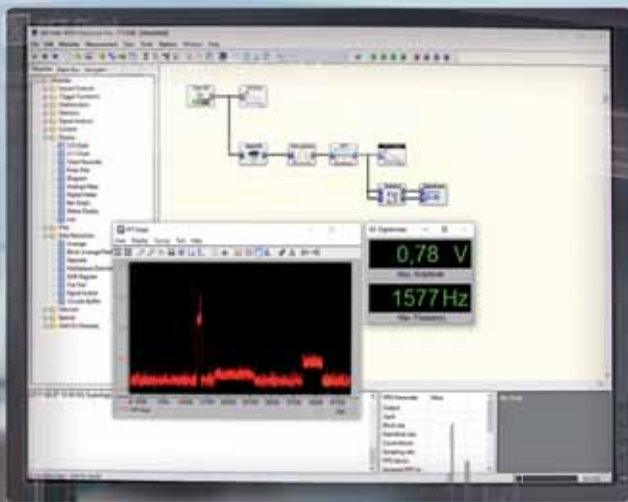


**DASYLab**<sup>®</sup>  
Data Acquisition System Laboratory



# The Assistant for Measurement Technology

Monitor, control and analyze with DASYLab

# Measurement Application Ready in Just a Few Minutes



Rapidly-changing measurement, control, regulation and automation tasks require flexible systems. Using the windows-based DASyLab application software you can develop and operate widely differing applications in a very short time and without programming costs. You gain valuable time for your core tasks.

## All-Round Software for Your Everyday Measurements

DASyLab can be used for almost all measurement, testing and monitoring processes since it is fitted with a wide range of hardware and software interfaces. In engineering just as in validation and testing. From simple measurements up to the automation of entire test sequences – you only need this one tool to reliably record, analyze, visualize and further process signals of all types. In next to no time you can turn your PC into another measuring instrument, observe signals from different angles and automate test routines.

## „Easy to Use“

DASyLab stands out due to its strikingly simple method of functioning: measurement engineering applications are displayed graphically and interactively in the form of a dataflow diagram without any programming at all. The function modules required for a specific task are placed in the circuit diagram, linked to other modules and adapted to the current task using structured configuration dialogues. The operating concept is so intuitive that you can work directly and productively without a long learning phase. Even if you have a longer usage pause you will feel at home again in DASyLab immediately.

## Infinitely Flexible

Despite its simplicity, DASyLab is enormously powerful. A wide spectrum of analysis, control and visualization modules are available for creating the application, these range from measurement engineering single functions up to preconfigured standard sequences. These include analog and digital inputs and outputs, triggers, mathematics, statistics, digital filters, FFT analyses, buttons, switches and much more. On top of this, you can comfortably develop and incorporate your own extensions using the integrated Python interface. Everything is possible.

**DASyLab is Available in Four Extension Levels,** so that both beginners and experienced users can implement measurement and test sequences to meet their requirements.

Lite      Basic  
Full      Pro

*„With more than 120 default modules and extremely good extension facilities, even complex measurement sequences can be implemented and, if required, be modified quickly again and again.“*

Stephan Gerhards, software engineer, measX

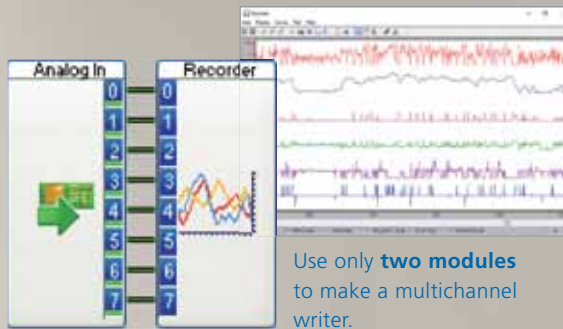
### DASyLab, the Comfortable Toolbox:

- capture and visualize measured data
- analyze signals
- integrate control and regulation processes
- automate test sequences
- configure your own measuring instruments
- add your own individual functionalities (Python interfaces)

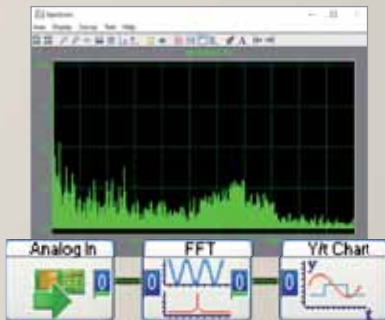




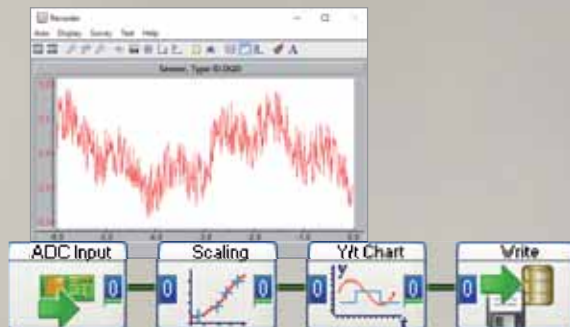
Use **just one single module** to make a datalogger.



