DASYLab®

Data Acquisition System Laboratory

IOtech®
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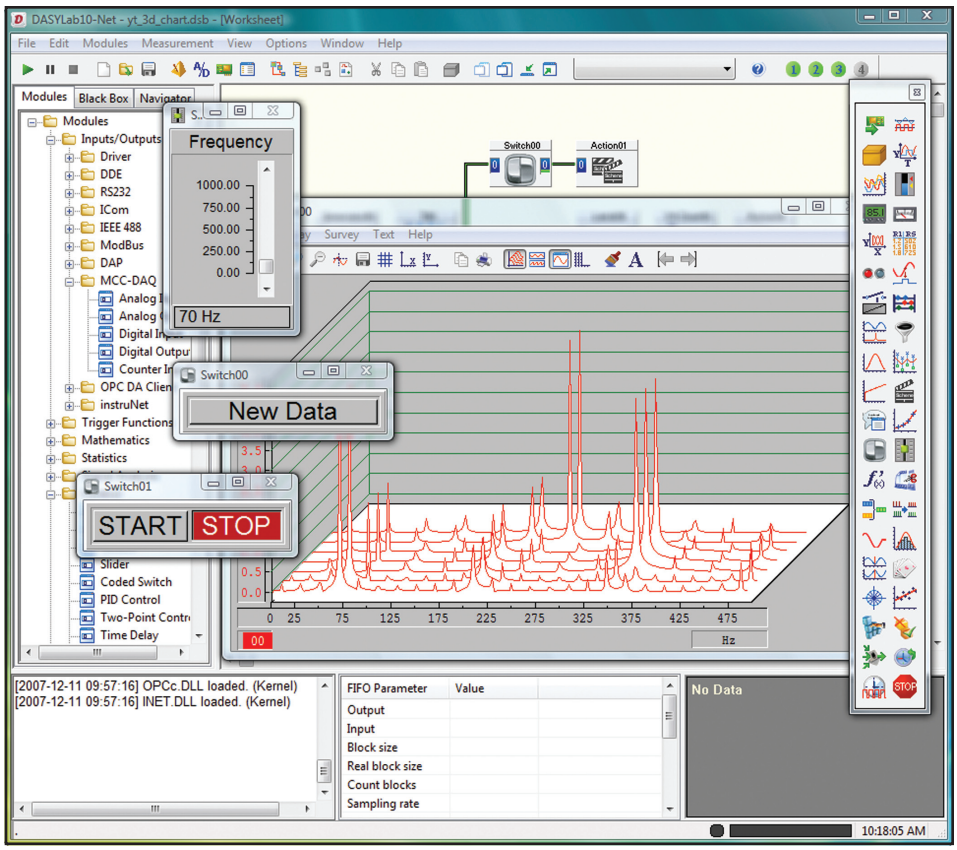
Features

- Compatible with Windows Vista® operating system and multi-processor PC's
- Create complex applications in minimal time without programming
- Lets you build worksheets using graphical icons:
  - Select icons from a palette and place them on worksheet
  - Connect them using "soft" wiring
  - Set parameters to determine performance
- Implements real-time operations:
  - Input icons bring live data into the worksheet
  - Functional icons perform computations
  - Output icons send live data to the hardware
- Provides standard real-time displays (charts, meters, graphs)
- Layout Windows allow you to create simple custom displays for operational end users
- Provides complete library of computational functions:
  - Math, trigonometry, and Boolean logic
  - Formula icon implements user-entered equations
  - Statistics, signal analysis and control
  - Data manipulation and storage
- Includes generator icons to simulate inputs
- "Black Box" icon lets you create macro functions
- Provides serial, OPC, ODBC, and network interface icons
- Supports data acquisition hardware from IOtech and other vendors
- Includes a tutorial, example worksheets, and on-line help



DASYLab® picks up where DaqView and WaveView leave off, letting you interactively develop PC-based data acquisition applications by simply attaching functional icons. DASYLab offers real-time analysis, control, and the ability to create custom graphical user interfaces (GUIs). What's more, in contrast to other graphical programming environments, which can require weeks of training to master, DASYLab has a very short user-learning curve. Many applications can be configured in a few minutes, rather than days or weeks.

