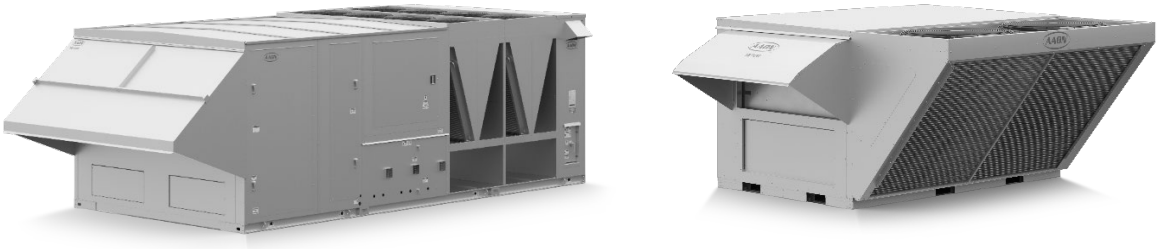
RN Series
Next Gen RN
(6-140 tons)

Packaged Rooftop Units & Outdoor Air Handling Units

Engineering Catalog



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- R-410A Refrigerant
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Extended Life
- 5 Year Compressor Warranty
- 15 Year Aluminized Steel Heat Exchanger Warranty
- 25 Year Stainless Steel Heat Exchanger Warranty
- Condenser Coil Guards
- Interior Corrosion Protection
- Coil Polymer E-Coating - 5 Year Coating Warranty
- Stainless Steel Coil Casing
- Stainless Steel Drain Pans

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE		SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	-	105	-	E	-	0	-	3	-	C	A	A	0	A	-	0	0	0	0	0	:	A	0	-	A	A	M	0	L	-	B	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	A	-	0	0	0	0
																	-	0	0	-	0	0	-	B	-	0	0	0	-	0	0	-	B	A	0	B	-	0	0	-	0	0	0	-	A	0	0	0	0	0	-	E	0	0	0	0	0	-	0	0	0	0	0	0	B
																	10A	10B	11A	11B	12	13A	13B	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

MODEL OPTIONS

SERIES AND GENERATION
RN

MAJOR REVISION
A

UNIT SIZE
006 = 6 ton Capacity
007 = 7 ton Capacity
008 = 8 ton Capacity
009 = 9 ton Capacity
010 = 10 ton Capacity
011 = 11 ton Capacity
013 = 13 ton Capacity
016 = 16 ton Capacity
018 = 18 ton Capacity
020 = 20 ton Capacity
025 = 25 ton Capacity
026 = 26 ton Capacity
030 = 30 ton Capacity
031 = 31 ton Capacity
040 = 40 ton Capacity
050 = 50 ton Capacity
060 = 60 ton Capacity
070 = 70 ton Capacity
075 = 75 ton Capacity
090 = 90 ton Capacity
105 = 105 ton Capacity
120 = 120 ton Capacity
130 = 130 ton Capacity
140 = 140 ton Capacity

SERIES
A = 6-8, 10
B = 9, 11-15
C = 11-25 & 30 ton units
D = 26, 31, 40, 50, 60 & 70 ton units
E = 75-140 ton units

MINOR REVISION
A

VOLTAGE
1 = 230V1Φ/60Hz (11 ton only)
2 = 230/3Φ/60Hz
3 = 460V/3Φ/60Hz
4 = 575V/3Φ/60Hz
6 = 380V/3Φ/50Hz
8 = 208V/3Φ/60Hz
9 = 208V/1Φ/60Hz (11 ton only)

Model Option A: COOLING/HEAT PUMP
A1: COMPRESSOR STYLE
0 = No Compressor
A = R-410A Scroll Compressor
B = R-410A 2-Step Scroll Compressor
C = R-410A Variable Speed Scroll Compressor
D = R-410A Variable Capacity Scroll Compressor
E = R-410A Variable Capacity Scroll Compressor (4-circuit)
F = R-454B Two-Step Scroll Compressor
G = R-454B Digital Scroll Compressor
H = R-454B Variable Speed Scroll Compressor

A2: CONDENSER STYLE
0 = No Condenser
A = Microchannel Air-Cooled Condenser
F = Water-Cooled Condenser
J = Alpha Class - Air-Source Heat Pump
J (A1=C,H) = Alpha Class – Cold Climate Air-Source Heat Pump
L = Water-Source/ Geothermal Heat Pump
N = DX Air Handling Unit

A3: INDOOR COIL CONFIGURATION
0 = No Cooling Coil
A = Standard Evaporator
B = 6 Row Evaporator
E = 4 Row Chilled Water Coil
F = 6 Row Chilled Water Coil

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE		SERIES	MNREV	VLT	A1	A2	A3	A4	**A5**	**B1**	**B2**	**B3**	**B4**	B5		1	2		3A	3B	3C	3D	3E		4A	4B	4C		5A	5B	5C	5D	5E		6A	6B	6C	6D	6E		7	8		9A	9B	9C	9D
RN	A	-	105	-	E	-	0	-	3	-	C	A	A	0	**A**	**-**	**0**	**0**	**0**	**0**	0	:	A	0	-	A	A	M	0	L	-	B	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	A	-	0	0	0	0
					-	0	0	-	0	0	-	B	-	0	0	0	-	0	0	-	B	A	0	B	-	0	0	-	0	0	0	-	A	0	0	0	0	0	-	E	0	0	0	0	0	-	0	0	0	0	0	0	B

10A	10B	11A	11B	12	13A	13B	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

A4: COOLING HEAT EXCHANGER CONSTRUCTION
0 = Standard
A = Polymer E-Coated Cooling Coil
E = Polymer E-Coated Cond. Coil
J = Polymer E-Coated Evap. And Cond. Coil

A5: COOLING STAGING
0 = No Cooling
A = Full Face Variable Capacity + Tandem On/Off Refrigeration Systems [75-140 ton]
A = Variable Speed Tandem + Tandem On/Off [40, 50, 60, 70 ton]
A = Variable Speed + Tandem On/Off [31 ton]
A = Variable Speed + On/Off [30 ton]
A = Variable Speed [16 ton]
A = Variable Capacity Tandem + On/Off [40 ton]
A = Variable Capacity + Tandem On/Off [31 ton]
A = Variable Capacity + On/Off [25 & 30 ton]
B = Dual Variable Capacity [11-25 & 30 ton]
B = Dual Variable Capacity + Dual On/Off [26,31,40,50,60,70 ton]
C = Variable Capacity + Two-Step [9,11-20 & 26 ton]
C = Variable Speed + Two-Step [11,13,20,25,26 ton]
F = Single Serpentine 8 FPI
G = Half Serpentine 8 FPI
H = Single Serpentine 10 FPI
J = Half Serpentine 10 FPI
K = Single Serpentine 12 FPI
L = Half Serpentine 12 FPI
N = DX Air Handling Unit with 2 Refrigeration Circuits
2 = 2 Stage
4 = 4 Stage
5 = 5 Stage
6 = 6 Stage

Model Option B: HEATING

B1: HEAT TYPE
0 = No Heat
A = Electric Heat
B = Electric Heat (RN Horizontal)
C = Natural Gas
D = Natural Gas (RN Horizontal)
F = LP Gas
G = LP Gas (RN Horizontal)
J = Hot Water Coil
K = Hot Water Coil (RN Horizontal)
L = Steam Distributing Coil
M = Steam Distributing Coil (RN Horizontal)

B2: HEAT CONSTRUCTION
0 = Standard
A = Aluminum Heat Exchanger, Gas Piping to the Valve
B = Stainless Steel Heat Exchanger, Gas Piping to the Valve
C = High Altitude Aluminum Heat Exchanger, Gas Piping to the Valve
D = High Altitude Stainless Steel Heat Exchanger, Gas Piping to the Valve
G = Polymer E-Coated Heating Coil
H = Standard CFM Electric Heat
J = Low CFM Electric Heat

B3: HEAT DESIGNATION
0 = No Heat
1 = Heat 1
2 = Heat 2
3 = Heat 3
4 = Heat 4
5 = Heat 5
6 = Heat 6
7 = Heat 7
A = 1 Row
E = 2 Row

B4: HEAT STAGING
0 = No Heat
A = 1 Stage
B = 2 Stage
C = 3 Stage
D = 4 Stage
E = 5 Stage
F = 6 Stage

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	**B4**	**B5**	**1**	**2**	**3A**	**3B**	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	**0**	**0**	**:**	**A**	**0**	**-**	**A**	**A**	M	0	L	-	B	0	0	-	0	0	0	0	0	-	0	0	0	0	0	- 0	A - 0	0	0	0
			- 0	0	- 0	0	- B	-	0	0	0	-	0	0	-	B	A	0	B	-	0	0	-	0	0	0	-	A	0	0	0	0	0	-	E	0	0	0	0	0	0	- 0	0	0	0	0	0	B
				10A	10B		11A	11B		12		13A	13B	13C		14	15		16A	16B	16C	16D		17A	17B		18A	18B	18C		19	20	21	22	23	24		25	26	27	28	29	30		31	32	33	34	35	36	37

B4: HEAT STAGING (continued)
G = 7 Stage
H = 8 Stage
V = 10 Stage
J = 12 Stage
K = Modulating Gas Heat Temp Control
L = High Turndown Modulating Gas Heat - Temperature Control
M = Modulating SCR with Temperature Control
N = Modulating SCR with External 0-10 VDC
P = Single Serpentine 8 FPI
Q = Half Serpentine 8 FPI
R = Single Serpentine 10 FPI
S = Half Serpentine 10 FPI
T = Single Serpentine 12 FPI
U = Half Serpentine 12 FPI

B5: HEAT PUMP AUX HEATING
0 = No Heat Pump
A = Aux Heat 1 for Heat Pump 1 Stage
B = Aux Heat 2 for Heat Pump 1 Stage
C = Aux Heat 3 for Heat Pump 1 Stage
D = Aux Heat 4 for Heat Pump 1 Stage
E = Aux Heat 5 for Heat Pump 1 Stage
F = Aux Heat 6 for Heat Pump 1 Stage
G = Aux Heat 7 for Heat Pump 1 Stage

K = Aux Heat 1 for Heat Pump 2 Stage
L = Aux Heat 2 for Heat Pump 2 Stage
M = Aux Heat 3 for Heat Pump 2 Stage
N = Aux Heat 4 for Heat Pump 2 Stage
P = Aux Heat 5 for Heat Pump 2 Stage
Q = Aux Heat 6 for Heat Pump 2 Stage
R = Aux Heat 7 for Heat Pump 2 Stage

U = Aux Heat 1 for Heat Pump 4 Stage
V = Aux Heat 2 for Heat Pump 4 Stage
W = Aux Heat 3 for Heat Pump 4 Stage
Y = Aux Heat 4 for Heat Pump 4 Stage
Z = Aux Heat 5 for Heat Pump 4 Stage
1 = Aux Heat 6 for Heat Pump 4 Stage
2 = Aux Heat 7 for Heat Pump 4 Stage

1: UNIT ORIENTATION
0 = Standard Access - Hinged Access Doors with Lockable Handles
A = Draw Through Compact Supply Fan, End Compressor Compartment, Both Side Access
D = Draw Through Compact Supply Fan, Non-Compressorized, End Control Panel, Both Side Access

2: SUPPLY & RETURN LOCATIONS
0 = Bottom Supply--Bottom Return
A = Bottom Supply--No Return
V = Horizontal Configuration - End Supply--No Return
Z = Horizontal Configuration - End Supply--Right Return
1 = Horizontal Configuration - End Supply--End Return

Feature 3: SUPPLY FAN OPTIONS
3A: SUPPLY FAN QUANTITY
0 = 1 Fan
A = 2 Fans

3B: SUPPLY FAN CONFIGURATION
0 = No VFDs + Full Width Fan
A = 1 Fan per VFD + Full Width Fan
B = 2 Fans per VFD + Full Width Fan
E = No VFDs + Narrow Width Fan
F = 1 Fan per VFD + Narrow Width Fan
G = 2 Fans per VFD + Narrow Width Fan
K = Option 0 + Inlet Backdraft Dampers
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
Q = Option E + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	**3C**	**3D**	**3E**	**4A**	**4B**	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	: A	0	- A	A	**M**	**0**	**L**	**-**	**B**	**0**	0	- 0	0	0	0	0	- 0	0	0	0	0	- 0	A	- 0	0	0	0
			- 0	0	- 0	0	- B	-	0	0	0	- 0	0	- B	A	0	B	- 0	0	- 0	0	0	- A	0	0	0	0	0	- E	0	0	0	0	0	0	- 0	0	0	0	0	0	B

10A	10B	11A	11B	12	13A	13B	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

3C: SUPPLY FAN SIZE

0 = 13.5" Direct Drive Backward Curved Plenum Aluminum
A = 15" Direct Drive Backward Curved Plenum Aluminum
B = 17" Direct Drive Backward Curved Plenum Aluminum
C = 18.5" Direct Drive Backward Curved Plenum Aluminum
E = 22" Direct Drive Backward Curved Plenum Aluminum
F = 24" Direct Drive Backward Curved Plenum Aluminum
G = 27" Direct Drive Backward Curved Plenum Aluminum
H = 30" Direct Drive Backward Curved Plenum Aluminum
J = 30" Direct Drive Backward Curved Plenum Steel
K = 33" Direct Drive Backward Curved Plenum Steel
L = 36.5" Direct Drive Backward Curved Plenum Aluminum
M = 42.5" Direct Drive Backward Curved Plenum Aluminum
N = 355 mm Direct Drive Airfoil Aluminum
P = 400 mm Direct Drive Airfoil Aluminum
Q = 450 mm Direct Drive Airfoil Aluminum
R = 500 mm Direct Drive Airfoil Aluminum
S = 560 mm Direct Drive Airfoil Aluminum
T = 630 mm Direct Drive Airfoil Aluminum

3D: SUPPLY FAN MOTOR TYPE

0 = High Efficiency Open Motor (1170 nominal rpm)
A = High Efficiency Open Motor (1760 nominal rpm)
K = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1760 nominal rpm)

3E: SUPPLY FAN MOTOR SIZE

D = 1 hp
F = 2 hp
G = 3 hp
H = 5 hp
J = 7.5 hp
K = 10 hp
L = 15 hp
M = 20 hp
N = 25 hp
P = 30 hp
Q = 40 hp
R = 50 hp

Feature 4: RETURN/OUTSIDE AIR OPTIONS

4A: OUTSIDE AIR SECTION

0 = 100% Outside Air
A = 100% Outside Air with Motorized Dampers
B = Manual Outside Air + Return Air Opening
C = Motorized Outside Air Dampers + Return Air Opening
D = 100% Return Air
E = Economizer
F = Economizer + Power Exhaust (Axial Fans)
G = Economizer + Power Exhaust (Plenum Fans)
H = Economizer + Power Return
J = Economizer + Power Return (Plenum Fans)
K = Economizer + Energy Recovery
Q = Economizer + Energy Recovery + Bypass Damper

4B: ENERGY RECOVERY TYPE

0 = No Energy Recovery
A = Polymer Energy Recovery Wheel
B = Polymer Energy Recovery Wheel + 1% Purge
C = Aluminum Energy Recovery Wheel
D = Aluminum Energy Recovery Wheel + 1% Purge

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RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	: A	0	- A	A	M	0	L	- B	0	**0**	**-**	**0**	**0**	**0**	0	0	- 0	0	0	0	0	- 0	A	- 0	0	0	0
			- 0	0	- 0	0	- B	-	0	0	0	- 0	0	- B	A	0	B	- 0	0	- 0	0	0	- A	0	0	0	0	0	- E	0	0	0	0	0	- 0	0	0	0	0	0	B
				10A	10B		11A	11B		12		13A	13B	13C		14	15		16A	16B	16C	16D		17A	17B		18A	18B	18C		19	20	21	22	23	24		25	26	27	28	29	30		31	32	33	34	35	36	37

4C: ENERGY RECOVERY SIZE

0 = No Energy Recovery
A = Low CFM Enthalpy
B = High CFM Enthalpy
C = Low CFM Enthalpy - Single Wheel
D = Low CFM Enthalpy – Dual Wheel
E = Low CFM Sensible
F = High CFM Sensible
H = Low CFM Sensible – Dual Wheel
J = Low CFM Enthalpy + Exhaust Filters
K = High CFM Enthalpy + Exhaust Filters
L = Low CFM Enthalpy - Single Wheel + Exhaust Filters
M = Low CFM Enthalpy – Dual Wheel + Exhaust Filters
N = Low CFM Sensible + Exhaust Filters
P = High CFM Sensible + Exhaust Filters
R = Low CFM Sensible – Dual Wheel + Exhaust Filters

Feature 5: RETURN FAN OPTIONS

5A: RETURN FAN QUANTITY

0 = No Return Fan
A = 1 Fan
B = 2 Fans

5B: RETURN FAN CONFIGURATION

0 = No Return Fan
A = No VFDs [C & D Series]
A = No VFDs + Full Width Fan [E Series]
B = 1 Fan per VFD [C & D Series]
B = 1 Fan per VFD + Full Width Fan [E Series]
C = 2 Fans per VFD [C & D Series]
C = 2 Fans per VFD + Full Width Fan [E Series]
F = No VFDs + Narrow Width Fan
G = 1 Fan per VFD + Narrow Width Fan
H = 2 Fans per VFD + Narrow Width Fan
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
N = Option C + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers

5C: RETURN FAN SIZE

0 = No Return Fan
A = 16” Axial Fan
B = 22” Axial Fan
C = 36” Axial Fan
D = 42” 9 Blade Axial Fan
E = 42” 12 Blade Axial Fan
F = 48” Axial Fan
G = 12x9 Forward Curved
H = 15” Direct Drive Backward Curved Plenum Aluminum
J = 18.5” Direct Drive Backward Curved Plenum Aluminum
L = 22” Direct Drive Backward Curved Plenum Aluminum
M = 24” Direct Drive Backward Curved Plenum Aluminum
N = 27” Direct Drive Backward Curved Plenum Aluminum
P = 30” Direct Drive Backward Curved Plenum Aluminum
Q = 30” Direct Drive Backward Curved Plenum Steel
R = 33” Direct Drive Backward Curved Plenum Steel
S = 36.5” Direct Drive Backward Curved Plenum Aluminum
T = 42.5” Direct Drive Backward Curved Plenum Aluminum
U = 355 mm Direct Drive Airfoil Aluminum
V = 400 mm Direct Drive Airfoil Aluminum
W = 450 mm Direct Drive Airfoil Aluminum
Y = 500 mm Direct Drive Airfoil Aluminum
Z = 560 mm Direct Drive Airfoil Aluminum
1 = 630 mm Direct Drive Airfoil Aluminum

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RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	: A	0	- A	A	M	0	L	- B	0	0	- 0	0	0	**0**	**0**	**-**	**0**	**0**	**0**	**0**	- 0	A	- 0	0	0	0
		- 0	0	- 0	0	- B	- 0	0	0	- 0	0	- B	A	0	B	- 0	0	- 0	0	0	- A	0	0	0	0	0	- E	0	0	0	0	0	- 0	0	0	0	0	0	B		

10A	10B	11A	11B	12	13A	13B	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

5D: RETURN FAN MOTOR TYPE
0 = No Return Fan
A = High Efficiency Open Motor (1170 nominal rpm)
B = High Efficiency Open Motor (1760 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
M = High Efficiency Totally Enclosed Motor (1760 nominal rpm)

5E: RETURN MOTOR SIZE
0 = No Return Fan
E = 1 hp
G = 2 ph
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp
P = 25 hp
Q = 30 hp
R = 40 hp
S = 50 hp

Feature 6: EXHAUST FAN OPTIONS

6A: EXHAUST FAN QUANTITY
0 = No Exhaust Fan
A = 1 Fan
B = 2 Fans

6B: EXHAUST FAN CONFIGURATION
0 = No Return Fan
A = No VFDs [C & D Series]
A = No VFDs + Full Width Fan [E Series]
B = 1 Fan per VFD [C & D Series]
B = 1 Fan per VFD + Full Width Fan [E Series]
C = 2 Fans per VFD [C & D Series]
C = 2 Fans per VFD + Full Width Fan [E Series]
F = No VFDs + Narrow Width Fan

6B: EXHAUST FAN CONFIGURATION Cont.
G = 1 Fan per VFD + Narrow Width Fan
H = 2 Fans per VFD + Narrow Width Fan
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
N = Option C + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers

6C: EXHAUST FAN SIZE
0 = No Exhaust Fan
C = 36" Axial Fan
L = 22” Direct Drive Backward Curved Plenum Aluminum
M = 24” Direct Drive Backward Curved Plenum Aluminum
N = 27” Direct Drive Backward Curved Plenum Aluminum
P = 30” Direct Drive Backward Curved Plenum Aluminum
Q = 30” Direct Drive Backward Curved Plenum Steel
R = 33” Direct Drive Backward Curved Plenum Steel
S = 36.5” Direct Drive Backward Curved Plenum Aluminum
T = 42.5” Direct Drive Backward Curved Plenum Aluminum

6D: EXHAUST FAN MOTOR TYPE
0 = No Exhaust Fan
A = High Efficiency Open Motor (1170 nominal rpm)
B = High Efficiency Open Motor (1760 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
M = High Efficiency Totally Enclosed Motor (1760 nominal rpm)

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	**6E**	**7**	**8**	**9A**	**9B**	**9C**	9D
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	: A	0	- A	A	M	0	L	- B	0	0	- 0	0	0	0	0	- 0	0	0	0	**0**	**- 0**	**A**	**- 0**	**0**	**0**	0
			- 0	0	- 0	0	- B	-	0	0	0	- 0	0	- B	A	0	B	- 0	0	-	0	0	0	- A	0	0	0	0	0	- E	0	0	0	0	0	0	- 0	0	0	0	0	0	B
				10A	10B		11A	11B		12		13A	13B	13C		14	15		16A	16B	16C	16D		17A	17B		18A	18B	18C		19	20	21	22	23	24		25	26	27	28	29	30		31	32	33	34	35	36	37

6E: EXHAUST MOTOR SIZE

0 = No Exhaust Fan
E = 1 hp
G = 2 ph
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp
P = 25 hp
Q = 30 hp
R = 40 hp
S = 50 hp

7: O/A CONTROL

0 = Standard (No Actuator)
A = 3 Position Actuator - Sensible Limit
B = 3 Position Actuator - Enthalpy Limit
C = Fully Modulating Actuator - Sensible Limit
D = Fully Modulating Actuator - Enthalpy Limit
E = DDC Actuator
P = Option C + CO_2 Override
Q = Option D + CO_2 Override
R = Option E + CO_2 Override
U = 2 Position Actuator
V = Fault Detection and Diagnostics Controller (FDD) Sensible Limit
W = FDD Enthalpy Limit
Y = Option V + CO_2 Override
Z = Option W + CO_2 Override

8: RETURN & EXHAUST OPTIONS

0 = No Return Opening
A = Standard Return Opening without EA Opening
C = Standard Barometric Relief EA Dampers
E = Standard Return Opening + Motorized EA Dampers
G = Standard Return Opening without EA Dampers + RA Bypass
J = Standard Barometric Relief EA Dampers + RA Bypass
L = Standard Return Opening + Motorized EA Dampers + RA Bypass

Feature 9: FILTER OPTIONS

9A: UNIT FILTER TYPE

0 = 2" Pleated MERV 8
A = 4" Pleated MERV 8
B = 2" Pleated MERV 8 + 4" Pleated MERV 11
C = 2" Pleated MERV 8 + 4" Pleated MERV 13
D = 2" Pleated MERV 8 + 4" Pleated MERV 14

9B: UNIT FILTER BOX SIZE/LOCATION

0 = Standard Filters in Standard Position
B = High Efficiency Filters in Standard Position
M = Standard Filters + Lint Screen Pre-filter in Standard Position

9C: FINAL FILTER TYPE

0 = No Final Filters
A = 12" Cartridge MERV 13
D = 12" Cartridge MERV 14
U = 4" Pleated MERV 13
Y = 4" Pleated MERV 14

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	**9D**
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	: A	0	- A	A	M	0	L	- B	0	0	- 0	0	0	0	0	- 0	0	0	0	0	0	- 0	A	- 0	0	0	**0**
				0	**0**	**- 0**	0	- B	- 0	0	0	- 0	0	- B	A	0	B	- 0	0	- 0	0	0	- A	0	0	0	0	0	- E	0	0	0	0	0	0	- 0	0	0	0	0	0	B
				10A	**10B**		**11A**	11B	12		13A	13B	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

9D: FILTER OPTIONS

0 = None
A = Clogged Filter Switch - Unit Filters
B = Clogged Filter Switch - Unit + Energy Recovery Filters
C =Clogged Filter Switch - Unit + Final Filters
D = Clogged Filter Switch - Unit + Energy Recovery + Final Filters
E = Magnehelic Gauge - Unit Filters
F = Magnehelic Gauge - Unit + Energy Recovery Filters
G = Magnehelic Gauge - Unit + Final Filters
H = Magnehelic Gauge - Unit + Energy Recovery + Final Filters
J = Clogged Filter Switch + Magnehelic Gauge - Unit Filters
K = Clogged Filter Switch + Magnehelic Gauge - Unit + Energy Recovery Filters
L = Clogged Filter Switch + Magnehelic Gauge - Unit + Final Filters
M = Clogged Filter Switch + Magnehelic Gauge - Unit + Energy Recovery + Final Filters

Feature 10: REFRIGERATION CONTROL

10A: REFRIGERATION CONTROL

0 = None
A = 5 Minute Compressor Off Timer and 20 Second Compressor Stage Delay
C = Adjustable Fan Cycling
D = Adjustable Compressor Lock Outs
E = Freeze Stats (each circuit)
G = Option A + C
H = Option A + D
J = Option A + E
M = Option C + D
N = Option C + E
P = Option D + E
T = Option C + D + E
V = Option A + C + D + E
W = Option A + D + E

10B: BLANK

0 = None

Feature 11: REFRIGERATION OPTIONS

11A: REFRIGERATION OPTIONS

0 = None
A = Hot Gas Bypass Lead Stage
B = Hot Gas Bypass Lead and Lag Stages
D = Hot Gas Bypass Non-Variable Compressor Circuits (HGBNV)
E = Parallel Modulating Hot Gas Reheat Microchannel Coil [MHGR-MC] - Lag Circuit [A1=A, B, C, D & A2=A, F, or N]
E = Parallel Modulating Hot Gas Reheat Microchannel Coil [MHGR-MC] - Lead Circuit [only on 4-circuit non-heat pump units, A1=E & A2=A, F, or N]
E = Series Modulating Hot Gas Reheat Microchannel Coil [MHGR-MC] - Lag Circuit [only on heat pump units, A1=A, B, C, or D & A2=J or L]
E = Series Modulating Hot Gas Reheat Microchannel Coil [MHGR-MC] - Lead Circuit [only on 4-circuit heat pump units, A1=E & A2=J or L]
F = Parallel Modulating Hot Gas Reheat Microchannel Coil [MHGR-MC] - Dual Circuit
J = HGB Lead + Parallel MHGR-MC - Lag Circuit
J = HGB Lead + Series MHGR-MC - Lag Circuit [heat pump units, A2=J or L]
K = HGB Lead + HGB Lag + Parallel MHGR-MC - Lag Circuit
K = HGB Lead + HGB Lag + Series MHGR-MC - Lag Circuit [heat pump units, A2=J or L]
M = HGBNV + Parallel Modulating Hot Gas Reheat -Lag Circuit [A1=A, B, C, D & A2=A, F, or N]
M = HGBNV + Parallel Modulating Hot Gas Reheat -Lead Circuit [only on 4-circuit non-heat pump units, A1=E & A2=A, F, or N]
M = HGBNV + Series Modulating Hot Gas Reheat - Lag Circuit [only on heat pump units, A2=J or L]
N = HGBNV + Parallel MHGR-MC - Dual Circuit

