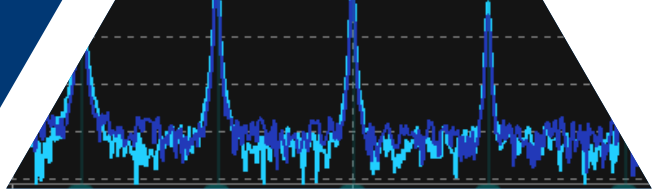
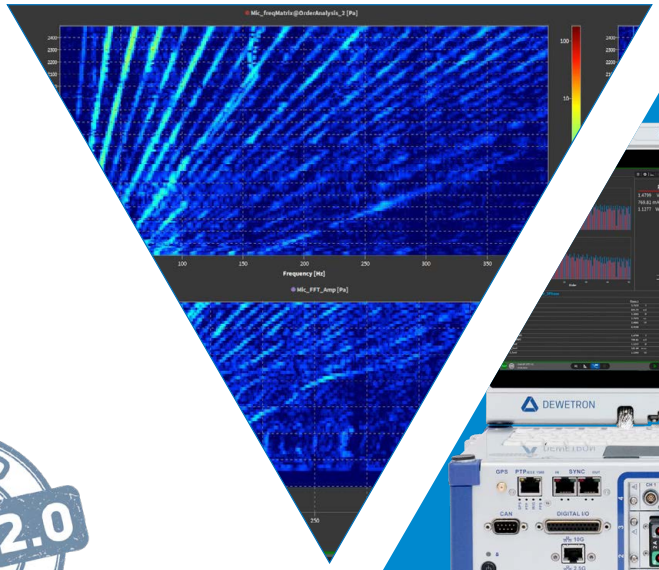
Anritsu GROUP COMPANY

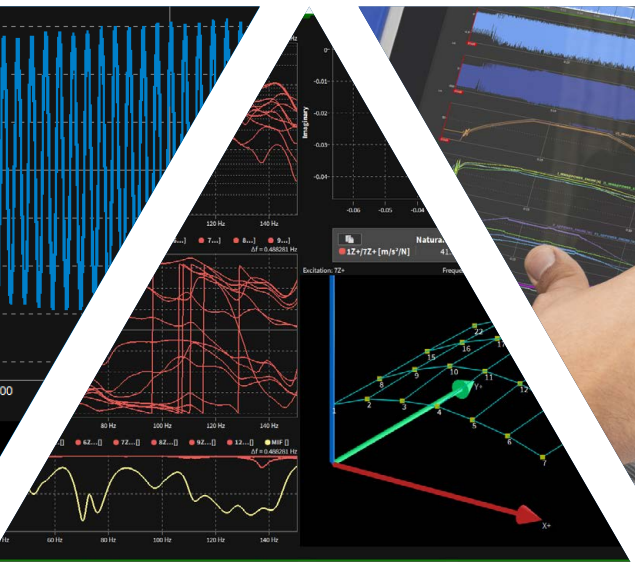


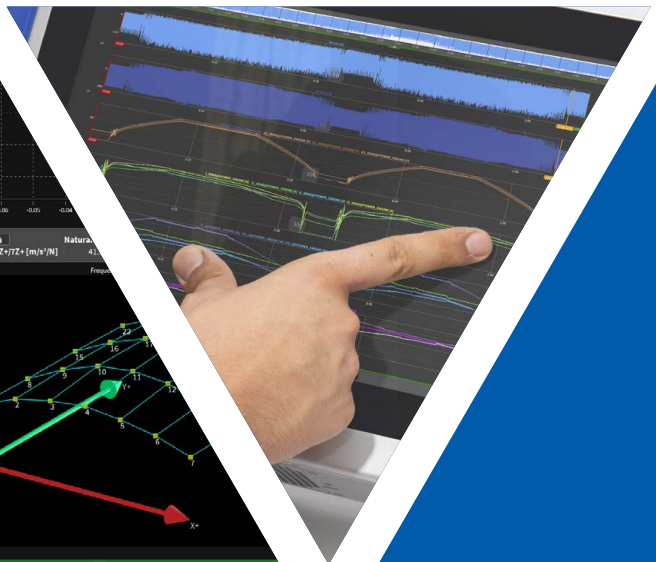


DEWETRON

CERTIFIED CMMC 2.0 LEVEL 2

OXYGEN
MEASUREMENT SOFTWARE





OXYGEN MEASUREMENT SOFTWARE

With the OXYGEN all-in-one software, the data acquisition, recording, calculation, visualization and analysis has never been easier. Use only one software for all applications. Also for 3rd party components.

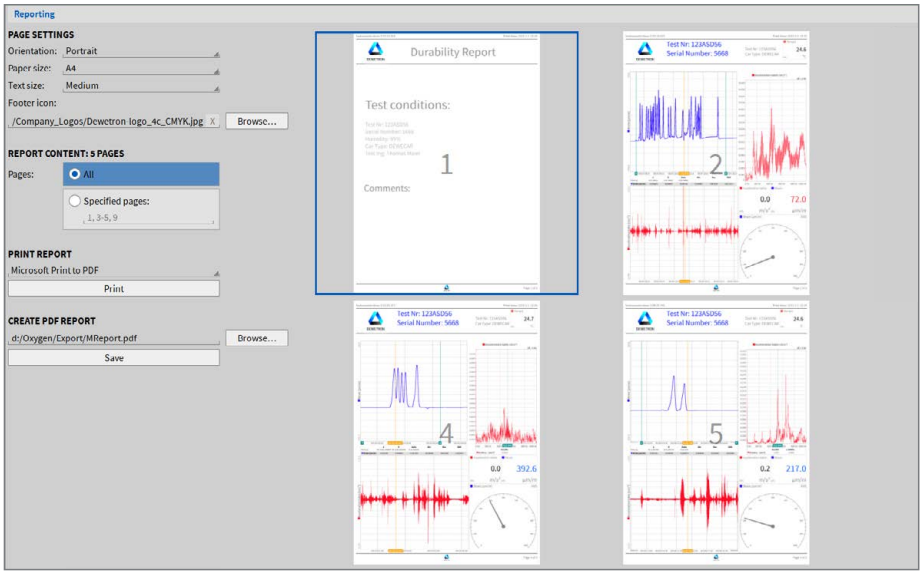
Windows Linux

We are the only manufacturer of measurement technology to offer you the advantage of choosing between Windows and Linux.

