POWERBOAT REPORTS

The Consumer Resource for the Powercraft Owner

Shoot-Out ... Page 3

Networked Electronics ... Page 13

Also in this Issue

Engine Test ... Page 9

Networked Systems: Furuno Vs. Raymarine

Raymarine and Furuno are the only manufacturers offering completely networked electronics packages. PBR *takes a look at both, focusing on user interface and screen viewability.*

Engines—diesel or gas? Windlass—yes or no? Genset—how many kilowatts? These are the options you normally have to choose from when buying a new boat. Now add this to the list: Electronics package—Networked? Integrated? Standalone? Lots of marine electronics manufacturers offer standalone components like a radar, chartplotters and sounders. In the past, standalone units were the only way to go. Nowadays, integrated units with all three are available from several manufactures, including SI-TEX and Simrad. But to take things to the highest level, to what is today the state of the art, you'll need a networked system. That's where we cast our eyes for this review. Only two major players in the marine electronics world are in the networking arena today. Furuno has its NavNet system and Raymarine offers HSB².

Integrated systems like those by SI-TEX and Simrad—as well as both integrated and networked systems by Furuno and Raymarine—all have the ability to display multiple data sources, like radar, chartplotter, GPS/WAAS, and sounder data on a single screen. This is a real advantage for the small boat owner. Especially if you desire a full range of electronics but lack enough panel space for standalone systems. Even if you've got the space, the connectivity of integrated and networked systems allows them to do things independent component systems are not capable of. For instance, most integrated and networked systems have the ability to overlay radar returns on top of the

Above: The Furuno NavNet's alphanumeric keypad, which allows easy data entry, is one of its strongest features. Notice the trackball, which should be removed and cleaned periodically (just like a computer's mouse ball).

chartplotter display so you can see and use both simultaneously. Try that with a standalone system.

So what's the difference between integrated and networked? Networked systems go one step further. They can interconnect and use multiple display units. Plus, and this is the big one, a networked system equipped with multiple display units can control all functions from any single display. What that means is if you have a networked system installed at the helm with radar, chartplotting, and sounder capability you could have another single display anywhere on the boat and not only see all the data but control the functions of each, as well. That's

quite impressive to us and nearly approaches the capabilities of the Starship Enterprise.

What We Looked At

Even small seven-inch LCD displays used by Furuno's NavNet or Raymarine's HSB² networking systems seem big. Their ten-inch LCD displays are huge. Bigger screens are available but we'll stick to 7's and 10's. Raymarine does have a couple CRT radar systems that are HSB² equipped, but we did not research or look at them.

Both Furuno and Raymarine build integrated systems, like chartplotter/sounder combos, or radar/chartplotter combos, using the same screens as their NavNet and HSB² packages. But

Value Guide: Integrated Electronics Systems

Manufacturer	Model	Screen Size	Screen Color	Max. Number of Same-time Displays	Radar
Furuno	1943C	10.4	Color	3	Yes
Raymarine	RL80CRC	10.4	Color	2	Yes
Furuno	1833C	10.4	Color	3	Yes
Raymarine	RL80CRC	10.4	Color	2	Yes
Furuno	1732	7	Mono	2	Yes
Raymarine	RL70RC	7	Mono	2	Yes
Furuno	GP1900C	10.4	Color	2	No
Raymarine	631C	10.4	Color	2	No
Furuno	GP1700C	7	Color	2	No
Raymarine	L770DRC	7	Color	2	No

Note: All units come with a transducer. All have WAAS-capable GPS. All have chartplotter and sounder capabilities.

they lack networking capabilities. Both integrated and networked systems use the same set of buttons, cursor pads, and dedicated entry keys. So if you went to look at a Raymarine seven-inch LCD screen, they'd all look identical—no matter if it was an SL70, RL70, or RC530. The same applies to Furuno; all sevens look the same and so do Furuno 10s. The only difference you'd notice from one unit to the next is the differing model number.

We checked out ten-inch LCD screens one morning at Plantation Boat Mart in Tavernier, FL, courtesy of owner Elias Delatorre. He had a pair of Hydra-Sports 3300 center consoles for us to examine, one with Raymarine equipment and the other with Furuno. We jumped back and forth between boats several times to verify display brightness and control, analyze daylight viewability, and look at various split-screen functions. We also operated all the pushbuttons, cursor pads and track balls.

In addition to our hands-on exams, we compiled additional data by contacting both Furuno and Raymarine. Because the boats we looked at were in a marina, we did not test the radar, nor did we do any extensive testing of Raymarine's Raychart; it did not have a map card installed during our inspection. (The unit had just been installed on the boat the day prior.) Sounder testing consisted of turning each unit on and seeing that it worked by displaying the bottom. Our main emphasis in this article was to look at user interface and display quality of the Furuno and Raymarine 10-inch LCD screens.

What We Found

On the day of our inspection, skies were overcast, but the thick clouds quickly burned off to sunny skies, affording us an opportunity to view both screens under varying daylight conditions. We also viewed them from extreme angles, both with and without polarized sunglasses. Overall day viewability of both the Furuno and Raymarine 10-inch screens was excellent. Both do darken somewhat when viewed at angles or while wearing polarized sunglasses. We rate them equal.

Screen layout differs between the machines. Furuno chose a landscape layout while Raymarine went with portrait. Picking one or the other is a personal preference. When displaying a pair of windows the Furuno splits the screen in half vertically while the Raymarine splits the screen horizontally. The Furuno is further capable of splitting one of the windows again, creating three viewable panes with data being displayed from three separate sources. The Raymarine is only capable of displaying two sources simultaneously.

