

MS-RA210

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 according to these instructions.

CAUTION

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.

Do not use the stereo as a template when drilling the mounting holes because this may damage the glass display and void the warranty. You must only use the included template to correctly drill the mounting holes.

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

- Mounting gasket
- Four 6-gauge, self-tapping screws
- Two screw covers
- Power and speaker wiring harness
- Auxiliary-in, line-out, and subwoofer-out wiring harnesses



Tools Needed

- Phillips screwdriver
- Electric drill
- Drill bit (size varies based on surface material and screws used)
- Rotary cutting tool or jigsaw
- Silicone-based marine sealant (optional)

Mounting Considerations

- You must mount the stereo on a flat surface that provides open airflow around the rear of the stereo for heat ventilation.
- If you are installing the stereo in a location that may be exposed to water, you must mount it within 45 degrees of the horizontal plane.
- If you are installing the stereo in a location that may be exposed to water, add a drip loop to the cable to allow water to drip off of the cable and avoid damage to the stereo.
- If you need to mount the stereo outside a boat, you must mount it in a location far above the waterline, where it is not submerged, and where it cannot be damaged by docks, pilings, or other pieces of equipment.
- To avoid interference with a magnetic compass, you must install the stereo at least 15 cm (5.9 in.) away from a compass.

Mounting the Stereo

NOTICE

Do not use the stereo as a template when drilling the mounting holes because this may damage the display and void the warranty. You must only use the included template to correctly drill the mounting holes.

Be careful when cutting the hole to mount the stereo. There is only a small amount of clearance between the case and the mounting holes, and cutting the hole too large could compromise the stability of the stereo after it is mounted.

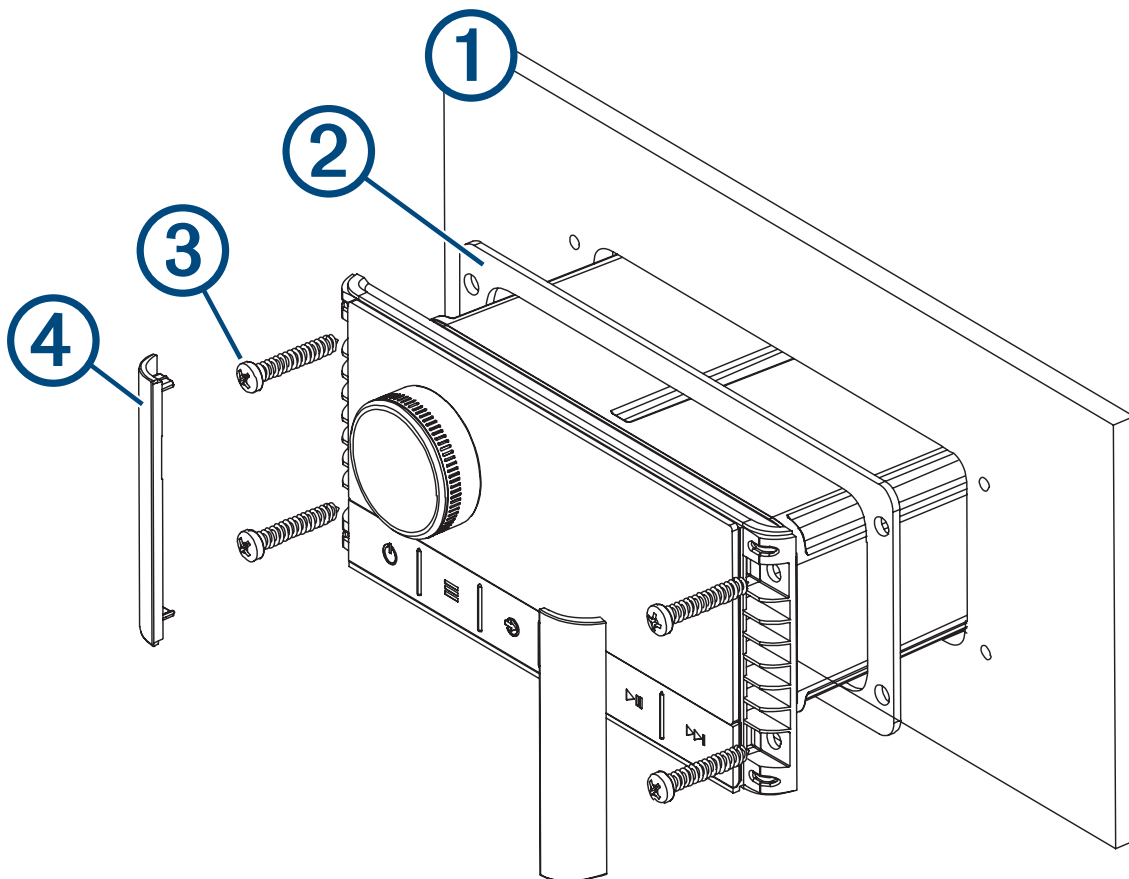
Be careful when installing the stereo in an aluminum boat or a boat with a conductive hull, if you require the electrical system to be isolated from the boat hull.

