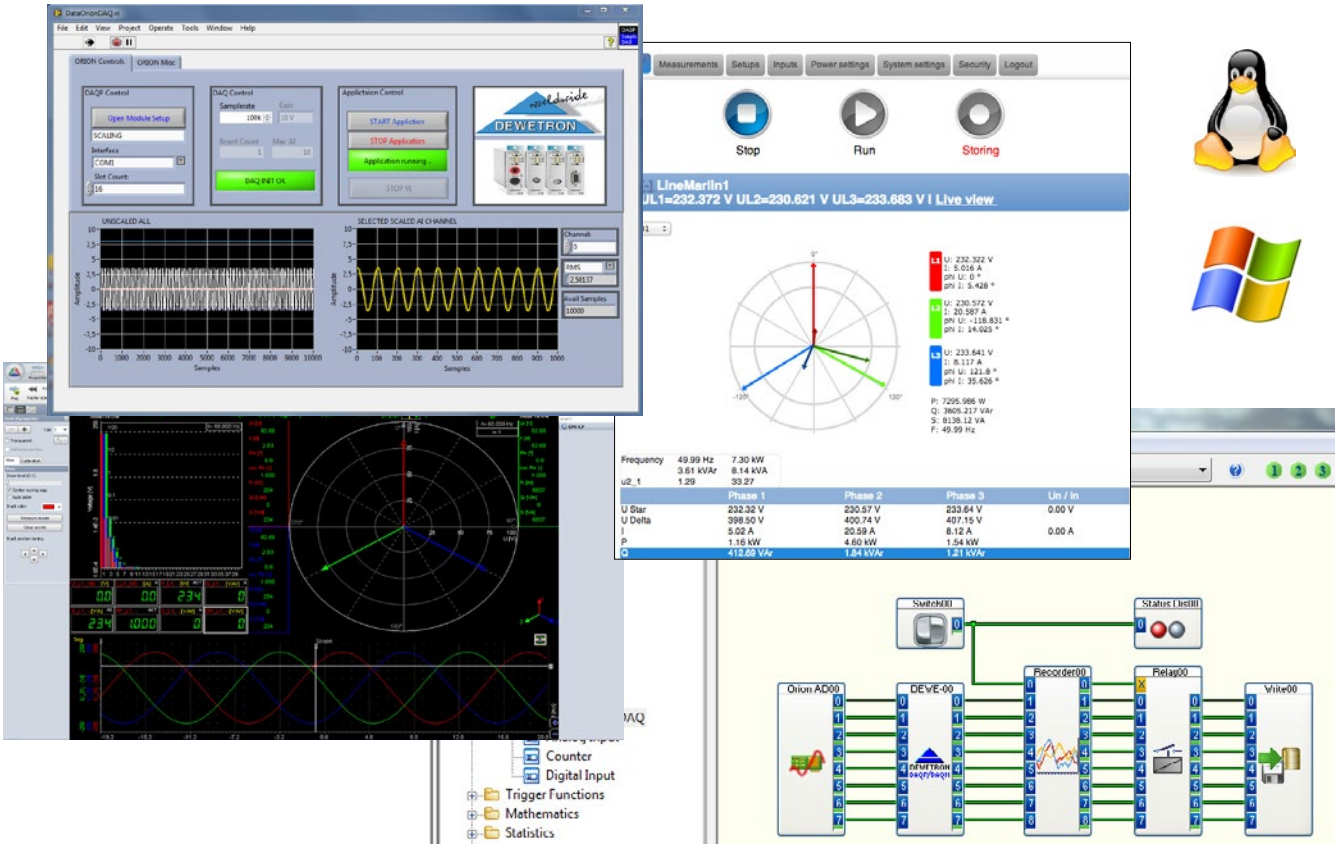
Automotive
Energy & Power Analysis
Aerospace & Defense
Transportation
General Test & Measurement



DEWETRON Open System

Select your software to open a whole new world of possibilities

Since 1989, DEWETRON has been a manufacturer of great data acquisition hardware. It started with our DAQ series ISOLATION signal conditioners, and evolved into PC-based instrumentation. In 2012 we introduced the DEWE2 series, a whole new architecture that raises the stakes considerably. But during the last ten years, we've been a company with precisely one choice when it came to software: DEWESoft™. And one choice of operating system: Windows.

To be sure, DEWESoft™ is a wonderful package for R&D applications, and we plan to be offering it for many years to come. And Windows is the most popular OS. But there's a much bigger world out there, for which neither Dewesoft nor Windows are particularly well suited. Different tools are needed for different jobs - it's just that simple.

So we've made LINUX system level drivers for our TRION™ series of A/D+Signal Conditioning modules, and that's just the beginning. A powerful API for the TRION™ series is available both for Windows and LINUX. Furthermore we have been hard at work making powerful and flexible LabVIEW VIs and DASYLab drivers for the ORION series, and developed a web-based MARLIN package for our power systems, which is truly cross-platform, supporting both Windows and LINUX acquisition hardware.

Key Features

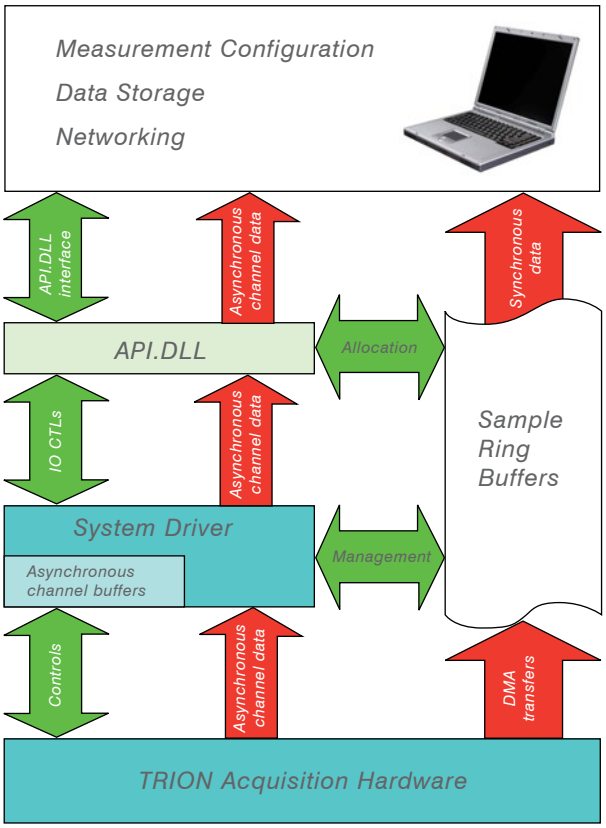
- *TRION™ system level drivers and API for LINUX and Windows operating systems - make your own application on either platform*
- *Support for C/C++, VB6, Delphi and C# programming environments*
- *Robust LabVIEW VIs for ORION A/D cards and DAQ series modules - drop your Dewetron hardware right onto your LabVIEW worksheet*
- *100% support for DEWESoft-7 software under Windows*
- *DASYLab drivers for DAQ modules and ORION-1616 A/D boards*
- *FlexPro - presentation and analysis*
- *Marlin software for POWER and lower-speed DISTRIBUTED applications. Runs on both Windows and LINUX hardware*
- *PMT - Process Monitoring Tool, a powerful report generator for power applications*

worldwide DEWETRON

Robust DEWE2 API - Rock Solid Foundation

We have created a robust API for our TRION™ series A/D and signal conditioning modules. This is the foundation of any application development that you might want to do with our DEWE2 systems. It also serves as the foundation for any application software that we develop, so we are continually improving it and making sure that it's up to date.

Our developers compile the API for both Windows and Linux, so that you can develop in either environment, and using whatever major development environment that you prefer to work in. Our customers program in C/C++, C#, Visual Basic, Delphi, and more. All TRION™ series modules made by DEWETRON are included within the API.



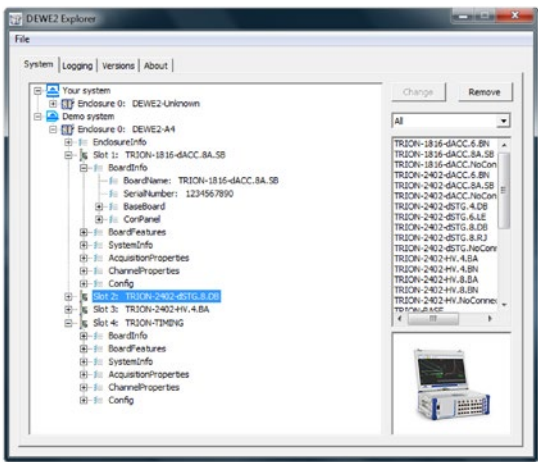
Documentation that really helps

Clear guidelines and examples are absolutely essential to any API, and we've spent a lot of time creating a set of useful tools for you. The API documentation includes diagrams that illustrate the signal flow from the hardware to the software.

