



September 2009

Security



# SAFE AND SOUND **SECURITY UPDATE**

Security systems have reached remarkable levels of sophistication and, if used correctly, can deter would-be pirates and protect against a far more common threat, theft. We take a look at the current technology and some of the legislation that may mandate its use. *Story Lisa Larsen*

**YACHTS**

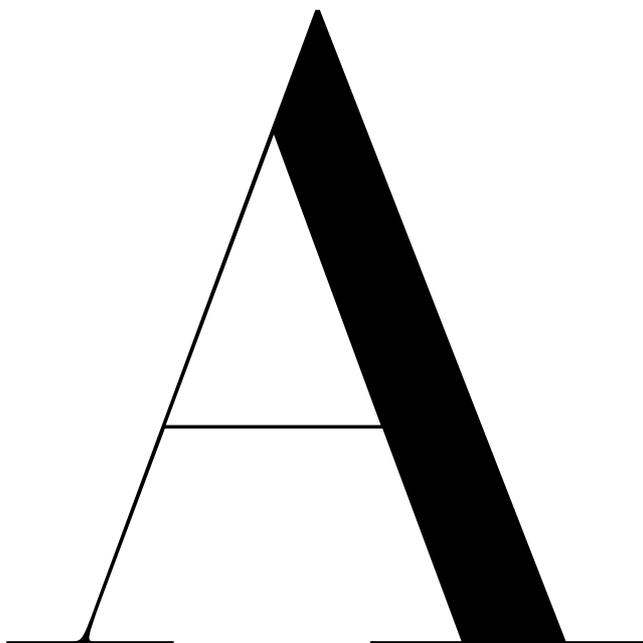
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**All aspects of the gleaming** white yachts that cruise the world's ocean fascinate, including their security systems. Articles tend to focus on the most outlandish features believed to be onboard the world's largest private vessels, including security devices such as underwater missile systems. A few years ago, the French newspaper "Le Figaro" reported that the yacht built for Saddam Hussein and formerly known as *Qadisiyah Saddam* included bullet-proof windows, a missile-launching system and a secret passage to an escape submarine. Naturally, most vessels do not need nor have such features, and for the majority of yacht and boat owners, break-ins and theft are the most likely threats.

Still, security is a growth industry worth about \$150 billion globally. Since it has now become possible to miniaturize nearly everything, sophisticated technology originally developed for military and commercial applications is now available to private vessels. The only foreseeable limit is cost. So what is a yacht owner to do? A reputable security consultant can pro-

vide some sound advice. Depending on needs and sophistication, a security system can cost anywhere between a few thousands of dollars to well into the hundreds of thousands.

Security specialists consider three main factors in evaluating security needs onboard a new or existing vessel: the profile of the yacht's owners and guests, the degree of risk that exists in the region the yacht visits and the design of the vessel itself. Roger Horner is managing director of e3 Systems, an international electronics company with a specialized security division. He identifies three main types of risks: low-level theft of objects, which can occur when the yacht lies at anchor or is in port; large-scale theft of costly equipment, including the yacht itself from an anchorage or a marina slip; and finally hijacking of the yacht, crew and passengers for ransom, which is a threat mostly limited to specific areas of the world's oceans. Somali pirates have made a few high-profile captures in the Gulf of Aden off the coast of Africa. But owners in other parts of the world are not completely immune from hijacking. Recently,

a yacht owner told us about waking in the middle of the night while his yacht was docked in a marina close to a major U.S. metropolitan area to find thieves loosening mooring lines, unaware he was onboard. So it is worth giving security, beyond a simple burglar alarm, some thought.

