

AS SEEN IN
SOUTHERN BOATING
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FURUNO REDEFINES ELECTRONIC NAVIGATION

NAVNET 3D IS EVEN BETTER THAN THE RUMORS, SEAMLESSLY INTEGRATING CHARTING, RADAR, SONAR AND GEO-REFERENCED VISUAL IMAGES.



and tracking. (The radar and AIS data can also be overlaid on the chart presentation to create a comprehensive navigation picture.) Control and management of data displayed in a split screen mode is a simple point and shoot process with the Scrolling Pad. Move the cursor to the screen you wish to control and the controls are dedicated to that function.

NavNet 3D is available as an integrated chart plotter with an 8.4-inch VGA or a 12.1-inch SVGA color LCD Multi-Function Display. A black-box version can use any multi-sync monitor and will provide SXGA resolution on compatible screens. Operated in Extended Mode, it drives two monitors to double the available screen area, allowing up to eight windows of information and supporting up to 10 displays.

Furuno has created NavNet 3D to integrate information from virtually every type of sensor, sounder or receiver afloat plus information displays from the new range of sailing instruments and engine monitors.

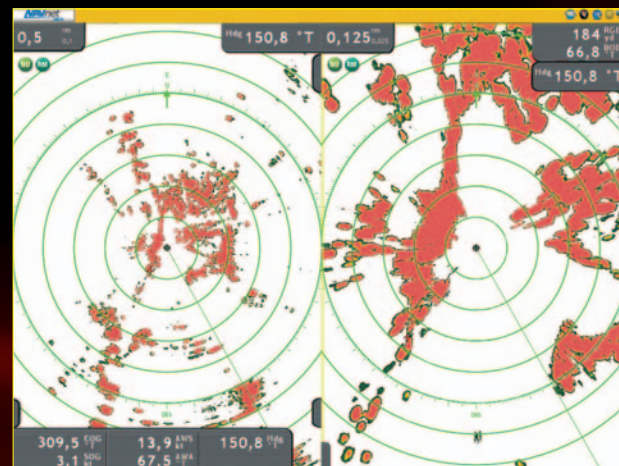
The system's RotoKey control provides an intuitive way to manage what will often be a very complex system. Rotate the easy-to-grasp knob to select the system you wish to control. A short press on the knob accesses the set of control functions you selected at installation (Basic, Standard, Full or Custom). A long press and you access the full range of functions. A point and click cursor functioning like the familiar two-button mouse provides access to everything on the screen.

A second scrolling pad, integrated with the Ship/3D key makes it easy to pan across the chart

and shift the radar image. A brief stroke of the Ship/3D key in the center of the scrolling pad will instantly return you to your own ship's position. A long stroke of this key instantly toggles your view of the display between 2D and 3D.

All of the NOAA navigation charts and supporting data for the entire U.S., including Alaska and Hawaii, plus the latest charts for the Bahamas, are stored in the system memory. Additional image areas are uploaded to memory via the system's two SD card slots. A companion Furuno MaxSea program for a PC is used to obtain chart and satellite image updates from the Furuno Web site. The system's internal memory can store more than 12,000 track points, 2,000 waypoints and 200 routes, each with up to 100 waypoints. The data can be downloaded to SD cards for transfer to a computer for analysis or for archival storage.

Installation of the new NavNet 3D UHD radar scanners is greatly simplified by the incorporation of the entire radar processor within the radome or the antenna base of the open array units. A pair of 48 volt DC power wires and an Ethernet cable replace the large diameter multi conductor cable previously required to connect the scanner to the system. An NMEA 2000 connector built into the antenna assembly allows other devices that communicate using NMEA 2000 to be plugged in at the antenna connecting to the system without running additional cables. Furuno's use of Ethernet (first introduced in the original NavNet system 2001) allows true plug-and-play network compatibility.



It's no wonder Furuno kept the details of its new integrated electronic navigation system under lock and key during development; the system is truly revolutionary. For the skipper who has been supremely annoyed toggling back and forth between navigation features, sensor inputs and radars—perhaps even running multiple systems to access preferred display formats—your wishes are answered. Consumers asked and Furuno has answered with a comprehensive all-in-one package unlike anything before attempted. What's equally amazing is that the system is being rolled out simultaneously in three packages to meet the needs of small coastal cruisers, those with larger

helm consoles and offshore requirements and even a black-box version for megayachts. No more making the little guy wait for trickle-down technology.