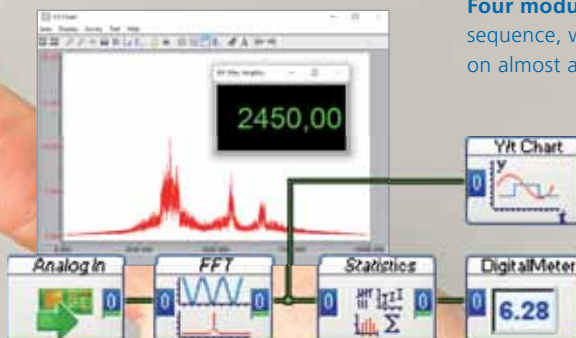
Use only **two modules** to make a multichannel writer.



Use only **three modules** to make an oscilloscope with FFT signal evaluation.



**Four modules** are required for a measurement sequence, which fulfils the basic requirements on almost any measuring task.



**Five modules** are required for data acquisition with FFT signal evaluation, statistics function and results presentation.



## Universally Usable

DASYLab, which has been successfully on the market since 1993, is now one of the most favored tools worldwide and across all sectors for configuring measurement and test processes as simply and flexibly as possible. Classical application fields are:

- research and development
- industry, production, quality assurance
- training, apprenticeships



# Flexible Measurement Technology in One Package

Normally, special measuring instruments are needed in order to represent and analyze different signal types. In DASyLab, all established measurement technology and analysis processes are combined. Thanks to a combination of the respective function modules, the PC can be turned into an oscilloscope, a multimeter or a datalogger in the shortest possible time.



*„You will often suddenly find that a specific signal has to be evaluated particularly quickly. This is yet another classical application case for DASyLab.“*

Heinz Rottmann, DASyLab system integrator, measX

## Mobile Measurement

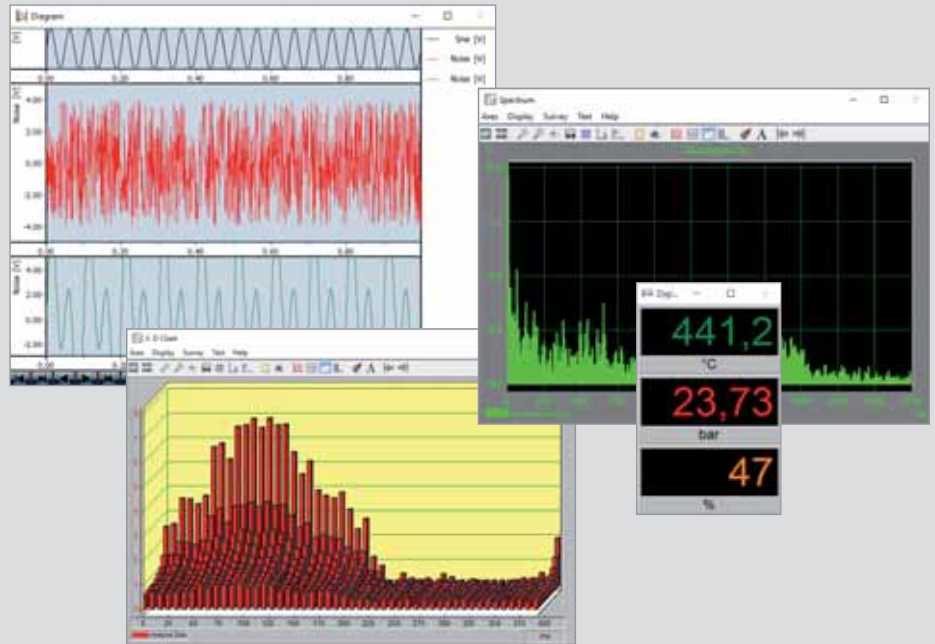
The combination of high-powered capability and simple operability makes DASyLab into an ideal tool for mobile use. If special measurements need to be taken on a stationary test bench, the „PC measuring case“ can simply be taken there.



## Capture and Visualize Measured Data

DASYLab represents laboratory measurement engineering in one device. The PC interface is turned into the measuring instrument interface each time, and it can be individually configured and designed. In other words, you decide where the measured data is to be displayed during the measurement, and how the device is to be operated during the measurement.

