AW-I DDC w/ Cooling, Energy Recovery Wheel, Room Reset
S0120 – Sequence of Operation

1. SYSTEM SWITCH "ON"

The fresh air and exhaust air dampers open fully. Once the fresh air damper and exhaust air damper end switches make the supply and return fans start and run continuously. Unit operation is based on the supply air temperature and its setpoint. Unit will automatically operate in heating or eco mode to maintain the supply air temp setpoints. The supply air temperature setpoint is limited between 50°F and 90°F (10°C and 32.2°C).

Heating Operation
The outdoor air temperature must be below the Outdoor Air Heating Enable setpoint for the burner to be allowed to operate.

Heating is called when the post heat recovery air temperature drops below the supply air temperature setpoint, or if the Heating Override is set to ON. The heating operation is controlled by a PID loop which will modulate the burner to maintain the supply air temperature setpoint.

Mechanical Cooling Operation
The outdoor air temperature must be above the Outdoor Air Cooling Enable setpoint for the mechanical cooling to be allowed to operate. Cooling is called when the post heat recovery air temperature rises above the supply air temperature setpoint, or if the Cooling Override is set to ON. The cooling operation is controlled by a PID loop which calls the appropriate number of cooling stages to maintain the supply air temperature setpoint.

Eco Operation
Whenever possible, the unit will operate without calling heating to maintain the supply air temperature setpoint. The Eco operation is controlled by a PID loop that will modulate the heat wheel speed to maintain the supply air temperature setpoint. If the supply air temperature setpoint cannot be maintained, the unit will revert into heating mode.

2. SYSTEM SWITCH "OFF"

The unit is inoperative. The fresh air dampers and exhaust air dampers are closed.

**See Reverse Exhaust Interlock note under Additional Controls

ADDITIONAL CONTROLS

1. AUTOMATIC LOW LIMIT

If the supply air temperature falls below the low limit threshold of 40ºF (4.4°C), the unit shuts down. A five minute time delay on unit start-up allows for a cold start.

2. AUTOMATIC HIGH LIMIT

If the supply air temperature rises above the high limit threshold of 150ºF (65.5°C), the unit shuts down.
The unit requires a power cycle to resume normal operation.

3. COLD WEATHER BURNER WARMUP

On unit start-up, when the outdoor air temperature drops below 20°F (-6.7°C), the unit will enable the burner for a short period of time before starting the supply fan to allow the heat exchanger to warmup before beginning normal operation.

4. BURNER COOLDOWN

If the unit is shutdown while in heating mode, the supply fan will continue to run for a short period of time to cool off the heat exchanger.

5. HEAT RECOVERY DEFROST CONTROL

When the exhaust air temperature drops below 40°F (4.4°C), the heat wheel will modulate to maintain an exhaust air temperature above the setpoint to prevent frost formation on the energy recovery unit.

6. SUPPLY AIR SETPOINT ROOM RESET

The room reset operation is based on the room air temperature and its setpoint. The room reset is controlled through a PID loop which will adjust/reset the supply air temperature setpoint up to a maximum of +/- 30Δ°F (16.7Δ°C) from the default supply air temperature setpoint to satisfy the heating and cooling demands of the room.

NOTE: THE CONTROL SET-POINTS LISTED IN THIS DOCUMENT ARE FACTORY DEFAULTS AND MAY HAVE BEEN CHANGED BY OTHERS DURING FIELD INSTALLATION OR START-UP.