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	-	105	-	E	-	0	-	3	-	C	A	A	0	A	-	0	0	0	0	0	:	A	0	-	A	A	M	0	L	-	B	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	A	-	0	0	0	0
				-	0	0	-	**0**	**0**	-	**B**	-	**0**	**0**	0	-	0	0	-	B	A	0	B	-	0	0	-	0	0	0	-	A	0	0	0	0	0	-	E	0	0	0	0	0	0	-	0	0	0	0	0	0	B
						10A	10B	**11A**	**11B**	**12**	**13A**	**13B**	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

11A: REFRIGERATION OPTIONS Continued

Q = Parallel MHGR-MC - Lag Circuit - Polymer E-Coated [A1=A, B, C, D & A2=A, F, or N]

Q = Parallel MHGR-MC - Lead Circuit - Polymer E-Coated [only on 4-circuit non-heat pump units, A1=E & A2=A, F, or N]

Q = Series MHGR-MC - Lag Circuit - Polymer E-Coated [only on heat pump units, A1=A, B, C, or D & A2=J or L]

Q = Series MHGR-MC - Lead Circuit - Polymer E-Coated [only on 4-circuit heat pump units, A1=E & A2=J or L]

T = HGB Lead + Parallel MHGRH-MC - Lag Circuit - Polymer E-Coated

T = HGB Lead + Series MHGRH-MC - Lag Circuit - Polymer E-Coated [heat pump units, A2=J or L]

U = HGB Lead + HGB Lag + Parallel MHGRH-MC - Lag Circuit - Polymer E-Coated

U = HGB Lead + HGB Lag + Series MHGRH-MC - Lag Circuit - Polymer E-Coated [heat pump units, A2=J or L]

W = HGBNV + Parallel MHGRH-MC - Lag Circuit - Polymer E-Coated [A1= C or D & A2=A, F, or N]

W = HGBNV + Parallel MHGRH-MC - Lead Circuit - Polymer E-Coated [only on 4-circuit non-heat pump units, A1=E & A2=A, F, or N]

W = HGBNV + Series MHGRH-MC - Lag Circuit - Polymer E-Coated [only on heat pump units, A1=C or D & A2=J or L]

Y = Parallel MHGRH-MC - Dual Circuit - Polymer E-Coated

Z = HGBNV + Parallel MHGRH-MC - Dual Circuit - Polymer E-Coated

11B: BLANK

0 = None

12: REFRIGERATION ACCESSORIES

0 = None

A = Sight Glass

B = Compressor Isolation Valves

C = Option A + B

D = One Circuit 0°F Low Ambient

E = Option A + D

F = Option B + D

G = Option A + B + D

H = Two Circuit 0°F Low Ambient

J = Option A + H

K = Option B + H

L = Option A + B + H

Feature 13: POWER OPTIONS

13A: UNIT DISCONNECT TYPE

0 = Single Point Power - Standard Power Block

A = Single Point Power - Non-fused Disconnect Power Switch

B = Single Point Power - Circuit Breaker

C = Dual Point Power - Standard Power Block – Method #1

D = Dual Point Power - Non-fused Disconnect Power Switch – Method #1

E = Dual Point Power – Circuit Breaker – Method #1

F = Dual Point Power - Standard Power Block – Method #2

G = Dual Point Power - Non-fused Disconnect Power Switch – Method #2

H = Dual Point Power – Circuit Breaker – Method #2

J = Dual Point Power - Standard Power Block – Method #3

K = Dual Point Power - Non-fused Disconnect Power Switch – Method #3

L = Dual Point Power – Circuit Breaker – Method #3

M = Dual Point Power - Standard Power Block – Method #4

N = Dual Point Power - Non-fused Disconnect Power Switch – Method #4

P = Dual Point Power – Circuit Breaker – Method #4

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	:	A	0	-	A	A	M	0	L	-	B	0	0	-	0	0	0	0	0	-	0	0	0	0	0	- 0	A	- 0	0	0	0
				- 0	0	- 0	0	- B	- 0	**0**	**0**	**-**	**0**	**0**	**-**	**B**	**A**	0	B	-	0	0	-	0	0	0	**-**	A	0	0	0	0	0	-	E	0	0	0	0	0	0	-	0	0	0	0	0	0	B
				10A	10B		11A	11B		12		13A	**13B**	**13C**		**14**	**15**		**16A**	**16B**	16C	16D		17A	17B		18A	18B	18C		19	20	21	22	23	24		25	26	27	28	29	30		31	32	33	34	35	36	37

13B and 13C: DISCONNECT 1 and 2 SIZE
0 = Power Block
A = 15 amps
B = 20 amps
C = 25 amps
D = 30 amps
E = 35 amps
F = 40 amps
G = 45 amps
H = 50 amps
J = 60 amps
K = 70 amps
L = 80 amps
M = 90 amps
N = 100 amps
P = 110 amps
Q = 125 amps
R = 150 amps
S = 175 amps
T = 200 amps
U = 225 amps
V = 250 amps
W = 300 amps
Y = 350 amps
Z = 400 amps
1 = 450 amps
2 = 500 amps
3 = 600 amps
5 = 800 amps
7 = 1200 amps

14: SAFETY OPTIONS
0 = None
A = RA & SA Firestat
B = RA Smoke Detector
C = SA Smoke Detector
E = Remote Safety Shutdown Terminals
F = Option A + B
G = Option A + C
J = Option A + E
K = Option B + C
M = Option B + E
P = Option C + E

14: SAFETY OPTIONS (continued)
R = Option A + B + C
T = Option A + B + E
V = Option A + C + E
Z = Option B + C + E
4 = Option A + B + C + E

15: ACCESSORIES
0 = None
A = Low Limit Control
B = Phase & Brown Out Protection
C = Cooling Coil UV Lights [Series C & D]
C = Air Disinfection UV Lights [Series E]
E = Compressor Sound Blankets
F = Option A + B
G = Option A + C
J = Option A + E
K = Option B + C
M = Option B + E
P = Option C + E
R = Option A + B + C
T = Option A + B + E
V = Option A + C + E
Z = Option B + C + E
4 = Option A + B + C + E

Feature 16: UNIT CONTROLS

16A: CONTROL SEQUENCE
0 = Standard Terminal Block for Thermostat
A = Terminal Block for Thermostat + Isolation Relays
B = Single Zone VAV Unit Controller - VAV Cool + CAV Heat
C = Single Zone VAV Unit Controller - VAV Cool + VAV Heat
D = VAV Unit Controller - VAV Cool + CAV Heat
E = Constant Air Volume Unit Controller - CAV Cool + CAV Heat
F = Makeup Air Unit Controller
G = Single Zone VAV Heat Pump Unit Controller - VAV Cool + VAV Heat
H = Constant Air Volume Heat Pump Unit Controller - CAV Cool + CAV Heat

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	: A	0	- A	A	M	0	L	- B	0	0	- 0	0	0	0	0	- 0	0	0	0	0	0	- 0	A	- 0	0	0	0
				- 0	0 - 0	0 - B	-	0	0	0	- 0	0	- B	A	**0**	**B**	**-**	**0**	**0**	**-**	**0**	**0**	**0**	**-**	**A**	0	0	0	0	0	- E	0	0	0	0	0	0	- 0	0	0	0	0	0	B
				10A	10B	11A	11B	12		13A	13B	13C	14	15		16A	16B	**16C**	**16D**	**17A**	**17B**		**18A**	**18B**	**18C**	**19**	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

16A: CONTROL SEQUENCE (continued)
J = Makeup Air Heat Pump Unit Controller - CAV Cool + CAV Heat
K = PAC - Precise Air Controller (No VCC)
L = D-PAC - Digital Precise Air Controller
M = Field Installed DDC Controls by Others
N = Field Installed DDC Controls + Isolation Relays
P = Factory Installed DDC Controls by Others + Isolation Relays

16B: CONTROL SUPPLIER
0 = None
A = AAON Controls
C = AAON Controls Supervisory

16C: CONTROL SUPPLIER OPTIONS
0 = None

16D: BMS CONNECTION & DIAGNOSTICS
0 = None
B = BACnet MSTP
K = BACnet MSTP with Diagnostics

Feature 17: PREHEAT OPTIONS

17A: PREHEAT CONFIGURATION
0 = Standard - None
D = Hot Water Preheat Coil - Mixed Air
E = Steam Distributing Preheat Coil - Mixed Air
K = Polymer E-Coated Hot Water Preheat Coil - Mixed Air
L = Polymer E-Coated Steam Distributing Preheat Coil - Mixed Air

17B: PREHEAT SIZING
0 = Standard – None

Hot Water Preheat Coil [17A = DK]
A = 1 Row Half Serpentine 8 fpi
B = 1 Row Half Serpentine 10 fpi

Hot Water Preheat Coil [17A = DK] (continued)
C = 1 Row Half Serpentine 12 fpi
D = 2 Row Single Serpentine 8 fpi
E = 2 Row Single Serpentine 10 fpi
F = 2 Row Single Serpentine 12 fpi
G = 2 Row Half Serpentine 8 fpi [Series A,B,C,D]
G = 2 Row Single Serpentine 8 fpi [Series E]
H = 2 Row Half Serpentine 10 fpi [Series A,B,C,D]
H = 2 Row Single Serpentine 10 fpi [Series E]
J = 2 Row Half Serpentine 12 fpi [Series A,B,C,D]
J = 2 Row Single Serpentine 12 fpi [Series E]
K = 2 Row Half Serpentine 8 fpi [Series E]
L = 2 Row Half Serpentine 10 fpi [Series E]
M = 2 Row Half Serpentine 12 fpi [Series E]

Steam Distributing Preheat Coil [17A = EL]
A = 1 Row Single Serpentine 8 fpi
B = 1 Row Single Serpentine 10 fpi
C = 1 Row Single Serpentine 12 fpi
D = 2 Row Single Serpentine 8 fpi [Series A,B,C,D]
E = 2 Row Single Serpentine 10 fpi [Series A,B,C,D]
F = 2 Row Single Serpentine 12 fpi [Series A,B,C,D]
G = 2 Row Single Serpentine 8 fpi [Series E]
H = 2 Row Single Serpentine 10 fpi [Series E]
J = 2 Row Single Serpentine 12 fpi [Series E]

Feature 18: OPTION BOXES

18A: BOX LOCATION
0 = None
5 = Empty Energy Recovery Wheel Option Box

18B: BOX SIZE
0 = None
W = Empty Energy Recovery Wheel Option Box

18C: BOX ACCESSORIES
0 = None

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	:	A	0	-	A	A	M	0	L	-	B	0	0	-	0	0	0	0	0	-	0	0	0	0	0	- 0	A	- 0	0	0	0
				- 0	0 -	0	0 -	B	-	0	0	0	-	0	0	-	B	A	0	B	-	0	0	-	0	0	0	-	A	**0**	**0**	**0**	**0**	**0**	**-**	**E**	**0**	**0**	0	0	0	-	0	0	0	0	0	0	B
						10A	10B		11A	11B	12		13A	13B	13C		14	15		16A	16B	16C	16D		17A	17B		18A	18B	18C	19	**20**	**21**	**22**	**23**	**24**		**25**	**26**	**27**	28	29	30		31	32	33	34	35	36	37

19: OUTSIDE AIR ACCESSORIES

0 = No Outside Air Hood - 100% Return Air
A = Outside Air Hood
B = Outside Air Hood with Metal Mesh Filters
C = Option A + Outside Air Flow Measuring Station Size A
D = Option A + Outside Air Flow Measuring Station Size B
E = Option A + Outside Air Flow Measuring Station Size C
F = Option A + Outside Air Flow Measuring Station Size D
G = Option B + Outside Air Flow Measuring Station Size A
H = Option B + Outside Air Flow Measuring Station Size B
J = Option B + Outside Air Flow Measuring Station Size C
K = Option B + Outside Air Flow Measuring Station Size D

20: CABINET OPTIONS

0 = None
A = Base Insulation
B = SA & RA Burglar Bars
F = Option A + B

21: ACCESSORIES

0 = None
C = Supply Fan Air Flow Measuring
D = Return Fan Air Flow Measuring
N = Option C + D

22: MAINTENANCE ACCESSORIES

0 = None
A = Factory Wired 115V Convenience Outlet
B = Field Wired 115V Convenience Outlet
C = Control Panel LED Service Lights and Marine Lights
D = Remote Start/Stop Contacts
E = Supply Fan Auxiliary Contacts
F = Option A + C

22: MAINTENANCE ACCESSORIES (continued)

G = Option A + D
H = Option A + E
J = Option B + C
K = Option B + D
L = Option B + E
M = Option C + D
N = Option C + E
P = Option D + E
Q = Option A + C + D
R = Option A + C + E
S = Option A + D + E
T = Option B + C + D
U = Option B + C + E
V = Option B + D + E
W = Option C + D + E
Y = Option A + C+ D + E
Z = Option B + C + D + E

23: CODE OPTIONS

0 = Standard - ETL U.S.A. Listing
A = Chicago Code
B = ETL U.S.A. + Canada Listing

24: SHIPPING SPLITS

0 = Standard

25: AIR COOLED CONDENSER ACCESSORIES

0 = Standard
A = Condenser Coil Guards
C = ECM Condenser Fan Head Pressure Control
E = VFD Condenser Fan Head Pressure Control
G = Option A + C
J = Option A + E

26: EVAPORATIVE-COOLED CONDENSER ACCESSORIES

0 = None

RN Series - Next Gen RN Feature String Nomenclature

GEN	MJREV	SIZE	SERIES	MNREV	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C	9D
RN	A	- 105	- E	- 0	- 3	- C	A	A	0	A	- 0	0	0	0	0	:	A	0	-	A	A	M	0	L	-	B	0	0	-	0	0	0	0	0	-	0	0	0	0	0	- 0	A	- 0	0	0	0
				- 0	0 -	0	0 -	B	-	0	0	0	-	0	0 -	B	A	0	B	-	0	0	-	0	0	0	-	A	0	0	0	0	0	-	E	0	0	**0**	**0**	**0**	**-**	**0**	**0**	**0**	**0**	**0**	**B**

10A	10B	11A	11B	12	13A	13B	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**

27: WATER - COOLED CONDENSER ACCESSORIES

0 = None (No Water Condenser)
A = Balancing Valves
B = Water Flow Switch
D = Motorized Shut-off Valve
E = Head Pressure Control
F = Option A + B
H = Option A + D
J = Option A + E
L = Option B + D
M = Option B + E
R = Option A + B + D
S = Option A + B + E

28: ENERGY RECOVERY WHEEL ACCESSORIES

0 = None
A = Energy Recovery Wheel Defrost - Start/Stop
B = Energy Recovery Wheel Rotation Detection
F = Option A + B

29: VFD Options

0 = None
A = Shaft Grounding kit on all SA, RA, EA motors
C = BACNet VFD on all motors
G = Option A + C

30: Miscellaneous Options

0 = Standard
A = High Condensate Level Switch
B = Unit SCCR (10 kAIC)
C = High Unit SCCR (35 kAIC)
D = High Unit SCCR (65 kAIC)

31: BLANK

0 = Standard

32: BLANK

0 = Standard

33: BLANK

0 = Standard

34: BLANK

0 = Standard

35: WARRANTY

0 = Standard Warranty
A = 2 Year Parts Warranty
B = 5 Year Parts Warranty
C = 10 Year Parts Warranty

36: CABINET MATERIAL

0 = Galvanized Cabinet - Double Wall + R-13 Foam Insulation

37: SPECIALS & PAINT

B = Premium AAON Gray Paint Exterior Paint
C = Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection
E = Premium Gray Paint Exterior Paint + Shrink Wrap
F = Premium Gray Paint Exterior Paint + Interior Corrosion Protection + Shrink Wrap
X = SPA + Premium AAON Gray Paint Exterior Paint
Y = SPA + Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection
1 = SPA + Premium AAON Gray Paint Exterior Paint + Shrink Wrap
2 = SPA + Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection + Shrink Wrap
4 = SPA + Special Exterior Paint Color
5 = SPA + Special Exterior Paint Color + Interior Corrosion Protection
7 = SPA + Special Exterior Paint Color + Shrink Wrap
8 = SPA + Special Exterior Paint Color + Interior Corrosion Protection + Shrink Wrap

Model Option
Unit Size

Example:

RNA - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0 - 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

The first number of the model string designates nominal tons of cooling at AHRI conditions for RN Series Next Gen Cabinet units. Actual capacities will vary with conditions. Refer to the AAON ECat software for performance and cooling capacities at design conditions.

Table 1 - Unit Series, Major Revision, Sizes, Series, and Minor Revision

Series	Major Revision	Unit Size Air-Cooled Condenser	Series	Minor Revision	Compressors/Circuits
		006	A	A	1 Compressor/ 1 Circuit
		007			
		008			
		010			
		009	B		2 Compressors/ 2 Circuits
		011	B C RN Horizontal		2 Compressors / 2 Circuits *Size 16 with Variable Speed Compressor is 1 Circuit
		013			
		015			
		016*			
		018			
		020			
		025			
		030			
		026	D		2 Compressors / 2 Circuits
		031			
		040			
		050			
		060			
		070			
		055	E		2 Variable Speed Scroll + 1 Tandem On/Off Scroll Compressors / 3 Circuits
		065			
		075			
		090			
		105			
		120			
		130			
		140			

Model Option
Voltage

Example:

RN A - 105 - E - 0 - **3** - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

All units have single point power blocks with grounding lugs and 120VAC control circuits for compressorized units and 24VAC control circuits for non-compressorized units.

1 = 230V/1Φ/60Hz (Unit Size 11 ton only)
2 = 230V/3Φ/60Hz
3 = 460V/3Φ/60Hz
4 = 575V/3Φ/60Hz
6 = 380V/3Φ/50Hz (Unit Sizes 11-50, 60, & 70 ton only)
8 = 208V/3Φ/60Hz
9 = 208V/1Φ/60Hz (Unit Size 11 ton only)

Model Option
Model Option A1 - Compressor Style

Example:

RN A - 105 - E - 0 - 3 - **C** A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Compressor* - This selection will not include compressors.
A = *R-410A Scroll Compressor* - Compressorized DX cooling with R-410A using individually circuited scroll compressors. Option is available on the following: RN Series 25 & 30 include two R-410A scroll compressors; RN Series 31-50, 60 & 70 include two tandem R-410A scroll compressors. See Model Option A5 for selection of staging options.
B = *R-410A Two-Step Scroll Compressor* - Compressorized DX cooling with R-410A using individually circuited two-stage scroll compressors. Capacity steps are 100% and 67%. Option provides the unit with improved temperature control, improved humidity control and energy savings at part load conditions. Option is available on RN Series 11-20 & 26 ton and units include two R-410A two-stage scroll compressors. See Model Option A5 for selection of staging options.
C = *R-410A Variable Speed Scroll Compressor* - Compressorized DX cooling with R-410A using at least one VFD compatible scroll compressor. A suction pressure sensor will be provided per variable speed compressor. Option provides the unit with tight temperature control, improved humidity control and energy savings at part load conditions. See Table 2 for compressor type used per size. See Model Option A5 for selection of modulation options.

Model Option A1 - Compressor Style Continued

Table 2 - A1 = C, H Variable Speed Compressor

Unit Size Air-Cooled Condenser	Series	A1=C, H - *R-410A Variable Speed Scroll Compressor* Compressors per Unit Size
006	A	1 Variable Speed
007		
008		
010		
009	B	1 Variable Speed + 1 Two-Stage Comp
011	B or C Horizontal	
013		
015	B	
016	C C Horizontal	1 Variable Speed Comp
018		
020		1 Variable Speed + 1 Two-Stage Comp
025		
030		1 Variable Speed + 1 On/Off Comp
026	D	1 Variable Speed + 1 Two-Stage Comp
031		1 Variable Speed Comp + 1 On/Off Tandem Comp
040		1 Variable Speed Tandem Comp + 1 On/Off Tandem Comp
050		
060		
070		
055	E	2 Variable Speed Scroll + 1 Tandem On/Off Scroll Compressors
065		
075		
090		
105		
120		
130		
140		

Figure 1 - Variable Speed Scroll Compressor Deck

Model Option A1 - Compressor Style Continued

D= *R-410A Variable Capacity Scroll Compressor (VCC) - Standard Efficiency* - Compressorized DX cooling with R-410A refrigerant using 10-100% variable capacity scroll compressors. A suction pressure sensor will be provided per variable capacity compressor. Option provides the unit with tighter temperature control, improved humidity control and energy savings at part load conditions. Note for DDC controls by others, AAON requires one analog input signal per variable capacity compressor. See Table 3 for compressor type used per size. See Model Option A5 for selection of modulation options.

Table 3 - A1 = D Variable Capacity Compressor

Unit Size Air-Cooled Condenser	Series	A1 = D *R-410A Variable Capacity Scroll Compressor* Compressors per Unit Size
006	A	1 Variable Capacity Compressor
007		
008		
010		
009	B	1 Variable Capacity + 1 Two-Step Comp
011	B or C Horizontal	
013		
015	B	
016	C or C Horizontal	
018		
020		
025		1 Variable Capacity Comp + 1 On/Off Comp
030		
026	D	1 Variable Capacity Comp + 1 Two-Stage Comp
031		1 Variable Capacity Comp + 1 On/Off Tandem Comp

040		1 Variable Capacity Tandem Comp + 1 On/Off Tandem Comp
050		
060		
070		

E= *R-410A Variable Capacity Scroll Compressor (VCC) - 4-Circuit* - Compressorized DX cooling with R-410A refrigerant using two 10-100% variable capacity scroll compressors and two on/off compressors. A suction pressure sensor will be provided per variable capacity compressor. Option provides the unit with tighter temperature control, improved humidity control and energy savings at part load conditions. Note for DDC controls by others, AAON requires one analog input signal per variable capacity compressor. Option is available on RN size 26, 31, 40, 50, 60, 70 ton units.

F = *R-454B Two-Step Scroll Compressor* - Compressorized DX cooling with R-454B using individually circuited two-stage scroll compressors. Capacity steps are 100% and 67%. Option provides the unit with improved temperature control, improved humidity control and energy savings at part load conditions. Option is available on RN Series 11-20 & 26 ton and units include two R-454B two-stage scroll compressors. See Model Option A5 for selection of staging options.

G = *R-454B Digital Scroll Compressor* - Compressorized DX cooling with R-454B refrigerant using two 10-100% variable capacity scroll compressors and two on/off compressors. A suction pressure sensor will be provided per variable capacity compressor. Option provides the unit with tighter temperature control, improved humidity control and energy savings at part load conditions. Note for DDC controls by others, AAON requires one analog input signal per variable capacity compressor. Option is available on RN size 26, 31, 40, 50, 60, 70 ton units.

H = *R-454B Variable Speed Scroll Compressor* - Compressorized DX cooling with R-454B using at least one VFD compatible scroll compressor. A suction pressure sensor will be provided per variable speed compressor. Option provides the unit with tight temperature control, improved humidity control and energy savings at part load conditions. See Table 2 for compressor type used per size. See Model Option A5 for selection of modulation options.

Model Option

Model Option A2 - Condenser Style

Example:

RN A - 105 - E - 0 - 3 - C**A** A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Condenser* - This selection will not include a condenser coil section.

A = *Microchannel Air-Cooled Condenser* - Air-cooled condenser with microchannel coils.

Figure 2 - Air-Cooled Condenser

F = *Water-Cooled Condenser* - Water-cooled condenser. RN Series units feature brazed plate water-cooled condensers. This option is available on sizes 25-50, 60, & 70 tons. This option is not available on units when A1 - Option C (*R-410A Variable Speed Scroll Compressor*).
J = *Alpha Class - Air-Source Heat Pump* - Air-source heat pump which can provide energy efficient heating and cooling. Air-cooled condenser coils and DX evaporator coils will be aluminum fin with copper tubes. Refrigerant piping with reversing valves, filter driers, check valves, accumulators and thermal expansion valves is factory installed. See Model Options B1, B2 and B3 for emergency (backup) heat options and Model Option B5 for auxiliary (supplemental) heat options. Crankcase heater will be provided. This option is available when A1 - Option A (*R-410A Scroll Compressor*) and when A1 - Option D (*R-410A Variable Capacity Scroll Compressor*) for 11-25 & ton units and when A1 - Option E (*R-410A Variable Capacity Scroll Compressor (4-Circuit)* for 26, 31, 40, 50, 60 & 70 ton units. Option is not available on 75-140 ton units.
6 = *Alpha Class - Cold Climate Air-Source Heat Pump* - Air-source heat pump which can provide energy efficient heating and cooling down to zero degrees ambient. AAON Zero Degree Cold Climate Air-Source Heat Pumps will operate at lower ambient temperatures than traditional heat pumps and with higher heating capacities at all operating conditions. This product is a viable option in climates where traditional heat pumps were not. Air-cooled condenser coils and DX evaporator coils will be aluminum fin with copper tubes. Refrigerant piping with reversing valves, filter driers, check valves, accumulators and electronic expansion valves is factory installed. See Model Options B1, B2 and B3 for emergency (backup) heat options and Model Option B5 for auxiliary (supplemental) heat options. Crankcase heater will be provided. This option is available on RN Series up to 50 tons when A1 = Option C, H (*R-410A Variable Speed Scroll Compressor - High Efficiency or R-454B Variable Speed Scroll Compressor)*. **Option is not available on RN Series 6, 8, 18, 60 - 140 ton units.**

Model Option A2 - Condenser Style Continued

L = *Water-Source/ Geothermal Heat Pump* - Water-source heat pump which can provide energy efficient heating and cooling. DX evaporator coils will be aluminum fin with copper tubes. Refrigerant-to-water heat exchangers and refrigerant piping with reversing valves, filter dryers, check valves and thermal expansion valves are factory installed. RN Series units feature brazed plate refrigerant-to-water heat exchangers. See Model Options B1, B2 and B3 for emergency (backup) heat options and Model Option B5 for auxiliary (supplemental) heat options. For 100% outside air, water-source heat pump units may require electric preheat for proper operation. Check application considerations section of unit rating sheer in ECat. Crankcase heater will be provided. This option is available when A1 - Option A (*R-410A Scroll Compressor*) and when A1 - Option D (*R-410A Variable Capacity Scroll Compressor*) for 11-25 & ton units and when A1 - Option E (*R-410A Variable Capacity Scroll Compressor (4-Circuit)* for 26, 31, 40, 50, 60 & 70 ton units. Option is not available on 75-140 ton units.
N = *DX Air-Handling Unit* - Air handling unit evaporator coil, but no compressors or condenser. Option is used with a remote condensing unit. Thermal expansion valve and hot gas bypass connection are included. RN size 11-50, 60 & 70 ton are two-circuit systems. Option is not available on 75-140 ton units.

Model Option

Model Option A3 - Indoor Coil Configuration

Example:

RN A - 105 - E - 0 - 3 - C A**A** 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Cooling Coil*
A = *Standard Evaporator* - Standard capacity DX evaporator coils are copper tubes with aluminum fins. This option is not available on RNA-130 and RNA-140.
B = *6 Row Evaporator* - Six row, high capacity DX evaporator coils are copper tubes with aluminum fins. High capacity coils improve unit's energy efficiency and dehumidification capability.
E = *4 Row Chilled Water Coil Standard Size* - Four row chilled water cooling coil. No valves or valve controls are included with this option. Units include two coils and thus include two inlet and two outlet water connections. Chilled water coils are copper tubes with aluminum fins.
F = *6 Row Chilled Water Coil Standard Size* - Six row chilled water cooling coil. No valves or valve controls are included with this option. Units include two coils and thus include two inlet and two outlet water connections. Chilled water coils are copper tubes with aluminum fins.

