Committed
to Quality

Fourier Systems
Data Acquisition Solutions for Industry

fourier

fourier

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Fourier Systems Ltd.

At Fourier Systems we're making an impressive impact on the corporate market as an innovative provider of compact portable data logging devices and accessories for advanced data acquisition, communications and analysis. Our products are the ideal cost effective solution for ongoing data logging needs across the full spectrum of industry, including food transportation, storage, air conditioning and ventilation, clean rooms, warehouses and galleries.

Fourier Systems products include the flagship MicroLog device for maintaining quality, the innovative MicroLogPLUS family that enables remote wireless data logging of up to 200 data loggers, the three platform TriLog data acquisition solution working with Palm, and the universal, 8 channels, 16bit DaqPRO. Fourier's robust line of advanced products is designed to automate and simplify daily data logging tasks. Beyond delivering quality products, Fourier is dedicated to providing sophisticated solutions that integrate the most advanced technologies. When it comes to professional data logging, leading companies around the world count on Fourier to provide them with the most up to date, cost effective equipment.

Fourier Systems Distributors

Fourier Systems partners with value added resellers in more than 30 countries across Asia, Europe, North and South America. Our distributors have sales experience and expertise in the data logging systems market and understand the importance of commitment to excellence.

"With other data loggers if there is a problem the customer can only know the source after they have downloaded the data from the logger onto the computer manually. This is too late. With Fourier the data is received in real time. Not only data that demonstrates the right conditions but also more importantly problem data."

Girogio Borellini, Giorgio Bormac, Italy

"The singular difference with Fourier, is that they approached our business needs the same way we approach those of our clients…they got on our team and helped as find solutions."

Bob Belveal, President ShelfLife Distributors, USA

"Avoid losses due to environment conditions, that's perhaps our most important motto. Fourier data logging solutions help us put these words into action: one can monitor what is happening, be it in real-time or not, and with that information take the necessary measures to ensure regulations are met."

Bruno Carvalho, Product Manager at Educare SA, Portugal

"We settled with Fourier because they met our three most important criteria: value for money, flexibility and aesthetics."

Hans Oosterling, Managing Director of CaTeC Bv, Netherlands

"Fourier systems enable us to meet brewery and winery regulatory guidelines within our budget, with ease and efficiency and very little staff maintenance."

Andy Correa, Operations Manager Dienst Distributing Co., USA

"I feel my feedback from the field is listened to and acted upon. They really listen to their customers and develop products according to the market need."

Amir Antebi, SITEST, Australia

Today, companies face more stringent commercial and hazard analysis standards than ever before. Whether centrally monitoring data from a fleet of trucks or numerous workstations in a Lab, they all face rigid restrictions and tightening profit margins. It is these challenges that Fourier's wireless and cost effective solutions cater to.

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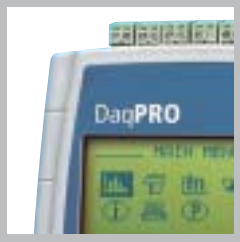

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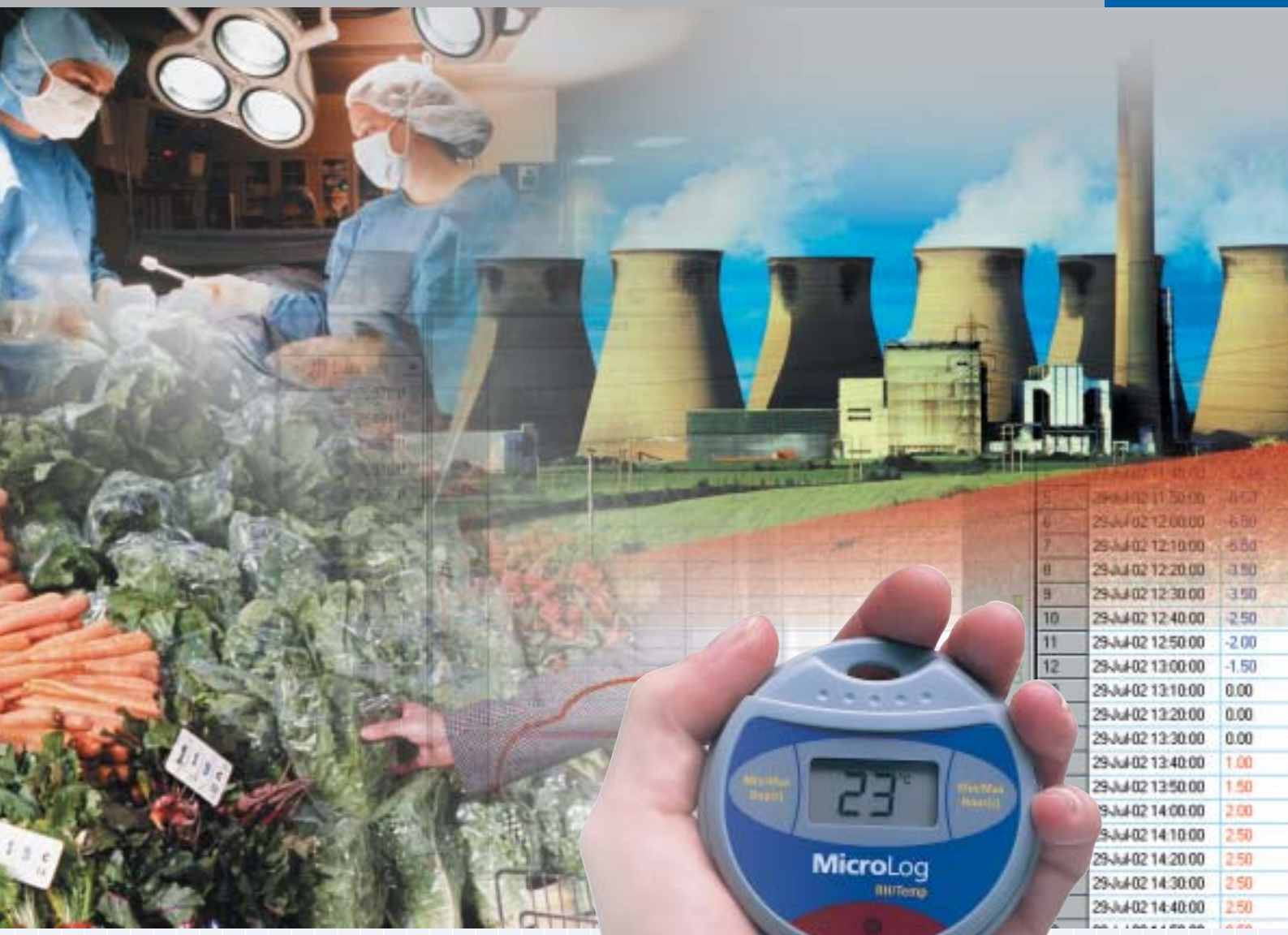


MicroLog™ Solution

A stand-alone compact temperature and humidity data logger

The world's handiest temperature and humidity data logger guarantees perishable and hazardous goods arrive at their destination in perfect condition. A stand-alone compact device for managing all your data in the most efficient and convenient manner. MicroLog's user friendly display and two-key functionality are hard to beat.

- Large digital display for convenient viewing
- External sensors enable additional data collection
- View up to 30 days min/max history on a small keypad
- Water and dust proof (IP65)
- Built-in quality sensors for temperature and humidity
- Infrared communication to a portable printer
- Recording sample rate selected by user
- Records months of data – up to 16,000 samples

MicroLog Functionality

Robust, Flexible and Reliable Data Logging

MicroLog records data for months and months, even in long-term shipping or storage. All data viewing, exporting and printing is done with two keys.

MicroLog continuously displays the measurements it takes, along with the maximum and minimum values for a selected time interval. Users define alarm levels for the specific shipment and the display will start flashing when it is crossed. MicroLog stores minimum and maximum history for up to 24 hours or 30 days of data logging.

A hard copy of the data can be instantly printed on an HP portable printer simply by scanning MicroLog's infrared beam at this portable printer.

