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# EMBEDDED IMAGE PERISCOPE FOR DRS THERMAL CAMERAS



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As an option to a standard driver's rugged display monitor DRS offers the option of Kent Periscopes' Embedded Image Periscope (EIP). The EIP allows for daytime viewing, while also allowing digital images from a DRS thermal camera to be displayed internally within the periscope.

The new EIP product consists of a standard periscope upper assembly and compact lower assembly with a standard single lower viewing window.

The EIP provides standard unity vision periscope functionality for normal daytime viewing of the vehicle surroundings plus the ability to display digital images from an on-vehicle thermal camera (including thermal and low light). The resulting image appears "embedded" internally within the unit and projected at a comfortable viewing position.

As a result, the EIP represents an extremely attractive night driving solution for users. In addition, the EIP allows the user to instantly switch to the digital image for enhanced daytime viewing where normal vision is obscured by smoke or dust.

The EIP eliminates the need for separate monitors or alternative "bolt on" or "swap in" night-vision solutions, freeing up space in the typically cramped driver's position. The displayed image can also be output via the thermal camera control unit to a secondary display or into a vehicle

video switching system such as the DRS iVIS or Omniscope video handling systems.

- A "standalone" and "leave alone" enhanced vision driving solution
- Eliminates the need for additional monitors or "bolt on" or "swap in" night vision solutions
- Ability to display images from a variety of DRS thermal cameras
- Image can be routed to a second display or to DRS iVIS or Omniscope video handling sub-systems
- Provides a high quality (640 x 480 resolution), flat bi-ocular displayed image projected away from the user
- Displayed images are viewed in a relaxed manner, without the need for the user to press their head up to the unit, or move their head to see the displayed image



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The EIP is designed to be modular and as a result is available with a range of upper periscope assembly options to fit either new vehicle requirements or provide a direct replacement for current in-service solutions.

The EIP employs an integral VGA display whose output is manipulated by aspheric and diffractive optics, providing bi-ocular viewing. The resulting displayed images are magnified, flat and projected away from the user at the optimum "night vision" focal distance – providing a relaxed view of the image in the normal optical path, without the need for the user to press their head up against the unit. The product is designed for installation with an external control box used to manage the power and digital video feeds – allowing the user to switch between multiple sensors and tune the image, for example with thermal images to adjust the gain and select whether the image is black or white hot.



Control Unit



Image from DRS' thermal camera

Note the EIP works with any of the DRS Thermal Cameras (shown below).



40° x 30° FOV



114° x 98° FOV



40° x 30° FOV



3 x 40° x 30° FOV electronically stitched to provide seamless 107 x 30 video