OROS

MEASURING NOISE & VIBRATION

NOISE & VIBRATION

Testing & Analysis Solutions

www.oros.com

OROS Leadership through Innovation

About Us

OROS's design and manufacturing have been renowned for providing the best in noise and vibration testing and analysis solutions.

Our Philosophy

Reliability and efficiency are your ambition everyday. We know you require the same for your measurement instruments: comprehensive solutions providing performance and assurance, designed to fit the challenges of your demanding world.

Our Emphasis

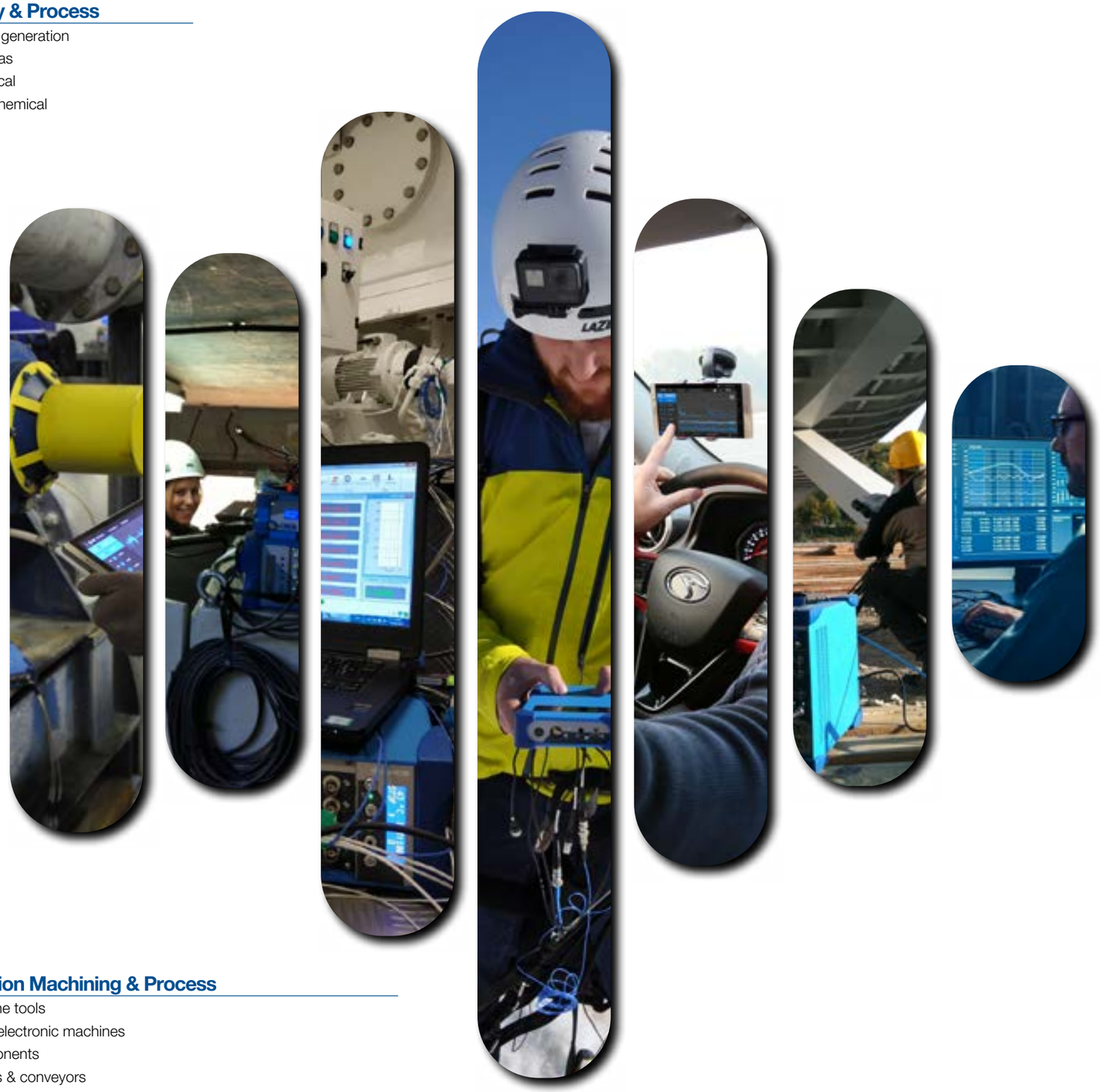
Continuously paying attention to your needs, OROS collaborates with a network of proven scientific affiliates to offer the latest technology, always based on innovation.

