



# DaqPRO™ Solution

## All-in-one system for universal data acquisition and analysis

The DaqPRO is a portable battery operated data acquisition and logging system offering 16 bits resolution 8 channel data logging. DaqPRO features a powerful graphical display and analysis functionality for measuring voltage, current frequency and temperature. It is designed to provide a professional, compact, stand-alone low cost data logging system for a wide variety of applications.

- Stand-alone operation sampling and display
- 7.2V rechargeable battery
- 8 input channels
- 16 bit sampling resolution
- Sampling – up to 4,000 samples per second on one input
- Large data storage of 1MB RAM, up to 100 sampling sessions
- Large graphical display showing collected data as measured values, graphs or tables
- Setup via the DAQPRO keypad
- Fast communication channels: USB
- Ability to scale readings to meaningful engineering units (e.g. bar, ppm)
- Built-in clock and calendar
- On screen text editing, adds more information to collected data

## DaqPRO Functionality



The DaqPRO with its high resolution and fast analog to Digital converter (ADC) will meet the data logging requirements in most industrial applications. The ability to show measured values and to analyze them on its graphical display eliminates the need to download collected data to a computer for further analysis. The DaqPRO is the perfect choice for remote logging and ideal for use as a mobile measuring device for the industrial environment.

Fourier has responded to a clear market need by providing a data acquisition solution that sits between the single or dual data logger and the large, cumbersome and expensive 32 channel stationary data logger. The DaqPRO is a universal data acquisition unit which enables each input to be individually defined to measure a different parameter. This unique flexibility enables data readings across the full range of parameters in any corporate environment, no matter how large, complex or busy. DaqPRO's versatility has made it the number one choice across a range of environments including factories, laboratories and hospitals.

The DaqPRO pack comes with:

- DaqPRO data logger
- Power adapter
- DaqLab software
- USB communication cable
- DaqPRO manual



## DaqPRO Features



## DaqPRO Applications

- Quality assurance
- Plant and machine condition monitoring
- Field monitoring stations
- Automotive testing
- HVAC
- Plant trouble shooting
- Clean rooms
- Museum and Galleries
- Animal living conditions
- Electricity transients fail detection
- Monitoring of environmental conditions
- Food production
- Food storage
- Food transportation
- Drugs storage conditions
- Electronic equipment transport and storage
- Water quality testing
- Research

And more...



### DaqPRO Application Example

An electronic boards factory in the US was facing a challenge in their re-flow ovens during overnight production. At some point the temperature was dropping below 200°C leading to a halt in the soldering of the boards; however the technicians couldn't locate where in the different temperature zones of the 3m oven the drop occurred. The DaqPRO enabled easy identification of malfunction location. Using four temperature thermocouples and over one night recording the varying temperatures, a report could be provided in the morning clearly showing the problem area.



## DaqLab™ Software for DaqPRO

Operating System:  
Windows 95/98/  
2000/ME/XP/NT4.0  
or higher  
16MB RAM  
10MB Disk space  
Screen resolution  
800/600 or higher

