

Drag, drop, and connect function modules on the DASYLab Worksheet to interactively develop PC-based applications with custom graphical user interfaces (GUIs) that acquire, display, and analyze data.

## Features

- Easy-to-use icon-based programming environment
- Short user-learning curve
- Real-time data acquisition, analysis, control, and display modules
- Layout windows for creating custom user interfaces and defining professional reports
- Reusable code blocks created with the Black Box module

## Supported Operating Systems

- Windows<sup>®</sup> 10/8.1/7 32/64-bit

## State Machine Module

The State Machine module implements sequences of operations in a much simpler way than previous DASYLab versions. Users define a sequence of steps with conditions for going from one step to the next, and perform operations on outputs or variables based on these conditions.

With internal counters and adjustable timeouts for steps, users can set up sophisticated sequences more efficiently than combining several Action, Trigger, Relay, and Arithmetic modules to perform the same operations. Easily reorder steps, or insert, delete, or append steps at any position in the State Machine.

## Layouts and Reports

Use layout windows to create clear and informative data presentations. Represent data in scope displays, numerical listings, chart recorders, or graphs by placing objects in the layout and connecting them to the worksheet modules. Add text or graphical elements to enhance the clarity and usability of an application.

Integrated layout windows are available to create custom GUIs with screens that contain information pertinent to a specific test. Draw and place switches, charts, digital and analog indicators, text, and custom bitmap images.

A DASYLab Full or Pro application can contain 200 animated screens, and each screen can be dynamically activated based on prescribed conditions within a test or process.

## Overview

Use DASYLab to interactively develop PC-based data acquisition applications by simply attaching functional icons. DASYLab offers real-time analysis and control, and the ability to create custom GUIs. Unlike other graphical programming environments which can require weeks of training to master, DASYLab has a very short learning curve. Many applications can be configured in a few minutes, rather than days or weeks.

## Easy-to-Use Worksheet Elements

Create an application using the Worksheet by selecting and connecting function modules with wires that represent the data flow.

Connecting the modules requires very little effort – simply click and drag to wire them together, or drag the output of one module to the input of another module.

Each module includes a Properties dialog box to easily configure the number of channels and other options of the function module.

## Real-Time Data Displays

DASYLab provides a comprehensive selection of real-time display formats for easy development of custom displays that include some of the following features:

- limit and trend indicators
- zooming and scrolling of waveforms
- display overlapping traces
- waterfall plots

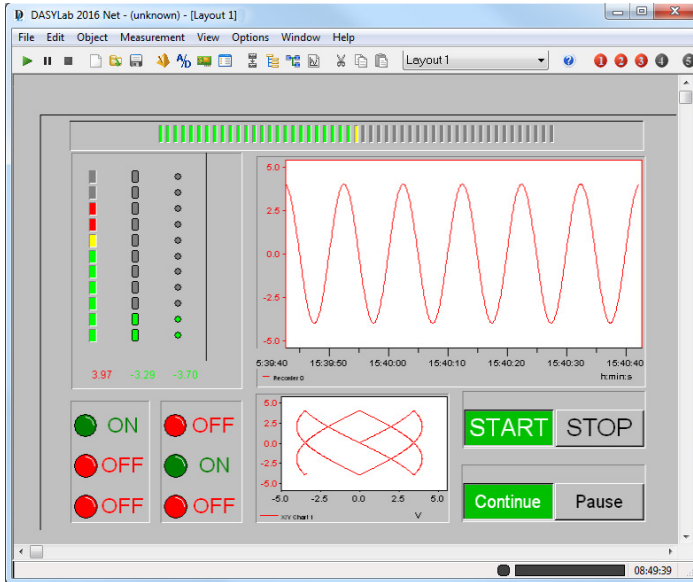
## Powerful, Real-Time Data Analysis and Control

Real-time data analysis and control functions are available, including modules to perform the following operations:

- FFTs
- Digital filtering
- Compute electrical characteristics
- Measure harmonic distortion
- Logical operations

## Control Sequencer

Use the Control Sequencer tool to supervise the execution of multiple worksheets based on user-defined conditions and events. Users can define multiple actions for each worksheet to control the flow of the application.



