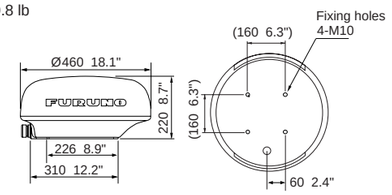
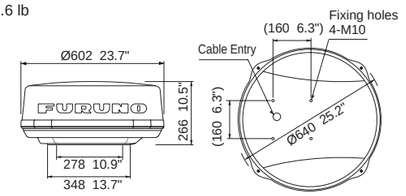
# Specifications of NavNet vx2

NAVnet vx2

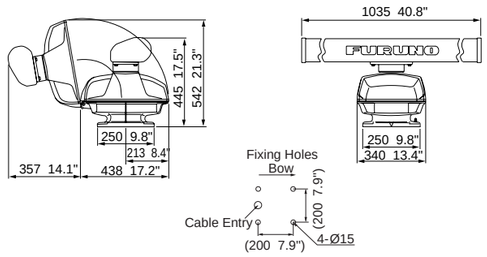
### 18" Radome Antenna
4.9 kg 10.8 lb



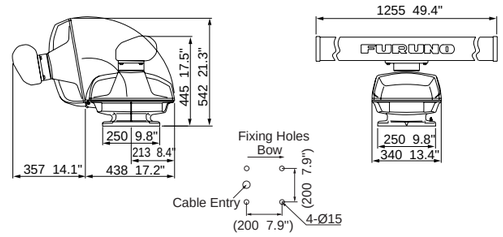

### 24" Radome Antenna
8 kg 17.6 lb



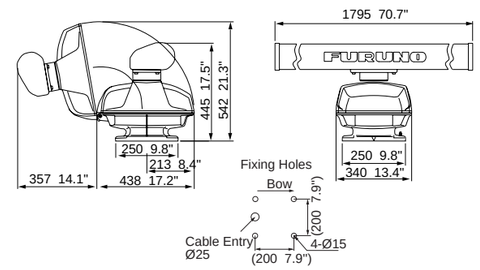

### 3.5 ft Open Antenna
22 kg 48.5 lb



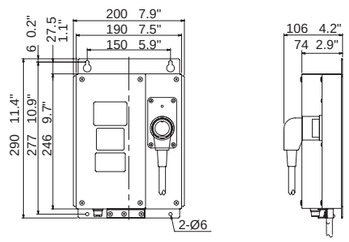

### 4 ft Open Antenna
23 kg 50.7 lb




### 6 ft Open Antenna
25 kg 55.1 lb




### Power Supply Unit
### PSU-005 for MODEL 1954C/1954C-BB
1.9 kg 4.2 lb







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FURUNO


NAVnet vx2

www.furuno.com

# The highest ac claimed navigation system just got better, introducing NavNet vx2!


10.4" Color LCD


7" Color LCD

Since its release back in 2001, FURUNO's NavNet series has been enjoying unrivalled popularity worldwide for its high reliability, performance and expandability. It has even been voted Best Integrated Navigation System by the National Marine Electronics Association for three consecutive years. Now, NavNet vx2 is ready to carry on the tradition.

NavNet vx2 combines radar, GPS/WAAS chart plotter, fish finder, and network weather facsimile into completely integrated navigation network. Its wide range of options fulfils virtually every desire you may have for your navigation system.

- *All display units are capable of controlling any component connected to the NavNet network*
- *Perfect for single or multi display installations*
- *Fully supports C-Map NT MAX and Navionics® GOLD chart.*
- *Utilizes SD cards for chart and memory.*
- *Fast chart drawing speed.*
- *Straightforward "Plug 'n Play" installation with wizard style set-up.*
- *AR-coated, high-brightness display unit for improved sunlight viewability.*

## NavNet vx2 network capability

From a stand-alone, single station navigation system to a multistation integrated navigation network, NavNet vx2 lets you build your navigation system according to your needs. Utilizing state-of-the-art network technology, NavNet vx2 provides you with seamless data sharing and vast future expandability.

The heart of NavNet vx2 is its Ethernet-based network that allows multiple displays to be connected. Choose from the 7", 10.4" and the flexible BlackBox, that allows you to match it with virtually any display including our ultra bright 12", 15" and 17" monitors. Interconnect the displays with various navigational sensors and our new MaxSea-NavNet navigational software for a feature rich network that is unparalleled. Stress-free navigation and operation of any component can be performed from any display unit connected to the onboard network.

# Building a NavNet vx2 system

## 1 Select your display units

You can select your display units for NavNet vx2 from the following: 7", 10.4", 12", 15" and 17" high-brightness LCDs. You can choose either a single- or a multi-station system of up to four displays.

### 7"

### 10.4"

### 12" with BB unit

### 15" with BB unit

### 17" with BB unit

## 2 Select additional components

Once you have selected the display units for your system, you can now choose the basic operating equipment of the NavNet vx2 system. NavNet vx2 has four main components including radar, GPS/WAAS chart plotter, fish finder and weather facsimile to create your navigation network. You can create your own network by selecting components according to your needs.

### Radar antenna

### GPS/WAAS antenna

GP-320B

GP-330B NEW

Chart cards

- *C-Map NT MAX*
- *Navionics® GOLD*

### Network fish finder

DFF1 NEW

DFF3 NEW

### Network weather facsimile

FAX-30

### Network satellite weather receiver

BBWX1

## 3 Compliment your system with additional FURUNO equipment

With a variety of optional add-ons, NavNet vx2 can offer you additional useful functions, such as: radar overlay, AIS display, NAVpilot autopilot data and ARPA target tracking. You can even interface it with your PC and MaxSea-NavNet PC software to make it the most versatile navigation network on the market.

### PC software

MaxSea-NavNet

### Autopilot

NAVpilot series

NEW

### Heading sensor

SC-50/110

SC-30 NEW

PG-500

### Nav data organizer/Remote display

RD-30

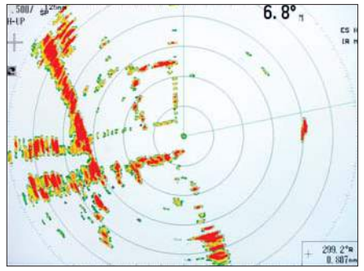
### AIS

FA-30 NEW

FA-50 NEW

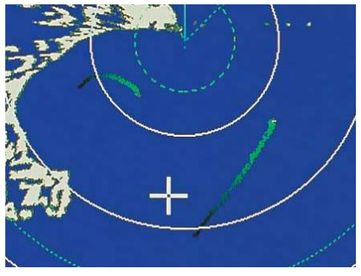
FA-150

# Radar

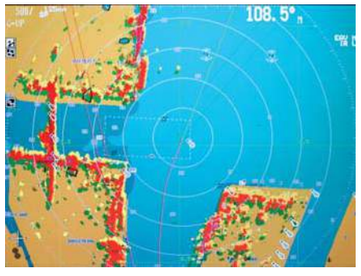




High-performance radar is one of the main components of NavNet vx2. Known for our award winning and reliable radars, the NavNet vx2 radar includes the following features:

- Presentation modes selectable from: North-up, Head-up, Course-up and True Motion
- Overlay radar targets on chart (appropriate heading sensors required, i.e. PG-500, C-500, SC50/110, etc.)
- Auto gain control
- Echo trail shows an afterglow of moving radar targets
- Automatic radar plotting to track up to ten targets (Not available on stand-alone 7" models, unless part of a network incorporating 10.4" or BlackBox models with ARP-11 installed.)
- Radar Guard Zone alerts you to potential danger
- Energy saving Watchman feature
- Dual EBL (Electronic Bearing Lines) and dual VRM (Variable Range Markers) give distance and bearing to targets
- Off-center display allows you to focus on a specific area
- Customizable color presentation for night-time operation



**Echo trails**
This feature displays afterglow of all the targets to show their tracks. It helps you foresee their heading directions at a glance. Its trail duration is adjustable among 15, 30 s, 1, 3, 6, 15, 30 min and continuous.




