AirCycler®
Ventilation Products

AirCycler® g2/g2-k
Installation & User's Guide

VENTILATION MADE BREEZY!™
a breeze to install • a breeze to use

INTRODUCTION

If the AirCycler® g2 was installed in your home as a ventilation controller, turning off or otherwise disabling the controller could result in under ventilating your home and could adversely impact indoor air quality.

In the past, homes depended on natural leaks for ventilation. Today, energy efficient homes are built to reduce natural ventilation and leaks. Inadequate ventilation can increase indoor air pollutants to harmful levels. Indoor air quality is typically 5 to 10 times more polluted than outside air. Controlled ventilation provides adequate air flow to the home without compromising its efficiency.

The AirCycler® g2 is integrated with the home's HVAC system. When the home's furnace fan is turned on by the thermostat to provide heating or cooling, the AirCycler® g2 controller opens the motorized damper to let in a measured amount of fresh air. The fresh air is filtered by the return plenum filter and is then distributed uniformly throughout the home through the existing ductwork. Once the ventilation requirements are met, the damper is closed to prevent over-ventilation. The AirCycler® g2 can also connect to an exhaust fan to provide additional ventilation.

SAFETY CONSIDERATIONS

Read and follow manufacturer's instructions carefully. Follow all local electrical codes during installation. All wiring must conform to local and national electrical codes. Improper wiring or installation may result in personal injury or product and property damage.

INSTALLATION CONSIDERATIONS

The AirCycler® g2 requires 24VAC (R and C terminals) to be connected for proper operation. The controller will not operate without these two connections.
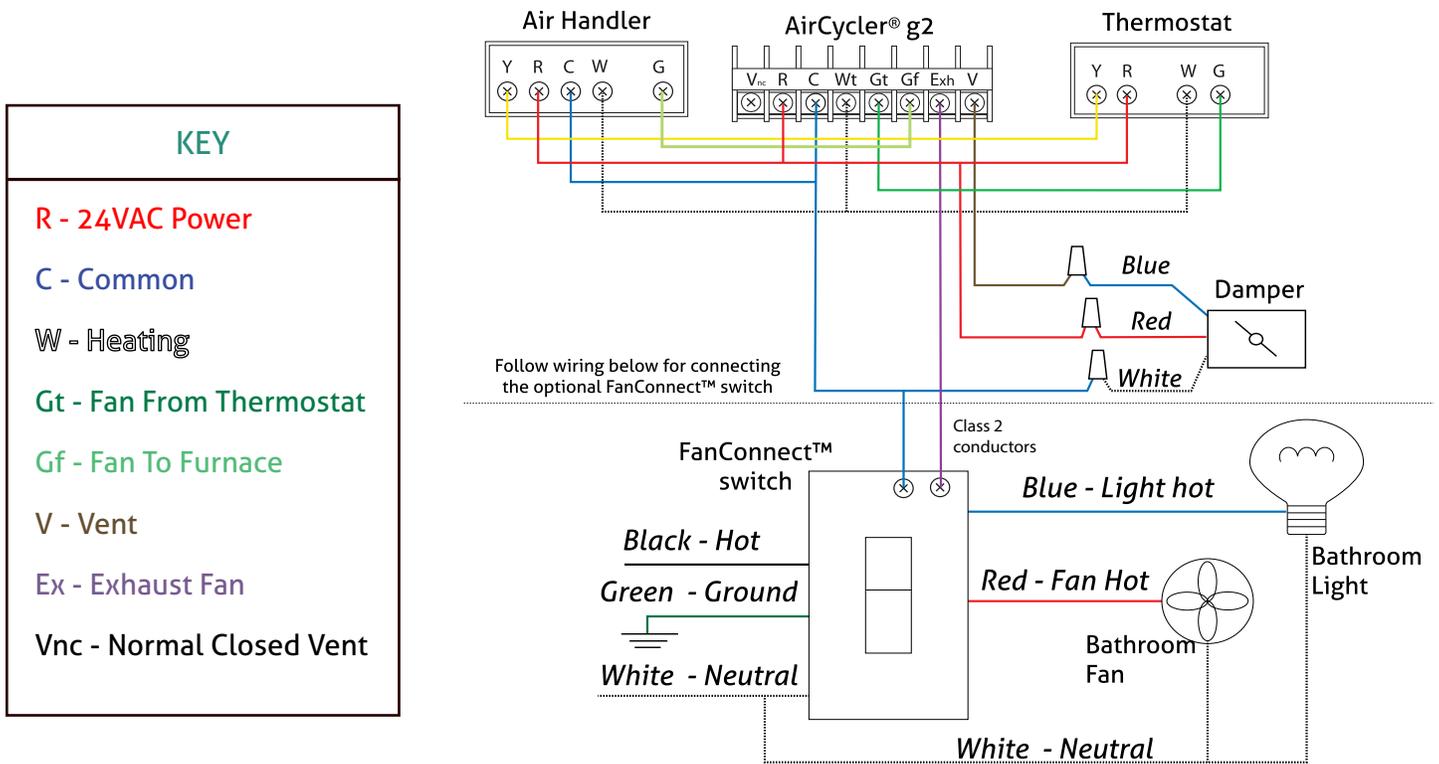
The wires (R, C, & W) from the air handler to the thermostat can run parallel with the wiring from the AirCycler® g2 to the air handler. The fan wire (G) must be interrupted by the AirCycler® g2. Some thermostats do not require a common (C) connection. The AirCycler® g2 requires this for power, which must be wired to the furnace.