In the layout window, combine display windows with text and graphics to design visualization screens. Users can create multiple customized layouts for visualization and documentation.

## Angular Quadrature Encoder Support

DASYLab supports encoder mode on supported hardware to calculate how fast an angular quadrature encoder is rotating, the distance it has traveled, and its relative position. Phase A, Phase B, and Z Index are supported for each connected encoder. X1, X2, and X4 count modes are provided to count the encoder inputs. Debounce circuitry eliminates switch-induced transients that may occur with encoders. Refer to the device hardware manual for specific information about quadrature encoder support.

## Double-Precision Data

With DASYLab 2016 and later, the internal data format for data connections between modules changed from 32-bit float to 64-bit double. This structure enhancement supports high-resolution measurements and significantly increases accuracy.

## Large Block Sizes

Block sizes up to 1 MS are supported. Using large block sizes increases the resolution and accuracy of block-related operations, such as FFT.

## TDM/TDMS File Format

Users can read/write National Instruments (NI) technical data management (TDM) files and TDM streaming (TDMS) files.

TDMS files combine the benefits of several data storage formats – ASCII, binary, XML, and database – into one file format.

## Enhanced DASYLab DDF File Format

DASYLab 2016 and later can read and store double-precision data. The legacy single-precision format is still supported. DASYLab saves all data channels that contain measurement data, TTL signals, histogram data, and calculation and scaling results in a binary DASYLab data format (.ddf) file.

The enhanced DDF is more compact than the TDMS format.

## Python Support

The Script module supports Python 2.7.10 and many Python libraries in the public domain.

## Virtual Time Bases

Users can refer data sources such as a Switch, Slider, or Generator module to a virtual time base, and then change the synchronization to the real time base for all modules at once.

## Extensive Hardware Support

DASYLab supports hardware drivers from over 20 vendors, including:

- Measurement Computing Corporation (MCC)
- Data Translation<sup>™</sup>
- IOtech<sup>®</sup>
- National Instruments<sup>™</sup> (NI DAQmx, NI-XNET, and NI-CAN)
- Omega Engineering<sup>®</sup> (OMB/OM, Newport/Omega OMB Enhanced)

## Help and Example Programs

The DASYLab Help provides information about the installed standard drivers and example programs.

Example worksheets demonstrate the working method of the modules in the data flow. Use these worksheets as templates when creating your own worksheets.

The *DASYLab: Data Acquisition, Controlling, and Monitoring* document installed with the software provides step-by-step instructions about performing various DASYLab tasks.

Module Group	Lite	Basic	Full	Pro
<b>Driver Inputs and Outputs</b>				
DDE Input/Output	✓	✓	✓	✓
RS232/Serial				
Input	✓	✓	✓	✓
Output	✗	✓	✓	✓
ICom TCP/IP				
Input	✓	✓	✓	✓
Output	✗	✓	✓	✓
IEEE488 (GPIB) Input/Output	✗	✓	✓	✓
ModBus Inputs and Outputs	✓	✓	✓	✓
OPC Input/Output	✓	✓	✓	✓
<b>IVI Instruments</b>				
Counter	✓	✓	✓	✓
DC Power	✓	✓	✓	✓
DMM	✓	✓	✓	✓
Scope	✓	✓	✓	✓
Switch	✓	✓	✓	✓
<b>Standard Drivers (Analog, Digital, Counter I/O)</b>				
Measurement Computing	✓	✓	✓	✓
Data Translation	✓	✓	✓	✓
IOtech	✓	✓	✓	✓
Omega Engineering	✓	✓	✓	✓
Newport Engineering	✓	✓	✓	✓
National Instruments XNET/ CAN/LIN	✓	✓	✓	✓
IXXAT CAN	✓	✓	✓	✓
Vector CAN	✓	✓	✓	✓
Microstar Laboratories DAP DLL I/O (premium driver)	✗	✓	✓	✓
<b>Trigger</b>				
Pre-/Post-Trigger	✓	✓	✓	✓
Start/Stop Trigger	✗	✓	✓	✓
Combi Trigger	✗	✓	✓	✓
Sample Trigger	✗	✓	✓	✓
Trigger on Demand	✗	✓	✓	✓
Relay	✓	✓	✓	✓
<b>Mathematics</b>				
Formula Interpreter	✗	✓	✓	✓
Arithmetic	✓	✓	✓	✓
Comparator	✓	✓	✓	✓
Trigonometry	✗	✓	✓	✓
Scaling	✓	✓	✓	✓
Differentiation/Integration	✗	✓	✓	✓
Logical Operations	✗	✓	✓	✓
Bit Mask	✗	✓	✓	✓
Flip Flop	✗	✓	✓	✓
Gray Code	✗	✓	✓	✓
Slope Limitation	✗	✓	✓	✓
Create Reference Curve	✗	✓	✓	✓