Extensive Hardware Support

DASYLab supports all of IOtech's data acquisition hardware, as well as a host of hardware from over 20 vendors. There is a wide variety of I/O capabilities to choose from, such as analog, digital, counter/timer, IEEE 488, RS-232, and DDE, plus any I/O device that is supported by an OPC (OLE for Process Control) driver.

Effortless Setup

To set up an application, simply drop the desired icons on your worksheet. Connecting all your icons together requires very little effort—simply click and drag them together or drag the output box of one functional icon (e.g., DBK8) to the input box of another functional icon (e.g., statistics).

Custom, Real-Time Data Display

DASYLab provides a comprehensive selection of real-time display format capabilities for easy development of custom displays. You also have your choice of a host of other features such as limit and trend indicators and the ability to zoom and scroll waveforms, plus display overlapping traces and waterfall plots.

Powerful, Real-Time Data Analysis and Control

DASYLab includes a wide range of real-time data analysis and control functions for easy development of custom applications. Within these groups, there are specific modules for performing FFTs, Digital Filtering, Polynomial and Linear Regression, Logical Operations, and much more. These modules all have simple set up with point and click configuration, allowing complex calculations to be set up in seconds.

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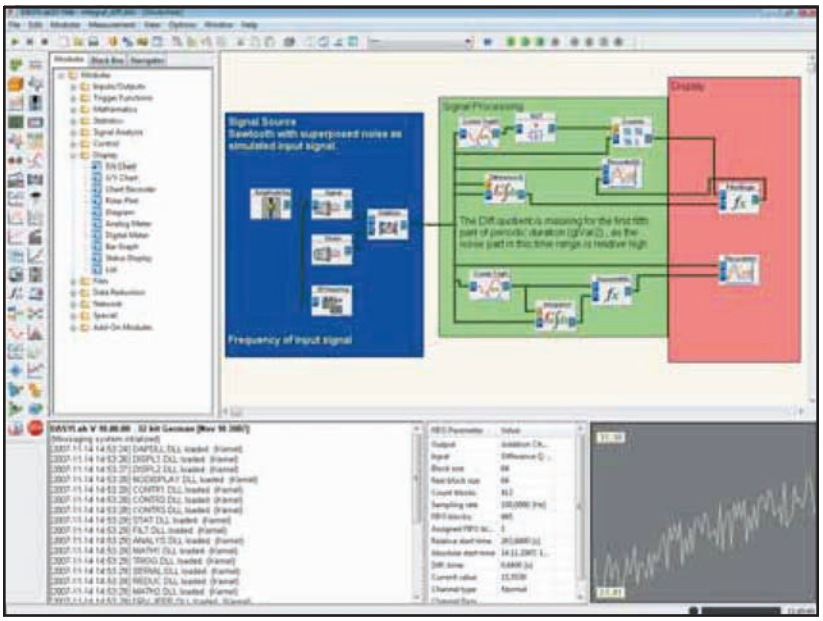
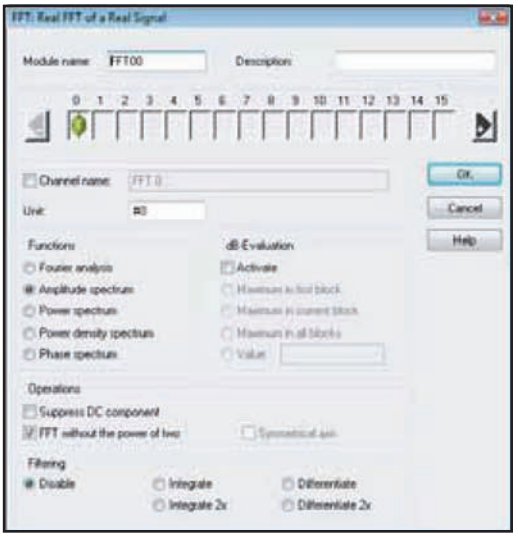


