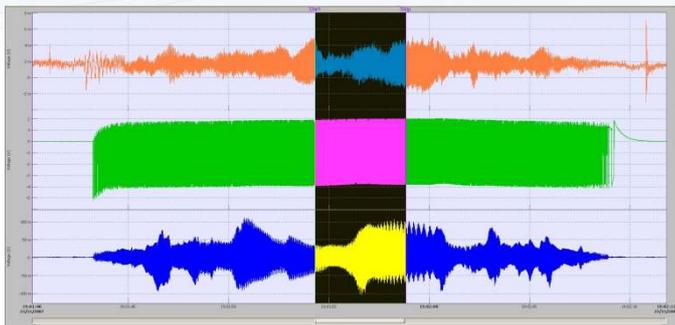


Data Recorder

With OROS 3-Series Analyzers



Recorder



OROS recorder/analyzers units

Introduction

Acquiring actual and valuable data in the field is the root of your noise and vibration measurement job. The data must be collected and secured in one pass whatever the environment.

The OROS 3-Series instruments feature **native real-time multi-analysis capabilities** allowing complete throughput of raw data managed by the Recorder module. It is a **multi-channel and multi-frequency digital recorder** that operates simultaneous with other analysis or stand-alone. The recorder comes as a standard part of NVGate®, the 3-Series analyzers software platform. Combined with the player, it is the cornerstone of any record/post-analysis and acquisition backup measurement type.

The wide range of inputs types from the latest OROS 3-Series analyzers is available for your records: CAN, DC, tachometers, strain, temperature. All are conditioned in a **rugged and portable package**.

Industries

- > Automotive
- > Energy and process
- > Aerospace
- > Marine



Machines

- > Vehicles, vehicle parts
- > Ship, air craft structure
- > Industrial machineries
- > Helicopter structure
- > Turbomachinery



Applications

- > Raw data acquisition with monitoring
- > Backup of real-time analysis
- > Transient and unpredictable shock, noise or vibration capture
- > Predictive/preventive maintenance data acquisition on industrial sites.
- > Vehicles, ships, aircraft prototyping and qualification tests
- > Diagnostic of machinery failures

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General description

Backup or controlled record

The recorder can operate as a security backup of the raw signal data during acquisition and real-time analysis or as conventional recorder with advanced on-line, display, analysis and triggering tools.

Backup: For critical measurements, both on-line analysis for monitoring and throughput to disk for data safety are necessary. The ORNV-REC plug-in enables to connect the active inputs to the recorder and to simultaneously analyze the signals through the NVGate® Monitor or any other plug-in analyzer.

Controlled record: To record valuable data, trigger capabilities of ORNV-REC may be used to determine precisely when to record and what is recording with the monitor. Input settings and labeling are saved with your data: retrieve all recorder settings, and recorded data using the project manager.

Multiple sampling frequencies

Bandwidth of each input can be specified from a set of 4 users' selectable sampling frequencies (figure 1) in order to optimize file size. From over-sampled high speed trigger to parameters (DC) levels plus 2 users define bandwidths between mHz to 40 kHz

By using these features, it is possible to record each input in the most adapted bandwidth avoiding large file manipulation and reducing computation needs for post analysis. Record the right signal only.

	Source	Signal bandwidth
Track 1	Input 2	[1] 8 kHz (20.48 kS/s)
Track 2	Input 4	[1] 8 kHz (20.48 kS/s)
Track 3	Input 6	[2] 2 kHz (5.12 kS/s)
Track 4	Input 7	[2] 2 kHz (5.12 kS/s)
Track 5	Ext. sync. 1	Trigger (102.4 kS/s)
Track 6	Ext. sync. 2	Trigger (102.4 kS/s)
Track 7	DC input 12	DC 12.50 S/s
Track 8	DC input 13	DC 12.50 S/s
Track 9	DC input 14	DC 12.50 S/s
Track 10	CAN 1	DC 12.50 S/s
Track 11	CAN 2	DC 12.50 S/s

Figure 1: Multiple sampling frequencies

Triggering

ORNV-REC provides advanced triggering tools for on line data reduction. You can create your own events from any of the OROS 3-Series analyzers' inputs and control panel. These events can be calculated from statistical analysis such as RMS value threshold or generated from logical computation between events.

Use these events to control the recorder operations: start, re-start, stop (figure 2). During record operation you can add markers (with comments) on the record for a fast retrieve of specific instants in the raw signal file. In the same way it is easy to add one additional track for voice comment record.