Table of Contents

Made for your Demanding World

Energy & Process
> Power generation
> Oil & gas
> Chemical
> Petrochemical

Aerospace
> Aero engines
> Aircraft, helicopters
> Subsystems
> Defense systems, satellites



R&D
> Prototype validation
> In-vehicle tests
> Simulation models updating and correlation

Automotive
> Cars
> Heavy vehicles
> Railways
> Components

Acceptance
> Test benches
> Field commissioning

Diagnostics
> Troubleshooting
> Root cause determination

Marine
> Shipbuilding
> Propulsion
> Defense

Precision Machining & Process
> Machine tools
> Micro-electronic machines
> Components
> Robots & conveyors

Application Based

Instruments, software and services to meet your needs and expectations in noise and vibration analysis for test bench, in the field or in the laboratory.

Rotating

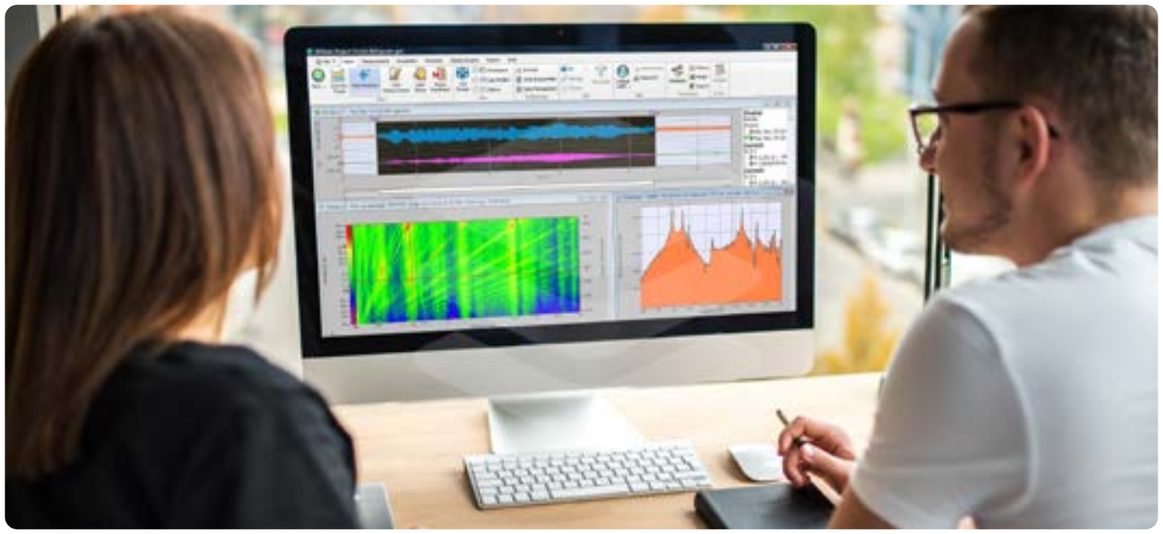
> Jet engine testing
> In-flight testing
> Rotordynamics & balancing
> Factory acceptance testing
> MRO - Maintenance Repair Overhaul
> On-site commissioning / Troubleshooting diagnostics

Structural Dynamics

> Bump test
> ODS - Operating Deflection Shape
> Modal analysis
> Building vibration

Quality & Process Control

> Microelectronics production equipment
> End of line production testing
> Machine tool fine tuning



Noise

> Sound power
> Source localization
> Psychoacoustic & sound design
> Building acoustics

NVH

> In-vehicle testing
> Prototype validation
> Powertrain testing
> Cabin noise & acoustic comfort

OROS Solutions Improve your Efficiency

OROS designs and manufactures portable, rugged and real-time noise and vibration analyzers with efficient software solutions for all your tests and measurements.

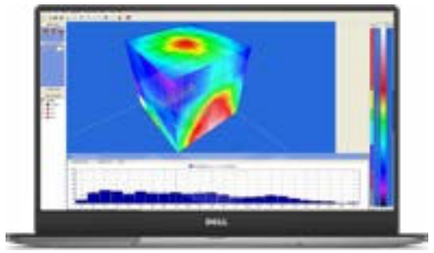
Software - From R&D to diagnostics

Rotating

> Order tracking
> Torsion & twist
> Rotordynamics
> Turbomachinery vibration
> Single, dual and multiplane balancing
> Monitoring

