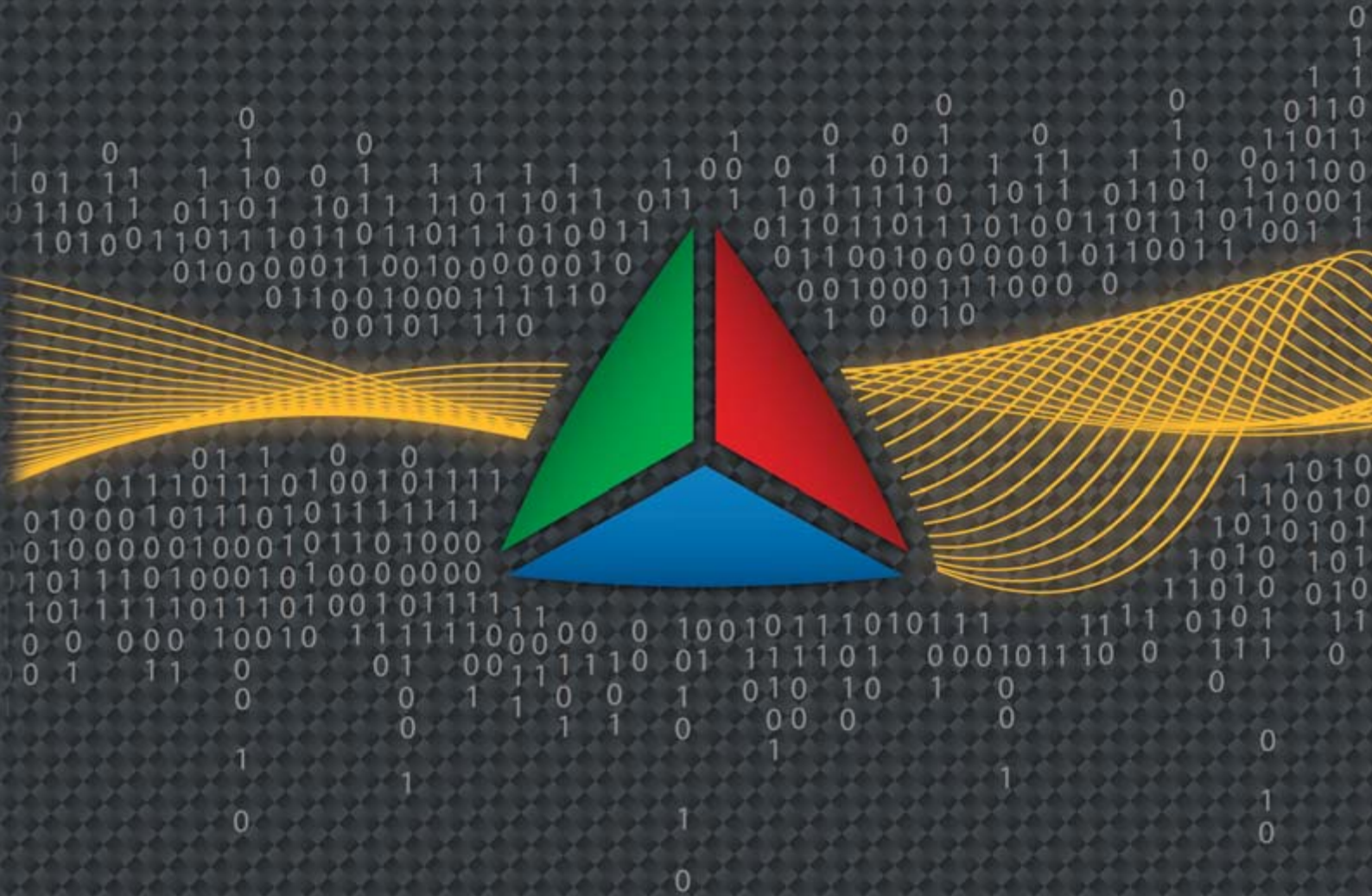# DEWESoft™

measurement innovation

Mission and Vision

The mission of the company is to provide the best possible test and measurement solution working close together with our customers. The solution starts with having robust mechanical housing and having inside great electronics providing the strong base for different applications.

We will continue to work on one piece of software covering all applications areas providing turn-key easy-to-use solution for most demanding tasks. We have seen the great benefit of covering multiple applications from a single instrument so this will definitely stay our guideline.

The best total solution of course doesn't stop there – the global network of people providing local support and service for the customers and fast response time is a foundation for our success. Our motivation and inspiration for our further work lies in great relation we have established with our customers worldwide.

Quite often we would say that we are not inventing new products. We will simply continue to listen to You – our valuable customer and try to make You happy in the future.

Dewesoft handles complete instrument design, development, manufacturing, sales and marketing … **ALL IN ONE HAND.**

Dewesoft was founded back in year 2000 and today Dewesoft products are being used in many applications by global market leaders all around the world. Dewesoft positioned itself in the global market with innovations in software and hardware products. We gained trust with our customers by keeping a close contact and tight support on all levels from sales down to technical support.

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Franz Degen   Herbert Wernigg

Franz Degen and Herbert Wernigg, already founders of the PC-instruments company DEWETRON back in 1989, started with Dr. Jure Knez, and Andrej Orozen the Dewesoft Software company in the year 2000. The Dewesoft hardware, the perfect match to the already well established DEWESoft™ software, offers now the next generation in networked data acquisition. The modular hardware concept with many new technologies like dual core ADC and digital high end isolation shows the clear next DAQ – generation.

What sets Dewesoft apart from most other DAQ-companies is the complete development and manufacturing of the mechanic (enclosure) electronic hardware, software, instruments know-how and customized solutions.

Company Profile

The teams for software, electronic hardware, machinery center, assembly, final test and customized applications...

Our development team consits of highly skilled engineers specialized for different application areas

Our HW development team focuses on development of PC boards, digital and analog circuits

Mechanical parts are produced on 3 or 5 axis CNC machines, polished with robot arms and at the end by hand to get the best possible quality. The high quality aluminum housings get even more lightweight by using a F1 technology of carbon fiber.

The mechanical and electronic design teams work closely together. Sharing 3D models, so that the parts which are finished from electronics get the perfect housing just in time.

The products are being assembled and tested by our production team. Every pin on every unit is tested with an automated procedure, every unit gets cooled and warmed up in temperature chamber and is being tested against the vibration on the shaker. We simply want to make sure that the unit will not fail when it gets in Your hands.

