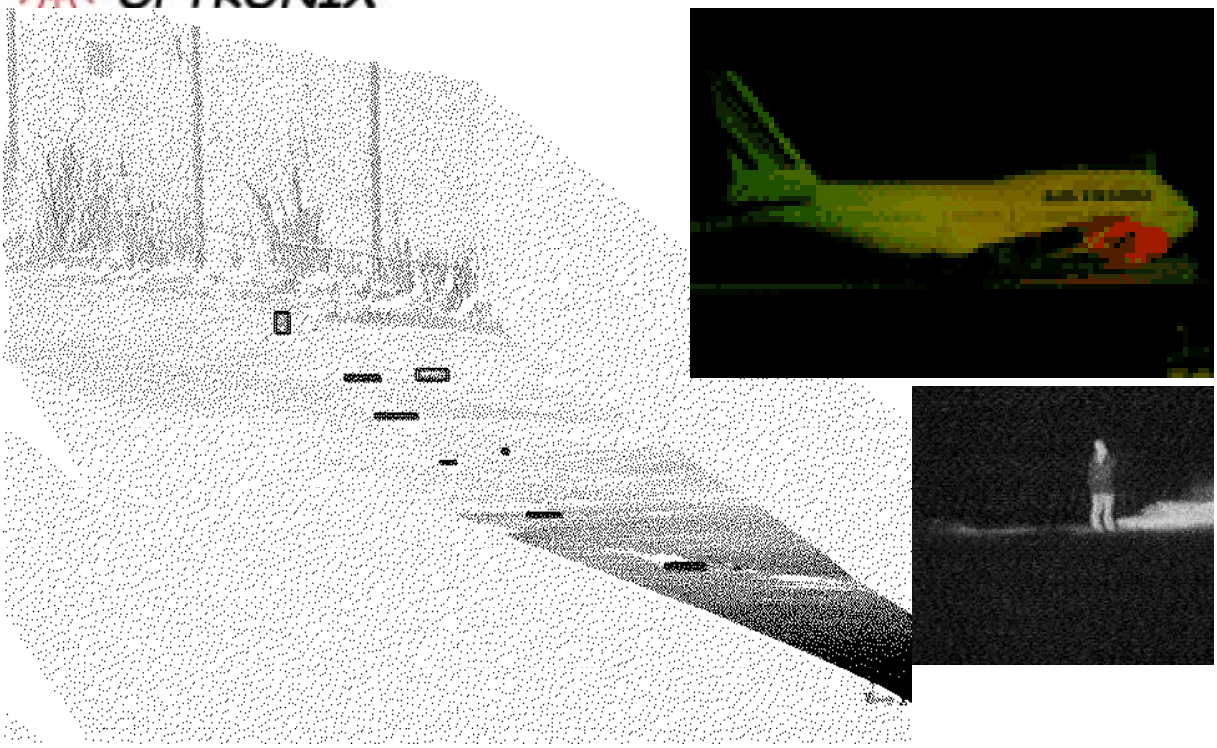
Air Port Security

Products for airport safety and security



Main groups of products for security in airports

- *Protectomatic security concept for TSS (total security solution)*
- *Perimeter protection fences and hard ware*
- *Perimeter protection detection and alarm systems*
- *Area detection systems for detection of intruders*
- *Automatic control systems for detection of people close to parked aircrafts.*
- *Active laser cameras and other camera systems for 24 hour operation*
- *Illumination solutions with high efficiently and long life time*
- *Fire stopping and retarding systems as extinguishers and textiles and paints*

Airport security solutions from Laseroptronix

Laseroptronix and our partners is happy to offer a complete range of security solutions for airport related applications. This includes combinations where the sensors have dual functions as anti terror applications as well as the more traditional safety applications. We have dual purpose use in booth these areas.
Laseroptronix is a network with several suppliers and some own products to be in the situation to cover the entire area of applications. Several of the key products have patents and patent applications to secure our immaterial rights. Some are considered as so secret so we do not even have a patent applications to keep the security level as high as possible.
We have two general groups of products. One is for security and anti terror protection. One is for general safety in airports. The hard ware can in some cases be the same and dual purposes are possible.

Many of our productr are protected by patents and patent applications *Datablad nr Airportsec 040311*

LASEROPTRONIX
Maria Bangata 4
118 63 Stockholm
Sweden
Web site www.laseroptronix.com www.laseroptronix.se

Tel: 46-8-58170064
Fax to office: 46-8-58170061
Stockholm Town center south
Mobil 46-70-7140470 Allan Jansson
E-mail laseropt@algonet.se

Main group of products for safety applications.