Model Option

Model Option A4 - Cooling Heat Exchanger Construction

Example:

RN A - 105 - E - 0 - 3 - C A A **0** A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0 - 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard*

A = *Polymer E-Coated Cooling Coil* - Polymer e-coating is applied only to the cooling coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

E = *Polymer E-Coated Condenser Coil* - Polymer e-coating is applied only to the condenser coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

J = *Polymer E-Coated Evaporator and Condenser Coils* - Polymer e-coating applied to both the condenser and evaporator coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

Model Option

Model Option A5 - Cooling Staging

Example:

RN A - 105 - E - 0 - 3 - C A A 0 **A** - 0 0 0 0 0 : A 0 - A A M 0 L ¯ B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Cooling* - Heating only air handling unit.
2 = *2 Stage* - Two stage cooling unit. Option is available on RN Series 11-25 & 30 ton units.
4 = *4 Stage* - Four stage cooling unit. Option is available on two stage compressor RN Series 11-30 ton units when selected with field installed customer provided controls.
5 = *5 Stage* - Five stage cooling unit. Available on two stage compressor RN Series 11-30 ton units when selected with factory provided controls.
6 = *6 Stage* - Six stage cooling unit. Option is available on RN Series 31-50, 60 & 70 ton units with on/off tandem compressors.
A = *Full Face Variable Speed + Tandem On/Off Comp* - Modulating DX cooling unit. Units include two variable speed scroll compressors and one tandem on/off compressor. With factory provided controls, on/off compressors are staged on while the variable capacity compressors modulate their capacity as needed. Option is available on RN size 75-140 tons.
A = *Modulating - Lead Variable Compressor* - Modulating DX cooling unit. With factory provided controls, on/off compressors are staged on while the variable capacity compressors modulate their capacity as needed. See Table 2 and Table 3 in Model Option A1 for the compressor type on the second circuit.
B = *Modulating - Dual Variable Capacity Compressors* - Modulating DX cooling unit. With factory provided controls, variable capacity compressors are staged on, as efficiently as possible, while modulating their capacity as needed. Option is available on RN size 11-25 & 30 ton. On RN size 26, 31, 40, 50, 60 & 70 ton this option includes two variable capacity compressors and two on/off compressors.
C = *Modulating - Lead Variable Compressor + 2-Stage Compressor* - Modulating DX cooling unit. With factory provided controls, two-stage compressors are staged on while the variable capacity compressors modulate their capacity as needed. See Table 2 and Table 3 in Model Option A1.
F= *Single Serpentine 8 fpi* - Chilled water coil with single serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.
G = *Half Serpentine 8 fpi* - Chilled water coil with half serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.
H = *Single Serpentine 10 fpi* - Standard chilled water coil option with single serpentine circuitry and 10 fins per inch. No valves or valve controls are included with this option.
J = *Half Serpentine 10 fpi* - Chilled water coil with half serpentine circuitry and 10 fins per inch. No valves or valve controls are included with this option.
K = *Single Serpentine 12 fpi* - Chilled water coil with single serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.
L = *Half Serpentine 12 fpi* - Chilled water coil with half serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.

Model Option A5 - Cooling Staging Continued

N = *DX Air-Handling Unit with 2 Refrigerant Circuits* - Air handling unit evaporator coil, but no compressors or condenser. Option is used with a remote condensing unit. Thermal expansion valve and hot gas bypass connection are included. Option available for RN size 11-50, 60 & 70 ton.

Model Option

Model Option B1 - Heat Type

Example:

RN A -105 - E - 0 - 3 - C A A 0 A - **0** 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Heating*
A = *Electric Heat (vertical)* - Electric heater with multiple elements for units with bottom supply opening.
B = *Electric Heat (Horizontal)* - Electric heater with multiple elements for units with end supply opening. Option available for RN 11 (Series = C), 13 (Series = C), 16, 18, 20, 25, 30.
C = *Natural Gas* - Natural gas heater for units with bottom supply opening. RN Series E cabinet units (75-140 tons) require two gas connections, one on the right side and one on the left side of the cabinet; all other unit sizes require only one gas connection.
D= *Natural Gas* - Natural gas heater for units with end supply opening. RN Series C Horizontal cabinet units (11-25 & 30 tons) requires only a single gas connection.
F = *LP Gas* - Liquid propane gas heater for units with bottom supply opening. RN Series E cabinet units (75-140 tons) require two gas connections, one on the right side and one on the left side of the cabinet; all other unit sizes require only one gas connection.
G = *LP Gas* - Liquid propane gas heater for units with end supply opening. RN Series C Horizontal cabinet units (11-25 & 30 tons) requires only a single gas connection
J = *Hot Water Coil* - Hot water heating coil for units with bottom supply opening. No valves or valve controls are included with this option.
K = *Hot Water Coil* - Hot water heating coil for units with end supply opening. No valves or valve controls are included with this option
L = *Steam Distributing Coil* - Steam heating coil for units with bottom supply opening.. No valves or valve controls are included with this option. The maximum operating pressure for steam coils is 25 psi.
M = *Steam Distributing Coil* - Steam heating coil for units with end supply opening. No valves or valve controls are included with this option. The maximum operating pressure for steam coils is 25 psi.

Model Option

Model Option B2 - Heat Construction

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 **0** 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0 - 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Heat*

A = *Aluminized Heat Exchanger, Gas Piping to the Valve* - Natural gas or liquid propane gas heater with aluminized steel heat exchanger with a 15 year non-prorated warranty. The maximum temperature rise across the heater exchanger is 70°F. The gas piping will be a single solid pipe manifold design eliminating any joints up to the valve.

B = *Stainless Steel Heat Exchanger, Gas Piping to the Valve*- Natural gas or liquid propane gas heater with 304 stainless steel heat exchanger with a 25 year non-prorated warranty. Stainless steel heat exchangers are required where the outside air rate is greater than or equal to 50% of the supply cfm or where the temperature rise across the heater exceeds the rating for the aluminized steel option (70°F). The maximum temperature rise for stainless steel heat exchangers is 100°F. The gas piping will be a single solid pipe manifold design eliminating any joints up to the valve.

C = *High Altitude Aluminized, Gas Piping to the Valve* - Natural gas or liquid propane gas heater with aluminized steel heat exchanger with a 15 year non-prorated warranty. Burner orifices are chosen based on altitude at or above 2,000 feet as selected in AAON ECat. The maximum temperature rise across the heat exchanger is 70°F. The gas piping will be a single solid pipe manifold design eliminating any joints up to the valve.

D = *High Altitude Stainless Steel, Gas Piping to the Valve* - Natural gas or liquid propane gas heater with 304 stainless steel heat exchanger with a 25 year non-prorated warranty. Burner orifices are chosen based on altitude at or above 2,000 feet as selected in AAON ECat. Stainless steel heat exchangers are required where the outside air rate is greater than or equal to 50% of the supply cfm or where the temperature rise across the heater exceeds the rating for the aluminized steel option (70°F). The maximum temperature rise for stainless steel heat exchangers is 100°F. The gas piping will be a single solid pipe manifold design eliminating any joints up to the valve.

G = *Hot Water Polymer E-Coated Coil* - Hot water coil with a polymer e-coating applied to the complete coil and casing. Coating exceeds a 10,000 hour salt spray test per ASTM B 117-90 requirements, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. No valves or valve controls are included with this option. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

H = Standard CFM Electric Heat – Standard electric heat configuration, designed for higher airflow units >18500 cfm.

J = Low CFM Electric Heat – Low CFM electric heat configuration, designed for lower airflow units <18500 CFM.

Model Option

Model Option B3 - Heat Designation

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 **0** 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = No Heat
1 = Heat 1
2 = Heat 2
3 = Heat 3
4 = Heat 4
5 = Heat 5
6 = Heat 6
7 = Heat 7
A = 1 Row
E = 2 Row

1 - 7 = *Electric or Gas Heat Input Capacity* - See Table 4
A = *1 Row Coil* - Single row hot water or steam heating coil. No valves or valve controls are included with this option.
E = *2 Row Coil* - Two row hot water or steam heating coil. No valves or valve controls are included with this option.

Note: AAON ECat will select the correct heating designation option for gas heat or electric heat based on the desired leaving air and entering air temperature conditions. See General Data section for tonnage specific heating information.

Table 4 - Electric and Gas Heating Capacities

RN Unit Size	Model Option B3	Gas Heat Input Capacity	Gas Heat Output Capacity	Electric Heat Capacity	
		MBH	MBH	kW (208V)	kW (230V, 380V 460V, 575V)
A Series (6-8, 10)	**1** = Heat 1	90	73.2	7.5	10
	2 = Heat 2	150	122.0	15.0	20
	3 = Heat 3	210	170.7	22.5	30
	4 = Heat 4			30.0	40
	5 = Heat 5			37.5	50
	6 = Heat 6			45.0	60
B Series (9, 11-15)	**1** = Heat 1	195	158.5	15.0	20
	2 = Heat 2	292.5	237.8	22.5	30
	3 = Heat 3	390	317.1	30.0	40
	4 = Heat 4			37.5	50
	5 = Heat 5			45.1	60
	6 = Heat 6			60.1	80
Horizontal C Series (11-25 & 30 tons)	**1** = *Heat 1*	270.0	218.7	15.0	20.0
	2 = *Heat 2*	405.0	328.1	30.0	40.0
	3 = *Heat 3*	540.0	432.0	45.1	60.0
	4 = *Heat 4*			60.1	80.0
16-25 & 30 tons	**5** = *Heat 5*			75.1	100.0
	6 = *Heat 6*			90.1	120.0
D Series (26, 31, 40, 50, 60, 70 tons)	**1** = *Heat 1*			30.0	40.0
	2 = *Heat 2*	600.0	480.0	60.1	80.0
	3 = *Heat 3*	900.0	720.0	90.1	120.0
	4 = *Heat 4*	1200.0	960.0	120.1	160.0
31, 40, 50, 60, 70 tons	**5** = *Heat 5*			150.2	200.0
	6 = *Heat 6*			180.2	240.0
E Series (75-140 tons)	**1** = *Heat 1*	800.0	640.0	60.1	80.0
	2 = *Heat 2*	1200.0	960.0	90.1	120.0
	3 = *Heat 3*	1600.0	1280.0	120.2	160.0
	4 = *Heat 4*	2000.0	1600.0	150.2	200.0
	5 = *Heat 5*	2400.0	1920.0	180.3	240.0
	6 = *Heat 6*			210.3	280.0
	7 = *Heat 7*			240.4	320.0

Model Option

Model Option B4 - Heat Staging

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 **0** 0 : A 0 - A A M 0 L ¯ B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Heating*
A = *1 stage* - One stage heat control.
B = *2 stage* - Two stage heat control.
C = *3 stage* - Three stage heat control.
D = *4 stage* - Four stage heat control.
E = *5 stage* - Five stage heat control.
F = 6 *stage* - Six stage heat control.
G = 7 *stage* - Seven stage heat control.
H = 8 *stage* - Eight stage heat control.
V = 10 *stage* - Ten stage heat control.
J = 12 *stage* - Twelve stage heat control.

Table 5 - RN Series Gas Turndown

Model (Nominal Tons)	Rated Input (MBH)	Number of Stages Available	Modulating Gas	High Turndown Modulating Gas
6-8, 10	90	1, 2, 4	3:1	10:1
	150	1, 2, 4	3:1	8:1
	210	1, 2, 4	3:1	11:1
9, 11-15	195	2, 4	3:1	10:1
	292.5	2, 4		
	390	2, 4		
Horizontal 11-25 & 30 tons	270.0	2, 4	3.0:1	9.0:1
	405.0	2, 4	4.5:1	13.0:1
	540.0	2, 4	3.0:1	18.0:1
26, 31, 40, 50, 60, 70 tons	600.0	2, 4	3.0:1	10.0:1
	900.0	2, 4	5.0:1	15.0:1
	1200.0	2, 4	5.0:1	20.0:1
75-140 tons	800.0	2, 4	3:1	7.5:1
	1200.0	3, 6	4.5:1	11.3:1
	1600.0	4, 8	6:1	15.1:1
	2000.0	5, 10	7.5:1	18.9:1
	2400.0	6, 12	9:1	22.7:1

Model Option B4 - Heat Staging Continued

K= *Modulating Gas - Temperature Control* - Heater gas valve and the speed of the induced draft fan are modulated by a DDC controller Includes a factory wired supply air temperature sensor which is field installed in the supply ductwork. Controller can be used in standalone applications or connected to a VCC-X controller via modular cable (Feature 16B = A). In standalone application, on a call for heating, the controller will modulate gas valve and speed of induced draft blower to maintain a constant supply air temperature setpoint that is set using a DIP switch on the controller. The supply air temperature can be reset to a supply air temperature reset setpoint using a field provided 0-10 VDC reset input signal and another DIP switch on the controller. When the modulating gas heat controller is connected to a VCC-X controller (Feature 16B = A) supply air temperature setpoint, supply air temperature sensor offset, and supply air high temperature limit setpoint will be set with the unit controller's operator interface. The heat enable signal is provided by the unit controller. Modulating gas heat requires a stainless steel natural gas heat exchanger (Model Option B2 = B or D).
L = *High Turndown Modulating Gas Heat* - This option is similar to Option K. This option adds a split manifold on the modulating heater. This provides a lower capacity on the lowest setting. This achieves a higher turndown.
M = *Modulating/SCR Electric – with Temperature Control* - Fully modulating electric heating, controlled by a Silicon Controlled Rectifier (SCR) and DDC controller. Includes a factory wired supply air temperature sensor, which is field installed in the supply ductwork, and a factory wired supply air temperature setpoint adjustment potentiometer, which is field mounted. Potentiometer dial uses variable resistance to provide simple setpoint control.
N = Modulating/*SCR Electric - with External 0-10VDC* - Fully modulating electric heating, controlled by an SCR and DDC controller. A terminal strip to connect a 0-10 VDC control signal by others is included. Heating elements line voltage is modulated linearly with respect to the control signal.
P = *Single Serpentine 8 fpi* - Hot water or steam heating coil with single serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.
Q = *Half Serpentine 8 fpi* - Hot water heating coil with half serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.
R = *Single Serpentine 10 fpi* - Hot water or steam heating coil with single serpentine circuitry and 10 fins per inch. Standard steam coil option and standard 2 row hot water coil option. No valves or valve controls are included with this option.
S = *Half Serpentine 10 fpi* - Hot water heating coil with half serpentine circuitry and 10 fins per inch. Standard 1 row hot water coil option. No valves or valve controls are included with this option.
T = *Single Serpentine 12 fpi* - Hot water or steam heating coil with single serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.
U = *Half Serpentine 12 fpi* - Hot water heating coil with half serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.

Model Option

Model Option B5 - Heat Pump Aux Heating

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 **0** : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0 - 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Heat Pump*

Table 6 - Heat Pump Auxiliary Heating Capacities (A and B Cabinet)

Model Option B5	Electric Heat Capacity RNA - A Series		Electric Heat Capacity RNA - B Series	
	kW (208V)	kW (230V, 380V 460V, 575V)	kW (208V)	kW (230V, 380V 460V, 575V)
A = *Heat Pump Auxiliary Heat - 1 Stage*	7.5	10.0	15.0	20.0
B = *Heat Pump Auxiliary Heat - 1 Stage*	15.0	20.0	22.5	30.0
C = *Heat Pump Auxiliary Heat - 1 Stage*	22.5	30.0	30.0	40.0
D = *Heat Pump Auxiliary Heat - 1 Stage*	30.0	40.0	37.5	50.0
E = *Heat Pump Auxiliary Heat - 1 Stage*	37.5	50.0	45.1	60.0
F = *Heat Pump Auxiliary Heat - 1 Stage*	45.1	60.0	60.1	80.0
K = *Heat Pump Auxiliary Heat - 2 Stage*	7.5	10.0	15.0	20.0
L = *Heat Pump Auxiliary Heat - 2 Stage*	15.0	20.0	22.5	30.0
M = *Heat Pump Auxiliary Heat - 2 Stage*	22.5	30.0	30.0	40.0
N = *Heat Pump Auxiliary Heat - 2 Stage*	30.0	40.0	37.5	50.0
P = *Heat Pump Auxiliary Heat - 2 Stage*	37.5	50.0	45.1	60.0
Q = *Heat Pump Auxiliary Heat - 2 Stage*	45.1	60.0	60.1	80.0
U = *Heat Pump Auxiliary Heat - 4 Stage*	7.5	10.0	15.0	20.0
V = *Heat Pump Auxiliary Heat - 4 Stage*	15.0	20.0	22.5	30.0
W = *Heat Pump Auxiliary Heat - 4 Stage*	22.5	30.0	30.0	40.0
Y = *Heat Pump Auxiliary Heat - 4 Stage*	30.0	40.0	37.5	50.0
Z = *Heat Pump Auxiliary Heat - 4 Stage*	37.5	50.0	45.1	60.0
1 = *Heat Pump Auxiliary Heat - 4 Stage*	45.1	60.0	60.1	80.0

Table 7 - Heat Pump Auxiliary Heating Capacities (C and D Cabinet)

Model Option B5	Electric Heat Capacity RNA - C Series		Electric Heat Capacity RNA - D Series	
	kW (208V)	kW (230V, 380V 460V, 575V)	kW (208V)	kW (230V, 380V 460V, 575V)
A = *Heat Pump Auxiliary Heat - 1 Stage*	7.5	10.0	30.0	40.0
B = *Heat Pump Auxiliary Heat - 1 Stage*	15.0	20.0	60.1	80.0
C = *Heat Pump Auxiliary Heat - 1 Stage*	30.0	40.0	90.1	120.0
D = *Heat Pump Auxiliary Heat - 1 Stage*	45.1	60.0	120.1	160.0
E = *Heat Pump Auxiliary Heat - 1 Stage*	60.1	80.0	150.2	200.0
F = *Heat Pump Auxiliary Heat - 1 Stage*	75.1	100.0	180.2	240.0
G = *Heat Pump Auxiliary Heat - 1 Stage*	90.1	120.0		
K = *Heat Pump Auxiliary Heat - 2 Stage*	7.5	10.0	30.0	40.0
L = *Heat Pump Auxiliary Heat - 2 Stage*	15.0	20.0	60.1	80.0
M = *Heat Pump Auxiliary Heat - 2 Stage*	30.0	40.0	90.1	120.0
N = *Heat Pump Auxiliary Heat - 2 Stage*	45.1	60.0	120.1	160.0
P = *Heat Pump Auxiliary Heat - 2 Stage*	60.1	80.0	150.2	200.0
Q = *Heat Pump Auxiliary Heat - 2 Stage*	75.1	100.0	180.2	240.0
R = *Heat Pump Auxiliary Heat - 2 Stage*	90.1	120.0		
U = *Heat Pump Auxiliary Heat - 4 Stage*	7.5	10.0	30.0	40.0
V = *Heat Pump Auxiliary Heat - 4 Stage*	15.0	20.0	60.1	80.0
W = *Heat Pump Auxiliary Heat - 4 Stage*	30.0	40.0	90.1	120.0
Y = *Heat Pump Auxiliary Heat - 4 Stage*	45.1	60.0	120.1	160.0
Z = *Heat Pump Auxiliary Heat - 4 Stage*	60.1	80.0	150.2	200.0
1 = *Heat Pump Auxiliary Heat - 4 Stage*	75.1	100.0	180.2	240.0
2 = *Heat Pump Auxiliary Heat - 4 Stage*	90.1	120.0		

Feature 1
1: Unit Orientation

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : **A** 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard Access - Hinged Access Doors with Lockable Handles*
A = *Draw Through Compact Supply Fan, End Compressor Compartment, Both Side Access* - The supply fan is in the draw through position with access doors on both sides of the air tunnel. Compressor and control panel access is at the end of the unit.
D = *Draw Through Compact Supply Fan, Non-compressorized, End Control Panel, Both Side Access* - The supply fan is in the draw through position with access doors on both sides of the air tunnel. This selection does not include a compressorized section. Control panel access is at the end of the unit.

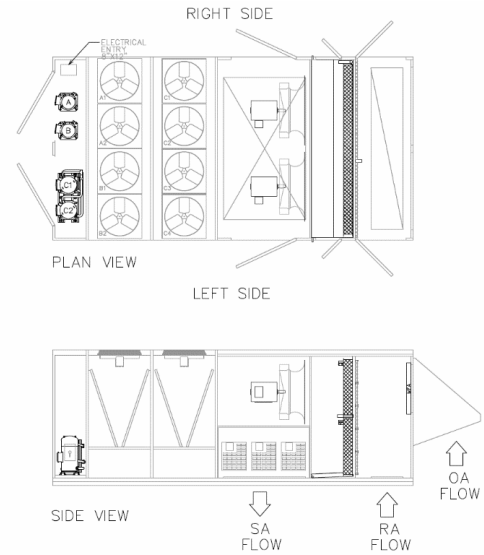

Figure 3 - Draw Through Supply Fan, End Compressor, Both Side Access

Feature 2

2: Supply & Return Locations

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A **0** - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 0 0 0 A - 0 0 0 0 - 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Bottom Supply + Bottom Return*
A = *Bottom Supply + No Return - 100% OA Units Only*
V = *Horizontal Configuration - End Supply--No Return - 100% OA Units Only*
Z = *Horizontal Configuration - End Supply--Right Return - ERW Units Only*
1 = *Horizontal Configuration - End Supply--End Return*

Feature 3A

3A: Supply Fan Quantity

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - **A** A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0 - 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *1 Fan*
A = *2 Fans*

AAON ECat will select the correct available options for Feature 3A based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the “Fan Selection” window. In the “Fan Selection” window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the “Fan Selection” window.

Feature 3B

3B: Supply Fan Configuration

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A **A** M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No VFDs + Full Width Fan*
A = *1 Fan per VFD + Full Width Fan*
B = 2 *Fans per VFD + Full Width Fan*
E = *No VFDs + Narrow Width Fan*
F = *1 Fan per VFD + Narrow Width Fan*
G = *2 Fans per VFD + Narrow Width Fan*
K = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
L = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
M = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
Q = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
R = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
S = *2 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

Figure 4 - Inlet Backdraft Dampers

AAON ECat will select the correct available options for Feature 3B based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the “Fan Selection” window. In the “Fan Selection” window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the “Fan Selection” window.

Feature 3C

3C: Supply Fan Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A **M** 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *13.5" Direct Drive Backward Curved Plenum Aluminum*
A = *15" Direct Drive Backward Curved Plenum Aluminum*
B = *17" Direct Drive Backward Curved Plenum Aluminum*
C = *18.5" Direct Drive Backward Curved Plenum Aluminum*
E = *22" Direct Drive Backward Curved Plenum Aluminum*
F = *24" Direct Drive Backward Curved Plenum Aluminum*
G = *27" Direct Drive Backward Curved Plenum Aluminum*
H = *30" Direct Drive Backward Curved Plenum Aluminum*
J = *30" Direct Drive Backward Curved Plenum Steel*
K = *33" Direct Drive Backward Curved Plenum Steel*
L = *36.5" Direct Drive Backward Curved Plenum Aluminum*
M = *42.5" Direct Drive Backward Curved Plenum Aluminum*
N = *355mm Direct Drive Airfoil Aluminum*
P = *400mm Direct Drive Airfoil Aluminum*
Q = *450mm Direct Drive Airfoil Aluminum*
R = *500mm Direct Drive Airfoil Aluminum*
S = *560mm Direct Drive Airfoil Aluminum*
T = *630mm Direct Drive Airfoil Aluminum*

Options N-T (Direct Drive Airfoil Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON ECat will select the correct available options for Feature 3C based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 3D

3D: Supply Fan Motor Type

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M **0** L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *High Efficiency Open Motor (1170 nominal rpm)*
A = *High Efficiency Open Motor (1760 nominal rpm)*
K = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*
L = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*

AAON ECat will select the correct available options for Feature 3D based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 3E

3E: Supply Fan Motor Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 **L** - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *0.25 hp*
A = *0.33 hp*
B = *0.5 hp*
C = *0.75 hp*
D = *1 hp*
E = *1.5 hp*
F = *2 hp*
G = *3 hp*
H = *5 hp*
J = *7.5 hp*
K = *10 hp*
L = *15 hp*
M = *20 hp*
N = *25 hp*
P = *30 hp*
Q = *40 hp*
R = *50 hp*
S = *60 hp*
T = *75 hp*

AAON ECat will select the correct available options for Feature 3E based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 4A
4A: Outside Air Section

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - **B** 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0 - 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *100% Outside Air, No Return Air* - Outside air opening in the unit which can accommodate 100% of the unit air flow. The outside air opening is not adjustable, and the unit will not have a return air opening. Unit must have a stainless steel heat exchanger if gas heat is specified. Hot gas bypass on all refrigeration circuits without variable speed scroll compressors is required with this option.

A = *Motorized 100% Outside Air Dampers, No Return Air* - Extruded aluminum, low leakage, gear driven outside air dampers to control the outside air intake. This option is for 100% outside air applications and unit will not have a return air opening. Units must have a stainless steel heat exchanger if gas heat is specified. Hot gas bypass on all refrigeration circuits, without variable speed scroll compressors is required with this option. Dampers open on a call for the supply fan. See Feature 7 for outside air damper actuator control options.

B = *Manually Adjustable Outside Air Opening with Return Air Opening* - 0-25% manually adjustable outside air opening. Option includes a return air opening in the unit base.

C = *Motorized Outside Air Dampers with Return Air* - Extruded aluminum, low leakage, aluminum gear driven outside air dampers to control the outside air intake. Option includes a return air opening in the unit base. Dampers open on a call for the supply fan. See Feature 7 for outside air damper actuator control options.

D = *100 % Return Air, No Outside Air* - Return air opening in the unit which can accommodate 100% of the unit air flow. The return air opening is not adjustable, and the unit will not have an outside air opening.

E = *Economizer* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with factory installed actuator and barometric relief damper on the return air section. See Feature 7 for actuator control options.

F = *Economizer with Power Exhaust (Axial Fans)* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with power exhaust for space pressurization control during the economizer mode of operation. See Feature 7 for actuator control options. Variable flow power exhaust is available with the selection of a VFD in Feature 6B. Exhaust fans are axial fans. Only available on Cabinet Size D.

G = *Economizer with Power Exhaust (Plenum Fans)* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with power exhaust for space pressurization control during the economizer mode of operation. See Feature 7 for actuator control options. Variable flow power exhaust is available with the selection of a VFD in Feature 6B. Exhaust fans are plenum fans. This option in Cabinet Size D must include an empty energy recovery wheel selectable in Feature 18A & 18B.

H = *Economizer with Power Return* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with power return for use with high return static pressure applications. See Feature 7 for actuator control options. Variable flow power return is available with the selection of a VFD or ECM in Feature 5B.

Feature 4A - Outside Air Section Continued

J = *Economizer with Power Return (Plenum Fans)* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with power return for use with high return static pressure applications. See Feature 7 for actuator control options. Variable flow power return is available with the selection of a VFD or ECM in Feature 5B. Return fans are plenum fans. Only available on Cabinet Size E.
K = *Economizer with AAONAIRE Energy Recovery* - Factory installed energy recovery with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. See Feature 7 for economizer actuator control options.
Q = *Economizer with AAONAIRE Energy Recovery with Bypass Damper* - Factory installed energy recovery with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. Bypass damper with two position actuator allows air to flow around the wheel. Select when the outside air flow is greater than the maximum air flow rating of the wheel or when additional air flow is needed during economizer operation. Outside air flow through the wheel is limited to the maximum air flow rating of the wheel shown in Table 8 and Table 9. See Feature 7 for economizer actuator control options.