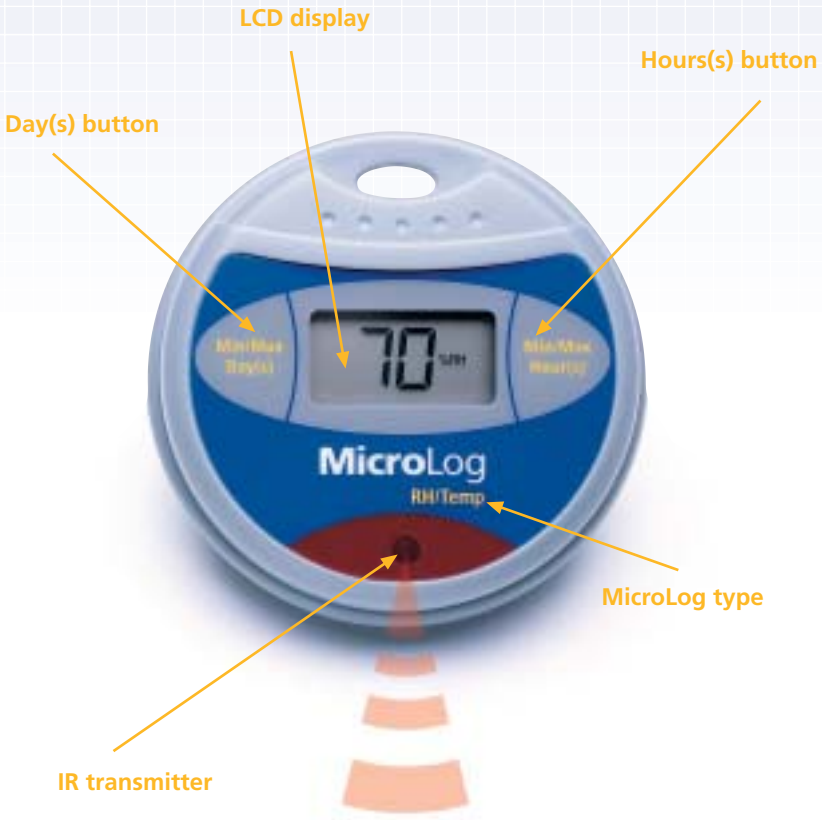
Highly Accurate and Powerful Sensors

Two built-in quality sensors for monitoring temperature and humidity, and an additional external sensor for adding the sensor of your choice, a memory capacity of 16,000 measurements, and a 2-digit display make the MicroLog the most innovative and powerful device in the market.

MicroLog Types

Type	Internal Sensor	External Sensor	Use and Benefit	Cradle Use
EC600	Temperature	One external sensor channel	Can work with any sensor from the Fourier External Sensor Selection	Cradle and stand-alone
EC650	Temperature and relative humidity	One external sensor channel	Can work with any sensor from the Fourier External Sensor Selection	Cradle and stand-alone
EC6004PC	Temperature	One external sensor channel	Can work with any sensor from the Fourier External Sensor Selection The 4 pins MicroLog, enables power via the cradle as an alternative to battery power, using 4th pin	Cradle only
EC6504PC	Temperature and relative humidity	One external sensor channel	Can work with any sensor from the Fourier External Sensor Selection The 4 pins MicroLog, enables power via the cradle as an alternative to battery power, using 4th pin. Can work with any sensor from the Fourier External Sensor Selection	Cradle and stand-alone
EC600RTP	None	One external sensor channel	Enables infrared printing of the last 48 data samples. Alternative to the minimum/maximum readings provided by other MicroLogs	Cradle and stand-alone
EC670	Temperature and humidity	One external sensor channel	Higher resolution of 10 bits. Enables accurate temperature, humidity and external sensor measurements	Cradle and stand-alone

MicroLog Features



MicroLog 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…

MicroLog application Example

For one Australian national meat distributor the application process begins in a huge chiller, the size of a football field, with 7 loading docks on each side. Before the meat is sent to supermarkets across the country it is divided up into different cuts and combinations and designated a specific transportation run. On arrival at the designated destination the cuts are divided once again for local supermarket delivery. The meats' temperature throughout this process has to be constantly monitored. It cannot freeze or exceed a certain temperature. Given the vast distances the product travels this is a high risk that must be managed. The MicroLog is the solution that escorts the system. The temperature can be regularly monitored with historical analysis reports provided for management and quality assurance regulatory boards.

Soon to be released

MicroLogPRO

The new 10bit MicroLog system

Following the success of the 8bit MicroLog system we are releasing a new 10bit MicroLog which, in addition to the full benefits of the current product, has the following innovative new features:

- 10bit higher sampling resolution for more accurate readings
- Larger sampling memory, 64,000 samples – longer data storage
- Better LCD display showing the internal and external sensors in their own units with at least one decimal point
- Faster sampling rate of 1 per second

This new product is fully featured enabling its use in a wide range of applications including pharmaceutical; food production and storage; transportation; museums, clean rooms and HVAC to name a few.

The MicroLogPRO also works with all MicroLog external sensors, making it flexible for use in multi-applications.

The MicroLogPRO solution is accompanied by new releases of the MicroLab and MicroLabPLUS, upwards.

MicroLog External Sensors

MicroLog has internal temperature and humidity sensors and can also work with up to nine external sensors.

Type		Part No.	Benefits	Range
Temperature		DT139	Water-proof. Wider range. Faster response time.	-50 ℃ to 100 ℃
Voltage		DT140	Measures any sensor producing linear analog 0 – 10 V output. Convert to measured units with software calibration option.	0 – 10 V
0-20 mAmp		DT139	Samples any device or transmitter producing linear current. Convert to measured units with software calibration option.	0-20 mAmp
Contact adapter		DT141	Monitors reed relay contacts and switch status (open/closed). Identifies correlation between phenomena like temp. change and refrigeration door status.	Open/Close
0-14pH adapter and electrode		DT168	Measures pH. Software presents data in pH units.	0 – 14 pH
Temperature PT100		DT252 DT253	Resolution and accuracy of up to 0.1 ℃. Full spectrum of temperature ranges. Use with any two wires of PT100 sensor.	-10 ℃ to 10 ℃ / -100 ℃ to 120 ℃
Temperature with 8m cable		DT093	Shares functionality with DT132. Allows extended monitoring.	-50 ℃ to 100 ℃
Conductivity adapter and electrode		DT279	Perfect solution for agricultural applications. With pH and temp. sensor, this provides the complete solution for irrigation and fertilization system monitoring.	0 – 20 mS
Light sensor		DT163	Intensities in any indoor or outdoor application environment. Useful for museums, greenhouse etc.	0 – 5,000 Lux