* *Debris detection systems for runways*
* *Positioning systems for parking aircrafts to gate or any other stop position*
* *Bird and animal detector systems*
* *Automatic identification systems for cars, staff and objects moving in the security controlled area.*
* *Car taggers and positioning systems for increased control of movements of the vehicles of the airport (RFID like solutions with long range)*
* *Illumination systems for airports using new lamp technologies.*

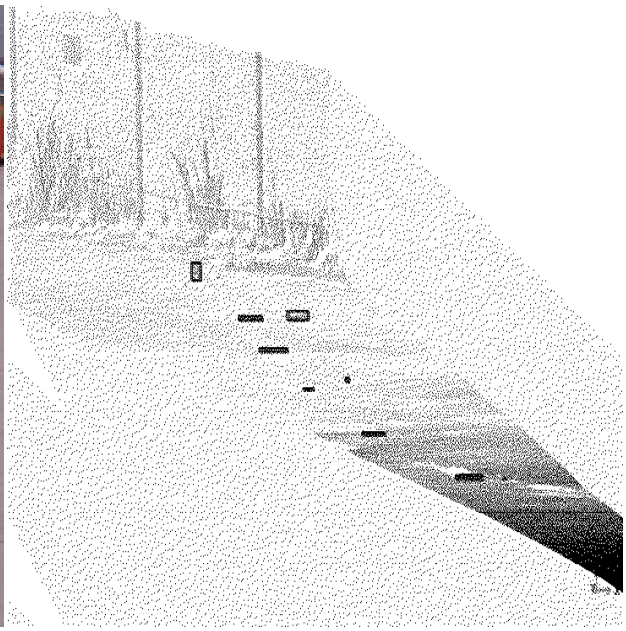
Protectomatic security concept for total security control.

This unique technology was invented by Laseroptronix and is carefully protected by patent applications. This is a combination of special electro optical detectors and a new type of Identity card reader with very long range cooperating in a new way. Sensor fusion is an other name for the principle.

We can check areas in and out doors for all types of movements and we can separate and see which movement carry an ID card and which do not do so. This makes it possible to sort out and find intruders mixed with own staff in an area and to alarm and identify the intruders.

The Protectomatic concept cowers all from small indoor area to complete airport except the areas where all the passengers are as this is to complex to handle.

The Protectomatic can share and have dual use of components used by the other applications we can offer solutions for. Protectomatic alone is the real large step to a far better airport security.



Perimeter protection fences and hard ware.

For this area we have a cooperation partner with very good knowledge in this area since many years. The reference list is very impressive i ncluding many airports with the highest level of safety world wide.
The offered technology includes barriers which are almost impossible to penetrate by cars and commando groups. These products have the best references and installations of all in the market.

Perimeter protection and alarm systems

Laseroptronix and our colleagues in Sweden has developed several new sensors for perimeter protection of large areas like air ports. All systems are based on electro optical effects. For perimeter systems the normal product is a laser barrier. We have 3 general models of these.

**1 Static beams like ordinary photocells. Range can be up to 5000 meter in distance.*

**2 Scanner which scanns a laser beam over an area looking for something penetrating the beamed area. Range can be up to 1000 meter.*

**3 Buried fibre design based on new technology in smart fibre optics.*

The last is capable of detecting the weight of what cause the alarm. It can separate animals like dogs from persons and these from a car. The classification in combination with a point of intrusion makes this very useable. Max fibre length is 20 Km

Area detecting systems for intruders.

Area detection can work in 2D or 3D depending on what system we use. We use 3 different general technologies baser on of different styles laser radar technology.

