



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

## DEWESoft 7

*Quickstart Manual*

*How to change from DS6 to DS7*

*What is new in DEWESoft 7*



ISO9001

Re-inventing Data Acquisition



# Content

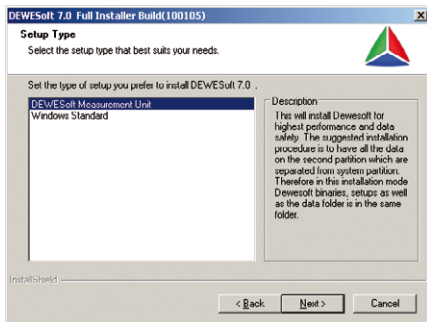
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## A. QUICKSTART MANUAL

### 1. Installation

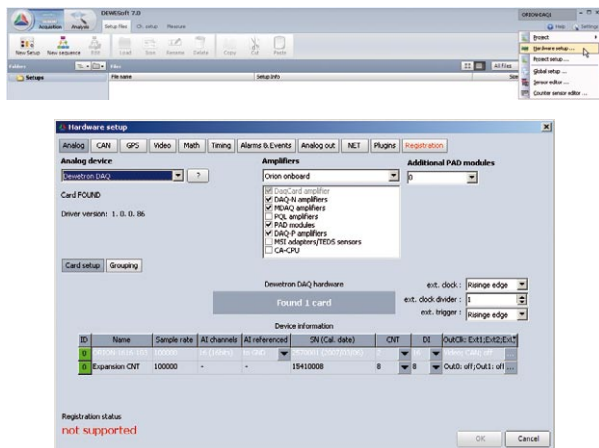
*For detailed installation instruction please refer to the DEWESoft Software Users Manual. Make sure that your acquisition hardware (A/D board) is already installed on your system and running properly!*

When you install DEWESoft 7 for the first time, please follow the instructions of the InstallShield Wizard. Install only components you have ordered or - in case of a demo version - you are interested in.



DEWESOFT INSTALLATION EXAMPLE

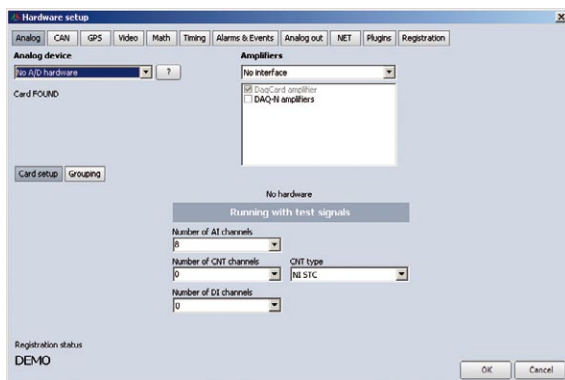
After the installation has been finished, you can start DEWESoft for the first time using the desktop icon or start it from the Programs / DEWESoft 7 folder. Click on **Settings** on the top right and the **Hardware Setup** screen will appear:



SELECT THE INSTALLED HARDWARE

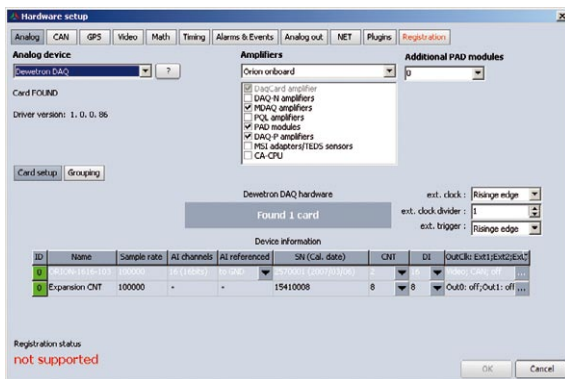
## 1.1 Licensing for Demo Mode

If you run the software without attached hardware (e.g. Demo mode), select **No A/D** in the **Analog** setup and deselect all checkboxes (**Use MDAQ/DAQP modules**, **Use PAD modules**, **Use DAQN modules**). The registration state at the left bottom of the window will change to DEMO. Now press **OK** to start DEWESoft.



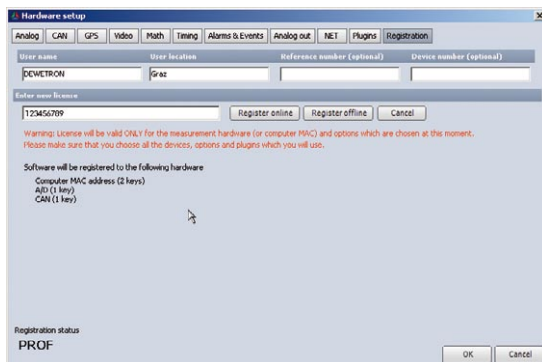
## 1.2 Licensing for Real Mode

Select the desired hardware, for example **DEWETRON DAQ** in the **Analog** tab, a GPS device, etc. If the hardware has been installed properly before, it will be recognized automatically and mentioned in a list:



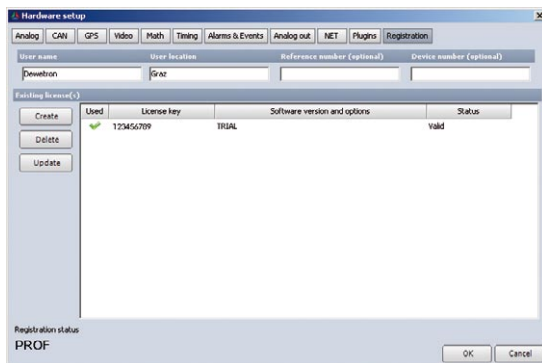
*DEWETRON DAQ HARDWARE FOUND*

Now select the Licensing tab and enter your DEWESoft **License key**, **User name** and **User location**:



### CORRECT LICENSING FOR OUR DAQ HARDWARE

If the license key is correct, the red cross in Status will be replaced by a **green check mark** and the registration status displays the version: LT (Lite Version), SE (Standard Edition), PROF (Professional Edition).



Press **OK** to finish the installation. If you have everything correctly you are now ready to measure.

