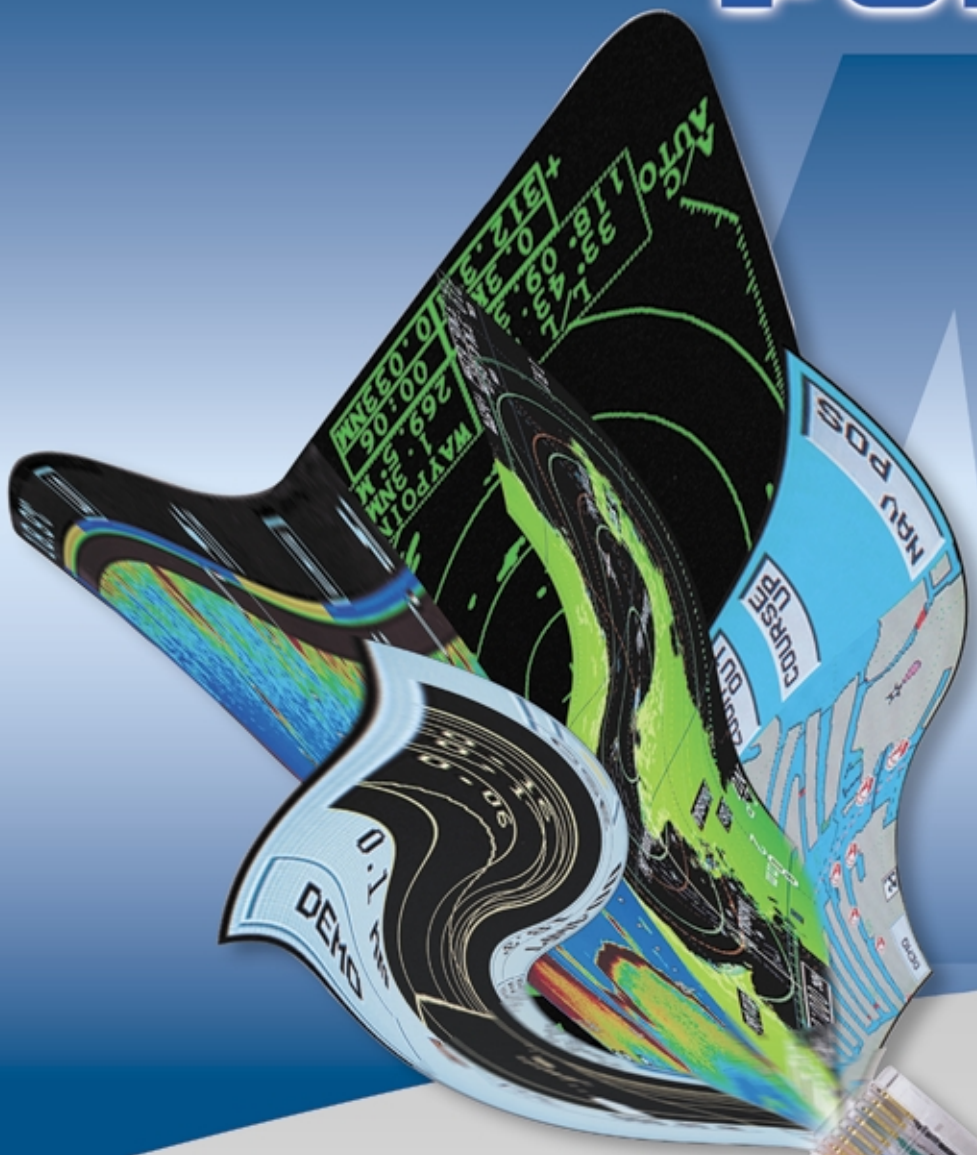
FURUNO



*THE WORLDS OF COMPUTER TECHNOLOGY AND MARINE ELECTRONICS HAVE FINALLY MERGED... NOW IT'S TIME TO GET PLUGGED IN!*

# NAVnet


The future today with FURUNO's electronics technology.

**FURUNO ELECTRIC CO., LTD.**

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Fax: +81 (0)798 65-4200, 66-4622 URL: www.furuno.co.jp

Catalogue No. R-180d

# THE FUTURE OF MARINE ELECTRONICS IS HERE!

Welcome to the future of marine electronics! Introducing NavNet, Furuno's new line of Ethernet networked products. NavNet gives you the capability to communicate from one display to another over Furuno's High Speed Network.

## THE NAVnet NETWORK

The heart of Furuno's NavNet is its Ethernet based network. Using today's technology, NavNet runs on a 10-BaseT network, which means fast data transfer between your equipment. And because Ethernet offers the option to increase speeds from 10 Megabits per second all the way to 1 Gigabit per second, NavNet's future expansion is limitless!

## WHAT WILL NAVnet DO FOR ME?

NavNet products will allow you to customize your marine electronics according to what you need. From a standard Radar & VideoPlotter unit, you can add on a GPS, Fish Finder and even multiple displays. When multiple displays are connected, you can operate each one as an individual product or as part of the network. With more than 50 different display modes, NavNet can display the information you care the most about, the way you want to see it.

- Perfect for single or multiple display installations
- All display units are capable of controlling any component connected to the NavNet network
- Common interface on all four models of the NavNet products shortens training time
- Over 50 display modes to choose from when all components are active
- Simplified cabling requirements