Diagrams like the one show here (taken directly from the API documentation) help the developer to visualize how requests and functions will be handled. This includes commands sent to the acquisition card, acknowledgements, asynchronous and synchronous data from the card. The API comes with several examples for the most popular development environments, to help you get started.

DEWE2 explorer included

If you're using the TRION™ hardware, the API will install a DEWE2 Explorer application (delivered standard with all DEWE2 systems). Besides providing in-depth system information, this tool enables users to run self-tests of TRION™ modules, enable logging files in case of errors and to easily upgrade the firmware of TRION™ modules. The explorer can also create a virtual system in addition to the real one, to aid you in programming your own application even without the real hardware.



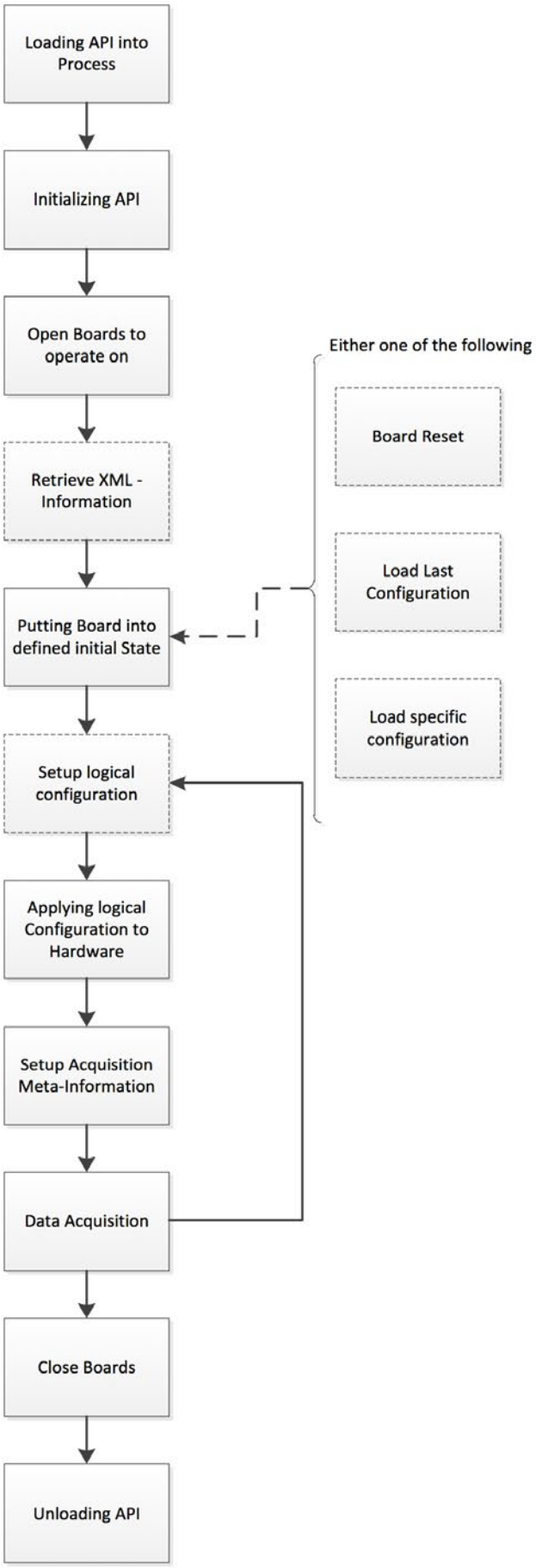
TRION-SDK

The DEWETRON TRION-SDK is shipped with the necessary interface files for C/C++ (.h – files) and Pascal-dialects like Delphi (.pas – files) Using these files, direct integration into the application can be achieved by including them.

But this is not the limit, because many languages are supported indirectly. All public Interface functions use the "stdcall" calling convention.

And all public interface functions accept the following primitive data types:

- *32-bit integers and pointers to 32-bit integers*
- *64-bit integers and pointers to 64-bit integers*
- *Pointers to zero-terminated ASCII-strings (no unicode/wide string support)*



All public interface functions are accessible by using the standard C. Therefore, any programming language that allows the above mentioned perquisites can exploit the functionality of the API.

There are lots of examples included already - and more are added continiuously.

Controlling the hardware

TRION™ cards are a combination of powerful and flexible signal conditioners and robust ADC converters (one per channel). Modules like the TRION-2402-dSTG, for example, offer an incredibly rich set of capabilities. This module can handle every kind of strain gage, with internal completion for 1/4 and 1/2 bridge sensors, selectable resistance, shunt calibration and shorting, balancing, user-programmable excitation, sense lines, and so on. In addition it has a voltage input mode, resistance input mode, and can even handle RTD sensors. You can imagine the number of commands involved in setting and retrieving these settings. In addition there are settings for the A/D conversion process, to set the dynamic sample rate, and acquire x number of samples, or acquire continuously.

Most TRION™ modules also have the capability of passing asynchronous data in parallel with the synchronous data. This might include CAN BUS data, or data from the serial bus, for example.

```
Static int SampleCode()
{
    int     nNoOfBoards;
    int     nErrorCode = 0;

    //Load the API
    RTdaqLoad();

    //Initial Driver, retrieve number of Boards
    nErrorCode = DeWeDriverInit( &nNoOfBoards );

    //Open & Reset Board
    nErrorCode = DeWeSetParam_i32( 0, CMD_OPEN_BOARD, 0 );
    nErrorCode = DeWeSetParam_i32( 0, CMD_RESET_BOARD, 0 );

    //By default, all channels are disable
    //So enable 1 CNT-Channel
    //And set its input to ACQ-Clock, so that we actually can see some Data
    nErrorCode = DeWeSetParamStruct_str( "BoardIDO/CNTO", "Used", "True" );
    nErrorCode = DeWeSetParamStruct_str( "BoardIDO/CNTO", "Source_A", "Acq_Clk" );

    //Setup the Acquisition Buffer
    //for the Default SampleRate of 2kSPS this would be a Block-size of 0.1 sec
    nErrorCode = DeWeSetParam_i32( 0, CMD_BUFFER_BLOCK_SIZE, 200 );
    //Ring-buffer is 50 Blocks large (so 5 secs in this sample)
    nErrorCode = DeWeSetParam_i32( 0, CMD_BUFFER_BLOCK_COUNT, 50 );

    //Update the Hardware and prepare Acquisition
    nErrorCode = DeWeSetParam_i32( 0, CMD_UPDATE_PARAM_ALL, 0 );

    //Data-Acquisition
    //until we hit a Keyboard - Key
    nErrorCode = DeWeSetParam_i32( 0, CMD_START_ACQUISITION, 0 );
    if ( nErrorCode <= 0 ) {
        int     nBufEndPos;         //Wrap around of Ring-Buffer
        int     nBufSize;           //Total Size of Buffer

        //Get Information, to be able to handle Buffer-Wrap-Around
        nErrorCode = DeWeGetParam_i32( 0, CMD_BUFFER_END_POINTER, &nBufEndPos );
        nErrorCode = DeWeGetParam_i32( 0, CMD_BUFFER_TOTAL_MEM_SIZE, &nBufSize );

        while( !kbhit() ){
            ::Sleep(100);               //wait for ~100ms of Samples
            int     nCurPos;            //actually a pointer to Ringbuffer ReadPos
```

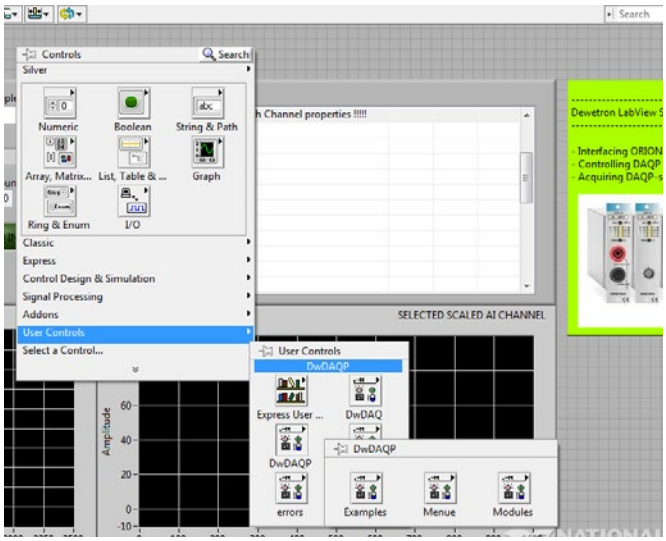
Everything is laid out in the API, and in the documentation that goes with it. Flow charts showing how the commands are sent and received, and how the data are returned to your application are included in the SDK document.

To learn more about the hardware, please visit the TRION™ section on our website. There are TRION™ modules for isolated voltage input, IEPE® accelerometers (and voltage inputs), the aforementioned STG strain/universal module, and several digital modules for CAN BUS, timing, counters, digital input lines, and more.

