RN Series

Horizontal Packaged Rooftop Units, Heat Pumps & Outdoor Air Handling Units

Engineering Catalog

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V76280 · Rev. A · 180420

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- Airside Economizers
- Factory Installed AAONAIRE Energy Recovery Wheels
- Mixed/Return Air Bypass
- R-410A Refrigerant

Extended Life
- 5 Year Compressor Warranty
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- 25 Year Stainless Steel Heat Exchanger Warranty
- Condenser Coil Guards
- Interior Corrosion Protection
- Polymer E-Coated Coils - 5 Year Coating Warranty
- Stainless Steel Coil Casing
- Stainless Steel Drain Pans

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	- 11	- C	0	- 3	- A	A	A	0	2	- B	0	1	B	0	:	0	1	- D	Q	0	J	- E	0	0	-	0	0	0	0	-	0	0	0	0	-	D	A	- A	0	A	A	- A	0
						B	0	- G	-	0	0	0	-	4	A	- E	A	0	0	-	0	0	-	5	W	0	- B	F	0	Q	A	0	- A	0	0	0	0	0	-	0	0	0	0	0	0	X
						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
011= 11 ton Capacity
013= 13 ton Capacity
016 = 16 ton Capacity
018 = 18 ton Capacity
020 = 20 ton Capacity
025 = 25 ton Capacity
030 = 30 ton Capacity

SERIES
C = 011, 013, 016, 018, 020, 025, 030 units

MINOR REVISION
0

VOLTAGE
2 = 230V/3Φ/60Hz
3 = 460V/3Φ/60Hz
4 = 575V/3Φ/60Hz
6 = 380V/3Φ/50Hz
8 = 208V/3Φ/60Hz

Model Option A: COOLING/HEAT PUMP

A1: COMPRESSOR STYLE
0 = No Compressor
A = R-410A Scroll Compressor
D = R-410A Variable Capacity Scroll Compressor

A2: CONDENSER STYLE
0 = No Condenser
A = Microchannel Air-Cooled Condenser
F = Water-Cooled Condenser
J = Air-Source Heat Pump
L = Water-Source 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

A4: COOLING HEAT EXCHANGER CONSTRUCTION
0 = Standard
A = Polymer E-Coated Cooling Coil
B = Stainless Steel Cooling Coil Casing
E = Polymer E-Coated Cond. Coil
J = Polymer E-Coated Evap. And Cond. Coil
N = SMO 254 Corrosion Resistant Refrigerant-to-Water Heat Exchanger
P = Polymer E-Coated Evap. Coil + SMO 254 Corrosion Resistant Refrigerant-to-Water Heat Exchanger
Q = Stainless Steel Evap. Coil Casing + SMO 254 Corrosion Resistant Refrigerant-to-Water Heat Exchanger

A5: COOLING STAGING
0 = No Cooling
A = 1 Variable Capacity Comp + 1 On/Off Comp
B = 2 Variable Capacity Comp
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 Handler with 2 Refrigeration Circuits
2 = 2 Stage

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	- 11	- C	0	- 3	- A	A	A	0	2	- **B**	**0**	**1**	**B**	0	: 0	1	- D	Q	0	J	- E	0	0	- 0	0	0	0	- 0	0	0	0	- D	A	- A	0	A	A	- A	0
					B	0	- G	- 0	0	0	- 4	A	- E	A	0	0	- 0	0	- 5	W	0	- B	F	0	Q	A	0	- A	0	0	0	0	0	- 0	0	0	0	0	0	0	X
						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 Option B: HEATING

B1: HEAT TYPE

0 = No Heat
B = Electric Heat
D = Natural Gas
G = LP Gas
K = Hot Water Coil

B2: HEAT CONSTRUCTION

0 = Standard
A = Aluminized Heat Exchanger
B = Stainless Steel Heat Exchanger
C = High Altitude Aluminized Heat Exchanger
D = High Altitude Stainless Steel Heat Exchanger
G= Polymer E-Coated Heating Coil

B3: HEAT DESIGNATION

0 = No Heat
1 = 20 kW
2 = 40 kW
3 = 60 kW
4 = 80 kW
5 = 100 kW
6 = 120 kW
1= 270 MBH
2= 405 MBH
3= 540 MBH
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
G = 7 Stage
H = 8 Stage
K = Modulating Gas Heat
L = High Turndown Modulating Gas Heat
M = Modulating SCR Electric with Potentiometer Control
N = Modulating SCR Electric 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

RN Series Feature String Nomenclature

GEN	MJREV	SIZE	SERIE	MNRE	VLT	A1	A2	A3	A4	A5	B1	B2	B3	B4	**B5**	**1**	**2**	**3A**	**3B**	**3C**	**3D**	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	**0**	:	**0**	**1**	-	**D**	**Q**	**0**	**J**	-	E	0	0	-	0	0	0	0	-	D	A	-	A	0	A	A	-	A	0
						B	0	-	G	-	0	0	0	-	4	A	-	E	A	0	0	-	0	0	-	5	W	0	-	B	F	0	Q	A	0	-	A	0	0	0	0	0	-	0	0	0	0	0	0	X
						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

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 1Stage
F = Aux Heat 6 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
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

1: UNIT ORIENTATION
0 = Standard Access - Hinged Access Doors with Lockable Handles

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

Feature 3: SUPPLY FAN OPTIONS

3A: SUPPLY FAN CONFIGURATION
0 = 1 Fan
D = 1 Fan + Factory Installed VFD
N = 1 Fan + Field Installed VFD

3B: SUPPLY FAN
L = 22" Direct Drive Backward Curved Plenum - 100% Width Aluminum
N = 24" Direct Drive Backward Curved Plenum - 100% Width Aluminum
P = 24" Direct Drive Backward Curved Plenum - 70% Width Aluminum
Q = 27" Direct Drive Backward Curved Plenum - 100% Width Aluminum
R = 27" Direct Drive Backward Curved Plenum - 70% Width Aluminum

3C: SUPPLY FAN MOTOR TYPE
0 = High Efficiency Motor (1,200 nominal rpm)
A = High Efficiency Motor (1,800 nominal rpm)
R = High Efficiency TEFC Motor (1,200 nominal rpm)
S = High Efficiency TEFC Motor (1,800 nominal rpm)

3D: SUPPLY FAN MOTOR SIZE
E = 1 hp
G = 2 hp
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp

RN Series 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	**4A**	**4B**	**4C**	**5A**	**5B**	**5C**	**5D**	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	0	:	0	1	-	D	Q	0	J	-	**E**	**0**	**0**	-	**0**	**0**	**0**	**0**	-	0	0	0	0	-	D	A	-	A	0	A	A	-	A	0
						B	0	-	G	-	0	0	0	-	4	A	-	E	A	0	0	-	0	0	-	5	W	0	-	B	F	0	Q	A	0	-	A	0	0	0	0	0	-	0	0	0	0	0	0	0	X
						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

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
G = Econ + Power Exhaust
H = Econ + Power Return
K = Econ + Energy Recovery
Q = Econ + Energy Recovery + Bypass Damper

4B: ENERGY RECOVERY TYPE

0 = No Energy Recovery
A = Energy Recovery Wheel
B= Energy Recovery Wheel + 1% Purge

4C: ENERGY RECOVERY SIZE

0 = No Energy Recovery
A = Low CFM Enthalpy
B = High CFM Enthalpy
E = Low CFM Sensible
F = High CFM Sensible
J = Low CFM Enthalpy + Exhaust Filters
K = High CFM Enthalpy + Exhaust Filters
N = Low CFM Sensible + Exhaust Filters
P = High CFM Sensible + Exhaust Filters

Feature 5: RETUREN FAN OPTIONS

5A: RETURN FAN CONFIGURATION

0 = Standard
A = 1 Fan
B = 2 Fans
C = 1 Fan + Factory Installed VFD
D = 2 Fans + 1 Factory Installed VFD
E = 2 Fans + 2 Factory Installed VFD's
G = 1 Fan + Field Installed VFD
H = 2 Fans + 1 Field Installed VFD
J = 2 Fans + 2 Field Installed VFD's

5B: RETURN FANS

0 = Standard
B = 22" Direct Drive Axial Flow Fan

5C: RETURN FAN MOTOR TYPE

0 = Standard
A = High Efficiency Motor (1,200 nominal rpm)
B = High Efficiency Motor (1,800 nominal rpm)
N = High Efficiency TEFC Motor (1,200 nominal rpm)
P = High Efficiency TEFC Motor (1,800 nominal rpm)

5D: RETURN MOTOR SIZE

0 = Standard
E = 1 hp
G = 2 hp
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp

RN Series 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	4A	4B	4C	5A	5B	5C	5D	**6A**	**6B**	**6C**	**6D**	**7**	**8**	9A	9B	9C	9D	10A	10B
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	0	:	0	1	-	D	Q	0	J	-	E	0	0	-	0	0	0	0	-	**0**	**0**	**0**	**0**	-	**D**	**A**	-	A	0	A	A	-	A	0
						B	0	-	G	-	0	0	0	-	4	A	-	E	A	0	0	-	0	0	-	5	W	0	-	B	F	0	Q	A	0	-	A	0	0	0	0	0	-	0	0	0	0	0	0	0	X

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

Feature 6: EXHAUST FAN OPTIONS

6A: EXHAUST FAN CONFIGURATION

0 = Standard
A = 1 Fan
C = 1 Fan + Factory Installed VFD
G = 1 Fan + Field Installed VFD

6B: EXHAUST FAN

0 = Standard
L = 22" Backward Curved Plenum Fan - 100% Width Aluminum
T= 22" Backward Curved Plenum Fan - 70% Width Aluminum

6C: EXHAUST FAN MOTOR TYPE

0 = Standard
B = High Efficiency Motor (1,800 nominal rpm)

6D: EXHUAST MOTOR

0 = Standard
E = 1 hp
G = 2 hp
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp

7: O/A CONTROL

0 = Standard
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
F = Constant Volume Outside Air
G = Options A + F
H = Options B + F
J = Options C + F
K = Options D + F
L = Options E + F
M = 3 Pos. Act. - Sensible Limit + CO2 Override
N = 3 Pos. Act. - Enthalpy Limit + CO2 Override
P = Fully Mod. Act. - Sensible + CO2 Override
Q = Fully Mod. Act. - Enthalpy + CO2 Override
R = DDC Actuator + CO2 Override
S = Dual Minimum Position Potentiometers + Fully Mod. Act. - Sensible Limit
T = Dual Minimum Position Potentiometers + Fully Mod. Act. - Enthalpy Limit
U = 2 Position Actuator
V = Fault Detection and Diagnostics Controller (FDD) Sensible Limit
W = FDD Enthalpy Limit
Y = FDD Sensible Limit + CO_2 Override
Z = FDD Enthalpy Limit + CO_2 Override