## THE NAVnet INTERFACE

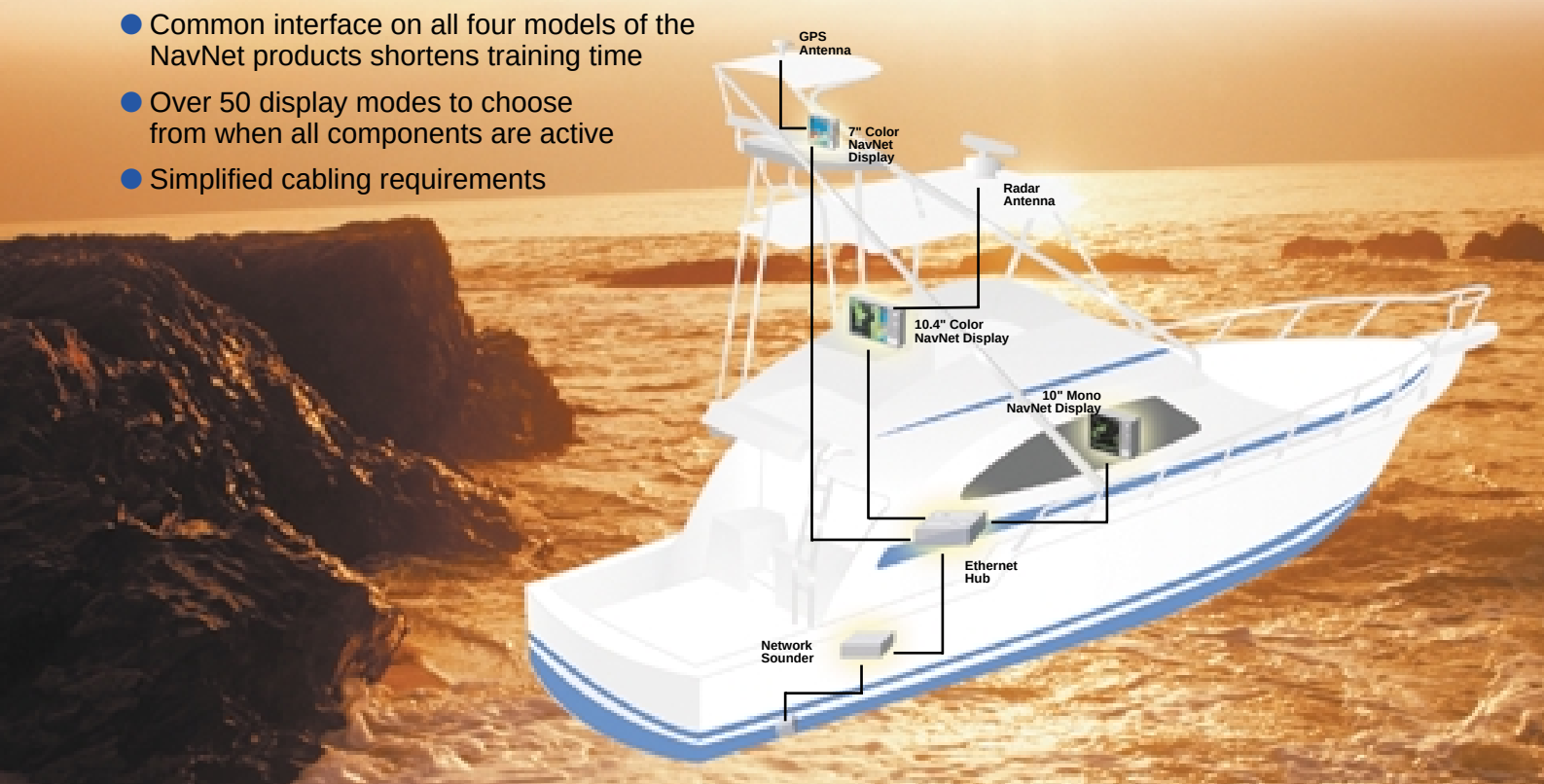
Furuno's Research & Development engineers have spent countless hours making the NavNet products extremely easy and intuitive to use. The straightforward menu structure is easily selected through the softkeys and the track control ensures simple operation of the Radar, GPS VideoPlotter and Fish Finder. The controls are exactly the same from one unit to the other, so once you know one, you'll know them all.

## THE NAVnet EXPANDABILITY FACTOR

Furuno's NavNet keeps future expansion in mind by allowing you to add on multiple units. You can turn a single display system into a multiple display system by simply adding an Ethernet Hub. The Hub will allow the products to talk to each other and share information through a simple cable. You can even connect your PC to a NavNet Display, allowing you to download or upload waypoints and routes.

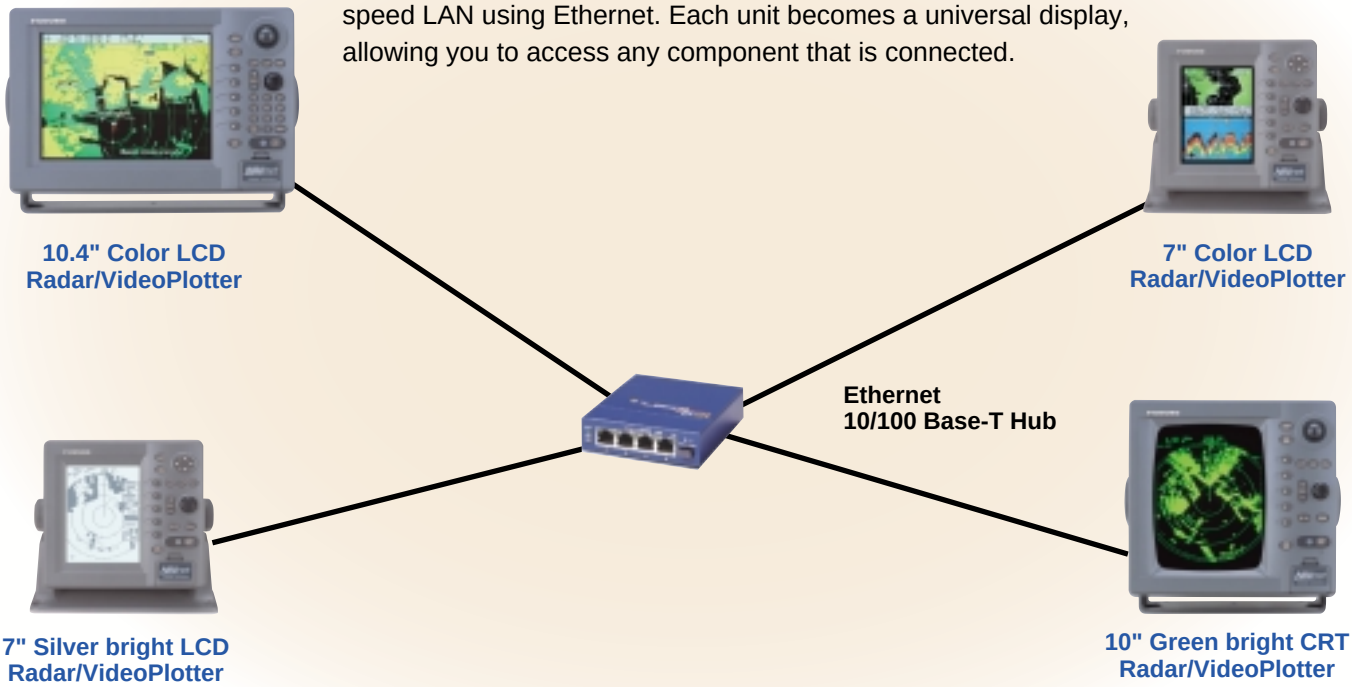
## NAVnet SUPPORT AND SERVICE

With Furuno sales and service centers on six continents – plus continental service centers in the United States, Denmark and Japan – the Furuno NavNet product's support and service spans the globe.



# HIGH-SPEED LAN NETWORK MAKING COMPLEX INSTALLATIONS SIMPLE

A multiple of Furuno's NavNet equipment can be configured in a high-speed LAN using Ethernet. Each unit becomes a universal display, allowing you to access any component that is connected.




Furuno's NavNet products give you the flexibility to use them as a single, stand-alone system or as part of an integrated network bridge. Using the same network technology seen in most professional office environments, the NavNet network utilizes an Ethernet Hub, giving virtually limitless expandability.

The current network allows you to have up to four NavNet displays connected simultaneously. Add a GPS receiver antenna and a Network Sounder and you will have a complete electronics package.

But integration doesn't stop there!
You can connect multiple radar and GPS antennas if needed. The NavNet network will allow you to view any component on any of the NavNet displays. So if you want to have multiple displays on one bridge or single displays throughout the vessel, you will be able to fully operate every component connected to the NavNet network.