**Radar overlay**
Radar targets can be overlaid onto the electronic chart so that you can better recognize what's around your vessel by referencing the target locations on both the chart and the radar.

**Automatic radar plotting (ARP)**
Up to ten targets can be simultaneously acquired and tracked to show you the heading direction and speed of the targets.


NavNet vx2
## Radar



## Radar antennas

NavNet vx2 presents a wide range of radar antennas that offer unparalleled performance to suit a variety of your needs. Powerful X-Band transmitters offers detailed target detection. While the compact 2.2 kW and 4 kW radomes offer the maximum range of 24 and 36 nm respectively. High performance open arrays offer longer detection ranges.

**Open antennas**
- Selectable from 4 kW (3.5'), 6 kW (4'), 12 kW (4/6') and 25 kW (4/6') models
- Narrow horizontal beam width enhances target identification and ensures detection of smaller targets
- Longer range scales of up to 72 nm
- High power output for enhanced long range performance

**Radomes**
- Selectable from 2.2 kW (18") and 4 kW (24") models
- Stylish, compact and lightweight units
- Simplified installation
- Modest power consumption

**Radar antenna selection**

| | Open antennas | | | | | | Radomes | |
|---|---|---|---|---|---|---|---|---|
| Output power | 4 kW | 6 kW | 12 kW | 12 kW | 25 kW | 25 kW | 2.2 kW | 4 kW |
| Size | 3.5 ft | 4 ft | 4 ft | 6 ft | 4 ft | 6 ft | 18 inch | 24 inch |
| Beam width Horizontal | 2.2˚ | 1.9˚ | 1.9˚ | 1.2˚ | 1.9˚ | 1.2˚ | 5.2˚ | 3.9˚ |
| Beam width Vertical | 22˚ | 22˚ | 22˚ | 22˚ | 22˚ | 22˚ | 25˚ | 20˚ |
| Maximum range | 48 nm | 64 nm | 72 nm | 72 nm | 72 nm | 72 nm | 24 nm | 36 nm |
| Optional 48 rotation | Available* | Available* | Available | N/A | Available | N/A | N/A | N/A |

*BlackBox models only

NavNet vx2

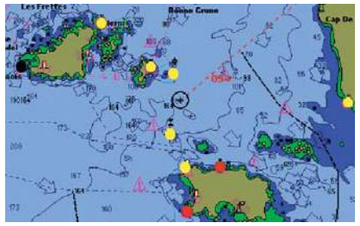
# GPS/WAAS Chart Plotter

Working in perfect collaboration with the NavNet vx2 radar is the GPS/WAAS chart plotter. It shows your exact position and offers a variety of display modes that allow you to organize your nav data with unparalleled ease.

## C-Map NT MAX chart

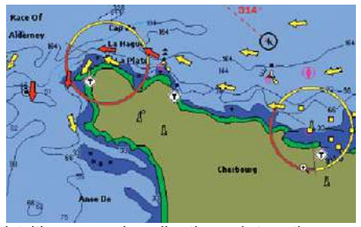
NavNet vx2 accepts the C-Map's new NT MAX charts. The NT MAX unique features include live nav-aids, tidal flows, local street maps, photographs of harbors and perspective view in addition to grounding alarm (Guardian Technology™).

### Live nav-aids (Flashing buoys/Light houses)



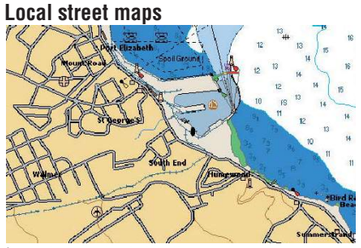
Flashing buoys and light houses are displayed with only visible sector colors according to boat's position.

### Tidal flows



Intuitive arrows show direction and strength

### Local street maps

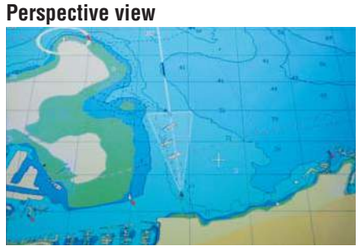


Coastal roads, land elevation contours, airports and other land objects included in major port areas.

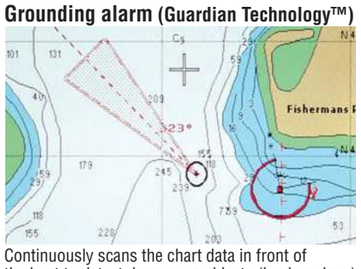
### Photographs of harbors

Photographs of major harbors and nav-aids are included

### Perspective view



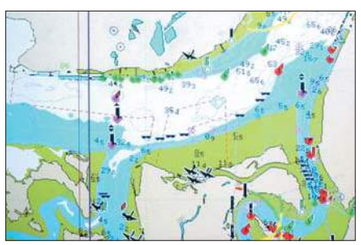
### Grounding alarm (Guardian Technology™)



Continuously scans the chart data in front of the boat to detect dangerous objects (land, rocks,..).

## Navionics® GOLD chart

Navionics® GOLD charts offer "object-oriented" color rich presentation with superior clarity and detail. The "Xplain" feature translates every navigational symbol into an easy to understand description. The IC™ (Intelligent Clarity) feature that automatically filters on-screen presentation at every zoom level to offer a clear, uncluttered display of all essential nav data.



NavNet vx2

**GPS/WAAS Chart Plotter**




NavNet vx2

# Fish Finder

For years, Commercial Fisherman have relied on FURUNO's fish finding technology to help them make a living. FURUNO's network fish finders implement the same tried and true fish finding technology that is used in our commercial-grade fish finders. Plug a network fish finder into your NavNet vx2 system and it turns any display in the network into a high-performance fish finder.

- Variety of presentation modes: Marker Zoom, Bottom Discrimination, Bottom Lock Expansion, A-scope and many more
- FURUNO Free Synthesizer (FFS) transceiver on the DFF3 allows you to choose any two operating frequencies from 28 to 200 kHz
- Two selectable automatic gain control modes: Cruising and Fishing modes to match your style of boating
- Wide output power range selectable from regular 600 W to powerful 3 kW
- Two pages of fish finder images can be stored and displayed

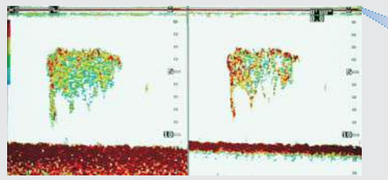
## Digital Filter Technology

FURUNO's latest network fish finder, the DFF1/DFF3, features a digital filter which delivers automatic gain control to present precise and crystal clear echo images. However, even the best digital filter won't help unless you start with a solid base, such as FURUNO's renowned fishfinder technology.

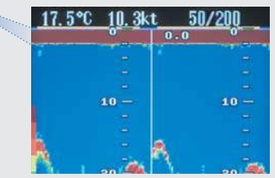
FDF
FURUNO Digital Filter

### Exceptional shallow water detection with surface clutter suppression

Surface clutter, mainly caused by craft's propeller can be greatly suppressed by the digital filter, which facilitates exceptional shallow water detection. This enables you to spot fish targets that are close to the surface.