Do not apply grease or lubricant to the screws when fastening the stereo to the mounting surface. Grease or other lubricants can cause damage to the stereo housing.

Before you can mount the stereo in a new location on the mounting surface, you must select a location in accordance with the mounting considerations.

- 1 Adhere the template to the mounting surface.
- 2 Drill a hole inside the corner of the dashed line on the template.

3 Cut the mounting surface ① along the inside of the dashed line on the template.



4 Ensure the mounting holes on the stereo line up with the pilot holes on the template.

5 Using an appropriately sized drill bit for the mounting surface and screw type, drill the pilot holes.

6 Remove the template from the mounting surface.

7 Complete an action:

- If you are installing the stereo in a dry location, place the included mounting gasket ② on the back of the stereo.
- If you are installing the stereo in a location that is exposed to water, apply silicone-based marine sealant on the mounting surface around the cutout.

NOTICE

Do not install the included mounting gasket if you applied sealant to the mounting surface. Using sealant and the mounting gasket may reduce water resistance.

8 If you will not have access to the back of the stereo after installation, make the necessary wiring connections.

9 Secure the stereo to the mounting surface using the included screws ③.

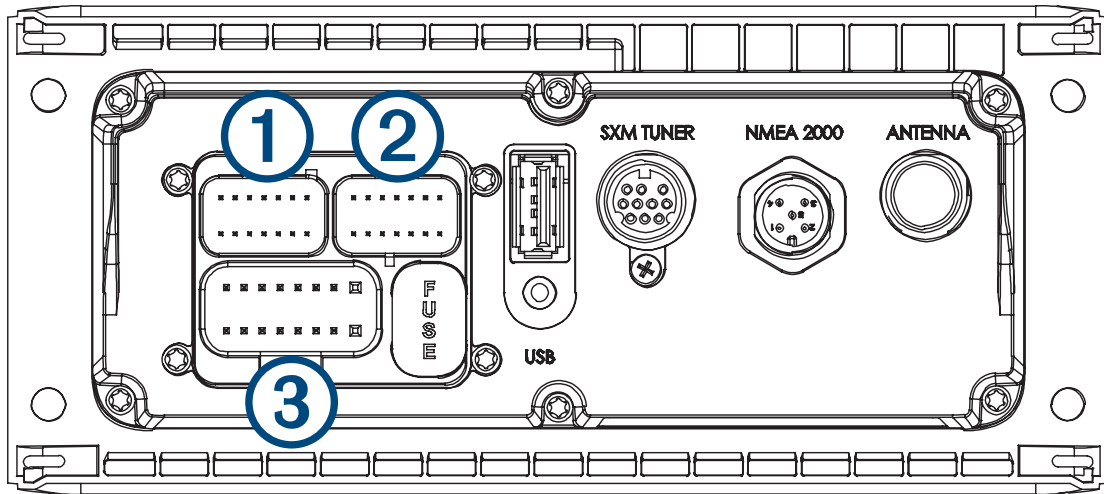
You should hand-tighten the screws when securing the stereo to the mounting surface to avoid over-tightening them.

10 Snap the screw covers in place ④.

Connection Considerations

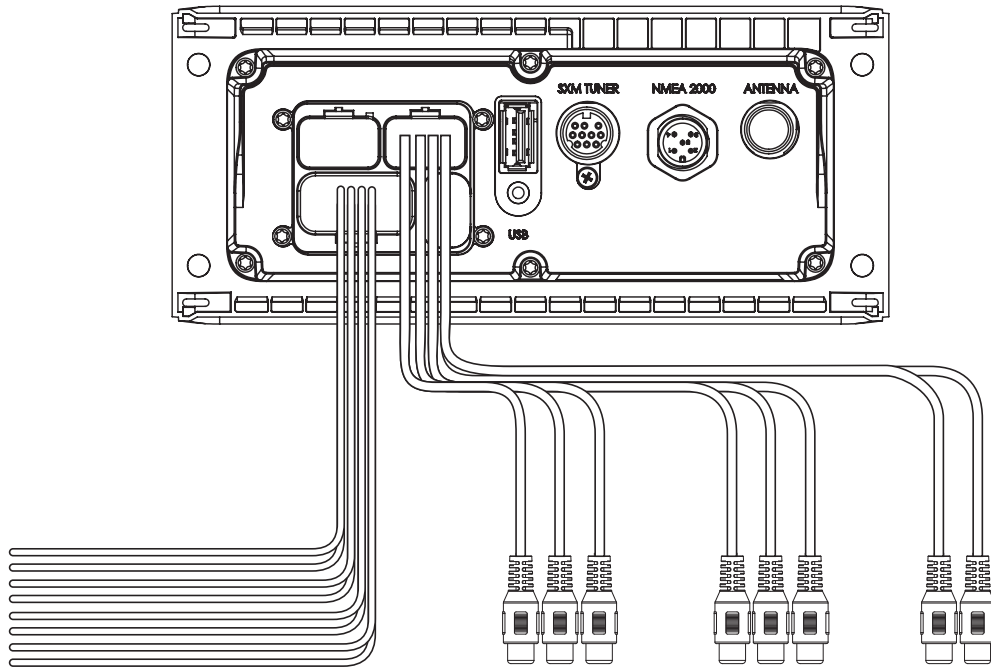
The stereo must be connected to power, either through the boat ignition or an external switch, speakers, and media input sources to function correctly. You should carefully plan the layout of the device, the NMEA 2000® network, the speakers, and your input sources before making any connections.