Feature 4B

4B: Energy Recovery Type

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B **0** 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Energy Recovery Wheel*
A = *Polymer Energy Recovery Wheel* - Factory installed polymer energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. See Feature 7 for economizer actuator control options.
B = *Polymer Energy Recovery Wheel+1% Purge* - Factory installed polymer energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. Option includes an adjustable purge sector, which can reduce carryover to no more than 1%. Used for applications which require limiting cross contamination of the ventilation air with exhaust air. Feature 7 for economizer actuator control options.
C = *Aluminum Energy Recovery Wheel* - Factory installed aluminum energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. See Feature 7 for economizer actuator control options.

Figure 5 - Aluminum Energy Recovery Wheel

Feature 4B - Energy Recovery Type Continued

D = *Aluminum Energy Recovery Wheel+1% Purge* **-** Factory installed aluminum energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. Option includes an adjustable purge sector, which can reduce carryover to no more than 1%. Used for applications which require limiting cross contamination of the ventilation air with exhaust air. Feature 7 for economizer actuator control options.

Feature 4C

4C: Energy Recovery Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 **0** - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Energy Recovery*
A = *Low CFM Enthalpy* - The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 8.
B = *High CFM Enthalpy* - The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 9.
C = *Low CFM Enthalpy - Single Wheel* - The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 8. Only available on Cabinet Size D.
D = *Low CFM Enthalpy – Dual Wheel* - This option includes two wheels. The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 7. Only available on Cabinet Size D.
E = *Low CFM Sensible* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 8.
F = *High CFM Sensible* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 9.
H = *Low CFM Sensible – Dual Wheel* - This option includes two wheels. The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 7. Only available on Cabinet Size D.
J = *Low CFM Enthalpy + Exhaust Filters* - The wheel's styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 8. Exhaust filters are installed in the exhaust air stream upstream of the wheel.

Feature 4C - Energy Recovery Size Continued

K = *High CFM Enthalpy + Exhaust Filters*- The wheel's styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 9. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
L = *Low CFM Enthalpy - Single Wheel + Exhaust Filters* - The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 8. Exhaust filters are installed in the exhaust air stream upstream of the wheel. Only available on Cabinet Size D.
N = *Low CFM Sensible + Exhaust Filters* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 8. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
M = *Low CFM Enthalpy + Exhaust Filters – Dual Wheel* - This option includes two wheels. The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 7. Exhaust filters are installed in the exhaust air stream upstream of the wheel. Only available on Cabinet Size D.
P = *High CFM Sensible + Exhaust Filters* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 9. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
R = *Low CFM Sensible + Exhaust Filters – Dual Wheel* - This option includes two wheels. The wheel does not have silica gel desiccant on the substrate. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 7. Exhaust filters are installed in the exhaust air stream upstream of the wheel. Only available on Cabinet Size D.

Table 8 - Low CFM Energy Recovery Wheel Information

Feature 4C	Cabinet	Model	Energy Recovery Wheel P = Polymer; A = Aluminum		
			Qty/Diameter/Width	Maximum Air Flow Through the Wheel	Wheel Bypass Maximum Airflow
Low CFM Wheel Options: A,E,J,N	Horizontal C	RN-011	P = 1/52”/1.5”	P = 5,000 cfm	P = 2,250 cfm
		RN-013			
		RN-016			
		RN-018			
		RN-020			
		RN-025			
		RN-030			
	D	RN-026	P = 2/52”/1.5”	P = 10,000 cfm	P = 12,000 cfm
		RN-031			
		RN-040			
		RN-050			
		RN-060			
		RN-070			
	E	RN-055	P = 1/81”/3.0” A = 1/81”/4.0”	P = 15,500 cfm A = 15,500 cfm	P = 22,000 cfm A = 22,000 cfm
		RN-065			
		RN-075			
		RN-090			
		RN-105			
		RN-120			
		RN-130			
		RN-140			
Low CFM Single Wheel Option: C,L, D, H, M, R	D	RN-026	P = 1/64”/3.0” A = 1/64”/4.0” P = 2/64”/3.0” A = 2/64”/4.0”	P = 9,000 cfm A = 10,800 cfm P = 19,000 cfm A = 19,000 cfm	P = 12,000 cfm A = 12,300 cfm P = 0 cfm A = 0 cfm
		RN-031			
		RN-040			
		RN-050			
		RN-060			
		RN-070			

Table 9 - High CFM Energy Recovery Wheel Information

Feature 4C	Cabinet	Model	Energy Recovery Wheel P = Polymer; A = Aluminum		
			Qty/Diameter/Width	Maximum Air Flow Through the Wheel	Wheel Bypass Maximum Airflow
High CFM Wheel Options: B, F, K, P	Horizontal C	RN-011	P = 1/52”/3.0” A = 1/52”/4.0”	P = 6,600 cfm A = 8,000 cfm	P = 2,250 cfm A = 2,800 cfm
		RN-013			
		RN-016			
		RN-018			
		RN-020			
		RN-025			
		RN-030			
	D	RN-026	P = 2/52”/3.0” A = 2/52”/4.0”	P = 12,000 cfm A = 14,400 cfm	P = 17,000 cfm A = 17,000 cfm
		RN-031			
		RN-040			
		RN-050			
		RN-060			
		RN-070			
	E	RN-055	P = 2/64”/3.0” A = 2/64”/4.0”	P = 19,000 cfm A = 19,000 cfm	P = 29,500 cfm A = 29,500 cfm
		RN-065			
		RN-075			
		RN-090			
		RN-105			
		RN-120			
		RN-130			
		RN-140			

Feature 5A
5A: Return Fan Quantity

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - **0** 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Return Fan*
A = *1 Fan*
B = *2 Fans*

AAON ECat will select the correct available options for Feature 5A based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs, and motor efficiency. General fan information, fan sound information, and fan curves will be available for viewing in the "Fan Selection" window.

Feature 5B
5B: Return Fan Configuration

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 **0** 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Return Fan*
A = *No VFDs + Full Width Fan*
B = *1 Fan per VFD + Full Width Fan*
C = *2 Fans per VFD + Full Width Fan*
F = *No VFDs + Narrow Width Fan*
G = *1 Fan per VFD + Narrow Width Fan*
H = *2 Fans per VFD + Narrow Width Fan*
L = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
M = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
N = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
R = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
S = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
T = *2 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

Feature 5B - Return Fan Configuration Continued

*Power return with VFD or Speed Control requires field supplied control signal.

AAON ECat will select the correct available options for Feature 5B based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 5C

5C: Return Fan Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 **0** 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Return Fan*
A = *16" Axial*
B = *22" Axial*
C = *36" Axial*
D = *42" 9 Blade Axial*
E = *42" 12 Blade Axial*
F = *48" Axial*
G = *12" x 9" Forward Curved*
H = *15" Direct Drive Backward Curved Plenum Aluminum*
J = *18.5" Direct Drive Backward Curved Plenum Aluminum*
L = *22" Direct Drive Backward Curved Plenum Aluminum*
M = *24" Direct Drive Backward Curved Plenum Aluminum*
N = *27" Direct Drive Backward Curved Plenum Aluminum*
P = *30" Direct Drive Backward Curved Plenum Aluminum*
Q = *30" Direct Drive Backward Curved Plenum Steel*
R = *33" Direct Drive Backward Curved Plenum Steel*
S = *36.5" Direct Drive Backward Curved Plenum Aluminum*
T = *42.5" Direct Drive Backward Curved Plenum Aluminum*
U = *355mm Direct Drive Airfoil Aluminum*
V = *400mm Direct Drive Airfoil Aluminum*
W = *450mm Direct Drive Airfoil Aluminum*
Y = *500mm Direct Drive Airfoil Aluminum*

Feature 5C - Return Fan Size Continued

Z = *560mm Direct Drive Airfoil Aluminum*
1 = *630mm Direct Drive Airfoil Aluminum*

Options U-Z & 1 (Direct Drive Airfoil Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON ECat will select the correct available options for Feature 5C based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 5D
5D: Return Fan Motor Type

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 **0** 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Return Fan*
A = *High Efficiency Open Motor (1170 nominal rpm)*
B = *High Efficiency Open Motor (1760 nominal rpm)*
L = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*
M = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*

AAON ECat will select the correct available options for Feature 5D based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 5E

5E: Return Fan Motor Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 **0** - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Return Fan*
E = *1 hp*
F = *1.5 hp*
G = *2 hp*
H = *3 hp*
J = *5 hp*
K = *7.5 hp*
L = *10 hp*
M = *15 hp*
N = *20 hp*
P = *25 hp*
Q = *30 hp*
R = *40 hp*
S = *50 hp*

AAON ECat will select the correct available options for Feature 5E based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the “Fan Selection” window. In the “Fan Selection” window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the “Fan Selection” window.

Feature 6A

6A: Exhaust Fan Quantity

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - **0** 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Exhaust Fan*
A = *1 Fan*
B = *2 Fans*

AAON ECat will select the correct available options for Feature 6A based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs, and motor efficiency. General fan information, fan sound information, and fan curves will be available for viewing in the "Fan Selection" window.

Feature 6B

6B: Exhaust Fan Configuration

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 **0** 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Exhaust Fan*
A = *No VFDs + Full Width Fan*
B = *1 Fan per VFD + Full Width Fan*
C = *2 Fans per VFD + Full Width Fan*
F = *No VFDs + Narrow Width Fan*
G = *1 Fan per VFD + Narrow Width Fan*
H = *2 Fans per VFD + Narrow Width Fan*
L = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
M = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
N = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
R = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
S = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
T = *2 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

Feature 6B - Exhaust Fan Configuration Continued

*Power exhaust with VFD or Speed Control requires field supplied control signal.

AAON ECat will select the correct available options for Feature 6B based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 6C

6C: Exhaust Fan Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 **0** 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Exhaust Fan*
C = *36" Axial*
L = *22" Direct Drive Backward Curved Plenum Aluminum*
M = *24" Direct Drive Backward Curved Plenum Aluminum*
N = *27" Direct Drive Backward Curved Plenum Aluminum*
P = *30" Direct Drive Backward Curved Plenum Aluminum*
Q = *30" Direct Drive Backward Curved Plenum Steel*
R = *33" Direct Drive Backward Curved Plenum Steel*
S = *36.5" Direct Drive Backward Curved Plenum Aluminum*
T = *42.5" Direct Drive Backward Curved Plenum Aluminum*

AAON ECat will select the correct available options for Feature 6C based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Feature 6D

6D: Exhaust Fan Motor Type

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 **0** 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Exhaust Fan*
A = *High Efficiency Open Motor (1170 nominal rpm)*
B = *High Efficiency Open Motor (1760 nominal rpm)*
L = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*
M = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*

AAON ECat will select the correct available options for Feature 6D based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the “Fan Selection” window. In the “Fan Selection” window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the “Fan Selection” window.

Feature 6E

6E: Exhaust Fan Motor Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 **0** - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Return Fan*	**K** = *7.5 hp*	**R** = *40 hp*
E = *1 hp*	**L** = *10 hp*	**S** = *50 hp*
F = *1.5 hp*	**M** = *15 hp*	
G = *2 hp*	**N** = *20 hp*	
H = *3 hp*	**P** = *25 hp*	
J = *5 hp*	**Q** = *30 hp*	

AAON ECat will select the correct available options for Feature 6E based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the “Fan Selection” window. In the “Fan Selection” window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the “Fan Selection” window.

Feature 7
7: Outside Air Control

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L ¯ B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - **0** A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard - None* - No economizer or motorized outside air dampers.
A = *3 Position Actuator with Sensible Limit* - Economizer actuator with three positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. Position three is the economizer mode position with outside air dampers fully open. The minimum outside air position can be field adjusted for the desired amount of outside air. The range for the changeover control is 45°F to 95°F and responds to sensible temperature only. The actuator is spring return closed. During economizer mode supply air temperature will vary with outside air temperature. Only available on Cabinet Size E.
B = *3 Position Actuator with Enthalpy Limit* - Economizer actuator with three positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. Position three is the economizer mode position with outside air dampers fully open. The minimum outside air position can be field adjusted for the desired amount of outside air. Changeover control responds to sensible and latent heat of the ambient air. The actuator is spring return closed. Only available on Cabinet Size E.
C = *Fully Modulating Actuator with Sensible Limit* - Fully modulating economizer actuator with two positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. The range for the changeover control is 45°F to 95°F and responds to sensible temperature only. The actuator is spring return closed.
D = *Fully Modulating Actuator with Enthalpy Limit* - Fully modulating economizer actuator with two positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. Changeover control responds to sensible and latent heat of the ambient air. The actuator is spring return closed.
E = *DDC Actuator* - Economizer actuator with terminal strip (EC1 and EC2) in the controls compartment for a field supplied outside air control signal. Actuator is factory configured for a 4-20 mA control signal, but can be configured for a 0-10 VDC control signal by removing the resistor between the terminals, EC1 and EC2. Use this option where customer supplied controls are employed for unit and economizer functions. All economizer functions will be by others. AAON provides the damper assembly and actuator only. Part of the D-PAC and PAC control systems. See Feature 13 and Controls section for more D-PAC and PAC information.

Feature 7 - Outside Air Control Continued

P = *CO_2 Override + Fully Modulating Actuator with Sensible Limit* - Option C + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying CO_2 setpoint. This option works best with air velocities in the 600 to 1200 fpm range.
Q = *CO_2 Override + Fully Modulating Actuator with Enthalpy Limit* - Option D + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying CO_2 setpoint. This option works best with air velocities in the 600 to 1200 fpm range.
R = *CO_2 Override + DDC Actuator* - Option E + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying CO_2 setpoint. This option works best with air velocities in the 600 to 1200 fpm range. The CO_2 sensor will be wired back to a set of terminals or customer supplied factory installed DDC controller.
U = *2 Position Actuator* - Used with motorized outside air options in Feature 1. Position one is the closed position. Position two is the fully open position, which is activated when there is a call for supply fan operation.
V = *Fault Detection and Diagnostics Controller (FDD) Fully Modulating Actuator with Sensible Limit* - Fully modulating economizer actuator with two positions provided with fault detection and diagnostics. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. The range for the changeover control is 45°F to 95°F and responds to sensible temperature only. The actuator is spring return closed. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

Feature 7 - Outside Air Control Continued

W = *FDD Fully Modulating Actuator with Enthalpy Limit* - Fully modulating economizer actuator with two positions provided with fault detection and diagnostics. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. Changeover control responds to sensible and latent heat of the ambient air. The actuator is spring return closed. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

Y = *FDD Fully Modulating Actuator with Sensible Limit + CO_2 Override* - Option V + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying CO_2 setpoint. This option works best with air velocities in the 600 to 1200 fpm range. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

Z = *FDD Fully Modulating Actuator with Enthalpy Limit + CO_2 Override* - Option W + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying CO_2 setpoint. This option works best with air velocities in the 600 to 1200 fpm range. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

Feature 8

8: Return and Exhaust Air Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 **A** - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Return Opening* – Unit configuration must include 100% outside air or 100% outside air with motorized dampers. See Feature 4A Outside Air Section.
A = *Standard Return Opening without EA Opening* – Unit configuration must include manual or motorized outside air with return air opening, 100% return air, or an economizer. See Feature 4A Outside Air Section.
C = *Standard Barometric Relief EA Dampers* – Unit configuration must include power exhaust, power return, or energy recovery with or without return air bypass. Not available on Cabinet Size E.
E = *Standard Return Opening + Motorized EA Dampers* – Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan.
G = *Standard Barometric without EA Dampers + RA Bypass* – Unit configuration must include an economizer. This option includes return air bypass dampers. Not available on Cabinet Size E.
J = *Standard Barometric Relief EA Dampers + RA Bypass* – Unit configuration must include power exhaust, power return, or energy recovery. This option includes return air bypass dampers. Not available on Cabinet Size E.
L = *Standard Return Opening + Motorized EA Dampers + RA Bypass* – Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan. This option includes return air bypass dampers. Not available on Cabinet Size E.

Feature 9A
9A: Unit Filter Type

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L ¯ B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - **0** 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *2" Pleated Filter- MERV 8* - 2 inch pleated MERV 8 unit filters. See Feature 9B for filter location.
A = *4" Pleated Filter - MERV 8* - 4 inch pleated MERV 8 unit filters. See Feature 9B for filter location.
B = *2" Pleated Filter - MERV 8 + 4" Pleated MERV 11* - 2 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 11 filters. See Feature 9B for filter location.
C = *2" Pleated Filter - MERV 8 + 4" Pleated MERV 13* - 2 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 13 filters. See Feature 9B for filter location.
D = *2" Pleated Filter - MERV 8 + 4" Pleated MERV 14* - 2 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 14 filters. See Feature 9B for filter location.

Feature 9B
9B: Unit Filter Size & Location

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L ¯ B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 **0** 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard Filters in Standard Position*
B = *High Efficiency Filters in Standard Position* - Located before the cooling section in a draw-through unit.
M = *Standard Filters + Lint Screen Pre-filter in Standard Position* - Located before the cooling section in a draw-through unit. This option includes a lint screen pre-filter upstream of the standard filters. Not available on Cabinet Size E.

Feature 9C

9C: Final Filter Type

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 **0** 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Final Filters*
A = *12" Cartridge MERV 13* - Unit shall include 12 inch thick, pleated cartridge filters with a MERV rating of 13, in the final filter position down stream of all air stream unit components. Only available on Cabinet Size C Horizontal.
D = *12" Cartridge MERV 14* - Unit shall include 12 inch thick, pleated cartridge filters with a MERV rating of 14, in the final filter position down stream of all air stream unit components. Only available on Cabinet Size C Horizontal.
U= *4" Pleated MERV 13* - Unit shall include 4 inch thick, pleated panel filters with a MERV rating of 13 in the final filter position down stream of all air stream unit components. Not available with gas heat or electric heat (Feature B1). Only available on Cabinet Size C Horizontal.
Y= *4" Pleated MERV 14*- Unit shall include 4 inch thick, pleated panel filters with a MERV rating of 14 in the final filter position down stream of all air stream unit components. Not available with gas heat or electric heat (Feature B1). Only available on Cabinet Size C Horizontal.

Feature 9D

9D: Filter Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 **0**
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
A = *Clogged Filter Switch - Unit Filters* – Includes one clogged filter switch.
B = *Clogged Filter Switch - Unit + Energy Recovery Filters* – Includes two clogged filter switches; unless exhaust filters are selected, than three switches will be included.
C = *Clogged Filter Switch - Unit + Final Filters* – Includes two clogged filter switches.
D = *Clogged Filter Switch - Unit + Energy Recovery + Final Filters* – Includes three clogged filter switches; unless exhaust filters are selected, than four switches will be included.
E = *Magnehelic Gauge - Unit Filters* – Includes one magnehelic gauge.
F = *Magnehelic Gauge - Unit + Energy Recovery Filters* – Includes two magnehelic gauges.
G = *Magnehelic Gauge - Unit + Final Filters* – Includes two magnehelic gauges.
H = *Magnehelic Gauge - Unit + Energy Recovery + Final Filters* – Includes three magnehelic gauges; unless exhaust filters are selected, than four switches will be included.
J = *CFS + Magnehelic Gauge - Unit Filters* – Includes one clogged filter switch and one magnehelic gauge.

Feature 9D - Filter Options Continued

K = *CFS + Magnehelic Gauge - Unit + Energy Recovery Filters* – Includes two clogged filter switches and two magnehelic gauges; unless exhaust filters are selected, than three clogged switches and three magnehelic gauges will be included.
L = *CFS + Magnehelic Gauge - Unit + Final Filters* – Includes two clogged filter switches and two magnehelic gauges.
M = *CFS + Magnehelic Gauge - Unit + Energy Recovery + Final Filters* – Includes three clogged filter switches and three magnehelic gauges; unless exhaust filters are selected, than four clogged filter switches and four magnehelic gauges will be included.

Clogged Filter Switch (CFS) - Adjustable differential pressure switch sensing pressure drop across the filter bank and cooling coil; only applies to unit filter selection. The range of adjustment is 0.17 to 5.0 in. W.C. with contact closure on rise. The switch is mounted in the fan compartment with terminal connections in the low voltage control section. Normally open dry contacts (C1 and C2) are provided for clogged filter indication. Note: Factory installed controllers are wired parallel; Field installed controllers are individual set of terminals.

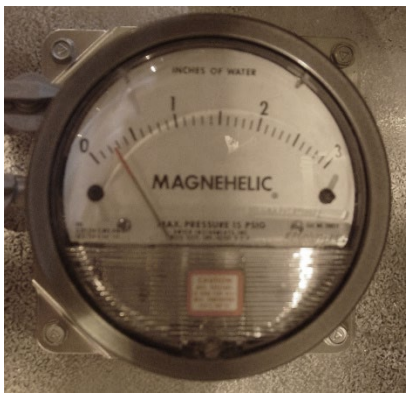

Figure 6 - Magnehelic Gauge

Magnehelic Gauge - Magnehelic gauge reading pressure drop across the filter bank and cooling coil. The gauge reads from 0 to 3 in. W.C. in 0.10 in. graduations, and is mounted in the control cabinet.

*A Special Pricing Authorization (SPA) is required if the CFS or Magnehelic gauge is to be used to respond to the pressure drop across the energy recovery wheel or only the cooling coil.

Feature 10A

10A: Refrigeration Control A

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- **0** 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard - Fixed 55°F Compressor Cooling Lock Out*

Feature 10A - Refrigeration Control A Continued

A = *5 Minute Compressor Off Timer and 20 Second Compressor Stage Delay* - Time delay relays which guarantee a 5 minute compressor "off time" to prevent short cycling of the compressors, which causes undue stress and wear. The delay timers are located in the low voltage section of the controls cabinet and there are no field adjustments. Option is recommended where electromechanical thermostats are used. Use with some programmable thermostats or DDC controllers may cause excessive time delay. Time delay relay is not included on refrigeration circuits with variable capacity compressors because variable capacity compressor controller includes an anti-short cycle timer. 20 second time delay relays prevent multiple cooling stages from starting simultaneously. The delay timers are located in the low voltage section of the controls cabinet and the range of adjustment is 6 to 300 seconds. The timers limit current draw during cooling cycle start up. Option is recommended where electromechanical thermostats are used. Use with some programmable thermostats or DDC controllers may cause excessive time delay. Option is only available on multiple compressor units.
C = *Adjustable Fan Cycling* - Device which cycles the condenser fans to maintain refrigerant circuit head pressures at acceptable levels during cooling operation down to 35°F ambient. The head pressure control setpoint (100-470 psi) and pressure differential (35-200 psi) is field adjustable. The switch will come factory set to cut-in at 425psi (+/– 5psi) and a differential of 155psi (or open at 270psi (+/– 5psi)).
D = *Adjustable Compressor Lockout* - Adjustable compressor lockout (-10 to 70°F) will be provided for the unit, located behind the near the outside air opening. Hot gas bypass on the lead compressors are required for this selection on units without variable capacity scroll compressors. Hot gas bypass on the lag compressor is strongly recommended.
E = *Freeze Stats (each circuit)* - Adjustable temperature sensor (-10 to 70°F) mounted on the tubing of the first cooling circuit and wired to de-energize all cooling circuits if tubing temperature falls below setpoint. Option is used to prevent freezing of evaporator coil.
G = *5 MTDR-Off + 20 STDR Staging + Adjustable Fan Cycling* - Options A + C
H = *5 MTDR-Off + 20 STDR Staging + Adjustable Compressor Lockout* - Options A + D
J = *5 MTDR-Off + 20 STDR Staging + Freeze Stats* - Options A + E
M = *Adjustable Fan Cycling + Adjustable Compressor Lockout* - Options C + D. This option or variable speed condenser fans (Feature 25) is required when ordering any 0°F low ambient option (Feature 12).
N = *Adjustable Fan Cycling + Freeze Stats* - Options C + E.
P = *Adjustable Compressor Lockout + Freeze Stats* - Options D + E.
T = *Adjustable Fan Cycling + Adjustable Compressor Lockout + Freeze Stats* - Options C + D + E.
V = *5 MTDR-Off + 20 STDR Staging + Adjustable Fan Cycling + Adjustable Compressor Lockout + Freeze Stats* - Options A + C + D + E
W = *5 MTDR-Off + 20 STDR Staging + Adjustable Compressor Lockout + Freeze Stats* - Options A + D + E

Feature 10B

10B: Refrigeration Control B

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 **0** - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*

Feature 11A

11A: Refrigeration Options A

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - **0** 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*

A = *Hot Gas Bypass (HGB) on the Lead Stage* - Field adjustable pressure activated bypass valve on the lead refrigeration circuits factory setup to divert hot compressor discharge gas to the evaporator coil if pressure on the evaporator side of the valve drops below 105 psi for R-410A (34°F at sea level). The bypass valve is at full capacity after six degrees of differential (28°F at sea level). This option is used to prevent coil freeze-up during periods of low air flow or cold entering coil conditions without cycling of the compressors on and off. This option is used for refrigeration system protection only and cannot be used for cooling capacity modulation. **Hot gas bypass is required on all Variable Air Volume (VAV) and Makeup Air (MUA) units without variable capacity or VFD controlled variable speed scroll compressors. Hot gas bypass on the lag circuits is recommended on all VAV and MUA units with variable capacity or VFD controlled variable speed scroll compressors on only the lead circuits.**

B = *Hot Gas Bypass (HGB) on the Lead and Lag Stages* - Field adjustable pressure activated bypass valves on the lead and lag refrigeration circuits factory setup to divert hot compressor discharge gas to the evaporator coil if the pressure on the evaporator side of the valve drops below 105 psi for R-410A (34°F at sea level). The bypass valve is at full capacity after six degrees of differential (28°F at sea level). This option prevents coil freeze-up during periods of low air flow or cold entering coil conditions without cycling of the compressors on and off. This option is used for refrigerant system protection only and cannot be used for cooling capacity modulation. **Hot gas bypass on VAV or MUA controls. Hot gas bypass on all circuits is required on units with VFD controlled variable speed scroll compressors if the minimum load is less than 50%.** A crankcase heater will be provided.

Feature 11A - Refrigeration Options A Continued

D = *Hot Gas Bypass Non-Variable Compressor Circuits (HGBNV)* - Field adjustable pressure activated bypass valve on the refrigeration circuits with non-variable compressors. The valve is factory installed to divert hot compressor discharge gas to the evaporator coil if pressure on the evaporator side of the valve drops below 105 psi for R-410A (34°F at sea level). The bypass valve is at full capacity after six degrees of differential (28°F at sea level). This option is used to prevent coil freeze-up during periods of low air flow or cold entering coil conditions without cycling of the compressors on and off. This option is used for refrigeration system protection only and cannot be used for cooling capacity modulation. **Hot gas bypass is required on all Variable Air Volume (VAV) and Makeup Air (MUA) units without variable speed scroll compressors. Hot gas bypass on the lag circuits is recommended on all VAV and MUA units with variable speed scroll compressors on only the lead circuits.**
E = *Parallel (Series) Modulating Hot Gas Reheat Microchannel Coil (MHGR-MC) Lag (Lead) Circuit* - A microchannel reheat coil mounted downstream of the evaporator and piped to the lag (lead) cooling circuit which provides the unit with a dehumidification mode of operation for when the cooling load has been satisfied. A 3-way modulating reheat valve diverts a varying percentage of the hot gas entering the condensing coil to the reheat coil to provide the unit with a dehumidification mode of operation. Receiver tanks are standard with this option. A supply air temperature sensor and DDC controller are used to maintain the supply air temperature during the dehumidification mode of operation. Supply air temperature sensor will ship loose in the unit control cabinet to be installed in the supply air stream. Constant supply air temperature control during dehumidification prevents space temperature swings and is ideal for VAV and makeup air applications.

