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AIRCELL SPACE PAK

MODEL DZSP/ SZSP-1440 AIRCELL CONTROL MANUAL

Control Adjustment and Operation Instructions

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Control Overview

Aircells control platform continuously monitors the zone return and water coil sensors while controlling the fan speed and zone dampers in response to the programmed set-points (on/off times, temperature, fan speeds, zone priority). Communication and programming is performed through either wall-mount thermostat controls or using a Wi-Fi 802.11 enabled PC.

Standard Features Overview

- Initialization
- General Operation Indicators
  - No Call
  - Call for Heating
  - Call for Cooling
- Setting Fan speed
- Thermostat Mode (default mode of operation)
- Standalone Mode
- Fault Codes
  - Zone Damper Jam
  - Hot Water
  - Cold Water
  - Float Switch (future implementation)
- PC Application (Wi-Fi Interface)

AirCell Control Operation

SECTION 1: INITIALIZATION

FIRMWARE BLINK CODE: Once power is supplied to the unit, LED indicators on the overlay will blink in accordance with the firmware revision on the unit.

- Firmware 1.0: No blink
- Firmware 1.1: Blue and Red LEDs blink twice
- Firmware 1.2: Blue and Red LEDs blink three times if the unit has dampers (Model DZSP-1440). Blue, Red, and Yellow LEDs blink three times if the unit does not have dampers (Model SZSP-1440).

This information will be helpful to the technical support personnel should an issue arise.

SECTION 2 : GENERAL OPERATION

NO CALL: If neither zone is calling, both zone dampers (if applicable) will be shut and the fan will be off or operating at the “closed” fan speed. The fan will be off if there is no fan call from either zone (i.e. no G signal present in Thermostat Mode). Otherwise the fan will be operating at the “closed” fan speed.

HEATING: For a zone to act upon a heating call it must have the same call as the other zone, be the only zone calling, or be the high priority zone. If one of these conditions is met the Aircell is in heating mode and will close the heat and pump relays. If the water coil is **below 83°F**, then the zone damper will not open and the **RED** LED will blink indicating the coil is not hot enough. The fan will continue to run at its “open” fan speed.

COOLING: For a zone to act upon a cooling call it must have the same call as the other zone, be the only zone calling, or be the high priority zone. If one of these conditions is met the Aircell is in cooling mode and will close the cool and pump relays. If the water coil is **above 59°F**, then the zone damper (DZSP model only) will not open and the **BLUE** LED will blink indicating the coil is not cold enough. The fan will continue to run at its “open” fan speed.

For **Model DZSP-1440 (Dual Zone operation)** continue with Damper Operation on page 3, for **Model SZSP-1440 (Single Zone operation)**, skip to page 5.

Model DZSP-1440 (Dual Zone w/Dampers) Control Set Up

SECTION 3: DAMPER OPERATION

Following firmware blink code (see section 1), damper initialization will begin.

1. Zone 1 damper will open slowly until it reaches its maximum open position
2. Zone 1 damper will close completely.
3. Zone 2 damper will follow the same process as in step 1.
4. As Zone 2 damper begins to close the YELLOW, RED, AND BLUE LEDs will turn on.
5. Set Fan Speed mode option may now be selected.
   a. Must have the UP & DOWN arrow keys pressed and held as Zone 2 closes
   b. LEDs will turn off

SECTION 4: SET FAN SPEED / NORMAL OPERATION FAN ADJUSTMENT

Fan speed mode allows the user to adjust and save the following fan speeds:

- ***OPEN* –** Speed fan will run when both dampers are open
- ***ZONE 1 OPEN* –** Speed fan will operate at when Zone 1 is open
- ***ZONE 2 OPEN* –** Speed fan will operate at when Zone 2 is open
- ***CLOSED* –** Speed fan will operate at when both dampers are closed

A. Setting "OPEN" Fan Speed

1. Set Fan Speed mode is entered by pressing the UP & DOWN arrow keys on the overlay as Zone 2 closes. This will turn off the YELLOW, RED, AND BLUE LEDs.
2. When **Set Fan Speed** mode is entered the **GREEN** LED will be **ON,** the **BLUE** & **YELLOW** LEDs will be **blinking.**
3. Both Zone dampers will raise and fan speed will ramp up to the "**OPEN"** speed (default 30%).
4. Once fan is up to speed the **BLUE** & **RED** LEDs will remain **ON** (not blinking).
5. Adjust **"OPEN"** speed using UP & DOWN arrows.
6. To save this setting press the UP & DOWN arrow simultaneously, this will enter into the next phase "Zone 1 Open".

B. Setting "ZONE 1 OPEN" Fan Speed

The following operations will begin; no action is required at this point.

GREEN LED will remain **ON**

BLUE LED will turn **OFF**

RED LED will **BLINK**.

Fan will slow to 10% and Zone 1 damper will open, Zone 2 damper will close.

Fan will ramp up to "**ZONE 1 OPEN"** fan speed (default 30%)

RED LED will now remain on (not blinking)

Follow the steps below to adjust the **ZONE 1 OPEN** Fan Speed

1. Adjust the **"ZONE 1 OPEN"** fan speed using the UP or DOWN arrows
2. Once desired speed is reached press the UP & DOWN arrows simultaneously. **ZONE 1 OPEN** settings are now saved and **ZONE 2 OPEN** adjustments will now begin.

C. Setting "ZONE 2 OPEN" Fan Speed

The following operations will begin; no action is required at this point.

GREEN LED will remain **ON**

RED LED will turn **OFF**

BLUE LED will **BLINK**.

Fan will slow to 10% and Zone 2 damper will open, Zone 1 damper will close.

Fan will ramp up to "**ZONE 2 OPEN"** fan speed (default 30%)

BLUE LED will now remain on (not blinking)

Follow the steps below to adjust the **ZONE 2 OPEN** Fan Speed

1. Adjust the **"ZONE 2 OPEN"** fan speed using the UP & DOWN arrows.
2. Once desired speed is reached press the UP & DOWN arrows simultaneously. **ZONE 2 OPEN** settings are now saved and **CLOSED FAN SPEED** adjustments will now begin.