Metadata can be saved in a wide range of data formats for later off-line analysis. The results of complete experiment series are saved in a fully-automated structure.

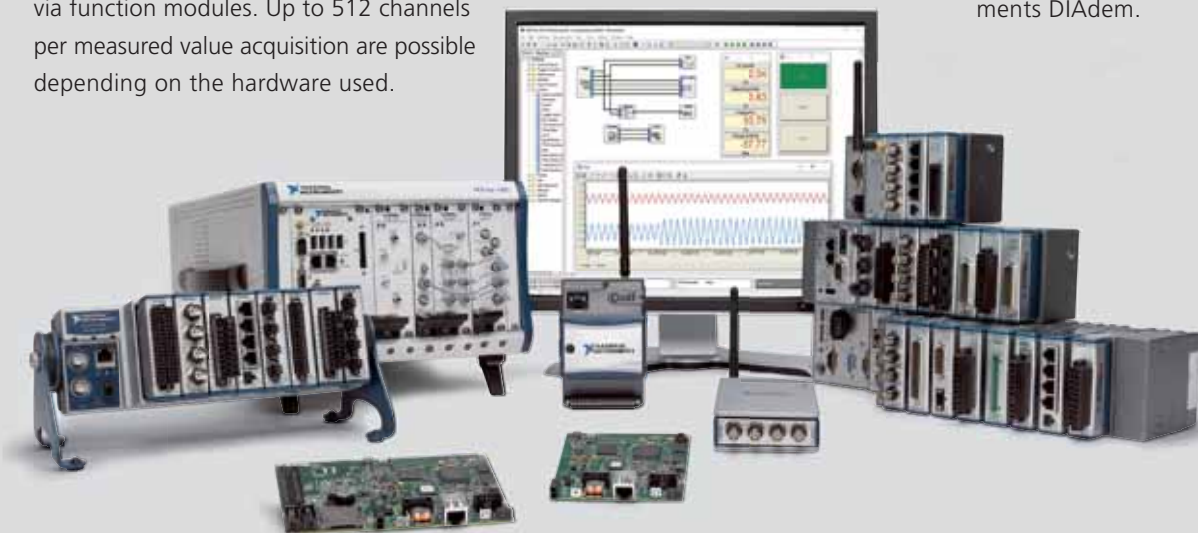


## Excellently Integrated

DASYLab supports data acquisition hardware from numerous manufacturers and offers a wide range of established software interfaces and protocols. External measuring devices are contacted and configured in a simple manner directly via function modules. Up to 512 channels per measured value acquisition are possible depending on the hardware used.

If, despite the large number of existing interfaces, special hardware or software components are not supported it is very simple to make a connection via Python or using the DLL toolkit.

DASYLab's high data connectivity is not just based on the data acquisition page, there is also an excellent link to data analysis. For example, DASYLab can read or write data which has either been processed by the measX X-frame application or by the National Instruments DIAdem.



## DASYLab® Supports:

- analog and digital inputs and outputs, counter input and frequency output
- CAN bus and LIN bus
- ModBus/RTU
- RS-232
- OPC-DA
- IEEE-488
- SPS
- ODBC



# High-Powered Online Signal Analysis

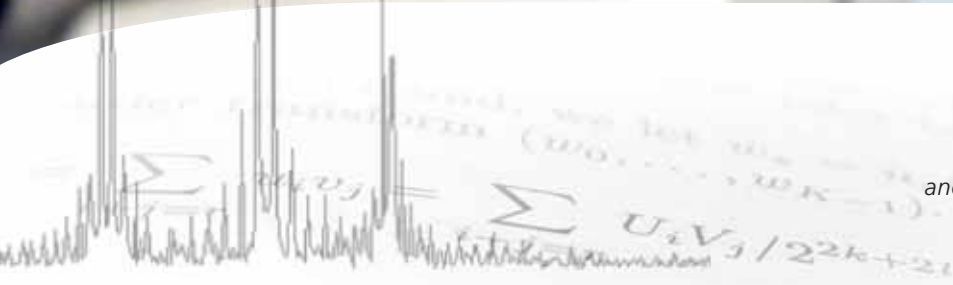
Measured signals are packed full of information which cannot always be identified immediately. Signal analysis is one of DASyLab's particular strengths. The user has a wide range of functional modules for signal processing, mathematics and to statistics available in order to work out the properties of the recorded signals simply yet precisely.

## Wide-Ranging Analysis Facilities

Depending on the extension stage, DASyLab can offer basic or extended functions for analyzing measured data. The spectrum ranges from standard mathematics through statistic functions right up to complex signal processing with clever filters and frequency analysis functions. Further examples are modules for third and octave analysis and for convoluting and weighting signals.

