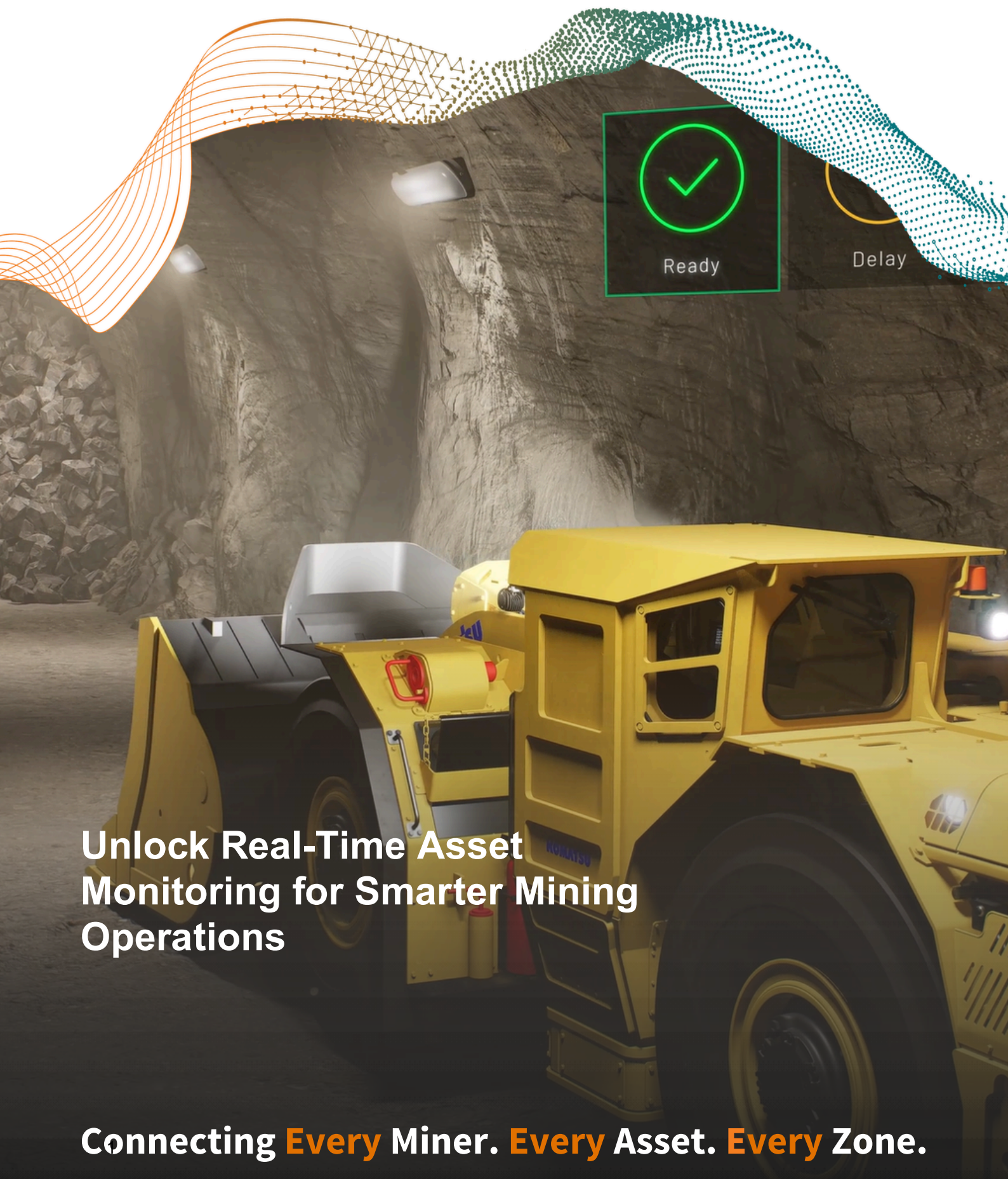




Unlock Real-Time Asset
Monitoring for Smarter Mining
Operations

Connecting **Every** Miner. **Every** Asset. **Every** Zone.

CONTENTS

DISCLAIMER

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Telemetry gives the work context

Fixed and mobile telemetry helps explain why work is accelerating, slowing, waiting or unable to start.

MOVING ASSETS

Location, speed, engine state, payload, cycle time, utilisation and availability.



