

GPSMAP® 3006C/3010C & GPS 17

installation instructions



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INTRODUCTION

The GPSMAP 3006C/3010C Multi-Function Display (MFD) and GPS 17 must be properly installed according to the following instructions for the best possible performance. To complete the installation, you need the appropriate fasteners, tools, and mounts listed in each section. These items are available at most marine dealers. Always wear safety goggles, ear protection, and a dust mask when drilling, cutting, or sanding. When drilling or cutting, always check first to see what is on the opposite side of the surface. Mount the GPSMAP 3006C/3010C in a location that provides a clear, glare-free view of the display and easy operation of the controls. **If you experience difficulty installing the unit, contact Garmin Product Support or seek the assistance of a professional installer.**



INSTALLATION INSTRUCTIONS

Surface Mounting the GPSMAP 3006C/3010C

Tools

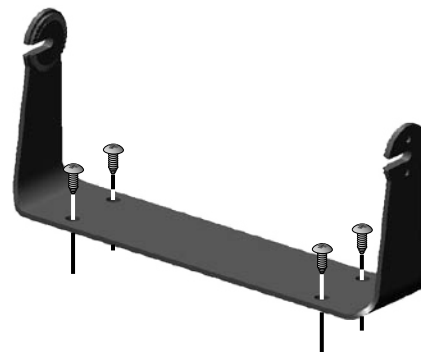
- Drill and drill bit
- Screwdriver
- Pencil
- Mounting hardware (not included)



NOTE: Mounting hardware (fasteners) not included. Mounting holes are 5/16" (7.9 mm) in diameter.

To install the Bail Mount and unit:

1. Using the bail mount as a template, mark the location of the four mounting holes. Be sure to leave at least two inches of clearance behind the unit for the wiring.
2. Using an appropriate size drill bit, drill pilot holes for the fasteners.
3. Secure the bail mount to the surface with the fasteners.
4. Loosen the mounting knobs.
5. Slide the unit into the bail mount, and tighten the mounting knobs.



Bail Mount



Flush Mounting the GPSMAP 3006C/3010C

Tools

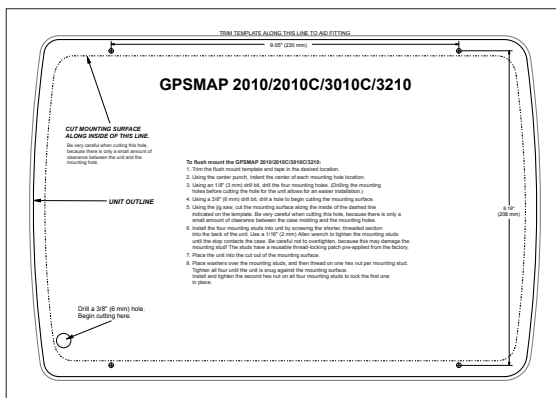
- Flush Mount Template
- Jig saw
- Masking tape
- Scissors
- Drill
- Drill bits—1/8" (3 mm) and 3/8" (6 mm)
- 1/16" (2 mm) Allen (Hex) wrench
- Sockets or wrenches
- Hammer
- Center punch



Flush Mount

To flush mount the GPSMAP 3006C/3010C:

1. Trim the Flush Mount Template, and tape it in the location you want.
2. Using the center punch, indent the center of each mounting hole location.
3. Using an 1/8" (3 mm) drill bit, drill the four mounting holes.
4. Using a 3/8" (6 mm) drill bit, drill a hole to begin cutting the mounting surface.
5. Using the jig saw, cut the mounting surface along the inside of the dashed line indicated on the template. Use a file and sandpaper to refine the size of the hole. **Be very careful when cutting this hole. There is only a small amount of clearance between the case molding and the mounting holes.**
6. Install the four mounting studs into the unit by screwing the shorter, threaded section into the back of the unit. Use a 1/16" (2 mm) Allen wrench to tighten the mounting studs until the stop contacts the case. **Be careful not to overtighten as this may damage the mounting stud!** The studs have a reusable thread-locking patch pre-applied from the factory.
7. Place the unit into the cut-out of the mounting surface.
8. Place washers over the mounting studs, then thread on one hex nut per mounting stud. Tighten all four until the unit is snug against the mounting surface. Install and tighten the second hex nut set on all four mounting studs to lock the first set in place.



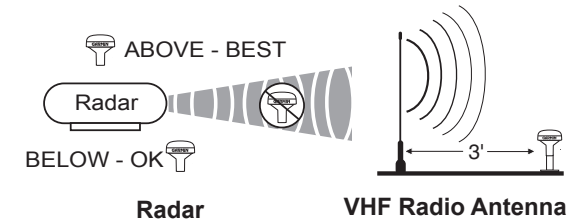
Flush Mount Template

Installing the GPS 17

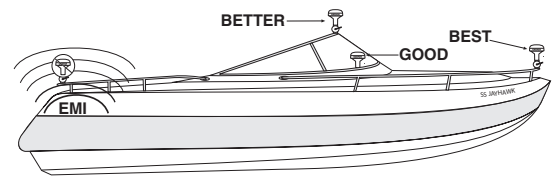
The GPS 17 can be flush mounted or installed on any standard 1" O.D. (Outer Dimension), 14 threads-per-inch marine mount. When mounting the GPS 17, the cable can be run externally, through the mounting panel, or through the center of the marine mount.

The GPS 17 connects to the 18-pin Power/Data cable on the GPSMAP 3006C/3010C and provides the GPS/WAAS signal for the unit. If two or more GPSMAP 3005C/3006C/3010C units are installed and networked, only one GPS 17 needs to be installed.

