



ECCI to ECCIII Upgrade Kit	
SUPERSEDES: Nothing	FORM NO: M51SV-1TO300310

ECCI to ECCIII Upgrade Kit

INTRODUCTION

Older PoolPaks equipped with the ECCI control system can be upgraded to the ECCIII by installing an upgrade kit. The kit includes all parts required to complete the upgrade. After installation has been completed, the PoolPak will have all features of the new ECCIII control system, including the following:

- Remote Interface Unit (RIU) consisting of a 4 line by 20 character backlit LCD display and 15 buttons. The RIU is powered by the PoolPak and can be mounted up to 1000 feet away. This user interface replaces the WYSE terminal and signal converters used by the ECCI.
- 4 line by 20 character backlit LCD display and 5 buttons built in to ECC control module allow complete system control from the unit simultaneously with the RIU.
- Detailed fault history information and alarm screens.
- Real time monitoring of compressor and fan motor currents.
- Direct connection to a LonWorks™ or Modbus RTU Building Automation System.
- Proportional damper control with real time position feedback to detect damper failure.
- Supply air temperature monitoring to protect hot water and steam coils from freeze damage.
- Optional Remote Access Package (RAP) allows monitoring and control of all critical operating parameters over the internet or a phone line. When so equipped, the ECCIII sends email messages to appropriate personnel when a critical system fault occurs.

An experienced HVAC technician with general knowledge of PoolPak operation can install and test the upgrade kit in about 12 hours.

INSTALLATION

WARNING!!!

Before starting the installation process, shut down the PoolPak and disconnect the unit from all sources of electrical power.

Scope of Work

1. Replace all temperature and humidity sensors.
2. Install a supply air temperature sensor.
3. Replace all damper actuators.
4. Remove ECCI controller and relay box.
5. Relocate control transformers and relays.
6. Install ECCIII control panel.
7. Install the current transducers.
8. Install and wire the optional Remote Access Package if so equipped.
9. Install the Remote Interface Unit at customer selected location.
10. Test the installation for proper operation.
11. Give the customer a brief overview of the ECCIII's operation.

1. Replace All Temperature and Humidity Sensors

- ❑ Install the new return air and air off evaporator sensors next to the old sensors. It is not necessary to remove the old sensors or wiring. Route the included cables from the control panel to the new sensors. Route the cables through the PoolPak's bulkheads close to the existing cable bundles. In most cases it will be possible to use existing holes in the panels. Use the included rubber grommets to protect the cables as they pass through the bulkheads.
- ❑ Replace the existing outside air sensor. Reuse the existing wires as shown on the wiring diagram included with the new outside air sensor. If the original installation only used a three wire cable for the outside air sensor, it will be necessary to run a new four conductor cable from terminal block T6 in the PoolPak's control panel.
- ❑ Replace the existing surface temperature sensor. Reuse the existing wires. Mount the new sensor a few inches from the existing sensor. Use the old sensor housing as a junction box when connecting the new sensor with grey wire nuts.
- ❑ Replace the existing pool water temperature sensor(s). Use the included bushing if necessary to adapt the new sensor to the hole in the PoolPak's water piping. The new sensor is equipped with ¼" spade terminals. Crimp red ¼" push-on connectors onto the existing two wires. Connect the wires to the new sensor. Polarity is not important. Repeat the same process for the second water temperature sensor if the unit is so equipped.

2. Install the Supply Air Temperature Sensor

- ❑ Install the supply air temperature sensor on the frame of the supply blower. Route the included supply air temperature sensor cable from the PoolPak's control panel to the supply blower compartment. Connect the cable to the sensor using the included butt splice connectors. Use wire ties to secure the cable away from the moving parts of the supply blower and to prevent excessive cable movement from the air flow.

3. Replace All Damper Actuators

- ❑ Remove all three existing damper actuators. Bundle and wire tie the old wiring to get it out of the way.
- ❑ Use pliers to rotate each damper shaft by hand. Be sure that each damper operates smoothly from fully closed to fully open. Lubricate the dampers as necessary.
- ❑ Mount the new actuators on the damper shafts. Make sure that the damper blades are fully closed and the new actuators are rotated to the closed position. Tighten the new actuators onto the shaft of the damper. New mounting brackets are included with the upgrade kit. Use them as necessary.
- ❑ Verify that the direction control switch on all three actuators is set to "B" or "CW". Change the switch positions if necessary.
- ❑ Route the included damper actuator cables from the PoolPak's control panel to each actuator. Use the included butt splice connectors to connect the each cable to the actuator wires. Follow the included wiring diagram. Double check the wiring before reinstalling the damper actuator covers.