LabVIEW Drivers for ORION and DAQ Modules

DEWETRON customers creating automated test systems, manufacturing test, or any special function system, rely on LabVIEW from National Instruments as their development environment. LabVIEW is perhaps the best known application of its type, all around the world. It's no surprise therefore that DEWETRON has developed robust VIs (virtual instruments) that you can drop directly onto your LabVIEW application, integrating our hardware easier than ever before.

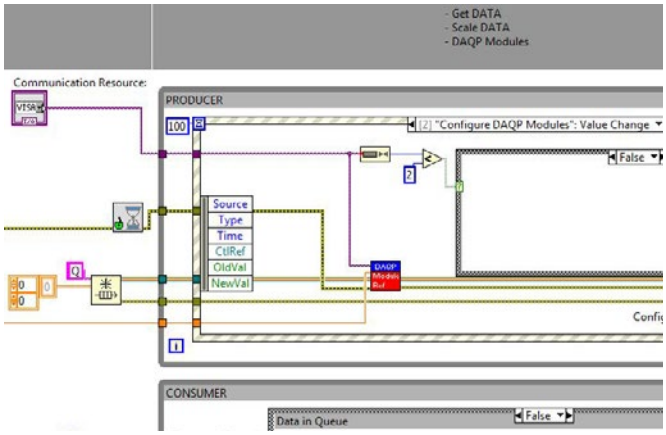
DEWETRON drivers and VIs are made for LabVIEW 32 bit and 64 bit.



ORION cards under LabVIEW

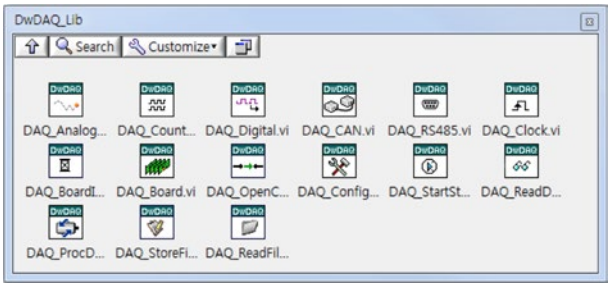
DEWETRON ORION series A/D cards are supported, including:

- *ORION 16-bit A/D cards*
- *ORION 22-bit A/D cards*
- *ORION 24-bit A/D cards*



DwDAQ library for LabVIEW

There are 15 VI's as of the date of this brochure. Here is what they look like:



Using these functions you can setup the A/D card, read its current settings, and more importantly, configure it the way that you want, including which channels to acquire, the acquisition rate, and how many samples to get from the card. Error checking is built in, so that you can verify at every step that the hardware is doing what you expect.

No matter what the application, with or without ORION cards, we have created a great library of LabVIEW VIs that will allow you to create your project more easily than you ever imagined.

Counter inputs and counter expansion

ORION cards also have synchronous counter/encoder inputs on them, as well as digital I/O lines. These are also implemented in the VIs, using their own functions. The top level nine functions are shown in the figure. Below these are an array of subfunctions that allow you to read and control every function of the counters. Certain ORION cards have a "counter expansion" option installed, which means that there are additional counters (and digital input) lines are installed, and also the counters have adjustable threshold levels. These advanced capabilities can be controlled from within the VI, too, if they are installed in the hardware.

Digital I/O lines

Every ORION card also provides at least 8 digital input and 8 digital output lines. These are TTL level lines as a standard, but can be expanded in quantity and voltage input capability via various hardware options. Once again, these lines are accessible via a group of related functions in the VI. You can query the card to find out how many analog inputs, counters, and digital I/O lines that are installed, so that you know exactly what the hardware capabilities are in order to implement them perfectly in your application.

CAN-bus input channel functions

Finally, ORION cards feature optional CAN BUS interfaces, and there is a group of nine functions related to controlling these ports, setting up the messages and channels within them, scaling them, and more. You can both read from and write to the CAN BUS, creating a complete implementation of CAN BUS data in sync with your analog and other digital channels.

HSI and DAQP conditioners under LabVIEW

In addition, our most popular HSI and DAQ series plug-in ISOLATION modules are added:

- *HSI-HV (high-speed high voltage module)*
- *HSI-LV (high-speed low voltage module)*
- *HSI-STG (high-speed universal module)*
- *DAQP-STG (universal / strain / bridge module)*
- *DAQP-ACC (IEPE accelerometer module)*
- *DAQP-HV (high voltage module)*
- *DAQP-LV (low voltage module)*
- *DAQP-V (voltage module)*
- *DAQP-FREQ (frequency to voltage module)*
- *DAQP-LA (current module)*
- *DAQP-THERM (thermocouple module)*
- *DAQP-CHARGE-B (charge module)*
- *DAQP-CFB2 (carrier frequency module)*

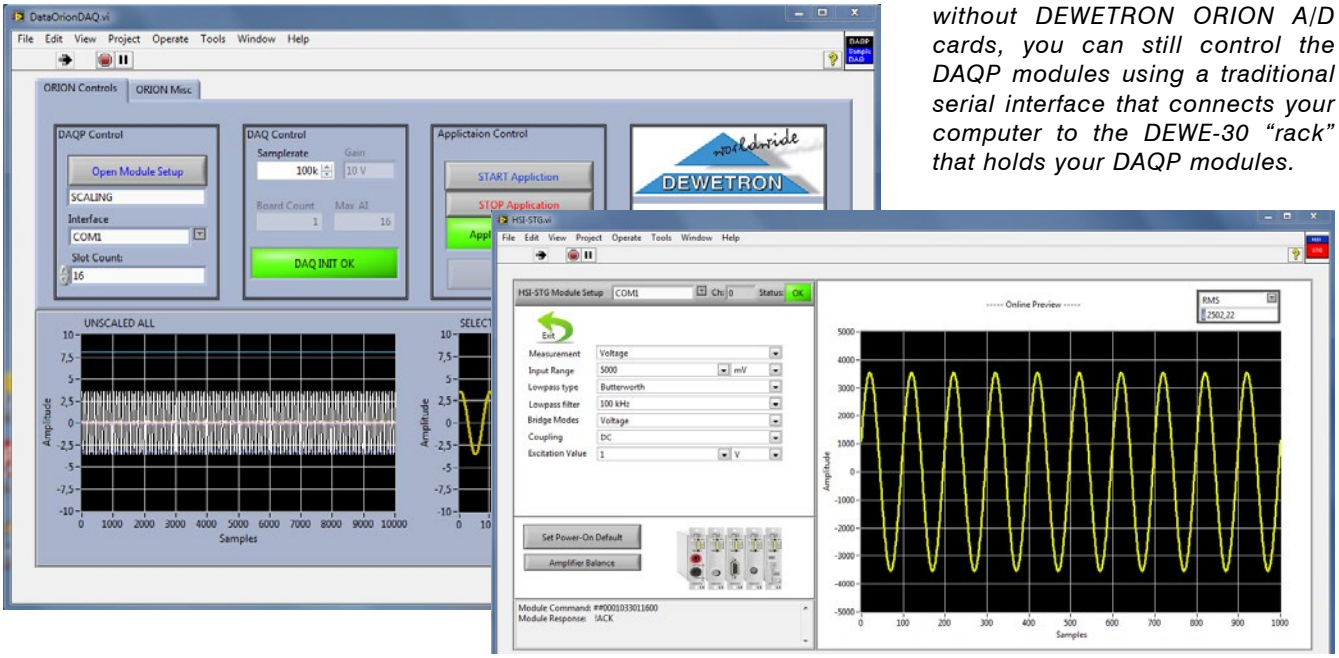
Furthermore quasi-static, multi-channel ISOLATION modules have been added:

- *PAD modules:*
  - *PAD-TH8-P with connector blocks PAD-CB8-K, PAD-CB8-T and PAD-CB8-J*
  - *PAD-TH8-P with connector block PAD-CB8-RTD*
  - *PAD-V8-P*

- *EPAD2 modules:*
  - *EPAD2-TH8-K, EPAD2-TH8-T, EPAD2-TH8-J,*
  - *EPAD2-TH8-UNIVERSAL*
  - *EPAD2-TH8-P with connector blocks PAD-CB8-K, PAD-CB8-T and PAD-CB8-J*
  - *EPAD2-RTD8*

Additional DAQ series modules are being added all the time, according to our customer requests. See our website (www.dewetron.com/labview) for the most up to date listing of all DAQP and HSI series plug-in signal conditioners that are fully supported within our LabVIEW VI set.

DAQP modules are controlled by way of the RS485 interface that is built into the ORION card (complete functionality is built in for module control). But for those applications where only DEWETRON DAQP series modules are used without DEWETRON ORION A/D cards, you can still control the DAQP modules using a traditional serial interface that connects your computer to the DEWE-30 "rack" that holds your DAQP modules.



Sample VI for controlling the DAQP-STG signal conditioner. All major functions are implemented.

