INSTRUCTION MANUAL

BatteryMINDer® SCC180 Solar Controller / Charger Maintainer Desulfator with Temperature Sensing

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READ AND SAVE THESE INSTRUCTIONS

Rev. B-073108 P/N VDCSCC180-MNL

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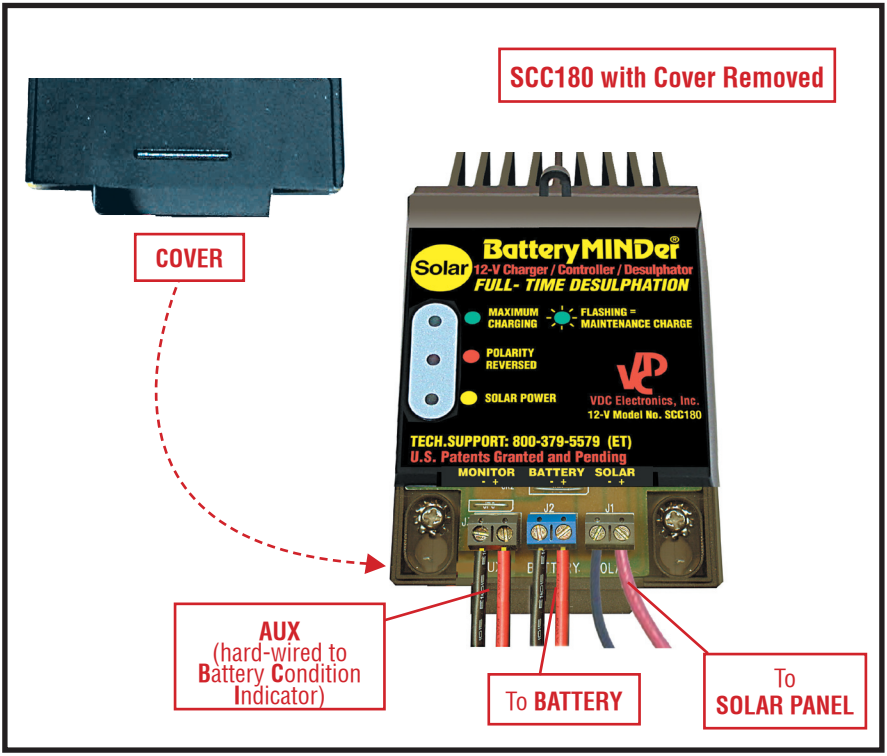


Please read these simple instructions before making any attempt to permanently or temporarily installing your SCC180 controller.

OVERVIEW

Note: Your battery(s) need to be in "good" condition to gain the full benefits from your BatteryMINDer Solar maintenance charger–desulfator system. By "good" we mean no shorted cells, and a "rested" voltage of each battery = /> 12 volts*. When able to test your batteries with a hydrometer, do so only after fully charging them and waiting at least overnight before testing for specific gravity level. If your readings indicate battery is holding a charge equal to only 1125 (1.125 s.g.) or only 2 balls floating (in a 4 ball type hydrometer) or just 12.25 volts (when tested with a digital voltmeter), your batteries should first be desulphated with a 120 Vac input type charger-desulfator. Once your batteries are properly desulphated your solar charging system will be able to keep them desulphated and fully charged for years to come.

* "RESTED" - see page 6

Solar Controller must be mounted in an area where it can be easily seen, protected from the elements (direct rainfall), and bright sunlight (where it would be difficult to see the 3 LED status indicators). Do not attempt to extend or replace (substitute) the quick connect-disconnect battery cables supplied with your system, as it is important the controller be in the same general temperature environment as the battery(s). Use the already attached Velcro adhesive pad to either temporally or permanently mount the controller. This will allow you to change its location, should you ever wish to, without leaving holes behind. You may also choose to use the screw holes provided.

Connect output wires from your solar panels to solar controller by sliding terminal cover on controller (see picture on left) to expose terminals beneath. Be careful to observe correct polarity.

Connect cord set (supplied) to battery clamps or directly to terminals (depends on battery type) Observe polarity indications on ring end of wires: **RED** = ✚ (positive) **BLACK**/**BLUE** = ━ (negative).

Solar Controller has three (3) separate LED status indicators: They are:

YELLOW = Solar Power - Lit when sufficient sunlight is available to charge/maintain/desulphate battery(s)

RED = Polarity Reversed (Battery only) If lit **RED**, reverse battery connector wires to battery.