- ✓ Detect queuing and idle time
- ✓ Separate equipment delay from access delay
- ✓ Improve maintenance response and operator support

+6 min
cycle variance

4
idle assets

FIXED ASSETS AND SENSORS

Ventilation status, airflow, gas readings, environmental conditions, blast clearance and infrastructure health.



- ✓ Validate safe re-entry sooner
- ✓ Drive ventilation on demand
- ✓ Contextualise access constraints and safety exclusions

12
airflow zones

live
clearance checks


AIRFLOW
12.4 m³/s
Good


GAS
O₂ 20.6%
CO 2 ppm
Good


LHD-02
12.6 km/h
Loaded
Cycle 1:42
Utilisation 78%
Good


TEMPERATURE
18.6 °C
Normal


LOCATION
Level 620
Drive 12A


BLAST CLEARANCE
All Clear
Re-entry OK


VENTILATION FAN 03
On
Speed 78%
Flow 12.4 m³/s
Good

HELIX
context engine



It offers real-time data monitoring and reporting, providing valuable insights into equipment performance and operational efficiency. By detecting potential problems early, it helps reduce downtime and improve safety, thus ensuring smoother mining operations.

Empower mine operations to maintain equipment fleet reliability, extend asset lifespan, and ultimately maximise productivity.

- **Informed Decision-Making:**
 - Facilitates real-time tracking and analysis of machine telemetry data for optimised performance.
- **Improved Vehicle Reliability:**
 - Proactive maintenance activities based on access to real-time telemetry data can reduce equipment downtime
- **Proactive Alarm Management:**
 - Immediate response capabilities for critical vehicle alarms.
- **Operational Continuity:**
 - Ensures data availability even outside communication range.
- **Comprehensive Data Analysis:**
 - Enables thorough analysis with visualisation and export tools.
- **Improved Safety and Performance:**
 - Empowers mining personnel with timely information and notifications.
- **Geo-tagging:**
 - Provides visualisation of sensor and alarm events on HELIX mine maps for added operational context.
- **Seamless Integration:**
 - Supports multiple OEM interfaces and combines data seamlessly.



Real Time Dashboards.

HELIX Telemetry comes pre-packaged with a variety of real-time dashboards, providing insights out-of-the-box.

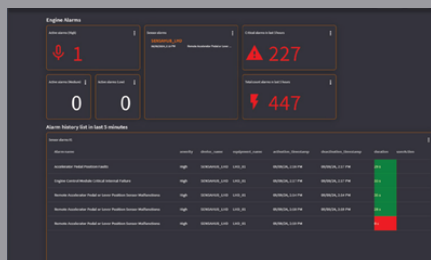
Easily create and modify dashboards to combine sensor and alarms data from multiple contexts with minimal technical experience required.

HELIX Telemetry dashboards are auto-updating, ensuring that you are always viewing the latest information received from your equipment fleet.

- Simple workflows to create and manage dashboards.
- Highly customisable dashboards provide value tailored to different mine personnel.
- Support for multiple visualisation options depending on the data stream.
- Combine sensor and alarms data from multiple contexts.
- Create vehicle-specific dashboards or aggregate data from the fleet.



Dashboard with real-time sensor data.



Dashboard with real-time alarms data.



Customisable dashboard capabilities.



Operational Context:

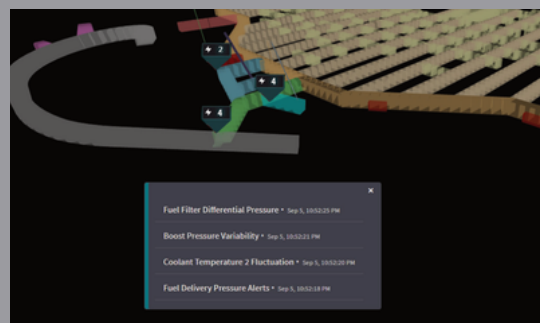
Alarm events are geotagged, enabling real-time visualisation in 3D space and added operational content for root cause analysis.

- Visualise alarm activation and deactivation events on mine maps.
- View a list of active and recent alarms for each vehicle.
- Optionally enable geotagging for sensor events.

Flexible & OEM-Agnostic.

HELIX Telemetry makes it easy to combine data together from multiple onboard interfaces, enabling data to be grouped together by context rather than by interface.

