ORBI**Gate**

OROS

Dedicated to the TurboMachinery World

Based on its long history of portable and rugged vibration analyzers, OROS addresses, with a dedicated software solution, directly to users, manufacturers and third party service contractors dealing with turbomachines. ORBIGate is the best solution for vibration acceptance tests, signatures, diagnostics and other troubleshooting operation.

TurboMachinery

Energy and Process industries run a lot of critical machine trains. They need to be developed, produced, accepted, installed and maintained with the highest level of quality and security for a continuous operation. From the manufacturer to the user, the machines have their vibrations recorded, processed and carefully analyzed. ORBIGate analyzes the machines running on fluid film bearings and offers the typical displays adapted to the relative motion of the shafts in their bearings within a dedicated and user friendly environment.

Energy

Energy producers have to keep their installations highly efficient and operational and vibrations are one of the key quantities to monitor their health and proceed to their maintenance. Whenever power generators are driven by gas turbines, hydro turbines, or steam turbines, ORBIGate is used to proceed to their vibration analysis. Talking of acceptance tests on the manufacturers test benches or troubleshooting vibrations in the field: in both cases the ORBIGate software solution and OROS analyzers are the trustworthy companions to carry out the tests.

Oil and Gas

From upstream to downstream of the oil and gas extraction process, turbomachines such as compressors are daily operated. Downtime is critical and no compromise can be done on the quality of the test equipment. Vibrations, representative of the machine health, are subject to be captured under a number of circumstances: from the initial acceptance test at the manufacturer place to the fault diagnostic to be carried out on an offshore platform. Dedicated to vibration testing on Turbomachinery, ORBIGate ease of use, combined with the portability and relaibility of OROS analyzers, makes it the solution for your vibration tests on oil and gas turbomachines.

Chemical and Petrochemical

You, operating a number of different turbomachines continuously for chemical and petrochemical plants, have to optimize the downtime. When vibration issues arise, the time allocated to vibration tests is reduced to the minimum. You need tools to capture vibration data efficiently and accurately, reducing the number of machine runups and rundowns to what is proposed. ORBIGate, the solution for vibration tests on turbomachinery will let you carry out your tests on all sensors simultaneously with an intuitive, dedicated software interface.

"When starting a vibe test on the field, I am just a couple of minutes away from my Orbit and Gap analysis, simply and efficiently."

▶ Rob Garret, 41   Senior engineer,
Rotating Equipment, Plant asset Management

OROS

ORBIGate software

Designed by Users for Users
ORBIGate's development is based on OROS experience from the field and from many users all over the turbomachinery world.
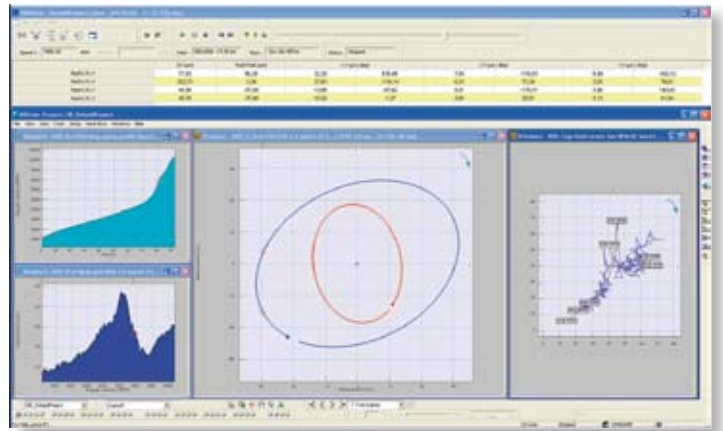
Dedicated and Easy
ORBIGate is a dedicated software solution for turbomachinery vibe testing. It is user friendly and rapidly operational to provide you with the best efficiency on the field.

Field & Office Operation
Field data are captured in real-time and directly displayed.
After the test, data such as nX orbits, shaft center lines and Bode diagrams can be easily navigated throughout.

Open and Flexible
Data and reports can flexibly be exported to Excel customized templates or text files that leave you free to use your data for further analysis.

OROS Analyzers

Made for the Field
- All-in-One Analyzer
- Rugged, Rough, Reliable
- On-site (real-time) and off-site analysis
- Portable

State of the Art Technology
- ± 40V
- 24 Bit – 40 kHz
- Accurate : +-0.02 dB/ +-0.02°
- 4 auxiliary slots for DC
- 2 triggers / tachometers

Real-time
- Built-in DSP(s)

Mobi-Disk™
- Personal removable disk

Remote Controller

TurboMachinery Sensors Connectivity
- Proximity Probes
- Velocity Sensors
- Accelerometers
- Tach Detectors

OROS

Vector Data
DC Gap voltage, Peak-Peak, nX values (Amplitude & Phase) for up to 6 selectable orders including subharmonics.