The system's performance in displaying raster, vector and bathymetric charts in 3D then seamlessly shifting via Furuno's Time Zero to a direct overhead (2D) perspective and its ability to precisely geo-reference satellite images to provide maximum useful information without obscuring chart navigation data—all accomplished without screen redraw—has to be experienced to be believed. The "two radar" capability of the new ultra high definition (UHD) radar

By **Chuck Husick**

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An astounding variety of peripherals will plug into the new NavNet 3D system via Ethernet cable. Charts are instantly available in 2D or 3D mode, with precisely matched satellite photos for reference and amplification. Literally every bit of information from engine monitors to sonar to you-are-here plotting is available on proprietary displays in two sizes or via black-box mode to any monitor you choose.



will be equally eye opening. Add to this the sheer logic of the control design and the value of the Ethernet communication backbone and, in my opinion, NavNet 3D establishes a performance and capability standard against which all multi-function navigation systems will be measured.

Press the power key on Furuno's new NavNet 3D Multi Function Chart Plotter display and in seconds you will be viewing a 3D image of the official NOAA raster, vector or bathymetric chart for your position, overlaid where appropriate with a precisely matched high-resolution satellite image of the shore.

At the risk of sounding like a Ginsu knife salesman, there's still more: You can instantly change

your viewpoint from a direct overhead view to any 3D perspective. Scan any area of the chart, zoom in or out with no pause for screen redraw. Activate the system's UHD digital radar and explore its unique ability to provide the performance of two separate radar sets, each operating with independent range and image controls. Overlay the chart/radar image with AIS information and Sirius satellite weather data. Split the LCD screen and display information from networked sensors, a digital sounder, weatherfax receiver, Weather Station and images from the system's IP cameras.

Two WOW! features illustrate the magnitude of the advance. First, the chartplotter. The entire cat-

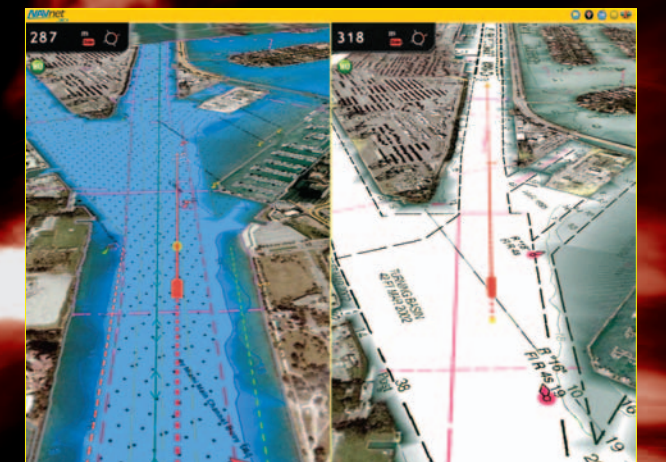
alog of official U.S. Government NOAA raster, vector and bathymetric charts are preloaded in memory and can be updated online. You can view an area encompassing tens of thousands of square miles at 1:2,048 nm scale, or seamlessly zoom in and pan to examine the most minute detail down to 1/8 nm. Approach a coastline and the latest high resolution satellite view of the shore fuses with the chart, precisely geo-registered with all land areas in detail. Shallow water areas where bottom information is available are presented as a translucent image augmenting charted navigation information.

Routes can be created, modified or deleted as easily as you can move a pencil. The system's point and click interface uses a set of clearly marked dedicated keys, two scrolling pads and the RotoKey—a single, easy-to-use knob that combines the functions of multiple soft keys. RotoKey functions can also be controlled from a computer mouse or trackball.

The second WOW! appears when you select the radar image and find that the radar can see twice

to deliver the most useful information possible. UHD radar delivers a high quality, digital, 16-color image that can be viewed independently, overlaid on the chart or displayed on a split screen. In split screen mode the radar can be operated as two separate radars, one part of the screen displaying a long-range scan to display all vessel traffic within range. The other, at short range, simultaneously and precisely displays navigation aids and nearby vessels. Unlike conventional dual range radar, Furuno's data for each range is obtained using the precise pulse length and receiver bandwidth appropriate for optimum performance at each chosen range setting from 24 nm to 96 nm.

The new radars are equipped with an automatic radar plotting aid (ARPA) capable of simultaneously tracking up to 30 targets (most previous Furuno yacht radar ARPA equipment was limited to tracking 10 targets). Data from the vessel's AIS receiver can be overlaid on the radar presentation to provide enhanced target identification



The freedom from screen redraw delay is just the beginning when it comes to remarkable features for Furuno's breakthrough equipment. Every NOAA raster, vector and bathymetric chart in existence is loaded into the system and updates can be obtained via simple downloads. The overlay of satellite photos does not obscure bottom data or navigational aids.