GARMIN®

FUSION® XS SERIES MARINE WAKE TOWER SPEAKERS

Installation Instructions

Important Safety Information

⚠ WARNING

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 device.

⚠ CAUTION

Continuous exposure to sound pressure levels over 100 dBA may cause permanent hearing loss. The volume is typically too loud if you cannot hear people speaking around you. Limit the amount of time you listen at high volume. If you experience ringing in your ears or muffled speech, stop listening and have your hearing checked.

To avoid possible personal injury, 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 to avoid damaging the vessel.

It is strongly recommended that you have your audio system installed by a professional installer to ensure optimum performance.

You must read all installation instructions before beginning the installation. If you experience difficulty during the installation, go to support.garmin.com for product support.

After installing an audio system, you should run the connected speakers and subwoofers at low to medium volumes for the first few hours of use. This helps to improve the overall sound by gradually loosening up the moving components of new speakers and subwoofers, such as the cone, spider, and surround.

What's In the Box

- Two wake tower can speakers

Materials and Tools Needed

- Electric drill
- 12 mm ($^1/_2$ in.) drill bit
- Wire strippers
- 16 AWG (1.3 through 1.5 mm^2) or larger marine-grade, fully-tinned copper speaker wire (*Speaker Wire Gauge Guide*, page 2)
- 20 AWG (0.5 through .75 mm^2) marine-grade, fully-tinned copper wire for the LED connections
- 3 A in-line fuse for the LED connections
- Speaker mounting bracket (sold separately)[1]
- Solder and water-tight, heat-shrink tubing or water-tight, heat-shrink, butt-splice connectors (optional)
- Marine sealant (optional)

NOTE: For customized installations, additional tools and materials may be needed.

[1] Various brackets are available for mounting these speakers on a wake tower bar or on a deck. See your Fusion® dealer for more information.

Mounting the Speakers

You must purchase mounting brackets for the Fusion® XS speakers separately. Each type of mounting bracket contains specific installation instructions.

1. If necessary, mark the locations on the wake tower or the deck where you plan to mount the speakers.
2. If necessary, drill a 12 mm ($^1/_2$ in.) cable pass-through hole in the wake tower or deck.
3. Route the speaker and LED power wires (not included) to the mounting locations.
4. Using the installation instructions provided with the mounting bracket, connect the bracket to the speakers and to the wake tower or the deck.
5. Connect the speaker wires (*Speaker Wiring*, page 2).
6. If necessary, connect the LED power wires (*LED Wiring*, page 3).

Speaker Wiring

When connecting the speakers to your stereo or amplifier, observe these considerations.

- Speaker wire is not included. You should use 16 AWG (1.3 through 1.5 mm^2) or larger speaker wire to connect the speakers to the stereo or amplifier.
- You should use a water-tight connection method when connecting the speaker wires. You can use crimp connectors instead of solder and heat-shrink if the crimp connectors can be routed through the bracket and the wake tower or your mounting location, so you should plan and select the best connection type for your installation needs.

You can use this table to identify the polarity of the leads on the speaker.

Lead color	Polarity
White	Positive (+)
White with a black stripe	Negative (-)

Speaker Wire Gauge Guide

You should use 16 AWG (1.3 through 1.5 mm^2) fully-tinned copper speaker wire for most installations. You can use these tables to determine if you need to use a larger gauge of wire. These tables account for terminal connection resistance.

NOTE: If you are using aluminum wire, you should use a wire two gauges larger than the gauge listed below to compensate for a potential voltage drop due to the wire material.

4 Ohm Load (1 Speaker)

Distance between the amplifier and speaker	Wire gauge
From 0 to 28 ft. (from 0 to 8.5 m)	16 AWG (1.3 through 1.5 mm^2)
From 28 to 69 ft. (from 8.5 to 21 m)	12 AWG (3 through 4 mm^2)

2 Ohm Load (2 Speakers in Parallel)

Distance between the amplifier and speaker	Wire gauge
From 0 to 14 ft. (from 0 to 4 m)	16 AWG (1.3 through 1.5 mm^2)
From 14 to 35 ft. (from 4 to 10.5 m)	12 AWG (3 through 4 mm^2)

You can purchase the recommended speaker wire from your Fusion® or Garmin® dealer.