8: EXHAUST DAMPERS & RA BYPASS

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

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	**9A**	**9B**	**9C**	**9D**	**10A**	**10B**
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	0	:	0	1	-	D	Q	0	J	-	E	0	0	-	0	0	0	0	-	0	0	0	0	-	D	A	-	**A**	**0**	**A**	**A**	-	**A**	**0**
						B	0	-	G	-	0	0	0	-	4	A	-	E	A	0	0	-	0	0	-	5	W	0	-	B	F	0	Q	A	0	-	A	0	0	0	0	0	-	0	0	0	0	0	0	X						
						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													

Feature 9: FILTER OPTIONS

9A: UNIT FILTER TYPE

0 = 2" Pleated - 30% Eff. - MERV 8
A = 4" Pleated - 30% Eff. - 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: PRE FILTER BOX SIZE/LOCATION

0 = Standard Filters in Standard Position
B = High Efficiency Filters 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

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 = CFS + Magnehelic Gauge - Unit Filters
K = CFS + Magnehelic Gauge - Unit + Energy Recovery Filters
L = CFS + Magnehelic Gauge - Unit + Final Filters
M = CFS + 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
D = Adjustable Compressor Lock Out
E = Freeze Stats (each circuit)
H = Option A + D
J = Option A + E
M = Adjustable Fan Cycling with Adjustable Compressor Lockout
P = Option D + E
T = Option M + E
V = Option A +M+ E
W = Option A + D + E

10B: BLANK

0 = None

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	0	:	0	1	-	D	Q	0	J	-	E	0	0	-	0	0	0	0	-	0	0	0	0	-	D	A	-	A	0	A	A	-	A	0
						B	**0**	-	**G**	-	**0**	**0**	**0**	-	**4**	A	-	E	A	0	0	-	0	0	-	5	W	0	-	B	F	0	Q	A	0	-	A	0	0	0	0	0	-	0	0	0	0	0	0	X			
						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			

Feature 11: REFRIGERATION OPTIONS

11A: REFRIGERATION OPTIONS

0 = None
A = Hot Gas Bypass Lead Stage
B = Hot Gas Bypass Lead and Lag Stages
C = On/Off Hot Gas Reheat
D = Hot Gas Bypass Non-Variable Compressor Circuits
E = Modulating Hot Gas Reheat
G = Options A + C
H = Options B + C
J = Options A + E
K = Options B + E
L = Options D + C
M = Options D + E
P = Polymer E-Coated On/Off Hot Gas Reheat
Q = Polymer E-Coated Modulating Hot Gas Reheat
R = Options A + P
S = Options B + P
T = Options A + D
U = Options B + Q
V = Options D + P
W = Options D + Q

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

Feature 13: POWER OPTIONS

13A: UNIT DISCONNECT TYPE

0 = Single Point Power - Standard Power Block
A = Single Point Power - Non-fused Disconnect Power Switch

13B: DISCONNECT 1 SIZE

N = 100 amps
R = 150 amps
U = 225 amps
Z = 400 amps
3 = 600 amps

13C: BLANK

0 = None

14: SAFETY OPTIONS

0 = None
A = Return and Supply Air Firestat
B = Return Air Smoke Detector
C = Supply Air 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
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

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	0	:	0	1	-	D	Q	0	J	-	E	0	0	-	0	0	0	0	-	0	0	0	0	-	D	A	-	A	0	A	A	-	A	0
						B	0	-	G	-	0	0	0	-	4	**A**	-	**E**	**A**	**0**	**0**	-	0	0	-	5	W	0	-	B	F	0	Q	A	0	-	A	0	0	0	0	0	-	0	0	0	0	0	0	X				

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

15: ACCESSORIES

0 = None
A = Low Limit Controls
B = Phase & Brown Out Protection
C = Cooling Coil UV Lights
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
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 + Installation Relays
P = Factory Installed DDC Controls by Others + Installation Relays

16B: CONTROL SUPPLIER

0 = None
C = WattMaster VCB-X
J = AAON Touchscreen Controller
K = WattMaster VCC-X

16C: CONTROL SUPPLIER OPTIONS
0 = None

16D: BMS CONNECTION & DIAGNOSTICS
0 = None

A = BACnet IP
B = BACnet MSTP
C = Modbus IP
D = Modbus RTU
E = Lontalk

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	- 11 -	C	0	- 3 -	A	A	A	0	2 -	B	0	1	B	0	:	0	1 -	D	Q	0	J -	E	0	0 -	0	0	0	0 -	0	0	0	0 -	D	A -	A	0	A	A -	A	0
					B	0 -	G -	0	0	0 -	4	A -	E	A	0	0 -	**0**	**0**	**- 5**	**W**	**0 -**	**B**	F	0	Q	A	0 -	A	0	0	0	0 -	0	0	0	0	0	0	X		
					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		

Feature 17: PREHEAT OPTIONS
17A: PREHEAT CONFIGURATION
0 = Standard
A = Modulating Electric Preheat - Outside Air
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
A = Heat Qty A
B = Heat Qty B
C = Heat Qty C
D = Heat Qty D
E = Heat Qty E
F = Heat Qty F
G = Heat Qty G
H = Heat Qty H
J = Heat Qty J
K = Heat Qty K
L = Heat Qty L
M = Heat Qty M

Feature 18: OPTION BOXES
18A: BOX QUANTITY & 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

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 = Outside Air Hood + Airflow Measuring Station Size A
G = Outside Air Hood with Metal Mesh Filters + Airflow Measuring Station Size A

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	0	:	0	1	-	D	Q	0	J	-	E	0	0	-	0	0	0	0	-	0	0	0	0	-	D	A	-	A	0	A	A	-	A	0
						B	0	-	G	-	0	0	0	-	4	A	-	E	A	0	0	-	0	0	-	5	W	0	-	B	**F**	**0**	**Q**	**A**	**0**	-	**A**	**0**	0	0	0	0	-	0	0	0	0	0	0	X					
						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					

20: CABINET OPTIONS
0 = None
A = Base Insulation
B = SA & RA Burglar Bars
F = Option A + B

21: BLANK
0 = None

22: MAINTENANCE ACCESSORIES
0 = None
A = Factory Wired 115V Convenience Outlet
B = Field Wired 115V Convenience Outlet
C = Service Lights
D = Remote Start/Stop contacts
E = Supply Fan Auxiliary Contacts
F = Option A + C
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 ACESSORIES
0 = Standard
A = Cond Coil Guards
C = ECM Condenser Fan Head Pressure Control
E = VFD Condenser Fan Head Pressure Control
G = Cond Coil Guards + ECM Condenser Fan Head Pressure Control
J = Cond Coil Guards + VFD Cond Fan Head Pressure Control

26: Blank
0 = None

RN Series 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	4A	4B	4C	5A	5B	5C	5D	6A	6B	6C	6D	7	8	9A	9B	9C	9D	10A	10B
RN	A	-	11	-	C	0	-	3	-	A	A	A	0	2	-	B	0	1	B	0	:	0	1	-	D	Q	0	J	-	E	0	0	-	0	0	0	0	-	0	0	0	0	-	D	A	-	A	0	A	A	-	A	0
						B	0	-	G	-	0	0	0	-	4	A	-	E	A	0	0	-	0	0	-	5	W	0	-	B	F	0	Q	A	0	-	A	0	**0**	**0**	**0**	**0**	-	**0**	**0**	**0**	**0**	**0**	**0**	**X**			
						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

30: Miscellaneous Options
0 = High Condensate Level Switch

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

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:

RN A - **11** - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

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

Table 1 - Unit Sizes

Model (Nominal tons)	Cabinet	Compressors/Circuits
RN-**011**	C	2/2
RN-**013**		
RN-**016**		
RN-**018**		
RN-**020**		
RN-**025**		
RN-**030**		

Model Option
Voltage

Example:

RN A - 11 - C 0 - **3** - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

All units have single point power connections with grounding lugs and 24 VAC control circuits.

2 = 230V/3Φ/60Hz
3 = 460V/3Φ/60Hz
4 = 575V/3Φ/60Hz
6 = 380V/3Φ/50Hz
8 = 208V/3Φ/60Hz

Model Option
Model Option A1 – Compressor Style

Example:

RN A - 11 - C 0 - 3 - **A** A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Air Handling Unit* - Chilled water or heating only air handling unit.
A = *R-410A Scroll Compressor* - Compressorized DX cooling with R-410A using individually circuited scroll compressors. See Feature A5 for selection of staging options.
D= *R-410A Variable Capacity Scroll Compressor (VCC) - Standard Efficiency* - Compressorized DX cooling with R-410A refrigerant using 10-100% variable capacity scroll compressors. See Feature A5 for selection of quantity of variable capacity 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. Unit efficiency and weight will be reduced when compared with option E. Note for DDC controls by others: AAON requires 1 analog input signal per variable capacity compressor.

Model Option
Model Option A2 – Condenser Style

Example:

RN A - 11 - C 0 - 3 - A **A** A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *No Cooling* - Heating only air handling unit.
A = *Microchannel Air-Cooled Condenser* - Air-cooled condenser with microchannel coils.
F = *Water-Cooled Condenser* - Water-cooled condenser. RN Series units feature brazed plate water-cooled condensers.
J = *Air-Source Heat Pump* - Air-source heat pump which can provide energy efficient heating and cooling. Refrigerant piping with reversing valves, filter dryers, check valves, accumulators and thermal expansion valves is factory installed. See Model Options B1, B2, B3 and B4 for emergency (backup) heat options and Model Option B5 for auxiliary (supplemental) heat options.

Model Option A2 - Condenser Style Continued

L = *Water-Source/Geothermal Heat Pump* - Water-source heat pump which can provide energy efficient heating and cooling. 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. RQ Series units feature coaxial refrigerant-to-water heat exchangers. See Model Options B1, B2, B3 and B4 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.
N = *DX Air-Handling Unit* - Air handling unit with no compressors or condenser. Option is used with a remote condensing unit. Thermal expansion valve and hot gas bypass connection are included. 11-25 and 30 ton units include one coil and two circuits.

Model Option

Model Option A3 - Indoor Coil Configuration

Example:

RN A - 11 - C 0 - 3 - A A **A** 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Standard*
A = *Standard Evaporator*
B = *6 Row Evaporator*
E = *4 Row Chilled Water Coil*
F = *6 Row Chilled Water Coil*

Model Option

Model Option A4 - Cooling Heat Exchanger Construction

Example:

RN A - 11 - C 0 - 3 - A A A **0** 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

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 exceeds a 6,000 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. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, will be covered under the standard AAON limited parts warranty. The remaining period of the warranty will be covered by Luvata Electrofin. The Luvata Electrofin written instructions for installation, operation, coil cleaning, maintenance, and recording keeping must be followed. Refer to the Luvata Electrofin Terms and Conditions of Sale.

