Noise & Vibration
Test and Measurement Solutions
for Manufacturing & Automation Industries
Made for Your Demanding World

1- Improve Efficiency
2- Improve Quality

R&D
- Machine tools structures
- Machine tools transmissions
- Micro-electronics machine stability

Complete testing capacities
- Universal sensor’s types: temperature, strain, pressure, displacement
- Force / displacement FRF
- High accuracy displacement measurement...

Production
- High speed machining optimization
- On-line test
- Machining quality check
- Grinding machines tuning

Optimize quality
- Versatile tool box for vibration troubleshooting and diagnostics applications
- Force / displacement FRF
- Remote tests

They trust OROS

“Testing micro-electronics machines requires very high accuracy of a lab instrument in a portable and flexible packaging. The OROS Teamwork system is perfect for our job, it provides accuracy and flexibility in any situation. From our services lab to in factory measurements, these units allow measuring from 2 to 64 channels in the same way.”

Edward BAYLE, 31
Noise and Vibration Technician,
Stepper Services Leader.
OROS Solutions
Enhance your Efficiency

INSTRUMENTS

Flexible Connection
- Mobile Analyzer
- Distributed Configuration
- Remote Access
- Large Channel Count Systems

Multioperations
- PC Free Recorder
- Online & Post Analysis
- Multianalysis
- Handling Any Transducers

Made For the Field
- Portable
- Rugged
- Real-Time
- Multi-Channel

Accurate
- DSP-based
- 24 Bit – 40 kHz – 140 dB
- ± 40 V input range
- ±0.02 dB / ±0.02°

SOFTWARE R&D, Acceptance, Diagnostics

Data Acquisition
- Time Domain Analysis
- Level Monitoring

Rotating Analysis
- Synchronous Order Analysis
- Spectrum Based Diagnostics
- Torsion & Twist

Structural Dynamics
- FFT
- ODS (Operating Deflection Shape)
- Modal analysis

Noise Analysis
- Octave Analysis
- Sound Level Meter
- Sound Intensity

SERVICES Anywhere Close to You

Training
- Initial
- Advanced
- Webinar

Renting
- Instruments
- Software modules

Coaching
- Software customization
- Assistance in your measurement
- Expertise in diagnostics

A Dedicated Team
- Dynamic and responsive Services department
- Worldwide hotline
- Global Accredited Maintenance Centers (worldwide coverage)

Maintenance and Contracts
- Premium contracts
- Software updates
- Hardware upgrades
- Calibration
Optimizing your Production Machines

Rotating Analysis

Gear & Transmission Analysis

Gear box vibrations have high frequency content which can impact machine’s parts quality. A first step is to analyze them using the standard FFT analysis. One can get further with tools such as cepstrum, kurtosis and harmonic markers provided by the OROS FFT-Diagnostics tool.

Torsional Analysis

Electric motors and their transmissions are subject to rotational speed fluctuations and resonances. These torsional motions may have important effects; fatigue, life time reduction, malfunction or low quality machined parts source may be hidden in the motors, gears, belts or chains of your machine tool. The OROS Torsional inputs and associated software offer the ideal toolset for identifying the source and path of rotational fluctuation into your machine kinematic.

On-Site Measurements & Applied Trainings

Experts from OROS come on-site for applied trainings. They will help you using your OROS system. They can provide assistance in your measurement. They are also able to recommend optimization in your measurement process depending on your application and field requirements.
Optimizing your Production Machines

- High Speed Machining
- Milling and Lathing Machines
- CNC center
- Grinding Machines
- Robots

Structural Dynamics

Damping & Isolation
Absorbing and damping mounts are the components through which the vibration energy is transmitted between the motor and the rest of the optical parts: their properties dimensions and positions are key and should be determined with care. The techniques used are cross spectrum, transfer functions, damping, as well as ODS.