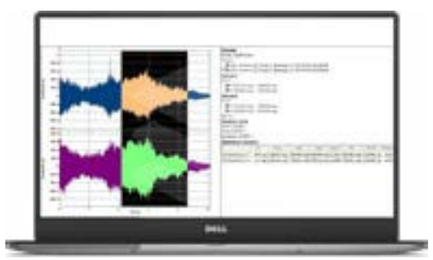
Acoustics

> 1/n octave
> Multichannel sound level meter
> Sound power
> Sound intensity
> Sound mapping & source localization
> Sound quality: psychoacoustics & sound design



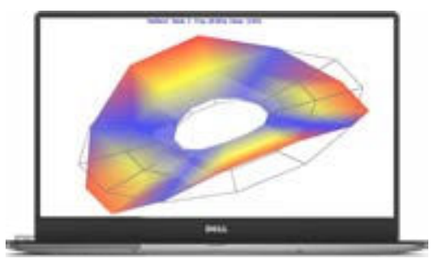
Data Acquisition & Signal Processing

> Recording
> TDA - Time Domain Analysis
> FFT - Narrow Band Spectral Analysis



Structural Dynamics

> Bump test
> FRF & cross-spectrum
> ODS - Operating Deflection Shape
> Modal analysis



Instruments - From 2 to 32 channels, cascadable up to 1000+

Flexible Connection

> Mobile analyzer
> Remote access
> Distributed configuration
> Large channel count systems

Multioperations

> PC free recording
> Real-time & post-analysis
> Multi-analysis
> Handles any transducer

Made for the Field

> Portable
> Rugged
> Real-time
> Multichannel
> Incl. batterie

Accurate

> DSP-based
> 24 Bit – 40 kHz – 140 dB
> From ± 100 mV to ± 40 V input range
> ±0.02 dB / ±0.02°

Services - Everywhere close to you

Training

> Initial
> Advanced
> Webinar

Coaching

> Software customization
> Measurement and analysis

Testing

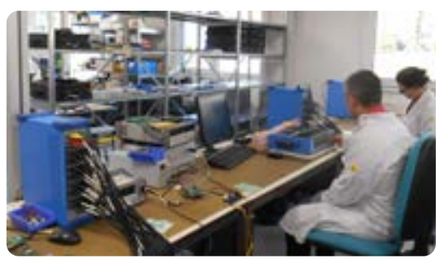
> Diagnostics expertise
> Troubleshooting
> Tools for automation

A Dedicated Team

> Dynamic and responsive Services department
> Worldwide hotline
> Global Accredited Maintenance Centers (worldwide coverage)
> Rentals
> Ready-to-go systems at any time

Maintenance and Contracts

> Premium contracts
> Software updates
> Hardware upgrades
> Calibration



Teamwork Instruments

For Teams & Fleets

Flexibility: Handles any transducer • Dual licenses system • Synchronous multi-tasking (live and post)
Multi-environments: Robust design • Standalone & remote monitoring modes • Easy integration for test benches
DataCare: Embedded dedicated processing (DSPs) • High-end metrology in all locations • Retrievable SSD hard-drives

Connections for any Situation

OR35, OR36 & OR38 Instruments

From 2 to 32 channels per chassis, and with daisy chain distribution the OR35, OR36 and OR38 instruments' range perfectly suits your measurement requirements with its high level of versatility and performance. Designed to be shared, these instruments provide exactly the same performance and capacities per channel no matter the model.

Full Combination Options

- Switchless daisy chain distribution
- Best in class cross channel phase 0.2 ° @20 kHz
- Local processing and storage: extend the system power as channel number grows
- Auxiliary tach/triggers and generators on all chassis's

Made for Everyday Efficiency

- Exchangeable XPod strain & temperature conditioners
- PC free, direct standalone recording
- USB ports for recording or charging/ powering of accessories

Powerful Instruments

- Fixed / removeable embedded SSD 64 to 512 GB
- Dynamic or parametric (DC, 10 S/s) universal inputs
- Scalable Force DSPs up to 8/chassis
- 2 to 3 hours autonomy on internal batteries

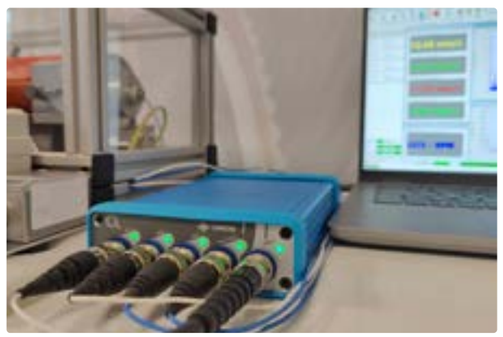
O4 – 4 channels USB Compact Analyzer

Focused on portability, accuracy, and ease of use, O4 packs includes the latest USB compact analyzer, selected powerful software modules, and ready-to-use models carefully prepared with OROS know-how accumulated over 40 years.

