

Signature Series 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.

⚠ WARNING

This device must be installed according to these instructions. Disconnect the vehicle's or 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.

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.

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 www.fusionentertainment.com for product support.

What's In the Box

- 2 speakers
- 2 tinned, pre-terminated speaker wires (6 m)
- 12 Phillips stainless steel, 4.2 mm x 38 mm (8 gauge x 1.5 in.) mounting screws
- Mounting templates
- 2 grilles (Classic models only)
- 2 tinned LED connection cables (6 m) (Sports models only)
- Hex key (Sports models only)

Tools Needed

- Electric drill
- Drill bit (size varies based on surface material)
- Phillips screwdriver
- Wire strippers
- Crimping tool
- Electrical tape
- Appropriate saw or utility knife to cut surface material
- Marine sealant (optional)

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

Mounting Considerations

NOTICE

When mounting the speaker in an area exposed to weather or water, you must mount the speaker on a vertical surface. If you mount the speaker on a horizontal surface facing up, water can gather in and around the speaker, causing damage over time.

Selecting the correct mounting location is critical to optimize the performance of each speaker. FUSION® speakers are designed to perform in the widest possible range of mounting locations, but the more you plan the installation, the better the speakers' sound will be.

- For the best performance, you should mount the speakers higher in the boat. Sound travels in the direction in which the speakers are facing, so if you mount them in a lower location, the sound quality and volume may not be ideal.
- If you intend to mount the speakers outside the boat, you must mount them in a location well above the waterline, where they are not submerged or damaged by docks, pilings, or other pieces of equipment. When mounted correctly, these speakers are rated IP65 for protection from the front of the speaker. Water exposure and damage to the rear of the speaker voids the warranty. This includes situations when the speakers are mounted in a sealed enclosure, especially if they are exposed to wash down. Using an enclosure with a port or vent exposed to the outside environment may allow water to collect and damage the speaker.
- You should select mounting locations that enable you to hear sound from both speakers at the same time to achieve a sound stage effect. To achieve this effect, you should not mount the speakers side-by-side.
- When possible, you should select mounting locations where the area behind each speaker is enclosed.
- You must select mounting locations that provide sufficient clearance for the mounting depth of the speakers as specified in the product specifications.
- For better bass performance, you should select mounting locations that provide the appropriate space behind the speaker according to the optimum enclosure design requirements in the specifications section. Too small an area restricts bass, and too large an area compromises bass performance. Also, mounting a speaker close to an open area (where sound from the back of the speaker has a very short path to compete with sound from the front of the speaker) produces the least bass.
- When a speaker is not exposed to the outside environment, you can achieve a better bass performance using an enclosure with a ported design.
- You can reference the Thiele Small (T/S) parameters in the specifications section when designing a custom enclosure for the speakers.
- You should select a flat mounting surface for the best seal.
- You should protect the speaker wires from sharp objects and always use rubber grommets when wiring through panels.
- You should select mounting locations that avoid potential obstacles, such as fuel and hydraulic lines and wiring.
- You should protect all terminals and connections from grounding and from each other. Failure to do so could result in permanent damage to the audio system and void the product warranty.
- To avoid interference with a magnetic compass, you should not mount the speakers closer to a compass than the compass-safe distance value listed in the product specifications.

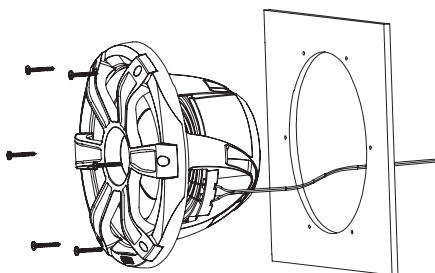
- You must turn off the audio system before making any connections to the source unit, amplifier, or speakers. Failure to do so could result in permanent damage to the audio system.

Mounting the Speakers

Before mounting the speakers, you must choose a location where there is enough clearance behind the mounting surface. Refer to the side view drawings for clearance information.

Before mounting the speakers, you must choose a location following the guidelines above.

- Route the wires from the source to the speaker location, away from sources of electrical interference.
- Trim the template and make sure it fits in the selected location.
- Orient the template with the FUSION logo at the bottom of the template.
- Secure the template to the selected location.
- Using a drill bit appropriate for the mounting surface, drill a hole inside the dashed line on the template to prepare the mounting surface for cutting.
- Using a jigsaw or rotary tool, cut the mounting surface along the inside of the line on the template.
- Place the speaker in the cutout to test the fit.
- If necessary, use a file and sandpaper to refine the size of the cutout.
- After the speaker fits correctly in the cutout, ensure the mounting holes on the speaker line up with the pilot holes on the template.
- If the mounting holes on the speaker do not line up, mark the new hole locations.
- Using an appropriately sized drill bit for the mounting surface and screw type, drill the holes.
- Remove the template from the mounting surface.
- Connect the speaker wires while observing polarity.
- Push the wire into a retaining clip to relieve the tension on the wire.
- If necessary, connect the LED wires to the Sports model speakers (see the following section).
- Place the speaker in the cutout.



