



AVISO DIAGNOSTICS data management solutions

Home screen

Spider chart: The spider chart gives a clear impression of the engine's status and balance. The engine's cylinders are placed in a circle ordered by the moment of firing.

- When the engine operates in a balanced state all cylinders produce the same amount of power. This results in a symmetric spider chart.
- When deviations and engine imbalance are detected

the spider chart becomes asymmetric, thereby clearly showing which cylinders contribute less power and what might be the cause.

To investigate the detected problems, the user can switch to the detailed information screen. By analyzing the data on that screen the user finds out what needs to be done to restore the engine's balance.

General Engine Condition Indicators:

Mechanical Health: overall indication of the mechanical condition of the engine. The higher the indicator, the higher the mechanical wear in the engine.

Thermal Health: overall indication of how efficiently the engine is running. Imbalance due to combustion and expanding gasses being unevenly distributed over the cylinders. The higher the imbalance, the lower the thermal efficiency of the engine.

Detail Engine Condition Indicators:

Injection Timing / Condition: provides insight in the fuel injection / power contribution per cylinder. Unevenly injected fuel, deviations in fuel injection timing and reduced cylinder pressure causes imbalance in the engine.

Moving Parts Clearance: provides an indication of the dynamic behavior of the the bearings and all moving parts (including; crankshaft, pistons, conrods, connecting rods, wrist pins, couplings, bearings).

External Components: provides insight in the measured irregularities of external/auxiliary equipment (in)directly driven by the crankshaft.

Stresses / Pulses: provides insight into the presence of unexpected/irregular stress pulses in the crankshaft twist, measured in each operating cycle.

Twist angle (degrees): the dynamic twist (angle expressed in degrees) of the crankshaft, measured in each operating cycle.

Advantages of REDS?

- User-friendly; non-invasive, easy to install and easy to interpret data (also for non-technical employees)
- Insight in error development long before component or engine failure
- Reducing fuel use, thereby lowering emission levels
- Engine condition monitoring enables SMART and Predictive maintenance
- Increasing the availability and lowering the maintenance costs
- Online availability of measurement data enables remote monitoring and benchmarking

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Insight in error development weeks or months before component or engine failure.

Reducing fuel use, thereby lowering emission levels.

Engine condition monitoring enables data driven maintenance.

Early detection prevents damages and consequential damages.

Condition based maintenance increases the availability of your ship and reduces maintenance costs.

Online availability of measurement data enables remote monitoring and benchmarking.



AVISO Diagnostics

Aviso Diagnostics is on a mission to change the way maintenance is done towards predictive maintenance as the norm. With industry experts we develop innovative software applications, measurement instruments and monitoring systems for technical equipment. We also have an open platform that allows us to connect not only our own data but also data from other sources. We are a data-driven organization, founded with the main objective to provide detailed, technical information on which management and operations departments can base their KPI's and management decisions.

What is REDS?

REDS is Aviso Diagnostics cloud-based engine monitoring system for piston engines. It is designed to 24/7 monitor the status, health and efficiency of a running engine. This is done by measuring the torsional vibrations in the engine. The system recognizes functional deviations, by measuring the power contribution in all cylinders and the engine's mechanical and thermal health. Users can access the measured information anytime, anywhere on any device. Real-time and historically.

REDS runs on Aviso's open platform on which data sources can be connected and combined. Our platform is also accessible for 3rd party sources. Based on the customer's wishes any available data can be connected to the platform. The information is presented on a user friendly dashboard that is accessible on any device.

What does REDS measure?