GREEN = Battery Charge If lit (solid) battery is being charged-desulphated. If it blinks (flashes) battery is being maintained and desulphated (if required).

IF NO LEDs ARE LIT, SOLAR OUTPUT IS NOT SUFFICIENT TO ALLOW ANY FUNCTIONS TO OCCUR. YOU MUST WAIT FOR ADDITIONAL SOLAR OUTPUT TO OCCUR, BEFORE ANY ACTION CAN TAKE PLACE.

Note: Never try to use your SCC180 solar controller with any solar panels in excess of a 200 watt maximum rating. Doing so will burn out your unit and void your FIVE (5) year warranty and ONE (1) year Guarantee.

Frequently Asked QUESTIONS

Q: Can the Solar BatteryMINDer be used to charge, maintain and desulphate any size or type lead acid 12-volt battery such as sealed gel, agm, deep cycle, marine, maintenance free electrolyte?
A: YES, BatteryMINDer can charge, maintain and desulphate any type size lead acid based battery, regardless of construction or brand. If possible, always charge your battery(s) to full capacity using a plug-in type 120 Vac input high output charger, before connecting it to your solar maintenance charger.

Q: Can BatteryMINDer be used to maintain and desulphate more than one battery at a time?
A: YES, but remember the limitation of the solar panel will determine how much current output your Solar BatteryMINDer can supply to the battery. See our definition of a "good" battery in instructions for the BatteryMINDer SCC180 solar maintenance charger-desulfator.

Q: Why do the solar LED indicators turn off and then suddenly turn on seconds later?
A: When the sun goes behind a cloud the solar controller shuts down, in order to prevent the battery from being discharged due to low or no solar energy. As soon as sufficient solar energy is detected by the solar controller, the LED indicators turn on again and unit resumes its function as a charger-maintainer-desulphator.

Q: Why doesn't the **GREEN** LED start blinking immediately after low solar shut off, when just before the LEDs turned off, the **GREEN** LED was blinking?
A: For the **GREEN** charge power LED to blink unit must first charge battery to approximately 14.2-volts. Once it reaches this voltage the unit automatically switches to a lower float-maintenance level where it holds the battery's voltage at approximately 13.4-volts. For the **GREEN** LED to start blinking the unit must first charge the battery again to the 14-volt level. This can take from several minutes to several hours, depending on battery size and the amount of solar energy hitting the solar panel.

Battery Condition Indicator (BCI)

Your BCI will give you a quick and accurate indication of your battery(s) state of charge-condition. By properly using your BCI you can determine whether your battery needs to be charged, is not holding its charge or needs to be desulphated. This is what you must do if you expect accurate-helpful results:

ALWAYS test your battery only after it has been charged as fully as possible with a high power charger (5 -10 Amp rated) and left "rested" for 10 to 24 hours*. If you don't follow these directives you will obtain information that is inaccurate or down right misleading. Take your time and do it right and your battery(s) will reap the benefits and so will your pocketbook.

* "Rested" means a charged battery that has not been recharged or discharged for a minimum of 10 hours and has had no load attached to it during this time period.

BCI Installation

Turn engine and ALL accessories off. Carefully think of the best location on or near your battery to locate your BCI so it can be easily seen and read. Clean surface you plan to attach BCI to using an alcohol cleaning pad.

Attach the ring terminal on the **RED** wire of your BCI to the (+) Positive clamp on your battery.
Attach the ring terminal on the **BLACK** wire of your BCI to the (-) Negative clamp on your battery.

TESTING BATTERY

(Engine and ALL loads must be off for accurate readings) Remember, only test a fully charged battery and only after it has "rested"* for 10 hours minimum.

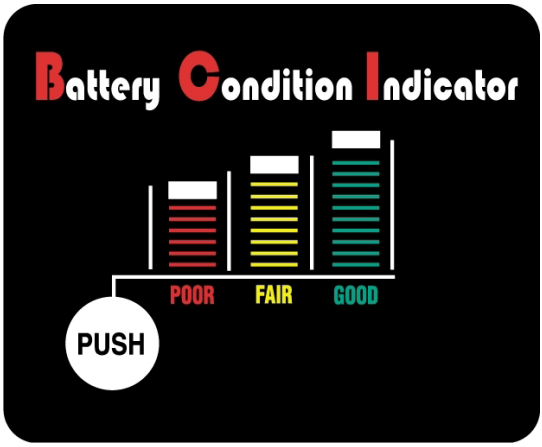
Press the area on the face of your BCI in raised area marked PUSH.