INDUSTRIAL APPLICATIONS

KEY APPLICATIONS IN INDUSTRIAL AREA

- Development testing
- Production testing
- Industrial acoustics
- Structural testing
- Balancing
- Order tracking
- Torsional and rotational vibration
- Power analysis
- Distributed data acquisition
- High speed data capture
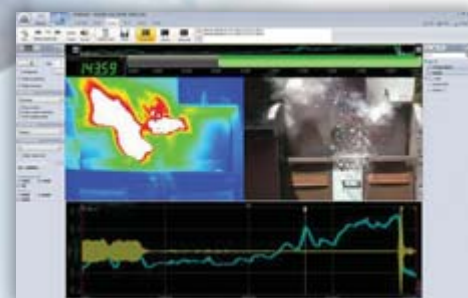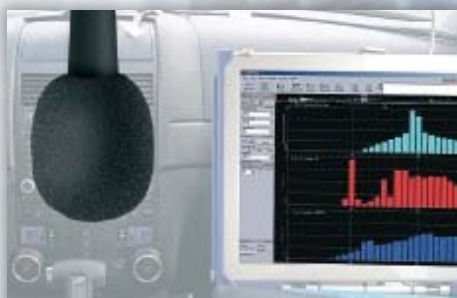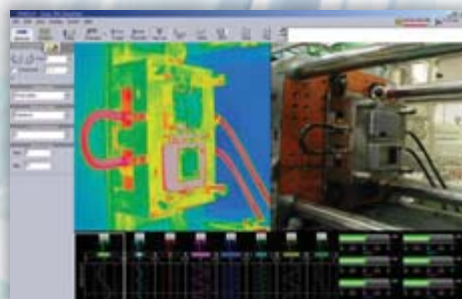
AUTOMOTIVE APPLICATIONS

KEY APPLICATIONS IN AUTOMOTIVE AREA

- Ride handling
- Brake testing
- Performance testing
- Component testing
- Combustion analysis
- Structural testing
- Order tracking
- Torsional and rotational vibration
- Active safety tests
- Crash tests

DEWE-101 Minitaur in the Green Hell

Dewesoft measurement hard- and software was successfully used in the tough 24 hour race on the Nürburgring Nordschliefe (also known as the Green Hell) to display the most important data to the driver during the race and for extensive analysis after the race.

TRANSPORT APPLICATIONS

KEY APPLICATIONS IN TRANSPORTATION AREA

- Inspection and performance testing
- Passenger comfort
- Ride testing
- Structural testing
- Component testing
- Order tracking
- Torsional and rotational vibration
- Combustion analysis
- Electrical systems testing on vehicles
- Distributed acquisition
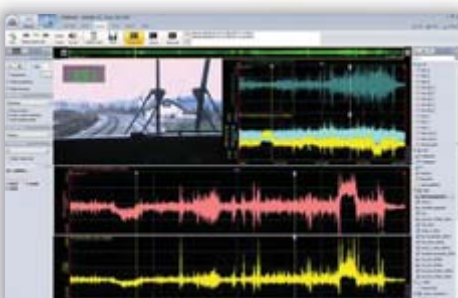
AEROSPACE APPLICATIONS

KEY APPLICATIONS IN AEROSPACE AND DEFENSE AREA

- Flight testing
- Engine and component testing
- Wind tunnel testing
- PCM telemetry
- Performance testing
- Structural testing
- Power analysis
- Recorder stacks
- Explosion and ammunition testing
- Distributed acquisition

POWER APPLICATIONS

## KEY APPLICATIONS IN POWER AND ENERGY AREA

- Electrical equipment testing
- Windmill testing
- Inspection and predictive maintenance
- Harmonic monitoring
- Order tracking
- Power quality
- Power grid analysis
- Power network monitoring
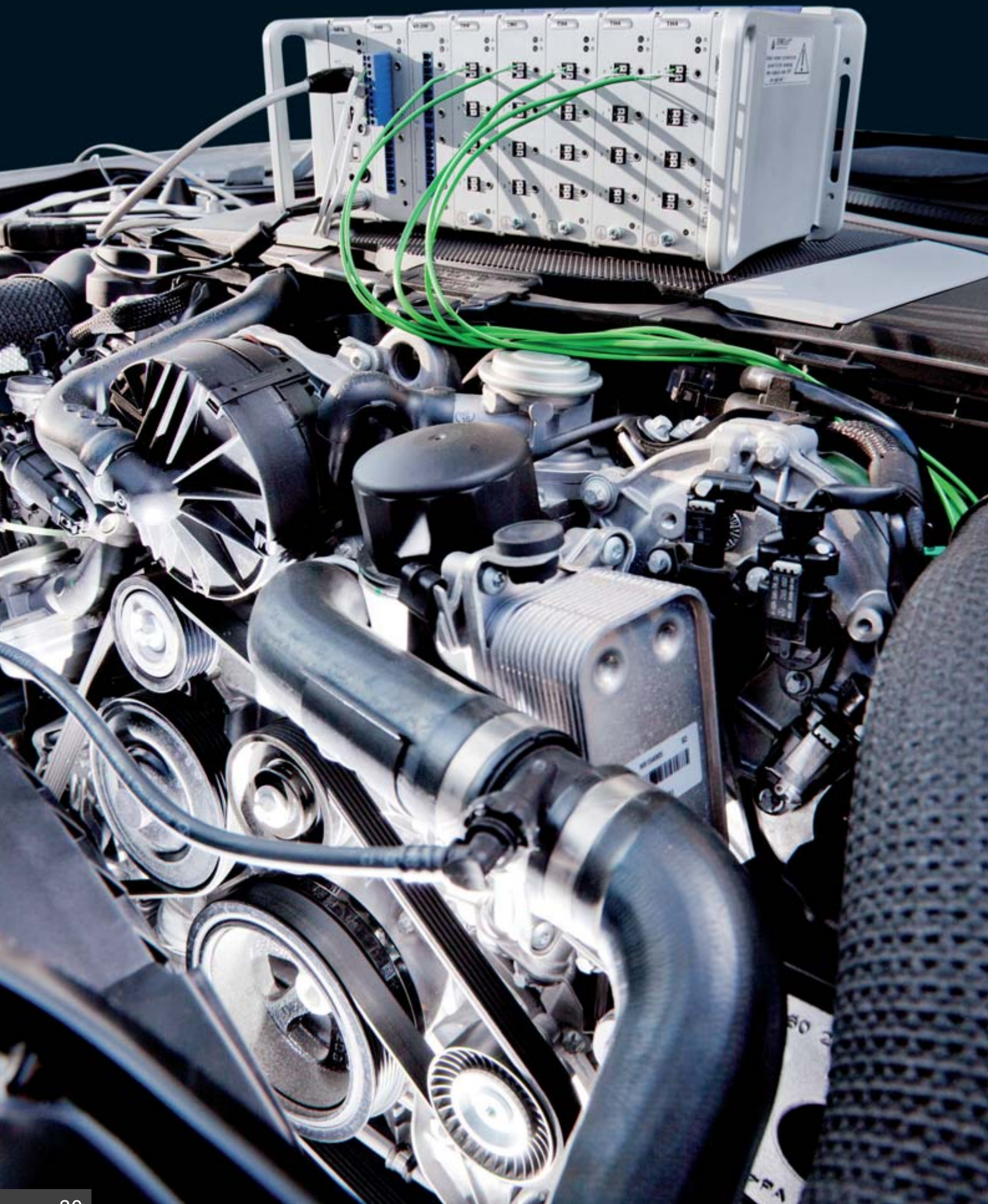- Transient recording
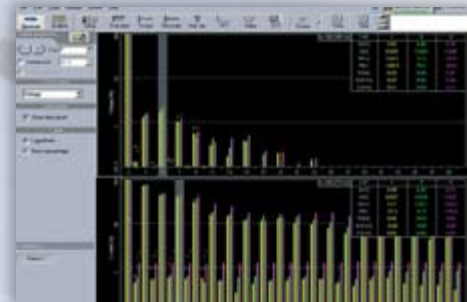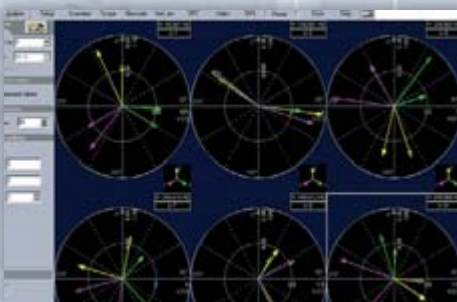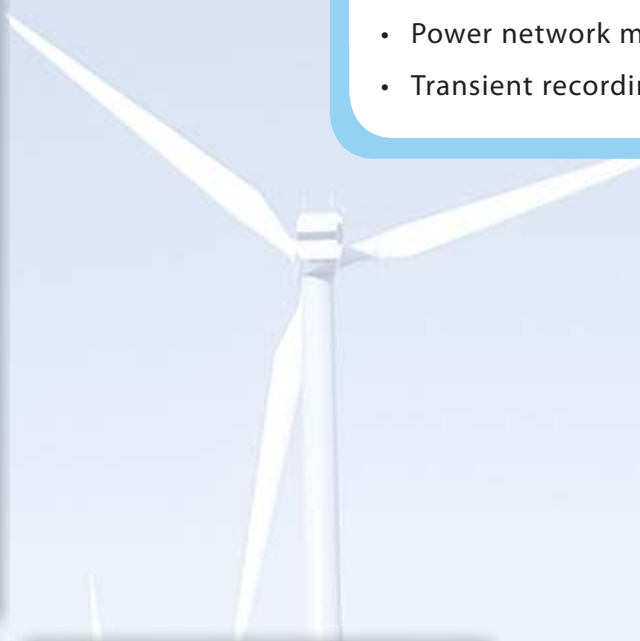
CIVIL ENG. APPLICATIONS