Worksheet

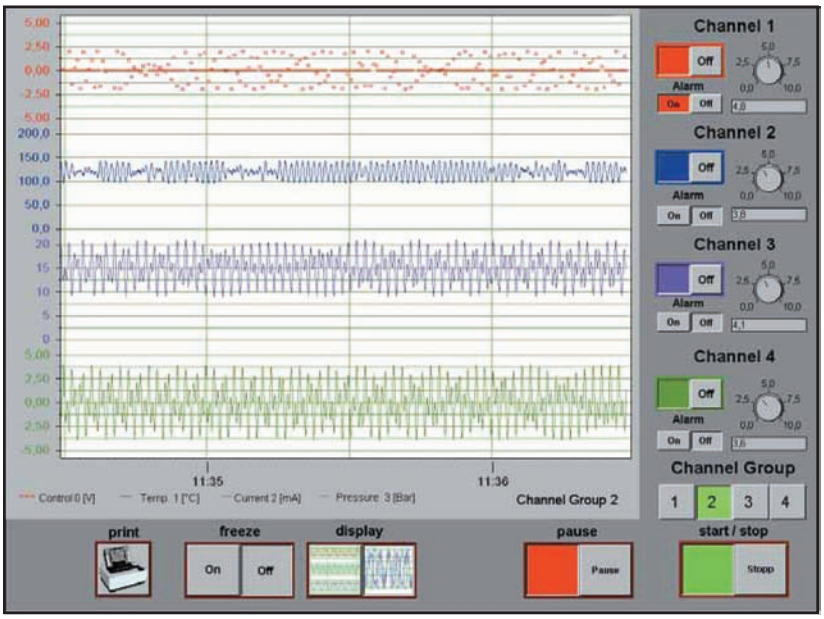
The Worksheet is where you create the data flow logic for the application. Select and combine the desired function modules and connect them with wires that represent the data flow.

The browser window displays a tree structure containing all available function modules as well as any saved block boxes. It also contains a navigator to quickly find specific modules in a worksheet. The console window displays graphical and numerical information about content and structure of the data flow.



Dialogs

Configure modules easily using the Module Properties dialog boxes. Easily specify the capability of each function block, the number of channels and the parameter settings. *No programming required!*



Layouts

Use the layout view to create the operator interface to work with your application and to defi ne the structure and content of professional reports. For each application you have 200 pages to display your data and results.

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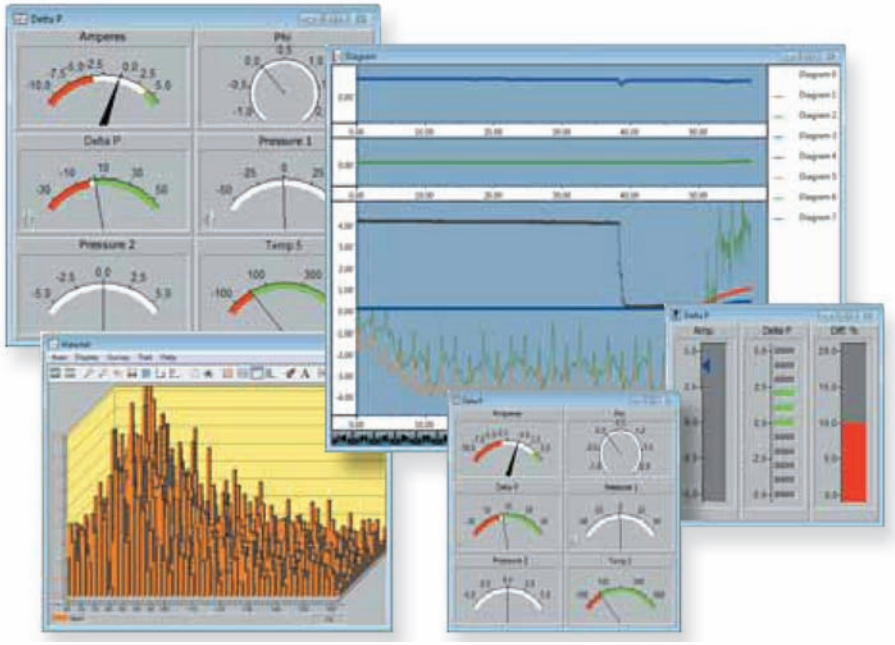
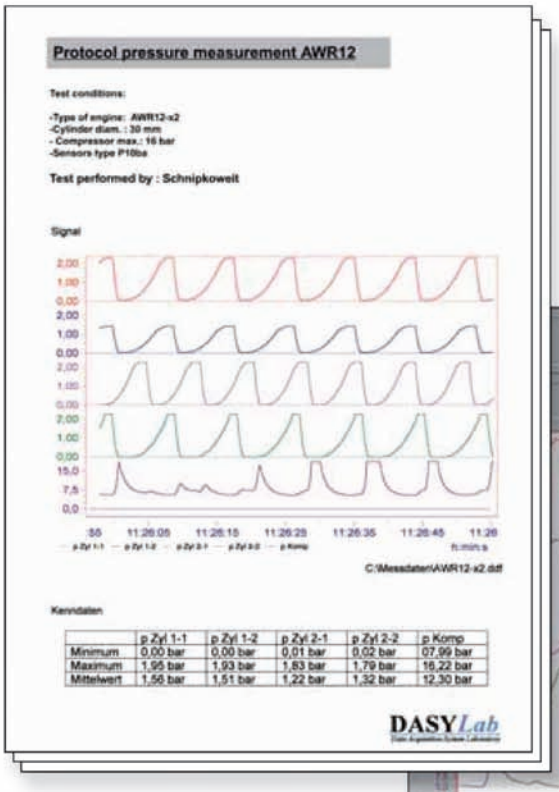
Displays

