

TECHNOLOGY



Chuck Crompton of Max-Viz speaking at NBAA.

Double vision from Max-Viz

Max-Viz (stand 1161) is showcasing its enhanced vision systems (EVS), the EVS1000 and EVS2500.

Some 270 examples of the two are currently in service.

The two systems are based on forward looking infrared technology and prices start at \$83,000 plus installation.

The EVS1000 is based on a single infrared sensor. The system uses a long-wave sensor – colder targets such as terrain, trees and ride lines in remote areas are all long-wave energy sources. EVS2500 uses the same long-wave sensor, but combines it with a short-wave sensor, which is suited to hot spots in a busy environment like an airport ramp.

Triple

The EVS2500 also has a sun sensor to protect it from “burning”, automatically switching the device off when it encounters intense sunlight.

Currently Max-Viz holds supplemental type certificates (STC) for 48 airframes and is working on a triple sensor system for installation on the Bombardier Challenger 300 and other platforms. The triple sensor package includes the long and short-wave sensors and a charged-coupled device (CCD) camera that will enable LEDs and runway edge lights to be blended into the image. For a demonstration and explanation of the intricacies of this technology stop by the Max-Viz booth.

BATTLE OF THE SENSORS

Two IR suppliers, L-3 and Kollsman are putting their price and performance on the line. *Brendan Gallagher reports.*



Rivals: The L-3 IRIS (above) and the Kollsman GAVIS (top).

The growing struggle for the enhanced vision and associated infrared sensor markets is one of the emerging themes of NBAA 2006, with several exhibitors launching new products or beating the drum for established ones.

Faced with a welter of new technologies, price points and performance claims, would-be buyers may be scratching their heads over where to start.

They need look no further – two exhibitors have come right on out with pricing information and are ready to back up their marketing with flight demonstrations here at the show.

The two are L-3 Avionics Systems (stand 4299), with its new IRIS infrared sensor, and Kollsman Commercial Aviation Systems (stand 3047), back at NBAA with its similarly IR-based General Aviation Vision System (GAVIS). L-3 is

offering IRIS for \$15,000 a copy, while GAVIS is on offer at \$92,500.

L-3 has IRIS installed in its Beechcraft King Air C90, and GAVIS is aboard Kollsman's Cessna Citation II. Both aircraft can be found at the static park, and the two companies are inviting requests for demonstration flights.

Price

Questioned yesterday on the difference in price, Kollsman commercial aviation systems vice-president Roy Gentry says: “You’re paying for performance, with the ability to work in a very wide range of light conditions, plus things like the fact that GAVIS is easily installed and due for certification by the end of the year.”

On the eve of the show Kollsman announced that its IR sensor would be combined with the Synthetic Vision Electronic Flight Instrument

System from Chelton Flight Systems to create a new series of products aimed at general aviation, light trainers and small to medium-sized business aircraft.

“We designed the Chelton EFIS to combine all instruments in one scan, and make it safer for a pilot to make rapid, informed decisions under difficult flight conditions,” says Chelton president Gordon Pratt.

“The integration of a forward-looking infrared camera like GAVIS will blend in the real world and enhance the image, leading to safer take-offs, landings and flight in terrain, especially at night.”

L-3 Avionics Systems plans to certificate its IRIS aboard the company King Air C90 by the first quarter of next year, with deliveries to customers to begin shortly afterwards.

According to chief technology officer Wendy Ljungren, the barium

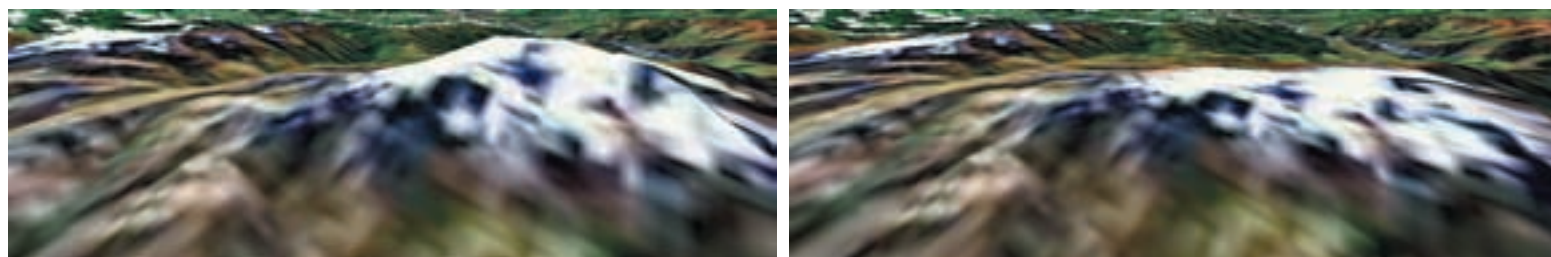
strontium titanate (BST) detector technology in IRIS provides superior clarity compared with other IR sensors on the market.

“The system is uncooled and so lacks the higher sensitivity of cooled products from providers like CMC Electronics.”

Performance

But, says Ljungren, “we think it has enough performance to meet the needs of our initial target market in business and general aviation.”

