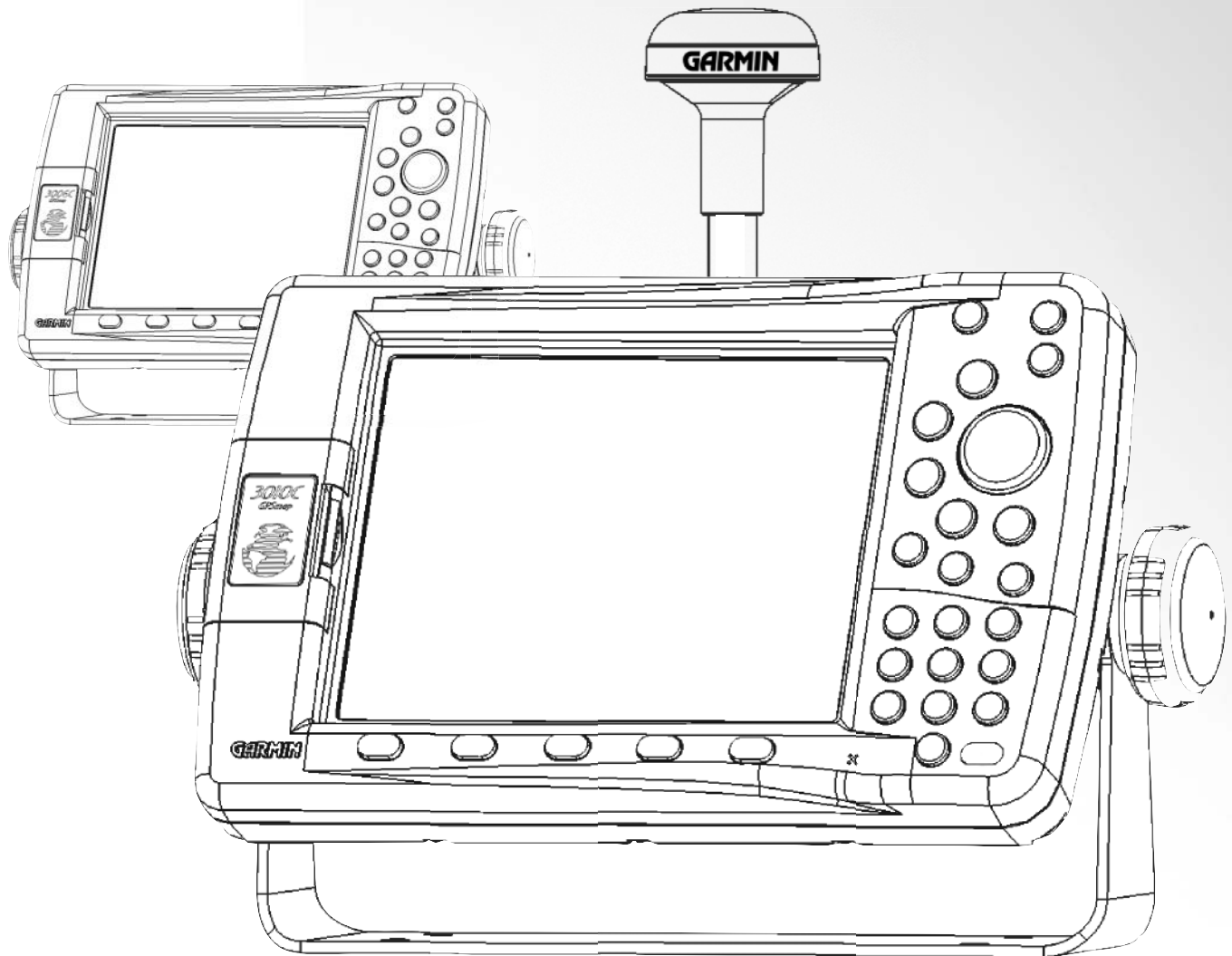


GPSMAP 3006C/ 3010C & GPS 17

Installation Guide



GPSMAP 3006C / 3010C/ GPS 17 Installation Guide

Introduction

The GPSMAP 3006C/3010C Multi-Function Display (MFD) must be properly installed according to the following instructions to get the best possible performance. To complete the installation, you will need the appropriate fasteners, tools, and mounts listed in each section. These items should be 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. **When in doubt, seek professional assistance.** The GPSMAP 3006C/3010C should be mounted in a location that allows clear, minimal glare viewing of the display and easy operation of the controls.