B = *Stainless Steel Cooling Coil Casing* - 18 gauge 304 stainless steel casing only on the cooling coils. This option is available only on RN series units.

E = *Polymer E-Coated Condenser Coil* - Polymer e-coating is applied only to the condenser coils. Complete coil and casing are coated. Coating exceeds a 6,000 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. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, will be covered under the standard AAON limited parts warranty. The remaining period of the warranty will be covered by Luvata Electrofin. The Luvata Electrofin written instructions for installation, operation, coil cleaning, maintenance, and recording keeping must be followed. Refer to the Luvata Electrofin Terms and Conditions of Sale.

Model Option A4 - Cooling Heat Exchanger Construction Continued

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 exceeds a 6,000 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. Coating includes a 5 year non-prorated warranty. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, will be covered under the standard AAON limited parts warranty. The remaining period of the warranty will be covered by Luvata Electrofin. The Luvata Electrofin written instructions for installation, operation, coil cleaning, maintenance, and recording keeping must be followed. Refer to the Luvata Electrofin Terms and Conditions of Sale.
N = *SMO 254 Corrosion Resistant Refrigerant-to-Water Heat Exchanger Coils –*
P = *Polymer E-Coated Evap. Coil + SMO 254 Corrosion Resistant Refrigerant-to-Water Heat Exchanger-*
Q = *Stainless Steel Evap. Coil Casing + SMO 254 Corrosion Resistant Refrigerant-to-Water Heat Exchanger-*

Model Option

Model Option A5 - Cooling Staging

Example:

RN A - 11 - C 0 - 3 - A A A 0 **2** - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *No Cooling* - Heating only air handling unit.
2 = *2 Stage* - Two stage cooling unit or two stage cooling and two stage heat pump heating unit without auxiliary heat. See Model Options B1, B2, B3, and B4 for emergency heat options.
A = *1 Variable Capacity Comp + 1 On/Off Comp* - Modulating DX cooling unit or modulating DX cooling and modulating heat pump heating unit without auxiliary heat. Includes a single 10-100% variable capacity scroll compressor and a single on/off scroll compressor. With factory provided controls, on/off compressors are staged on while the variable capacity compressors modulate their capacity as needed. See Model Options B1, B2, B3, and B4 for emergency heat options.
B = *2 Variable Capacity Comp* - Modulating DX cooling unit or modulating DX cooling and modulating heat pump heating unit without auxiliary heat. Includes two 10-100% variable capacity scroll compressors. With factory provided controls, variable capacity compressors are staged on, as efficiently as possible, while modulating their capacity as needed. See Model Options B1, B2, B3, and B4 for emergency heat options.

Model Option A5- Cooling Staging Continued

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.
N = *DX Air Handler with 2 Refrigeration Systems 1*

Model Option

Model Option B1 - Heat Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - **B** 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *No Heating*
B = *Electric Heat* - Electric heater with multiple elements.
D= *Natural Gas Aluminized* - Natural gas heater. RN Series C cabinet units (11, 13, 16-30 tons) requires only a single gas connection.
G = *LP Gas* - Liquid propane gas heater. RN Series C cabinet units (11, 13, 16-30 tons) requires only a single gas connection
K = *Hot Water Coil* - Hot water heating coil. No valves or valve controls are included with this option.

Model Option

Model Option B2 – Heat Construction

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B **0** 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Standard*

A = *Aluminized Heat Exchanger* - 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 maximum outlet temperature is 180°F. RN Series C cabinet units (11, 13, 16-30 tons) require only a single gas connection.

B = *Stainless Steel Heat Exchanger* - 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 maximum outlet temperature is 180°F. RN Series C cabinet units (11, 13, 16-30 tons) require only a single gas connection.

C = *High Altitude Aluminized* - 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 maximum outlet temperature is 180°F. RN Series C cabinet units (11, 13, 16-30 tons) require only a single gas connection.

D = *High Altitude Stainless Steel* - 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 maximum outlet temperature is 180°F. RN Series C cabinet units (11, 13, 16-30 tons) require only a single gas connection..

F = *Hot Water Polymer E-Coated Coil* - Hot water coil with a polymer e-coating applied to the complete coil and casing. Coating exceeds a 6,000 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. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, will be covered under the standard AAON limited parts warranty. The remaining period of the warranty will be covered by Luvata Electrofin. The Luvata Electrofin written instructions for installation, operation, coil cleaning, maintenance, and recording keeping must be followed. Refer to the Luvata Electrofin Terms and Conditions of Sale.

Model Option

Model Option B3 - Heat Designation

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 **1** B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = No Heat
1 = 20 kW
2 = 40 kW
3 = 60 kW
4 = 80 kW
5 = 100 kW
6 = 120 kW
1= 270 MBH
2= 405 MBH
3= 540 MBH
H = *1 Row Coil* - Single row hot water or steam heating coil. No valves or valve controls are included with this option.
J = *2 Row Coil* - Two row hot water or steam heating coil. No valves or valve controls are included with this option.

Table 2 - Electric and Gas Heating Capacities

	Gas Heat		Electric Heat Capacity	
	Input Capacity	Output Capacity		
	MBH	MBH	kW (208V)	kW (230V, 380V, 460V, 575V)
1 = *Heat 1*	270.0	218.7	15.0	20
2 = *Heat 2*	405.0	328.1	30.0	40
3 = *Heat 3*	540.0	432.0	45.1	60
4 = *Heat 4*			60.1	80
5 = *Heat 5*			75.1	100
6 = *Heat 6*			90.1	120

Note: AAON ECat will select the correct heating designation option for gas or electric heat based on the desired leaving air and entering air temperature conditions. For heat pump units this is the emergency or backup heat capacity, which is the capacity of the secondary heater available when heat pump heating is not in use. See General Data section for tonnage specific heating information.

Model Option

Model Option B4 - Heat Staging

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 **B** 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *No Heating*
A = *1 stage* - Single 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.
K= *Modulating Gas - Temperature Control*
L = *High Turndown Modulating Gas Heat**

**Includes a heat trace on the condensate drain.*

Table 3 - RNA Series Turndown

Model (Nominal Tons)	Rated Input	Modulating Gas	High Turndown Modulating Gas
11-13, 16-30	270 MBH	3:1	9:1
	405 MBH	4.5:1	13:1
	540 MBH	3:1	18:1

Modulating Gas - 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 WattMaster VCM-X controller via modular cable (Feature 16B = A or C). 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 WattMaster VCM-X controller (Feature 16B = A or C). 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 = 3).

Model Option B4 - Heat Staging Continued

M= *Modulating/SCR Electric - Potentiometer 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 - 0-10V Control Signal* - 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. Option is available on RN Series units.
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. Option is available on RN Series units.
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.

Note: For heat pump units this is the number of emergency or backup heat stages, which is the number of stages of the secondary heater available when heat pump heating is not in use. See General Data section for tonnage specific heating information.

Model Option

Model Option B5 - Heat Pump Aux Heating

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

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*
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*
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*

Feature 1

Unit Orientation

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : **0** 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard Access - Hinged Access Doors with Lockable Handles*

Feature 2
Supply & Return Locations

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 **1** - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

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

Feature 3A
Supply Fan Configuration

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 1 - **D** Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *1 Fan*
D = *1 Fan + Factory Installed VFD*
N = *1 Fan + Field Installed VFD*

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.

Note: If field installed controls are chosen (Feature 16, options: M and N) with an ECM supply fan motor, a factory installed speed control potentiometer will be provided.

Note: If a bypass on the VFD is required it should be selected in AAON ECat and the Applications Department should also be contacted for required Special Pricing Authorization (SPA).

Feature 3B
Supply Fan

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 1 - D **Q** 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

L = *22" Direct Drive Backward Curved Plenum - 100% Width Aluminum*
N = *24" Direct Drive Backward Curved Plenum - 100% Width Aluminum*
P = *24" Direct Drive Backward Curved Plenum - 70% Width Aluminum*
Q = *27" Direct Drive Backward Curved Plenum - 100% Width Aluminum*
R = *27" Direct Drive Backward Curved Plenum - 70% Width Aluminum*

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
Supply Fan Motor Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 1 - D Q **0** J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *High Efficiency Motor (1,200 nominal rpm)*
A = *High Efficiency Motor (1,800 nominal rpm)*
R = *High Efficiency TEFC Motor (1,200 nominal rpm)*
S = *High Efficiency TEFC Motor (1,800 nominal rpm)*

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
Supply Fan Motor Size

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 1 - D Q 0 **J** - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

E = *1 hp*
G = *2 hp*
H = *3 hp*
J = *5 hp*
K = *7.5 hp*
L = *10 hp*
M = *15 hp*
N = *20 hp*

Feature 4A
Return/Outside Air Section

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 1 - D Q 0 J - **E** 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

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 capacity scroll compressors, is required on the RN Series 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 capacity scroll compressors, is required on the RN Series 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.

Feature 4A - Return/Outside Air Section Continued

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.
G = *Economizer with Power Exhaust* - 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 or ECM in Feature 6A.
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 5A.
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 4. See Feature 7 for economizer actuator control options.

Feature 4B
Energy Recovery Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B **0** : 0 1 - D Q 0 J - E **0** 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *No Energy Recovery Wheel*
A = *Energy Recovery Wheel* - Factory installed total 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 = *Energy Recovery Wheel+1% Purge* - Factory installed 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
Energy Recovery Size

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 **0** - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *No Energy Recovery*

A = *Low CFM Enthalpy* - Factory installed total energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. 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 4. See Feature 7 for economizer actuator control options.

B = *High CFM Enthalpy* - Factory installed total energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. 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 5. See Feature 7 for economizer actuator control options.

E = *Low CFM Sensible* - Factory installed sensible energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. 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 4. See Feature 7 for economizer actuator control options.

F = *High CFM Sensible* - Factory installed sensible energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. 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 4. See Feature 7 for economizer actuator control options.

J = *Low CFM Enthalpy + Exhaust Filters* - Factory installed total energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. 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 4. See Feature 7 for economizer actuator control options.

K = *High CFM Enthalpy + Exhaust Filters* - Factory installed total energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. The wheel's styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. See Feature 7 for economizer actuator control options.

N = *Low CFM Sensible + Exhaust Filters* - Factory installed sensible energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. 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 4. See Feature 7 for economizer actuator control options.

Feature 4C - Energy Recovery Size Continued

P = *High CFM Sensible + Exhaust Filters* - Factory installed sensible energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. 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 4. See Feature 7 for economizer actuator control options.