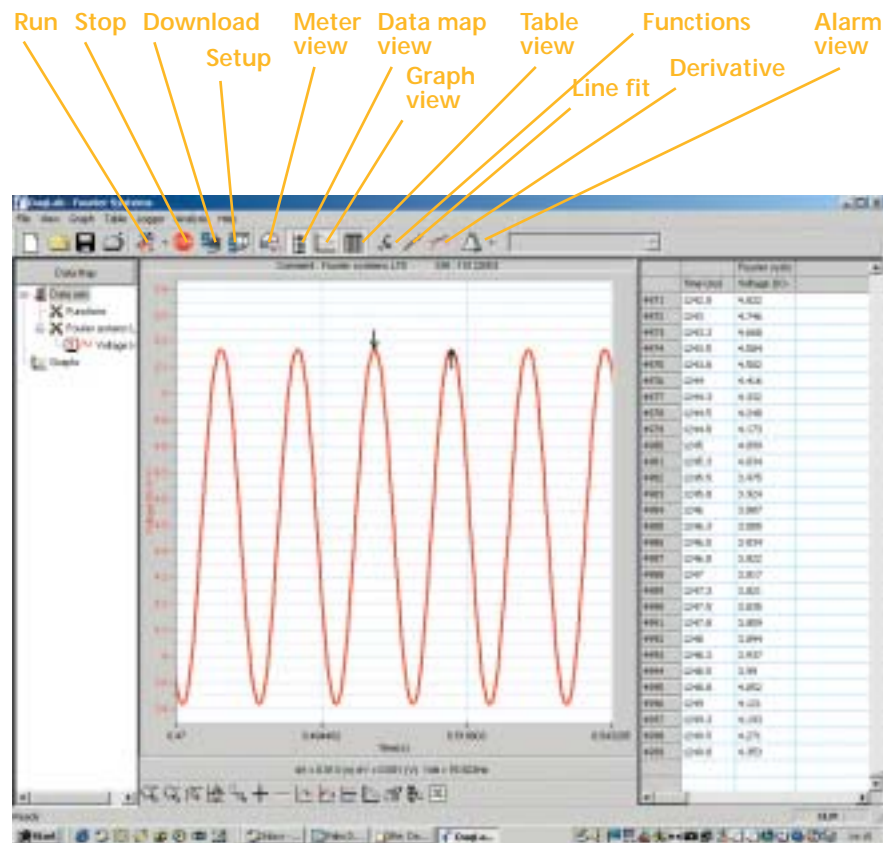


Accompanying the DaqPRO is the DaqLab graphical analysis software. Data results can be displayed both online and offline and can then be analyzed using the more than thirty analysis functions the software provides. DaqLab also enables set up of the DaqPRO logger as well as definition of new sensors and calibration of logger. The software provides historical records for quality assurance and reports can be saved to Excel or Word.



### DaqLab for DaqPRO features

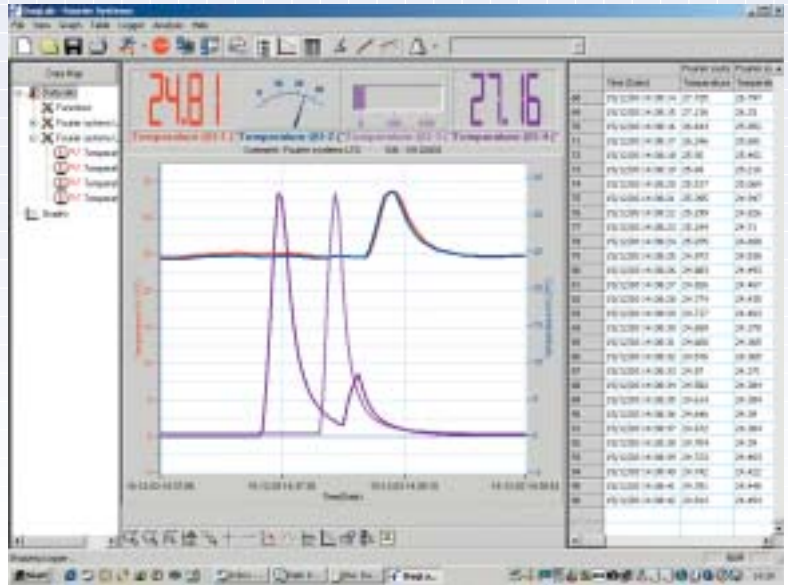
- Graphical analysis Windows based software
- Fast data download from the DaqPRO
- Numeric or graphical data display
- On-line retrieval and display of real-time data
- Setup wizard for DaqPRO
- Definition of up to 20 new sensors
- Readings of defined sensor's units from DaqPRO
- Full calibration of DaqPRO via software
- Definition of alarm levels on graphs
- Export and import to/from spreadsheets
- More than 30 analytical functions for professional analysis



The DaqPRO comes with the DaqLab graphical analysis software for PC Windows platforms.

### Main Screen

Data can now be controlled and displayed as measurements deriving from the DaqPRO data logger on a PC.



### Setup Screen

From the DaqLab one can setup the DaqPRO for the next logging session.

The top screenshot shows the 'Setup wizard: Step 1 of 3 - Sensors' dialog box. It lists seven inputs with their respective sensor types and alarm settings. The bottom screenshot shows a similar dialog box with nine inputs, including current, pressure, and voltage sensors.

