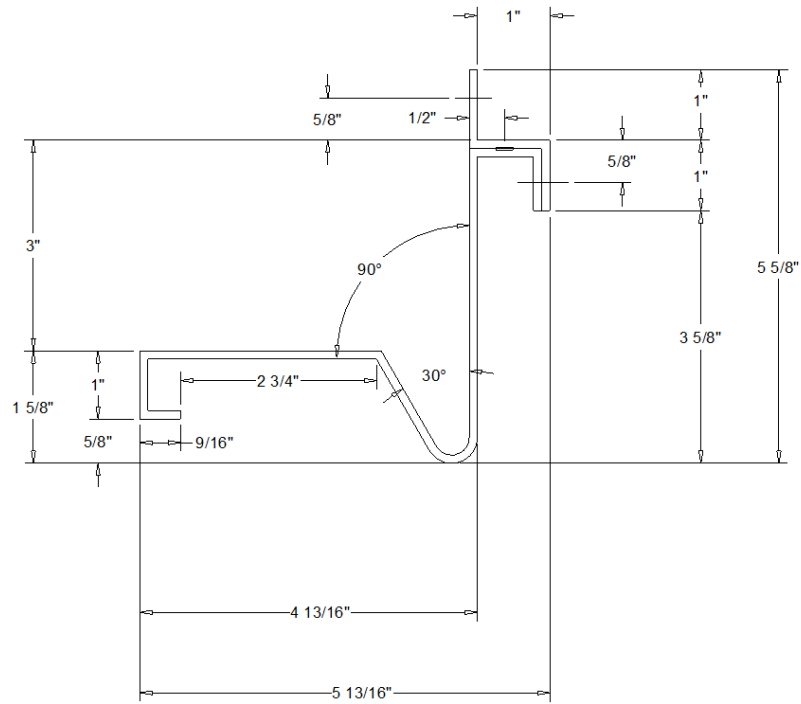
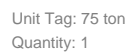
60/70/75 TON FRONT VIEW



60/70/75 TON LEFT SIDE VIEW



60/70/75 TON PLAN VIEW OF UNIT



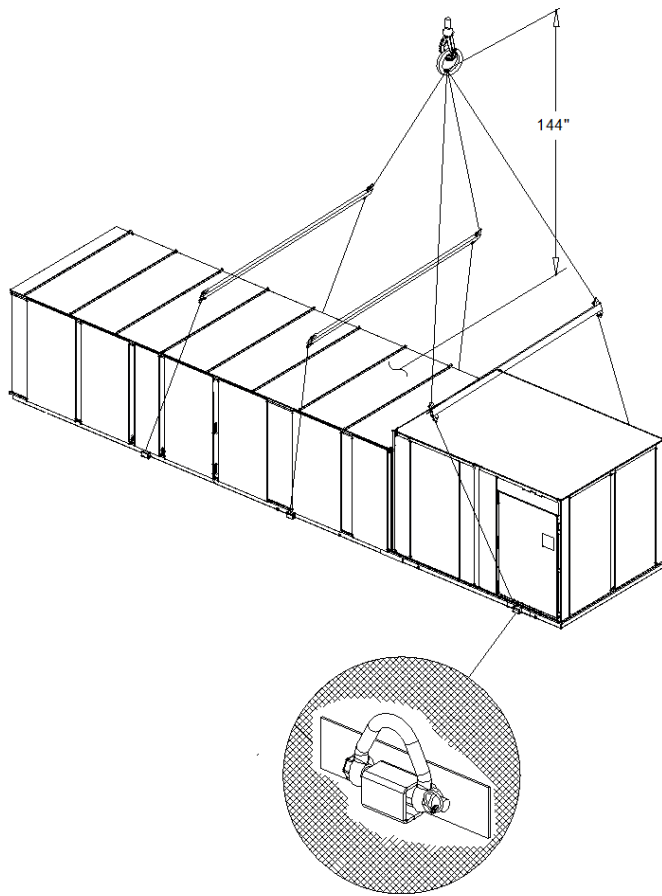


ELECTRICAL / GENERAL DATA

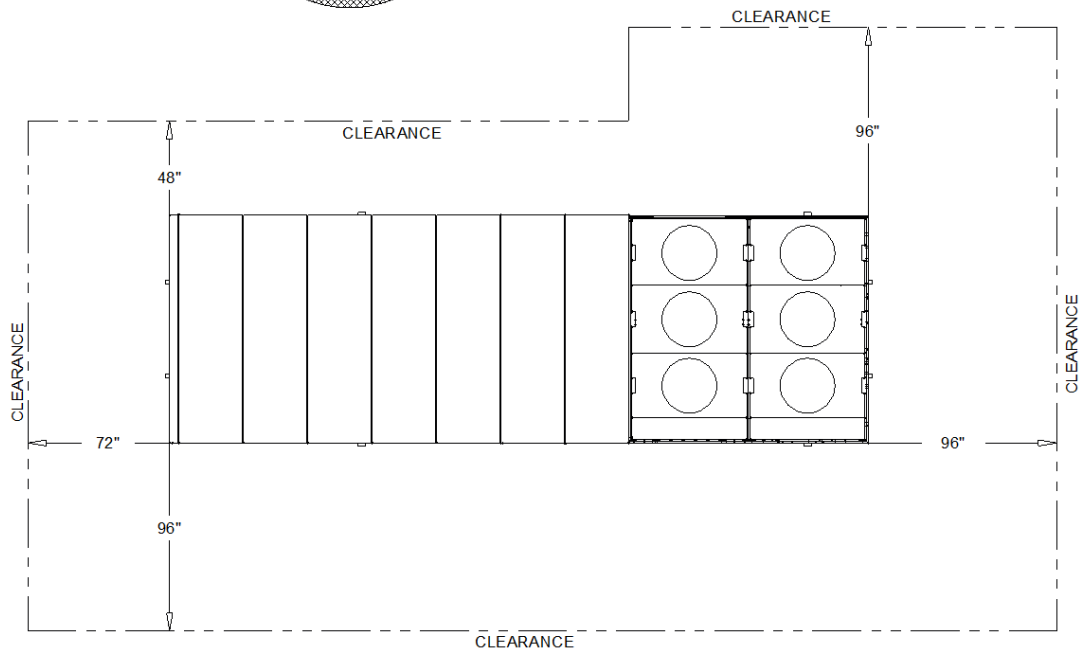
TONS Model (Tonnage): SXHLF75 (75Ton) Unit Operating Voltage Range: 414-506 Unit Primary Voltage: 460 Unit Hertz: 60 Unit Phase: 3 EER: 10.7 EER IEER: 16.3 EER	GAS HEATING - PERFORMANCE Heating Input: Heating Output: Capacity Steps: HEATING - GENERAL DATA Gas inlet pressure: (in w.c.) Gas Pipe Connection Size:
COMPRESSOR Compressor 1 Count: 2.00 Each Compressor 1 RLA: 37.20 A Compressor 2 Count: 2.00 Each Compressor 2 RLA: 25.40 A Compressor 3 Count: Value not available Compressor 3 RLA: Value not available	ELECTRIC HEATER Electric Heater Kw: Electric Heater Full Load Amps:
SUPPLY FAN MOTOR Number of Fans: 2.00 Each Number of Motors: 2 Total Horsepower: (8) 40 hp DDP 80% width Supply Fan Motor Full Load Amps: 24.70 A Supply Fan Efficiency: 63.01 %	EXHAUST / RETURN FAN MOTOR SECTION Number: Value not available Horsepower (Each): 100% -Exhaust 7.5 Hp w/Statitrac Exhaust/Return Fan Motor FLA: 9.80 A
CONDENSER FAN MOTOR Number: 6 Horsepower (each): 1.0 Condenser Fan Motor Full Load Amps (Total): 10.8	FILTERS - TYPE Type: Furnished: YES Number: 35 Recommended Size: 16" x20" x2" PREFILTERS Furnished: Number: Recommended Size:
EVAPORATIVE CONDENSER (7) Pump Horsepower: N/A Pump Full Load Amps: N/A Sump Heater Full Load Amps: N/A Sump Heater kW: N/A	
REFRIGERANT TYPE (6) Charge Type: R-410A Factory Charge (Circuit #1): 52.0 lb Factory Charge (Circuit #2): 50.5 lb	FINAL FILTERS - TYPE Type: Cartridge Furnished: Yes Number: 6/8 Recommended Size: 12"x24"x12" / 24"x24"x12" PREFILTERS Furnished: Prefilters Number: Yes Recommended Size: 6/8 12"x24"x2" / 24"x24"x2"

