

The Teamwork Mobile DAQ System

Introduction

Noise and Vibration tests play a major role in performances, reliability and NVH experience of appliances, vehicles and industrial machineries.

This widespread of tests leads to a large set of signal acquisition situations. Measurements conducted by experts in the laboratories with regular PC based instruments are comfortable. Others may show more difficulties in field/vehicle area or when they need to be conducted by operators. In such cases, the mobility, autonomy and simplicity raise as the most important instrument's features.

OROS, as a specialist of Noise and Vibration instruments, offers MODS, its new Mobile Data acquisition System, which ideally completes the Teamwork instruments range for mobile and light tests.

The OROS Mobile DAQ System (MODS) consist of:

- OR10, a 4 to 8 ch. mobile DAQ, for the acquisition,
- NVGo, the Android Apps for the setup and signal monitoring,
- NVGate, the OROS software platform for data management and (post)analysis



The multiple combinations of these components open the range of usages:

- > Create setups with NVGate and do Standalone data acquisition with OR10,
- > Post-analyze signals with the OROS software suite post-processing modules
- > Wireless data acquisition monitoring with NVGo and OR10,
- > Real-time analyses with OR10, connected to PC through Ethernet or Wi-Fi

Industries

- > Automotive
- > Aerospace
- > Marine
- > Energy & Process
- > Manufacturing

Machines

- > Car, Trucks, Trains, Elevators
- > Aircrafts cabin
- > Industrial machineries
- > Automotive parts test bench
- > Ship machinery control

Applications

- > Driver alone in-vehicle test
- > Elevators maintenance and NVH
- > Roof top HVAC systems maintenance
- > Automotive parts NVH test benches
- > Industrial machinery inspection route
- > Isolated machinery trouble shooting

Description

OR10 - 4 or 8 channels MODS DAQ

OR10 is a Noise & Vibration recorder and front-end which brings the OROS Teamwork high end metrology to mobility. It replaces perfectly your Teamwork analyzer for data acquisition when PC and analyzer are not easy to handle. Post-processing data with NVGate provides the same results quality as with any Teamwork instrument.

In the size of a pocket book, OR10 let you travel comfortably to the UUT¹. Its adjustable carrying case simplifies travels with independent pouches for stationary and mobile accessories. Its 0.8 kg let you hand carry or deposit it anywhere (dashboard, workbench, seat...).

For measurement, the autonomy is adjusted to a half-day of acquisition. The simplified keyboard and the touchscreen permit reliable and secured manipulations. Signals are saved on local memories; One removeable SD card and a fixed eMMC that allow hours of recording @ bandwidths up to 40 kHz.

OR10 features 4 or 8 inputs, 2 over-sampled Ext. sync, a 16 ch. CAN 2.0 interface, GPS and Wi-Fi. USB-C for both data & setup managements and power supply. 100 Mb/s Ethernet for connection to PC, headphone for inputs monitoring.



NVGo - the MODS Android Apps

NVGo is an apps that allows operating your OR10 through Wi-Fi for measurements setup and monitoring. Fully oriented for field operation NVGo provides simple and clear interface avoiding in-depth menu navigation.

NVGo manages setups and measurements through top and bottom ribbons leaving the display center devoted to continuous inputs and signal monitoring.

Top ribbon features:

- > **Front-End** area:
 - Access to the front-end table allowing setting up inputs, activate/disable, label, range, coupling and units.
 - Recorder setup with mode (Start-to-Stop, Start-to-Time), duration and pre-trigger.
 - Available recording duration or on-going record time.
 - Sampling frequency from 2 oscillators, always visible.

¹ Unit Under Test

- > **Template area:**
 - Active Template (predefined setups from NVGate) always visible
 - Access to the Load Template screen based on properties, comments and front-end description.
- > **Instrument area:**
 - Memory status with free space and current setup max recording duration. Plus, access to the records list.
 - OR10 parameters Wi-Fi and battery levels



Bottom ribbon is dedicated to the measurement itself. It offers:

- > **Run/Stop** button
- > Screen selection, available at any time:
 - **Levels** -> switches to RMS/Peak view meters, 8 inputs at a time
 - **Signal** -> switches to signal envelope 2 inputs at a time, swipe to swap
 - **LiveView** -> switches to spectral, trigger block and RMS, 2 inputs at a time, swipe to swap
- > **Playback** -> plays the 2 selected inputs in the OR10 headphone plug, L/R hot swap