BATTERY (MODEL CR1220)

The AirCycler® g2 is equipped with a real time battery backed-up clock for use with the Operation Hours setting ONLY. If not setting the hours of operation, the included battery is not required. All other settings are saved in nonvolatile memory.

RECORD ALL SETTINGS ON THE INSTALL STICKER PROVIDED. LIMITED WARRANTY WILL BE VOID IF THE STICKER IS NOT PRESENT.

WIRING DIAGRAM

KEY

R - 24VAC Power

C - Common

W - Heating

Gt - Fan From Thermostat

Gf - Fan To Furnace

V - Vent

Ex - Exhaust Fan

Vnc - Normal Closed Vent

Air Handler

AirCycler® g2

Thermostat

Follow wiring below for connecting
the optional FanConnect™ switch

Blue

Damper

Red

White

Class 2
conductors

FanConnect™
switch

Blue - Light hot

Black - Hot

Green - Ground

Red - Fan Hot

White - Neutral

Bathroom
Light

Bathroom
Fan

White - Neutral

SELECTING YOUR COMPONENT EQUIPMENT

AIR HANDLER

The 2012 IECC requires the central blower used with the AirCycler® g2 to use an electronically commutated motor.

EXHAUST FAN

The AirCycler® g2, when used with the optional FanConnect™ switch, can be configured to rely on the exhaust fan for supplemental ventilation. If used in this configuration, the exhaust fan must be capable of a flow rate equal to or greater than the continuous whole building mechanical ventilation rate.

The bathroom exhaust fan should have a sound rating of 1.0 sone or less. This recommendation is a requirement if the home is certified as an ENERGY STAR V3 home, if the home is located in California (per California Title 24, Part 6), or if the home is otherwise required to comply with ASHRAE 62.2.

The 2012 IECC code requires the exhaust fan have an efficacy of 1.4 cfm/W if less than 90 cfm or 2.8 cfm/W if equal to or greater than 90 cfm.

Note:
The AirCycler® g2 will only control **one** exhaust fan. We recommend using our SmartExhaust® bath fan/light switch/ventilation controller for additional bathrooms requiring ventilation.