#### 1.2.1 Online registration procedure

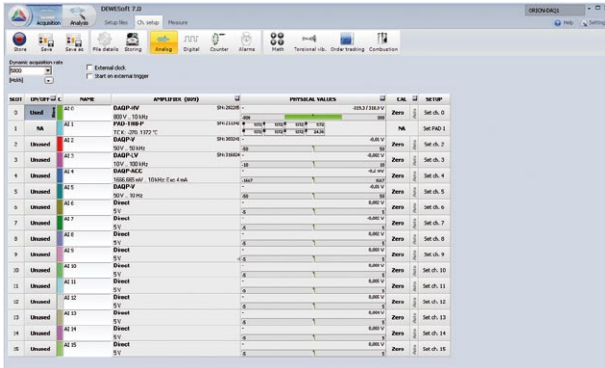
To register DEWESoft 7 software online, please connect your instrument PC to the internet (web browser should be able to see [www.dewesoft.org](http://www.dewesoft.org)). Press the **"Register online"** button.

#### 1.2.2 Offline registration procedure

If your instrument PC can not be connected to the internet, please use any other computer with internet connection, and navigate to <http://www.dewesoft.org/registration> and follow the registration instructions there. This web site requires you to take the license file »**License ID**«.lic from the System\V7\_0 folder (for example D:\Dewesoft\System\V7\_0) and register it on the web page.

## 2. Input setup

Before you can start your first measurement, you have to define the input channels and A/D settings. Click **Acquisition** and then the **new Setup** icon to enter the input setup.



INPUT SETUP SCREEN

### 2.1 A/D sampling settings

The A/D sampling speed mainly depends on your application. To display your signal in time domain with a good time resolution, you should sample 10 to 20 times faster than your signal frequency is (for example 1 kS/s for a 50 Hz sinewave). If you have a lot of high frequency components, it may be necessary to sample 100 times faster (e.g. 5 kS/s for the 50 Hz sinewave) or even more. If you display only the frequency domain (FFT analysis), a 2.5 times faster sampling would be sufficient (125 S/s for the 50 Hz sinewave). The higher the sampling rate, the better the time resolution. But also the file size will explode!

For the **Storing Options**, please refer to the DEWESoft Software Users Manual.

### 2.2 Input channel setup

The channels are displayed in a table, where the rows are the channels and the columns define the channel settings.

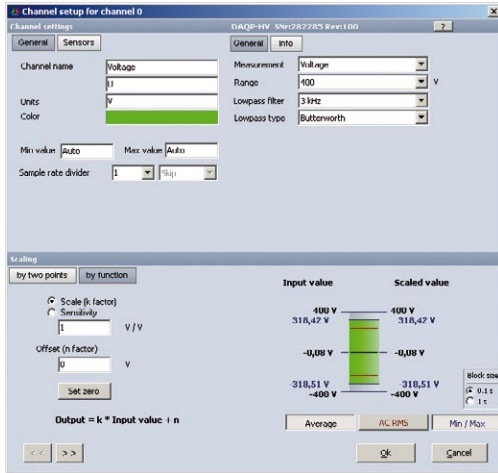
The leading number in the first column corresponds with the slot number of the amplifiers and/or the channel number of the A/D board. Press the **Unused** button in the second row to activate a channel for measurement (changes now to **Used**). Press it again to deactivate it. The third row shows the channel color, the fourth the channel name, next there are - if available - the amplifier names, serial numbers and settings.

The sixth row may already display a signal: this is a nice feature to get an impression of your signals. Is everything connected? Are the signals ok? Is there an overflow? ...

Next important part is the **Setup** in the last column. In our example we want to measure a 230 V 50 Hz signal with the DAQP-HV module in slot 0 and a temperature with the PAD module in slot 8. As the configuration is a bit different for DAQ and PAD modules, we have separated it in to parts.

## 2.2.1 Configure a DAQx/MDAQ module or direct input

Press the Set ch. 0 button for the desired channel - in our case for slot 0. A new window will open:



CONFIGURATION FOR DAQ/MDAQ MODULES OR DIRECT INPUT

The upper left area can be used to define the channel name, its units and the color.

The upper right area displays the currently selected amplifier (automatically for DAQP and MDAQ modules). Here you may also change the input and filter range, for our example 400 V and a 3 kHz filter.

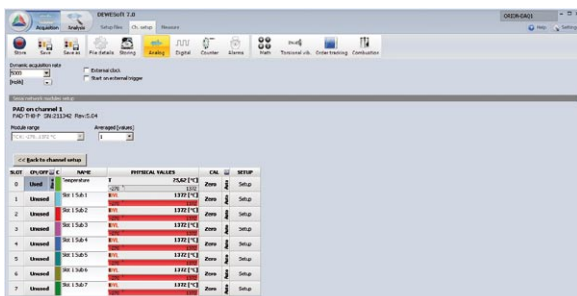
The lower left area can be used for sensor scaling, in our case unused. The lower right area displays the currently measured values. To make a short try: if you change the Lowpass filter of DAQP-DMM module to 10 Hz, the displayed voltage will drop from approx.  $\pm 320$  V to  $\pm 14$  V. The change is displayed immediately.

If you have changed the settings, confirm them with the **OK** button.

*More input channel setup information is available in the DEWESoft Software Users Manual.*

## 2.2.2 Configure a PAD module

PAD modules have 8 input channels available on one hardware slot. Therefore when you press the **Set PAD 1** button, the setup window will look different:



PAD MODULES CONFIGURATION

The first column displays now the channel number within the PAD module. The second column is again to activate or deactivate channels of the selected module. The third column shows the channel name, the fourth the currently measured values.

Main module settings can be done with the drop-down selections above the table (e.g. changing the input range or resolution). Be aware that this function is not available with intelligent connector blocks like the PAD-CB8-K-P: these connector blocks select the required input by themselves.

To setup each channel with different settings, you may enter the channel setup by pressing the **Setup** button. It works in the same way than the DAQx/MDAQ modules input setup described before.

*More input channel setup information is available in the DEWESoft Software Users Manual.*

## 2.3 Data file name

The last part before starting the measurement is to define the file name for data storage. Click the icon **Storing** and just enter it in the text field or press the **File details** button to select the storage path and comments.