## Accelerating Engineering Processes

The simple function principle in combination with the wide range of calculation and analysis facilities makes DASyLab the ideal development tool. Prototypes of applications and systems can be quickly created even if they are to be implemented using another tool later on. Even extensive calculations are carried out in a matter of seconds so that meaningful results are available to you in the shortest possible time.



*„DASyLab can simply be used to try out and evaluate a wide range of approaches. This helps users to achieve their aims even more quickly.“*

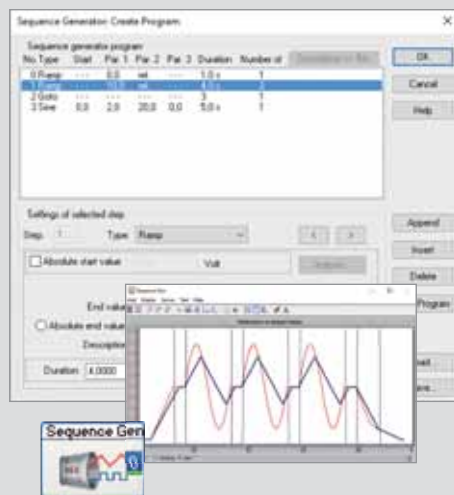
Bruno Hildebrandt, Development Manager, measX

# Automating Measuring Sequences without Programming Work

Automation tasks are solved graphically with DASyLab without programming. To do this, the software provides a range of function modules such as signal generators, switches, controllers and function generators. The corresponding modules are placed and configured in the circuit diagram so that logic switches, controls and analyses can be implemented.

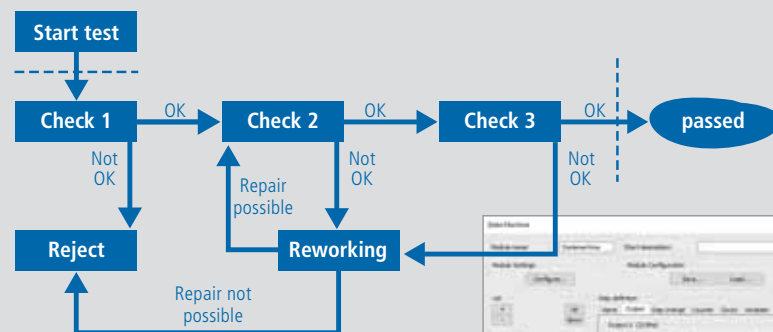
## Sequence Generator as Highlight

A configurable sequence generator is provided for precise time-dependent controls with complex control signals. It creates the sequence profile using simple parameterization of the individual program stages, which, for example, you use for controlling your test bench. This means that switching processes are implemented synchronously with this control profile.

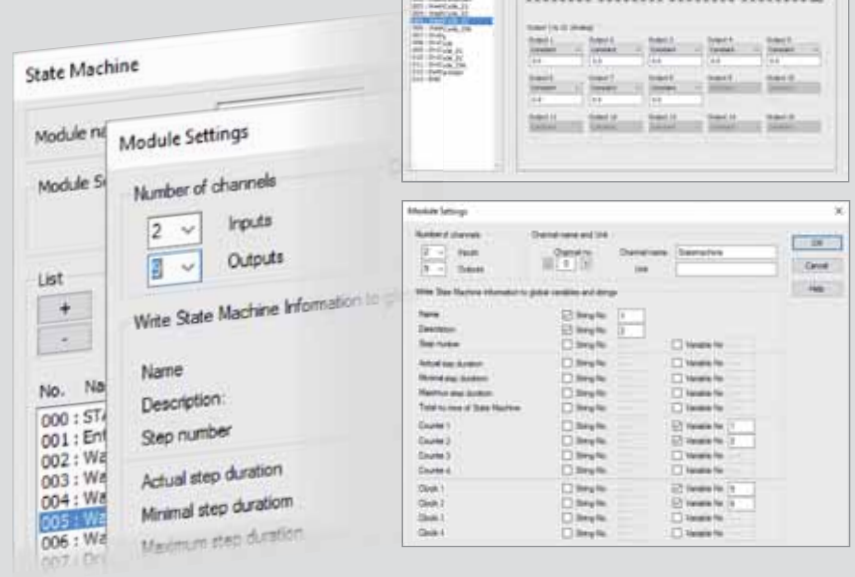


## State Machine as Highlight

Complex test sequences, which can be set up using a combination of action modules, trigger modules, relays and links as an alternative can be compiled to form fewer modules using the state machine module. These sequences are particularly simple to create and maintain since stages within the module can be added, deleted or changed in their sequence as required.