D. Setting "CLOSED" Fan Speed

The following operations will begin; no action is required at this point.

GREEN LED will remain **ON**

RED, BLUE, and **YELLOW** LED will **BLINK**

Fan will slow to 10% and Zone 2 damper will close.

Fan will ramp up to "**CLOSED"** fan speed (default 15%)

RED, BLUE, and **YELLOW** LEDs will now remain on (not blinking).

Follow the steps below to adjust the **CLOSED** Fan Speed

1. Adjust the **"CLOSED"** fan speed using the UP or DOWN arrows.
2. Once desired speed is reached press the UP & DOWN arrows simultaneously. **ZONE 2 OPEN** settings are now saved and the unit will exit the ***SET FAN SPEED MODE*** and enter normal operation.

E. Adjust Normal Operation Fan Speed

Any of the fan speeds can be changed during normal operation by pushing the up or down arrows at a specific time. Fan speeds may be changed during the following conditions:

OPEN – change when both dampers are open

ZONE 1 OPEN - change when Zone 1 damper is open

ZONE 2 OPEN – change when Zone 2 damper is open

CLOSED – change when both dampers are closed

In order for the new settings to be saved, the up and down arrow keys must not be pressed for 5 minutes.

SECTION 5: THERMOSTAT MODE

Thermostat mode is the default mode for the AirCell unit. It operates from the 2 thermostats wired to the units. OB input is operated through dip switch 3 on the control panel. Operation of dip switch 3 is as follows:

Dip Switch 3 OFF (default) –

Heating call – single Y or single W signal

Cooling Call – Y and OB signal together

Dip Switch 3 ON –

Heating call – Y and OB signal together **OR** single W signal

Cooling Call – single Y

The G signals from the thermostats are also monitored. Zone 1 is the master zone and its call will take priority over Zone 2. Zone thermostats (located in the return air stream of the unit) are not used in thermostat mode.

The **fan will not operate** in Thermostat Mode unless there is a call from the thermostats.

SECTION 6: STANDALONE MODE

Standalone mode uses each zone's set point and temperature to determine its heating/cooling call. When a zone's temperature drops below its set point minus heat deadband (deviation of room air to the target temperature of the thermostat) then the zone is requesting heating. When a zone's set point rises above its set point plus the cool dead band then the zone is requesting cooling. When the temperature reaches its set point and remains in the deadband range, it will not give a call for heating or cooling.

Each zone can be set to:

- ***On*** – zone will always deliver its call based upon temperature and setpoint
- ***Off –*** zone will not deliver any heating or cooling calls
- ***Timed*** – zone will only deliver a call during preset time frames
- ***Disabled*** – all calls will be ignored. Heating and cooling can be individually disabled.

Model SZSP-1440 (Single Zone No Dampers) Control Set Up

SECTION 7: SZSP OPERATION / INITIALIZATION

The SZSP-1440 unit runs as a single zone unit. The operation is very similar to the 2-zone unit with the main difference being only inputs to zone 1 are observed. Zone 2 is completely ignored. Zone 1 operates the calls and will be controlling the heat, cool, and pump outputs.

The unit will start up and determine that it is a single zone unit. The **RED, BLUE,** and **YELLOW** LEDs will come on for 3 seconds. During these 3 seconds the fan speed mode may be entered to change fan speed settings.

SECTION 8: SET FAN SPEED / NORMAL OPERATION FAN ADJUSTMENT

To enter Set Fan Speed Mode, press the UP & DOWN arrow keys on the overlay simultaneously. This must be done during the 3 seconds that the **RED, BLUE,** and **YELLOW** LEDS are on in the initialization process.

A. Setting "HIGH" Fan Speed

When Fan Speed Mode is entered the **BLUE** and **RED** LEDs will come on. The fan will then run at high speed and can be adjusted higher or lower using the arrow keys on the overlay.

B. Setting "LOW" Fan Speed

1. Press the UP and DOWN arrows simultaneously. The **YELLOW** LED will come on and ramp the fan down to the programmed LOW speed.
2. Adjust the speed using the arrows.
3. Exit Fan Speed Mode by pressing the UP and DOWN arrows simultaneously.

Fan speed can be adjusted during normal operation by pressing the UP or DOWN arrows.

- Adjusting the fan speed when there is NO CALL (but G signal is present) will adjust the LOW speed setting.
- Adjusting the fan speed when there is a CALL will adjust the HIGH speed setting.

SECTION 9: THERMOSTAT MODE

To use Thermostat Mode only one thermostat is required to be connected to Zone 1's terminal blocks (connections on overlay). All connections to Zone 2 terminals will be ignored.

- A "G" signal from the Zone 1 thermostat will run the fan at low speed.
- No "G" signal will result in the fan remaining off until a call is made.
- Heating/Cooling call (provided the water temperature in the coil is at the correct range) the fan will slowly ramp up to its set high speed.
- Call satisfied will result in the fan slowly ramping down.

SECTION 10: STANDALONE MODE

Standalone mode uses Zone 1's set point and temperature to determine its heating/cooling call. When Zone 1's temperature drops below its set point minus heat deadband (deviation of room air to the target temperature of the thermostat) then the unit is requesting heating. When Zone 1's set point rises above its set point plus the cool dead band then the unit is requesting cooling. When the temperature reaches its set point and remains in the deadband range, it will not give a call for heating or cooling.

Control Setup All Models

SECTION 11: FAULT CODES (ALL MODELS)

Fault codes are indicated by the **YELLOW** LED. Blink codes are assigned to different faults. In between fault code blinks will be a 3 second period of the LED being off.