Table 4 - Low cfm Energy Recovery Wheel Information

Feature 4C	Cabinet	Model	Energy Recovery Wheel	
			Qty/Diameter/Width	Maximum Air Flow Through the Wheel
Low cfm Wheel Options: A,E,J.N	C	RN-011	1/52”/1.5”	5,000 cfm
		RN-013		
		RN-016		
		RN-018		
		RN-020		
		RN-025		
		RN-030		

Table 5 - High cfm and Single Wheel Energy Recovery Wheel Information

Feature 4C	Cabinet	Model	Energy Recovery Wheel	
			Qty/Diameter/Width	Maximum Air Flow Through the Wheel
High cfm Wheel Options: B,F,K,P	C	RN-011	1/52”/3.0”	6,600 cfm
		RN-013		
		RN-016		
		RN-018		
		RN-020		
		RN-025		
		RN-030		

Feature 5A
Return Fan Configuration

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - **0** 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Standard*
A = *1 Fan*
B = *2 Fans*
C = *1 Fan + Factory Installed VFD*
D = *2 Fans + 1 Factory Installed VFD*
E = *2 Fans + 2 Factory Installed VFD's*
G = *1 Fan + Field Installed VFD*
H = *2 Fans + 1 Field Installed VFD*
J = *2 Fans + 2 Field Installed VFD's*

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

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.

Note: If a bypass on the VFD is required it should be selected in AAON ECat and the Applications Department should also be contacted for required Special Pricing Authorization (SPA).

Feature 5B
Return Fans

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 **0** 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Standard - None*
G = *22" Direct Drive Axial Flow Fan*

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
Return Fan Motor Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 **0** 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Standard*
A = *High Efficiency Motor (1,200 nominal rpm)*
B = *High Efficiency Motor (1,800 nominal rpm)*
N = *High Efficiency TEFC Motor (1,200 nominal rpm)*
P = *High Efficiency TEFC Motor (1,800 nominal rpm)*

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 5C - Return Fan Motor Type Continued

Available with axial flow RN Series fan options. These options allow selection of motor rpm closest to application requirements, such as VFD applications and high volume, low static applications.

Feature 5D
Return Motor Size

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 **0** - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard - None*
N = *1.0 hp*
P = *2.0 hp*
Q = *3.0 hp*
R = *5.0 hp*
S = *7.5 hp*
T = *10 hp*
U = *15 hp*
V = *20 hp*

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 6A
Exhaust Fan Configuration

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - **0** 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Standard*
A = *1 Fan*
C = *1 Fan + Factory Installed VFD*
G = *1 Fan + Field Installed VFD*

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

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.

Note: If a bypass on the VFD is required it should be selected in AAON ECat and the Applications Department should also be contacted for required Special Pricing Authorization (SPA).

Feature 6B
Exhaust Fan

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 **0** 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard*
L = *22" Backward Curved Plenum Fan - 100% Width Aluminum*
T= *22" Backward Curved Plenum Fan - 70% Width Aluminum*

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 6C
Exhaust Fan Motor Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 **0** 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard*
B = *High Efficiency Motor (1,800 nominal rpm)*

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 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 6D
Exhaust Motor

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 **0** - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard - None*
N = *1.0 hp - 1170 rpm*
P = *2.0 hp - 1170 rpm*
Q = *3.0 hp - 1170 rpm*
R = *5.0 hp - 1170 rpm*
S = *7.5 hp - 1170 rpm*
T = *10 hp - 1170 rpm*
U = *15 hp - 1170 rpm*
V = *20 hp - 1170 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 7
O/A Control

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - **D** A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

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.
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.
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

F = *Constant Volume Outside Air* - Option maintains a minimum amount of outside air in VAV units. Velocity pressure of the air entering the unit is measured and the dampers are adjusted to maintain constant pressure, and thus a constant volume, of fresh air regardless of the supply air volume. Minimum supply air setting on the VFD control should be greater than or equal to outside air requirement. Option is available on the RN Series. If economizer mode is required, select from options G, H, J, K or L.
G = *Constant Volume Outside Air + 3 Position Actuator with Sensible Limit* - Options F + A
H = *Constant Volume Outside Air + 3 Position Actuator with Enthalpy Limit* - Options F + B
J = *Constant Volume Outside Air + Fully Modulating Actuator with Sensible Limit* - Options F + C
K = *Constant Volume Outside Air + Fully Modulating Actuator with Enthalpy Limit* - Options F + D
L = *Constant Volume Outside Air + DDC Actuator* - Options F + E
M = *CO_2 Override + 3 Position Actuator with Sensible Limit* - Option A + 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.
N = *CO_2 Override + 3 Position Actuator with Enthalpy Limit* - Option B + 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.
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.

Feature 7 - Outside Air Control Continued

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 CO2 sensor will be wired back to a set of terminals or customer supplied factory installed DDC controller.

S = *Dual Minimum Position Potentiometers with Fully Modulating Actuator with Sensible Limit* - Fully modulating economizer with sensible limit actuator with two minimum position potentiometers. Remote contact closure will allow the outside air to open the second minimum setting. 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 positions 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.

T = *Dual Minimum Position Potentiometers with Fully Modulating Actuator with Enthalpy Limit* - Fully modulating economizer with enthalpy limit actuator with two minimum position potentiometers. Remote contact closure will allow the outside air to open the second minimum setting. 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 positions 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.

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 WattMaster controls the fault detection and diagnostics is included as part of the controls. When selected without WattMaster 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 Enthalpy Changeover* - 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. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with WattMaster controls the fault detection and diagnostics is included as part of the controls. When selected without WattMaster controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

Y = *FDD Sensible Changeover + CO_2 Override* - Option Y + CO2 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 CO2 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 WattMaster controls the fault detection and diagnostics is included as part of the controls. When selected without WattMaster controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

Z = *FDD Enthalpy Changeover + CO_2 Override* - Option Z + CO2 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 CO2 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 WattMaster controls the fault detection and diagnostics is included as part of the controls. When selected without WattMaster controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

Feature 8
Exhaust Dampers & Return Air Bypass

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D **A** - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *No Return Opening* – Unit configuration must include 100% outside air or 100% outside air with motorized dampers.
A = *Standard Return Opening without EA Dampers* – Unit configuration must include manual or motorized outside air with return air opening, 100% return air, or an economizer.
C = *Standard Barometric Relief EA Dampers* – Unit configuration must include power exhaust, power return, or energy recovery with or without return air bypass.
G= *Standard Barometric without EA Dampers + RA Bypass* – Unit configuration must include an economizer.
J = *Standard Barometric Relief EA Dampers + RA Bypass* – Unit configuration must include power exhaust, power return, or energy recovery with or without return air bypass.

Feature 9A
Unit Filter Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - **A** 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *2" Pleated Unit Filter- 30% Efficient* - 2 inch pleated, 30% efficient, MERV 8 unit filters mounted adjacent and upstream of the evaporator coil and downstream of the return and outside air openings.
A = *4" Pleated Unit Filter - 30% Efficient* - 4 inch pleated, 30% efficient, MERV 8 unit filters mounted adjacent and upstream of the evaporator coil and downstream of the return and outside air openings.
B = *2" Pleated Unit Filter- 30% Efficient – MERV 8 + 4" Pleated Unit Filter - 65% Efficient - MERV 11* - 4 inch pleated, 65% efficient, MERV 11 unit filters mounted adjacent and upstream of the evaporator coil and downstream of the return and outside air openings. 2 inch pleated, 30% efficient, MERV 8 pre filters are standard with this option. Not available on 6-25, 30 and 50-70 ton units with the return air bypass option (Feature 8) and 6-25 and 30 ton units with preheat (Feature 17A).

Feature 9A - Unit Filter Type Continued

C *=2" Pleated Unit Filter- 30% Efficient – MERV 8 + 4" Pleated Unit Filter - 85% Efficient - MERV 13* - 4 inch pleated, 85% efficient, MERV 13 unit filters mounted adjacent and upstream of the evaporator coil and downstream of the return and outside air openings. 2 inch pleated, 30% efficient, MERV 8 pre filters are standard with this option. Not available on 6-25, 30 and 50-70 ton units with the return air bypass option (Feature 8) and 6-25 and 30 ton units with preheat (Feature 17A).
D = *2" Pleated Unit Filter- 30% Efficient – MERV 8 + 4" Pleated Unit Filter - 95% Efficient - MERV 14* - 4 inch pleated, 95% efficient, MERV 14 unit filters mounted adjacent and upstream of the evaporator coil and downstream of the return and outside air openings. 2 inch pleated, 30% efficient, MERV 8 pre filters are standard with this option. Not available on 6-25, 30 and 50-70 ton units with the return air bypass option (Feature 8) and 6-25 and 30 ton units with preheat (Feature 17A).

Feature 9B
Pre Filter Box/Size Location

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A **0** A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard Filters in Standard Position*
B = *High Efficiency Filters in Standard Position*

Feature 9C
Final Filter Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 **A** A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *No Final Filters*
A = *12" Cartridge MERV 13* - Unit shall include 12 inch thick, pleated cartridge filters with an ASHRAE efficiency of 85% and a MERV rating of 13, in the final filter position down stream of all air stream unit components.
D = *12" Cartridge MERV 14* - Unit shall include 12 inch thick, pleated cartridge filters with an ASHRAE efficiency of 95% and a MERV rating of 14, in the final filter position down stream of all air stream unit components.

Feature 9C - Final Filter Type Continued

U= *4" Pleated MERV 13* - Unit shall include 4 inch thick, pleated panel filters with an ASHRAE efficiency of 85% and 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).
Y= *4" Pleated MERV 14*- Unit shall include 4 inch thick, pleated panel filters with an ASHRAE efficiency of 95% and 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).

Feature 9D
Filter Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A **A** - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

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.
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.

Feature 9D – Filter Options Continued

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.

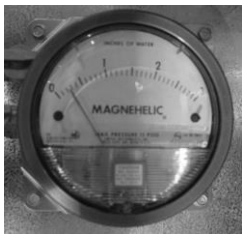

Figure 1 - Magnehelic Gauge

Feature 10A
Refrigeration Control

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - **A** 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *None*
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. Not available on 26, 31, 40 and 50 ton units because these units include a Comfort Alert™ module for each compressor which provides compressor diagnostics and includes a 3 minute anti-short cycle timer. 20 second time delay relays that 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.
D = *Adjustable Compressor Lock Out* - 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.