Surface Mount

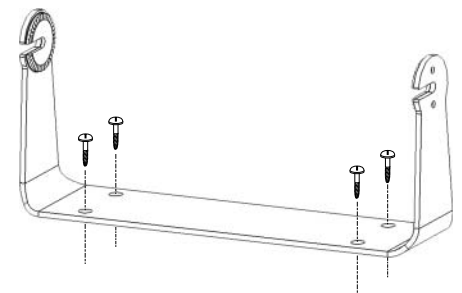
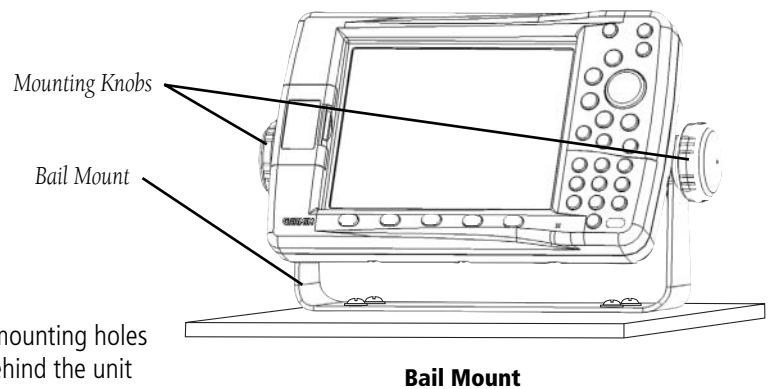
Tools

Drill and Drill Bit
Screw Driver
Pencil

- **Mounting Hardware (Fasteners) Not Included. Mounting holes are 5/16" (7.9mm) in diameter.**

Installing the Bail Mount and Unit:

1. Using the Bail Mount as a template, mark the location of the four mounting holes with the 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.



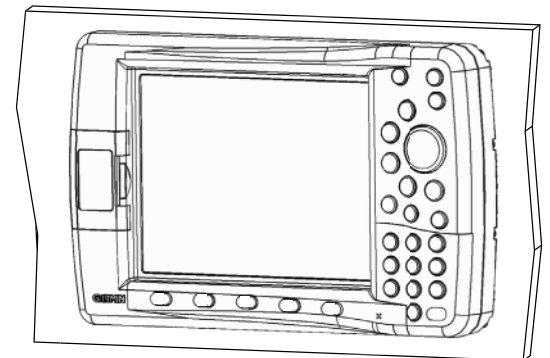
Flush Mount

Tools

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

Included Mounting Hardware

4 - 3mm Studs
4 - Flat Washers
8 - 3mm Hex Nuts

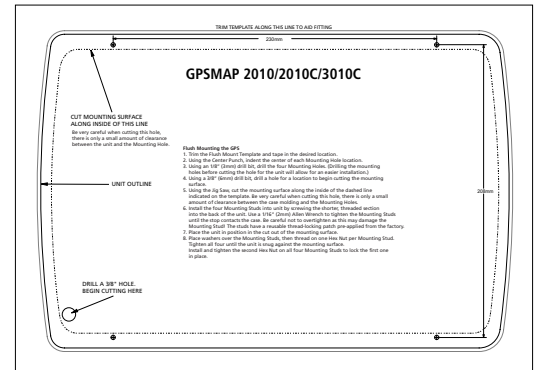


Flush Mount

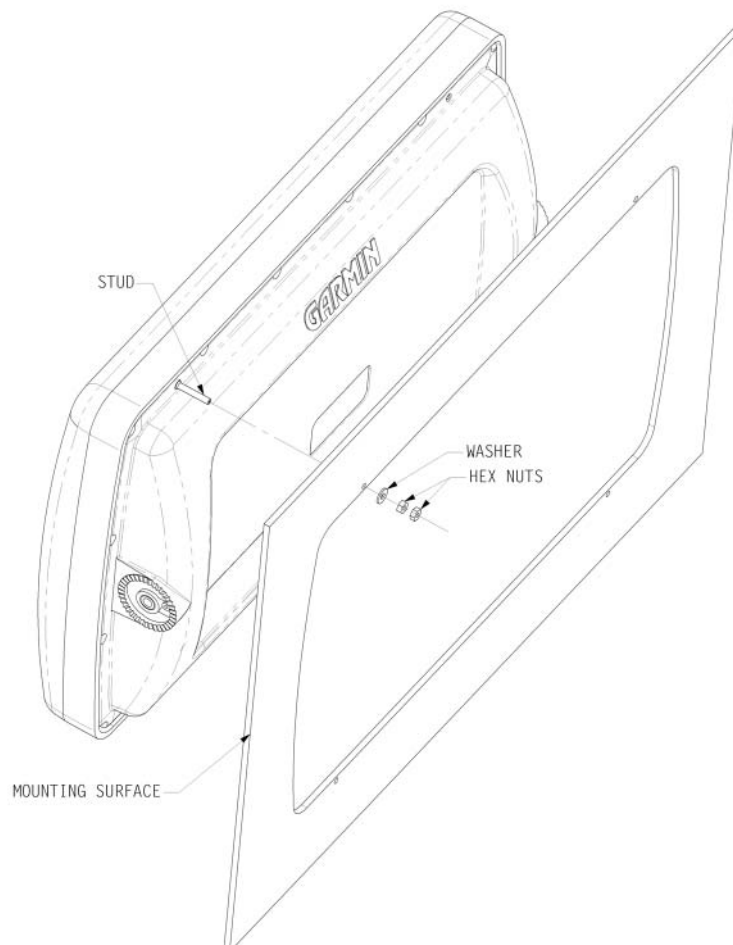
GPSMAP 3006C / 3010C / GPS 17 Installation Guide