Blink codes are as follows:

- 1 blink: Zone 1 Damper Jam (Model DZSP Only)
- 2 blinks: Zone 2 Damper Jam (Model DZSP Only)
- 3 blinks: Hot Water Temperature
- 4 blinks: Cold Water Temperature
- Always On: Float Switch (Future Implementation)
- Fault Code Definitions:

ZONE JAM: (Model DZSP only)

Zones may become jammed due to an obstruction that prevents the dampers from opening fully. If the damper senses resistance while opening, it will slowly close and try to open 2 more times. Should an obstruction still be observed during the additional 2 tries, the damper(s) will close and remain closed until the AirCell unit is **powered off and restarted**.

Should the other zone be operating properly, it will assume the high priority and function normally while the jammed zone remains closed.

HOT WATER TEMPERATURE:

Zone is calling for heating but the coil temperature does not reach above the required 83°F operating temperature within 5 minutes. The unit will continue to function normally, but a fault code will be generated.

COLD WATER TEMPERATURE:

Zone is calling for cooling but the coil temperature does not reach above the required 59°F operating temperature within 5 minutes. The unit will continue to function normally, but a fault code will be generated.

FLOAT SWITCH (FUTURE IMPLEMENTATION):

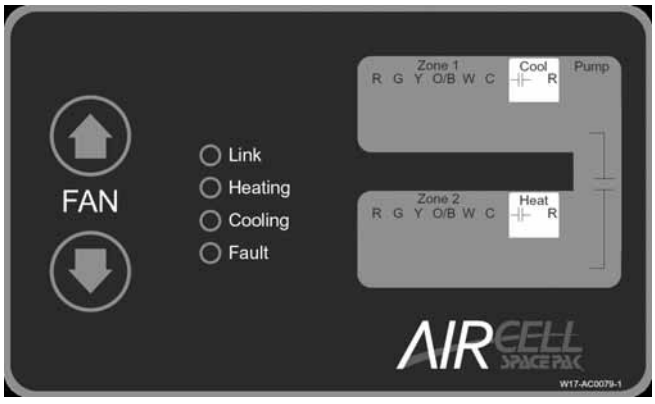
The unit will completely shut down if there is too much condensate that causes the float switch to open its connection. The dampers will close (Model DZSP only), fan will shut off, and all calls from the thermostat will be ignored. To resolve this fault, remove the condensate and ensure the float switch has made its connection.

SECTION 12: LED BLINK CODES DURING OPERATION

The following blink codes may be observed during operation (refer to Figure 1):

- **Green *(LINK)***
  - Disconnected - Off
  - Connecting – LED blinks 1 time every 3 seconds
  - Connected in Ad-hoc Mode – blinks LED blinks 3 times every 3 seconds
  - Connected in Infrastructure Mode – LED blinks 2 times every 3 seconds
- **Red *(HEATING)***
  - Blinking - the system is requesting heat but the water coil is not hot enough
  - Held On – AirCell is delivering heat
- **Blue *(COOLING)***
  - Blinking - the system is requesting cooling but the water coil is not cold enough
  - Held On – AirCell is cooling
- **Yellow** (***Fault)***
  - Refer to Section 11 - Fault codes

Figure 1 Control Panel



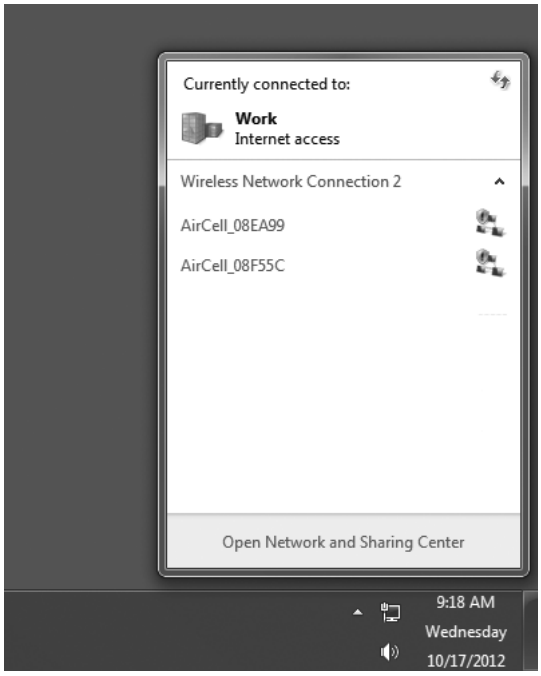
WI-FI Setup / PC App

SECTION 13: INITIAL WI-FI SETUP

The following instructions are based on a computer running Microsoft Windows 7 operating system. The instructions may vary with other versions of Microsoft Windows. The AirCell Wi-Fi operation is not currently available for Apple Systems.

The AirCell unit is shipped with the Ad-hoc Wi-Fi configuration. Infrastructure mode is available for those units that require a wireless access point (refer to Section 15: *Wi-Fi Module Operation* for further details). To connect the AirCell unit, open the list of available wireless networks by clicking the network icon in the notification area. The list of available wireless networks will open as shown in Figure 2.

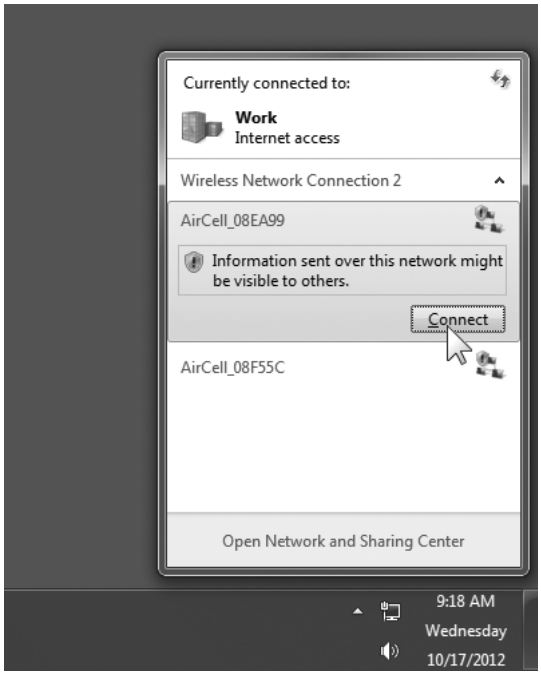
Figure 2 Available Wireless Networks



In order to give each AirCell unit a unique name, the factory assigned a default name which will appear as ***AirCell_XXXXXX*** the "X" represents the last 6 characters of the units MAC (media access control) address which is always unique.