## Navigational Data Organizer Remote Display RD-30


- Optional Smart Sensor™ embodying a 235 kHz depth transducer, paddlewheel and thermosensor (0.02°F or 0.01°C resolution) is available in a variety of housings
- Excellent performance at high speed and shallow water. High frequency transducer is free from surface clutter and wakes.
- Own ship position, speed, course, water temperature, depth, speed and direction of current and wind are displayed on any display units on the network.
- No interference with most 200 kHz sounders

## 10.4" Color LCD Radar/VideoPlotter

| | |
|---|---|
| **MODEL 1833C** | 0.125 to 36 nm, 4 kW, 24" Radome |
| **MODEL 1933C** | 0.125 to 48 nm, 4 kW, 3.5' Open Array |
| **MODEL 1943C** | 0.125 to 64 nm, 6 kW, 4' Open Array |
| **MODEL 1953C** | 0.125 to 72 nm, 12 kW, 4/6' Open Array |

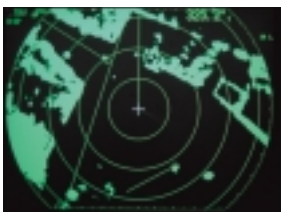
## 7" Color LCD Radar/VideoPlotter

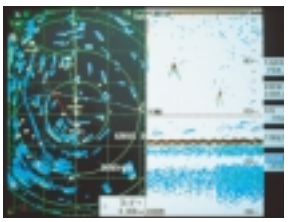
| | |
|---|---|
| **MODEL 1722C** | 0.125 to 24 nm, 2.2 kW, 18" Radome |
| **MODEL 1732C** | 0.125 to 36 nm, 4 kW, 24" Radome |
| **MODEL 1742C** | 0.125 to 36 nm, 2.2 kW, 2' Open Array |
| **MODEL 1762C** | 0.125 to 48 nm, 4 kW, 3.5' Open Array |

# Color Radar / VideoPlotter

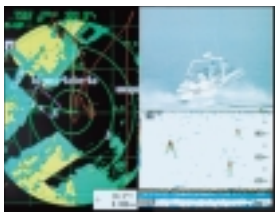
When it comes to desirable features, user interface and screen definition, the 10.4" Color LCD NavNet Radar/VideoPlotter is the cream of the crop. This rugged, waterproof and compact unit offers professional features that meet the needs of serious mariners.

Furuno's 10.4" NavNet Radars were engineered around powerful X-Band transmitters that cut through all types of weather. They are packed with high-speed processors that help you identify what's out there.



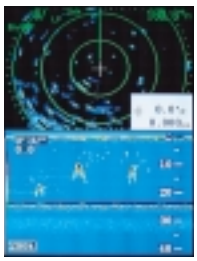


**Radar/Fish Finder**

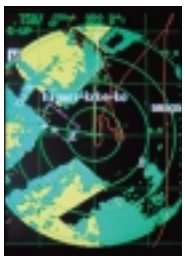


**Radar Overlay/ Video/Fish Finder**

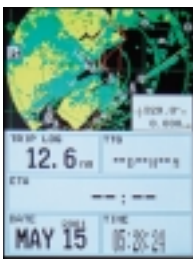
As with its big brother, the 7" NavNet Displays are capable of showing a variety of displays to suit your needs. Each display comes standard as a Radar and VideoPlotter, optionally you can add a Network Sounder and GPS.



**Radar/Fish Finder**



**Radar Overlay***




**Radar Overlay*/Nav Data**

*Radar overlay requires appropriate heading sensor.

NavNet Displays offer more flexibility than any other product on the market. With more than 50 possible display combinations selected through Furuno's exclusive NavNet menus, you are sure to find a display mode to suit your needs. If that weren't enough, there are five user programmable modes (six for 10.4" LCD) to allow you to customize your favorite displays with just a few key strokes.


Six User Programmable Modes
(10.4" LCD model)

## 7" Silver bright LCD Radar/VideoPlotter

| | |
|---|---|
| **MODEL 1722** | 0.125 to 24 nm, 2.2 kW, 18" Radome |
| **MODEL 1732** | 0.125 to 36 nm, 4 kW, 24" Radome |
| **MODEL 1742** | 0.125 to 36 nm, 2.2 kW, 2' Open Array |
| **MODEL 1762** | 0.125 to 48 nm, 4 kW, 3.5' Open Array |

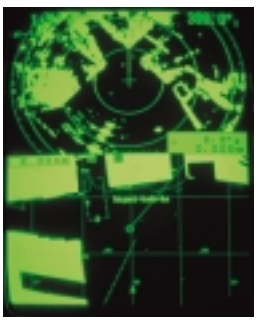
## 10" Green bright CRT Radar/VideoPlotter

| | |
|---|---|
| **MODEL 1833** | 0.125 to 36 nm, 4 kW, 24" Radome |
| **MODEL 1933** | 0.125 to 48 nm, 4 kW, 3.5' Open Array |
| **MODEL 1943** | 0.125 to 64 nm, 6 kW, 4' Open Array |

If you want powerful, vivid performance, but don't have a lot of space, the 7" NavNet series is for you. These waterproof units are some of the most compact LCD displays we've ever offered with these features. Smaller in size, but similar in features, the 7" NavNet series has followed in its big brother's footsteps.

For those who prefer the look and feel of CRT displays, we also offer a 10" CRT NavNet display. Packed with powerful features, the 10" NavNet CRT will make an excellent choice for an enclosed bridge.

**7" Mono Radar/Fish Finder**



**10" Mono Radar/Plotter**

Each NavNet comes standard with an infrared remote control. This fully functional remote allows you to operate every mode of the NavNet unit without having to access the main display.

- Special Anti-Reflective coating on display (7" and 10.4" color LCDs only)
- Over 50 different display modes to choose from when connected with optional GPS and Network Sounder
- Choose from two units that accept either Furuno and Navionics® or C-Map*NT* mini chart cards
- Store up to 8,000 points for ship's track and marks, 999 waypoints and 200 planned routes
- Vertical split screen allows for two display modes to be displayed simultaneously (7" LCD and 10" CRT only)
- Display VideoPlotter and Radar side by side (all units), or overlay Radar image on chart (color units only)
- Dual EBLs (Electronic Bearing Lines) and dual EVRMs (Electronic Variable Range Markers) give distance and bearing to targets
- Optional NTSC/PAL interface allows for TV/VCR/DVD video input (10.4" LCD only)
- RGB video output available on 10.4" LCD only
- Radar Guard Zone and Watchman features help to alert you to potential danger
- Four radar display modes: Head-up, North-up, Course-up and True motion

## 10.4" Color LCD GPS Chart/VideoPlotter

**GP-1900C**

Ultra-bright picture displayed on a 10.4" color TFT LCD with wide viewing angle. Works as a Remote Radar Display like FMD-811 and FMD-8010 for an existing radar, the NavNet expansion.

## 7" Color LCD GPS Chart/VideoPlotter

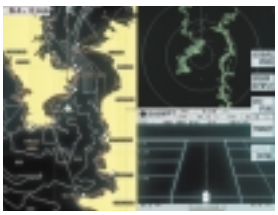
**GP-1700C**

Vivid picture provided on a 7" color TFT LCD with wide viewing angle

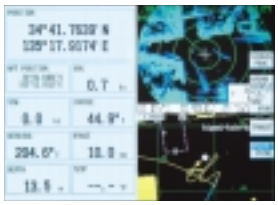
VideoPlotter

- Special Anti-Reflective coating on display (7" and 10.4" color LCDs only)
- Over 50 different display modes to choose from when connected with optional Radar and Network Sounder
- Display modes in various configurations, including dual or tri-split screens
- Versatile display modes including: Course Plot, Alphanumerical Nav Data, Steering and 3-D Highway modes
- Choose from two units that accept either Furuno and Navionics® or C-Map*NT* mini chart cards
- Store up to 8,000 points for ship's track and marks, 1,000 waypoints and 200 planned routes
- Selectable background colors, including high-contrast white (on color displays only)
- Optional Dual-Frequency, 50 and 200 kHz, Network Sounder with selectable 600 and 1000 watts rms of output power for detailed, accurate reading of fish, bottom and structure
- Optional NTSC/PAL interface allows for TV/VCR/DVD video input (10.4" LCD only)
- RGB Video output available on 10.4" LCD only

If a GPS/VideoPlotter is what you need to complete your bridge, Furuno's NavNet GPS/VideoPlotter has all the features you are searching for in a 10.4" color or 7" color and monochrome LCD display.



