Smart chemical chargers

User Manual

SCC-84B065E

Thank you for buying the marA Smart chemical chargers SCC-84B065E.
Read and understand the User Manual before operating the charger.
For questions regarding our chargers, view our comprehensive support information at www.mara.power.com/support.

IMPORTANT SAFTY INSTRUCTIONS READ BEFORE USE

PLEASE SAVE THIS USER MANUAL AND READ BEFORE EACH USE. This manual will explain how to use the charger safely and effectively. Please read and follow these instructions and precautions carefully.

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INTENDED USE

The Smart chemical chargers SCC-84B065E is innovative and advanced technology on the market, making each charge simple and easy. It is quite possibly the safest and most efficient charger you will ever use. The SCC-84B065E is designed for charging all types of 12V lead-acid and 12V lithium-ion batteries, including Wet , Gel, MF, CA , EFB, AGM ,and LIB batteries. It is suitable for charging battery capacities from 2 to 110 Amp-Hours and maintaining all battery sizes.

IMPORTANT SAFETY INSTRUCTIONS

1. SAVE THESE INSTRUCTIONS

1.1 SAVE THESE INSTRUCTIONS – This manual contains important safety and operating instructions.

1.2 Do not expose the charger to rain or snow.

1.3 Use of an attachment not recommended or sold by Schumacher® Electric Corporation may result in a risk of fire, electric shock or injury to persons.

1.4 To reduce the risk of damage to electric plug and cord, pull by the plug rather than the cord when disconnecting charger.

1.5 An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:

- The pins on plug of extension cord are the same number, size and shape as those of plug on charger.
- The extension cord is properly wired and in good electrical condition; and
- The wire size is large enough for AC ampere rating of charger, as specified in section 8.

1.6 Do not operate charger with damaged cord or plug – replace the cord or plug immediately.

1.7 Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.

1.8 Do not disassemble charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.

1.9 To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

1.10 WARNING: RISK OF EXPLOSIVE GASES.

1.11WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY

OPERATION. FOR THIS REASON, IT IS OF OUTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS EACH TIME YOU USE THE CHARGER.

1.12 To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary markings on these products and on the engine.

FCC INFORMATION

The Federal Communication Commission Radio Frequency Intererence Statement includes the following paragraph:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a

minimum distance of 20 centimeters between the radiator and your body.

2. PERSONAL SAFETY PRECAUTIONS

2.1 Consider having someone close enough by to come to your aid when you work near a lead-acid battery.
2.2 Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
2.3 Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
2.4 If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.
2.5 NEVER smoke or allow a spark or flame in vicinity of battery or engine.
2.6 Be extra cautious, to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
2.7 Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.
2.8 Use the charger for charging only 12V lead-acid or lithium ion LiFePO4 rechargeable batteries with rated capacity of 22-59Ah. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
2.9 NEVER charge a frozen battery.

3. PREPARING TO CHARGE

3.1 If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
3.2 Be sure area around battery is well ventilated while battery is being charged.
3.3 Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
3.4 Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. Do not overfill. For a battery without removable cell caps, such as valve regulated lead acid batteries, carefully follow manufacturer’s recharging instructions.

3.5 Study all battery manufacturer's specific precautions while charging and recommended rates of charge.

3.6 Determine voltage of battery by referring to car owner's manual and make sure that output voltage selector switch is set at correct voltage. If charger has adjustable charge rate, charge battery initially at lowest rate.

4. CHARGER LOCATION

4.1 Locate charger as far away from battery as DC cables permit.

4.2 Never place charger directly above battery being charged; gases from battery will corrode and damage charger.

4.3 Never allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.

4.4 Do not operate charger in a closed-in area or restrict ventilation in any way.

4.5 Do not set a battery on top of charger.

5. DC CONNECTION PRECAUTIONS

5.1 Connect and disconnect DC output clips only after setting any charger switches to "off" position and removing AC cord from electric outlet. Never allow clips to touch each other.

5.2 Attach clips to battery and chassis, as indicated in sections 6 and 7.

6. FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE

A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION. TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:

6.1 Position AC and DC cords to reduce risk of damage by hood, door, or moving engine part.

6.2 Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.

6.3 Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N,–) post.

6.4 Determine which post of battery is grounded (connected) to the chassis. If negative post
is grounded to chassis (as in most vehicles), see (6.5). If positive post is grounded to the chassis, see (6.6).

6.5 For negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to
POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (BLACK)

clip to
vehicle chassis or engine block away from battery. Do not connect clip to carburetor,
fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame
or engine block.