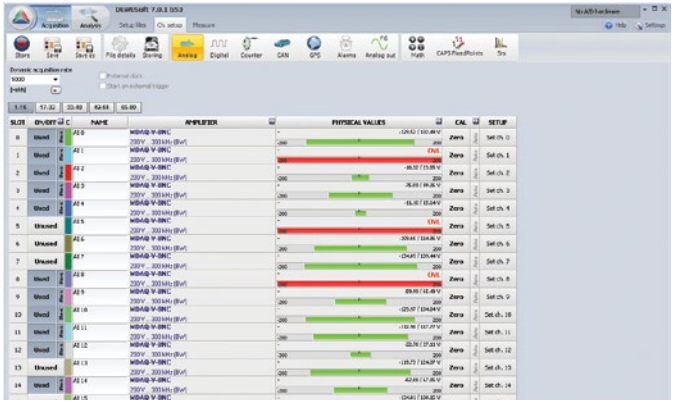
DEWESoft™ for turn-key R&D Applications

DEWETRON customers in the R&D world don't want to write software, or run on LINUX - they just want a turn-key software application that can be used within minutes. DEWESoft™ (DS-7 for short) is a great package that perfectly supports most DEWETRON hardware.

Runs under Windows

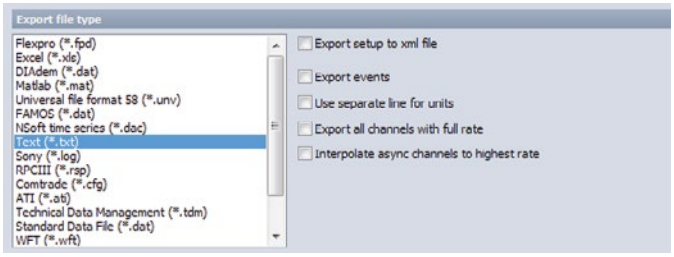
DS-7 was written specifically for Windows, and does not run on any other operating system. But that's perfectly fine for test and measurement specialists in the research sector. Data acquisition systems used in this sector are typically used for something different all the time, and flexibility is more important than long-term stability.

The feature set provided by DS-7 is truly impressive. You can acquire high speed (dynamic) data from DEWETRON ORION and TRION series hardware (plus all of our signal conditioners), as well as hundreds of channels of asynchronous data from CAN, ARINC, 1553, SERIAL, and more.



Easy visualization

One of the most popular aspects of DS-7 is how easy it makes it for you to arrange the screens just the way that you like them. It provides recorder graphs, scopes, analog and digital meters, 2D and 3D graphs, tabular displays, text objects, X-Y graphs, and more. Place them in any arrangement and assign the channels into them that you want. DS-7 makes that very fast and easy. The entire setup is saved, so you can create countless configurations and recall them in a matter of seconds.



MATH functions

DS-7 includes a rich set of pre-made MATH functions that you can apply to your data DURING recording, or AFTER recording. These include programmable filters, integration, FFT analysis, and so much more. When the computer is not powerful enough to handle what you want to do in real-time, you can set any or all of the MATH functions to be processed after recording. DS-7 is not as powerful as a real analysis tool such as Flexpro or Matlab, but it's pretty darn good for the money.

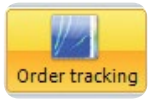
Exporting and Printing

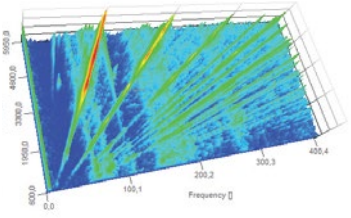
A wide variety of export filters are included, for all of the most popular analysis tools - even Excel! And you can print your data in full color to any attached Windows printer, or to a PDF document that can be printed from another computer.

Analyze Options

Order Tracking & balancing

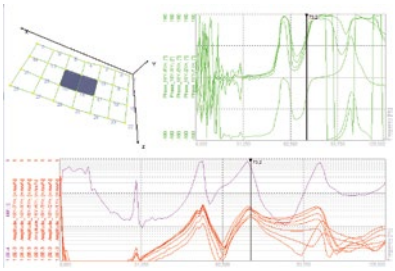
Included Order Tracking function, based on re-sampling technology can be used for online and offline analysis. Visual control for field balancing supports single- and dual-plane and guides you step by step trough the balancing process. Weight splitting and optional radius support balancing at complex rotors.





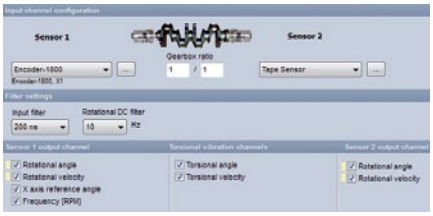
Modal/ODS

The modal option supports hammer and shaker excitation. Roving hammer mode will support fast results at simple structures. Referenced to an acceleration channel, the ODS can be analyzed.



Torsional and Rotational Vibration

Torsional (twist) and Rotational (RPM deviation) vibration calculations are based on various rpm sensors (encoder, CDM sensors, tape sensors, etc.). Results are provided time or angle based.

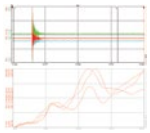


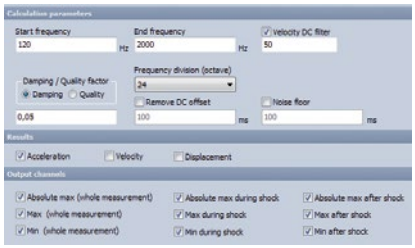
Power

The power option calculates multiple power grids even with different frequencies. The high sampling rate and bandwidth up to 2 MHz of the DEWETRON instruments also deliver accurate results at frequency converts and hybrid applications.

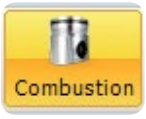
SRS

Shock Response Spectra





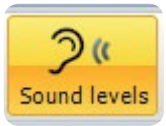
Internal Combustion Analyzer



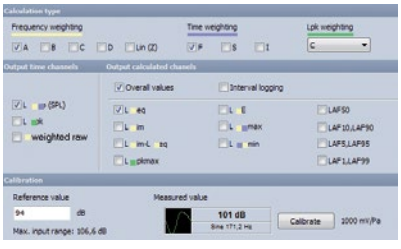
Internal Combustion Analyzer operate in angle or time domain.

At time domain operation cold start is possible, and also all the other time based features are available. The included testbed interface can be used to transfer results (MEPn, I50, ...) over LAN or RS232 to testbed. An included testbed simulator simplifies the integration to testbed.

Sound Level Meter



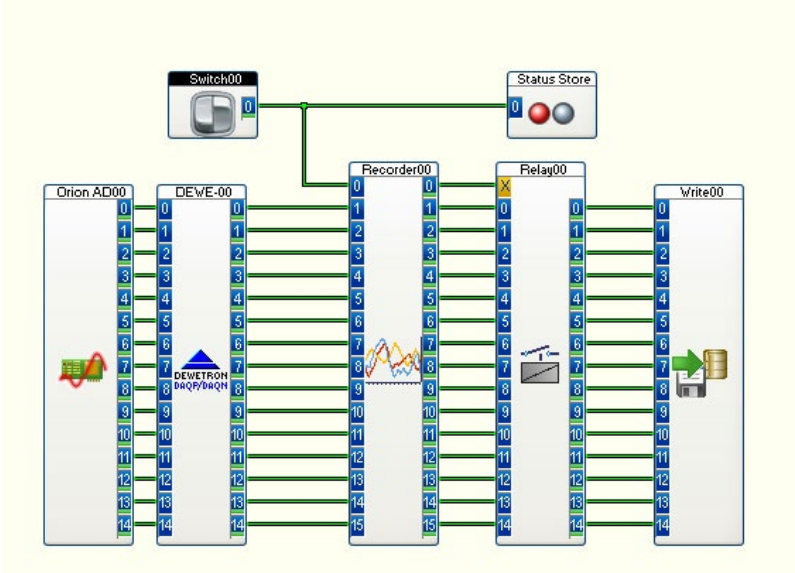
According to IEC 60651, IEC 60804, IEC 61672



DASYLab Drivers for DAQ Modules and ORION-DAQ
(16-bit series)

DEWETRON provides the complete measurement chain in DASYLab. While the DAQP and PAD amplifier series are supported since DASYLab 5, the AD-gap is now filled with the ORION-DAQ (16-bit series) driver. The simultaneous sampled analog inputs, synchronous digital inputs and counters, sampling rates up to 5 MHz will give the complete picture of the investigated device.