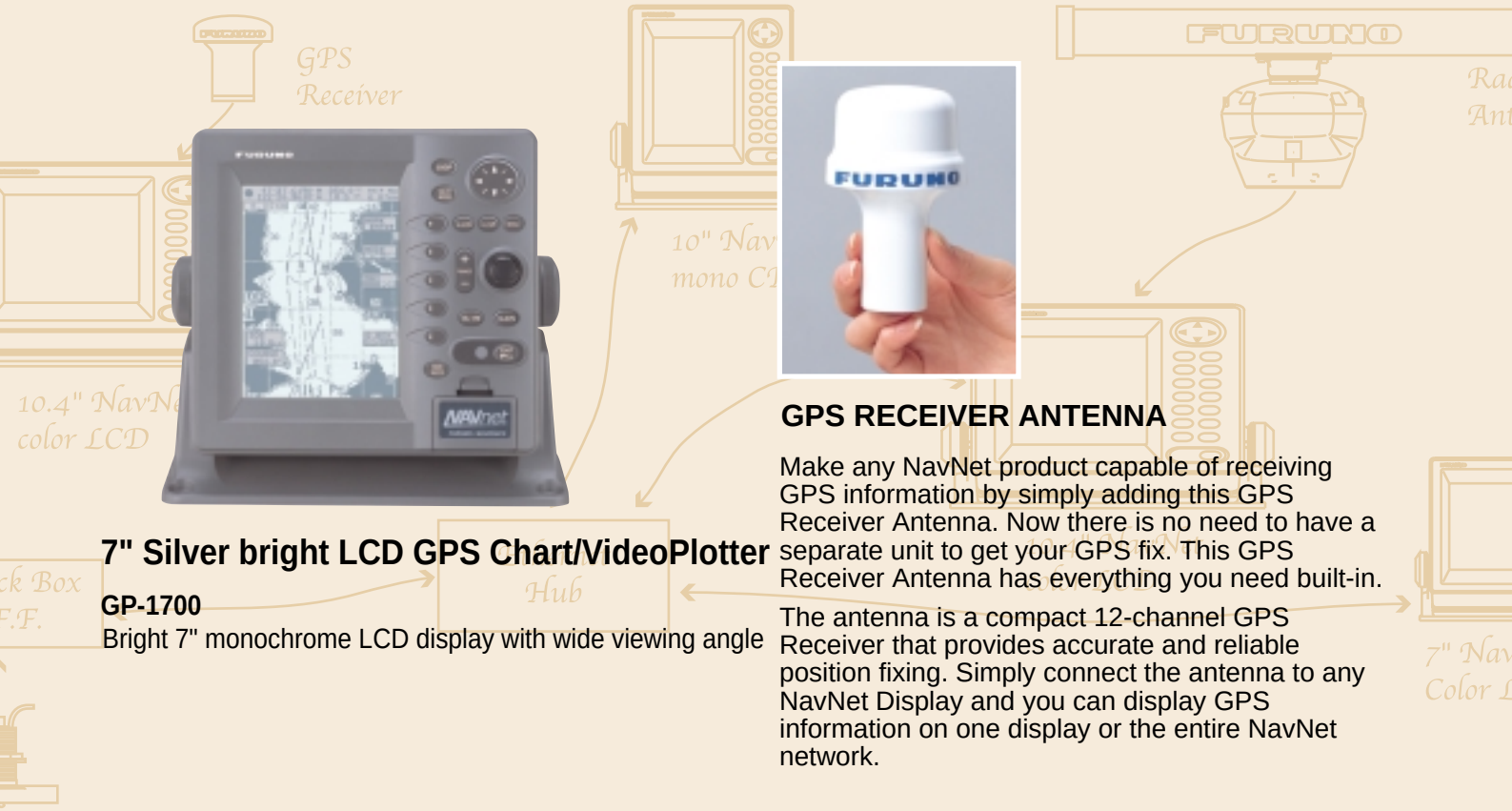
**Plotter/Radar/ Highway**



**Nav Data/Radar/ Plotter**

## CARTOGRAPHY OPTIONS

Furuno's NavNet products give you the power to choose what type of charts you want to use for the plotter. You can choose from two units that accept either FURUNO CDC and Navionics® or C-Map*NT* mini-chart cards. Simply specify which charting system you prefer to use when you place your order. All cards can be front loaded to allow for flush mounting of the units.







## GPS RECEIVER ANTENNA

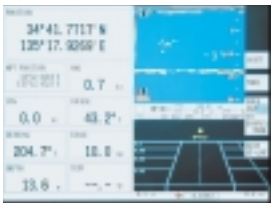
Make any NavNet product capable of receiving GPS information by simply adding this GPS Receiver Antenna. Now there is no need to have a separate unit to get your GPS fix. This GPS Receiver Antenna has everything you need built-in.

The antenna is a compact 12-channel GPS Receiver that provides accurate and reliable position fixing. Simply connect the antenna to any NavNet Display and you can display GPS information on one display or the entire NavNet network.

## 7" Silver bright LCD GPS Chart/VideoPlotter

**GP-1700**

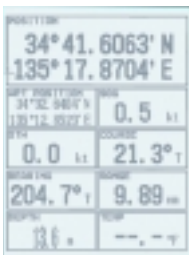
Bright 7" monochrome LCD display with wide viewing angle



**Nav Data/Fish Finder/Highway**

Like the Radars, the GPS Chart/VideoPlotters are also available in the compact, waterproof 7" color or monochrome LCD displays. These units are perfect for smaller boats that are tight on space requirements, or as a second or third display.

All of the NavNet products are capable of being networked through a standard Ethernet Hub. Simply plug all of the various NavNet components into the Hub, then you can share information from one display to another.




**7" Mono Nav Data**

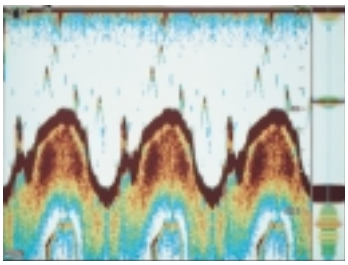
**FURUNO MINI CHART CARD**

## USER-FRIENDLY INTERFACE

A common user interface and control panel is used on all of the NavNet products. This ensures that no matter which model you are using, when you connect another display, it will work exactly the same. The 10.4" Color LCD also comes with a bonus ten-key keypad to make entering waypoints, routes and other information even easier.

NavNet Displays offer more flexibility than any other product on the market. With more than fifty possible display combinations selected through Furuno's exclusive NavNet menus, you are sure to find a display mode to suit your needs. If that weren't enough, there are five user programmable modes to allow you to customize your favorite displays with just a few key strokes.

