WORKING WITH OXYGEN

STATISTICAL DATA ANALYSIS

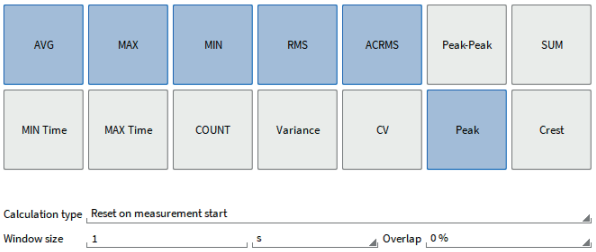
DEWETRON

OXYGEN is your go-to software for data acquisition and analysis. It offers comprehensive statistical signal analysis options, making it versatile for various applications.

1 BLOCK-BASED & RUNNING STATISTICS

Block-based statistics can be used to calculate statistical quantities for a predefined time interval for sequential data blocks.
Running statistics are used to continuously update statistical measures, smooth out short-term fluctuations in data, and highlight longer-term trends or patterns.

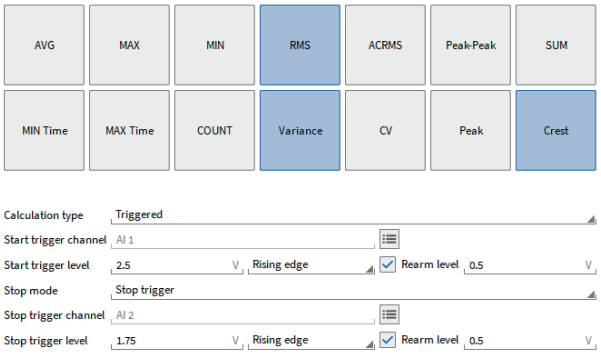
> Freely definable block size from sub-seconds to several days
> Wide range of statistical quantities available: MIN, MAX; AVG, RMS, ACRMS, PEAK, and many more



2 TRIGGERED STATISTICS

Triggered statistics are used to calculate statistical measures only when specific conditions occur in the data. They're useful to capture detailed information around events, anomalies, or threshold crossings without constantly processing all data

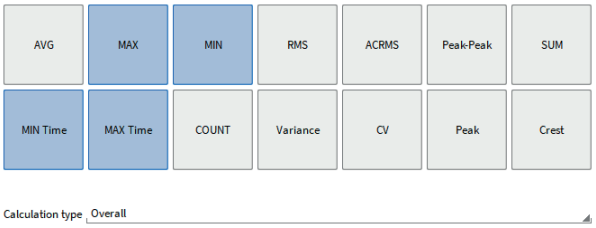
> Calculation start based on rising/falling edge of one channel with optional rearm level
> Various calculation stop options:
  > Retrigger: new passing of start trigger event
  > Duration: stop after a certain time
  > Stop trigger: rising/falling edge of 1 channel with opt. rearm level



3 OVERALL STATISTICS

Overall statistics determine one statistical overall value from measurement start to measurement end and are a useful tool to compare datasets recorded during multiple different measurement campaigns.

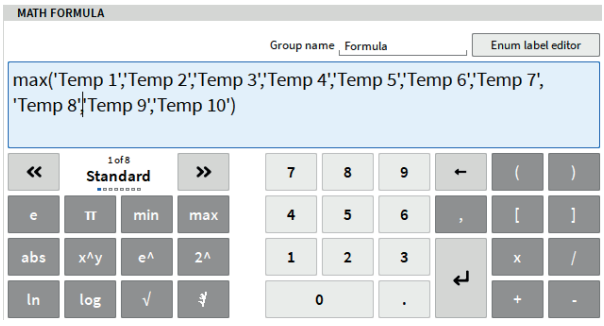
> Wide range of statistical quantities available: MIN, MAX; AVG, RMS, ACRMS, PEAK, and many more
> Option to determine the time of global maximum or minimum



4 FORMULA STATISTICS

OXYGEN's math module can be used to statistically analyze multiple different channels. Among others, the following possibilities are offered:

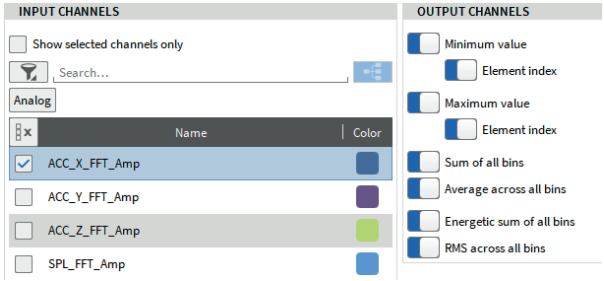
> Analyze the actual maximum or minimum of multiple channels
> Calculate the average or RMS value of multiple channels
> Determine the vectoral sum of spatial signals



5 ARRAY STATISTICS

Array statistics can be used to perform statistical evaluations of any array channel in OXYGEN. This is especially useful for continuously tracking the highest amplitude in an FFT and its corresponding frequency or to determine the energy in a certain frequency range.