- Secure the speaker to the mounting surface using the included screws.

NOTE: Do not over tighten the screws, especially if the mounting surface is not flat.

For Classic model speakers, attach the grille to the speaker front.

Sports Model LED Wiring

Connecting the LED Wires to the Sports Model Speakers

NOTE: This feature is available only on the Sports model speakers.

You can control the color of the LEDs by the polarity of the LED wires.

- Using the hex key, loosen the screws on the wiring terminals on the back of the speaker.
- Connect the black and red wires to the terminal according to the preferred LED color.

Blue LED	Black to negative (-) Red to positive (+)
White LED	Black to positive (+) Red to negative (-)

- Using the hex key, tighten the screws on the wiring terminals.
- Push the wire into a retaining clip to relieve the tension on the wire.

Connecting the LED Wires to Power

NOTE: This feature is available on only the sports model.

You must connect all 12 Vdc wiring to the LEDs to a 3 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.

You should use 20 AWG (0.5 mm²) or thicker wire to connect the LEDs to the battery.

- Route the positive power (+) and negative ground (-) wires from the LED-wire connections to the battery.
- Connect the negative wire to the negative (-) battery terminal.
- Connect the positive wire to the positive (+) terminal through a 3 A fuse and isolator switch or circuit breaker.

Attaching the Grille to the Classic Model Speakers

NOTE: This feature is available only on the Classic model speakers.

- With the speakers mounted, hold the grille with the FUSION logo at the bottom, or at the 6 o'clock position.
- Turn the grille counter-clockwise about 10°, so the FUSION logo is at the 5 o'clock position.
- Place the grille on the rim of the speaker.
- Twist the grille clockwise to secure it.

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.

Optional LED Voltage Regulator

You can use an LED voltage regulator (optional accessory SG-VREGLED) to regulate the battery voltage supply to the LED lights. You can use the voltage regulator if you notice the levels of brightness changing when you are running your engine, charging, or using battery power only. The voltage regulator can power the LEDs on up to ten LED-compatible speakers or subwoofers; for example four pairs of speakers and two subwoofers.

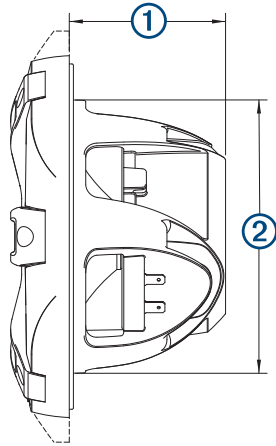
Registering Your Speakers

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

- Go to www.fusionentertainment.com.
- Keep the original sales receipt, or a photocopy, in a safe place.

Dimension Drawings

Signature Series Side View

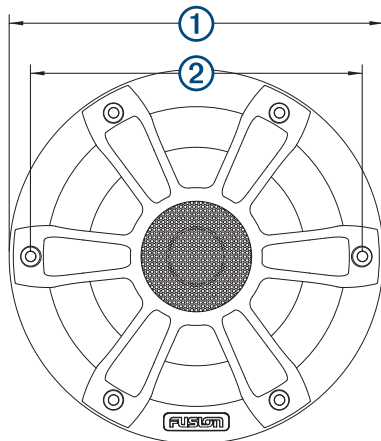


Dimension	6.5" Speakers	7.7" Speakers	8.8" Speakers
①	76 mm (3.0 in.)	82.5 mm (3.25 in.)	102.5 mm (4.05 in.)
②	133 mm (5.25 in.)	153 mm (6.0 in.)	184.9 mm (7.28 in.)

A Sports model speaker is shown, but the dimensions are the same for the Classic model speaker.

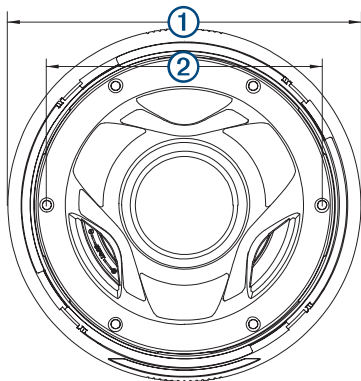
NOTE: You must allow at least 3 mm (0.15 in.) of clearance beyond the depth of the speaker.

