Hikvision Mobile CCTV Solution for Mining Sector

Keeping miners safe throughout their shifts and beyond

HIKVISION®

Background

The mining industry increasingly leverages advanced video surveillance technologies to enhance safety, operational efficiency, and security. Modern surveillance systems are now equipped with deep-learning analytics that can identify various objects, such as monitoring driver alertness, watching for obstacles ahead or managing speeding in a hazardous area. This not only protects workers but also minimizes costly operational stoppages resulting from safety incidents.

Poor visibility is a common issue in mining operations, often exacerbated by low light and dust. Advanced surveillance cameras equipped with infrared and wide dynamic range capabilities can capture clear images in near-darkness and handle environments with both very bright and dark areas. On-board cameras, often integrated with Infrared imaging, help operators navigate through dust clouds, which pose visibility challenges and health risks.

Surveillance technologies also aid in proactive maintenance and operational efficiency. Monitoring hours run and kilometres travelled, convert the camera system into a light telematics capability. Integrating the camera into the vehicle's diagnostic network can also provide rich data for health monitoring, maintenance and troubleshooting.

Security remains a critical focus for mining operators, given the vast, often remote nature of mining sites. Flexible connectivity and single portal use allows for monitoring stations to have a wide variety of assets feedback alerts, reducing false alarms and enabling swift responses. The integration of network audio systems allows operators to be informed with live warnings that intruders have been detected, effectively deterring criminal activities even from considerable distances.

Modern video surveillance systems are designed to withstand the harsh conditions of mining operations, with ruggedized and IP rated cameras that endure tough environments. Advanced video compression technologies are also employed to optimize bandwidth and storage requirements, making these systems more efficient.

Furthermore, the adoption of open standards facilitates seamless integration between various devices and control systems, enhancing the overall effectiveness of mining operations.

😠 PAIN POINTS

Employee Safety: Ensuring that workers wear the correct personal protective equipment and preventing overcrowding in hazardous areas are significant concerns. Safety incidents can lead to injuries and costly operational stoppages.

Poor Visibility: Mining operations often face poor visibility due to low light conditions, darkness, or dust clouds. This makes it difficult for operators to navigate and increases the risk of accidents.

Driver Alertness: Mining is a tough job. The work conditions are often extreme in terms of temperature, light, air quality, and miners often find themselves exposed to the outdoor elements. Shifts are long and the driving tasks on the mine can be monotonous, driving to and from the mine long and tiring.

Driver Alertness is often impeded by the conditions discussed above. Staying safe is a real challenge.

😊 HIKVISION SOLUTION

Leveraging Technology to Enhance Safety in Mining

Operations:
By integrating advanced camera systems and artificial intelligence, managers can actively monitor and improve driver safety through comprehensive scorecards.

HikCentral Professional's On Board Security route and driver module generates safety scores based on critical factors, including driving hours and the detection of risky events such as excessive G force, speeding, and driver alertness. This proactive approach allows for real-time feedback and targeted interventions, significantly reducing the likelihood of accidents and enhancing overall road safety.

Driver Scorecards can be used to incentivize good driving behaviour which in turn reduces operating costs and improves the company's public profile. These savings could be channeled back into bonus schemes, better training resources. The overall effect is happier and safer employees, lower staff attrition and recruiting costs and therefore a more profitable business.

Mining
Light People Carriers
AI Enabled

A Network Enabled Hikvision system will meet all IVMS requirements for mine sites in Australia.

① AE-VC253T-IT
- Resolution 1080P， 0.01 Lux@ (F1.2AGC ON), 0 Lux with IR
- Colour/IR
- Distance:10-20m
- Ingress protection:IP68
- Metal Case
- Working temperature: -40℃~75
- Dimensions:83.2(L)×46(W)×41.6(H)mm

② AE-VC154T-IT
- AI Features: Fatigue and Distraction
- Frame Rate: 720p@25fps
- Video Output Interface: 4 Pin Analog Interface
- Audio Input: No
- IR Range: 3 Meters
- 52°Lens, 0.01 Lux@(F1.2,AGC ON),0 Lux with IR
- Working temperature: -30 ~85
- Dimensions 66(L)*45(W)*23.5(H)mm