In the list of available networks click on the AirCell network, then click connect as shown in Figure 3.

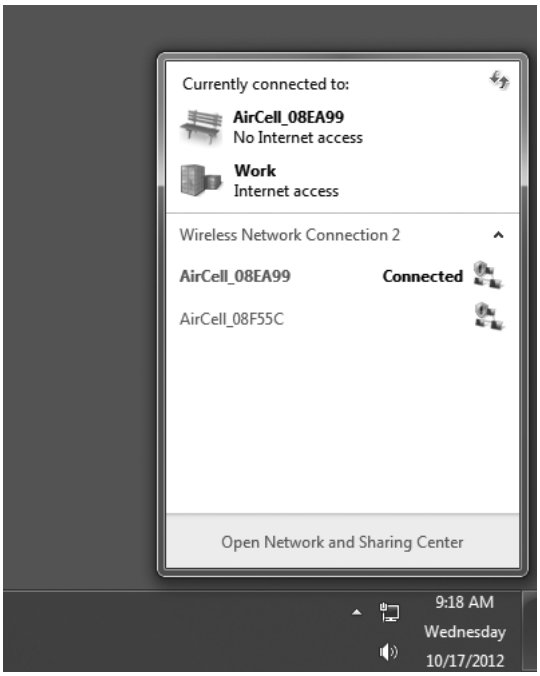
Figure 3 Connect in Ad-hoc Mode



If there is a prompt to enter a key or passphrase, the units Wi-Fi settings are not in their factory default state. Refer to Section 16 *Factory Default Settings* for instructions on restoring factory default settings.

The operating system performs some checks (i.e. internet access) when it first connects to a new network so it may sometimes take a minute to completely establish the connection. When the connection is established, it will display **Connected** in the wireless networks list as shown in Figure 4.

Figure 4 Connected in Ad-hoc Mode



A wireless network interface can only be connected to a single unit in Ad-hoc mode. If any other units or networks were previously connected wirelessly, they will be automatically disconnected.

SECTION 14: AIRCELL BROWSER PC APPLICATION

STARTING THE AIRCELL PC APPLICATION:

Select the AirCell unit that appears on the list of devices (will be shown as AirCell_XXXXXX), this will open the PC Application. Changing the AirCell name is covered under Section 14 Part II: **Unit Tab *Renaming the AirCell***.

PART I: MONITOR TAB SCREEN (refer to Figure 5)

The monitor tab shows the current water temperatures, fan speed, setpoints, zone temperatures and faults. This is a display screen only. No settings can be changed. The Monitor Tab consists of the **Unit Display** settings and the **Zone 1 & 2 Display** settings.

UNIT DISPLAY (FIGURE 5)

The Unit portion of the Monitor tab displays the following:

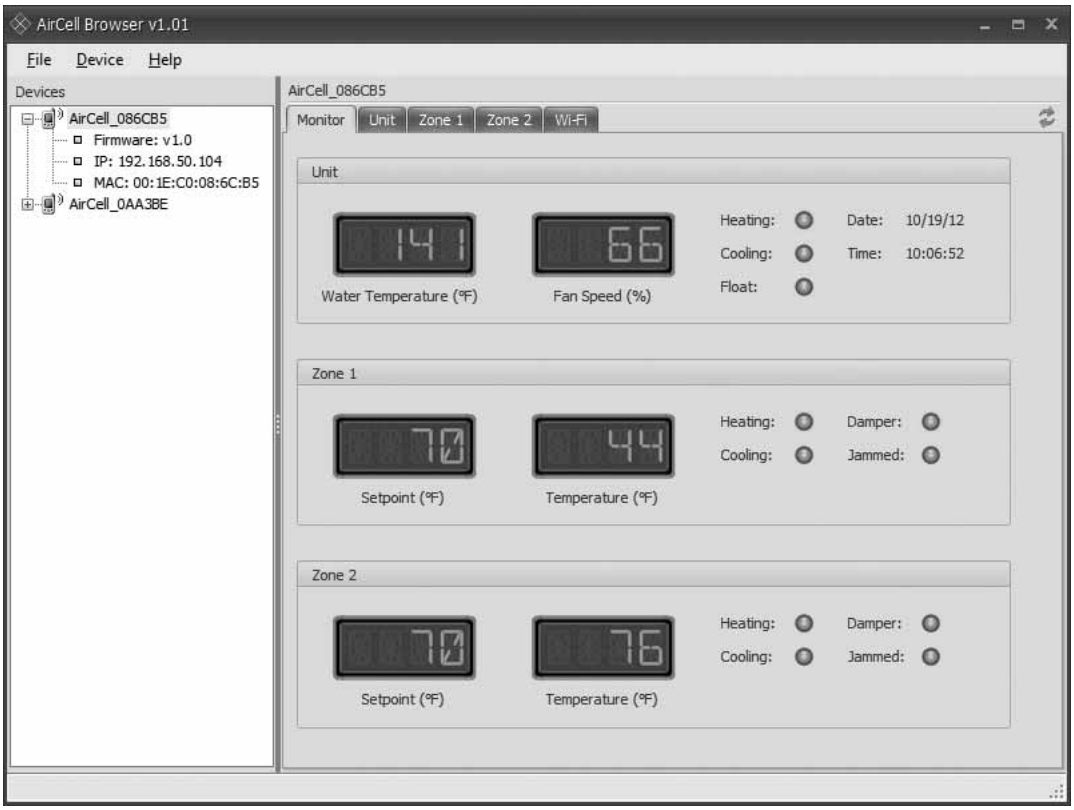
- **WATER TEMPERATURE –** current coil temperature. If there is a problem with the water sensor the display with show "---".
- **FAN SPEED –** current fan speed.
- **HEATING / COOLING LED –** Indicates heating status of unit:
  - **Off (Gray)** – not heating or cooling
  - **On (Green)** – currently heating or cooling
  - **On (Red)** – water has not reached heating/cooling temperature after 5 minutes
  - **Blinking** – waiting for water to reach heating/cooling temperature (green)
- **FLOAT LED** – float switch is tripped (future implementation).
- **DATE/TIME –** current time from the on board real time clock.