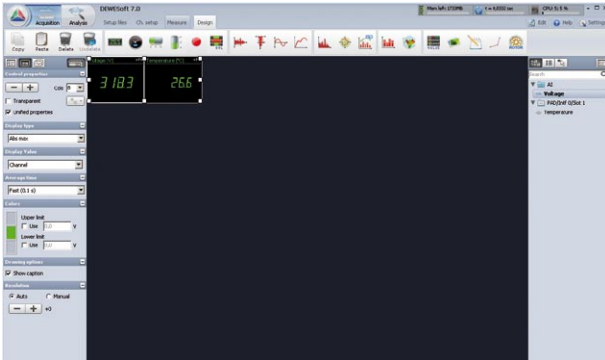
STANDARD FILE NAME: TEST

## 2.4 Storing the setup

After you have done all settings, you can store them for future usage. To store the setup, click on the icon with the DEWESoft logo and then **Save Setup** (or **Save Setup as**) from the menu. To reload your setup, select **Load Setup** from the menu.

### 3. The first measurement

After you have done the input settings, you may start your first measurement. To keep it simple, just click on the **Measure** tab to get the following screen:



OVERVIEW SCREEN IN DESIGN MODE

The two selected voltage and temperature channels are already displayed in a digital meter. You are now in **Measure mode**. To change to **Design mode**, click the **Design** tab. You can now add additional instruments. Simply click on the icons above the digital meter to get for example recorder, FFT or scope instruments. Each instrument will be placed at the left top with our two channels already active. Move it to the desired position and click on the corners to enlarge or scale down the instruments.

If you have arranged all desired instruments click on the **Measure** tab on top. Now you can change the instruments properties. This can be number of digits, type of signal, ... and also the channel selection.

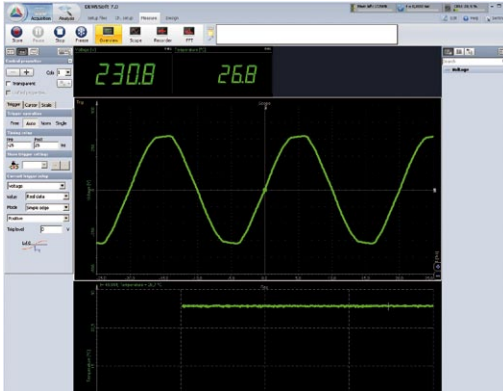
#### 3.1 Channel selection

As mentioned before, the channels will be assigned automatically to the instruments. But what if you want to change them? Use the Channel Selector to the right to do that. First click on the instrument you want to change. Then click on the Group within the Channel Selector (for example AI) if it is not already opened and then select the required channel (for example Voltage).



CHANGE BETWEEN TREEVIEW, LISTVIEW OR SELECTED CHANNELS

After you have done that you'll get your individual visualisation.



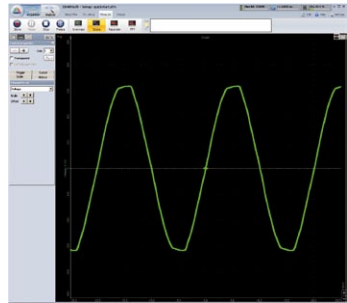
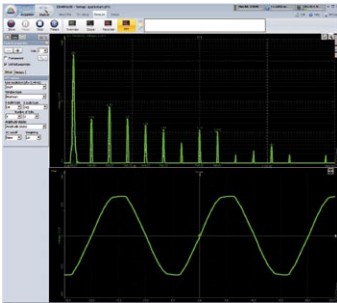
*INDIVIDUAL DESIGNED OVERVIEW SCREEN*

### 3.2 Other instruments

There are also other pre-defined instrument screens available similar to the **Overview** screen. You can select them directly by pressing the appropriate icon or from the **Displays** menu. Available pre-defined instruments are: **Overview**, **Scope**, **Recorder**, **Vertical Recorder**, **FFT**, **Video**, **GPS** and **Power**.

Here are some examples:

*EXAMPLES FOR PRE-DEFINED INSTRUMENTS*



In most cases, these instruments can give you a fast overview of your signal. As we have seen in the Overview screen, they can be adapted easily using the **Design Mode**.

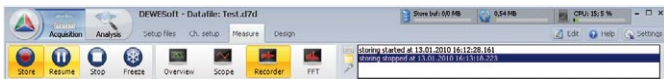
## 4. Data Recording

### 4.1 Start / Stop recording manually

Up to now, we did only display our signals, but they are not stored. In section 2 we have defined a filename for storage. This name will be used when we press now the **Store** icon.



You can press **Pause** if you want to suppress the data storage for a while. If you want to stop the storage, press the **Stop** button. With the **Freeze** function the displays freeze while storing continues in the background. So you can zoom in the instruments like in **Analysis mode**. Press Freeze again and you see the actual data.



In the white field, you can see some remarks. That can be start or stop time of recording, trigger or other events, ... The top right area shows the current file size (in the example above 0.54 MB). This is a very nice indicator and helps to get a feeling of the amount of data collected.

### 4.2 Use trigger events for storage

To define trigger events, we have to change back to **Acquisition** and the **Storing** screen. Select **Fast on trigger** (or **Fast on trigger, slow otherwise**) to enable the trigger function in DEWESoft.



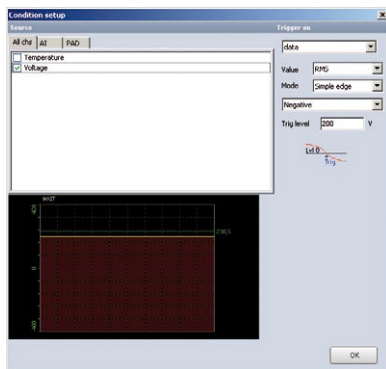
*ACTIVATE THE TRIGGER FUNCTION BY SELECTING FAST ON TRIGGER*

As a result the **Trigger** setup options appear. Press the **+** button to define a **Start storing condition** and **Setup** to change the trigger condition.