Experimental Modal Analysis
Modal Analysis is one of the key step when testing machines' structures and components: it will determine their structural characteristics and so, will define how they will react to operating excitations. Shaker or impact hammer excitations can be used to capture the experimental datasets: the final stage is the actual OROS Modal analysis.

Cutting Tool Optimization
To produce high quality mechanics, high quality machining is required. Machine tools like any other high speed machines have a potential rich vibration content. It is essential to monitor and optimize surface fluctuations generated by the cutting tool vibrations in order to avoid any possible defect in the quality of the manufactured parts.

Micro-Electronics Equipments
- Wafer Steppers
- Photolithography Machines
- Workshops Floor Vibration
OROS is a global manufacturer and solution provider of noise and vibration measurement systems.

OROS masters the latest technology of data acquisition, digital signal processing as well as user interface software.

OROS instruments are used in the major sectors of industry and research, for industrial acoustics, structural dynamics and rotating machinery applications. Hardware and software are totally designed in-house.

Now approaching 30-years in business, OROS instruments are renowned as being designed for the field but powerful enough for any lab.

Find out more on the OROS offer in the Range brochure.

Downloadable on www.oros.com

### Rotating Analysis
- ORNV-SOA: Synchronous Order Analysis plug-in
- ORNV-CBT: Real-time constant band tracking add-on
- ORNV-FFTDiag: Real-time diagnostic tool set (Envelope, Cepstrum, Pk; Pk-Pk, Crest factor, shaft view) add-on
- ORNV-IVC: Integrated instantaneous angular Velocity Converter plug-in, allows on-line and offline torsional analysis
- ORNV-SAL: Balancing Solution

### Structural Dynamics
- ORNV-FFT: Real-time FFT plug-in
- ORNV-MOD300: ODS (Operating Deflection Shape) Solution
- ORNV-MOD350: ODS (Operating Deflection Shape) and Modal Analysis Solution

### Data Acquisition
- ORNV-REC: Recorder
- ORNV-TDA: Real-time domain analysis plug-in
- OR36/8-CAN: CAN Bus hardware interface and software components for OR36/OR38
- OR36/8-PXD-B: 8 Strain gauges bridge conditioner XPOD

### Noise Analysis
- ORNV-OCT: Real-time filter based 1/3 octave plug-in
- ORNV-OVA: Real-time overall acoustic levels plug-in analyzer
- ORNV-SI: Sound Intensity Solution
- ORNV-SP: Sound Power Solution

### Analyzers: examples of configurations
- OR34-FREQ-4: OR34-4 Ch. FFT analyzer
- OR35-FREQ-8: OR35-8 Ch. FFT analyzer
- OR36-FREQ-16: OR36-16 Ch. FFT analyzer
- ORMP-FREQ-16: Mobi-Pack-16 Ch. FFT analyzer
- OR38-FREQ-32: OR38-32 Ch. FFT analyzer

### Specifications
- Channels count: 2 to hundreds of channels
- Inputs:
  - Sampling: 2 kS/s to 102.4 kS/s - 24 bits delta sigma ADC
  - Accuracy: Phase ±0.02° - amplitude ±0.02 dB - Dynamic > 140 dB
- Conditioning: AC/DC/ICP/TEDS up to 40 V
- Outputs:
  - DC to 40 kHz - ±10 V range - 24 bits DACs - THD < 0.002%
  - Ext. synch (Trigger / Tach): 64 x oversampled - Resolution < 160 ns (0.06° @ 1 kHz) - up to 40 V
  - DC channels*: Sampling 10 Hz - 50 Hz/60 Hz rejection - reproducibility <1 mV
  - CAN Bus: CAN 2.0A & 2.0B - 125 kb/s to 500 Mb/s
- System:
  - Hard disk: 128 to 512 GB SSD
  - Internal battery: up to 2h
  - Link to PC: 1 Gb/s Ethernet
  - Weight: from 1.4 kg/3 lb to 10 kg/22 lb