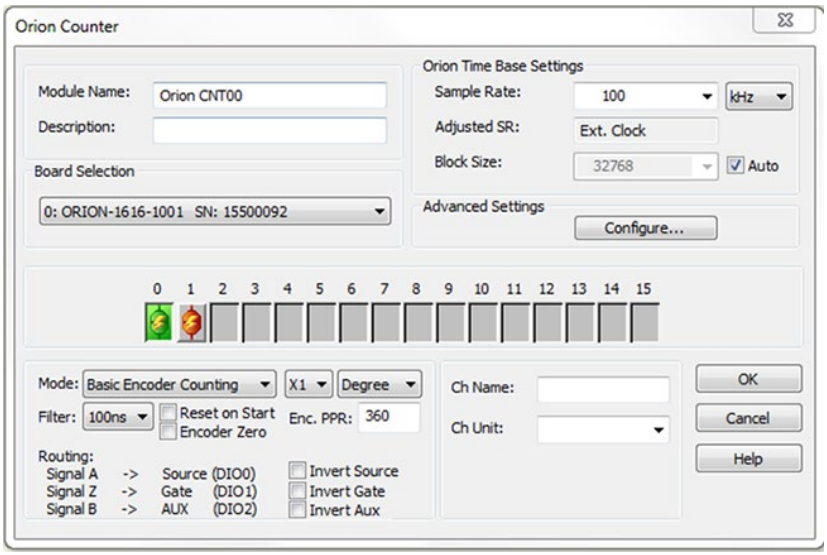
DEWETRON drivers and DASYLab run on Windows 32 and 64 bit.



AD input

The DASYLab driver supports the whole ORION-DAQ (16-bit) series. Also multiple AD cards can be combined to extend channels. The smart driver architecture does automatic hardware synchronisation of multiple cards.

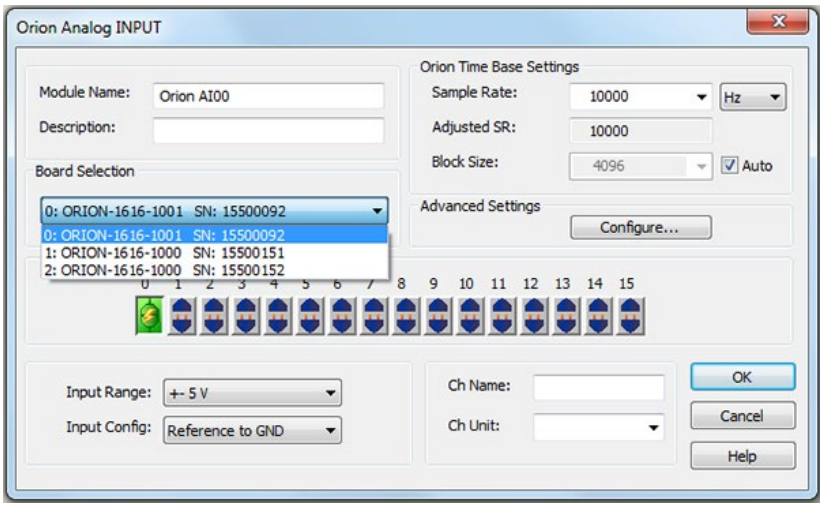
- *ORION-1616-100*
- *ORION-3216-100*
- *ORION-1616-500*
- *ORION-0816-1000*
- *ORION-1616-1000*
- *ORION-0816-5M*



Digital and counter inputs

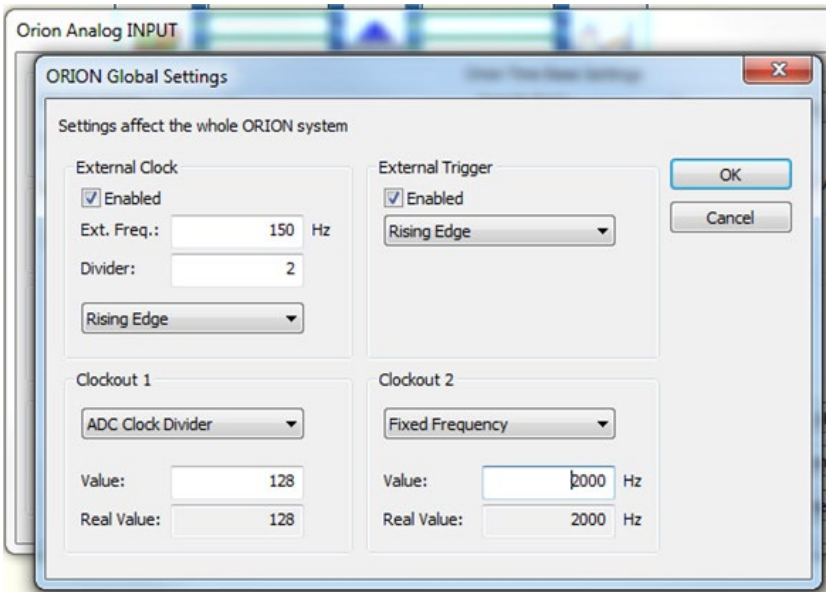
The ORION-DAQ (16-bit series) card also supports synchronous digital and counter inputs. Digital and counter inputs are read with the selected sampling rate. Compared to other AD cards where this is read asynchronous, this feature enables that fast digital channels can be measured with the full sampling rate. The outstanding digital input filter of the ORION counters will support measurements at harsh electrical environments.

- *Basic event counting*
- *Gated event counting*
- *Up down counting*
- *Basic encoder*



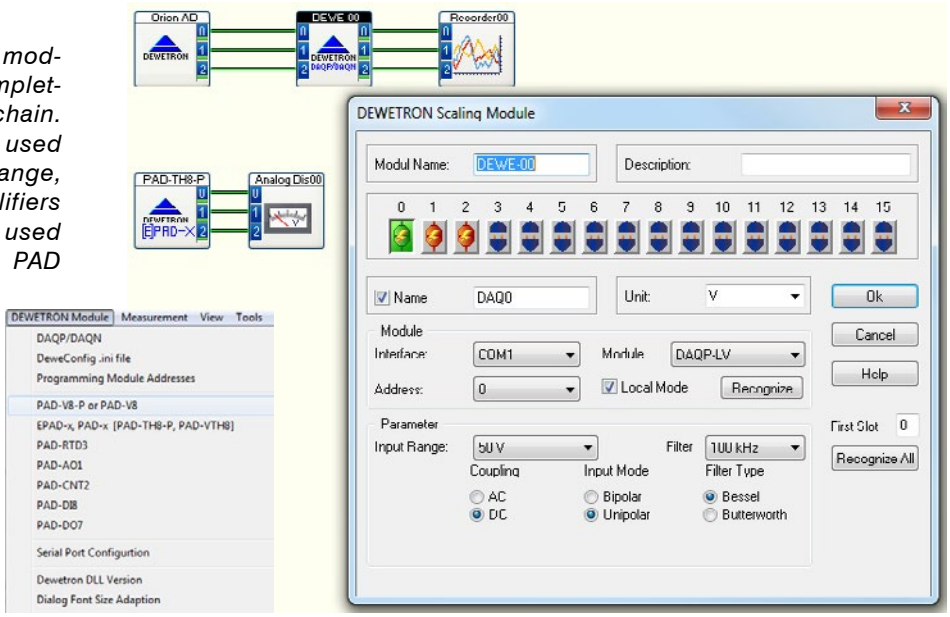
Clock, trigger and clockout

The ORION cards also support external clock and trigger, which is usefully to synchronize to other clock sources, or to rotary encoders to change into order domain world. Two free programmable clockout channels, can be used to sync other devices.



DAQP and PAD modules

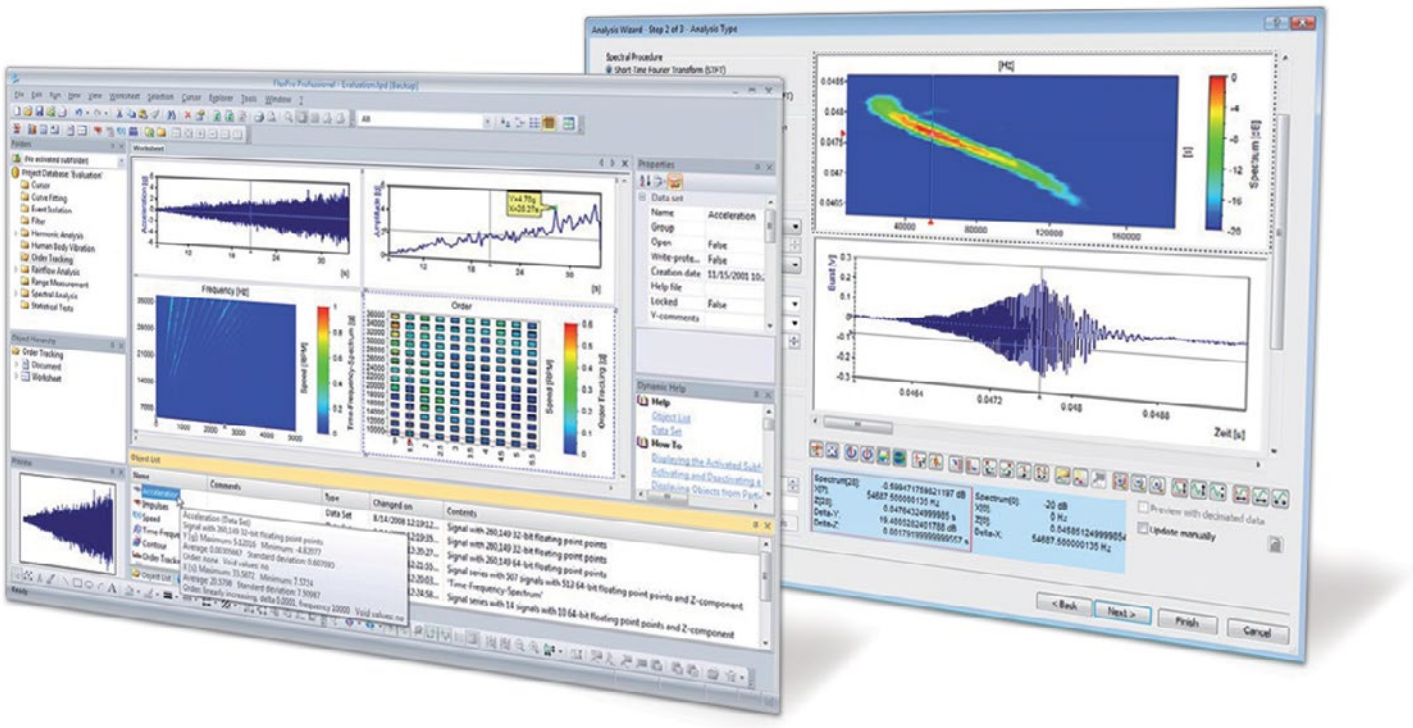
DAQP scaling and programming module, and the PAD module are completing the whole input measurement chain. The DEWETRON scaling module is used to program the DAQP modules (range, filters, ...) and rescale to amplifiers input range. PAD input blocks are used to read data directly from the PAD amplifiers.