③ AE-VC211T-IRS
- 1080P
- IR Distance: 10m、Built inMIC、100°Lens、Metal Case 0.01 Lux@(F1.2，AGC ON),0 Lux with IR
- Working temperature: -40℃~60℃
- 97(Length)×99.5(Width)×46.6(Height)mm
- May also use: DS-2XM6756G1-IM/ND(2mm)(AE) IPC to increase Number of cameras

④ AE-VC155T
- AI Feature: Lane Fitness, PCW, FCW,
- Posted Speed Detection
- 720P progressive scan CMOS 0.1 lux @ (F1.2, AGC ON)
- Windshield camera

⑤ AE-MD5043
Usual Parameters:
- 2 – 4 TVI Analog Cameras Connected
- 1 – 2 IPC (RJ45)
- 6fps, 1080P, 1024kbps, H265.
- 1TB SSD Installed
- **3/4G module & WIFI module are optional,and need order AE-MP1460 series, may require additional compliance approvals
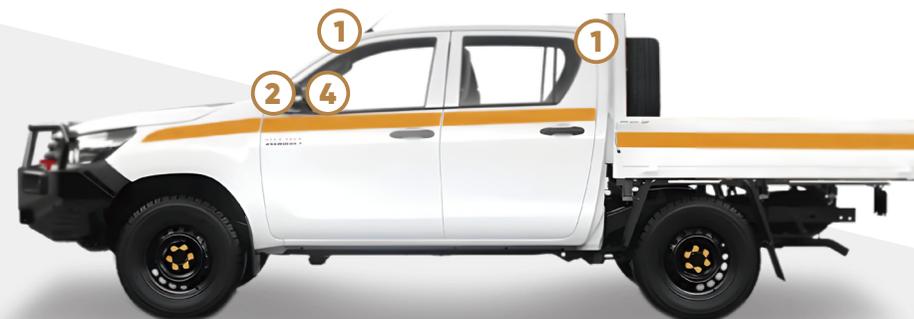
⑥ DS-MP1301
- 7-inch TFT LCD screen
- Real-time live view of the rear-view camera when the vehicle is backing off and other connected camera
- Support 3-ch video input including one channel connecting to the mobile DVR, one channel connecting to the rear-view camera and one reserved channel connecting to the other camera
- Support 2-ch alarm input

Mining
Light People Carriers
AI Enabled

A Network Enabled Hikvision system will meet all IVCS requirements for mine sites in Australia

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Optional - Outside the Cabin

AE-VC153T-IT

- Resolution 720P，0.01 Lux@ (F1.2AGC ON), 0 Lux with IR
- Colour/IR
- Distance IR:15m
- Ingress protection:IP68
- Metal Case
- Working temperature: -40℃~75
- Dimensions:83.2(L)×46(W)×41.6(H)mm

AE-VC124T-IT

- Resolution: 720P
- Full colour, Min. illumination: 0.01 Lux @(F1.2, AGC ON)
- FOV, horizontal FOV 117°, vertical FOV 66°
- Ingress Protection IP68, IK10
- SNR: 42dB
- 9 to 16 VDC

AE-VC143T-ITS

- Progressive scan CMOS to prevent motion image aliasing
- Supports HD resolution 720P
- Min. illumination: 0.1 Lux @(F1.2, AGC ON), 0 Lux with IR
- Supports auto day & night switch
- Shock-proof design

AE-DI2032-G40(B)

- AI Features: Fatigue and Distraction, ADAS, BSD
- Image sensor: Progressive Scan CMOS
- Camera resolution: 1080p
- Frame rate: 1080P@25fps(Default),
- 720P@25fps Horizontal FOV: 127° Vertical FOV: 73° Diagonal FOV: 137°
- Video compression: H.264, H.265
- OSD: overlay Date, Time, GPS, Speed, etc.
- Picture Format: JPEG
- Aperture: F2.1
- Storage:Dual TF Card(up to 256 GB for each)
- Communication module: Wi-Fi, 4G Sensor GPS, Gyroscope
- External Cam TVI input: 2-ch
- Power supply:1, 8-pin BM Male
- Terminal Communication interface: USB 2.0, SIM Card Slot IO interface: 1
- Audio: MIC and Build-in Loudspeaker
- Working temperature: -20℃ to 60 ℃ (-4 °F to 140 °F)
- Working humidity: 0% to 95%
- Power supply: 10V~16V/1.5A 20V~36V/1.5A Buck line included
- Dimension: 123.0 mm×85.0 mm×38.9 mm