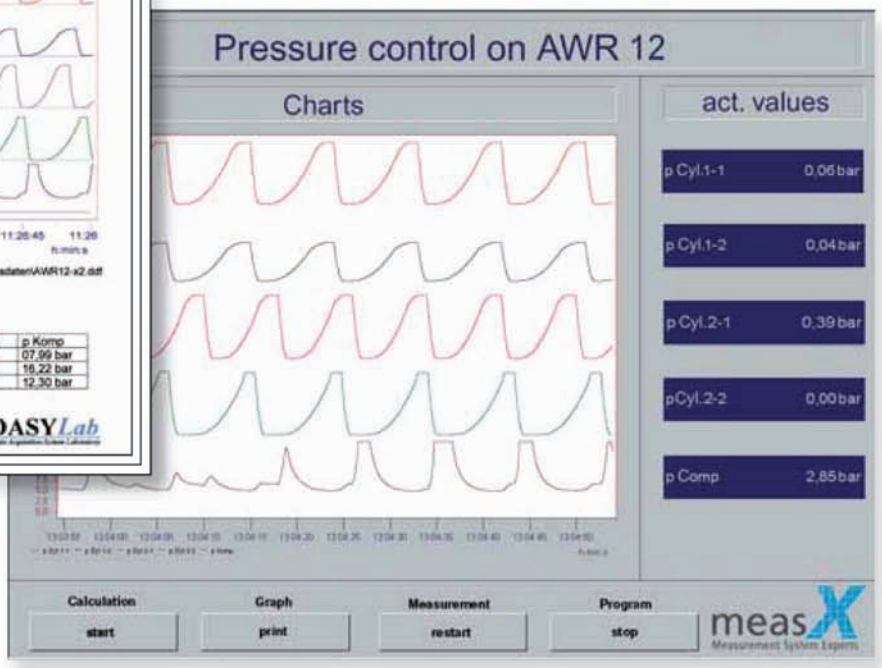
Use the different displays in DASYLab to represent your data online. Interactively zoom and view cursor measurements on or off-line.