Port Identification



①	Not used.
②	Connects the stereo to the wiring harness for auxiliary input 1, and for the line and subwoofer outputs for zones 1 and 2.
③	Connects the stereo to the power and speaker wiring harness.
FUSE	Contains the 15 A fuse.
USB	Connects the stereo to a USB source.
SXM TUNER	Connects the stereo to a SiriusXM® Connect Tuner to receive SiriusXM stations where available (not included). Connects to a Fusion DAB module to receive DAB stations where available (not included).
ANTENNA	Connects the stereo to a typical AM/FM antenna. If you are installing the stereo on a boat with a metal hull, you must use a ground-dependent antenna. If you are installing the stereo on a boat with a non-metal hull, you must use a ground-independent antenna. See the installation instructions provided with your antenna for more information.
NMEA 2000	Connects the stereo to a NMEA 2000 network (<i>NMEA 2000 System Wiring Diagram, page 13</i>).

Wiring Harness Wire and Connector Identification



Wire or RCA Connector Function	Bare Wire Color or RCA Label Name	Notes
Ground (-)	Black	Connects to the power source (Power Connection, page 7).
Power (+)	Yellow	Connects to the power source (Power Connection, page 7).
Ignition	Red	Connects to the power source (Power Connection, page 7).
Amplifier on	Blue	Connects to optional external amplifiers, enabling them to turn on when the stereo turns on. Maximum output current when stereo is on: 100 mA.
Telemute	Brown	Activates when connected to ground. For example, when you connect this wire to a compatible, hands-free mobile kit, the audio mutes or the input switches to AUX when a call is received and the kit connects this wire to ground. You can enable this functionality from the settings menu.
Dim	Orange	Connects to the boat's illumination wire to dim the stereo screen when the lights are on. The gauge of the illumination wire must be suitable for the fuse supplying the circuit it is connected to.
Speaker zone 1 left (+)	White	
Speaker zone 1 left (-)	White/black	
Speaker zone 1 right (+)	Gray	
Speaker zone 1 right (-)	Gray/black	
Speaker zone 2 left (+)	Green	
Speaker zone 2 left (-)	Green/black	
Speaker zone 2 right (+)	Purple	
Speaker zone 2 right (-)	Purple/black	
Zone 1 line out (left) Zone 1 line out (right) Zone 1 subwoofer out	ZONE 1 ZONE 1 SUB OUT	Provides output to an external amplifier, and is associated with the volume control for zone 1. Each subwoofer cable provides a single mono output to a powered subwoofer or subwoofer amplifier.
Zone 2 line out (left) Zone 2 line out (right) Zone 2 subwoofer out	ZONE 2 ZONE 2 SUB OUT	Provides output to an external amplifier, and is associated with the volume control for zone 2. Each subwoofer cable provides a single mono output to a powered subwoofer or subwoofer amplifier.
Auxiliary in left Auxiliary in right	AUX IN	Provides an RCA stereo line input for audio sources, such as a CD or MP3 player.

Power Connection

When connecting the stereo to power, you must connect the yellow, red, and black wires to the power source. The yellow and red wires have different functions, and the method you use to connect them to power depends on how you plan to use the stereo on your vessel.

Yellow wire

- This wire provides power to the stereo.
- This wire should be connected through a 15 A circuit breaker, if one is available on the vessel.

NOTICE

If a 15 A circuit breaker is not available on the vessel, you must connect this wire to power through a 15 A fuse (not included).

- This wire provides power to the stereo at all times, and it will drain the battery even when the stereo is not in use. You should install a manual switch on this wire if a 15 A circuit breaker is not available on the vessel, or if you cannot toggle the breaker to remove power to the stereo when storing the vessel.
- If it is necessary to extend this wire, use 14 AWG (2.08 mm²) wire. For extensions longer than 1 m (3 ft.), use 12 AWG (3.31 mm²) wire.

Red wire

- This wire can be connected to the same power source as the yellow wire through the ignition or through a manual switch. This enables you to turn the stereo on and off automatically when you turn the vessel on and off, or when you activate the switch.
- Using this wire to turn the stereo on and off behaves in the same way as using the power button on the stereo to turn it on and off. It is not necessary to connect this wire to a switch if you plan to toggle the power using the power button on the stereo or using a connected chartplotter or remote control. This wire must be connected to turn the stereo on.
- When you turn off the stereo using this switch or the power button, it enters a standby mode that allows the stereo to start up again faster than if you switch the power off using the yellow wire. When it is in standby mode, the stereo uses up to 100 mA, and you must turn off power to the stereo on the yellow wire through the circuit breaker or manual switch when you are not using the vessel to avoid draining the battery.

NOTICE

You must connect this wire to power through a 1 A fuse (not included), whether or not you connect it to the ignition or manual switch.

- If it is necessary to extend this wire, use 22 AWG (0.33 mm²) wire.