- Plug & Play: data & power by PC via 1 USB cable
- Ultra portable: 185x110x35 mm, 534 g
- High-end metrology
  - Accuracy: phase ±0.02°, amplitude ±0.02 dB
  - 4 inputs, ±40 V, 24 bits, AC/DC/IEPE/TEDS/ FLOAT
  - 2 high speed Ext synch (trig/tach), oversampled 32.8 MHz, ±40 V
  - 1 output

O4 Rotating pack

- Rotor balancing
- FAT & commisioning
- Test bench integration
- End-of-line production test



O4 FFT pack

- Machine tool tuning
- Modal/ODS
- Blades sorting
- Mobility check

Teamwork Technology

DataCare, Focus on the Best of your Signals

OROS Teamwork instruments include common «edge technologies» with an ability to process and store data faster, providing more efficient real-time results. Designed to accurately capture the right data at the right time, this powerful architecture combines many advanced capabilities.

Handle any Transducer

Front-end designed to handle any type of transducer with no hassle

- Accelerometer, microphone, force & pressure with ICP & TEDS
- Torque, power, etc.... including parametric DC mode (part of universal inputs)
- Prox. probe & keyphasor with ±40 V

Temperature XPod

- RTD: PT100, PT1000
- J, K, T, N, E, T thermocouples
- Integrated linearization
- Automatic cold junction compensation

Wheatstone Bridge XPod

- Full, ½ and ¼ bridge
- Automatic bridge balance
- 120/350 Ω built-in resistors 0.5%
- Continuous 0 to 10 V excitation compensation

High-Performance Triggers

Teamwork instruments feature high speed digitizers for acquisition on triggers & tachometers. From 2 to 6 external sync inputs per chassis.

- 6.4 MHz oversampled trigger/tach
- Eliminates ripple & jitter errors
- Tach, torsion, twist and angular sampling
- Sub-sample trigger adjustment

Access Anywhere

The Teamwork instruments feature advanced connectivity that includes:

- High speed 1 Gb/s Ethernet with integrated switch
- SSH tunnel for secure remote connection
- 100 Mb/s PTP IEEE 1588.2 clock synchronization with integrated switch
- USB 3.0 ports for data streaming

Fluid real-time results at all times with edge computing and storage.

State of the Art Features

- Double aluminum casing
- Connector protections
- Dedicated transport bag
- DC 10-32 V and AC mains
- Control screen & keyboard
- Rubber corner protection
- ±40 V, 24 bits, 140 dB dynamic
- ±0.02 °/ ±0.01 dB channel match
- 40 kHz BW, 102.4 & 65.536 kS/s
- AC, DC, IEPE, Float & TEDS
- Instrument locked shared licenses
- On-board battery
- Retrievable solid-state disks

Gap-Free Multi-Analysis

When using OROS instruments for real-time analysis a gap-free analysis is guaranteed: all single samples are captured and processed thanks to the DSP based technology. This is very important as critical information may be stay hidden in the signal when using a non gap-free system.

The DSP based architecture of OROS systems ensures full real-time analysis avoiding any gap in the sample stream.

- Scalable DSP
- From 2 to 8 channels per DSP
- Multi-task analyses
- 100% deterministic

Flexible Recording

The edge technology permits secure, high speed real-time multi-tasking of your data without compromising efficiency.

Recording raw data can be monitored with computed results (profiles, color maps, spectra, levels). Such results are used as graphical test signatures.

Real-time analysis can be re-analyzed anytime with the raw data recording backup.

Designed for the Field

Teamwork instruments extend the need for laboratory accuracy to the field.

- ½ day batterie life
- MIL-STD-810-F
- Robust aluminum casing
- -20°C to 50°C
- Portable

Versatile Generators

All analyzers have high-performance outputs driven by a flexible multi-signal generator module.

- Controls experimental shakers
- 1 to 6/chassis, cascadable
- Fully synchronized
- High resolution down to 25 µHz
- Pure / Multi / Swept sine, white/pink noise, chirp, burst, file playback
- Uncorrelated noises



Data Acquisition & Signal Processing

NVGate, the Teamwork Software Platform

NVGate is the OROS software platform. It manages instruments' setup and signal analysis in both real-time and post-processing. NVGate gathers the basis of noise & vibration measurements backbone with front-end setup, signal processing, calibrations, transducers' database, live results graphs, reports and measurement automation tools.

