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## Israeli Electro-Optics Industry



The combined innovations and ceaseless attempts in the field of electro optics have transformed the Israeli defence industry into one of the most important in the world. The application developed by local engineers and scientists is largely responsible for the current improved status. Innovative electro-optical

solutions of high quality have been developed throughout the years by Israeli companies. These solutions include thermal imaging, lasers, infra-red, optics and other electronics systems. The available products covers a broad spectrum from laser rangefinders and anti-aircraft artillery control systems through to long-range cameras for use in small satellites and for industry automated optical inspection systems. These systems give security forces and law enforcement agencies of Israel or any other country that use them a crucial advantage.

The aforementioned solutions have several applications such as:

- Enabling fighter aircraft to carry out reconnaissance missions and precision strikes in the dark.
- Improving individual fighter's vision with the use of special cameras and binoculars as well as with a range of personal night vision devices.
- Laser aiming devices and target marking systems fixed to everything from semi-automatic M-16 rifles to artillery guns and helicopter and aircraft mounted weapon system.
- Laser technology has also been adapted by Israeli high-tech systems to warn about other laser threats.
- Finally, thermal imaging is embedded in many systems such as UAVs and light aircraft and vessels.

One of the sector's leaders both for military and commercial applications is El-Op Electro-Optics Industries, a subsidiary of Elbit Systems. El-Op's products range from space and airborne reconnaissance to thermal imaging, lasers and mini-lasers, displays, fire control systems, optronic stabilized payloads and electro-optics countermeasures. Specific products include portable lasers, lightweight laser range-finders and compact thermal imaging modules.



One of the reasons why electro-optics industry in Israel is on the rise is that engineers with combat experience gained from the obligatory serving in the Israel Defence Forces (IDF) give a significant advantage in the national defence industry and of course in an extremely complicated and demanding domain such as electro optics. There is an almost symbiotic relationship between the Israel Defence Forces (IDF) and senior defence industry engineers and in general employees. Most of them are former officers of IDF and many continue to

serve in the reserves. This fact provides an extra advantage to the Israeli defence industry and the reason is that employees convert their accumulated combat experience to technological innovation.

Israeli companies are in the forefront of the electro optics domain. They are committed in maintaining this position something that is highlighted by the on-going major investment they do in R&D something that will ensure the continued improvement of existing products and new technologies.

Kyriazis Vasileios,

Epicos Newsletter Head Editor

## Interview with Mr. Amit Mattatia President & CEO, of the company Opgal



Mr. Amit Mattatia, President & CEO, of the Israeli company Opgal, gave an exclusive interview to Epicos, regarding the position of the company in the international and national markets. Among others he stated that: "Our product range

is primarily focused on giving our customers the ability to detect and prevent potential threats through high-quality thermal imaging. We provide them with the detailed insight required to assess a situation and take appropriate action."

### Can you briefly describe the history of the company?

Opgal's activity started back in 1982 and it quickly became one of the first companies in the world attempting to implement IR technology in commercial applications. One of the company's first technological innovations took place with the creation of the first [EVS \(Enhanced Vision System\) camera](#), an FAA-approved landing assist and situational awareness thermal imaging camera for commercial aircrafts. This camera provides clear images of the runway and other items and obstructions normally undetectable by the pilot's naked eye at night and in bad weather.

From aviation, we moved into other commercial domains, the most prominent being commercial security and safety, leveraging our thermal technology to develop a broad range of thermal cameras and systems for various applications, serving both OEMs and end users. At the same time, we started to serve global integrators in the Defense arena, mainly as an OEM supplier.

Expanding our worldwide presence in the security & safety domain, we started to market the Vumii near-infrared product line along with a broad range of [Vumii night vision cameras](#) and situation management software. This brought detection, assessment and identification capabilities together, leveraging Opgal's technology into the US and other international markets.



Accuracii™ ML - A powerful night / day all weather, multi-sensor, mid to long-range detection and observation system for commercial and government security applications.

We continue to identify additional niches where we can leverage our technology in new markets, such as Industrial Safety. For example, the unique [EyeC Gas™](#) thermal imaging camera serves an invaluable aid in detecting gas leaks, protecting people, property, and the environment from harm.

## What are Opgal's key areas of focus today?

Our product range is primarily focused on giving our customers the ability to detect and prevent potential threats through high-quality thermal imaging. We provide them with the detailed insight required to assess a situation and take appropriate action.