DAMPER LOCATION

The fresh air damper can be located anywhere in the inlet duct. Minimize the length of the inlet duct to improve air flow and improve system efficiency. It is recommended that the damper be as close to the return air plenum and the AirCycler® g2 controller as possible, and the inlet duct connect to the return plenum upstream of the system filter, and down- stream of any duct mounted sensors.
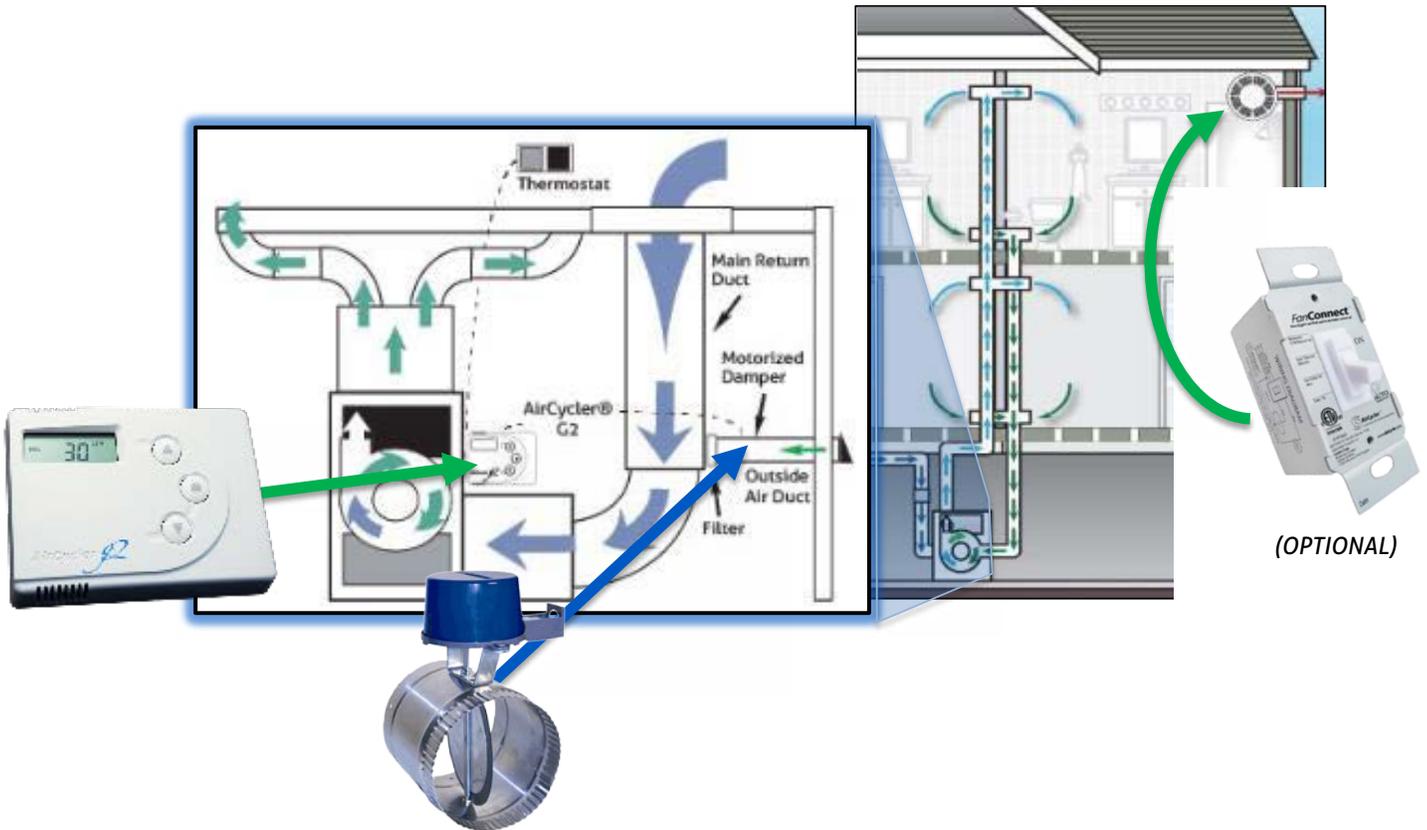
DAMPER INSTALLATION