REPORTING

Use OXYGEN for your whole measurement work-flow. From acquiring data to post-processing and finally reporting the data.

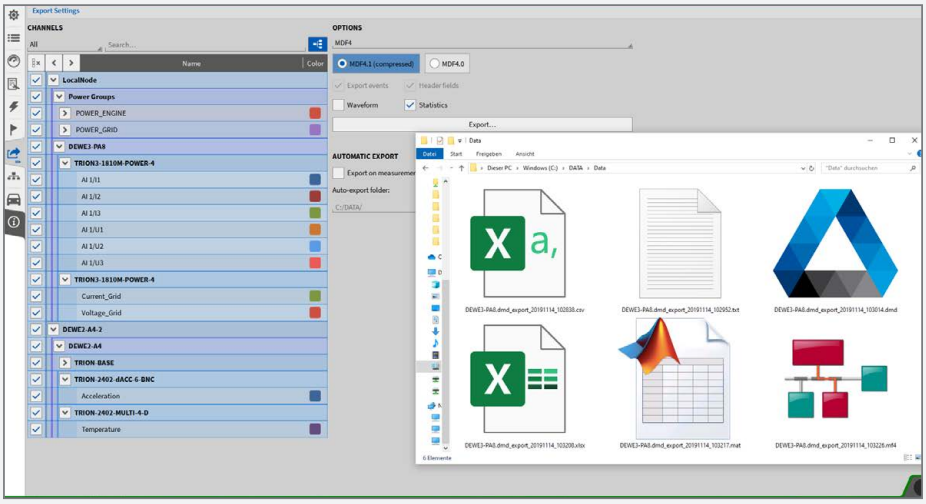
> Create separate reporting pages (in addition to the measurment screens) with typical printing layouts
> Duplicate a measurement screen or create new pages with a simple click
> Use all instruments and visualizations also in the reporting pages
> Separate time-cursor on each page available to report different time snippets in one report
> Directly print or save to pdf
> Export your measurement to a video



EXPORT

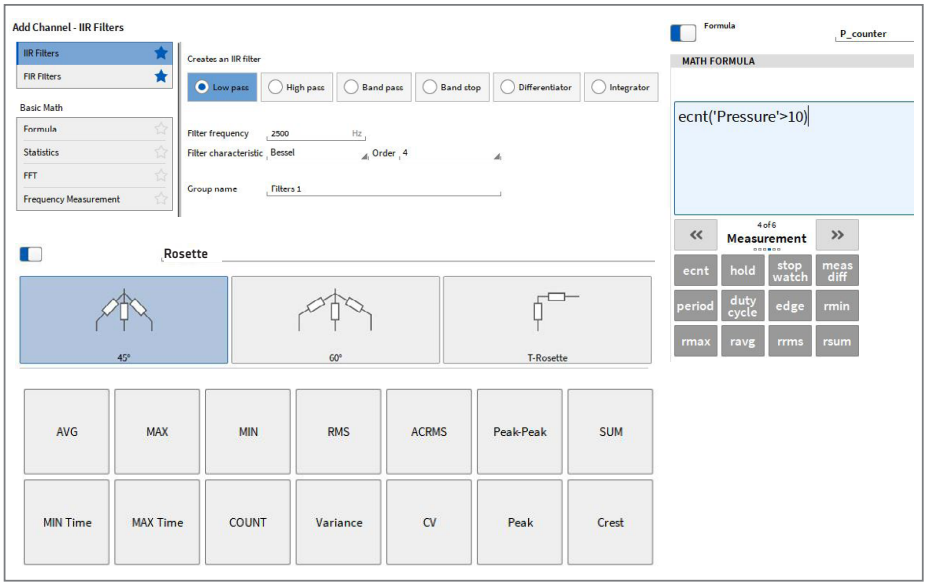
If you need to use another analysis software for further data processing, we offer data export for the most common applications and formats.

> Universal formats: CSV and TXT with selectable delimiter and timestamp format
> Advanced formats: Excel, MATLAB, ASAM MDF4, DIAdem, DSPCon, DynaWorks, IMC Famos 2, HDF5, MTS RPC III, NetCFD, NI TDMS, Universal File Format 58, Wave
> Select channels and/or time-range of the exported data
> Optional automatic export at measurement end



MATH AND CALCULATION

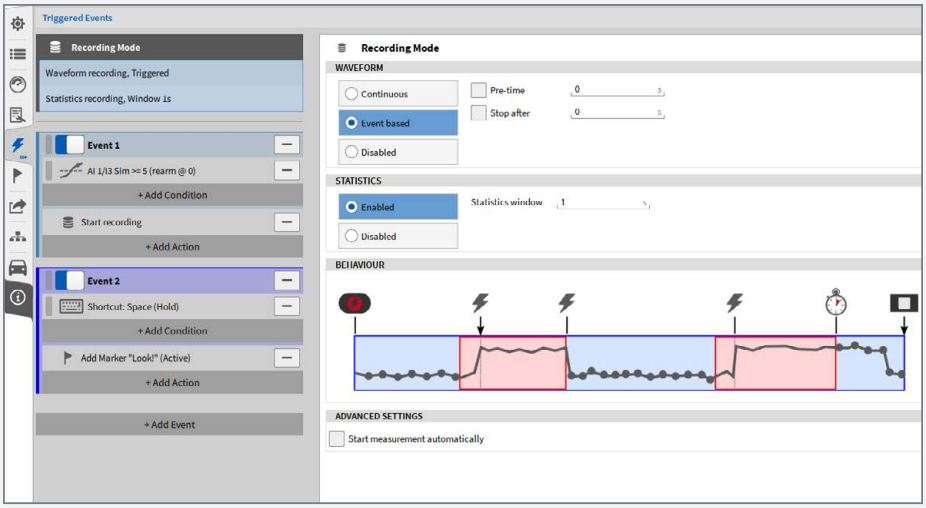
> FORMULA: For arithmetic and more advanced calculations (trigonometric, logical and measurement functions)
> STATISTIC: Block-wise, Triggered and Overall-statistics to calculate statistic values, e.g. AVG, RMS, MIN and MAX, PP...
> FILTER High, low, bandpass and bandstop IIR-filter and FIR-filter up to the 10th order
> DMS-ROSETTE calculation module for 45°, 60°, and 90° setups
> PSOPHOMETRIC ANALYSIS for railway and telecommunication applications
> FFT spectra overlap, peak hold and pin extraction
> INTEGRATION / DERIVATION with optional signal filter