Parallel - On units with air-cooled condenser, water-cooled condenser, or DX air handling unit (A2 = A, F, or N) the reheat coil is piped in parallel with the condenser coil so that 100% of the hot gas can be diverted through the reheat coil for increased reheat capacity.

Series - On units with air-source heat pump or water-source heat pump (A2 = J or L), the reheat coil is piped in series with the condenser coil.

Lag Circuit - On all two-circuited units, the reheat coil is piped on the lag circuit.

Lead Circuit - Only on units when A1= R-410A Variable Capacity Scroll Compressor (4-circuit), the reheat coil is piped on the lead circuit.

Depending on the type of controls selected, the unit will be factory wired for either priority dehumidification or priority cooling. Priority dehumidification means if the controller gets a cooling call and a dehumidification call simultaneously, the unit will run in dehumidification mode until the humidity setpoint is satisfied. Priority Cooling means if the controller gets a cooling call and a dehumidification call simultaneously, the unit will run in cooling mode until the cooling setpoint temperature is satisfied. When there is no longer a call for cooling, but there is a call for dehumidification, the compressors will continue to run and the reheat will be activated.

Feature 11A - Refrigeration Options A Continued

E = *Parallel (Series) Modulating Hot Gas Reheat Microchannel Coil Lag (Lead) Circuit Continued*
Field Installed DDC Controls by others: A terminal contact (RH1) and reset terminals (AI1 & COM) are included for connecting to the customer supplied controller. The unit will require a contact closure to RH1 to enable dehumidification mode. The unit is factory wired as priority dehumidification. It is optional to provide a 0-10VDC signal to reset the supply air setpoint. Units with controls by others will need to provide control logic to enable the compressors and modulate the variable capacity compressors (if ordered) during dehumidification mode. The customer supplied controller will also need to be able to set cooling or dehumidification as the priority.

> *Field provided Factory Installed DDC Controls by others:* The customer supplied DDC controller must provide a digital point to enable dehumidification mode. It is optional to provide a 0-10VDC signal to reset the supply air setpoint. Units with controls by others will need to provide control logic to enable the compressors and modulate the variable capacity compressors (if ordered) during dehumidification mode. The customer supplied controller will also need to be able to set cooling or dehumidification as the priority.
>
> *Factory Provided VCC-X Controls*: Priority dehumidification or cooling can be set through the controls in the field.

F = *Parallel Modulating Hot Gas Reheat Microchannel Coil (MHGR-MC) Dual Circuit* - This is the same as Option E except two microchannel reheat coils are provided, one for each circuit.
J = *HGB Lead + Parallel (Series) MHGR-MC - Lag Circuit* - Options A + E
K = *HGB Lead & Lag + Parallel (Series) MHGR-MC - Lag Circuit* - Options B + E
M = *HGBNV + Parallel (Series) MHGR-MC - Lag (Lead) Circuit* - Options D + E
N = *HGBNV + Parallel MHGR-MC - Dual Circuit* - Options D + F
Q = *Parallel (Series) MHGR-MC - Lag (Lead) Circuit + Polymer E-Coated* - Option E + Polymer E-coated modulating hot gas reheat coil. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.
T = *HGB Lead + Parallel (Series) MHGR-MC - Lag Circuit + Polymer E-Coated* - Options A + E + Polymer E-coated modulating hot gas reheat coil (See Q for Polymer E-Coated description)
U = *HGB Lead & Lag + Parallel (Series) MHGR-MC - Lag Circuit + Polymer E-Coated* - Options B + E + Polymer E-coated modulating hot gas reheat coil (See Q for Polymer E-Coated description)
W = *HGBNV + Parallel (Series) MHGR-MC - Lag (Lead) Circuit + Polymer E-Coated* - Options D + E + Polymer E-coated modulating hot gas reheat coil (See Q for Polymer E-Coated description)

Feature 11A - Refrigeration Options A Continued

Y = *Parallel MHGR-MC - Dual Circuit + Polymer E-Coated* - Option F + Polymer E-coated modulating hot gas reheat coils (See Q for Polymer E-Coated description)
Z = *HGBNV + Parallel MHGR-MC - Dual Circuit + Polymer E-Coated* - Options D + F + Polymer E-coated modulating hot gas reheat coils (See Q for Polymer E-Coated description)

Feature 11B

11B: Refrigeration Options B

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 **0** - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard Packaged Unit*

Feature 12

12: Refrigeration Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - **B** - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
A = *Sight Glass* - Moisture indication sight glass attached to the refrigeration circuit liquid lines. A green color indicates a dry condition, a chartreuse color (green with a yellow tint or bright green) indicates caution and a yellow color indicates a wet condition. The sight glass is not a charge indicator.

Table 10 - Sight Glass Moisture Content Indication

Refrigerant / Indicator Color	75° F Liquid Line Temperature
	R-410A (454B)
Green DRY	Below 75ppm
Chartreuse CAUTION	75-150ppm
Yellow WET	Above 150ppm

Figure 7 - Sight Glasses

Feature 12 - Refrigeration Accessories Continued

B = *Compressor Isolation Valves* - Ball type service valves mounted on the refrigeration circuit discharge and suction lines permitting isolation of the compressor for service or replacement. This option can reduce the amount of refrigerant that must be recovered during compressor service or replacement. The valves are located close to the compressors and work through a quarter turn from open to closed. Teflon seals and gaskets are used with a nylon cap gasket to prevent accidental loss.
C = *Sight Glass + Compressor Isolation Valves* - Options A + B
D = *One Circuit 0°F Low Ambient* - Factory installed, flooded condenser, head pressure control option which allows cooling operation down to 0°F ambient. When the ambient temperature drops, the condensing pressure drops. A 3-way pressure activated valve then allows discharge gas to bypass around the condenser. Mixing of the discharge gas with liquid creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components include a receiver tank, sight glass and access port. Fan cycling is required with this option (Feature 10A) or variable speed condenser fans (Feature 25). It is highly recommended that hot gas bypass be selected with this option. Hot gas reheat and modulating hot gas reheat are not available with this option. Used for low ambient applications such as computer equipment rooms. Crankcase heater will be provided.
E = *Sight Glass + One Circuit 0°F Low Ambient* - Options A + D
F = *Compressor Isolation Valves + One Circuit 0°F Low Ambient* - Options B + D
G = *Sight Glass + Compressor Isolation Valves + One Circuit 0°F Low Ambient* - Options A + B + D
H = *Two Circuit 0°F Low Ambient* - Same as option D except two circuits instead of one. Available only on the 4-circuit units when A1 = E - *R-410A Variable Capacity Scroll Compressor (4-circuit)*
J = *Sight Glass + Two Circuit 0°F Low Ambient* - Options A + H
K = *Compressor Isolation Valves + Two Circuit 0°F Low Ambient* - Options B + H
L = *Sight Glass + Compressor Isolation Valves + Two Circuit 0°F Low Ambient* - Options A + B + H

Feature 13A

13A: Unit Disconnect Type

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - **0** 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Single Point Power - Standard Power Block*
A = *Single Point Power - Non-fused Disconnect Power Switch*
B = *Single Point Power - Circuit Breaker*
C = Dual Point Power - Standard Power Block – Method #1
D = Dual Point Power - Non-fused Disconnect Power Switch – Method #1
E = Dual Point Power – Circuit Breaker – Method #1
F = Dual Point Power - Standard Power Block – Method #2
G = Dual Point Power - Non-fused Disconnect Power Switch – Method #2
H = Dual Point Power – Circuit Breaker – Method #2
J = Dual Point Power - Standard Power Block – Method #3
K = Dual Point Power - Non-fused Disconnect Power Switch – Method #3
L = Dual Point Power – Circuit Breaker – Method #3
M = Dual Point Power - Standard Power Block – Method #4
N = Dual Point Power - Non-fused Disconnect Power Switch – Method #4
P = Dual Point Power – Circuit Breaker – Method #4

Wiring Method Descriptions
Wiring Method #1: 1st power circuit is wired to power the compressors, condenser fans & (optional) heat wheel, Exhaust or Return Air fans if selected. The 2nd power circuit powers the supply fan, optional heating, controls & phase & brown out option if selected.

Wiring Method #2: 1st circuit powers the compressors & condenser fans. 2nd circuit powers the supply fan, controls, (optional) exhaust/return fans, (optional) heat, (optional) heat wheel & phase & brown out protection if selected.

Wiring Method #3: 1st circuit powers the compressors, condenser fan(s), (optional) heat wheel(s), (optional) exhaust/return fan(s), (optional) heat. 2nd circuit powers the supply fan(s) and controls

*Wiring Method #4:*1st circuit powers the compressors, condenser fans, supply fan, (optional) heat, and (optional) heat wheel. 2nd circuit powers the exhaust/ return fans and controls only.

Individual components within the controls compartment are fused and/or internally protected. Switch options include molded case, non-fused, and disconnect switch inside the unit controls compartment. The switch is accessible from the exterior of the unit and protected by a cast metal,

lockable cover. The switch disconnects high voltage service to the unit. To add a switch, choose any switch and after all options have been selected and the fan program is completed AAON ECat will automatically calculate the minimum allowable ampacity and choose the correct size switch.

Circuit breaker options include molded case, non-fused, and disconnect switch inside the unit controls compartment. Circuit breaker options provide overload and short circuit protection for applications that require it.

Feature 13B, C

13B, C: Unit Disconnect 1 and 2 Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 **0** 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

If Duel Point power is selected for Feature 13A, unit disconnect size options will be the same for both disconnects.

0 = *Power Block*
A = *15 Amps*
B = *20 Amps*
C = *25 Amps*
D = *30 Amps*
E = *35 Amps*
F = *40 Amps*
G = *45 Amps*
H = *50 Amps*
J = *60 Amps*
K = *70 Amps*
L = *80 Amps*
M = *90 Amps*
N = *100 Amps*
P = *110 Amps*
Q = *125 Amps*
R = *150 Amps*
S = *175 Amps*
T = *200 Amps*
U = *225 Amps*
V = *250 Amps*
W = *300 Amps*
Y = *350 Amps*
Z = *400 Amps*
1 = *450 Amps*
2 = *500 Amps*
3 = *600 Amps*
5 = *800 Amps*
7 = *1200 Amps*

Feature 14

14: Safety Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - **0** 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
A = *Return and Supply Air Firestat* - Bimetallic snap-action safety switches sensing temperature only, mounted in both the supply and return air streams. The supply air switch is rated to 200°F, the return air switch is rated to 125°F. Both switches manually reset and are wired to shut down the 24 VAC control circuit. Firestats are non-addressable.

B = *Return Air Smoke Detector* - Photoelectric type smoke detector factory mounted in the return air section of the unit. Detector is wired to shut down the 24 VAC control circuit upon detector activation, thereby shutting off the unit. Relay contacts are provided for interfacing the detector

Feature 14 - Safety Options Continued

with alarm panels. A test magnet is supplied in the unit controls cabinet. Smoke detectors are non-addressable.

C = *Supply Air Smoke Detector* - Photoelectric type smoke detector factory mounted in the filter/economizer section with sensor mounted to the fan/heating compartment, sensing the supply air downstream of the fan. Detector is wired to shut down the 24 VAC control circuit upon detector activation, thereby shutting off the unit. Relay contacts are provided for interfacing the detector with alarm panels. A test magnet is supplied in the unit controls cabinet. Smoke detectors are non-addressable.

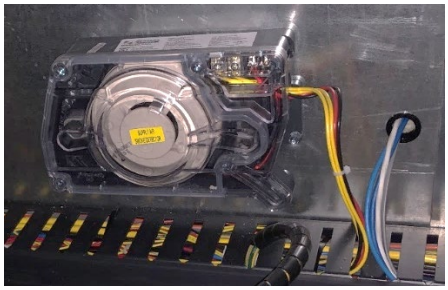

Figure 8 - Supply Air Smoke Detector

E = *Remote Safety Shutdown Terminals* - Low voltage terminals labeled BI1 and BI2 for wiring to a field installed smoke detector, Firestat, or building safety automatic shutdown system. When contacts are open the unit 24 VAC control circuit is broken and the unit will not operate. Remove the factory supplied jumper before installing.

F = *Option A + B - RA and SA Firestat + RA Smoke Detector*

G = *Option A + C - RA and SA Firestat + SA Smoke Detector*

J = *Option A + E - RA and SA Firestat + Remote Safety Shutdown Terminals*

K = *Option B + C - RA Smoke Detector + SA Smoke Detector*

M = *Option B + E - RA Smoke Detector + Remote Safety Shutdown Terminals*

P = *Option C + E - SA Smoke Detector + Remote Safety Shutdown Terminals*

R = *Option A + B + C - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector*

T = *Option A + B + E - RA and SA Firestat + RA Smoke Detector + Remote Safety Shutdown Terminals*

V = *Option A + C + E - RA and SA Firestat + SA Smoke Detector + Remote Safety Shutdown Terminals*

Z = *Option B + C + E - RA Smoke Detector + SA Smoke Detector + Remote Safety Shutdown Terminals*

4 = *Option A + B + C + E - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector + Remote Safety Shutdown Terminals*

Feature 15
15: Electrical Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 **0** - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
A = *Low Limit Control* - Temperature limit switch factory mounted in the unit supply air to shut off the unit when discharge temperature reaches setpoint. The switch is adjustable from -10°F to 70°F, and is manually reset by disconnecting power to the unit.
B = *Phase & Brown Out Protection* - Voltage monitor that is used to protect motors and compressors from voltage imbalance, over/under voltage and phase loss. Reset is automatic. When DDC controls by others is ordered, the Phase and Brown Out protection will be wired back to a set of terminals or to customer supplied controller for status.
C = *Cooling Coil UV Lights* - Factory provided and installed UV lights. Option is available to help prevent mold and microbial growth on the cooling coil and drain pan. UV fixture is factory installed near the supply blower inlet, pointed towards the cooling coil and drain pan. Door interlocks are also included with this option. Bulbs ship boxed in the control compartment for field installation. [Series A, B, C & D only]

C = *Air Disinfection UV Lights* - Factory provided and installed UV lights for airstream disinfection. UV fixture is installed directly downstream of cooling coil. Door interlock switches are provided with this option. Bulbs are shipped loose for field installation. [Series E only]

Table 11 - Air Disinfection UV Information for RN Series E

RNA-E Cabinet Size	CFM Max	Lamp Watt/SqFt Coil	Residence Time (Seconds)	Dose µJ/cm2*	Estimated Inactivation Rate (Coronavirus)
(75 tons)	29,300	14.50	0.287	667	91.90%
(90-140 tons)	38,000	14.39	0.297	692	92.70%

* All dosage and estimated inactivation rates are at bulb end of life, have a wind chill degradation for 55 degrees factored in, and factor in velocity on the coil. Warmer temperatures or lower airflows will increase the UV effectiveness.

E = *Compressor Sound Blankets* - Factory provided and installed compressor sound dampening blankets on all compressors.
F = *Low Limit Control + Phase & Brown Out Protection* - Option A + B
G = *Low Limit Control + Cooling Coil UV Lights* - Option A + C
J = *Low Limit Control + Compressor Sound Blankets* - Option A + E
K = *Phase & Brown Out Protection + Cooling Coil UV Lights* - Option B + C

M = *Phase & Brown Out Protection + Compressor Sound Blankets* - Option B + E
P = *Cooling Coil UV Lights + Compressor Sound Blankets* - Option C + E

Feature 15 - Accessories Continued

R = *Low Limit Control + Phase & Brown Out Protection + Cooling Coil UV Lights* - Option A + B + C
T = *Low Limit Control + Phase & Brown Out Protection + Compressor Sound Blankets* - Option A + B + E
V = *Low Limit Control + Cooling Coil UV Lights + Compressor Sound Blankets* - Option A + C + E
Z = *Phase & Brown Out Protection + Cooling Coil UV Lights + Compressor Sound Blankets* - Option B + C + E
4 = *Low Limit Control + Phase & Brown Out Protection + Cooling Coil UV Lights + Compressor Sound Blankets* - Option A + B + C + E

Feature 16A

16A: Control Sequence

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - **B** A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard Terminal Block for Thermostat* - Terminal strip for use with a thermostat. See Controls section and Thermostat Terminals sheet from AAON ECat for more information.
A = *Terminal Block for Thermostat + Isolation Relays* - Standard terminal strip for use with thermostats only, with factory installed isolation relays to prevent voltage drop in the controls circuit. This option is strongly recommended on applications where there is a question about the length of thermostat wiring. See Controls section and Thermostat Terminals sheet from AAON ECat for more information.
B = *Single Zone VAV Unit Controller - VAV Cool + CAV Heat* - VAV controls for systems which control the space temperature for only a single zone. During the cooling mode of operation the supply fan modulates based on the space temperature and mechanical cooling modulates based on the supply air temperature. Variable capacity or two-step compressors are required. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Supply air temperature sensor will ship loose in the unit control cabinet to be installed in the supply air stream. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with AAON Controls for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.
C = *Single Zone VAV Unit Controller VAV Cool + VAV Heat* - VAV controls for systems which control the space temperature for only a single zone. During the cooling mode of operation the supply fan modulates based on the space temperature and mechanical cooling modulates based on the supply air temperature. During the heating mode of operation the supply fan will modulate

based on the space temperature and the heating will modulate based on the supply air temperature. Variable capacity or two-stage compressors are required. With gas heat, modulating gas heating control is required. Supply air temperature sensor will ship loose in the unit control cabinet to be

Feature 16A - Control Sequence Continued

installed in the supply air stream. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with AAON controller or Remote Mounted AAON Touchscreen Controller for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.

D = *VAV Unit Controller - VAV Cool + CAV Heat* - Standard VAV controls for non-heat pump systems and heat pump systems. During the cooling mode of operation the supply fan modulates based on the supply static pressure and mechanical cooling modulates based on the supply air temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Return and outside air temperature sensors are factory mounted and wired. Supply air static pressure probe and supply air temperature sensor are factory supplied for field installation. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with AAON controller for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.

E = *Constant Air Volume Unit Controller - CAV Cool + CAV Heat* - Standard Constant Volume controls for non-heat pump systems. During the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor and space temperature sensor with setpoint reset and unoccupied override are factory supplied for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.

F = *Makeup Air Unit Controller* - Standard Makeup Air controls for non-heat pump systems. During the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor is factory supplied for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. See Controls section for more information.

G = *Single Zone Variable Air Volume Heat Pump Unit Controller - VAV Cooling and VAV Heating* - VAV controls for heat pump systems which control the temperature and humidity for only a single zone. During the cooling mode of operation the supply fan modulates based on the space temperature and mechanical cooling modulates based on the supply air temperature. During the heating mode of operation the supply fan will modulate based on the space temperature and heat pump heating and auxiliary heating will modulate based on the supply air temperature. Air-source or water-source heat pump configuration is required with this option. Variable capacity

compressors are required on all refrigeration circuits with this option. With gas auxiliary heat, modulating gas heating control is required. Return and outside air temperature sensors are factory mounted and wired. Supply air temperature sensor is factory supplied for field installation. Space

Feature 16A - Control Sequence Continued

temperature sensor with setpoint reset and unoccupied override is factory supplied with AAON controller for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.
H = *Constant Volume Heat Pump Unit Controller - CAV Cooling and CAV Heating* - Standard Constant Volume controls for heat pump systems. During the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Air-source or water-source heat pump configuration is required with this option. Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor and space temperature sensor with setpoint reset and unoccupied override are factory supplied for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.
J = *Makeup Air Heat Pump Unit Controller - CAV Cooling and CAV Heating* - Standard Makeup Air controls for heat pump systems. During the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Air-source or water-source heat pump configuration is required with this option. Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor is factory supplied for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. See Controls section for more information.
K = *PAC, Precise Air Controller (No VCC)* - Factory installed constant volume DDC controller which allows the unit to provide energy efficient temperature and humidity control under extended loading conditions that are not at the design point. Option does not include variable capacity compressor (Model Option A1). Option requires return air bypass (Feature 8), modulating hot gas reheat (Feature 11A), and DDC actuator (Feature 7). Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor, space temperature sensor with setpoint reset and unoccupied override, and space humidity sensor are factory supplied for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. See Controls section for more information.
L = *D-PAC, Digital Precise Air Controller* - Factory installed constant volume DDC controller which allows the unit to provide energy efficient temperature and humidity control under extended loading conditions that are not at the design point. Option requires variable capacity compressor (Model Option A1), return air bypass (Feature 8), modulating hot gas reheat (Feature 11A), and DDC actuator (Feature 7). Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor, space temperature sensor with setpoint reset and unoccupied override, and space humidity sensor are factory supplied for field installation. A building static pressure sensor

is factory supplied for field installation if power exhaust with VFD is selected. See Controls section for more information.

Feature 16A - Control Sequence Continued

M = *Field Installed DDC Controls by Others* - Provides an expanded terminal strip to interface with controls by others. This expanded terminal strip includes terminals for remote start/stop of the heat wheel, remote start/stop of power exhaust fan, CO_2 sensor, and Phase & Brown out. See Controls section and Field controlled Terminal sheet from AAON ECat for more information.
N = *Field Installed DDC Controls + Installation Relays* - Provides an expanded terminal strip to interface with controls by others, with factory installed isolation relays to prevent voltage drop in the controls circuit. This option is strongly recommended on applications where there is a question about the length of control wiring. This expanded terminal strip includes terminals for remote start/stop of the heat wheel, remote start/stop of power exhaust fan, CO_2 sensor, and Phase & Brown out. See Controls section and Field controlled Terminal sheet from AAON ECat for more information.
P = *Factory Installed DDC Controls by Others + Installation Relays* - Factory installed controls with factory installed isolation relays to prevent a voltage drop in the controls circuit. Requires a Special Pricing Authorization (SPA) issued by the Applications Department. AAON sales representative must provide a controls parts list, cut sheets, and wiring diagrams before the SPA will be issued. Once the order is entered a completed Special Parts Request Form is sent to the sales rep with control numbers assigned. The sales rep must then forward the form to the controls supplier who must then transfer these numbers to all parts and boxes that are sent to AAON. Proper routing of customer supplied parts to units in production will be delayed if this procedure is not followed. AAON will not deal directly with the controls provider. The AAON sales rep must be the information conduit. See the "Policy Manual for Sales Representatives" for more detailed information on the proper procedure. See Field controlled Terminal sheet from AAON ECat for more information

Feature 16B

16B: Control Supplier

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B **A** 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
A = *AAON Controls* - Factory installed AAON controller. See Controls section for more information.
C = *AAON Controls Supervisory* - This option allows for controls by others, but the controls for the variable speed compressors, electronic expansion valves, and head pressure control of the condenser fans is by AAON controls for proper control and compressor protection.

Feature 16C

16C: Control Supplier Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A **0** B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*

Feature 16D

16D: BMS Connection & Diagnostics

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 **B** - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
B = *BACnet MSTP* - AAON supplied and factory installed controller with Bacnet MSTP license. See Feature 16A for available control configurations. See Controls section and unit specific Controller Components worksheet in AAON ECat for more information.
K = *BACnet MSTP with Diagnostics* - Option B + Extra sensors (liquid pressure, liquid temperature, and discharge temperature) that provide more refrigeration diagnostic values.

Feature 17A

17A: Preheat Configuration

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - **0** 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard - None*
D = *Hot Water Preheat Coil - Mixed Air* - Mixed air hot water preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. Option is only available on units with chill water coils and E Series units. No valves or controls are included with this option.
E = *Steam Distributing Preheat Coil - Mixed Air* - Mixed air steam preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. Option is only available on units with chill water coils and E Series units. No valves or controls are included with this option. The maximum operating pressure for steam coils is 25 psi.

17A: Preheat Configuration (continued)

K = *Polymer E-Coated Hot Water Preheat Coil - Mixed Air* - Mixed air hot water preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. Option is only available on units with chill water coils and E Series units. No valves or controls are included with this option. Polymer e-coating is applied only to the hot water preheat coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

L = *Polymer E-Coated Steam Distributing Preheat Coil - Mixed Air* - Mixed air steam preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. Option is only available on units with chill water coils and E Series units. No valves or controls are included with this option. The maximum operating pressure for steam coils is 25 psi. Polymer e-coating is applied only to the steam distributing preheat coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

Table 12 - Preheat Hot Water & Steam Coil Sizes

	Hot Water Preheat Coils			Steam Distributing Preheat Coils		
	Fin Length x Fin Height	Coil Quantity	Coil Total Face Area (ft^2)	Fin Length x Fin Height	Coil Quantity	Coil Total Face Area (ft^2)
(75 tons)	96”x43.8”	2	58.4	45.5”x43.5”	4	55.0
(90-140 tons)	58”x43.8”	4	70.6	56”x43.5”	4	67.7

Feature 17B

17B: Preheat Sizing

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 **0** - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

Hot Water Preheat Coil [17A = D or K]	**Steam Distributing Preheat Coil [17A = E or L]**
0 = *Standard - None* **A** = *1 Row Half Serpentine 8 fpi* **B** = *1 Row Half Serpentine 10 fpi* **C** = *1 Row Half Serpentine 12 fpi* **G** = *2 Row Single Serpentine 8 fpi* **H** = *2 Row Single Serpentine 10 fpi* **J** = *2 Row Single Serpentine 12 fpi* **K** = *2 Row Half Serpentine 8 fpi* **L** = *2 Row Half Serpentine 10 fpi* **M** = *2 Row Half Serpentine 12 fpi*	**0** = *Standard - None* **A** = *1 Row Single Serpentine 8 fpi* **B** = *1 Row Single Serpentine 10 fpi* **C** = *1 Row Single Serpentine 12 fpi* **G** = *2 Row Single Serpentine 8 fpi* **H** = *2 Row Single Serpentine 10 fpi* **J** = *2 Row Single Serpentine 12 fpi*

Feature 18A

18A: Option Box Location

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - **0** 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
5 = *Empty Energy Recovery Wheel Option Box* - Factory installed empty energy recovery wheel option box with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly for field installation of special options.

Feature 18B

18B: Option Box Size

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 **0** 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
W = *Empty Energy Recovery Wheel Option Box*

Feature 18C

18C: Option Box Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 **0** - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*

Feature 19

19: Outside Air Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - **A** 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *No Outside Air Hood - 100% Return Air*
A = *Outside Air Hood*
B = *Outside Air Hood with Metal Mesh Filters* - Washable expanded aluminum mesh filters mounted over the outside air intake. Initial resistance is 0.088 in. w.g. at 520 fpm. Filters are coated for adhesion. Option is used to filter large particles in the outside air and to prevent moisture carryover in humid environments. Filters meet the requirements of UL Class 2
C = *Outside Air Hood + Air Flow Measuring Station Size A* - Option A + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.

Feature 19 - Outside Air Accessories Continued

D = *Outside Air Hood + Air Flow Measuring Station Size B* - Option A + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.
E = *Outside Air Hood + Air Flow Measuring Station Size C* - Option A + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.
F = *Outside Air Hood + Air Flow Measuring Station Size D* - Option A + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.
G = *Outside Air Hood with Metal Mesh Filters + Air Flow Measuring Station Size A* - Option B + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.
H = *Outside Air Hood with Metal Mesh Filters + Air Flow Measuring Station Size B* - Option B + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.
J = *Outside Air Hood with Metal Mesh Filters + Air Flow Measuring Station Size C* - Option B + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.
K = *Outside Air Hood with Metal Mesh Filters + Air Flow Measuring Station Size D* - Option B + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.