We are currently active in four domains: Security, Commercial Aviation, Defense and Industry. Worldwide, security issues continue to be a hot topic. We address these concerns with off-the-shelf thermal-imaging and near-infrared illumination cameras which enable detection, recognition, and identification of security threats during the day, in complete darkness, and in difficult visibility conditions. [Our solutions](#) can be used for both private and public safety, including perimeter security of industrial plants and residential areas, as well as the protection of ports, airports, borders and other sensitive infrastructures.

Naturally, we continue to provide EVS cameras for the Avionics industry and we are the largest provider globally in this domain. The highly sensitive, wide-spectrum infrared EVS systems significantly improve commercial, business and potentially military aircraft pilots' flight safety and situational awareness, both in the air and on the ground.

Still in the realm of safety, but focused on the Industrial market, our thermal-imaging systems are successfully used in gas detection. The cameras are highly sensitive to a wide spectrum of invisible hazardous gases, providing a critical detection tool which allows our customers in the petrochemical, oil and gas sectors to ensure a safe and pollution-free work environment. Increasingly, regulators in different countries are also realizing the benefits of gas imaging which will accelerate the adoption of this technology by all industry players.

When it comes to Defense, we offer a [broad range of thermal cameras](#) for use in weapon sights and stations, gimbals, UAVs, naval observation, and armored vehicle retrofits, to name just a few. Our battlefield proven solutions are qualified to the strictest military standards and have been deployed on land, at sea, and in the air.

## What new products has Opgal brought to market in the last year?

We are continuously striving to develop cutting-edge thermal imaging products to better serve our customers through ongoing R&D. In 2013, we introduced the [Arbel HS](#), an uncooled thermal camera which offers excellent picture quality at an attractive price. We also launched the [Hurricane](#), a compact, lightweight multi-sensor system for observation and situational awareness, used for medium and long-range weapon applications. An interesting innovation from Opgal was our [3rd generation DVE \(Driver Vision Enhancer\)](#) for armored vehicles, which includes fused CCD and thermal channels.



**Hurricane™** - A cost-effective configurable observation and situational awareness solution for medium and long-range weapon stations.

**What can we expect from Opgal in the future?**

2014 will mark the launch of several exciting new technologies for the security, aviation and defense markets. Opgal will continue to introduce advanced multi-sensor cameras that combine extended visibility and superb image quality in all thermal spectrums as well as Near-IR and visible. Our new security products are designed to minimize risk through early identification of potential threats.

**What sets Opgal apart from similar companies?**

We are close to our customers, so we're focused on giving them what they need — enabling them to choose the solution that best meets their needs and customizing products for specific applications. Our depth and breadth of product offerings enable our customers to purchase equipment or systems in the configuration they require. As such, we offer a wide range which covers thermal core engines, open frame cameras, and fully fledged cameras and systems. The common denominator in all our products is the delivery of high quality video by utilizing superior image and signal processing, high quality components, and unique product design. We're committed to building strong long-term relationships and providing customers with unprecedented service and support.

I'd like to emphasize that our innovativeness goes hand in hand with years of expertise. These products have been field-tested in the toughest conditions and boast a strong track record. Our image processing capabilities and ability to supply top quality products enables our customers to see beyond the visible.

For Further Information Please Visit <http://www.opgal.com/>

Or Contact

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Below you can find a partial list of the company's products:



**Arbel™** - Dual FOV uncooled thermal OEM Camera for surveillance and weapon stations, available in a variety of forms, including 384X288, 640X480 and high sensitivity 640X480 resolutions. Field proven - thousands of units installed.



**Tavor™ DV60** - A family of fused multi-sensor (thermal /CCD) thermal imaging kits, field proven for a wide range of vehicle mounted applications.



**Accuracii™ ML** - A powerful night / day all weather, multi-sensor, mid to long-range detection and observation system for commercial and government security applications. Available with a variety of lenses, it is part of a wide family of Accuracii systems increasingly used world-wide for short to extra-long range surveillance.



**EVS™** - A highly sensitive, wide-spectrum cooled infrared camera that provides pilots with clear video images of the runway environment in all weather conditions, approved the operational landing credit for over 15 commercial and business aircraft models. Over 1000 units are installed and flying.