6.6 For positive-grounded vehicle, connect NEGATIVE (BLACK) clip from battery charger to NEGATIVE (NEG, N, –) ungrounded post of battery. Connect POSITIVE (RED) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.

6.7 When disconnecting charger, turn switches to off, disconnect AC cord, remove clip from vehicle chassis, and then remove clip from battery terminal.
See Operating Instructions for length of charge information. • 5 •

7. FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE

A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION. TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:

7.1 Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, –) post.

7.2 Attach at least a 24-inch-long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, –) battery post.

7.3 Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of battery.

7.4 Position yourself and free end of cable as far away from battery as possible – then connect NEGATIVE (BLACK) charger clip to free end of cable.

7.5 Do not face battery when making final connection.

7.6 When disconnecting charger, always do so in reverse sequence of connecting

7.7 procedure and break first connection while as far away from battery as practical.

7.8 A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

8. GROUNDING AND AC POWER CORD CONNECTIONS

8.1 This battery charger is for use on a nominal 120 volt circuit. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. The plug pins must fit the receptacle (outlet). Do not use with an ungrounded system.

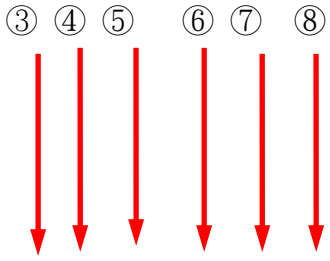
8.2 DANGER: Never alter the AC cord or plug provided – if it does not fit the outlet,

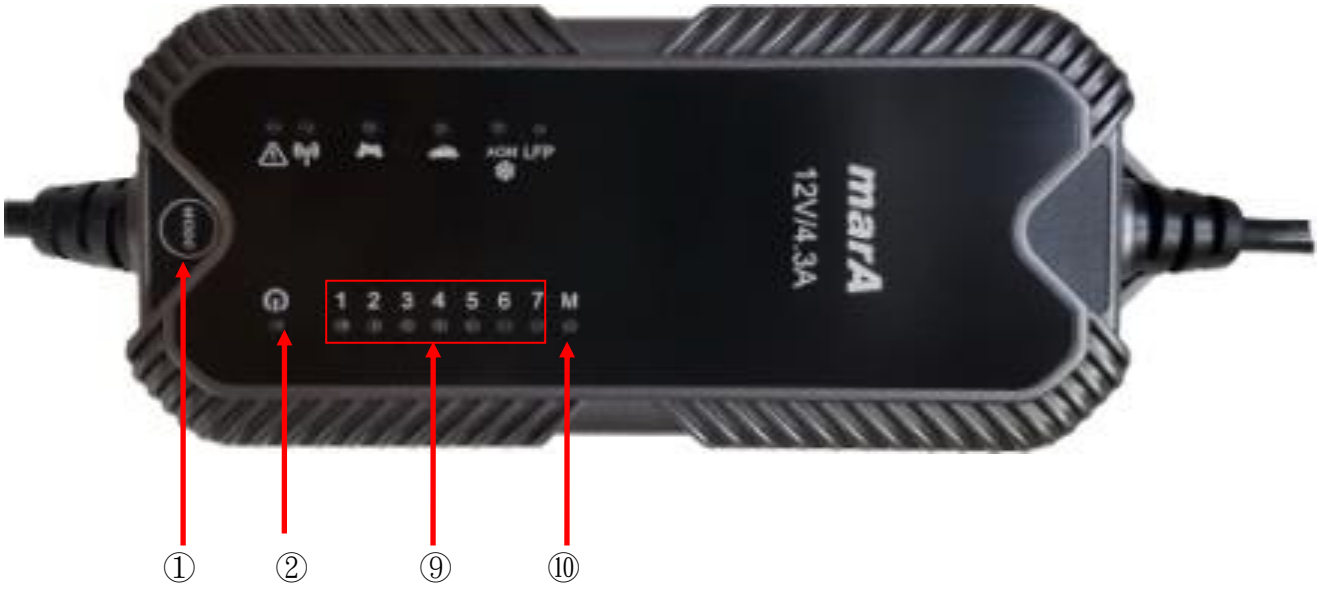
have a proper grounded outlet installed by a qualified electrician. An improper connection can result in a risk of an electric shock or electrocution. NOTE: Pursuant to Canadian Regulations, use of an adapter plug is not allowed in Canada. Use of an adapter plug in the United States is not recommended and should not be used.

