

NAUTITECH[®]

HARNESSING TECHNOLOGY TO KEEP MINERS SAFE

SPITFIRE[®]



DataMaster

by Spitfire[®]



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nautitech.com.au

SYSTEM OVERVIEW

Part of the Spitfire® range, DataMaster MR (Mobile Reports) by NAUTITECH® captures and stores time-stamped critical vehicle data and makes it available to view on mobile devices. It is a simple addition to our existing Methane Master system.

The system delivers comprehensive insights by capturing key operational parameters, including CH₄ gas levels, inertia, force, position, engine temperature, and pressure readings. In addition, time stamped logs from Personnel Detection Systems (PDS) provide reliable records to support investigations, streamline troubleshooting, and strengthen preventative measures.

KEY FEATURES



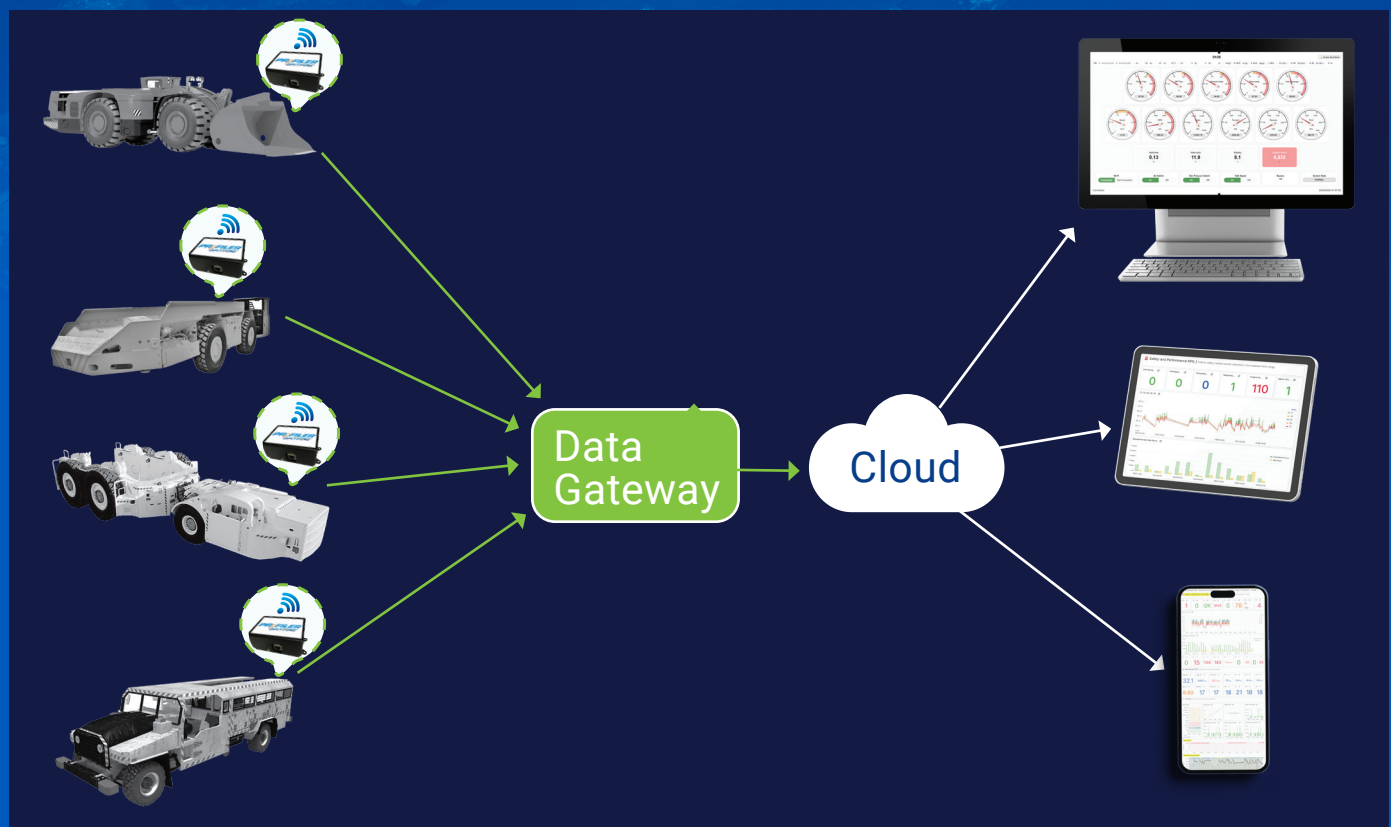
One of the key reports generated by DataMaster is the CH₄ and Temperature Alarms report. Other reports available include:

- ✓ Vehicle maintenance schedule
- ✓ Maintenance alerts and notifications
- ✓ Vehicle driving experience on downward slopes (brakes wear & tear)
- ✓ Vehicle incident report and analysis
- ✓ Vehicle daily / weekly / monthly operational efficiency reports
- ✓ Underground shift data visualisation direct from the vehicle
- ✓ Time series trends for key parameters
- ✓ Vehicle drive indicators
- ✓ Utilisation and activity breakdown
- ✓ Operational and idle hours

DataMaster is designed to monitor the health and performance of mining equipment by utilising integrated sensors to identify potential issues before they occur.

