



Adaptive Climate Control (ACC):  
Future of HVAC PTAC/PTHP Systems

# INSTALLATION MANUAL



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# A1A Wiring Diagram

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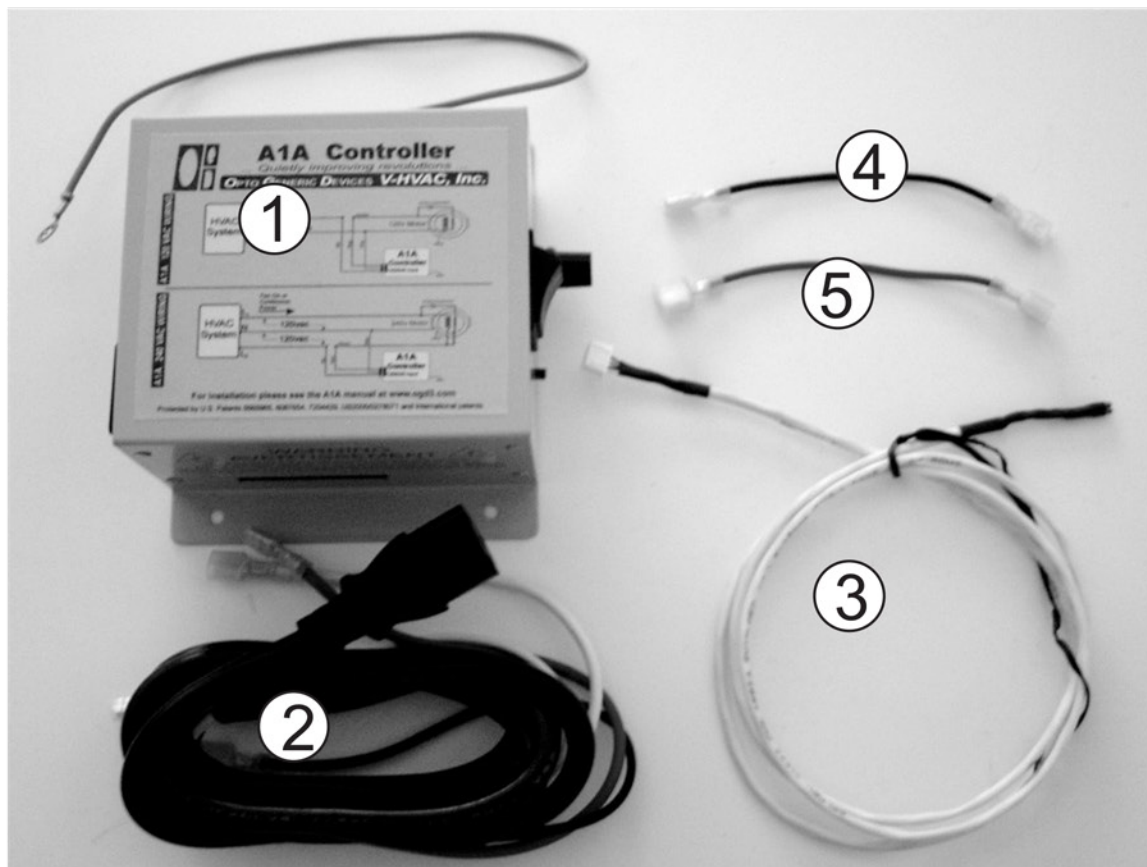
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VAN HORNESVILLE • NY • USA • 315-858-1002 • www.ogd3.com

**OGD V-HVAC  
A1A Controller  
INSTALLATION  
GUIDE**

## OGD V-HVAC A1A Controller INSTALLATION GUIDE

Congratulations on your decision to use OGD V-HVAC 's A1A Unit to achieve better and more energy-efficient control of air distribution! Get ready to experience years of comfort and savings. You will save time later by taking a little time now to read the instructions that follow.

**GETTING STARTED:** Below is a list of parts you should have in the A1A\_Controller box. Note that not every installation requires the use of all of the parts provided.



### PARTS LIST

#	Qty.	Description
1)	1	A1A Controller, base control unit with ground wire
2)	1	Power Cable, one needed for 120/208/240 VAC.
3)	1	Temperature sensor, measures discharge air temperature
4)	1	Gender Changer, Female-Female, Black, if needed to make the connection from the A1A Power Cable to the incoming line voltage
5)	1	Gender Changer, Male-Male, Red, if needed to make the connection from the A1A Power cable to the motor.



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Photo illustration of OGD's A1A Controller with cables properly connected.