Operating system

- *WIN XP, 32-bit*
- *WIN 7, 32-bit*
- *WIN 7, 64-bit*

FlexPro
Data analysis and presentation software

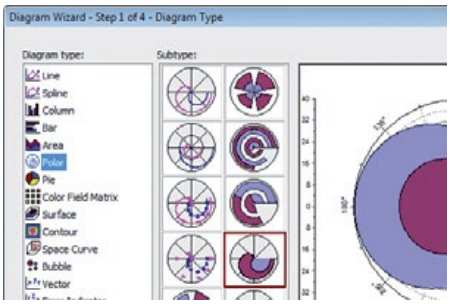


FlexPro software can manage your complete measurement data and analyze and present them according to your requirements. Dynamic objects for mathematic functions, graphs and reports allow the usage of self defined templates for new data at any time. ***Transfer your DEWESoft™ data with one mouse click directly into a finished, printable FlexPro presentation****. Due to scripting functions and VBA support, FlexPro can be automated and extended.*

FlexPro – designed to make your work easier

- *Intuitive, object-oriented interface*
- *User-friendly project database*
- *Time-saving hierarchy view and preview pane*
- *Easy Excel and database data analysis*
- *Macro recordings and playback to make your work easier*
- *Direct data import of DEWESoft™ data files (.d7d)*
- *Smooth text import via text data import wizard*
- *Efficient exchange of data due to the variety of export options*
- *LabVIEW, DASYLab and agilent VEE interface modules*

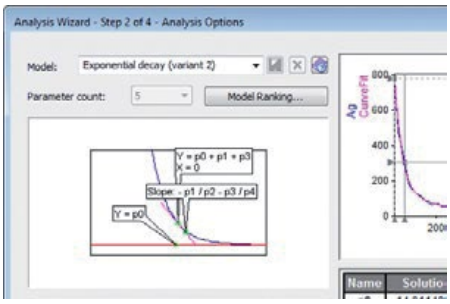
FlexPro Features



Highest level of user convenience

Take advantage of a new level of productivity, performance and interactivity when analyzing your measurement data.

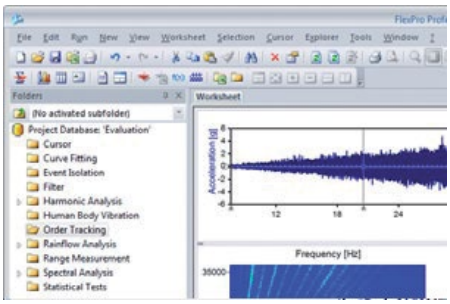
- *Enjoy the convenience and time savings with an intuitive, object-oriented interface.*
- *Take advantage of the latest user options such as drag-and-drop, multiple undos and convenient wizards.*
- *Save time on annoying searches, move and reduce the size of objects using the practical tabs available on all object windows.*



Analysis and presentation at the click of a button

When using FlexPro to perform analyses, not only are you creating new data from existing data, but you are also building a network consisting of raw data all the way through to the finished report.

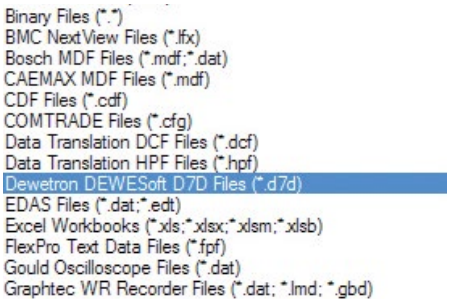
- *Choose from a variety of analyses objects for all common procedures.*
- *Easily modify the algorithms in dialog boxes and immediately see the results.*
- *Program your own analysis procedures in FPScript with over 200 analysis functions and a wide range of operations to choose from.*
- *Create reports that include diagrams, tables and text, and reuse your analyses for additional measurements.*



Centralized data management application

No matter which measuring device, measurement hardware or acquisition software you use, FlexPro 9 makes organizing data extremely easy.

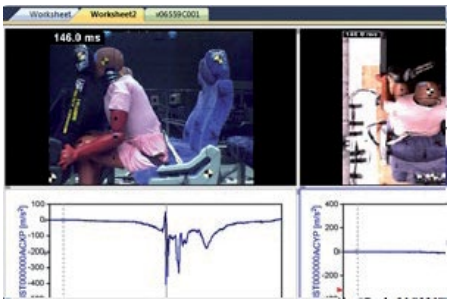
- *Use FlexPro Explorer to centrally organize and manage all data and analyses.*
- *Store large volumes of data in the FlexPro project database, limited only by the space on your hard disk.*
- *Use FlexPro to combine data from a wide range of different sources and process the data in one central application.*



Many import and export filters

Seamlessly integrate FlexPro into your system. A wide variety of import and export filters makes it possible for you to import data from almost any source or to output the data in the format you choose.

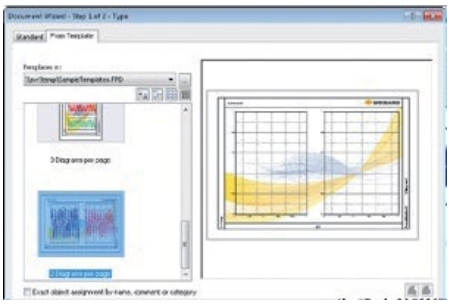
- *Import and open the data directly from DEWESoft data files (.d7d) or Excel for further manipulation using the full power of FlexPro.*
- *Use the convenient Text Data Import Wizard to import ASCII data. Register your own text data formats and then import them automatically.*
- *Gain the most flexibility when exporting data by using the variety of export filters for binary data and graphics formats.*



Analyze synchronously captured video and data

Audio and video data is now frequently synchronized with measurement data. Use FlexPro's new Media object as a powerful tool to analyze these types of data in sync.

- *Place the data cursor on a curve and view the corresponding still images.*
- *Play a video and watch how the data cursor synchronously moves over the measured data.*
- *Highlight key events in the curve with using the relevant still images.*
- *Easily synchronize videos that have different starting times and frame rates with your measurement data.*



Create individual templates, share data

Networking with colleagues receives top priority in research and development in particular. FlexPro 9 now offers you the ability to share your pool of information with your colleagues within seconds.

- *Create your analysis as an object network consisting of raw data right through to the finished report.*
- *Store diagrams, tables or entire analyses created just once and share them with colleagues as needed.*
- *Speed up the exchange of information within your team.*

Marlin Software for Power Monitoring Applications

Fault Analysis, PQ and Energy Monitoring

Marlin is THE solution for electrical power engineering.

The recording of disturbances in power networks, the calculation of all power quality parameters and the measurement of performance and energy flows are the main tasks that MARLIN performs. The software can be run as a native Windows service in the background, and unauthorized access to the instruments without user credentials is not allowed. On small DEWE devices, such as the DEWE-638 and DEWE-838 series, Marlin runs as a Linux service.

Measurement and Evaluation at the same time - Access from multiple workstations

The user interface is a pure web application and therefore allows the control and evaluation of each workstation in the network. Access via a browser independent operating system is possible from all devices such as tablet computers, smart phones, and any computer workstation. Therefore, the data can be viewed by multiple users simultaneously, from any location.

Integration into your control system

If you prefer to have the data in your control system, direct access of the data can be achieved using IP/ URL technology. If you prefer to access the standardized IEC 60870-5-104 protocols, please use the "MARLIN APP Scada 104" application.

