

GPSMAP 3006C/3010C & GPS 17

installation instructions



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To obtain warranty service, contact your local Garmin authorized dealer or call Garmin Product Support for shipping instructions and an RMA tracking number. The product should be securely packed with the tracking number clearly written on the outside of the package. The product should then be sent, freight charges prepaid, to any Garmin warranty service station. A copy of the original sales receipt is required as the proof of purchase for warranty repairs.

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, please contact an installation professional.**



GPSMAP 3010C Shown

INSTALLATION INSTRUCTIONS

Surface Mount

Tools

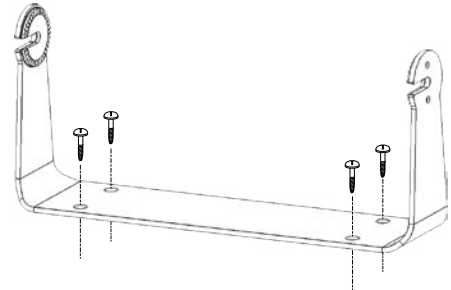
- Drill and Drill Bit
- Screw Driver
- Pencil
- Mounting Hardware (not included)



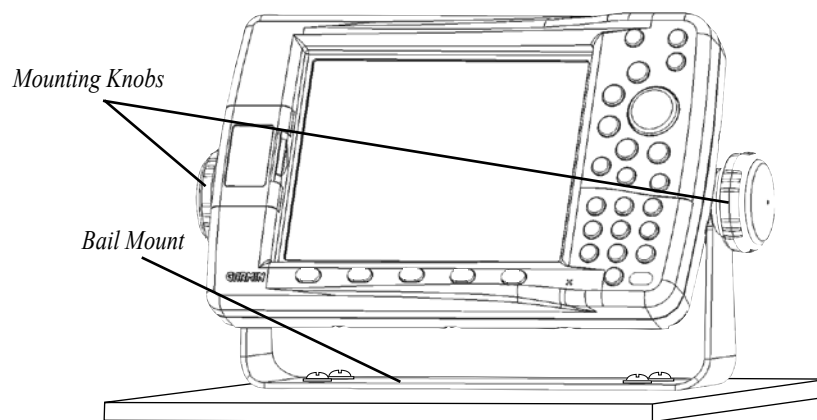
NOTE: Mounting hardware (fasteners) not included.
Mounting holes are 5/16" (7.9 mm) in diameter.

To install the Bail Mount and unit:

1. Using the bail mount as a template, mark the location of the four mounting holes with a pencil. Be sure to leave at least two inches of clearance behind the unit for the wiring connector.
2. Using an appropriate size drill bit, drill pilot holes for the fasteners that you choose to use.
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.