When setting up a step sequence conventionally in DASyLab, all the modules are always processed simultaneously in parallel – especially the parts of the step sequence which are not actually needed at that moment. In comparison, only the active parts of the step sequence are processed in the state machine module since all decisions about the work stage are made using one single module. This results in a considerable decrease in computing time and memory requirement.



Interactive image elements ranging from rotating knobs through sliders up to buttons are available to provide you with facilities for defining a user interface with which you can control your ongoing application.



## DASyLab®

**A Few Mouse Clicks are All that is Required**

Automation tasks can be quickly solved with DASyLab:

- test sequences
- monitoring of machines, equipment and processes

# Creating Your Own DASyLab Modules

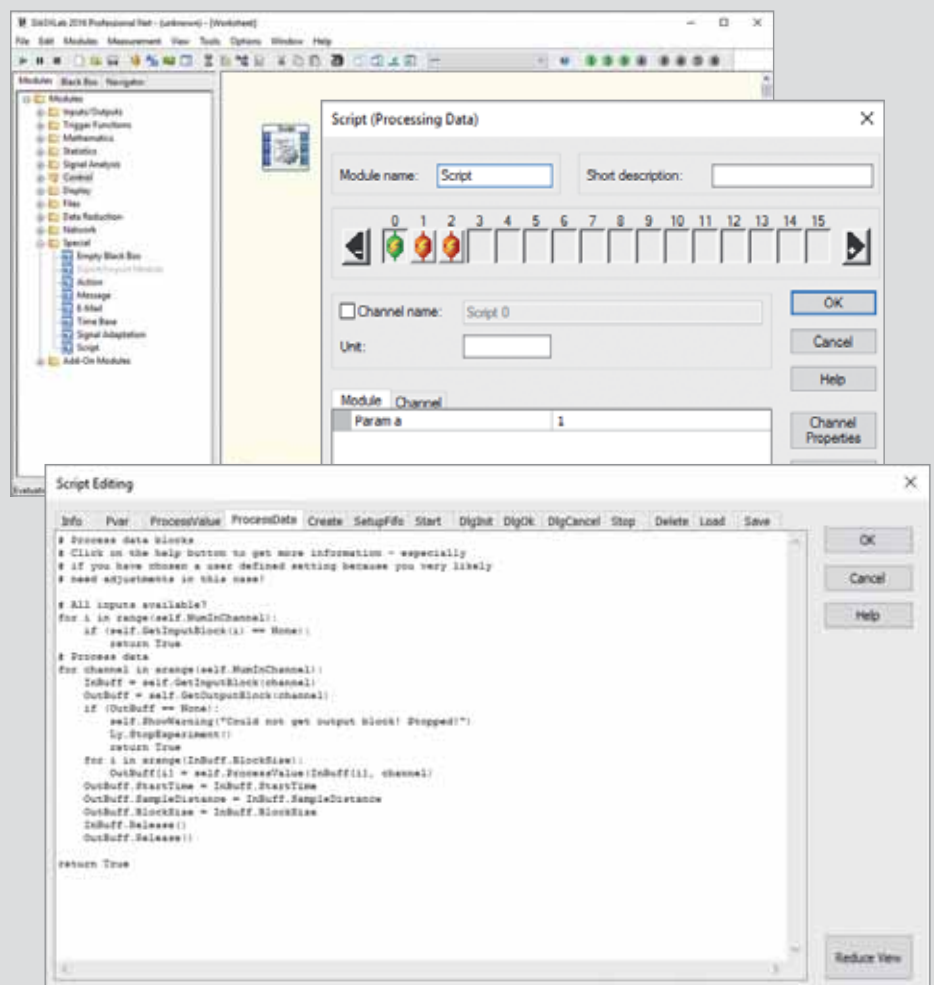
Right from the start DASyLab provides a wide range of modules for different measurement, control and analysis tasks. If functionalities, hardware or software components over and above this are necessary for an application, these can be integrated by any (program-experienced) user at reasonable expense using the integrated Python interface.

## Convenient Development Environment

The Python script module offers you the facility for creating your own modules in the widely used Python script language and for integrating new functions. These could be additional input modules or modules for data output, and also special mathematical functions which are not included even in DASyLab despite its wide range of function modules. This enables DASyLab to be extremely easily adapted to special measurement requirements and different hardware.

Basic settings, for example the number of inputs or outputs and the data flow properties, which are accepted by the module, can be conveniently specified in a presetting wizard. Only the script code needs to be entered in the dialogues for each individual interface in order to specify the functionality of a new module. Module parameters which are to be freely configurable later on are selected from a stock of stipulated dialog elements, and then made editable and compiled to form a simple configuration dialog using a script.