- 16 AWG (1.3 through 1.5 mm^2) wire:
  - 010-12899-00: 7.62 m (25 ft.)
  - 010-12899-10: 15.24 m (50 ft.)
  - 010-12899-20: 100m (328 ft.)
- 12 AWG (3 through 4 mm^2) wire:
  - 010-12898-00: 7.62 m (25 ft.)
  - 010-12898-10: 15.24 m (50 ft.)
  - 010-12898-20: 100m (328 ft.)

LED Wiring

NOTICE

Using certain LED colors on the speakers, such as red and green, may violate the laws, regulations, and standards related to the use and/or operation of marine navigation lights. It is the user's responsibility to comply with any such applicable laws, regulations, and standards. Garmin® is not responsible for any fines, penalties, citations, or damages that may be incurred due to any such lack of compliance.

It is recommended to connect the LEDs using marine LED cable (010-13386-00).

If connecting the marine LED cable to RGB or CRGB lighting, you should properly terminate any unused wires.

It is recommended to install an LED lighting controller module with these speakers to turn the LEDs on and off, change the colors, and create lighting effects. See your Fusion® dealer or garmin.com for more information.

You should follow the instructions provided with the LED controller to connect the LED wires from the speakers to the LED controller and to connect the controller to power. For information about proper fuse ratings for your speaker model, see *LED Fuse Installation*, page 3.

If you choose not to install the LED controller, you can set the static color of the LEDs by connecting combinations of the LED wires directly to the power source (*Connecting the LED Wires*, page 3).

Connecting the LED Wires

If you choose to not install a remote control to turn the LEDs on and off, change the color, and create lighting effects, you can choose a static LED color by connecting specific LED color wires to ground. You can splice the ground wire to a combination of LED wires to customize the LED color beyond red, green, or blue.

NOTE: LEDs are not available on all models.

1. Connect a positive wire to the black wire on the LED cable.

   NOTE: You must connect the positive wire through a fuse appropriate for your speaker model (*LED Fuse Installation*, page 3).
2. Connect a ground wire to the wire or the combination of wires on the LED cable according to the preferred LED color.

LED Color	LED Wire Color
Red	Red wire
Green	Green wire
Blue	Blue wire
Yellow	Combined red and green wires
Magenta	Combined red and blue wires
Cyan	Combined blue and green wires
White	Combined red, green, and blue wires

3. Route the positive and negative wires, and connect them to a power source (*Connecting the LED Wires Directly to Power*, page 3).

LED Fuse Installation

⚠ WARNING

You must install an inline fast-blow fuse on the positive wire at the power-source end of the LED cable for each speaker to protect the LEDs and the speaker from excessive electrical current. Failure to install a fuse could cause a fire resulting in property damage, serious personal injury, or death.

- The fuse must be installed in a fuse holder intended for marine use.
- The fuse must be installed on the positive wire on the power-source end of the LED cable.
- The fuse must be installed for use with any power source, including a lighting controller.
- Always use a fuse of the correct amperage rating and type for your speaker model.

Fusion® XS Series Wake Tower Speakers with LED lighting require a 500 mA fuse.

Connecting the LED Wires Directly to Power

NOTE: LEDs are not available on all models.

You must connect all 12 Vdc wiring for the LEDs to a fuse at the power-source end of the cable. You should connect the positive (+) power wire to a 12 Vdc power source through an isolator switch or circuit breaker to turn the LEDs on and off. You can use the same isolator or circuit breaker controlling the power supply to your

stereo, which allows you to turn the LEDs and the stereo on and off at the same time. The fuse must be installed between the LED cable and the isolator switch or circuit breaker.

You should use 20 AWG (0.5 through .75 mm^2) or thicker wire to connect the LEDs to the battery.

1. Route the positive power (+) and negative ground (-) wires from the LED-wire connections to the battery.
2. Connect the negative wire to the negative (-) battery terminal.
3. Connect the positive wire to the positive (+) terminal through the appropriate fuse (*LED Fuse Installation*, page 3) and an isolator switch or circuit breaker.

Speaker Information

True-Marine™ Products

True-Marine products are subjected to rigorous environmental testing under harsh marine conditions to surpass industry guidelines for marine products.