From Acquisition to Reporting, a Platform for your Performance

The OROS software feature natively embedded technologies that enhance your efficiency, security and quality.

Usage Driven Workflow

Based on OROS experience of user's feedback, the ergonomics are optimized for a reduced number of clicks.

- Toolbox flexibility
- Ribbon access for setups, displays and actions
- Reload saved and shared setups
- Advanced display tools: live linked cursors, maths operators, D&D based comparison

Automation for Optimized Efficiency

For test benches and production lines, automated process is key for an optimized efficiency.

- Non specialist's usage: start and run
- Dedicated control panels
- Mask editors and alarms
- Macros and sequences for automated data acquisition, data storage and reporting
- Template based Word/Excel automatic reports


Simultaneous multianalyses

The platform features the following analyses in real-time and post-processing:

- Signal recording
- TDA - Time Domain Analysis
- Single and multiple FFTs
- 1/n octave and sound level overalls
- Order tracking

Data Management Designed for Teams

Teamwork require to easily browse, filter & sort large datasets and setups:

- Measurements measurements by contextual properties and attachments
- Team shared data and setups
- Use any PC or network directory: database free
- A platform data management for the software suite
- Multiple data formats imports and exports

Multi-Purpose Analysis for your Daily Use

Just Store It - Recorder

The time signal is recorded to be post-analyzed later on

- Parallel results monitoring for optimized efficiency, comfort and security
- Gap-free parallel sampling rates: slow @10 S/s, fast (selectable up to 102.4 kS/s), oversampled @6,4 MHz for tachs
- Pre-event recording

A Glance at It - Time Domain Analysis

A first step into analysis allowing:

- Looking at signals from seconds to hours
- Displaying typical scalar values (True DC, Min , Max, RMS, 0-Pk, Pk-Pk, Crest factor, Kurtosis) as view meters and profiles
- Triggering other analysis/recording

Get into It - FFT

The FFT module is the swiss-knife of noise and vibration analysis providing narrow band analysis. It is used for most applications including structural dynamics, acoustics, and rotating analysis. It offers from basic to advanced analysis results:

- Spectra up to 40 kHz with 25601 lines
- Frequency, time and synchronous time averaging
- Lissajous, shaft view, envelope demodulation
- All units: RMS, Peak, pk-pk, PSD, ESD, RMS PSD
- Single/double integration & differentiation filters

Track its Evolutions - Waterfall

Results can be stored in a pile referenced as a function of time, RPM or other parametric data (temperature, torque etc…).

- 3D, colormap, profiles, Bode displays
- Band level, order and max order extraction sections
- Multigraph linked cursors for comparison analysis




Rotating

From Acceptance Tests to Diagnostics

Whatever the machine type: high speed turbine, compressor, transmission or a slow speed engine, OROS analyzers provide all the tools for rotating analysis from R&D, acceptance tests to diagnostics.

Rotating Speed Measurements

OROS 3-Series analyzers feature flexible and accurate shaft speed measurement tools. **Tachometer signals are over-sampled** to ensure accurate rotating speed and phase. Signals can be adjusted for better pulse detection using filters, holdoff and hysteresis.

External Trigger Channels

- 2 tachometer inputs are standard (up to 6/chassis)
- High sampling rate of 6.4 MHz (< 152 ns resolution) to allow an accurate phase measurement

Angular Sampling

For crankshaft, timing and valve analysis on engines.

Integrated Frequency to Voltage Converter

This function allows using the external synch channels directly as inputs for **torsional & twist** measurement.

Output Shaft Rotating Speed Computation

Based on 1 or 2 tachometers and the gear ratio. Provides phase and RPM from any shaft on the kinematics including CVT belts.

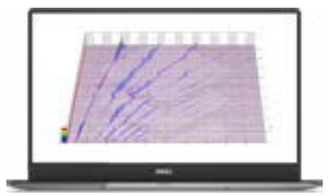
Order Tracking Analysis

Order Based Diagnostics: ORDiag

- **Rotation synchronous levels** (RMS, Min/Max, Pk-Pk, Crest factor)
- Angular correlation
- Roders, ORFs

Constant Band Tracking (CBT)

Helps the user acquire gearboxes' modulated and often buried noise and vibration orders.