Feature 10A- Refrigeration Control Continued

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.
H = *Option A + D*
J = *Option A + E*
M = *Adjustable Fan Cycling with Adjustable Compressor Lockout* - Device which cycles the condenser fans to maintain refrigerant circuit head pressures at acceptable levels during cooling operation down to 35°F ambient. This option or variable speed condenser fans (Feature 25) is required when ordering any 0°F low ambient option (Feature 12). An adjustable compressor lockout (-10 to 70°F) is included with this selection. The switch will come factory set to cut-in at 425psi (+/– 5psi) and a differential of 155psi (or open at 270psi (+/– 5psi)).
P = *Option D + E*
T = *Option M + E*
V = *Option A + M + E*
W = *Option A + D + E*

Feature 10B
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A **0**
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*

Feature 11A
Refrigeration Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*
A = *Hot Gas Bypass 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.

Feature 11A- Refrigeration Options Continued

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. 6-25 and 30 ton units include a bypass valve on the first refrigeration circuit.

B = *Hot Gas Bypass 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. 9, 11-25 and 30 ton units include bypass valves on the first and second stage refrigeration circuits.

C = *On/Off Hot Gas Reheat* - Reheat coil mounted downstream of the evaporator and piped to the lead cooling circuits and on/off controls which provide the unit with a dehumidification mode of operation for when the cooling load has been satisfied.

Thermostat units: A terminal contact (RH1) is included for connecting a humidistat. Upon a dry contact closure signal from the humidistat and no call for cooling or heating from the thermostat, the lead compressors are activated. After 3 minutes, the reheat coil is energized along with the lag compressors. A call for cooling or heating will deactivate the reheat coil, returning all refrigerant to the condenser coils. A wall mounted humidistat is available as an accessory. Receiver tanks are standard with this option.

Field Installed DDC Controls by others: A terminal contact (RH1) is included for connecting to the customer supplied controller. The unit will require a contact closure to RH1 to enable dehumidification mode. Units with controls by others will need to provide control logic to enable the compressors and to 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. 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.

D = *Hot Gas Bypass Non-Variable Compressor Circuits*

E = *Modulating Hot Gas Reheat* - Reheat coil mounted downstream of the evaporator and piped to the lead cooling circuits which provides the unit with a dehumidification mode of operation for when the cooling load has been satisfied. Option includes modulating condenser control valve, modulating reheat control valve, supply air temperature sensor and DDC controller to maintain the supply air temperature during the dehumidification mode of operation.

Feature 11A- Refrigeration Options Continued

Thermostat units: A terminal contact (RH1) is included for connecting a humidistat. A wall mounted humidistat is available as an accessory. Receiver tanks are standard with this option. This option provides constant supply air temperature control during dehumidification, which prevents space temperature swings and is ideal for VAV and makeup air applications. Part of the D-PAC and PAC control systems. See Feature 16 and Controls section for more D-PAC and PAC information.

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 able dehumidification mode. It is optional to provide a 0-10VDC signal to reset the supply air set point. 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 set point. 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.

G = *Options A + C*
H = *Options B + C*
J = *Options A + E*
K = *Options B + E*
L = *Options D + C*
M = *Options D + E*
P = *Polymer E-Coated On/Off Hot Gas Reheat* - Options C + Polymer E-coating

Polymer E-coated hot gas reheat coil. Coating exceeds a 6,000 hour salt spray test per ASTM B 117-90 requirements, yet is only 0.8-1.2 mils thick and has excellent flexibility. Coating 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. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, will be covered under the standard AAON limited parts warranty. The remaining period of the warranty will be covered by Luvata Electrofin. The Luvata Electrofin written instructions for installation, operation, coil cleaning, maintenance, and recording keeping must be followed. Refer to the Luvata Electrofin Terms and Conditions of Sale.

Feature 11A- Refrigeration Options Continued

Q = *Polymer E-Coated Modulating Hot Gas Reheat* – Option D + Polymer E-coating
Polymer E-coated modulating hot gas reheat coil. Coating exceeds a 6,000 hour salt spray test per ASTM B 117-90 requirements, yet is only 0.8-1.2 mils thick and has excellent flexibility. Coating 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. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, will be covered under the standard AAON limited parts warranty. The remaining period of the warranty will be covered by Luvata Electrofin. The Luvata Electrofin written instructions for installation, operation, coil cleaning, maintenance, and recording keeping must be followed. Refer to the Luvata Electrofin Terms and Conditions of Sale.
R = *Options A + P*
S = *Options B + P*
T = *Options A + D*
U = *Options B + Q*
V = *Options D + P*
W = *Options D + Q*

Feature 11B

Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B **0** - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*

Feature 12
Refrigeration Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - **G** - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*

A = *Sight Glass* - Moisture indication sight glass attached to the refrigeration circuit liquid lines. A green color refrigerant 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.

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 = *Option 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 (Feature 10A) or variable speed condenser fans (Feature 25) is required with this option. 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.

E = *Option A + D*

F = *Option B + D*

G = *Option A + B + D*

Feature 13A
Unit Disconnect Type

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - **0** 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Single Point Power - Standard Power Block*
A = *Single Point Power - Non-fused Disconnect Power Switch*

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.

Feature 13B
Unit Disconnect 1 Size

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 **0** 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

N = *100 amps*
R = *150 amps*
U = *225 amps*
Z = *400 amps*
3 = *600 amps*

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

Feature 13C
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 **0** - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*

Feature 14
Safety Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - **4** A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

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 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.
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*
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*

Feature 14 - Safety Options Continued

Z = *Option B + C + E*
4 = *Option A + B + C + E*

Feature 15
Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 **A** - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*
A = *Low Limit Controls* - Temperature limit switch and factory provided supply air temperature sensor that must be field wired in the supply air ductwork. Limit switch shuts off the unit when discharge temperature reaches the low limit 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 shipped boxed in the control compartment for field installation.
E = *Compressor Sound Blankets* - Factory provided and installed compressor sound dampening blankets on all compressors.
F = *Low Limit Controls + Phase & Brown Out Protection* - Option A + B
G = *Low Limit Controls + Cooling Coil UV Lights* - Option A + C
J = *Low Limit Controls + Cooling Coil UV Lights* - 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
R = *Low Limit Controls + Phase & Brown Out Protection + Cooling Coil UV Lights* - Option A + B + C
T = *Low Limit Controls + Phase & Brown Out Protection + Compressor Sound Blankets* - Option A + B + E
V = *Low Limit Controls + 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 Controls + Phase & Brown Out Protection + Cooling Coil UV Lights + Compressor Sound Blankets* - Option A + B + C + E

Feature 16A
Control Sequence

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - **E** A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

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 is factory installed. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with WattMaster controller or 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.

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-step compressors are required. With gas heat, modulating gas heating control is required. Supply air temperature sensor is factory installed. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with WattMaster controller or 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.

Feature 16A - Control Sequence Continued

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 WattMaster 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 VAV Heat Pump Unit Controller - VAV Cool + VAV Heat* - 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 temperature sensor with setpoint reset and unoccupied override is factory supplied with WattMaster 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.

Feature 16A - Control Sequence Continued

H = *Constant Air Volume Heat Pump Unit Controller - CAV Cool + CAV Heat* - 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 Cool + CAV Heat* - 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 11), 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 allow 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 11), 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.

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, CO2 sensor, and Phase & Brown out. See Controls section and Field controlled Terminal sheet from AAON ECat for more information.

Feature 16A - Control Sequence Continued

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, CO2 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
Control Supplier

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E **A** 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *None*

C = *WattMaster VCB-X* - AAON supplied and factory installed WattMaster VCB-X controller (Feature 16A). Option requires the selection of an operator interface in AAON ECat to set up controller. See Controls section for more information.

J = *AAON Touchscreen Controller* - Factory installed AAON remote mount touchscreen controller (Feature 16A). See Controls section for more information.

K = *WattMaster VCC-X* - AAON supplied and factory installed WattMaster VCC-X controller (Feature 16A). Option requires the selection of an operator interface in AAON ECat to set up controller. See Controls section for more information.

Feature 16C
Control Supplier Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A **0** 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*

Feature 16D
BMS Connection & Diagnostics

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 **0** - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*
A = *BACnet IP* - AAON supplied and factory installed controller with Bacnet IP license. See Feature 16A for available control configurations. See Controls section and unit specific Controller Components worksheet in AAON ECat for more information.
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.
C = *Modbus IP* - AAON supplied and factory installed controller with Modbus IP license. See Feature 16A for available control configurations. See Controls section and unit specific Controller Components worksheet in AAON ECat for more information.
D = *Modbus RTU*- AAON supplied and factory installed controller with Modbus RTU license. See Feature 16A for available control configurations. Controls section and unit specific Controller Components worksheet in AAON ECat for more information.
E = *Lontalk* - AAON supplied and factory installed controller with Lon protocol license. See Feature 16A for available control configurations. See Controls section and unit specific Controller Components worksheet in AAON ECat for more information.

Feature 17A
Preheat Configuration

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - **0** 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *Standard*
A = *Modulating Electric Preheat - Outside Air* - Modulating electric preheat is used to heat the outdoor air to a leaving air temperature setpoint. Modulation capacity will be controlled by an SCR (Silicon Controlled Rectifier). A preheat enable single shall be required from the unit controller Option is available on 2-6 ton RQ Series and 6-25 and 30 ton RN Series, all with three phase voltage. Option is not available with manually adjustable outside air opening.
D = *Hot Water Preheat Coil -Mixed Air* - Hot water preheat coil. 2-25 and 30 ton units include a mixed air preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. Option is only available on 2-25 and 30 ton units without DX cooling. No valves or controls are included with this option.
E = *Steam Distributing Preheat Coil -Mixed Air* - steam distributing preheat coil. 6-25 and 30 ton units include a mixed air preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. The maximum operating pressure for steam coils is 25 psi. Option is available on 6-25 and 30 ton RN Series units without DX cooling. No valves or controls are included with this option.
K = *Polymer E-Coated Hot Water Preheat Coil -Mixed Air* - hot water preheat coil. 2-25 and 30 ton units include a mixed air preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. Option is only available on 2-25 and 30 ton units without DX cooling. No valves or controls are included with this option.
L = *Polymer E-Coated Steam Distributing Preheat Coil - Mixed Air* - steam distributing preheat coil. 6-25 and 30 ton units include a mixed air preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. The maximum operating pressure for steam coils is 25 psi. Option is available on 6-25 and 30 ton RN Series units without DX cooling. No valves or controls are included with this option.