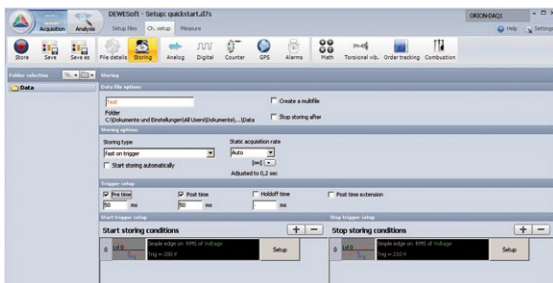
*DEFINE START AND STOP CONDITIONS*

The trigger setup offers different settings. First you can choose between **Trigger on data, time** or **FFT**. For the **Trigger value** you can select **Real data, Min, Max, Average** (static signals) or **RMS** (dynamic signals). The **Trigger mode** offers **Simple edge, Filtered edge, Window, Pulswidth** or **Window and pulswidth, Slope and Delta amplitude**; the **Level** settings depend on the selected Trigger mode. For our example we stay with the data trigger on a drop below 200 V<sub>RMS</sub>.



*TRIGGER SETTINGS FOR THE VOLTAGE CHANNEL*

After the **Start storing condition** has been defined, we take care about stopping the acquisition. Therefore we define the **Stop storing condition**. In our example it looks similar to the start condition, but with positive edge. That means that the trigger is released when the RMS voltage is released above 210 V<sub>RMS</sub> and stopped when it grows back above 210 V<sub>RMS</sub>.



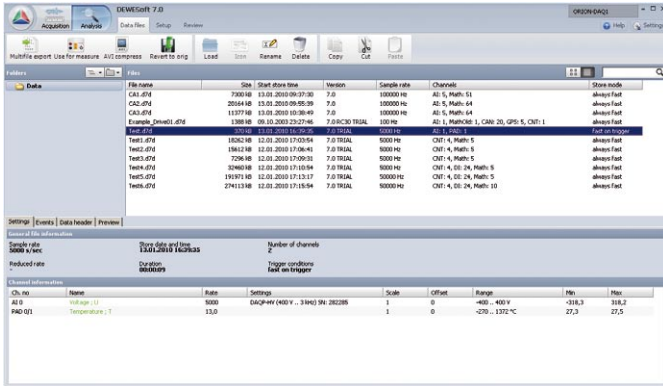
*START AND STOP CONDITIONS ALREADY DEFINED*

In addition, you can select a pre- and a post trigger time to enlarge the acquisition duration.

Maybe you have already recognized that the **Start** button has changed the appearance to **Arm**. Press **Arm** to 'start' the acquisition. As soon as the trigger condition becomes true, the data will be stored. Press **Stop** to finish the acquisition or the **Trig** button to force a trigger event.

## 5. Offline data analysis

To analyse your acquired data click on the **Analysis** button. If you have just stopped your data recording, you will enter automatically the instruments in **Analysis mode**. Otherwise the following window will appear:

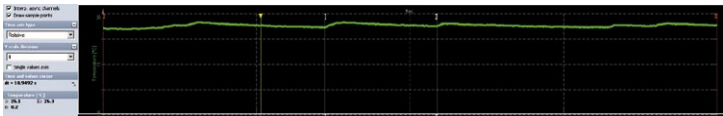


### DATA FILE SELECTION

Choose from the file list and double-click the desired file. DEWESoft will now read back the data and display the whole acquired data, even when you have stored for several days. Most of the time you'll measure, zoom for details and make a printout for documentation.

### 5.1 Cursor readout

The easiest way to measure is to click on the desired instrument (for example the recorder) at the first point of interest. A white cursor line marked with a **I** appears. Keep the left mouse button pressed and move the cursor to the second point of interest - a second white cursor line marked with a **II** will follow the mouse cursor. Now release the mouse button.



### DEFINE THE CURSOR POSITION FOR READOUT

The **Channel properties** area displays a field called **Time and value cursors**. It shows the amplitude and time information for the selected graph. To change the measurement cursor position, you can now also move each cursor separately. When you move the mouse cursor over the measurement cursor, you will recognize that it changes its appearance to a horizontal arrow. Now press the mouse button and move the cursor to the desired new position.

### 5.2 Zoom

Maybe you have already recognized that the mouse cursor changes its appearance also when you are in between the cursors. A **+** symbol will be added. If you see that symbol and press the left mouse button, you will zoom in between the two cursors. This can be repeated until you reach the desired display area. To undo the zoom, simply right-click on the instrument. The zoom out will be done exactly in the same steps you have zoomed in.



*MOVE THE MOUSE CURSOR BETWEEN THE TWO MEASUREMENT CURSORS AND LEFT-CLICK TO ZOOM IN*

### 5.3 Scroll the selection

To scroll the zoomed area within the whole acquired data, you have two possibilities: move the mouse to the timeline of the graph, when the hand symbol appears press the left mouse button and move in the desired direction. The second way is to click on the highlighted area at the top graph and move it.



*MOVE SELECTED AREA TO THE DESIRED POSITION*

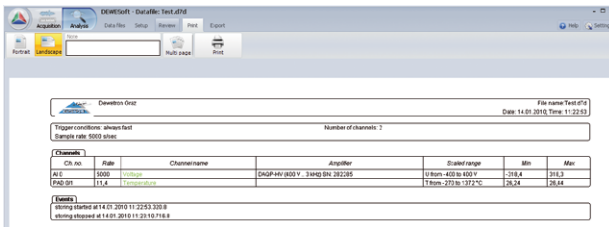
### 5.4 Printout

A printed report is required? Quite simple with DEWESoft. Just press the **Print** button to get the printout preview:



*PRINTOUT PREVIEW*

Now you can enter some comments (**Notes on measurement**), change between **Landscape** and **Portrait** and press **Print** to start printing. A standard Windows window will appear asking for the printer and it's settings as you know it from other Windows applications.



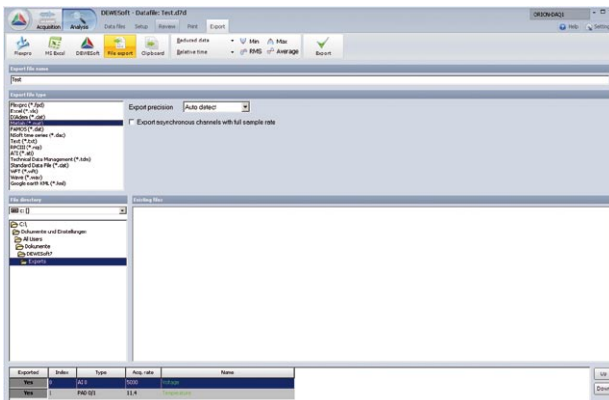
PRINTING CHANNEL LIST

If you click on **Setup** in **Analysis** and then on **Print** you can also print out the channel list for documentation.