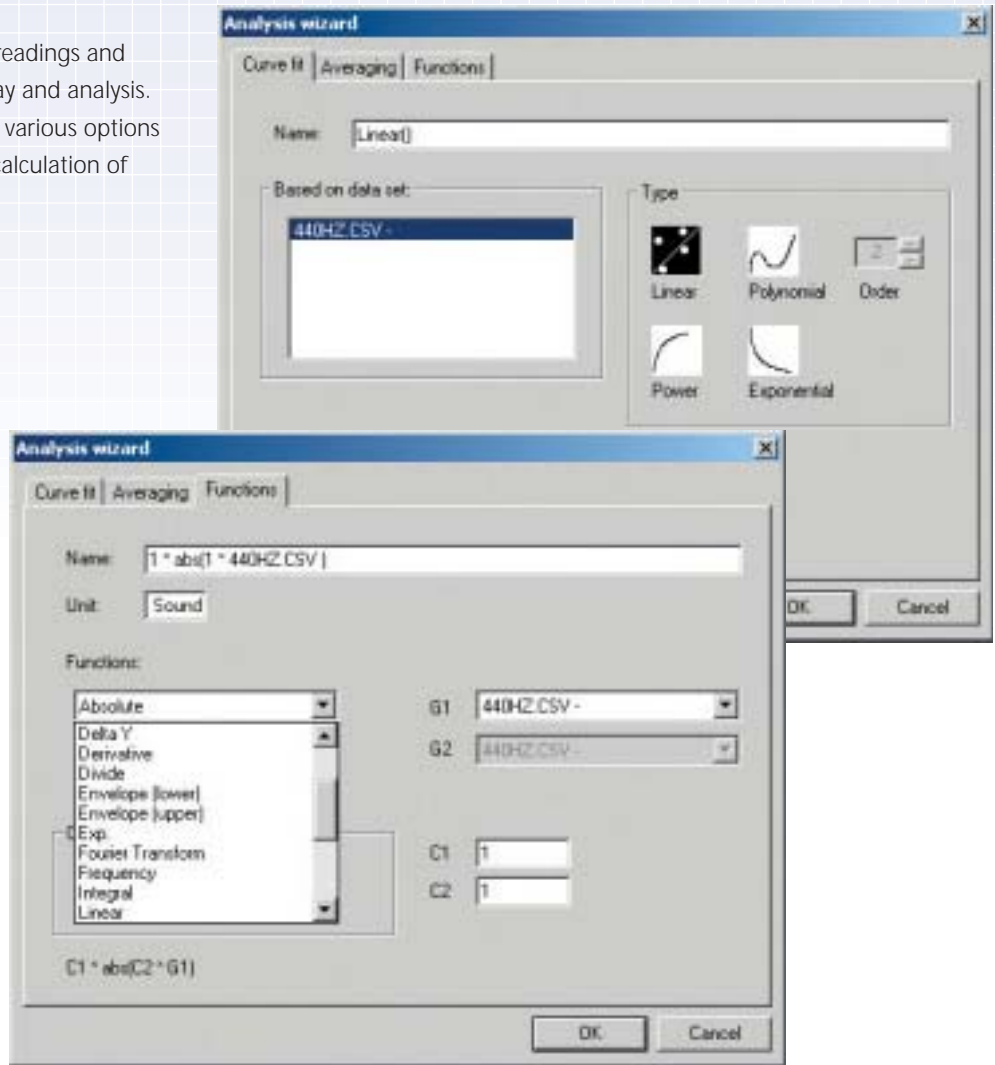
Input	Sensor Type	Alarm	Low	High	Output
Input 1	Temperature NTC 10K	<input checked="" type="checkbox"/>	0	30	<input type="checkbox"/>
Input 2	Temperature NTC 10K	<input checked="" type="checkbox"/>	0	30	<input type="checkbox"/>
Input 3	Temperature TDK	<input checked="" type="checkbox"/>	200	800	<input checked="" type="checkbox"/>
Input 4	Temperature TCI	<input checked="" type="checkbox"/>	100	500	<input type="checkbox"/>
Input 5	Empty	<input type="checkbox"/>			<input type="checkbox"/>
Input 6	Empty	<input type="checkbox"/>			<input type="checkbox"/>
Input 7	Empty	<input type="checkbox"/>			<input type="checkbox"/>