Feature 17B
Preheat Sizing

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 **0** - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

Preheat Sizing		
	Steam or Hot Water	*Electric*
0 = *Standard*		
***A** = *Heat Qty A*	1 Row 8 FPI Single Serpentine	10 kW
***B** = *Heat Qty B*	1 Row 10 FPI Single Serpentine	20 kW
***C** = *Heat Qty C*	1 Row 12 FPI Single Serpentine	30 kW
D = *Heat Qty D*	1 Row 8 FPI Half Serpentine	40 kW
E = *Heat Qty E*	1 Row 10 FPI Half Serpentine	50 kW
F = *Heat Qty F*	1 Row 12 FPI Half Serpentine	60 kW
G = *Heat Qty G*	2 Row 8 FPI Single Serpentine	70 kW
H = *Heat Qty H*	2 Row 10 FPI Single Serpentine	80 kW
J = *Heat Qty J*	2 Row 12 FPI Single Serpentine	90 kW
K = *Heat Qty K*	2 Row 8 FPI Half Serpentine	100 kW
L = *Heat Qty L*	2 Row 10 FPI Half Serpentine	110 kW
M = *Heat Qty M*	2 Row 12 FPI Half Serpentine	120 kW

***Hot Water Preheat is Not Available for these Options**

Hot water and Steam Preheat are only available in units without DX Cooling. No valves or valve controls are included. Hot water and steam heat are mixed air preheat. Single serpentine 10 FPI is the standard coil option.

Electric is Outside Air preheat. When selecting electric preheat in AAON ECat, the program choose the capacity (kW) based on the outside air temperature and the desired leaving air temperature conditions entered on the conditions screen under the preheating tab. AAON ECat will report the capacity in the unit (kW amount) and how much capacity is needed to achieve the desired discharge temperature (kW used). Electric service calculations will use the full capacity when determining amp draws.

Feature 18A
Box Quantity & Location

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - **5** W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *None*
5= *Empty Energy Recovery Wheel Option Box* - Factory installed empty energy recovery wheel option box. The return air opening and the unit filter rack are in the standard energy recovery wheel locations. Energy recovery wheel filters are not included with this option.

Feature 18B
Box Size

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 **W** 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *None*
W= *Empty Energy Recovery Wheel Option Box* - Factory installed empty energy recovery wheel option box. The return air opening and the unit filter rack are in the standard energy recovery wheel locations. Energy recovery wheel filters are not included with this option.

Feature 18C
Box Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W **0** - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *None*

Feature 19
Outside Air Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - **B** F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *No Outside Air Hood - 100% Return Air*
A = *Outside Air Hood*
B = *Outside Air Hood with Metal Mesh Filters*
C = *Outside Air Hood + Airflow Measuring Station Size 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 + Airflow Measuring Station Size A*

Feature 20
Cabinet Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B **F** 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

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 2-25 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 base pan supply and return air openings.
F = *Option A + B*

Feature 21
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F **0** Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*

Feature 22
Maintenance Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 **Q** A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 0 X

0 = *None*
A = *Factory Wired 115V Convenience Outlet* - Factory wired 2x4 electrical box with ground fault interrupter receptacle, located inside the unit control cabinet. The circuit is rated at 12 amps 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, permitting use of the outlet while power to the unit is shut off. **Caution: When the power to the unit is disconnected at the factory installed unit power switch, the convenience outlet will remain live.**
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 = *Service Lights* - Standard unit construction with service lights included in the controls and compressor compartments. 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.
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 = *Option A + C*
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*

Feature 22 - Maintenance Accessories Continued

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*

Feature 23
Code Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q **A** 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 X

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. If a Special Pricing Authorization (SPA) is applied there may be additional costs incurred to secure the ETL label.
A = *Chicago Code* - 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/CSA C22.2 No. 236. The nameplate, safety labels and warnings will be in English and French.

Feature 24
Shipping Splits

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A **0** - A 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard*

Feature 25
Air-Cooled Condenser Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - **A** 0 0 0 0 0 - 0 0 0 0 0 0 X

0 = *Standard*
A = *Cond 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 WattMaster unit controls, ECM's will be controlled directly by WattMaster Control System.
E = *VFD Condenser Fan Head Pressure Control* - Variable Frequency Drive 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
G = *Cond Coil Guards + ECM Condenser Fan Head Pressure Control*
J = *Cond Coil Guards + VFD Cond Fan Head Pressure Control*

Feature 26
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A **0** 0 0 0 0 - 0 0 0 0 0 0 X

0 = *None*

Feature 27
Water-Cooled Condenser Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 **0** 0 0 0 - 0 0 0 0 0 0 X

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 = *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*

Feature 28
Energy Recovery Wheel Accessories

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 **0** 0 0 - 0 0 0 0 0 0 X

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*

Feature 29
VFD Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 **0** 0 - 0 0 0 0 0 0 X

0 = *None.*
A = *Shaft Grounding* – Shaft grounding on all supply air, return air, and exhaust air motors.

Feature 30
Miscellaneous Options

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 **0** - 0 0 0 0 0 0 X

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.

Feature 31
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - **0** 0 0 0 0 0 X

0 = *Standard*

Feature 32
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 **0** 0 0 0 0 X

0 = *Standard*

Feature 33
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 **0** 0 0 0 X

0 = *Standard*

Feature 34
Blank

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 **0** 0 0 X

0 = *Standard*

Feature 35
Warranty

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 **0** 0 X

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. RQ Series includes a standard 2 year parts only warranty.
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
Cabinet Material

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 **0** X

0 = *Galvanized Cabinet* - 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
Specials & Paint

Example:

RN A - 11 - C 0 - 3 - A A A 0 2 - B 0 1 B 0 : 0 1 - D Q 0 J - E 0 0 - 0 0 0 0 - 0 0 0 0 - D A - A 0 A A - A 0
B 0 - G - 0 0 0 - 4 A - E A 0 0 - 0 0 - 5 W 0 - B F 0 Q A 0 - A 0 0 0 0 0 - 0 0 0 0 0 0 **X**

B = *Premium AAON Gray Paint 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* - 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* – Unit is heat shrink wrapped to help protect the unit during shipment.
F = *Premium AAON 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*

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 6 - RN Series (11-13 tons) DX Cooling Information

	Model	
	011	013
Compressors		
Quantity/Nominal tons		
R-410A	2/5	2/6
R-410A Lead Variable Capacity Scroll Compressor	1/5, 1/5 Var.	1/6, 1/6 Var.
R-410A All Variable Capacity Scroll Compressors	2/5 Var.	2/6 Var.
Capacity Steps (%)	100/50 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	
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	16.00	19.25
Maximum gpm	67.00	80.00

Table 7 - RN Series (11-13 tons) Heating and Hydronic Cooling 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 – 2 or Fully Modulating with SCR 40 kW - 2, 3, 4 or Fully Modulating with SCR Stage 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)	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, Modulating - 3:1 Turndown or 9:1 High Turndown 405 MBH: 2 stage - 405/283.5, 4 stage - 405/283.5/189/94.5, 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, 4 stage - 270/189 405 MBH: 2, 4 stage - 405/283.5 540 MBH: 2, 4 stage - 540/378	
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 8 - RN Series (11-13 tons) Preheat and Fan Information

	Model	
	011	013
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, 67.6, 75.1, 82.6, 90.1	
230/380/460/575V 3Φ	20, 30 ,40 ,50 ,60 ,70 ,80, 90 ,100, 110, 120	
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 90 kW - Modulating with SCR 100 kW - Modulating with SCR 110 kW - Modulating with SCR 120 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, 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 9 - RN Series (16-25 and 30 tons) DX Cooling Information

	Model				
	016	018	020	025	030
Compressors					
Quantity/Nominal tons					
R-410A	2/7	2/8	2/9	2/11	2/13
R-410A Lead Variable Capacity Scroll Compressor	1/7, 1/7 Var.	1/7, 1/7 Var.	1/9, 1/9 Var.	1/11, 1/11 Var.	1/13, 1/13 Var.
R-410A All Variable Capacity Scroll Compressors	2/7 Var.	2/7 Var.	1/9 Var., 1/9 Var.	2/11 Var.	2/13 Var.
Capacity Steps (%)	100/50 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				
Return Air Bypass Coil					
Quantity/Face Area	1/16.0 ft^2				
Rows/fpi	6/12				
Mixed Air Bypass Coil					
Quantity/Face Area	1/16.0 ft^2				
Rows/fpi	6/12				
Water-Cooled Condenser					
Minimum gpm	21.60	24.30	27.00	33.75	40.50
Maximum gpm	86.40	97.20	108.00	135.00	162.00

Table 10 - RN Series (16-25 and 30 tons) Heating and Hydronic Cooling 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 - 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 100 kW & 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, Modulating - 3:1 Turndown or 9:1 High Turndown 405 MBH: 2 stage - 405/283.5, 4 stage - 405/283.5/189/94.5, 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, 4 stage - 270/189 405 MBH: 2, 4 stage - 405/283.5 540 MBH: 2, 4 stage - 540/378				
Hot Water Heating Coil					
Quantity/Face Area	1/7.27 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	1/7.31 ft^2				
Rows/fpi	1 or 2/8, 10, or 12				
Standard Coil	10 fpi				
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				

Table 11 - RN Series (16-25 and 30 tons) Preheat and Fan Information

	Model				
	016	018	020	025	030
Hot Water Preheat Coil					
Quantity/Face Area	1/18.75 ft^2 (Mixed Air Preheat)				
Rows/fpi	1 or 2/8, 10 or 12 (Single or Half Serpentine)				
Standard Coil	2 Row Single Serpentine with 10 fpi				
Steam Preheat Coil					
Quantity/Face Area	1/19.13ft^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, 67.6, 75.1, 82.6, 90.1				
208/230/380/460/575V 3Φ	20, 30 ,40 ,50 ,60 ,70 ,80, 90 ,100, 110, 120				
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 90 kW - Modulating with SCR 100 kW - Modulating with SCR 110 kW - Modulating with SCR 120 kW - Modulating with SCR				
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				

Curb Information

Acoustical Solid Bottom Curbs

Acoustical solid bottom curbs are lined with 1" 1.5 lb/ft^3 sound attenuating, flexible, resilient, blanket-type insulation which does not support microbial growth. The fibers of the insulation are incombustible and non-hygroscopic. The curbs are available in 14" or 24" tall sizes. Unit curbs are composed of heavy gauge galvanized steel.

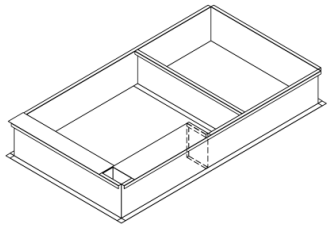

Figure 2 - Example Solid Bottom Curb

Adjustable Pitch Solid Bottom Curbs

Adjustable pitch acoustical solid bottom curbs are available only with 2-25 and 30 ton units, without water-cooled condensers. The curbs are available in 14" or 24" tall sizes. The maximum pitch adjustment is 0.75 inch per foot in either direction. Unit curbs are composed of heavy gauge galvanized steel.

