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CONDITION MONITORING OF ROTATING MACHINERY, WEB-BASED MEASUREMENTS AND ANALYSIS

- Short introduction of Trendion Oy
- General properties of measurement unit Trendion TADC-4, generation 5
- General properties of Trendion Online System
- General view of Trendion Online ICT architecture
- Working with Trendion Online: configurations, views
- Trendion Online, compatibility for ARTeMIS Modal® -software
- Trendion Online live demonstration
- Q&A

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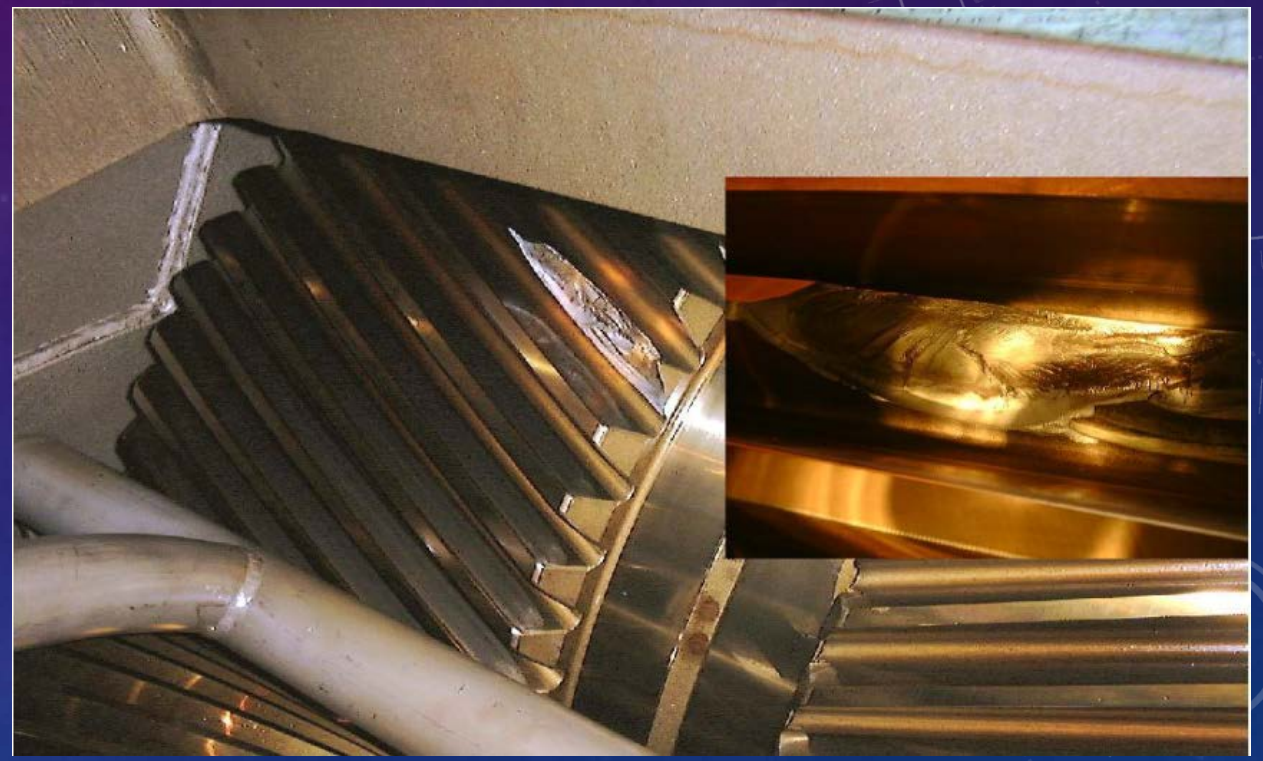
TRENDION OY

- Trendion was founded on 2014 to further develop and commercialise the Online vibration monitoring system, already started several years earlier
- Long experience on condition monitoring of industry, especially in Nuclear Power and Oil/Gas
- The history in vibration based condition monitoring of Trendion staff carries all the way to the beginning of 1970´