Integration of IRIS with a synthetic vision system is part of the L-3 product roadmap – “Look out for an announcement before too long,” Ljungren says. In the meantime, the company expects to see the compact 1.7lb (0.77kg) device making significant inroads into the business and general aviation market all the way down to four-seat twin-piston types.



After and before: How the Jeppesen Terrain Database will help SVS users to steer clear of cumulo-granite.

The devil's in the database, says Jeppesen

As the pack of potential synthetic vision providers grows bigger and more clamorous, customers should be aware that not all terrain databases are created equal.

Announcing the availability of the Jeppesen Terrain Database yesterday, aviation data services director Scott Reagan said his company had worked for three years to fill the information

voids inherent in the publicly available information set created by the Space Shuttle radar topography missions.

He explained that imperfect reflection from water, snow and sand left gaps at ground level.

Radar shadowing of high ground could result in the disappearance of mountain peaks from the data set.

Jeppesen (stand 1100) used the Shuttle data set as a foundation, drawing on various other sources to produce “a giant leap forward in terms of completeness and resolution”.

The resulting database is claimed to provide near-photographic quality and detail (3 arc-second or 90m resolution) at latitudes between 60°N and

56°S. Areas outside these latitudes are captured at a minimum of 30 arc-second resolution.

Synthetic vision contenders L-3 and Sandel are already using the Jeppesen database for development purposes, and Reagan said the company was talking to most of the other players, including Kollsman.

When is a pump not a pump? Ask Nichols Airborne

A pump's a pump – right? Wrong. Go to the Nichols Airborne section of the Parker Aerospace stand (5115) for a glimpse of some of the advanced technologies that go into the pump systems aboard today's corporate aircraft.

Appearing for the first time at NBAA, the Nichols display covers a multitude of applications – fuel boost and transfer, engine lubrication and scavenger, potable water, auxiliary power

unit fuel supply. There is even a unit designed to handle ethanol, the plant-derived alternative fuel that could power the aircraft of the future. "I don't believe anyone else in the industry has developed such a pump," says Cindi Little, newly appointed general manager at Nichols Airborne.

The eco-friendly unit is not the only example of forward thinking on display. "We're starting to see more and

more pumps with electronically commutated motors," says Little.

Nichols has responded with a range of smart pumps, capable of tailoring flow performance exactly to the current requirements of the mission. "During take-off the pump has to operate at maximum power, then demand falls to a fraction of that in the cruise," Little explains. "Because it draws only the power it needs at any given time, the smart pump ultimately saves aircraft operating costs."

The intelligence built into the Nichols smart pumps supports features not possible in conventional designs, including health diagnostics and prognosis, speed and power control, and over-temperature and over-current protection.

They also boast a fast-start capability: "It means you don't have to over-design the power supply to meet the start-up case."

FDS set to start deliveries of in-flight TV...

Atlanta-based Flight Display Systems (stand 1643) hopes to certificate its Ellipse Direct compact in-flight television system by the end of the year, paving the way for first deliveries.

Priced at a highly competitive \$99,650 for radome, antenna and receivers, Ellipse Direct is distinguished by its unique fuselage-mounted AWACS-style antenna. "We've been working with the FAA on certification for over a year," FDS founder David Gray said here yesterday. "We still have windtunnel and bird-strike tests to do, but we're aiming to have it certificated within the next couple of months."

Niche

He continued: "There's a niche among the light and mid-size business aircraft that's closed to larger in-flight television systems, but which can be addressed with this product."

Other FDS news at the show centers on the company's new Flipper space-saving flight-deck display. This thin 5in (12cm) LCD screen is designed to install easily on most existing

glareshields and is hinged to flip into and out of view as needed. "When Flipper is stowed it becomes virtually invisible and does not disrupt the pilot's panel scan," said Gray.

Potential applications include the display of imagery from enhanced vision systems (EVS). FDS is talking to Universal Avionics, Max-Viz and Kollsman about the possibility of packaging Flipper with their EVS offerings.

Other image sources include satellite weather systems, flight cameras and moving maps.

Launch customer for Flipper is Texas-based modifications company Sierra Industries, which is working to STC an installation for the Cessna Citation.



The Flipper space-saving flight deck display.

Navigation in the bag from IS&S

Innovative Solutions and Support (IS&S) has announced Class 3 electronic flight bag (EFB) capabilities along with its state-of-the-art glass cockpit upgrades. The company (stand 1253) is demonstrating its new EFB capabilities at the show this week.

The full-color, high quality electronic flight bag consists of electronic navigation charts powered by Jeppesen, and applications such as takeoff, en route, approach, landing, missed approach, and go-around information.

Position

Notably, Class 3 e-charts from IS&S will also display own-ship position to pilots through a digital representation of the aircraft's exact, realtime position on the runway, or in the air.

E-charts on the aircraft's multifunction display are designed to make charts larger and easier to read.

"Electronic flight bag features are critical to enhancing the safety of pilots and passengers," says Roman Ptakowski, president. "We're looking forward to providing additional EFB features in the future, such as satellite weather radar images and aeronautical data."

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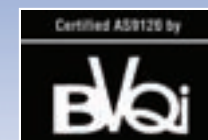
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