TRIGGER & EVENTS

The powerful trigger and event system makes it easy for you to record data in case of events, create markers, set a digital output or make a snapshot of the actual measured data. Create different events, each consisting of one or more trigger conditions and one or more actions.

> Many different trigger conditions: signal level (positive/negative edge, window) with optional rearm level, keyboard or time
> Powerful actions like start/stop of recording, set an alarm with optional digital output, set a marker with pre-defined text or make a snapshot of the actual measured data.



VIDEO INPUT

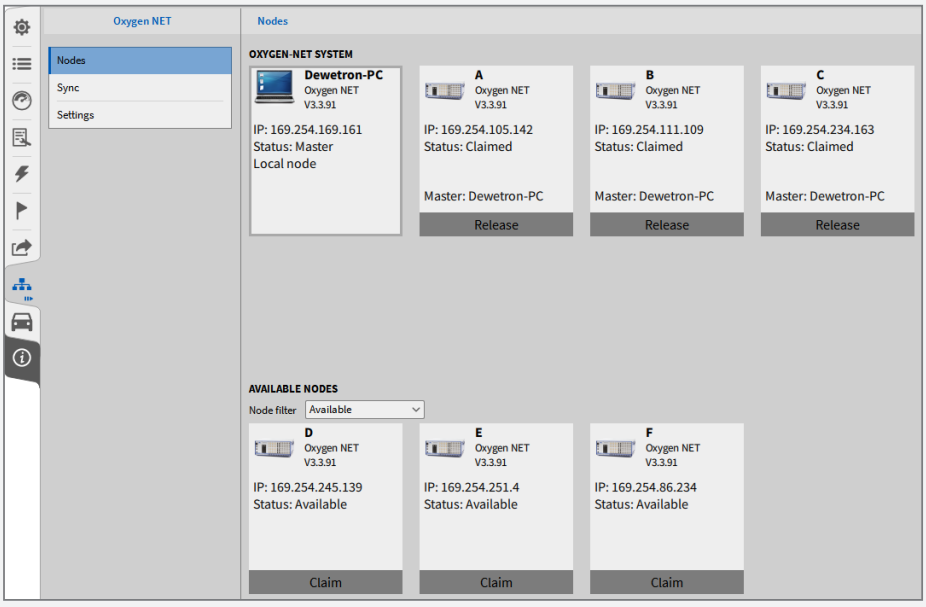
Cameras are implemented as additional sensors in OXYGEN, so you really get the "complete picture" of your measurement task.
Applications start with very simple video documentation (measurement setup, weather, environment, etc.) with a cheap webcam and extend to really complex tasks with up to 8 cameras, whose individual frames are perfectly synchronized with all other data (e.g. analog, CAN, counters, GPS...).

> USB webcams
> Synchronized USB and GigE cams, up to 289 fps
> High-speed cams, up to 100.000 fps (post sync)

OXYGEN-NET

Many applications require more than one measurement device, sometimes even at different locations. OXYGEN-NET makes it possible, to sum up all devices to one virtual measurement device. You only need a reliable network connection, and you can simply claim all available nodes and operate it from the main device.

> Create one big virtual device with several remote nodes (measurement cloud)
> No complicated settings needed, simply claim and remove nodes with one click
> Works with absolute time synchronization as well as with TRION-SYNC-BUS
> Remote and local data storage possible for redundancy
> Multiple Master clients and redundant Master clients supported



SOUND LEVEL

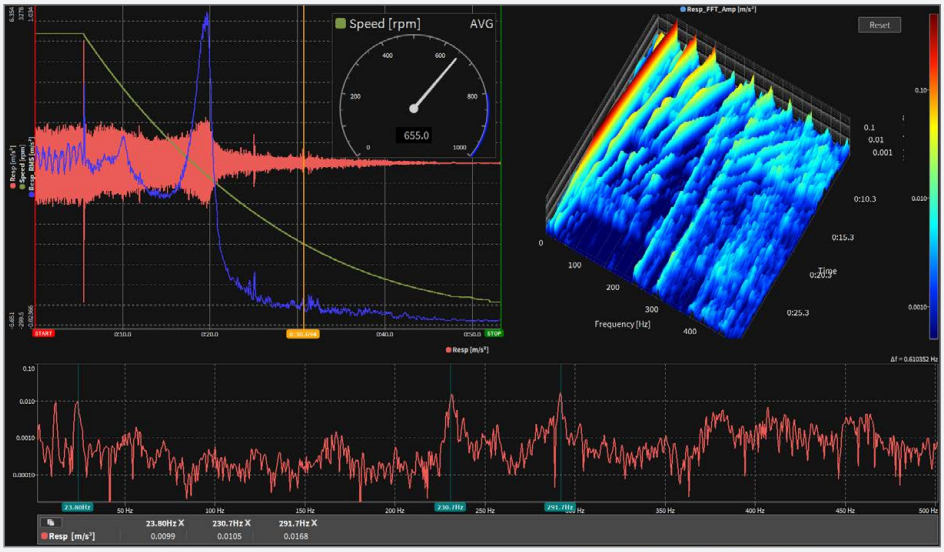
The sound level plugin provides online determination of the time-dependent sound pressure level, the energy equivalent sound pressure level, freely definable statistical sound pressure levels and many more. This plugin turns your DEWETRON device into the ideal solution for analyzing the acoustical emission of machines, for determining the spatial and statistical sound pressure level distribution in buildings and for long-term noise monitoring.

