

# Fusion™ SG-VREGLED and MS-VREG12 Installation Instructions

## Important Safety Information

### ⚠ WARNING

Failure to follow these warnings and cautions could result in personal injury, damage to the vessel, or poor product performance.

See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

This device must be installed according to these instructions.

Disconnect the vessel's power supply before beginning to install this product.

Before applying power to this product, make sure it has been correctly grounded, following the instructions in the guide.

### ⚠ CAUTION

Always wear safety goggles, ear protection, and a dust mask when drilling, cutting, or sanding.

### NOTICE

When drilling or cutting, always check what is on the opposite side of the surface.

You must read all installation instructions before beginning the installation. If you experience difficulty during the installation, contact Fusion™ Product Support.

## What's in the Box

- 1 voltage regulator
- 1 removable terminal block connector
- 2 mounting screws

## About the Voltage Regulator

Depending on the model, this device either converts the voltage from your boat battery to a steady 12 Vdc (MS-VREG12), or it regulates the voltage from your battery to power the LEDs on compatible Fusion speakers (SG-VREGLED). The SG-VREGLED model also allows you to set the LEDs to dim with the boat lights and to select the color of the LEDs.

## Mounting Location Considerations

### NOTICE

If you are mounting the bracket on fiberglass with screws, it is recommended to use a countersink bit to drill a clearance counterbore through only the top gel-coat layer. This will help to avoid any cracking in the gel-coat layer when the screws are tightened.

Stainless-steel screws may bind when screwed into fiberglass and overtightened. Garmin® recommends applying an anti-seize lubricant to the screws before installing them.

When selecting a mounting location for the device, observe these considerations.

- Due to the water rating, this device must be mounted and the wiring connections must be made in a non-submerged location, and it should not be exposed to spray or wash down.
- The device should be mounted with the terminal block facing downward, to avoid water entering the device through the connector port.
- The best location for the device is near the battery, in a protected area.

## Connection Considerations

### NOTICE

The 12 Vdc wiring from the battery to the regulator must run through a fuse near the power supply using a 5 A fuse (not included). You must connect the red power (+) wire to the fuse.

The red power (+) wire should also connect to an isolator switch or circuit breaker to turn the regulator on and off. If the regulator is used as an accessory with a stereo, you can use the same isolator or circuit breaker that controls the power supply to the stereo. This allows the regulator and the stereo to turn on and off at the same time.

### Wire Extensions

To ensure proper functionality of the voltage regulator, you should use the wire gauge recommended for the wire function.

**NOTE:** The wire sizes provided in the following tables are valid for a maximum length of 6 m (20 ft.). If a longer extension is needed, contact Fusion Product Support for assistance.

#### SG-VREGLED

Wire Function	Minimum Gauge
The power and ground wires from the boat battery.	18 AWG (0.8 mm <sup>2</sup> )
The LED power cables to each speaker.	20 AWG (0.5 mm <sup>2</sup> )
The REMOTE ON input wire and the DIM INPUT wire.	22 AWG (0.3 mm <sup>2</sup> )

#### MS-VREG12

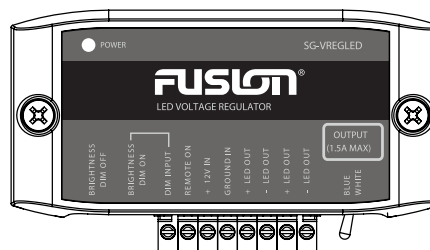
Wire Function	Minimum Gauge
All power and ground wires from the boat battery, and all wires to the regulated device.	18 AWG (0.8 mm <sup>2</sup> )

## Installing the SG-VREGLED Voltage Regulator

Before you permanently install the voltage regulator, you should select a mounting location, make wiring connections, and test the wiring connections.

- 1 After you have selected a mounting location for the regulator, route the appropriate cables to the mounting location.
- 2 Use a flat-blade screwdriver to connect the detachable connector on the regulator, based on the diagram and table.