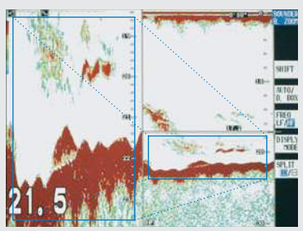
DFF1




Conventional fish finder

### Detailed target presentation

The digital filter of the DFF1/DFF3 optimizes gain to obtain highly defined images of underwater conditions. The DFF1/DFF3 clearly shows fish targets close to the seabed. The digital filter also eliminates noise to deliver sharp and detailed echo presentation, achieving detection of fishing reefs and individual fish with absolute clarity.




NavNet vx2

**Fish Finder**


### FURUNO Free Synthesizer (FFS)

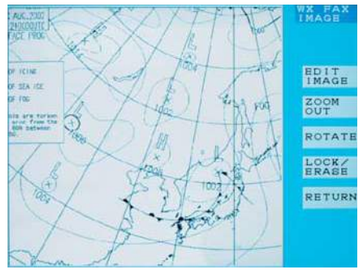
The DFF3 employs the FURUNO Free Synthesizer based on the professional fish finder FCV-1200L, which allows you to operate a fish finder in any two operating frequencies from 28 to 200 kHz without a matching box. This transceiver gives you the flexibility to choose your operating frequencies for more productive fishing. Output power can also be selected among 1, 2, and 3 kW to suit a variety of situations.

# FAX, AIS & NAVpilot


## Network weather facsimile receiver

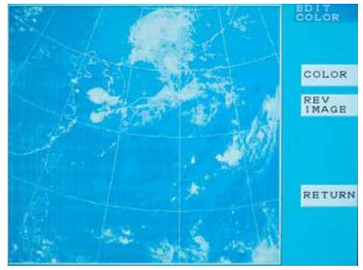
The network weather facsimile FAX-30 receives weather map images and NAVTEX messages. The images and messages can be displayed on the 10.4" or BlackBox models.

- Up to 12 pictures can be stored in memory
- Programmed with all currently existing facsimile stations and frequencies: up to 320 channels storable
- Presentation in monochrome, 16-gradation gray scale or color (three patterns of color presentation are available)
- Built-in NAVTEX receiver (490 kHz and 518 kHz) in which up to 130 messages can be stored



Weather map

NAVTEX



Satellite image

## Interface with AIS

NavNet vx2 lets you integrate AIS (Automatic Identification System) into the network with an optional component. Information for up to 100 AIS targets can be displayed on any networked unit. This integration provides you with a solution for observing other vessels. (AIS receiver required)

- Display up to 100 AIS equipped targets information (the information is displayed in the AIS data cell)
- Indicate the state of targets with five symbols


## Interface with the NAVpilot

When the NAVpilot is added onto the network, you can set the destination and course to steer on the plotter mode, and transfer the course information to the NAVpilot. The NAVpilot will do the rest, steering your craft automatically to the destination. You can set the course and steer your craft from the NavNet vx2.


NavNet vx2

## FAX, AIS & NAVpilot

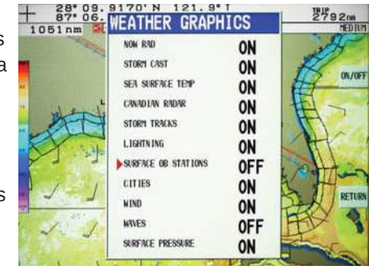





# Satellite Weather

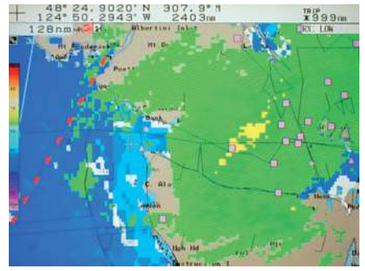
The network satellite weather receiver BBWX1 brings you live, up-to-date weather information and forecasting no matter when or how you are using your boat. The weather information is obtained from the weather industry's leading experts and is delivered via digital receiver through Sirius' Marine Weather services.

- Works with all C-Map versions of NavNet vx2 7", 10.4" and Black Box units
- Up-to-the-minute weather forecasting at sea
- Satellite Sea Surface Temperatures
- Animated NOWRad® weather radar
- Pressure isobars and frontal boundaries
- Squall lines and surface pressure
- Wind forecasts using wind barbs or arrows
- Marine text forecasts
- Lightning strike reports & storm tracking

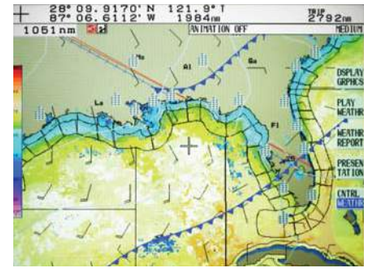





**Sea Surface Temperature**
Visual reading can be acquired on varying surface water temperatures, with red showing the warmest and blue showing the coldest areas.



**NOWRad® Weather Radar Overlay**
Real-time weather radar can be overlaid on your chart, showing the strongest precipitation in different colors.



**Surface Pressure and Wind**
Pressure isobars and frontal boundaries can be displayed on your screen. Also determine wind strength and direction with wind feathers.

**Animated Forecasts**
When planning a voyage, you can animate pressure, wind or wave forecasts to see how these items are predicted to progress in the future.

**Point & Click Weather Data**
For additional details on Stations, Marine Zone Forecasts, Storm Cast, Marine Warnings, Tropical Statements and other information, simply click on the symbol and a data box will show up with the information.