Notes:

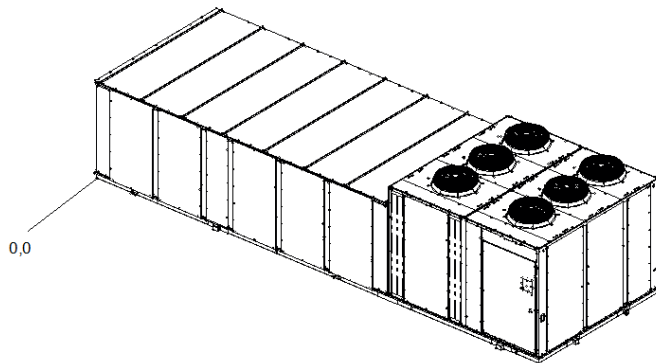
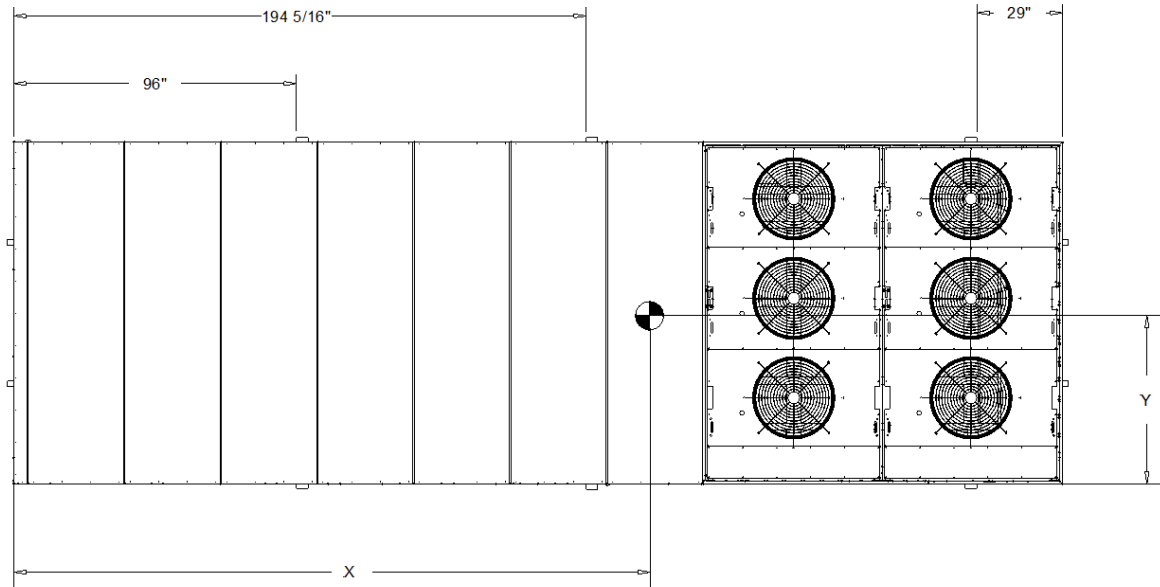
- LOAD 1=Current of the largest motor (compressor or fan motor); LOAD 2=Sum of the currents of all remaining motors; LOAD 3 =Current of electric heaters
LOAD 4 =Control Power Transformer (20-40 and 24-48 ton units add 3 FL amps for wire sizing formula, 50-75 and 59 - 89 ton units add 6 FL amps)
- For Electric Heat MCA, MOP, RDE values, calculate for both cooling and heating modes. (When determining LOADS, the compressors do not operate when the unit is in heating mode) (On 70-89 ton single source units, heating Load 4 = 12 amps on 200,230 volt units and 9 amps on 460,575 volt units)
- If selected Max Over Cur is less than the Min Cir Amp, then select the lowest maximum fuse size which is equal to or larger than the Min Cir Amp, provided the selected fuse size does not exceed 800 amps.
- If the selected Recommended Dual Element fuse size is greater than the selected Max Over Cur Protection value, then select the Recommended Dual Element fuse size value to equal the Max Over Protection value.
- Compressor KW at AHRI rating conditions of 80/67 -95
- Refrigerant charge is an approx. value. For a more precise value, see unit nameplate and service instructions.
- Sump Heater is an optional feature.
- Total Horsepower is the combined Horsepower for the Supply Fan Motors.



Note:
When 2 or more units are to be placed side by side, the distance between the units should be increased to 150% of the recommended single unit clearance. The units should also be staggered to reduce span deflection & assure proper diffusion of exhaust air.



RIGGING AND CLEARANCE
AIR COOLED DRAWING



Center of Gravity X:	17.72 ft	Point load X location 1:	4.000 in
Center of Gravity Y:	4.98 ft	Point load X location 2:	101.000 in
Point Load 1:	805.4 lb	Point load X location 3:	187.000 in
Point Load 2:	884.7 lb	Point load X location 4:	274.000 in
Point Load 3:	984.0 lb	Point load X location 5:	370.000 in
Point Load 4:	1,063.3 lb	Point load X location 6:	N/A
Point Load 5:	1,142.4 lb	Point load X location 7:	N/A
Point Load 6:	1,221.7 lb	Point load X location 8:	N/A
Point Load 7:	1,302.6 lb	Point load X location 9:	N/A
Point Load 8:	1,381.9 lb	Point load X location 10:	N/A
Point Load 9:	1,479.3 lb	Point load Y location 1:	4.000 in
Point Load 10:	1,558.7 lb	Point load Y location 2:	112.000 in