> A-, B-, C-, D- and Z-frequency weighting (according to DIN EN 61672-1)
> Fast, slow and impulse time weighting (according to IEC 651)
> Reference level for air (20 µPa) and water (1 µPa)
> Overall and interval logging
> Audio replay feature

FFT ANALYSIS

Experience top-tier frequency domain analysis with OXYGEN's flexible and user-friendly FFT Analysis. Benefit from powerful instruments and math calculations to tackle any task:

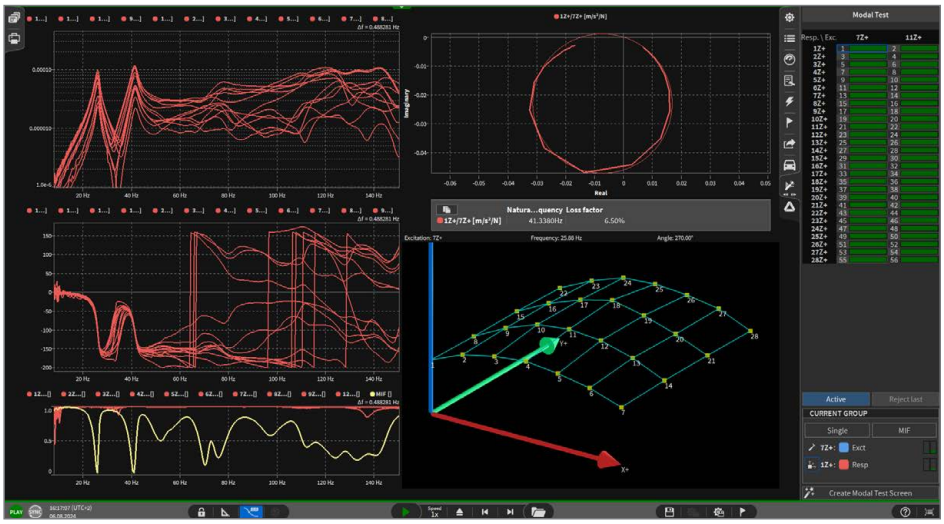
> Freely selectable (not only 2N) number of input samples or line resolution.
> Optional zero-padding for enhanced line resolution.
> Various windowing and scaling types selectable.
> Reference curves to visualize thresholds and warnings in the frequency domain.
> STFT to visualize spectral changes in time.
> Various 2- and 3-dimensional visualization and analysis options.



MODAL TEST

With OXYGEN's Modal Test option you can analyze the frequency characteristics of a mechanical structure to determine resonances, damping characteristics and more.

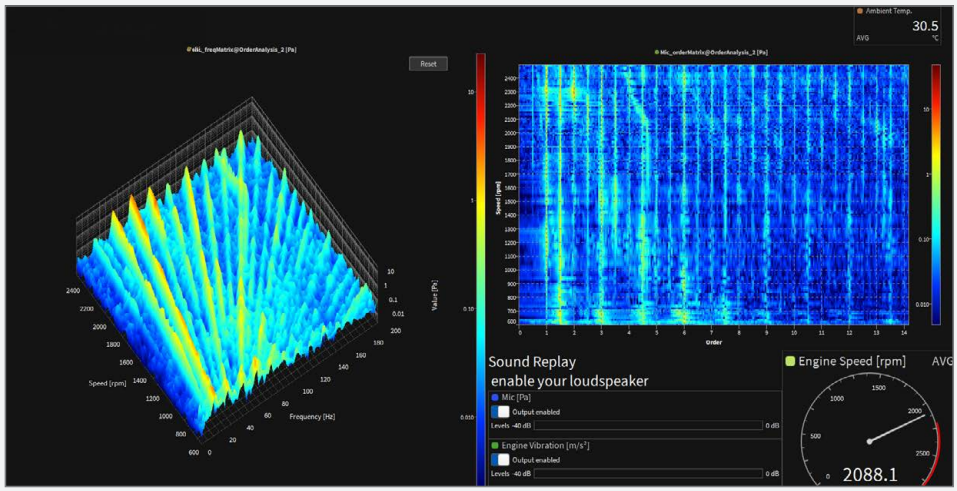
> DUT excitement via modal hammer
> SISO & SIMO tests with moving hammer and moving sensor
> Calculation of
  > Complex transfer function
  > Coherence of several hits
  > Mode indicator function
> Various interactive visualization options
> Data export into *.uff and other formats for post processing
> Modal shape animation
> SDOF circle fit



ORDER ANALYSIS

The noise and vibration analysis module for rotating machines turns your OXYGEN into a full order analysis instrument for calculation and visualization of frequency and order spectra vs. speed.