To ensure the best reception, mount the GPS 17 in a location that has a clear, unobstructed view of the sky in all directions. Avoid mounting the GPS 17 where it is shaded by the boat's superstructure, a radome antenna, or mast. Sailboat users should avoid mounting the unit high on the mast to prevent inaccurate speed readings caused by excessive heeling. The unit provides more stable readings if it is located nearer to water level. **Mount the GPS 17 at least 3 ft away from (preferably above) the path of any radar beam or a VHF radio antenna.** Temporarily secure the unit in the preferred mounting location and test for correct operation. With correct operation verified, permanently mount the unit. If interference with other electronics is experienced, try a different location.



NOTE: Mount the antenna at least 3 ft away from (preferably above) the path of any radar beam or a VHF radio antenna.



EMI (Electromagnetic Interference) from engine components

Signal Interference

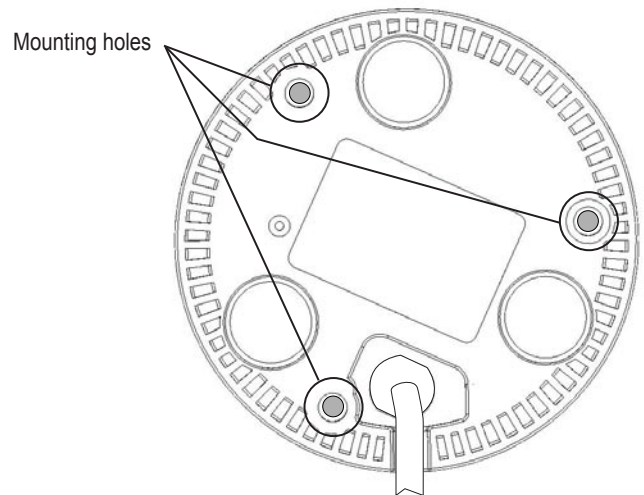


NOTE: Never paint the GPS 17 or clean it with harsh solvents.

To flush mount the GPS 17:

1. Cut out the Flush Mount Drilling Template provided on page 15, and tape it on the selected mounting location.
2. Mark the center of each mounting hole by tapping the end of a center punch or pointed object with a hammer. If the cable is going to be installed through the mounting panel, mark the center of the additional hole.
3. Drill the holes using the appropriate drill bits.
4. Align the GPS 17 over the mounting holes, and fasten it using M4 screws. The mounting threads in the GPS 17 are 8.10 mm deep. Do not use screws that thread into the GPS 17 deeper than 8 mm, or the case may be damaged.

The GPS 17 can be installed with the coax through the panel or on the outside of the unit. If the coax is run through the panel, seal the outside exit area with marine sealant.



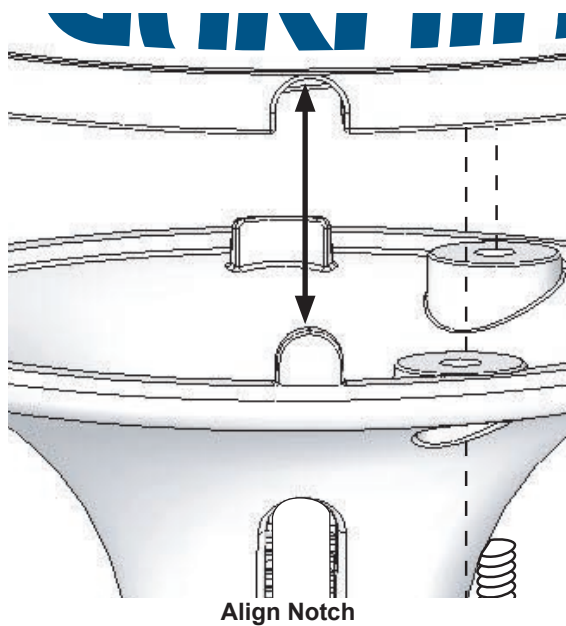
Bottom of GPS 17

To attach the enclosed pole mount to the GPS 17:

1. Thread the cable through the pole mount.
2. Align the tab on the mount to the notch on the GPS 17.
3. Use the enclosed screws to secure the mount to the base.



Attaching the Pole Mount to the GPS 17



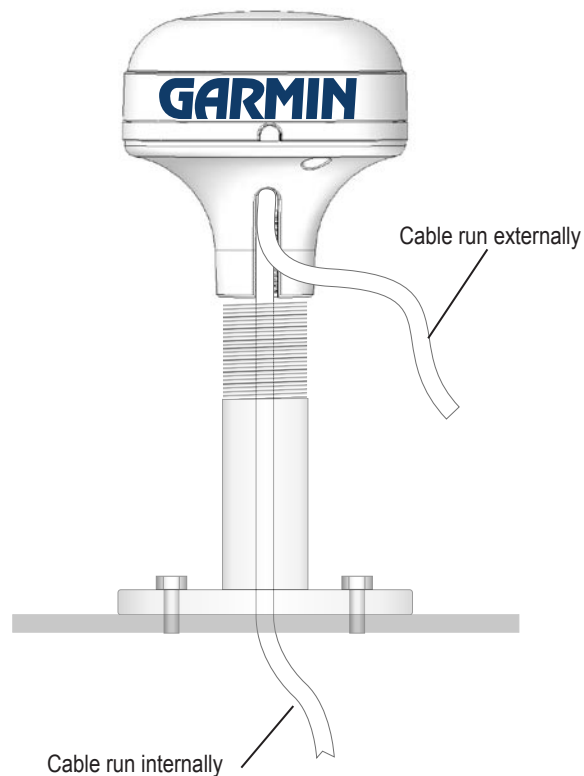
Align Notch

To mount the GPS 17 with the cable run outside the mount:

1. Place the cable in the vertical slot along the side of the base of the unit.
2. Screw the GPS 17 onto the mount. DO NOT over-tighten the head. It is possible to over-tighten the unit and cut the cable.
3. With the GPS 17 and mount installed, fill the remaining gap in the cable exit with a marine sealant.
4. Route the cable away from sources of electronic interference.