8.3 USING AN EXTENSION CORD The use of an extension cord is not commended. If you must use an extension cord, follow these guidelines:

- Pins on plug of extension cord must be the same number, size, and shape as those of plug on charger.
- Ensure that the extension cord is properly wired and in good electrical condition.
- Wire size must be large enough for the AC ampere rating of charger, as specified below:

OVERVIEW





1. Mode Button
2. Power LED
3. Error LED
4. Bluetooth LED
5. Motor bike Battery Program
6. Car Battery Program
7. Snow/AGM program
8. LFP Battery program
9. Charging programs
10. Maintenance program

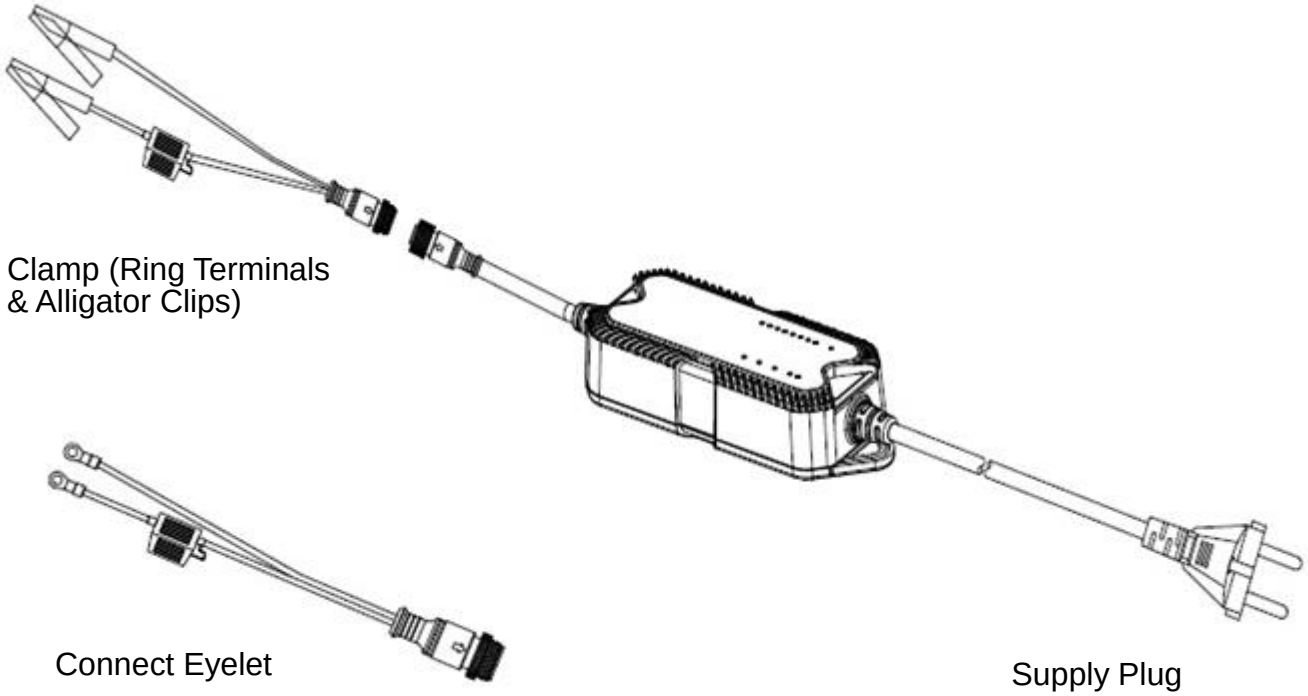
INCLUDE ACCESSORIES

Connect Eyelet
Clamp (Ring Terminals & Alligator Clips)

HOW TO CHARGE

1. Connect the charger to the wall socket. Power LED display flash green and continue with the next step.

2. Connect the charger to the battery .The power LED display steady green .Then charger has entered the standby mode. The error LED will indicate if the battery clamps are correctly connected. The reverse polarity protection will ensure that the battery or charger will not be damaged.
3. Press the MODE-button to select motor bike Battery Program or car battery program .Continue to press the MODE-button to combine charging program with charging options. ❄Snow/AGM program Press the MODE-button several times until the desired combination of charging program and options are lit.
4. Follow the 7-step display through the charging process. The battery is ready to start the engine when STEP 2 is lit. The battery is fully charged when STEP 7 is lit.
5. Stop charging at any time by disconnecting the mains cable from the wall socket.