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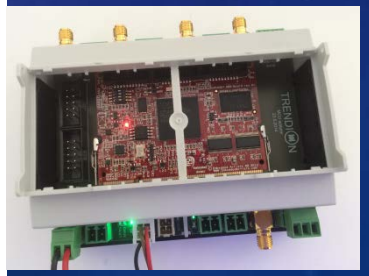
GENERAL PROPERTIES OF MEASUREMENT UNIT TRENDION TADC-4, GENERATION 5

Trendion 5th generation solution designed for improved:

- Scalability and cost-effectiveness
- Measurement flexibility, good dynamics (24-bit.) and good accuracy
- New applications with synchronized and simultaneous sampling
- Compatibility with ARTeMIS Modal® -software

Characteristic	5th generation	Customer benefit
Amount of channels	Modular; 4 – 32 pcs	cost-effectiveness, scalability
Sample frequency	Configurable; 52 / 26 / 13 / 6.25 / 3.25 / 1.625 kHz	data optimization, diversity for various purposes
Frequency band	0 – 26 kHz	enables demanding condition monitoring
Measuring range	±30 V	improved reliability
Measuring resolution	0,004 mV	higher dynamics
Noise level (p-p)	0,1 mV	improved performance
Measuring synchronization	Yes	enables monitoring of machine balance and balancings can be made remotely; automatization of key figures calculation
Simultaneous sampling	Within a 4-ch. Module	enables monitoring of structure movement
Separate AC/DC measuring	No need	improved performance



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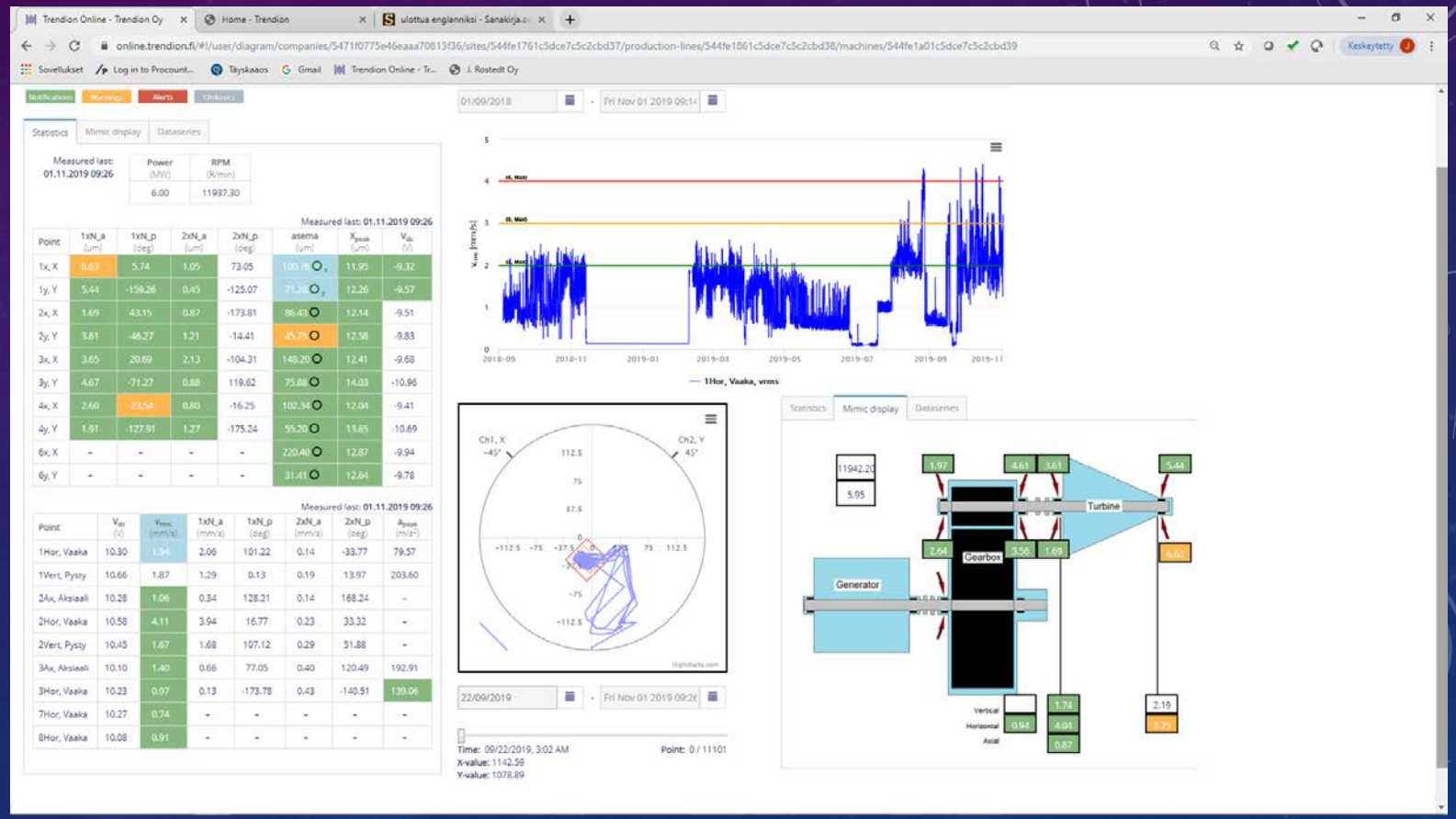
GENERAL PROPERTIES OF TRENDION ONLINE SYSTEM