Mining
Super Heavy Ultra Class

A Network Enabled Hikvision system will meet all IVCS requirements for mine sites in Australia

Outside the Cabin

AE-VC236T

- AI Feature: Blind Spot Detection
- Resolution: 1080P
- Full color, Min. illumination: 0.01 Lux @(F1.2, AGC ON)
- Wide-angle lens 1 mm, Fisheye, horizontal FOV 202°, vertical FOV 123°
- Ingress Protection IP68&69K, IK10
- SNR: 42dB
- 9 to 16 VDC

AE-VC253T-IT

- Resolution 1080P，0.01 Lux@ (F1.2AGC ON), 0
- Lux with IR
- Colour/IR
- Distance:10-20m
- Ingress protection:IP68
- Metal Case
- Working temperature: -40℃~75
- Dimensions:83.2(L)×46(W)×41.6(H)mm

Inside the Cabin

AE-VC259T-S

- 1080P, Full color, Front Vehicle-Mounted Camera
- Min. illumination: 0.01 Lux @(F1.2, AGC ON)
- Wide-angle lens, 2.1 mm, horizontal FOV 110°, vertical FOV 59°
- SNR: 42dB,9 to 16 VDC
- With built-in mic

AE-MD5043

Usual Parameters:
- 2 – 4 TVI Analog Cameras Connected
- 1 – 2 IPC (RJ45)
- 6fps, 1080P, 1024kbps, H265.
- 1TB SSD Installed
  **3/4G module & WIFI module are optional,and need order AE-MP1460 series, may require additional compliance approvals

DS-MP1301

- 7-inch TFT LCD screen
- Real-time live view of the rear-view camera when the vehicle is backing off and other connected camera
- Support 3-ch video input including one channel connecting to the mobile DVR, one channel connecting to the rear-view camera and one reserved channel connecting to the other camera

Mining
Dozer

A Network Enabled Hikvision system will meet all IVCS requirements for mine sites in Australia

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Blind Spot Camera
AE-VC236T-IT

Placed on the windscreen supported with Blind Spot Detection AI.

Analog Camera
AE-VA236A(BMW)

Fisheye Ultra wide angle camera used for 360o view assist.

Network Enabled 8 Chan Hybrid NVR
AE-MH0804 (1TB)

- Placed in the Cab, the DVR is concealed from tampering.
- Records and processes 8 analogue channels and 4 IP Camera channels to up to 4 TB SSDs.
- Ethernet/4G/WIFI connectivity back to Hik Connect provides the User great access to data and video on demand.

Forward View
AE-VC253T-IT

Two Cameras mounted on Lighting towers provide a panoramic view over the front of the blade.

Live Video
DS-MP1301

Analogue Video output from DVR fed to 7inc Monitor for video and telemetry display.

360° View Assist
Video Out to Monitor

2D and 3D views stitched together from fisheye cameras on side and rear of vehicle.

Product Features

Driver Behaviour Analysis

Hikvision's AI processing accurately detects Distraction and Alertness through the use of pattern matching, Per Close techniques and facial recognition algorithms. The Hikvision AI can detect, Sleepiness, Yawning, smoking, food and drink, handheld device.

Forward and Pedestrian Collision Warning

Hikvision's AI processing accurately detects oncoming obstacles such as other vehicles, cycles and people, alerting the driver through audible warnings. Sensitivity can be set.

Blind Spot Detection

Hikvision's AI processing accurately detects obstacles such as other vehicles, cycles and people to the side and rear of the vehicle while it is moving, alerting the driver through audible warnings. Sensitivity can be set.

Speeding and G-force Alerts

The MDVR includes internal GPS and G-Force Sensors to alert for speeding (configurable threshold and posted speed and geo-fence rules) and G-force threshold non compliance. Events, email alerts can be created for near real time notifications.

Robust Wide Range Power Supply

Hikvision included a Super-cap array, supporting a wide range (9- 36VDC) power supply to it's Mobile range, this protects memory and camera electronics from corruption and failure.