*Tip: Enter General Settings in the System menu and select the Print tab; now you can select the path for your company's logo (has to be .bmp format)*

## 6. Data export

It may be necessary to do deeper analysis of your acquired data. Therefore DEWESoft offers powerful export functions. To export data press the **Export** button in **Analysis mode**. This will export exactly that area you have currently selected (see also 5.2 Zoom). The following export window appears:



EXPORT SELECTION WINDOW

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On the top left you can decide between **FlexPro**, **MS Excel**, **DEWETRON**, **File export** and **Clipboard**.

Select if you want to export full speed data or reduced data (**Min/Max**, **Average** and **RMS**), and **Relative**, **Absolute** or **Trigger time** base.

In the center area you can now choose some options, for example pre-defined analysis templates or file locations. Then press **Export data** to start the export procedure.

Currently supported file types for File export: FlexPro, Excel, DIAdem, Matlab, Famos, NSoft, Text, RPCIII, ATI, Technical Data Management, Standard Data File, WFT, Wave, Google earth KML.

Tip: Use the DEWESoft export to copy the area of interest into a new DEWESoft file. This feature may save a lot of hard disk space.

## 7. Versions

**DEWESoft is available in different versions:**

- |                   |  |
|-------------------|--|
| ■ DEWESoft-7-LT   | Lite version for PAD/EPAD, A/D boards and GPS sensors only   |
| ■ DEWESoft-7-SE   | Standard Edition for most applications   |
| ■ DEWESoft-7-PROF | For multocard applications, synchronized video, ...  |
| ■ DEWESoft-7-DSA  | Additional measurements for Industrial Acoustic, Structural Analysis and Machinery Diagnosis.  |
| ■ DEWESoft-7-EE   | Enterprise edition includes DSA package with additional options POWER and NET, including 5 years maintenance agreement (free software updates) |

**Most popular options:**

- |                        |                                      |
|------------------------|--------------------------------------|
| ■ DEWESoft-7-OPT-CAN   | CAN-bus support                      |
| ■ DEWESoft-7-OPT-POWER | Power module option                  |
| ■ DEWESoft-7-OPT-NET   | Remote Control and Network Extension |

## 8. Summary

DEWESoft is an easy to use software, but offers also a lot of features. Therefore we would recommend to study the *DEWESoft Software Users Manual*, which is included with the shipment.

Free software updates within Version 7 are available on <http://download.dewetron.com/dl/software>

## B. HOW TO CHANGE FROM DS 6 TO DS 7

### 9. Registration / Licensing

The registration process has changed as there is an **online registration required** now!

There are three types of registration:

#### 9.1 Demo mode

1. Go to [http://dewesoft.org/registration/evaluation\\_key](http://dewesoft.org/registration/evaluation_key) and require your own 30-day evaluation key.
2. Enter the registration key.
3. Then select "register offline". In the demo mode you simply select "No A/D hardware" in the analog tab.



#### 9.2 Online registration

1. Connect all your measurement hardware and choose all purchased devices, options and plugins in the hardware setup!
2. Enter the registration key.
3. If not already done, establish an internet connection
4. Click "register online"

#### 9.3 Offline registration (measurement PC has no internet connection)

1. Connect all your measurement hardware and choose all purchased devices, options and plugins in the hardware setup!
2. Enter the registration key.
3. Click "register offline".
4. Copy the created license file (\*.lic) from your measurement computer (...\\DEWESoft7\\System\\V7\_0) e.g. on a USB-stick and go to a computer with internet connection.
5. Follow the instructions on <http://www.dewesoft.org/registration>

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## 10. Projects

In version 7 you can create projects at the hardware setup screen level, where each project contains all of the settings for any hardware that you own. So now you can have an unlimited number of hardware setups, which you can freely name and edit.

If you have to change the hardware, you can simply choose a different project from the SETTINGS menu, and a completely different hardware setup will be loaded. Even when using the same hardware, projects allows using different folders for setup, data and exported files. So you can create projects for different operators and they can work without interfering.

## 11. Data header

Setting up the data header is a little bit different now. For each project an own data header can be specified. The structure of the file header can be modified in the project setup.

In the project setup the input fields can be defined (e.g. "Setup").

In the channel setup in the "File details" you can then put your entries for each file stored (e.g. "open area test setup").

## 12. Channel selector

The channel list is now on the right side, you can sort channels by name, type and which are used in the active instrument.

In Design mode you can even click a channel and drag it onto the display, where it will appear in a graph of the kind that you have right-clicked from the design mode icon strip!

The search function helps in case of high channel count.

To maximize working area the channel list can be hidden also.

## 13. Custom displays

Another new feature often requested is the ability to create custom displays. Now we don't have any more our standard Overview – Scope – Recorder screen, but can customize that according to the needs of the specific.

In the properties panel there is a new function that allows you to edit the properties of the selected display, and to create new displays, and rearrange them. You can rename any display, and select a different icon for it. Of course you can still add sub-displays like you could under DEWESoft

## 14. Offline math

When you open a datafile, you notice the additional button "Offline math" beneath the symbols.

Just click on it and add filters, formulas, statistics... it's the same like during measurement.

The big advantage is that you take your measurement equipment, go to the testbed, set up the sensors, store data and can do all the analysis (filtering, order tracking, torsional vibration...) afterwards. This also saves CPU load during measurement.

## 15. The new file structure

DEWESoft 7 introduces a new file structure to make it easier finding the files and folders you need.