## NETWORK SOUNDER



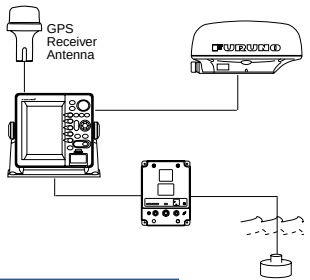
The Network Sounder is a sensor that plugs into any NavNet Display or into a Hub for multi-display installations. The sensor turns any NavNet Display into a dual-frequency 50/200 kHz, 600 W or 1 kW Sounder. It incorporates all of the award winning Furuno Sounder features you've grown to depend on, including:

- Variety of presentation modes, including marker zoom, bottom discrimination, bottom lock expansion, A-Scope and more
- Audible and adjustable depth and fish alarms
- Eight range scales to 4,000 feet
- Choice of feet, fathoms or meters
- Selectable screen background colors, including white (on color NavNet displays)
- Automatic Cruising & Fishing modes to meet your style of boating.

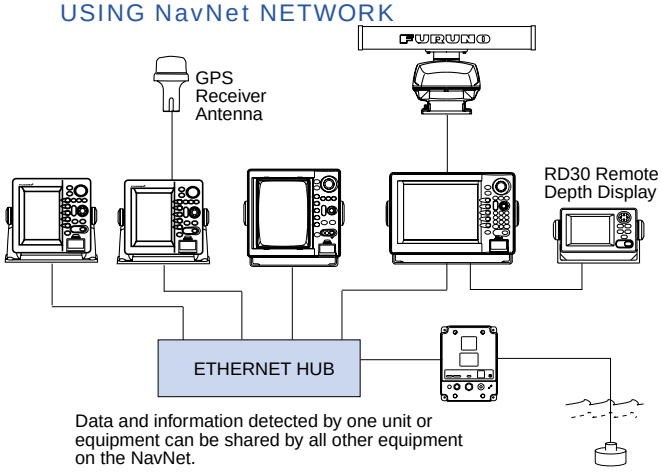

## RADAR ANTENNA SELECTIONS

Each NavNet Radar comes with a durable Furuno antenna. The power output ranges from the sleek 2.2 kW radome, to the 12 kW open array. There is a radar and antenna type for any situation. Please reference the specifications on the back page for a complete listing of beam width, TX output power and range scales.

### SINGLE DISPLAY SYSTEM

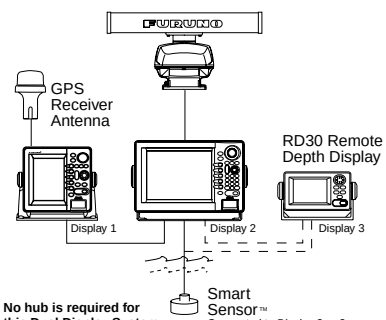



### MULTIPLE DISPLAY SYSTEM USING NavNet NETWORK




Data and information detected by one unit or equipment can be shared by all other equipment on the NavNet.

### DUAL DISPLAY SYSTEM

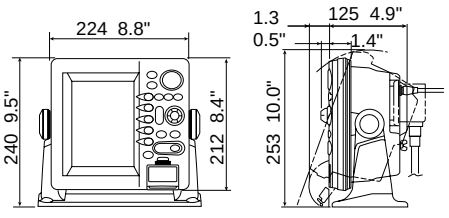



**No hub is required for this Dual Display System.**

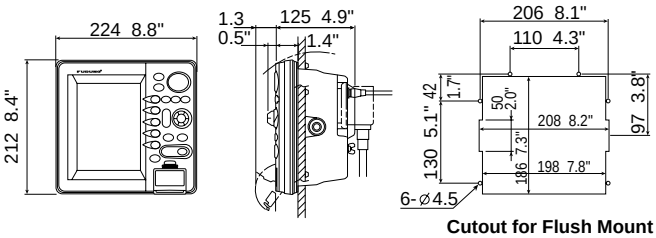
# SPECIFICATIONS OF NavNet SERIES

| | 7" Monochrome Radar / VideoPlotter | | | | 7" Color Radar / VideoPlotter | | | |
|---|---|---|---|---|---|---|---|---|
| | MODEL 1722 | MODEL 1732 | MODEL 1742 | MODEL 1762 | MODEL 1722C | MODEL 1732C | MODEL 1742C | MODEL 1762C |
| |  | | | |  | | | |
| **DISPLAY UNIT** | | | | | | | | |
| 1. Type | 7" Monochrome STN LCD 240 x 320 pixels | | | | 7" Color TFT LCD 232 x 320 pixels | | | |
| 2. NavNet Interface | Ethernet 10-BaseT | | | | | | | |
| 3. Interface (NMEA 0183 format) --: any talker (menu selection) | Input: BWC, BWR, DBK, DBS, DBT, DPT, GGA, GLL, GSV, HDT, HDM, HDG, MSS, MTW, MWV, RMA, RMB, RMC, TTM, VHW, VTG, VYW, VWT, VWR, ZDA<br>Output: AAM, APB, BOD, BWC, BWR, DBT, DPT, GGA, GLL, GTD, MSK, MTW, RMA, RMB, RMC, TLL, VHW, VTG, WPL, XTE, ZDA | | | | | | | |
| **RADAR CHARACTERISTICS** | | | | | | | | |
| 1. Display Modes | Head-up, Course-up*, North-up*, True Motion**<br>(* Heading input required ** Heading and speed input required) | | | | | | | |
| 2. Range Scales (nm) | 0.125 to 24 nm 14 steps | 0.125 to 36 nm 15 steps | 0.125 to 36 nm 15 steps | 0.125 to 48 nm 16 steps | 0.125 to 24 nm 14 steps | 0.125 to 36 nm 15 steps | 0.125 to 36 nm 15 steps | 0.125 to 48 nm 16 steps |
| 3. Echo Trail | Interval: 15 s, 30 s, 1 min, 3 min, 6 min, 15 min, 30 min or Continuous | | | | | | | |
| **PLOTTER CHARACTERISTICS** | | | | | | | | |
| 1. Map Scale | 0.125 to 1,024 nm | | | | | | | |
| 2. Latitude Limits | Between 85ºN and 85ºS | | | | | | | |
| 3. Plot Interval | 1 s to 59 min 59 s or 0.01 to 9.99 nm | | | | | | | |
| 4. Display Modes | Course plot, Nav data, Steering display, Highway | | | | | | | |
| 5. Presentation Modes | TM/RM North-up, Course-up, Auto Course-up | | | | | | | |
| 6. Memory Capacity | Up to 8,000 points for ship's track and marks<br>1,000 waypoints<br>200 planned routes (max. 35 waypoints/route) | | | | | | | |
| 7. Alarms | Arrival/anchor watch, XTE, proximity alert, ship speed, depth*, water temperature*, fish*<br>(*Network sounder required, temperature sensor required for water temperature alarm) | | | | | | | |
| 8. Electronic Charts* | Loaded from a FURUNO MiniChart, Navionics® Nav-Chart, C-Map*NT* chart cards<br>* Chart must be determined upon ordering.<br>Choice of two units: Furuno & Navionics® or C-Map | | | | | | | |
| **ANTENNA RADIATOR** | | | | | | | | |
| 1. Type | ø 460 mm (18") Radome | ø 602 mm (24") Radome | 665 mm (2 ft) Open | 1035 mm (3.5 ft) Open | ø 460 mm (18") Radome | ø 602 mm (24") Radome | 665 mm (2 ft) Open | 1035 mm (3.5 ft) Open |
| 2. Rotation Speed | 24 rpm | 24 rpm | 24 rpm | 24 rpm | 24 rpm | 24 rpm | 24 rpm | 24 rpm |
| 3. Wind Load | Relative 100 kt | | | | Relative 100 kt | | | |
| 4. Beamwidth | Hor: 5.2º Vert: 25º | Hor: 3.9º Vert: 20º | Hor: 3.5º Vert: 30º | Hor: 2.2º Vert: 22º | Hor: 5.2º Vert: 25º | Hor: 3.9º Vert: 20º | Hor: 3.5º Vert: 30º | Hor: 2.2º Vert: 22º |
| **RF TRANSCEIVER** | | | | | | | | |
| 1. Peak Output Power | 2.2 kW | 4 kW | 2.2 kW | 4 kW | 2.2 kW | 4 kW | 2.2 kW | 4 kW |
| 2. Frequency | 9410 ± 30 MHz (X-Band) | | | | | | | |
| 3. Pulselength & PRR | 0.08 ms/2100 Hz (0.125 to 1 nm)<br>0.3 ms/1200 Hz (1.5 to 3 nm)<br>0.8 ms/600 Hz (3 to 48 nm) | | | | | | | |
| **ENVIRONMENT** (IEC 60945 test method) | | | | | | | | |
| Temperature | -15ºC to +55ºC (Display unit)<br>-25ºC to +70ºC (Antenna unit) | | | | | | | |
| Waterproofing | IEC 60529 IPX5, USCG CFR-46 (Display unit)<br>IEC 60529 IPX6 (Antenna unit) | | | | | | | |
| **POWER SUPPLY** | | | | | | | | |
| | 12-24 VDC Max. 44 W | 12-24 VDC Max. 46 W | 12-24 VDC Max. 47 W | 12-24 VDC Max. 50 W | 12-24 VDC Max. 52 W | 12-24 VDC Max. 54 W | 12-24 VDC Max. 55 W | 12-24 VDC Max. 58 W |
| | 115/230 VAC with optional rectifier PR-62 /RU-3423 | | | | | | | |
| **Optional unit** | | | | | | | | |
| Antenna Bracket | OP03-93 | OP03-92 | Not Available | | OP03-93 | OP03-92 | Not Available | |
| 10-Target Autoplotter | Full control when networked with 10.4" LCD or 10" CRT and ARP-11 | | | | | | | |
| External Buzzer | OP03-136 or Relay/Contact Closure | | | | | | | |
| NTSC/PAL Interface kit | Not Available | | | | | | | |