REDS measures whether the engine is running in a balanced state. REDS measures three types of imbalance in the engine:

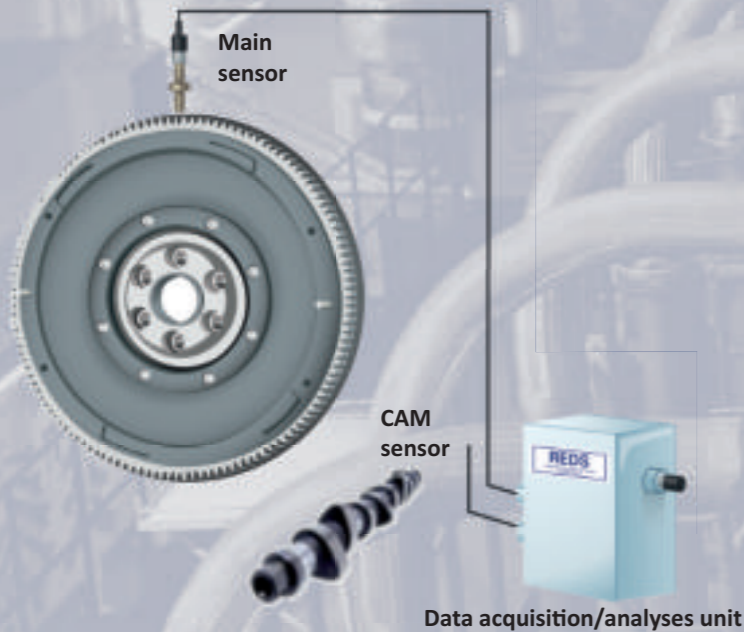
1. Imbalance of moving parts, mechanical imbalance
2. Imbalance due to combustion and expanding gases, thermal imbalance
3. Imbalance of external components

How is the REDS data presented?

The measured data is presented on a user friendly dashboard. The Home Screen of the REDS dashboard gives a direct and clear impression of the status and balance of the engine – a quick engine scan.

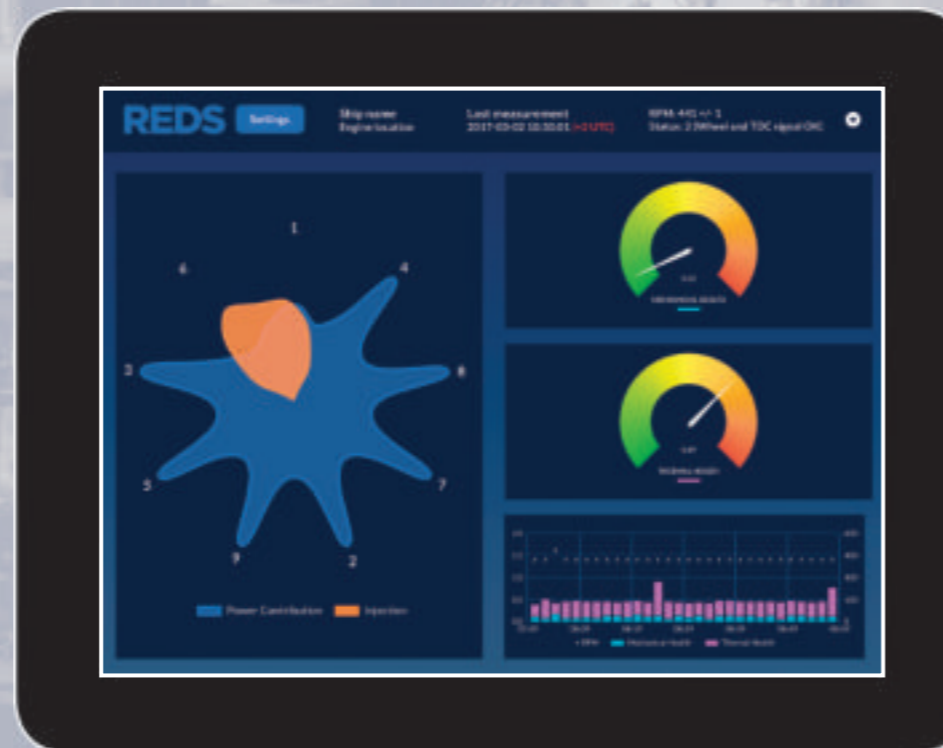
In case the Quick Scan of the engine shows imbalance it is recommended to investigate the engine's condition further. More specific information about the measured imbalance can be found on the second, detailed information screen.

Hall Sensors



Acquisition Box

Home screen



Detailed information screen

