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# MODEL 12

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## 12 VOLT PV CHARGE CONTROLLER INSTALLATION INSTRUCTIONS

**Read all instructions prior to installing this device.**

**Location:** Install the Model 12 near the battery bank in a location that has plenty of ventilation. Avoid installations in small confined spaces. Do not install the controller in direct sunlight. Avoid wet and damp locations.

**Installation:** Use appropriate wiring techniques and materials. Follow all local electrical codes. Locate and loosen the 4 cover screws and remove the top cover. The cover screws need not be completely removed. 1. Use the mounting template provided to position and mark the mounting screw locations. 2. Refer to the wiring diagram. Wire the controller exactly as shown. The wire connectors will accept up to # 6 wire. Use suitable hardware to support all wiring. 3. Double check all wiring, polarities and wire connections. Miswiring the Model 12 will result in damage to the controller and voids the warranty. Position the battery temperature sensor near the battery bank and secure with glue. Lightning protection and proper grounding is recommended for all installations.

**FLOAT VOLTAGE ADJUSTMENT:** After the Model 12 has been installed the float voltage may be adjusted. The Model 12 is shipped with the float voltage preset to 14.1 volts. Do not disturb any electronic components when adjusting the float voltage. 1. Select the "Volts" position on the meter switch. 2. Remove the top cover to gain access to the float voltage adjustment control. 3. Disconnect the positive battery cable from the battery. 4. Using a small (1/8") screwdriver slowly rotate the float voltage adjustment control until the desired float voltage is displayed on the Model 12's digital meter. 5. Reconnect the positive cable to the battery. 6. Reinstall the Model 12's top cover and tighten the cover screws. The float voltage will normally be within .1 volts of the open battery voltage.

**OPERATION:** The Model 12 charge controller utilizes pulse width modulation to charge batteries quickly without over charging. Operation is fully automatic. The controller will charge the battery to the float voltage and then maintain the float voltage. The green float led will light when the battery float voltage is reached. At night the reverse flow schottky diode prevents battery discharge. The digital meter displays battery volts or charge current.

**Equalization:** A manual battery equalization switch is located on the bottom of the controller. Activating the equalization switch connects the PV source directly to the battery and lights the red equalization led. Follow the battery manufactures recommendations when equalizing batteries. Use extreme caution when equalizing batteries.

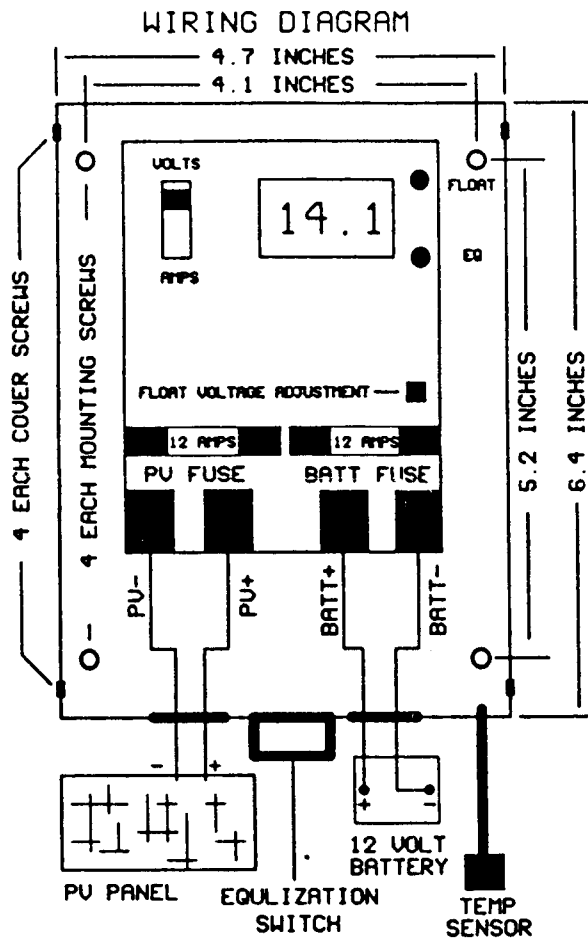
**Trouble Shooting:** If the Model 12 fails to operate properly check the PV and battery fuses. Replace open fuses with the same type and rating. Tighten all wire connections. Repair or replace any damaged wiring. Maintain batteries as required.

**MAINTENANCE:** Annally tighten all connections. Clean the Model 12 with a damp cloth as required. Operate the meter switch weekly.

**WARRANTY:** The Model 12 is warranted to the original owner for FIVE years from date of purchase. If the charge controller fails to preform properly during the warranty period, return the Model 12, with a copy of the original sales receipt and return shipping charges of \$4.00 included, to B.Z. PRODUCTS, INC. for repair or replacement. This warranty excludes misuse, abuse, improper operation and physical damage.

SPECIFICATIONS:

Charge Current	12 amps max	Digital Meter	.5" display
Surge Current	20 amps max	DC Volts	0-99.9 volts $\pm 1.5\%$
Array Voltage	25 vdc max	DC Amps	0-99.9 amps $\pm 1.5\%$
Surge Volts	60 vdc max	Temp. Compensation	-3mv/ $^{\circ}$ C/cell
Min Voltage	9 vdc	Efficiency	>95% nom
Operating Temp.	-20 to +50 $^{\circ}$ C	Storage Temp.	-30 to +70 $^{\circ}$ C
Float Voltage	12.5~15.5 vdc	Weight	1 lb.
Operating Current	.02 amps nom	Regulation	$\pm 0.05$ vdc
PV Fuse	12 amp AGC	Battery Fuse	12 amp AGC
Wire Size	#14~#6 AWG	Mounting	4 ea #6 screws
Wiring Access	.5" conduit	Reverse Current	.005 amps max
Battery Capacity	100 AH Min.	Size	4.7"x 6.4"x 1.5"



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# WIRING DIAGRAM