Conforms to ISO Standards

Complies with electro-magnetic compatibility standards ISO 7605, shock and vibration testing to EN50155 and many other local and international standards making it one of the most robust platforms on the market today.

No Break Power off Recording

The first Mobile DVR to add this technology, ensures no video is lost if the power is cut off. This is achieved with a Super-cap array.

Robust Design Suited to Mobile Applications

The MDVR includes internal GPS and G-Force Sensors to alert for speeding (configurable threshold and posted speed and geo-fence rules) and G-force threshold non compliance. Events, email alerts can be created for near real time notifications.

Product Information

4-Channel MDVR

AE-MD5043

- 4-ch TVI + 4-ch 5MP IPC via PoE switch
- Pluggable anti-vibration SSD box , 2 x 2.5 inch HDD/ SSD (2TB for each) ,1 x SD card
- 3G/4G, 5.8G WiFi, GNSS GPS,
- H.265 compression AES128 Encryption
- 9 – 36VDC ≤ 45 Watts (800mA with 4 cams)
- 206 × 219 × 60 mm (8.1 × 8.62 × 2.36 inch)
- 1.6 kg (3.5 lb)
- CE, FCC, EN50155, EN45545, EN50121, E-mark, CB, RoHS, WEEE

MDVR

Status Panel G-Force Sensor

DS-1530HMI

- Three colour Status LED
- Build-in Gyroscope and Sensor
- Emergency Button
- Built-in IR Sensor for Remote Control
- 80mm * 30mm* 19mm

Status

Buzzer/Loud Speaker

AE-MW7601

- Built-in 8Ω 5W speaker, the volume up to110 dB
- Supports multiple alarms (LED, Beeps, Messages)
- RS485 interface
- IP69K
- 5-Pin aviation connector
- 3.8"(L) × 1.7"(W) × 5.0"(H)

Buzzer

360° Assist View Monitor

AE-VE242A-A

- Support 4 channels of 720p TVI cameras
- 3D panoramic splice the front, rear, left and right images of the vehicle body
- 4-way HDTVI input, 1-way HDTVI output
- TF Card Slot
- IR Remote Control or HAT-360 App

360 AVM

Monitor

DS-MP1301(AE) 7 inch Monitor
DS-MP1302(AE) 7 inch Touch Screen

- 7-inch TFT LCD
- Real-time live view switched by analog signal inputs 2-ch alarm input
- 3-ch video input including one channel connecting to the mobile DVR,
- Bracket or dash mounted

MONITOR

Outdoor Analog

- Progressive scan CMOS Up to 720P resolution
- Low illumination, 0.1 lux @ (F1.2, AGC ON), 0 lux with IR
- Supports auto electronic day & night switch
- Supports auto white balance
- Supports left & right mirror mode
- IP 68 protection level

AE-VC153T-IT (720P)(2.8mm)

AE-VC124T-IT (1080P) (2.1mm)

AE-VC253T-IT (1080P)(2.1mm, 2.8mm)

AE-VC224T-IT (1080P) (2.1mm, 2.8mm, 3.6mm)

Road-View Analog (ADAS)

- Adopts progressive scan CMOS to prevent motion image aliasing
- 1080P 2MP 2.8mm Lens
- Supports highlight compensation
- Adopts automatic white balance
- Shock-proof design and aviation plug
- Supports built-in mic
- Supports DVR AI for ADAS

AE-VC155T 2.1MM AE-VC259T-S 2.1MM

Internal Cameras with Driver Behaviour Analysis (DSM)

- Adapts progressive scan CMOS
- Up to 720P resolution 2MP 6mm Lens
- 0.1 lux @ (F1.2, AGC ON), 0 lux with IR
- Shock-proof design and 4-pin DIN connector
- Supports DVR DBA AI Algorithms

AE-VC154T-IT AE-VC2521T-IT

Internal Cameras

- Adapts progressive scan CMOS
- Up to 1080P resolution 2MP 6mm Lens
- 0.1 lux @ (F1.2, AGC ON), 0 lux with IR
- Shock-proof design and 4-pin DIN connector

AE-VC211T-ITS AE-VC143T-IT

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