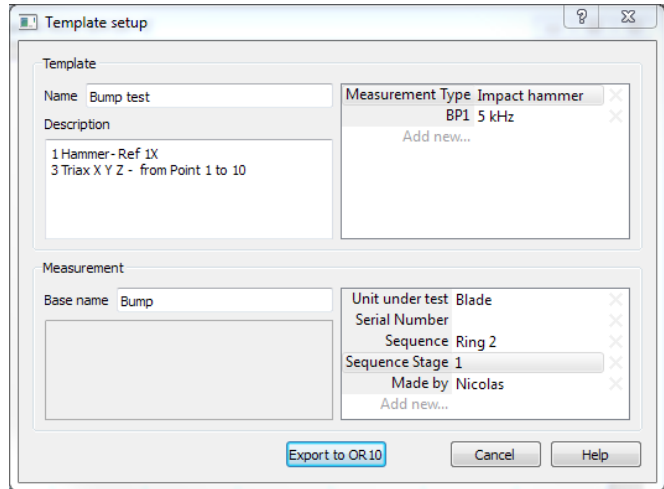
NVGo integrates the NVGate *DataSet Management* (DSM) to identify templates and measurements. User defined properties help the operators selecting the setup templates while prefilled ones are proposed for completion at saving time. This way of informing templates and measurements secures the acquisition setup and dramatically helps analysts/experts retrieving the right data for post-analysis.

NVGate 11 - the MODS on-line and post-processing software

NVGate is the OROS PC software platform for the Teamwork instruments. Version 11 integrates MODS in 3 ways:

> **Template preparation:**

- With the PC connected to OR10 through Ethernet
- Set the front-end as with other instruments
 - Dynamic inputs
 - Ext synch
 - CAN
- Add properties for the template (from model or manually)
- Add measurement properties to be filled at save time with or without default content
- Add template to OR10.

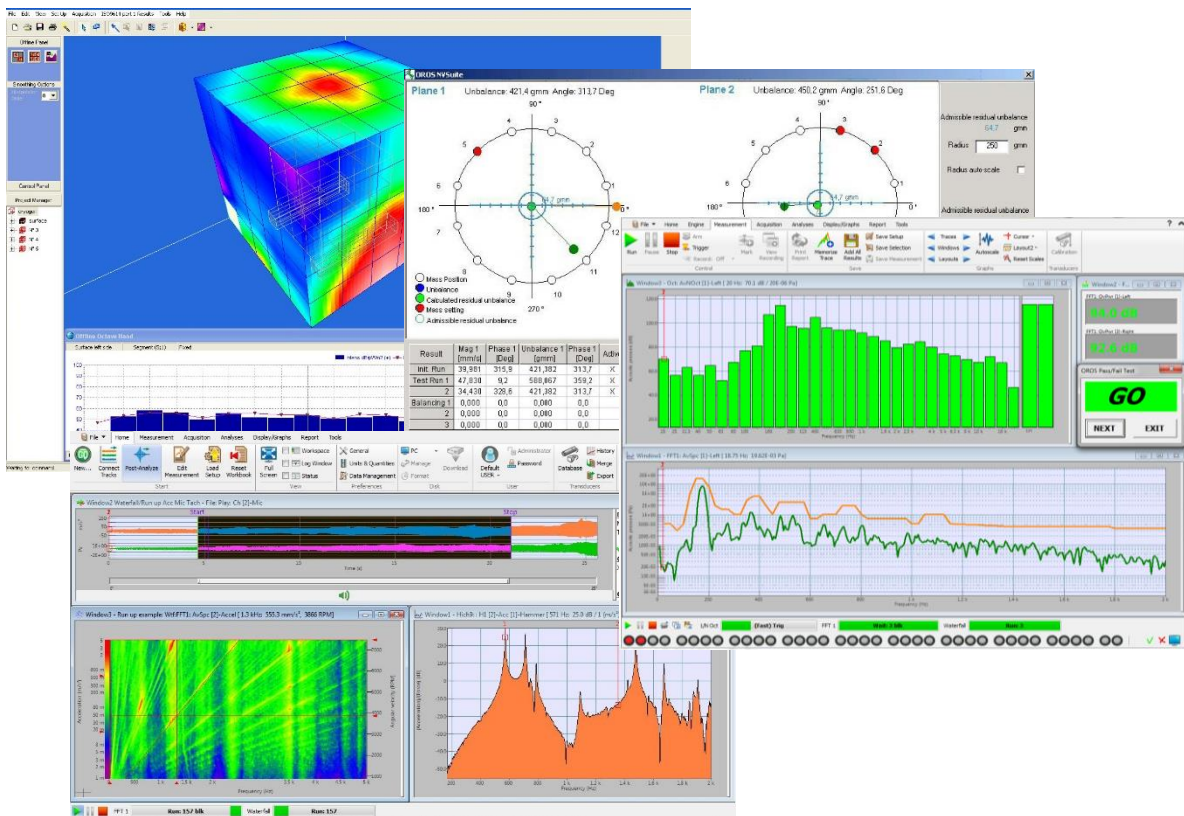


> **Data recovery**

- Extract the SD card and plug it to your PC, or connect OR10 by USB to PC,
- Select the project to receive the acquisitions,
- Import the measurements from the selected directory,
- Post-process your data with their properties and right metrology.