KEY APPLICATIONS IN CIVIL ENGINEERING AREA

- Data recording
- Dynamic signal analysis
- Bridge monitoring
- Structural monitoring
- Structural testing
- FRF analysis
- Distributed data acquisition

System overview

Trigger probe

Acceleration sensor

Acceleration sensor
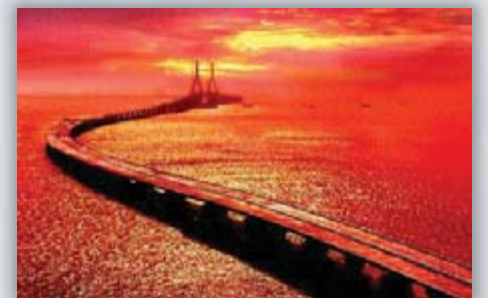
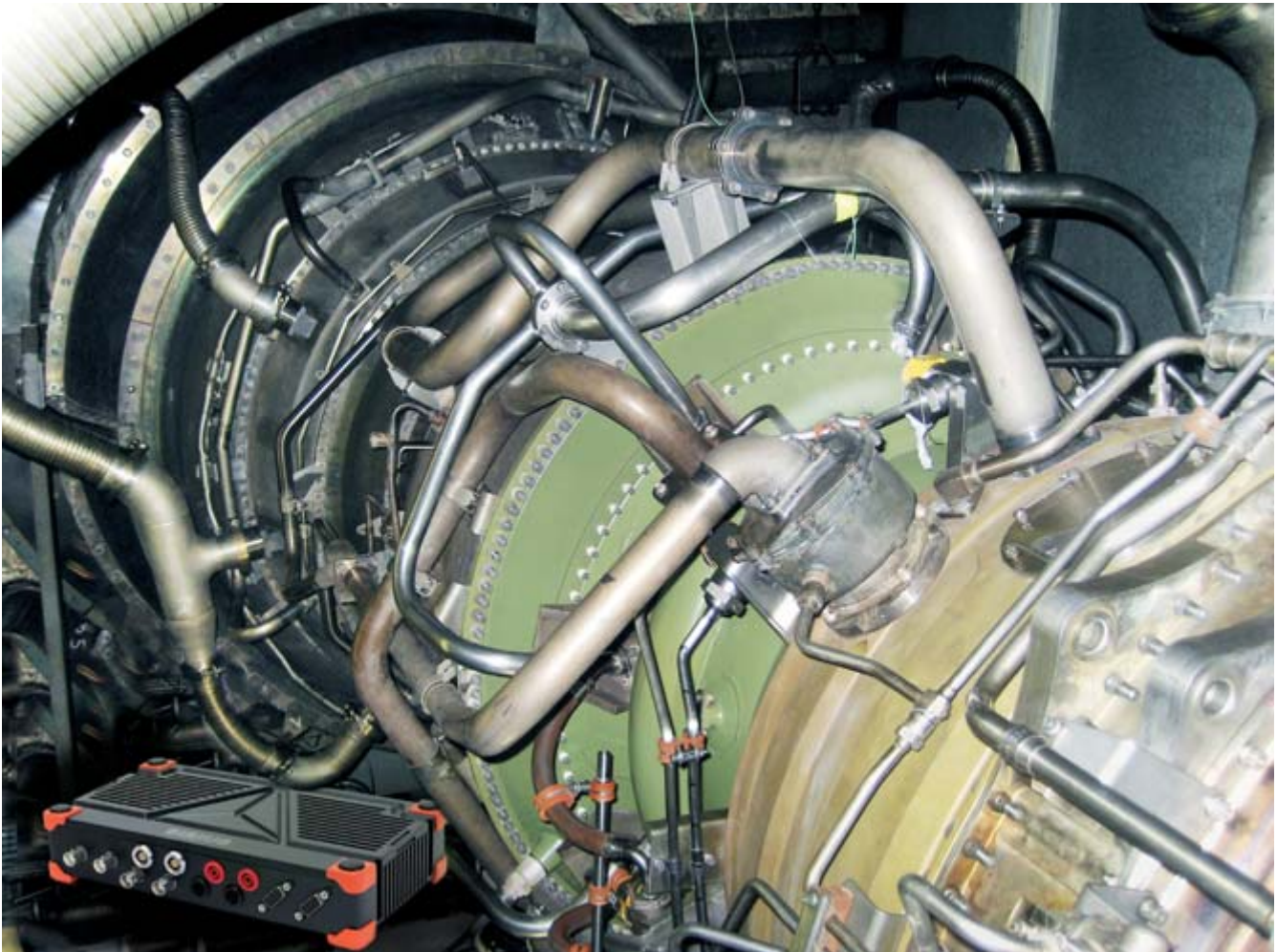| DEWE-101 Minitaur		DEWE-43		SIRIUS
	or		or	

ORDER TRACKING
INTRODUCTION

Rotating machines under operational conditions require additional analysis such as order tracking. Compared to normal FFT the spectrum is based to orders instead of frequency (time). The orders describe the fundamental or a multiple of the actual rotation speed [Hz]. With this method you can separate frequency components which are related to engine speed and that are related to structure.