**TIP:** You can disconnect the connector from the regulator to access the binding posts more easily.



Item	Description
REMOTE ON	You can connect to the stereo "Amplifier On" output to turn the regulator on and off with your stereo. You can connect to an isolator switch for manually-switched operation. You can connect to +12V IN for permanent operation.
+ 12V IN	The positive wire from the boat battery. This wire must be connected through a 5 A fuse (not included) near the power supply.
GROUND IN	The negative or ground wire from the boat battery.

Item	Description
+ LED OUT - LED OUT	Provides power to the LEDs on a speaker. The red (+) and black (-) LED wires must be connected to the correct ports. The regulator has two groups of + and - ports to which the LED wires may connect. You can connect up to five Fusion Signature Sports model speakers or subwoofers per group, for a total of 10 on one regulator.
BLUE WHITE	This control switches the LED color on the speakers between blue and white.
DIM INPUT	This control switches between two preset LED brightness levels. It can be connected to the boat lighting circuit. When connected to the boat lighting circuit, the LEDs on the speakers dim when the boat lights are turned on. You can adjust the LED brightness level using the BRIGHTNESS DIM ON and BRIGHTNESS DIM OFF controls. Use of these controls is optional.
BRIGHTNESS DIM OFF	This control adjusts the LED brightness when the boat lighting circuit is off or the DIM INPUT is not connected to the lighting circuit.
BRIGHTNESS DIM ON	This control adjusts the LED brightness when the boat lighting circuit is on and the DIM INPUT is connected to the lighting circuit.

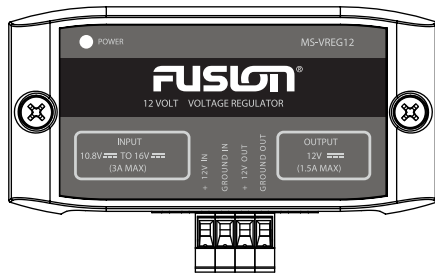
- 3 Test the regulator by powering on the boat and observing the LEDs on the speakers.
- 4 Secure the regulator to the mounting surface using the supplied screws.

### Installing the MS-VREG12 Voltage Regulator

Before you permanently install the voltage regulator, you should select a mounting location, make wiring connections, and test the wiring connections.

- 1 After you have selected a mounting location for the regulator and installed the fuse, route the appropriate cables to the mounting location.
- 2 Use a flat-blade screwdriver to connect the detachable connector on the regulator, based on the diagram and table.

**TIP:** You can disconnect the connector from the regulator to access the binding posts more easily.



Item	Description
+ 12V IN	The positive wire from the boat battery. This wire must be connected through a 5 A fuse (not included) near the power supply. You should connect this wire to an isolator switch or circuit breaker to turn the regulator on and off.
GROUND IN	The negative or ground wire from the boat battery.
+ 12V OUT	The positive wire to the regulated device.
GROUND OUT	The negative wire to the regulated device.

- 3 Test the regulator by turning on the boat and observing the regulated device.
- 4 Secure the regulator to the mounting surface using the supplied screws.

## Specifications

Model	Specification	Value
All models	Voltage input	From 10.8 to 16 Vdc
	Input current	3 A max.
	Output current	1.5 A max.
	Size (L × W × H)	110 × 62.4 × 23.5 mm (4.33 × 2.46 × .93 in.)
	Temperature range	From 0 to 50°C (from 32 to 122°F)
	Water rating	IEC 60529 IPX2 (Withstands incidental exposure to dripping water when installed with the terminal block pointing downward.)
LED Voltage Regulator (SG-VREGLED)	Compass-safe distance	20 cm (7.87 in.)
	Voltage output	From 5 to 15 Vdc
	Dim input on, voltage and current	From 4 to 24 Vdc, less than 1 mA
	Dim input off, voltage and current	From 0 to 3 Vdc, less than 1 mA
	Remote input on, voltage and current	From 4 to 24 Vdc, less than 1 mA
	Remote input off, voltage and current	From 0 to 3 Vdc, less than 1 mA
12V Voltage Regulator (MS-VREG12)	Weight	100 g (3.53 oz.)
	Voltage output	12 Vdc
	Weight	80 g (2.82 oz.)