Sports Model Front View



Dimension	6.5" Speakers	7.7" Speakers	8.8" Speakers
①	176 mm (6.93 in.)	196 mm (7.69 in.)	224 mm (8.8 in.)
②	156 mm (6.13 in.)	176 mm (6.94 in.)	202 mm (7.95 in.)

Classic Model Back View



Dimension	6.5" Speakers	7.7" Speakers	8.8" Speakers
①	200 mm (7.88 in.)	220 mm (8.69 in.)	247 mm (9.72 in.)
②	156 mm (6.13 in.)	176 mm (6.94 in.)	202 mm (7.95 in.)

Cleaning the Speakers

NOTE: 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.

The LEDs pulse with the bass notes of the music

- Install a FUSION LED voltage regulator (SG-VREGLED).

Specifications

Specification	6.5" Speakers	7.7" Speakers	8.8" Speakers
Max. power (Watts)	230 W	280 W	330 W
RMS power (Watts)	75 W	100 W	130 W
Efficiency (1 W/1 m)	90 dB	91 dB	91 dB

Specification	6.5" Speakers	7.7" Speakers	8.8" Speakers
Frequency response (+ 3 dB)	70 Hz to 22 kHz	60 Hz to 22 kHz	50 Hz to 20 kHz
Min. mounting depth (clearance)	79 mm (3.11 in.)	86 mm (3.39 in.)	105.5 mm (4.15 in.)
Mounting diameter (clearance)	136 mm (5.35 in.)	156 mm (6.12 in.)	188 mm (7.4 in.)
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)	150 mA		
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)		
Tweeter type	Silk dome		

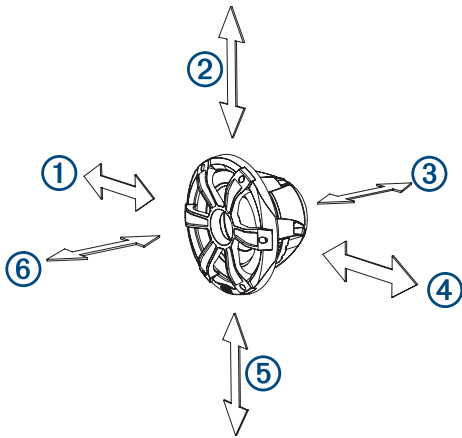
Compass-Safe Distances

All speakers contain magnets which may cause interference with instruments on your boat. The size of the magnet used in the speaker affects how much interference the speaker may cause.

Interference can cause deviations and variations in the readings of sensitive navigational equipment, such as magnetic compasses. These deviations can cause inaccuracies or offsets in the readings, but will not harm the equipment. To alleviate the deviations, adjust the compass for the deviation following the manufacturer's instructions or move the speaker away from the navigational equipment. After moving a source of interference, you may need to recalibrate the compass.

If you are navigating solely by a magnetic compass, use extreme caution to place the speaker far enough away from the compass to avoid causing deviations in the readings.

To avoid deviations to navigational equipment, position the speakers so they are separated from the navigational equipment by at least the distance listed in the table below.



Direction from Speaker	6.5" Speakers	7.7" Speakers	8.8" Speakers
①	181 cm (5.94 ft.)	193 cm (6.33 ft.)	171 cm (5.61 ft.)
②	198 cm (6.49 ft.)	224 cm (7.35 ft.)	171 cm (5.61 ft.)
③	310 cm (10.17 ft.)	358 cm (11.75 ft.)	412 cm (13.52 ft.)

Direction from Speaker	6.5" Speakers	7.7" Speakers	8.8" Speakers
④	153 cm (5.02 ft.)	175 cm (5.74 ft.)	173 cm (5.68 ft.)
⑤	160 cm (5.24 ft.)	198 cm (6.50 ft.)	178 cm (5.84 ft.)
⑥	310 cm (10.17 ft.)	333 cm (10.93 ft.)	318 cm (10.43 ft.)

Amplifier Power Rating Recommendations

6.5" Speakers	From 30 to 90 W RMS, playing music
7.7" Speakers	From 25 to 120 W RMS, playing music
8.8" Speakers	From 25 to 140 W RMS, playing music

Optimum Enclosure Recommendations

Specification	6.5" Speakers	7.7" Speakers	8.8" Speakers
Sealed enclosure volume ¹	18 L (0.64 ft. ³)	20 L (0.71 ft. ³)	22 L (0.78 ft. ³)
Ported (Vented) enclosure volume ²	25 L (0.88 ft. ³)	30 L (1.06 ft. ³)	35 L (1.23 ft. ³)
Port diameter	76 mm (3 in.)	76 mm (3 in.)	76 mm (3 in.)
Port length	162 mm (6.4 in.)	160 mm (6.3 in.)	170 mm (6.7 in.)

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¹ Fully filled with absorption material

² Lined with absorption material