DEWESoft™ provides a powerful and very easy to use order tracking module for fast and efficient results. The data and the rpm information is recorded simultaneously in time domain and re-sampled in the order tracking module. Therefore we can show narrow band FFT, waterfall spectra, and still keep all other convenient functions in time domain.

MAIN FEATURES

- Dedicated re-sampling method for sharp order separation
- Measurement in time domain to keep all benefits
- 2D, 3D waterfall in order or frequency domain
- Amplitude, phase extraction
- Recalculation in post processing
- Phase synchronous rpm input with 12.5 ns resolution
- Easy to setup

Overview

Order tracking requires two signals, the vibration signal and the rpm information. The measurement is done in time domain, and all the order related channels are calculated out of these time signals.

A fast state of the art re-sampling method produces the results online. Run-ups, coast-down or both are possible online.

Time based data recording enables recalculation even in post processing. Narrow band FFT, CPB spectrum and order tracking information could be shown at the same test run, saving time.
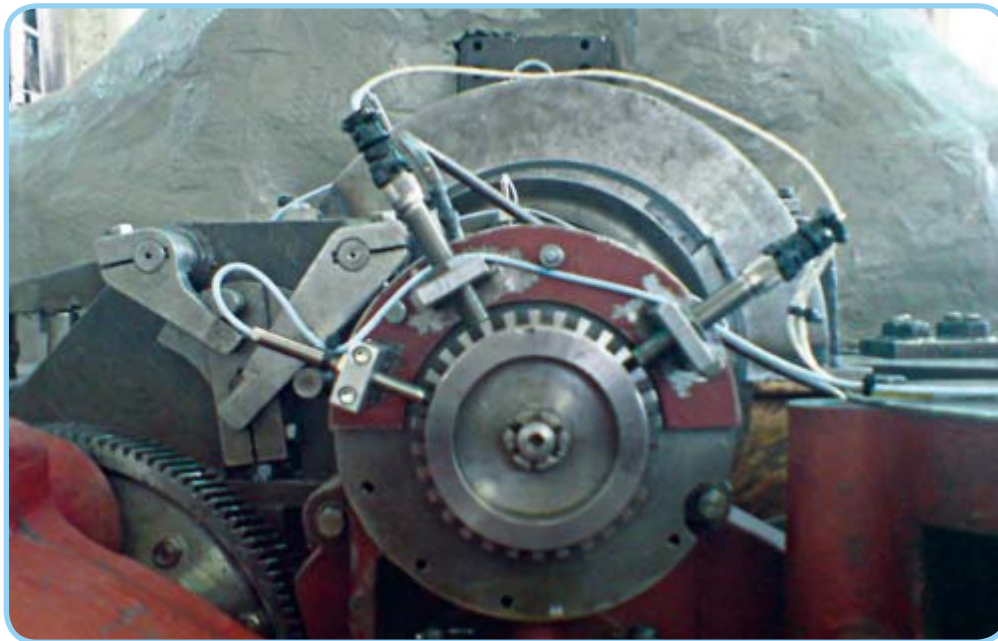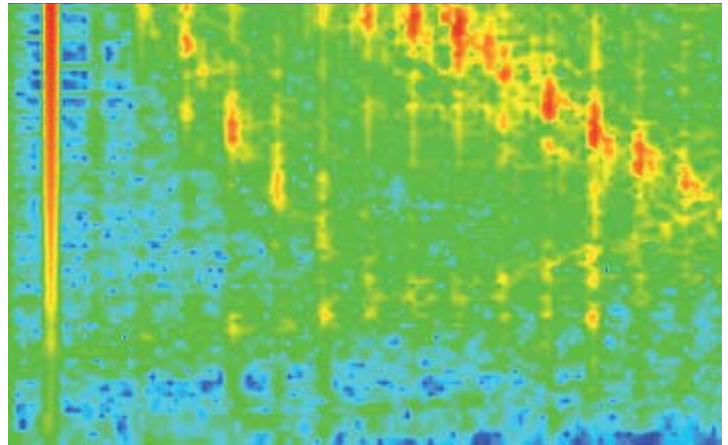
| DEWE-101 Minitaur		DEWE-43		SIRIUS
	or		or	

Channel setup

Simply specify the channels to analyze, define the rpm channel and set the parameters for your run. This will only take a few minutes and you are ready for the test.

Immediately after configuration, you will get the calculated results which can be shown in dedicated instruments for analysis and reporting:

- Amplitude
- Phase
- RE- Imag- Part
- Order resolution up to 1/64 order
- Upper- lower- rpm limits
- Extract specific orders for further investigation
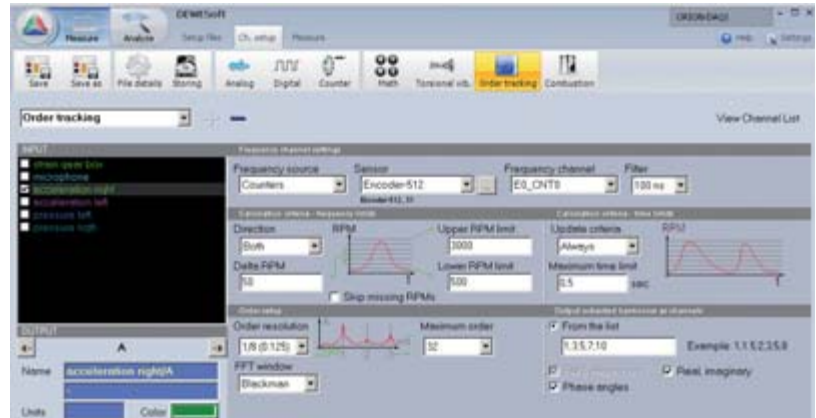
Analysis