Any product that bears the True-Marine stamp of assurance has been designed for simplicity of use and combines advanced marine technologies to deliver an industry leading entertainment experience. All True-Marine products are supported by the Fusion® 3-year worldwide limited consumer warranty.

Registering Your Fusion Device

Help us better support you by completing our online registration today.

- Go to **garmin.com/register**.
- Keep the original sales receipt, or a photocopy, in a safe place.

Cleaning the Speakers

When mounted correctly, these speakers are rated IP65 for dust and water ingress protection under normal conditions. They are not designed to withstand high pressure water spray, which may occur when you wash down your vessel. Failure to carefully spray-clean the vessel may damage the product and void the warranty.

NOTICE

Do not use harsh or solvent-based cleaners on the speakers. Using such cleaners may damage the product and void the warranty.

1. Clean all salt water and salt residue from the speaker with a damp cloth soaked in fresh water.
2. Use a mild detergent to remove a heavy buildup of salt or stains.

Troubleshooting

Before you contact your Fusion® dealer or service center, you should perform a few simple troubleshooting steps to help diagnose the problem.

If the Fusion speaker has been installed by a professional installation company, you should contact the company so the technicians can assess the problem and advise you about possible solutions.

There is no sound coming from the speakers

- Verify that all connections from the source device and/or the amplifier are connected correctly to the speaker terminals.

The system lacks bass or high frequencies

- Verify that the correct wire polarity is observed between the source and speakers.

  The wires should be connected positive to positive and negative to negative.
- Verify that the speakers are attached firmly to the mounting surface.

The audio is distorted

- Verify that the source volume is not too loud for the speaker, and reduce the volume if necessary.
- Verify that the panels surrounding the speaker on the vessel are not rattling.
- Verify that the source device and/or the amplifier are connected to the speaker terminals correctly.
- If the speaker is connected to an amplifier, verify that the input level of the amplifier is matched to the output level of the stereo. For more information, see the manual for the amplifier.

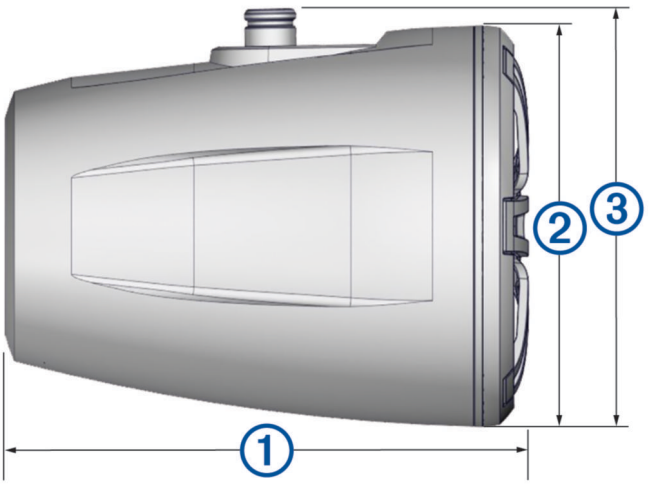
The LED lights will not turn on

- Verify that all wiring connections are correct and tight.

Specifications

Max. power (Watts)	200 W
RMS power (Watts)	50 W
Sensitivity (1 W/1 m)	91 dB
Frequency response	80 Hz to 18 kHz
Recommended amplifier power (RMS, playing music)	From 20 to 150 W
Nominal voice coil diameter	30 mm
Impedance	4 ohms
LED Supply Voltage (Sports Model Speakers only)	From 10.8 to 16 Vdc
LED Load Current at 14.4 Vdc (Sports Model Speakers only)	120 mA per color per speaker
Operating temperature range	From 0 to 50°C (from 32 to 122°F)
Storage temperature range	From -20 to 70°C (from -4 to 158°F)
Cone material	Polypropylene (PP) cone with cloth surround
Tweeter type	Aluminum dome
Water and dust rating	IEC 60529 IP67[2]
Compass-safe distance	310 cm (122 in.)

Dimensions



1	223 mm ($8^{13}/_{16}$ in.)
2	Ø 176 mm ($6^{15}/_{16}$ in.)
3	180 mm ($7^{1}/_{8}$ in.)

[2] Protected against dust and water ingress.