Orbits and nX Orbits
Shaft dynamic motion for each of the machine train bearings.

Shaft Center Line
Shaft position displayed during a machine start-up at different times and RPMs ticks.

Bode and Nyquist Diagram
Amplitude and Phase of each vector values can be displayed as a function of time or RPM.

Shaft View
Displays time domain data as a function of the angle of machine rotation.

Frequency Spectra

Raw Time Domain Continuous Recording
And many other typical functions useful for turbomachinery vibration analysis.
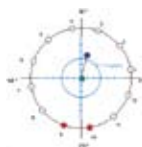
A Comprehensive Range for Noise and Vibration Testing
ORBIGate belongs to a comprehensive range of portable analyzers and software solutions.

Structural Analysis with Analyzers and OROS Modal 2
■ Frequency Response Function (FRF), Cross Spectra, Coherence
■ Impact hammer testing
■ Operating Deflection Shape analysis (ODS)
■ Modal and Operational Modal Analysis (OMA).

Balancing Analysis with OROS Balancing
■ Dedicated interface for testing and correction weight and position
■ Order 1 precision based on synchronous order analysis.

OR38
16-32 channels

Mobi-Pack™
8-16 channels

OR36
8-16 channels

OROS

Application-oriented for your Efficiency

Factory Acceptance Test

Machine shipment and installation requires so much that it must be carefully checked at the manufacturer site or service center. During the acceptance process, ORBIGate records the critical parameters, shows the typical displays of the rotor relative vibrations and positions. As in any production process the use is greatly facilitated trough a dedicated interface and an automated process limiting the number of actions and choices. An automatic report, through a customized template can be edited and printed. Data can be stored during the acceptance process for later post-analysis if required.

Site Acceptance Test

The machine behavior can be somehow different in the field because of the structural coupling with the foundation. Under those circumstances a field test has to be carried out to determine the mechanical impedance of the foundation. ORBIGate is used for the rotating tests and benefits of the OROS solutions range such as OROS Modal 2 for the other tests. The portability and ruggedness of OROS analyzers is key when realizing these on-site tests. A user-friendly software interface as well as customized report templates are also important in these measurement environments.

Troubleshooting and Diagnostics

Troubleshooting and diagnostics operations require the most various set of testing tools. The issue at the end is always to reduce the vibration level but the origin can be of multiple sorts: high excitation due to unbalance, misalignment or instabilities but also high structural coupling with the machine and its foundation. In this case, a number of tools such as ORBIGate, Modal 2, Balancing, or NVGate® the general platform for noise and vibration analysis may be required to face the issue.

"From rotating analysis to structural analysis: with my OROS system, I am ready for everything when I go on the field."

▶ Greg Parker, 39   **Vibration Diagnostics Engineer, Installation & Maintenance Division**

Worldwide Presence:

OROS products are marketed through our network of authorized representatives. Visit www.oros.com or contact info@oros.com to find your local reseller.

ORBIGate software

ORNVS-ORBI	TurboMachinery Vibration Solution

Analyzer configurations

OR38-FREQ-32/24	OR38 - 32 or 24 Ch. FFT Analyzer
OR38-ORD-32/24	OR38 - 32 or 24 Ch. Synchronous Order Analyzer
OR36-FREQ-16/12	OR36 - 16 or 12 Ch. FFT Analyzer
OR36-ORD-16/12	OR36 - 16 or 12 Ch. Synchronous Order Analyzer
ORMP-FREQ-16/12	Mobi-Pack™ – 16 or 12 Ch. FFT Analyzer
ORMP-ORD-16/12	Mobi-Pack™ – 16 or 12 Ch. Synchronous Order Analyzer

Optional hardware

OR36/8-DC2/8	2 or 8 parametric (DC) channels for OR36, Mobi-Pack™ & OR38
ORNV-RMT	Wired Remote Controller for OR36, Mobi-Pack™ & OR38

Optional software analyzer plug-ins

ORNV-FFT	Real-time & Post processing FFT plug-in analyzer
ORNV-FFTDiag	Real-time & Post processing diagnostic tool set (Envelope, Cepstrum, Pk, Pk-Pk, Crest Factor) add-on for ORNV-FFT
ORNV-ORD	Real-time & Post processing synchronous order plug-in analyzer
ORNV-TDA	Real-time & Post processing Time domain plug-in analyzer
ORNV-CBT	Real-time & Post processing constant band tracking add-on for ORNV-FFT

Optional software solutions

ORNVS-BAL3	Balancing Module for 3-Series analyzers
ORNVS-MOD300	ODS (Operating Deflection Shape) Module
ORNVS-MOD380	ODS + EMA SIMO + EMA MIMO + OMA

The previous references are example of OROS 3-Series analyzers and software modules that can complete your ORBIGate solution.
Contact your local dealer for further information.

www.oros.com
Noise & Vibration ANALYZERS

M002-078-1