**Background folder** stores custom DEWESoft background images.

**Bin folder** stores the essential binary and executable files such as the DEWESoft.EXE and various DLL files.

**Data folder** is the standard folder for stored datafiles.

**Exports folder** is the standard folder for files that are exported out of DEWESoft.

**Setups folder** stores the setups created in DEWESoft 7.

**System folder** stores log files, export scripts, project files etc.

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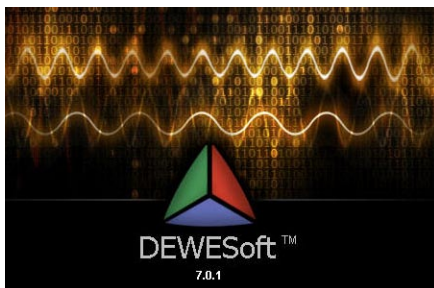
### **Do I need to uninstall DEWESoft 6 first?**

*No. It is no problem to have both DEWESoft 6 and 7 installed on your computer. The file structures do not interfere. But please **don't run DS6 and 7 at the same time!***

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## C. WHAT IS NEW IN DEWESOFT 7?

With version 7, DEWESoft takes a big step toward becoming a very powerful data analysis tool for a wide range of test & measurement applications. If you are familiar with DEWESoft already, you know that it brings incredible power to the measurement side of data acquisition. From its humble beginnings in 2000 as a simple acquisition program with a nice FFT display, it grew each year, adding more and more measurement capabilities, more displays, more math functions, more interfaces to other devices and data buses, and more display types. Our most notable breakthroughs were VIDEO and CAN bus, which we pioneered in a data acquisition unit. Over the years we also added some amazing optional applications into DEWESoft, such as the power analyzer, combustion analyzer, PCM data interface, and many more. But something was always missing: the ability to really analyze the data after recording.



If you are familiar with DEWESoft 6, you know that there is a large suite of calculation (math) functions available in the measure mode, including programmable digital filtering, a free form formula editor which includes arithmetic, trigonometry, algebra, and boolean math functions. There is also a powerful collection of basic statistical functions which can be applied in real time (min, max, ave, rms, std dev, and more). A description of all that is available under math would be a very long document. And yet, all of these functions could only run in the measure mode, i.e., during recording. You could not record data and then later apply a filter, or a math function, for example.

With the release of DEWESoft 7.0, this all changes. Starting with 7.0, captured data can be recalculated in the analyze mode. You can still utilize math channels in the measure mode, of course (we wouldn't remove a capability!). But what if the math that you want to perform is too much for the CPU? Like performing a 10th order notch filter on 128 channels being sampled at 100 kS/s each? Well now, this is easy. Simply record the data and then filter it afterwards (math functions are non-destructive, i.e., they do not affect the raw channels).

This one example is just the beginning.

In addition, a new sequencer provides a way to automate test procedures. The sequencer will be described below. In order to allow these functions and many more, we changed the data handling »engine« deep inside of DEWESoft, providing the new foundation for further growth.

We are pleased to share with you the major improvements that have been made starting with DEWESoft 7.0:

### 16. Post-processing

As mentioned above, during recent years DEWESoft brought many powerful math function such as math formulas, filtering, statistics, power analysis, frequency response function, order tracking, torsional vibration, engine combustion analysis, sound analysis, human vibration analysis, and others.

The logical next step in our development was to be able to do those calculations also after the data had been captured. So now you can simply store the data and do all the processing off-line, on any computer, anywhere. This allows you to work with the data as you were at the test bench or on the proving ground.



### Math channels now have three basic modes:

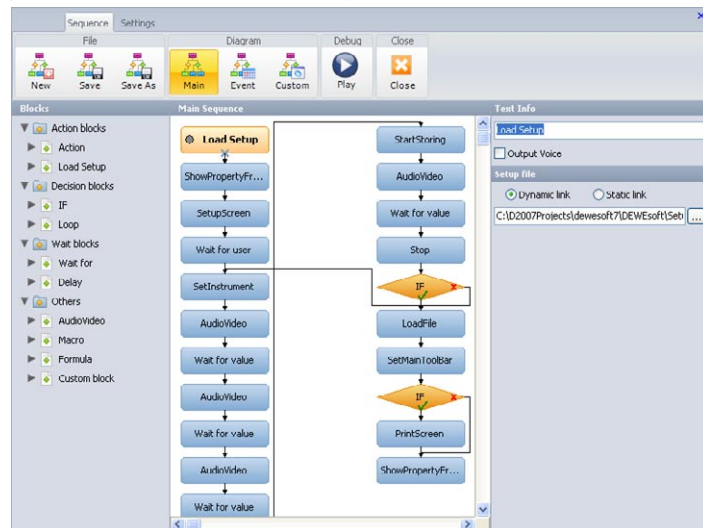
- on-line math, like we have already in DEWESoft 6 for years. Math functions run in the measure mode
- off-line math, where you set up the math function in the measure mode, but DEWESoft does not calculate it until later. Thus you can configure the functions ahead of time, and then just calculate them when recording is done.
- 100% offline, where you don't create any math functions in the measure mode. You can add and calculate any math channels that you need after you record the data in the measure mode.

You can use all three of these modes, in any combination!

That's amazing power, and utility, starting in DEWESoft 7.0.

## 17. Sequencing

A whole new function called »sequencing« allows you to build test procedures as easily as creating a workflow diagram. A DEWESoft sequence can control virtually any part of software, load a setup, start the measurement, take actions based on real-time results (such as data values or user input), allowing user interaction (decisions or data entry), and so on.



The sequencer even has all of the Windows multimedia features, too, so you could even call for a sequence to play a video or audio file, to guide the user through the measurement. A great related feature is voice output, where the text instructions that you typed in will be »spoken« by the computer, so that the test operator does not have to look at the display and read the text – he can hear it, and react accordingly. Imagine tests in a car where the operator is also driving the vehicle, and the Dewetron system talks to him »Increase speed to 100 kilometers per hour...«.

Many Dewetron customers are already looking forward to the ability to incorporate whole sections of their ATPs (acceptance test procedures), saving them time and money, and ensuring better results. Sequences can be saved and reused just like setup files. But unlike setup files, they run at the »test executive« level, at the top of the software. This means that a sequence is above the level of any one setup file, and can load any setup file, switch to a different one, and more.

