# VibraOne Wind

## *OneBreeze*

VibraOne Wind

## CMS
### Condition Monitoring System

AQTech
Power Prognostics

# OneBreeze

## Intuitive and innovative user interface

In predictive maintenance pr ocesses, monitoring multiple turbines can be challenging and requires the user's undivided attention, which is an extremely valuable resource. The OneBreeze platform is specifically designed to facilitate this process by directing the condition analyst's attention towards the turbines that require immediate attention and analysis. With smart indicators and a user-friendly interface, OneBreeze provides the necessary information to ensure that the most critical goal, of keeping the wind turbines operating, is achieved.
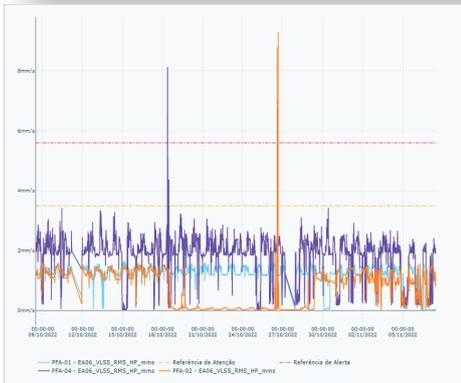
## Analysis Tools

Once the user identifies the turbines that require attention, the OneBreeze software provides access to advanced analysis tools. These tools include trend analysis, directed frequency spectrum, order analysis, sensor listening, among others. The primary goal of the platform is to furnish the condition analyst with information that enables them to compare the wind turbine's performance with its historical data and other turbines on-site. This process leads to the main conclusion, which is to determine the underlying issues with the asset and take necessary action to keep it operational.
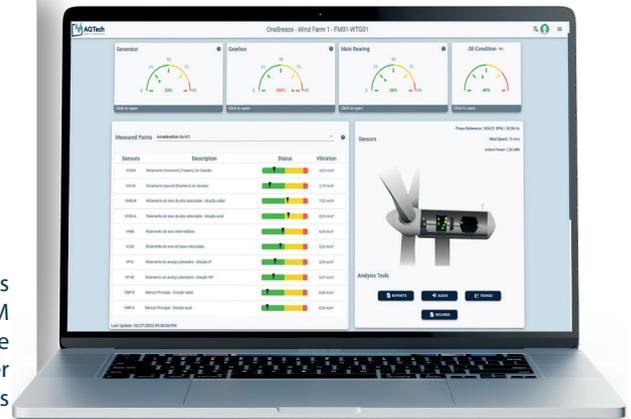
## Automatic Diagnostics

The OneBreeze system incorporates sophisticated signal processing techniques that can automatically diagnose failure modes based on the vibrational characteristics of monitored machines. The system provides directed analysis screens and notifications to alert the condition analyst responsible for the asset of any critical issues and can take appropiate action to maintain the health and performance of the machine.
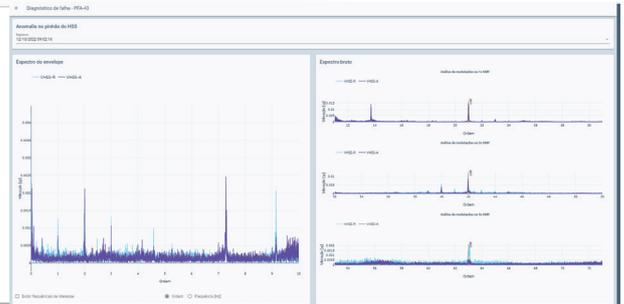
## Integration with others Systems

OneBreeze is not restricted to utilizing only the vibration parameters obtained through VibraOne Wind to provide essential data for O&M decision-making. AQTech facilitates the integration of the OneBreeze system with the wind turbine's SCADA system, as well as other condition monitoring systems, irrespective of their manufacturer. This integration allows for comprehensive monitoring of the asset.

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Analog inputs 1 to 4 | Analog inputs 5 to 8 | Analog inputs 9 to 12 | Analog inputs 13 to 16 | Analog inputs 17 to 20 | Analog inputs 21 to 24