In the easy to use analyze screens data could be shown and analyzed in many different ways. So you could draw orders or narrow band FFT in 2D and 3D waterfall diagrams. Either displayed with time history or rpm. Specific orders or phase information could be recorded over time, rpm or any other physical value. All analysis screens could be arranged in a convenient way.
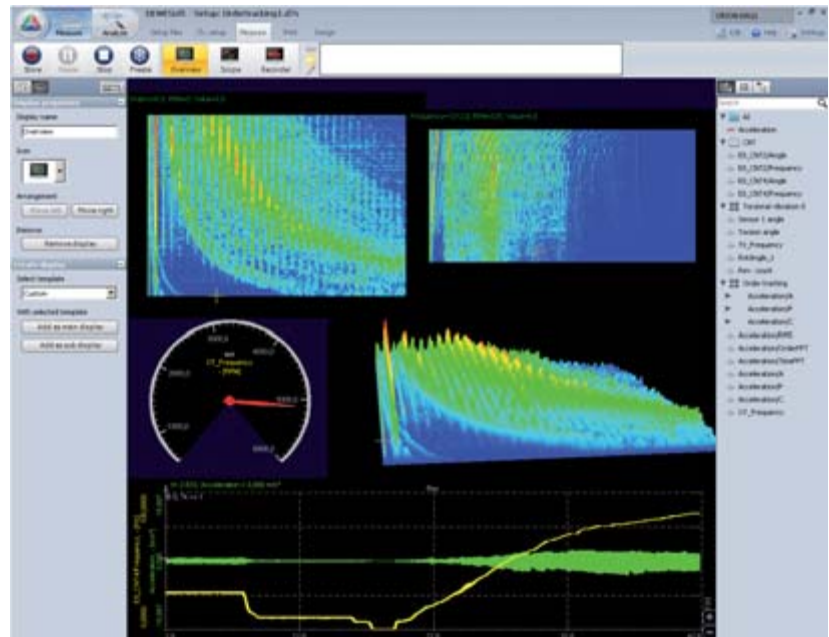
Amplitude or phase is shown over rpm, RE- IM- Part displayed in XY diagram to observe resonant frequencies.
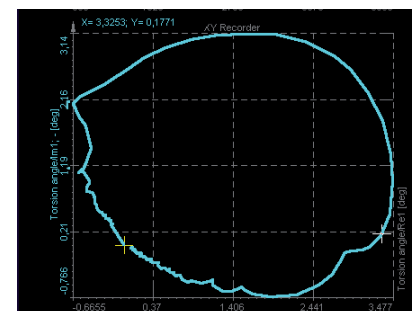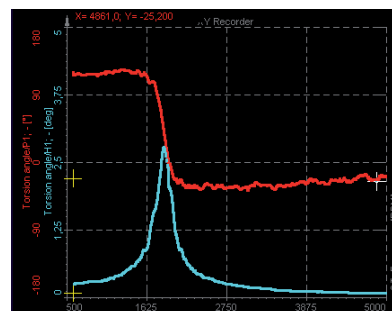
Orbit view together with Orbit tracking

In addition, the order tracking module is also used to show an orbit plot which is used to observe bearings or movements of rotating machines. The order tracking module extracts specific harmonics in the orbit view and also averages them.

Example: Paper Mill
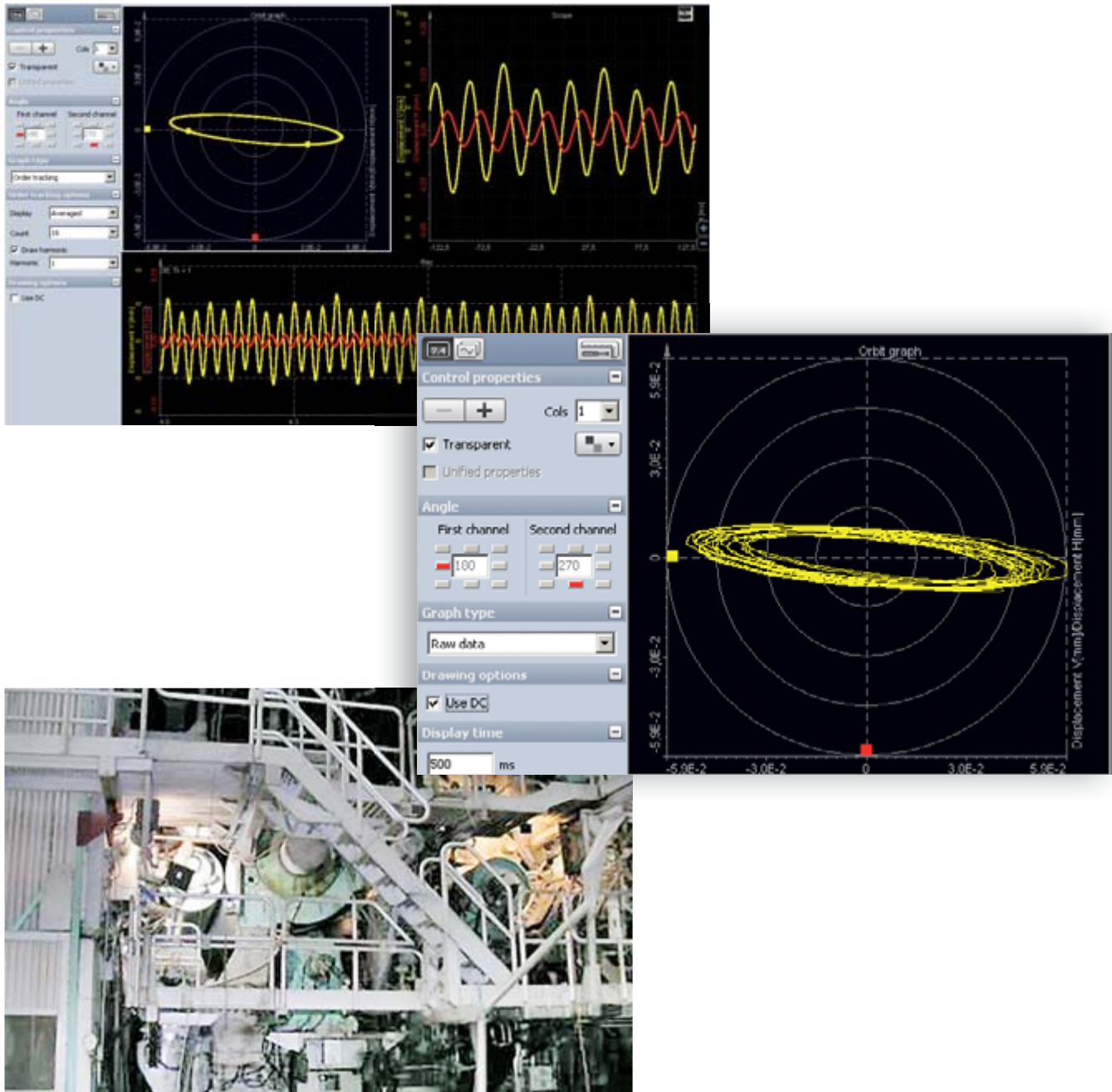
INDUSTRIAL ACOUSTICS
INTRODUCTION

Frequency analysis is a big issue in acoustics. Octave and fractional octave bands are used for this in most cases. DS MOD DSA provides extensive choice of tools for frequency analysis, where all weighting functions for time and frequency weighting are implemented.

For complex acoustic analysis, advanced measurement tools are available in addition to the standard analysis tools.