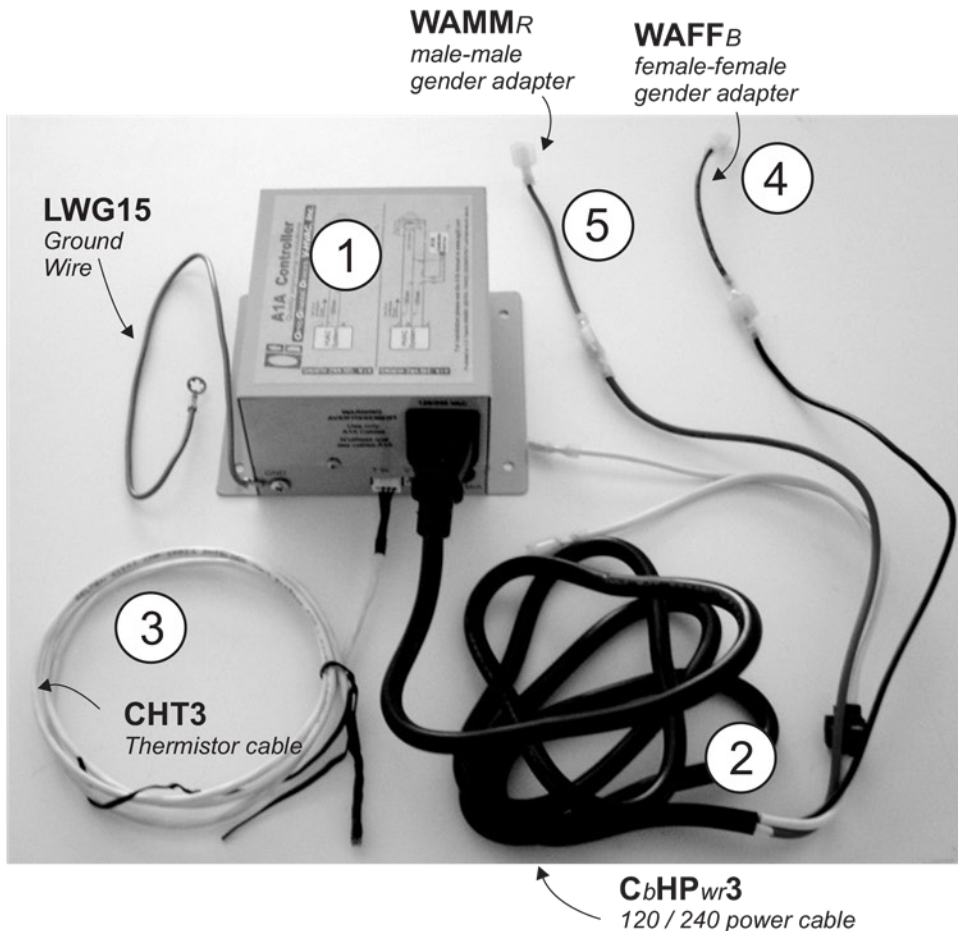


Photo illustrates the A1A Controller with all respective cables as listed on the "Parts List" (page 1 of this document.) Numbered circles correlate to numbers given to the parts as listed.

Please note, not all cables included in the package, will typically be utilized. The cables used will depend on the polarities and/or genders of incoming power.



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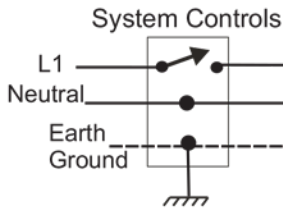
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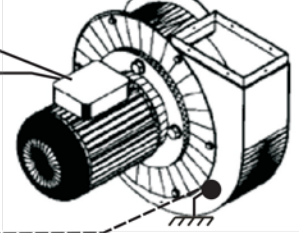
115 - 120 Vac