4. Remove the ECCI control module and relay box.

- ❑ Disconnect all plugs and cables from the ECCI control module and relay box. PoolPaks with two compressors have two control modules and two relay boxes. Disconnect all four boxes.
- ❑ Remove all old control modules and relay boxes.

5. Relocate control transformers and relays.

- ❑ The new ECCIII control panel should be mounted on the studs that held the ECCI control module. For most installations, it will be necessary to relocate the main control transformer and the small 24V control transformer. Relocate the large transformer to the space where the relay box was located. The existing

wiring should be long enough if the wire ties are removed. After the transformer is relocated, use wire ties to secure all wires.

- ❑ Relocate the small 24V control transformer to the upper left corner of the control panel. The existing wiring should be long enough if the wire ties are removed. After the transformer is relocated, use wire ties to secure all wires.
- ❑ Relocate any other components that will interfere with the new ECCIII control panel.

6. Install the ECCIII Control Panel.

- ❑ The ECCIII control panel will mount on the existing studs for the old ECCI control module. The bottom of the control panel will be secured to a new hat bracket. Mount the included hat bracket so that it will line up with the ECCIII's mounting hole above the terminal blocks at the bottom of the ECCIII control panel.
- ❑ Hang the ECCIII control panel on the existing studs. Use the old ¼" nuts and washers to secure it in place.
- ❑ Use a self drilling screw to secure the bottom of the new control panel to the hat bracket.
- ❑ Verify that no wiring harnesses are being pinched by the new panel. Make corrections as necessary.
- ❑ Connect the plugs of the new panel to the corresponding plugs in the existing harness, as well as, the new plugs for the sensor and damper actuators.
- ❑ Use wire ties to carefully secure all harnesses in the panel. The wire bundle will be fairly large. Make sure that the door of the control panel will not contact the new harness bundle.

7. Install the Current Transducers

- ❑ Install the current transformers near the contactors and starters. If there is insufficient space in the control panel, the transducers can be secured to the power wires with wire ties rather than mounted to the control panel with screws.
- ❑ Run the phase 2 wire from the load side of each contactor and starter through the corresponding current transducer "donut."
- ❑ Route the supplied current transducer cables to the terminal blocks at the bottom of the new ECCIII control panel. Connect the wires to the terminal blocks as shown on the label and the enclosed diagram.

8. Install and Wire the Remote Access Package (Optional)

- ❑ Follow the instructions included with the Remote Access Package for installation.

9. Install the Remote Interface Unit

- ❑ The Remote Interface Unit (RIU) can be installed at the PoolPak or up to 1000 feet away at a location selected by the customer. Coordinate this location with the customer.
- ❑ The RIU is connected to the ECCIII control panel with a six conductor cable. If the installation was equipped with a WYSE remote terminal, there should be enough existing wires for the new RIU. If necessary, run a new 3 pair cable from the PoolPak's control panel to the new RIU location.
- ❑ Connect the RIU wiring to terminal block T17 on the ECCIII control panel. Follow the color code shown on the terminal block label.
- ❑ Connect the other end of the wiring to the RJ25 jack supplied with the upgrade kit. The wires on the jack are color coded the same as T17.
- ❑ Mount the RJ25 jack and RIU as described in the "Installation" section of the ECCIII User's Guide. Leave the black RJ25 cable disconnected from the RIU for now.

10. Test the Installation for Proper Operation.

- ❑ Connect the RIU directly to the ECCIII control panel using the other black RJ25 cable. The RIU plugs into jack J10 on module CM1.
- ❑ Verify that DIP switches 2 and 4 are in the **ON** position on the back of the RIU.
- ❑ Set the compressor switches to the pumpdown position. Make sure that the compressor disconnect switch is off.
- ❑ If unfamiliar with operation of the ECCIII, please review the “Operation” section of the ECCIII User’s Guide. Proper operation of the unit will be verified with the ECCIII’s manual test mode.
- ❑ Turn on the fan power disconnect. Verify that line voltage is present at the main power lug of the PoolPak.
- ❑ Measure the secondary voltage at the main control transformer. It should be approximately 125VAC.
- ❑ Turn on the Unit On/Off switch. Verify that the green backlight on the RIU comes on and the RIU beeps several times.
- ❑ After the controller completes the startup process, place the ECCIII into manual output test mode. Press button **I** and enter the password **0005**. Scroll down to key numbers 76 and 78. Set key 76 to 1 and 78 to 3.
- ❑ Verify that all three dampers are closed.
- ❑ Press button **IV** and then enter the password **9995**. Scroll UP to the damper test screen. Set all three dampers positions to 100%. Verify that all three dampers go to 100% within 90 seconds.
- ❑ Leave the recirc damper position set for 100%, but change the exhaust and outside air dampers to 0%. Wait for the dampers to close. Scroll up the parameter list to the screens that show the damper feedback signals. Verify that the feedback values agree with the actual damper position.
- ❑ Verify that the fans are free of obstruction and personnel.
- ❑ Verify that there is no power at the line side of the compressor contactors.
- ❑ Move down the parameter list to the screen that shows “Sply Fan Outp: AUTO.” Move down the list of digital outputs setting them from AUTO to ON one at a time to verify that the proper device energizes in the PoolPak. Set each output back to AUTO after verification.