> Minimum value of the actual array incl. the related index and X-axis value in the respective engineering unit
> Maximum value of the actual array incl. the related index and X-axis value in the respective engineering unit
> Linear sum or average across all bins
> Energetic sum or RMS across all bins



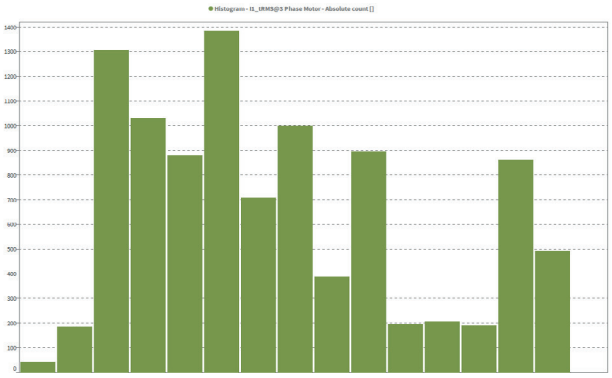
6 HISTOGRAM & PERCENTILES

The histogram module determines and visualizes the probability distribution of signal amplitudes of time domain signals.

> Upper and lower calculation limit
> Number of bins to define X-axis resolution
> Different histogram and distribution types selectable such as absolute or relative count, density or distribution

The percentile calculation outputs the threshold of a channel exceeded in [%] of the measurement time

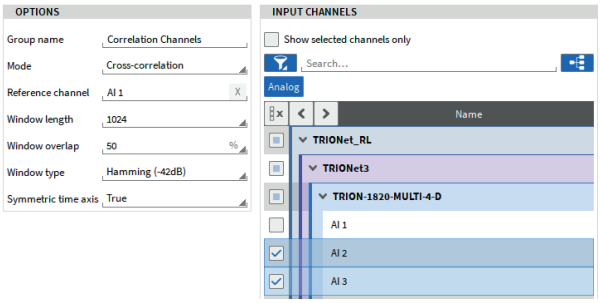
> Freely definable percentage levels
> Applicable to synchronous and asynchronous time domain channels and arrays



7 CORRELATION

The correlation module can be used to measure the similarity between signals, helping to detect patterns, align signals, or identify time delays between them. Results are provided in time and frequency domain.

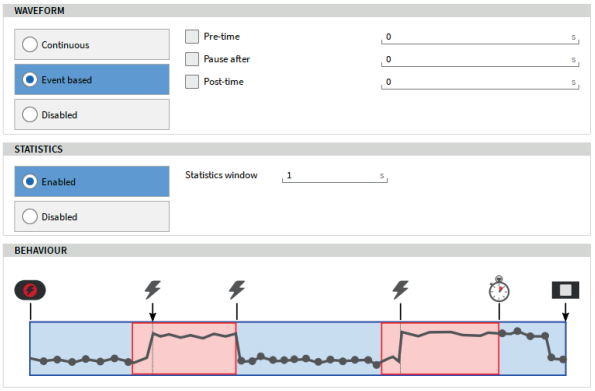
> Auto-correlation convolves one signal with itself to detect periodicity, i.e. in modulated and noisy signals
> Cross-correlation convolves 2 different signals to detect identical components or analyze delays
> Coherence of 2 signals indicates compliance of both signals



8 STATISTICS RECORDING

OXYGEN offers two continuous recording modes: waveform and statistics recording. While the waveform recording mode stores the data at full sample rate, the statistics recording mode only stores statistics quantities of each channel.

> Statistics recording mode for all active channels to automatically determine AVG, RMS, MAX, MIN for each channel and a selectable time interval
> Individual channel configuration for waveform and statistics recording
> Triggered waveform recording and parallel continuous statistics recording for highest confidence and data integrity



ADDITIONAL FEATURES

> **Online and offline analysis:** Perform all calculations during data recording or later during review and post-processing.
> **Data navigation:** Open and compare different data files and load data from other DAQ systems into OXYGEN for comparison.
> **Batch processing:** Use the batch processing feature to copy changes from one data file to another.
> **SDK** to extend OXYGEN with customized and user-defined processing algorithms.

6 REASONS WHY CHOOSE DEWETRON

1. **Unified hardware architecture:** One hardware architecture and file format for different applications and test scenarios to simplify your setup.
2. **Extended warranty:** Enjoy our 5-year warranty, ensuring long-term reliability.
3. **Accredited calibration services:** Benefit from ISO 17025-accredited calibration and adjustment services that guarantee accuracy and compliance.
4. **Certified quality management:** Our ISO-certified quality management upholds the highest standards across all business processes.
5. **Straightforward software licensing:** Our simple software license policy ensures ease of use and flexibility.
6. **Dedicated local support:** Count on our highly responsive service team for personalized support and assistance.

Visit our website for further information

OXYGEN SDK

OXYGEN

DEWETRON

HEADQUARTERS
DEWETRON GmbH
Parkring 4, 8074 Grambach
AUSTRIA

+43 (0) 316 3070-0
info@dewetron.com
www.dewetron.com