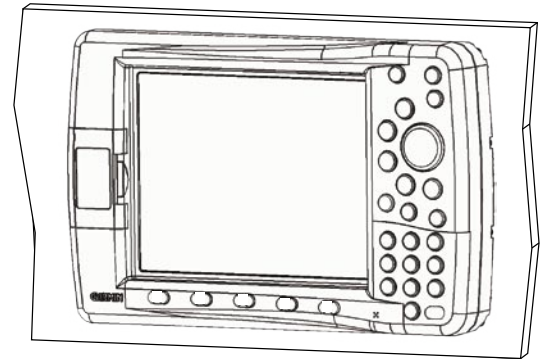
Bail Mount



Flush Mount

Tools

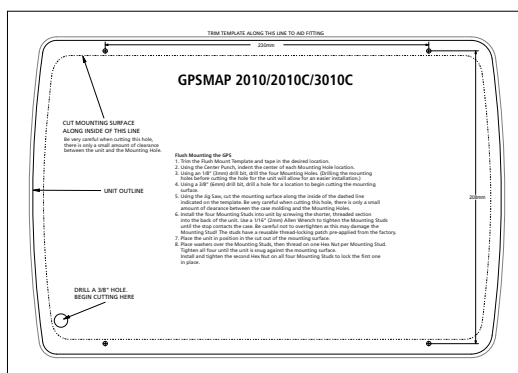
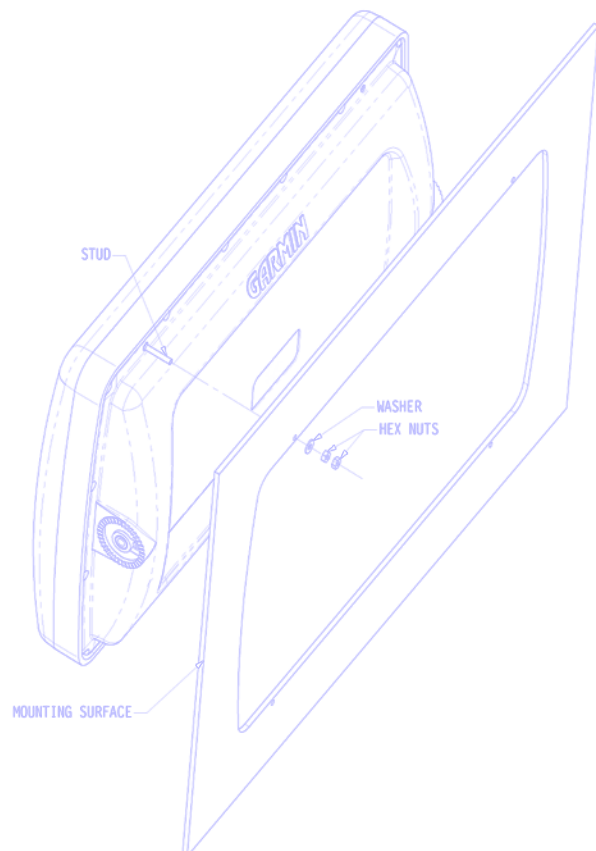
- Flush Mount Template
- Jig Saw
- Masking Tape
- Scissors
- Drill
- Drill Bits—1/8” (3 mm) and 3/8” (6 mm)
- 1/16” (2 mm) Allen (Hex) Wrench
- Sockets or Pliers
- Hammer
- Center Punch



Flush Mount

To flush mount the GPSMAP 3006C/3010C:

1. Trim the Flush Mount Template and tape in the desired location.
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.
Drilling the mounting holes before cutting the hole for the unit allows for easier installation.
4. Using a 3/8” (6 mm) drill bit, drill a hole for a location 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. Be very careful when cutting this hole, because there is only a small amount of clearance between the case molding and the mounting holes.
6. Install the four mounting studs into 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 in position in 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.

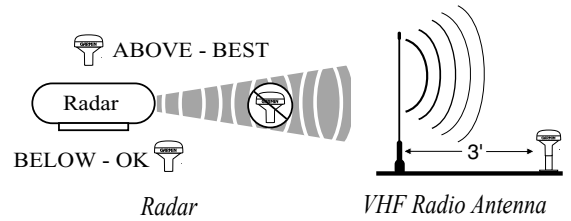


Flush Mount Template

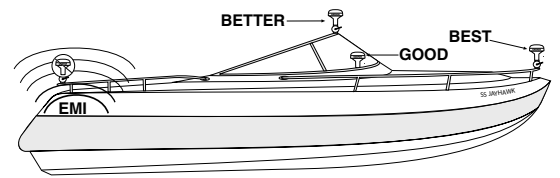
Installing the GPS 17

The GPS 17 installs on any standard 1" O.D. (Outer Dimension), 14 threads-per-inch marine mount. The cable can be run externally or through the center of the 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 3006C/3010C units are installed and networked, only one GPS 17 antenna needs to be installed.

To ensure the best reception, mount the antenna in a location that has a clear, unobstructed view of the sky in all directions. Avoid mounting the antenna where it is shaded by the boat's superstructure, a radome antenna, or mast. Sailboat users should avoid mounting the antenna 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. Most marine VHF and LORAN antennas should not seriously degrade the GPS antenna's reception. **Mount the antenna at least 3 ft away from (preferably above) the path of any radar beam or a VHF radio antenna.** Temporarily mount the antenna in the desired location until correct operation has been verified. If interference with other electronics is experienced, relocate the antennas further apart.



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



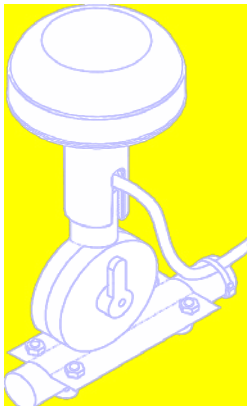
NOTE: Never paint the GPS 17 antenna or clean it with harsh solvents.