**1 Laser radar technology giving a full 3D imaging of the checked area. This is a very efficient solution for area control. Ranges up to 200-400 meter is possible over a 360 degree scan.*

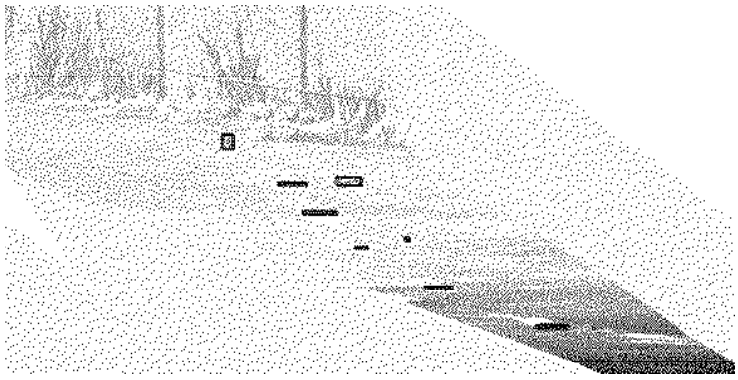
**2 Active gated laser camera systems. These camera gives 3D imaging capability but are limited to night time operation only. Range up to 1000 -1500 meter is possible.*

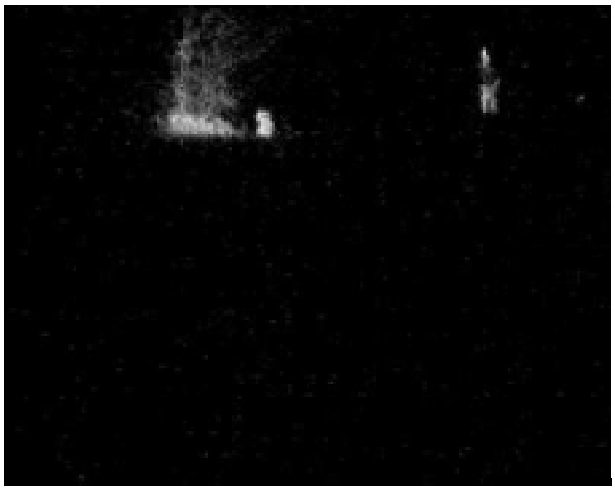
**3 Cameras with image processing. We use different types of cameras for 24 hour operation. Unique is the new 360 degree FOV radial cameras with no moving parts.*

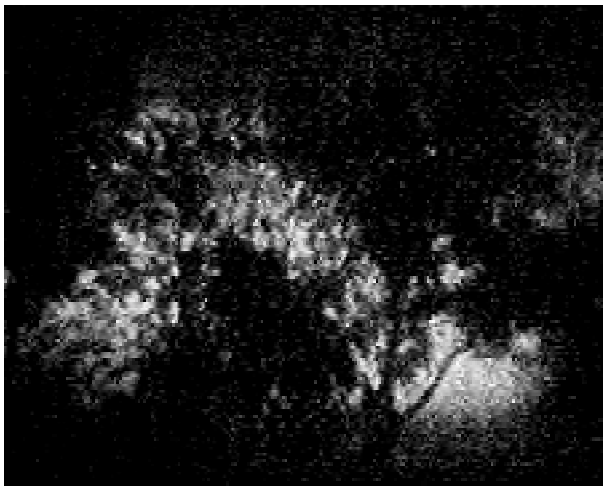
Automatic control systems for detection of people close to parked aircrafts.

New demands in airport safety demands a continuous watch of parked air crafts. If aircrafts are unattended this demands a full and complex security check of the aircraft before take off. This is for checking for hidden bombs etc. in the fuselage.

Laseroptronix uses the same solutions as for area detecting systems to watch for any movement close to the aircraft. The laser radar system do have attractive characteristics for this applications as it is fully insensitive for any colour and ambient light and the beam is invisible.







Active laser cameras and other camera systems for 24 hour operation

The demands in cameras can be very different and by this reason we offer several types of camera solutions. No camera can be fully universal in all applications.

