

E-MAAX DC Charge Controller System Owner's Manual

Specifically, for use with GenMaax Alternator

Introduction

Thank you for choosing the E-Maax DC Smart Programmable external Charge Controller System

The E-MAAX is the most advanced charge control system available for 12 or 24 volt, N or P type marine alternators, and is the ideal choice for systems requiring precise voltage control for optimal battery charging especially lithium, A.G.M. and GEL battery types, that require this to ensure their longevity.

This technologically advanced system allows you the boat operator to control the GenMaax output from the press of a button without leaving the wheel. In practice creating an alternator output to fit the vessels multiple charging needs. Low-medium output under way and maximum when charging on the hook.

The remote panel will provide important information while the system is working, including charging voltage, alternator, battery temperatures and charging state.

To complement the E-Maax Regulator, Electromaax has developed hundreds of Serpentine Pulley Upgrade Kits available for most engine manufacturers. VISIT www.electromaax.com to find out more.



Canada

ELECTROMAAX
5552 KING STREET, BEAMSVILLE
ONTARIO, CANADA, L0R1B3
1-866-945-8801
International: 905-945-8800
WWW.ELECTROMAAX.COM

U.S.A

ELECTROMAAX
2045 Niagara Falls Blvd
Unit 9
NIAGARA FALLS, NY, 14304
1-866-945-8801
International: 905-945-8800
WWW.ELECTROMAAX.COM

Safety Issues

Before getting started with the installation process, we would like to offer the following safety guidelines to ensure optimal protection for the installer, the operator, and vessel occupants. Failure to follow these guidelines could result in injury or damage to your vessel's electrical system.

The following instructions are provided for use by experienced marine electrical installers. If you are not experienced with marine electrical system repair or installation, we recommend hiring a qualified electrician for installation.

1. Always disconnect your batteries and turn your battery switches to their "OFF" positions prior to commencing with work on the vessel's electrical system.
2. Remove any loose fitting clothing or jewelry which could become entangled with the engine or other moving mechanical systems.
3. Wear ANSI-approved safety glasses or other appropriate protective eye wear.
4. Ensure that the engine has cooled sufficiently before attempting to connect electrical equipment.
5. DO NOT install your high-output charging system without ensuring that your electrical wiring is of sufficient size to handle increased amperage loads.
6. Ensure that your work area is properly ventilated and that no fuels or flammable solvents are present in and around your work area.
7. DO NOT operate your charging system without proper fusing. Failure to do so could result in severe injury and/or damage or loss of your vessel.
8. DO NOT attempt to install or repair electrical system components while under the influence of alcohol or medications that could impair judgement or agility.
9. Use the proper tool for the job. Use of improper tools could result in damage or injury. Take time to read the manual. Failure to do so could result in damage or injury, and could affect warranty protection.

NOTE

Electromaax E-MAAX DC Charge Control System is designed to be used in high amperage, high-demand marine electrical systems. We recommend that all system installations adhere to American Boat & Yacht Council (ABYC) standards for fusing, wire gauge and additional recommendations for safe marine electrical system operations.

Failure to meet those standards may result in reduced system efficiency, danger to boater safety, and potential damage to your boat's electrical equipment.

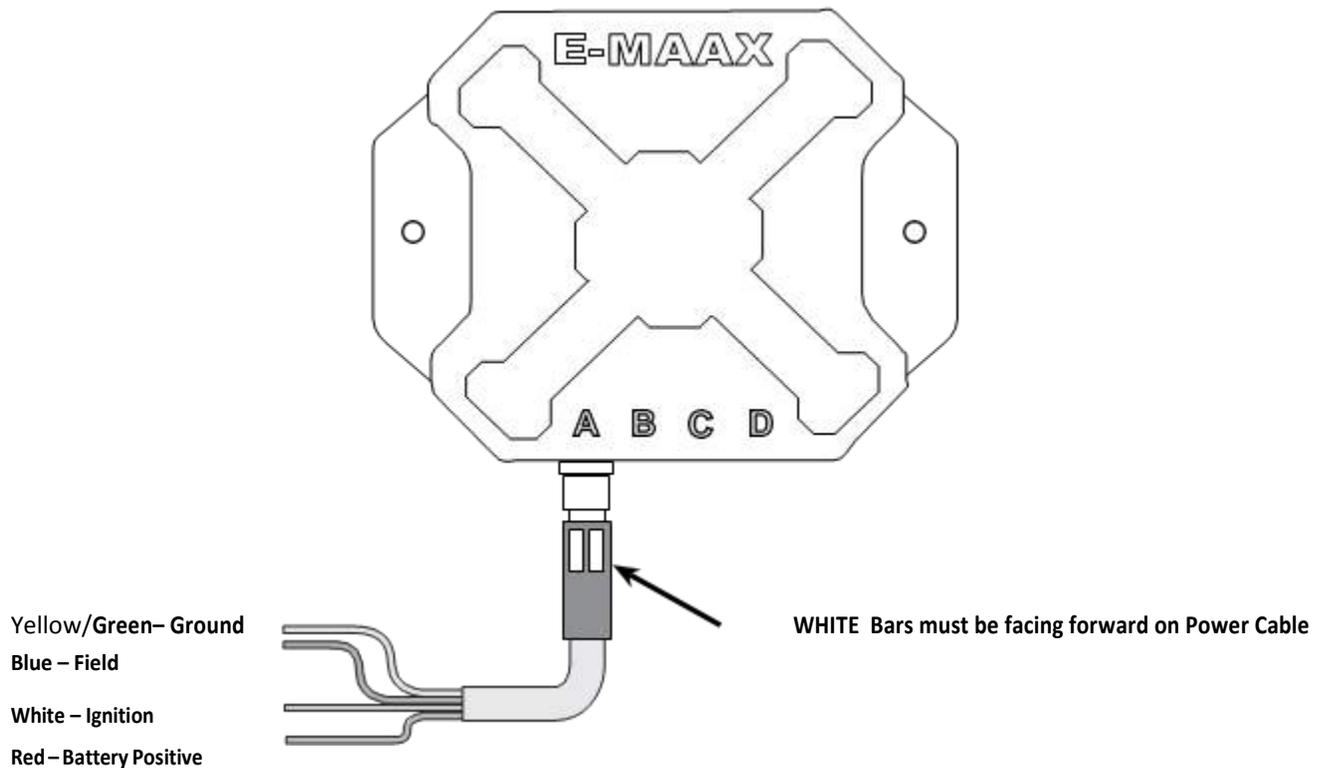
If you are not experienced with marine electrical system installation, we strongly recommend the use of a qualified marine electrical technician.

