

Electrical Grid

Long lenses for safe power lines



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Since the early 60's the power transmission industry has embraced aerial surveys as an efficient and effective way of patrolling their assets, both for regular scheduled patrols and in times of emergency. The Mark 2 Cineflex Multi Sensor camera system (Cineflex MS2) now brings a quantum leap in the benefits, and they can all be summed up in one word.....SAFETY.

- Hugely increased stand-off distances translate into a safer flying environment.
- Full High Definition daylight images introduce more comprehensive detection of faults.
- Quadrupling of the Infra Red camera image pixel definition significantly improves hot-spot detection, thoroughly reducing the danger of fire and network break down.

The Cineflex V14 was 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.



Helicopter operators with a serious involvement in the patrol and inspection of distribution networks are finding that the Cineflex MS2 brings them extra work that previously would have been unthinkable. They are now able to cover areas that were previously subject to flight restrictions such as animal avoidance areas, air traffic restricted areas and areas of dense population.




Would your current technique have found this birds nest...
....from this height and distance?

The Cineflex MS2 minimises the nuisance factor caused to residents along the inspection path by allowing flights to be conducted from a greater height. The weather factor is also significantly improved as flights can continue in wind strengths and turbulence levels that would previously have reduced the effectiveness of the inspection, or curtailed the inspection altogether.

Images like those seen here are enabling skilled observers to assess the condition of the conductor, to look for signs of rust or arcing, and to check that all bolts and split pins are securely in place. With additional digital enhancement available in the helicopter the professional linesman can make an even more detailed analysis.

The extraordinary fact is that the image on the left originated from a helicopter flying at 1,000 feet above the ground and 1 km laterally displaced from the power line being inspected. (Our demonstration DVD features more astonishing zooms like this one).

The further surprise is that no post analysis is required. When a fault is found the image is exported straight to the linesman's laptop, the GPS position (of the lens, not the helicopter) is recorded and instantaneously converted to a pole number from the grid database. The linesman enters a fault code, together with a few specific notes on his own observation. The fault is then safely filed as part of the overall report made, in this case by Australian experts Aeropower, to their client.

In 2006 one of the principal electricity distributors in the United States, Southern California Edison, were loaned a Mark 1 demonstration system ... they never gave it back! Not only had they instantaneously doubled their fault detection rate but they had been able to do so from heights that completely eliminated the chance of ever losing another helicopter to a wire strike. Safe crews and doubled productivity meant they simply couldn't afford to be without a Cineflex.

In early 2007 Cineflex 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.

At the end of 2007 the Multi Sensor Mark 2 (MS2) was introduced bringing:-

- stabilisation to the roll axis.
- an increase in the IR definition to 640 x 512 pixels.
- a Sony HDC1500 HD daylight camera.
- a fully customisable suite of enhancements from Troll Systems.



This report is available from the moment that the helicopter lands, but could even be down-linked live to a control centre if emergency conditions demand an immediate response.

It only takes the loss of one tiny split pin to bring an entire electricity distribution system to its knees. Even if loss of life is avoided and no bush fire starts, the economic effects on the generating company, the transmission company and the businesses they serve can be catastrophic. Prevention is always better than cure.

The Cineflex MS2 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.

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

The other 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). Once you combine absolute stability, a very long lens and true High Definition you are beginning to get into the realms of science fiction.

As exclusive distributors of the Cineflex product range throughout Australasia Helifilms recommend that you speak to Aeropower about aerial inspections and patrols of your power distribution systems. In the Cineflex V14 Multi Sensor 2 they have the best equipment available today and the expertise to use it to its fullest potential.

We are also currently conducting trials into the aerial detection of termites and other wood pole infestations that can bring down live lines into tinder dry forests. Early indications are that the Cineflex MS2 is more than up to the task.

We'd be glad to share our experiences with you and we'd particularly welcome the chance of a "fly-off" demonstration up against your existing aerial camera system, or any other you may be considering. We do so with the confidence that once you've seen what the MS2 can do you'll be unable to turn your back on the exponential improvement in SAFETY.