**7-inch LCD (Bracket Mount)** 3.5 kg 7.7 lb




**7-inch LCD (Flush Mount)** 3.2 kg 7.1 lb

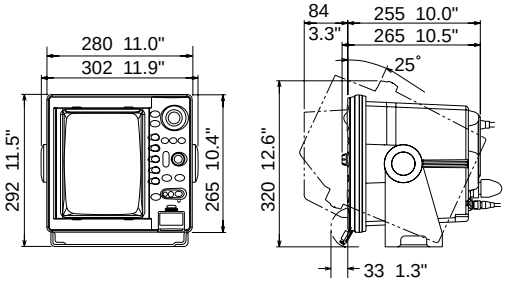



**Cutout for Flush Mount**

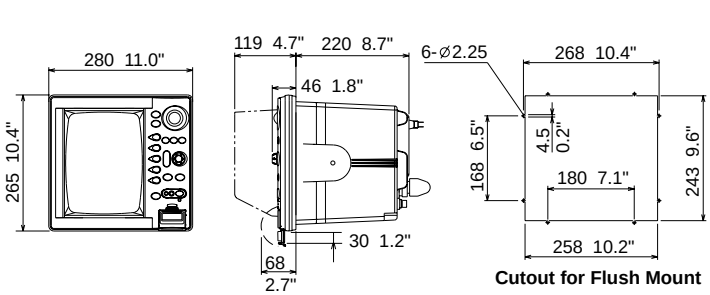
# SPECIFICATIONS OF NavNet SERIES

| | 10" Monochrome CRT Radar / VideoPlotter | | | 10.4" Color LCD Radar / VideoPlotter | | | |
|---|---|---|---|---|---|---|---|
| | MODEL 1833 | MODEL 1933 | MODEL 1943 | MODEL 1833C | MODEL 1933C | MODEL 1943C | MODEL 1953C |
| |  | | |  | | | |
| **DISPLAY UNIT** | | | | | | | |
| 1. Type | 10" Green phosphor CRT 481 x 640 pixels | | | 10.4" Color TFT LCD 640 x 480 pixels | | | |
| 2. NavNet Interface | Ethernet 10-BaseT | | | | | | |
| 3. Interface (NMEA 0183 format) --: any talker (menu selection) | Input: BWC, BWR, DBT, DPT, GGA, GLL, GSV, HDT, HDM, HDG, MTW, MWV, RMA, RMB, RMC, TTM, VHW, VTG, VYW, VWT, VWR, ZDA<br>Output: AAM, APB, BOD, BWC, BWR, DBT, DPT, GGA, GLL, GTD, HDG, HDT, MHW, MSK, MTW, RMA, RMB, RMC, TLL, TTM, VHW, VTG, WPL, XTE, ZDA | | | | | | |
| **RADAR CHARACTERISTICS** | | | | | | | |
| 1. Display Modes | Head-up, Course-up*, North-up*, True Motion**<br>(* Heading input required ** Heading and speed input required) | | | | | | |
| 2. Range Scales (nm) | 0.125 to 36 nm<br>15 steps | 0.125 to 48 nm<br>16 steps | 0.125 to 64 nm<br>17 steps | 0.125 to 36 nm<br>15 steps | 0.125 to 48 nm<br>16 steps | 0.125 to 64 nm<br>17 steps | 0.125 to 76 nm<br>18 steps |
| 3. Echo Trail | Interval: 15 s, 30 s, 1 min, 3 min, 6 min, 15 min, 30 min or Continuous | | | | | | |
| **PLOTTER CHARACTERISTICS** | | | | | | | |
| 1. Map Scale | 0.125 to 1,024 nm | | | 0.125 to 2,048 nm | | | |
| 2. Latitude Limits | Between 85ºN and 85ºS | | | | | | |
| 3. Plot Interval | 1 s to 59 min 59 s or 0.01 to 9.99 nm | | | | | | |
| 4. Display Modes | Course plot, Nav data, Steering display, Highway | | | | | | |
| 5. Presentation Modes | TM/RM North-up, Course-up, Auto Course-up | | | | | | |
| 6. Memory Capacity | Up to 8,000 points for ship's track and marks<br>1,000 waypoints<br>200 planned routes (max. 35 waypoints/route) | | | | | | |
| 7. Alarms | Arrival/anchor watch, XTE, proximity alert, ship speed, depth*, water temperature*, fish*<br>(*Network Sounder required, temperature sensor required for water temperature alarm) | | | | | | |
| 8. Electronic Charts* | Loaded from a FURUNO MiniChart, Navionics® Nav-Chart, C-Map*NT* chart cards<br>*Chart must be determined when ordering.<br>Choice of two units: Furuno & Navionics® or C-Map | | | | | | |
| **ANTENNA RADIATOR** | | | | | | | |
| 1. Type | ø 602 mm (24")<br>Radome | 1035 mm (3.5 ft)<br>Open | 1255 mm (4 ft)<br>Open | ø 602 mm (24")<br>Radome | 1035 mm (3.5 ft)<br>Open | 1255 mm (4 ft)<br>Open | 1795 mm (4/6 ft)<br>Open |
| 2. Rotation Speed<br>* 48 rpm is option. | 24 rpm | 24/48* rpm | 24/48* rpm | 24 rpm | 24/48 rpm | 24/48 rpm | 24/48 rpm |
| 3. Wind Load | Relative 100 kt | Relative wind 100 kt (24 rpm)<br>Relative wind 70 kt (48 rpm) | | Relative 100 kt | Relative wind 100 kt (24 rpm)<br>Relative wind 70 kt (48 rpm) | | Relative 100 kt |
| 4. Beamwidth | Hor: 3.9º<br>Vert: 20º | Hor: 2.2º<br>Vert: 22º | Hor: 1.85º<br>Vert: 22º | Hor: 3.9º<br>Vert: 20º | Hor: 2.2º<br>Vert: 22º | Hor: 1.9º<br>Vert: 22º | Hor: 2.2º<br>Vert: 22º |
| **RF TRANSCEIVER** | | | | | | | |
| 1. Peak Output Power | 4 kW | 4 kW | 6 kW | 4 kW | 4 kW | 6 kW | 12 kW |
| 2. Frequency | 9410 ± 30 MHz (X-Band) | | | | | | |
| 3. Pulselength & PRR | 0.08 µs/2100 Hz (0.125 to 1.5 nm)<br>0.3 µs/1200 Hz (1.5 to 3 nm)<br>0.8 µs/600 Hz (3 to 64 nm) | | | | | 0.08 µs/2100 Hz (0.125 to 1.5 nm<br>0.3 µs/1200 Hz (1.5 to 3 nm)<br>0.8 µs/500 Hz (3 to 64 nm) | |
| **ENVIRONMENT** (IEC 60945 test method) | | | | | | | |
| Temperature | -15ºC to +55ºC (Display unit)<br>-25ºC to +70ºC (Antenna unit) | | | | | | |
| Waterproofing | IEC 60529 IPX5, USCG CFR-46 (Display unit)<br>IEC 60529 IPX6 (Antenna unit) | | | | | | |
| **POWER SUPPLY** | | | | | | | |
| | 12-24 VDC<br>Max. 55 W | 12-24 VDC<br>Max. 73/88 W | 12-24 VDC<br>Max. 73/88 W | 12-24 VDC<br>Max. 71 W | 12-24 VDC<br>Max. 74/82 W | 12-24 VDC<br>Max. 84/91 W | 12-24 VDC<br>Max. 103/123 W |
| | 115/230 VAC with optional rectifier PR-62/RU-3423 | | | | | | |
| **Optional unit** | | | | | | | |
| Antenna Bracket | OP03-92 | Not Available | | OP03-92 | Not Available | | |
| 10-Target Autoplotter | ARP-11* (* Requires appropriate heading sensor) | | | | | | |
| External Buzzer | OP03-136 or Relay/Contact Closure | | | | | | |
| NTSC/PAL Interface kit | Not Available | | | OP03-175 | | | |
| Power Amp Unit | Not Available | | | | | | PSU-005 |