**BEFORE**

### ELECTRICAL HOOKUP

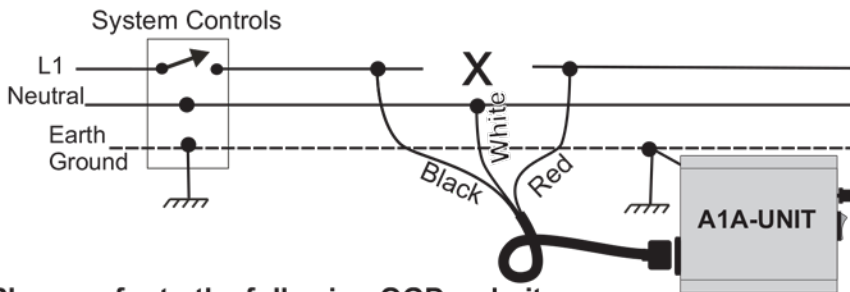


110 to 120 VAC / PSC Fan Motor

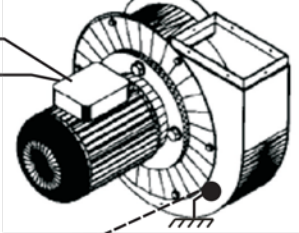


**AFTER**

### ELECTRICAL HOOKUP



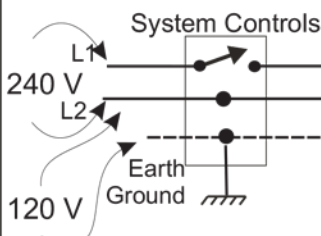
110 to 120 VAC / PSC Fan Motor



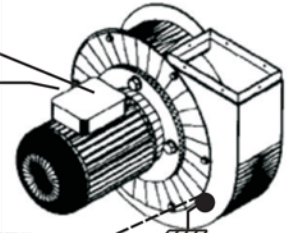
Please refer to the following OGD website  
for complete installation instructions:  
[www.ogd3.com](http://www.ogd3.com)

208 - 240 Vac

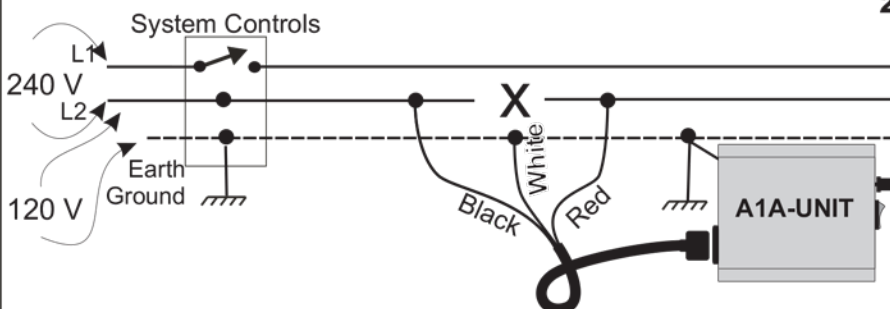
**BEFORE**



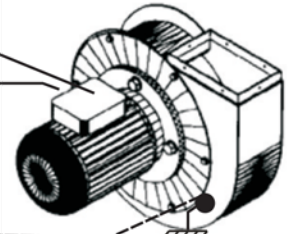
200 to 240 VAC / PSC Fan Motor



**AFTER**



200 to 240 VAC / PSC Fan Motor



Please refer to the following OGD website  
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**NOTE:** If there is any visual damage to the cables or unit due to shipment, report such damage to your shipment receiver to file a claim. OGD V-HVAC will work with your supplier to resolve the matter.

Refer to the copy of the Wiring Diagram in these instructions, also printed on the top cover of the A1A Controller, while following the instructions.

## INSTALLATION OVERVIEW

These instructions provide a quick overview of the installation procedures to experienced technicians:

- Before beginning the installation a pre-install checklist should have been filled out and is needed as a guide with this manual. Also the following tools and testers are required; Volt/Ohm/Ammeter VOM, Temperature measurement gage, Hand tools - Wire cutters/strippers, screwdrivers, Pliers etc.
- It is not recommended to proceed with the installation without this checklist or tool , list.**
- The A1A controls motors running on 120, 208, or 240 volts AC, 60 hertz, with less than 12A current draw.
- One power cable is all that is necessary to control these voltages. (Refer to schematic for wiring directions)
- To operate correctly the A1A black power wire to white ground wire must have line voltage(110 vac minm to 125 vac maxm) and not stepped up or down transformer voltages.
- On an HVAC system (motor) with multiple speed selections (Hi, Med, Low) it is recommended to use the Hi speed setting and motor wire tap as the installation point.
- Insure that the HVAC system is working properly before starting the installation. Check the temperature of the discharge airstream at the point of heating or cooling coming off the coil or heat exchanger or in the air duct;
  - For Cooling on a compressor system < 45 deg
  - For Cooling on a water system < 55 deg
  - For Heating on a compressor system > 120 deg
  - For Heating on gas/oil fired system > 160 deg
- These are representative temperatures that should be expected if the system is working properly.
- The A1A is equipped with a bypass feature that, if wired properly, will allow the system to be put back to original operation if needed.
- The A1A is also equipped with a 12a fuse, and a spare fuse, located in a drawer just below the power cord plug, in the IEC connector, on the rear of the A1A unit.

