

## Hot Shots –

### Thermal technology takes its place in perimeter protection

As published in Security Products, April 2007



In today's troubled times, large industrial sites are in more danger of security breaches than ever before. With miles of perimeter fence and multiple controlled entrances to secure, large petrochemical plants are a complex security challenge, to say the least. To guard against the unwanted attention of terrorists or other groups bent on violence or otherwise disrupting plant operations, these sprawling sites are turning to thermal imaging – a technology previously considered only accessible to the military – to tighten their security networks.

#### Nothing hides from a thermal imager

You can't hide your heat. More precisely, you can't hide your thermal energy. Everything emits thermal energy – even ice cubes – night and day, in good weather and bad. Thermal imagers allow you to see things from further away and with greater contrast than the conventional visible-light cameras used in security networks all over the world. They don't require external lighting, can't be fooled by camouflage, and can see man-sized targets from further away than comparable TV cameras. "Thermal imaging works when other technologies don't," said Andy Teich, President of FLIR Systems' Commercial Vision Systems division. "Thermal imaging is ideally suited to security applications," Teich continues "because it requires no lighting and provides superior threat detection day or night. Thermal imaging is the only technology that provides true 24/7 capability." Thanks to recent technological innovations in the mass production of thermal imagers, they are now affordable and available to security professionals in the US and abroad. Teich continued, "The ability to design and manufacture detectors, lenses, and camera core assemblies coupled with our expertise in military qualified products allows FLIR to offer military hardened products at volume commercial prices. By virtue of FLIR's supply of thermal imaging systems into high volume applications such as BMW's Automotive Night Driving Assist system, FLIR can offer thermal imaging systems to other commercial applications at breakthrough prices."

#### BMW

Affordable, high-performance thermal imaging comes to the security market by way of an unlikely source: they are currently available in 5, 6 and 7 series BMWs. In 2005 FLIR Systems, Inc., the world leader in the production of thermal imaging systems for military and paramilitary organizations around the world began creating high volumes of infrared detectors – the guts of any thermal imager – and the key to BMWs "Night Vision System" nighttime driving aid. This BMW system allows the driver to see obstructions and hazards 5-times further down the road than normal high beam headlights – giving the driver a 5-times increase in reaction time.

This same imager has been leveraged by FLIR as the Pathfinder, and is the basis of an entire line of imagers specialized for the Security market. Now, thousands of these imagers are produced every month and they are deployed in the securing of commercial facilities, watching over border crossings, and flying in UAVs over Iraq and Afghanistan.



This evolution benefits today's security professional. By revolutionizing high-volume mass production of thermal imaging technology, FLIR is making thermal imagers available at prices not even dreamed of three years ago. Also, because the product development and production processes are fully mature, FLIR has been able to focus its recent efforts towards customizing these imagers for the requirements of the Security market itself, not developing the basic technology. Many of FLIR's security products fit into standard Pelco enclosures, have plug-and-play compatibility with most software networks, and have been interfaced with existing motion-detection software packages.

### **SR-19 -- Revolutionary low-cost thermal imager**

The low-cost SR-19 is an example of how this formerly-military hardware has been leveraged into a commercial application through innovation and mass-production. An easy-to-use and highly reliable uncooled infrared sensor, the SR-19's wide field of view provides excellent situational awareness, and its composite video output makes it easy to patch into existing camera networks. The SR-19 includes advanced image processing software and delivers excellent image contrast regardless of scene dynamics for less than \$5,000. "The SR-19's 19mm thermal imager provides excellent situational awareness, and can detect a man-sized threat at 410 meters" says FLIR's Teich.

For those creating camera networks from the ground up, software packages are available for a range of applications. For those wanting to write their own software interfaces, a developer's package is available. For those of us who are little less adventurous, the Nexus graphical user interface (GUI) provides a user front-end that allows everything from control of individual cameras to full networking to automated scan-and-alert capability. Teich emphasizes, "FLIR's products are designed with the integrator in mind. Systems are modular, so that the integrator can choose where his content and value addition starts and stops. Thermal imaging offers a high-value solution to difficult problems. A savvy integrator can use these capabilities to differentiate their offering from other less sophisticated competitors."

### **Case Study - Petrochemical Plant -**

#### **How thermal imaging technology, mass-produced & cheap, is being put to use**

If one were to make a list of the myriad challenges involved in securing a large petrochemical plant, securing the plant's perimeter would be right at the top. Daunting by its sheer size, these plants can boast a perimeter of 10 miles or more. Added to this, much of this perimeter can cover areas - waterfront or wetlands - that don't permit the use of the hardware typically thought of as part of a perimeter installation: a fence or of fixed lighting facilities. In a situation like this, thermal imaging is the only solution that makes sense economically, technologically and tactically.

"When compared to the economics of installing lighting towers in these areas, putting in multiple thermal imagers with overlapping fields of view can garner a 2X-3X savings," says Ryan Loughin, Director of Global Sales for Security Services & Technologies. While thermal imaging may seem to be a new, exotic technology, the imagers output a standard video signal, making them easy to integrate with existing CCTV networks. The nature of thermal imaging systems to be effective 24/7 allows security personnel to use motion-recognition software to effectively secure these fenceless areas without having to respond to false-positive alarms.

A large petrochemical plant in the US recently installed a number of thermal imaging systems alongside their existing CCTV network, and they have realized all of these benefits and more. Thermal imaging is a proven, affordable, available technology that is changing the way perimeters are secured.



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