The damper may be installed in any position. It is recommended to install it with the motor at the12 o'clock position if mounted horizontally. Air may flow through in either direction, although it is recommended to install with the crimped end as the outlet. Use care to avoid distorting the damper housing and provide adequate support. **Upon system start up be sure to set damper power switch to UP or AUTOMATIC position.**

CHOOSE A FRESH AIR LOCATION

ASHRAE recommends that the fresh air intake be located at least 10 ft. from any source of pollutants, such as auto exhaust, dryer exhaust, exhaust from any fuel-burning appliances, etc. Avoid installation near odor sources such as garbage bins or barbecue grills. A minimum of 3 ft. above ground is recommended to avoiding ingress of leaf litter, grass clippings, etc. Do not use a crawl space, basement, or attic as a source of intake air. Always be sure to comply with local building codes and requirements regarding fresh air inlets.

SYSTEM DIAGRAM

(OPTIONAL)

1.1 INSTALLATION & SETUP INSTRUCTIONS

1.1.1 AIRCYCLER® G2 CONTROLLER LOCATION

The AirCycler® g2 controller can be installed near the thermostat or out of view on/near the air handler unit.

Warning: Before installing the AirCycler®, turn off all power to the furnace. There may be more than one power to disconnect. Electrical shock can cause injury or death.

1.1.2 INSTALLING THE AIRCYCLER G2®

On power up, all icons will be illuminated for 3 seconds.

There are two set up methods: Calculated Time and Calculated Flow. Calculated Flow is used primarily with the optional FanConnect™ bath fan/light switch.

To set up the AirCycler® g2 based on Calculated Flow, press the **UP** arrow within 3 seconds of power up. To setup based on Calculated Time, press the **DOWN** arrow within 3 seconds of power up. **Remove from base and replace to reenter setup.**

1.1.3 G2 OPERATION & DISPLAY
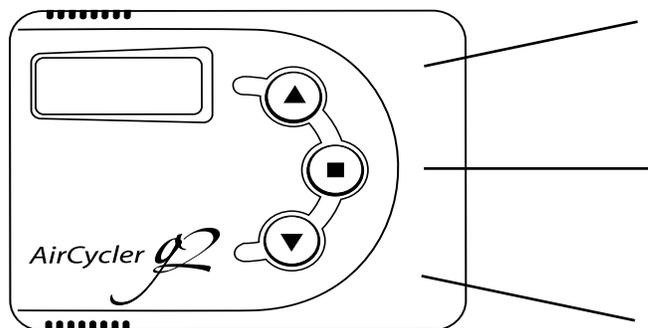
UP ARROW

*Use as directed during set up.
During Normal Operation, use to view current status*

MODE BUTTOM

*Use as directed during set up.
During Normal Operation, use to cycle through current time of day*

DOWN ARROW

*Use as directed during set up.
During Normal Operation, use to view current settings*
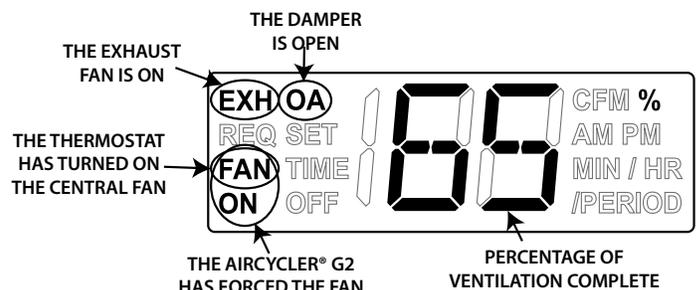
1.1.4 OPERATING MODE DISPLAY

Normal display will show the percentage of the current ventilation cycle (hour) that is complete.