ZONE 1 & 2 DISPLAY (FIGURE 5)

The Zone portion of the Monitor tab displays the following:

- **SETPOINT –** Target temperature. In thermostat mode the setpoint temperatures are not used and "---" will be displayed.
- **TEMPERATURE –** Return Air Temperature. If the temperature is outside the acceptable operating range "---" will be displayed.
- **HEATING / COOLING LED –** Indicates zone heating / cooling status:
  - **Off (Gray) –** not heating or cooling
  - **On (Green)** – currently heating or cooling
- **DAMPER LED** – Indicates zone damper status:
  - **Off (Gray) –** damper is closed
  - **On (Green)** – damper is open
- **JAMMED LED** – Indicates zone damper is jammed:
  - **Off (Gray)** – not jammed
  - **On (Green)** – jammed

Figure 5 Monitor Screen



PART II: UNIT TAB (refer to Figure 6)

The Unit Tab allows changes to be made to the following:

A. Unit Changes

- Renaming the AirCell Unit
- Temperature Units (Fahrenheit / Celsius)
- Control Mode - Thermostat / Stand Alone Mode
- Unit Fan Speed
- Heating / Cooling Priority
- Heating / Cooling Enabled
- Heating / Cooling Deadband

B. Change Password

C. Sync Clock to current computer time

A. Unit Changes

RENAMING THE AIRCELL UNIT

To rename the AirCell unit, select the ***UNIT*** tab (refer to Figure 6). Select the Name: field and rename the unit to coincide with the area its servicing (i.e. Kitchen, Master Bedroom, etc.).

TEMPERATURE UNITS

Choose either Fahrenheit or Celcius.

CONTROL MODE

- Thermostat Mode – Uses thermostats for zone calls. Refer to Section 5 – Thermostat Mode.
- Standalone Mode – Uses zone return temperatures for zone calls. Refer to Section 6 – Standalone Mode.

UNIT FAN SPEED

- Low Setting – Fan Speed when both dampers are closed (DZSP unit only).
- High Setting – Fan Speed when both dampers are open (DZSP unit only).

HEAT / COOL PRIORITY

- Select heating or cooling call priority.

HEAT / COOL ENABLED

- Enables or Disables Heating or Cooling.

HEAT / COOL DEADBAND

- The number of degrees around setpoint that the unit will try to maintain in heating / cooling mode. (i.e. Setpoint is 73°F for heating, Heat Deadband is 2°F will maintain a temperature between 71° – 75°F)

Once all the system settings have been modified, click the ***"Save Changes"*** button (see Figure 6). A prompt to change the password may come up. There is no default password. If you receive this message click ***"OK"***. You will be prompted to enter a password once for each AirCell unit each time the application is run.

B. Change Password

The **Change Password** button will open a dialog box that prompts the user to enter a new password. If you forget the password, it can only be reset by restoring factory defaults.

C. Sync Clock

The **Sync Clock** button writes the current computer time to the control. The time is also synchronized automatically whenever any settings are saved.

PART III: ZONE TABS (refer to Figure 7)

The zone tabs shows the zone name, fan speed, setpoint, mode, on/off time.

- **Name –** enter name for the area the zone is servicing (i.e. bathroom, bedroom).
- **Fan Speed –** enter max fan speed for unit to run at when just that zones damper is open.
- **Setpoint –** enter desired space temperature for this zone.
- **Mode**
  - **OFF** – Zone is disabled (no heating or cooling)
  - **ON** – Zone is always enabled for heating or cooling
  - **TIMED** – Zone is enabled only during the specified On/Off times
- If timed option is chosen set the on and off times.

Once all zone settings have been modified, click the ***"Save Changes"*** button. If required, repeat the above steps for the Zone 2 Tab.

If there is not a Wi-Fi network that needs to be connected to, the AirCell PC Application/Unit set-up is complete. Otherwise go to Section 15, Wi-Fi Module Operation.