**10-inch CRT (Bracket Mount)** 8.0 kg 17.6 lb




**10-inch CRT (Flush Mount)** 7.5 kg 16.5 lb




**Cutout for Flush Mount**

| | VideoPlotter | | |
|---|---|---|---|
| | GP-1700  | GP-1700C  | GP-1900C  |
| **DISPLAY UNIT** | | | |
| 1. Type | 7" Monochrome STN LCD 240 x 320 pixels | 7" Color TFT LCD 232 x 320 pixels | 10.4" Color TFT LCD 640 x 480 pixels |
| 2. NavNet Interface | Ethernet 10-BaseT | | |
| 3. Interface (NMEA 0183 format) --: any talker (menu selection) | Input: BWC, BWR, DBK, DBS, DBT, DPT, GGA, GLL, GSV, HDT*, HDM*, HDG*, MSS, MTW, MWV, RMA, RMB, RMC, TTM, VHW*, VTG, VYW, VWT, VWR, ZDA (* For GP-1900C only)<br>Output: AAM, APB, BOD, BWC, BWR, DBT, DPT, GGA, GLL, GTD, MSK, MTW, RMA, RMB, RMC, TLL, VHW, VTG, WPL, XTE, ZDA | | |
| **PLOTTER CHARACTERISTICS** | | | |
| 1. Map Scale | 0.125 to 1,024 nm | | 0.125 to 2,048 nm |
| 2. Latitude Limits | Between 85ºN and 85ºS | | |
| 3. Plot Interval | 1 s to 59 min 59 s or 0.01 to 9.99 nm | | |
| 4. Display Modes | Course plot, Nav data, Steering display, Highway | | |
| 5. Presentation Modes | TM/RM North-up, Course-up, Auto Course-up | | TM/RM North-up, Course-up |
| 6. Memory Capacity | Up to 8,000 points for ship's track and marks<br>1,000 waypoints<br>200 planned routes (max. 35 waypoints/route) | | |
| 7. Alarms | Arrival/anchor watch, XTE, proximity alert, ship speed, depth*, water temperature*, fish*<br>(*Network Sounder required, temperature sensor required for water temperature alarm) | | |
| 8. Electronic Charts* | Loaded from a FURUNO MiniChart, Navionics® Nav-Chart, C-Map*NT* chart cards<br>* Chart must be determined upon ordering.<br>Choice of two units: Furuno & Navionics® or C-Map | | |
| **ENVIRONMENT** (IEC 60945 test method) | | | |
| Temperature | -15ºC to +55ºC | | |
| Waterproofing | IEC 60529 IPX5, USCG CFR-46 | | |
| **POWER SUPPLY** | | | |
| | 12-24 VDC<br>Max. 18 W | 12-24 VDC<br>Max. 28 W | 12-24 VDC<br>Max. 40 W |
| | 115/230 VAC with optional rectifier PR-62/RU-3423 | | |
| **Optional unit** | | | |
| Autoplotter | Full control when networked with 10.4" LCD or 10" CRT and ARP-11 | | |
| External Buzzer | OP03-136 or Relay/Contact Closure | | |
| NTSC/PAL Interface kit | Not Available | | OP03-175 |

| | GPS RECEIVER ANTENNA |
|---|---|
| | GP-310B |
| **RECEIVER CHARACTERISTICS** | |
| Receiver type | Twelve discrete channels, C/A code, all-in-view |
| Receiver Frequency | L1 (1575.42 MHz) |
| Time to First Fix | 90 seconds typical (Cold start) |
| Tracking Velocity | 999 knots |
| Geodetic Systems | WGS-84, NAD-27 and others |
| Accuracy | 10 m approx (95% of the time) |
| **ENVIRONMENT** (IEC 60945 test method) | |
| Temperature | -25ºC to +70ºC |
| Waterproofing | IEC 60529 IPX6 |
| **POWER SUPPLY** | |
| | 12 VDC |

| | NETWORK SOUNDER |
|---|---|
| | ETR-6/10N |
| **TRANSCEIVER CHARACTERISTICS** | |
| Display modes | Single (50 or 200 kHz), Dual (50 and 200 kHz), Bottom-lock, Bottom Zoom, Bottom Discrimination, Marker Zoom, A-Scope |
| Frequency | Dual frequency 50 and 200 kHz |
| Output Power | 600 W / 1 kW rms |
| Range Scale | 8 basic ranges customized to max 1,200 m (4,000 ft, 650 fa) |
| Range Phasing | Up to 2,400 m (8,000 ft, 1,300 fa) |
| **ENVIRONMENT** (IEC 60945 test method) | |
| Temperature | -15ºC to +55ºC |
| Waterproofing | IEC 60529 IPX2 |
| **POWER SUPPLY** | |
| | 12-24 VDC<br>Max. 11.0 W |

