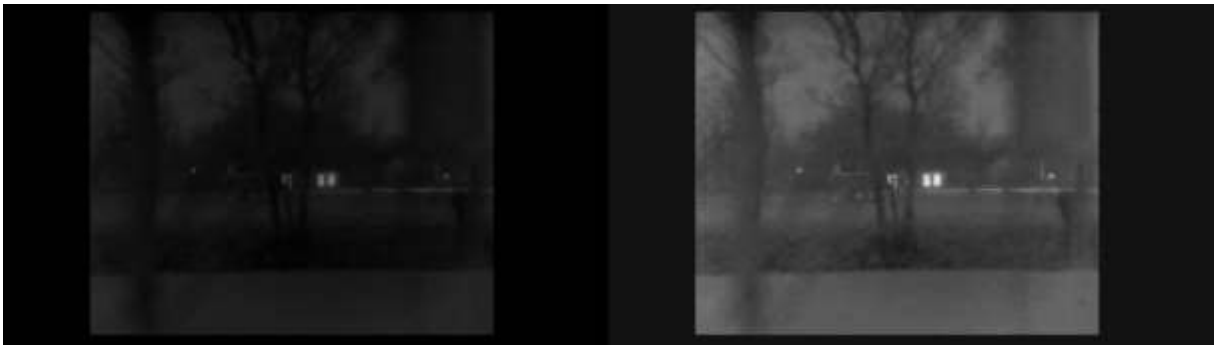
Virtual Iris™

Since the introduction of the image intensifier tube, it has been mainly used in night vision goggles and weapon sights. Because of the performance, low power consumption and reasonable small form factor this will probably remain for many years, even though we are marching towards the full digital battlefield. Digital night vision has evolved but still it is unable to reach the performance of legacy image intensifier tubes in both power consumption and dynamic range. CMOS sensors are becoming more sensitive than ever and also colour performance is increasing down to light levels we have never seen before. But still, if you desire to obtain the sensitivity of a tube in digital systems you either have the choice of integrating really expensive sensors or digitize the tube signal. is the latter is what ITS has been doing and it has resulted in an innovative camera line, called Pulsatrix™. With this camera(core) digital video with the sensitivity of a tube is available to end users, OEM's and systems integrators.

In the dynamic battlefield environment, the most important feature of tubes in wearable systems is the auto gating. This prevents the tube getting damaged by bright light situations, during explosions or urban warfare. Soldiers can also simply turn their heads away from the light source but the extremely fast auto gating will prevent the tube from burn in damage. Therefore if you want to use the image intensified camera for surveillance purposes, driver vision aids, targeting systems and utilize the digital output for integration in the digital battlefield the "normal auto gating" will not be sufficient anymore. ITS has developed Virtual Iris™ to overcome the fact that some situations require the tube to be exposed to bright light longer than traditional use of the image intensifier.



Boat at 2km and house at 3km Virtual Iris™ protecting the tube and ShadowBoost™ improving the contrast. ShadowBoost™ activated on the right. Recorded during overcast dusk with 600mm Nikon f4.0 lens connected to Pulsatrix™ camera.

Our in house developed High Voltage power supplies feature unique and innovative algorithms that drive the tube in a way an iris reacts to high light situations. Combined with our powerful ShadowBoost™ technology the Pulsatrix™ camera line has the ability to see contrasts and protect itself against light exposure in a way the human eye does. This system opens up new possibilities for image intensifiers like integration into camera systems.

Night vision has a lot of benefits over thermal, e.g. the ability to "look through glass" or detecting lights, recognition and identification of combatants etc. Also it requires less training and concentration to drive on night vision systems instead of thermal systems. Operators prefer driving with goggles over driving on thermal since critical terrain details are not disclosed by thermal. In the maritime domain, detection and identification of navigational lights, ships lights etc is guaranteed if night vision systems are being used.

Fishing boat at 500mtrs, overcast starlight with Pulsatrix camera.
Exposure to bright light countered by Virtual Iris™

So now there is an opportunity for the industry to integrate digital night vision with image intensified performance instead of thermal. Resulting in less training stress, easy operation and more speed on the battlefield. For easy and smart fusion with other sensors and battlefield information systems, protected with Virtual Iris™.

For more information about our products and technology visit: www.its-hightech.nl mailto: info@its-hightech.nl or give us a call: 0031 (0) 512212410