Feature 19 - Outside Air Accessories Continued

Table 13 - Airflow Measuring Stations

Feature 4A	Tonnage	F19	Airflow Measuring Station Size	Outside Air
0 - 100% OA	75-140	C, G	A	OA > 4700 cfm
		D, H	B	OA > 3530 cfm
		E, J	C	OA > 2740 cfm
	26, 31, 40, 50, 60, 70	C, G	A	OA > 2500 cfm
A,B,C - OA Dampers	75-140	C, G	A	OA > 5280 cfm
A,C - Motorized OA Dampers	26, 31, 40, 50, 60, 70	C	A	OA > 2400 cfm
		D	B	OA > 1880 cfm
		E	C	OA > 1180 cfm
	11-25 & 30	C, G	A	OA > 1250 cfm
		D, H	B	OA > 610 cfm
E - Economizer	90-140	C, G	A	OA > 4700 cfm
		D, H	B	OA > 3530 cfm
		E, J	C	OA > 2740 cfm
	75	C, G	A	OA > 2180 cfm
	40, 50, 60, 70	C, G	A	OA > 2450 cfm
		D, H	B	OA > 1700 cfm
		E, J	C	OA > 1250 cfm
		F, K	D	OA > 710 cfm
	26, 31	C, G	A	OA > 1190 cfm
	11-25 & 30	C, G	A	OA > 1250 cfm
		D, H	B	OA > 850 cfm
		E, J	C	OA > 660 cfm
G,J,K,Q	75-140	C, G	A	OA > 4700 cfm
		D, H	B	OA > 3530 cfm
		E, J	C	OA > 2330 cfm
F,H,K,Q and A2=A,F,J,L or KQ and A2=0, N	26, 31, 40, 50, 60, 70	C, G	A	OA > 2800 cfm
		D, H	B	OA > 2100 cfm
		E, J	C	OA > 1360 cfm
		F, K	D	OA > 770 cfm
F,H and A2=0,N	26, 31, 40, 50, 60, 70	C, G	A	OA > 1800 cfm
		D, H	B	OA > 990 cfm
K,Q	11-25 & 30	C, G	A	OA > 1200 cfm
G,H		C, G	A	OA > 800 cfm
		D, H	B	OA > 400 cfm

Feature 20
20: Cabinet Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A **0** 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
A = *Base Insulation* - 1/2 inch foam insulation is added to the bottom of the air tunnel base pan. Option is available on 11-25 and 30 ton units which only include a G90 galvanized sheet metal unit base pan as standard.
B = *SA & RA Burglar Bars* - 1/2 inch diameter welded steel bars crosshatched 6-8 inches apart across the unit supply and return air openings.
F = *Base Insulation* + *SA & RA Burglar Bars* - Options A + B

Feature 21
21: Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 **0** 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*
C = *Supply Fan Air Flow Monitoring* - Unit includes a supply fan airflow signal processor that communicates directly with the factory provided control systems or can also be used with customer provided controls with a field selectable 0-5 VDC, 0-10 VDC, or 4-20mA output signal. BACnet MS/TP or Modbus RTU network communications are available.
D = *Return Fan Air Flow Monitoring* - Unit includes a return fan airflow signal processor that communicates directly with the factory provided control systems or can also be used with customer provided controls with a field selectable 0-5 VDC, 0-10 VDC, or 4-20mA output signal. BACnet MS/TP or Modbus RTU network communications are available.
N = *Supply Fan Air Flow Monitoring* + *Return Fan Air Flow Monitoring* - Options C + D

Feature 22

22: Maintenance Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 **0** 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard* - None
A = *Factory Wired 115V Convenience Outlet* - Factory wired 2x4 inch electrical box with ground fault interrupter receptacle located within the controls vestibule. The circuit is rated at 12 amps maximum and is factory wired to a step-down transformer, fuse block and outlet disconnect. The circuit is wired to the line side of the unit power block or power switch permitting use of the outlet while power to the unit is shut off. **Caution: When the power to the unit is disconnected with the factory installed unit power switch, the convenience outlet will remain live.**

Figure 9 - Factory Wired Convenience Outlet

B = *Field Wired 115V Convenience Outlet* - Field wired 2x4 electrical box with ground fault interrupter receptacle, located inside the unit control cabinet. Receptacle is rated for 20 amps. The outlet must be field wired to a 115 VAC power supply.
C = *Control Panel LED Service Lights and Marine Lights* - LED service lights included in the controls and compressor compartments. **Marine lights are located in the supply air cabinet, downstream of the cooling coil, downstream of economizer assembly, in the return and exhaust air section and in the Outdoor air sections**. The light circuit is wired to the line side of the unit power block, permitting use of the lights while the power to the unit is shut off.
D = *Remote Start/Stop contacts* - Remote start/stop terminals labeled ST1 and ST2. This option is normally used with a remote time clock or space type thermostat with occupied/unoccupied capability. Field supplied contact closure is needed for unit operation. When contacts are open, the low voltage circuit is broken and the unit will not operate.
Note: A2L leak mitigation takes precedence over Remote Start/Stop Contacts. Remote Start/Stop contacts are not to be used as an emergency stop.
E = *Supply Fan Auxiliary Contacts* - Contacts on the low voltage terminal block that close when the supply fan is energized. This option is used to interface with other devices or to indicate unit operation.
F = *Factory Wired 115V Convenience Outlet + Control Panel LED Service Lights and Marine Lights* -Option A + C
G = *Factory Wired 115V Convenience Outlet + Remote Start/Stop Contacts* - Option A + D
H = *Factory Wired 115V Convenience Outlet + Supply Fan Auxiliary Contacts* - Option A + E
J = *Field Wired 115V Convenience Outlet + Control Panel LED Service Lights and Marine Lights* - Option B + C

Feature 22 - Maintenance Accessories (continued)

K = *Field Wired 115V Convenience Outlet + Remote Start/Stop Contacts* - Option B + D
L = *Field Wired 115V Convenience Outlet + Supply Fan Auxiliary Contacts* - Option B + E
M = *Control Panel LED Service Lights + Remote Start/Stop Contacts and Marine Lights* - Option C + D
N = *Control Panel LED Service Lights* ***and Marine Lights*** *+ Supply Fan Auxiliary Contacts* - Option C + E
P = *Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts* - Option D + E
Q = *Factory Wired 115V Convenience Outlet + Control Panel LED Service Lights* ***and Marine Lights*** *+ Remote Start/Stop Contacts* - Option A + C + D
R = *Factory Wired 115V Convenience Outlet + Control Panel LED Service Lights* ***and Marine Lights*** *+ Supply Fan Auxiliary Contacts* - Option A + C + E
S = *Factory Wired 115V Convenience Outlet + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts* - Option A + D + E
T = *Field Wired 115V Convenience Outlet + Control Panel LED Service Lights* ***and Marine Lights*** *+ Remote Start/Stop Contacts* - Option B + C + D
U = *Field Wired 115V Convenience Outlet + Control Panel LED Service Lights* ***and Marine Lights*** *+ Supply Fan Auxiliary Contacts* - Option B + C + E
V = *Field Wired 115V Convenience Outlet + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts* - Option B + D + E
W = *Control Panel LED Service Lights* ***and Marine Lights*** *+ Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts* - Option C + D + E
Y = *Factory Wired 115V Convenience Outlet + Control Panel LED Service Lights* ***and Marine Lights*** *+ Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts* - Option A + C + D + E
Z = *Field Wired 115V Convenience Outlet + Control Panel LED Service Lights* ***and Marine Lights*** + *Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts* - Option B + C + D + E

Feature 23

23: Code Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 **0** 0 - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard - ETL U.S.A. Listing* - All AAON equipment is ETL U.S.A. listed and tested in accordance with the latest revision of UL 1995 (410a units), UL-60335 (454B units). If a Special Pricing Authorization (SPA) is applied there may be additional costs incurred to secure the ETL label.
A = *Chicago Code* - Chicago code for a unit. Chicago code states that unit wiring to the condenser fan motors must be in flexible conduit and refrigerant pressure relief valves must be supplied.
B = *ETL U.S.A. + Canada Listing* - Equipment is ETL U.S.A. and Canada listed and tested in accordance with the latest revision of UL Standard 1995 (410a units), UL 60335-2-40 (454B units)/CSA C22.2 No. 236. The nameplate, safety labels and warnings will be in English and French.

Feature 24

24: Shipping Splits

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 **0** - E 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard - no split*

Feature 25

25: Air-Cooled Condenser Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - **E** 0 0 0 0 0 - 0 0 0 0 0 0 B

0 = *Standard*
A = *Condenser Coil Guard* - Condenser coil guards fabricated from galvanized sheet metal, painted and factory mounted across the condenser coil face. Condenser coil guards are optional on 11, 13, & 16-30 ton RN Series units.
C = *ECM Condenser Fan Head Pressure Control* - Electronically Commutated Motors on the condenser fans which are controlled by factory installed head pressure control module. The control module receives inputs from pressure transducers on each refrigerant circuit and modulates the fan speed based on the pressure inputs. Option is available on RN Series 11 ton units for all voltages and RN 13-50 ton units with 208V or 230V. With AAON unit controls, ECM's will be controlled directly by AAON Control System.
E = *VFD Condenser Fan Head Pressure Control* - VFD Controlled Condenser Fans - Variable Speed - Factory provided and factory programmed VFD(s) receives inputs from pressure transducers on each refrigerant circuit and varies the fan speed based on the pressure inputs to maintain a discharge pressure. Standard pressure setpoint is 340 psi for standard air-cooled systems and 400 psi for modulating hot gas reheat air-cooled systems. With AAON unit controls, VFD's will be controlled directly by AAON Control System.
G = *Cond Coil Guard + ECM Condenser Fan Head Pressure Control* - Option A + C
J = *Cond Coil Guard + VFD Condenser Fan Head Pressure Control* - Option A + E

Feature 26

26: Evap-Cooled Condenser Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E **0** 0 0 0 0 - 0 0 0 0 0 0 B

0 = *None*

Feature 27

27: Water-Cooled Condenser Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 **0** 0 0 0 - 0 0 0 0 0 0 B

0 = *None (No Water-Cooled Condenser)*
A = *Balancing Valves* - Factory installed ball type valve in the condenser plumbing with pressure taps on either side of the valve for water balancing.
B = *Water Flow Switch* - Factory installed flow switch which shuts down the unit's compressors if the water flow to the condenser is interrupted.
D = *Motorized Shut-off Valve* - Factory installed two position motorized valve which shut off water flow to the condenser when the unit is off.
E = *Head Pressure Control* - Factory installed modulating head pressure control condenser water valve and head pressure control module which allow operation below 65°F condenser water temperature.
F = *Balancing Valves + Water Flow Switch* - Option A + B
H = *Balancing Valves + Motorized Shut-off Valve* - Option A + D
J = *Balancing Valves + Head Pressure Control* - Option A + E
L = *Water Flow Switch + Motorized Shut-off Valve* - Option B + D
M = *Water Flow Switch + Head Pressure Control* - Option B + E
R = *Balancing Valves + Water Flow Switch + Motorized Shut-off Valve* - Option A + B + D
S = *Balancing Valves + Water Flow Switch + Head Pressure Control* - Option A + B + E

Feature 28

28: Energy Recovery Wheel Accessories

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 **0** 0 0 - 0 0 0 0 0 0 B

0 = *None*
A = *Energy Recovery Wheel Defrost - Start-Stop* - Adjustable temperature sensor and timer wired to periodically stop the wheels rotation and allow warm exhaust air to defrost the wheel.
B = *Energy Recovery Wheel Rotation Detection* - Wheel rotation sensor and speed switch output module mounted in the energy recovery wheel section. The module contains a normally open and a normally closed set of contacts wired to the low voltage terminal block for field indication of wheel rotation.
F = *Option A + B - Energy Recovery Wheel Defrost - Start-Stop + Energy Recovery Wheel Rotation Detection*

Feature 29

29: VFD Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 **0** 0 - 0 0 0 0 0 0 B

0 = *None.*
A = *Shaft Grounding on all SA, RA, EA motors* - Shaft grounding on all supply air, return air, and exhaust air motors.
C = *BACNet VFD on all motors* - BACnet card on all supply air, return air, and exhaust air motors which allows users to monitor and control drives on a BACnet network using RS-485 technology and MS/TP protocol.
G = *Shaft Grounding on all SA, RA, EA motors + BACNet VFD on all motors* - Option A + C

Feature 30

30: Miscellaneous Options

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 **0** - 0 0 0 0 0 0 B

0 = *None*
A = *High Condensate Level Switch* - Control switch that shuts down the 24V control circuit when a high water level in the drain pan is detected to prevent overflow.
B = *Unit SCCR 10 kAIC* - the unit has a 10 kAIC Short-Circuit Current Rating
C = *Unit SCCR 35 kAIC* - the unit has a 35 kAIC Short-Circuit Current Rating. This option requires a factory installed circuit breaker (Feature 10 Power Options).
D = *Unit SCCR 65 kAIC* - the unit has a 65 kAIC Short-Circuit Current Rating. This option requires a factory installed circuit breaker (Feature 10 Power Options).

Feature 31

31: Blank

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - **0** 0 0 0 0 0 B

0 = *Standard*

Feature 32

32: Blank

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 **0** 0 0 0 0 B

0 = *Standard*

Feature 33

33: Blank

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 **0** 0 0 0 B

0 = *Standard*

Feature 34

34: Blank

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 **0** 0 0 B

0 = *Standard*

Feature 35

35: Warranty

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 **0** 0 B

0 = *Standard Warranty* - RN Series includes a standard 1 year parts only warranty. RN Series unit warranty coverage is 12 months from the date of equipment startup or 18 months from the date of original equipment shipment from the factory, whichever is less.
A = *2 Year Parts Warranty* - Unit warranty coverage is for two years from the date of original equipment shipment from the factory.
B = *5 Year Parts Warranty* - Unit warranty coverage is for five years from the date of original equipment shipment from the factory.
C = *10 Year Parts Warranty* - Unit warranty coverage is for ten years from the date of original equipment shipment from the factory.

Feature 36
36: Cabinet Material

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 **0** B

0 = *Galvanized Cabinet - Double Wall + R-13 Foam Insulation* - Unit construction consists of 2 inch thick double wall closed cell polyurethane foam insulated composite panels with a minimum R-value of 13. A thermal break between the inside and outside of the cabinet is included in the panels. Drain pans are fabricated of 18 gauge 304 stainless steel, include 1 inch of fiberglass insulation under the drain pan and are double sloped to meet ASHRAE 62.1, Indoor Air Quality guidelines.

Feature 37
37: Specials & Paint

Example:

RN A - 105 - E - 0 - 3 - C A A 0 A - 0 0 0 0 0 : A 0 - A A M 0 L - B 0 0 - 0 0 0 0 0 - 0 0 0 0 0 - 0 A - 0 0 0 0
- 0 0 - 0 0 - B - 0 0 0 - 0 0 - B A 0 B - 0 0 - 0 0 0 - A 0 0 0 0 0 - E 0 0 0 0 0 - 0 0 0 0 0 **B**

B = *Premium AAON Gray Exterior Paint* - Cabinet exterior is primer washed then spray coated with a two-part polyurethane, heat-baked exterior paint. The paint is gray in color and capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with the ASTM B 117-95 test procedure.
C = *Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection* - Option B + Interior ceiling, floor, service doors, fan inlet cone, damper rack, and filter rack in the air stream are spray coated with a two-part polyurethane, heat baked coating. The coils, coil casings, condensate drain pans, damper blades and gears, fan wheel, fan motor, energy recovery wheel casing, and compressor cabinet are not coated. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polyurethane coating is acceptable. Coating withstands at least 2,500 hours when tested under ASTM B 117-95 requirements
E = *Premium AAON Gray Paint Exterior Paint + Shrink Wrap* - Option B + Unit is heat shrink wrapped to help protect the unit during shipment.
F = *Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection + Shrink Wrap* - Option C + E
X = *SPA + Premium AAON Gray Exterior Paint* - Option B + the Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.
Y = *SPA + Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection*
1 = *SPA + Premium AAON Gray Paint Exterior Paint + Shrink Wrap*
2 = *SPA + Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection + Shrink Wrap*

Feature 37 - Specials & Paint Continued

4 = *SPA + Special Exterior Paint Color* - If a special paint color is specified, a set-up charge and price add per unit is required. Use this designation if other special paint options are necessary. The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.
5 = *SPA + Special Exterior Paint Color + Interior Corrosion Protection*
7 = *SPA + Special Exterior Paint Color + Shrink Wrap*
8 = *SPA + Special Exterior Paint Color + Interior Corrosion Protection + Shrink Wrap*

General Data

Unit Information

Table 14 - RN Series A Cabinet (6-8 and 10 tons) DX Cooling Information

	Model			
	006	007	008	010
Compressors				
Quantity/Nominal tons				
R-410A Two-Stage Scroll		1/7 T-S.	1/8 T-S.	1/10 T-S.
R-410A Variable Capacity Scroll	1/6 Var.	1/7 Var.	1/8 Var.	1/10 Var.
R-410A Variable Speed Scroll		1/7 Var.	1/8 Var.	1/10 Var.
Capacity Steps (%)	100, 100/67 with two-stage compressor or 10-100% with variable capacity scroll compressor			
Evaporator Coil				
Number of Circuits	1			
R-410 High Efficiency Coil				
Quantity/Face Area	1/8.5 ft^2			
Rows/fpi	2/14	3/14		
R-410A Standard Efficiency Coil				
Quantity/Face Area	1/8.5 ft^2		1/8.5 ft^2	
Rows/fpi	2/14		3/14	
6 Row Coil				
Quantity/Face Area	1/8.5 ft^2			
Rows/fpi	6/12			
Return Air Bypass Coil				
Quantity/Face Area	1/6.6 ft^2			
Rows/fpi	6/12			
Mixed Air Bypass Coil				
Quantity/Face Area	1/6.6 ft^2			
Rows/fpi	6/12			
Water-Cooled Condenser				
Minimum gpm	8.10	9.45	11.50	13.50
Maximum gpm	32.40	37.80	47.50	54.00

Table 15 - RN Series A Cabinet (6-8 and 10 tons) Heating and Hydronic Cooling Information

	Model			
	006	007	008	010
Electric Heat				
Capacity (kW)				
230/380/460/575V 3Φ	10, 20, 30, 40, 50, 60			
208V 3Φ	7.5, 15.0, 22.5, 30.0, 37.5, 45.1			
Stages (kW)	10 kW - 1 or Fully Modulating with SCR 20 kW - 2 or Fully Modulating with SCR 30 kW - 2, 3 or Fully Modulating with SCR 40 kW - 2, 3, 4 or Fully Modulating with SCR 50 kW - 2, 3, 4, 5, or Fully Modulating with SCR 60 kW - 2, 3, 4, 5, 6 or Fully Modulating with SCR			
Gas Heat				
Input Capacity/Output Capacity (MBH)	90/72, 150/120, 210/168			
Natural Gas Input Capacity Steps (MBH)	90 MBH - 2 Stage - 90/63, 4 Stage - 90/72/63/21, Modulating - 3:1 Turndown or 10:1 High Turndown 150 MBH - 2 Stage - 150/105, 4 Stage - 150/123/105/42, Modulating - 3:1 Turndown or 8:1 High Turndown 210 MBH - 2 Stage - 210/147, 4 Stage - 210/174/147/63, Modulating - 3:1 Turndown or 11:1 High Turndown			
LP Gas Input Capacity Steps (MBH)	90 MBH - 90/63 150 MBH - 150/105 210 MBH - 210/147			
Hot Water Heating Coil				
Quantity/Face Area	1/3.68 ft^2			
Rows/fpi	1 or 2/8, 10, or 12 (Single or Half Serpentine)			
Standard Coil	1 Row Half Serpentine with 10 fpi or 2 Row Single Serpentine with 10 fpi			
Steam Heating Coil				
Quantity/Face Area	1/3.38 ft^2			
Rows/fpi	1 or 2/8, 10, or 12			
Standard Coil	10 fpi			
Chilled Water Coil				
Quantity/Face Area	1/7.8 ft^2			
Rows/fpi	4 or 6/8, 10, or 12 (Single or Half Serpentine)			
Standard Coil	Single Serpentine with 10 fpi			

Table 16 - RN Series A Cabinet (6-8 and 10 tons) Preheat and Fan Information

	Model			
	006	007	008	010
Hot Water Preheat Coil				
Quantity/Face Area	1/7.78 ft^2 (Mixed Air Preheat)			
Rows/fpi	1 or 2/8, 10, or 12 (Single of Half Serpentine)			
Standard Coil	2 Row Single Serpentine with 10 fpi			
Steam Preheat Coil				
Quantity/Face Area	1/7.33 ft^2 (Mixed Air Preheat)			
Rows/fpi	1 or 2/8, 10 or 12			
Standard Coil	10 fpi			
Electric Preheat				
Capacity (kW)				
208V 3Φ	7.5, 11.3, 15, 22.5, 30, 37.5, 45.1			
230/380/460/575V 3Φ	10, 15, 20, 30, 40, 50, 60			
Stages (kW)	10 kW - Modulating with SCR 15 kW - Modulating with SCR 20 kW - Modulating with SCR 30 kW - Modulating with SCR 40 kW - Modulating with SCR 50 kW - Modulating with SCR 60 kW - Modulating with SCR			
Supply Fans				
Quantity/Type	1/Direct Drive Backward Curved Plenum			
Air-Cooled Condenser Fans				
Quantity	1			
Type/hp	30” Propeller Fan/0.33		30” Propeller Fan/0.75	
Power Exhaust Fans				
Quantity/Type	1/Belt Driven Forward Curved Fan			
hp	1, 2, 3			
Energy Recovery Wheel Exhaust Fans				
Quantity/Type	1/Belt Driven Backward Curved Plenum			
hp	1, 2, 3			

Table 17 - RN Series B Cabinet (9 and 11-15 tons) DX Cooling Information

	Model			
	009	011	013	015
Compressors				
Quantity/Nominal tons				
R-410A Two-Stage Scroll	2/4 T-S.	2/5 T-S.	2/6 T-S.	2/7 T-S.
R-410A Variable Capacity Scroll + Two-Stage Scroll	1/4 Var. 1/4 T-S.	1/5 Var. 1/5 T-S.	1/6 Var. 1/6 T-S.	1/7 Var. 1/7 T-S.
R-410A Variable Speed Scroll + Two-Stage Scroll	1/4 Var. 1/4 T-S.	1/5 Var. 1/5 T-S.	1/6 Var. 1/6 T-S.	1/7 Var. 1/7 T-S
Capacity Steps (%)	100/50 100/84/67/34 with two-stage compressors & field controls 100/84/67/50/34 with two-stage compressors & factory controls or 5-100% with variable capacity scroll compressors			
Evaporator Coil				
Number of Circuits	2, Interlaced			
R-410 High Efficiency Coil				
Quantity/Face Area	1/14.6 ft^2			
Rows/fpi	2/14	3/14	4/14	
R-410A Standard Efficiency Coil				
Quantity/Face Area	1/14.6 ft^2			
Rows/fpi	2/14		3/14	4/14
6 Row Coil				
Quantity/Face Area	1/14.6 ft^2			
Rows/fpi	6/12			
Return Air Bypass Coil				
Quantity/Face Area	1/11.8 ft^2			
Rows/fpi	6/12			
Mixed Air Bypass Coil				
Quantity/Face Area	1/11.8 ft^2			
Rows/fpi	6/12			
Water-Cooled Condenser				
Minimum gpm	12.25	16.00	19.25	23.00
Maximum gpm	53.00	67.00	80.00	95.00

Table 18 - RN Series B Cabinet (9 and 11-15 tons) Heating and Hydronic Cooling Information

	Model			
	009	011	013	015
Electric Heat				
Capacity (kW)				
230/380/460/575V 3Φ	20, 30, 40, 50, 60, 80			
208V 3Φ	15.0, 22.5, 30.0, 37.5, 45.1, 60.1			
Stages (kW)	20 kW - 2 or Fully Modulating with SCR 30 kW - 2, 3, or Fully Modulating with SCR 40 kW - 2, 3, 4 or Fully Modulating with SCR 50 kW - 2, 3, 4, 5 or Fully Modulating with SCR 60 kW - 2, 3, 4, 5, 6 or Fully Modulating with SCR 80 kW - 2, 3, 4, 5, 6, 7 or Fully Modulating with SCR			
Gas Heat				
Input Capacity/Output Capacity (MBH)	195/156, 292.5/234, 390/315.9			
Natural Gas Capacity Steps (MBH)	195 MBH - 2 Stage - 195/136.5, 4 Stage - 195/165.8/136.5/68.3, Modulating - 3:1 Turndown or 10:1 High Turndown 292.5 MBH - 2 Stage - 292.5/204.75, 4 Stage - 292.5/234/204.8/68.3, Modulating - 3:1 Turndown or 10:1 High Turndown 390 MBH - 2 Stage - 390/273, 4 Stage - 390/351/273/91, Modulating - 3:1 Turndown or 10:1 High Turndown			
LP Gas Capacity Steps (MBH)	195.0 MBH - 195/136.5 292.5 MBH - 292.5/204.75 390 MBH - 390/273			
Hot Water Heating Coil				
Quantity/Face Area	1/5.83 ft^2			
Rows/fpi	1 or 2/8, 10 or 12 (Single or Half Serpentine)			
Standard Coil	1 Row Half Serpentine with 10 fpi or 2 Row Single Serpentine with 10 fpi			
Steam Heating Coil				
Quantity/Face Area	1/5.75 ft^2			
Rows/fpi	1 or 2/8, 10 or 12			
Standard Coil	10 fpi			
Chilled Water Coil				
Quantity/Face Area	1/13.1 ft^2			
Rows/fpi	4 or 6/8, 10 or 12 (Single or Half Serpentine)			
Standard Coil	Single Serpentine with 10 fpi			

Table 19 - RN Series B Cabinet (9 and 11-15 tons) Preheat and Fan Information

	Model			
	009	011	013	015
Hot Water Preheat Coil				
Quantity/Face Area	1/13.06 ft^2 (Mixed Air Preheat)			
Rows/fpi	1 or 2/8, 10 or 12 (Single of Half Serpentine)			
Standard Coil	2 Row Single Serpentine with 10 fpi			
Steam Preheat Coil				
Quantity/Face Area	1/13.06 ft^2 (Mixed Air Preheat)			
Rows/fpi	1 or 2/8, 10 or 12			
Standard Coil	10 fpi			
Electric Preheat				
Capacity (kW)				
208V 3Φ	15, 22.5, 30, 37.5, 45.1, 52.6, 60.1			
230/380/460/575V 3Φ	20, 30 ,40 ,50 ,60 ,70 ,80			
Stages (kW)	20 kW - Modulating with SCR 30 kW - Modulating with SCR 40 kW - Modulating with SCR 50 kW - Modulating with SCR 60 kW - Modulating with SCR 70 kW - Modulating with SCR 80 kW - Modulating with SCR			
Supply Fans				
Quantity/Type	1/Direct Drive Backward Curved Plenum			
Air-Cooled Condenser Fans				
Quantity	2			
Type/hp	30” Propeller Fan/0.33		30” Propeller Fan/0.75	
Power Exhaust Fans				
Quantity/Type	1/Belt Driven Forward Curved Fan			
hp	1, 2, 3			
Energy Recovery Wheel Exhaust Fans				
Quantity/Type	1/Belt Driven Backward Curved Plenum			
hp	1, 2, 3			