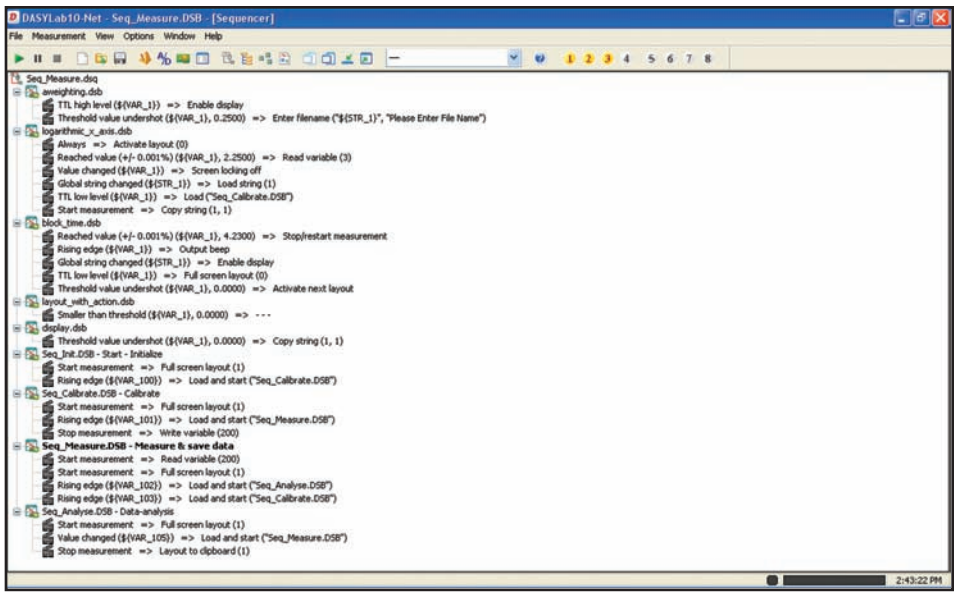
Layouts and Reports

Use the DASYLab Layout Windows to create a clear and informative presentation of your data and results. Represent your data in scope displays, numerical listings, chart recorders, or bar graphs, just by placing the corresponding objects in the layout and connecting them to the worksheet modules. Use text or graphical elements to enhance the clarity and useability of your application.



Control Sequencer

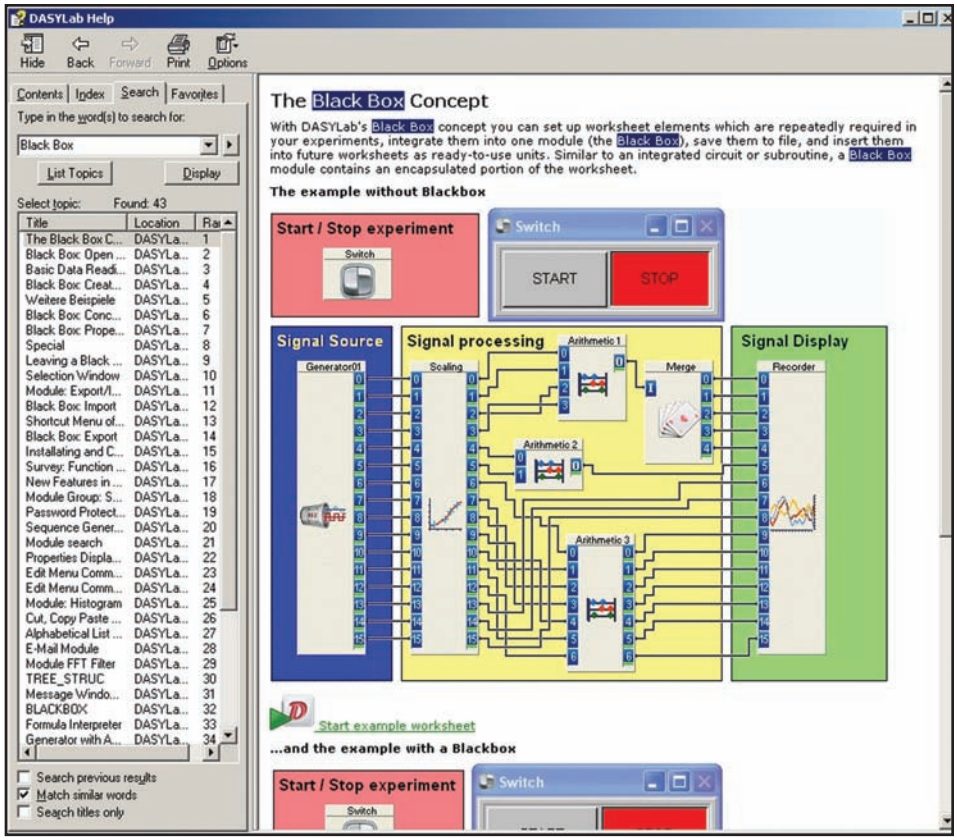
DASYLab/Full contains the Control Sequencer, a tool designed to control sophisticated applications consisting of more than one DASYLab worksheet. The Control Sequencer supervises the execution of worksheets, contingent on user-defined conditions and events. You can define multiple actions for each worksheet to control the flow of the application. The Control Sequencer setup window organizes the worksheets in a tree, showing the actions and associations for each worksheet.