Measurement parameters

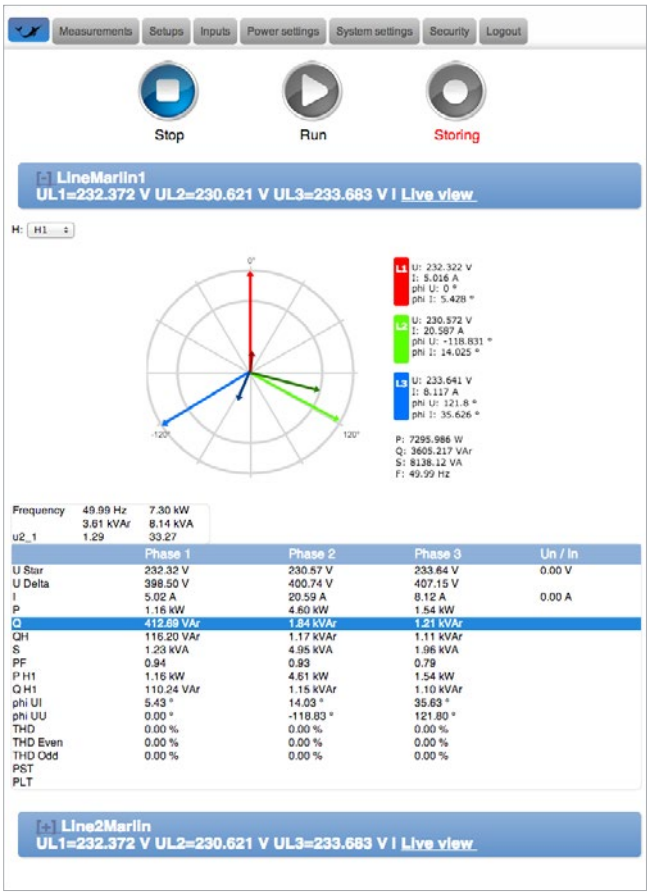
In addition to all aspects of 3-phase current and voltage, parameters that can be measured include harmonics, flicker, frequency and symmetrical components.

Triangle, star, and combined networks

Disturbance recorders can be used in all network levels. Besides the classic star circuit with neutral, a measurement in a triangle or a calculation of the line-to-line parameters is possible. A proper measurement strictly according to the EN50160 standard in medium and high voltage networks, in which the transducers are connected in star, the assessment must be made line to line. For two-phase systems and frequencies other than 50/60 Hz, there are also available settings.

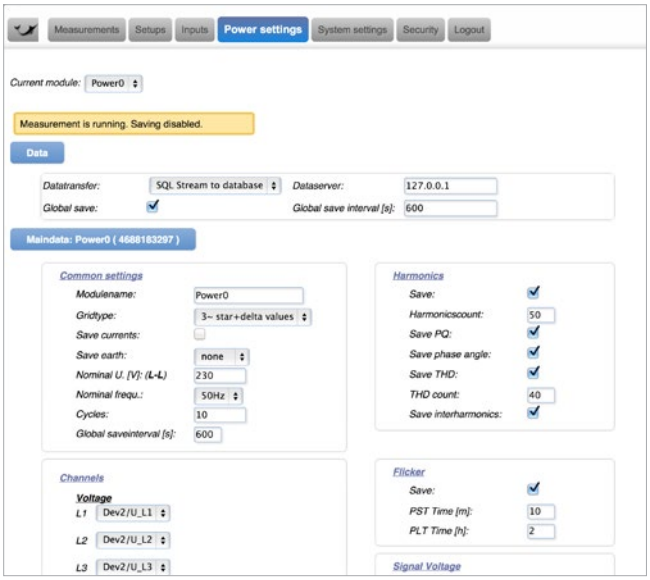
Several power modules at once

Recording of the above parameters can be performed in parallel by multiple virtual devices. It can simultaneously measure current and voltages from summed feeders, as well as a 3-phase configuration.



Vector diagram at the Start Screen (see above)

- *Vector scope for 3-phase systems*
- *Every harmonic can be shown*
- *Display of multiple vector scopes on the same screen via web browser technology*



Recorder

- Recording of all parameters in adjustable intervals
- Zoom in and zoom back during the measurement!
- FFT - harmonic analysis
- FFT for U and I according to IEC 61000-4-7
- FFT for P - power direction determination
- Adjustable number of harmonics
- THD calculation
- Limit manager (.e.g., IEC 61000-2-4, EN 50160...)

Performance & PQ Analysis (IEC 61000-4-30 Class A)

- Diagram: star, with triangular rating, triangle, single and 3-phase
- Phase 4 as earth voltage / star power
- Frequency measurement, fundamental frequency selectable
- P, Q, S, PF, P1, Q1, cosine Phi (each 3 ~ and phase values)
- Harmonics, THD (IEC 61000-4-7)
- Flicker (IEC 61000-4-15)
- Symmetrical components
- Signal voltage level

Online fault list

- Reporting of the nature and time of the fault

Online Fault statistics

- Duration, altitude and time of the fault
- List form
- Statistics by DISDIP online

Alarm List

- Device messages
- Error messages
- Trigger settings
- U, I, f, P
- Power band: star, delta, earth voltage
- Regulation: star, delta, earth voltage
- Frequency hopping
- Power band: phase center
- Change in current: phase center
- Active and reactive power changes (single and 3-phase)
- Power factor changes (single and 3-phase) 50160 on-line analysis
- Star or delta

PMT - The Process Monitoring Tool / Report Generator

Offline PMT file based storing without database or PMT database storing into MS SQL database

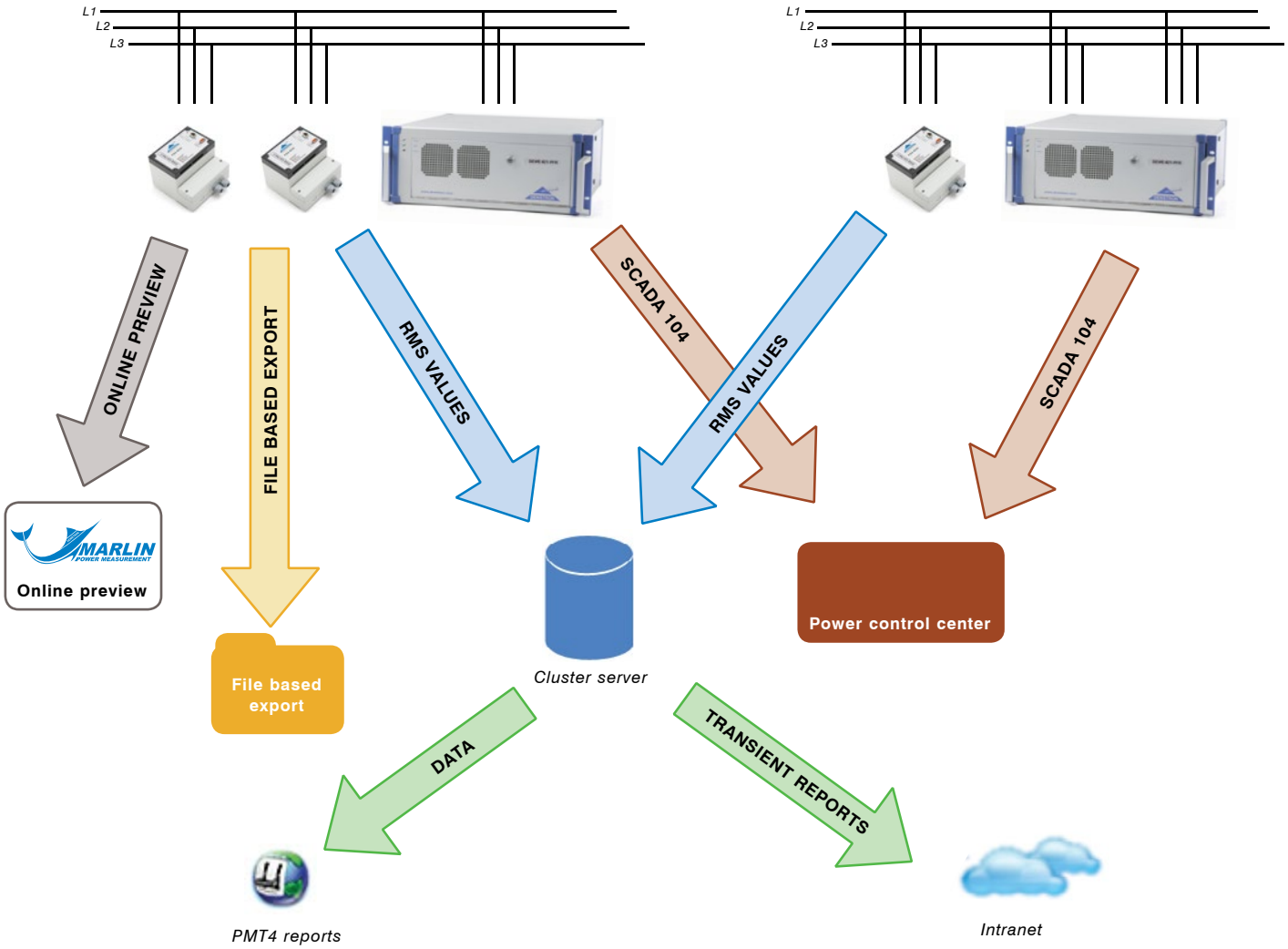
In several applications, especially when it is necessary to evaluate data over long periods, with different sampling rates or in parallel to their aquisition, it might be necessary to use a really strong database tool. Therefore DEWETRON has developed the database OPTION as an add-on to DEWESoft™.