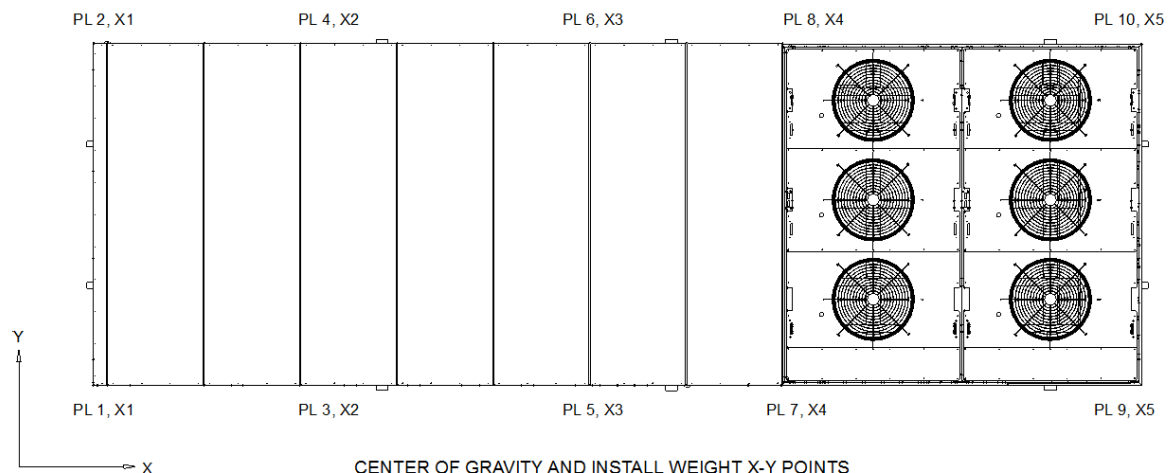
Total Weight: 11,823.9 lb

Added Weight

1. Double wall : (3) N/A

Notes:

1. The actual weight is stamped on the unit nameplate.
2. The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10% of the nameplate weight.
3. Add weight to the total unit weight.
4. Design Special weights are not displayed. Any weight added through COD (Custom Order Design) will not be accounted in the +/- 10% estimate
5. When 2 or more units are to be placed side by side, the distance between the units should be increased to 150% of the recommended single unit clearance. The units should also be staggered to reduce span deflection & assure proper diffusion of exhaust air.





WARNING

HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.

FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.



AVERTISSEMENT

TENSION DANGEREUSE!

COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS A DISTANCE, PUIS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ETIQUETTES AVANT TOUTE INTERVENTION. VERIFIER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DECHARGES. DANS LE CAS D'UNITES COMPORTANT DES ENTRAINEMENTS A VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAINEMENT POUR DECHARGER LES CONDENSATEURS.

NE PAS RESPECTER CES MESURES DE PRECAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ETRE MORTELLES.



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¡VOLTAGE PELIGROSO!

DESCONECTE TODA LA ENERGIA ELECTRICA, INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAGE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCION DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.

EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRIA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

CAUTION

USE COPPER CONDUCTORS ONLY!

UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.

FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

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N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!

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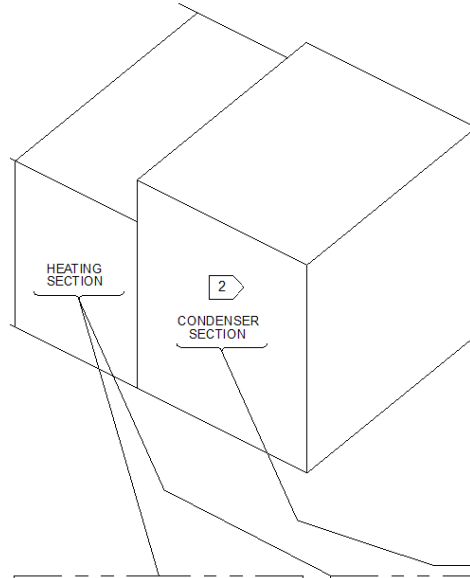
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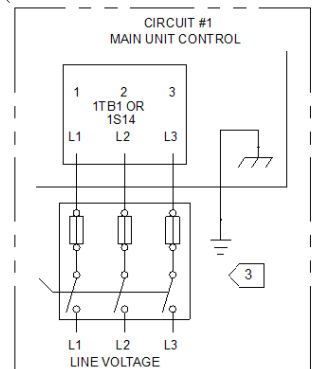
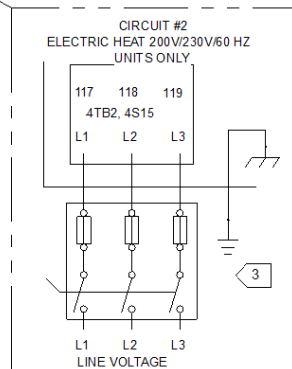
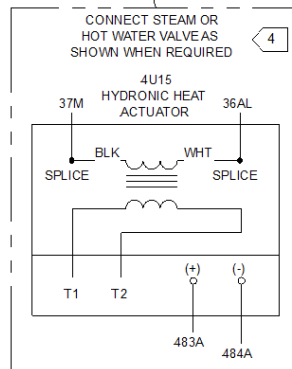
DO NOT ENERGIZE UNIT UNTIL CHECK-OUT AND START-UP PROCEDURE HAS BEEN COMPLETED.



DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	INSIDE UNIT CONTROL BOX
2	CONDENSER SECTION
3	AIR HANDLER SECTION
4	HEATING SECTION
5	EXTERNAL FIELD MOUNTED DEVICE

Note:

All wiring and components shown dashed to be supplied and installed by the customer in accordance with local electrical codes.





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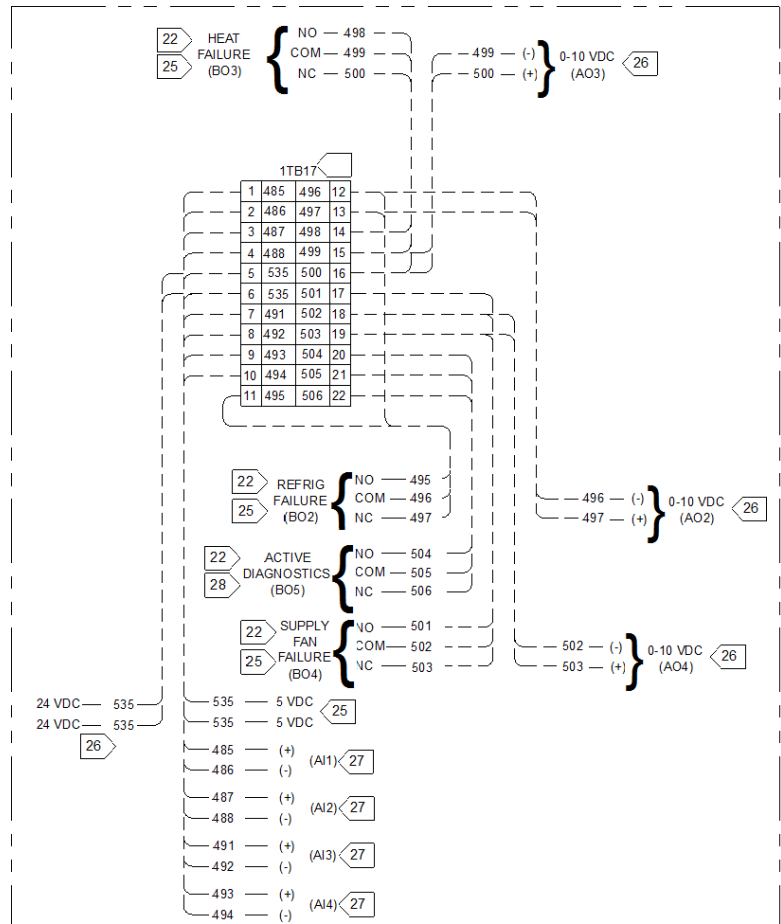
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2	CONDENSER SECTION
3	AIR HANDLER SECTION
4	HEATING SECTION
5	EXTERNAL FIELD MOUNTED DEVICE

Note:

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NOTES:

- 1 ALL WIRING AND COMPONENTS SHOWN DASHED TO BE SUPPLIED AND INSTALLED BY THE CUSTOMER IN ACCORDANCE WITH LOCAL ELECTRICAL CODES.
- 2 CUSTOMER CONNECTIONS - MAIN UNIT CONTROL (CIRCUIT #1) - ARE LOCATED IN THE CONDENSER SECTION FOR 20 THRU 75 TON UNITS.
- 3 SEE CUSTOMER CONNECTION WIRE RANGE TABLE FOR ACCEPTABLE WIRE SIZES FOR CONNECTION TO MAIN UNIT TERMINAL BLOCK (1TB1/4TB2) OR DISCONNECT SWITCH (1S14/4S15).
- 4 WIRES TO THE OPTIONAL STEAM AND/OR HOT WATER HEAT VALVE ARE SUPPLIED WITH THE UNIT. WIRE CONNECTIONS TO THE VALVE TO BE MADE BY THE CUSTOMER.
- 6 OPTIONAL 5U57 REMOTE ZONE TEMP SENSOR IS USED FOR UNOCCUPIED HEAT/COOL TEMP CONTROL SENSING.
- 7 WHEN 5U69 REMOTE ZONE TEMP SENSOR IS USED, REMOVE 5U58 INTEGRAL ZONE TEMP SENSOR ATTACHED TO TERMINALS S1 AND S2.
- 8 WIRES USE SHIELDED TWISTED PAIR WIRE.
- 9 USE SHIELDED TWISTED PAIR WIRE. WRAP SHIELDS WITH TAPE TO PREVENT CONTACT WITH GROUND.
- 10 REMOVE JUMPER (1TB4-15 & 1TB4-16) AND INSTALL HIGH DUCT TEMP T-STAT /OR FIELD SUPPLIED DEVICE.
- 11 REMOVE JUMPER (1TB4-17 & 1TB4-18) WHEN FIELD SUPPLIED EXTERNAL AUTO/STOP SWITCH (5S67) IS INSTALLED.
- 12 CHANGEOVER (5K87) AVAILABLE ONLY ON HYDRONIC HEAT UNITS OR MODULATING GAS HEAT UNITS.
- 13 ALARM OUTPUT SWITCHES ON ANY MANUAL RESET DIAGNOSTIC.
- 14 OPTIONAL HEAT MODULE AUX. TEMP (5RT16) IS USED FOR MORNING WARM-UP CONTROL ON UNITS WITH HEATING OPTION.
- 15 TERMINAL BLOCK 1TB17 AND ASSOCIATED WIRING REQUIRED WITH GBAS (1U51) OPTION. DEMAND LIMIT RELAY (5K89) TO BE PROVIDED BY CUSTOMER.
- 16 VENTILATION OVERRIDE MODE CONTACTS RATED 12MA @ 24VDC MINIMUM (5K90 - 5K91 - 5K92 - 5K93 - 5K94) TO BE PROVIDED BY CUSTOMER.
- 17 WIRE NODES 533 & 534 REQUIRED WITH BAS/NETWORK COMM MODULE (1U54) OPTION. USE SHIELDED TWISTED PAIR WIRE.
- 18 FIELD CONNECTIONS TO DRIVE VAV BOXES FULL OPEN DURING NIGHT SETBACK MODE.
- 19 15A FUSE REPLACEMENT IS REQUIRED FOR 50 THRU 60 TON - 0.50 KVA TRANSFORMER WITH 200V - 230V - 460V OR 575V UNIT VOLTAGE.
20A FUSE REPLACEMENT IS REQUIRED FOR 50 THRU 60 TON - 0.50 KVA TRANSFORMER WITH 380V OR 415V UNIT VOLTAGE.
- 21 CONTACTS RATED 12 MA @ 24VDC MINIMUM.
- 22 CONNECT TO 24VAC CLASS 2 CIRCUITS ONLY.
- 23 REMOVE JUMPER WHEN OPTIONAL FIELD SUPPLIED OUTSIDE AIR SENSOR (3RT3) IS INSTALLED AND THE UNIT DOES NOT HAVE ECONOMIZER.
- 24 FIELD SUPPLIED AND INSTALLED OCCUPIED/UNOCCUPIED CONTACTS (5K86) FOR USE ON UNITS WITHOUT REMOTE PANEL WITH NIGHT SETBACK (5U58).
- 25 GBAS 0-5V OPTION CONNECTIONS.
- 26 GBAS 0-10V OPTION CONNECTIONS.
- 27 FOR GBAS INPUTS AI1-AI4, "GBAS 0-5V" REQUIRES 0-5V VDC AND "GBAS 0-10V" REQUIRES 0-10VDC.
- 28 "ACTIVE DIAGNOSTICS (BO5)" APPEARS WITH BOTH "GBAS 0-5V" AND "GBAS 0-10V".
- 29 SEE FUSE REPLACEMENT TABLE ON VFD PANEL FOR VFD POWER FUSES (F40, F41, F42).
- 30 SWITCH A53, LOCATED ON THE VFD, MUST BE SET TO "U" (OFF).