Each machine has separate controls for changing screen brightness. Furuno uses its standard eight levels of brightness selected with the Power/Brilliance button. Panel lights (backlit buttons) are adjustable separately with eight levels of brightness control. Raymarine displays a vertical slide on screen with a range of 0 to 100% to vary the brightness level of both the screen and backlit buttons at the same time.

Significant differences exist in the user interface of each unit. In addition to the pushbuttons normally found on complex electronics, the Furuno has a track ball and 10-button alphanumeric telephone-style keypad. We really like the keypad. It makes manual data entry far easier than scrolling through a long list of letters, numbers and punctuation. Both Furuno units we looked at were not brand new and we noticed the track ball movement was not very smooth. We questioned Furuno on this. Said communications manager Jeff Kauzlaric: "More than likely the

Radar Max. Range in Miles	Antenna Type and Size	Sounder Power Output in Watts	*Price
64	4' Open Array	1,000	$7,716
72	4.2' Open Array	1,000	$8,990
36	24" Dome	600	$5,497
48	24" Dome	600	$6,167
36	24" Dome	600	$3,446
48	24" Dome	600	$4,367
N/A	N/A	600	$3,499
N/A	N/A	600	$5,072
N/A	N/A	600	$2,647
N/A	N/A	600	$2,894

*Prices from www.pyacht com.

track ball was dirty and needs to be cleaned. Much like a computer mouse, that track ball will come out by simply removing the locking cap. Once you remove that cap, you can remove the ball and clean the ball and the tracks inside. This track ball was specifically designed like this, so that it can be easily cleaned when necessary. Also, if there is a problem with the ball itself, it can be replaced inexpensively."

An alphanumeric keypad is not standard equipment on the Raymarine system. Raymarine told us it is a $400 option. The keypad was not installed on the boat we used for this review. The Raymarine unit makes use of a cursor pad instead of the track ball. The cursor pad or track ball makes little difference for data entry or unit operation, but the lack of an alphanumeric keypad certainly does.

When it comes time to name that new waypoint for a fishing spot, it's nice to be able to do it quickly—and with a name that has meaning to you. You can quickly bang out "MONEY HOLE" on the Furuno keypad. On the Raymarine unit, data entry requires scrolling through the alphabet, 10 numbers, and a few punctuation symbols to select a single letter or digit. We've done this on other ma-chines, and it's tedious and slow.

Raymarine's HSB² system would be a much more attractive product if it came with a keypad, in our opinion. We had difficulty finding a source to buy Raymarine's optional keypad, coming up empty after visiting marine electronics stores and surfing web-based electronics sites. The keypad option is not even mentioned in Raymarine's own 2002/2003 electronics brochures. All this leads us to believe not many buyers of HSB² equipment know about or purchase the optional keypad.

Raymarine's Jim Hands responded to our comments about the keypad: "The keypad sells for about $399 on the street. The model number is A22025. This keypad was originally engineered for our older high-end ST80 series instrument systems and carries somewhat of a higher price tag. The remote keypad support was not in the original HSB displays. A few customers with ST80 systems requested this enhancement so we added this feature to the HSB² compatible displays. We have a very low cost version in the works that will be available in the first

Above: The screen of the Raymarine HSB² is split horizontally to create two displays. Here, a chart is pictured on top, with a depth sounder screen on the bottom. The Furuno machine can do the same, and then actually split one of the smaller screens so three pictures are shown.

NavNet vs. HSB²: 10-inch Screen Capability

Pushbuttons	Furuno	Raymarine
Alarm(s)	Yes	Yes
Clear	Yes	Yes
Display	Yes	Yes
Enter	Yes	Yes
Gain	Yes	Yes
Hide/Show	Yes	No
Marks	No	Yes
Menu	Yes	Yes
Multi	No	Yes
Pwr/(Brill)	Yes	Yes
Range - Up & Down	Yes	Yes
Save/MOB	Yes	No
VRM/EBL	Yes	Yes
Cursor Pad	No	Yes
Track Ball	Yes	No
Features		
# of Brightness Levels	8	100
# of Alphanumeric Keys	10	0
# of Soft Keys	5	4
Screen Orientation	Landscape	Portrait
# of Simultaneous Split Windows	3	2
Warranty Period Years - Parts/Labor	2/1	2/2

Raymarine does not offer these options on the 10-inch HSB² screen, but its system will interface with a personal computer.

Conclusions

Our table shows that none of these systems is cheap, even in a basic configuration. But they are far more capable in data exchange and control issues than independent systems could ever be. If you're a serious fisherman, passagemaker, or just a weekend boater looking at purchasing a separate radar, sounder and chartplotter you should give a networked system a close look. When you consider the total cost of a standalone package vs. a networked package of equal capability, the costs are similar.

In our view, Furuno's system tops Raymarine's for a few reasons. Furuno has a keypad as standard equipment, and the Raymarine does not. Plus, we like the Furuno's three-window capability to the Raymarine's two. And Furuno offers options, such as weather fax and its smart sensor, which are not available on the Raymarine unit. ∎

***Above:** A PBR tester evaluated both the Furuno and Raymarine systems on identical Hydra-Sports 3300 center console fishing vessels.*

quarter of 2004."

A second alternative keypad option for the HSB² system is its personal computer interface capability. Operating a laptop is really only a viable option for those boat owners whose vessels have enclosed bridges.

Two additional options available on Furuno's NavNet system are weather fax and smart sensor. The reasons for weather fax are obvious, and we won't go into them. But smart sensor may not be as well understood. It will display digital depth on a radar/plotter NavNet system without the purchase of the network sounder.