Synchronous Order Analysis (SOA)

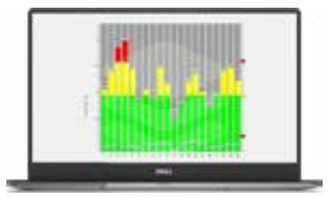
Provides stable and repeatable measurements for any speed-varying machinery. Using proven **real-time angular resampling algorithms**, SOA extracts amplitude and phase of orders; even from fast transients.

- Up to 40 kHz real-time analysis
- Order or angular domain averaging
- Max order contribution search
- Simultaneous order analysis on 2 shafts

Monitoring

Use as a standalone monitoring system with ability to trigger actions based on defined alarm conditions. The system operates autonomously and can be accessed remotely for further diagnostics.

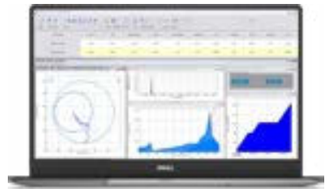
- From basic to advanced triggering conditions
- Pre-trigger time domain signal recording
- Advanced and flexible actions on alarms (emails, external applications, macro)



Turbomachinery Vibration : ORBIGate

ORBIGate, the turbomachinery software, gathers all functions required for turbomachinery rotordynamics analysis into one simple to use dedicated user interface.

- **Tabular list: gap voltage, overall,** orders amplitude and phase (0.5X, **1X,** nX), Sub1X, SMax
- **Orbits** (Overall and nX filtered)
- **Full shaft motion:** Shaft centerline + clearance circle + orbits
- **Bode, polar and trend** plots
- **Full and half spectrum**, cascade and waterfall
- Gap voltage reference
- **Slow roll vector** reference for **run-out** correction
- Real-time acquisition, post analysis (based on raw signal recording) and data navigation



Torsion & Twist

The Instantaneous angular Velocity Converter (IVC) provides instantaneous angular velocity signal to be analyzed.

- **Integrated frequency to voltage converter**
- **Cross phase tracking:** the order cross-phase relatively to a reference channel for torsional resonances at specific orders identification.
- **Virtual inputs** compute the static and dynamic twist from 2 tachometers' signals.

Single, Dual & Multiplane Balancing

Assists the user during the test and the correction process:

- Rigid or flexible rotor
- 1 or 2 sensors per plane
- Synchronous Order Analysis based
- Trial mass method
- Balancing prognosis, Trim

Spectral Based Diagnostics: FFTDiag

A complete toolset dedicated to machinery diagnostics: rotating machine trains, transmissions, gears and roller bearings.

- ShaftView
- Kinematics' markers
- Levels & profiles
- Cepstrum
- Envelope demodulation

Structural Dynamics

From Acquisition to Modal Analysis

Structural dynamics aims at understanding the mechanical behavior of vehicles, components and industrial machinery. The success of such analysis starts with an efficient and high quality data acquisition in the field: the key main features required for achieving this have been built into our solutions.

Structural Data Acquisition

With its dedicated structural mode, the FFT software module offers a comprehensive tool set for FRF and cross-spectra acquisition. Whether impact hammer, shaker excitation, or natural excitation is used, structural data can be acquired with confidence.

> Use the appropriate results and display: **Frequency Response Function (FRF)**, cross-spectra, force spectrum, coherence, trigger blocks.

> Any input can be set as the reference which generates a multiple reference FRF and cross spectrum matrix.

> Manage small to large amounts of structural data by **cascading instruments**.

> Define the measurement sets in Excel and use our node path sequencer to track all measurement points.

> **Hammer** impact auto-range.

> Use the appropriate weighting window (uniform, force/response).

> **Excitation validity check** based on results preview: FRF, Force spectrum, Coherence, Trigger blocks.

> Accept/reject impact hammer measurement after checking coherence.

> Connect up to **6 shakers** for open-loop excitation with our outut generators.

> **Excitation signals** such as swept sine, chirp, random, can be generated simultaneously.

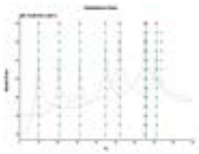
> Export the FRF in Universal File Format (**UFF**), MATLAB® and ASAM format.

Modal

OROS proposes a comprehensive and powerful modal package adapted to all user levels from novices to modal experts. It features Operating Deflection Shape (ODS), Experimental Modal Analysis (EMA) as well as OMA (Operational Modal Analysis) using powerful state of the art algorithm making analysis of complex structures accessible without expertise.

Geometry Building

Interactive interface to create, modify and assemble standard elements or complex structures with global and local coordinate systems. **Import data from external software** in Universal File Format (UFF) and .iges.