FUSE REPLACEMENT TABLE												
CONDENSER FAN FUSE 1F1 THRU 1F6 CLASS RK5	UNIT VOLTAGE	200	230	380	415	460	575					
	TIME DELAY	25A	25A	15A	15A	15A	15A					
CONTROL POWER FUSE												
CONTROL (1T1) TRANSFORMER RATING		0.25 KVA	0.30 KVA	0.50 KVA	0.75 KVA	1.00 KVA	1.50 KVA					
1F7 CLASS CC - TYPE FNQ-R	20-30 TON	6.25A	6.25A	--	10A	--	--					
	40 TON	15A	20A	--	20A	--	--					
	50-60 TON	--	--	15A	--	20A	--					
	70-75 TON	--	--	--	--	15A	20A					
ELECTRIC HEAT FUSE	4F19 THRU 4F36, 4F46, 47, 48			CLASS K5			60A					
COMPRESSOR PROTECTION FUSE	1F44 & 1F45			TYPE MTH			6A					
TRANSFORMER CIRCUIT FUSE	1F72 THRU 1F74			TYPE FNQ-R			15A					
VFD PROTECTION FUSES (CLASS "T" FUSES) OPTIONAL SUPPLY VFD 1F57 - 1F62, OPTIONAL EXHAUST / RETURN VFD 1F63-1F65												
BELT DRIVE MOTOR 20-130 UNITS	UNIT VOLTAGE	FUSE RATING	3 HP	5 HP	7.5 HP	10 HP	15 HP	20 HP	25 HP	30 HP	40 HP	50 HP
	200V/60/3	600V	40A	60A	80A	100A	150A	200A	225A	300A	350A	N/A
	230V/60/3	600V	30A	45A	70A	90A	125A	175A	200A	250A	300A	N/A
	380V/50/3	600V	15A	30A	45A	50A	90A	100A	125A	150A	200A	N/A
	415V/50/3	600V	15A	30A	45A	50A	90A	100A	125A	150A	200A	N/A
	460V/60/3	600V	15A	25A	35A	45A	60A	90A	100A	125A	150A	200A
	575V/60/3	600V	15A	15A	25A	35A	50A	70A	60A	100A	125A	175A
OPTIONAL DIRECT DRIVE MOTOR 20-59 UNITS	UNIT VOLTAGE	FUSE RATING	3 HP	5 HP	7.5 HP	10 HP	15 HP 1K-1.6K RPM	15 HP 1.7K-2.4K RPM	20 HP	25 HP	30 HP	
	200V/60/3	600V	40A	60A	80A	100A	150A	150A	200A	225A	300A	
	230V/60/3	600V	25A	45A	70A	90A	125A	125A	175A	200A	250A	
	460V/60/3	600V	15A	25A	35A	45A	70A	60A	90A	100A	125A	
	575V/60/3	600V	15A	15A	25A	35A	50A	50A	70A	80A	100A	
OPTIONAL DIRECTMDIVE MOTOR 60-89 TON	UNIT VOLTAGE	FUSE RATING	10HP	15 HP 1K-1.6K RPM	15 HP 1.7K-2.4K RPM	20HP	30 HP 1K-1.6K RPM	30 HP 1.7-2.4K RPM	40HP	50HP		
	200V/60/3	600V	125A	175A	150A	200A	300A	150A	350A	N/A		
	230V/60/3	600V	95A	150A	125A	175A	250A	250A	300A	N/A		
	460V/60/3	600V	45A	70A	60A	90A	125A	125A	150A	200A		
	575V/60/3	600V	40A	60A	50A	70A	125A	100A	125A	175A		
CUSTOMER CONNECTION WIRE RANGE												
NOTES:		UNITS WITH MAIN POWER TERMINAL BLOCK (ALL VOLTAGES)				UNITS WITH MAIN POWER DISCONNECT SWITCH (ALL VOLTAGES)						
A. BLOCK SIZE & DISCONNECT SIZE ARE CALCULATED BY SELECTING THE SIZE GREATER THAN OR EQUAL TO 1.15 X (SUM OF UNIT LOADS). SEE UNIT LITERATURE FOR UNIT LOAD VALUES.		BLOCK SIZE	WIRE QTY	CONNECTOR WIRE RANGE		DISCONNECT SIZE	WIRE QTY	CONNECTOR WIRE RANGE				
		335 AMP	(1)	#6 - 350 MCM		100 AMP	(1)	#14 - 1/0				
		760 AMP	(2)	#4 - 500 MCM		250 AMP	(1)	#4 - 350 kcmil				
		840 AMP	(2)	#2 - 600 MCM		400 AMP	(1) OR	#1 - 600 kcmil OR				
							(2)	#1 - 250 kcmil				
						600 AMP	(2)	250 - 500 MCM				
						1000 AMP	(3)	3/0 - 500 kcmil				
OPTIONAL CONVENIENCE OUTLET FUSE 1F55 AND 1F56 (TIME DELAY TYPE FNQ-R FUSE)		200V/60/3	230V/60/3	380V/50/3	415V/50/3	460V/60/3	575V/60/3					
		12A	10A	N/A	N/A	5A	4A					