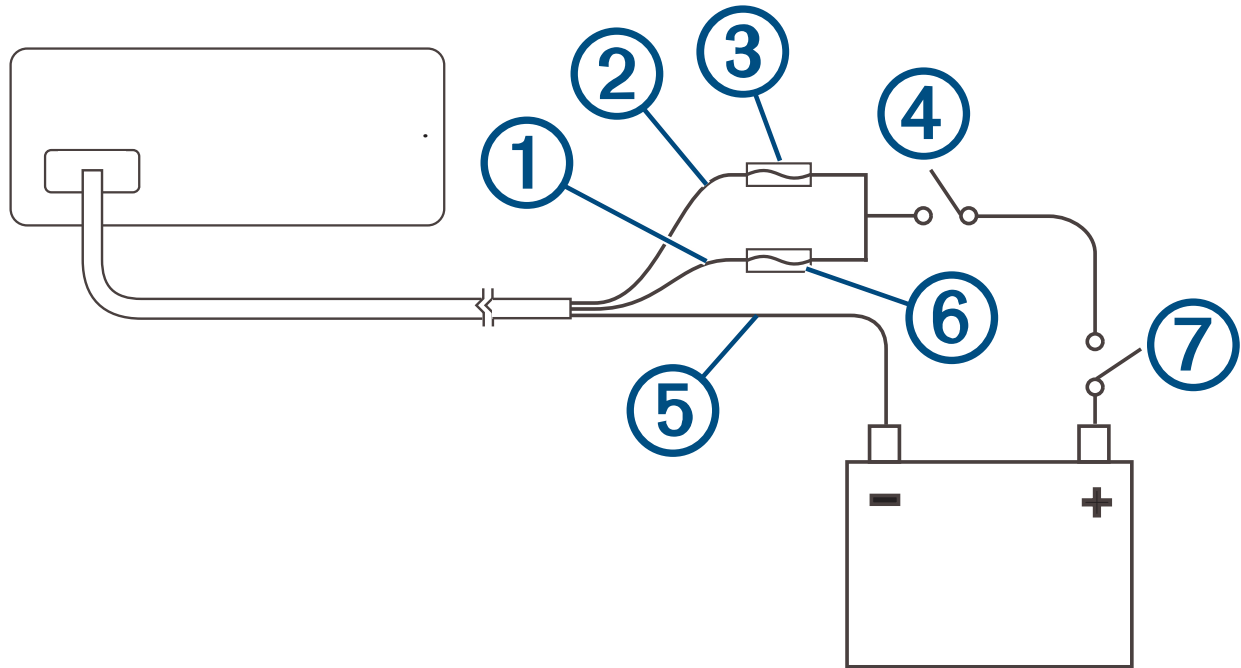
Black wire

- This is the ground wire, and you must connect it to the negative terminal of the power source or to a common ground.
- If it is necessary to extend this wire, use 14 AWG (2.08 mm²) wire. For extensions longer than 1 m (3 ft.), use 12 AWG (3.31 mm²) wire.

Connecting to Power Without Using an Ignition Switch

This method of connection is used most often on larger vessels and on vessels with multiple networked stereos and other marine devices. For these installations, a faster startup time is typically less critical, and it is more effective to use the breaker or a dedicated switch on the electrical panel to turn off the stereo and ensure that no unexpected power drain occurs.

1 Consult this diagram to plan the wire connections.



Item	Description	Notes
①	Yellow wire	You should connect this wire to the red wire before you connect both wires to the manual switch or circuit breaker.
②	Red wire	You should connect this wire to the yellow wire so that it does not act as a physical standby switch.
③	1 A fuse (not included)	You must install this fuse on the red wire before you connect the red wire to the yellow wire.
④	Manual switch (optional)	This switch is needed only if a circuit breaker is not available or if it provides a more convenient method of cutting power to the stereo.
⑤	Black wire	Ground (-)
⑥	15 A fuse (not included)	This fuse is required if you are not able to connect to power through a 15 A circuit breaker ⑦.
⑦	15 A circuit breaker	If a circuit breaker is not available, you must connect a 15 A fuse ⑥ on the yellow wire

2 Route all wires to the stereo wiring harness, the circuit breaker or switch, and the power source as necessary.

Do not connect the wiring harness to the stereo until after you have made all of the bare wire connections.