Flush Mounting 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" (3mm) drill bit, drill the four Mounting Holes. (Drilling the mounting holes before cutting the hole for the unit will allow for an easier installation.)
4. Using a 3/8" (6mm) 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, 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" (2mm) 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 on all four Mounting Studs to lock the first one in place.



Flush Mount Template



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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, if possible, 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.

The antenna should be mounted in a location that has a clear, unobstructed view of the sky in all directions to ensure the best reception. Avoid mounting the antenna where it will be 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 will provide 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. **It is recommended that the antenna be mounted at least 3 ft. away from (preferably above) the path of any radar beam or a VHF radio antenna.** It is advisable to mount the antenna temporarily in the desired mounting location until correct operation has been verified. If interference with other electronics is experienced, relocate the antennas further apart. Never paint the GPS antenna or clean it with harsh solvents.

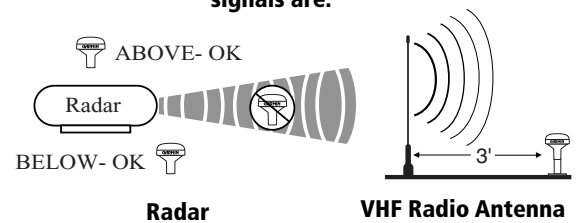
Mounting the GPS 17 with cable outside mount:

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 to the point that the cable may be cut in two.
3. With the GPS 17 and mount installed, fill the remaining gap in the cable exit with a marine sealant.
4. When running the cable, attempt to keep the cable away from sources of electronic interference.

Mounting the GPS 17 with cable through mount:

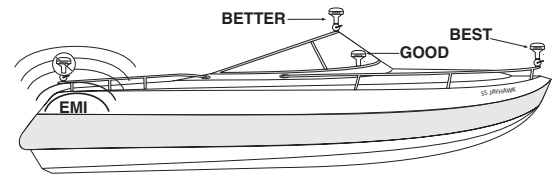
1. Position the mount in the desired location and mark the approximate center of the mount.
2. Drill a hole large enough for the cable to pass through.
3. Slide the cable through the mount and screw the GPS 17 onto the mount.
4. Fasten the mount to the boat.
5. When running the cable, attempt to keep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

Three common sources of interference for GPS signals are:

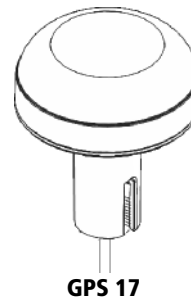


Radar

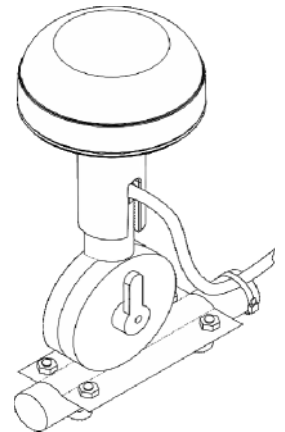
VHF Radio Antenna



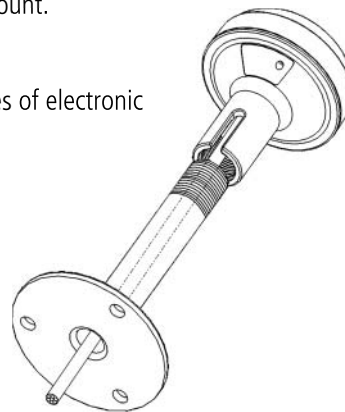
EMI (Electromagnetic Interference) from engine components



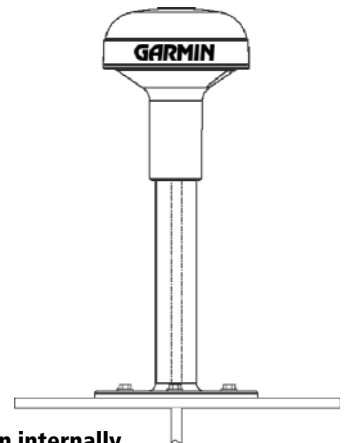
GPS 17



GPS 17 with cable run externally



GPS 17 with cable run internally



GPSMAP 3006C / 3010C / GPS 17 Installation Guide

Wiring and Cables

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

Installing Cable Grommets

Included with the GPSMAP 3006C/3010C are two rubber grommets which may be used to cover cable installation holes. The grommets may not be needed in some installations. The grommets do NOT create a waterproof seal. You may choose to 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. It is recommended that the system be tested before installing the grommets.