NavNet vx2

## Satellite Weather

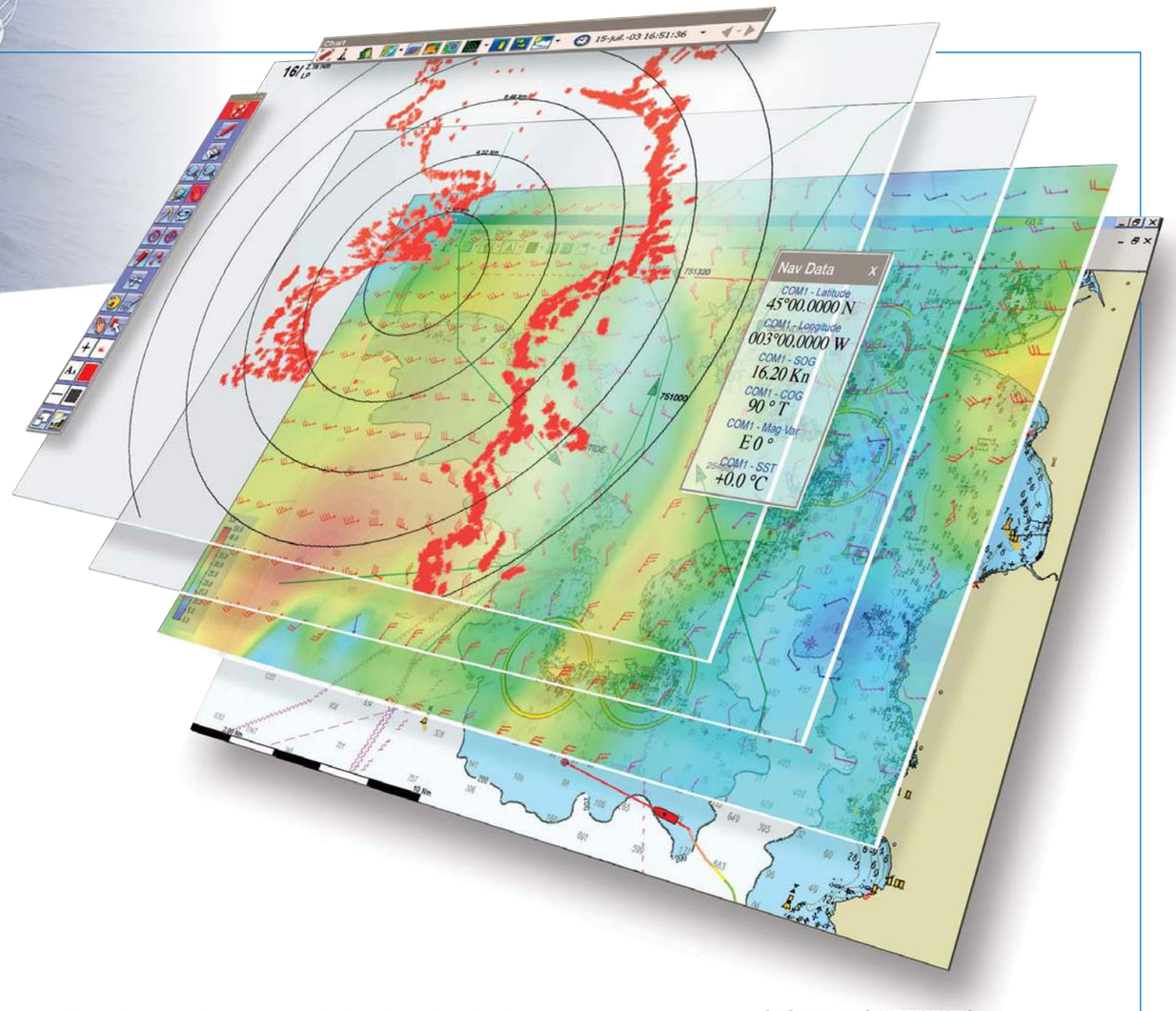

# MaxSea-NavNet PC software

Defining the cutting-edge of applied information technology, MaxSea-NavNet software is a powerful navigation tool for boaters who are looking for a user-friendly interface and a more comprehensive navigation system.

MaxSea-NavNet software offers increased efficiency at sea by using its exclusive capabilities, such as seamless chart displays, advanced weather forecast overlay, real-time three dimensional images of the seabed (Personal Bathymetric Generator) and many more. Intuitive operation of MaxSea-NavNet is achieved by its user-friendly interface and graphical tool palette. MaxSea-NavNet presents the ultimate solution to navigational data management.

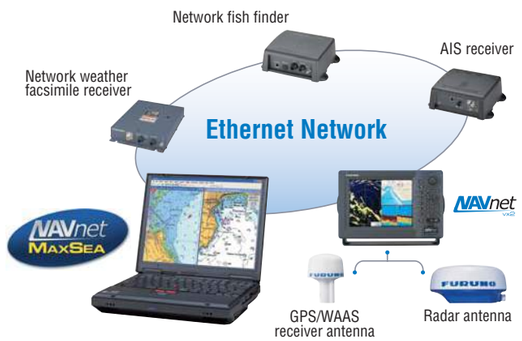
- **Sharing C-Map NT chart data as well as all the navigation data within the NavNet network**
  NavNet provides MaxSea-NavNet with radar, fish finder and essential navigation data from various networked sensors.
- **Full control of NavNet**
  MaxSea-NavNet offers full control of the NavNet display, such as radar range, gain/STC control, etc., in addition to handling the navigation data to display in a diverse range of formats.
- **2D/3D ground discrimination function allows boaters to see the Bottom Roughness, Hardness and Classification overlaid with MaxSea 2D/3D charts***
- **3D chart data conversion with C-Map NT chart***
- **ARPA radar target tracking capability***
- **AIS transponder compatibility***

* Optional modules that may require additional equipment



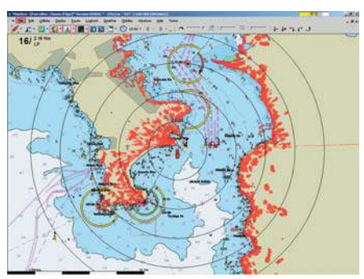

## Interface with the NavNet system

The MaxSea-NavNet software is capable of combining and analyzing data from multiple sources in real-time. Fully integrated into the NavNet system through a high-speed Ethernet network, MaxSea-NavNet facilitates the complete integration between the PC and the NavNet network, sharing information from the radar, GPS, echo sounder and other nav data within the NavNet system. A variety of display orientations can be selected to meet your needs.



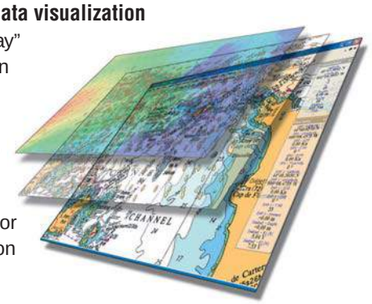

## MaxSea-NavNet radar overlay

MaxSea-NavNet provides the highest quality electronic charts available as the basis for its radar overlay. MaxSea-NavNet overlays the full radar image at the same scale and creates a dramatic improvement in accuracy and clarity. MaxSea-NavNet radar overlay gives you amazingly detailed images. The range of color and transparency of the overlay guarantees that the chart is not hidden. This allows for the confirmation of precise positioning relative to the chart and clearly reveals any inconsistencies.



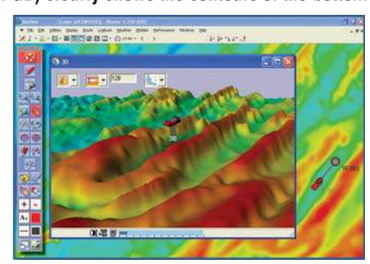
## The unique overlay system optimizes data visualization

Using MaxSea-NavNet's multiple “overlay” system, various layers of information can be superimposed on the screen. Each overlay contains different types of data, such as tracks, marks, hazards, wrecks, ports, currents, water temperature, etc. Based on the needs of the moment, a single click can make each layer visible or invisible, eliminating irrelevant information and clearly showing objects of interest.



## Optional Personal Bathymetric Generator (PGB) clearly shows the contours of the bottom

Connected to the network sounder and GPS, MaxSea-NavNet PBG records the position and the depth as your boat proceeds, which enables you to create 2D and 3D charts with pinpoint accuracy in real-time. With a single click, MaxSea-NavNet PBG will be activated to give breathtaking real-time 2D and 3D images of the seabed.



## SYSTEM REQUIREMENTS

Your PC must meet the following system requirements in order to work with MaxSea-NavNet. Please verify these requirements before installing.

- Windows® 2000 or XP
- 800 MHz processor
- CD-ROM drive – for installing MaxSea-NavNet
- Serial or USB port(s) – for connecting navigation equipment (An adapter must be used for USB connections – see the section on connecting equipment for more information.)
- 700 MB of hard drive space
- Graphic card: 32 MB (64 MB recommended)
- Network facility required
- Memory requirements:

| Operating | System Memory |
|---|---|
| Windows® 2000 | 64 MB (128 MB recommended) |
| Windows® XP | 128 MB (256 MB recommended) |

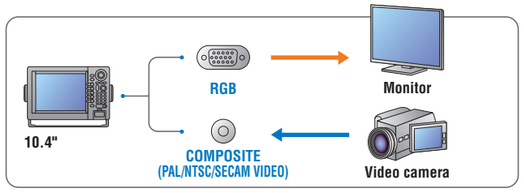
- Note about system requirements:
  For the best performance we advise you to follow the ‘recommended’ guidelines. MaxSea-NavNet is an advanced software program which makes good use of faster computers with more memory.