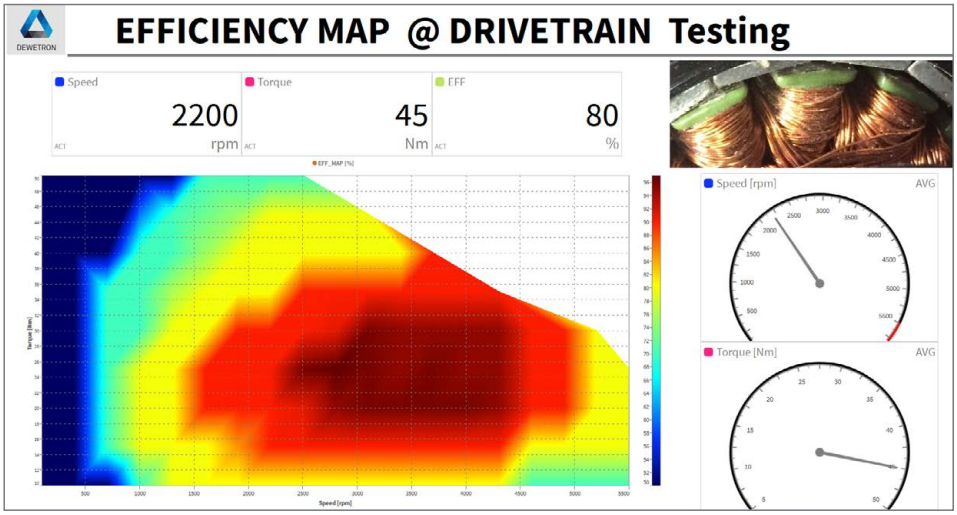
> Simultaneous frequency and order domain analysis
> Smart resampling algorithm for accurate and fast results
> Selectable speed ranges from 60 RPM to 100 000 RPM
> Order resolution from 0.01 to 1, with up to 90 % overlapping
> Order extraction for selected orders for use in recorder or XY-instrument
> Visualization of the resulting matrix in intensity diagrams
> Visualization of extracted orders in Orbit Plot and Polar Plot



EFFICIENCY MAPS

The matrix sampler is the solution for visualizing the efficiency of your electric drivetrain at different load steps or running speeds online. Create the calculation module directly in your power group. The efficiency map of the drivetrain will be filled up during the measurement.

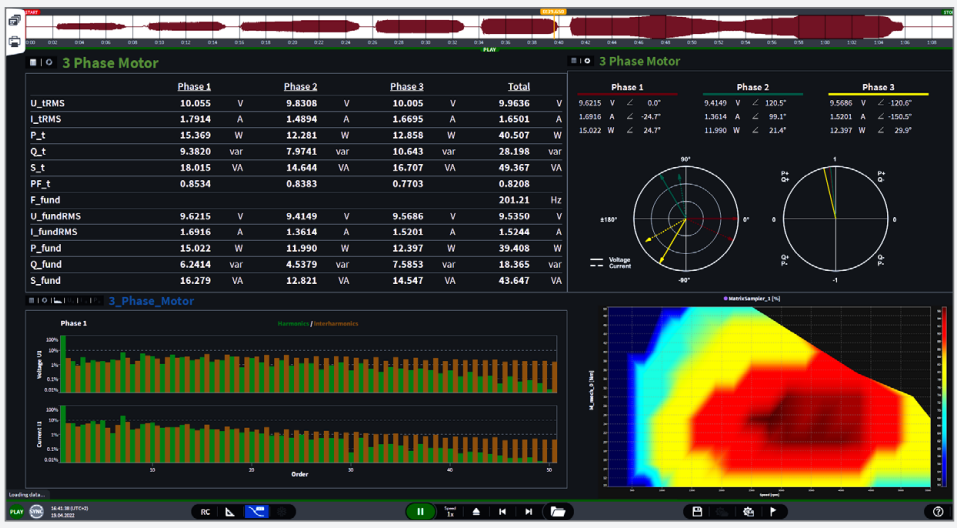
> Possibility to refill single measurement points without overwriting the whole matrix
> Easy-to-use and intuitive operation
> Several trigger options to fill the map with data
> Freely definable matrix size
> Assignment of any channel to X-, Y- and Z-axes for visualizing any 3-dimensional signal dependencies



POWER ANALYSIS

Turn your DEWETRON measurement device into a fully-featured power analyzer:

> Analysis of 1–9 phase power systems (1P2W, 2V2A, 3P3W, 3P4W, 2x 3P3W, ...)
> Several power systems are logically summarized into power groups
> Gapless cycle-by-cycle calc. no blind spots
> Unique fundamental frequency detection with delay compensation for highest accuracy and reliability
> BASIC: vol., curr., RMS, AVG, fundamental & symmetrical components, active/reactive/apparent power total & fundamental, energy
> ADVANCED: harmonics (IEC 61000-4-7), flicker (IEC 61000-4-15), flicker emission (IEC 61400-21) and mechanical power/efficiency
> EXPERT: rolling calculation meets FGW-TG3



DATA ACQUISITION

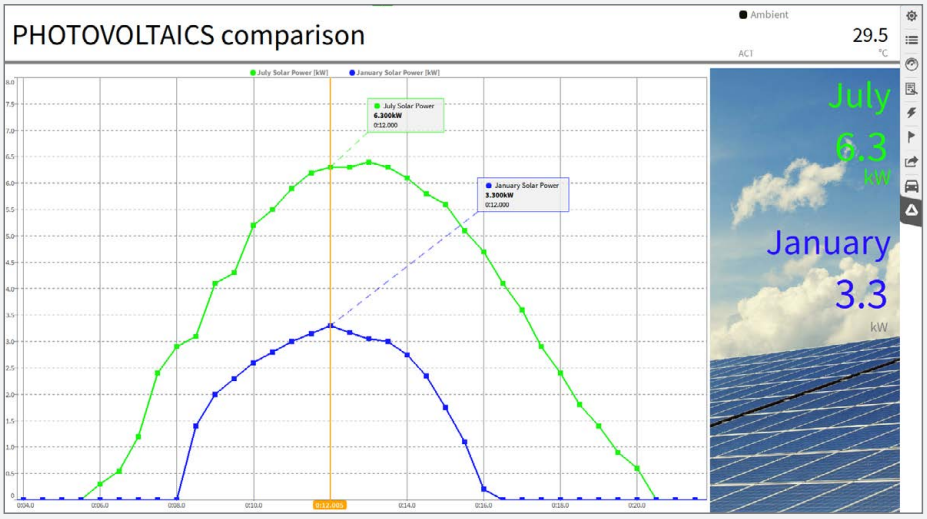
Synchronous and continuous acquisition of data from several sources: analog, digital, encoder, counter, CAN, SCPI, Ethernet, video, GPS and many more.

