

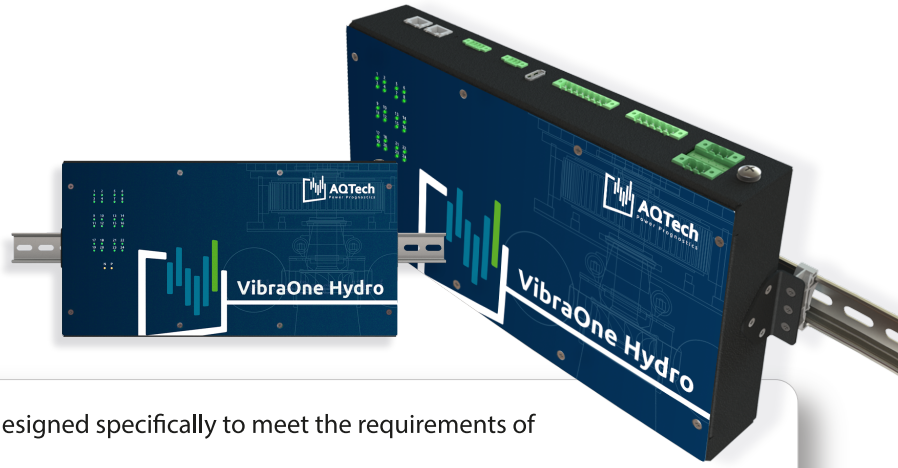
VibraOne Hydro

Analyzer



Condition
Monitoring
System

The solution



VibraOne is a data acquisition device designed specifically to meet the requirements of the electric power generation industry.



The system comprises processing functions, analogue inputs, digital inputs, digital outputs, communication interfaces, and other features.



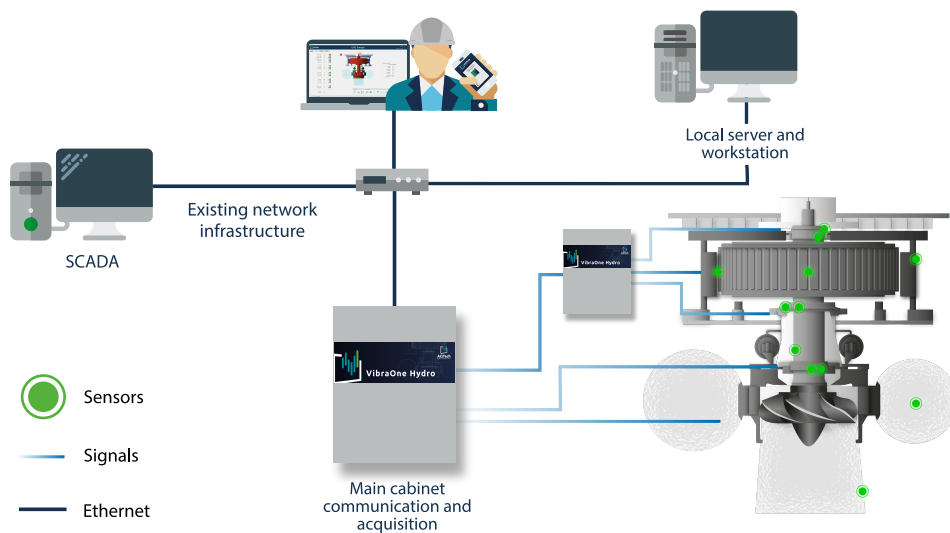
The solution provides continuous monitoring and recording of the conditions of hydroelectric turbines and generators, detecting faults and disturbances, enabling constant validation of the operation and design of field systems.



Our equipment is CE marked, indicating compliance with the electromagnetic compatibility, safety, and environmental requirements of the European Union.

Architecture

Architecture for Hydro Application



All specifications are at room temperature unless otherwise specified.
In the interest of constant product improvement, we reserve the right to change specifications without notice.