# Display unit

### 10.4"/7" display unit

NavNet vx2 provides you with a multi-station option for your navigational requirements. Two types of display units are available: 10.4" and 7" high brightness, sunlight viewable LCD's. Excellent all-round presentation with a wide viewable angle, VGA screen resolution ensures a superbly detailed picture.

- High-brightness LCD viewable under direct sunlight
- Enhanced visibility with Anti-Reflective (AR) coating to cut down annoying glare
- Common user interface for compatibility among the display units networked
- Easy operation using a trackball* and rotary encoder (*for 10.4" models)
- Multi-station networking of up to four display units
- Simple connection between each sensor and display unit
- Analog RGB video output available for remote monitoring (for 10.4" models)
- NTSC/PAL input available for displaying video images from onboard TV/VCR/DVD player (for 10.4" models)




### 12"/15"/17" LCDs with BlackBox unit

FURUNO MU-120C/155C/170C LCD units can be used as display units for BlackBox models. When connected to BlackBox models, the MU-120C/155C/170C offers the same functions as the 10.4" display unit on top of its exclusive functions. BlackBox models also can work with commercial monitors.

- Picture-in-Picture (PIP) function to display a small image window on top of the main display
- Built-in scaler to accept up to SXGA screen resolution*
  *With NavNet vx2, the display unit display the images in VGA resolution
- Easy channel selection
- Waterproof, low profile unit for flexible installation

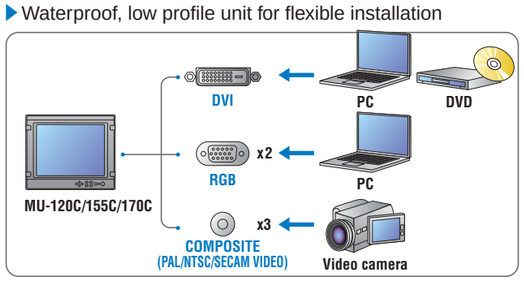



Photo: MU-155C

Control unit for BlackBox models

Processor unit for BlackBox models


# Network sensors

Whether it is the radar and GPS/WAAS antennas that connect directly to the NavNet vx2 displays or the optional network sensors that connect through the Ethernet network, all of the data obtained from each sensor can be shared by every display on the network. The beauty of NavNet vx2 is that you can start with a single unit and expand its features as needed.

### Radar antenna

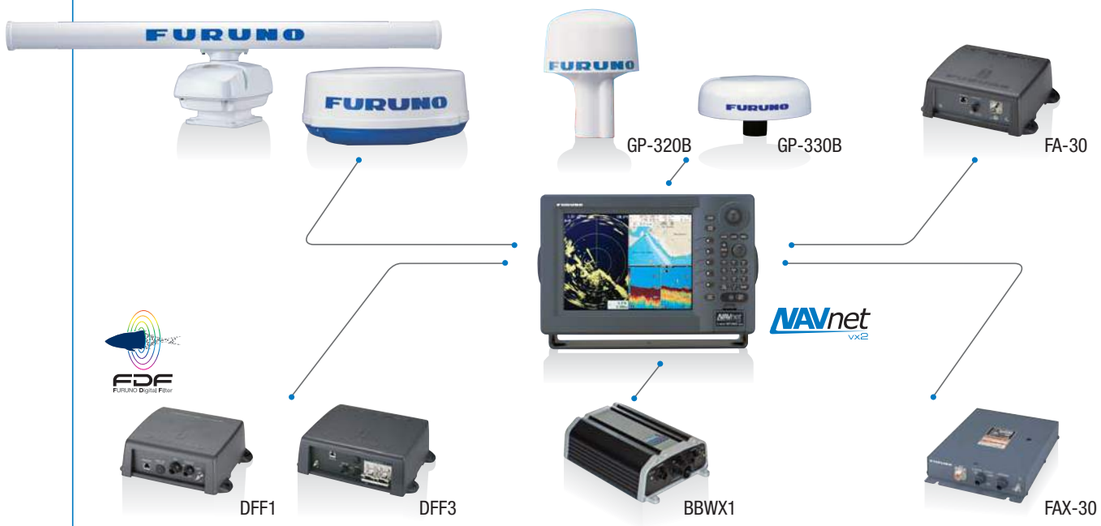
Each NavNet vx2 radar comes with a commercial-grade FURUNO antenna. The output power of the antenna units ranges from the sleek 2.2 kW radome to the powerful 25 kW open array.

### GPS antenna

Simply by plugging the GP-320B/GP-330B GPS/WAAS receiver antenna into any NavNet vx2 display, all the displays networked can show highly accurate position data.

### AIS receiver

The FA-30 incorporates AIS information into the NavNet vx2 radar/chart plotter displays.




### Network fish finder

The network fish finder can be plugged into any display or a Hub to turn the NavNet vx2 display into a high-performance dual-frequency fish finder.

**DFF1**
Frequency: Dual-frequency 50/200 kHz
Output Power: 600 W/1 kW rms
Basic Range: 8 range scales to 2,500 ft

**DFF3**
Frequency: Dual-frequency selectable between 28 and 200 kHz
Output Power: 1/2/3 kW rms
Basic Range: 8 range scales to 1,200 m

### Network satellite weather receiver

The BBWX1 Sirius Satellite Weather Receiver delivers comprehensive weather information and forecasting. Works with C-Map version.

### Network weather facsimile

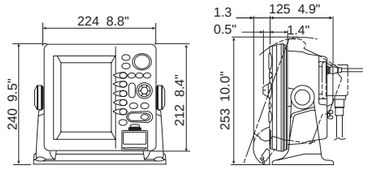
The FAX-30 is a network weather facsimile receiver that works with 10.4", BlackBox models or a PC to display weather maps, satellite images, NAVTEX and other navigation information.

# Specifications of NavNet vx2

| | 7" Color LCD Radar / Chart Plotter | |
|---|---|---|
| | MODEL 1724C | MODEL 1734C |
| |  | |
| **DISPLAY UNIT** | | |
| 1. Type | 7" Color TFT LCD, VGA 480 x 640 pixels | |
| 2. NavNet Interface | Ethernet 10-BaseT | |
| 3. Interface (NMEA 0183 format) | Input: DBT, DPT, DSC, DSE, GGA, GLL, GSA, GSV, HDG, HDM, HDT, MDA, MTW, MWV, RMA, RMB, RMC, TLL, TTM, VHW, VTG, VWT, VWR, WPL, ZDA, ZTG<br>Output: AAM, APB, BOD, BWC, BWR, DBT, DPT, GGA, GLL, GTD, HDT, HDT, MTW, MWV, RMA, RMB, RMC, TLL, TTM, VHW, VTG, WPL, XTE, ZDA, ZTG | |
| 4. Language | English, French, Spanish, German, Portuguese, Italian, Danish, Norwegian and Swedish | |
| **RADAR CHARACTERISTICS** | | |
| 1. Display Modes | Head-up, Course-up*, North-up*, True Motion** (* Heading input required ** Heading and speed inputs required) | |
| 2. Range Scales (nm) | 0.125 to 24 nm<br>14 steps | 0.125 to 36 nm<br>15 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 2,048 nm | |
| 2. Latitude Limits | Between 85°N and 85°S | |
| 3. Plot Interval | 1 s to 99 min 99 s or 0 to 99.99 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, 999 waypoints, 35 quick points, 1 MOB,<br>200 planned routes (max. 35 waypoints/route), 1 quick route | |
| 7. Alarms | Arrival/anchor watch, XTE, proximity alert, ship speed, depth*, water temperature*, fish*, grounding**<br>(*Network sounder required, temperature sensor required for water temperature alarm ** C-Map version only) | |
| 8. Electronic Charts | C-Map NT MAX or Navionics® GOLD | |
| **ANTENNA RADIATOR** | | |
| 1. Type | Ø460 mm (18")<br>Radome | Ø602 mm (24")<br>Radome |
| 2. Rotation Speed | 24/30 rpm<br>(Automatic switch) | 24 rpm |
| 3. Wind Load | Relative wind 100 kt | |
| 4. Beamwidth | Hor: 5.2°<br>Vert: 25° | Hor: 3.9°<br>Vert: 20° |
| **RF TRANSCEIVER** | | |
| 1. Peak Output Power | 2.2 kW | 4 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 48 nm) | |
| **ENVIRONMENT** (IEC 60945 test method) | | |
| Temperature | -15°C to +55°C (Display Unit)<br>-25°C to +70°C (Antenna Unit) | |
| Waterproofing | IEC 60529 IPX5, USCG CFR-46 (Display Unit)<br>IEC 60529 IPX6 (Antenna Unit) | |
| **POWER SUPPLY** | | |
| | 12-24 VDC<br>75 W | 12-24 VDC<br>75 W |
| | 115/230 VAC with optional rectifier PR-62 | |
| Power Supply Unit | Not required | |
| **Optional unit** | | |
| Antenna Bracket | OP03-93 | OP03-92 |
| 10-Target Autoplotter | Full control when networked with 10.4" LCD, BB system and ARP-11 | |
| External Buzzer | OP03-136 or Relay/Contact Closure | |
| NTSC/PAL Interface kit | Not available | |
| RGB Output Cable kit | Not available | |