NOTES:

Installation – CPU

The central component of the E-MAAX regulation system is its CPU module. The CPU houses the regulator's core processor and provides connectors to integrate the regulator with the system's remote panel and sensing bugs. To install the CPU, locate a dry, well-ventilated location to install the CPU module. The footprint of the CPU module measures 5" by 6" (12cm x 15cm). A flange at the bottom of the CPU module enclosure enables the module to be mounted to a flat surface like a stringer or bulkhead.

NOTE: The twist lock connector MUST be oriented so the two white bars on the cable are at the top of the regulator. See image below.



Basic CPU Wiring

The CPU module includes a 10-foot primary wiring cable that includes the wiring required to supply power to the regulator, as well as an output wire to control the alternator. This primary cable is connected to the terminal labeled “A” on the front face of the CPU module. Four wires located at the other end of the cable are connected to the vessel’s charging system as described below:

1. Ground (Yellow/Green) – Must be connected between the Ground Terminal on the CPU and system ground. Typical connection point includes the ground post of a battery being charged, or the vessel’s primary ground bus.



2. Power (Red) – Must be connected between the Power Terminal on the CPU and a constant source of battery voltage (12 volts or 24 volts, depending on your electrical system’s voltage). Connect to your alternator’s positive output post, or the positive post of the battery bank connected directly to the alternator.



3. Field (Blue) – The field wire provides a source of excitation to the alternator’s rotor/stator and delivers a modulated field current which controls alternator output and maximum charging voltage. The (Blue) field wire connects to alternator’s external field terminal. (See your alternator’s installation manual to determine the location of the alternator’s field terminal connection). The E-MAAX can be obtained in either P-type or N-type configurations, or in 12-volt or 24-volt configurations to match your system voltage and alternator’s field polarity.



4. Ignition (White) – Connects to the ON side of the engine ignition switch which is only active when the switch in the ON position. This wire can also be connected to a switch that’s activated by engine oil pressure. This circuit must see zero volts when the engine is shut down, and battery voltage when the ignition is on and the engine is running.

We cannot show you where the Ignition connects to your engine – as each engine is unique and we by law and our insurance will not allow us to advise on this

If you are not confident that you know which field polarity your alternator is wired for, contact an experienced marine electrical technician.

Remote Panel Installation

The E-MAAX Remote Panel provides important operational data while the regulator is active and provides the ability to modify a large number of regulator functions, including programming for battery type, advanced time and voltage adjustment for each charging stage, time delay, soft ramp duration, field output management and a wide range of additional functions. The use and function of these adjustments will be discussed later in the manual.