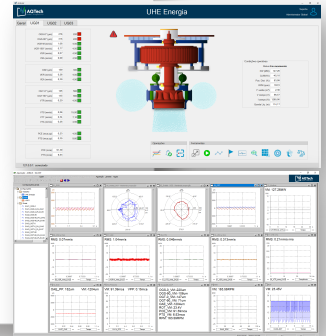
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Analyzer

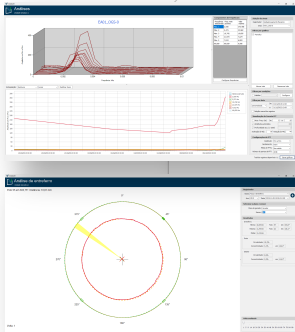
Real-time features

High-performance hardware and software that allows real-time visualization of vibration data. With a supervision screen, you can monitor global values, vibration level alarms (ISO 20816), and operating data, received through industrial protocols via the Local SCADA integration. Additionally, our real-time visualization tool provides waveforms, FFT spectrum, and orbitals, making it ideal for field testing, such as machine commissioning, operating range tests, index tests, and more. You can also configure the signal acquisition rate, monitor multiple variables in real-time, and generate records for later analysis in specific operating conditions of the generating unit.



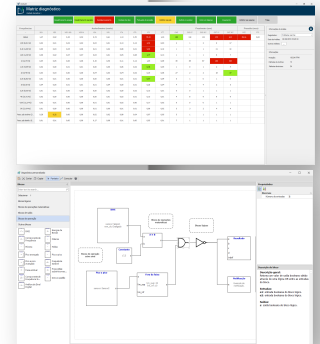
Analysis Tools

Our post-processing software offers advanced vibration analysis tools, including waveform, orbital (XY), FFT cascade, and spectrogram analysis according to ISO 13373-2 standards. With additional mathematical and statistical operations, our software enables specialized engineering professionals to conduct in-depth evaluations. Long-term trend records and analysis tools support vibration diagnosis, as recommended in ISO 17359 and ISO 13373-2 standards. Additionally, the software includes an air gap analysis tool, which helps prevent failures such as rubbing between the rotor and stator, and a magnetic flux measurement tool.



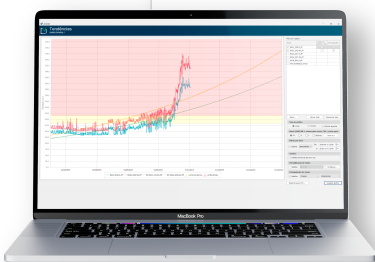
Automatic Diagnosis

Automatic machine fault diagnosis is performed by detecting specific harmonic frequencies associated with the nominal rotation of the generating unit. The Analyzer is equipped with pre-registered failure modes, including unbalance (mechanical, magnetic, hydraulic), misalignment (angular, parallel), failures in the generator stator, turbine failures (rotor blades, guide vanes), problems in the hydraulic flow, pressure actuation, clearance, oil whirl, and bearing shoe failures, in accordance with ISO 13373-1, ISO 13373-3, and ISO 13373-7. The diagnostic tool also allows users to create new failure modes through logical blocks, mathematical operations, constant inputs, output blocks, text boxes, boolean operation blocks, and notifications resulting from algorithms.



Trend and Diagnosis

In the context of predictive maintenance, estimating remaining machine life (RUL) and end-of-life (EOL) is crucial. AQTech software uses the ISO 13381-1 standard to extrapolate global vibration data and values associated with frequency spectrum ranges that are closely linked to fault diagnosis. AQTech has extensive expertise in applying predictive models based on statistical and machine learning (ML) techniques, including Auto-Regressive (AR) models such as ARIMA (Autoregressive Integrated Moving Average).





Know more. Know before.

*Get in touch and let us
know how we can help!*

-
-  +351 911996958
 -  sales@aqtech.com
 -  www.aqtech.com
 -  [@aqtech.powerprognostics](https://www.instagram.com/aqtech.powerprognostics)
 -  [/aqtech-powerprognostics/](https://www.linkedin.com/company/aqtech-powerprognostics/)