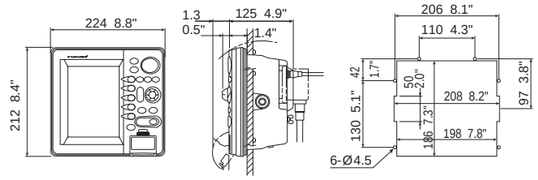
### 7" LCD (Bracket Mount)

3.5 kg 7.7 lb




### 7" LCD (Flush Mount)

3.2 kg 7.1 lb

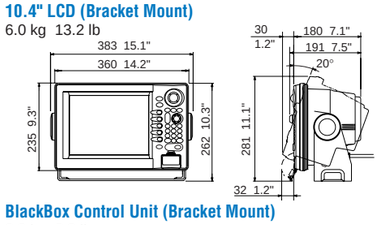





| | 10.4" Color LCD Radar / Chart Plotter BlackBox Radar / Chart Plotter | | | | | |
|---|---|---|---|---|---|---|
| | MODEL 1824C/-BB | MODEL 1834C/-BB | MODEL 1934C/-BB | MODEL 1944C/-BB | MODEL 1954C/-BB | MODEL 1964C/-BB |
| |  | | | | BlackBox Radar / Chart Plotter  | |
| **DISPLAY UNIT** | | | | | | |
| 1. Type | 10.4" Color TFT LCD, 640 x 480 pixels (Multi-sync monitor Required on BlackBox system) | | | | | |
| 2. NavNet Interface | Ethernet 10Base-T | | | | | |
| 3. Interface (NMEA 0183 format) | Input: DBT, DPT, DSC, DSE, GGA, GLL, GSA, GSV, HDG, HDM, HDT, MDA, MTW, MWV, RMA, RMB, RMC, TLL, TTM, VHW, VTG, VWT, VWR, WPL, ZDA, ZTG<br>Output: AAM, APB, BOD, BWC, BWR, DBT, DPT, GGA, GLL, GTD, HDT, HDT, MTW, MWV, RMA, RMB, RMC, TLL, TTM, VHW, VTG, WPL, XTE, ZDA, ZTG | | | | | |
| 4. Language | English, French, Spanish, German, Portuguese, Italian, Danish, Norwegian and Swedish | | | | | |
| **RADAR CHARACTERISTICS** | | | | | | |
| 1. Display Modes | Head-up, Course-up*, North-up*, True Motion** (* Heading input required ** Heading and speed inputs required) | | | | | |
| 2. Range Scales (nm) | 0.125 to 24 nm<br>14 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 72 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 2,048 nm | | | | | |
| 2. Latitude Limits | Between 85°N and 85°S | | | | | |
| 3. Plot Interval | 1 s to 99 min 99 s or 0 to 99.99 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, 999 waypoints, 35 quick points, 1 MOB,<br>200 planned routes (max. 35 waypoints/route), 1 quick route | | | | | |
| 7. Alarms | Guard Zone, Arrival/anchor watch, XTE, proximity alert, ship speed, depth*, water temperature*, fish*, grounding**<br>(*Network Sounder required, temperature sensor required for water temperature alarm ** C-Map version only) | | | | | |
| 8. Electronic Charts | C-Map NT MAX or Navionics® GOLD | | | | | |
| **ANTENNA RADIATOR** | | | | | | |
| 1. Type | Ø460 mm (18")<br>Radome | Ø602 mm (24")<br>Radome | 1035 mm (3.5 ft)<br>Open | 1255 mm (4 ft)<br>Open | 1255/1795 mm (4/6 ft)<br>Open | |
| 2. Rotation Speed | 24/30 rpm (Automatic switch) | 24 rpm | | | 24/48* rpm | |
| *48 rpm is option BB | 24/30 rpm (Automatic switch) | 24rpm | 24/48* rpm (*Not available in 6 ft) | | | |
| 3. Wind Load | Relative wind 100 kt | | | | Relative wind 100 kt (24 rpm)<br>Relative wind 70 kt (48 rpm) | |
| 4. Beamwidth | Hor: 5.2°<br>Vert: 25° | Hor: 3.9°<br>Vert: 20° | Hor: 2.2°<br>Vert: 22° | Hor: 1.9°<br>Vert: 22° | Hor: 1.9/1.2°<br>Vert: 22° | |
| **RF TRANSCEIVER** | | | | | | |
| 1. Peak Output Power | 2.2 kW | 4 kW | 4 kW | 6 kW | 12 kW | 25 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 96 nm) | |
| **ENVIRONMENT** (IEC 60945 test method) | | | | | | |
| Temperature | -15°C to +55°C (Display unit)<br>-25°C to +70°C (Antenna unit) | | | | | |
| Waterproofing | IEC 60529 IPX5, USCG CFR-46 (Display unit)<br>IEC 60529 IPX6 (Antenna unit) | | | | | |
| **POWER SUPPLY** (at relative wind 100 kt) | | | | | | |
| | 12-24 VDC<br>90 W | 12-24 VDC<br>90 W | 12-24 VDC<br>110 W | 12-24 VDC<br>115 W | 12-24 VDC<br>125/150 (24/48 rpm, 4 ft),<br>130 W (6 ft) | 12-24 VDC<br>138/153 (24/48 rpm, 4 ft,<br>163 W (6 ft) |
| BB | 60 W | 60 W | 80/100 W (24/48 rpm) | 85/105 W (24/48 rpm) | 100/120 (24/48 rpm, 4 ft),<br>100 W (6 ft) | 107/122 (24/48 rpm, 4 ft),<br>132 W (6 ft) |
| | 115/230 VAC with optional rectifier RU-3423/1746B-2 | | | | | |
| Power Supply Unit | Not required | | | | PSU-005 | PSU-008 |
| **Optional unit** | | | | | | |
| Antenna Bracket | OP03-93 | OP03-92 | Locally arranged | | | |
| 10-Target Autoplotter | ARP-11* (* Requires appropriate heading sensor) | | | | | |
| External Buzzer | OP03-136 or Relay/Contact Closure | | | | | |
| NTSC/PAL Interface kit | OP03-175 (Supplied as standard on BlackBox system) | | | | | |
| RGB Output Cable kit | OP03-176 | | | | | |
| Memory Card Interface | CU-300 (For BlackBox system only) | | | | | |