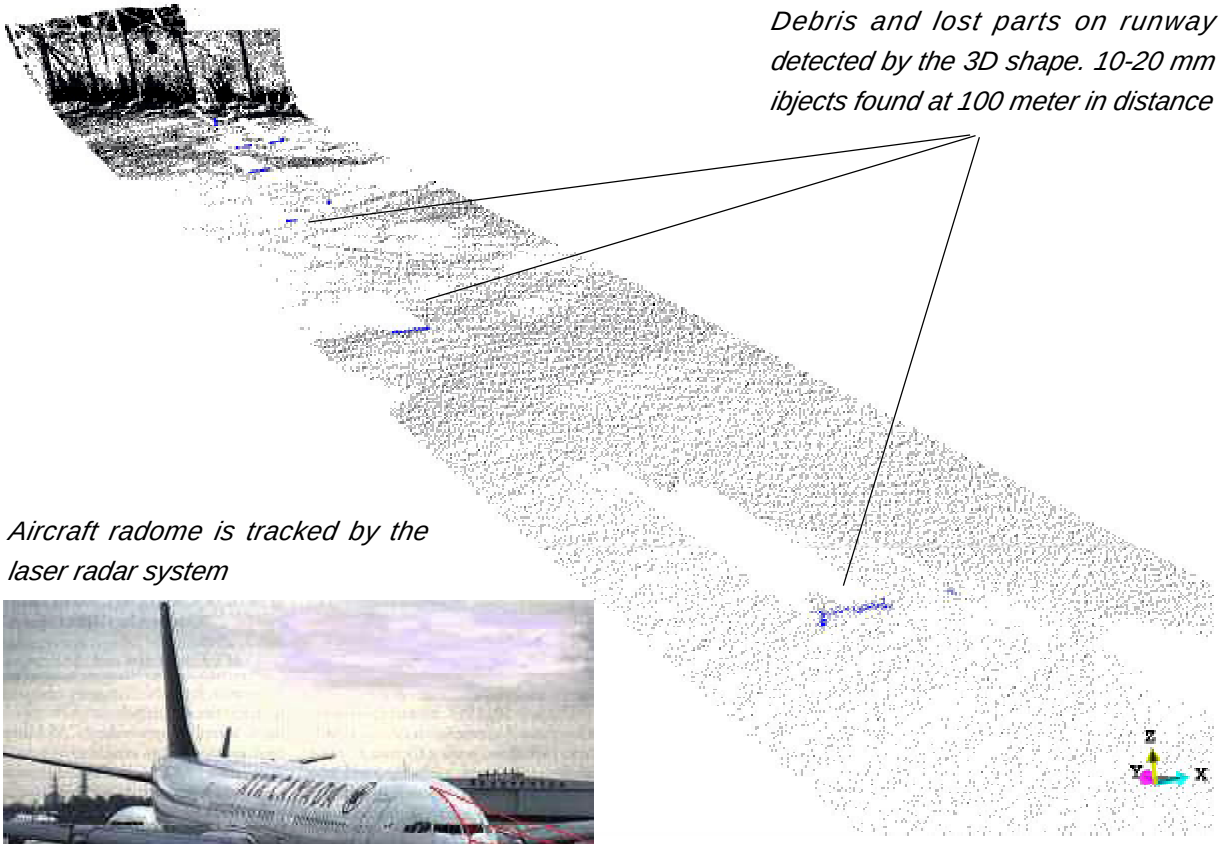
**1 The traditional CCD and C-Mos cameras are used when possible.*

**2 Image intensified cameras are night cameras based on a image intensifier system. They are used when they are the alternative. The limitations in specifications makes them tricky to get efficient in some applications. Laser illumination can be added when it helps.*

**3 Gated laser cameras are state of the art for night vision. Active laser cameras accept point sources of light in field of view with almost no degradation in performance. The laser cameras gives 3D performance and a capability to see through rain, snow and fog up to 2-5 times the range of any other near IR camera. Laser cameras have a 3 D capability of viewed objects.*

**4 Thermal camera systems working in the thermal areas of the spectra. This is between 3 and 12 micron. This is the classical thermal area heat sensing cameras.*

Laseroptronix can also supply all types of accessories to these cameras including wire less options and mobile imaging.



Debris and lost parts on runway detected by the 3D shape. 10-20 mm ibjects found at 100 meter in distance

Aircraft radome is tracked by the laser radar system

Debris detection systems for runways.

The general problem of debris and foreign objects on runways is a large and dangerous problem. Normally this is controlled by a car patrol trawling along the paths and the eye is the detector for dangerous objects which may cause a flat tyre / explosion or a motor damage.

Laseroptronix offers a system based on an electro optical scanner capable of detecting small objects at long range. This is done automatically and continuously between the air craft passages in the area. This system detect no difference between debris and birds in the area. Objects are classified and a camera grab an image which is manually analysed and classified. The system is fully 3D and gives the real position and size of the object on the ground. Static objects like run way illumination can be stored and cause no alarms.

Bird and animal alarm systems

We have special electro optical scanners capable of detecting birds in the air before landing.

This solution works in full sunshine and can see the distance and position of the birds. Output is a camera transmitting an image to the tower and also a relay option.

Through our cooperation partners we can offer solutions for removing the animals from the area based on sound and light combinations.

Positioning systems for aircrafts parking at gate or elsewhere

Our staff has been working in this area since over 10 years and was the original inventor of this idea. We use a laser scanner to define the position of the air craft radome top in distance and if needed in side position.