To mount the GPS 17 with the cable run through the mount:

1. Position the mount in the preferred location, and mark the approximate center of the mount.
2. Drill a hole large enough for the cable to pass through.
3. Slide the cable through the mount and screw the GPS 17 onto the mount.
4. Fasten the mount to the boat.
5. Route the cable away from sources of electronic interference.



Attaching the GPS 17 to a Pole Mount

Wiring and Cables

The GPSMAP 3006C/3010C comes with an 18-pin Power/NMEA and a 17-pin Marine Video cable. Optional Garmin Marine Network components use specialized Garmin Network cables. For some installations, it may be necessary to drill 1.25" (31.7 mm) holes to route the connector end of the cables. Garmin rubber grommets are provided to cover the installation holes (see below). Wiring instructions are found on the following pages. **If you experience difficulty installing the unit, contact Garmin Product Support or seek the assistance of a professional installer.**

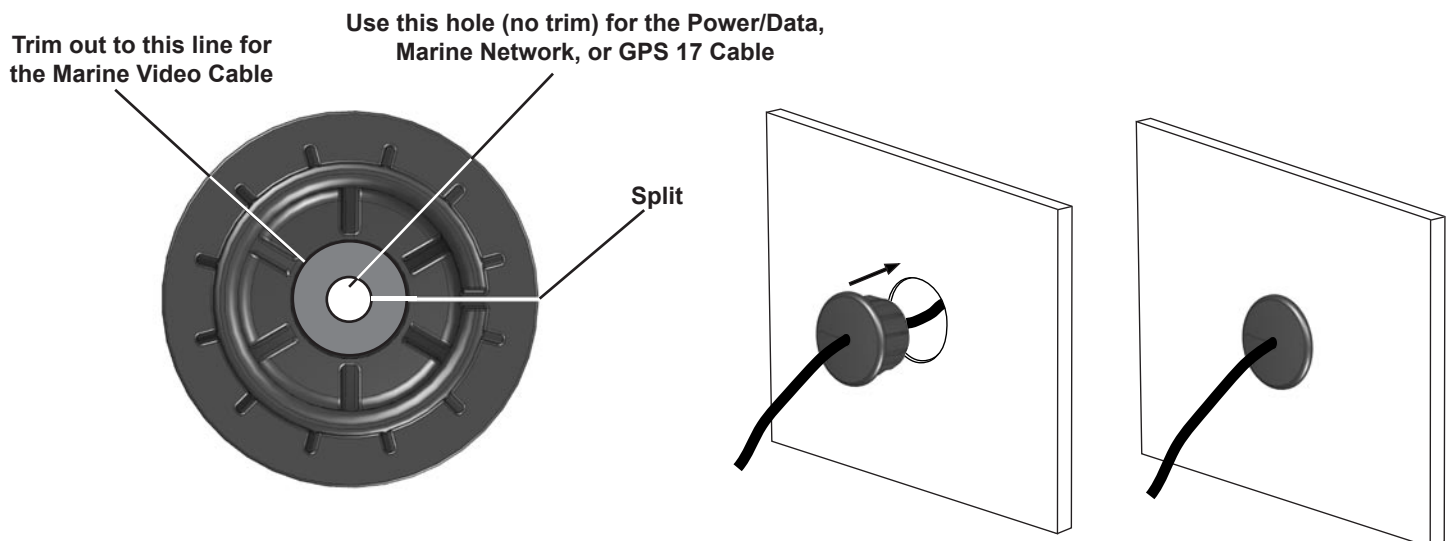
The grommets may not be needed in some installations. The grommets do NOT create a waterproof seal. Apply a marine sealant after installation to weatherproof around the grommet and cable. Additional grommets can be purchased from your Garmin dealer or direct from Garmin. Be sure to test the system before installing the grommets.

Tools

- Drill
- 1.25" (31.7 mm) paddle drill bit or hole saw
- Utility knife
- Marine sealant (optional)

To install the Cable Grommet:

1. Mark the location where the cable Power/Data, Marine Video, or Marine Network cable is to route through.
2. Using a 1.25" (31.7 mm) paddle drill bit or hole saw, drill the installation hole.
3. Refer to the diagram below for trimming instructions. Carefully trim the cable hole, as needed.
4. Route the cable to the unit.
5. Spread the grommet apart at the split, and place it around the cable (see below).
6. Firmly push the grommet into the installation hole until it is seated. Apply marine sealant, as needed, to weatherproof the cable.



Power/Data Cable Wiring

The following pages contain several wiring diagrams. The first diagram on the next page shows the GPSMAP 3006C/3010C MFD using the 18-pin Power/Data wiring harness and the GPS 17. If two or more GPSMAP 3006C/3010C units are installed and networked, only one GPS 17 antenna needs to be installed. Next are the wiring diagram examples showing the GPSMAP 3006C/3010C using the 18-pin Power/Data wiring harness interfacing with a variety of different equipment. Refer to the wiring diagram that best suits your needs. For third-party devices, refer to the wiring guidelines included with that equipment. Use 22 AWG (18 AWG for the Red and Black wires), shielded, twisted-pair wiring for extended runs of wire. Solder all connections and seal the connection with heat shrink tubing. **If networking two or more MFDs, the GPS 17 and NMEA input devices should only be attached to one MFD on the network.** A pinout of the cable is shown below.

Power/Data Cable Input/Output Ports

The GPSMAP 3006C/3010C Power/Data cable has four I/O (Input/Output) ports.

Ports 1 and 2—communicate with other NMEA-compliant devices, such as VHF radios, NMEA instruments, autopilots, or PCs (Port 1 only). You can input one NMEA device to each port, and output in parallel to three NMEA devices per port.