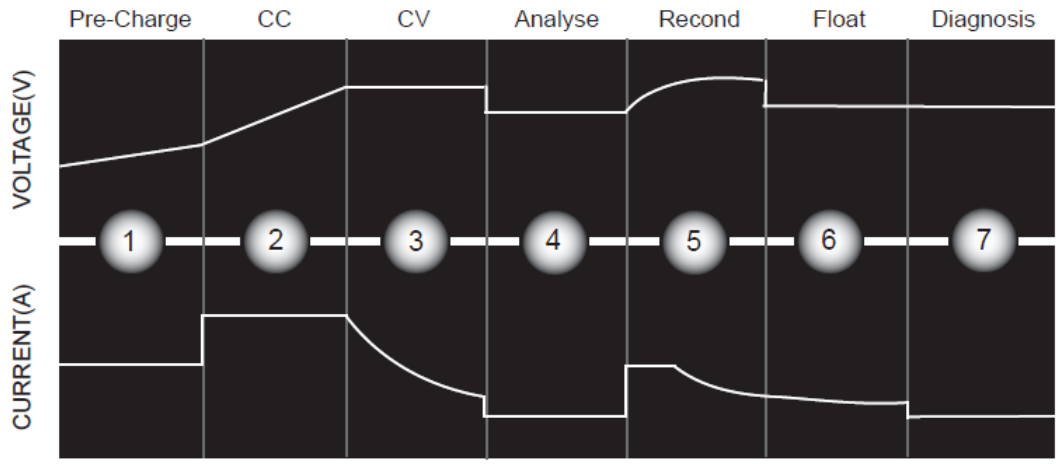
CHARGING MODES

The SCC-84B065E has 7 modes 12V Car , 12V SNOW/AGM, 12V motor bike, 12V LiFePO4. Some charge modes must be pressed and held for 3 seconds to enter the mode. These “Press and Hold” modes are advanced charging modes that require your full

attention before selecting. “Press and Hold” are It is important to understand the differences and purpose of each charge mode. Do not operate the charger until you confirm the appropriate charge mode for your battery. Below is a brief description:

Mode	Battery size (Ah)	Explanation
	1.2-14Ah	Small Battery 13.6 Volt max Current 0.8A For charging 12V lead-acid batteries .When selected, LED will light green.
	14-110Ah	Normal Battery 14.4 Volt max Current 4.3A For charging 12V lead-acid batteries. When selected, LED will light green.
 Snow/AGM	1.2-110Ah	Cold weather option 15 Volt max Current 4.3A For charging 12V batteries in cold temperatures below 50ºF (10ºC) or AGM batteries. When selected, LED will light green.
 LFP	14-110Ah	Normal Battery 14.4 Volt max Current 4.3A For charging 12V LiFePO4 batteries, When selected, LED will light green..

CHARGING STEPS



Step 1: Pre-Charge
Checks the battery's initial condition, including voltage, state-of-charge and health, to determine if the battery is stable before charging.
Step 2: CC (Constant Current)
Starts the charging process with maximum current until approximately 80% battery capacity .
Step 3: CV (Constant Voltage)
Charging with declining current to maximize up to 100% battery capacity .
Step 4: Analysis
Tests if the battery can hold charge.
Step 5: Recond
When analysis tests batteries low than 12V should be jump to "Recond" stage.
Step6: Float
Tests if the battery can hold charge. When analysis tests batteries high than 12V should be jump to "Float" current stage.
When batteries voltage drop less then 12.6V Jump to Float current stage.
Step 7:**Diagnosis**
When FC jump to Diagnosis the battery voltage is already fully charged state. The charger stops charging until FC voltage drops below 12.6V.

Step8:**Maintenance**
After the maintenance key is pressed, the battery capacity test is started until the remaining capacity of the watch battery in the LED position is displayed and battery is displayed and the battery is charged.

TECHNICAL SPECIFICATIONS

Input Voltage	100-240V AC,50-60Hz
Output Voltage	14.4~14.7V DC
Output Current	0.8A ~4.3A
Power capacity	1.2–100 Ah
Power	65w
Type of Charger	7 Step, fully automatic
Operation Temperature	-20~50℃(-4~122°F)
Insulation class	IP65
Battery types	All types of lead-acid batteries, Wet, Gel, MF, CA, EFB, AGM, LIB and LiFePO4 Battery & Li-ion Battery
Dimensions (LxWxH):	162x71.3x44.3mm(6.4x2.8. x1.7in)
Weight	0.51 kg (1.13 Pounds)
communication	Bluetooth (SCC-84B065E)

ERROR LED

⚠ If the error LED indication will red, check the following:

Troubleshooting :

CAUSE	How to do
No Battery	Check battery
Reverse Polarity	Check the connection
Battery voltage is too low	Check battery
Battery voltage is too high	Check Battery
Over temperature	Unplug the power , plug in again after cold down

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