## 18. Internal structural changes

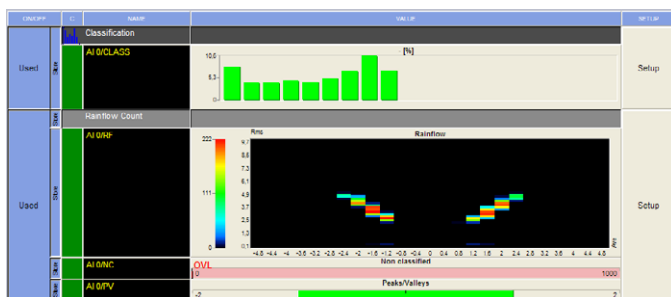
DEWESoft is always pushing the envelope in terms of getting the most performance possible from the computing platform. With the very first application of version 7 – The NASA Ares mobile launch platform measurement system, with 600+ channels, we have pushed the envelope again, and successfully. This huge system acquires data via several NET nodes and can store 160 MB/sec of data on a single computer.

It's great to measure data at such high speed, but what about reloading it?

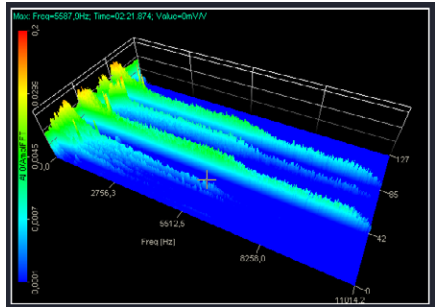
We believe that DEWESoft has been the fastest software in the world when it comes to reloading large files, when all of the channels were dynamic ones. When there was a mixture of slow channels (like from PAD modules, as one example), loading a huge file got slower. So in DEWESoft 7.0 we have gone one step ahead and made a huge breakthrough – any data file can be reloaded just in few seconds. It doesn't matter if the file is several gigabytes or even terabytes long, one channel or thousands of channels – this is really a huge breakthrough for DEWESoft.

Enter the Matrix...

Our new data structure allows new matrix channels to the math engine. On that base we have build advanced procedures such as classification, rainflow counting and advanced FFT analysis like short time FFT. These are the kinds of advanced matrix math functions that could only be achieved using a very powerful analysis program in the past, such as Flexpro or Matlab. Now we have them inside DEWESoft 7.0!



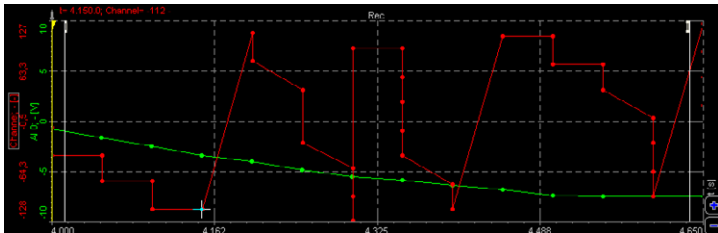
And of course visualization also supports matrix mathematics, including the all-new 3D graph showing the results of these calculations.



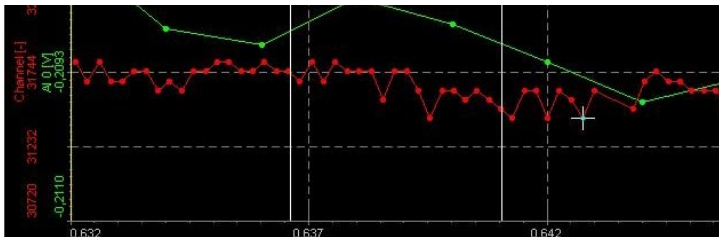
## 19. Over-synchronization

One of our major features for years has been our ability to synchronize different data sources, such as high speed analog and counter data, low speed data, bus interfaces, video cameras and others. This capability has separated Dewetron from most other data acquisition systems, who cannot do this.

For years we have placed the SLOW data exactly at the sample points of FAST data from the A/D card. This works fine when the A/D sample rate is much higher than the SLOW or BUS interface data. But just because we are far ahead, it does not mean that we should stop improving. There was one situation where our approach does not work so well: when the A/D sample rate was lower than the SLOW or BUS interface data (like CAN). In that case, the results looked like this in version 6 (the red curve shows the CAN data and green curve shows the analog data):



In version 7 we have a feature called »over synchronization«. Our most recent A/D hardware allows that the samples are placed also in between analog samples, so we can have a perfect result like this:



So starting with DEWESoft 7.0, it does not matter whether the analog rate is slower than the other data, we will synchronize even between these points to achieve the best possible results for the customer's measurement. This is far and away superior to anything else on the market today.

## 20. Open file structure

Until now it has not been possible to directly open a DEWESoft data file within another application, such as ncode, or Flexpro, or Matlab. The file structure was too complicated, and we did not support this. But there have been many requests for this capability, so we are happy to satisfy all of these requests now! And not only the data file, but even the setup file has been »opened up« for the world.

Starting with version 7.0, the setup file is built in a form of transparent and very easy-to-understand XML structure. Each customer can therefore create their own setup.

```
- <DewesoftXML>
- <System Name="Local">
+ <SysInfo>
+ <ProjectSetup>
- <DewesoftSetup>
- <Devices>
  <SampleRate>5000</SampleRate>
- <Device Type="AI">
  - <Slot Index="0">
    <MeasuredValue>CURRENT</MeasuredValue>
    <Range>5000 A</Range>
    <LPFilter_Type>BU</LPFilter_Type>
    <LPFilter_Hz>1</LPFilter_Hz>
  - <OutputChannel>
    <DisplayColor>#00FF00</DisplayColor>
    <Name>AI 0</Name>
    <Unit>V</Unit>
```

The data file includes the same header and stores the binary data in database style structure. We are providing a small library to read stored data in other customer post-processing solution.

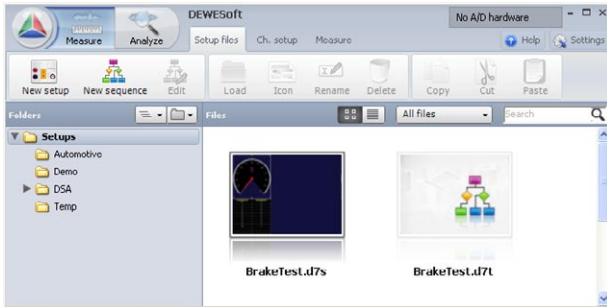
This will make many people happy, who have to store thousands or even millions of DEWESoft data files in a large database, and until now had to export the data to other formats. This was work and time consuming, but also doubled the number of files to be stored. Problem solved!