If the central fan is on, the FAN and ON icons will show. If the exhaust (bath) fan is on, the EXH icon will show. If the outside fresh air damper is open the OA icon will show.

If the EXH fan is running its set delay time after the FanConnect™ has been turned off, the delay time countdown as well as the MIN and EXH icons will show.

The ON icon is only shown when the AirCycler® g2 has forced the central fan on.

Pressing the MODE button at any time during normal operation will go to setting the current time of day.
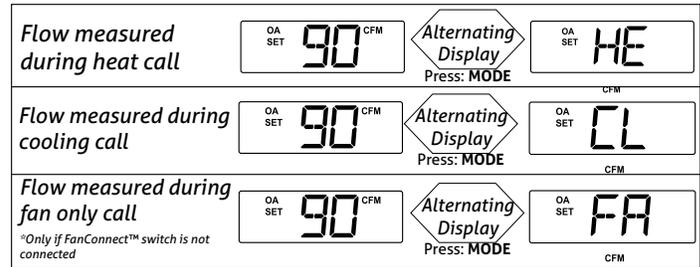

THE DAMPER IS OPEN

THE EXHAUST FAN IS ON

THE THERMOSTAT HAS TURNED ON THE CENTRAL FAN

THE AIRCYCLER® G2 HAS FORCED THE FAN

PERCENTAGE OF VENTILATION COMPLETE

2.1 CALCULATED FLOW SET UP

2.1.1 SETTING MEASURED SUPPLY AIR FLOW

The measured flow is the amount of air that enters the return side of the air handler from the outside air vent. Enter the measured flow. To accommodate variable speed air handlers, you can enter different values for heat, cool and fan. Factory default is 90 CFM.

Press MODE to advance to the next setting.

Flow measured during heat call	OA SET **90** CFM	Alternating Display *Press: MODE*	OA SET **HE**
Flow measured during cooling call	OA SET **90** CFM	Alternating Display *Press: MODE*	OA SET **CL** CFM
Flow measured during fan only call *Only if FanConnect™ switch is not connected*	OA SET **90** CFM	Alternating Display *Press: MODE*	OA SET **FA** CFM

2.1.2 SETTING MEASURED EXHAUST AIR FLOW

Enter the measured flow from the exhaust fan. Factory default is 60 CFM.

Press MODE to advance to the next setting.

EXH SET **60** CFM

2.1.3 SETTING CODE REQUIRED CONSTANT AIR FLOW

Set the required continuous air flow in CFM based on relevant codes. For ASHRAE 62.2 see Appendix A. Factory default is 30 CFM. The AirCycler® g2 will calculate run times based on settings 2.1.1 and 2.1.2.

Press MODE to advance to the next setting

REQ SET **30** CFM

2.1.4 SETTING THE OPTIONAL MIXING TIME

If the user needs more central fan time for whole house mixing than the amount that is provided by ventilation time, the central fan can be configured to run an additional time period to complete the mixing period. Factory default is 0 or OFF. The fresh air damper will not be open during this extra time.

Press MODE to advance to next setting.

SET **0** MIN / HR FAN ON

2.1.5 SETTING OPERATION HOURS

If the user does not want the ventilation system to run constantly, you can set ON time and OFF time. Factory default is NO. **See Section 2.2.4 for setup.**

Press MODE to advance to next setting.

2.1.6 SETTING EXHAUST FAN DELAY TIME

Set the desired length of time you want the exhaust fan to run after the FanConnect™ switch has been turned off. Factory default is 10 minutes.

Press MODE to save all settings and return to normal operation.