Module Group	Lite	Basic	Full	Pro
<b>Statistics</b>				
Statistical Values	✗	✓	✓	✓
Select Values	✗	✓	✓	✓
Position in Signal	✗	✓	✓	✓
Histogram Classification	✗	✓	✓	✓
Rainflow Classification	✗	✗	✗	✓
Two Channel Classification	✗	✗	✗	✓
Regression	✗	✓	✓	✓
Counter	✗	✓	✓	✓
Pulse Analysis	✗	✓	✓	✓
Minimum/Maximum	✗	✓	✓	✓
Sort Channels	✗	✓	✓	✓
Check Reference Curve	✗	✓	✓	✓
<b>Signal Analysis</b>				
Digital Filter	✗	✓	✓	✓
Correlation	✗	✓	✓	✓
Data Window	✗	✓	✓	✓
FFT	✗	✓	✓	✓
Polar/Cartesian	✗	✓	✓	✓
FFT Filter	✗	✗	✗	✓
FFT Maximum	✗	✗	✗	✓
nHarmonic	✗	✗	✗	✓
Electro Technical Characteristics	✗	✗	✓	✓
Harmonic Distortion	✗	✗	✓	✓
Period Check	✗	✗	✓	✓
Third/Octave Analysis	✗	✗	✗	✓
Resample	✗	✗	✗	✓
<b>Control</b>				
Sequence Generator	✗	✗	✗	✓
Generator	✓	✓	✓	✓
Switch	✗	✓	✓	✓
Slider	✗	✓	✓	✓
Coded Switch	✗	✓	✓	✓
PID Control	✗	✓	✓	✓
Two-Point Control	✗	✓	✓	✓
Time Delay	✗	✓	✓	✓
TTL Pulse Generator	✗	✓	✓	✓
Latch	✗	✓	✓	✓
Signal Router	✗	✓	✓	✓
Stop	✗	✓	✓	✓
Block Time Info	✓	✓	✓	✓
Read/Write Global Variable	✓	✓	✓	✓
State Machine	✗	✗	✓	✓
<b>Display</b>				
Y/t Chart	✓	✓	✓	✓
X/Y Chart	✗	✓	✓	✓
Polar Plot	✗	✓	✓	✓
Chart Recorder	✓	✓	✓	✓
Diagram	✓	✓	✓	✓
Analog Meter	✓	✓	✓	✓
Digital Meter	✓	✓	✓	✓
Bar Graph	✓	✓	✓	✓
Status Display	✓	✓	✓	✓
List	✓	✓	✓	✓