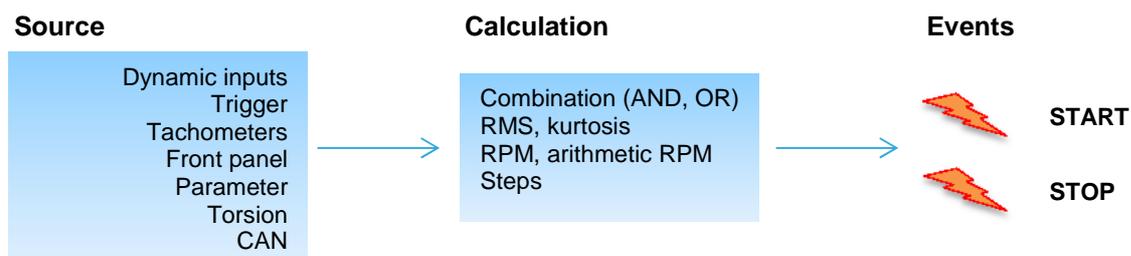


Figure 2: Trigger tools

Modes

ORNV-REC provides multiple recording modes using the on-board hard disk capabilities (figure 3).

Using **Start to time** triggering mode lets you specify the record duration. The signals are recorded for the specified duration after the start event. With the **Start to stop** mode, one event triggers the record and one event stops it.

Time to stop mode provides an on-disk pre-trigger for catching unpredictable phenomenon. You can memorize up to 2 Gbytes of pre-trigger signals on the disk when you need to recover a default history for example.

In addition to these triggering modes and for each of them, you can use the multi-record mode for repetitive records into the same file. Signals are recorded after each trigger, regardless triggering modes, and the operations stop when the system has recorded the selected number of records.

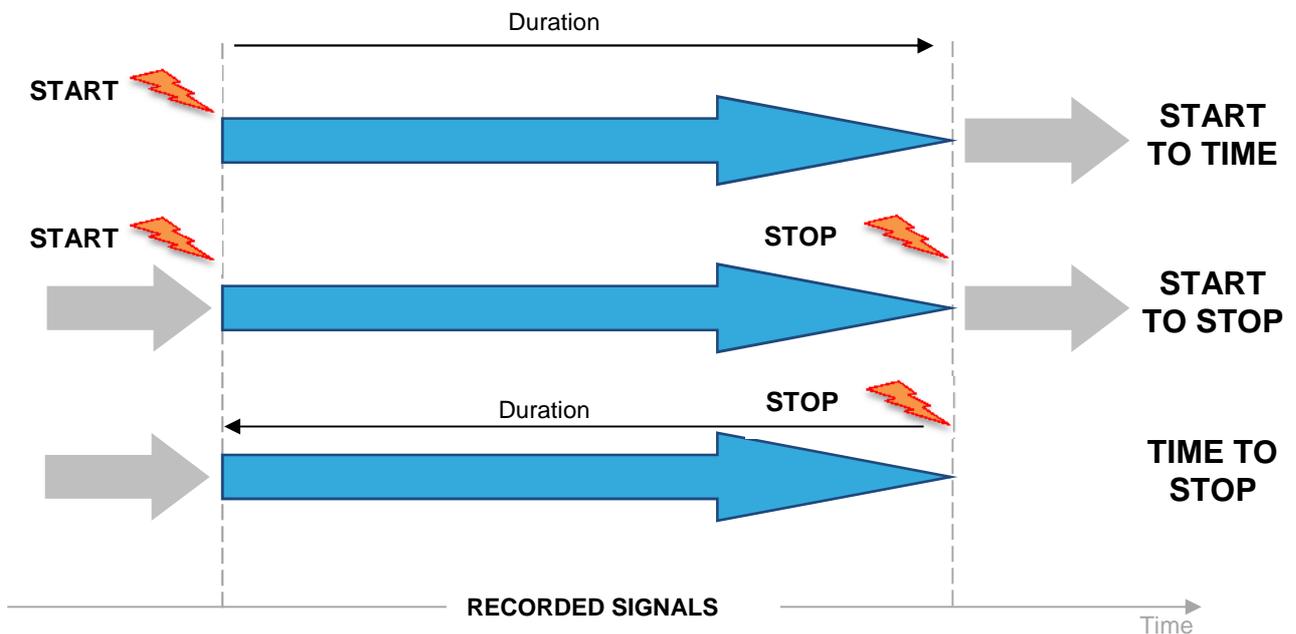


Figure 3: Recording modes

Handling any transducers

OROS 3-Series analyzers are designed to handle numerous transducer types without additional gears. Inputs are compatible with:

- > **ICP[®] accelerometer, force sensor & microphone** (2 or 4 mA)
- > **Proximity probe & keyphasor** with ± 40 V range
- > **Process parameters, Torque, Power...** parameter with universal and auxiliary DC inputs
- > **Strain, Pressure, Thermocouple** with the optional Xpod conditioner
- > **High speed Tachometer & Torsional encoder** with the integrated frequency to voltage converter and angular resampling clock recording
- > Avoid Workshop/Ship/factory ground loops with **Float coupling**
- > Car/machine parameters with the **CAN bus probe**

D-rec: direct recording

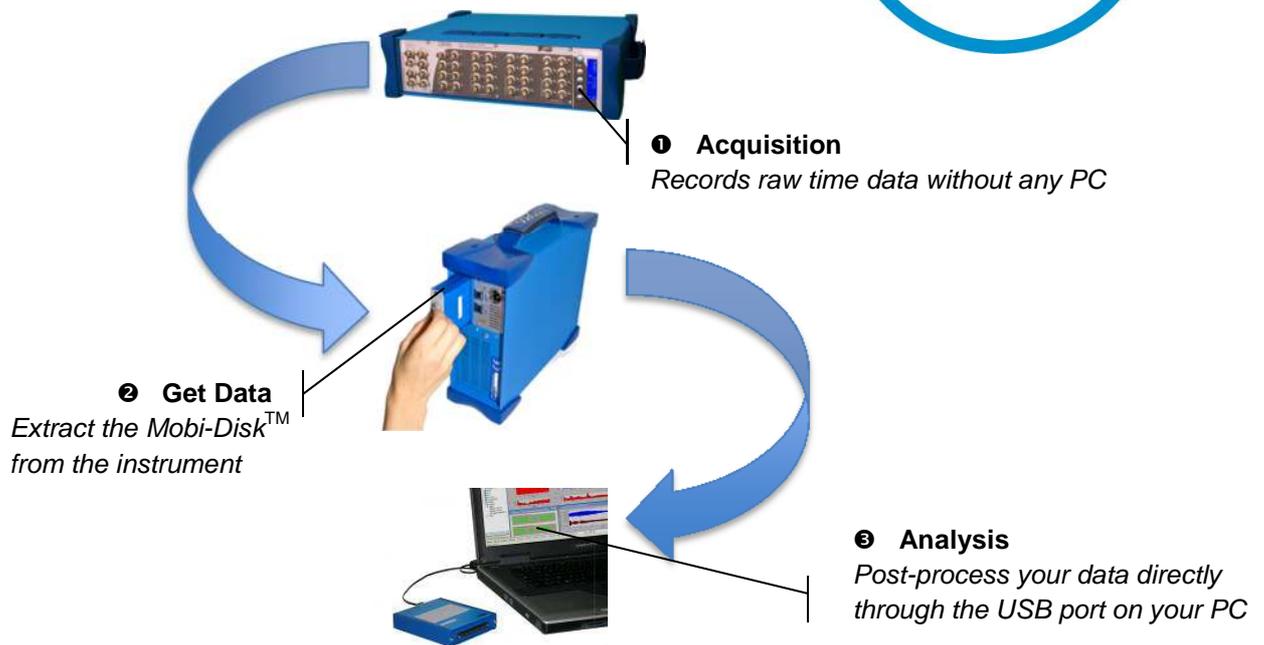
The OROS D-rec is the **stand-alone solution for a clear, simple and secured data recording** with OR36, OR38 and Mobi-Pack instruments. With D-rec data recording has never been so easy.

The presence of a PC with its complex and fragile interface is definitely not suited for the field conditions. With OROS D-rec no hassle while recording data in a **harsh, crowded or disturbed environment**.

A readable control panel with large buttons features clear menus allowing the front-end and recorder setups.



Typical use of D-rec:



The data storage on hard-drive offers efficient data management with immediate overview of signals, super-fast and accurate navigation into records and short post-processing time.

PC free reloadable pre-sets

Up to 12 user's defined recording configurations can be saved in the instrument as D-rec pre-sets. They are loaded either from the control panel or automatically (routed acquisition). The NVGate instrument software will guide you step by step with the D-rec wizard to build your own pre-sets.