Tools

Drill and 1.25" (31.7mm) Paddle Bit

Pencil

Utility Knife

Marine Sealant (Optional)

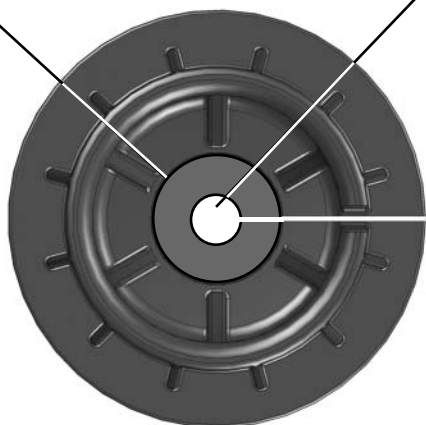
Installing the Cable Grommet:

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" (31.7mm) 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 as needed 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. If desired, you may apply marine sealant as needed to weatherproof the grommet and cable.

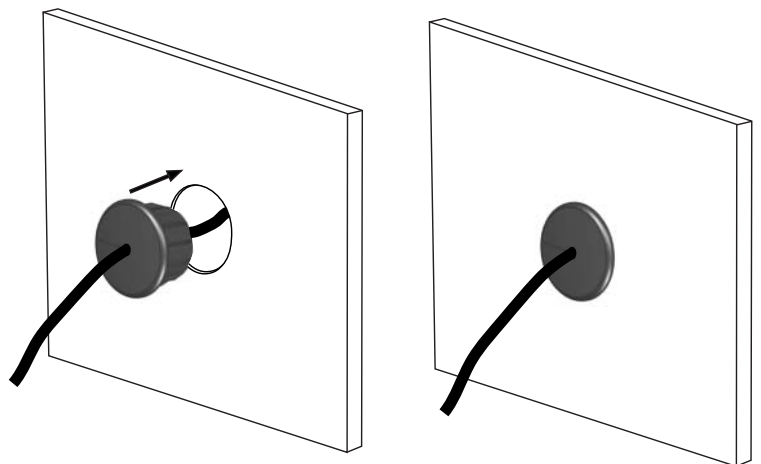
**Trim out to this line
for the A/V Cable**

**Use this hole (no trim) for the Power/
NMEA, Marine Network, or GPS 17 Cable**

Split



Inside View of Grommet



Installing the Grommet

GPSMAP 3006C / 3010C / GPS 17 Installation Guide

Power/NMEA Cable Wiring

There are several wiring diagrams on the following pages for your convenience. 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 will best suite your needs. For 3rd party devices, be sure to refer to the wiring guidelines included with that equipment. For extra lengths of wire, 22 AWG (18 AWG for the RED and BLACK wires), shielded, twisted-pair wiring is recommended. We advise soldering all connections and sealing 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 provided below.

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

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

Port 3 - reserved for use with Garmin Sounder Modules (GSD 20).

Port 4 - reserved for use with the Garmin GPS 17 (or equivalent) 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 & Heading) sentences. The unit interface must be set to NMEA In/NMEA Out (see owner's manual).

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) |

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

National Marine Electronics Association (NMEA)