If all three (3) LEDs light (**RED**, **YELLOW** and **GREEN**) your battery is "good" = fully charged = 12.8 – 13.2 volts

If only the **RED** and **YELLOW** LEDs light your battery is "fair" = 11.8 – 12.7-volts

If only the **RED** LED lights your battery is in "poor" condition (11.2 – 11.7-volts. Battery needs to be desulphated fully before it can be further evaluated to determine if it can be returned to "good" condition.

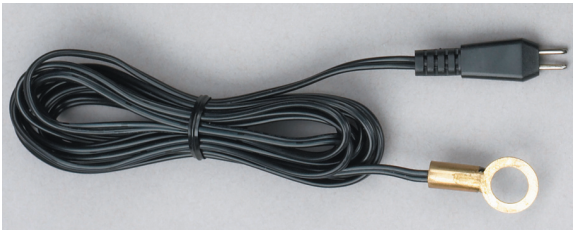
WHEN NO LEDs are lit, battery can be considered "DEAD", unlikely able to be restored. AGAIN, this can only be accurately determined if you have correctly allowed your battery to "rest"* after first having fully charged it as indicated above.
IMPORTANT NOTE: Fused lead (located on positive lead of battery connector): ATC-3 blade type 3 amp rated. DO NOT ATTEMPT TO BYPASS OR REPLACE WITH HIGHER RATED FUSE; SERIOUS DAMAGE WILL OCCUR.



INSTRUCTIONS TEMPERATURE SENSOR Type: ABS-248 (At-the-Battery Sensor) (OPTIONAL)

If battery is being charged or maintained in temperatures as low as 32°F to a high of 125°F this sensor must be used.

Congratulations on purchasing the most advanced charger-maintainer-desulphator conditioner on the market today. Read you manual carefully to understand all of its features. If you purchased the optional At-the-Battery Temperature Sensor, please read and fully understand all of the following before beginning your installation.



Do NOT modify by extending or shortening the extension cord.
Your first choice should be to connect it to the positive (+) or Negative (-) post (clamp or screw) of the battery. This is the best location to sense the temperature of the battery.

The second choice is to place it as close to the battery as possible. Attachment of the sensor to the side or top of battery is also a possible option, under the right circumstances. Be careful to ensure it will not come loose in service.

Finally, if placing the sensor on the battery in not practical, place it where the ambient temperature the battery is exposed to (surrounded by) can be sensed. When properly installed on the battery, your charger is set to provide your battery with what it needs to out-live and out-perform any similar battery used in the same application-conditions, by a factor of two (2).
Temperature has a direct effect on the life of a battery. The design life of the battery is based on an average annual temperature of 25°C (77°F). As the temperature increases above 25°C (77°F), the life of the battery decreases. The chart on the next page shows the effects of temperature.

Effects of Temperature on Battery Life*		
Maximum Annual Average Battery Temperature	Maximum Battery Temperature	Percent Reduction in Battery Life
25°C (77°F)	50°C (122°F)	0%
30°C (86°F)	50°C (122°F)	30%
35°C (95°F)	50°C (122°F)	50%
40°C (104°F)	50°C (122°F)	66%
45°C (113°F)	50°C (122°F)	75%
50°C (122°F)	50°C (122°F)	83%
25°C (77°F)	50°C (122°F)	0%

For example: If a battery's design life is 10 years at 25°C (77°F), but the average battery temperature is 35°C (95°F), the life of the battery will be only 5 years a 50% decrease.
*GNB Industrial Power, A Division of Exide Technologies, Section 92.30 Part No. Z99-Mar/Sep I&O REV 10/01

The chart below shows the need to regulate the output voltage of the charger to ensure against over or under charging your battery over a wide range of temperatures. Using your At-the-Battery Sensor will accomplish this better than any other known method.

AGM Charge and Float Voltages at Various Temperature Ranges**					
Temp °F	Charge		Float		Temp °C
	Optimum	Maximum	Optimum	Maximum	
≥120	13.60	13.90	12.80	13.00	49
110 – 120	13.80	14.10	12.90	13.20	43 – 49
100 -110	13.90	14.20	13.00	13.30	38 – 43
90 – 100	14.00	14.30	13.10	13.40	32 – 38
80 – 90	14.10	14.40	13.20	13.50	27 – 32
70 – 80	14.30	14.60	13.40	13.70	21 – 27
60 – 70	14.45	14.75	13.55	13.85	16 - 21
50 – 60	14.60	14.90	13.70	14.00	10 - 16
40 – 50	14.80	15.10	13.90	14.20	4 - 10
≤40	15.10	15.40	14.20	14.50	4

**East Penn Technical Manual of Valve-Regulated Lead-Acid (VRLA) Absorbed Glass Mat (AGM) Batteries, E.P.M. Form No. 0139 Rev. 3/04
Note: The above chart shows the Charge and Float voltage ranges v. temperature for sealed 24-Volt AGM type batteries. Values will differ for sealed Gel or Flooded (filler cap) or maintenance-free types.