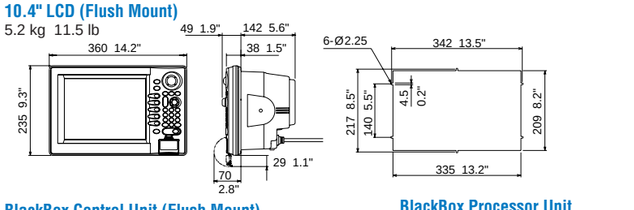
### 10.4" LCD (Bracket Mount)

6.0 kg 13.2 lb



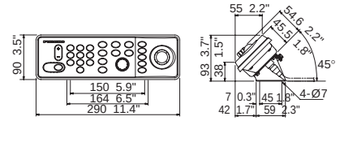

### 10.4" LCD (Flush Mount)

5.2 kg 11.5 lb



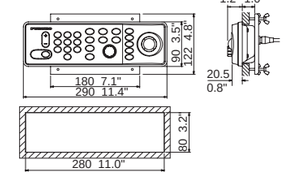

### BlackBox Control Unit (Bracket Mount)

0.9 kg 2.0 lb



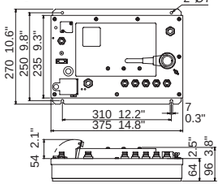

### BlackBox Control Unit (Flush Mount)

0.8 kg 1.8 lb




### BlackBox Processor Unit

4.0 kg 8.8 lb

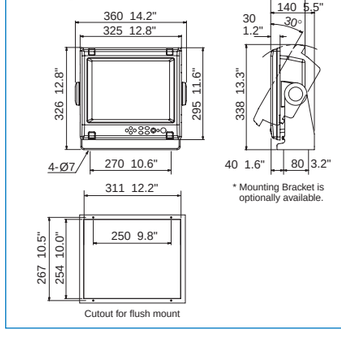


# Specifications of NavNet vx2

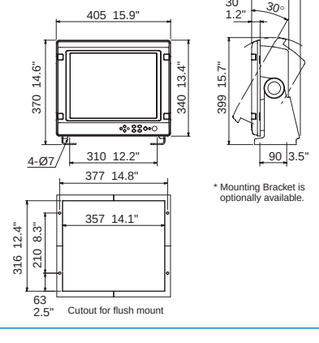
| | Chart Plotter | | BlackBox Chart Plotter |
|---|---|---|---|
| | GD-1720C | GD-1920C | GD-1920C-BB |
| |  |  |  |
| **DISPLAY UNIT** | | | |
| 1. Type | 7" Color TFT LCD, VGA 480 x 640 pixels | 10.4" Color TFT LCD 640 x 480 pixels | Multi-sync monitor Required (640 x 480 pixels) |
| 2. NavNet Interface | Ethernet 10-BaseT | | |
| 3. Interface (NMEA 0183 format) | Input: DBT, DPT, DSC, DSE, GGA, GLL, GSA, GSV, HDG, HDM, HDT, MDA, MTW, MWV, RMA, RMB, RMC, TLL, TTM, VHW, VTG, VWT, VWR, WPL, ZDA, ZTG<br>Output: AAM, APB, BOD, BWC, BWR, DBT, DPT, GGA, GLL, GTD, HDT, HDT, MTW, MWV, RMA, RMB, RMC, TLL, TTM, VHW, VTG, WPL, XTE, ZDA, ZTG | | |
| **PLOTTER CHARACTERISTICS** | | | |
| 1. Map Scale | 0.125 to 2,048 nm | | |
| 2. Latitude Limits | Between 85°N and 85°S | | |
| 3. Plot Interval | 1 s to 99 min 99 s or 0 to 99.99 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, 999 waypoints, 35 quick points, 1 MOB,<br>200 planned routes (max. 35 waypoints/route), 1 quick route | | |
| 7. Alarms | Arrival/anchor watch, XTE, proximity alert, ship speed, depth*, water temperature*, fish*, grounding**<br>(*Network Sounder required, temperature sensor required for water temperature alarm ** C-Map version only) | | |
| 8. Electronic Charts | C-Map NT MAX or Navionics® GOLD | | |
| **ENVIRONMENT** (IEC 60945 test method) | | | |
| Temperature | -15°C to +55°C | -15°C to +55°C (Processor Unit, Control Unit) | |
| Waterproofing | IEC 60529 IPX5, USCG CFR-46 | IEC 60529 IPX2, USCG CFR-46 (Processor Unit)<br>IEC 60529 IPX5, USCG CFR-46 (Control Unit) | |
| **POWER SUPPLY** | | | |
| | 12-24 VDC | 12-24 VDC | 12-24 VDC |
| | 35 W | 55 W | 25 W |
| | 115/230 VAC with optional rectifier PR-62/RU-3423 | | |
| Power Supply Unit | Not required | | |
| **Optional unit** | | | |
| Autoplotter | Full control when networked with 10.4" LCD, BB system and ARP-11 | | |
| External Buzzer | OP03-136 or Relay/Contact Closure | | |
| NTSC/PAL Interface kit | Not available | OP03-175 | Supplied as standard |
| RGB Output Cable kit | Not available | OP03-176 | |
| Memory Card Interface | CU-300 (For BlackBox system only) | | |

| | Multi-purpose Marine LCD | | |
|---|---|---|---|
| | MU-120C | MU-155C | MU-170C |
| |  |  |  |
| **DISPLAY UNIT** | | | |
| Screen Size | 12.1 inches, 246.0 x 184.5 mm | 15 inches, 304.1 x 228.1 mm | 17 inches, 338 x 270 mm |
| Resolution | 800 x 600 (SVGA)*<br>* VGA up to SXGA signal is acceptable in analog RGB. | 1024 x 768 (XGA)* | 1280 x 1024 (SXGA)* |
| Contrast Ratio | 300: 1 | 400:1 | 500:1 |
| Viewing Angle Vertical | +60° to -50° | +85° to -85° | +75° to -75° |
| Viewing Angle Horizontal | left 70° to right 70° | left 85° to right 85° | left 80° to right 80° |
| Brightness | 1000 cd/m² | | |
| **INTERFACE** | | | |
| Analog RGB | 2 ports, D-SUB/15 pins | | |
| DVI | 1 port, DVI-D | | |
| Composite(RCA) | 3 ports, RCA | | |
| **ENVIRONMENT** (IEC 60945 test method) | | | |
| Temperature | -15°C to +55°C | | |
| Waterproofing | IEC 60529 IPX5 (Front Panel) | | IEC 60945 ed4 IPX6 (Front Panel) |
| **POWER SUPPLY** | | | |
| | 12-24 VDC<br>48 W(at 12 VDC) | 12-24 VDC<br>84 W(at 12 VDC) | 12-24 VDC<br>72 W (at 12 VDC) |