EMA

SIMO (Single Input Multiple Output) & MIMO (Multiple Input Multiple Output)
Single/multi-input and multi-output idenitifcation.

OMA

Narrow Band and Broadband Identification for responses only.

Focus on the Broadband method to identify all modes in a broad frequency band with high accuracy in a single measurement.

Direct Acquisition & Signal Processing

Dedicated interface for modal acquisition **with impact hammer, shakers** or under **operational conditions** to obtain:

> FRF H1, FRF H2 for EMA.

> Power spectral density, half power spectral density for OMA.

Validation

Use **MAC & COMAC to compare modal** parameters from different methods. Compatible with external experimental and simulation results.

ODS

Look at structure deflection based on natural excitation in time and frequency domain.

Correlation and Model Updating

with FEM tools from DDS

> Structural static and dynamic simulation

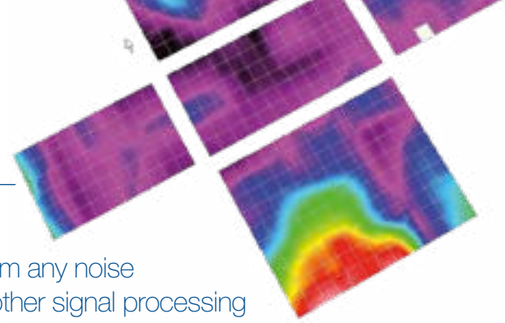
> Pre-test and correlation

> Model updating and optimization

Acoustics Analysis

From Benchmarking to Troubleshooting

Teamwork instruments provide accurate and comprehensive results from any noise phenomena. Acoustic analysis can be performed simultaneously with other signal processing such as FFT, recorder, or order tracking.



Sound Power

In multiple situations, the sound emitted from objects need to be quantified: sound power is the ideal quantity for this. Depending on the test environment the best method to apply may vary. If it is a field test, Sound Intensity based techniques will be typically applied. If it is a repetitive test based on a test bench, the sound pressure based technique (Sound Power) is the ideal one.

Sound Pressure Based

The Sound Power software provides sound power determination based on the sound pressure levels measured by microphones around the test object. It is ideal for a test bench: indoor (laboratory anechoic environments) or outdoor environment.

- Fulfills main international standards for **free field environments: ISO 374x**
- Dedicated interface for easy and repeatable operation
- All microphone positions measured at once
- Overall and Spectra real-time display
- Type-1 precision results in dBA
- Direct Sound Power determination
- Automatic standard validity check
- Background and environmental corrections
- Repeatability and directivity checks
- Test reporting with Excel

Octave Analysis

- **1, 1/3rd, 1/12th, 1/24th octave**
- Complies with IEC 61260 and IEC 60804
- A, C weighting filters and other common ISO standards
- **Fast, slow, impulse** time filtering
- Leq, Short Leq, User Leq, Constant BT
- Mask, Min/Max live overlay
- 1/n octave **waterfall** with profile extraction by band
- Dedicated DSP processing
- Up to 40 kHz

Sound Intensity

Sound Intensity software module is a flexible experimental technique that allows to obtain a large number of information on the sound pattern emitted from a source such as sound power or noise source localization.

Sound Intensity Based

The Sound intensity software provides sound power determination based on the sound intensity measured by an intensity probe following the point-by-point testing (ISO9614-1) or the scanning procedure (ISO9614-2). It is ideal for tests in the field.

- Real-time sound intensity spectrum
- Guided measurement procedure following **ISO9614-1 & 2**
- **Field criteria** and indicators calculation
- Automatic sound power report
- Calibration module for phase calibration and pressure-residual intensity index
- Probe remote control management

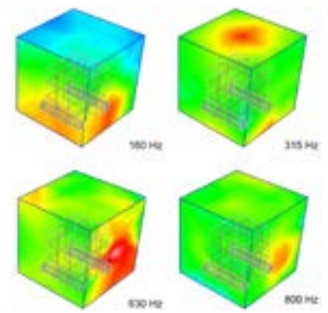
Sound Mapping and Source Localization

- Classical exploded 2D view & Advanced 3D graphics sound mapping
- Levels and spectra selectable by segment
- Narrow band, octave, and 1/3 octave
- Guided acquisition procedure
- Multiple measurement surfaces creation
- View the source behavior at several frequencies simultaneously
- Intensity probe remote control management
- Detect stationary noise sources

Overall Acoustics: Levels & Profiles

The OVA plug-in, a **multichannel sound level meter**, extends the analyzer's capabilities to a comprehensive acoustic measurement system.