To mount the GPS 17 with cable outside mount:

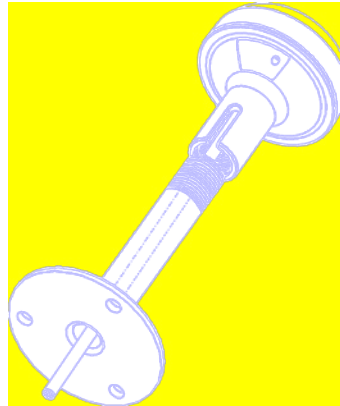
1. Place the cable in the vertical slot along the side of the base of the unit.
2. Screw the GPS 17 onto the mount. Make sure that you do not overtighten the head. It is possible to tighten the unit until the cable is cut in two.
3. With the GPS 17 and mount installed, fill the remaining gap in the cable exit with a marine sealant.
4. Route the cable away from sources of electronic interference.

To mount the GPS 17 with cable through mount:

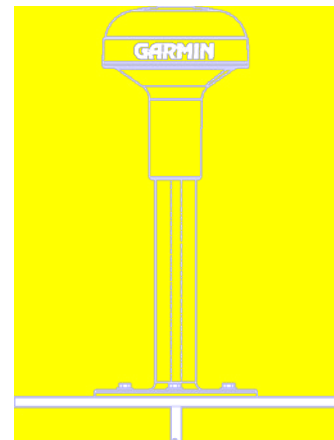
1. Position the mount in the desired location and mark the approximate center of the mount.
2. Drill a hole large enough for the cable to pass through.
3. Slide the cable through the mount and screw the GPS 17 onto the mount.
4. Fasten the mount to the boat.
5. Route the cable away from sources of electronic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



GPS 17 with the cable run externally



GPS 17 with the cable run internally



Wiring and Cables

The GPSMAP 3006C/3010C comes with an 18-pin Power/NMEA and a 17-pin Marine A/V (Audio/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, please contact an installation professional.**

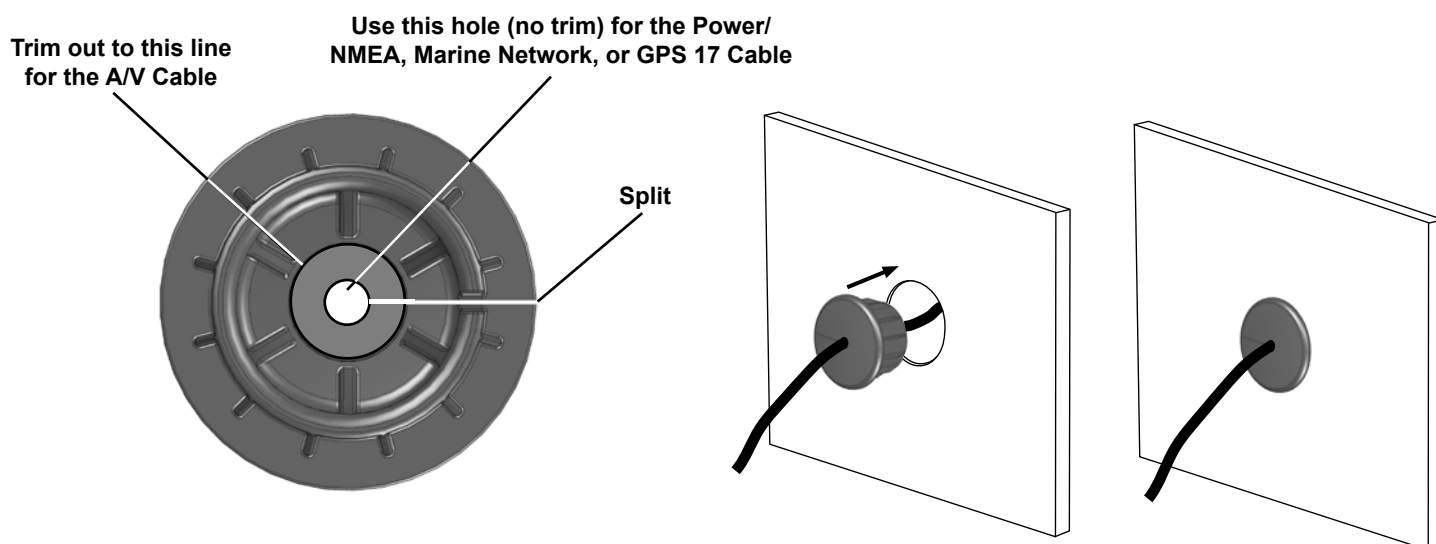
The grommets may not be needed in some installations. The grommets do NOT create a waterproof seal. Apply a marine sealant after installation to weatherproof around the grommet and cable. Additional grommets may be purchased from your Garmin dealer or direct from Garmin. Be sure to test the system before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

