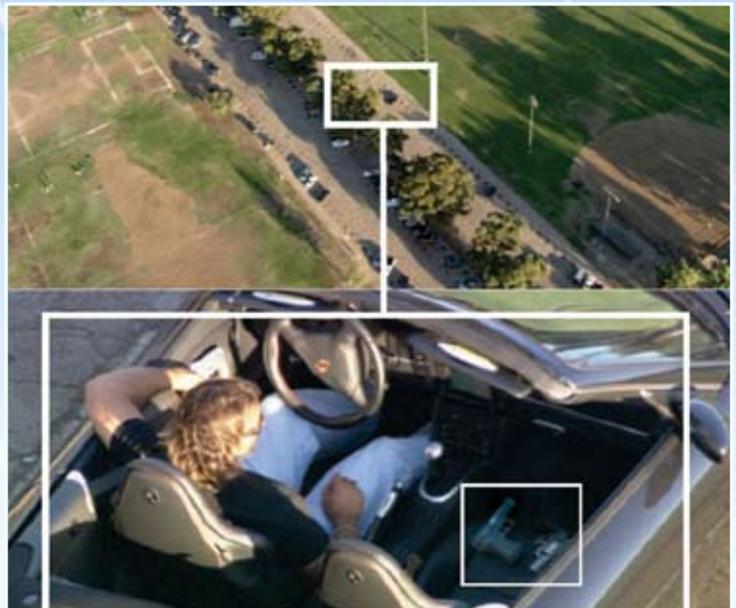


# POLICING

Ultimate stability in national security



# Ultimate stability in national security

Ever since a runner first arrived with a message in a cleft stick, force commanders have needed increasingly sophisticated access to real-time information on which to base their response. It doesn't get better than real-time visual information, and that's an asset that's been readily available for a couple of decades now. But the Cineflex V14 Multi Sensor 2 raises the bar.

This eye chart stands approximately 2m high in a field. The image has been captured from a helicopter flying at 12,000 feet and 12 miles laterally displaced from the target. The helicopter cannot be heard at that distance. Replace the eye chart with a person and he will have no idea that every move he makes is being observed, recorded and down-linked live to a control room.

Bring the helicopter down to a more normal operating height and distance and you will readily achieve ten times the definition in this screen shot. To do this requires an exceptionally long zoom capability, generating extremely high definition images, with the ability to record the results.



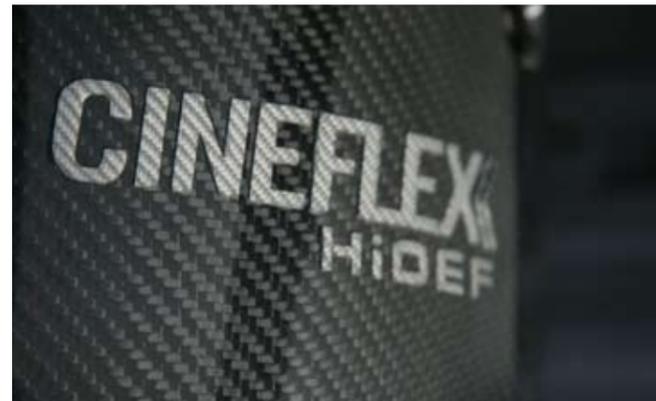
This capability also needs to be available at night and in poor weather conditions. A truly effective suite of sensors must include:

- A gyro stabilised High Definition daylight visual camera system
- A gyro stabilised Infra Red capability with multiple sensor settings.
- The ability to reliably record both of the above.
- The ability to grab still frames from the moving images.
- The ability to transmit a real time compressed version back to Force HQ.



The Cineflex V14 was originally designed to achieve rock steady images from a moving helicopter. When first released in 2005 it immediately became the industry standard as users became aware of just what an enormous step had been taken when compared to the old technologies of competing systems.

In early 2007 the company was bought by Axsys Technologies who brought to the party their wide capabilities in thermal imaging, resulting in the release of the V14 Multi Sensor system (V14MS). Axsys have decades of experience in specialised military and civilian optical systems and were the company who fixed the flaw on the Hubble Space Telescope. They have more recently been chosen as prime optical suppliers for the James Webb Space Telescope, the replacement for Hubble.



First and foremost the issue is stability. Cineflex employs a gyro sensing and feedback system of such supreme accuracy that we haven't yet found its limits. The more stable the platform, the longer the lens that can be used.

The next issue to consider is High Definition. This is a rather over-used expression and is sometimes applied to camera systems that are actually outputting images that have been compressed by a factor of up to 60. Both versions of the Cineflex system use the very latest Sony HDC1500 daylight camera which outputs true 1920 x 1080 High Definition. The implication is enormous and has to be seen to be truly appreciated. (A standard definition video monitor uses only around a quarter of this number of pixels).