- Complies with the latest standards such as **IEC 61672**
- Runs 3 RMS and a true peak detector/channel
- Time filtering and weighting
- User selectable 3rd order 10 Hz high pass
- Long duration profile memory (100,000 points/channel)





Services

Everywhere Close to You

Responsiveness is the key to offering the highest level of services. OROS relies on a powerful network of subsidiaries, offices, resellers, maintenance centers and qualified partners. They are the first steps to your productivity.

Training

Experts from OROS offer **theoretical and applied training sessions on noise and vibration**. Our training programs are defined with you according to your needs: content can be either initial or advanced depending on your level and skill.

Our objective is to work side-by-side with you as you use of your system to **maximize your profitability and efficiency**. We offer **applied training programs at your facility**. We also offer **remote web-based training sessions** with one of our many expert instructors.

Coaching

Assistance with your Measurements

When resources are not available to you (lack of resources, skills, or systems), we offer assistance with your on-site measurements. We manage the entire process of your tests and measurements, up to and including final test reports. We help optimize your measurement process depending on your application and field requirements.

Expertise in Diagnostics

We even perform the measurement for you with on-site diagnostics or prototype characterization.

On-demand Services

We offer on-demand software and hardware upgrades and updates. At any time, calibration (NFX07-011) as well as diagnostics and repair can be provided.

Customization

When your needs go beyond typical use, we are able to answer the need for your **specific requirements and adapt to your specifications**. With our flexible platform, we are able to **customize either the instrument or software**. We tap into our years of experience and know-how to find the best solution for you.

Automation Tools

We offer a large panel of tools for automation that streamlines your testing. As an example, our macros and sequences are very powerful tools that create automated procedure.

Integration

NVDrive allows you to implement your own solution. From a simple add-on to complete test benches, build your program that drives and get results from Teamwork instruments through a TCP/IP interface.

Renting

Based on a range of modular instruments from 2 to 32 channels, the OROS line of Teamwork analyzer technology enables them to cascade or be distributed up to 1000 channels. Instruments, conditioners and software licenses are flexible and interchangeable.

The OROS Customer Care department is at your disposal to propose rentals of instruments and/or software modules to help you in your **fleet management**.

Hardware: increase capacity and performance of your instruments.

Software: try other OROS software modules according to your applications or rent any additional function on an as-needed basis.

Premium Contracts

1, 2 or 4 years renewable contracts to extend your warranty

- 3 months *satisfied or exchanged* period
- Hotline (Help-desk support)
- Full coverage on your instrument (calibration and maintenance)
- Guaranteed turn around time (4 days) for hardware repairs and calibration
- Loaner units on longer time-frame repair or calibration
- Access to a personalized section on the myOROS website for software updates, tech-notes and other non-public downloads
- Calibration reminders
- Priority service at our maintenance center
- Privileged access to extended services at a preferential rate: urgent loan within 1 day,…

The OROS Service Department

Paying the greatest attention to our customers' satisfaction, OROS devotes a dedicated department, the Services Department, to ensure the best use of our technology. The dynamic and responsive team closely works with all the OROS experts: technical, R&D, manufacturing, marketing and sales.

Global Accredited Maintenance Centers

With worldwide coverage (China, Europe, India, Japan, South Korea, USA), OROS is in close proximity to its customers, ensuring your instruments are up and running when you need it. Technicians are certified on a regular basis by OROS specialists, enabling them to repair, calibrate and upgrade all OROS systems.

OROS and the Digigram Group

Headquartered in Grenoble, French Alps, with a worldwide reach, the Digigram group has built its expertise on the design and manufacture of professional audio solutions. OROS joined the group in 2024 adding its 40 years reputation, knowledge and experience in noise and vibration testing solutions.

Building on a joint vision and the value of our expertise from noise and vibration to critical audio, we are ready to address industrial market.

Our Focus

Our systems are specially designed to address the automotive, aerospace, marine energy & process, manufacturing and automation industries.

Our solutions range covers data acquisition, structural dynamics, acoustics and rotating applications.

Worldwide Coverage

Our Maintenance Centers provide close proximity to our customers. Technicians are certified on a regular basis by the OROS specialists.

Our representatives are carefully selected for their knowledge and expertise in noise and vibration analysis. They are regularly trained and updated on OROS products.

> Find your local reseller on **www.oros.com**

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MEASURING NOISE & VIBRATION

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