DASYLab Help & Tutorial

DASYLab help is in the HTML format. The revised index contains the help section for the installed standard drivers and the tutorial.

The DASYLab tutorial contains a quick start program which leads you through the various areas in DASYLab, and a collection of example worksheets demonstrate the working method of the modules in the data flow. You can start the worksheets from the help menu and use the worksheets as templates for your own worksheets.



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Version Selection

You can choose between four different DASYLab Versions to get the exact features that you need.

DASYLab LITE includes support for 32 analog input channels on two devices, with a maximum of 64 data connections. One Layout Window is included, allowing you to create a custom report or user display.

DASYLab BASIC, the basic version, includes unlimited data connections and up to 256 analog input channels as well as one Layout Window. Basic does not include Action and Action-enabled modules (such as ODBC, Message, or Email).

DASYLab FULL version includes all standard modules, including the Standard Signal Analysis modules and all Action and Action-enabled modules. In addition, it includes 200 Layout Windows, and the powerful Control Sequencer. It does not include the Advanced Signal Analysis modules.

DASYLab PRO version includes the full set of modules, the complete signal analysis tools, sequence generator, and all available add-on modules (without third-party modules). The PRO version also offers full network functionality.

	Lite	Basic	Full	Pro
Trigger Functions				
Pre/Post Trigger	●	●	●	●
Start/Stop Trigger	○	●	●	●
Combi Trigger	○	●	●	●
Sample Trigger	○	●	●	●
Trigger on Demand	○	●	●	●
Relay	●	●	●	●
Mathematics				
Formula Module	○	●	●	●
Arithmetic	●	●	●	●
Comparator	○	●	●	●
Trigonometry	○	●	●	●
Scaling	●	●	●	●
Differentiation/Integration	○	●	●	●
Logical Operations	○	●	●	●
Bit-Logic	○	●	●	●
Flip Flop	○	●	●	●
Gray Code	○	●	●	●
Slope Limitation	○	●	●	●
Reference Curve	○	●	●	●
Statistics				
Statistical Values	○	●	●	●
Position in Signal	○	●	●	●
Histogram	○	●	●	●
Rainflow	○	○	○	●
Two channel counting	○	○	○	●
Regression	○	●	●	●
Counter	○	●	●	●
PWM Analysis	○	●	●	●
Min/Max	○	●	●	●
Sort Channels	○	●	●	●
Check Reference Curve	○	●	●	●
Signal Analysis				
Filter	○	●	●	●
Correlation	○	●	●	●
Data Window	○	●	●	●
FFT	○	●	●	●
Polar/Cartesian	○	●	●	●
FFT-Filter	○	○	○	●
FFT-Maximum	○	○	○	●
nHarmonic	○	○	○	●
Electric Characteristics	○	○	●	●
Harmonic Distortion	○	○	●	●
Period Check	○	○	●	●
Third/Octave Analysis	○	○	○	●
Control				
Sequence Generator	○	○	○	●
Generator	●	●	●	●
Switch	○	●	●	●
Slider	○	●	●	●
Coded Switch	○	●	●	●
PID Control	○	●	●	●
Two-point Control	○	●	●	●
Time Delay	○	●	●	●
Latch	○	●	●	●
Signal Router	○	●	●	●
TTL Pulse Generator	○	●	●	●
Stop	○	●	●	●
Global Variable Read	●	●	●	●
Global Variable Set	●	●	●	●
Blocktime Info	●	●	●	●