MAIN FEATURES

• Real time narrow band FFT

• 1/1, 1/3, 1/12, 1/24 band octave spectrum

• A-, B-, C-, D-weighting (frequency weighting)

• Fast-, slow-, impulse-weighting (time weighting)

• Leq-calculation

• Sound level meter

POST-PROCESSING FEATURES

• FFT, octave analysis and weighting

• Sound level meter

• Sound power measurement
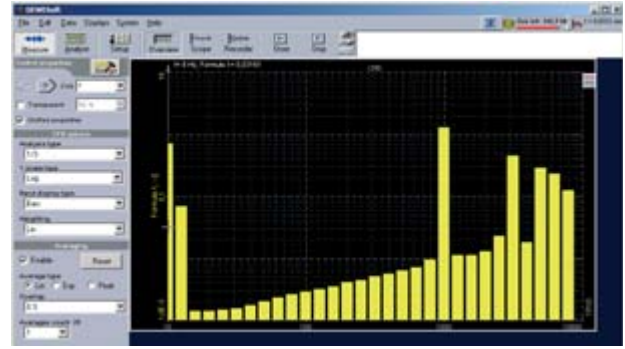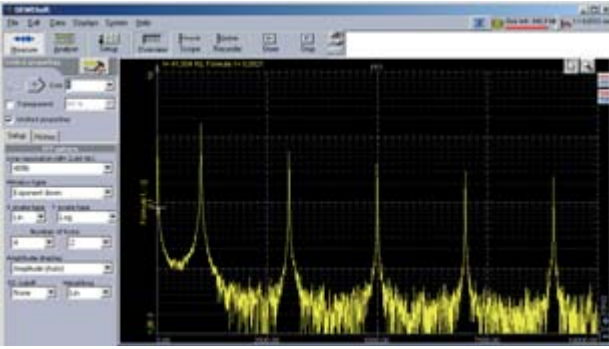
Sound Level Meter

DEWESoft™ calculates several parameters online:

FUNCTION	DESCRIPTION
Lp (8PL)	Time (F, 8, I) and frequency weighting (A, B, C, ...) sound level (dB)
Lpk	Current maximum sound level (dB)
Weighted raw	Frequency weighted (A, B, C, ...) sound level (dB)
Log	Equivalent sound level (dB)
Lim	Pulse weighted equivalent sound level (dB)
Lpkmax	Absolute maximal sound level (dB)
Lo	Sound exposure [dB]
Lmax, Lmin	Maximum and minimum Lp sound level
LAF50, LAF10, ...	Classes for 0, 1, 5, 10, 50, 90, 95 and 90 dB
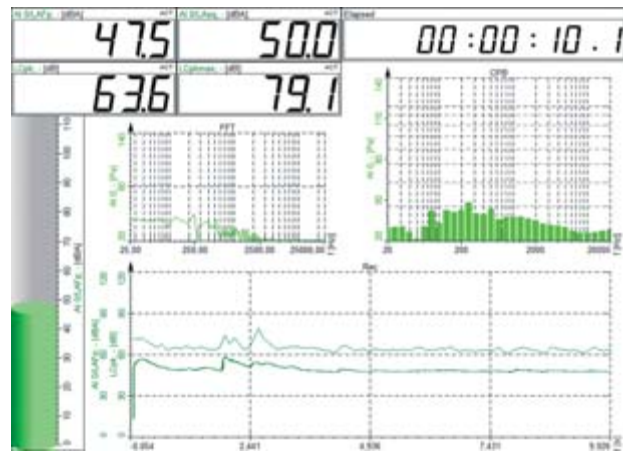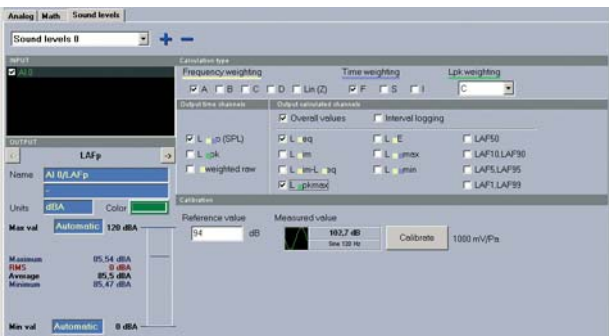
Sound Power Measurement

Sound power measurements are important for noise measurements and qualification of noise emission from machines and products (CE mark). They can be done with two measurement procedures, measuring the sound pessure or the sound intensity. Both are supported with DS MOD DSA system. Following corrections will also be done:

- Barometric pressure and temperature (K0)
- Background noise (K1)
- Surrounding correction (K2)
- Measurement area (Ls)

RECORDING/CONTROL
SOLUTIONS
INTRODUCTION

MAIN FEATURES: RECORDING
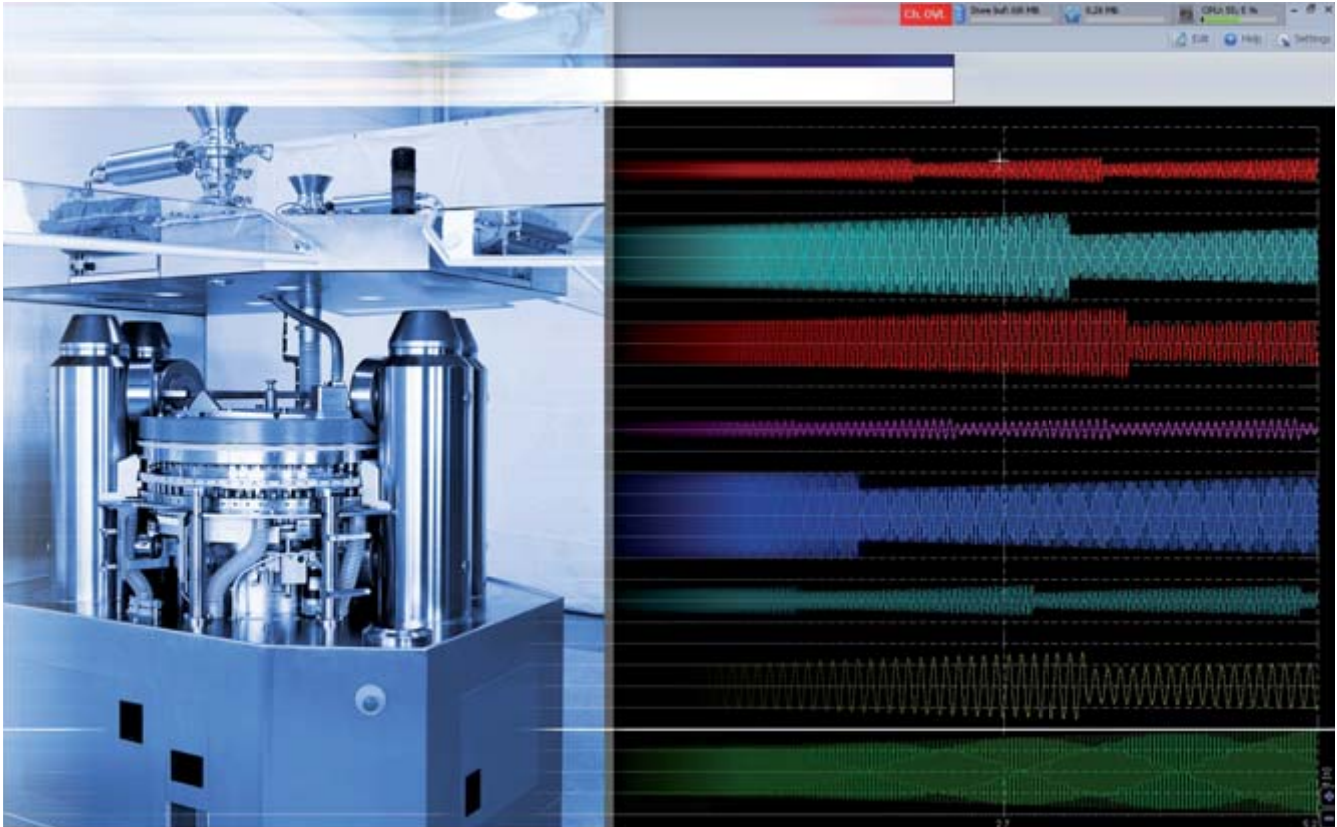
PC-based data recorder are widely used for high speed and low speed signals from mHz to MHz. Dewesoft offers a wide range of signal ampli-fiers and A/D converters in different chassis. The DEWESoft™ software offers ease of use and sophisticated online and offline mathematic functions.