> Analog data with up to 10 MS/s
> Digital and encoder data with automatic RPM and angle calculation
> CAN(-FD) decoding via *.dbc including J1939 Compatible with Vector VN-series
> Ethernet receiver for external sensors (opt.)
> Video data from USB or GigE-camera
> Precision GPS position data via TRION3, GeneSys ADMA or OxTS RT series
> Plugin to request and decode OBD2 parameters

RECORDING

Store all your acquired data in one data file with a simple touch on the record button. You can achieve data rates of up to 1 GB/s and you never have to worry about loosing any data. Furthermore, review your data during recording with the DejaView function.

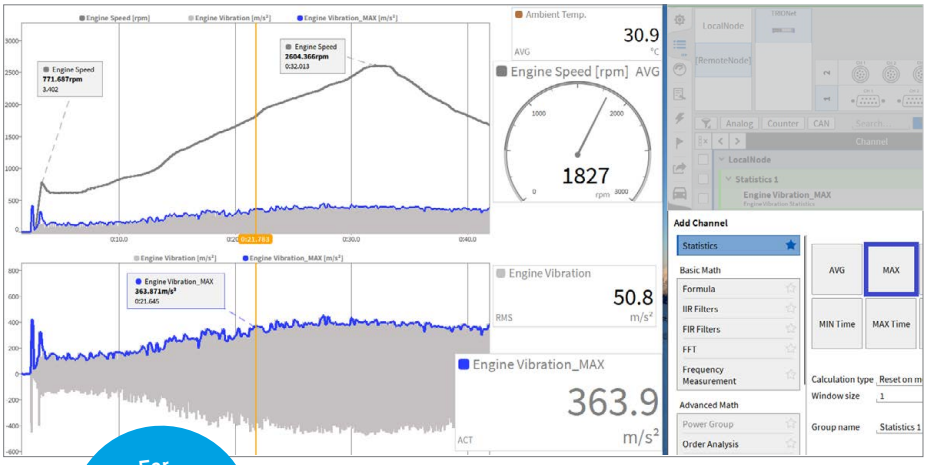
> File-split option for generating a new file after an amount of time or event occurrence
> Channel-wise sample rate selection
> Channel-specific storing options for waveform and statistics data recording
> Adjustable playback speed from 1/1000x to 1000x



ANALYSIS AND POST-PROCESSING

The real work often begins after the live measurement. To complete this workflow, OXYGEN also supports post-processing and analysis of the recorded data.

> Use many of the math and calculation (also incl. FFT) features to refine your measurement results
> Create new visualizations and measurement screens
> Quickly navigate through the data with well-known gestures and intuitive zoom and scrolling mechanisms
> Export data to complete your workflow



For post-processing, you do NOT need an OXYGEN license

SDK FOR PROGRAMMERS

With DEWETRON, you get an open platform to develop your own measurement application or extension. Depending on your requirements, you can choose between two Software Development Kits: OXYGEN-SDK and TRION-SDK.

OXYGEN SDK

With OXYGEN SDK, you are capable of developing your own plugins for the OXYGEN measurement software.

AVAILABLE FEATURES FOR THE PLUGIN

> Advanced calculations and data processing
> 3rd party data output
> Data output
> Special export formats
> Read and write data from/to numeric channels
> Create new channels
> Create config items for setup save/load and user config
  > Numeric, text, channel list
> Integration of video sources

This and much more allows you, to extend OXYGEN with additional calculations and data I/O.

AVAILABLE FUNCTIONALITY

> Custom QML-GUI for add channel dialog for easy user setup
> Custom QML-GUI for data export and special options
> User configuration elements
  > Text and number inputs for all kinds of configuration
  > Combo boxes (drop-down & custom input)
  > File picker for selecting files
> Read data from any OXYGEN channel
> Create new OXYGEN channels and write data into

EXAMPLE PLUGIN FUNCTIONALITIES

> Easy setup of the MS Visual Studio environment with SDK wizard
> XR plugin
> OBD2 plugin
> Frequency measurement
NEW > Camera integration

SPECIAL DATA SINKS

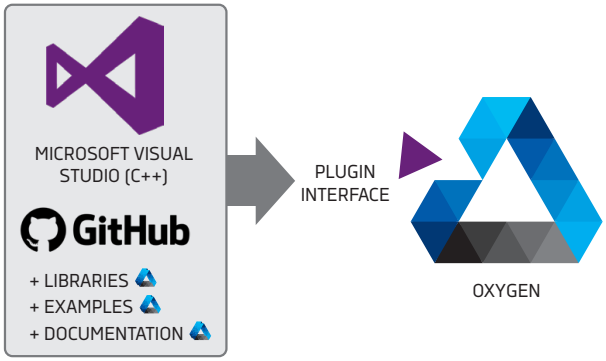
> Ethernet sender

SPECIAL EXPORTER

> Dynaworks
> DIAdem

SPECIAL DATA SOURCES

> SCPI query plugin
> AK dyno plugin
> Serial CSV reader
> Modbus TCP/IP

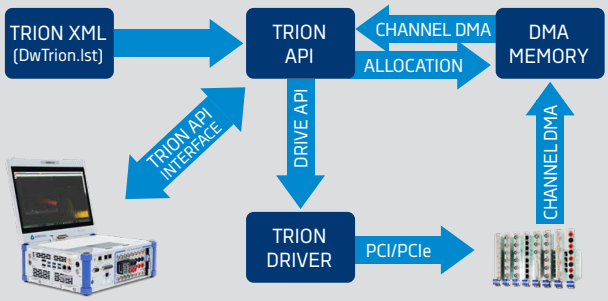


If OXYGEN does not provide a certain function, create it on your own

Get started and visit
https://github.com/DEWETRON/OXYGEN-SDK

TRION SDK

The TRION SDK helps you to build your own measurement application based on the DEWE3 and TRION/TRION3 hardware platforms. It also supports the use of TRIONet.
We support Windows 10 (64-bit), Ubuntu, and Redhat/CentOS Enterprise Linux.
C/C++ are the natively supported programming languages, additional bindings to Python, C# and Delphi.