**TRANSDUCERS** (Specify when ordering)

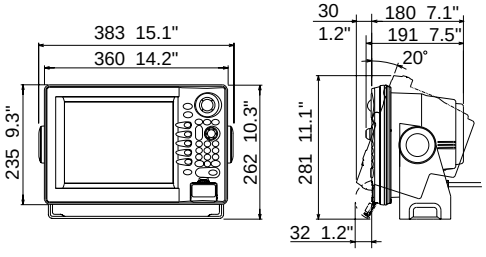
50/200 kHz transducers

520-5PSD (Plastic thru-hull), 520-5MSD (Bronze thru-hull),
520-5PWD (Plastic transom), 525ST-MSD (Bronze thru-hull w/speed/temp sensor)
525ST-PWD (Plastic transom w/speed/temp sensor)

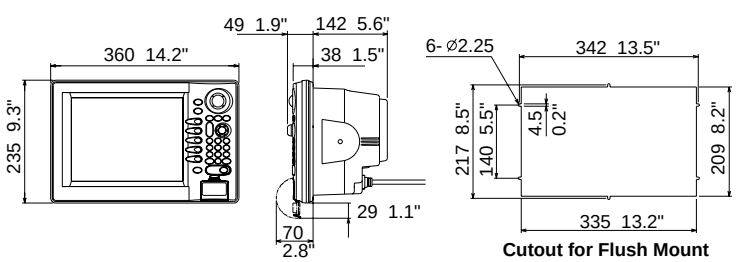
Single frequency transducers (Optional Matching box MB-1000 required)

50 kHz: 50B-6, 50B-6G, 50B-6B, 50B-62M, 50B-9B, 50B-92M
200 kHz: 200B-5, 200B-5S
50/200-1T, 50/200-12M

**10.4-inch LCD (Bracket Mount)** 6.0 kg 13.2 lb



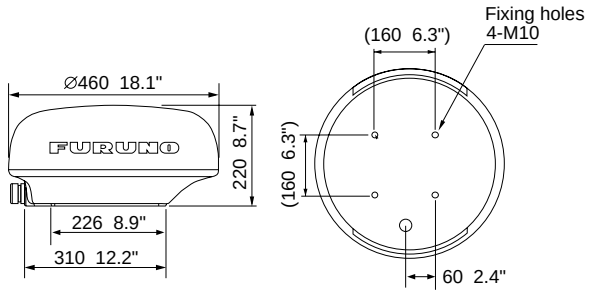

**10.4-inch LCD (Flush Mount)** 5.2 kg 11.5 lb



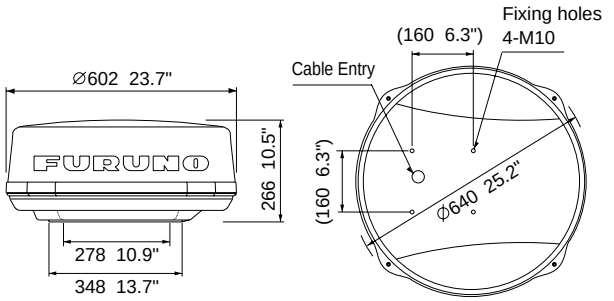

**Cutout for Flush Mount**

# SPECIFICATIONS OF NavNet SERIES

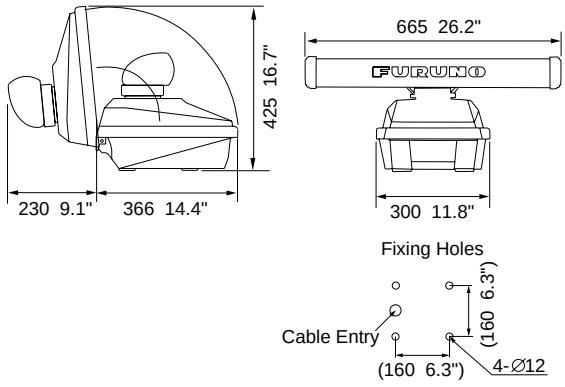
## 18" Radome Antenna — 4.9 kg 10.8 lb



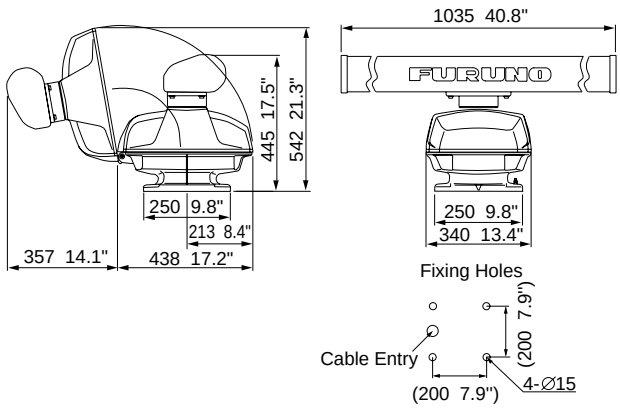

## 24" Radome Antenna — 8 kg 17.6 lb



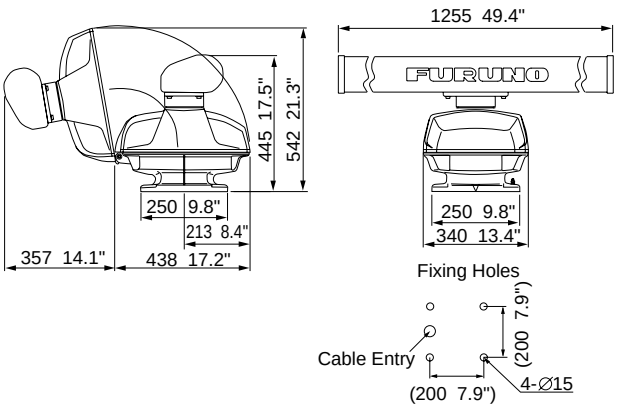

## 2 ft Open Antenna — 11 kg 24.2 lb




## 3.5 ft Open Antenna — 22 kg 48.5 lb

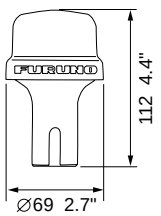



## 4 ft Open Antenna — 23 kg 50.7 lb

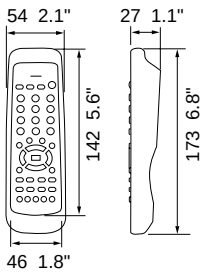



## GPS Antenna GP-310B — 0.6 kg 1.3 lb

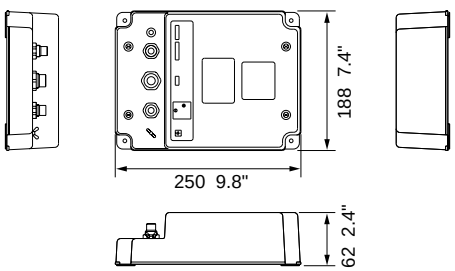
10 m cable attached




## Remote Controller — 0.06 kg 0.1 lb




## Network Sounder ETR-6/10N — 1.5 kg 3.3 lb

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