Table 20 - RN Series C Horizontal (11-13 tons) DX & CW Cooling Information

	Model	
	011	013
Compressors		
Quantity/Nominal tons		
R-410A Scroll	2/5	2/6
R-410A Two-Stage Scroll	2/5 Two-Stage	2/6 Two-Stage
R-410A Variable Speed Scroll	1/5 VS, 1/5 Two-Stage	1/7 VS, 1/5 Two-Stage
R-410A Lead Variable Capacity Scroll Compressor	1/5 VC, 1/5	1/6 VC, 1/6
R-410A All Variable Capacity Scroll Compressors	2/5 VC	2/6 VC
Capacity Steps (%)	100/50 100/84/67/34 with two-stage compressors & field controls 100/84/67/50/34 with two-stage compressors & factory controls or 5-100% with variable capacity scroll compressors	
Evaporator Coil		
Number of Circuits	2, Interlaced	
R-410A Standard Efficiency Coil		
Quantity/Face Area	1/14.6 ft^2	
Rows/fpi	3/14	4/14
6 Row Coil		
Quantity/Face Area	1/14.6 ft^2	
Rows/fpi	6/12	
Chilled Water Coil		
Quantity/Face Area	1/13.1 ft^2	
Rows/fpi	4 or 6 / 8, 10 or 12 (Single or Half Serpentine)	
Standard Coil	Single Serpentine with 10 fpi	
Connection Sizes	(1) 1-5/8”OD water connections	

Table 21 - RN Series C Horizontal (11-13 tons) Heating Information

	Model	
	011	013
Electric Heat		
Capacity (kW)		
230/380/460/575V 3Φ	20, 40, 60, 80	
208V 3Φ	15.0, 30.0, 45.1, 60.1	
Stages (kW)	20 kW - 1 or Fully Modulating with SCR 40 kW - 2, 3 or Fully Modulating with SCR 60 kW - 2, 3, 4, 5 or Fully Modulating with SCR 80 kW - 2, 3, 4, 5, 6, 7 or Fully Modulating with SCR	
Gas Heat		
Input Capacity/Output Capacity (MBH)	270/218.7, 405/328.1, 540/432	
Natural Gas Capacity Steps (MBH)	270 MBH: 2 stage - 270/189, 4 stage - 270/229.5/189/94.5, or Modulating - 3:1 Turndown or 9:1 High Turndown 405 MBH: 2 stage - 405/283.5, 4 stage - 405/283.5/189/94.5, or Modulating - 4.5:1 Turndown or 13:1 High Turndown 540 MBH: 2 stage - 540/378, 4 stage - 540/459/270/189, or Modulating - 3:1 Turndown or 18:1 High Turndown	
LP Gas Capacity Steps (MBH)	270 MBH: 2 stage - 270/189, 4 stage - 270/229.5/189/94.5 405 MBH: 2 stage - 405/283.5, 4 stage - 405/283.5/189/94.5 540 MBH: 2 stage - 540/378, 4 stage - 540/459/270/189	
Hot Water Heating Coil		
Quantity/Face Area	1/7.3 ft^2	
Rows/fpi	1 or 2 / 8, 10 or 12 (Single or Half Serpentine)	
Standard Coil	1 Row Half Serpentine with 10 fpi or 2 Row Single Serpentine with 10 fpi	
Connection Sizes	(1) 1-5/8”OD water connections	
Steam Heating Coil		
Quantity/Face Area	1/7.3 ft^2	
Rows/fpi	1 or 2 / 8, 10 or 12	
Standard Coil	10 fpi	
Connection Sizes	(1) 2-1/8”OD steam connections	

Table 22 - RN Series C Horizontal (11-13 tons) Fan Information

	Model	
	011	013
Supply Fans		
Quantity/Type	1/Direct Drive Backward Curved Plenum	
Air-Cooled Condenser Fans		
Quantity	2	
Type/hp	30” Propeller Fan/0.33	30” Propeller Fan/0.75
Power Exhaust Fans		
Quantity/Type	1/Belt Driven Backward Curved Plenum	
hp	1, 2, 3, 5, 7.5, 10	
Energy Recovery Wheel Exhaust Fans		
Quantity/Type	1/Belt Driven Backward Curved Plenum	
hp	1, 2, 3, 5, 7.5	
Power Return Fans		
Quantity/Type	1 or 2/Direct Drive Axial Flow Fan	
hp	1, 2, 3, 5, 7.5	

Table 23 - RN Series C Horizontal (16-25 and 30 tons) DX & CW Cooling Information

	Model				
	016	018	020	025	030
Compressors					
Quantity/Nominal tons					
R-410A Scroll	2/7	2/8	2/9	2/11	2/13
R-410A Two-Stage (TS) Scroll	2/7 TS	2/8 TS	2/9 TS		
R-410A Variable Speed (VS) Scroll	1/17 VS		1/11 VS, 1/8 TS	1/17 VS, 1/9 TS	1/17 VS, 1/11
R-410A Lead Variable Capacity (VC) Scroll Compressor	1/7 VC, 1/7	1/8 VC, 1/8	1/9 VC, 1/9	1/11 VC, 1/11	1/13 VC, 1/13
R-410A All Variable Capacity Scroll Compressors	2/7 VC	2/8 VC	2/9 VC	2/11 VC	2/13 VC
Capacity Steps (%)	100/50 100/84/67/34 with two-stage compressors & field controls 100/84/67/50/34 with two-stage compressors & factory controls or 5-100% with variable capacity scroll compressors				
Evaporator Coil					
Number of Circuits	2, Interlaced				
Standard Coil					
Quantity/Face Area	1/19.9 ft^2				
Rows/fpi	3/14	4/14			
6 Row Coil					
Quantity/Face Area	1/19.9 ft^2				
Rows/fpi	6/12				
Chilled Water Coil					
Quantity/Face Area	1/18.7 ft^2				
Rows/fpi	4 or 6 / 8, 10, or 12 (Single or Half Serpentine)				
Standard Coil	Single Serpentine with 10 fpi				
Connection Sizes	(1) 2-1/8”OD water connections				
Water-Cooled Condenser					
Minimum gpm				33.75	40.50
Maximum gpm				135.00	162.00

Table 24 - RN Series C Horizontal (16-25 and 30 tons) Heating Information

	Model				
	016	018	020	025	030
Electric Heat					
Capacity (kW)					
230/380/460/575V	20, 40, 60, 80, 100, 120				
208V	15, 30, 45.1, 60.1, 75.1, 90.1				
Stages (kW)	20 kW - 1 or Fully Modulating with SCR 40 kW - 2, 3 or Fully Modulating with SCR Stage 60 kW - 2, 3, 4, 5 or Fully Modulating with SCR 80 kW - 2, 3, 4, 5, 6, 7 or Fully Modulating with SCR 100 & 120 kW - 2, 4, 6, 7, 8 or Fully Modulating with SCR				
Gas Heat					
Input Capacity/Output Capacity (MBH)	270/218.7, 405/328.1, 540/432				
Natural Gas Capacity Steps (MBH)	270 MBH: 2 stage - 270/189, 4 stage - 270/229.5/189/94.5, or Modulating - 3:1 Turndown or 9:1 High Turndown 405 MBH: 2 stage - 405/283.5, 4 stage - 405/283.5/189/94.5, or Modulating – 4.5:1 Turndown or 13:1 High Turndown 540 MBH: 2 stage - 540/378, 4 stage - 540/459/270/189, or Modulating - 3:1 Turndown or 18:1 High Turndown				
LP Gas Capacity Steps (MBH)	270 MBH: 2 stage - 270/189, 4 stage - 270/229.5/189/94.5 405 MBH: 2 stage - 405/283.5, 4 stage - 405/283.5/189/94.5 540 MBH: 2 stage - 540/378, 4 stage - 540/459/270/189				
Hot Water Heating Coil					
Quantity/Face Area	1/7.3 ft^2				
Rows/fpi	1 or 2 / 8, 10, or 12 (Single or Half Serpentine)				
Standard Coil	1 Row Half Serpentine with 10 fpi or 2 Row Single Serpentine with 10 fpi				
Connection Sizes	(1) 1-5/8”OD water connections				
Steam Heating Coil					
Quantity/Face Area	1/7.3 ft^2				
Rows/fpi	1 or 2 / 8, 10, or 12				
Standard Coil	10 fpi				
Connection Sizes	(1) 2-1/8”OD steam connections				

Table 25 - RN Series C Horizontal (16-25 and 30 tons) Fan Information

	Model				
	016	018	020	025	030
Supply Fans					
Quantity/Type	1/Direct Drive Backward Curved Plenum Fan				
Air-Cooled Condenser Fans					
Quantity	2			3	
Type/hp	30” Propeller Fan/0.75				
Power Exhaust Fans					
Quantity/Type	1/Belt Driven Backward Curved Plenum Fan				
hp	1, 2, 3, 5, 7.5, 10				
Energy Recovery Wheel Exhaust Fans					
Quantity/Type	1/Belt Driven Backward Curved Plenum Fan				
hp	1, 2, 3, 5, 7.5				
Power Return Fans					
Quantity/Type	1 or 2/Direct Drive Axial Flow Fan				
hp	1, 2, 3, 5, 7.5				

Table 26 - RN Series D Cabinet (26, 31-50, 60 and 70 tons) DX & CW Cooling Information

	Model					
	026	031	040	050	060	070
Compressors						
Quantity/Nominal tons						
R-410A Tandem Scroll		2/14 Tan	2/17 Tan	2/23 Tan	2/25 Tan	2/31 Tan
R-410A Two-Stage Scroll (TS)	2/10 TS					
R-410A Variable Speed (VS) Scroll	1/17 VS, 1/10 TS	1/17 VS, 1/14 Tan	1/20 VS Tan, 1/17 Tan	1/25 VS Tan, 1/23 Tan	1/29 VS Tan, 1/23 Tan	1/32 VS Tan, 1/31 Tan
R-410A Lead Variable Capacity (VC) Scroll	1/13 VC, 1/10 TS	1/17 VC, 1/14 Tan	1/17 VC Tan, 1/17 Tan			
Capacity Steps (%)	100/82/68/50/32/18 Tandem Stages 100/84/67/34 with two-stage compressors & field controls 100/84/67/50/34 with two-stage compressors & factory controls or 5-100% with variable capacity scroll compressors					
Evaporator Coil						
Number of Circuits	2, Interlaced					
Standard Coil						
Quantity/Face Area	1/32.1 ft^2			2/22.5 ft^2 (45.0 ft^2 total)		
Rows/fpi	4/14					6/14
6 Row Coil						
Quantity/Face Area	1/32.1 ft^2			2/22.5 ft^2 (45.0 ft^2 total)		
Rows/fpi	6/12			6/14		
Chilled Water Coil						
Quantity/Face Area	1/31.9 ft^2			2/ 20.9ft^2 (41.8 ft^2 total)		
Rows/fpi	4 or 6 / 8, 10, or 12 (Single or Half Serpentine)					
Standard Coil	Single Serpentine with 10 fpi					
Connection Sizes	(1) 2-5/8”OD water connections			(2) 2-1/8”OD water connections		
Water-Cooled Condenser						
Minimum gpm	35.10	41.85	54.00	67.50	81.00	94.50
Maximum gpm	140.40	167.40	216.00	270.00	324.00	378.00

Table 27 - RN Series D Cabinet (26, 31-50, 60 and 70 tons) Heating Information

	Model					
	026	031	040	050	060	070
Electric Heat						
Capacity (kW)						
230/380/460/575V	40, 80, 120, 160	40, 80, 120, 160, 200, 240				
208V	30, 60.1, 90.1, 120.1	30, 60.1, 90.1, 120.1, 150.2, 180.2				
Stages	40 kW & 80 kW - 2 or Fully Modulating with SCR 120 kW - 2, 4, 6, 7, 8 or Fully Modulating with SCR 160 kW, 200 kW & 240 kW - 2, 4, 8 or Fully Modulating with SCR					
Gas Heat						
Input Capacity/Output Capacity (MBH)	600/480, 900/720, 1200/960					
Natural Gas Capacity Steps (MBH)	600 MBH: 2 stage - 600/420, 4 stage - 600/510/300/210, or Modulating - 3:1 Turndown or 10:1 High Turndown 900 MBH: 2 stage - 900/630, 4 stage - 900/765/450/315, or Modulating - 5:1 Turndown or 15:1 High Turndown 1200 MBH: 2 stage - 1200/840, 4 stage - 1200/1020/600/420, or Modulating - 5:1 Turndown or 20:1 High Turndown					
LP Gas Capacity Steps (MBH)	600 MBH: 2 stage - 600/420, 4 stage - 600/510/300/210 900 MBH: 2 stage - 900/630, 4 stage - 900/765/450/315 1200 MBH: 2 stage - 1200/840, 4 stage - 1200/1020/600/420					
Hot Water Heating Coil						
Quantity/Face Area	1/18.8 ft^2					
Rows/fpi	1 or 2 / 8, 10 or 12 (Single or Half Serpentine)					
Standard Coil	1 Row Half Serpentine with 10 fpi or 2 Row Single Serpentine with 10 fpi					
Connection Sizes	(1) 2-1/8”OD water connections					
Steam Heating Coil						
Quantity/Face Area	1/18.8 ft^2					
Rows/fpi	1 or 2 / 8, 10 or 12					
Standard Coil	10 fpi					
Connection Sizes	(1) 2” MPT steam connections					

Table 28 - RN Series D Cabinet (26, 31-50, 60 and 70 tons) Fan Information

	Model					
	026	031	040	050	060	070
Supply Fans						
Quantity/Type	1 or 2/Direct Drive Backward Curved Plenum Fan					
Air-Cooled Condenser Fans						
Quantity	4			6		
Type/hp	30” EC Controlled Propeller Fan /1.0					
Power Exhaust Fans						
Quantity/Type	1 or 2/Direct Drive Axial Flow Fan					
hp	1, 2, 3, 5, 7.5, 10, 15, 20					
Energy Recovery Wheel Exhaust Fans						
Quantity/Type	1 or 2/Belt Driven Backward Curved Plenum Fan					
hp	1, 2, 3, 5, 7.5, 10					
Power Return Fans						
Quantity/Type	1 or 2/Direct Drive Axial Flow Fan					
hp	1, 2, 3, 5, 7.5, 10, 15, 20					

Table 29 - RN Series E Cabinet (075 tons) DX and CW Cooling Information

	Model
	075
Compressors	
Quantity/Nominal tons	
R-410A Lead Variable Speed Scroll Compressor	2/17.7 ton VFD, 1/31.5 Tandem
R-410A Evaporator Coils	
Number of Circuits	3, Interlaced
Standard DX Coil	
Quantity/Face Area Coil/ Total Face Area	2/29.3 ft^2/ 58.7 ft^2
Rows/fpi	4/14
6 Row DX Coil	
Quantity/Face Area Coil/ Total Face Area	2/29.3 ft^2/ 58.7 ft^2
Rows/fpi	6/12
Chilled Water Coils	
Quantity/Face Area	2/29.2 ft^2 (58.3 ft^2 total)
Rows/fpi	4 or 6/8, 10, or 12 (Single or Half Serpentine)
Standard Coil	Single Serpentine with 10 fpi
Connection Sizes	(4) 2-1/8”OD water connections

Table 30 - RN Series E Cabinet (075 tons) Gas Heat Information

	Model
	075
Gas Heat	
Input Capacity/Output Capacity (MBH)	800/640, 1200/960, 1600/1280, 2000/1600, 2400/1920
Natural Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200, Modulating - 3:1 Turndown or 7.5:1 High Turndown 1200 MBH: 3 stage - 1200/800/400, 6 stage - 1200/1000/800/600/400/200, Modulating - 4.5:1 Turndown or 11.3:1 High Turndown 1600 MBH: 4 stage - 1600/1200/800/400, Modulating - 6:1 Turndown or 15.1:1 High Turndown 2000 MBH: 5 stage - 2000/1600/1200/800/400, Modulating - 7.5:1 Turndown or 18.9:1 High Turndown 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400, Modulating - 9:1 Turndown or 22.7:1 High Turndown
LP Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400 1200 MBH: 3 stage - 1200/800/600 1600 MBH: 4 stage - 1600/1200/800/400 2000 MBH: 5 stage - 2000/1600/1200/800/400 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400

Table 31 - RN Series E Cabinet (075 tons) Electric Heat & Heating Coils Information

	Model
	075
Electric Heat	
Capacity (kW)	
230/460/575V 3Φ	80, 120, 160, 200, 240, 280, 320
208V	60.1, 90.1, 120.2, 150.2, 180.3, 210.3, 240.4
Stages (kW)	80 kW - 2 or Fully Modulating with SCR 120kW - 2, 3 or Fully Modulating with SCR 160 kW - 2, 4 or Fully Modulating with SCR 200 kW, 240 kW, 280 kW, 320 kW - 2, 4, 6 or Fully Modulating with SCR
Hot Water Heating Coil	
Quantity/Face Area Coil/ Total Face Area	2/19.8 ft^2 (39.7 ft^2 total)
Rows/fpi	1/8, 10, or 12 (Half Serpentine) 2/8, 10 or 12 (Single or Half Serpentine)
Connection Sizes	(4) 2-1/8”OD water connections
Steam Heating Coil	
Quantity/Face Area Coil/ Total Face Area	2/19.3 ft^2 (38.6 ft^2 total)
Rows/fpi	1 or 2/8, 10 or 12
Connection Sizes	(4) 2-1/8”OD steam connections
Hot Water Preheat Coil	
Quantity/Face Area Coil/ Total Face Area	2/29.2 ft^2 (58.4 ft^2 total)
Rows/fpi	1/8, 10, or 12 (Half Serpentine) 2/8, 10 or 12 (Single or Half Serpentine)
Connection Sizes	(4) 1-3/8”OD water connections
Steam Preheat Coil	
Quantity/Face Area Coil/ Total Face Area	4/13.7 ft^2 (55.0 ft^2 total)
Rows/fpi	1 or 2/8, 10 or 12
Connection Sizes	(8) 2-1/8”OD steam connections

Table 32 - RN Series E Cabinet (075 tons) Fan Information

	Model
	075
Supply Fans	
Quantity/Type	2/Direct Drive Backward Curved Plenum
Air-Cooled Condenser Fans	
Quantity	4
Type/hp	30” EC or VFD Controlled Propeller Fans/1.5hp
Power Exhaust Fans	
Quantity/Type	1 or 2/ Direct Drive Backward Curved Plenum
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40
Power Return Fans	
Quantity/Type	1 or 2/ Direct Drive Backward Curved Plenum
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40

Table 33 - RN Series E Cabinet (090-105 tons) DX and CW Cooling Information

	Model	
	090	105
Compressors		
Quantity/Nominal tons		
R-410A Lead Variable Speed Scroll Compressor	2/19.7 ton VFD, 1/49.4 Tandem	2/22 ton VFD, 1/53.2 Tandem
R-410A Evaporator Coils		
Number of Circuits	3, Interlaced	
Standard DX Coil		
Quantity/Face Area Coil/ Total Face Area	2/39.8 ft^2/ 79.6 ft^2	
Rows/fpi	4/14	
6 Row DX Coil		
Quantity/Face Area Coil/ Total Face Area	2/39.8 ft^2/ 79.6 ft^2	
Rows/fpi	6/12	
Chilled Water Coils		
Quantity/Face Area	4/17.6 ft^2 (70.5 ft^2 total)	
Rows/fpi	4 or 6/8, 10, or 12 (Single or Half Serpentine)	
Standard Coil	Single Serpentine with 10 fpi	
Connection Sizes	(8) 2-1/8”OD water connections	

Table 34 - RN Series E Cabinet (090-105 tons) Gas Heat Information

	Model	
	090	105
Gas Heat		
Input Capacity/Output Capacity (MBH)	800/640, 1200/960, 1600/1280, 2000/1600, 2400/1920	
Natural Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200, Modulating - 3:1 Turndown or 7.5:1 High Turndown 1200 MBH: 3 stage - 1200/800/400, 6 stage - 1200/1000/800/600/400/200, Modulating - 4.5:1 Turndown or 11.3:1 High Turndown 1600 MBH: 4 stage - 1600/1200/800/400, Modulating - 6:1 Turndown or 15.1:1 High Turndown 2000 MBH: 5 stage - 2000/1600/1200/800/400, Modulating - 7.5:1 Turndown or 18.9:1 High Turndown 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400, Modulating - 9:1 Turndown or 22.7:1 High Turndown	
LP Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400 1200 MBH: 3 stage - 1200/800/600 1600 MBH: 4 stage - 1600/1200/800/400 2000 MBH: 5 stage - 2000/1600/1200/800/400 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400	

Table 35 - RN Series E Cabinet (090-105 tons) Electric Heat & Heating Coils Information

	Model	
	090	105
Electric Heat		
Capacity (kW)		
230/460/575V 3Φ	80, 120, 160, 200, 240, 280, 320	
208V	60.1, 90.1, 120.1, 150.2, 180.2, 210.3, 240.4	
Stages (kW)	80 kW - 2 or Fully Modulating with SCR 120kW - 2, 3 or Fully Modulating with SCR 160 kW - 2, 4 or Fully Modulating with SCR 200 kW, 240 kW, 280 kW, 320 kW - 2, 4, 6 or Fully Modulating with SCR	
Hot Water Heating Coil		
Quantity/Face Area Coil/ Total Face Area	2/19.9 ft^2 (39.7 ft^2 total)	
Rows/fpi	1/8, 10, or 12 (Half Serpentine) 2/8, 10 or 12 (Single or Half Serpentine)	
Connection Sizes	(4) 2-1/8”OD water connections	
Steam Heating Coil		
Quantity/Face Area Coil/ Total Face Area	2/19.3 ft^2 (38.6 ft^2 total)	
Rows/fpi	1 or 2/8, 10 or 12	
Connection Sizes	(4) 2-1/8”OD steam connections	
Hot Water Preheat Coil		
Quantity/Face Area Coil/ Total Face Area	4/17.6 ft^2 (70.6 ft^2 total)	
Rows/fpi	1/8, 10, or 12 (Half Serpentine) 2/8, 10 or 12 (Single or Half Serpentine)	
Connection Sizes	(8) 1-3/8”OD water connections	
Steam Preheat Coil		
Quantity/Face Area Coil/ Total Face Area	4/16.9 ft^2 (67.7 ft^2 total)	
Rows/fpi	1 or 2/8, 10 or 12	
Connection Sizes	(8) 2-1/8”OD steam connections	

Table 36 - RN Series E Cabinet (090-105 tons) Fan Information

	Model	
	090	105
Supply Fans		
Quantity/Type	1 or 2 Direct Drive Backward Curved Plenum	
Air-Cooled Condenser Fans		
Quantity	8	
Type/hp	30” EC or VFD Controlled Propeller Fans/1.5hp	
Power Exhaust Fans		
Quantity/Type	1 or 2/ Direct Drive Backward Curved Plenum	
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40	
Power Return Fans		
Quantity/Type	1 or 2/ Direct Drive Backward Curved Plenum	
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40	

Table 37 - RN Series E Cabinet (120-140 tons) DX and CW Cooling Information

	Model		
	120	130	140
Compressors			
Quantity/Nominal tons			
R-410A Lead Variable Speed Scroll Compressor	2/29.2 ton VFD, 1/56.9 Tandem	2/30.1 ton VFD, 1/68 Tandem	2/29.7 ton VFD, 1/71.3 Tandem
R-410A Evaporator Coils			
Number of Circuits	3, Interlaced		
Standard DX Coil			
Quantity/Face Area Coil/ Total Face Area	2/39.8 ft^2/ 79.6 ft^2		
Rows/fpi	4/14		
6 Row DX Coil			
Quantity/Face Area Coil/ Total Face Area	2/39.8 ft^2/ 79.6 ft^2		
Rows/fpi	6/12		
Chilled Water Coils			
Quantity/Face Area	4/17.6 ft^2 (70.5 ft^2 total)		
Rows/fpi	4 or 6/8, 10, or 12 (Single or Half Serpentine)		
Standard Coil	Single Serpentine with 10 fpi		
Connection Sizes	(8) 2-1/8”OD water connections		

Table 38 - RN Series E Cabinet (120-140 tons) Gas Heat Information

	Model		
	120	130	140
Gas Heat			
Input Capacity/Output Capacity (MBH)	800/640, 1200/960, 1600/1280, 2000/1600, 2400/1920		
Natural Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200, Modulating - 3:1 Turndown or 7.5:1 High Turndown 1200 MBH: 3 stage - 1200/800/400, 6 stage - 1200/1000/800/600/400/200, Modulating - 4.5:1 Turndown or 11.3:1 High Turndown 1600 MBH: 4 stage - 1600/1200/800/400, Modulating - 6:1 Turndown or 15.1:1 High Turndown 2000 MBH: 5 stage - 2000/1600/1200/800/400, Modulating - 7.5:1 Turndown or 18.9:1 High Turndown 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400, Modulating - 9:1 Turndown or 22.7:1 High Turndown		
LP Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400 1200 MBH: 3 stage - 1200/800/600 1600 MBH: 4 stage - 1600/1200/800/400 2000 MBH: 5 stage - 2000/1600/1200/800/400 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400		

Table 39 - RN Series E Cabinet (120-140 tons) Electric Heat & Heating Coils Information

	Model		
	120	130	140
Electric Heat			
Capacity (kW)			
230/460/575V 3Φ	80, 120, 160, 200, 240, 280, 320		
208V	60.1, 90.1, 120.1, 150.2, 180.2, 210.3, 240.4		
Stages (kW)	80 kW - 2 or Fully Modulating with SCR 120kW - 2, 3 or Fully Modulating with SCR 160 kW - 2, 4 or Fully Modulating with SCR 200 kW, 240 kW, 280 kW, 320 kW - 2, 4, 6 or Fully Modulating with SCR		
Hot Water Heating Coil			
Quantity/Face Area Coil/ Total Face Area	2/19.9 ft^2 (39.7 ft^2 total)		
Rows/fpi	1/8, 10, or 12 (Half Serpentine) 2/8, 10 or 12 (Single or Half Serpentine)		
Connection Sizes	(4) 2-1/8”OD water connections		
Steam Heating Coil			
Quantity/Face Area Coil/ Total Face Area	2/19.3 ft^2 (38.6 ft^2 total)		
Rows/fpi	1 or 2/8, 10 or 12		
Connection Sizes	(4) 2-1/8”OD steam connections		
Hot Water Preheat Coil			
Quantity/Face Area Coil/ Total Face Area	4/17.6 ft^2 (70.6 ft^2 total)		
Rows/fpi	1/8, 10, or 12 (Half Serpentine) 2/8, 10 or 12 (Single or Half Serpentine)		
Connection Sizes	(8) 1-3/8”OD water connections		
Steam Preheat Coil			
Quantity/Face Area Coil/ Total Face Area	4/16.9 ft^2 (67.7 ft^2 total)		
Rows/fpi	1 or 2/8, 10 or 12		
Connection Sizes	(8) 2-1/8”OD steam connections		

Table 40 - RN Series E Cabinet (120-140 tons) Fan Information

	Model		
	120	130	140
Supply Fans			
Quantity/Type	2/Direct Drive Backward Curved Plenum		
Air-Cooled Condenser Fans			
Quantity	8		
Type/hp	30” EC or VFD Controlled Propeller Fans/1.5hp		
Power Exhaust Fans			
Quantity/Type	1 or 2/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		
Power Return Fans			
Quantity/Type	1 or 2/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		