Port 3—is reserved for use with Garmin sounder modules.

Port 4—is reserved for use with the Garmin GPS 17 GPS/WAAS antenna.

The following formats are supported for connection of external devices: Garmin proprietary sonar module and NMEA 0183 version 3.01. The following are the sentences for NMEA 0183, version 3.01 and later output:

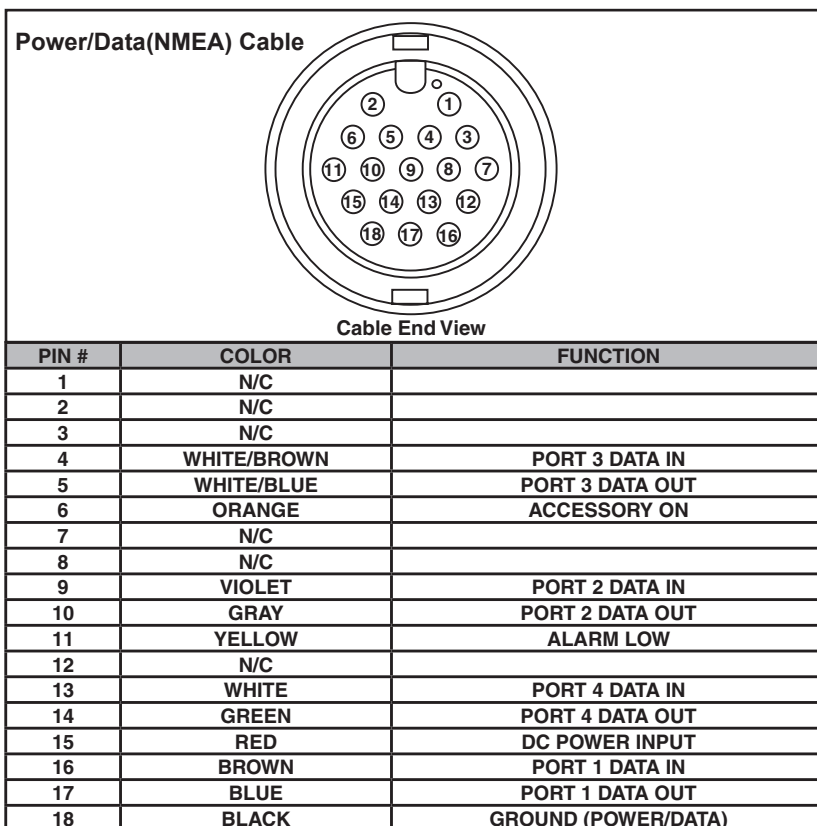
Approved sentences—GPBWC, GPRMC, GPGGA, GPGSA, GPGSV, GPGLL, GPBOD, GPRMB, GPRTE, GPVTG, GPWPL, and GPXTE.

