

The Era of Integration...

The concept of **Integrated Bridge Systems (IBS)** has been a hot topic in the maritime industry for the last 10 years. Typically, a bridge is manned by a single individual, who in recent years will have witnessed an almost bewildering increase in the types of navigational equipment available. Recent developments in digital and information technologies give him access to information that was previously inaccessible. An integrated system collects all necessary information from sensors, and presents this information adapted for the particular navigation task in order to support the decision-making process. **IBS** implements the most up-to-date ergonomics and design technologies for the yacht's control and data display technologies. It combines in a single unit, the **Integrated Navigation System (INS)**, plus facilities for the remote diagnostics of various equipment on the ship, automatic monitoring and forecasting of its condition, damage control facilities, external communication and intercom equipment.

Andrey Vorobiev, the expert in Marine Navigation, says:

"Any shore industry has already appreciated all the benefits of the latest IT and communications technology. The shipping industry was a bit slow and conservative to accept the changes offered and now it should catch up. However, we should not forget that any newly available technology is just a tool and it will be beneficial only when implemented by a clear operational and functional design concept followed by adopted regulations traditional in shipping, to ensure safety of new equipment. The introduction of new technology must demonstrate operational improvements for shipping and not just showcase "new technology for new technology's sake".

One company, whose products we see and work with, time and again, on advanced yachts, is Transas. System integration is one of the company's main strengths. They have focused on expanding their range of complete onboard systems to incorporate bridge functions needed for an Integrated Navigation System from commercial ships to private yachts. Thus providing 'added value' to the functions and information needed by the officer in charge of the navigational watch, enabling that individual to plan, monitor and control the sailing of the ship or the yacht. In adopting such a system, these users are able to experience a lot more than simply the convenience of increased information. Working efficiency is increased as are savings to operating costs and time at sea.

Integration of *Electronic Chart Display Information System (ECDIS)*, *ARPA/AIS/CHART Radar* and *Conning Display* applications on each of five (or more) workstations complete the system configuration, while the use of the newest IT technologies allow the company to fulfill basically every ergonomic design and functionality requirement demanded from owners and navigators.

An Integrated Navigation System (**INS**) has a number of benefits compared to the stand-alone systems. First of all it gives the user better situation awareness. The display of an integrated system combines numerous layers of information from different sources into one situation display. The navigational chart is presented together with radar overlay, route information, targets, and current yacht's position, which, together with information on the yacht's maneuverability etc., provide a real-time picture for grounding and collision-avoidance, as well as decision making support.

In order to respond to the demands for greater flexibility required by the yachting market, we now have simplified **INS** systems combined on one workstation, such as the Transas Light System which is a unique solution of mutually interfaced applications. This **INS** implementation combines Transas's latest applications on the workstation such as Navi-Sailor 3000 ECDIS-I, Navi-Radar 3000-I and Chart

Assistant and can be connected with a number of other onboard systems and sensors. The active task is displayed on a single monitor, and the system allows swift transfer between applications.

An important strength of companies, such as Transas, involved in IBS development is to listen to customer feedback. The customer always plays a significant role in the research and development process. The company must recognise the importance of in-depth analysis of all the customer's requirements, and always try to provide an appropriate solution. Every vessel and every owner is different, requiring customised solutions and an ability to understand, analyse and then deliver in accordance with expectations. The biggest systems are designed around existing systems, and as the software is based on standard PC's there should be no integration problems.

An exciting new integrated facility which has been driven by customer requirements due to raised security fears have led Transas to develop another layer of information from a completely new set of sensors. The development teams of Transas and Seetrac have been working in collaboration to create a tender tracking interface for their Transas Navi-Sailor and INS products with the Seetrac tender tracking system. This interface was specially developed to improve the operational safety and security of the yacht's water craft and to allow tracking of all tenders and jet skis operating in the water around a super-yacht, and to display their positions, speed and course both graphically and in tabular form on the bridge display. In addition to that, the Seetrac system also transmits back to the host yacht the depth under the tender, so it can be used as a navigational aid in shallow waters. A new addition allows wind speed at the tender to be transmitted back to the host yacht, allowing a racing yacht to send their tender around the course to report back wind conditions! The module can track up to 20 tenders or jet skis simultaneously.

Seetrac offers complete standalone coverage and requires no land-based infrastructure, such as satellite relay or telephone networks. It can operate in the most remote corners of the world, when any assistance required by the tender must be swift and provided by those in immediate proximity.

One of the system's main benefits, making it unique, is that no third party can monitor information passing between the super-yacht and tender, thus only the host yacht can see its own water craft. This is unlike an AIS system where anyone with an AIS receiver can see the AIS target amongst the clutter of other AIS targets.

An **INS** system, such as this, will have an AIS screen or layer overlaying the AIS targets on the chart and also a Seetrac screen or layer showing only the yacht's water craft. Using such a system the AIS layer can be switched off simply leaving an uncluttered display of the yacht's water craft.

So in conclusion, the dawn of integration passed some years ago with the introduction of navigation integration formats such as NMEA. The sun is high in the sky now and there appears to be no limit as to what can be technically integrated. The benefit is simple: a lot more information is accessible enabling more accurate and faster decisions, thus improving safety and security.

For further information, please visit our stand at the Monaco Show (at the swimming pool entrance end of the Darse Sud air conditioned tent) or go to our website www.e3s.com .

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