## STEP BY STEP INSTRUCTIONS

### STEP #1 VOLTAGE CHECKS.

- With the system running check the Voltage and Amperage at the motor with the VOM.
- Note; In all cases the Amperage should not exceed 12Amps**
- If the system is 120VAC then you should see on your VOM 120V from the Hi tap HOT leg on the motor, to Neutral and Ground.
- If the system is 208VAC you should see 115/120VAC on EACH HOT leg to ground and 208V



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across the 2 HOT legs.

If the system is 240VAC you should see 120V on EACH HOT leg to ground and 240V across the 2 HOT legs.

**NOTE; If the voltage on the 2 HOT legs of the 208V or 240V are unbalanced ie: 100V on one leg to ground and 140V to ground on other, although total between both = 240V, this is NOT a suitable install.**

## **STEP #2 MOUNTING THE A1A Controller**

Note: as with all electronic equipment care should be taken handling A1A to avoid static discharge.

Consider where to mount the A1A unit, preferably under the HVAC panel covers.

a) Choose a clean dry area out of the airstream.

b) Close enough to the motor and discharge airstream so that the power wires and the temperature sensor cable can reach, dressed and be secured in place.

c) The unit should be securely mounted with screws, through the holes provided in the unit flanges, and still have access to the cables in back and controls in front.

d) The ground wire should be attached to chassis ground inside the HVAC unit.

e) Locate and secure the temperature sensor cable in the discharge airstream, a minimum of 1-6 inches from the coil or cooling/heating source (but no maxm as long as temp of air stream reaches proper temp ranges).

## **STEP #3 ELECTRICAL CONNECTIONS FOR 120/208/240VAC 60HZ**

a) Refer to the schematic on page 3 for proper wiring hook-up.

b) For 120V systems, with the power off and the Hi tap motor wire identified, remove or interrupt the wire and connect the A1A BLACK wire to the 120V source and the A1A RED wire to the motor in, Hi tap wire. Connect the A1A WHITE wire to the NEUTRAL note; The white wire is designed with male and female terminals to go in series with the existing wire, if the terminations allow.

There are also male and female gender changers available for the red and black wires if needed, to use existing terminals and prevent the need for cutting wires and using wire nuts. ( items 4 and 5 on the parts list).

c) For 208/240VAC motors follow the same step (b) process , except connect the WHITE wire to earth ground instead of neutral.

d) If the motor is a multi-tap, Hi, Med, Low, motor, a decision should be made to either allow the user to revert back to Med or Low speed or disable these taps.

e) With the A1A in bypass, and the wall power off, insert the female end of the power cord into the connector on the back of the A1A and insert the temperature sensor cable into "T in" on the back of the unit.

f) Turn the power to the system on and the unit should operate as it did prior to A1A install.

g) Turn the A1A "on" Man/Auto switch to Man and the speed knob fully Counter Clock Wise. The motor should slow down to an "Idle" speed, Approx 300 rpm.

h) If the motor seems to be running too slow, turn the speed knob up CW until you reach a



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preferred idle speed.

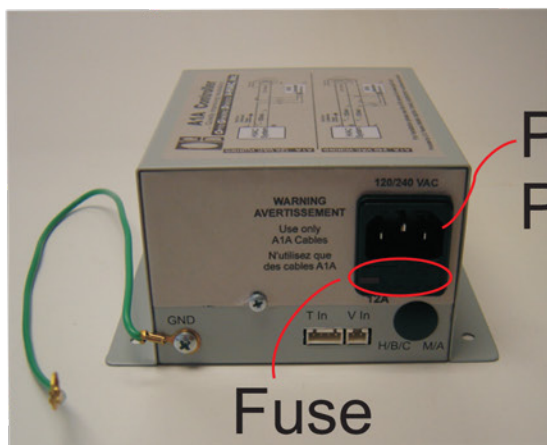
- ☒ i) Set the Man/Auto switch to Auto.

## SELECT THE DESIRED CONTROL MODE

- ☒ a) Manual or Auto? If, as in most cases, you are using the temperature sensor cable to adjust the motor speed based on discharge air temperature, you will need to be in “auto” mode.
- ☒ b) Manual mode has 2 main functions: To control the motor speed manually with the speed knob or to allow the optional 0-10vdc “V in” feature to operate properly.
- ☒ c) Optional 0-10vdc or BMS control input “V in” on the rear of the unit. See dealer for more information.