Tools

- Drill
- 1.25" (31.7 mm) Paddle Drill Bit
- Pencil
- Utility Knife
- Marine Sealant (Optional)

To install the Cable Grommet:

1. Mark the location with the pencil where the cable Power/NMEA, Marine A/V, or Marine Network Cable is to route through.
2. Using a 1.25" (31.7 mm) paddle bit, 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 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/NMEA Cable Wiring

The following pages contain several wiring diagrams. The first is a simple diagram showing the GPSMAP 3006C/3010C MFD using the 18-pin Power/NMEA 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 wiring diagram examples showing the GPSMAP 3006C/3010C using the 18-pin Power/NMEA wiring harness interfacing with a variety of different equipment. Refer to the wiring diagram that best suits your needs. For third-party devices, be sure to 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, NMEA devices only need to be attached to one MFD on the network. A pinout of the cable is shown below.

The GPSMAP 3006C/3010C Power/NMEA 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), 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

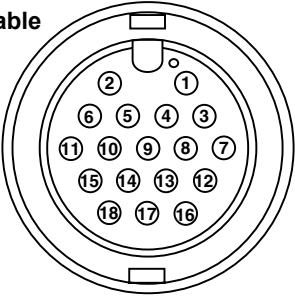
Severna Park, MD 21146

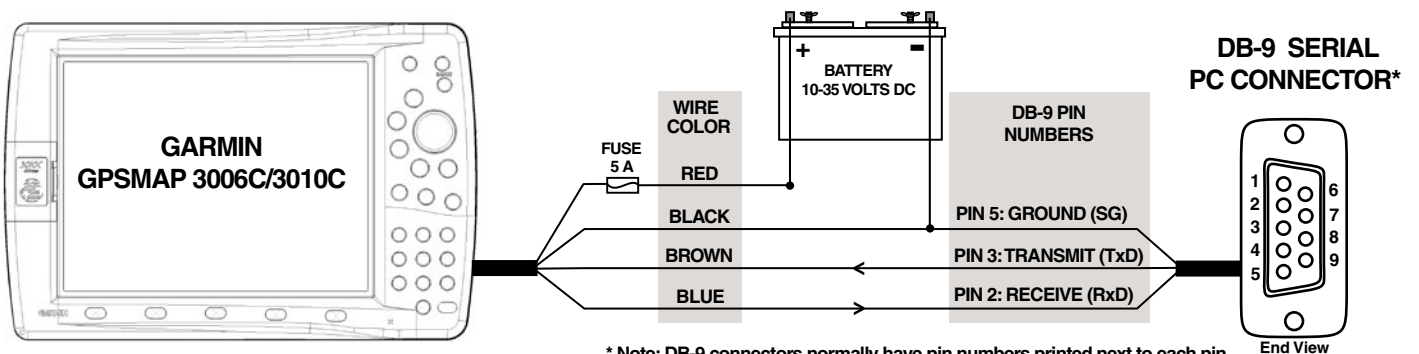
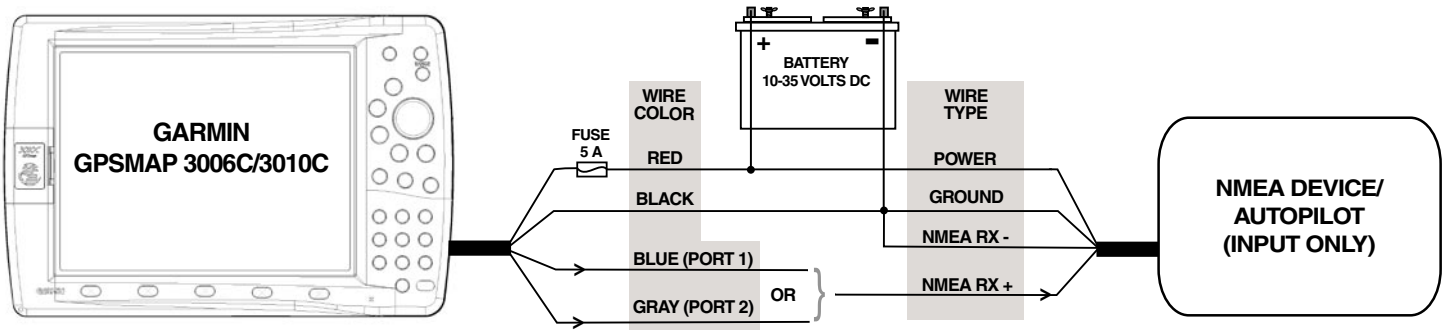
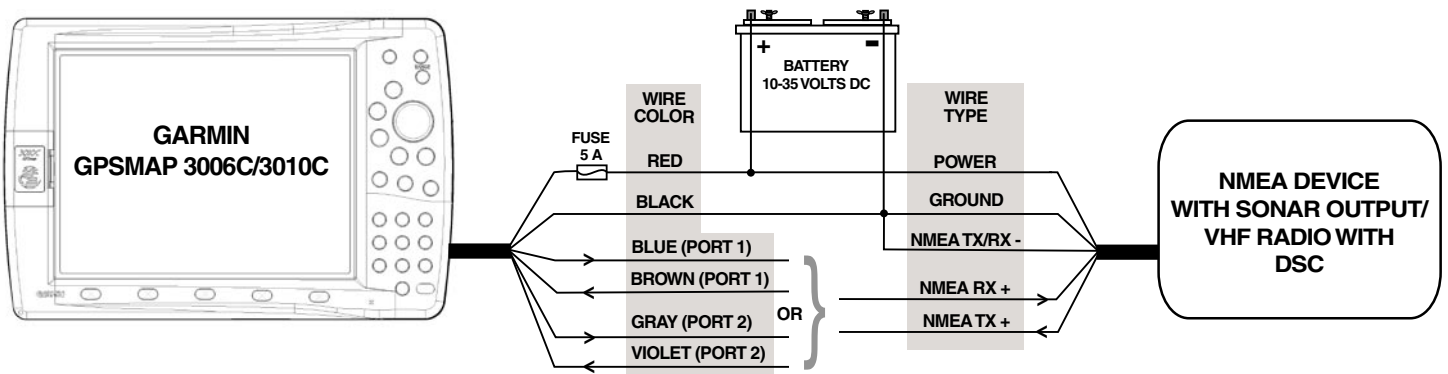
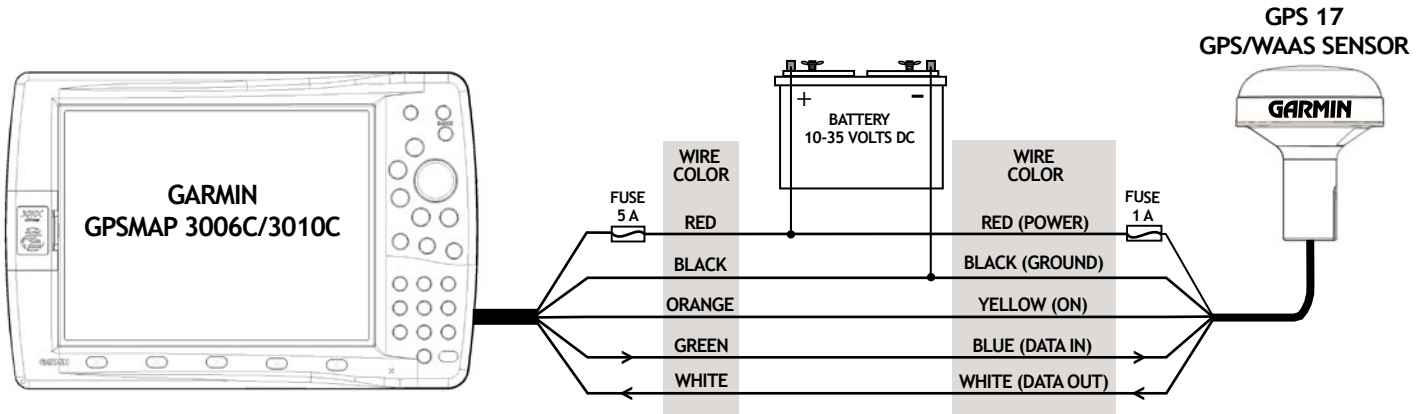
U.S.A.