Seven Riggs Avenue
Sewerna Park, MD 21146

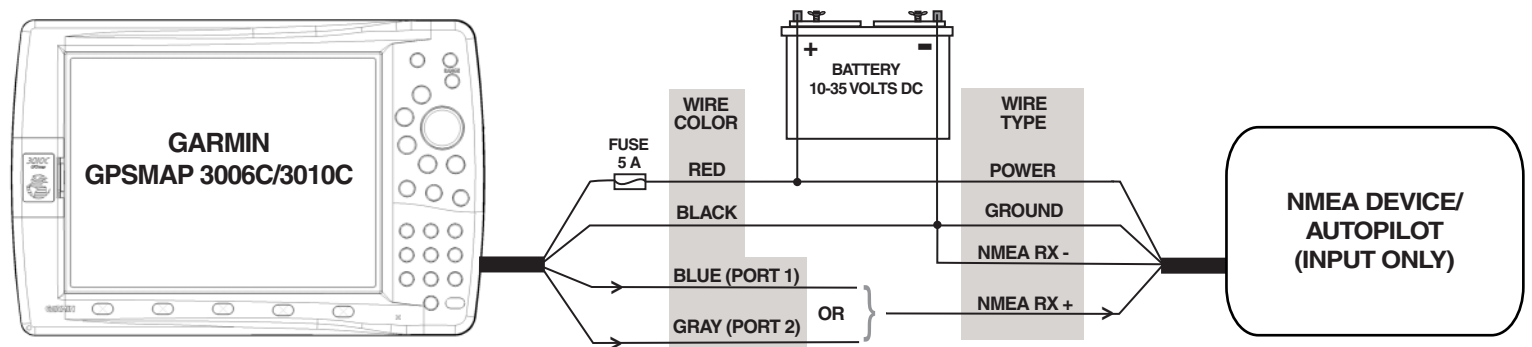
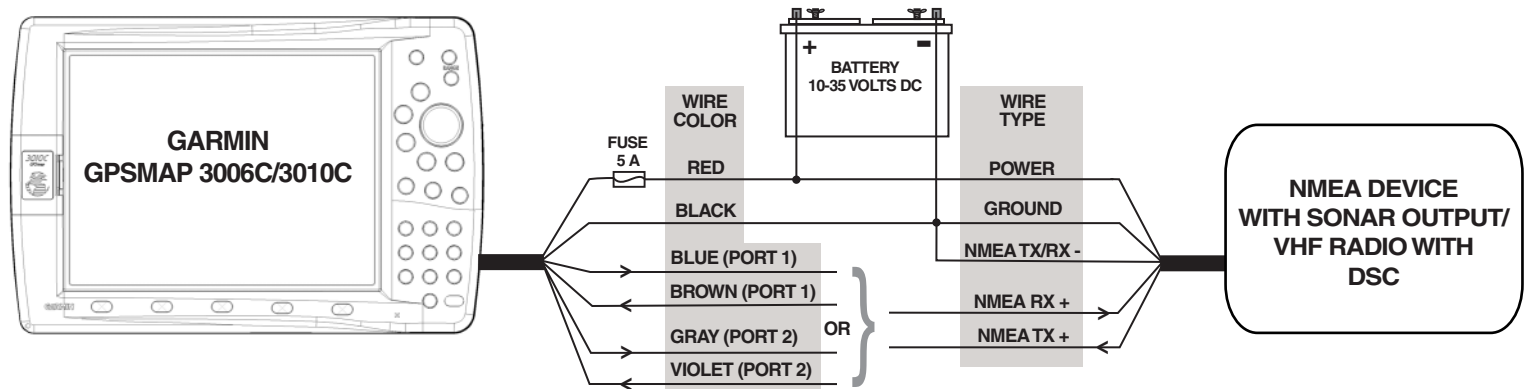
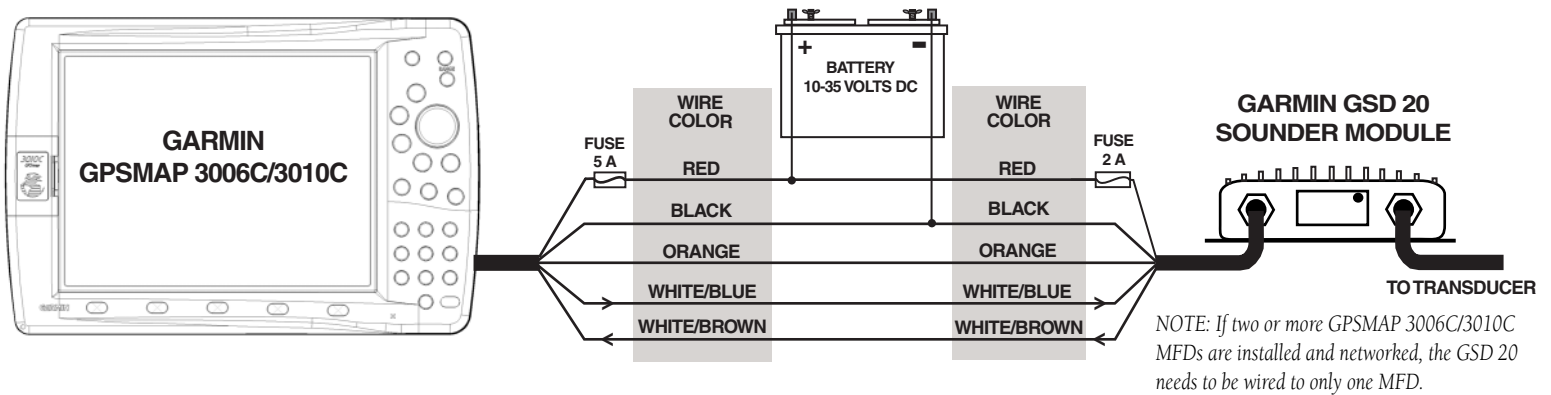
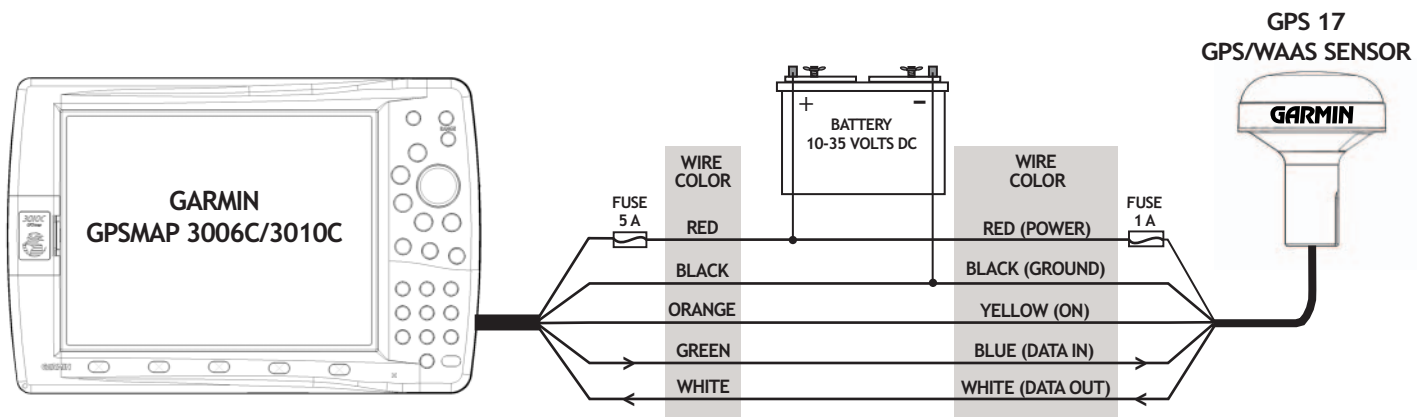
U.S.A.