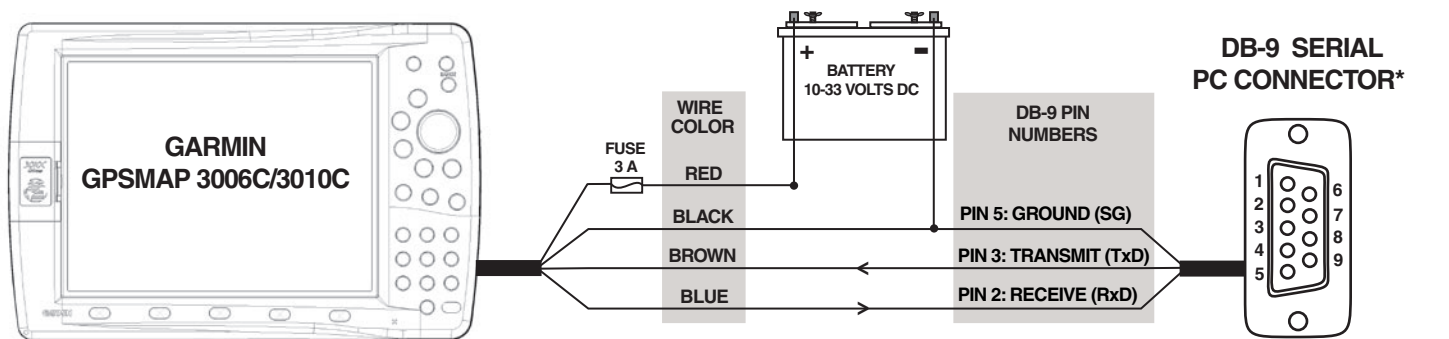
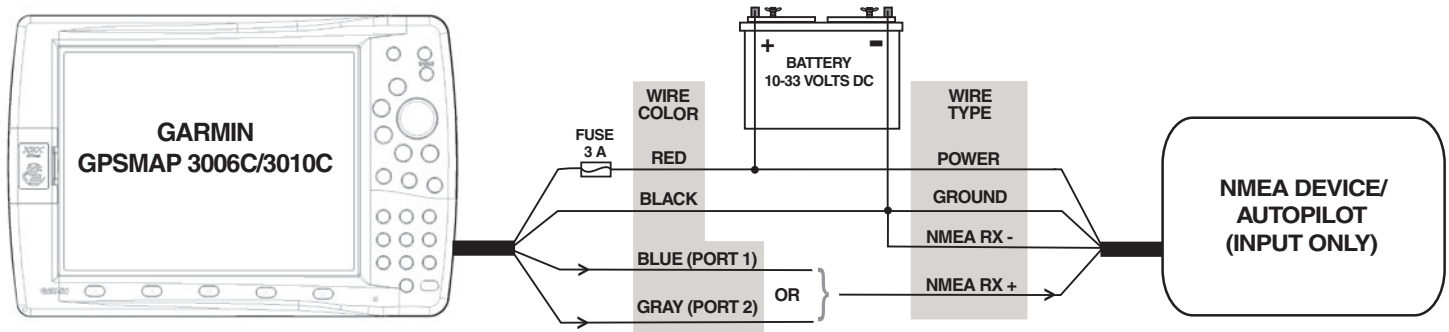
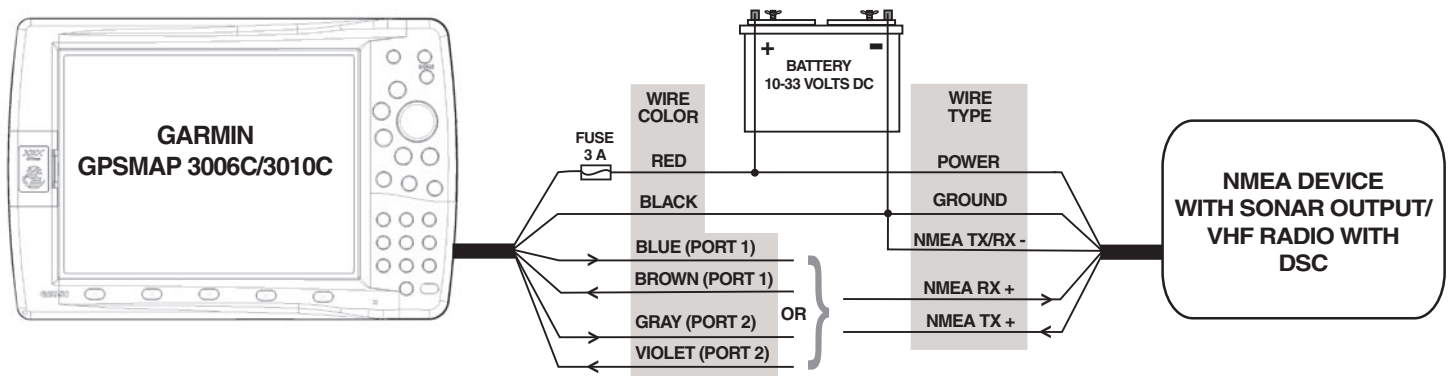
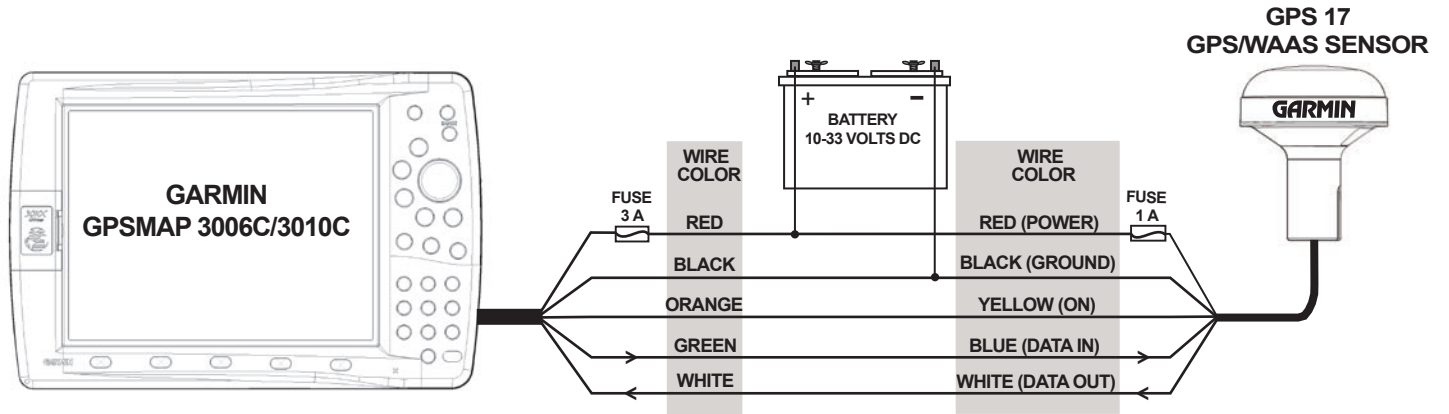
Garmin proprietary sentences—PGRME, PGRMM, PGRMZ, and PSLIB.

The unit also includes NMEA input with support for the WPL sentence, DSC, and sonar NMEA input with support for the DPT (Depth) or DBT, MTW (Water Temp), and VHW (Water, Speed, and Heading) sentences. The unit interface must be set to **NMEA In/NMEA Out**.

Documentation concerning NMEA & RTCM formats and sentences are available for purchase from:

National Marine Electronics Association (NMEA)
 Seven Riggs Avenue
 Severna Park, MD 21146
 U.S.A.
www.nmea.org

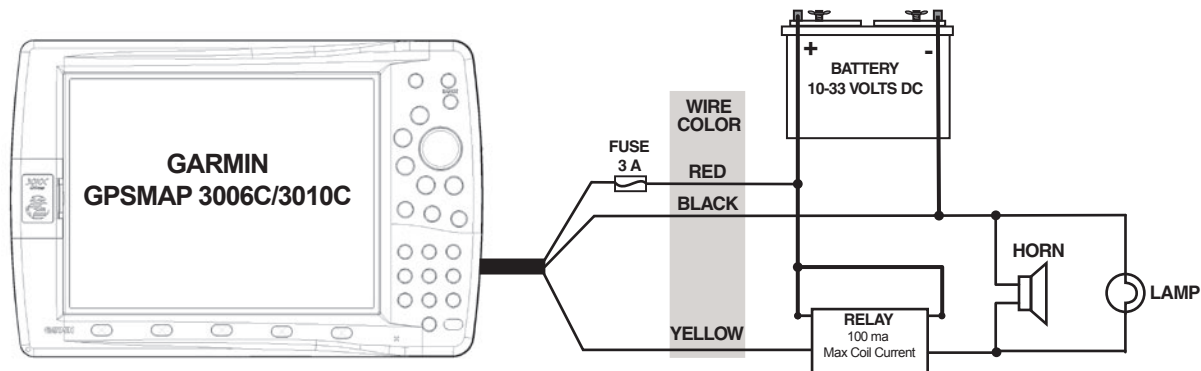




* Note: DB-9 connectors normally have pin numbers printed next to each pin.