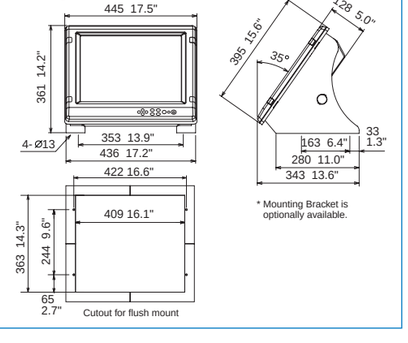
### MU-120C
6.5 kg 14.3 lb




### MU-155C
9.1 kg 20.1 lb




### MU-170C
12.9 kg 28.4 lb





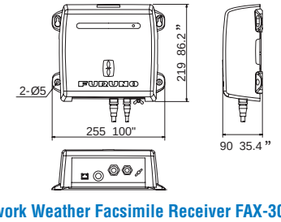

| | Network Fish Finder | |
|---|---|---|
| | DFF1 | DFF3 |
| |  |  |
| **TRANSCEIVER & DISPLAY** | | |
| Display Modes | Single (50 or 200 kHz), Dual (50 and 200 kHz),<br>Bottom-lock, Bottom Zoom, Bottom Discrimination,<br>Marker Zoom, A-Scope | Single (High or Low frequency), Dual (Both High and Low frequencies), Bottom-lock, Bottom-Zoom, Bottom Discrimination,<br>Marker Zoom, A-Scope |
| Frequency | Dual frequency 50 kHz and 200 kHz | The synthesized transducer works with dual frequencies between 28 and 200 kHz |
| Output Power | 600 W / 1 kW rms (Specify) | 1, 2 or 3 kW |
| Range Scale | 8 basic ranges customized to max 1,200 m (4,000 ft, 650 fa) | Any range customized between 2 and 1,200 m |
| Range Phasing | Up to 2,400 m (8,000 ft, 1,300 fa) | Up to 2,400 m (8,000 ft, 1,300 fa) |
| **ENVIRONMENT** | | |
| Temperature | -15°C to +55°C | -15°C to +55°C |
| Waterproofing | IEC 60529 IP20 | IEC 60529 IP20 |
| **POWER SUPPLY** | | |
| | 12-24 VDC | 12-24 VDC |
| | 12 W | 30 W |
| **TRANSDUCERS** (Specify when ordering) | | |
| | **600 W**<br>50/200 kHz:<br>520-5PSD (Plastic, thru-hull), 520-5MSD (Bronze, thru-hull), 520-5PWD (Plastic, transom), 525ST-MSD (Bronze, thru-hull with speed/temp sensor), 525ST-PWD (Plastic, transom with speed/temp sensor)<br>**1 kW** (Optional Matching box MB-1100 required)<br>50 kHz: 50B-6, 50B-6B, 50B-9B,<br>200 kHz: 200B-5S<br>50/200 kHz: 50/200-1T, 50/200-12M | 28 kHz: 28F-8, 28F-18, 28BL-6HR, 28F-24H, 28BL-12HR<br>38 kHz: 38BL-9HR, 38BL-15HR<br>50 kHz: 50B-6/6B, 50B-9B, 50B-12, 50BL-12HR, 50F-24H, 50BL-24HR<br>68 kHz: 68F-8H, 68F-30H<br>82 kHz: 82B-35R<br>88 kHz: 88B-8, 88B-10, 88F-126H<br>107 kHz: 100B-10R<br>150 kHz: 150B-12H<br>200 kHz: 200B-5S, 200B-8/8B, 200B-12H<br>50/200 kHz: 50/200-1ST, 50/200-1T, 50/200-12M |

| | GPS/WAAS Receiver Antenna | |
|---|---|---|
| | GP-320B | GP-330B |
| |  |  |
| **RECEIVER CHARACTERISTICS** | | |
| Receiver Type | Twelve discrete channels,<br>C/A code, all-in-view,<br>WAAS | |
| Receiver Frequency | L1 (1575.42 MHz) | |
| Time to First Fix | 12 s (warm start) | 90 s (cold start) |
| Tracking Velocity | 999 kt | |
| Geodetic Systems | WGS-84, NAD-27 and others | |
| Accuracy | 10 m (GPS)<br>3 m (WAAS) | |
| **ENVIRONMENT** (IEC 60945 test method) | | |
| Temperature | -25°C to +70°C | -25°C to +55°C |
| Waterproofing | IEC 60529 IPX6 | IEC 60529 IP56 |
| **POWER SUPPLY** | | |
| | 12-24 VDC<br>1.3 W | 12 VDC<br>1.8 W |

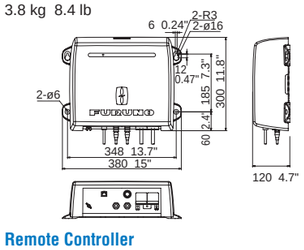
| | Network Weather Facsimile Receiver |
|---|---|
| | FAX-30 |
| |  |
| **TRANSCEIVER CHARACTERISTICS** | |
| Frequency Range | 80 kHz to 160 kHz, 2 MHz to 25 MHz,<br>490 kHz, 518 kHz (NAVTEX) |
| Class of Emission | F3C, J3C, F1B (NAVTEX) |
| Receiving System | Double superheterodyne |
| Storage | Fax: 12 pictures,<br>NAVTEX: 130 messages |
| **ENVIRONMENT** (IEC 60945 test method) | |
| Temperature | -15°C to +55°C |
| Waterproofing | IEC 60529 IPX2 |
| **POWER SUPPLY** | |
| | 12-24 VDC<br>12 W |

| | Network Satellite Weather Receiver |
|---|---|
| | BBWX1 |
| |  |
| **TRANSCEIVER CHARACTERISTICS** | |
| Receiver Type | Sirius Satellite Radio Weather Receiver |
| Mounting | Bulkhead |
| Interface | Ethernet |
| **ENVIRONMENT** | |
| Temperature | 0°C to +55°C (operating)<br>-35°C to +85°C (storage) |
| Waterproofing | EN 60529 IPX5 |
| **POWER SUPPLY** | |
| | 12/24 VDC<br>10 W |

### Network Fish Finder DFF1
1.3 kg 2.9 lb

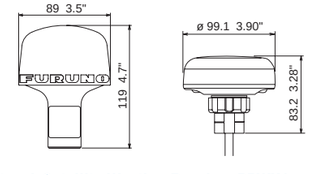



### Network Fish Finder DFF3
3.8 kg 8.4 lb

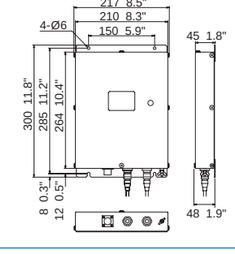



### GPS/WAAS Receiver Antenna
**GP-320B** 0.8 kg 1.8 lb
10 m cable attached

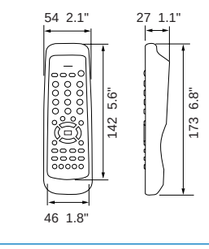
**GP-330B** 0.22 kg 0.49 lb



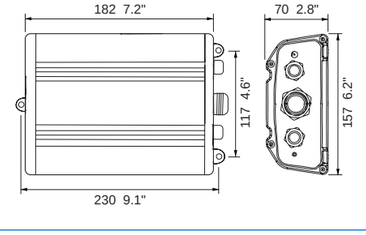

### Network Weather Facsimile Receiver FAX-30
2.0 kg 4.4 lb




### Remote Controller
0.06 kg 0.1 lb




### Network Satellite Weather Receiver BBWX1
1.9 kg 4.2 lb




### Network Fish Finder DFF1
1.3 kg 2.9 lb




### Network Fish Finder DFF3
3.8 kg 8.4 lb




### GPS/WAAS Receiver Antenna
**GP-320B** 0.8 kg 1.8 lb
10 m cable attached




**GP-330B** 0.22 kg 0.49 lb




### Network Weather Facsimile Receiver FAX-30
2.0 kg 4.4 lb




### Remote Controller
0.06 kg 0.1 lb




### Network Satellite Weather Receiver BBWX1
1.9 kg 4.2 lb