3 Install all of the necessary fuses on the red and yellow wires.

4 Connect the wiring harness to the stereo.

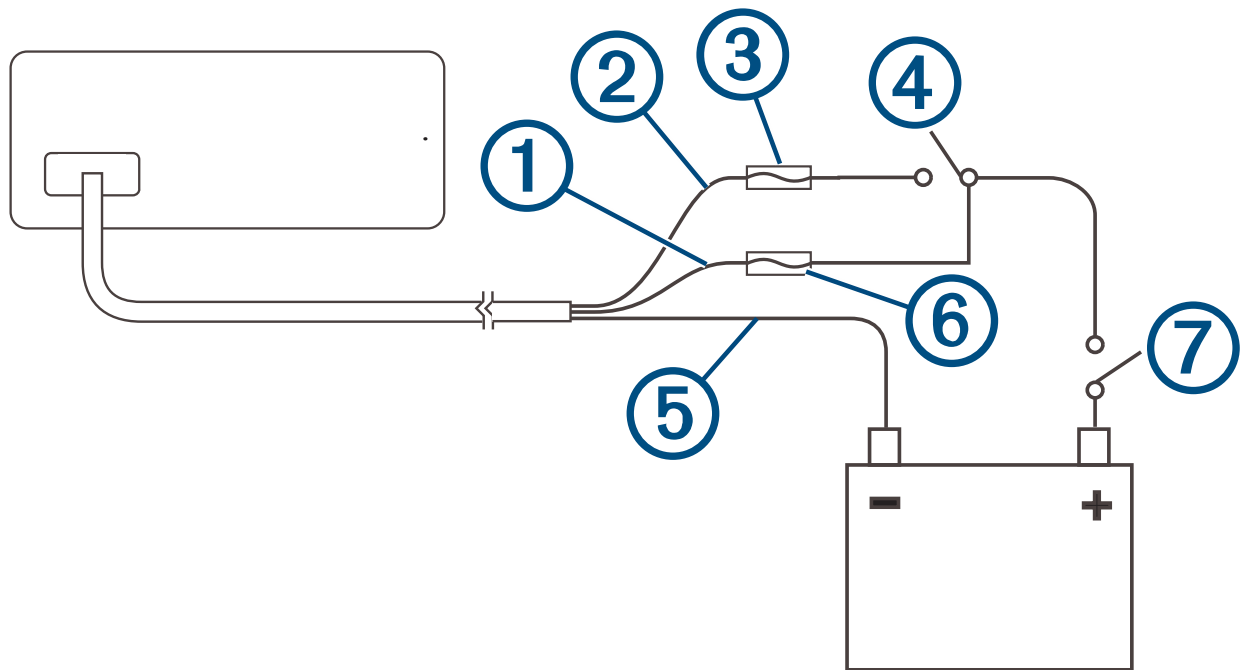
When the circuit breaker or manual switch is closed, the stereo is always on. You can use the power button on the stereo or a connected chartplotter or remote control to place the stereo in a low-power standby mode if needed.

NOTE: When you are not using the vessel, you should remove power to the stereo using the circuit breaker or manual switch to avoid draining the battery.

Connecting to Power Through an Ignition Switch

This method of connection is used most often on ski boats, wake boats, and similar sport or recreational vessels where power to the engines is toggled often. For these installations, a quick standby and faster startup time is desired so that music can be stopped and begin playing again as quickly as possible after restarting the engines. When in standby mode, the stereo uses up to 100 mA, and you should connect the power wires through a circuit breaker or manual switch to avoid draining the battery when you are not using the boat.

1 Consult this diagram to plan the wire connections.



Item	Description	Notes
①	Yellow wire	You must connect this wire to the same power source as the ignition or ACC switch.
②	Red wire	You must connect this wire to the ignition or ACC switch before you connect it to the same power source as the yellow wire.
③	1 A fuse (not included)	You must install this fuse on the red wire before you connect the red wire to the ignition or ACC switch.
④	Ignition or ACC switch	Connecting the red wire to this switch allows the stereo to enter a low-power standby mode when you turn off the engines, so it can start up faster when you turn on the engines again.
⑤	Black wire	Ground (-)
⑥	15 A fuse (not included)	This fuse is required if you are not able to connect to power through a 15 A circuit breaker ⑦.
⑦	15 A circuit breaker or manual switch	If a circuit breaker is not available, you must connect a 15 A fuse ⑥ on the yellow wire. You should also connect the yellow wire to power using a manual switch, so you can remove power to the stereo when you are not using the boat.

- 2 Route all wires to the stereo wiring harness, the ignition or ACC switch, the circuit breaker, and the power source as necessary.

Do not connect the wiring harness to the stereo until after you have made all of the bare wire connections.

- 3 Install all of the necessary fuses on the red and yellow wires.
- 4 Connect the wiring harness to the stereo.

When you turn on the ignition switch, the stereo turns on along with other accessory electronics. When you turn off the ignition switch, the stereo enters a low-power standby mode.

NOTE: When you are not using the vessel for an extended period of time, you should remove power to the stereo using the circuit breaker or other manual switch on the yellow wire to avoid draining the battery.

