

All user settable parameters as well as additional information are accessible via the user interface which consists of the LCD screen and the three buttons located on the front cover.

Pressing any key during the normal operation of the unit will cause the main menu to be displayed. Using the right/left buttons will scroll through the menu options. Pressing the “Enter” button will cause that menu option or value to be selected. Use of the up/down menu increases and decreases the current menu value. Pressing the up button exits the menu (unless you are currently modifying a value, in which case it will increase the value. First press “Enter” to select the current value, and then press the up button to exit the menu).

The Red LED on the front of the unit indicates an error of some nature. The exact cause of the error will be shown on the LCD screen (unless you have activated one of the menu options).

The Green LED on the front cover is lighted when the unit is first turned on and also any time the charge performance is considered high enough to complete the current charge cycle. If the solar/turbine power is not adequate to complete the charge cycle, the cycle will be extended and the mode timer will not count down. When this green LED is lighted, the charger is able to pass enough current to the batteries to complete a full charge of the batteries.

The internal LED on the upper left of the large PCB board (motherboard) is lighted when the solenoid is engaged.

The red LED on the small daughter board is lighted when there has been an over-voltage detected. **To clear an over-voltage condition, all power to the unit must be disconnected for at least 10 seconds.** Once power is re-applied, the unit should clear the fault. **Over-voltage conditions should be addressed by ensuring your wind turbine and/or solar inputs never exceed 100 volts** and both wind and solar are never enabled without first ensuring the controller is powered up and running from the batteries.

This unit is designed for mounting in a dry indoor environment. **The enclosure will not protect the contents from moisture.** Please do not mount outdoors where rain, snow or high moisture content is a possibility.

** The solenoid in this unit has been tested to over 440 amps. We have installed two 150-amp breakers as a standard configuration. This allows for 9000 watts of wind power in a 48-volt system, 4500 watts in a 24-volt system and 2250 watts in a 12-volt system.

Solar systems should be designed for no more than 125 amps continuous current. **

Coleman Air

C440-HVAD Quick Start Guide



The digital version of the C440-HVA

The C440-HVAD balances the tried and true with the newest technologies, resulting in a super capable diversion controller for your alternate energy system that's easy to use and even easier to love.

This is the quick start guide only.

See <http://ColemanAir.us> to download the full instruction and installation manual.

- Fully digital user interface.
- Solenoid based with 3-stage charge control.
- No jumpers or potentiometers need to be set.
- LCD 2 x 16 back-lit display.
- Both manual and automatic equalize modes are available.
- Dual shunts for monitoring both solar and turbine amperage and wattage.
- Automatic nominal battery voltage detection.
- Nearly all charge parameters can be managed through the user interface.
- Relay on time can be controlled and set for diversion times up to several hours.
- Upper and lower set points can both be set.
- Automatic LCD back light dimming to save energy.
- Dual Truck Star breakers, one each for your turbine input and diversion output.
- 12, 24 or 48-volt battery systems.
- Vented cover.
- Modular PCB Layout.

Turbine Disconnect/Brake



Dual Solar/Wind Hookup

Wind or Hydro Energy Source



3 Phase Rectifier



Output of turbine shown to be DC (after the rectifier if required) for clarity of diversion control.

Add a 3 phase rectifier if applicable (Your turbine is 3 phase)

A disconnect switch and breaker are recommended, located close to the turbine.

When the batteries reach the trip point, the relays are activated which opens the normally closed (N/C) circuit from the solar panels to the batteries.

At this same time, the diversion load is activated, allowing the turbine to remain running without overcharging the batteries.

C440 Series Diversion Controllers

Array (up to 125 amps)



D/C disconnect and breaker or breaker with manual disconnect/reset

Blocking Diode

150A

Solar breakers should not exceed 125 Amps combined

Solar Array - Open circuit voltage (VOC) must not exceed double your battery system nominal voltage.

Caution: Power up the controller before engaging your solar/turbine breakers.

Caution: Disconnect solar and turbine input(s) before disconnecting the controller from the batteries.

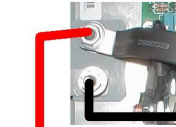
** See NEC wire size charts

Use this wiring for 12,24 or 48 volts

Use of a negative buss is allowed.

A diversion load is required for wind turbines

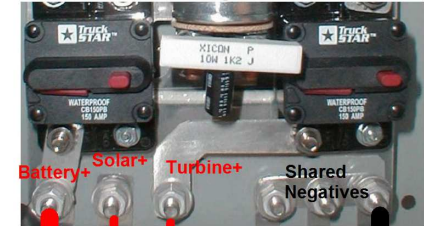
Polarity is not important for most resistive loads



The diversion terminals are on the left side of controller

LOAD (150A max)

Diversion Charge Controller



Battery+

Solar+

Turbine+

Shared Negatives

Wires shown that cross each other are not connected together

The turbine breaker should exceed the capacity of the turbine by 10 to 20%

This breaker/switch is required to turn on and off the controller

Battery breaker should not exceed 300 amps **

Select a breaker that slightly exceeds the maximum output of the turbine and solar combined

1 AWG or 2 AWG **

(+)

Battery Bank

Caution: Disconnect the controller from the batteries before servicing.

All connections to the batteries, solar panels and turbines are made to the six terminals on the bottom of the unit. If you will be using a wind turbine, you will need to connect your diversion load to the two terminals on the left-hand side of the unit. This unit may be used for wind (or hydro) only, solar only or both simultaneously. **Multiple solar panels and or wind turbines may be hooked up as long as you do not exceed the total capacity of the unit.** More information on these subjects is provided at <http://ColemanAir.us> (See: Articles and Information.)

Ensure you have selected adequate sized wire for the amperage you will be controlling. Undersized wire can result in very high heat in the wire and connections possibly leading to a fire. Always use a fuse or DC disconnect! Hooking up an energy source or diversion load without a fuse or disconnect can result in serious injury or death!

This breakers inside the unit do not disconnect the unit from the battery bank power. The external breaker shown above is required!

Use extreme caution when installing or servicing this controller. High amperages and voltages can KILL you. – Always disconnect the controller before servicing.