Module Group	Lite	Basic	Full	Pro
<b>Files</b>				
Read Data	✓	✓	✓	✓
Write Data	✓	✓	✓	✓
Backup Data	✗	✗	✓	✓
ODBC Input/Out	✗	✗	✓	✓
<b>Data Reduction</b>				
Average	✓	✓	✓	✓
Block Average/Peak Hold	✓	✓	✓	✓
Separate	✗	✓	✓	✓
Multiplexer/Demultiplexer	✗	✓	✓	✓
Shift Register	✓	✓	✓	✓
Cut Out	✗	✓	✓	✓
Signal Switch	✗	✓	✓	✓
Circular Buffer	✗	✗	✓	✓
<b>Network</b>				
Net Input/Output	✗	✗	✗	✓
Message Input/Output	✗	✗	✗	✓
DataSocket Import	✓	✓	✓	✓
DataSocket Export	✗	✓	✓	✓
<b>Special</b>				
Empty Black Box	✗	✓	✓	✓
Black Box Export/Import	✗	✓	✓	✓
Action	✗	✗	✓	✓
Message	✗	✗	✓	✓
E-Mail	✗	✗	✓	✓
Time Base	✗	✓	✓	✓
Signal Adaptation	✗	✓	✓	✓
Script Creation/Editing/Packaging	✗	✗	✓	✓
Script-based Module Packages	✓	✓	✓	✓
<b>Add-On</b>				
Transfer Function	✗	✗	✗	✓
Convolution	✗	✗	✗	✓
Block Weighting	✗	✗	✗	✓
Universal Filter	✗	✗	✗	✓
Save Universal File	✗	✗	✗	✓
<b>Developer Features</b>				
Control Sequencer	✗	✗	✓	✓
Number of Layouts	1	1	200	200
<b>Legend</b>		<b>Notes</b>		
✓ - Included		• DASYLab Lite is limited to a maximum of 64 data connection wires.		
✗ - Not Included		• Driver features vary by manufacturer and device.		
		• Software features may vary by country.		

## DASYLab Versions

Choose from the four different DASYLab versions to get the exact features that you need. Includes most drivers; additional drivers are available from the device vendor.

### DASYLab Lite

- Ideal for data logging and monitoring
- Supports 32 analog inputs and up to 64 worksheet wires
- Supports one layout window for advanced user display management or reporting

### DASYLab Basic

- Supports unlimited worksheet wires
- Supports up to 256 analog inputs and one layout window
- Includes PID, Statistics, Formula, FFT, Filter and other analysis features
- Includes control functions, Two-point Control, Switch, Slider, Coded Switch, as well as flexible triggers and comparison modules

### DASYLab Full

- Includes all standard modules (standard Signal Analysis modules, all Action and Action-enabled modules)
- Supports up to 200 layout windows
- Includes the powerful Control Sequencer module for controlling a series of test worksheets

### DASYLab Pro

- Includes the full set of modules – Control Sequencer, all signal analysis tools, the Sequence Generator, and all available add-on modules (without third-party modules)
- Also offers the suite of network modules

## System Requirements

DASYLab supports the following operating systems:\*

- Windows 10
- Windows 8.1
- Windows 7

\* Not every DASYLab hardware driver supports all of these operating systems. DASYLab runs as a 32-bit application on 64-bit operating systems.

## Order Information

Part No.	Description
DASYLab LITE	Includes most drivers; comes without analysis, limited module count, and one layout window.
DASYLab BASIC	Includes all DASYLab Lite features plus standard analysis modules and unlimited module count.
DASYLab FULL	Includes all DASYLab Basic features plus standard modules, 200 layout windows, unlimited module count, and control sequencer.
DASYLab PRO	Includes all DASYLab Full features plus advanced signal analysis and control modules.
DASYLab RUNTIME	Users can run an existing worksheet application on an additional computer (with compatible hardware configurations).
DASYLab Training	MCC offers both scheduled training workshops at our Norton, Massachusetts, headquarters facility, and customized, on-site training at your plant.

For more information:

- Phone: 1-800-234-4232
- Email: [training@mccdaq.com](mailto:training@mccdaq.com)
- Website: [www.mccdaq.com/events.aspx](http://www.mccdaq.com/events.aspx)

## Free 28-Day Trial Available

Download a FREE 28-day trial version of DASYLab before purchasing from [www.mccdaq.com/DASYLab](http://www.mccdaq.com/DASYLab)