# Interface

**Aux PWR** 24V sensors auxiliary power input

**DIGITAL OUTPUT** Dry contact digital outputs (relays) with NO and NC contacts

**DIGITAL OUTPUT** Dry contact digital outputs (relays)

**USB** USB type A interface

**RS-485** Optical isolated RS-485 interface

**SYNC** Synchronization input or IRIG-B (IN) and synchronization output

**RESET**

**ETH1, ETH2** 1000BASE-T Ethernet

**POWER** 24V main power input

# VibraOne Datasheet

| | VibraOne - Wind 16C | VibraOne - Wind 24C |
|---|---|---|
| **Models** | VibraOne Wind | VibraOne Wind |
| **Mechanical Specifications** | Aluminum enclosure | |
| | Dimensions (HxWxD): 45 x 350 x 160 mm | |
| | DIN-rail mounting option | |
| | Interface Connectors Electrical Ethernet: RJ45 | |
| | Power and analog inputs: Terminal Block Headers | Power, analog inputs, digital inputs/outputs and SYNC: Terminal Block Headers |
| **Power** | Base board: from 18 to 36 VDC | |
| | Sensors: 24 VDC | |
| **Processing and storage** | Intel FPGA SoC Cyclone V (built-in ARM-9 dual-core 900 MHz) | |
| | 1 GB DDR3 RAM | |
| | 32 GB Flash memory | |
| **Communication** | 2 1000BASE-T Ethernet ports | |
| | 1 USB interface | |
| | | 1 isolated RS485 port |
| **MTBF** (Mean Time Between Failure) | MTBF: 370,000 hours * Estimation by project | |
| **Analog inputs** | 16 DIP-configurable analog inputs for:<br>• IEPE (± 5V with blocked DC level)<br>• 0-20 mA (with 24V sensor supply)<br>• ± 10V (with 24V sensor supply)<br>• ± 30V | 24 DIP-configurable analog inputs for:<br>• IEPE (± 5V with blocked DC level)<br>• 0-20 mA (with 24V sensor supply)<br>• ± 10V (with 24V sensor supply)<br>• ± 30V |
| | 24-bit ADC resolution | |
| | Sampling rate up to 20 kHz | |
| | 24 V output for sensors | |
| | 8mA IEPE sensor current output | |
| **Operating condition** | Operation temperature range - From -40°C to 70°C (from -40°F to 158°F) | |
| | Storage/transportation temperature range - From -40°C to 85°C (from -40°F to 185°F) | |
| **Synchronization** | Ethernet synchronization | |
| | | SYNC input/output synchronization (optically isolated input, buffered output) |
| **Digital Interfaces** | | 6 digital outputs with dry contact (2 NO/NC and 4 NO) * |
| **Signaling** | Signaling LEDs | |
| | 24 bicolor channel status LEDs | |

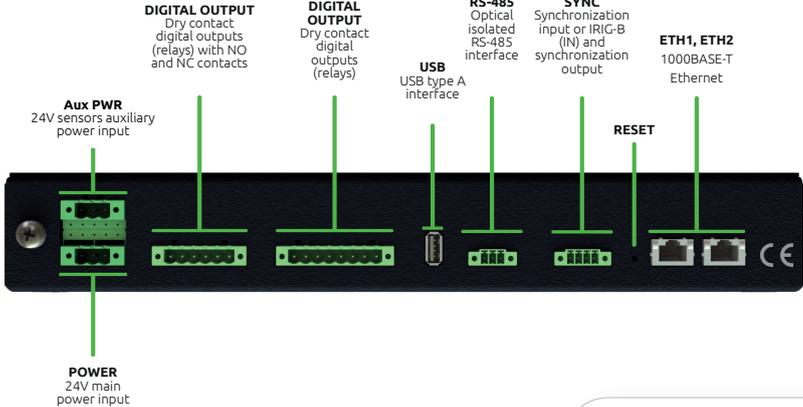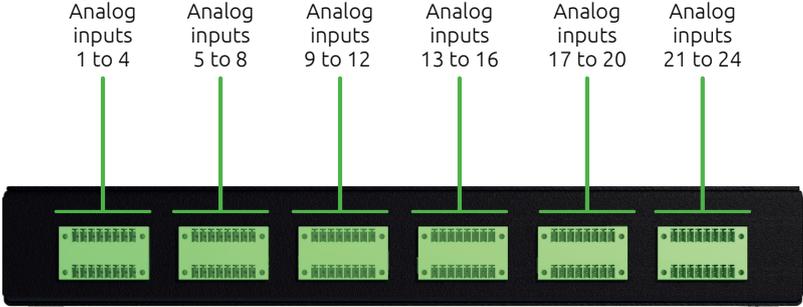* option for 4 digital inputs with optocouplers and 2 digital outputs with dry contact NO/NC, upon request.

*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.*

**AQTech Power Prognostics** is ISO 9001:2015 certified by RINA, for its quality management system.

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# The solution



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

⚙ The system comprises processing functions, analogue inputs, digital inputs, digital outputs, communication interfaces, and other features.
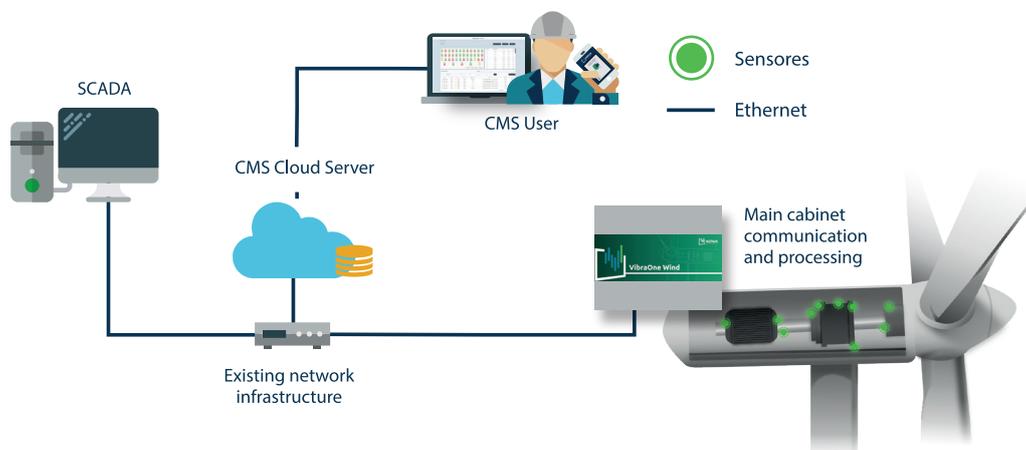
🌀 The solution provides continuous monitoring and recording of wind turbine's operating conditions, detecting faults and disturbances, allowing constant validation of the operational performance of field systems.

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

# Architecture

## Designed for Wind Application



SCADA

CMS User

Sensores

Ethernet

CMS Cloud Server

Existing network infrastructure

Main cabinet communication and processing

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*The cloud server can also be replaced with on-premises server.

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Contact us and learn more about how **VibraOne Wind** can enhance the reliability of your wind assets

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