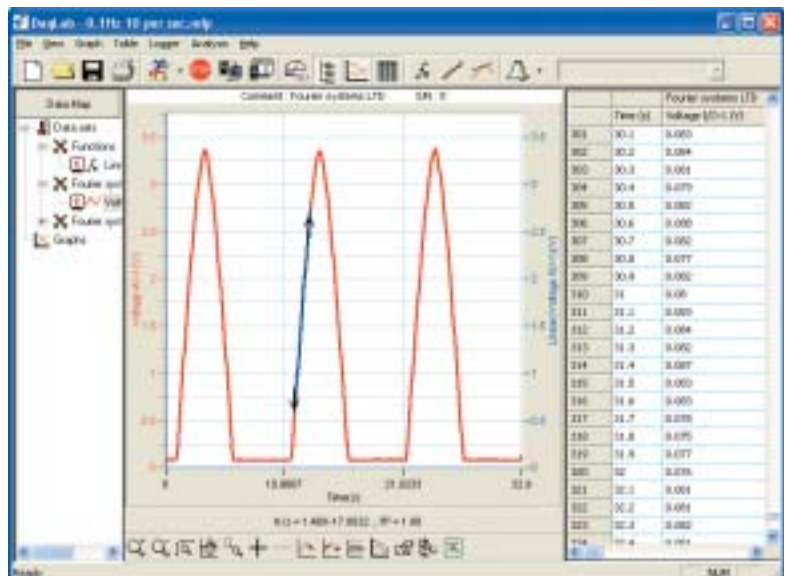
Input	Sensor Type	Alarm	Low	High	Output
Input 1	Temperature NTC 10K	<input checked="" type="checkbox"/>	0	30	<input type="checkbox"/>
Input 2	Temperature PT100 2-Wire	<input checked="" type="checkbox"/>	200	400	<input type="checkbox"/>
Input 3	Temperature TDK	<input checked="" type="checkbox"/>	200	800	<input checked="" type="checkbox"/>
Input 4	Temperature TCI	<input checked="" type="checkbox"/>	100	500	<input type="checkbox"/>
Input 5	Current 0 - 20mA	<input type="checkbox"/>			<input type="checkbox"/>
Input 6	pressure	<input type="checkbox"/>		100	<input type="checkbox"/>
Input 7	Voltage 0 - 10V	<input type="checkbox"/>		10	<input type="checkbox"/>
Input 8	Temperature TCT	<input type="checkbox"/>	200	400	<input type="checkbox"/>

**Data Analysis**

DaqLab provides real-time data readings and extensive features for data display and analysis. Analysis wizard enables the user various options including curve fit and average calculation of readings.