- Multi sensor input
- Distributed systems
- Easy to use software
- Advanced triggering to capture events

MAIN FEATURES: CONTROL

The flexible DS NET system even offers real time control solutions with guaranteed response times (no Windows operating system involved). Simple PLC or sophicticated PID controller applications are available.

- Real time alarms, PID
- Fixed low latency
- High speed (10 kHz)
- Stand alone operation
- Reliable

Data recording

Instead of printing to paper, your data are streamed directly to a hard drive. DEWESoft™'s unique capability to store the data with over 160 MB/s will never let you loose your data even when recording hundreds of channels at the same time. You can start storing as easily as pressing the STORE button, or as elaborately as having separate - even multiple, triggers on each input channel. Recorder chart screens in DEWESoft™ can be either vertical or horizontal, it's your choice.

Triggered storing

Quite often the system needs to monitor the data for several days or weeks, looking only for very specific events. Store all the data to the hard drive and then searching for these events is of course a bad idea. To avoid this DEWESoft™ offers an extensive triggering feature– we can use start/stop triggers and use pre/post time for triggering. The trigger conditions can be:

- **Simple edge** (either rising or falling slope)
- **Filtered edge** (edge plus rearm level; either slope)
- **Window trigger** (two levels; entering or leaving logic)
- **Pulsewidth trigger** (longer or shorter than duration logic)
- **Window and Pulsewidth** (completely selectable as above)
- **Slope Trigger** (either rising or falling slope with steepness selection)

Solutions for typical recording applications

Application	Description
Automotive	In-vehicle: ride handling, brake tests, steering performance, evapo, fuel efficiency, passanger comfort, ...
Military	Portable recording and troubleshooting, system performance, shock and vibration, ...
Industrial	Machine diagnostics, advanced triggering on failure conditions
Paper/Pulp	Tension monitoring, (also use camera to record machine operation)
Metals	Monitor power systems, closed-loop systems test, process monitoring and recording
Power	3-phase analysis (50, 60, 400 Hz), circuit breaker & fault monitoring
Medical	Chemical tests, pharmaceutical manufacturing, process monitoring

PCM TELEMETRY
INTRODUCTION

The next generation Telemetry Ground Station requires top of the line hardware for real time Digital Signal Processing, combined with user friendly, reliable software to process/display/record critical mission data. DEWESoft™ and Ulyssix Technologies have joined forces to provide a total solution to the telemetry market, complete with IRIG 106 Chapter 10 recording and playback capabilities. Utilizing the DEWE-Net Ethernet option this solution can be scaled from a single portable system to the Launch Control Center at NASA's Kennedy Space Center.

Utilizing the advanced data acquisition products of Dewesoft, this solution can create a real time PCM stream with the PCM Encoder plugin. Thus bringing the high quality standard of DEWESoft™ signal conditioning into the PCM marketplace.

MAIN FEATURES PCM

- Easy to use interface to setup the hardware and process the PCM
- FPGA based hardware for flexibility and field upgradeability
- Integrated Digital Receiver and PCM processing in a single system
- Synchronized PCM, analog, ARINC 429, GPS, and 1553 inside of DEWESoft™
- PCM Encoder functionality using the Dewesoft data acquisition products
- IRIG Chapter 10 Record and Playback capability

Ground Station

The DEWE-Ulyssix Ground Station solution is focused on accurate and efficient PCM acquisition. Starting with the option to integrate the TalonRF digital S/UL/LL/IF band single channel receiver into the ground station computer or using your existing range receivers. With the most advanced FPGA algorithms, the TarsusHS-PCI-01 card performs reliable bit determination and clock recovery. Then the frame synchronizer will time stamp the PCM stream with IRIG time every minor frame.

DEWESoft™ performs real time decommutation on the PCM stream and is capable of extracting embedded PCM streams for decommutation in the software simultaneously. Individual parameters can be defined with easy to interpret channel setup screens. Once the parameter is defined as a channel all the tools and mathematics of DEWESoft™ can be used.

Each sample from a Decom parameter is given an individual time stamp to keep all data within DEWESoft™ time correlated. Any parameter then has the abillity to have independent math functions performed on the data real time for the user.

The DEWE-Ulyssix solution gives the user the ability to store their data in a magnitude of ways to meet any mission requirement. One way is to store a DEWESoft™ data file which can be analyzed by anyone free of charge using DEWESoft™ analysis software.

DEWESoft™ is also able to store the raw frame data in an IRIG 106 Chapter 10 data format. Chapter 10 files are stored in such a form that they can later be replayed by the Archive Simulator on the TarsusHS-PCI-01 at any code type or bit rate.

DEWESoft™ gives you the ability to save the TalonRF-PCI Receiver and TarsusHS PCM setups to the .d7s file, so that the user can load the entire Ground Station with a single setup file.