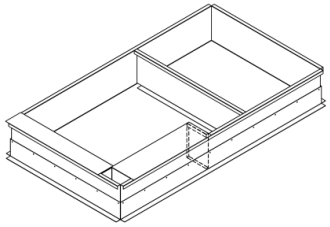

Figure 3 - Example Adjustable Pitch Solid Bottom Curb

Knock Down Curbs with Duct Support Rails

Knock down curbs are shipped disassembled for field construction. The curbs are available in 14" or 24" tall sizes. Duct support rail kits are purchased separately from knock down curbs. Unit curbs are composed of heavy gauge galvanized steel.

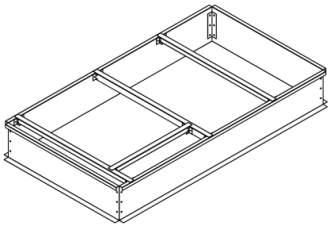

Figure 4 - Example Knock Down Curb (Shown with Duct Support Rail Kit)

Filter Information

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

Table 12 - RN Series 11, 13, 16-25 and 30 ton Pre Filters

Feature 9A	Quantity / Size	Type
0	No Pre Filters	
B,C,D	6 / 20” x 25” x 2”	Pleated, 30% Eff, MERV 8
Feature 19	Quantity / Size	Type
B	3 / 20” x 25” x 1”	Metal Mesh, Outside Air
	With PE and PR, Feature 4A=G,H 2 / 18” x 25” x 1” & 2 / 18” x 30” x 1”	

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

Feature 9A	Quantity / Size	Type
0	6 / 20” x 25” x 2”	Pleated, 30% Eff, MERV 8
	with RAB, Feature A2 = Q, R 9 / 16” x 20” x 2”	
A	6 / 20” x 25” x 4”	Pleated, 30% Eff, MERV 8
	with RAB, Feature A2 = Q, R 9 / 16” x 20” x 4”	
B	6 / 20” x 25” x 4”	Pleated, 65% Eff, MERV 11
C		Pleated, 85% Eff, MERV 13
D		Pleated, 95% Eff, MERV 14

Table 14 - RN Series 11, 13, 16-25 and 30 ton Energy Recovery Wheel Filters

Feature 4A	Quantity / Size	Type
K,Q	With Energy Recovery Wheel Exhaust Air Filters, Feature 4C = J,K,N,P OA - 6 / 20” x 16” x 2” EA - 4 / 14” x 25” x 2”	Pleated, 30% Eff, MERV 8
	With V-Bank Outside Air Filters OA - 6 / 20” x 16” x 2”	

Table 15 - RN Series 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, 85% Eff, MERV 13
D	6 / 24” x 20” x 12”	Pleated, 95% Eff, MERV 14
U	6 / 24” x 20” x 4”	Pleated, 85% Eff, MERV 13
Y	6 / 24” x 20” x 4”	Pleated, 95% Eff, MERV 14

AAONAIRE® Factory Installed Energy Recovery Wheel Application Capacities

AAON provides RN Series rooftop units with optional energy recovery wheels that are certified under AHRI Standard 1060 for Energy Recovery Ventilation Equipment and AHRI Standards 340/360. In the examples below, the outside air quantity passing through the wheel is 50% of the supply air quantity as specified. In heating mode, the outside air is assumed to be 20°F DB and 14°F WB and the return air from the conditioned space is assumed at 70°F DB and 56°F WB. In cooling mode, the outside air is assumed to be 95°F DB and 78°F WB and the return air from the conditioned space is assumed at 75°F DB and 62°F WB. The altitude is assumed to be 0 ft and the return air and outside air sections of the energy wheel section of the unit are assumed to have pressures of -0.1 in. w.g. The combined performance of the energy recovery wheel and the rooftop unit are calculated in accordance with AHRI Guideline V. System EER is at the stated conditions.

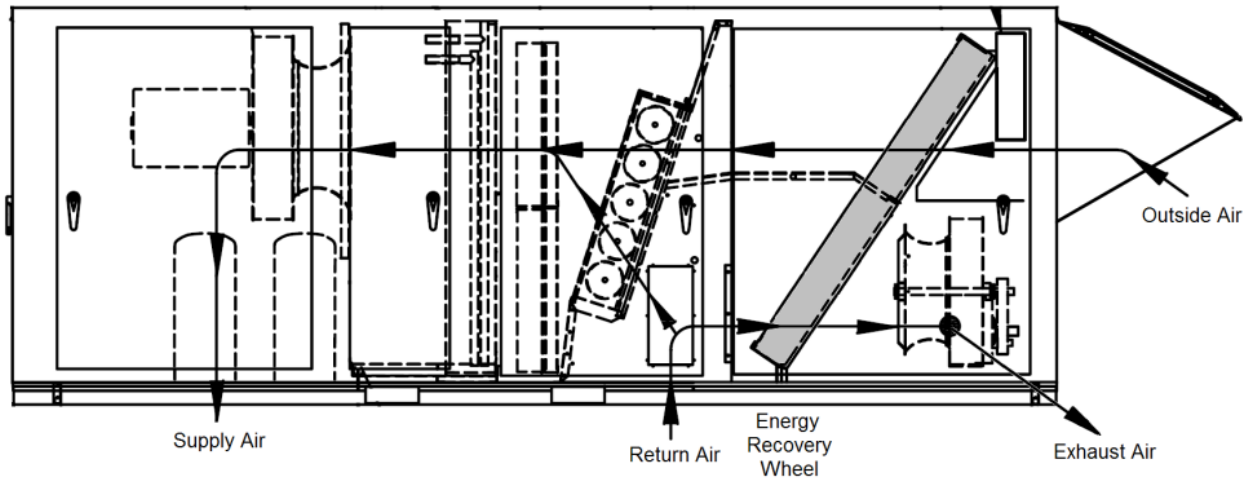

Figure 5 - Example RN Series AAONAIRE Unit Air Flow

Table 16 - RN Series AAONAIRE Unit Capacities Examples

Model	Supply cfm	Outside Air cfm	System EER without Wheel	Energy Recovery Wheel and Unit				
				Heating		Cooling		
				Free Sensible Heat MBH	Moisture Recovery lbs. of water/hr	Tons with Wheel	System EER	Tons % Increase Due to Wheel
RN Series, C Cabinet, Low cfm, Single Wheel, 52" Diameter/1.5" Width								
RN-011	3,400	1,700	12.7	75.10	36.03	15.30	19.48	37%
RN-013	3,600	1,800	12.0	68.06	37.68	18.36	18.15	32%
RN-016	4,400	2,200	12.8	92.80	44.50	21.62	18.57	34%
RN-018	5,700	2,850	13.2	115.30	54.82	25.16	19.33	36%
RN-020	6,200	3,100	12.8	123.24	58.48	27.86	18.45	35%
RN-025	7,000	3,500	12.1	135.37	63.96	33.66	16.81	32%
RN-030	8,000	4,000	11.5	149.10	70.04	37.46	15.83	32%
RN Series, C Cabinet, High cfm, Single Wheel, 52" Diameter/3" Width								
RN-011	3,600	1,800	12.7	79.23	37.87	15.41	20.02	39%
RN-013	3,800	1,900	12.0	83.12	40.14	18.78	18.85	35%
RN-016	4,800	2,400	12.8	100.72	49.34	21.94	19.30	36%
RN-018	5,800	2,900	13.2	118.42	57.90	25.35	19.91	37%
RN-020	6,600	3,300	12.8	131.55	64.19	28.28	19.22	37%
RN-025	8,000	4,000	12.1	152.98	74.61	34.43	17.72	35%
RN-030	9,000	4,500	11.5	166.76	81.25	38.31	16.68	35%

Control Options

Terminal Block

Low voltage terminal block for field wiring unit controls

Required Features
Feature 16 - Terminal Block, or
Feature 16 - Field Installed DDC Controls by Others
Feature 16 - Field Installed DDC Controls by Others with isolation relays
Feature 16 - Terminal Block 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)
[+], [-] - Modulating gas reset control signal, 0-10VDC or SCR supply air temperature control signal 0-10VDC
[RV] - Reversing Valve (Heat Pump) Enable
[O] - Reversing Valve (Cooling) Enable
[EH1], [EH2], …, [EH12] - Emergency Heating stage(s) enable(s)
[HW] - Heat Wheel Enable
[NO], [C], [NC] - Set of normally open and normally closed low voltage heat wheel rotation detection contacts.
[PE1] - Power Exhaust Enable
[B1-], [B2+] - Exhaust fan VFD(s), Discharge Damper Volume Control or ECM control contacts, 0-10VDC.
[A1], [A2] - Economizer override contacts, factory wired together, used to control occupied/unoccupied operation.
[EC1-], [EC2+] - Economizer DDC actuator control signal for 0-10 VDC operation.
[CO2-], [CO2+] - CO2 Sensor (0-10VDC)
[ST1], [ST2] - Remote start/stop contacts, must be closed for unit to operate.
[BA-], [BA+] - Blower Aux contact
[S1-], [S2+] - Supply fan VFD(s) or ECM control contacts, 0-10 VDC.
[PR1-], [PR2+] - Return fan VFD(s) or ECM control contacts, 0-10 VDC.
[C1], [C2], [C3], [C4] - Clogged filter switch contacts, normally open.
[RH1] - Humidistat or DDC control signal, used with reheat coil.
[AI1] & [COM] - Reheat Reset Signal (0-10VDC)
[BI1], [BI2] - Field installed smoke detector or remote Fire Alarm Shutdown contacts, must be closed for unit to operate.
[PBO-], [PBO+] - 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 WattMaster controller is used for supply air temperature setpoint reset and unoccupied override. See Control Venders section following for WattMaster and MCS specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11A - Hot Gas Bypass Lead Stage - Required on units without variable capacity scroll compressors or VFD controlled variable speed scroll compressors.
Feature 16 - 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 (WattMaster)

Recommended Features
Model Option A1 - Variable Capacity Scroll Compressors on all circuits
Model Option B4 - Modulating Gas/SCR Electric
Feature 4 - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 7 - Constant Volume Outside Air
Feature 3 – VFD or ECM Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat
Feature 11A - Hot Gas Bypass Lead and Lag Stage - Recommended on all circuits without variable capacity scroll compressors or VFD controlled variable speed scroll compressors.

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 WattMaster controller is used for supply air temperature setpoint reset and unoccupied override. See Control Venders section following for WattMaster and MCS specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11 - Hot Gas Bypass Lead Stage - Required on units without variable capacity scroll compressors or VFD controlled variable speed scroll compressors.
Feature 16 - 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 (WattMaster)

Recommended Features
Model Option A1 - Variable Capacity Scroll Compressors on all circuits
Model Option B4 - Modulating Gas/SCR Electric
Feature 4 - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 7 - Constant Volume Outside Air
Feature 3 – VFD or ECM Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat
Feature 11A - Hot Gas Bypass Lead and Lag Stage - Recommended on all circuits without variable capacity scroll compressors or VFD controlled variable speed scroll compressors.