So once you combine absolute stability, a very long lens and true High Definition you are beginning to get into the realms of science fiction. For example the Angenieux 40 x 22mm lens will zoom in to 880mm. There is then an optical doubler that can be selected, to immediately extend the range to 1760mm. The further capability to execute digital doubling in-camera takes the lens out to an unbelievable 3,520mm.

With the optional Auto Tracker a moving target can be bracketed and the equipment will then automatically track the gimbal to keep that target in the middle of the frame with the operator's hands off the gimbal controls. The Frame Grabber included in the Digital Video Recorder makes allowance for later reference and use in evidence.

This man below would be surprised to learn that we can read his computer screen from a helicopter that he hasn't noticed yet. One of the benefits of true High Definition imagery (as opposed to images that have been manipulated after capture) is the remarkable clarity in low light conditions .



We now move to the Infra Red sensor which sits alongside the daylight camera. At a definition of 640 x 512 and an operating wavelength of 3 - 5 nanometres this is the perfect surveillance sensor for operations in poor visibility or at night. For example the thermal signature of a vehicle exhibits properties that are invisible to the human eye.

Questions such as whether the engine of a static vehicle has recently been running, or whether a moving vehicle has only just set off, are easily answered. Switching between the "black hot", "white hot" or colour analysis settings allows for a wide range of information to be gathered, by day or by night. Once again this information can be fed to a video recorder to provide evidence for later prosecution.

With the Cineflex V14MS2 the daylight image and the IR image can either be viewed on separate monitors, viewed as "picture in picture" on one monitor, viewed side by side, or even overlaid and "fused" together. Imagine asking the IR layer to only make itself visible on screen when it sees something whose temperature exceeds a selected level.

Of course the IR imager also adds Search and Rescue (SAR) and disaster relief to the role capability of the helicopter. A warm body will immediately stand out from its surroundings whether that be the water in which they are floating or the undergrowth under which they are sheltering.



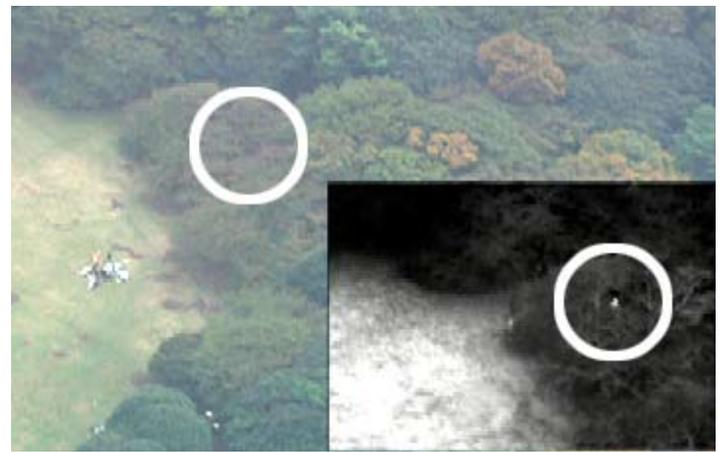
So what can a Cineflex bring to the subject of Airborne Law Enforcement and National Security Operations?

You cannot hide from an IR sensor and the days of camouflaging yourself in undergrowth have now disappeared, as this illustration clearly shows. The main daylight picture gives no hint of the man hiding beneath the tree cover but the simultaneous Infra red image (in this case set to "white hot") clearly shows his location.

With the Geo Pointing option the MS2 is able to reconcile the position and movement of the aircraft with the direction and elevation of the camera, in order to automatically direct the camera to a Lat/Long position on the surface. Conversely, throughout all operations the system is recording a metadata file with positional and camera settings information.



Ultimate  
stability  
in national  
security



Other options to think about as part of your ultimate Multi Sensor package are:-

### **Laser Pointer...**

compatible with NVG (Night Vision Goggles).

### **Laser Rangefinder...**

with an effective range of 50metres – 20kms.

### **Moving Map System...**

fully integrated with your existing GIS.

### **Night Sun interface...**

and slaving to the camera.

### **Microwave Control Package...**

to maintain optimum signal back to Force HQ.

Although the Cineflex was originally designed for helicopter applications it's now been proved to be just as effective working from vessels and vehicles. In both circumstances the stability has defied belief. The off-road vehicle shown above can take the Cineflex on the roof, the rear pan or the front of the vehicle.

The totally sealed unit is tested by water immersion during manufacture. We've illustrated a temporary attachment to a locally commandeered vessel. Turn up with the Cineflex system in flight cases and be ready to go. 28v power is all you need to be supplied with.

The roles performed by Cineflex V14 Multi Sensors are expanding every day as the system is rapidly being adopted universally by law enforcement agencies and security forces around the globe.

Helifilms Australia is proud to be the exclusive distributors throughout Australia, New Zealand, SE Asia and South Africa. With thirty years of aerial camera experience under our belt, in roles ranging across all military and civilian applications, we think we know a good product when we see one!