The key to a successful security system on a yacht or elsewhere, experts say, is layering. Maurice Golden, managing director of Inferno, a division of Swedish company Indusec, a specialist in advanced audio and light security products and systems, says the best approach is "creating rings like an onion". The more high-profile the yacht, the more layers. A security system for a large yacht with high-profile guests should include long-range detection as the outermost ring of defense. Sophisticated technology includes the Long Range Acoustic Device (LRAD), developed for the U.S. Navy to warn American warships of vessels approaching without permission. The focused, low-beam LRAD can be used to give a clear verbal warning or, using a higher decibel

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output, it becomes a non-lethal but very disuasive deterrent—maximum decibel levels can temporarily disrupt vision and cause ear damage. A few months ago California-based American Technology Corporation expanded its range of LRADs to include a smaller model that can be used on yachts. Inferno is a newer affordable application acting as an acoustic deterrent that uses four frequencies to produce sounds intolerable to the human ear and capable of affecting the optic nerve. Although it has a smaller range, it is quite effective when used in connection with onboard detection devices, such as an infrared beam and motion or deck sensors. In fact, the next layer should include short-range detection devices that discourage boarding while the yacht is anchored. Danger can come from below the water, but detection of underwater objects can be difficult and confusing, especially in murky bottoms. However, today's underwater sonars are becoming sensitive enough to identify swimmers or underwater craft with precision from nearly 3,000 feet away. In 2007,

U.K.-based Sonardyne, a manufacturer of underwater communications systems and acoustic technology, introduced the Sentinel as the world's smallest underwater intruder detection sonar. It weighs less than 70 pounds and can also be used to track the yacht's own divers. Underwater sonar for diver localization is a newer application for this technology resulting from the security requirements of various government sectors. Farsounder, a manufacturer and developer of 3D Sonar systems, is expected to launch a forward sounding sonar that permanently mounts to the vessel and may be used either in port or underway, the FS-3DL. E3 Systems experts like underwater sonar units

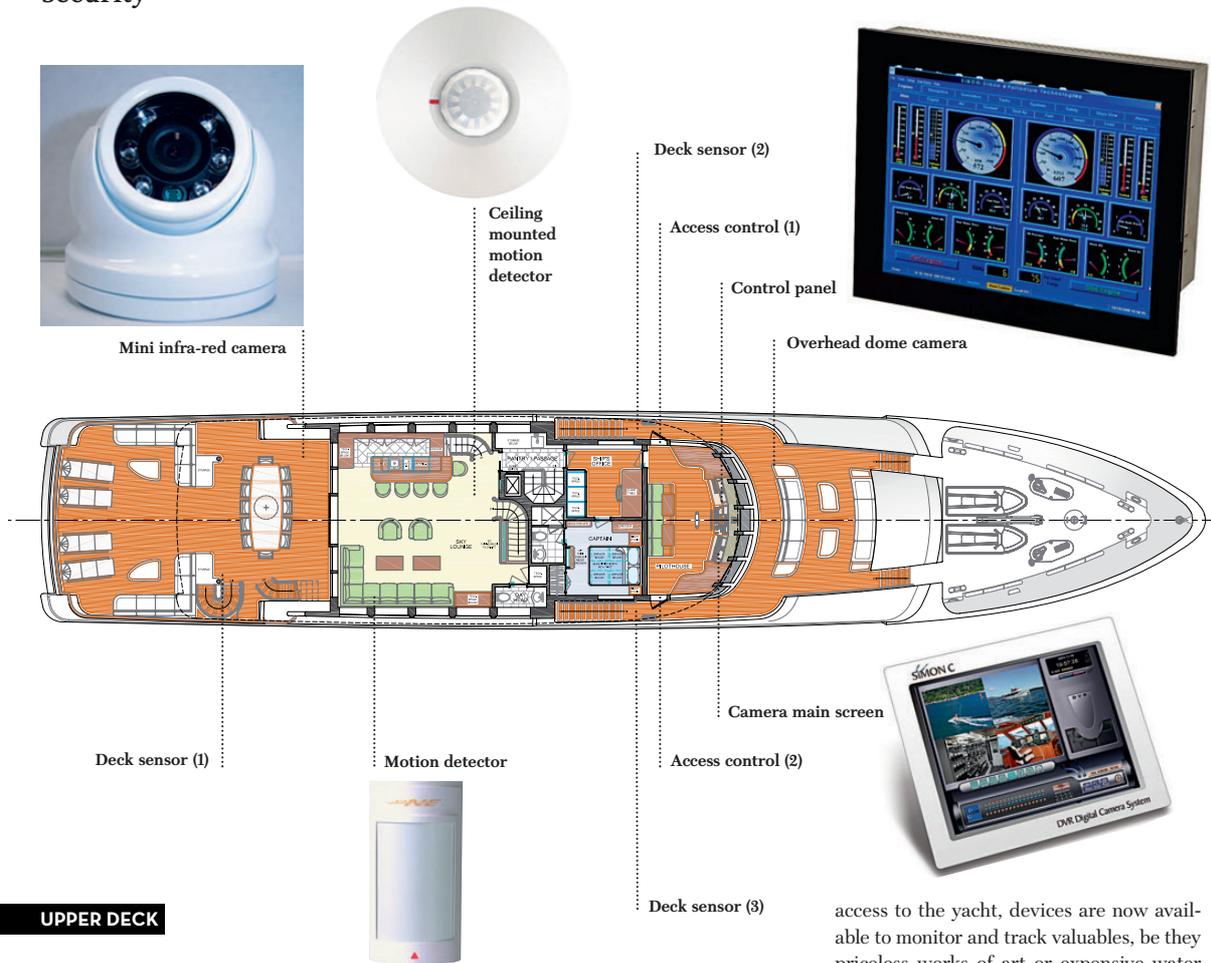
that can be lowered under the yacht and have a 360-degree detection capability. Alarm devices, such as infrared beams, deck sensors and motion detectors installed on the yacht's exterior constitute the next layer of defense. Technology is evolving quickly in this area. In addition, pan tilt zoom (PTZ) and low-light or thermal CCTV (closed circuit television) cameras, equipped with a digital video recorder, can scan the area and keep a video record available for the crew to view instantly or pass on to authorities later. Most security systems are now integrated into the ship's satellite communications, which makes it possible to transmit images and data all around the world. A few months