**Hurricane™** - A cost-effective configurable observation and situational awareness solution for medium and long-range weapon stations. Standard configuration consists of an uncooled thermal video channel, a high definition (HD) channel, a laser range finder (LRF) device, a laser pointer, a situational awareness module and a smart control unit.

## Epicos “Industrial Cooperation and Offset Projects”



Epicos “Industrial Cooperation and Offset Projects” provides a unique set of online tools enabling the structure, identification and implementation of comprehensive Offsets programs, through a searchable database. By introducing different offset projects and ideas proposed by local A&D industry it ensures the optimum cost for Prime Contractors and reassures that the priorities of local industry are fully met...

[For Further Information Press Here](#)

### **Mini (back-packed) Unmanned Air Vehicle (UAV) for military and homeland security applications**



A company with many years of experience in providing innovative surveillance solutions using various platforms is proposing cooperation with a local company in targeted country in order to provide all necessary technology and know-how in the field of lightweight UAV systems. The firm is willing to provide all the necessary equipment, as well as related operational know-how in order for the target company to develop its own UAV systems.

[For Further Information Contact our ICO Department](#)

Mail at: [g-menexis@epicos.com](mailto:g-menexis@epicos.com)

### **Upgrade of aircraft and helicopters internal & external lighting for Night Vision Imaging Systems (NVIS) compatibility**



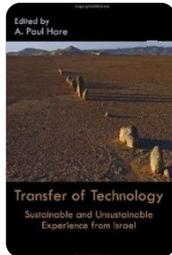
A company with extensive experience in the design and manufacturing of illuminated display and control systems is proposing in the frame of an offset program cooperation with a military or homeland security agency or with prime contractors for the upgrade of special operation aircraft and helicopters internal & external lighting for Night Vision Imaging Systems (NVIS) compatibility.

[For Further Information Contact our ICO Department](#)

Mail at: [g-menexis@epicos.com](mailto:g-menexis@epicos.com)

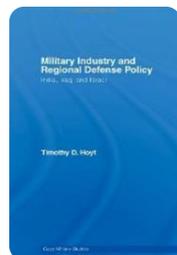


### **Transfer of Technology: Sustainable and Unsustainable Experience from Israel, by A. Paul Hare**



Transfer of Technology is an important issue in the current state of industries. The author of this book is trying to delineate this issue by presenting an eclectic and diverse mix of research strategies for understanding the impact of desertification, as well as applications for coping with arid environments. Emerging from experiences in Israel's Negev Desert, the book should be of interest to anyone concerned about the effects of global environmental change. As the subtitle "Sustainable and unsustainable experience from Israel" suggests, some learnings are more transferable than others, a challenge revealed in many chapters that examine transfer beyond Israel to other nations in Africa and Asia. The array of research reported encompasses land degradation, gully incision and desertification, draught analysis using remote sensing, ground water pollution, parasite populations in rodent species, soil and dust analysis.

### **Military Industry and Regional Defense Policy: India, Iraq and Israel (Cass Military Studies), by Timothy D. Hoyt**



Military Industry and Regional Defense Policy re-examines military industrialization in the developing world, focusing on policy-making in producer states and the impact of security perceptions on such policy-making. Looking at Israel, Iraq and India, the three most powerful regional powers in the Cold War era, he presents an expert analysis of the three-sided phenomena of the regional hegemony, the regional competitor and the small over-achiever. This new book breaks away from existing literature on military industries in the developing world, which has focused on their economic and development costs and benefits.



### **Brazil to build own aircraft carrier: defense minister**

Brazil is planning to build its first aircraft carrier to replace its aging only model as part of a steady upgrade to its armed forces, Defense Minister Celso Amorim said Tuesday.

In recent years Brazil has purchased submarines, helicopters and supersonic aircraft via technology transfer agreements with the proviso that the hardware is made in Brazil.

"We are starting to think about a new aircraft carrier," Amorim told foreign correspondents in Brasilia, adding it was likely the new vessel was at least 15 years away.

"Our idea is for it to be built in Brazil, probably based on an existing blueprint... in the context of a technology transfer" in cooperation with a foreign firm, Amorim added.

Brazil commissioned its only current aircraft carrier, the Clemenceau class State of Sao Paulo, in 2000, though the French initially launched the vessel back in 1960.