❑ Supply Fan	❑ Sys 1 Reheat Solenoid 2
❑ Return Fan	❑ Sys 1 Reheat Solenoid 3
❑ Aux Air Stage 1	❑ Sys 2 Cmpr Contactor
❑ Aux Air Stage 2	❑ Sys 2 Cmpr Stg 2 Unloader
❑ Aux Air Stage 3	❑ Sys 2 AC Solenoid Valve
❑ Aux Water 1	❑ Sys 2 Liquid Solenoid 1
❑ Aux Water 2	❑ Sys 2 Liquid Solenoid 2
❑ Alarm Output	❑ Sys 2 Water Solenoid
❑ Sys 1 Cmpr Contactor	❑ Sys 2 Reheat Solenoid 1
❑ Sys 1 Cmpr Stg 2 Unloader	❑ Sys 2 Reheat Solenoid 2
❑ Sys 1 Cmpr Stg 3 Unloader	❑ Exhaust Fan Starter
❑ Sys 1 AC Solenoid Valve	❑ Sys 2 Cmpr Stg 3 Unloader
❑ Sys 1 Liquid Solenoid 1	
❑ Sys 1 Liquid Solenoid 2	
❑ Sys 1 Water Solenoid	
❑ Sys 1 Reheat Solenoid 1	

- ❑ Press key **I** to access the configuration menu. Proceed down the parameter list setting each appropriately for the PoolPak type and installed options. Follow the guidelines in the “Operation” section of the ECCIII User’s Guide. Leave the ECCIII in manual mode during this process.
- ❑ Press key **IV** to access the advanced configuration menu. Proceed down the list checking the reading of each sensor to verify proper operation. Use the offset parameter to make adjustments as necessary for calibration. Be sure to adjust the offsets for the current transducers to make them read 0.0 when the motor is not running.
- ❑ Turn off the unit on/off switch. Turn the compressor disconnect switch on. Wait 10 seconds. Turn on the unit on/off switch.
- ❑ After the controller starts up, go to the configuration menu and set key 76 to 1. The fans will start 2 minutes after the unit on/off switch was turned on.
- ❑ Set the compressor switches for both systems to the run position. Set key 77 to 7 and key 78 to 0. The unit will stage up in air heating mode. Verify that the system stages up normally.
- ❑ Set key 78 to 2. The unit will switch to air conditioning mode. Verify that the unit switched to AC mode and that the ACC fans are running.
- ❑ Set the compressor switches for both systems to the pumpdown position. The unit should change back to air heating mode and then immediately pumpdown. Verify that both systems pump down normally.
- ❑ Enter the proper air and water set points per the customer’s requirements.
- ❑ Turn off the unit on/off switch. Wait ten seconds. Turn on the unit on/off switch and both compressor switches.
- ❑ After the unit restarts, verify operation of the Remote Access Package if so equipped. Follow the instructions that came with the RAP.
- ❑ Go to the remote location of the RIU. Use a meter to verify that the power supply for the RIU is connected properly. Place the black lead of the meter on the black wire of the RJ25 jack. Place the red lead of the meter on the white wire of the RJ25 jack. The meter should indicate +24VDC. Repeat the process with the black lead on yellow and the red lead on blue. The meter should show +24VDC. If the polarity is incorrect, correct the wiring between the RIU and the PoolPak. **Reversed polarity will damage the RIU!**
- ❑ Connect the RIU to the RJ25 jack using the black cable. Verify that the RIU powers up and displays the PoolPak status screen.
- ❑ Upgrade installation is now complete.

11. Give the Customer a Brief Overview of ECCIII Operation

- ❑ Explain the basic operation of the RIU to the customer.
- ❑ Show the customer how to change setpoints.
- ❑ Explain the operation of the alarm indicator and messages.
- ❑ Present the customer with two copies of the ECCIII User’s Guide.

TROUBLESHOOTING

Refer to the ECCIII User’s Guide for troubleshooting assistance. For more detailed troubleshooting information and guidance, please contact PoolPak’s service department at 1-800-959-7725.