410-975-9425

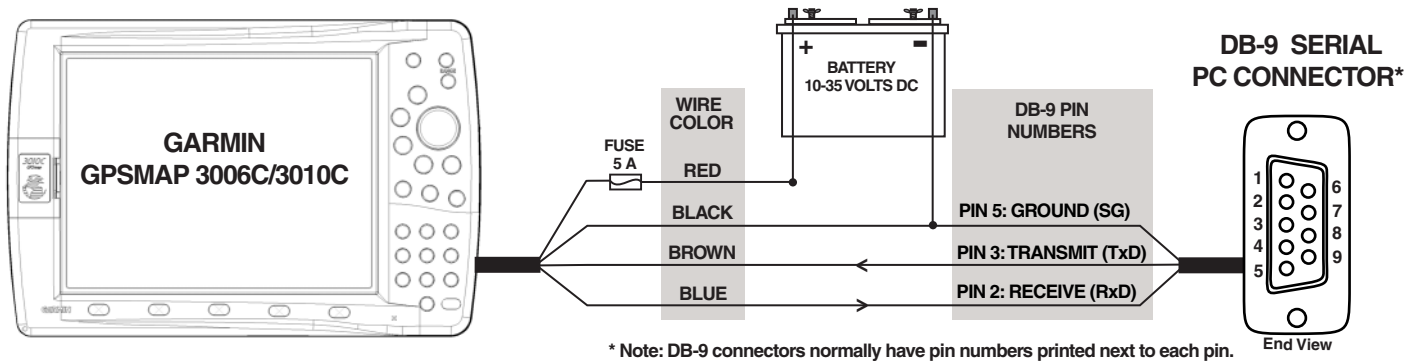
410-975-9450 FAX

www.nmea.org

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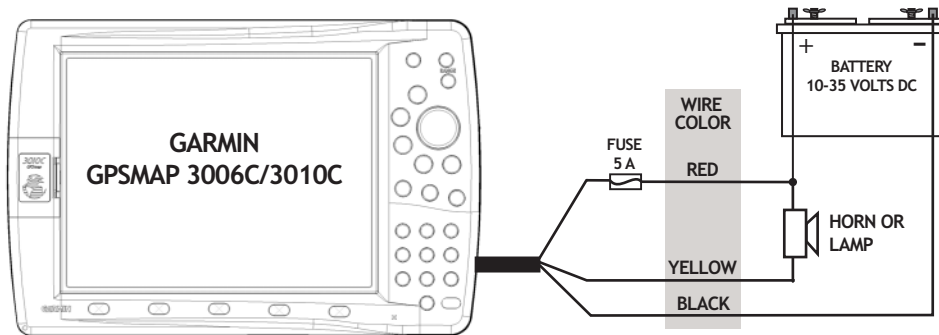


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Optional Alarm Wiring

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 an alarm sounds. The alarm does not have to be wired for the unit to function. Maximum current is 100 milliamps. A switch or relay may be used to select between visual and audible alerts, if required.