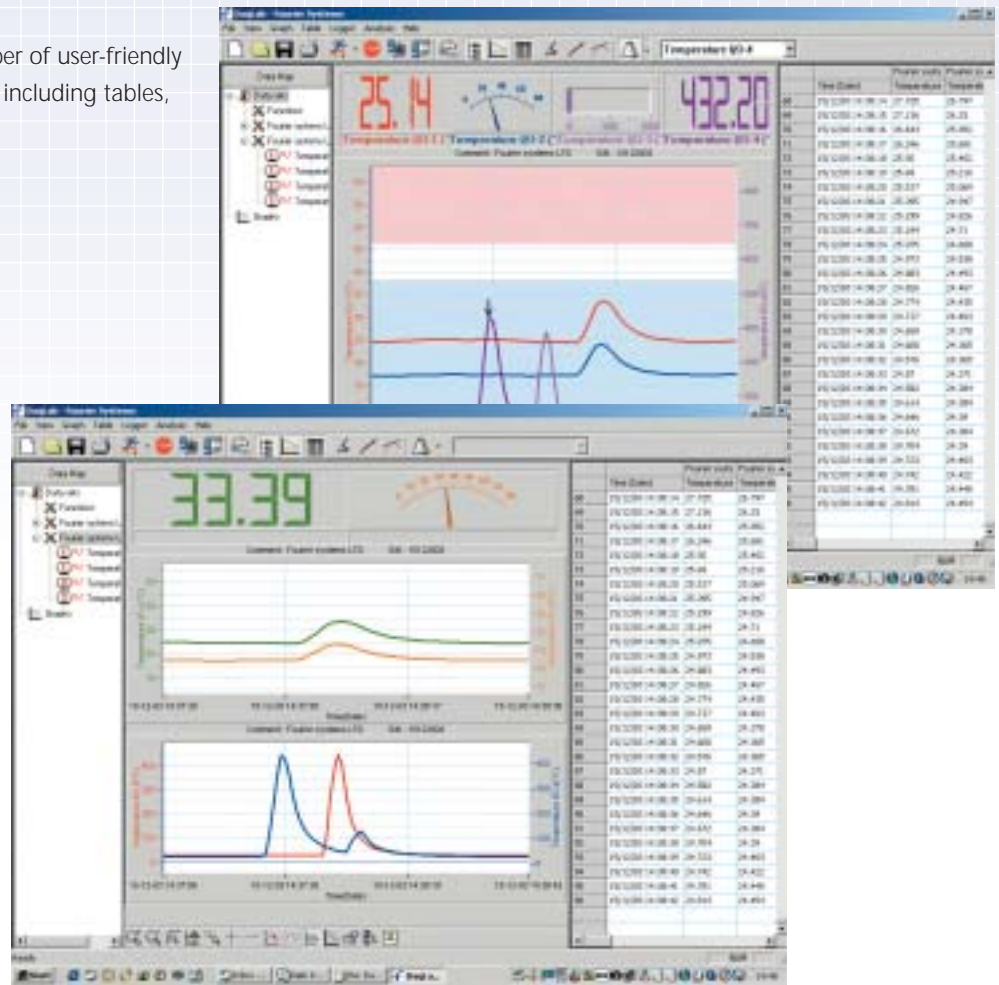
Simply by clicking the linear fit icon on the tool bar, DaqLab fits a linear regression to data. This enables users to establish patterns across groups of data points.





## Meter Views

Data can be displayed in a number of user-friendly and easy to understand formats including tables, graphs and meter.



Please note DaqPRO enables the user to set two alarm levels which are indicated on the software when thresholds are crossed.

## DaqPRO Sensors

- 8 differential inputs
- Selectable type for each input: 0 - 24 mA, 0 - 50 mV, 0 - 10 V, NTC, PT-100, Thermocouple J, K, T, pulse and frequency (Input 1 only)



For further sensor information see *DaqPRO Specifications* on Page 42

For further information about *DaqPRO solution specifications* please see Page 42

DaqLab software when used in conjunction with DatPass is FDA Title 21 CFR Part 11 compliant. For further details please see Page 43



## DaqPRO

### Inputs (DaqPRO 5300)

- 8 differential inputs
- Selectable type for each input: 0-24mA, 0-50mV, 0-10V, NTC, PT-100, Thermocouple, Pulse and frequency (Input 1 only)

#### 0-24mA

Range: 0-24mA  
Resolution: 0.47 $\mu$ A  
Accuracy:  $\pm$ 0.5% FS  
Loop impedance: 195 $\Omega$

#### 0-50mV

Range: 0-50mV  
Resolution: 3 $\mu$ V  
Accuracy:  $\pm$ 0.5% FS

#### 0-10V

Range: 0-10V  
Resolution: 200 $\mu$ V  
Accuracy:  $\pm$ 0.5% FS  
Input impedance: 125K $\Omega$

#### Temperature NTC

NTC: 10/100K $\Omega$  resistor  
Range: -25 – 150 $^{\circ}$ C  
Resolution: 0.05 $^{\circ}$ C  
Accuracy:  $\pm$ 0.5% FS

#### Temperature PT-100

Range: -200 – 400 $^{\circ}$ C  
Resolution: 0.1 $^{\circ}$ C (7m $\Omega$ )  
Accuracy:  $\pm$ 0.5% FS  
The DaqPRO offers up to 8 PT-100 2 wire channels or 4 PT-100 3 wire Channels