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ago, one such device installed on the 269' Oceanco *Alfa Nero* helped police identify the author of a series of break-ins in a marina. Little did the thieves know their actions were being captured by cameras onboard a vessel docked yards away. The next level of protection deals with access. A "No Boarding" sign stretched across the yacht's passerelle simply isn't enough to deter curious visitors or paparazzi, let alone thieves. Crewed vessels are equipped with access control systems, which manage yachts access using badges, pass cards, electronic locks, key fobs, coded keypads, programmable card readers and more re-

cently biometric readers. Biometrics is the science of identifying people thanks to their unique physical characteristics such as fingerprints, and this type of surveillance is arguably the most sophisticated system to date. As the technology evolves, it is becoming more precise, and new generation biometric readers can recognize digits even through water, grease and work gloves. The day may soon come when iris recognition is no longer the domain of sci-fi flicks, although it still is not a common practice anywhere, let alone on yachts. If none of the above have stopped intruders, or if the culprit happens to have authorized

access to the yacht, devices are now available to monitor and track valuables, be they priceless works of art or expensive water toys. A decade ago, the international press widely publicized the theft of a masterpiece by Picasso from a megayacht docked in Antibes, France. Another work by the sought-after Spanish painter, a valuable sketch, disappeared from a yacht while it was docked at a North American shipyard. Today, progress made in Radio Frequency Identification (RFIDs) technology and in the performance, size and cost of radio transmitters makes it conceivable to protect and track works of art no matter where they are. For instance, the Aspects ARTS (Art Register Tracking Software) is a security system that uses hard-wired sensors to monitor and track artwork. Tenders, if they are not works of art per se, can be very expensive custom boats that are hard to replace. GPS satellite technology can be a great help in tracking and recovering the



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Friday - Sunday  
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**October 12, 2009**

Monday  
10:00 a.m. - 5:00 p.m.

**Tickets**

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\$35 per person, all ages

All Other Days:  
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Sunday  
10:00 a.m. - 6:00 p.m.