Flexible and scalable IoT solution supported by expertise and professional services.

Properties of Trendion Online Solution:

- Web-GUI and algorithms
  - ➢ Web-GUI developed to work with all browsers, tablets and smart phones (traffic light app under development)
- Trending of key-parameters: ie. vibration overall values, order tracking parameters
- Raw time-signals and spectras visible also via portal
- Cloud platform for scalable 24/7 vibration monitoring service, possibility to ”inhouse” solutions and ”white-labeling”
- More detailed analysis with Trendion Studio – analysis software



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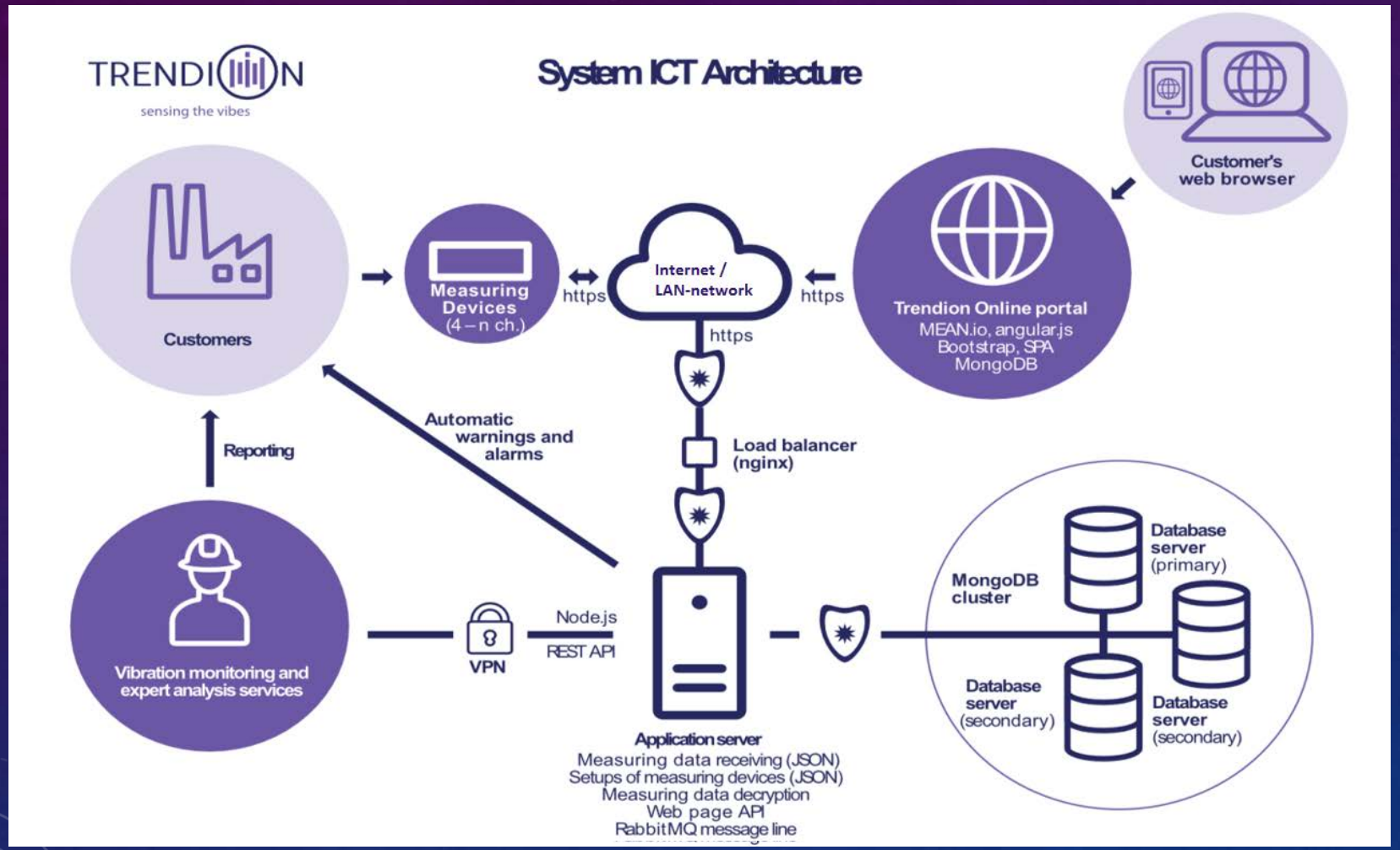
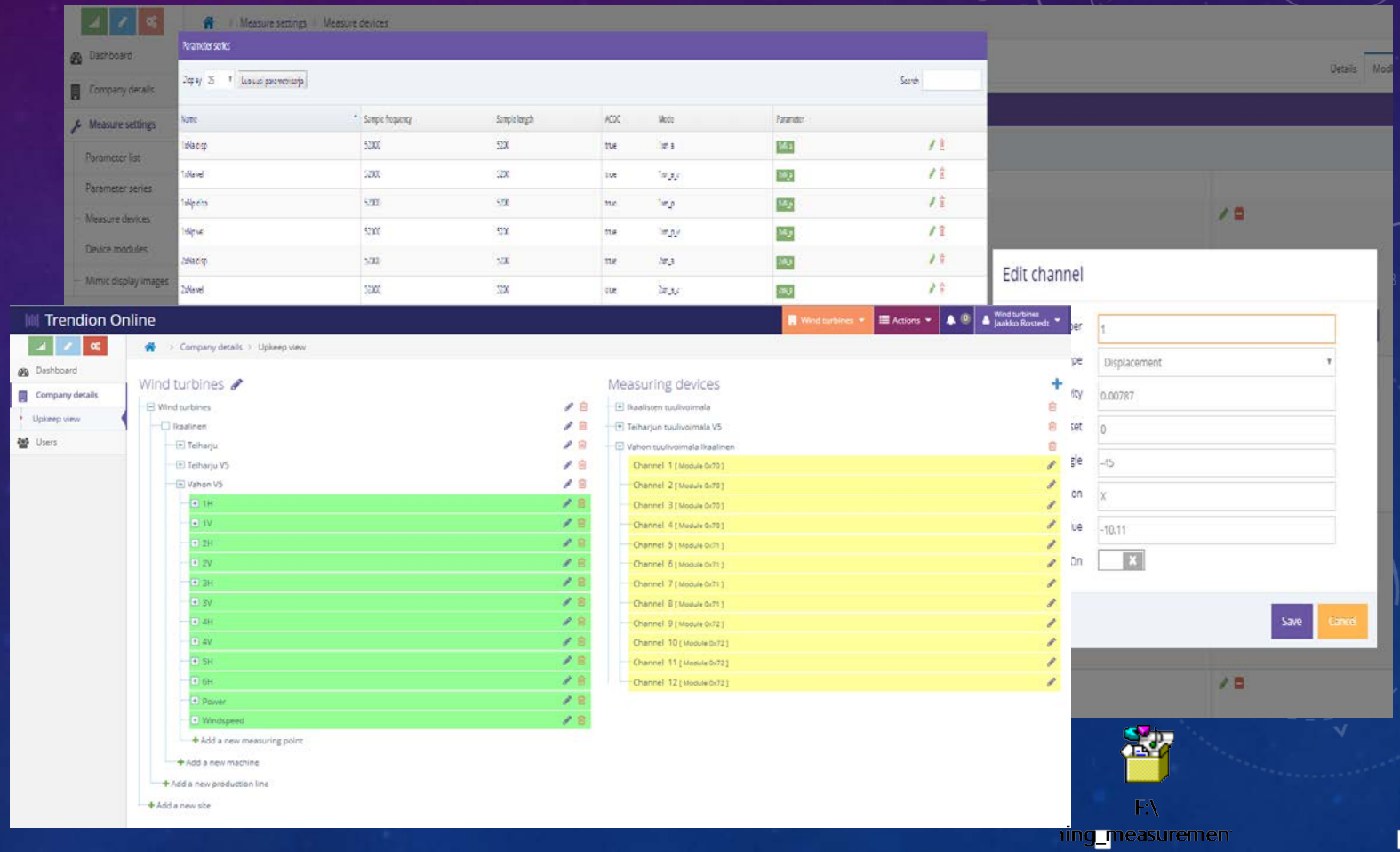
GENERAL VIEW OF TRENDION ONLINE ICT ARCHITECTURE