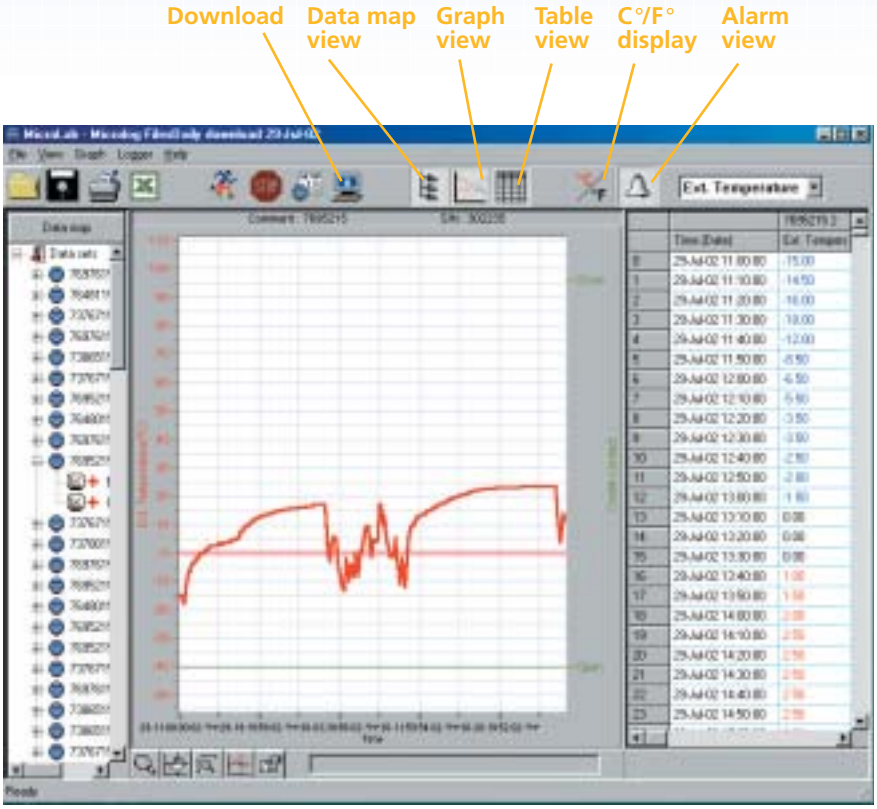
MicroLog Software MicroLab™

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

MicroLab Features

- Downloads from MicroLog
- Automatic daily download
- Graph and table displays
- Alarm levels per MicroLog displays
- Ability to set-up MicroLog
- Sensor definition
- Comments for each data logger
- Automatic data saving
- Daily status reports in various formats

MicroLab software can set-up the MicroLog itself and/or just download the data that has been collected and stored in the data logger. MicroLab enables further viewing and data analysis by presenting data in graphs and tables and clearly identifying the data according to the ID number of the logger it came from and the threshold level relevant to that logger. MicroLab automatically saves the data and produces daily status reports of your environment. Data records can be exported to your preferred spreadsheet using MicroLog 2 Excel.



Easy To Use Graphic Interface

Graphic icons provide all the necessary functionality required for the smooth running of data logging operations. These include typical Open, Save, and Save As functions that are standard for any Windows® compatible program. More advanced functions enable downloading data from MicroLog devices, setting alarm thresholds, attaching 32-character comments to specific devices and defining the display option that suits your specific needs for any given logging task.

Set-up

MicroLab is used in the set-up process for configuring the MicroLog parameters, such as sampling rate, type of sensors to be measured, setting alarm levels and logging modes e.g. continuous or for one logging session.

Format set-up

MicroLab's format set-up allows the date and decimal place to be altered for data readings.

Daily download

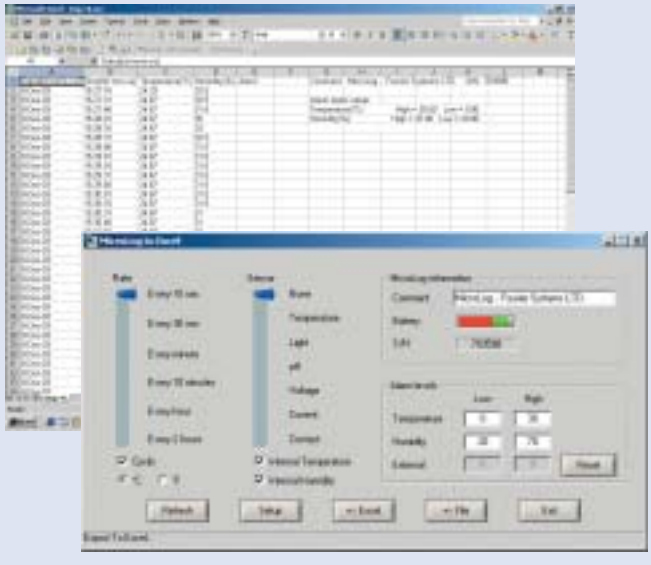
The wireless MicroLogPLUS system monitors the environment from up to 200 locations. The data from each unit is transmitted according to pre-defined time settings to MicroLab. During each transmission the MicroLab receives a full day's data from every MicroLog and presents it in clear graphical displays.

Define sensors and screen: Display properties next to each other

External sensors, which can be monitored by the MicroLab include not just various ranges of temperature, but also voltage, current and contact. MicroLog and MicroLab allow the use of any kind of transducer and to convert the reading to an actual parameter relevent for that sensor. Here the voltage reading has been converted to a pressure parameter.

MicroLog 2 Excel

MicroLog 2 Excel takes MicroLog data and seamlessly transfers it to an Excel spreadsheet based on the sampling rate and external sensors that were predefined by the user. A single click on the 'downloading' icon transfers the entire stored data memory of a MicroLog device to Excel. A similar version for the MAC Appleworks® spreadsheet is also available.



For further information about MicroLog solution specifications please see Page 39

MicroLab software is FDA Title 21 CFR Part 11 compliant.
For further details please see Page 43

MicroLogPLUS™ Solution

A system for wireless monitoring of up to 200 data loggers

The MicroLogPLUS is a unique system based on the MicroLog, a mini temperature and humidity data logger. The MicroLogPLUS knows your environment, controlling your data and saving your money. MicroLogPLUS allows users to communicate with up to 200 MicroLogs and receive all real-time measurements on one computer. The MicroLogPLUS incorporates wireless communication between the loggers and the PC, keeping your goods in great condition and saving on manpower.

- License free wireless communication
- Handles data from up to 200 MicroLogs at up to 300m
- Small whip antennae for indoor application
- High gain external antennae for mobile applications
- Programmable audio and visual alarms for when data thresholds are crossed
- Two open collector output for controlling other devices set at low and high alarm levels
- Screw terminal board enabling the user to conveniently power the cradle, connect external sensors and use the open collector output
- USB and Serial communication ports for the PC, used for one-time cradle set-up

MicroLogPLUS Functionality

Just think how much time you are wasting daily having to download each of the data loggers scattered in the warehouse of the production plant. Using the MicroLogPLUS all data will arrive directly to your computer and in real-time!

MicrLogPLUS integrates:

The MicroLog Data Logger

Containing built-in sensors for temperature and humidity and an analog input port compatible with almost any kind of external sensor.

The MicroLog Cradle

A mount for the logger is also a wireless (RF) transmitter that transmits readings at user-set intervals to a remote PC monitoring station for observation and data storage. It also provides an alarm functionality which can activate an internal audio alarm as well as control and open collector digital outputs. These allow the user to connect to any external devices when alarm thresholds are crossed.

The MicroLog Receiver

A small RF receiver that connects to the monitoring station computer. The MicroLogPLUS management control software lets you control and monitor up to 200 MicroLog Logger devices from a remotely located computer, by transmitting the data recordings to the receiver.

Each cradle is tagged with an ID number. Cradles transmit data in different time slots according to their ID in order to prevent data collision between two or more cradles. The cradle memory can be either automatically or manually downloaded every day.

Screw Terminal Board

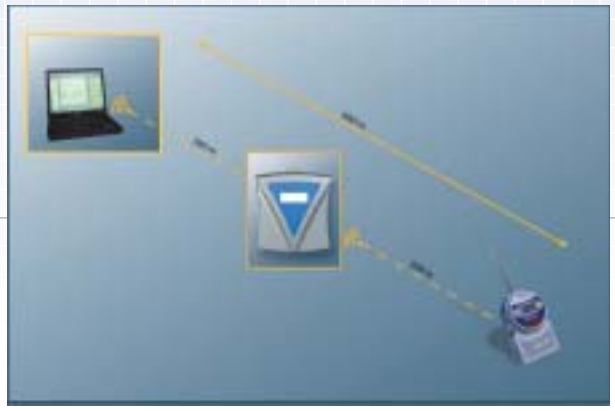
Increasing the versatility and mobility of the MicroLogPLUS is the screw terminal board, which allows the user to connect the DC power, external sensors, contact sensors, position sensors, or alarm open/relay collectors directly to the circuit board. This ensures the product is suitable for a wide range of applications.

External Antennae

This magnet antennae makes the MicroLogPLUS a valuable solution for more mobile applications such as transportation fleets. It also acts to improve the power and strength of the RF signal, enabling transmission through obstacles such as refrigerator walls.