In December, Brasilia agreed to purchase 36 Gripen NG fighter jets from Swedish firm Saab with Amorim stressing the Swedish-Brazilian nature of that project through a "real technology transfer."

Amorim said he would visit Sweden in early April to "discuss the details" of that contract, valued at a reported \$4.5 billion, and also to determine if the Swedes can lend some Gripen until those from the deal are delivered from 2018.

The Swedes saw off competition from US giant Boeing and Dassault of France in order to land the deal and defense sources say Brazil may ultimately order as many as 160 Gripen NG by 2030.

**Source:** 2014 AFP, Agence France-Presse (AFP)

### **Fifteen years on, Ukraine neighbours glad to be in NATO**

Fifteen years have passed since the Czech Republic, Hungary and Poland joined the NATO military alliance, a decision the ex-Soviet satellites now see as fortuitous given today's Ukraine standoff between Russia and the West.

"NATO is the safest alliance Poland ever joined," Polish Prime Minister Donald Tusk said Monday, hours before NATO announced it was deploying reconnaissance aircraft in his country and Romania as part of efforts to monitor the crisis in neighbouring Ukraine.

NATO's 1990s overture to the East marked the beginning of the alliance's enlargement to former members of the now-defunct Soviet-led Warsaw Pact.

After a decade of tough negotiations, the Czech Republic and Ukraine's neighbours Hungary and Poland joined the alliance on March 12, 1999.

This paved the way for a host of other ex-communist Central European states -- Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia -- to follow suit in 2004, thus erasing the divisions of the Cold War.

"If Poland weren't in NATO, then the Baltic states (Estonia, Latvia and Lithuania) certainly wouldn't be in it either," former Polish president Aleksander Kwasniewski said Sunday.

"There was a kind of security vacuum in this part of the world, which could have been filled by others," he said, adding that without NATO membership the Ukrainian conflict would pose "an extremely serious threat" for Poland and the Baltics.

"But today we're under the NATO umbrella and can sleep more soundly."

Sixty-two percent of Poles say they are happy with NATO membership, while only four percent disapprove, according to a February poll from the CBOS institute.

- A new Cold War? -

The Ukraine crisis has raised the spectre of the Cold War, with the leaders of Poland, the Czech Republic, Hungary and Slovakia comparing Russia's actions in Ukraine to Soviet crackdowns at home during that era.

NATO also held rare emergency talks after Poland requested consultations under Article 4 of the alliance treaty, which any member can do when they believe their territorial integrity, political independence or security is threatened.

To reassure its eastern European NATO allies, the United States stepped up a joint training exercise with Poland and strengthened the alliance's air patrols over the Baltic states.

A dozen F-16 fighter jets and 300 US service personnel will descend on Poland by Thursday to take part in the exercise, originally planned to be smaller but increased and pushed forward because of the "tense political situation" in Ukraine, Polish defence ministry spokesman Jacek Sonta told AFP.

While Russian President Vladimir Putin says the breakaway Crimea peninsula has the right to join his country, Ukraine has sought US help to end Moscow's "aggression" in the strategic region, where it has effectively seized control.

Washington, along with London and Moscow, pledged to respect Ukraine's territorial integrity in a 1994 agreement under which the ex-Soviet republic agreed to give up its nuclear weapons.

"NATO today is no longer the same organisation that fought the USSR," said security expert and former Czech military intelligence chief Andor Sandor.

"It's no longer the alliance that we joined 15 years ago, but I continue to think it's in our best interest security-wise.

"Membership allowed our army to learn many things. We've met the Western standard in a lot of ways, and today many soldiers have completed missions, trained, held positions," he told AFP.

Hungary is likewise satisfied with its decision to join, according to defence expert Istvan Balogh from the Hungarian Institute of International Affairs, the foreign ministry's think-tank.

"NATO membership has definitely been a net benefit to Hungary. It has anchored us in the transatlantic community," he told AFP.

"The combat experience we got out of Afghanistan, seeing how a 21st-century military environment works, has also contributed to developing the Hungarian military."

**Source:** 2014 AFP, Agence France-Presse (AFP)

### **Singapore Confirms to Buy 6 A330 MRTT**

Singapore said Thursday it would replace its ageing KC-135R air refuelling tankers made by US firm Boeing with Airbus's A330 Multi-Role Tanker Transport (MRTT) aircraft.