Gel Charge and Float Voltages at Various Temperature Ranges**					
Temp °F	Charge		Float		Temp °C
	Optimum	Maximum	Optimum	Maximum	
≥120	13.00	13.30	12.80	13.00	49
110 – 120	13.20	13.50	12.90	13.20	44 – 48
100 -109	13.30	13.60	13.00	13.30	38 – 43
90 – 99	13.40	13.70	13.10	13.40	32 – 37
80 – 89	13.50	13.80	13.20	13.50	27 – 31
70 – 79	13.70	14.00	13.40	13.70	21 – 26
60 – 69	13.85	14.15	13.55	13.85	16 - 20
50 – 59	14.00	14.30	13.70	14.00	10 - 15
40 – 49	14.20	14.50	13.90	14.20	5 - 9
≤39	14.50	14.80	14.20	14.50	4

**East Penn Technical Manual of Valve-Regulated Lead-Acid (VRLA) Gelled Electrolyte (gel), E.P.M. Form No. 0139 Rev. 3/04

Note: This chart shows the Charge and Float voltage ranges v. temperature for sealed 24-Volt Gel type batteries. Values will differ for sealed AGM, Flooded (filler cap) or maintenance-free types Manifold cover(s).

Wet Cell Charge And Float Voltages at Various Temperature Ranges			
Temp °F	Optimum		Temp °C
	Charge	Float	
≥120	12.5	12.6	49
110 – 120	13.6	12.7	44 – 48
100 -109	13.8	12.9	38 – 43
90 – 99	14.0	13.1	32 – 37
80 – 89	14.2	13.3	27 – 31
70 – 79	14.4	13.5	21 – 26
60 – 69	14.6	13.7	16 - 20
50 – 59	14.8	13.9	10 - 15
40 – 49	15.0	14.1	5 - 9
≤39	15.2	14.3	4

The accuracy of the above voltages should be +/- 0.2 volts.

FOR REPAIR OR REPLACEMENT

All returns must be authorized by VDC Electronics.

In the event that you believe your product may be defective, you MUST speak to a VDC Electronics technician at **1-800-379-5579 x206** (ET) before proceeding further.

NOTES

MODEL BatteryMINDer SCC180

SERIAL NUMBER _____

PLACE OF PURCHASE _____

DATE OF PURCHASE _____

ALL returns must be authorized by VDC Electronics after speaking to a VDC Electronics technician at 800-379-5579 x206 (ET). Please see our "Repair or Replacement" section of this manual for additional information.

BatteryMINDer One-Year 100% Unconditional Money-Back Guarantee

This BatteryMINDer product is guaranteed to perform as claimed or WE will refund your full purchase price, including all taxes, shipping or handling cost applicable to the **purchase**.

Unit must be returned freight prepaid together with Proof of Purchase directly to VDC Electronics, Inc., NOT TO THE DEALER FROM WHICH IT WAS PURCHASED.

BatteryMINDer Five-Year Limited Warranty

VDC Electronics, Inc. warrants this product for FIVE years from date of purchase at retail against defective material or workmanship and will be repaired or replaced at no charge. We make no warranty other than this limited warranty and expressly exclude any implied warranty including any warranty for consequential damages. This limited warranty is not transferable.

Unit must be returned freight prepaid together with Proof of Purchase directly to VDC Electronics, Inc., NOT TO THE DEALER FROM WHICH IT WAS PURCHASED.

IMPORTANT NOTICE

BatteryMINDer® Five-Year Warranty Registration Reminder
Online Registration:
http://www.batteryminders.com/register

Please register your unit online within 10 days of purchase. Due to the ever-changing technology associated with this BatteryMINDer® unit, we may be unable to keep you apprised of significant upgrades, changes, etc. without your registration. The information you provide upon registration will be used to keep a record of your purchase and will assist in providing support should you ever need to contact our Technical Service department:
techsupport@vdcelectronics.com; 800-379-5579 x206 (ET).