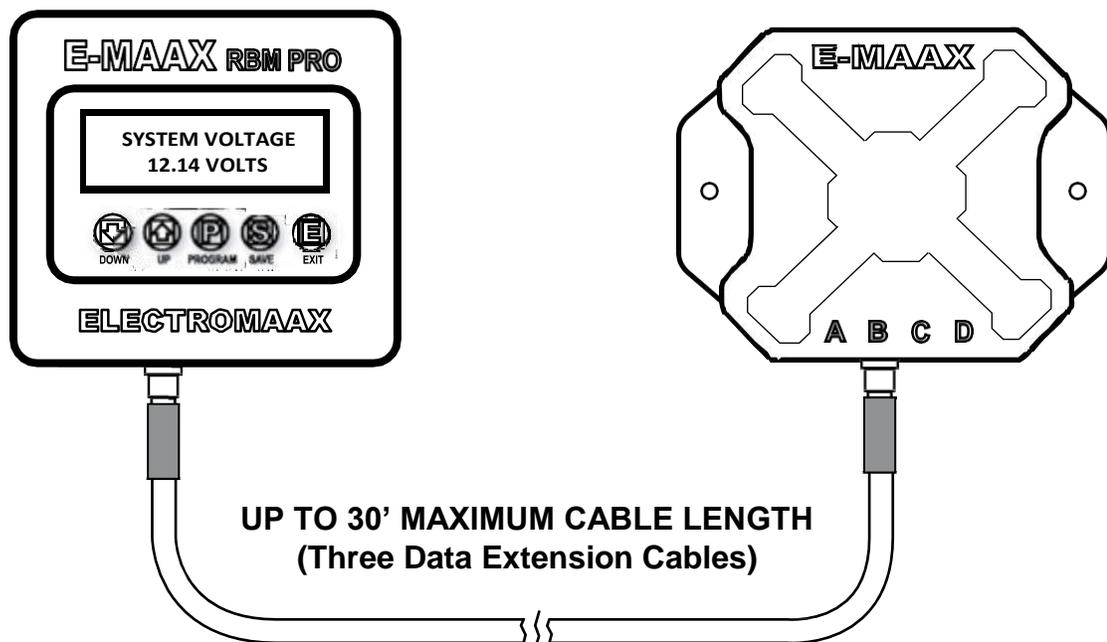
Panel Installation

The Remote Panel is engineered to be surface mounted on any flat interior wall or bulkhead.

The Remote Panel enclosure measures approximately 5" (12cm) square, and includes a rear twist-lock connector, remove the cover plate to access 4 holes for mounting to the wall panel. A 10-foot data cable (with positive, ground and data wires) is included with the Remote Panel. Additional data extension cables can be added in a chain to create up to a 30-foot reach between the Remote Panel and the CPU module. Cables feature male and female twist lock terminals at each end to ensure that wiring connections are properly matched between each E-MAAX component.

We recommend installing the Remote Panel at the navigation station or close to other battery monitors or electrical control panels in the cabin, where it can be easily seen and used. The Remote Panel is equipped with a 32-digit backlit LCD with automatic ambient light adjustment, so special lighting is not required at the panel's location.

Once the Remote Panel is located and affixed to a bulkhead or wall panel, the cable can be run to the CPU. Connect the Remote Panel to the CPU terminal "B" as indicated in the illustration shown below.



Sensor Module Installation

One of the most unique and attractive aspects of the E-MAAX charge controller is its ability to integrate a variety of remote sensors which can send and receive information and specific commands to the system's CPU module. The sensors currently available include alternator temperature sensors and battery temperature sensors. Each sensor can communicate with the CPU and is provided with a unique address within the system that identifies its function.

The most commonly required sensors are alternator and battery temperature sensor.

Alternator Temperature Sensor

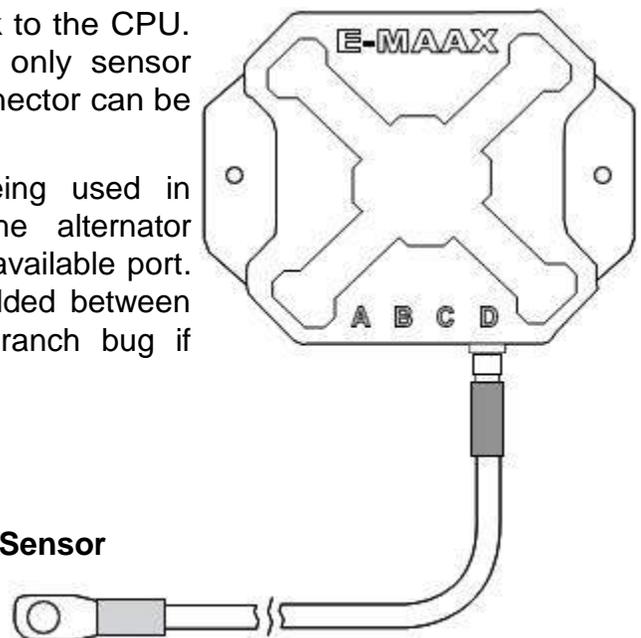
The alternator temperature sensor enables the CPU to monitor the ambient temperature at the alternator. If the alternator is operating in a temperature range that's below a specific heat level, the regulator will maintain the highest level of charging required to ensure safe battery charging. If the ambient temperature at the alternator exceeds the set heat threshold, the regulator will begin to reduce field output in small increments to allow the alternator to reduce output and cool to safe working temperature. Up to two alternator temperature sensors can be used.

If the alternator temperature drops below that threshold, the regulator will automatically increase output until the threshold is met again. If the alternator continues to increase in temperature, the regulator will reduce output by approximately 50 percent.