Data is seamlessly captured from sensors installed on diesel RTVs as they enter Wi-Fi range, then analysed and presented through intuitive visual dashboards to support critical operational outcomes. Real time access via Wi Fi on supported devices, both underground and on the surface, enables continuous visibility of machine performance and environmental conditions, empowering operators to make informed decisions with confidence.

DataMaster is an analytical tool which displays data and dashboards using information that is passed from multiple sensors on a machine such as a personnel transporter, grader, LHD or longwall relocation fleet. The system provides operators with critical insights into equipment condition and allows for predictive and preventative maintenance of equipment.



Imagine having access to 6000 hours' worth of data for each machine – data such as:

- Engine Hours – for maintenance scheduling
- Brake pressure monitoring – for more efficient planning of brake pack repairs
- Inertia monitoring including a 3 axial gyro and an accelerometer – to determine the force and position of the machine during collision
- Critical engine pressures including fuel, oil, boost, water and air temperatures
- CH4 sensor readings
- RTD monitoring – to measure critical engine temperature and initiate shut down if required

DataMaster MR consists of the following key components:

1. Data Profiler (MR):

The Spitfire Profiler MR captures operational data directly from the vehicle and stores it locally. It provides onboard data visualisation for up to seven days of shift activity, accessible via mobile, tablet, or laptop which can be connected to a machine in a remote location.

2. Data Eye:

The Data Eye aggregates stored data collected from all connected vehicles and delivers comprehensive data visualisation through standard web browsers on mobile, tablet, or laptop devices. The Data Eye is installed on the surface for ease of access and integration with site infrastructure.

3. Mobile, Tablet, or PC:

Data and clear, user-friendly dashboards can be viewed on mobile devices, PCs or the Hawkeye Quad Smart Display by NAUTITECH®. Simple search features allow operators to look through historical data by time frame, machine, or sensor - making it easy to prepare insightful shift reports.



Available dashboards include:



Operational Trends & Utilisation

time series trends, activity breakdown, operational vs idle hours, shift data visualisation



Vehicle Performance & Efficiency

drive indicators, operational efficiency, engine metrics, distance travelled



Maintenance & Alerts

maintenance scheduling, alerts/notifications, system status (battery, Wi-Fi, sensors)



Safety & Compliance KPIs

safety metrics, methane checks/shutdowns, gas sensor status, collision & G-force events



Driving Behaviour Analysis

acceleration/deceleration, braking patterns, neutral gear use, direction changes, quick turns