- SSL-secured web-portal and data traffic
- Data packets encrypted/decrypted with in-house algorithm
- Tripled and mirrored database cluster
- Watchdog for system malfunctions
- Interface for data export
- System running on IBM power 9 (collaboration with IBM)

WORKING WITH TRENDION ONLINE - CONFIGURATIONS

- All system configurations done via web-portal
- Everything can be pre-configured in advance in the web-portal
- Changes in configurations have immediate affect on measuring unit



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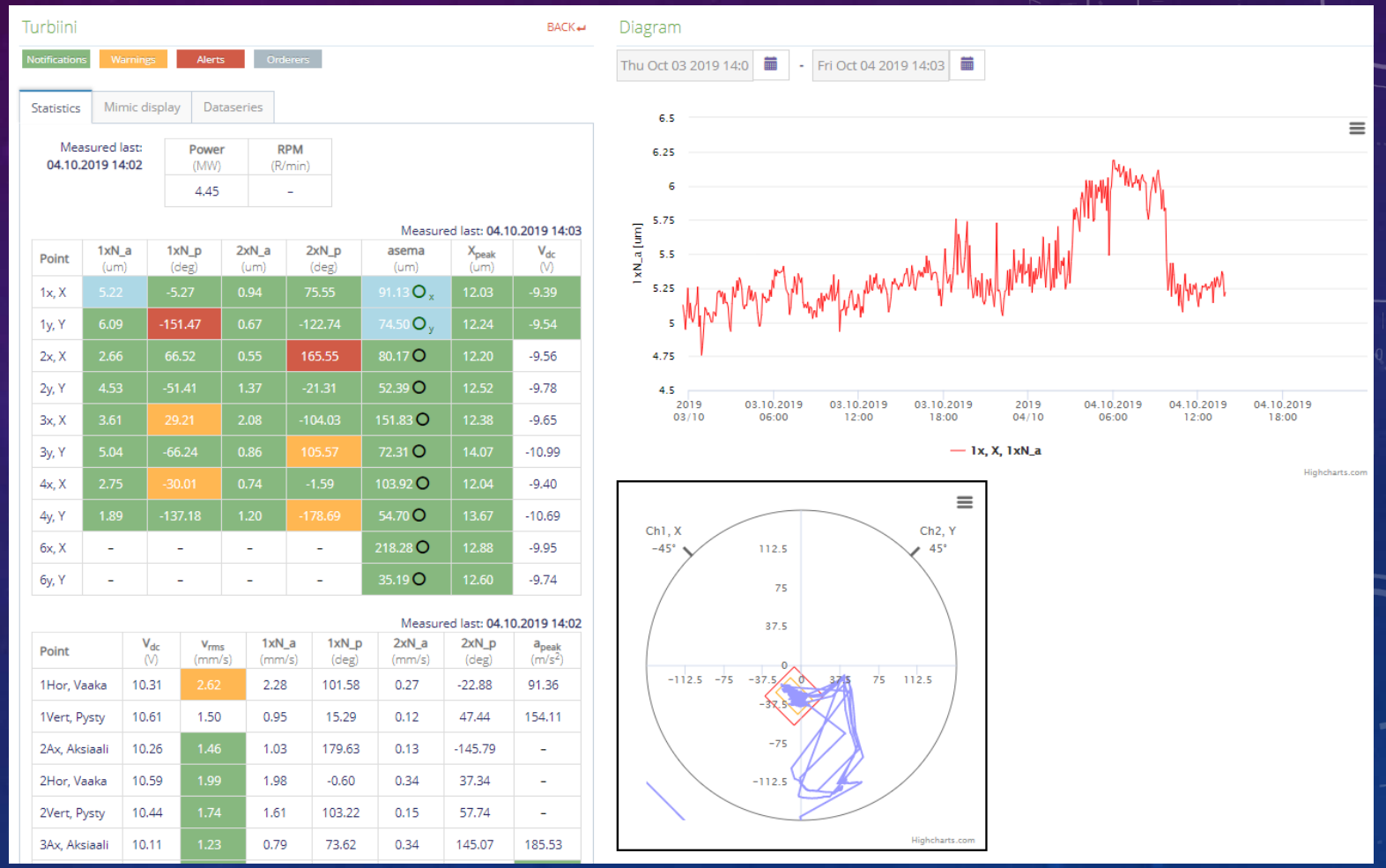
WORKING WITH TRENDION ONLINE, ANALYSIS AND VIEWS