- OEM-agnostic solution with more extensive interfacing capabilities available for Komatsu Underground Hardrock mining machines.
- Collect data from multiple on-board interfaces simultaneously.
- Combine sensor data from multiple interfaces according to operational context to streamline reporting.
- Compatible with J1939.



View geotagged alarm events in 3D space.

Interface Group

VIMS

Alias

VIMS CAT 777 Demo

OEM version

V1.0

Interface Model

CAT 777

Associated devices

1

Last modified

May 27, 2019 16:46:02.022

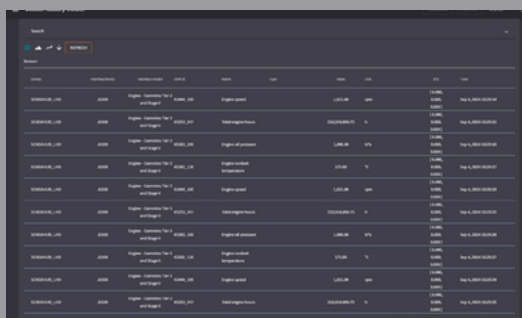
SENSORS

ALARMS

Name	Type	OEM ID	Geotagged	Enabled	Edit
Engine Speed ¹	RPM	35/5758_100	No	☒	
Engine Oil Pressure ¹	Pressure	36/58_131	No	☒	
Engine Coolant Temperature ¹	Temperature	36/58_135	No	☒	
Torque Converter Output Speed ¹	RPM	21/5781_111	No	☒	

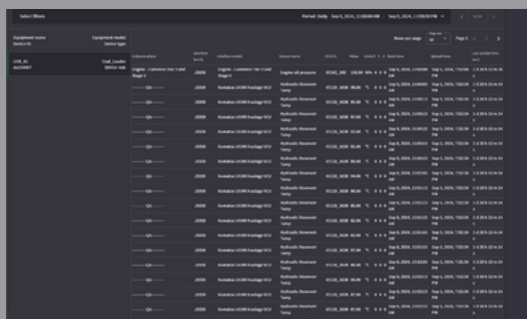
Sensor template configuration.

Value in HELIX:



Vehicle	Device	Parameter	Value	Unit	Timestamp	Alert
WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	Yes
WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	No
WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	No
WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	No
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WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	No

Sensor history viewer.



Vehicle	Device	Parameter	Value	Unit	Timestamp	Alert
WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	Yes
WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	No
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WHEELER-001	W001	Engine hours (hrs)	12345.67	hrs	2023-10-27 10:30:00	No

Telemetry alarm list by equipment.

HELIX Intelligent Control:

When coupled with HELIX Automation, you can configure custom rules and conditions to evaluate sensor and alarm events and generate external email notifications. You can also send notifications to HELIX Core.

- For example, send an email notification when Engine Hours have surpassed 5000 hrs, or when there is an accelerator pedal position fault.
- Choose from any of the available sensors and alarms across your equipment fleet to create multiple custom rules.

HELIX Dispatch.

Automatically forward select sensor data to HELIX Dispatch to enrich the captured production data and to minimise manual operator input.

- Increase the accuracy of material movement records and material inventories with payload measurements.
- Automate the capture of machine hours.
- We invite you to view our HELIX Dispatch Brochure.

Historical Reporting:

Extensive historical reporting tools enable filtering data and visualising in tabular or graphical formats, out-of-the-box. Reporting tools offer historical data in varying levels of detail and complexity, satisfying the reporting needs of various mine personnel. Increase the accuracy of material movement records and material inventories with payload measurements.

- View summarised sensor history and alarms history by vehicle or device.
- View and export detailed sensor and alarms event history data with a variety of built-in reports.
- Easily access Telemetry history and reports from HELIX.



3D Connect
Interactive Spatial
Insights



Sentinel
Enhanced Safety Monitoring



Intelligent Control
Process Automation



Smart Monitoring
IoT Network



Dispatch
Optimise Fleet
Management.



Telemetry
Track
Equipment
Health

Essential Components:

HELIX 3D:

- HELIX 3D is the foundation platform for HELIX and a prerequisite for all HELIX modules.
- It manages and monitors your mine's operations, seamlessly integrating with Telemetry to enable remote monitoring and analytics.

HELIX Telemetry:

- HELIX Telemetry is the Asset Health module of the HELIX platform and provides all features and benefits to generate real-time vehicle insights and operational intelligence.