## 21. New user interface

The DEWESoft 6 user interface design is now almost 10 years old. When it started the design was clean and uncluttered, and we tried very hard to keep it that way. But you cannot add so many new functions over 10 years and not make some compromises. So with version 7, we have reinvented the user interface again, to make room for the most important functions.

Since DEWESoft has two major functions: to measure and then to analyze, these buttons are larger and above all of the contextual buttons below. With one glance you know that you are in the measure or analyze mode. Menus (which are hard to select from using your finger on a touchscreen, or in a moving car, for example), have been replaced with modern context bars of icons. (Only a few menus remain, like for hardware settings, because you don't use these very often.)

But we didn't want to simply change the buttons or the background color - we wanted to provide some new and useful capabilities and enhancements as well. Therefore the startup screen has now the list of available setup files for quick access to measurements:



On the setup screens, we have moved the FILE and STORAGE selections to their own screens, to unclutter the ANALOG setup screen as much as possible.

## 22. Better channel selection

In 2000, most Dewetron systems had 16 channels, and they were all of one type – analog from the A/D card and through the DAQ modules. Well, a lot has changed in these years, and now most Dewetron systems incorporate fast and slow data, CAN bus, video, PCM, MATH channels...

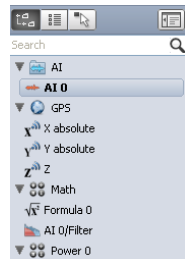
A typical POWER system might have 600-700 channels, for example. A few CAN busses could mean more than 1000 channels, and so on.

We used to have the channel list at the bottom left corner of the displays, but with dozens or hundreds of channels, this was not convenient any more. So in version 7.0 we made a totally new channel selection panel, which appears on the right side of the display. The channels are now clearly shown and the search function allows to find the channels easier. You can list your channels by name, or grouped by the KIND of channel that they are... you can even click a channel and drag it onto the display, where it will appear in a graph of the kind that you have right-clicked from the design mode icon strip! So finally "drag and drop" screen design has arrived, too. Click a graph with perhaps 8 channels in it, then click the pointer icon from the channel selection panel, and the list will be limited to show only those channels that are inside the selected graph.

Start typing a channel name in the SEARCH field, and the list will be limited to only show those channels whose names include what you are typing so far.

And of course, this channel selection panel can be also hidden to allow maximum space for measurement visualization. Just click the icon at the top right of the panel and it will disappear:

We added the same icon to the PROPERTIES panel, which is still shown on the left side of the display, so you can hide that one, too. This means you can use the entire display width for your data, like never before.



## 23. REALLY custom displays

Another new feature often requested is the ability to create custom displays. Now we don't have any more our standard Overview – Scope – Recorder screen, but can customize that according to the needs of specific test.

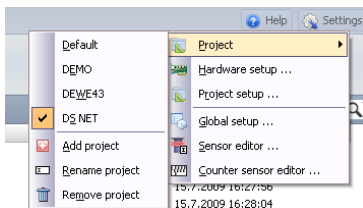
In the properties panel there is a new function that allows you to edit the properties of the selected display, and to create new displays, and rearrange them. You can rename any display, and select a different icon for it. Of course you can still add sub-displays like you could under DEWESoft 6.

## 24. PROJECT setups

Many customers use DEWESoft on a notebook computer, connecting one day a DEWE-50-USB, and the next day a DEWE-43. In the past, that would mean that you would have to either install DEWESoft twice on the same computer, and set the hardware properties of each installation to match one piece of hardware... or you would have to edit the hardware setup properties each time to match the hardware. Either way, it is less than ideal, and not convenient.

Even on a Dewetron system like a DEWE-3020, sometimes you might like it to also act like the host computer of a DEWE-43... and the same problem exists – the need to have multiple hardware setups, which DEWESoft 6 does not support.

But in version 7 you can create “PROJECTS” at the hardware setup screen level, where each project contains all of the settings for any hardware that you own. So now you can have an unlimited number of hardware setups, which you can freely name and edit. When you start DEWESoft 7, it will automatically load the last hardware setup that you used, of course... but if you have changed the hardware, you can simply choose a different project from the SETTINGS menu, and a completely different hardware setup will be loaded.



Even when using the same hardware, projects allows using different folders for setup, data and exported files. So you can create John and George project for different users and work without interfering or you can create the RoadLoad and Dyno projects for different tasks. Got the picture?

## 25. Hardware support

DEWESoft 7 supports all the hardware which also was supported in DEWESoft 6 except:

- All Microstar DAP and iDSC hardware, because since we have our own ORION series cards, this hardware is not in our focus anymore.
- Any NI hardware which is only available with the old “traditional NI DAQ” driver and NI did not include within the new NI MAX. Mainly this affects the DEWE-50-FW-16 which is not supported anymore at all. For all E-series NI cards the counters are not supported anymore in NI MAX and therefore also not in DEWESoft 7.
- All old Spectrum MI series cards

## 26. Summary

DEWESoft 6 blazed many new trails over the past 9 years. We completely reinvented the PC based data acquisition system, by adding screens that you could freely design, the ability to connect video cameras, then CAN bus, then more and more inputs and interfaces over the years.

With version 7.0 now we take another big step forward, bringing even better synchronicity of data running at different speeds, an open file format, many new display and user interface enhancements, and perhaps more important than everything – much more ADVANCED and POWERFUL analytical capabilities. Where version 6 was all about the measure mode, version 7 is focused heavily on the analyze mode, bringing more power than ever before to our customers to post-process their data in almost unlimited ways.

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## General Information

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### Warranty agreement

For warranty information please refer to the *DEWESoft Software Users Manual*, which is shipped together with the software.

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### Do I need to uninstall DEWESoft 6 first?

*No. It is no problem to have both DEWESoft 6 and 7 installed on your computer. The file structures do not interfere. But please don't run DS6 and 7 at the same time!*

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*Re-inventing Data Acquisition*

DEWETRON Ges.m.b.H. • Parkring 4 • A-8074 Graz-Grambach  
Tel (0043) 316 3070 0 • Fax (0043) 316 3070 90  
sales@dewetron.com • www.dewetron.com