Figure 6 Unit Settings

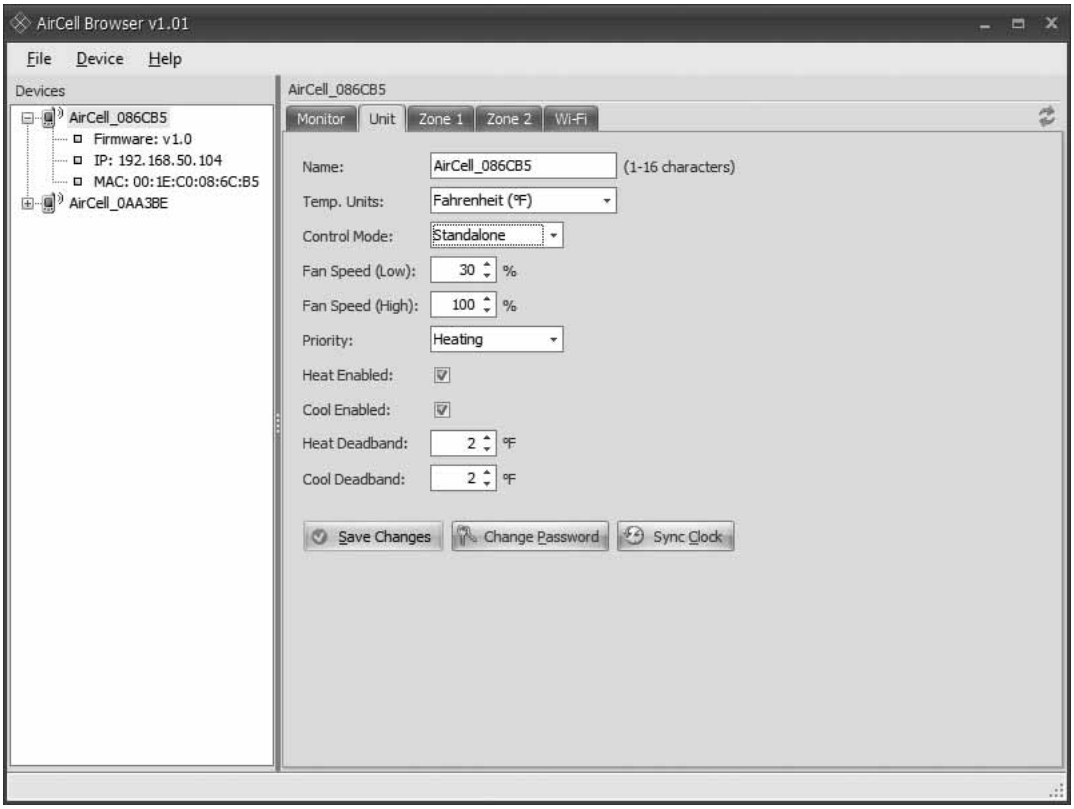
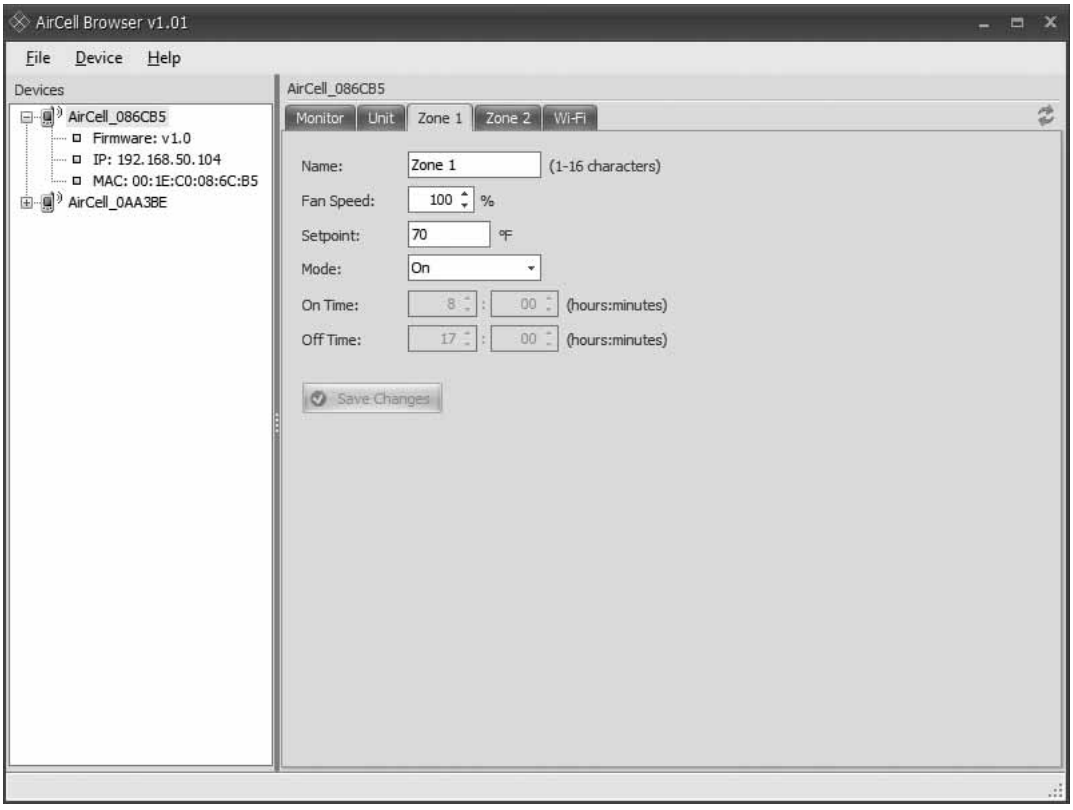


Figure 7 Zone Settings



SECTION 15: WI-FI MODULE OPERATION

The AirCell Wi-Fi module is a 2.4GHz IEEE Standard 802.11 b-compliant RF transceiver that is compatible with IEEE standards 802.11 b/g/n. A static IP network address can be assigned, or it can automatically obtain an address from a DHCP server. It supports WEP (64-bit and 128-bit), WPA-PSK and WPA2-PSK security modes.

See **Section 12** for Wi-Fi operation blink codes.

When configured the module will connect in one of the following wireless modes:

- ***AD-HOC MODE: (No wireless access point required - default wireless mode)***

  An access point is not required in ad-hoc mode. Devices can connect to the AirCell unit in a peer-to-peer network. Depending upon environmental conditions range may be 75' or more. ***NOTE:*** The AirCell control **does not** support security (WEP / WPA / WPA2) in ad-hoc mode.

  Ad-hoc is the default wireless mode, therefore will only allow ad-hoc connections. This mode will always be used for initial setup and configuration of the unit. If a Wi-Fi access point is not available, this connection mode will also be used for future configuration changes.

- ***INFRASTRUCTURE MODE: (Wireless access point required)***

  A wireless access point is required in this mode. All interconnected devices must connect to the access point using the same service set identifier (SSID) and security settings (WEP / WPA / WPA2).

  A Wi-Fi connection is necessary to allow the infrastructure mode connection to be set. In this mode the unit will toggle between infrastructure and ad-hoc connections. If it cannot connect to the access point in 3 minutes it will switch to ad-hoc mode. If no ad-hoc connections are made within 5 minutes it will switch back to infrastructure mode.