MicroLogPLUS Repeater

Given the reality of most application environments the line of communication between the MicroLogPLUS receiver and MicroLog data loggers is not always direct. There are two most commonly found situations, firstly where there is no line of sight, due to obstacles such as stairs or walls and secondly where the distance between the logger and receiver is greater than 300m. In response to this challenge, Fourier has developed the Repeater, a new product which aims to ensure the receiver picks up data from all the transmitting units. The repeater is a receiver and transmitter in one. The Repeater is situated between the data logging unit and the receiver on the PC. It collects the data from all RF cradles using the built-in internal receiver and using the internal transmitter sends the data on the final leg to the PC receiver.



MicroLogPLUS Features

MicroLogPLUS Two types of cradle:

The MicroLog cradle can be used as a mount to enable advanced RF wireless communications between MicroLog data logging devices and computers. A simple plug 'n play operation only requires installing the cradle at the data logging location, and installing a small MicroLog Receiver at the PC location, so that Fourier can automate most of your daily data logging tasks.

Alarm Cradle
The MicroLog cradle accommodates an additional external sensor, input RS232 or USB Computer Serial Interface, and a hardware alarm that operates sound and/or light alarms.

Wireless Cradle with Alarm
A wireless cradle that can accommodate an additional external sensor, RS232 or USB Computer Serial Interface, and a hardware alarm that operates sound and/or light alarms.

MicroLogPLUS 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…

MicroLogPLUS Application Example

A strategic leading, global healthcare company required online data and proactive alerts. With many different chemicals stored at various temperatures, across a number of locations, they needed a quality control and logging system to monitor all thresholds throughout the environment from one desktop. MicroLogPLUS has added features to provide immediate feedback throughout data recording with pre-defined SMS and email messages that are set to certain parameters in the Lab. When the thresholds are crossed, staff onsite, or anywhere in the world can receive written alerts, all defining the location and data values of the crossed threshold.

MicroLogPLUS External Sensors

MicroLogPLUS works with all MicroLog sensors - see page 11 for more information

MicroLog Software MicroLabPLUS™

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

The MicroLogPLUS receiver picks up wireless transmissions from up to 200 MicroLogs and transfers them to the MicroLabPLUS software. The software's user friendly color coding provides easy to read reports on the status of the entire environment from one screen.

The online monitoring of the MicroLogPLUS software provides multiple meters and graphs running continuously. Samples of up to every 10 seconds provide an almost constant impression of any environment. An online reconstructed picture of the working environment indicates pictorially where the sensors are sitting and allows for immediate alert identification and resolution.

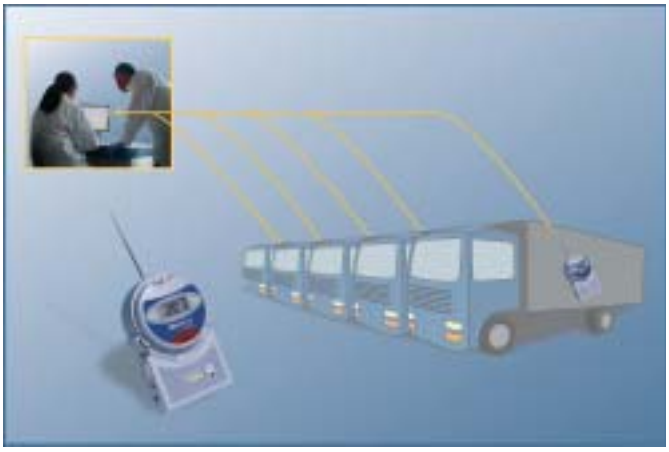
The software not only stores the data of each MicroLog, but can also set the MicroLog alarm level, sampling rate and all other necessary parameters.

MicroLogPLUS Software Features

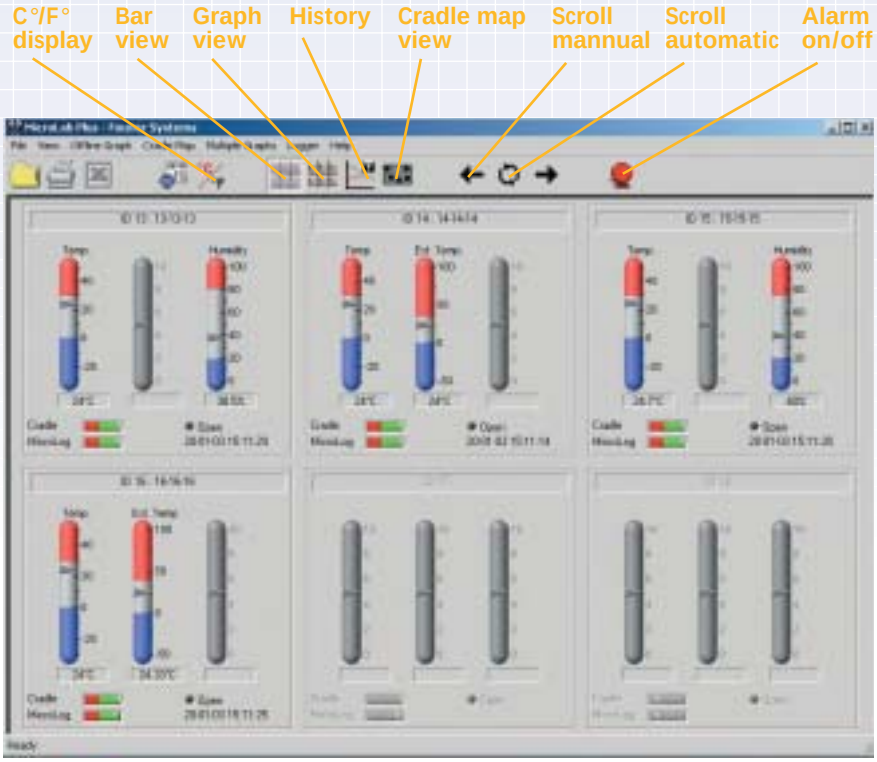
- Wireless communication with up to 200 MicroLogs
- Real-time multiple parameter sensor readings
- Data displayed in meters or graphs
- Visual and Audio alarms when data exceeds thresholds
- Email and cell-phone notification
- Battery level displayed
- Automatic data savings and exports to Excel
- MicroLog set-up including:
  - Sensor definition
  - Sensor calibration
  - ID number for cradles
  - Alarm levels and properties of loggers
  - Comments for each logger
  - Sampling rates: every 10 secs. to 2 hours

MicroLabPLUS is the ideal solution for multiple data logging applications in: Museums, Laboratories, Supermarkets, Food transportation, Storage, Air conditioning and ventilation, clean room, warehouses and art galleries.

These types of application involve the recording of temperature, humidity or one of the Fourier external sensors, in many locations, making the MicroLabPLUS the best solution for collecting and handling this data.



When predefined thresholds are crossed MicroLabPLUS sends an email or SMS alarm message automatically with the unit details.



View Screens

Real-time temperature and humidity readings can be seen with Visual alerts when the logger crosses predefined thresholds. The display shows readings both in graphical or meter views as well as being able to set against a photographic representation of the working environment.

Auto Set-up

The software automatically programs the MicroLogPLUS transmission interval and sampling rates to prevent RF signal collision and to make multiple system set-up very easy in three simple steps.

1

2

3

History

For meeting quality standards MicroLabPLUS provides historical reports.

For further information about MicroLogPLUS solution specifications please see Page 40

MicroLabPLUS software is FDA Title 21 CFR Part 11 compliant. For further details please see Page 43

TriLog™ Solution

A triple platform data logger: stand-alone, slot on to PALM® Pilot or be connected to the PC & MAC

The TriLog brings powerful and mobile data acquisition to the "Palm" of your hand with triple platform ability in the single TriLog solution. TriLog slots behind the Palm providing the data logger with much of the capacity of a real hand held computer, while still remaining an accessible and affordable data logger. Ideal for mobility and outdoor monitoring, the TriLog allows data to be analyzed in graph and table form, or even exported to a spreadsheet all in the palm of the hand.