410-975-9425

410-975-9450 FAX

www.nmea.org

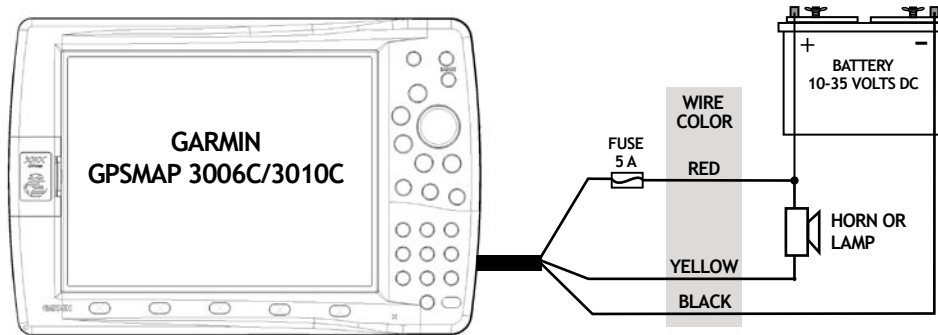
Power/Data(NMEA) Cable		
		
Cable End View		
PIN #	COLOR	FUNCTION
1	N/C	
2	N/C	
3	N/C	
4	WHITE/BROWN	PORT 3 DATA IN
5	WHITE/BLUE	PORT 3 DATA OUT
6	ORANGE	ACCESSORY ON
7	N/C	
8	N/C	
9	VIOLET	PORT 2 DATA IN
10	GRAY	PORT 2 DATA OUT
11	YELLOW	ALARM LOW
12	N/C	
13	WHITE	PORT 4 DATA IN
14	GREEN	PORT 4 DATA OUT
15	RED	DC POWER INPUT
16	BROWN	PORT 1 DATA IN
17	BLUE	PORT 1 DATA OUT
18	BLACK	GROUND (POWER/DATA)



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

Optional Alarm Wiring

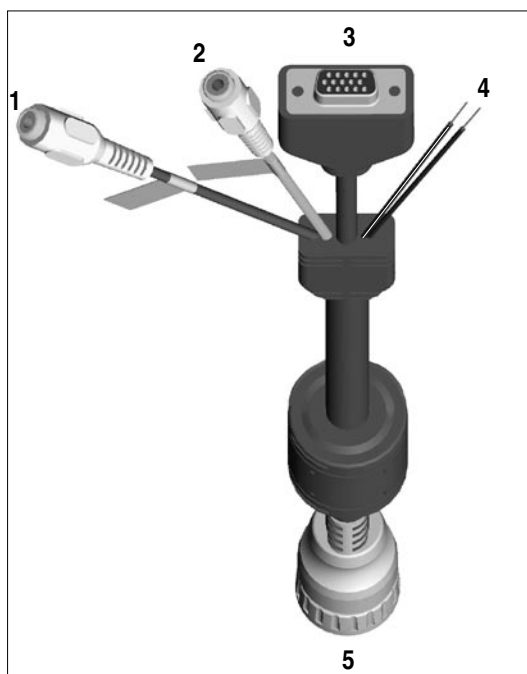
The GPSMAP 3006C/3010C has an alarm circuit that may be used with a lamp, a horn, or both to alert you when the unit displays a message. The alarm circuit pulls low when the alarm sounds. The alarm does not have to be wired for the unit to function. The maximum current is 100 milliamps. A switch or relay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



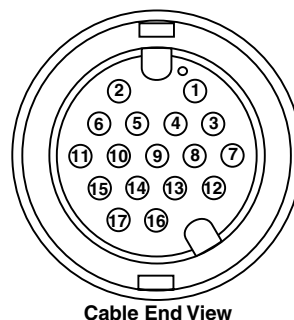
Marine A/V (Audio/Video) Cable

The GPSMAP 3006C/3010C Marine A/V (Audio/Video) 17-pin cable allows input of NTSC (National Television System Committee) /PAL (Phase Alternate Line) composite video sources, VGA resolution PC monitor output, and future expansion for audio output. Marine A/V 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 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. Audio Out wires are reserved for future audio expansion in a closed-cabin or helm environment and do not need to be connected. Please tape off these wires when they are not in use.
5. Marine A/V (Audio/Video) 17-pin cable attaches to the back of the MFD.