Optional Alarm Wiring

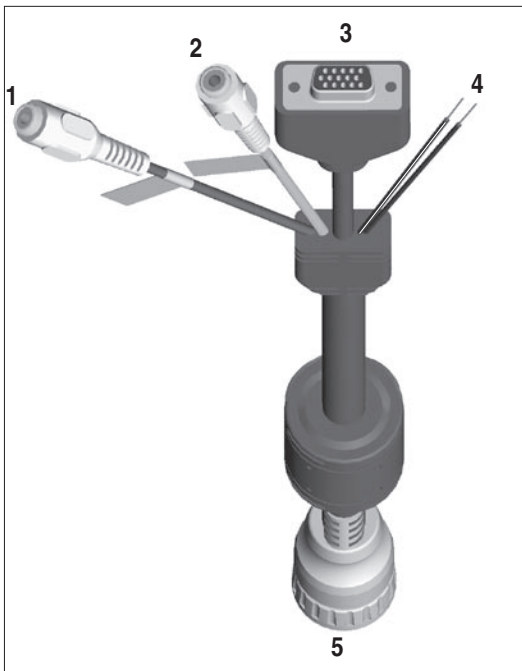
The GPSMAP 3006C/3010C has an alarm circuit that can be used with a lamp, a horn, or both to alert you when the unit displays a message. The alarm circuit pulls low when the alarm sounds. The alarm does not have to be wired for the unit to function. The maximum current is 100 milliamps. A switch or relay can be used to select between visual and audible alerts.



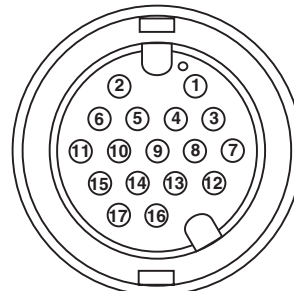
Marine Video Cable

The GPSMAP 3006C/3010C Marine Video 17-pin cable allows input of NTSC (National Television System Committee)/PAL (Phase Alternate Line) composite video sources, and VGA resolution PC monitor output. Marine Video inputs are only available on the MFD to which they are attached and will not transmit over the Garmin Marine Network. A pinout of the cable is provided below.

- 1 & 2. VIDEO 1 and VIDEO 2 Inputs (RCA connectors) allow you to input two separate NTSC/PAL compatible video devices, such as VCR, DVD, TV, or a video camera. The MFD can display one video input at a time or alternate between the two (see the *GPSMAP 3006C/3010C Owner's Manual*). Sound from a video source must be attached to a separate stereo/audio system. The video output from video device attaches to the Video 1 (Black Cable) or Video 2 (Gray Cable) RCA connectors.
3. PC Monitor VGA Output (HD 15-pin connector) for remote viewing of the MFD display on a computer monitor. The remote monitor must be at least VGA resolution and have multi-sync capability.
4. Tape off any unused wires.
5. Marine Video 17-pin cable attaches to the back of the MFD.



Marine Video Cable



Marine Video Cable End View

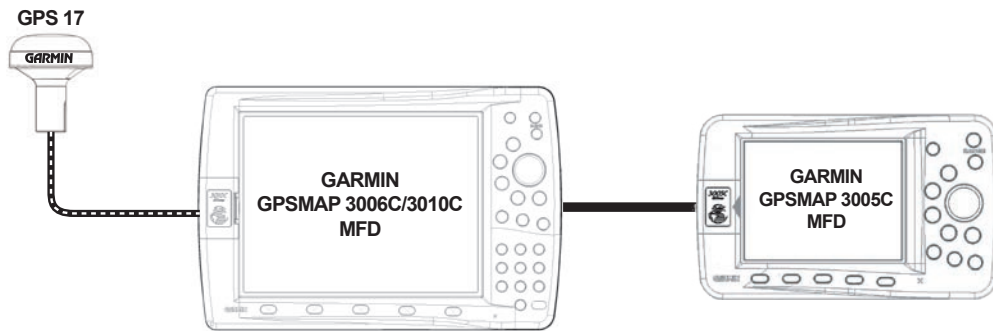
IMAGE	CONNECTOR	PIN #	FUNCTION
1	RCA-1 CENTER	2	VIDEO 1 IN (BLACK JACKET)
	RCA-1 OUTER	6	VIDEO 1 IN, GROUND
2	RCA-2 CENTER	11	VIDEO 2 IN (GRAY JACKET)
	RCA-2 OUTER	15	VIDEO 2 IN, GROUND
3	HD-15 PIN 1	1	VGA, ANALOG-RED
	HD-15 PIN 2	4	VGA, ANALOG-GREEN
	HD-15 PIN 3	3	VGA, ANALOG-BLUE
	HD-15 PIN 4		
	HD-15 PIN 5	13	VGA, ANALOG-GROUND
	HD-15 PIN 6	8	VGA, ANALOG-RED, GND
	HD-15 PIN 7	8	VGA, ANALOG-GREEN, GND
	HD-15 PIN 8	8	VGA, ANALOG-BLUE, GND
	HD-15 PIN 9		
	HD-15 PIN 10	13	VGA, SYNC-GROUND
	HD-15 PIN 11		
	HD-15 PIN 12		
	HD-15 PIN 13	7	VGA, H-SYNC
	HD-15 PIN 14	12	VGA, V-SYNC
	HD-15 PIN 15		
HD-15 SHELL	9	VGA, OVERALL SHIELD	
4	WIRE- BLACK	5	NOT USED
	WIRE- STRIPED	10	NOT USED