- Colored ”normal list” for proximity probes and other type of transducers
- Machine related / process parameters
- Trending of all parameters
- Diagram for static position of the shaft centerline, orbits and polar plots under development



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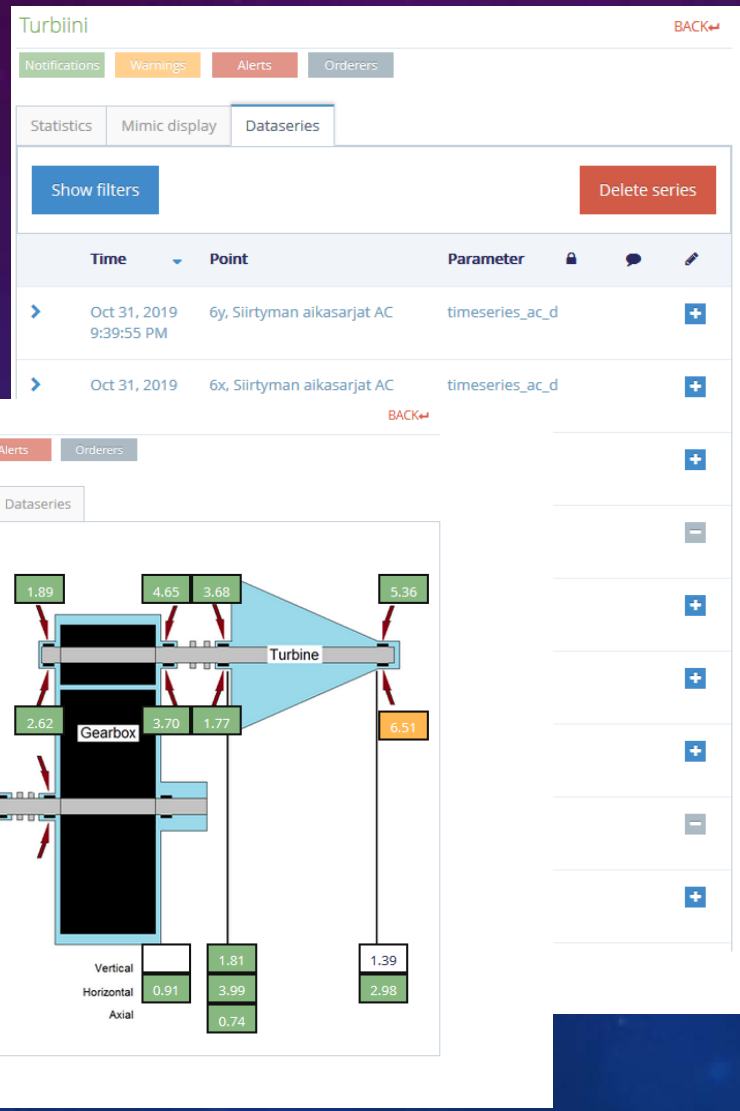
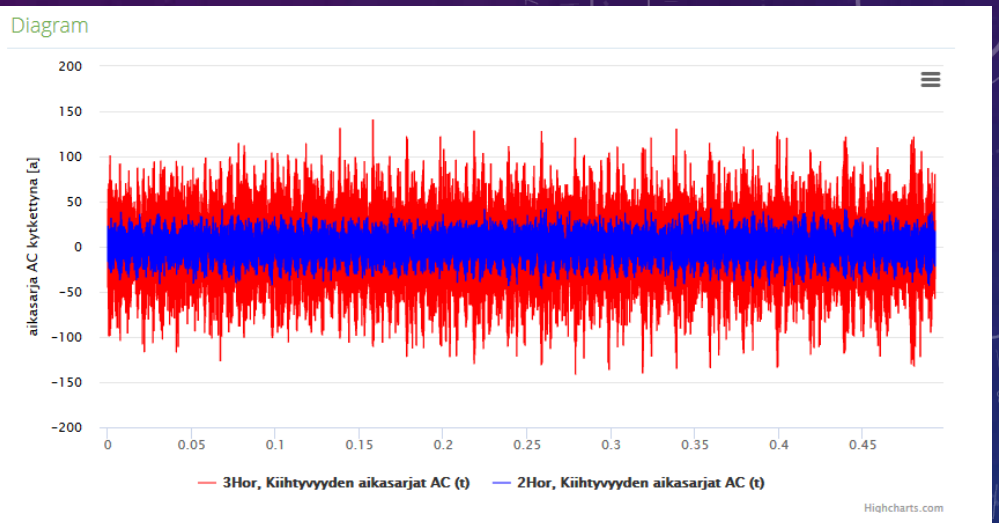
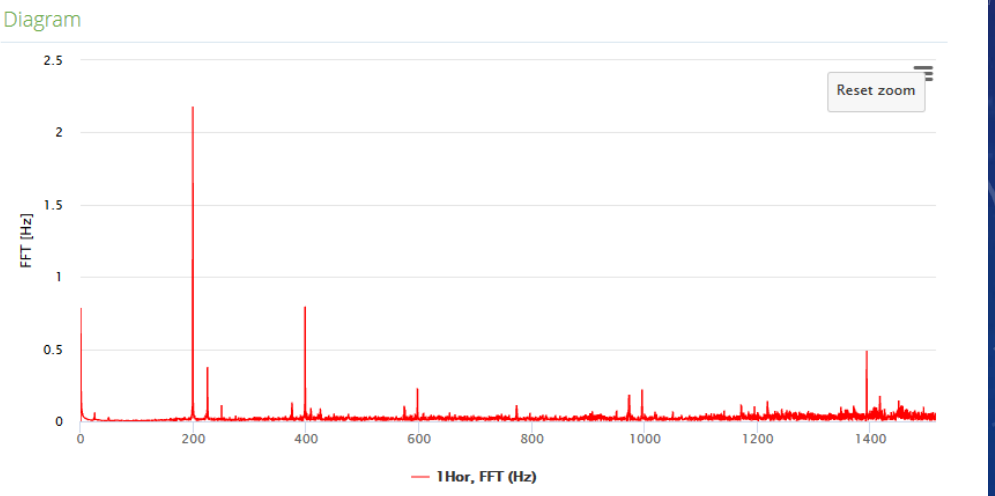
WORKING WITH TRENDION ONLINE, ANALYSIS AND VIEWS