EXH SET **10** MIN ON

2.1.7 CALCULATED FLOW SETUP IS COMPLETE

2.2 CALCULATED TIME SETUP

2.2.1 SETTING NUMBER OF MINUTES PER HOUR OF SUPPLIED AIR FLOW REQUIRED

Enter the minutes per hour that you require fresh air to be brought into the home. Factory default is 20 minutes. *For installations without the FanConnect™ switch, go to section 2.2.3.* Press MODE to advance to the next setting

> OA SET
> ON **20** MIN / HR

2.2.2. SETTING MINUTES OF EXHAUST FAN RUN TIME REQUIRED

Enter the desired minutes/hour you want the exhaust fan to run. Factory default is 20 minutes per hour.

If the FanConnect switch is not detected, make sure it is in the OFF position.

> EXH SET
> ON **20** MIN / HR

SLAVE MODE: Slave mode will provide a "balanced" mode of operation. Press the DOWN arrow until the countdown reaches 0 then SL (SL= slave mode) In slave mode the exhaust fan runs anytime the central fan is running with the fresh air damper open.

2.2.3 SETTING OPTIONAL MIXING TIME

If the user needs more central fan time for whole house mixing than the amount that is provided by ventilation time, the central fan can be configured to run an additional time period to complete the mixing period. Factory default is 0 or OFF. The fresh air damper will not be open during this extra time. Press MODE to advance to the next setting.

> SET
> FAN **0** MIN / HR
> ON

2.2.4 SETTING OPERATION HOURS

If the user does not want the ventilation system to run constantly, you can set ON time and OFF time. Factory default is NO.

If you are not setting an ON and OFF time, continue to section 2.2.6. If you enter YES, the AirCycler® g2 will prompt you to enter the hour you would like the ventilation to begin and the hour you want it to end followed by the current time.

Set the hour you want ventilation to START. Press MODE to advance to the next setting.

Set the hour you want the ventilation to STOP.

Press MODE to advance to the next setting.

> SET
> TIME **45**
> ON

> SET
> TIME **6** AM
> ON

> SET
> TIME **11** PM
> OFF

2.2.5 SETTING CURRENT TIME

Enter the current time. Press MODE to advance to the next setting.
If you are not connecting a FanConnect™ switch, continue to section 2.2.7.

> SET
> TIME **12** PM

2.2.6 EXHAUST FAN DELAY TIME

Set the desired length of time you would like the bath fan to run after the FanConnect™ has been turned off. Factory default is 10 minutes. Press MODE.

> EXH SET
> ON **10** MIN

2.2.7 CALCULATED TIME SETUP IS COMPLETE
Setup is complete. The AirCycler® g2 will now return to normal operation.

3.0 NORMAL OPERATION DISPLAY
DISPLAY STATUS & SETTINGS

3.1 STATUS

To get detailed status information, press the UP arrow. The status screens are the same for both Calculated Flow and Calculated Time modes.

3.1.1 MINUTES LEFT

The first screen is the number of minutes left in the period (hour). Pressing the UP arrow again gets you to the next status screen

3.1.2   OUTSIDE AIR TIME ELAPSED

This display shows the number of minutes this period that the outside air damper has been open with the central fan running.

3.1.3 EXHAUST RUN TIME*

This shows the elapsed run time of the exhaust fan for this time period.

3.1.4 EXHAUST DELAY TIME*

This shows the exhaust delay time set.

3.2 SETTINGS

3.2.1 CURRENT SETTINGS
By pressing the DOWN arrow during normal operation, the user can scroll through the current setting entered by the installer.

For Calculated Flow mode the screens will show:
- Required CFM set
- Set measured outside air CFM
- Set measured exhaust air CFM
- Set exhaust fan delay time

For Calculated Time mode the screens will show:
- Exhaust run time set*
- Outside air time in minutes
- Exhaust fan delay time*
- If operating time is enabled:
  - Operating Time On
  - Operating Time Off

3.2.2 RESET TO FACTORY DEFAULT SETTINGS
Remove the controller from the base, let it power off, then place back on. On initial power up when all icons are lit, hold the UP arrow for 10 seconds to be prompted to reset all settings to default.