Python script modules can be implemented and managed in all DASyLab versions. Users of the Full and Pro version can also create, process and export Python script modules.



## Incorporation of Dynamic Link Libraries

You can also create your own DASyLab modules using the „Extension Toolkit for DASyLab 2016“. The toolkit contains the description of the DASyLab interfaces and demonstrates how different module types can be implemented in DASyLab. Working with the DLL toolkit requires knowledge of C programming and windows programming.



# Look & Feel to Your Own Specifications

DASYLab offers users a wide range of facilities for designing the working environment to meet their own personal requirements. This applies both to the user interfaces (the so-called layouts) and user guidance through individual applications, and also to the reports and protocols which can be generated.

## Online Visualization

A wide range of control and display modules are available for interface design: these range from standard functions such as the magnified display of graphical signal sequences up to color-coding of numerical display on limit value infringements.

You can quickly and simply configure all operating elements and display windows to meet your own requirements by specifically placing the visualization and control modules and providing them with

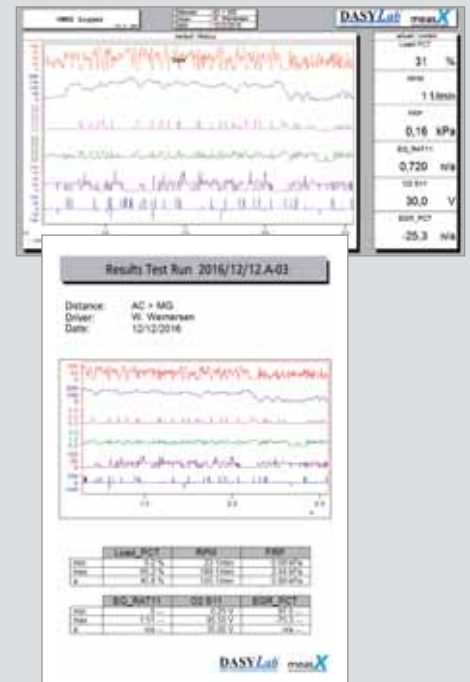
texts and graphics. Up to 200 different layout pages can be defined with the aid of the integrated layout tool.



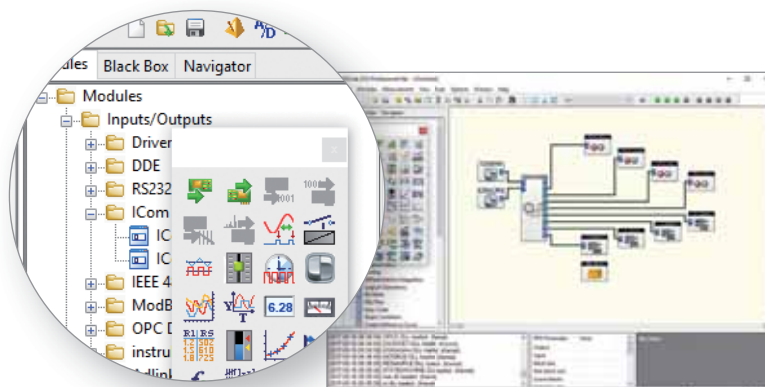
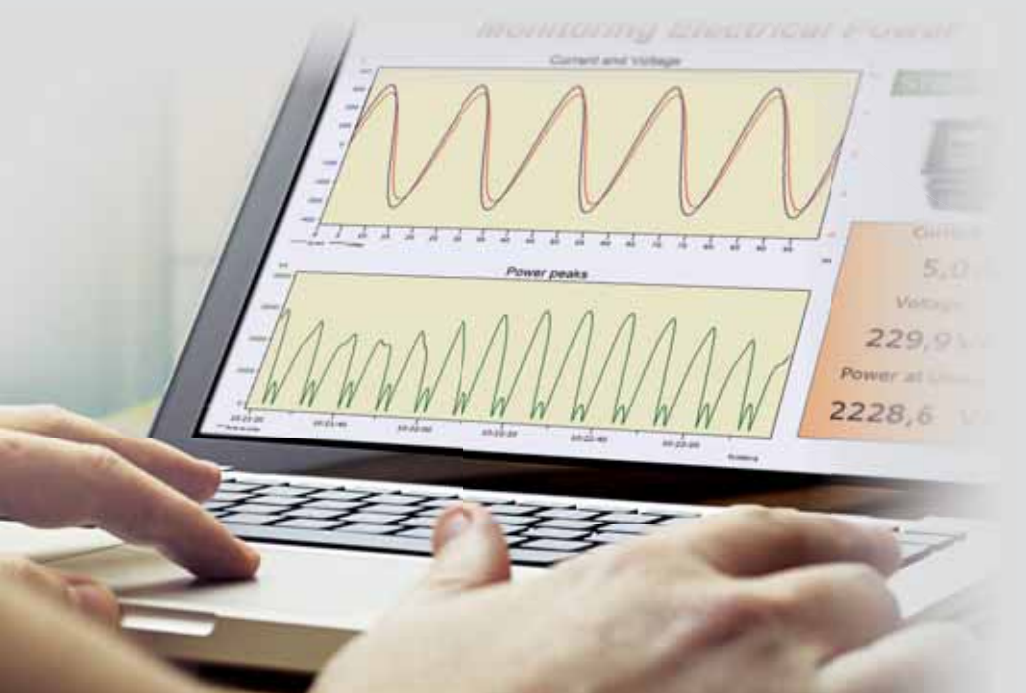
You can display your measured data as curves using the writer, Y/t chart and X/Y chart modules. The table and digital instrument function blocks display the recorded measured data numerically. Freely scalable analog instruments, bar and state displays are especially suitable for the presentation of process and test controls.