LINUX OPERATING SYSTEM

We are the only manufacturer of measurement technology to offer you the advantage of choosing between Windows and Linux.

LINUX DISTRIBUTIONS

OXYGEN also runs without restrictions on the Linux operating system.

Beside Windows, our software now supports the distributions Red Hat and Ubuntu.

Measurement setups and DMD measurement data are fully compatible between the different operating systems. This means that it is no problem to create a setup under Windows and then use it on the Linux measurement system.

Also OXYGEN-NET systems can be built from both Windows and Linux based measurement systems.

The choice is yours.

1

OXYGEN SCPI VI

Use the OXYGEN SCPI interface to transfer data into LabVIEW™ during data acquisition and recording in OXYGEN. Various channels like analog, math or power group channels are supported. The channel setup and configuration is done in OXYGEN and the data can be stored redundantly in OXYGEN and LabVIEW™.

SCOPE OF SUPPLY

> OXYGEN's SCPI interface for data transfer and configuration
> LabVIEW™ VI including the required SCPI commands
> Documentation included in LabVIEW™ code
> Quick start programming example
> Maximum data transfer rate: 10 kS/s
> Typical number of channels to be transferred: 100 channels

WHEN TO USE

> Channels calculated in OXYGEN (such as power groups) shall be transferred into LabVIEW™
> Integration of DEWETRON data acquisition system into a LabVIEW™ based test bed
> No LabVIEW™ based hardware configuration required

NOTE:
Requires LabVIEW™ on the data acquisition system or on a separate PC that is connected to the same Ethernet network as the data acquisition system.

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FOUR SOLUTIONS TO S
YOUR MEASUREMENT

2

LABVIEW™ DRIVER FOR TRION(3)

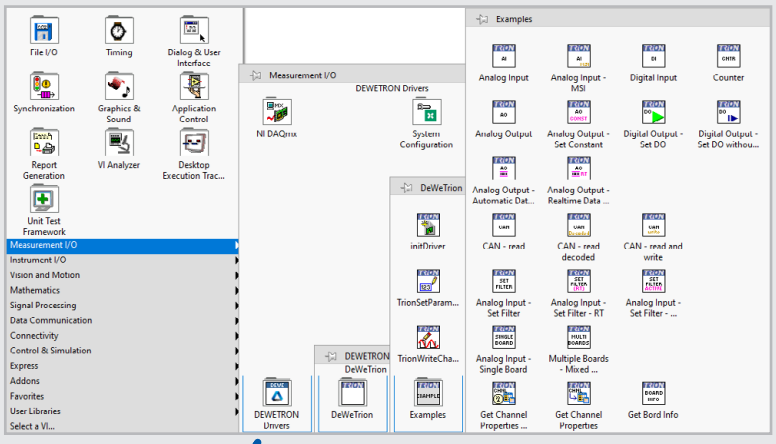
Use the hardware driver to gather data from the TRION API, which is in direct communication with LabVIEW™ . TRION and TRION3 modules in any chassis are supported. The hardware and channel configuration is done in LabVIEW™.

SCOPE OF SUPPLY

> User friendly encapsulation of the device functions into VIs
> Possibility to acquire the measurement data from the TRION boards in LabVIEW™ with just a few VIs
> Dedicated VIs for channel configuration
> Documentation included in LabVIEW™ code
> Quick start programming examples included

WHEN TO USE

> For customized software solutions developed in LabVIEW™
> When TRION hardware shall be used in parallel with 3rd party hardware in LabVIEW™
> For solutions requiring regulation and automation based on LabVIEW™



NOTE:
Requires LabVIEW™ installed on the data acquisition system (or on the host PC in case TRIONet3 is used)

OXYGEN DATASTREAM VI

3

Use the OXYGEN DataStream interface to transfer data into LabVIEW™ during data acquisition and recording in OXYGEN. Various channels like analog, math or power group channels are supported. The channel setup and configuration is done in OXYGEN and the data can be stored redundantly in OXYGEN and LabVIEW™.

SCOPE OF SUPPLY

> OXYGEN's SCPI interface for data transfer and configuration
> LabVIEW™ VI including the required SCPI commands
> Documentation included in LabVIEW™ code
> Quick start programming example
> Maximum data transfer rate: native channel sample rate
> Typical number of channels to be transferred: 100 channels à 100 kS/s

WHEN TO USE

> Channels calculated in OXYGEN (such as power groups) shall be transferred into LabVIEW™
> Integration of DEWETRON data acquisition system into a LabVIEW™ based test bed
> No LabVIEW™ based hardware configuration required

NOTE:
Requires LabVIEW™ on the data acquisition system or on a separate PC that is connected to the same Ethernet network as the data acquisiton system.