Long distance Identity card readers and RFID systems

This new system is based in new tagging technology giving a long range in combination with attractive price levels. This solution can give a range of over 200 meter and with special antennas up to 700 meter in range. The cards are smart and can also work as sensors and data storage and communicates over a network over large areas.

The solution is very safe with encryption functions and extremely high security level.

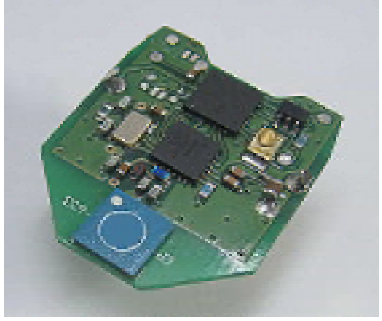
The long range tagging opens the door for new applications. The smart taggs with I/O options makes this a universal control system for other things than persons.

Automatic identification systems for cars, staff and objects

New improvements in electronics is behind the new Protectomatic tagging and ID system. Range of up to 700 meters can be done. When we add external electro optical sensors we can read dimensions and find objects in an area and exactly see where they are in position. When this is combined with our ID tagging system this opens the door for new possibilities.

We can detect and see if the moving object is a man or a car from its dimensions and as card reader can store information we can see if this combination is correct. Card readers can handle 100 objects at same time and as the detector can read and see how many persons it is in an area we can also see if we have a correct response from same number of ID tags. More persons in the filed of view than there are tags says someone have no tag and there is an alarm.

ID tags can be added or hidden in objects of interest and if someone moves the objects there is an alarm. This is done with same system which checks the persons in the area. This gives the Total Security Solution (TSS)



Illumination systems for airports using new lamp technology.

Laseroptronix network includes several partners for new solutions for illumination. All are unique in some way giving advantages normally not available.

Induction lamps

This electrode less lamp is having a HF excited neon gas in a tube. No electrodes etc. gives a life time of typically 100 000 hours. Efficiency is very high and the light have a very good spectra.

Normally these lamps have a E27 soc ket. Powers are from 40 W to 200 W. Many experts see Induction lamps as the future light source for urban illumination applications.

Xenon Lamps and CDM lamps

We offer Xenon and CDM lamps based on arc lamp technology. All lamps have a unique reflector and diffuser optics giving square beams and a very even power distribution over the filed of illumination. The uniform illumination field and square beams makes the efficiency in illumination very good which reduce the power needs to get a good illumination in an area. CDM lamps have life times of typically 16 000 hours. In comparison our 150W CDM lamp gives illumination visibility equal to a 1000 W halogen lamp system.

Led lamps

New developments in LED technology makes the new LED light sources strong enough for general illumination applications. We have solutions based on arrays of high intensity clusters giving a very high illumination level.

Far over 100 000 hours in life time makes this lamp unique. Lamps are available in normal lamp sockets of E14 and E 27 models and special light tube designs. Laseroptronix is now installing lots of flexible light ropes as illumination in garages in Stockholm area and this opens the door for new thinking and more pleasant illumination solutions.

Fluorescent surfaces

Paints with fluorescent characteristics which can store light up to 8 hours. The intensity is suitable for emergency exits etc.

Emergency and escape road marking systems.

We offer new patent protected solutions making escape in an accident easier and simpler. This new marking system is far more logic and simpler to use and cost efficient.

Fire extinguishers and fire protection systems.

One company in our net work is specialized in this area and offer very unique and efficient solutions for stopping fires.

The solutions use non pressurized gas generators to get a power ful blast to stop the fires. Some use a non toxic gas which stops fires and this gas in not dangerous for the environment the body.

Fire retardant colours is a paint stopping and retarding fires by a surface which is getting a foam style insulation layer when hot. There are 3 Models available

* *Wood protection colour stopping fires on wood for up to 90 minutes*
* *Cable and plastic paint for stopping fires in cables up to 60 minutes*
* *Steel protection colour stopping the heat effects on steel structures up to 60 minutes*

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LASEROPTRONIX
Maria Bangata 4
118 63 Stockholm
Sweden
Web site www.laseroptronix.com www.laseroptronix.se

Tel 46-8-58170064
Fax to office: 46-8-58170061
Stockholm Town Centre south
Mobil 46-70-7140470 Allan Jansson
E-mail laseropt@algonet.se