  The access point is typically configured to function as a DHCP server so it can automatically assign network addresses (IP address / subnet mask / and default Gateway) to each device. However, the AirCell can be configured to use a statically assigned network address if necessary.

  If the unit has successfully connected to a Wi-Fi access point and the connection is lost, it will try again for up to 3 minutes to re-connect. If it is unable to reconnect, it will alternately try connecting in Ad-hoc and Infrastructure mode as explained above.

WI-FI TAB

The Wi-Fi Tab is used to change SSID, IP Address, Subnet Mask, Default Gateway, Connect Mode, Security Mode, Shared Key/Passphrase associated with security mode. Refer to Figure 8 for all settings. After any changes are made, the "*Save Changes*" button must be pressed.

1. **SSID (Service Set Identifier) –** This is the name of the local wireless network. It is typically part of the configuration settings for a wireless router or access point. In "Infrastructure" Mode (see Connect Mode below), the AirCell unit will attempt to connect to a Wi-Fi network with this name.

2. **IP Address, Subnet Mask, Default Gateway –** Static IP address settings are used as follows:

   a. Infrastructure Mode

      i. DCHP client checked - These setting are not used. The unit will be automatically assigned an IP address by the network DHCP server (typically the wireless router or access point).

      ii. DCHP client unchecked – The unit will use these settings for its IP address. These values **MUST** be set to be compatible with the IP network settings on the access point.

   b. **Ad-hoc Mode** – The unit will use these settings for its IP address and will act as a DHCP server to assign any devices that connect to it a compatible address.

   c. **DHCP (client) –** Used in Infrastructure mode. When checked, the unit will attempt to acquire its IP address from a DHCP server. When unchecked, the unit will use its static IP address.

   d. **Connect Mode –** Ad-hoc or Infrastructure, refer to page 12 for explanation.

   e. **Security Mode** – Selects the wireless security mode used by the unit. It must match the security mode on the wireless access point. Security settings are not used during Ad-hoc connections.

      i. **None** – No security.

      ii. **WEP 64-bit (Shared/Open) –** 64-bit WEP security (also known as WEP-40) with shared or open key authentication. The key is a 10 hexadecimal (0-9, A-F) characters.

      iii. **WEP 128-bit (Shared / Open) –** 128-bit WEP security (also know as WEP-40) with shared or open key authentication. The key is a 26 hexadecimal (0-9, A-F) characters.

      iv. **WPA (Passphrase) –** WPA security with a passphrase. The passphrase is 8-63 characters.

      v. **WPA (Key)** – The key is 32 hexadecimal (0-9, A-F) characters.

      vi. **WPA2 (Passphrase)** – WPA2 security with a passphrase. The passphrase is 8-63 characters.

      vii. **WPA2 (Key) –** The key is 32 hexadecimal (0-9, A-F) characters.

   f. **Shared Key / Passphrase** – This is the key or passphrase required by the security mode selected above. In all cases, it **MUST** match the key or passphrase on the wireless access point. In WEP 64/128 bit modes, keys are typically generated by the access point and must be copied here.

CHANGING WI-FI SETTINGS

Connected in Ad-hoc mode:

1. Change the Wi-Fi settings on the wireless access point as desired.
2. Configure the AirCell with matching Wi-Fi settings.
3. Reset the unit from the "*Device"* menu. The unit must be reset or power cycled for the new settings to be applied.

Connected in Infrastructure mode

1. Change the Wi-Fi settings on the AirCell unit as desired. The settings must be changed on the AirCell unit first. If settings are changed on the access point first, you will lose your infrastructure connection.
2. Reset the unit from the *"Device"* menu. The unit must be reset or power cycled for the new settings to be applied.
3. Configure the access point with matching settings.

RESETTING THE AIRCELL UNIT

The AirCell unit must be reset (rebooted) or power cycled for the new Wi-Fi settings to be applied. Choose *"Reset"* from the "*Device"* menu to reset the unit as shown in Figure 9.