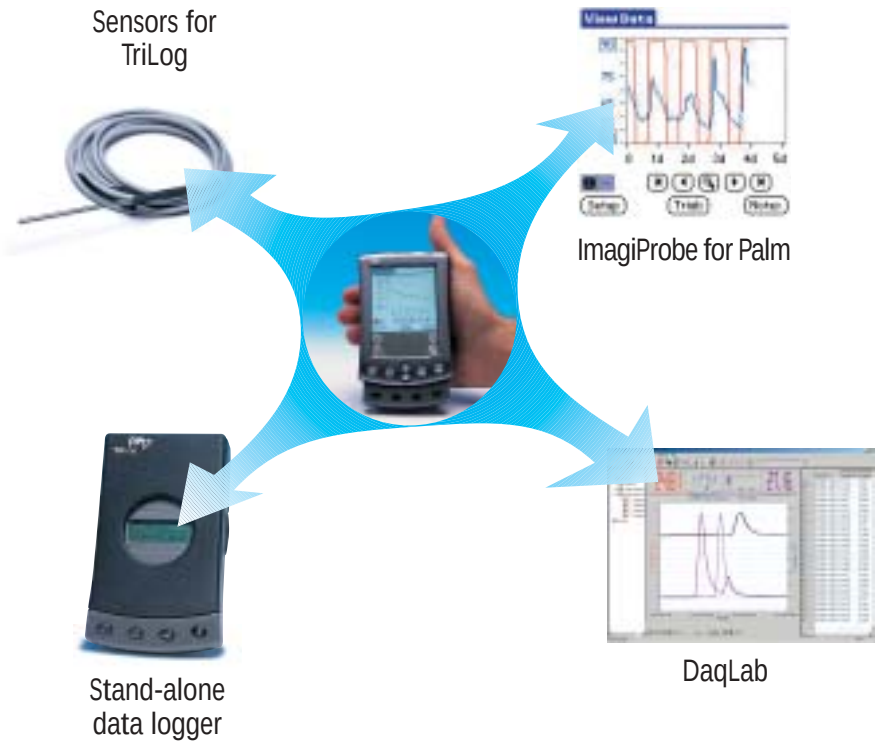
- Data logging with the power of a computer in your hand
- Simultaneous collection of up to 4 inputs of data
- Keypad and LCD display for an independent, stand-alone operation
- Sophisticated data analysis via the Palm's large graphical display
- Huge and powerful memory allowing for extended monitoring periods
- High sample rate ensuring real time data measurements
- 12bit analog resolution
- Built-in rechargeable battery
- Aesthetic and compact

TriLog Functionality

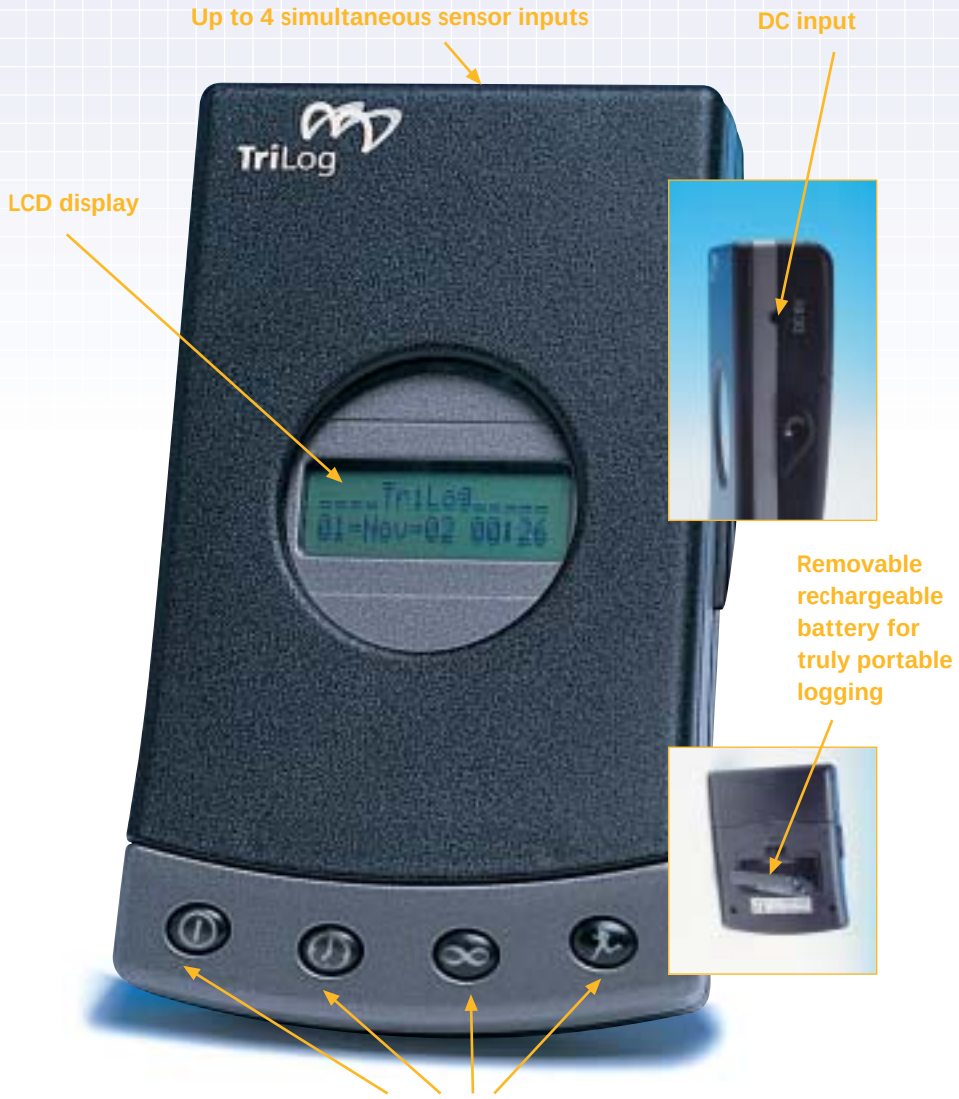
The TriLog can connect to the following sensors: 4 - 20 mA, 0 - 5 V and stainless steel temperature sensors. Through the current and voltage sensors users are able to monitor all industrial transmitters. They can also define their own sensors and view reading in their sensors units.

The new TriLog sensor's interface enables data collection by mobile and stationary computers and when detached it can be left in a remote location to continue logging data. The TriLog is compatible with most available Palm handhelds.

USB and serial outputs enable connection with additional software to Windows computers. The TriLog features up to four inputs, support for digital, linear and non-linear sensors. The product collects samples at rates of up to 20,800 data samples a second, or if preferred, as slowly as one per hour, depending on your application's specific needs.



TriLog Features



TriLog Applications

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- Research

And more…

TriLog Application Example

A Dutch flower producer and manufacturer needed to monitor leaf moisture to ensure a constant level of 8% humidity. The TriLog helped establish a more efficient and portable system by attaching a 4 to 20mA cable to the TriLog and receiving immediate humidity readings. The technician had the ability to see any change during the process and was able to prevent expensive damage to crops. Given the portability of the TriLog the Lab technician was able to cover the large expanse of the production floor with the TriLog attached to his personal Palm handheld computer. Later he was able to download his readings to his desktop PC, print quality reports and log history files.

The TriLog data logger comes with two software packages, one for the PC and one for the Palm. In combination with the TriLog data logger, these software packs enable real-time sensor-based data collection and visualization. Data can be easily moved to a desktop computer via the Palm's Hot Sync procedure. Once on the desktop data can be imported to any analysis or spreadsheet application.