VIEW™
RATION

EAMLESSLY INTEGRATE
T DATA INTO LabVIEW™

OXYGEN *.TDMS-EXPORT

4

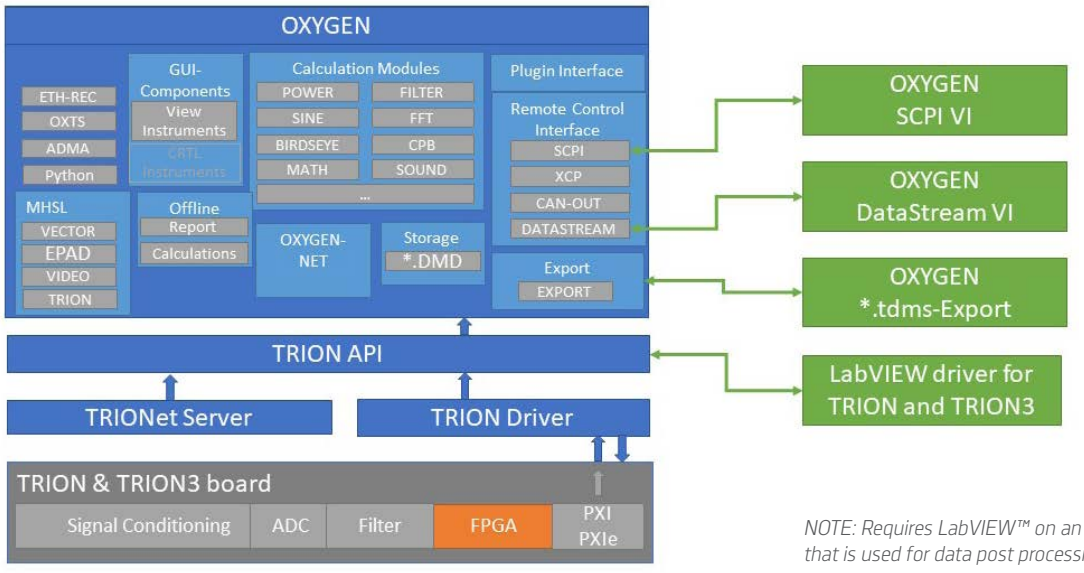
Export your OXYGEN *.dmd data files directly into the *.tdms format to open the files in LabVIEW™. Different export options are available (export all or only specific channels, entire data or only specific time span...).

SCOPE OF SUPPLY

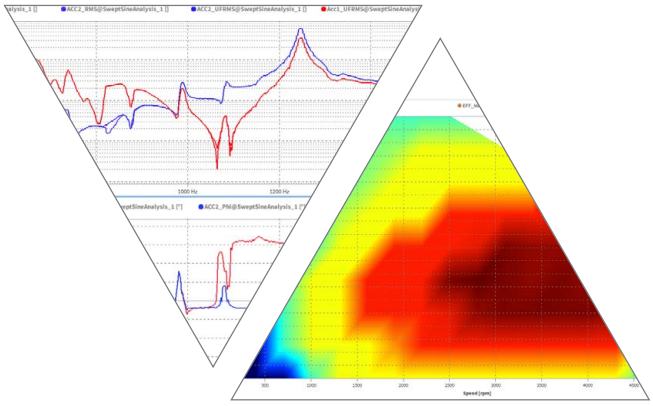
> Standard OXYGEN *.tdms export

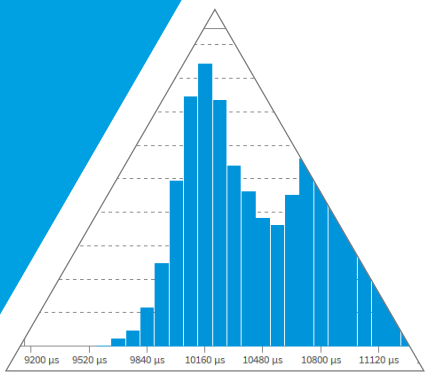
WHEN TO USE

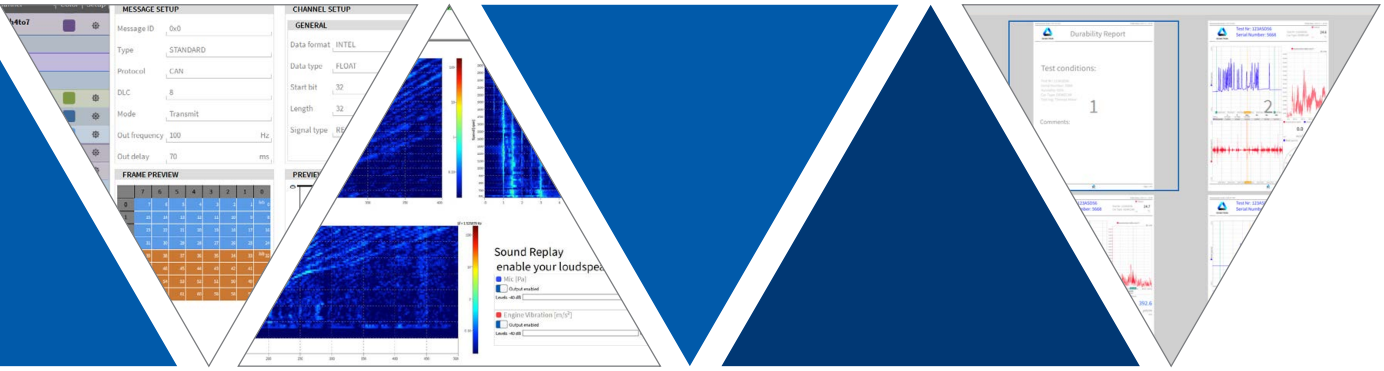
> Direct export into the LabVIEW™ format
> Easy integration of data into LabVIEW™
> No configuration required



NOTE: Requires LabVIEW™ on an arbitrary PC that is used for data post processing.







ABOUT DEWETRON

DEWETRON is a manufacturer of precision test and measurement systems and part of the globally operating Anritsu Group. Our reliable measurement data help customers worldwide make processes more predictable, efficient, and safer.

Our strength lies in customized measurement solutions: ready to use right away while remaining flexible to adapt to dynamic testing requirements in the energy, automotive, transportation, and aerospace industries.

More than 35 years of experience and innovation have made DEWETRON a trusted partner in the global test and measurement market.

More than 25,000 DEWETRON measurement systems and over 400,000 measurement channels are in continuous use at leading companies worldwide.

DEWETRON's quality is certified according to ISO 9001 and ISO 14001.
The high integrity of the measurement data is guaranteed by our own accredited calibration lab according to ISO 17025.

THE MEASURABLE DIFFERENCE.

Get to know our
GLOBAL OFFICES

DEWETRON

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