To install the alternator temperature sensor:

1. Connect the alternator temperature sensor to the alternator's frame. Typically, the sensor can be connected via a threaded hole located on the alternator's frame or mounting foot. (See your alternator's installation manual for recommendations.)
2. Run the temperature sensor data cable back to the CPU. If an alternator temperature sensor is the only sensor being used, the sensor cable's twist lock connector can be connected directly any port on the CPU.
3. If the alternator temperature sensor is being used in conjunction with one or more sensor, the alternator temperature sensor can be connected to any available port. An additional data extension cable can be added between the temperature sensor and the CPU or branch bug if distance requires additional cable length.

AT Temp Sensor



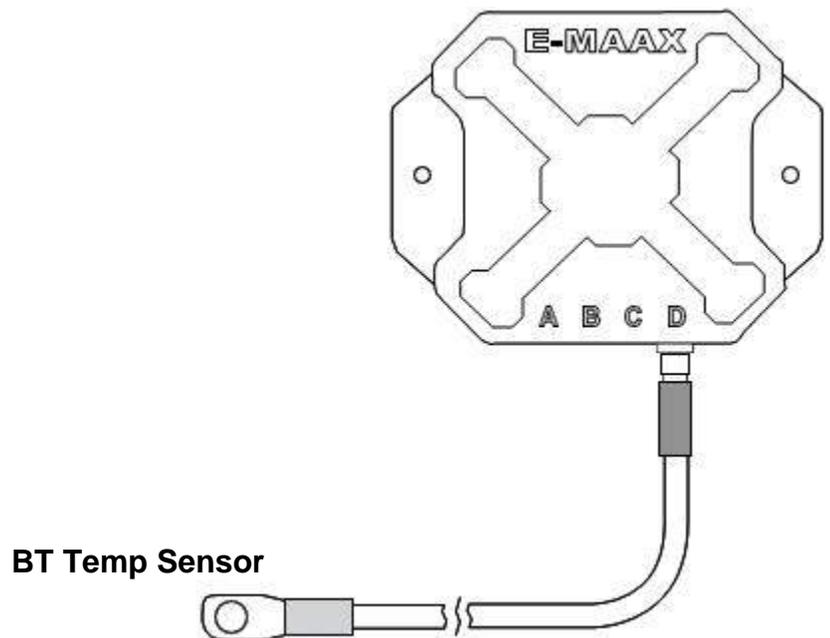
Battery Temperature Sensor

Many battery technologies, due to their sealed construction, are unable to reduce pressure via gassing. The E-MAAX regulator provides the ability to monitor battery temperature by connecting a temperature sensor to the outside of the battery. The regulator features a logarithm which allows the system to automatically increase or decrease charging voltage to compensate for battery temperature to minimize conditions that would cause pressure to develop within the battery.

By using the battery temperature sensor with the E-MAAX regulator, it will ensure that batteries are optimally charged with minimal stress or wear on the batteries. Should a thermal runaway occur at the battery, the temperature sensor enables the E-MAAX to automatically shut down the alternator/regulator and discontinue charging.

To install the battery temperature sensor:

1. Install the battery temperature sensor on the battery. The sensor is designed to attach to the negative post on the battery. If the bank includes multiple batteries in the bank, the battery temperature sensor should be installed on the battery closest to the center of the battery bank.
2. If your regulator system is set up to operate with a single temperature sensor, the battery temperature sensor's twist lock cable can be connected directly to any terminal on the E-MAAX CPU. (Note: The E-MAAX data circuit requires nearly no amperage to enable the temperature sensor to monitor and transmit data regarding battery temperature. If batteries are further from the CPU than the single cable is able to reach, additional data cables can be chained together to extend the reach of the sensor.)
3. If the battery temperature sensor is used in conjunction with an alternator temperature sensor or any other available E-MAAX sensor, the battery temperature sensor can be connected to any port available.



Regulator Operation

Once the regulator CPU, Remote Panel and appropriate sensors are connected, and all wiring connections are properly installed, the regulator is ready for use:

To test the system:

1. Reconnect batteries and turn battery switches to the ON position.
2. Turn the IGNITION switch to the ON Position. The Remote Panel will display Acquiring System Data, indicating that it is polling all of the E-MAAX system components and registering their addresses within the system. This may take up to a couple of seconds depending on the number of components installed.
3. The display will indicate the system's model designation.
4. The display will indicate the revision of the regulator's current software.
5. The display will indicate "STARTING UP" with a single bar at the far left side of the display. This will indicate that the regulator is in the pre-charging delay mode.

At this point, the ignition switch can be turned to the START position, and the engine started.

NOTE: If the regulator's (White) ignition wire is connected to an oil pressure switch, it may be necessary to start the engine to activate the regulator and Remote Panel display.

With the engine running, the regulator will enter the start delay mode, which delays alternator excitation until the engine and belts have had time to reach operating temperature before alternator load is applied. At the end of the start delay, the regulator will slowly ramp up excitation current which will slowly increase alternator output. Both start delay and soft ramp durations can be adjusted in the regulators programming mode.

During this time, the regulator's Remote Panel display will indicate the progress of the charging system. As the charge advances through the various regulation stages, the bars on the display and also the charge mode will illuminate from left to right. In other words, a couple of illuminated bars at the left indicates that the system is early into the charge. As the batteries become more fully charged, the number of illuminated bars increases.



