

MineIQ

Coal-Handling Intelligence & Commercial Assurance

See every tonne. Validate every claim. Control every cost.



EXECUTIVE SUMMARY

MineIQ is AI Asterion's coal-handling contractor intelligence and commercial assurance platform. It unites field telemetry, live production dashboards and a contract-assurance engine into one decision layer — from the pit face to the payment run.



-  MineSense field loggers capture position, motion, vibration, temperature, moisture and optional vehicle-network data straight from working equipment.
-  Production, material-flow, utilisation, cycle-time, fuel and maintenance dashboards turn that data into operational truth.
-  A contract-entitlement and invoice-assurance engine checks every claim against telemetry, asset identity and contract rules.
-  Ten automated invoice controls, a findings workflow and a benefits tracker protect spend and evidence savings.

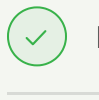
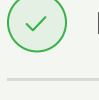


WHAT MINEIQ ENABLES

- 1 Live production and material-flow visibility, pit to stockyard
- 2 Equipment utilisation, cycle-time and rehandling intelligence
- 3 Fuel, maintenance and reliability tracking by machine
- 4 Contract entitlement mapped to authorised and delivered work
- 5 Automated invoice assurance across ten controls
- 6 Forecasting, supplier scoring and validated-savings tracking



OUTCOMES FOR MANAGEMENT

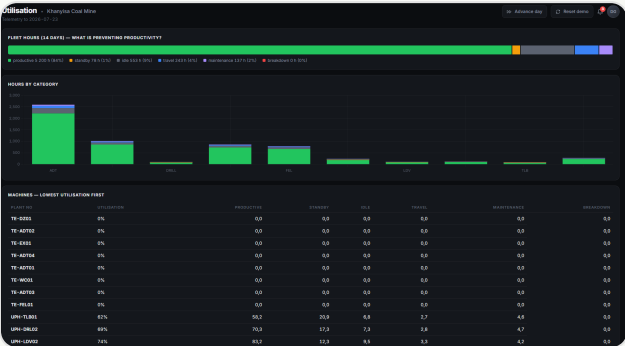
-  Reduced overbilling and duplicate-charge risk
-  Higher utilisation of paid contractor fleet
-  Faster response to bottlenecks and rehandling
-  Auditable evidence behind every commercial decision

Operational Truth, Pit to Payment

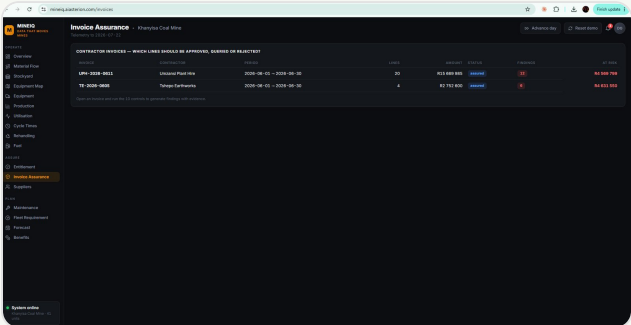
MinelQ turns equipment telemetry into decisions across production, cost and contract.
World-class operations run haul-truck availability above 90% and utilisation above 80%
— MinelQ shows you exactly where you stand.



1 Executive Control



2 Material Flow



3 Utilisation

DASHBOARD

DECISION ENABLED

1



Executive control centre
Tonnes, spend, cost/tonne, active fleet and savings

→ Is the operation under control?

2



Material-flow map
Live source-to-destination movement and routes

→ Where is coal moving, and where are constraints?

3



Stockyard view
Capacity, build/reclaim rate, stockpile age and volume

→ Which stockpiles need intervention?

4



Equipment map
Live location, status, operator and assigned task

→ Is each paid machine on site and working?

5



Utilisation
Productive, standby, idle, travel and breakdown hours

→ What is limiting productivity?

6



Cycle-time view
Load, travel, queue, dump and return times

→ Where are the process delays?

DASHBOARD

DECISION ENABLED

7



Production view
Tonnes by shift, machine, route and material

→ What was delivered, and by whom?

8



Fuel view
Litres per hour and per tonne, with exceptions

→ Is fuel use consistent with activity?

9



Maintenance view
Availability, breakdowns, MTBF and MTTR

→ Is fleet reliability adequate?

10



Contract entitlement
Contract rule, authorised, delivered and rate

→ What may validly be paid?

11



Invoice assurance
Ten controls, findings and evidence refs

→ Approve, query or reject each line?

12



Benefits tracker
Validated savings, recovery and operational gains

→ Is the intervention delivering value?

 CORE DECISIONS SUPPORTED

 Control tonnes and spend

 Expose bottlenecks and rehandling

 Align paid fleet to demand

 Validate claims before payment

 Track validated savings



Continuous Intelligence, Without Changing the Machine

MineSense Field Telemetry Logger

A rugged, battery-powered field logger that captures position, acceleration, vibration, temperature, moisture and optional vehicle-network data from working mining equipment — stored locally for analysis, with no change to the machine.