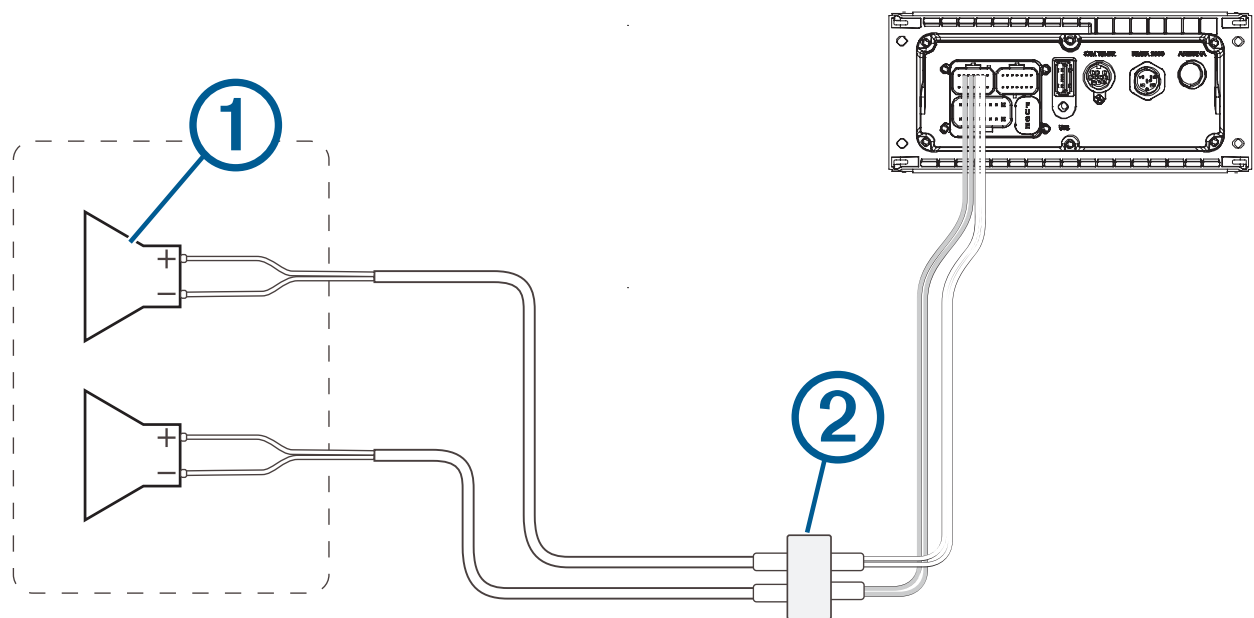
Speaker Zones

You can group speakers in one area into a speaker zone. This enables you to control the audio level of the zones individually. For example, you could make the audio quieter in the cabin and louder on deck.

You can connect one 4 Ohm speaker per channel of each zone. One zone can support no more than two 4 Ohm speakers using the on-board amplifier. To use the RCA line outputs and the RCA subwoofer outputs, you must connect an external amplifier.

You can set the balance, volume limit, tone, subwoofer level, subwoofer frequency, and name for each zone, and configure other zone-specific settings.

Single-Zone System Wiring Example

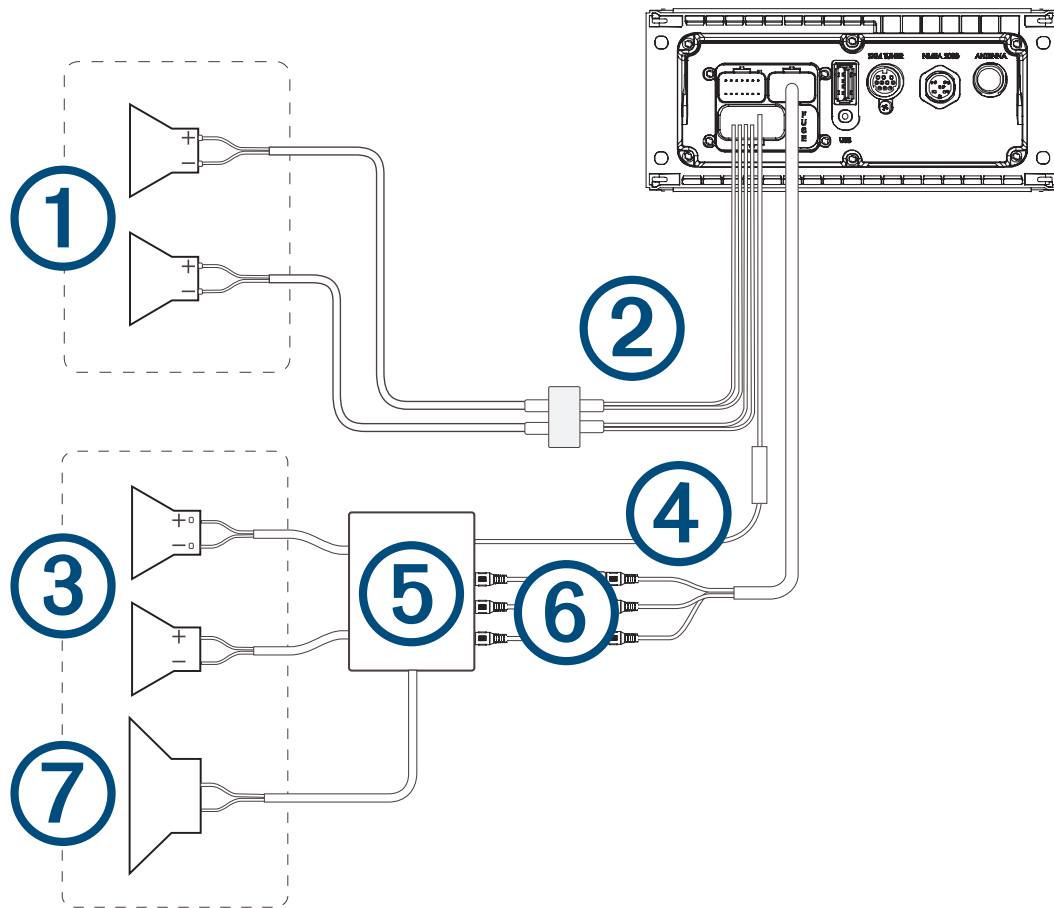


①	Speakers
②	Water-tight connection

Speaker System Wiring Using a Line Out

This diagram illustrates a system installation with an external amplifier and subwoofer connected to zone 2 on the stereo using a line out. You can connect an amplifier and subwoofer to any or all of the available zones on the stereo.