Defence Minister Ng Eng Hen told parliament of the decision to acquire the MRTT, which is based on the civilian A330 plane.

Ng did not say how many Singapore will buy, but an industry source said in January the city-state wants to buy six MRTT aircraft in a contract worth an estimated one billion euros (\$1.4 billion).

The Singapore air force operates a squadron of KC-135R air refuelling tankers, according to The Military Balance 2014, published by the London-based International Institute for Strategic Studies.

By 2030, "our current KC-135 aerial tankers will have been replaced by the Airbus A330 Multi-Role Tanker Transport, which we have decided to acquire," Ng said during a debate on the country's budget.

"The MRTT, or Airbus A330, can hold 20 percent more fuel than our current KC-135s and will extend the range of our fighters through air-to-air refuelling," he said.

"The Airbus A330 can also double up as a cargo and troop-lift aircraft to deploy troops and equipment to overseas sites further away as we have done in HADR (humanitarian and disaster relief) operations."

IHS Jane's Defence Weekly says Airbus has won orders for the MRTT from the air forces of Australia, Saudi Arabia, Britain and the United Arab Emirates.

Boeing's KC-135, which began flying for the US Air Force in the 1950s, provides mid-air refuelling services for long-range bombers, fighters and cargo aircraft.

Boeing in 2011 beat its European rival for an estimated \$30 billion contract to replace the US Air Force's ageing fleet of KC-135 tankers with the newer KC-46 aircraft, with the first deliveries expected in 2017.

**Source:** 2014 AFP, Agence France-Presse (AFP)

### **Australia lower house hurdle unlikely to aid ailing Qantas**

A bill to repeal foreign ownership restrictions on Australian carrier Qantas passed the lower house of parliament Thursday, but it faces defeat in the Senate with the Labor opposition fearing jobs will go offshore.

Qantas has been lobbying for government help after a Aus\$235 million (US\$210 million) loss in the six months to December 31 and a decision to slash 5,000 jobs, but its plea for a debt guarantee or Aus\$3 billion unsecured loan have been turned down.

The conservative government of Tony Abbott instead favours watering down the Qantas Sale Act to help the carrier raise much-needed capital and put it on a more even footing with domestic competitors.

Qantas complains that it is battling not only high fuel prices but fierce competition from subsidised rivals such as Virgin Australia, which is majority-owned by state-run Singapore Airlines, Etihad and Air New Zealand.

The act currently caps total foreign ownership at 49 percent and limits a single investor to a 25 percent holding. Foreign airlines are limited to a combined total holding of 35 percent.

But the Labor opposition and the Greens, which currently hold the balance of power in the upper house, have vowed to block the changes, leaving Qantas at a stalemate.

"It's taken 94 years to build Qantas, it's taken the Abbott government 94 minutes to tear Qantas down. Shame," Labor leader Bill Shorten told parliament after the vote, as the Senate initiated two separate inquiries to examine Qantas's financial position and operations.

Labor believes Qantas must remain a majority Australian-owned airline to protect Australian jobs.

"These people opposite are the cheese eating surrender monkeys of Australian jobs," Shorten added.

In a drastic restructuring, the airline last month announced the job cuts and deferral of new aircraft delivery as part of a plan to save Aus\$2 billion over the next three years.

**Source:** 2014 AFP, Agence France-Presse (AFP)

### Lufthansa says passenger traffic rises in February

Lufthansa, Germany's number one airline, said on Tuesday that passenger traffic increased fractionally in February.

Lufthansa said in a statement that so-called revenue seat-kilometres -- a measure of how many of an airline's available seats were actually sold -- inched 0.2 percent higher to 13.144 million last month.

In concrete terms, Lufthansa said it carried 6.684 million passengers in February, 0.6 percent more than during the same month last year.

At the same time, the airline reduced the number of flights by 2.2 percent.

That meant the so-called seat-load factor, which measures the number of seats filled on flights, increased by 0.4 percentage point to 74.0 percent in February.

In addition to the Lufthansa brand, the group also owns SWISS and Austrian Airlines.

The volume of freight transported by its Lufthansa Cargo unit increased by 0.3 percent to 125,000 tonnes in February, the statement added.

**Source:** 2014 AFP, Agence France-Presse (AFP)