

Nautitech's GM Alex Lester
with the Innovation Award at the
2015 Queensland Mining Industry
Health and Safety Conference.

(ADVERTORIAL)



HIGH TEMPERATURES IMPROVE SAFETY UNDERGROUND?

The last thing an underground coal miner wants is something in the mine that's hotter than it should be. And for very good reason - excessive heat can lead to the f-word (fire). One company however has succeeded in actually improving safety by allowing the miners to visualise the temperature differences of objects as they move throughout the mine. We all know thermal imaging has been around for a while, so what's so hot about these latest applications?

The issue challenging underground mining operations is the environmental limitations that come with being underground in confined areas including darkness, dust, water spray mist and restricted machine 'line of site'. These conditions expose employees to the risk of crushing, pinning or being run over causing serious injury or death.

Thermal imaging technology is able to provide additional visibility in blind spots without being obstructed by these adverse environmental conditions. The cameras can be installed on mobile machines such as shuttle cars and have already produced significant improvements in visibility and driver confidence. This is because the thermal image of personnel provides immediate clarity without the need to continually focus on the displays. As a result of its success, the technology won a major global safety innovation award in 2014, and the 2015 Innovation Award at the Queensland Mining Industry Health and Safety Conference.

HOW IT WORKS

Thermal cameras detect heat instead of light, the advantage of this is a clearer display of people, machines, cables and other warm objects in areas that are in darkness, or shrouded by dust, heat or steam. A driver's range of vision using just his headlights is limited to approximately 20 meters. Whereas the Thermal camera can detect the heat signature of a person 500 meters away. The camera can also record for up to 72 hours, meaning if there is an incident or near incident it can be investigated fully using the video from the data logger to assist the investigators to identify the root cause.

The damage that is usually caused by vehicles running over trailing cables or hitting other infrastructure can be avoided because these objects are normally relatively warm and will be illuminated on the drivers thermal camera screen. These incidents can often lead to the possibility of arcing (from a cable impact), expensive cable repair work, and downtime. Without thermal imaging, the actual root cause is more difficult to establish.

Additionally, an IP enabled version of the thermal camera is now available. This means employees can view live thermal video on the mines surface or anywhere on their mine sites Ethernet network for easy monitoring and recording. Connection to the network is possible via either power-line modem or Wi-Fi router.

APPLICATIONS

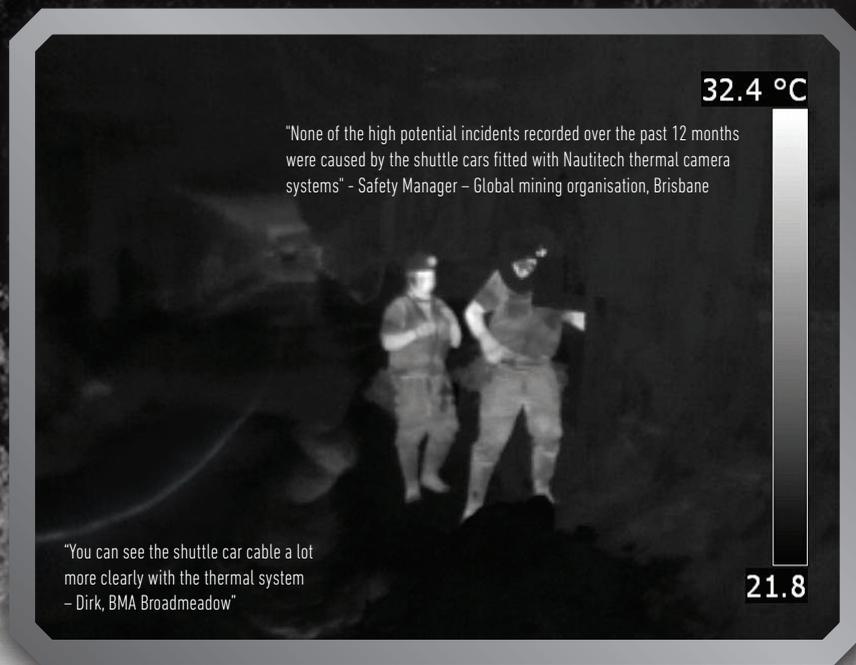
So far the thermal cameras have mainly been used to improve mobile machine visibility for machines such as shuttle cars, loaders, graders, man transporters or shearer carriers. However they can also be positioned near the gate-end for monitoring of the seam or for conveyor belt / FCT monitoring such as checking for hot rollers and uneven belt loading. Above ground, the cameras can be used for monitoring stock pile temperatures and general monitoring of any industrial equipment that is located in hazardous or potentially explosive areas.

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THERMALCAMERA

by NAUTITECH



SHUTTLE CAR THERMAL CAMERA SYSTEM



Visibility is ruthlessly compromised in underground coal mines - there is darkness, dust, water spray mist and restricted 'line of site'. As a result, shuttle car operators cannot always see what's around them and this can cause dangerous and expensive collisions.

Nautitech's thermal camera system allows shuttle operators to see people, cables and equipment by detecting their heat signature. The systems are Ex d certified (IECEX, ATEX, MASC), IP enabled (stream video to the surface), and are already in place at more than ten underground coal mine sites in Australia.

THERMAL CAMERA APPLICATIONS

- Mobile machines such as shuttle cars, loaders and graders for increased visibility of pedestrians, particularly in blind spots
- Increased visibility of the mobile machines trailing cable so that the potential for expensive cable impacts and dangerous arcing can be reduced
- Positioned near the gate-end for monitoring of the seam
- Conveyor belt / FCT monitoring such as checking for hot rollers and uneven belt loading
- Monitoring stock pile temperatures
- General monitoring of any industrial equipment that is located in darkness, dust, heat or steam.

Please visit this link for videos, technical specs, dimensions and approvals
nautitech.com.au/thermal-camera.

IECEX: IECEX ITA 12.0007X

ATEX: FM13ATEX0088X

MASC: MASC MSJ/14-0066X



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