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AVERTISSEMENT

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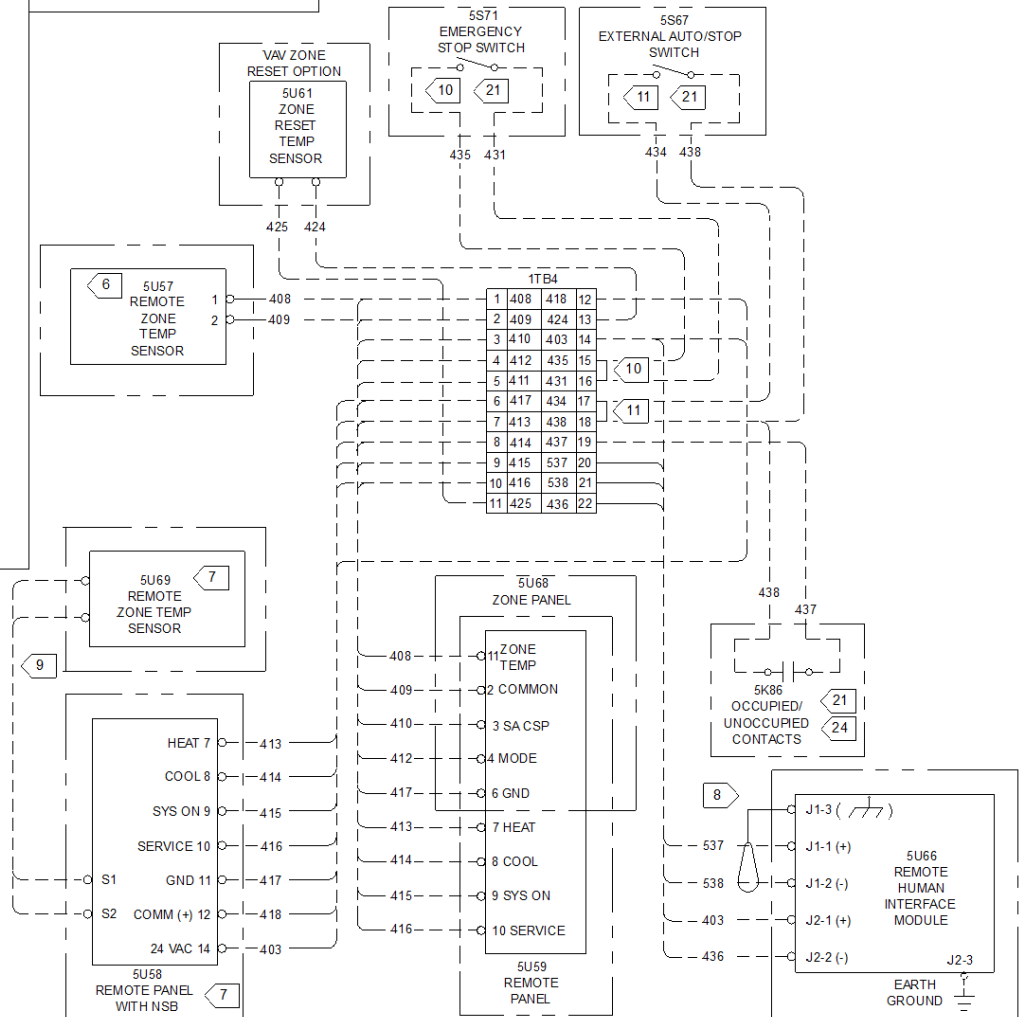
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DEVICE PREFIX LOCATION CODE	
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Note:
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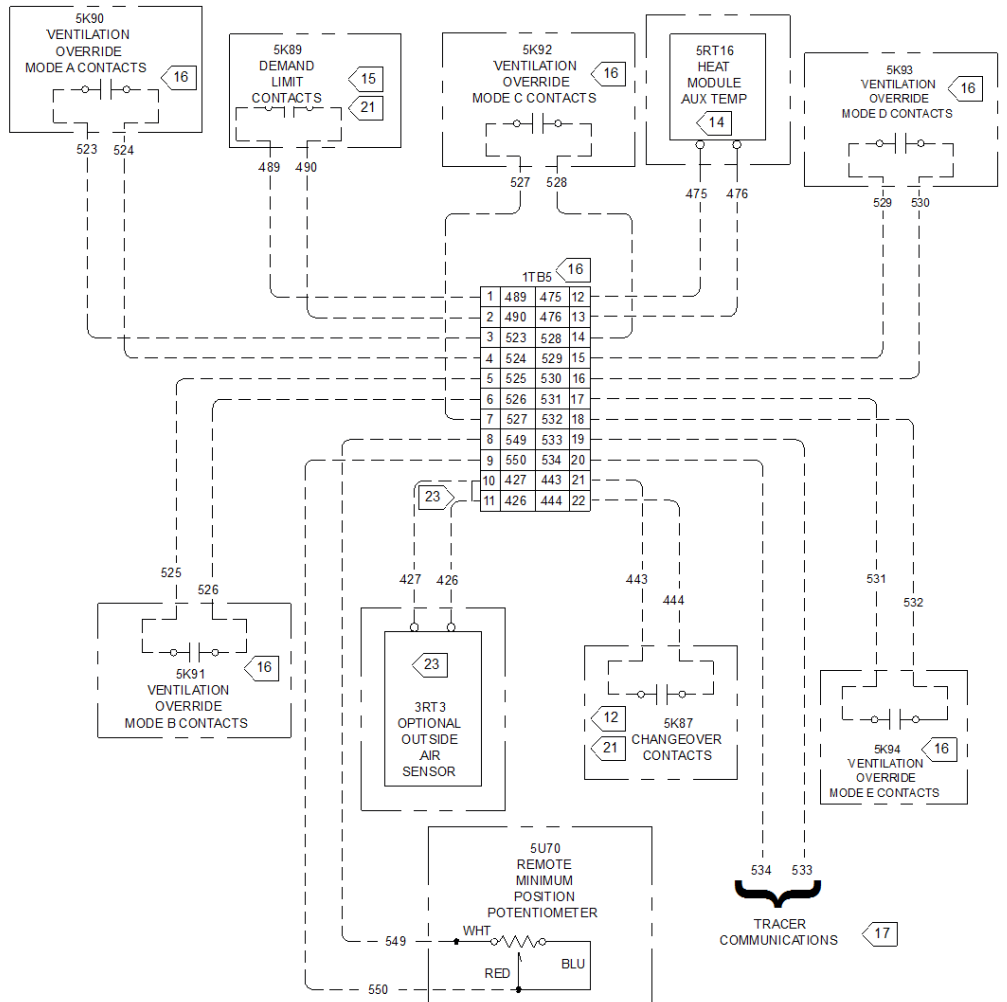
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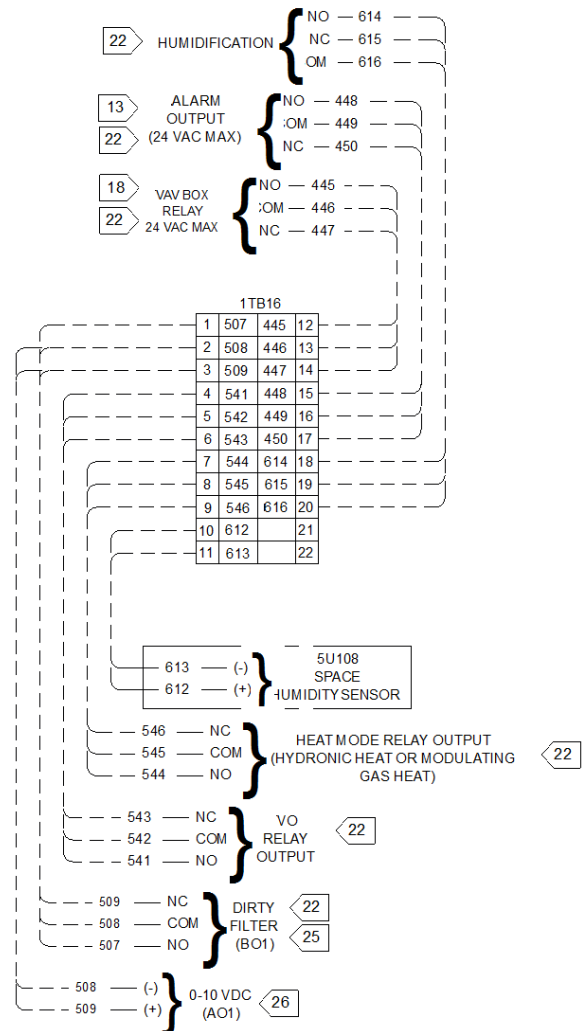
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DANFOSS VARIABLE FREQUENCY DRIVE PROGRAMMING PARAMETERS			
MENU	PARAMETER	DESCRIPTION	SETTING
LOAD/MOTOR	1-21	MOTOR POWER	SET ONLY FOR APPLICATIONS USING 3HP HIGH EFFICIENCY MOTORS
	1-22	MOTOR VOLTAGE	SET ONLY FOR 200/230V 60HZ 380/415V 50HZ APPLICATIONS
	1-24	MOTOR CURRENT	SET BASED ON MOTOR NAMEPLATE
	1-25	MOTOR NOMINAL SPEED	1800 RPM
	1-73	FLYING START	ENABLED
BRAKES	2-01	DC BRAKE CURRENT	0%
REFERENCE/ RAMPS	3-15	REFERENCE 1 SOURCE	ANALOG INPUT 53 30
	3-41	RAMP 1 RAMP UP TIME	30 SECONDS
	3-42	RAMP 1 RAMP DOWN TIME	30 SECONDS
LIMITS/ WARNINGS	4-12	MOTOR SPEED LOW LIMIT	22HZ
	4-18	CURRENT LIMIT	100% RATED CURRENT
DIGITAL IN/OUT	5-40[0]	FUNCTION RELAY 1	NO ALARM
	5-40[1]	FUNCTION RELAY 2	RUNNING
SPECIAL FUNCTIONS	14-01	SWITCHING FREQUENCY	4.5KHZ
	14-12	FUNCTION AT MAINS IMBALANCE	DERATE
	14-20	RESET MODE	AUTOMATIC RESET X 3
	14-60	FUNCTION AT OVER TEMPERATURE	DERATE

General - R410A

Units shall be specifically designed for outdoor rooftop installation on a roof curb and be completely factory assembled and tested, piped, internally wired, fully charged with R-410A compressor oil and shipped in one piece. Units shall be available for direct expansion cooling only, or direct expansion cooling with natural gas, electric, hot water or steam heating. Filters, outside air system, exhaust air system, optional non-fused disconnect switches and all operating and safety controls shall be furnished factory installed. All units shall be cULus approved and factory run tested. Cooling capacity shall be rated in accordance with AHRI Standard 360. All units shall have decals and tags to aid in service and indicate caution areas. Electrical diagrams shall be printed on long life water resistant material and shall ship attached to control panel doors.

Casing

Exterior panels shall be zinc coated galvanized steel, phosphatized and painted with a slate grey air-dry finish durable enough to withstand a minimum of 672 hours consecutive salt spray application in accordance with standard ASTM B117. Screws shall be coated with zinc-plus-zinc chromate. Heavy gauge steel hinged access panels with tiebacks to secure door in open position shall provide access to filters and heating sections. Refrigeration components, supply air fan and compressor shall be accessible through removable panels as standard. Unit control panel, filter section, and gas heating section shall be accessible through hinged access panels as standard. Optional Double Wall Construction hinged access doors shall provide access to filters, return/exhaust air, heating and supply fan section. All access doors and panels shall have neoprene gaskets. Interior surfaces or exterior casing members shall have 1/2" Tuf-Skin fiberglass insulation. Unit base shall be watertight with heavy gauge formed load bearing members, formed recess and curb overhang. Unit lifting lugs shall accept chains or cables for rigging. Lifting lugs shall also serve as unit tiedown points.