SENSA hub

- The SENSE Hub seamlessly links vehicle interface to the HELIX platform for advanced remote monitoring and diagnostics of vehicle parameters and alarms.



SENSE hub component.

USE Cases

HELIX Telemetry, as an asset health solution, aims to increase your equipment fleet's Mean Time Between Failure (MTBF) by focusing on proactive maintenance, real-time monitoring, and early detection.

By leveraging machine interfaces and the SENSE hub smart device, HELIX Telemetry allows continuous monitoring of machinery without the need for direct physical inspection. This ensures that potential issues are identified early, enabling timely maintenance and reducing the likelihood of unexpected failures.



Increase Equipment Lifespan:

- **Better Care:** By operating equipment within its limits and maintaining it regularly, HELIX Telemetry extends the lifespan of machinery, delaying the need for costly replacements.
- **Timely Interventions:** Regular monitoring and timely maintenance help prevent severe damage to equipment, extending its operational life.



Improve Safety:

- **Risk Mitigation:** Early detection of issues reduces the risk of equipment failure, which can lead to accidents and hazardous situations.

HELIX

OVERVIEW

46

Tracked Assets

128

People Underground

7

Exceptions Live

ENVIRONMENT

12

Airflow Zones

Open Barriers

Re-entry

Clear



EQUIPMENT UTILISATION



78%

USE Cases



Increase Productivity:

- **Higher Reliability:** Reliable and well-maintained equipment will have fewer breakdowns and down-time, increasing equipment utilisation to help meet production targets more effectively.
- **Remote Inspections:** Remote monitoring allows for efficient allocation of maintenance resources, ensuring that maintenance activities are carried out only when necessary.



Reduce Maintenance Costs:

- **Preventive Maintenance:** By identifying and addressing issues early, HELIX Telemetry reduces the need for emergency repairs, which are often more costly.
- **Optimised Maintenance Schedules:** Maintenance can be scheduled based on actual equipment condition rather than a fixed schedule, optimising resource use and reducing unnecessary maintenance activities.



Reduce Downtime:

- **Early Detection:** Continuous monitoring and real-time alerts for critical alarms enable the early detection of potential issues, reducing the likelihood of unexpected breakdowns.
- **Quick Response:** Remote access to real-time data through HELIX Telemetry allows maintenance teams to respond quickly to alerts, minimising the time equipment is out of service.



Looking for solutions to improve safety, productivity, and operational performance in your mine?

- Visit the MST Global website to explore innovative technologies designed for underground mining and tunnelling.
- Discover integrated solutions for communications, automation, IoT, fleet management, personnel tracking, and digital operations, backed by real-world customer success stories, technical resources, product information, and the latest industry innovations.
- Whether you're evaluating new technologies or planning your next digital transformation project, MST Global provides the insights and expertise to help you make informed decisions.

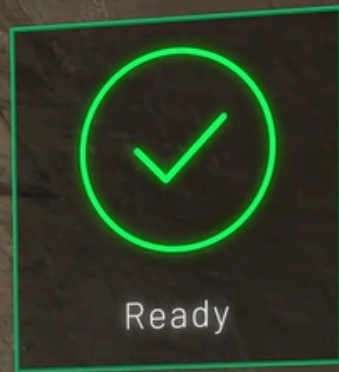
LinkedIn:

- Stay connected with MST Global on LinkedIn and be the first to discover our latest innovations in underground mining technology.
- Follow us for product updates, customer success stories, industry insights, event highlights, expert perspectives, and the latest advancements in automation, connectivity, safety, and digital transformation.
- Join our community and stay informed about the technologies shaping the future of mining.

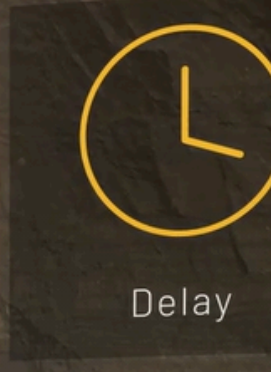
YouTube channel:

- Explore MST Global's latest innovations in underground mining technology.
- Discover videos featuring communication networks, automation, fleet management, safety solutions, IoT, real-world customer success stories, product demonstrations, and digital technologies designed to improve mine safety, efficiency, and productivity.

Talk to our experts about how to improve underground safety and productivity with HELIX Telemetry.



Ready



Delay



A Komatsu technology brand

APAC

EMEA

AMERICAS

ASIA