## Reports and Documentation

DASYLab can also support you in professional results presentation. The design of log sheets and reports can be flexibly drawn up and configured.



You can adapt the printed pages to your printer and output them either manually or event-controlled during or after the measurement.



## DASYLab®

Even the DASYLab module bar, which allows rapid access to often needed function modules, can be individually configured.

# The Right Version for Every Requirement

You can select from four DASYLab program versions: In the Lite version, beginners will find all the basic functions they need for PC-supported measurement data acquisition, the Basic version offers extensive additional mathematical and statistical functions. The Full version provides all the major modules for the solution of basic analysis

and automation tasks. Over and above this, the Pro version for professional use is fitted with further-reaching analysis functions, the swquence generator and network functions. Furthermore, the Runtime version, which only allows implementation of existing circuit diagram files (.dsb) but not their processing, is also available

## Lite

### Lite Version\* for Newbies

Contains all the basic functions required for PC-supported measurement data acquisition.

\* Restricted to 64 data channels

## Basic

### Basic Version

With additional mathematical and statistical analysis functions.

## Full

### Full Version

With additional modules for basic analysis and automation tasks.

## Pro

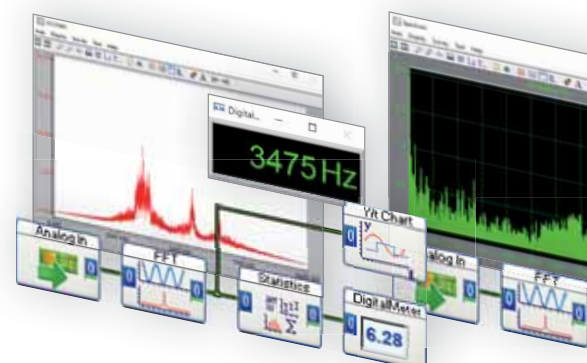
### Pro Version

Also for complex analysis, control and automation tasks.

Module Group/ Module	Lite	Basic	Full	Pro
<b>Trigger</b>				
Pre/Post trigger	●	●	●	●
Start/stop trigger	-	●	●	●
Combi-trigger	-	●	●	●
Sample trigger	-	●	●	●
Gradient trigger	-	●	●	●
Relay	●	●	●	●
<b>Mathematics</b>				
Formula interpreter	-	●	●	●
Arithmetic	●	●	●	●
Comparator	●	●	●	●
Trigonometry	-	●	●	●
Scaling	●	●	●	●
Differentiation/integration	-	●	●	●
Logical operations	-	●	●	●
Bit mask	-	●	●	●
Flipflop	-	●	●	●
Gray code	-	●	●	●
Slope limit	-	●	●	●
Create reference curve	-	●	●	●
<b>Statistics</b>				
Statistical values	-	●	●	●
Select values	-	●	●	●
Histogram classification	-	●	●	●
Rainflow classification	-	-	○	●
Two-channel classification	-	-	○	●
Regression	-	●	●	●
Numerator	-	●	●	●
Pulse analysis	-	●	●	●
Minimum/maximum	-	●	●	●
Channel sorting	-	●	●	●
Check reference curve	-	●	●	●



DASYLab comes with an interactive tutorial and more than 150 examples.