14 days target autonomous runtime	30 Ah LiFePO4 battery pack	128 GB industrial microSD storage	IP67 target enclosure rating
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 BUILT FOR THE PIT

Housed in a sealed, impact-resistant flight case with pressure equalisation, gasket seal and lockable latches.

-  Multi-constellation GNSS: time, position, speed, heading and route history
-  3-axis accelerometer and gyroscope with impact and movement event detection
-  Configurable high-rate vibration sampling with RMS, peak and event capture
-  Internal temperature and humidity, with optional external probes
-  GNSS-disciplined time and a battery-backed real-time clock



Data Acquisition & Standards

Standard channels, optional integration modules and a compliance position confirmed against recognised international standards.



STANDARD DATA CHANNELS

- 1

Position — multi-constellation GNSS/GPS
- 2

Motion — 3-axis accelerometer and gyroscope
- 3

Vibration — high-rate RMS, peak and event capture
- 4

Environment — temperature and relative humidity
- 5

Logging — timestamped CSV, JSON or binary, daily rotation
- 6

Timekeeping — GNSS-disciplined with battery-backed RTC



OPTIONAL INTEGRATION MODULES

- ✓

Wireless OBD-II for compatible light vehicles
- ✓

Isolated CAN / SAE J1939 for heavy equipment (OEM-
authorised)
- ✓

Bluetooth Low Energy / Wi-Fi service interface
- ✓

Sealed external-sensor ports and 12/24 V vehicle power

STANDARD / AREA		COMPLIANCE POSITION
1	 Ingress protection IEC 60529 / ISO 20653	→ Target IP67, case closed with rated caps fitted
2	 Vehicle environmental loads ISO 16750 series	→ Verification basis for electrical, mechanical and climatic loads
3	 Vibration and shock ISO 16750-3 / IEC 60068-2	→ Mounting-specific vibration, shock and drop testing
4	 Climatic exposure ISO 16750-4 / IEC 60068-2	→ Temperature cycling, damp heat and condensation
5	 Battery safety IEC 62619:2022	→ Industrial lithium pack and BMS; UN 38.3 transport evidence
6	 Flammability UL 94 / IEC 60695	→ Flame-retardant internals; UL 94 V-0 where practical
7	 Vehicle EMC UN Regulation No. 10	→ Emissions and immunity evaluated as a sub-assembly
8	 Quality management ISO 9001:2015	→ Configuration control, incoming inspection and acceptance test



DEPLOYMENT & CERTIFICATION NOTES

- ✓

Final suitability confirmed by site risk assessment and mounting review
- ✓

CAN / J1939 access subject to OEM interface approval
- ✓

Standard unit is not Ex-certified
- ✓

Classified explosive atmospheres require a separately certified Ex configuration and mine approval

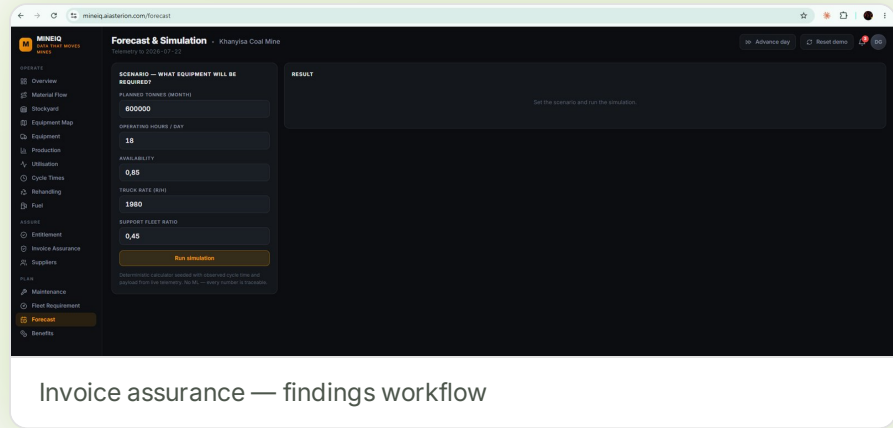
Assurance You Can Put in Front of an Auditor

Every invoice line is checked against telemetry, asset identity, work evidence and contract rules — before it is paid.

THE ASSURANCE ENGINE

Ten automated controls run on demand against live operational data — no line paid on trust.

-  Contract entitlement links authorised quantity, delivered quantity and agreed rate
-  Findings flag fixed/hourly overlap, duplicate assets, excess hours and missing evidence
-  Each line is returned as approve, query or reject, with evidence references
-  The benefits tracker records validated savings, recovery and cost avoidance



WHAT THE CONTROLS CATCH

- 1** Fixed and hourly charges billed for the same asset and shift
- 2** Duplicate asset identities across invoice lines
- 3** Hours claimed beyond telemetry-confirmed operation
- 4** Quantities above the authorised entitlement
- 5** Rates or formulas that breach the pricing schedule
- 6** Lines with missing or unmatched work evidence

WHAT MANAGEMENT GETS

-  A clear approve, query or reject decision per line
-  An audit-grade evidence trail behind every finding
-  Quantified, validated savings over time
-  Objective supplier performance scoring



ONE PLATFORM. EVERY TONNE SEEN, EVERY CLAIM VALIDATED, EVERY COST ACCOUNTED FOR.