**Tickets**

Thursday VIP Day:  
\$35 per person, all ages

All Other Days:  
\$17 Adults  
\$8 Children (12&under)

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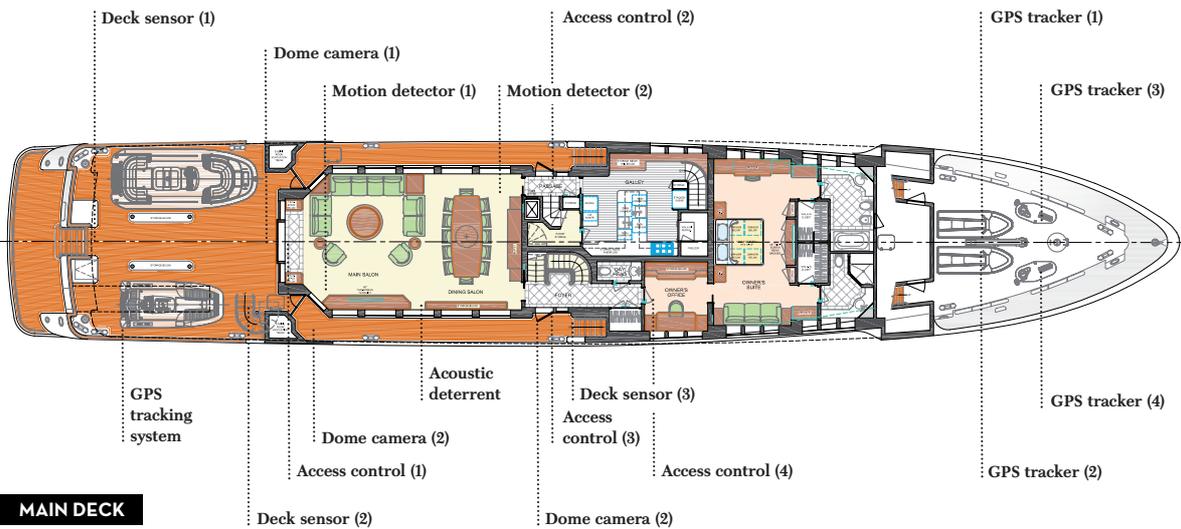
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# NO TECHNOLOGY CAN FULLY FUNCTION WITHOUT A COMPREHENSIVELY TRAINED CREW