IntelliPak Replacement Unit (IRU)

The IntelliPak replacement solution shall include a condenser base pan, strengthening of the condenser section with welded reinforcement of condenser base rail, as well as welded integral supports to the condenser base. This additional strength shall allow the reuse of the existing pedestal as well as any Trane full perimeter curb and reduce installation risk and labor. Also optional with stainless steel.

Hinged Access Doors

Hinged access doors shall provide easy access to supply fan, filters, exhaust/return fan, and heating section. These access doors shall feature double wall construction with dual density insulation sandwiched between heavy gauge galvanized steel panels for strength and durability.

Air-Cooled Condenser Coil - R410A

Condenser coils shall have all Aluminum Microchannel coils. All coils shall be leak tested at the factory to ensure pressure integrity. The condenser coil is pressure tested to 650psig Subcooling circuit(s) shall be provided as standard.

Condenser Fans and Motors

All condenser fans shall be vertical discharge, direct drive fans, statically balanced, with aluminum blades and zinc plated steel hubs. Condenser fan motors shall be three-phase motors with permanently lubricated ball bearings, built-in current and thermal overload protection and weathertight slingers over motor bearings.

Evaporator Coil - R410A

Internally enhanced copper tubing of 3/8" or 1/2" O.D. shall be mechanically bonded to heavy duty aluminum fins of configured design. All coils shall be equipped with thermal expansion valves and factory pressure and leak tested.

Compressors - R410A

The Trane Scroll compressor shall be industrial grade, direct drive 3600 RPM maximum speed scroll type. The motor shall be suction gas-cooled hermetic design. Compressor shall have centrifugal oil pump with dirt separator, oil sight glass, and oil charging valve. Compressor shall also be provided with thermostatic motor winding temperature control to protect against excessive motor temperatures resulting from over-/under-voltage or loss of charge, high and low pressure cutouts, and reset relay.



High Efficiency Unit

High efficiency unit shall meet ASHRAE 189.1-2011 and CEE Tier 2 Commercial Unitary AC and HP Specification for utility rebate requirements.

Phase Monitor

Shall protect 3-phase equipment from phase loss, phase reversal, and low voltage. Any fault condition shall produce a Failure Indicator LED, and send the unit into an emergency stop condition. cULus approved. (Standard on 20-75T units)

Supply Fan

Supply fan motors shall be either open drip-proof or enclosed fan cooled. All supply fans shall be dynamically balanced in factory. Supply fan shall be test run in unit and shall reach rated rpm. All 60 Hz supply fan motors meet the Energy Independence Security Act of 2007 (EISA). All 50 Hz supply fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).

Direct-Drive Plenum Supply Fan

Supply fan shall be [one] [two] single width, single inlet 9-blade plenum fan. Fan blades shall be aluminum backward-inclined airfoil. Plenum fans shall be direct-driven. Entire assembly shall be completely isolated from unit and fan board by 2" deflection spring isolation. Multiple fan widths shall be available to optimize efficiency. Fan shall not require routine maintenance such as fan bearing lubrication, belt tensioning and replacement, sheave alignment, and setscrew torque checks.

Variable Frequency Drive

Unit shall include factory-installed and tested variable frequency drive[s] (VFD) to provide motor speed modulation. The VFD shall receive a 0-10VDC speed signal from the unit controller. The drive will respond to the signal by accelerating or decelerating to maintain the controlling set point (duct static, space pressure, etc). VFD shall also include the following features:

1. Designed, constructed, and tested in accordance with NEMA ICS, NFPA, and IEC standards and housed in a plastic IP20 enclosure.
2. DC link reactors on both the positive and negative rails of the DC bus equal to 3% impedance to minimize power line harmonics.
3. Full rated output current continuously - 110% of rated current for 60 seconds and 160% of rated current for up to 0.5 second while starting.
4. Isolation between the Drive's power circuitry and control circuitry to ensure operator safety and to protect connected electronic control equipment
from damage caused by voltage spikes, current surges, and ground loop currents.
5. Audible noise reduction through automatic adjustment of the carrier frequency and frequency avoidance.
6. Rated at 40C with a standard operating range of -10 to 50C (14 to 124F) ambient temperatures and 0 to 95% relative humidity
7. Self-diagnostics and motor protections such as: cULus listed overload, phase loss, and internal thermal overload.
8. Off/Stop and Auto/Start selector switches to start and stop the AC Drive and determine the speed reference.
 - a. On units with bypass, an AC Drive/Off/Bypass hand selector switch shall be provided in the unit control box
 - b. In DRIVE mode speed reference shall be provided by a 0-10 VDC analog input
9. A keypad interface which shall be programmable by language and feature multiple lines for easy reading.
10. Controlled and/or accessible points such as AC Drive Start/Stop, speed reference, and fault diagnostics.
11. Meter points such as motor power in HP, motor power in kW, motor kW-hr, motor current, motor voltage, hours run, DC link voltage, thermal load
on motor, Thermal load on AC Drive and Heatsink temperature.
12. Troubleshooting features such as:
 - a. AC Drive memory storage of the last 10 faults and related operational data
 - b. Four simultaneous displays: frequency or speed, run time, output amps and output power
 - c. Keypad which shall display: Reference Signal Value, Output Frequency in Hz or percent, Output Amps, Motor HP, Motor kW, kW
13. Coated circuit boards for protection against corrosive environments
14. Field readable BACnet points to allow for communication of status, setpoints and diagnostics to the BAS.

Bypass control

Shall provide full nominal airflow in the event of drive failure.

Extended Grease Lines

Lines shall be provided to allow greasing of supply and exhaust/return fan bearings through the filter access door.

Two-inch Spring Isolators

Supply and Exhaust/Return fan (if applicable) assemblies shall be isolated with two-inch nominal deflection to reduce transmission of vibrations

Modulating 100 Percent Exhaust Fan with Statitrac Control

Two, double-inlet, forward-curved fans shall be mounted on a common shaft with fixed sheave drive. All fans shall be dynamically balanced and tested in factory before being installed in unit. Exhaust fan shall be test run as part of unit final run test. Unit shall reach rated rpm before fan shaft passes through first critical speed. Fan shaft shall be mounted on two grease lubricated ball bearings designed for 200,000-hour average life. Optional extended grease lines shall be provided to allow greasing of bearings from unit filter section. Fan motor and assembly shall be mounted on common base to allow consistent belt tension with no relative motion between fan and motor shafts. Entire assembly shall be completely isolated from unit and fan board by double deflection, rubber in shear isolators or spring isolation on motor sizes larger than five hp. For both CV and VAV rooftops, the 100 percent modulating exhaust discharge dampers (or VFD) shall be modulated in response to building pressure. A differential pressure control system, (Statitrac), shall use a differential pressure transducer to compare indoor building pressure to outdoor ambient atmospheric pressure. The FC exhaust fan shall be turned on when required to lower building static pressure setpoint. The (Statitrac) control system shall then modulate the discharge dampers (or VFD) to control the building pressure to within the adjustable, specified dead band that shall be adjustable at the Human Interface Panel. All 60 Hz exhaust fan motors meet the Energy Independence Security Act of 2007 (EISA).

0-100 percent modulating economizer

Operated through the primary temperature controls to automatically utilize OA for "free" cooling. Automatically modulated return and OA dampers shall maintain proper temperature in the conditioned space. Economizer shall be equipped with an automatic lockout when the outdoor high ambient temperature is too high for proper cooling. Minimum position control shall be standard and adjustable at the Human Interface Panel or with a remote potentiometer or through the building management system. A spring return motor shall ensure closure of OA dampers during unit shutdown or power interruption. Mechanical cooling shall be available to aid the economizer mode at any ambient. Low leak economizer dampers shall be standard with a leakage rate of 2.5 percent of nominal airflow (400 CFM/ton) at 1" wg. static pressure.