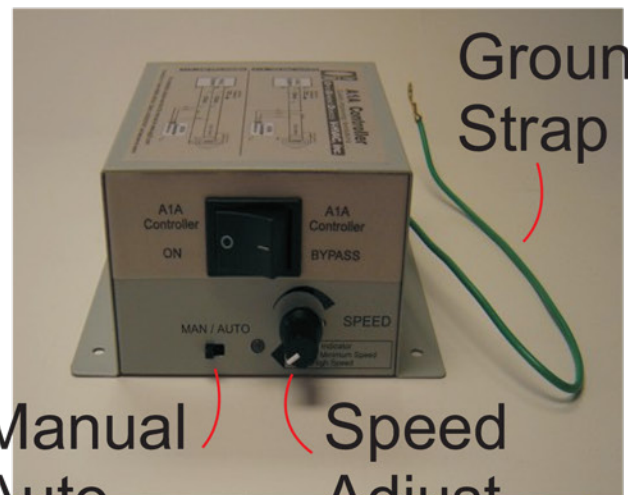
## STEP #4 TEST THE SYSTEM OPERATION

- ☒ a) With the A1A “on” turn the wall power to the HVAC system off.
- ☒ b) After 30 seconds turn the system back on. Note the HVAC fan motor will “soft start” and then return to the preset “idle” mode (if the temperature sensor is seeing room air and not conditioned air)
- ☒ c) Turn the A1A to “bypass”, the fan should be at full speed, as it was before the A1A installation.
- ☒ d) Turn the A1A back “on” reduce the thermostat setting so that the cooling cycle begins and starts to cool the discharge air. The fan should begin to speed up slowly as th A1A begins to sense the cooler air and go to full speed when the discharge air is at its maximum cooling.
- ☒ e) Repeat step (d) for heating mode.
- ☒ f) We recommend leaving the system in continuous “fan on” mode and the thermostat at your comfort level.



Power Plug

Fuse Holder



Ground Strap

Manual Auto

Speed Adjust



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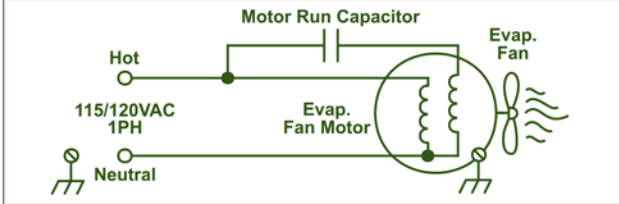
Adaptive Control Technologies  
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aclectic.org

APC/ACC

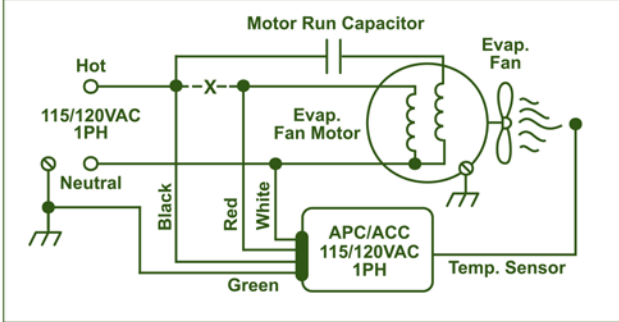
Adaptive Photonic Controller

115/120VAC 1PH

### Internal HVAC Evap. Fan Wire Diagram Pre-Install:



### Internal HVAC Evap. Fan Wire Diagram Post-Install:



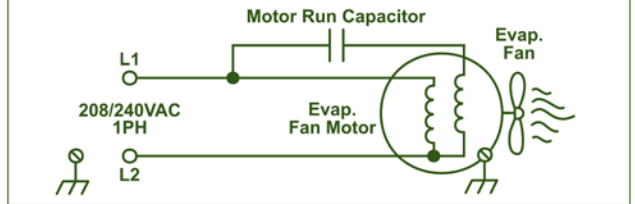
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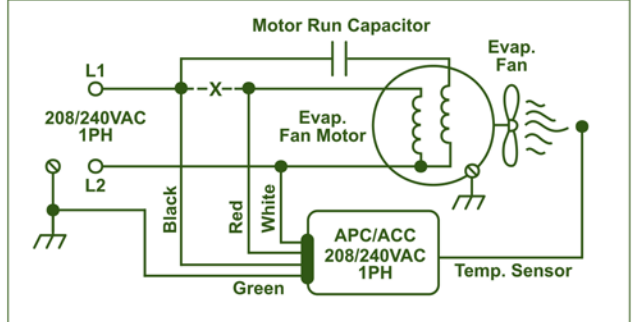
Adaptive Photonic Controller

208/240VAC 1PH

### Internal HVAC Evap. Fan Wire Diagram Pre-Install:



### Internal HVAC Evap. Fan Wire Diagram Post-Install:



**WARRANTY:** The A1A Controller carries a fixed warranty on manufacturing defects. Check with your contractor concerning the installation warranty.

## A1A Controller Physical Dimensions