At any point during the charge, the user can access additional data by using the UP or DOWN arrow buttons on the remote display. Information on the display includes:

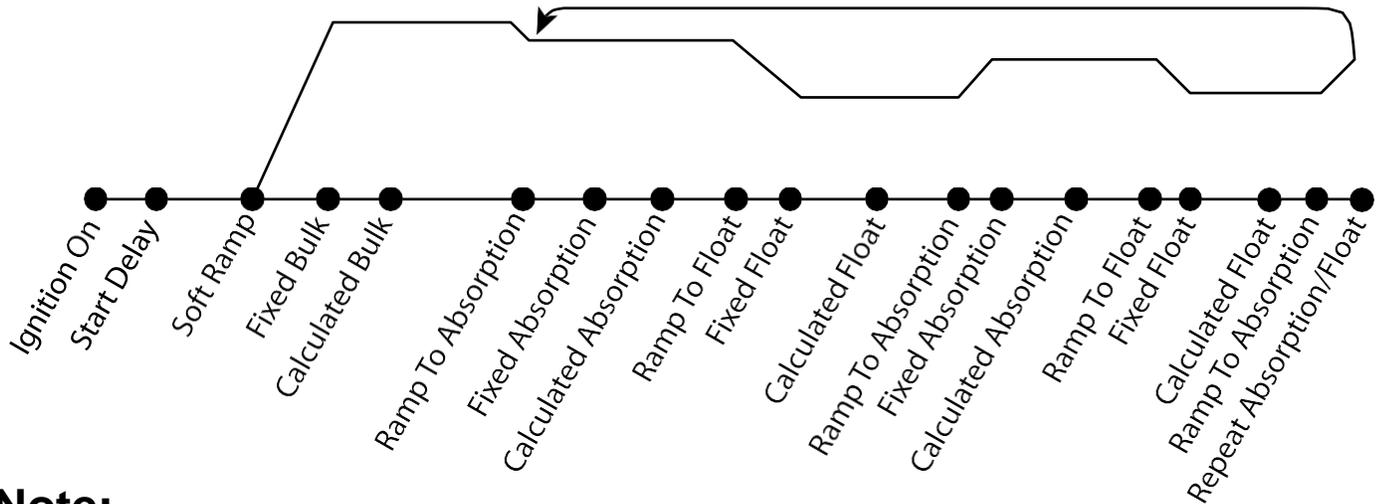
- System Voltage
- Alternator #1 Temperature
- Battery #1 Temperature
- Battery #2 Temperature
- Charge State

NOTE: In addition to the Remote Panel display, the E-MAAX system provides a green illuminated LED which is activated when the regulator CPU is in operation.

Regulator Operation (Continued)

Once the regulator has advanced to its bulk charging stage, the CPU will maintain its highest safe field output. At the end of its user adjustable fixed bulk time period, the CPU will begin to measure and compare the maximum system voltage reached and the field width required to maintain target voltage. Once target voltage is reached and the field width required to maintain target voltage falls below a minimum percentage, the regulator will advance to the absorption voltage stage.

- At the fixed absorption stage, the regulator will maintain absorption voltage. At the end of the fixed time period, the regulator will enter the calculated absorption stage.
- When the absorption target voltage is maintained and the field width required to maintain target voltage falls below a minimum percentage, the regulator will ramp to fixed float voltage.
- At the end of the fixed float voltage period, the regulator will enter the calculated float voltage stage. If, at the calculated float stage, the alternator and regulator are able to maintain float target voltage, the regulator will stay in float for as long as criteria is met.
- If, on the other hand, the alternator cannot maintain float target voltage, or the regulator requires a greater field width percentage than threshold to maintain float target voltage, the regulator will revert to the bulk stage of the charge profile.
- The regulator will continue to cycle between absorption and float stages for the remainder of the charge cycle, or until the engine is shut down. (See illustration below for a graphic representation of the E-MAAX charge cycle.)



Note:

While the charge profile shown is common to all battery technologies (other than lithium batteries, see notes in programming instructions on the next page), voltages, fixed time periods, temperature correction slopes and other details may vary. If you are unsure about the specific charging requirements of your vessel's batteries, contact your battery manufacturer. The values provided in the preset programs based on battery type discussed in the next section were determined based on a cross section of products from a range of manufacturers.

We strongly recommend that you seek advice from your battery's manufacturer to determine if their recommended charging values are different from those provided in our preset programs.

Regulator Programming

The E-MAAX regulator is pre-programmed at the factory with a default setting that's intended to provide a safe charge for most commonly used marine battery types. While safe, it may not provide as effective a charge for some types of batteries as it does for others. When used in conjunction with the Remote Panel, the E-MAAX CPU can be set for one of seven selectable battery programs.

Note: To protect against accidental access into the programming mode, the E-MAAX requires that the regulator's PROGRAM button and SAVE button must be held down together when the regulator is activated. To access the programming mode:

1. Press and hold the PROGRAM button and SAVE button down at the same time.
2. The Remote Panel display will read "ENTERED CPU PROGRAMMING".
3. While in this mode the CPU will be offline (not Charging) indicated by the CPU led flashing green and red.
4. The CPU can now be programmed.