Garmin Marine Network

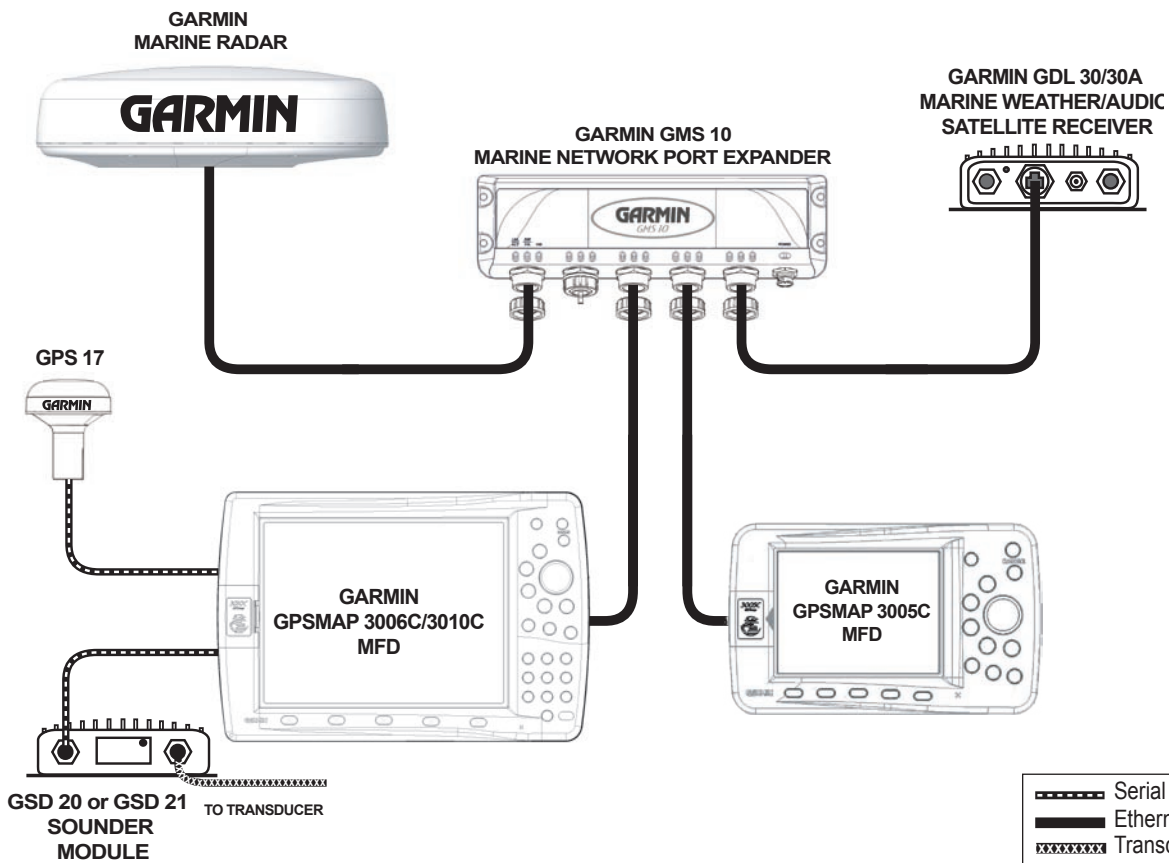
The Garmin Marine Network is a waterproof Ethernet-based system that allows Multi-Function Displays (MFD) to communicate with sensors and other MFDs over the network. Waterproof RJ-45 connections allow for simple installation and high-speed connectivity. For a simple installation with one MFD and one sensor, the two devices can be directly connected with a Garmin Marine Network cable. If more than two MFDs are installed, you need a Garmin Marine Network Port Expander (GMS 10) to expand the network. If two or more GPSMAP 3005C/3006C/3010C units are installed and networked, only one GPS 17 antenna needs to be installed. You can add up to five total devices to the Network Port Expander. If more than five are needed, you can add more Network Port Expanders to the network. This network is NOT compatible with PC networks. **Do NOT attach PC devices to the Garmin Marine Network.** Some examples of the Garmin Marine Network are included below. Refer to the individual installation instructions for the individual sensors. Additional Garmin Network cables are available from your Garmin dealer or direct from Garmin.



NOTE: Power connections for network components are not shown in the following illustrations.