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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 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.
- ② 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.
- ③ Audio Out wires are reserved for future audio expansion in a closed-cabin or helm environment and do not need to be connected at this time.
- ④ Marine A/V (Audio/Video) 17-pin cable attaches to the back of the MFD.



Marine A/V Cable

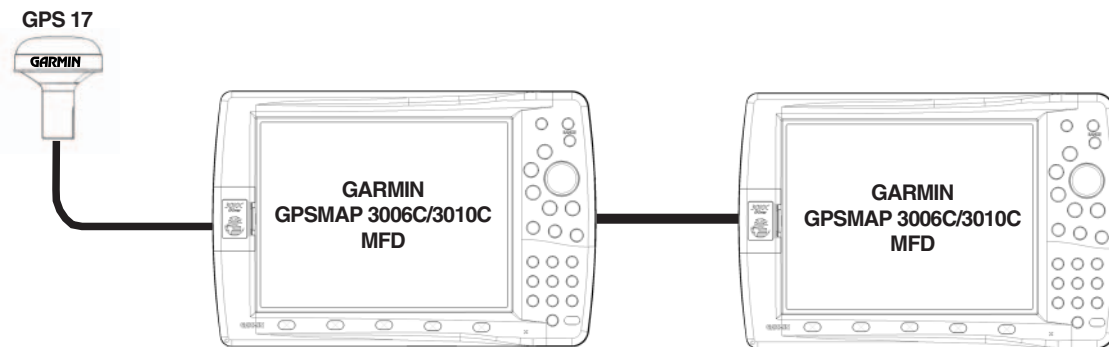
Cable End View

| 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 |

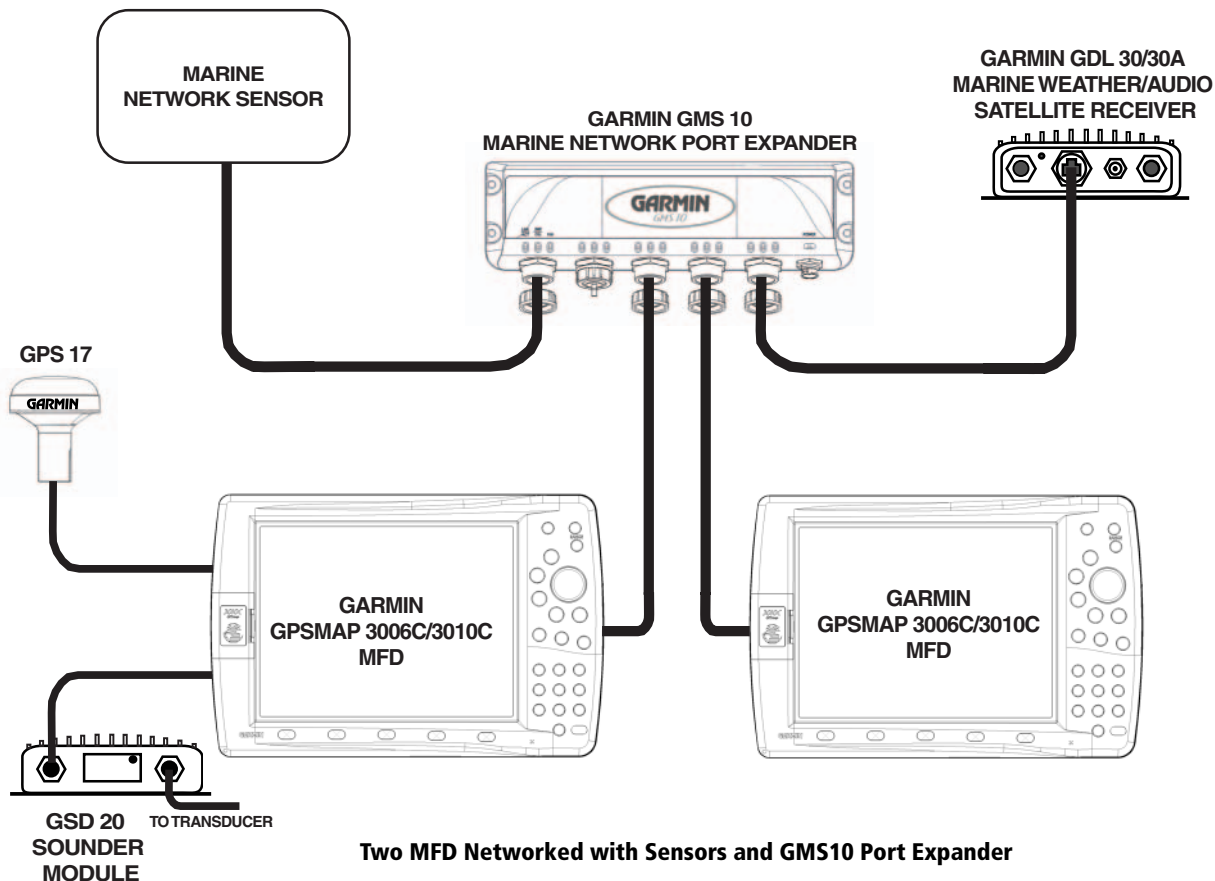
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Garmin Marine Network