ImagiProbe™ Software for TriLog

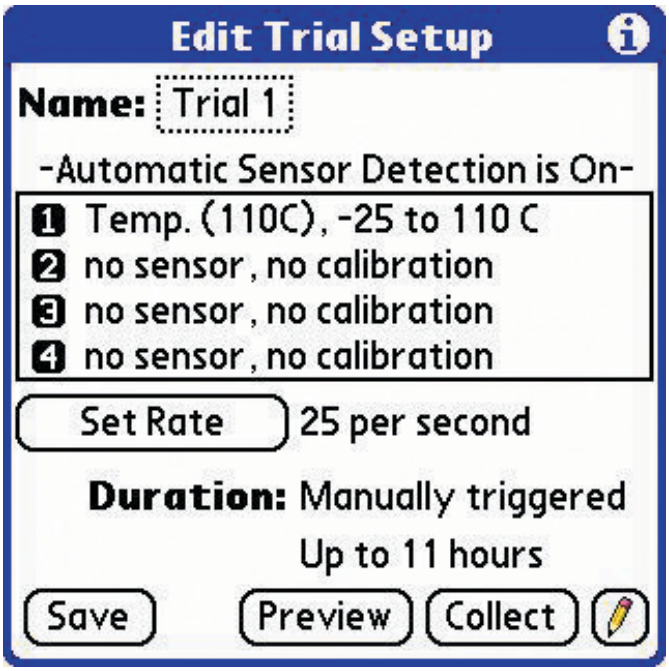
Operating System:
Palm OS 3.1 or higher and 350k of available space

ImagiProbe 3.0 is available for all Universal Connector Palm handhelds (m130, m500, m505, m515, zire-71, Tungsten)

ImagiProbe for TriLog features

- Sample data manually, at intervals or schedules
- Receive data from 4 sensors simultaneously
- Sampling rates of 1 per hour to 20,800 per second
- Indicators to alert when thresholds are crossed
- Record notes, sketches or annotations
- Transfer to PC for further analysis or reports
- Data display in graph, table, or bar chart

The ImagiProbe software enables the quick setup and organization of data collection episodes. Data and related notes can easily be moved to the computer from the TriLog via the Palm HotSync procedure. ImagiProbe software collects data samples from the TriLog and displays them as a line graph, table or bar chart.



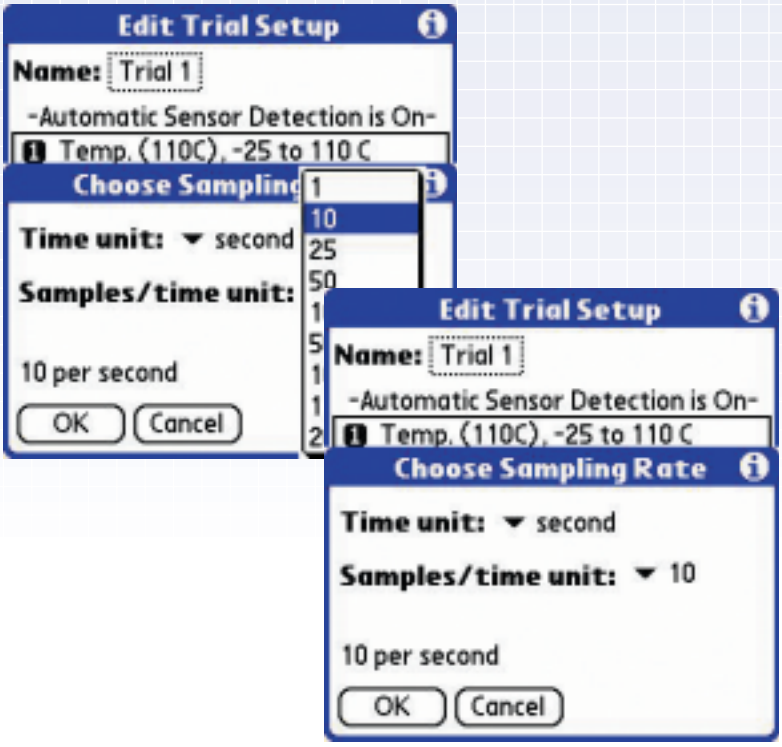
Setup 1
With ImagiProbe software setting up is made easy. This can be done directly from the Palm via the software. The first step just requires the user to define the sensors that are going to be measured with.

Setup 2

Once the sensors have been defined then the sampling rates are selected from a range of 10 to 20,800.

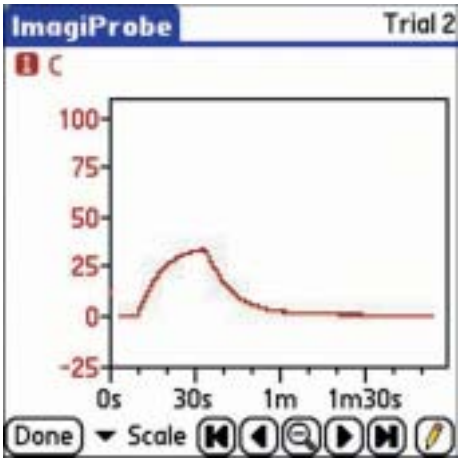
The final step involves establishing the length of recording time required.

Preview your selections to check everything is satisfactory and then begin collecting data.



ImagiProbe graph

Within the graph you can zoom in to any point or tap anywhere on the graph to display the data points values



ImagiProbe note

By taping the notes icon users can add a note to the graph which can later be used in production process analysis

DaqLab™ Software for TriLog

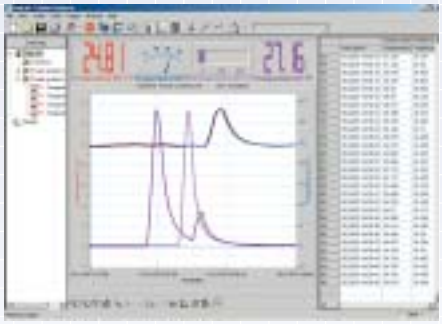
Operating System:
Windows 95/98/ 2000/ME/XP/NT4.0 or higher
16MB RAM
10MB Disk space
Screen resolution 800/600 or higher

DaqLab for TriLog features

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

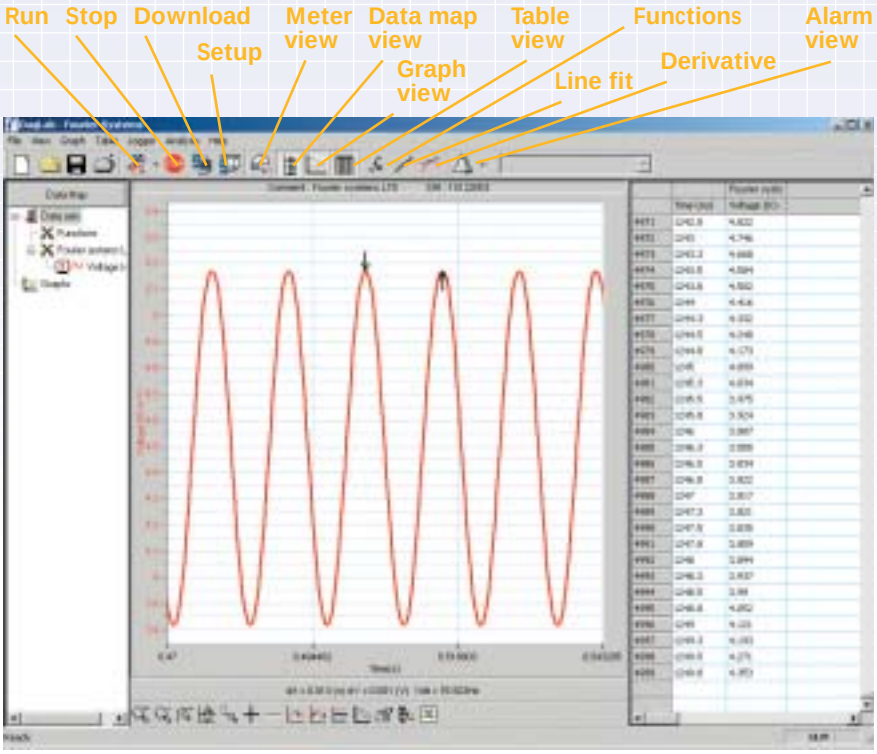
DaqLab for TriLog is an advanced graphical analysis software that displays data recording results. The software allows the logger to be programmed and runs online or offline, making it versatile for any working environment where the benefits of the TriLog's three platform versatility are harnessed.