Filter Information

(RAB = Return Air Bypass, PE = Power Exhaust, PR = Power Return)

Table 41 - RN Series A Cabinet (6-8 and 10 tons) Pre Filters

Feature 9A	Quantity / Size	Type
0	No Pre Filters	
A, E	4 / 16” x 20” x 2”	Pleated, MERV 8
B, E	2 / 16” x 20” x 1”	Metal Mesh, Outside Air
C	2 / 40” x 16” x 5/16”	Lint Screen
	with RAB, Feature A2 = Q, R 2 / 40” x 16” x 5/16”	

Table 42 - RN Series A Cabinet (6-8 and 10 tons) Unit Filters

Feature 9B	Quantity / Size	Type
0	4 / 16” x 20” x 2”	Pleated, MERV 8
	with RAB, Feature A2 = Q, R 2 / 20” x 20” x 2” and 1/12” x 24” x 2”	
B	4 / 16” x 20” x 4”	Pleated, MERV 8
	with RAB, Feature A2 = Q, R 2 / 20” x 20” x 4” and 1/12” x 24” x 4”	
C	4 / 16” x 20” x 2”	Permanent Filter Frame - Replaceable Media
	with RAB, Feature A2 = Q, R 2 / 20” x 20” x 2” and 1/12” x 24” x 2”	
F	4 / 16” x 20” x 4”	Pleated, MERV 11
G		Pleated, MERV 13
H		Pleated, MERV 14

Table 43 - RN Series B Cabinet (9 and 11-15 tons) Pre Filters

Feature 9A	Quantity / Size	Type
0	No Pre Filters	
A, E	4 / 20” x 25” x 2”	Pleated, MERV 8
B, E	2 / 20” x 25” x 1”	Metal Mesh, Outside Air
C	2 / 49” x 20” x 5/16”	Lint Screen
	with RAB, Feature A2 = Q, R 3 / 47” x 12” x 5/16”	

Table 44 - RN Series B Cabinet (9 and 11 tons) Unit Filters

Feature 9B	Quantity / Size	Type
0	4 / 20” x 25” x 2” with RAB, Feature A2 = Q, R 6 / 12” x 24” x 2”	Pleated, MERV 8
B	4 / 20” x 25” x 4” with RAB, Feature A2 = Q, R 6 / 12” x 24” x 4”	Pleated, MERV 8
C	4 / 20” x 25” x 2” with RAB, Feature A2 = Q, R 6 / 12” x 24” x 2”	Permanent Filter Frame - Replaceable Media
F	4 / 20” x 25” x 4”	Pleated, MERV 11
G		Pleated, MERV 13
H		Pleated, MERV 14

Table 45 - RN Series B Cabinet (13 and 15 tons) Unit Filters

Feature 9B	Quantity / Size	Type
0	4 / 20” x 25” x 2” with RAB, Feature A2 = Q, R 6 / 12” x 24” x 2”	Pleated, MERV 8
B	4 / 20” x 25” x 4” with RAB, Feature A2 = Q, R 6 / 12” x 24” x 4”	Pleated, MERV 8
C	4 / 20” x 25” x 2” with RAB, Feature A2 = Q, R 6 / 12” x 24” x 2”	Permanent Filter Frame - Replaceable Media
F	4 / 20” x 25” x 4”	Pleated, MERV 11
G		Pleated, MERV 13
H		Pleated, MERV 14

Table 46 - RN Series C Cabinet (14, 16-25 and 30 tons) Pre Filters

Feature 9A	Quantity / Size	Type
0	No Pre Filters	
A, E	6 / 20” x 25” x 2”	Pleated, MERV 8
B, E	3 / 20” x 25” x 1”	Metal Mesh, Outside Air
C	2 / 55” x 25” x 5/16” with RAB, Feature A2 = Q, R 3 / 55” x 16” x 5/16”	Lint Screen

Table 47 - RN Series C Cabinet (14, 16-25 and 30 tons) Unit Filters

Feature 9B	Quantity / Size	Type
0	6 / 20” x 25” x 2” with RAB, Feature A2 = Q, R 9 / 16” x 20” x 2”	Pleated, MERV 8
B	6 / 20” x 25” x 4” with RAB, Feature A2 = Q, R 9 / 16” x 20” x 4”	Pleated, MERV 8
C	6 / 20” x 25” x 2” with RAB, Feature A2 = Q, R 9 / 16” x 20” x 2”	Permanent Filter Frame - Replaceable Media
F	6 / 20” x 25” x 4”	Pleated, MERV 11
G		Pleated, MERV 13
H		Pleated, MERV 14

Table 48 - RN Series C Horizontal 11, 13, 16-25 and 30 ton Pre Filters

Feature 9A	Quantity / Size	Type
0,A	No Pre Filters	
B,C,D	6 / 20” x 25” x 2”	Pleated MERV 8
Feature 9B	**Quantity / Size**	**Type**
M	6 / 20” x 25” x 5/16”	Lint Screen
Feature 19	**Quantity / Size**	**Type**
B,G,H,J,K	*Feature 4A = 0,A,B,C,E,K,Q* 3 / 20” x 25” x 1”	Metal Mesh, Outside Air
	With PE or PR, Feature 4A = G,H 2 / 18” x 25” x 1” & 2 / 18” x 30” x 1”	

Table 49 - RN Series C Horizontal 11, 13, 16-25 and 30 ton Unit Filters

Feature 9A	Quantity / Size	Type
0	6 / 20” x 25” x 2” *with RAB, Feature 8 = G,J,L* 9 / 16” x 20” x 2”	Pleated MERV 8
A	6 / 20” x 25” x 4” *with RAB, Feature 8 = G,J,L* 9 / 16” x 20” x 4”	
B	6 / 20” x 25” x 4”	Pleated MERV 11
C		Pleated MERV 13
D		Pleated MERV 14

Table 50 - RN Series C Horizontal 11, 13, 16-25 and 30 ton Energy Recovery Wheel Filters

Feature 4C	Quantity / Size	Type
J,K,N,P	*With Energy Recovery Wheel Exhaust Air Filters* OA - 6 / 20” x 16” x 2” EA - 4 / 14” x 25” x 2”	Pleated MERV 8
A,B,E,F	*With V-Bank Outside Air Filters* OA - 6 / 20” x 16” x 2”	

Table 51 - RN Series C Horizontal 11, 13, 16-25 and 30 ton Final Filters

Feature 9C	Quantity / Size	Type
0	No Final Filters	
A	6 / 24” x 20” x 12”	Pleated MERV 13
D	6 / 24” x 20” x 12”	Pleated MERV 14
U	6 / 24” x 20” x 4”	Pleated MERV 13
Y	6 / 24” x 20” x 4”	Pleated MERV 14

Table 52 - RN Series D Cabinet 26, 31, and 40 ton Pre Filters

Feature 9A	Quantity / Size	Type
0,A	No Pre Filters	
B,C,D	8 / 24” x 24” x 2”	Pleated MERV 8
	with RAB, Feature 8 = G,J,L 16 / 12” x 24” x 2”	
Feature 9B	**Quantity / Size**	**Type**
M	8 / 24” x 24” x 5/16”	Lint Screen
Feature 19	**Quantity / Size**	**Type**
B,G,H,J,K	*Feature 4A = 0,A,B,C,E,K,Q* 6 / 16” x 25” x 1”	Metal Mesh, Outside Air
	With PE or PR, Feature 4A = F,G,H 4 / 16” x 25” x 1”	

Table 53 - RN Series D Cabinet 50, 60, and 70 ton Pre Filters

Feature 9A	Quantity / Size	Type
0,A	No Pre Filters	
B,C,D	24 / 12” x 24” x 2”	Pleated MERV 8
	with RAB, Feature 8 = G,J,L 16 / 12” x 24” x 2”	
Feature 9B	**Quantity / Size**	**Type**
M	12 / 47” x 12” x 5/16”	Lint Screen
Feature 19	**Quantity / Size**	**Type**
B,G,H,J,K	*Feature 4A = 0,A,B,C,E,K,Q* 6 / 16” x 25” x 1”	Metal Mesh, Outside Air
	With PE or PR, Feature 4A = F,G,H 4 / 16” x 25” x 1”	

Table 54 - RN Series D Cabinet 26, 31, and 40 ton Unit Filters

Feature 9A	Quantity / Size	Type
0	8 / 24” x 24” x 2”	Pleated MERV 8
	with RAB, Feature 8 = G,J,L 16 / 12” x 24” x 2”	
A	8 / 24” x 24” x 4”	
	with RAB, Feature 8 = G,J,L 16 / 12” x 24” x 4”	
B	8 / 24” x 24” x 4”	Pleated MERV 11
	with RAB, Feature 8 = G,J,L 16 / 12” x 24” x 4”	
C	8 / 24” x 24” x 4”	Pleated MERV 13
	with RAB, Feature 8 = G,J,L 16 / 12” x 24” x 4”	
D	8 / 24” x 24” x 4”	Pleated MERV 14
	with RAB, Feature 8 = G,J,L 16 / 12” x 24” x 4”	

Table 55 - RN Series D Cabinet 50, 60, and 70 ton Unit Filters

Feature 9A	Quantity / Size	Type
0	24 / 12” x 24” x 2”	Pleated MERV 8
	with RAB, Feature 8 = G,J,L 28 / 12” x 24” x 2”	
A	24 / 12” x 24” x 4”	
	with RAB, Feature 8 = G,J,L 28 / 12” x 24” x 4”	
B	24 / 12” x 24” x 4”	Pleated MERV 11
C		Pleated MERV 13
D		Pleated MERV 14

Table 56 - RN Series D Cabinet 26, 31-50, 60, and 70 ton Energy Recovery Wheel Filters

Feature 4C	Quantity / Size	Type
J,K,N,P	*With Energy Recovery Wheel Exhaust Air Filters* OA - 8 / 24” x 18” x 2” EA - 8 / 16” x 20” x 2”	Pleated MERV 8
A,B,E,F	*With V-Bank Outside Air Filters* OA - 8 / 24” x 18” x 2”	
L	*With Energy Recovery Wheel Exhaust Air Filters* OA - 6 / 18” x 24” x 2” EA - 6 / 16” x 20” x 2”	
C	*With V-Bank Outside Air Filters* OA - 6 / 18” x 24” x 2”	

Table 57 - RN Series E Cabinet and 75 ton Pre Filters

Feature 9A	Quantity / Size	Type
0,A	No Pre Filters	
B,C,D	15 / 24” x 20” x 2” & 5 / 16” x 20” x 2”	Pleated MERV 8
Feature 19	**Quantity / Size**	**Type**
B,G,H,J	28 / 20” x 20” x 1”	Metal Mesh, Outside Air

Table 58 - RN Series E Cabinet 90-140 ton Pre Filters

Feature 9A	Quantity / Size	Type
0,A	No Pre Filters	
B,C,D	21 / 24” x 20” x 2” & 7 / 16” x 20” x 2”	Pleated MERV 8
Feature 19	**Quantity / Size**	**Type**
B,G,H,J	28 / 20” x 20” x 1”	Metal Mesh, Outside Air

Table 59 - RN Series E Cabinet 75 ton Unit Filters

Feature 9A	Quantity / Size	Type
0	25 / 18” x 20” x 2”	Pleated MERV 8
A	15 / 24” x 20” x 4” & 5 / 16” x 20” x 4”	Pleated MERV 8
B		Pleated MERV 11
C		Pleated MERV 13
D		Pleated MERV 14

Table 60 - RN Series E Cabinet 90-140 ton Unit Filters

Feature 9A	Quantity / Size	Type
0	35 / 18” x 20” x 2”	Pleated MERV 8
A	21 / 24” x 20” x 4” & 7 / 16” x 20” x 4”	Pleated MERV 8
B		Pleated MERV 11
C		Pleated MERV 13
D		Pleated MERV 14

Table 61 - RN Series E Cabinet 75-140 ton Energy Recovery Wheel Filters

Feature 4C	Quantity / Size	Type
J,N	*With Energy Recovery Wheel Exhaust Air Filters* OA - 10 / 24” x 24” x 2” EA - 14 / 25” x 16” x 2”	Pleated MERV 8
K,P	*With Energy Recovery Wheel Exhaust Air Filters* OA - 14 / 20” x 24” x 2” EA - 14 / 25” x 16” x 2”	
A,E	10 / 24” x 24” x 2”	
B,F	14 / 24” x 20” x 2”	

Control Options

Terminal Block

Low voltage terminal block for field wiring unit controls

Required Features
Feature 16A - Terminal Block
Feature 16A - Terminal Block with isolation relays
Feature 16A - Field Installed DDC Controls by Others
Feature 16A - Field Installed DDC Controls by Others with isolation relays

Standard Terminals Labels
[R] - 24VAC control voltage
[E] - Common
[G] - Fan enable
[Y1], [Y2], …, [Y8] - Cooling stage(s) enable(s)
[DC1-], [DC1+], [DC2-], [DC2+], [DC3-], [DC3+], [DC4-], [DC4+] - Variable Capacity Compressor (1.44-5VDC) Signal(s)
[SP1-], [SP1+], [SP2-], [SP2+],[SP3-], [SP3+], [SP4-], [SP4+] - Suction Pressure Sensor(s) - (0-5VDC)
[W1], [W2], …, [W12] - Heating stage(s) enable(s) or Aux Heat Stage(s) enable(s)
[RV] - Reversing Valve (Heat Pump) Enable
[O] - Reversing Valve (Cooling) Enable
[EH1], [EH2], …, [EH12] - Emergency Heating stage(s) enable(s)
[HW] - Heat Wheel Enable
[PE] - Power Exhaust Enable
[RH1] - Reheat Enable
[EH1], [EH2], …, [EH12] - Emergency Heating stage(s) enable(s)
[A1], [A2] - Economizer enable, factory wired together, used to control occupied/unoccupied operation.
[C1], [C2]- Clogged filter switch contacts for standard filters, normally open.
[C3], [C4]- Clogged filter switch contacts for energy recovery wheel OA filter, normally open.
[C5], [C6]- Clogged filter switch contacts for energy recovery wheel EA filter, normally open.
[C7], [C8]- Clogged filter switch contacts for final filters, normally open.
[EC1-], [EC2+] - Economizer DDC actuator control signal for 0-10 VDC operation.
[CO2-], [CO2+] - CO_2 Sensor (0-10VDC)
[+], [-] - Modulating gas reset control signal, 0-10VDC or SCR supply air temperature control signal 0-10VDC
[S1-], [S2+] - Supply fan VFD, 0-10 VDC.
[PR1-], [PR2+] - Return fan VFD, 0-10 VDC.
[B1-], [B2+] - Exhaust fan VFD, 0-10VDC.
[AI1] & [COM] - Reheat Reset Signal (0-10VDC)
[AM], [AC] - Fan Current Feedback (0-10VDC = 0-100%)
[P1], [PC] - Fan Run Status (5-48VDC, 2-50mA)
[MA], [MC] - Fan Fault Status, normally closed.
[ST1], [ST2] - Remote start/stop contacts, must be closed for unit to operate.

[BA-], [BA+] - Blower Aux contact
[BI1], [BI2] - Remote Safety Shutdown terminals. Field installed smoke detector or remote Fire Alarm Shutdown contacts, must be closed for unit to operate.
[NO], [C], [NC] - Set of normally open and normally closed low voltage heat wheel rotation detection contacts.
[PBO1], [PBO2] - Phase & Brown Out status
[CV-], [CV+] - Proportional (DDC) condenser valve 2-10 VDC
[BP-], [BP+] - Proportional (DDC) bypass valve 2-10 VDC
[COM], [PHO] & [PHC] - Feedback terminals that can be used to determine if the electric preheat is in operation. PHO is a normally open contact, PHC is a normally closed contact, and COM is the common. These terminals are not required to be connected.
[PHE] - 24VAC Electric Preheat Operation Enable. Note that enabling preheat operation does not mean preheat will start. This only allows the preheat controller to start up when preheat is needed based on the temperatures and set points of the preheat controller.
[PH+], [PH-] - Preheat set point reset 2-10VDC

Variable Air Volume (VAV) Unit Controller

Operation - Variable Air Volume Cooling and Constant Volume Heating
With standard AAON VAV controls, during the cooling mode of operation the supply fan modulates based on the supply air static pressure while mechanical cooling modulates based on the supply air temperature. During the heating mode of operation the supply fan provides constant airflow and heating modulates based on the controlling temperature.

Factory mounted and tested supply fan VFDs and ECMs are used to vary the speed of the supply fans and thus vary the amount of supply air. Because of the reduced speed, VAV units can be very energy efficient at part load conditions. VAV units can be used to serve multiple spaces with diverse or changing heating and cooling requirements, with only a single unit being required for multiple zones. Space temperature sensor included with AAON controller is used for supply air temperature setpoint reset and unoccupied override.

See Control Vendors section following for specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11A - Hot Gas Bypass Non-Variable Compressor Circuits
Feature 16A - VAV Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Duct Temperature
Supply Air Duct Static Pressure
Return Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed or Variable Capacity Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 3B or 3D - VFD or ECM Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

Single Zone Variable Air Volume (Single Zone VAV) Unit Controller

Operation - Variable Air Volume Cooling and Constant Volume/Variable Air Volume Heating
With standard AAON Single Zone VAV controls, during the cooling mode of operation the supply fan modulates based on the space or return air temperature, while mechanical cooling modulates based on the supply air temperature. For constant volume heating, during the heating mode of operation the supply fan provides constant airflow and heating modulates based on the controlling temperature. For variable air volume heating, during the heating mode of operation the supply fan modulates based on the space or return air temperature and heating modulates based on the supply air temperature.

Factory mounted and tested supply fan VFDs and ECMs are used to vary the speed of the supply fans and thus vary the amount of supply air. Because of the reduced speed, VAV units can be very energy efficient at part load conditions. AAON Single Zone VAV units should be applied to only a single zone. Space temperature sensor included with AAON controller is used for supply air temperature setpoint reset and unoccupied override.

See Control Vendors section following for specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11A - Hot Gas Non-Variable Compressor Circuits
Feature 16A - Single Zone VAV Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Duct Temperature
Return Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed or Variable Capacity Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 3B or 3D - VFD or ECM Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

Constant Volume (CV) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating
With standard AAON Constant Volume controls, during the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature.

A Constant Volume unit can be used to serve spaces with uniform heating and cooling requirements. Multiple units may be required for multiple zones allowing for redundancy. Space or supply air temperature sensor can be used as the controlling sensor. If supply air temperature is not used as the controlling sensor it is used as a temperature lockout. If supply air temperature sensor is used as the controlling sensor, space temperature sensor is used for supply air temperature setpoint reset and unoccupied override.

See Control Vendors section following for specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 16A - Constant Volume Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Duct Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed or Variable Capacity Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

Makeup Air (MUA) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating
With standard AAON Makeup Air controls, during the cooling mode of operation the supply fan provides constant airflow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant airflow and heating modulates based on the controlling temperature.

Makeup Air units are designed to provide 100% outside air to the system for ventilation purposes. Makeup Air units can improve indoor air quality (IAQ) and also be used to positively pressurize the space.

See Control Vendors section following for specifics.

Required Features
Model Option B2 - Stainless Steel Heat Exchanger - Units with Gas Heat
Feature 4A - Motorized or Non-Motorized 100% Outside Air
Feature 7 - Two Position Actuator - With Motorized 100% Outside Air
Feature 11A - Hot Gas Non-Variable Compressor Circuits
Feature 16A - Makeup Air Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Temperature
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed or Variable Capacity Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - AAONAIRE Energy Recovery Wheel
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

Control System

AAON - Orion™ Controls System

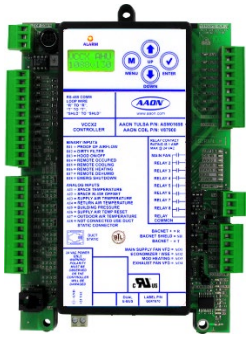

Figure 10 - AAON VCC-X Controller

The AAON VCC-X unit controller, which is part of the Orion Controls System, can be factory provided and factory installed in AAON RN Series units. It provides advanced control features, without complexity, in an easy to install and setup package. The VCC-X controller can be individually configured, including setpoint adjustment, sensor status viewing, and occupancy scheduling. It can control VAV, CAV, MUA, Single Zone VAV, PAC, and D-PAC units. Additional features and options can be managed by the controller with the addition of modular expansion I/O boards for the controller.

The VCC-X controller can be operated as a Stand Alone System, connected via modular cable to multiple VCC-X controllers in an Interconnected System, or connected via modular cable to multiple VCC-X controllers, VAV/Zone controllers, and Add-On controllers in a Networked System.

Protocol Adaptability™ is available for interfacing to LonWorks®, BACnet® or Johnson Controls N2 controls systems with the addition of specific gateways.

Required Options

To configure the VCC-X controller, an operator interface is needed. Available operator interfaces are the Modular Service Tool, Modular System Manager, System Manager TS, Tactio SI Touch Screen Interface connected via a Commlink5 and a PC equipped with free Microsoft Windows® based Orion Prism II software connected via a Commlink5. With optional accessories, remote connectivity to the controller via Prism II software can be accomplished.

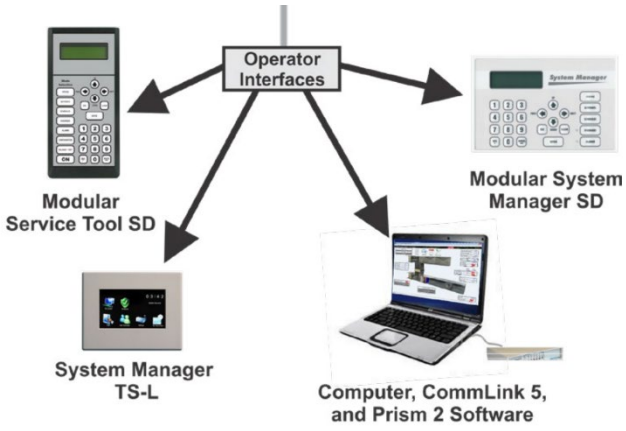

Figure 11 - VCC-X Controller Operator Interface Options

Electrical Service Sizing Data

Use the following equations to size the electrical service wiring and disconnect switch for the unit. Electrical data for a specific unit configuration can be found with the AAON ECat software. For further assistance in determining the electrical ratings, contact the Applications Department, or consult U.L. 1995.

The Minimum Circuit Ampacity (MCA) and Maximum Overcurrent Protection (MOP) must be calculated for all modes of operation which include the cooling mode of operation, the heating mode of operation, and if the unit is a heat pump the emergency heating mode of operation and auxiliary heating mode of operation. The emergency or backup heating mode of operation is when the secondary heater is in operation and heat pump or compressor heating is not in operation. The auxiliary or supplemental heating mode of operation is when heat pump or compressor heating is in operation and the secondary heater is also in operation.

To calculate the MCA and MOP, the number of motors and other current drawing devices in operation must be known for each mode of operation. The largest MCA and MOP values calculated from all the modes operation are the correct values and are also on the unit nameplate.

For example, during the cooling mode of operation of an air-cooled DX unit or an air-source heat pump the supply fans, compressors, and condenser fans are all in operation. During the heating mode of operation of an air-cooled DX unit or the emergency heating mode of operation of an air-source heat pump only the supply fans and heater are in operation. During the auxiliary heating mode of operation of an air-source heat pump the supply fans, compressors, condenser fans, and secondary heater are all in operation.

Once it is determined what current drawing devices are operating during each mode of operation use the equations shown below to calculate the MCA and MOP.

Use Rated Load Amps (RLA) for compressors and Full Load Amps (FLA) for all other motors and electric heaters. Exhaust fan motor current should only be added to the calculations if the unit is 10 tons and smaller, includes a two position actuator (Feature 7 = U), has no compressors, includes an energy recovery wheel and/or when DDC controls by others factory or field installed is ordered.

Load 1 = Current of the largest motor/compressor in operation
Load 2 = Sum of the currents of the remaining motors/compressors in operation
Load 3 = Current of electric heaters in operation
Load 4 = Any remaining loads greater than or equal to 1 amp

Electric Heat FLA Calculation

Single Phase

$$FLA = \frac{(Heating\ Element\ kW)x\ 1000}{Rated\ Voltage}$$

Three Phase

$$FLA = \frac{(Heating\ Element\ kW)x1000}{(Rated\ Voltage)x\sqrt{3}}$$

Electrical Service Sizing Data Continued

Cooling Mode Equations

MCA = 1.25(Load 1) + Load 2 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 4

Heating Mode or Emergency/Backup Heating Mode without Electric Heat Equations

MCA = 1.25(Load 1) + Load 2 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 4

Heating Mode or Emergency/Backup Heating Mode with Less than 50 kW of Electric Heat Equations

MCA = 1.25(Load 1 + Load 2 + Load 3 + Load 4)
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Heating Mode or Emergency/Backup Heating Mode with Greater than or Equal to 50 kW of Electric Heat Equations

MCA = 1.25(Load 1 + Load 2) + Load 3 + 1.25(Load 4)
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Auxiliary/Supplemental Heating Mode without Electric Heat Equations

MCA = 1.25(Load 1) + Load 2 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 4

Auxiliary/Supplemental Heating Mode with Less than 50 kW of Electric Heat Equations

MCA = 1.25(Load 1) + Load 2 + 1.25(Load 3) + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Auxiliary/Supplemental Heating Mode with Greater than or Equal to 50 kW of Electric Heat Equations

MCA = 1.25(Load 1) + Load 2 + Load 3 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Electrical Service Sizing Data Continued

Fuse Selection
Select a fuse rating equal to the MOP value. If the MOP does not equal a standard fuse rating select the next lower standard fuse rating. If the MOP is less than the MCA then select the fuse rating equal to or greater than the MCA.

The standard ampere ratings for fuses, from the *NEC Handbook, 240-6*, shall be considered 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600, 700, 800 and 1000 amperes.

Disconnect (Power) Switch Size
DSS $\geq$ MOP

Select the standard switch size equal to the calculated MOP value. If this value is not a standard size, select the next larger size.

Literature Change History

May 2021
Original version of RN Series E Cabinet Engineering Catalog.

January 2022
Updated to include RN Horizontal and Next Generation RN Series D Cabinet. Updated the title to RN Series Next Gen Engineering Catalog.

September 2022
Added the 4-circuit compressor option under Model Option A1. Added air-source heat pump and water-source heat pump options under Model Option A2. Updated the Model Option A5 to include option C for units with two-step compressors in the second circuit. Removed the maximum outlet temperature from the gas heater description in Model Option B2. Added the heat pump auxiliary heating capacities table under Model Option B5. Fixed an error in the High CFM Energy Recovery Wheel Information table. Updated the Feature 11A options to include Series reheat for units with heat pump and Lead Circuit for 4-circuit units. Added a two circuit 0°F low ambient option to Feature 12 for 4-circuit units. Updated supply air temperature sensor wording to consistently say it will ship loose in the unit control cabinet to be installed in the supply air stream in Feature 16A. Added heat pump unit controller options in Feature 16A. Revised the options in Feature 17B depending on hot water preheat coils or steam distributing preheat coil. Removed the low sound condenser fan options in Feature 25. Added the high unit SCCR options in Feature 30.

May 2024
Added Marine Lights option. Added Duel Point Power option Feature 13. Added Gas Piping to the Valve to Feature B2. Added A and B cabinet ratings to tables (6-15 tons). Code option will be UL-60335 if 454B unit is selected. Removed 55 and 65 ton since tonnages are obsolete.

December 2024
Added Electric Heat options for Feature B2. Added Dual Wheel Options for Feature 4C. Updated reference in filter tables (Table 41-47) to Feature 9. Added A2L note to Feature 22.

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