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 desired in the installation, 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 a Network Switch. If more than five are needed, you may add more Network Port Expanders to expand 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. Please 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

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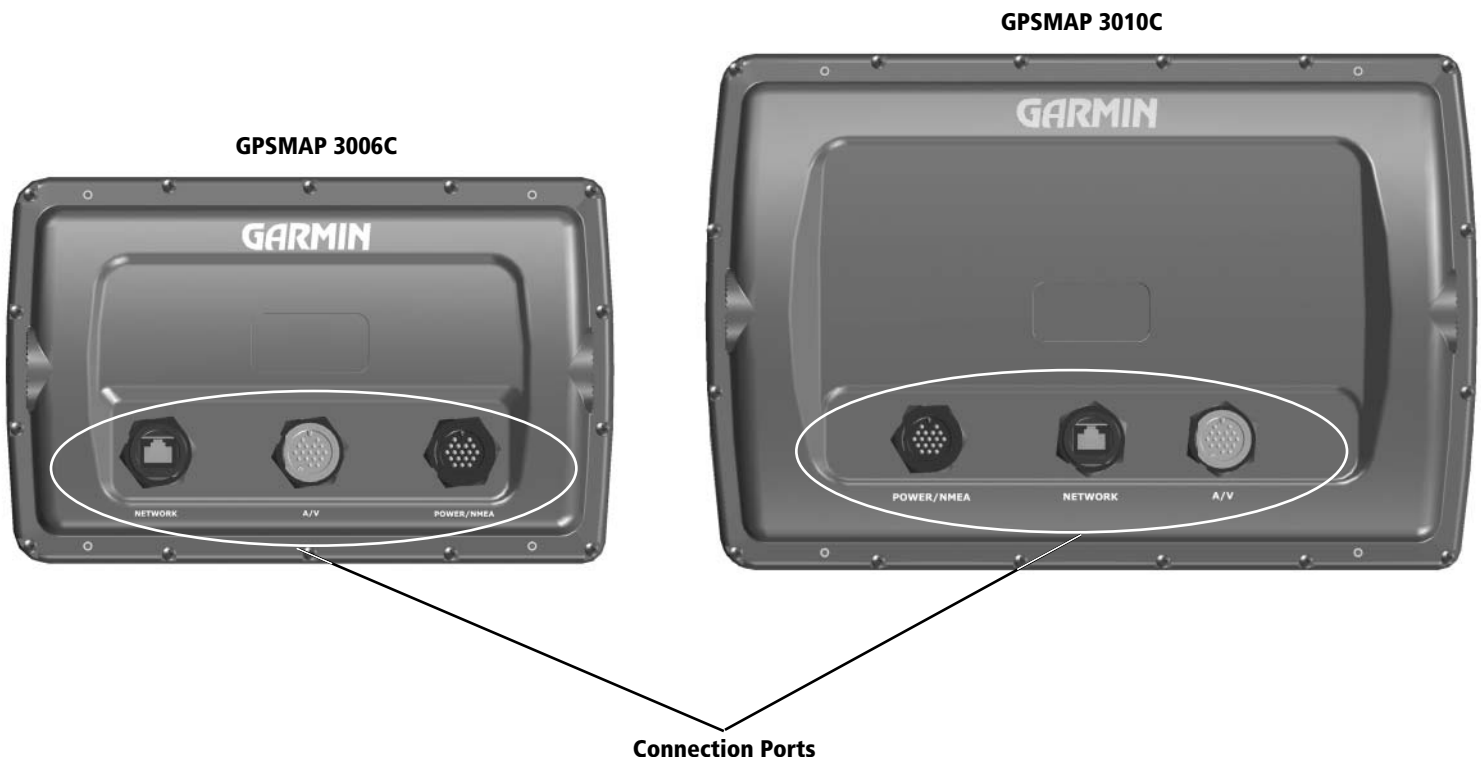
Final Wiring Connection

Once all the wiring is complete, the cables may be 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.

Installing 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 sealed.

With power applied to the circuit, you may test the installation by pressing the red POWER  key on the front of the unit. See the Owner's Manual for steps on initializing the receiver.





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Part Number 190-00371-02 Rev. A