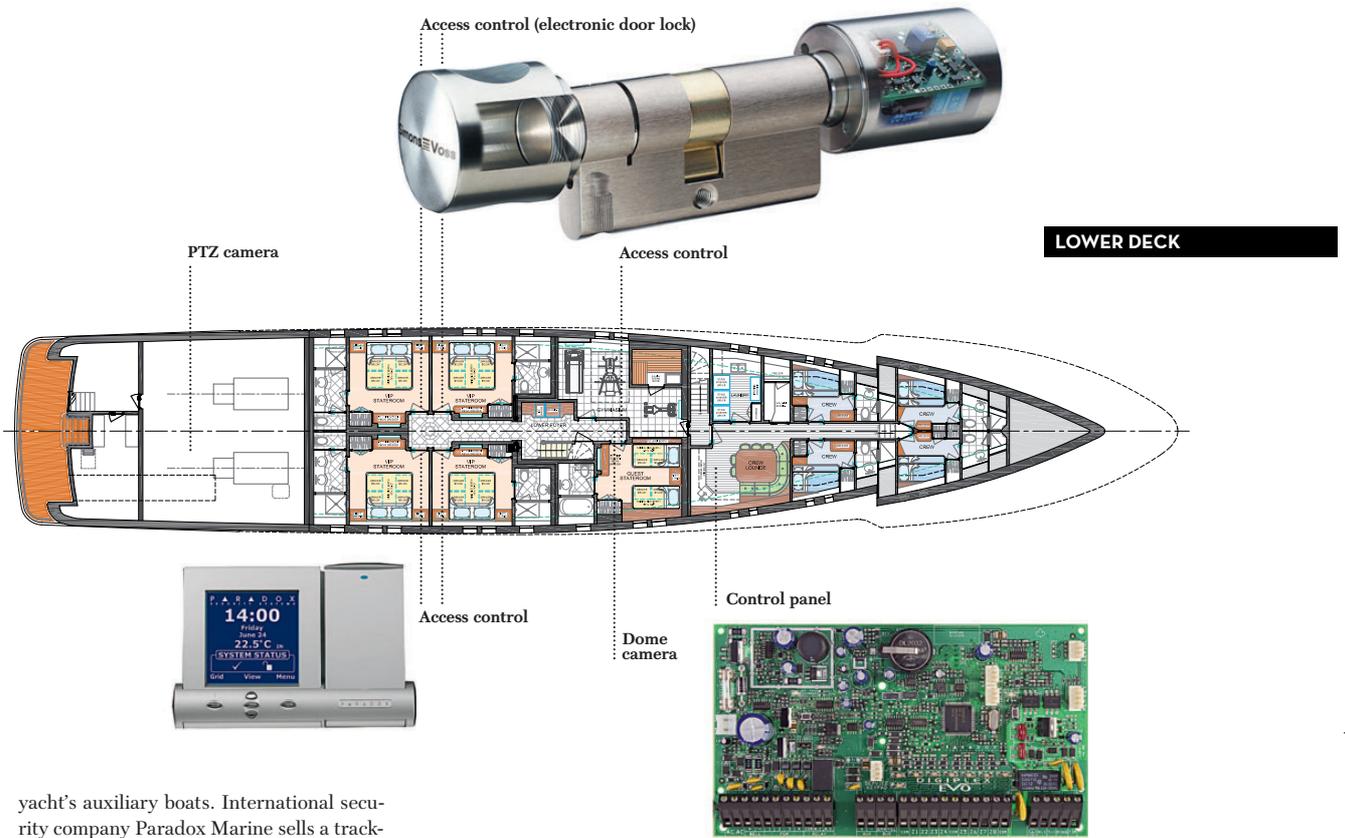
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yacht's auxiliary boats. International security company Paradox Marine sells a tracking device called the Nav Tracker that creates a 550-yard invisible perimeter around a tender, Jet Ski, or submersible. If the perimeter is breached, an alarm sounds while a transmitter broadcasts location data to a receiver installed on the mothership. Still, no technology can fully function without a comprehensively trained crew. Even the most sophisticated system can be useless if it is not properly armed and used. Corey Ranselm is CEO of Miami-based Secure Waters, a maritime consulting and security company. "People have unrealistic expectations of system capabilities. We can design a system that provides a level of protection similar to the White House, but there is a cost associated with that. A program that integrates people and technology always provides the most cost-effective measure to protect a vessel. Crew training is essential to the success of an overall security program," he says. Most security companies provide training and support for the use of their

technology. Retired Coast Guard, military or Special Forces professionals often act as consultants to help with the latest technology and rapidly changing legislation, some of which now concerns the private yacht sector. Since 2004, SOLAS (Safety of Life at Sea Convention) has required vessels with a volume exceeding 500 gross tons (which includes most vessels 150' and larger) to comply with the International Ship and Port Facility Security (ISPS) code. The code mandates that vessels be equipped with an Automated Identification System (AIS) and a Ship Security Alert System (SSAS). The AIS system broadcasts and receives basic data on all ships within radio range while an SSAS is meant to covertly alert authorities of violent incidents, such as piracy or terrorism. MCA now also applies the rules to any charter yacht over 300GT flying the U.K. flag, and the Panama Canal Authority requires

any transit vessel larger than 65' to be ISPS compliant, no matter its flag. Beside code compliance, yacht owners need to keep in mind the important aspect of insurance. Gary Carroll, owner and principal of CYA/Comprehensive Yacht Assurance, says in the absence of industry-wide standards, a few insurers may argue that compliance with the ISPS code is implied in the "warranty of seaworthiness" and use this argument to decline claims for vessels not equipped with the SOLAS-mandated AIS and SSAS. As much care, planning and thought should go into developing an effective security system as goes into creating a beautiful and comfortable environment. Every yacht should have a security system that is up-to-date, tested and in working order, and that addresses the degree of vulnerability specific to the vessel's architecture, itinerary and passenger profile. Options are many. ●

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