- Simulatenously sampled timeseries and spectras available on web-portal
- Fully configurable mimic displays







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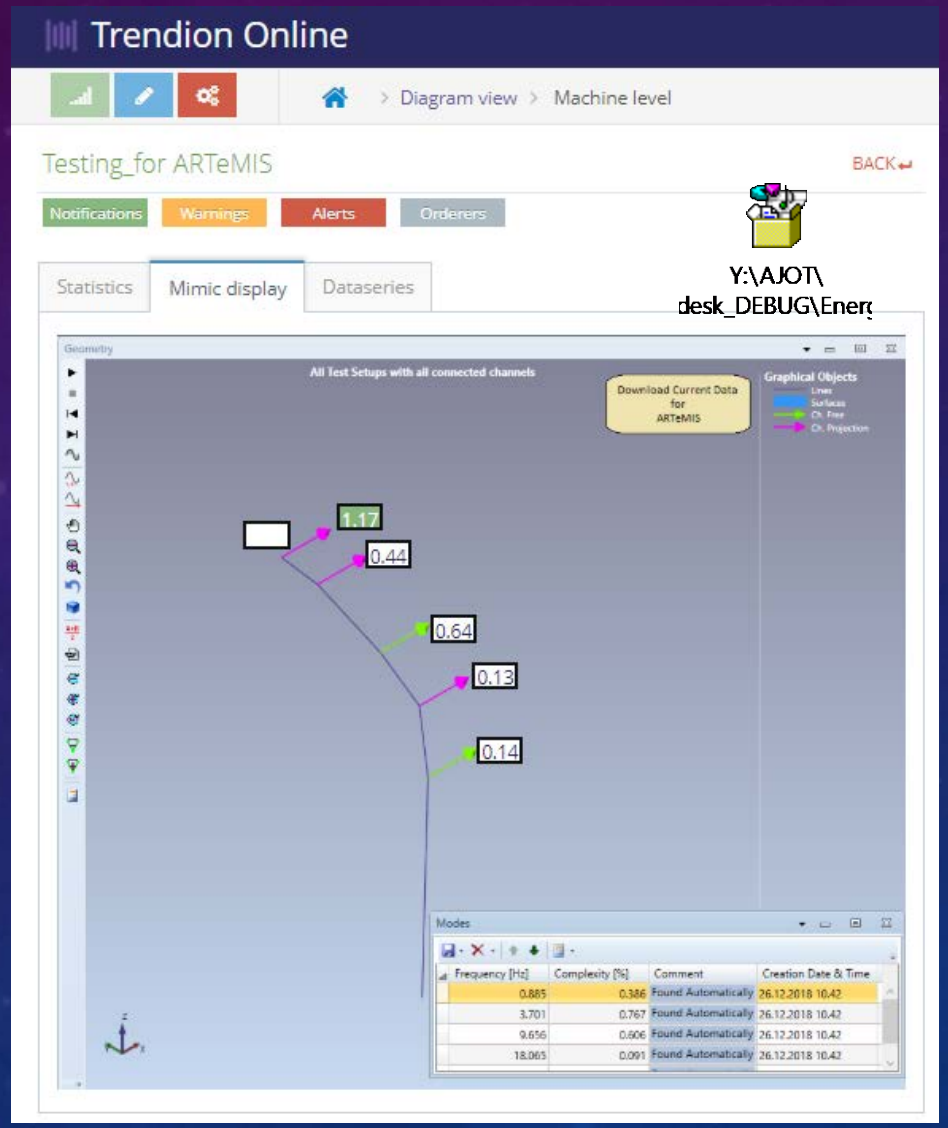
TRENDION ONLINE, COMPATIBILITY FOR ARTEMIS MODAL® -SOFTWARE

- Special functionality to export simultaneous timeseries from TADC-4 –modules to ARTeMIS Modal® -software
- A great tool for monitoring of structural properties and boundary conditions



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LIVE DEMOSTRATION

QUESTIONS
&
ANSWERS

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With cost-effective Trendion Online -system, you can make your everyday work easier!

THANK YOU!

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