Economizer Control with Dry Bulb

An outdoor temperature sensor shall be included for comparing the outdoor dry bulb temperature to a locally adjustable temperature setpoint. The setpoint shall be programmed at the human interface, or remote human interface, to determine if outdoor air temperature is suitable for economizer operation.

Ultra-Low Leak Damper

Economizer return and fresh air dampers shall be provided with horizontal airfoil blades and spring-return actuators. The economizer shall have a functional life of 60,000 opening and closing cycles. Dampers shall be AMCA 511 Class 1A certified with a maximum leakage rate of 3 CFM/sqft at 1.0 inWC pressure differential thus exceeding requirements of ASHRAE 90.1-2013, California Title 24-2013, and IECC-2012. Fault Detection and Diagnostic (FDD) control will also be provided with Ultra Low Leak Economizers. FDD control monitors the commanded position of the economizer compared to the feedback position of the damper. If the damper position is outside +/- 10% of the commanded position, a diagnostic is generated.

Ultra-Low Leak motorized exhaust dampers will be provided when the Ultra-Low Leak Economizer is ordered with an exhaust/return option that includes motorized dampers. Ultra Low Leak motorized exhaust dampers will be AMCA 511 Class 1A certified with a maximum leakage rate of 3 CFM/sq-ft at 1.0 inWC pressure differential. This exceeds the most stringent requirements of ASHRAE 90.1 and IECC (4 CFM/sq-ft at 1.0 inWC pressure differential).

Traq (Outside Air Measurement)

Traq shall include Ventilation Control Module (VCM). The VCM shall be linked to the Intellipak UCM to control the minimum fresh air entering the unit. Using a velocity pressure sensing ring, the VCM monitors and controls the quantity of fresh air entering the unit. This allows it to control to the minimum outside airflow setpoint. An optional temperature sensor can be connected to the VCM which enables it to control a field installed fresh air preheater; and an optional carbon dioxide sensor can be connected to the VCM to control the carbon dioxide reset. Option is cULus approved.

Demand Control Ventilation

Provide demand control ventilation (DCV) system fully integrated with unit economizer. Controller shall minimize fresh air intake during periods of low occupancy based on parts per million space CO2 in response to a customer defined parts per million CO2 setpoint. CO2 setpoint, and minimum DCV fresh air damper position shall be programmable at the human interface, or building management system. Note: CO2 sensor used with Demand Control Ventilation must be powered from an external power source or separate 24 VAC transformer.

High efficiency throwaway, MERV 8

Shall be two-inch high efficiency MERV 8 media filters with average dust spot efficiency of 25-35 percent and an average arrestance in excess of 90 percent when tested in accordance with ASHRAE 52-76.

90-95 Percent, Cartridge, Final Filter Option, MERV 14 - Final Filters

Twelve-inch deep cartridge filters shall be mounted in a galvanized steel frame. Filters shall be Class 1 listed by Underwriters Laboratories and have a 90-95% dust spot efficiency per ASHRAE 52-76. Final filter section filter options shall mount integral within the blank section unit casing and be accessible by hinged access doors.

Note: Available on cooling only SX units

Design Special - Final Filters

Option shall provide additional filtering of discharge air before it enters building ductwork. The entire extended casing section of the unit shall be sheet metal lined with solid panels, except vertical supports which are foil faced lined. 90-95% bag filters are available in extended casing units only. Final filters shall hang approximately 12 inches over the discharge opening. A safety grate shall be provided to prevent the filters from entering the discharge ductwork. Additional access doors shall be provided on both sides of the unit for filter removal.

Unit Controller

DDC microprocessor controls shall be provided to control all unit functions. The control system shall be suitable to control CV or VAV applications. The controls shall be factory-installed and mounted in the main control panel. All factory-installed controls shall be fully commissioned (run tested) at the factory. The unit shall have a Human Interface Panel with a 16 key keypad, a 2 line X 40 character clear English display as standard to provide the operator with full adjustment and display of control data functions. The unit controls shall be used as a stand-alone controller, or as part of a building management system involving multiple units.

1

The unit shall be equipped with a complete microprocessor control system. This system shall consist of temperature and pressure (thermistor and transducer) sensors, printed circuit boards (modules), and a unit mounted Human Interface Panel. Modules (boards) shall be individually replaceable for ease of service. All microprocessors, boards and sensors shall be factory mounted, wired and tested. The microprocessor boards shall be stand-alone DDC controls not dependent on communications with an on-site PC or a Building Management Network. The microprocessors shall be equipped with on-board diagnostics, indicating that all hardware, software and interconnecting wiring are in proper operating condition. The modules (boards) shall be protected to prevent RFI and voltage transients from affecting the board's circuits. All field wiring shall be terminated at separate, clearly marked terminal strip. Direct field wiring to the I/O boards is not acceptable. The microprocessor's memory shall be non-volatile EEPROM type requiring no battery or capacitive backup, while maintaining all data.

2

Zone sensors shall be available in several combinations with selectable features depending on sensor.

3

The Human Interface Panel's keypad display character format shall be 40 characters x 2 lines. The character font shall be 5 x 7 dot matrix plus cursor. The display shall be Supertwist Liquid Crystal Display (LCD) with blue characters on a ray/green background which provides high visibility and ease of interface. The display format shall be in clear English. Two or three digit coded displays are not acceptable.

4

The keypad shall be equipped with 16 individual touch-sensitive membrane key switches. The switches shall be divided into four separate sections and be password protected from change by unauthorized personnel. The six main menus shall be STATUS, SETPOINTS, DIAGNOSTICS, SETUP, CONFIGURATION and SERVICE MODE.

BACnet Communication Interface Module

Option shall provide control and monitoring of the rooftop by Tracer SC or a 3rd party building management system utilizing BACnet protocol.

Unit Interrupt Rating (Standard Short Circuit Current Rating-SCCR)

A 5,000 Amp rating shall be applied to the unit enclosure using a non-fused circuit breaker for disconnect switch purposes. Fan motors, compressors, and electric heat circuits shall be provided with protective devices that will provide the unit rated level of fault protection. The unit shall be marked with approved cULus markings and will adhere to cULus regulations.

Equipment manufactured by Trane that includes required start-up and sold in North America will not be warranted by Trane unless Trane or its authorized independent Trane commercial sales office performs the startup on the equipment.



Certified AHRI Performance

Packaged Rooftop units cooling, heating capacities and efficiencies are rated within the scope of the Air-Conditioning, Heating & Refrigeration Institute (AHRI) Certification Program and display the AHRI Certified® mark as a visual confirmation of conformance to the certification sections of AHRI Standard 340-360 (I-P) and ANSI Z21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces.

The applications in this catalog specifically excluded from the AHRI certification program are:

- Ventilation modes
- Heat Recovery.
- Units larger than nominal 63 tons in Cooling
- Evaporative Condensers

Fan Details

Unit Size

Operating Brake
Power

32.64 bhp

Operating Airflow 22,000 cfm

Altitude

0

Operating Static
Pressure

5.941 in H2O

Design Temp.

80.00 F

Operating RPM 1,887 rpm

2-2707DPLA01FN