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 Venders section following for WattMaster and MCS specifics.

Required Features

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

Standard Supplied Sensors

Outside Air Temperature
Supply Air Duct Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override

Recommended Features

Model Option A1 - Variable Capacity Scroll Compressor
Feature 8 - Return Air Bypass
Model Option B4 - Modulating Gas/SCR Electric
Feature 4 - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 3 - Discharge Air Override - Units with gas heating.
Feature 11A - Modulating Hot Gas Reheat

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 Venders section following for WattMaster and MCS 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 Bypass Lead Stage - Required on units without variable capacity scroll compressors or VFD controlled variable speed scroll compressors.
Feature 16 - Makeup Air Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Temperature

Recommended Features
Model Option A1 - Variable Capacity Scroll Compressor
Model Option B4 - Modulating Gas/SCR Electric
Feature 4 - AAONAIRE Energy Recovery Wheel
Feature 11A - Hot Gas Bypass Lag Stage - Units without variable capacity scroll compressors.
Feature 11A - Modulating Hot Gas Reheat
Feature 11A - Hot Gas Bypass Lead and Lag Stage - Recommended on all circuits without variable capacity scroll compressors or VFD controlled variable speed scroll compressors.

Digital Precise Air Control (D-PAC) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating

AAON D-PAC units are constant volume with a variable capacity scroll compressor, return air bypass, modulating hot gas reheat, and space temperature and humidity control. 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. The patented D-PAC system provides tight temperature control and superior moisture removal capabilities under all space and outside conditions, while still being energy efficient.

See Control Venders section following for WattMaster and MCS specifics.

Required Features

Model Option A1 - Variable Capacity Scroll Compressor
Feature 8 - Return Air Bypass
Feature 7 - DDC Actuator
Feature 11A - Modulating Hot Gas Reheat
Feature 16 - D-PAC Digital Precise Air Controller

Standard Supplied Sensors

Outside Air Temperature
Supply Air Duct Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Space Humidity
Suction Pressure Transducer

Recommended Features

Model Option B4 - Modulating Gas/SCR Electric
Feature 4 - AAONAIRE Energy Recovery Wheel

Precise Air Control (PAC) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating

AAON PAC units are constant volume units with space temperature and humidity control. 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. The PAC system provides temperature control and superior moisture removal capabilities under all space and outside conditions while still being energy efficient. PAC units are the same as D-PAC units without the variable capacity scroll compressor.

See Control Venders section following for WattMaster and MCS specifics.

Required Features

Feature 8 - Return Air Bypass
Feature 7 - DDC Actuator
Feature 11A - Modulating Hot Gas Reheat
Feature 16 - PAC Precise Air Controller - No variable capacity scroll compressor.

Standard Supplied Sensors

Outside Air Temperature
Supply Air Duct Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Space Humidity
Suction Pressure Transducer

Recommended Features

Model Option B4 - Modulating Gas/SCR Electric
Feature 4 - AAONAIRE Energy Recovery Wheel

Control Vendors

WattMaster - Orion™ Controls System

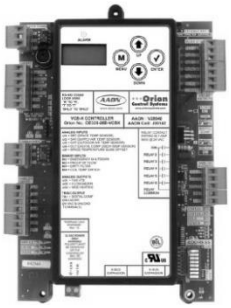

Figure 6 - WattMaster VCB-X Controller

The WattMaster VCB-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 VCB-X controller can be individually configured, including setpoint adjustment, sensor status viewing, and occupancy scheduling. It can control VAV, CV, MUA, and Single Zone VAV units. Additional features and options can be managed by the controller with the addition of modular expansion I/O boards for the controller.

The VCB-X controller can be operated as a Stand Alone System, connected via modular cable to multiple VCB-X controllers in an Interconnected System, or connected via modular cable to multiple VCB-X controllers, VAV/Zone controllers, and add-on controllers in a Networked System.
Protocol Adaptability™ is available from WattMaster for interfacing to LonWorks®, BACnet® or Johnson Controls N2 controls systems with the addition of specific gateways.

Required Options
To configure the VCB-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 Commlink II and a PC equipped with free Microsoft Windows® based Orion Prism II software connected via a Commlink II. With optional accessories, remote connectivity to the controller via Prism II software can be accomplished.

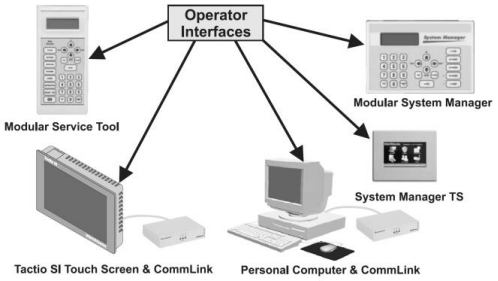

Figure 7 - VCB-X Controller Operator Interfaces

WattMaster - Orion™ Controls System

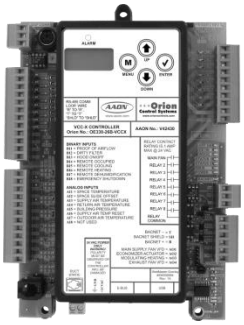

Figure 8- WattMaster VCC-X Controller

The WattMaster 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, CV, 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 from WattMaster 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 Commlink II and a PC equipped with free Microsoft Windows® based Orion Prism II software connected via a Commlink II. With optional accessories, remote connectivity to the controller via Prism II software can be accomplished.

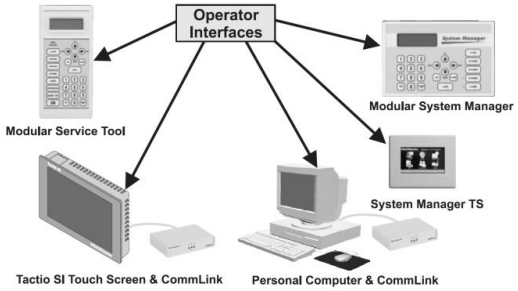

Figure 9- VCC-X Controller Operator Interfaces

Micro Control Systems (MCS) Magnum Control System

Figure 10 - LCD Interface, MCS Magnum Controller, and Touchscreen Interface

The MCS Magnum controller efficiently varies the capacity of the compressors to maintain a temperature setpoint over a wide variety of operating conditions for VAV, Constant Volume, or Makeup Air applications.

Configuration
Standard LCD interface is included within the controls compartment for unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling. PC with free MCS-Connect software can be connected to the controller via RS-232 or Ethernet for unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling. Optional full color 15" 1024x768 pixel touchscreen interface is available, and includes graphical user interface that allows for easy monitoring and troubleshooting of the unit. Unit, controls, compressor, and VFD literature can be viewed from the touchscreen.

Diagnostics
Optional diagnostic sensors are available to provide each refrigerant circuit's suction, discharge and liquid temperature and pressure and also monitor each compressor's current. These sensors can be monitored from the MCS-Connect software.

Network Capability
The MCS Magnum controller can be directly integrated with BACnet IP or Modbus IP protocols via Ethernet port and Modbus RTU or Johnson N2 protocols via EIA-485 port. With adapter, the controller can be integrated with BACnet MS/TP or LonTalk protocols. Optional 56K modem allows remote communication to the unit from MCS, AAON, or the customer to assist with service, diagnosis, and program updates.

AAON Touchscreen Controller

Figure 11 - Remote Mounted AAON Touchscreen Controller

The AAON Touchscreen Controller is a simple controls option for energy saving applications. It is remote mounted in the space similar to a conventional thermostat.

Controllable Features
A lead/single variable capacity scroll compressor (with up to two total compressor stages), air conditioner or heat pump configuration, ECM driven/VFD controlled variable speed supply fan, sensible or enthalpy controlled economizer and modulating gas/SCR electric heating are controllable with the AAON Touchscreen Controller. Modulating hot gas reheat is available with a space temperature sensor and space relative humidity sensor version of the controller. Push button override, alarms and trend logging are available directly from the controller.

Applications
The controller can be used for constant volume air conditioner and heat pump applications, single zone VAV air conditioner and heat pump applications, VAV air conditioner and heat pump applications, or makeup air conditioner and heat pump applications

Scheduling
Weekday, weekend, entire week or daily scheduling is available with the AAON Touchscreen Controller.

Networking
The AAON Touchscreen Controller can be directly connected to a BACnet® MSTP or Modbus RTU network through an EIA-485 connection. The MAC Address, Baud Rate and Max Master are configurable.

Security
The AAON Touchscreen Controller includes password protected User, Operator and Administrator profiles for configuration, scheduling and setpoint adjustment levels of control.

Required Options
The AAON Touchscreen Controller is available on 2-30 ton RN and RQ Series units with a variable capacity compressor and either Constant Volume, Makeup Air, VAV, or Single Zone VAV unit controller selected. 4 stages of heating, modulating gas heat or SCR electric heat are available with an air conditioner and 1-2 stages of emergency heat are available with a heat pump. The controller has a limited quantity of inputs and outputs and thus the quantity of features which can be controlled and are available in AAON ECat are limited.

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 2 = 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

$$FLA = \frac{(Heating\ Element\ kW)\ x 1000}{(Rated\ Voltage)\ x \sqrt{3}}$$

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

March 2016
Feature 9C (Final Filter Type) updated to clarify options not available with gas or electric heat.

May 2016
Updated *Adjustable Fan Cycling* option under Feature 10A.

November 2016
Updated Feature 22 *Factory Wired 115V Convenience Outlet* amp rating*; from 13 amps to 12 amps.*

December 2016
Updated Feature 4A – *Return/Outside Air Section* descriptions to reflect the correct Feature number for the actuator control options. Updated *Feature String Nomenclature* for newly added features: Feature 2: *Supply & Return Locations* – Option W; Feature 10: *Refrigeration Control* - Option W*;* Feature 16B*: Control Supplier* – Options J & Option K. Removed JENEsys options.

June 2017
Removed JENEsys and Mini Controller options. Updated Feature 10A: *Refrigeration Control*.

July 2017
Added *Shaft Grounding* option; Feature 29. Added *Airflow Monitoring* options; Feature 19. Added *Shrink Wrap* options; Feature 37. Added *High Condensate Level Switch*; Feature 30. Added *High Turndown Modulating Gas Heat* option; Feature B4.

August 2017
Added *Compressor Sound Blankets* and *UV Lights* options; Feature 15. Removed *VCM-X* option; Feature 16B. Added *Fault Detection and Diagnostics* options; Feature 7

November 2017
Updated Supply Fan Motor Type options; Feature 3C. Update Return Fan Motor Type options; Feature 5C.

April 2018
Model Option B4 - Heat Staging updated to include heat trace statement.

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