The TriLog also comes with the DaqLab graphical analysis software for PC Windows platforms. The DaqLab can be programmed from the TriLog keypad. The DaqLab software also allows setup via the DaqLab setup wizard.



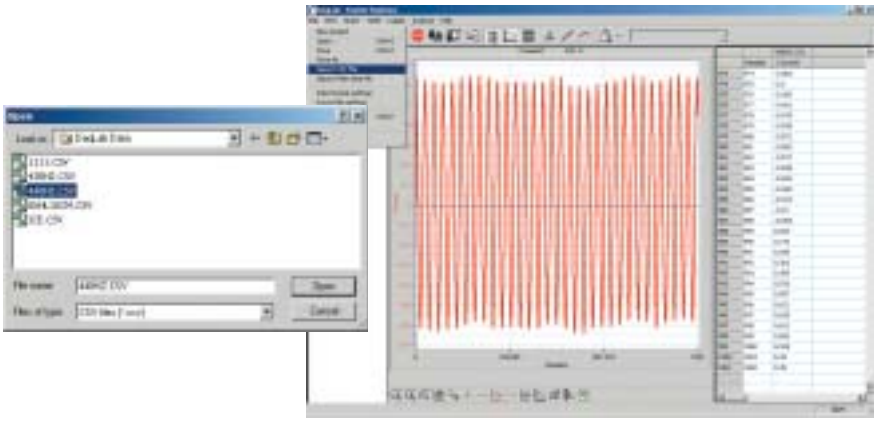
Main Screen

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



Data Analysis

The DaqLab software not only provides real time data readings, but there are extensive features allowing for alternative methods of data display and analysis.

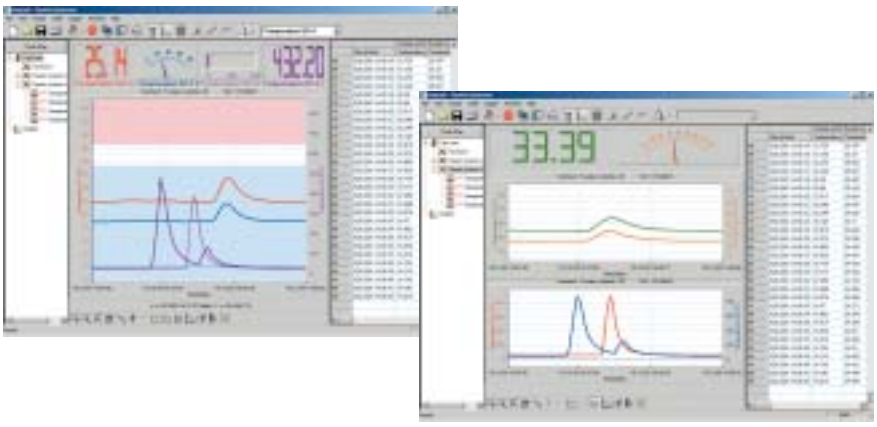


Import Palm Data

With Daqlab your data can be imported directly from the Palm using the Palm Hot Sync procedure.

Meter Views

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



For further information about TriLog solution specifications please see Page 41

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

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.

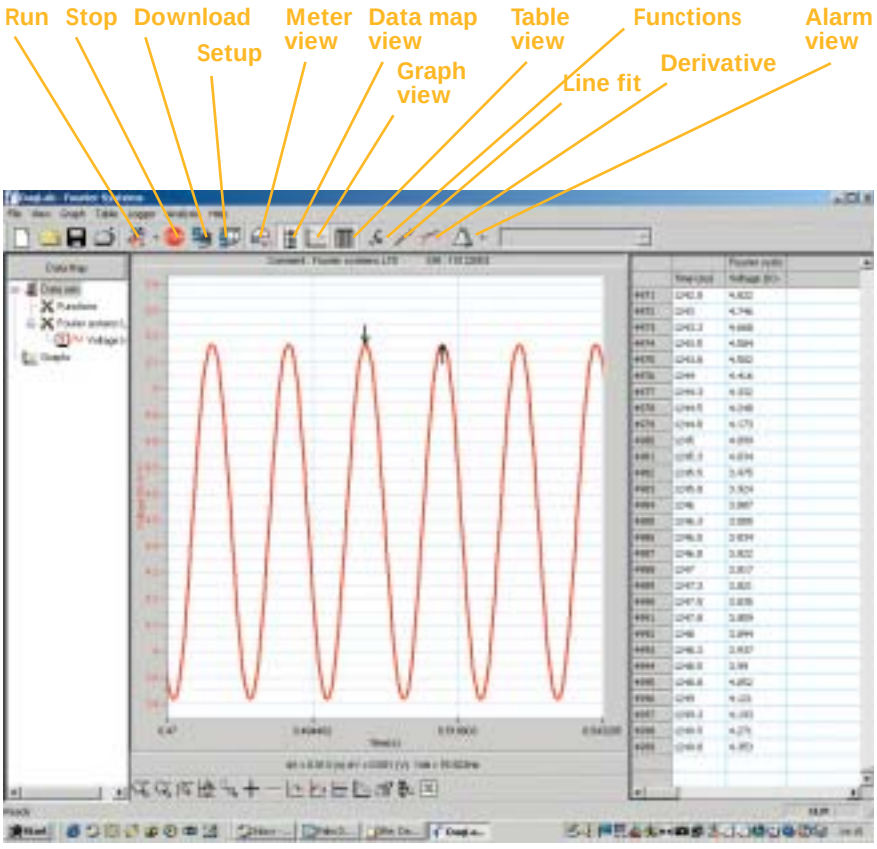
DaqLab™ Software for DaqPRO

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

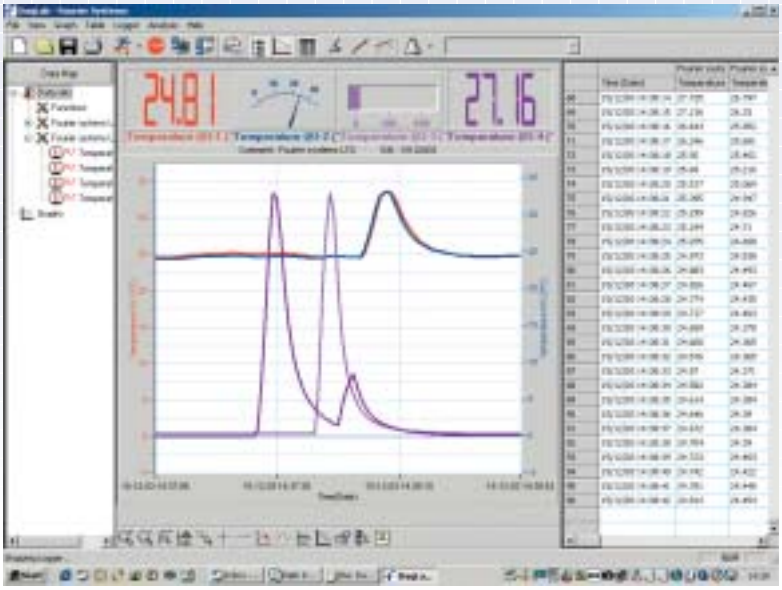
- Graphical analysis Windows based software
- Fast data download from the DaqPRO
- Numeric or graphical data display
- On-line retrieval and display of real-time data
- Setup wizard for DaqPRO
- Definition of up to 20 new sensors
- Readings of defined sensor's units from DaqPRO
- Full calibration of 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.