Flexibility

The control panel offers a great freedom of set up. No need of PC or PDA on the field. Select or unselect inputs, modify front-end settings (coupling, range, etc...) or change the bandwidths easily using the simple effective LCD interface and its accessible buttons.

One instrument, 3 modes

Of course the instrument is still an analyzer for real-time and off-line analyses. With its recorder capabilities, the analyzer covers any situation with the same instrument.



Accessories

Xpod, plug and play signal conditioning



The Xpod modules add signal conditioning to the OR36 and OR38 in a smart and field operation driven design. These 8 channel conditioners can be added, removed and exchanged between the analyzers in a few seconds. Moreover, the lateral side clipping, leaves the BNC input connectors free to be used as classical ICP[®]/AC/DC/Float inputs.

XPods line: bridge & temperature conditioners

Wheatstone bridge conditioner handles any bridge-based transducers (strain, pressure, load, torque, force...).



- > Full, ½ and ¼ bridge
- > **Automatic bridge balance** (incl. in D-rec)
- > 120 Ω / 350 Ω **built-in resistors**
- > Continuous 0 to 10 V excitation voltage

Temperature conditioner handles thermocouples and RTD transducers



- > PT100, PT1000 and J, K, N, E, T
- > Integrated linearization
- > Automatic cold junction compensation
- > Standard flat pin connectors

Mobi-Disk

The Mobi-Disk is the local storage device for OR36, OR38 and Mobi-Pack. This removable device enables each engineer to keep its own raw data. Connected to the PC through the USB port it allows fast and easy post-processing of recorded data.

- > 60 GB shock proof disk
- > Dual port (USB 2.0 & analyzer slot)
- > High throughput (32 ch x 51.2 kS/s)

Solid-state version for high vibration levels



Specifications

Recorder

Feature	Description
Sampling frequencies	DC to 102.4 kS/s- 2 user defined sampling group - 10 to 15 S/s parameters - 6.4 MHz oversampled digital inputs (trig/tach/tors/samp)
Operations	Parallel throughput with real-time analyses - Backup or monitored
Monitoring	RMS level - RPM - Front-end signal (256 sample) - signal envelope on full duration
Parallel analyses*	Time view - spectra - Order spectra & profile - 1/n octave - RMS, Pk, DC profiles
Modes	Start to stop manual or triggered start and stop - Start to time fixed duration - Time to stop fixed duration before stop trigger, up to 2 GB rolling buffer on disk
Records	Up to 60 GB on Mobi-disk - 680 files/disk - up to 1000 records/file – 5 h 30 @ 51.2 kS/s 32 ch.
Files management	Windows based, transfer to PC via USB 2.0 – access from NVGate or Toolkit* API
Records analysis	Instant preview up to 60 GB - Post process on any OROS software module*
Export	TXT, UFF, SDF, WAV, Wav Audio, ODS-ATFX*

D-rec (stand alone recorder)

Feature	Description
Inputs	4 to 32 universal inputs - 2 to 6* Ext. Synch - 2 to 4 DC aux DC* - 24 Ch CAN* parameters
Input conditioning	AC/DC/ICP/TEDS/FLOAT - Parametric (DC) - Wheatstone bridge* (Strain, Force, pressure) - Thermocouple* and PT100/1000* - Tachometer, torsional*, resampling clock*
Disk	Rugged removable Mobi-Disk - SSD* Mobi-Disk - On PC
PC free setup	12 reloadable presets - changeable, Sampling freq., Input coupling, conditioners setting, enable/disable channels, record mode
Autonomy	Built-in battery - 10 to 28 VDC or 100 to 240 V power supply - On board RTC

* Optional features

Ordering Information

Reference	Description
OR36/8-DREC	Optional direct recording function for OR36, OR38 and Mobi-Pack
OR36/8-CAN	CAN-BUS interface for OR36 and OR38
OR36/8-XPD-B	8 ch. strain gauges bridge conditioner module
OR36/8-XPD-T	8 ch. Thermocouples & RTDs conditioner module
ORNV-OFCE	Additional NVGate Office license for post-processing on PC
OR36/8-SSD-32	Additional vibrations' proof 32 GB solid state Mobi-Disk

OROS, Leadership through Innovation

About Us

Now approaching 30-years in business, OROS' designs and manufacturing have been renowned for providing the best in noise and vibration analyzers as well as in specific application solutions.

Our Philosophy

Reliability and efficiency are our 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 of the technology, always based on innovation.

Worldwide 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?

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