NOTE: You can connect speakers to the speaker wires for the internal stereo amplifier while using the line out on zones 1 and 2, although adjusting the volume affects both the speakers connected to the internal amplifier and the line out. This may result in uneven volume levels.



① Zone 1 speakers

② Water-tight connection

③ Zone 2 speakers

Amplifier-on signal wire

④ You must connect this wire to each amplifier connected to a zone line out.
A connected amplifier must use the same ground (-) as the stereo for this signal wire to function correctly.

⑤ Powered amplifier connected to the zone 2 line out

Zone 2 line out and subwoofer out

⑥ Each subwoofer cable provides a single mono output to a powered subwoofer or subwoofer amplifier.
You may need to use an RCA splitter to connect this to an amplifier.

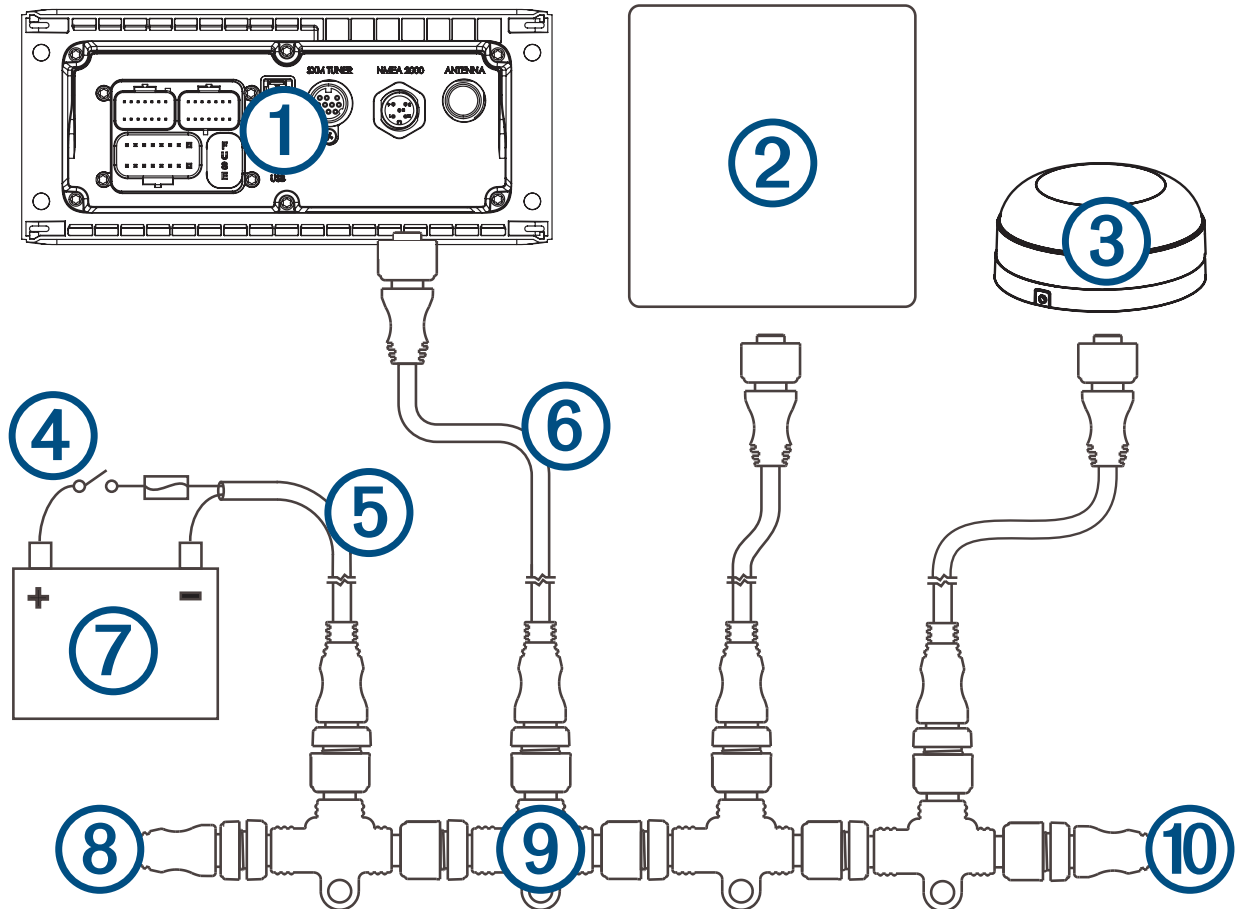
⑦ Subwoofer

Connecting a SiriusXM Tuner Module

This device is compatible with a SiriusXM SXV300 or newer vehicle tuner module.