Programming For Battery Type

The first program selection mode displayed on the Remote Panel is "Battery Type". To select or adjust the battery program:

1. Press the PROGRAM button when the display reads "Battery Type CHANGE?"
2. When new from factory, the regulator will display "DEFAULT" meaning that the regulator is in the factory safe "default" mode.
3. By pressing the UP or DOWN arrow buttons, you can scroll through the preset types: FLA STD (standard flooded lead acid), FLA DC (flooded lead acid - deep cycle), GEL (sealed gel), AGM (absorbed glass mat), OPTIMA (spiral wound AGM), TPPL (thin plate pure lead) and LITHIUM (lithium ion).
4. Select the program that matches your battery type. Press the SAVE button. The Remote Panel will display the battery type you have selected.
5. If your desired program is selected and you don't choose to make any additional programming changes, press the EXIT button. The regulator will save your program selection and return to normal operating mode.



Programming For Fixed Start Delay Time Adjustment

The second program selection mode displayed on the Remote Panel is the start delay time adjustment. To adjust the length of the Fixed Start Delay:

1. Press the PROGRAM button. When new from the factory, the regulator will display "START Delay FIX 001 MINUTES".



2. To change the time, press the UP button. Changes are in one minute increments. To turn off the start delay, press the DOWN button until the display reads O F F .
3. When your desired time delay is indicated on the display, press the SAVE button.
4. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.

Programming For Adjustable Start Delay Time

The next program selection mode displayed on the Remote Panel is the adjustable start delay time. To adjust the length of the Adjustable Start Delay:

1. When the display indicates “START DELAY ADJ. CHANGE?” press the PROGRAM button. When new from the factory, the regulator will display “START DELAY ADJ. 001 MINUTES”, meaning the adjustable delay to soft ramp will last for one minute.
2. To increase the time, press the UP button. Delay time will increase in one minute increments.
3. To turn off the adjustable start delay, press the DOWN button until the display reads OFF.
4. When your desired time delay is indicated on the display, press the SAVE button.
5. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Fixed Absorption Time

The next program selection mode displayed on the Remote Panel allows the user to adjust the duration of the fixed absorption stage of charge. To adjust the length of the fixed absorption time:

1. When the display indicates “ABSORB DELAY FIX CHANGE?” press the PROGRAM button. When new from the factory, the regulator will display “ABSORB DELAY FIX 030 MINUTES”, indicating that the regulator will remain in the fixed absorption stage for 30 minutes.
2. To increase the time, press the UP button. Time will increase or decrease in one minute increments.
3. To turn off the fixed absorption time, press the DOWN button until the display reads OFF.
4. When your desired time delay is indicated on the display, press the SAVE button.
5. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Adjustable (Calculated) Absorption Time

The next program selection mode displayed on the Remote Panel allows the user to adjust the duration of the calculated absorption stage of charge. To adjust the length of the adjustable absorption time:

1. When the display indicates “ABSORB DELAY ADJ CHANGE?” press the PROGRAM button. When new from the factory, the regulator will display “ABSORB DELAY ADJ. 030 MINUTES”, indicating that the regulator will remain in the fixed absorption stage for 30 minutes.
2. To increase the time, press the UP button. Time will increase or decrease in one minute increments.
3. To turn off the fixed absorption time, press the DOWN button until the display reads OFF.
4. When your desired time delay is indicated on the display, press the SAVE button.
5. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Fixed Bulk Time

The next program selection mode displayed on the Remote Panel allows the user to adjust the duration of the fixed bulk stage of charge. To adjust the length of the fixed bulk time:

1. When the display indicates “BULK DELAY FIX CHANGE?” press the PROGRAM button. When new from the factory, the regulator will display “BULK DELAY FIX 030 MINUTES”, indicating that the regulator will remain in the fixed bulk stage for 30 minutes.
2. To increase the time, press the UP button. Time will increase or decrease in one minute increments.
3. To turn off the fixed bulk time, press the DOWN button until the display reads OFF.
4. When your desired time delay is indicated on the display, press the SAVE button.
5. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Adjustable (Calculated) Bulk Time

The next program selection mode displayed on the Remote Panel allows the user to adjust the duration of the calculated bulk stage of charge. To adjust the length of the calculated bulk time:

1. When the display indicates “BULK DELAY ADJ. CHANGE?” press the PROGRAM button. When new from the factory, the regulator will display “ABSORB DELAY ADJ. 030 MINUTES”, indicating that the regulator will remain in the fixed bulk stage for 30 minutes.
2. To increase the time, press the UP button. Time will increase or decrease in one minute increments.
3. To turn off the fixed bulk time, press the DOWN button until the display reads OFF.
4. When your desired time delay is indicated on the display, press the SAVE button.
5. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Fixed Float Time

The next program selection mode displayed on the Remote Panel allows the user to adjust the duration of the fixed float stage of charge. To adjust the length of the fixed float time:

1. When the display indicates “FLOAT DELAY FIX CHANGE?” press the PROGRAM button. When new from the factory, the regulator will display “FLOAT DELAY FIX 030 MINUTES”, indicating that the regulator will remain in the fixed float stage for 30 minutes.
2. To increase the time, press the UP button. Time will increase or decrease in one minute increments.
3. To turn off the fixed float time, press the DOWN button until the display reads OFF.
4. When your desired time delay is indicated on the display, press the SAVE button.
5. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Adjustable (Calculated) Float Time

The next program selection mode displayed on the Remote Panel allows the user to adjust the duration of the calculated float stage of charge (the maximum time the regulator will stay at float voltage before returning to absorption voltage). To adjust the length of the calculated float time:

1. When the display indicates "FLOAT DELAY ADJ. CHANGE?" press the PROGRAM button. When new from the factory, the regulator will display "FLOAT DELAY ADJ. 030 MINUTES", indicating that the regulator will remain in the calculated float stage for a maximum of 30 minutes.
2. To increase the time, press the UP button. Time will increase or decrease in one minute increments.
3. To turn off the fixed absorption time, press the DOWN button until the display reads OFF.
4. When your desired time delay is indicated on the display, press the SAVE button.
5. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.

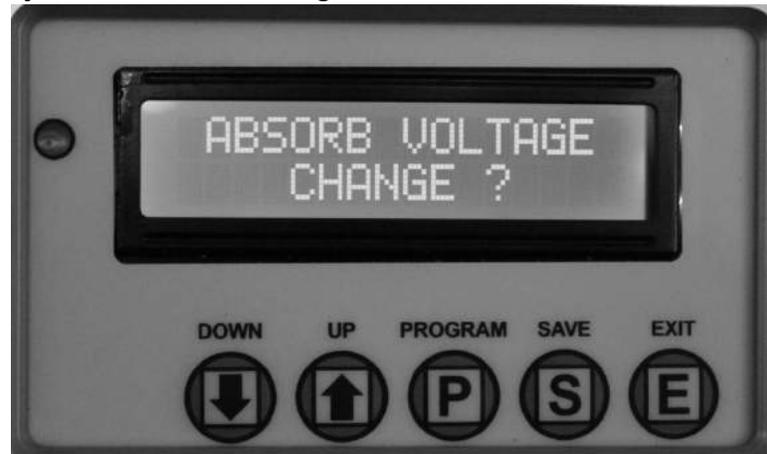


Programming For Target Voltage Values

Programming For Absorption Target Voltage

The next programming mode allows for adjustment of the regulator's absorption target voltage. NOTE: Target voltage adjustment will start at the value provided by the preset battery program selected in the first programming mode. If no battery program was saved in that mode, the starting target absorption voltage will be based on the default charging program. To adjust:

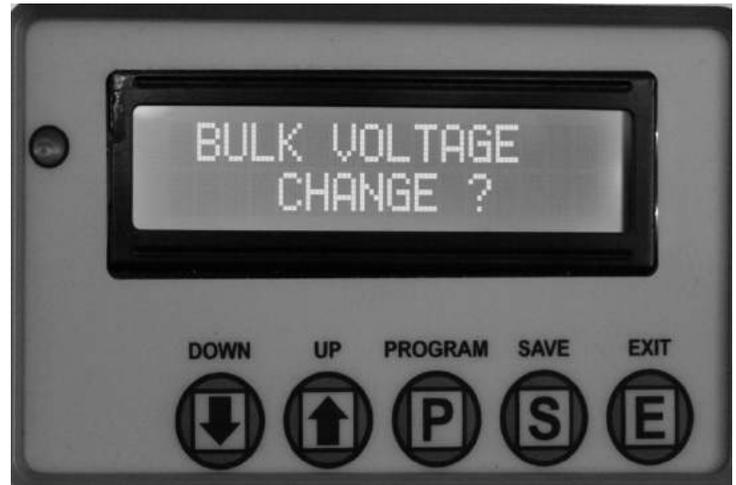
1. When the display indicates "ABSORB VOLTAGE CHANGE?" press the PROGRAM button. The voltage value shown will represent the target for the current battery program. To increase the target voltage, press the UP button. To decrease the voltage value, press the DOWN button. The target voltage values will be shown in 1/10 volt increments.
2. When your desired target voltage is indicated on the display, press the SAVE button.
3. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Bulk Target Voltage

The next programming mode allows for adjustment of the regulator's bulk target voltage. NOTE: Target voltage adjustment will start at the value provided by the preset battery program selected in the first programming mode. If no battery program was saved in that mode, the starting target bulk voltage will be based on the default charging program. To adjust:

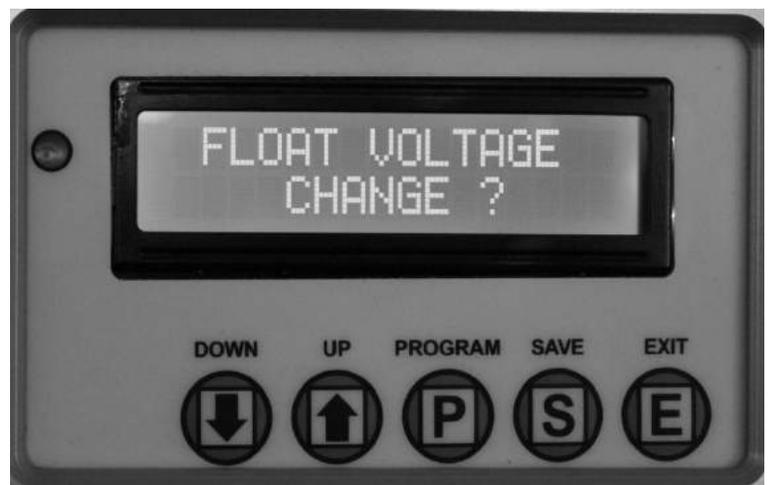
1. When the display indicates "BULK VOLTAGE CHANGE?" press the PROGRAM button. The voltage value shown will represent the target for the current battery program. To increase the target voltage, press the UP button. To decrease the voltage value, press the DOWN button. The voltage values will be shown in 1/10 volt increments.
2. When your desired target voltage is indicated on the display, press the SAVE button.
3. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming For Float Target Voltage

The next programming mode allows for adjustment of the regulator's float target voltage. NOTE: Target voltage adjustment will start at the value provided by the preset battery program selected in the first programming mode. If no battery program was saved in that mode, the starting target float voltage will be based on the default charging program. To adjust:

1. When the display indicates "FLOAT VOLTAGE CHANGE?" press the PROGRAM button. The voltage value shown will represent the target for the current battery program. To increase the target float voltage, press the UP button. To decrease the voltage value, press the DOWN button. The voltage values will be shown in 1/10 volt increments.
2. When your desired target voltage is indicated on the display, press the SAVE button.
3. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



Programming for Field Management

Managing your maximum field width works much like a governor for your engine's alternator. By reducing the regulator's maximum field width, we can control the alternator's maximum output and the maximum horsepower load applied to the engine and belts. This can be used to allow a high output alternator to be used on an undersized belt, or to ensure that an undersized engine isn't stalled by the alternator. Field width is measured in the percentage of a duration that current pulses are exciting the alternator's field windings. The wider the pulse width, the higher the output of the alternator. To adjust:



1. When the display indicates "FIELD MANAGEMENT CHANGE?" press the PROGRAM button. The default value is 100, indicating full field output. Adjustments are made in approximately five percent intervals. While the individual reduction steps are in five percent increments, keep in mind that the percentage of change is specific to the field, not alternator output. In other words, alternator output will not be precisely in line with the field reduction. As a result, some fine tuning may be required to find the right value to suit your system's needs.
2. When your desired target voltage is indicated on the display, press the SAVE button.
3. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.

Programming For Stage Exit Field Percentage

In addition to using time and target voltage to determine when to exit from one charging stage to the next, the E-MAAX measures the field width required to maintain charging voltage. In some battery types, the regulator may reach target voltage even when there's more capacity in the batteries to handle current input. The Stage Exit Field Percentage can be adjusted to stay in a charging stage longer to ensure a more complete charge. If your batteries appear to be needing to stay at a higher voltage for a longer period, or inversely, if you want to reduce the stress on your batteries by modifying the field width percentage, this programming function will allow you to adjust the set point it uses to determine at which point to advance from one stage to the next. To adjust:



Cont:

1. When the display indicates “STAGE EXIT FIELD CHANGE?” press the PROGRAM button. The default value is 20, indicating that the charging stage will advance when the field width drops to 20 percent. Adjustments are made in one percent intervals. To make the regulator stay in bulk, absorption and float stages for a longer time, reduce the percentage. To exit more quickly, raise the value to a maximum of 50%
2. When your desired field exit percentage is indicated on the display, press the SAVE button.
3. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.

Programming For Battery Slope Compensation

When using your E-MAAX in conjunction with one or more battery temperatures, the regulator will automatically compensate for changes in ambient battery temperature by modifying target charging voltages. Each battery technology has specific compensation values which are included in the preset battery program. In the event that your battery manufacturer suggests a different compensation slope than the E-MAAX regulator’s preset values, the user has the option to modify the slope. Adjustments are in 1/10 millivolt per degree Celsius per cell. To adjust:

1. When the display indicates “BAT. SLOPE COMP. CHANGE?” press the PROGRAM button. The default value will vary by your selection of battery type. Adjustments are in 1/10 millivolt per degree Celsius per cell. Use the UP or DOWN button to find your desired slope value.
2. When your desired slope compensation value is indicated on the display, press the SAVE button.
3. The display will indicate your selection. If no other changes are desired, press the EXIT button. Press the DOWN button to access the next programming mode.



ELECTROMAAX 5552 KING STREET, BEAMSVILLE
ONTARIO, CANADA L0R 1B3 • 866-945-8801 •
WWW.ELECTROMAAX.COM