	Lite	Basic	Full	Pro
Display				
Y/t Chart	●	●	●	●
X/Y Chart	○	●	●	●
Chart Recorder	●	●	●	●
Polar Plot	○	●	●	●
Analog Meter	●	●	●	●
Digital Meter	●	●	●	●
Bar Graph	●	●	●	●
Diagram	●	●	●	●
Status Lamp	○	○	●	●
List Display	●	●	●	●
Files				
Read Data	●	●	●	●
Write Data	●	●	●	●
Backup Data	○	○	●	●
ODBC Input	○	○	●	●
ODBC Output	○	○	●	●
Data Reduction				
Average	●	●	●	●
Block Average/Peak Hold	●	●	●	●
Separate	○	●	●	●
Merge/Expand	○	●	●	●
Shift Register	●	●	●	●
Cut Out	○	●	●	●
Time Slice	○	●	●	●
Circular Buffer	○	○	●	●
Network				
Net Import	○	○	○	●
Net Export	○	○	○	●
Message Import	○	○	○	●
Message Export	○	○	○	●
DataSocket Import	○	●	●	●
DataSocket Export	○	●	●	●
Special				
New Black Box	○	●	●	●
Export/Import Module	○	●	●	●
Action	○	○	●	●
Message	○	○	●	●
Send E-mail	○	○	●	●
Time Base	○	●	●	●
Signal Adaptation	○	●	●	●
Add-on Modules				
Convolution	○	○	○	●
Weight	○	○	○	●
Transfer	○	○	○	●
Universal Filter	○	○	○	●
Save Universal File	○	○	○	●

Program Options				
Control Sequencer	○	○	●	●
Number of Layout Windows	1	1	200	200

DASYLab Lite Version is restricted to 64 data channels

Legend	
Included in this version	●
Not included in this version	○

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What's New in DASYLab 10

Diagram Module

The new graphical display module, Diagram, provides outstanding interactive versatility and an overall better user experience. The Diagram module may be configured as an enhanced Y/t chart, an X/Y chart, or a data recorder. It supports multiple y-axes and free assignment of time-domain signals to the y-axis. For superior comparison of graphical signals, users can define the offset used to display a signal by moving a signal around within the graphical display to compare one signal with another.

Action Module

The new Action module allows you to change the signal order, even after it has been defined.

Module Benchmarking

The module runtimes show the processing times of the individual modules implemented in the worksheet. This allows users to identify throughput bottlenecks and optimize performance.

Action Controlled Relay Module

You can now switch each data channel separately in the action controlled relay. You can still switch all data channels simultaneously.

E-Mail Module

E-mails are sent within an independent thread that Windows manages as a self-contained process, independent of DASYLab. This way sending e-mail does not interfere with DASYLab. You can specify a timeout of 1 to 100 seconds, and document the send status in a global variable.

FFT Module

DASYLab can now calculate an FFT for data blocks using numbers other than powers of two.

Correlation, Electro Technical Characteristics, and Transfer Modules

Calculate the correlation for data blocks using numbers other than powers of two. Select FFT without the power of two.

Formula Interpreter Module

The exp( ) function recognizes floating point values that are greater than 264.

Import and Export Variables and Strings Automatically

At the start of a measurement you can import global variables and global strings, including the properties from a VAR file. When the measurement stops, you can export the global variables and strings back into a VAR file. You can transfer global variables and strings from one worksheet to the next. DASYLab saves these settings together with the worksheet. You can now open the Variables/Strings Overview in the Options menu without errors, even if a variable uses a system variable, or if a string uses a system string.

Control Sequencer

The Control Sequencer now supports HTML file export.

Help Files

Many of the Help sections have been completely revised.

System Requirements

For the correct DASYLab performance the following minimum requirements must be met:

- Pentium III or equivalent – (Pentium 4 or equivalent recommended)
- 512 MB RAM (1 GB RAM recommended)
- Screen resolution of 1024 x 768 pixels
- Windows 2000/XP/Vista
- 500 MB of free disk space

Ordering Information

Description	Part No.
Lite version, includes all drivers; comes without analysis, limited module count, and one Layout Window	DASYLab LITE
Basic version, includes all drivers; comes with all standard modules (except Signal Analysis and Actions), and one Layout Window	DASYLab BASIC
Full version, includes all drivers; comes with all standard modules, 200 Layout Windows, and Control Sequencer	DASYLab FULL
Pro version, includes all drivers; includes Full version plus all add-on modules (without third-party modules)	DASYLab PRO
Run-time license for DASYLab	DASYLab RUNTIME

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