Two MFD Network



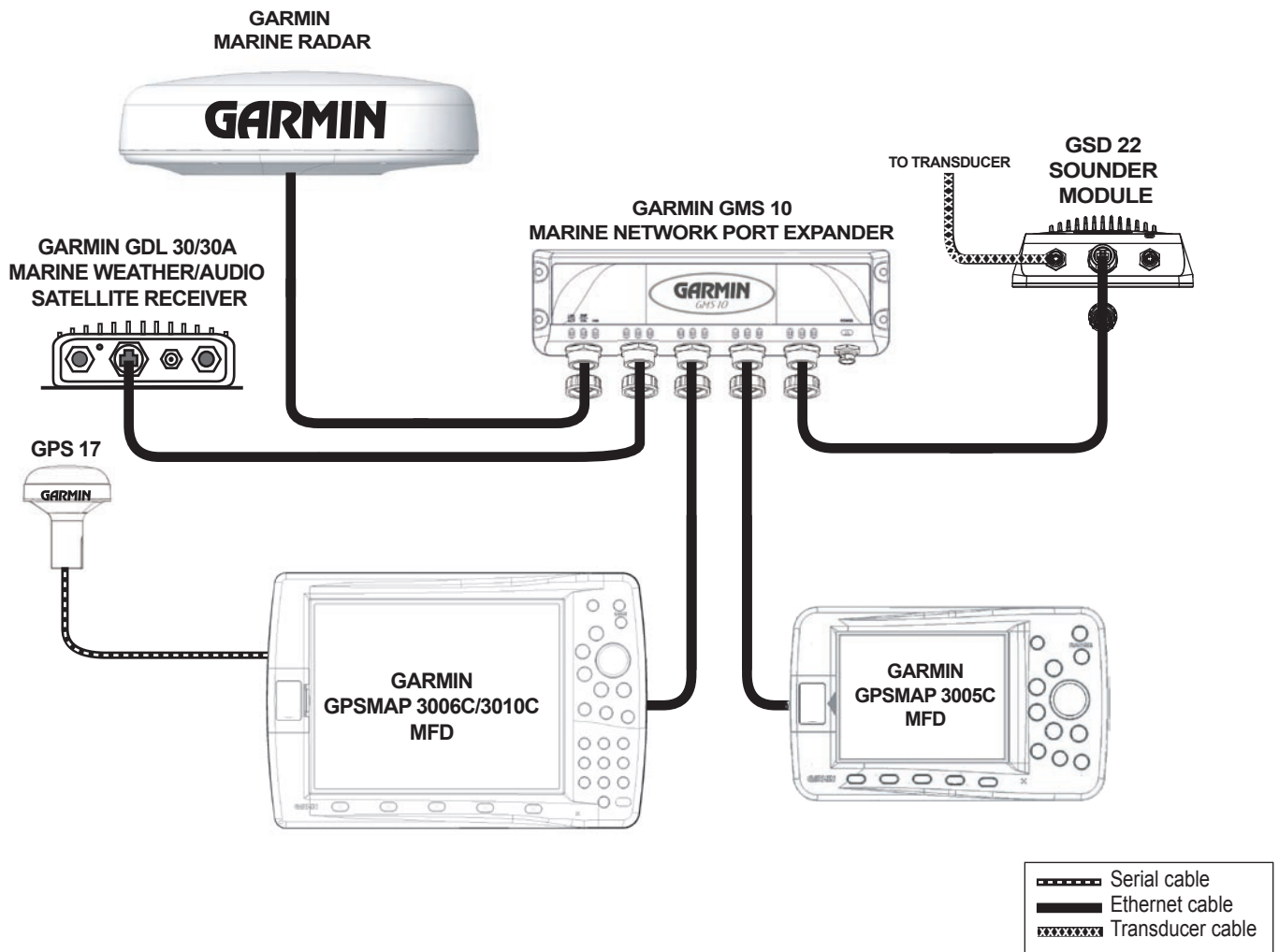
Two MFD Networked with Sensors and GMS10 Port Expander

	Serial cable
	Ethernet cable
	Transducer cable

The following diagram shows the Garmin Marine Network with a GSD Sounder Module connected.



NOTE: Power connections for network components are not shown in the following illustrations.



Final Wiring Connection

After all the wiring is complete, the cables are attached on the back of the GPSMAP 3006C/3010C MFD. If the MFD is not being networked, be sure to firmly affix the weather cap over the open connector to limit corrosion of the contacts. The connection ports are labeled on the back of the MFD.

To install the Power/NMEA, Marine Video, and Network Cables:

1. Align the notch and locking ring tab on the black **POWER/NMEA** cable with the black **POWER/NMEA** port on the back of the unit. Carefully press the cable in until it is firmly seated. **Do not force the cable, as this may damage the pins!**
2. After the cable is seated, turn the locking ring clockwise until it stops.
3. Repeat steps 1 and 2, attaching the gray Marine Video cable to the gray **VIDEO** port on the back of the unit.
4. If networking the MFD with the Garmin Marine Network, insert the RJ-45 connector into the **NETWORK** port on the back of the unit and screw the locking ring in clockwise until it is firmly seated.

With power applied to the circuit, test the installation by pressing the **POWER** key on the front of the unit. See the *GPSMAP 3006C/3010C Owner's Manual* for steps on initializing the receiver.

GPSMAP 3010C



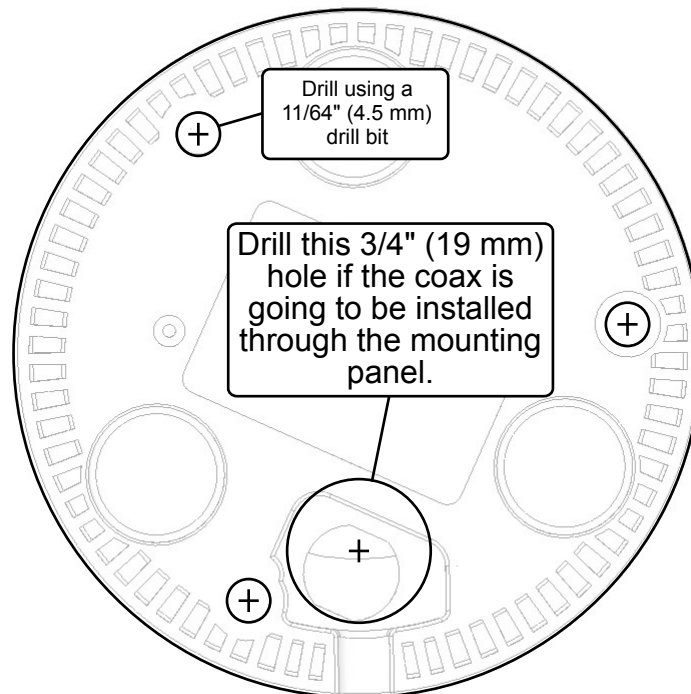
Connection ports

GPSMAP 3006C



Connection ports

Flush Mount Drilling Template





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