Marine A/V Cable

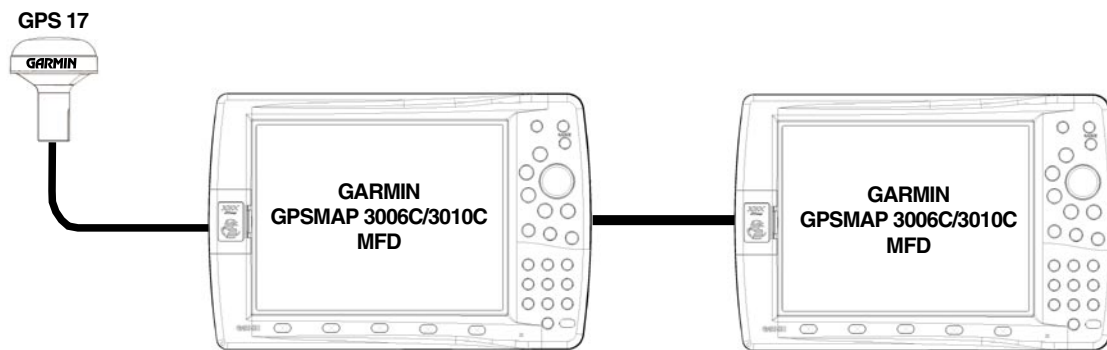


Cable End View

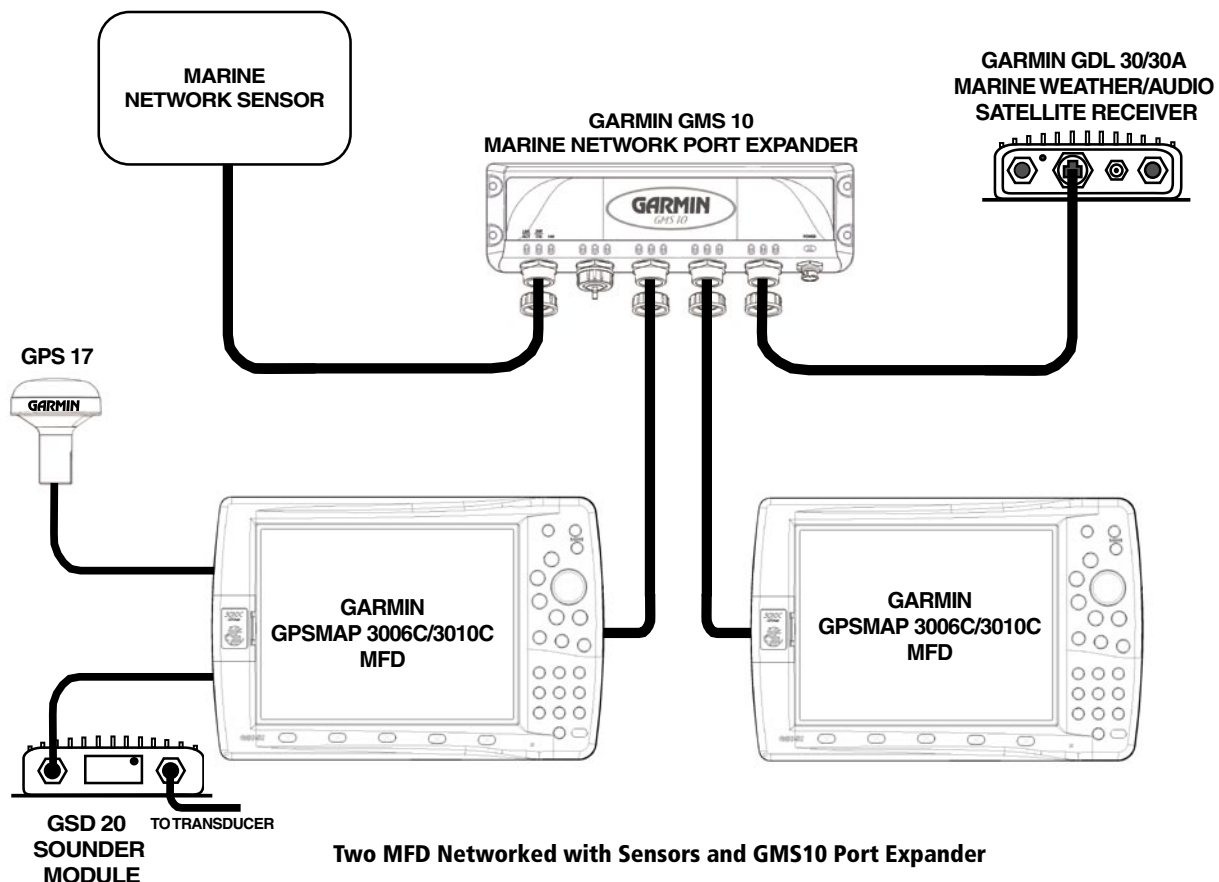
IMAGE	CONNECTOR	PIN #	FUNCTION
3	HD-15 PIN 1	1	VGA, ANALOG-RED
	HD-15 PIN 2	4	VGA, ANALOG-GREEN
	HD-15 PIN 3	3	VGA, ANALOG-BLUE
	HD-15 PIN 4		
	HD-15 PIN 5	13	VGA, ANALOG-GROUND
	HD-15 PIN 6	8	VGA, ANALOG-RED, GND
	HD-15 PIN 7	8	VGA, ANALOG-GREEN, GND
	HD-15 PIN 8	8	VGA, ANALOG-BLUE, GND
	HD-15 PIN 9		
	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	
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
4	WIRE- BLACK	5	RESERVED FOR FUTURE AUDIO EXPANSION
	WIRE- STRIPED	10	RESERVED FOR FUTURE AUDIO EXPANSION