Road & Environmental Conditions

bumps/hollows, pitch, and cross grades



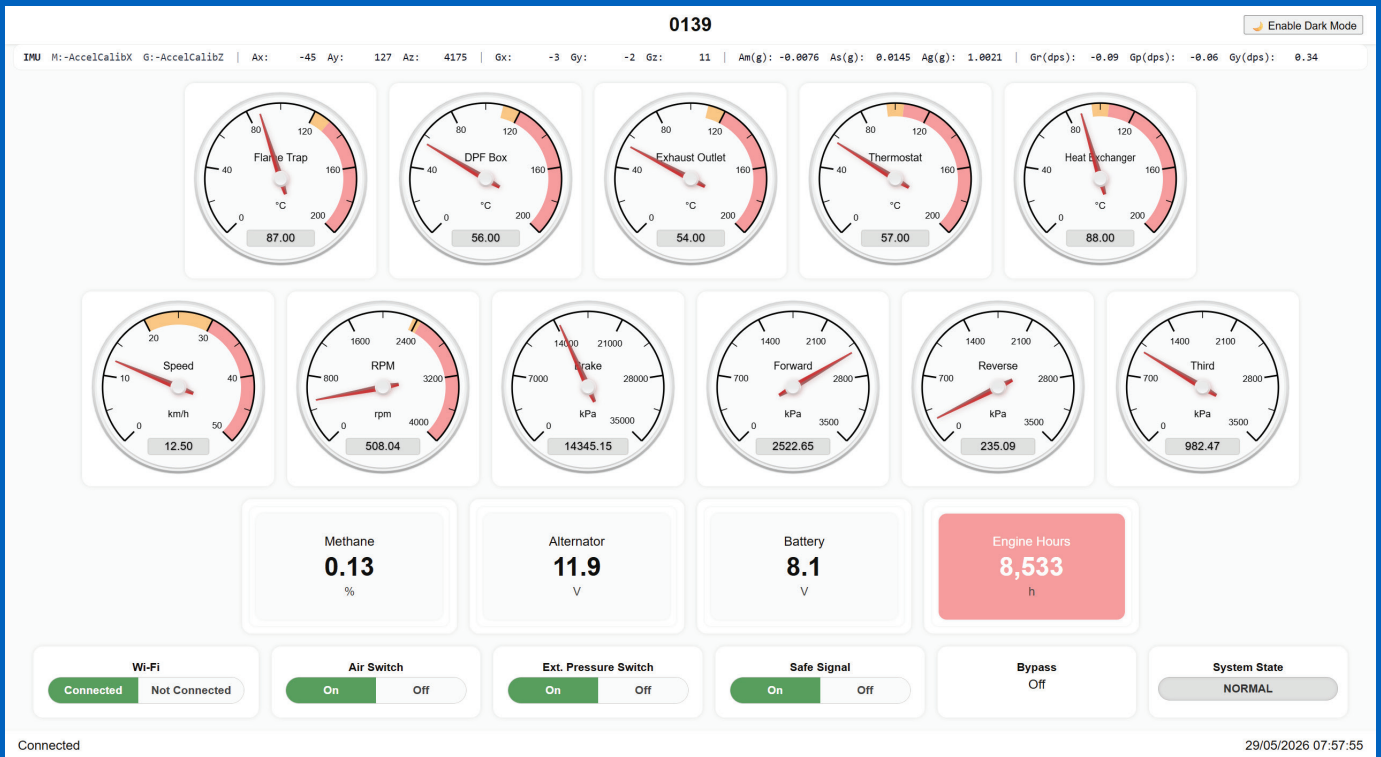
Incident Reporting & Investigation

incident reports, HPI investigations, timestamped analysis



Special Operating Conditions

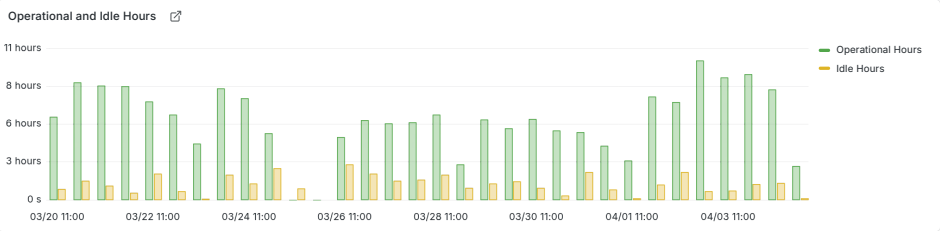
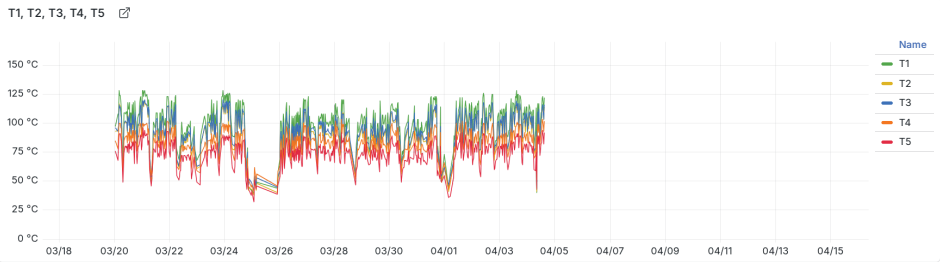
bypass mode driving, vehicle driving experience insights



000 - Data Master KPI's - Generated on MMM DD YYYY Data time range: YYYY-MM-DD HH:MM

Safety and Performance KPIs Critical safety-related events detected in the selected time range.

CH... ↗	CH... ↗	CH... ↗	Eng... ↗	Te... ↗	Te... ↗	Ma... ↗	Ala... ↗
1	0	OK	9149	0	78	Ma... T1 at 17.3	4



Data time range: YYYY-MM-DD HH:MM

Hig... ↗	Hig... ↗	Fw... ↗	Bra... ↗	Bra... ↗	Coll... ↗	↗	↗	↗
0	15	1160	140	11.0 hours	0	133	0	82