> **Real-time analyses**

- With the PC connected to OR10 through Ethernet real-time analysis with NVGate and its analysis plug-ins,
- Process and record the data from the OR10 front-end, with all available OROS analysis modules



Main features & specifications

Inputs	
Input connector	1 LEMO/3 inputs
Coupling	AC / DC / TEDS / FLOAT
IEPE	2 mA or 1 mA, user defined
Input range	± 300 mV \sim ± 40 V all couplings
Phase match	$\pm 0.02^\circ$ @ 20 kHz
Amplitude match	± 0.01 dB @ 20 kHz
A/D converter	24 bits - 140 dB dynamic range
Tach/trigger	2 Ext synch 6.4 MHz on ch. 8 and 9
Sampling frequencies	2.048 S/s \sim 102.4 kS/s and 3.2 kS/s 65.635 kS/s

Instrument	
Interfaces	Wi-Fi 802.11 a, b, g, n - Ethernet 100 Mb/S - USB C
Dimensions	Approx. 174x 120 x 37 mm, 850 g
CAN	2.0 16 ch
GNSS	10 Hz GPS, Glonass, Beidou, Gallileo
Headphone	3.5 " stereo jack, real time input playback

Autonomy	
Sources	Internal 9000 mA / USB-C power bank
Recording 8 ch. @25.6 kS/s	AC/DC > 3h 30 / IEPE 2 mA > 2h 30
Standard usage	> 5 h (15% recording, 60% idle, 25% setup)

Signal files	
Memory capacity	16 GB removeable μ SD card (ExFAT)
Data recovery	Direct import from NVGate (USB-C or μ SD)
record time	1 MB/s all inputs @10 kHz BW, unlimited file size
Export file format	Via NVGate, wav, txt / optional uff, sdf, atfx

Ordering Information

Reference	Description
OR10-SAD-4	4 channels, 2 ext. Sync Mobile DAQ with NVGo and Standalone licenses
OR10-SAD-8	8 channels, 2 ext. Sync Mobile DAQ with NVGo and Standalone licenses
OR10-CAN	16 ch CAN 2.0 module for OR10
ORNVG-10-D	Dongle locked NVGate license for OR10 Setup and signal import
ORNV-FFT-D	10 channels dongle locked spectral analysis module for post-analysis
ORNVG-10-I	Instrument locked NVGate license for OR10 real time analysis.
ORNV-FFT-I	10 channels instrument locked spectral analysis module for on-line analysis

In addition to the above references, the entire OROS software suite is compatible with MODS results or real-time acquisition.

OROS, Leadership through Innovation

About Us

Thanks to 30 years in business, OROS's designs and manufacturing capabilities are renowned for providing the best in noise and vibration testing systems, meeting the requirements and expectations of automotive, aerospace, marine energy & process, manufacturing and automation industries.

Our Philosophy

Reliability and efficiency are our constant ambition. We know you have the same requirements for your measurement instruments: comprehensive solutions providing guaranteed performance, designed to meet the challenges of your demanding environments.

Our Emphasis

Constantly in tune with your needs, OROS collaborates with a network of proven scientific affiliates to offer the latest in technology in this field, always based on innovation.

Global Presence

OROS products are marketed in more than 35 countries, through our authorized network of representatives, offices and accredited maintenance centers.

Want to know more?

OROS headquarters	OROS Inc	OROS French Office	Sales OROS GmbH	OROS TStech China
Tel: +33.4.7690.62.36	Tel: +1.888.200.0ROS +1.703.478.3204	Tel: +33.169.91.43.00	Tel: +49.261.133.96.50	Tel: +86(010 82 36 60 86
Email: info@oros.com	Email: info@orosinc.com	Email: info@oros.fr	Email: info@oros-deutschland.com	Email: info@oroschina.com
Web: www.oros.com	Web: www.oros.com	Web: www.oros.fr	Web: www.oros-deutschland.com	Web: www.oroschina.com