3.3 SET TIME

3.3.1   SET CURRENT TIME
By pressing the MODE key you will cycle through current time of day and will be able to change it if needed.

3.4 DISABLING THE AIRCYCLER® G2

Warning: It is not recommended to turn off the AirCycler® if the unit is used as a ventilation controller.

3.4.1 Remove the top of the controller from the base to stop power to the unit and remove any button battery in the unit. Place the unit back on the base.

3.4.2 On power up, all icons will be illuminated for 3 seconds. Within 3 seconds of powering up press the DOWN arrow to enter set up mode for Calculated Time.

3.4.3 The first setting is the number of minutes of outside air (OA SET) to be brought into the house per hour. Set this number zero. Press MODE

3.4.4 *(Only available if FanConnect is installed)* The next setting is the number of minutes of exhaust fan run time. Set this number to zero . Press MODE

3.4.5 The next setting is the operating 'ON' time. Because you are disabling the system, leave this at the factory defaulted 'NO'. If your system is currently set to 'YS', press the down arrow to change to 'NO'. Press MODE

3.4.6 *(Only available if FanConnect is installed)* The next setting is the number of minutes the bathroom exhaust fan attached to your FanConnect switch will operate after the switch is moved to the auto (down) position. This allows the fan to continue to run after you have turned the switch off to continue to clean out the air in the bathroom (moisture, cleaning, beauty products, etc). Set this number to zero to completely disable this feature or leave as is. Press MODE

THE UNIT IS DISABLED

APPENDIX A

ASHRAE 62.2 REFERENCE CHART

Square Footage

No. of Bedrooms	1000	1500	2000	2500	3000	3500	4000	4500
1	25	30	35	40	45	50	55	60
2	33	38	43	48	53	58	63	68
3	40	45	50	55	60	65	70	75
4	48	53	58	63	68	73	78	83
5	55	60	65	70	75	80	85	90

CFM Required:

$$7.5 \text{ CFM} * (N+1) + A * 0.01$$

N = No. of Bedrooms   A = Square Footage

TROUBLESHOOTING

Problem: No power to AirCycler® g2
Check common wire connection. "C" must be connected to "C" on the furnace.

Problem: EXH icon is flashing
If the EXH icon is flashing it is indicating that the FanConnect™ switch has been on for more than four hours or has lost connection with the AirCycler® g2 controller.

Problem: Furnace fan is running constantly
Make sure the thermostat FAN switch is set to AUTO and not ON

Problem: Central fan does not shut off when AirCycler® g2 is removed from base (when thermostat fan switch is on)
Check wiring - "G" wire from thermostat should be wired to "Gt" on AirCycler® g2. "Gf" on AirCycler® g2 should be connected to "G" on furnace.

Problem: Blank Display on the AirCycler® g2
Confirm:
1. The furnace has power
2. The thermostat is operational
3. The furnace will call for heat from the thermostat
4. The fan operates with a fan only signal from the thermostat
5. The furnace is providing 24 VAC to the AirCycler® g2
6. Verify wiring conforms to wiring diagram
7. Make sure cover is firmly seated on the base

Problem: AirCycler® g2 turns furnace fan on and off, but the motorized damper does not cycle.
Confirm:
1. The AirCycler® g2 is providing a 24 VAC signal to the motorized damper
2. The 24 VAC motorized damper is operational by powering directly with a 24 VAC signal
3. There is continuity in the wiring between the damper and the AirCycler® g2
4. Confirm damper power switch is in up or automatic position

Problem: A/C turns on during fan cycling calls
Confirm:
1. Wiring conforms to wiring diagram
2. The G wire is properly connected
3. The G wire needs to be interrupted by the AirCycler® g2
4. Do not run the G wire in parallel

Problem: The AirCycler® G2 does not detect the optional FanConnect™ switch
Confirm:
1. Verify the FanConnect™ has power and is in the OFF position

Technical Support:
info@aircycler.com