Utilizing Ethernet connections, data can be transferred between any number of hardware systems with the ability to setup and control the hardware in real time. The Ethernet connection allows for data real time data transmission to any number of view client computers. Within a single package, users can process multiple telemetry streams from RF to bits while displaying & recording the decommutated data in visually stunning displays.
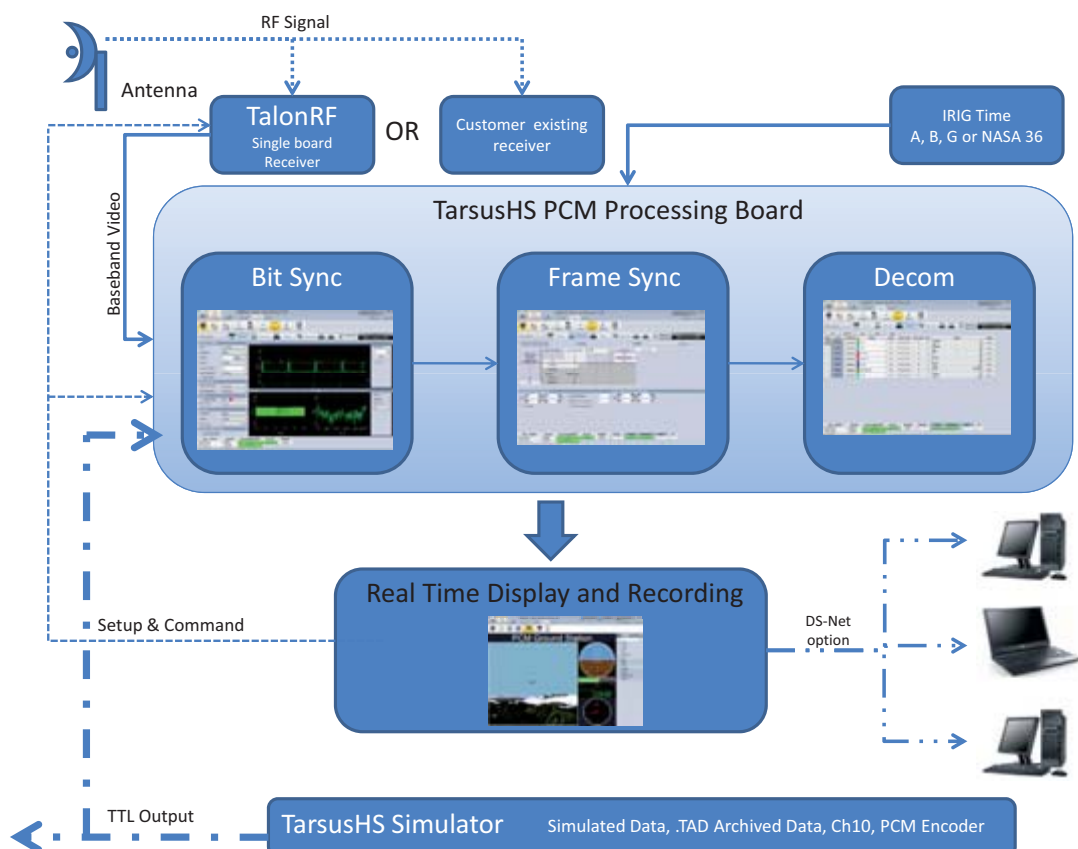
Portable ground station

With the scalablilty of DEWESoft™ the user can take the entire ground station capablility in one portable computer. The new DEWESoft™ plugin for the TalonRF-PCI single board Digital Receiver card allows for integratation of the receiver with the TarsusHS card for full RF to bits processing in a single computer . This digital receiver gives the user a fully integrated portable Ground Station from RF input to full PCM Processing.

Therefore only an antenna connected to the single system is needed for full DEWESoft™ PCM processing capabillities.

PCM Encoder

DEWESoft™ has the ability to acquire and synchronize a magnitude of different types of signals like analog, GPS, IRIG time, 1553, video, ARINC 429 and many others. Once the data has been acquired by DEWESoft™ it can be encoded into a PCM data stream real time. Thus creating the perfect solution for a flexible and scalable PCM Encoder system.

This solution helps the user in a variety of ways from easily creating a PCM stream over trying out new sensor configurations to simulating a vehicle on the launch pad without tying up expensive flight hardware. This capability can also be used to correlate and record the stray analog signals from receiver AGC strengths to the communication links in the ground station.

Chapter 10 reload and replay

DEWESoft™ also has the capability to record and playback IRIG106 Chapter 10 files. With the ability to record data in throughput, packed, and unpacked modes the user has the mission flexibility needed in the telemetry market. This gives the Ground Station the complete processing and recording package all-in-one.

DEWESoft™ can load a previously recorded Chapter 10 file to be replayed in several forms. To recreate the digital PCM data stream from the Chapter 10 file is not a problem using the archive simulator on the TarsusHS card. The Chapter 10 file will be read by DEWESoft™ and then be sent out of the TarsusHS simulator output at any bit rate or code type. As a data processor, DEWESoft™ can replay the Chapter 10 file into the Tarsus Plugin to be frame synchronized and decommuntaed. This gives the user the ability to playback and process any Chapter 10 file without tying up an entire Ground Station.

The Chapter 10 plugin also allows the user to transmit Chapter 10 Ethernet packets of data between computers to any number of clients. This adds the capablilty to allow remote computers to receive Chapter 10 packet data and process the data for analysis, without any hardware on the client side. Thus providing the full processing capablities to any computer on the network.
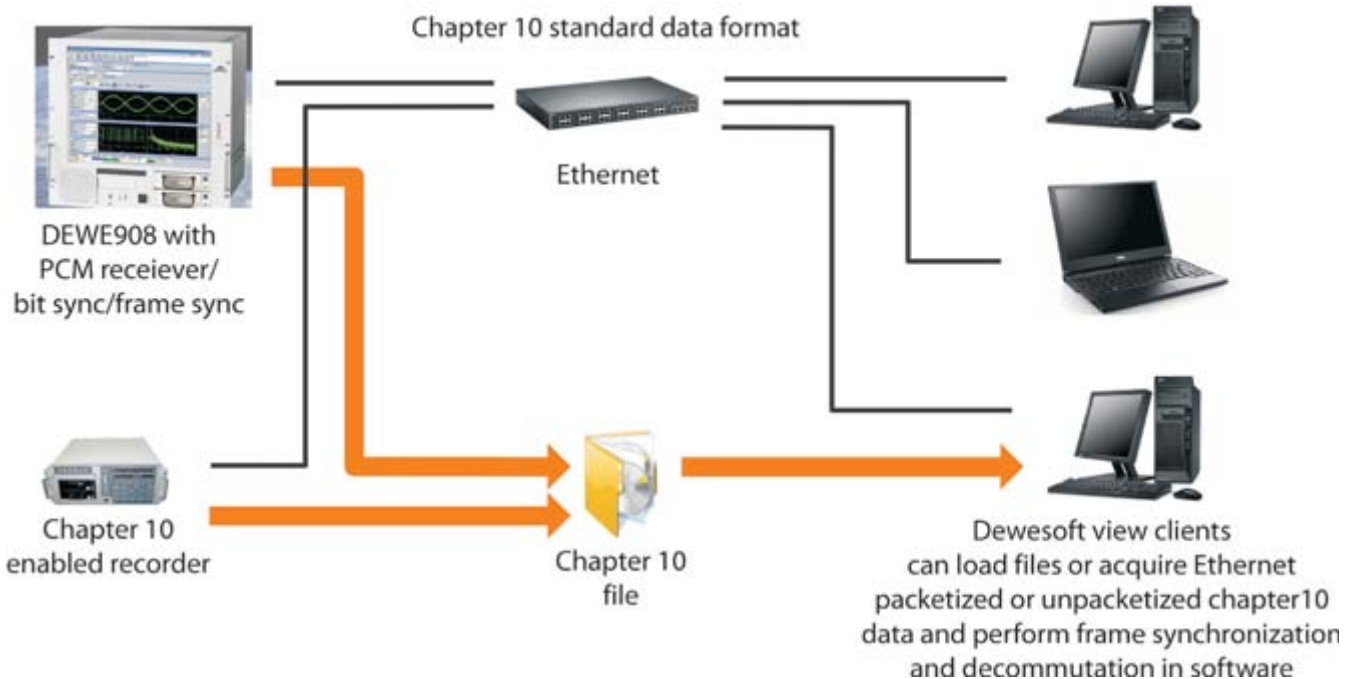
대구광역시 북구 산격동 1665번지 전기재료관 마동 104호
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