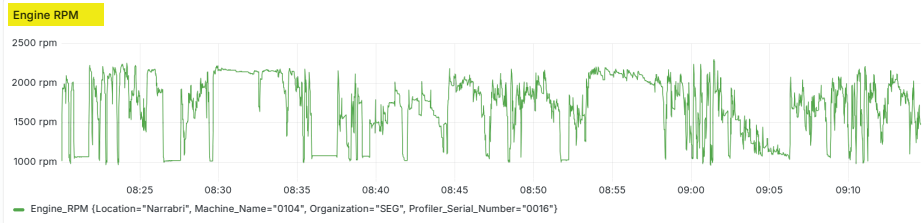
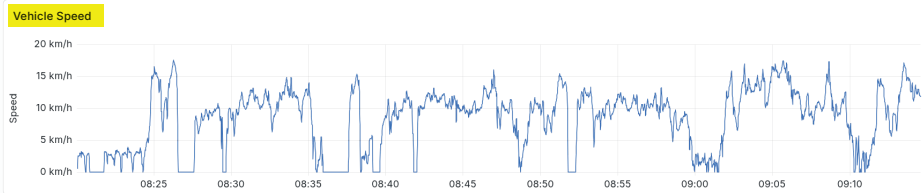
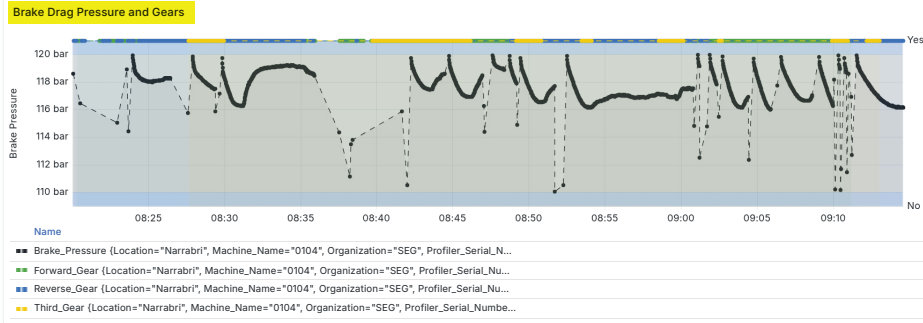
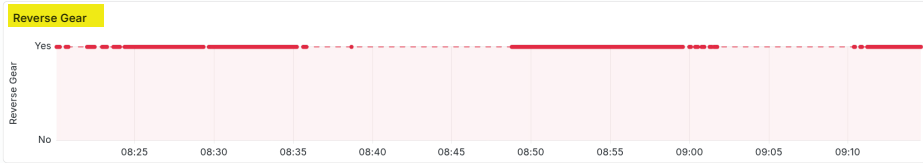
Operational KPIs | Utilization and Activity Breakdown.

Operationa... ↗	Engine RP... ↗	Vehicle Sp... ↗	Bra... ↗	For... ↗	Rev... ↗	Thir... ↗
32.1	2463 rpm	23.1 km/h	137 bar	19.0 bar	18.8 bar	19.0 bar
Idle Hours ↗	RPM Sens... ↗	Speed Sen... ↗	Bra... ↗	For... ↗	Rev... ↗	Thir... ↗
9.60	17	17	18	21	18	18

Trends | time-series trends for key parameters.

<p>System State</p>	<p>Engine Hours ↗</p>	<p>Bypass Hours ↗</p> <p>No Bypass Event</p>	<p>Brake Line Pressure ↗</p>
	<p>Forward Gear Line Press... ↗</p>	<p>Reverse Gear Line Press... ↗</p>	<p>Third Gear Line Pressure ↗</p>

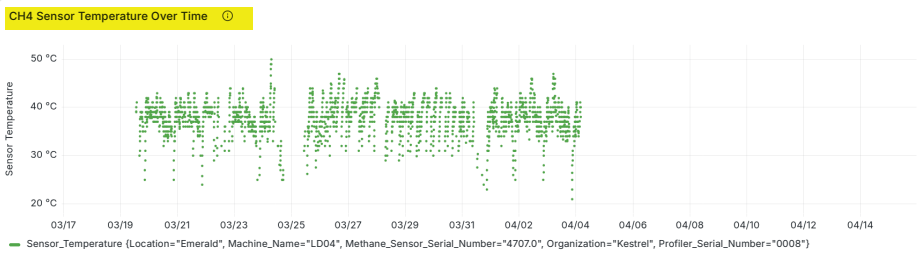
000 - Data Master KPI's - Generated on MMM DD YYYY



000 - Data Master KPI's - Generated on MMM DD YYYY

CH4 Heater Status [🔗](#) Max ΔT30 (°C) Max Rise Rate

OK **12 °C** **0.472 °C/min**



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NAUTITECH® is an Original Technology Manufacturer (OTM), and global provider of **smart electronic** and **software** solutions for OEMs and mine sites in underground mining.

We design and manufacture equipment that delivers **Communications** and **Visibility**, supports **Automation**, and provides a platform for **Asset and Condition Monitoring** of underground equipment. Our **data analytics** software can help detect safety risks and gain intelligence for improved mining operations.



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