Beside data storing there is also a strong reporting tool available. Diagrams, FFT spectras, fault reportings and statistic functions are the basic functions and additional reports can be added by using the plug in technology. Nice visual elements can be used to get a good overview about the full measurement system.

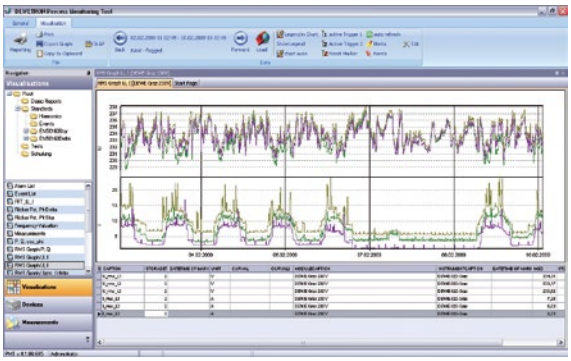
Reports like EN50160 or EN 61000-2-4 can be easily generated as well as large customised reports on the users' needs.

- *Long time data acquisition*
- *For instruments*
- *For PFR systems*
- *Storing of logged data*
- *Different storing intervals*
- *Waveform data as fault records*
- *RMS shapes as disturbance faults*
- *Cross trigger*
- *Diagrams*
- *Histograms*
- *FFT spectra*
- *Fault lists*
- *Fault diagrams*
- *Alarm lists*
- *Topological overview*
- *DIS DIP statistics*
- *CBEMA / ITIC curve*
- *Large report generator*
- *Sum reports*
- *User levels*
- *Auto update*
- *SQL database with defined tables*
- *Plugin interface*
- *Email support*
- *PDF support*
- *SNMP support*

System Overview

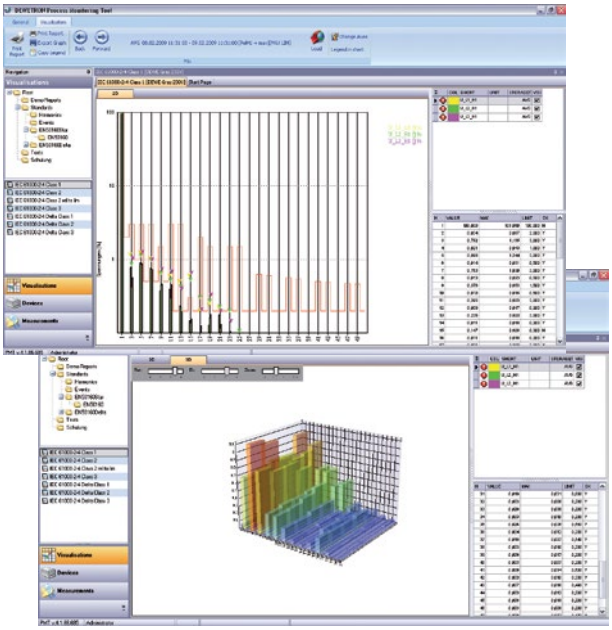


Diagrams



- *Single diagrams or multiple diagrams on one page*
- *Individual number of channels per diagram*
- *Graphical view or statistical view in a table*
- *Table individual configurable*
- *Min / Max / Avg calculation*
- *Up to 5 % calculations (e.g. 95 % value) per channel*
- *Direct comparison of different locations/days*
- *Math channels*

FFT Spectra



- *Individual number of harmonics (25, 50, ...)*
- *Voltage, current, active power, reactive power, phase angle, impedance*
- *Limits according standards (EN50160, IEC61000-2-4, individual definition)*
- *Max / Avg / 95% calculation and comparison against limits*
- *Timestamp or intervals of data presentation*
- *More subgraphs per page possible*
- *3D graph and more data lines in one graph*
- *Direct comparison of different locations*

Analysis according to Standards

Measure

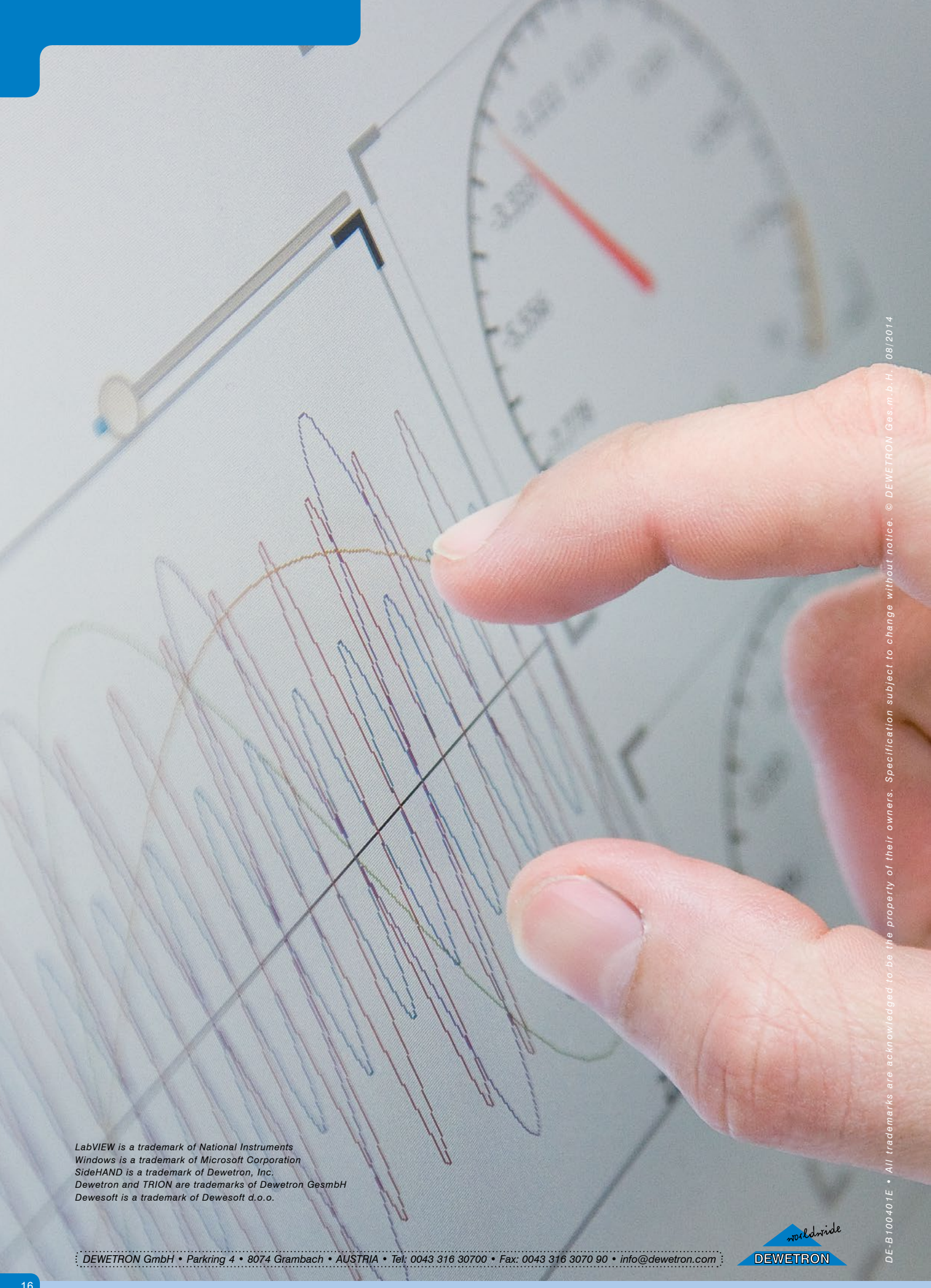
- *Setups according to certain standards*
- *Prepared or user-definable*
- *PQ according to EN501610*
- *Harmonics according to EN 61000-4-7*
- *Flicker according to EN 61000-4-15*
- *Measurement according to EN 61000-4-30 class A*

Analyze

- *EN-50160*
- *EN 61000-2-4 class 1, 2, 3*
- *EN 61400-21*
- *Harmonics freely adjustable (for example: EN 61000-3-x)*
- *Tables, FFT spectra, Fault statistics, CBEMA curve and other visualization elements*

Reports

- *Built-in report generator for flexible reports*
- *Combination of different diagrams in one report*
- *Sum reports over multiple stations*
- *Auto generation and print support*



DEWETRON GmbH • Parkring 4 • 8074 Grambach • AUSTRIA • Tel: 0043 316 30700 • Fax: 0043 316 3070 90 • info@dewetron.com

worldwide DEWETRON