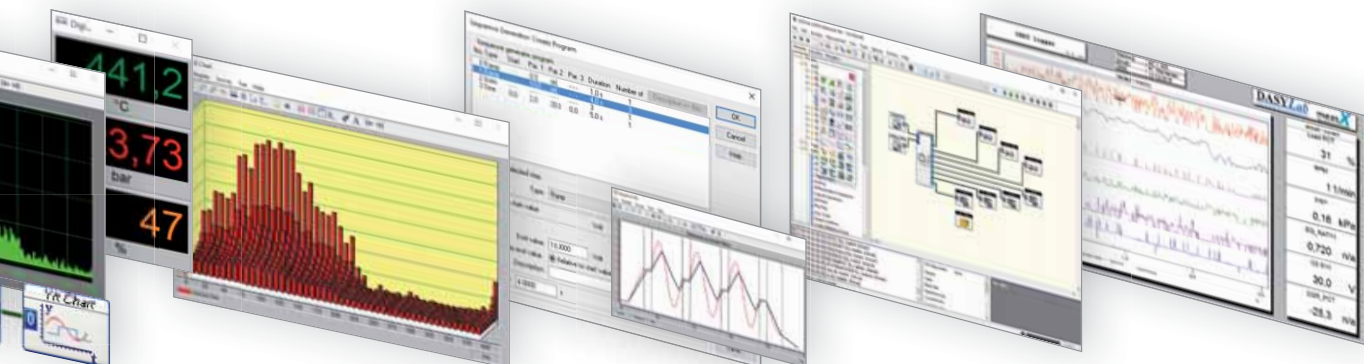
Module Group/ Module	Lite	Basic	Full	Pro
<b>Signal Analysis</b>				
Digital filter	-	●	●	●
Correlation	-	●	●	●
Data window	-	●	●	●
FFT	-	●	●	●
Polar/cartesian	-	●	●	●
FFT Filter	-	-	○	●
FFT maximum	-	-	○	●
nth harmonic	-	-	○	●
Electrotechnical parameters	-	-	●	●
Harmonic distortion	-	-	●	●
Periodic calculation	-	-	●	●
Third/octave analysis	-	-	○	●
Resample (order analysis)	-	●	●	●
<b>Controlling and Regulating</b>				
Sequence generator	-	-	○	●
Generator	●	●	●	●
Switch	-	●	●	●
Handset control	-	●	●	●
Position switch	-	●	●	●
PID controller	-	●	●	●
Two-point controller	-	●	●	●
Time delay	-	●	●	●
Latch	-	●	●	●
Signal router	-	●	●	●
TTL pulse generator	-	●	●	●
Stop	-	●	●	●
Write global variables	●	●	●	●
Read global variables	●	●	●	●
Write block time in string	●	●	●	●
State machine	-	-	●	●

Module Group/ Module	Lite	Basic	Full	Pro
<b>Visualization</b>				
Y/t chart	●	●	●	●
X/Y chart	-	●	●	●
Chart recorder	●	●	●	●
Polar plot	-	●	●	●
Diagram	●	●	●	●
Analog display	●	●	●	●
Digital display	●	●	●	●
Bar graph	●	●	●	●
Status display	●	●	●	●
List	●	●	●	●
<b>Files</b>				
Read/write data	●	●	●	●
Backup data	-	-	●	●
ODBC input/output	-	-	●	●
<b>Data Reduction</b>				
Average	●	●	●	●
Block average/peak hold	●	●	●	●
Separate	-	●	●	●
Multiplexer/demultiplexer	-	●	●	●
Shift register	●	●	●	●
Cutout	-	●	●	●
Signal switch	-	●	●	●
Circular buffer	-	-	●	●
<b>Network</b>				
Network input/output	-	-	↔	●
Reports input/output	-	-	↔	●
DataSocket import/export	-	-	●	●

Module Group/ Module	Lite	Basic	Full	Pro
<b>Special</b>				
Empty black box	-	●	●	●
Action	-	-	●	●
Message	-	-	●	●
Send e-mail	-	-	●	●
Time basis	-	●	●	●
Signal adaptation	-	●	●	●
Create script module	-	-	●	●
<b>Add-On Modules</b>				
Convolution	-	-	○	●
Weighting	-	-	○	●
Transmission module	-	-	○	●
Universal filter	-	-	○	●
Save universal file	-	-	○	●
<b>Optional Add-Ons</b>				
Human vibration (ISO 8041)	-	-	△	△
Sound level	-	-	△	△
Sound power	-	-	△	△

<b>Program properties</b>				
Sequencer	-	-	●	●
Number of layout pages	1	1	200	200

- included
- not included or available
- included in additional analysis toolkit
- △ available as optional add-on
- ↔ available in NET add-on for the Full Version





## In Addition to DASYLab, We Can Support You with Practically-Oriented Services:

- Servicing/updates/version management
- Technical support
- Commissioning
- Project implementation
- Linkage to evaluation solutions (X-Frame, DIAdem, ...)
- Standard training sessions, individual training

Would you like to find out more?  
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