Figure 8 Wi-Fi Settings

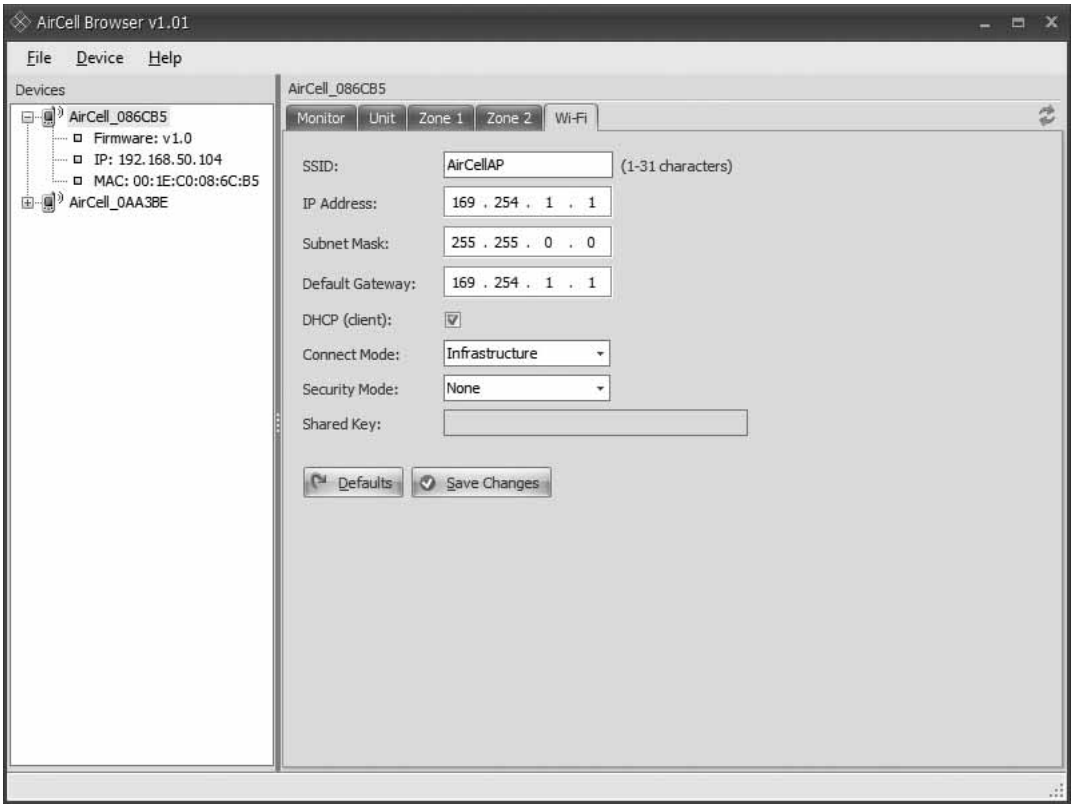
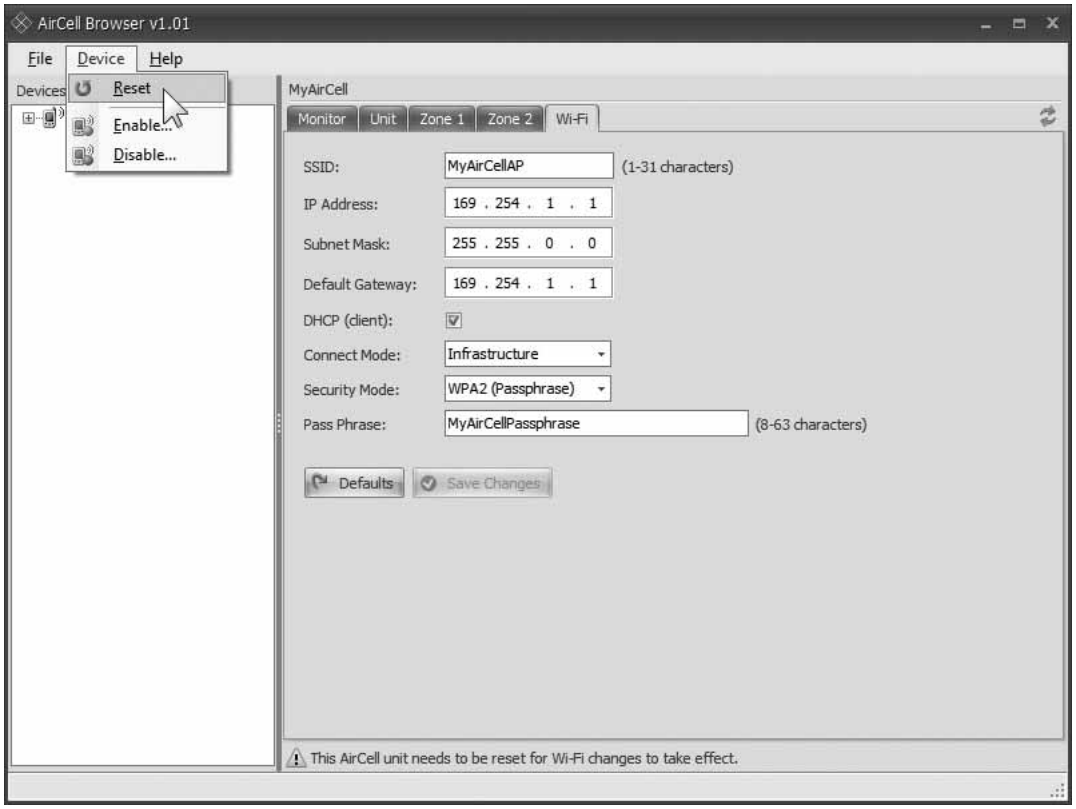


Figure 9 Resetting the Aircell



SECTION 16: FACTORY DEFAULT SETTINGS

RESTORE FACTORY DEFAULTS:

Under some circumstances it may become necessary to restore the AirCell unit to its factory default settings. For instance, if the unit password is unknown or for some reason can no longer communicate with the Wi-Fi access point.

The user can restore all default settings by powering the unit while holding down the UP and DOWN arrow keys located on the outside of the unit. When defaults have been loaded, all of the LEDs will turn on indicating to the user that they can let go of the keys and the unit will begin its normal operation.

Default Unit Settings:

- ***Name*** – "AirCell_######" (###### are the last 6 characters in the MAC address)
- ***Temperature Units*** – Fahrenheit (°F)
- ***Control Mode*** – Thermostat
- ***Fan Speed (Low)*** – 15%
- ***Fan Speed (High)*** – 30%
- ***Priority*** – Heating
- ***Heat Enabled*** – Yes
- ***Cool Enabled*** – Yes
- ***Heat Deadband*** - 2°F
- ***Cool Deadband*** - 2°F

Default Zone Settings:

- ***Name*** – "Zone 1" or "Zone 2"
- ***Fan Speed*** – 30%
- ***Setpoint*** – 70°F
- ***Mode*** – On
- ***On Time*** – 8:00 AM
- ***Off Time*** – 17:00 (5:00 PM)

Default Wi-Fi Settings:

- ***SSID*** – AirCellAP
- ***IP Address*** – 169.254.1.1
- ***Subnet Mask*** – 255.255.0.0
- ***Default Gateway*** – 169.254.1.1
- ***DHCP (client)*** – Yes
- ***Connect Mode*** – Ad-Hoc
- ***Security Mode*** – None
- ***Shared Key / Passphrase*** - Blank

Appendix D: Regulatory Information

FCC

The AirCell unit contains an 802.11b RF Transceiver Module.

FCC ID: W7OZG2100-ZG2101

IC: 8248A-G21ZEROG

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The RF module has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC RF EXPOSURE

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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