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, a Garmin Marine Network Port Expander (GMS 10) is needed to expand the network. If two or more GPSMAP 3006C/3010C units are installed and networked, only one GPS 17 antenna needs to be installed. You may 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.



Two MFD Network



Two MFD Networked with Sensors and GMS10 Port Expander

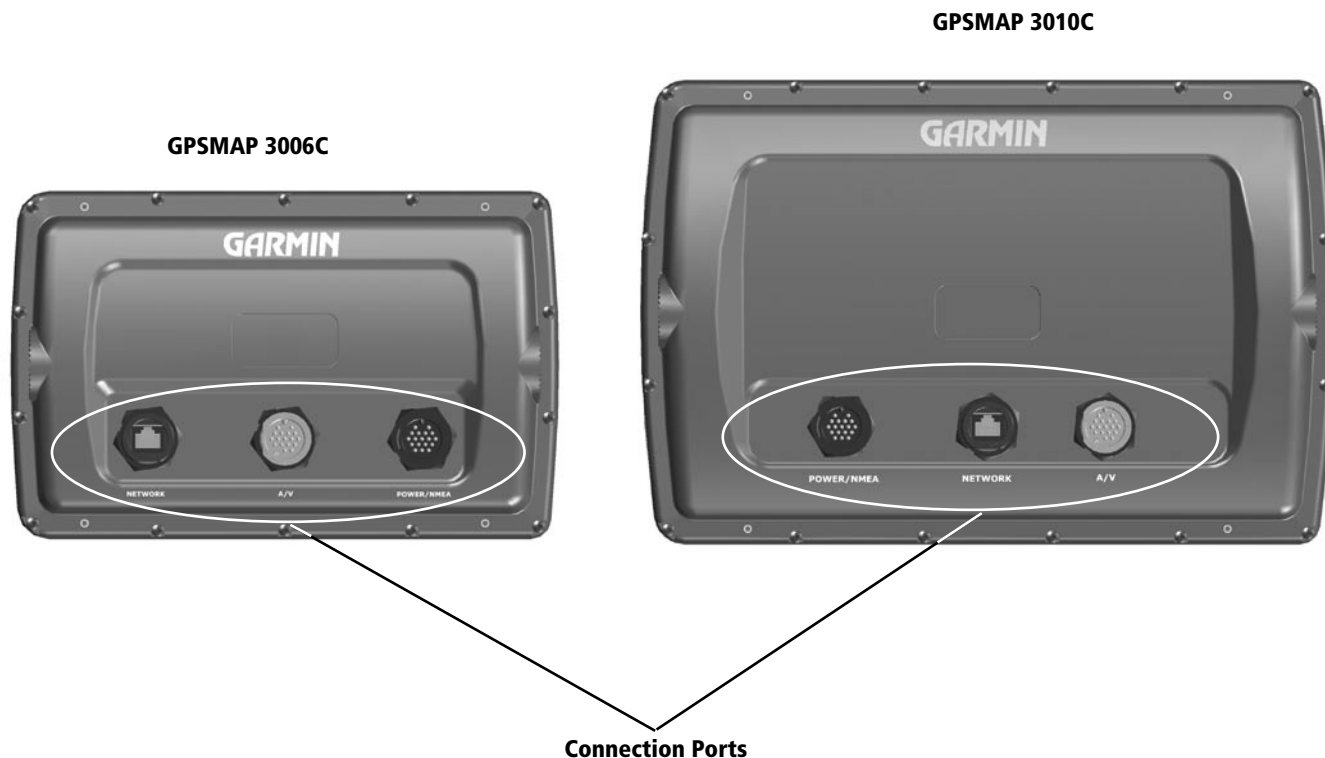
Final Wiring Connection

Once all the wiring is complete, the cables are attached on the backside 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 A/V, 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. Once the cable is seated, turn the locking ring clockwise until it stops.
3. Repeat steps 1 and 2, attaching the gray Marine A/V cable to the gray A/V 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 Owner's Manual for steps on initializing the receiver.





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