#### Temperature Thermocouple J

Range: -200 – 1200 $^{\circ}$ C  
Resolution: 0.1 $^{\circ}$ C (1 $\mu$ V)  
Accuracy:  $\pm$ 0.5% FS  
Cold junction compensation error:  $\pm$ 0.5 $^{\circ}$ C

#### Temperature thermocouple K

Range: -250 – 1200 $^{\circ}$ C  
Resolution: 0.1 $^{\circ}$ C (1 $\mu$ V)  
Accuracy:  $\pm$ 0.5% FS  
Cold junction compensation error:  $\pm$ 0.5 $^{\circ}$ C

#### Temperature thermocouple T

Range: -200 – 400 $^{\circ}$ C  
Resolution: 0.1 $^{\circ}$ C (1 $\mu$ V)  
Accuracy:  $\pm$ 0.5% FS  
Cold junction compensation error:  $\pm$ 0.5 $^{\circ}$ C

#### Internal temperature

Range: -25 – 70 $^{\circ}$ C  
Resolution: 0.1 $^{\circ}$ C (1 $\mu$ V)  
Accuracy:  $\pm$ 0.5% FS

#### Pulse counter (Input 1 only)

Optocoupler input  
Range: 0-65,000  
Input signal: 0-5V  
Input impedance: 470 $\Omega$   
band width: 0-50hz

#### Frequency meter (input 1 only)

Optocoupler input  
Range: 20-4,000Hz  
Input signal: 0-5V  
Input impedance: 470 $\Omega$

### General A to D specifications

Noise: 30 $\mu$ V rms  
Internal linearity error:  $\pm$ 0.08% of FSR  
Offset error: 0.1%

### Open collector output (Output 8)

Maximum current sink: 50mA (fuse protected)  
Input impedance: 50 $\Omega$

### Communication

USB 1.1 compliant

### Sampling

Capacity: 512KB  
Analog sampling rate: Variable,  
1 sample/hour to  
4,000 samples/sec,  
1 channel  
Analog sampling resolution: 16 bits

### Man Machine Interface

- Full keyboard operation - enables manual programming of the logger
- Graphic LCD 64x128 pixels

### Power Supply

- Internal rechargeable 7.2V NiCa battery
- Built in battery charger
- External 9V to 12V DC input
- Battery life: 40 hours between charges

### Operating Temperature Range

0 to 50 $^{\circ}$ C

### Casing

Plastic ABS box  
Dimensions: 182x100x28 mm  
Weight: 450gr

### Standards Compliance

CE, FCC

### Analysis Software

- Running on Windows 95/98/2000/ME/XP and NT
- Fast data download from the DaqPRO
- Data displayed in numeric or graphical display forms
- Graphical analysis tools such as Zoom and Cursors
- Storage of selected data on disk files
- Hard copy printing of the collected data
- Direct data export to EXCEL
- On-line retrieval and display of data in real-time
- Incorporating data processing functions
- Setting up the DaqPRO
- Calibrating the DaqPRO
- Defining new sensors

### Accessories

- Carrying case
- Solar cell and battery for field data logging
- Weather box complies with the IP-67 standard for protecting the DaqPRO while working in field applications

### Ordering Information

Part No.	Description
DaqPRO-5300	DaqPRO data logger, user manual, carrying case, AC/DC adapter
SFTDAQ001	DaqLab Windows analysis software, communication cable
DT177	Weather box
AC029	12V Solar cell and battery
DT267	12V AC/DC adapter
DT180	USB communication cable

To order: [www.fouriersystems.com](http://www.fouriersystems.com)





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## Custom-designed temperature sensors for industry and research

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- Know-how in flexible manufacturing
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- Education and training in temperature measurement and calibration

### Pentronic supplies

- Temperature sensors, thermocouples, Pt100/1000 RTDs etc.
- Cables-connectors-panels
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- IR-pyrometers
- Handheld thermometers
- Temperature loggers
- Calibration services and equipments
- Training courses in temperature measurement and calibration
- Flowmeters
- Measurement systems for moisture and thickness



0076  
ISO/IEC 17025

Pentronic's laboratory is accredited for temperature calibration in the range of -80°C to 1200°C with uncertainties down to ±0,003°C.