- 1 If you have already connected a USB source, a NMEA 2000 cable, or both, disconnect them from the stereo.
- 2 Connect the cable from the SiriusXM tuner module to the SXM TUNER port on the back of the stereo.
- 3 If necessary, reconnect the USB source, the NMEA 2000 cable, or both.
- 4 Complete the stereo installation.

NMEA 2000 System Wiring Diagram



①	Stereo
②	Supported chartplotter, MFD, or compatible Fusion NMEA 2000 remote control
	NMEA 2000 GPS antenna, speed sensor, or wind instrument.
③	When the stereo is connected to the same NMEA 2000 network as a compatible engine, a GPS antenna, a chartplotter with a built-in GPS antenna, a wind instrument, or a water speed sensor, it can be configured to automatically adjust the volume according to the engine RPM, the speed over ground, the wind speed, or the speed through water. See the stereo Owner's Manual for more information.
④	In-line switch
⑤	NMEA 2000 power cable
⑥	NMEA 2000 drop cable, up to 6 m (20 ft.)
⑦	9 to 16 Vdc power supply
⑧	NMEA 2000 terminator or backbone cable
⑨	NMEA 2000 T-connector
⑩	NMEA 2000 terminator or backbone cable

Stereo Information

Specifications

Weight	350 g (12.4 oz.)
Water rating	IEC 60529 IPX6 and IPX7 (front of stereo only, when properly installed) ¹ IEC 60529 IPX2 (rear of stereo)
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)
Input voltage	From 10.8 to 16 Vdc
Current (max.)	15 A
Current (muted)	Less than 400 mA
Current (off)	Less than 100 mA
Fuse	15 A mini-blade type
NMEA 2000 LEN @ 9 Vdc	1 (50 mA)
Bluetooth® wireless range	Up to 10 m (30 ft.)
ANT® wireless range	Up to 3 m (10 ft.)
Wireless frequencies/protocols	Bluetooth 2.4 GHz @ 12 dBm nominal ANT 2.4 GHz @ 7 dBm nominal
Compass-safe distance	15 cm (5.9 in.)

On-board, Class D amplifier

Output music power per channel	4 x 50 W max. 4 Ohm
Total output peak power	200 W max.
Output power per channel	4 x 26 W RMS at 14.4 Vdc input, 4 Ohm, 10% THD ²
Line output level (max.)	5.5 V (peak to peak)
Aux input level (typical)	1 V RMS

Tuner frequencies

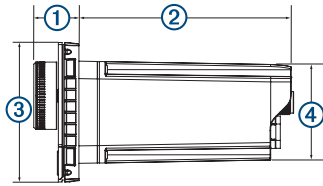
Tuner	Europe and Australasia	USA	Japan
FM radio frequency range	87.5 to 108 MHz	87.5 to 107.9 MHz	76 to 95 MHz
FM frequency step	50 kHz	200 kHz	50 kHz
AM radio frequency range	522 to 1620 kHz	530 to 1710 kHz	522 to 1620 kHz
AM frequency step	9 kHz	10 kHz	9 kHz

¹ When properly installed, the front of the stereo withstands incidental exposure to water of up to 1 m for up to 30 min, and is protected against powerful jets of water. For more information, go to www.garmin.com/waterrating.

² The stereo may limit the output power to prevent the amplifier from overheating, and to maintain the audio dynamics.

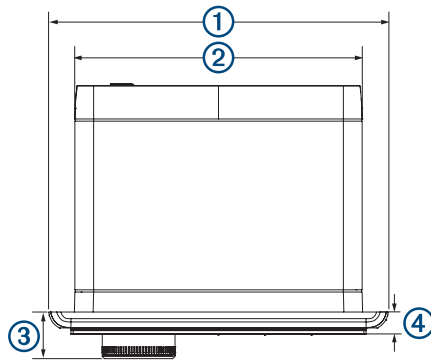
Stereo Dimension Drawings

Side Dimensions



①	22 mm (0.87 in.)
②	104.6 mm (4.12 in.)
③	68 mm (2.68 in.)
④	49.8 mm (1.96 in.)

Top Dimensions



①	157 mm (6.18 in.)
②	130 mm (5.10 in.)
③	22 mm (0.87 in.)
④	10 mm (0.39 in.)

Software Updates

Go to support.garmin.com to find software updates and information for your device.

物質宣言

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
印刷电路板组件	✗	○	○	○	○	○
金属零件	✗	○	○	○	○	○
电缆 电缆组件 连接器	✗	○	○	○	○	○

本表格依据 SJ/T11364 的规定编制。

○: 代表此种部件的所有均质材料中所含的该种有害物质均低于 (GB/T26572) 规定的限量

✗: 代表此种部件所用的均质材料中, 至少有一类材料其所含的有害物质高于 (GB/T26572) 规定的限量

*該產品說明書應提供在環保使用期限和特殊標記的部分詳細講解產品的擔保使用條件。



產品

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M/N: A03771 IC: 1792A-03771