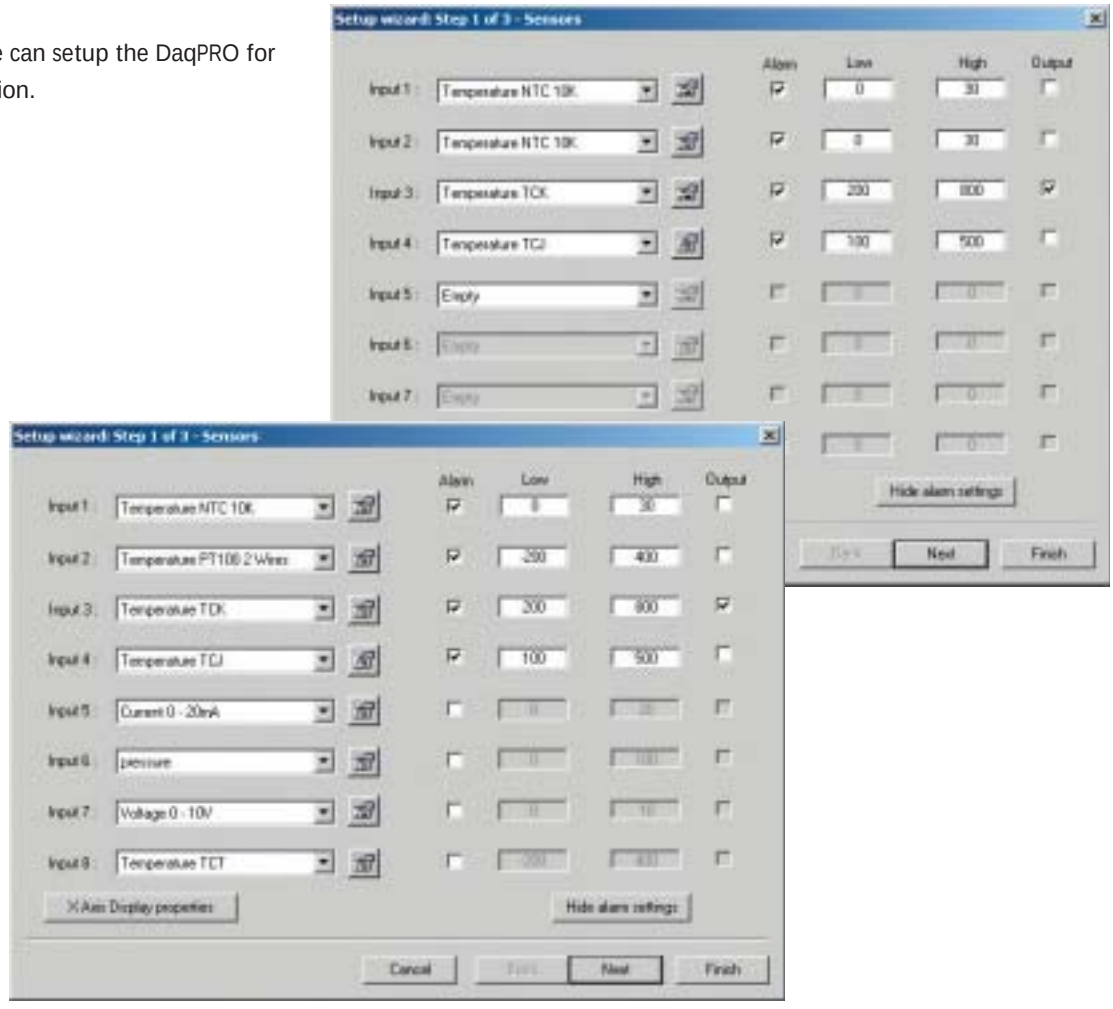
Main Screen

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



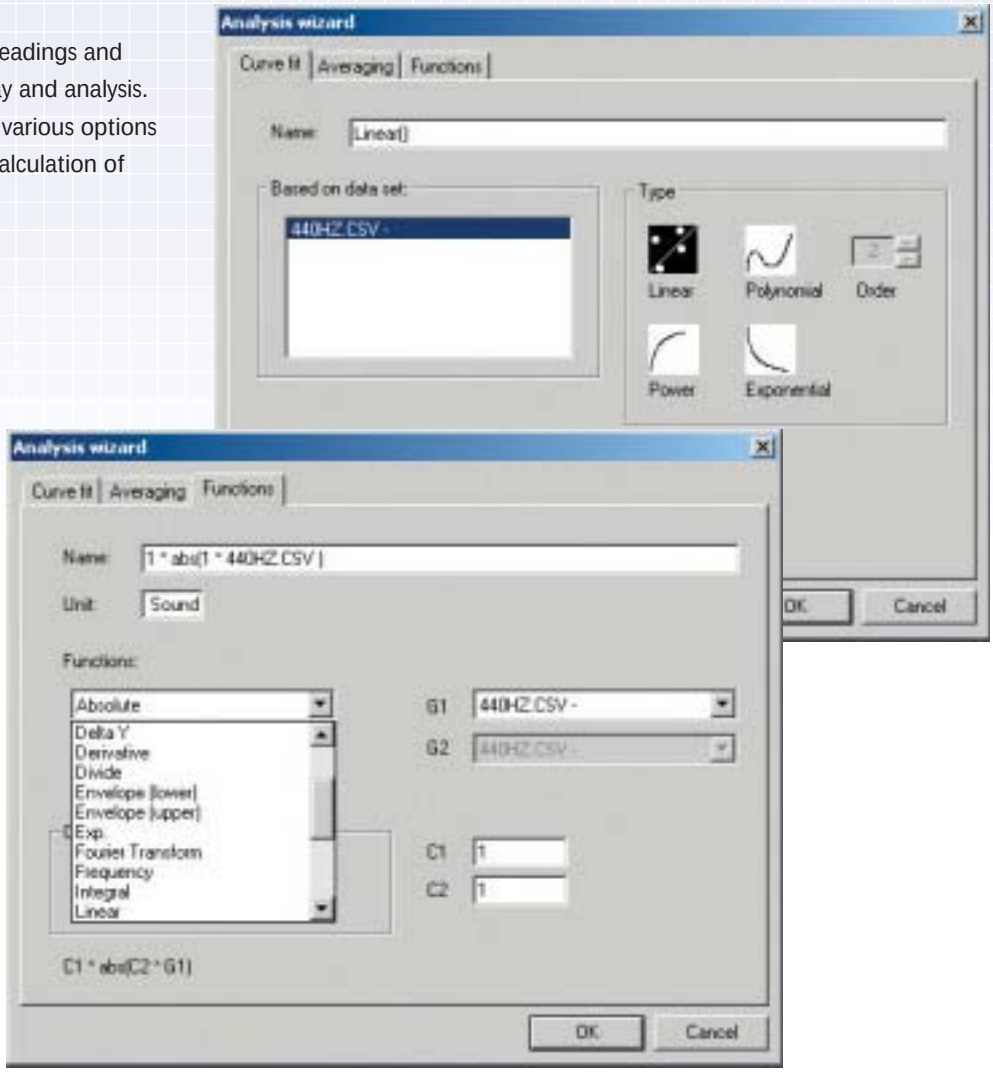
Setup Screen

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

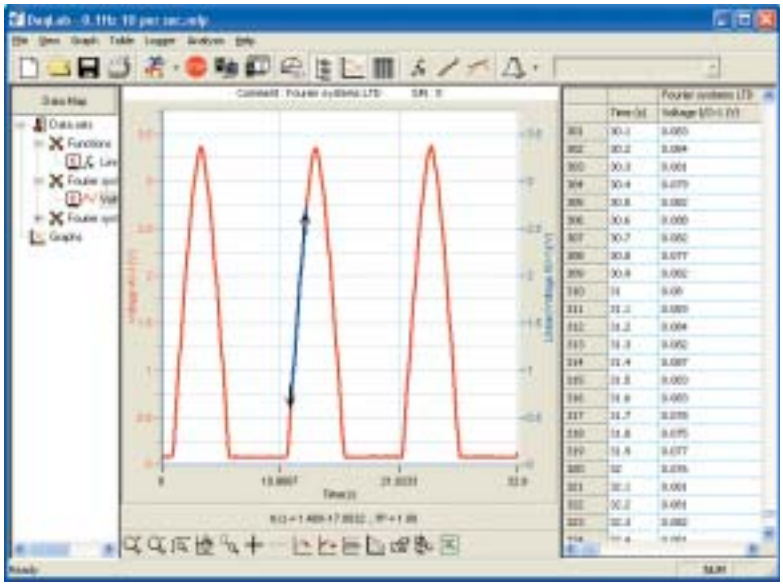


Data Analysis

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.

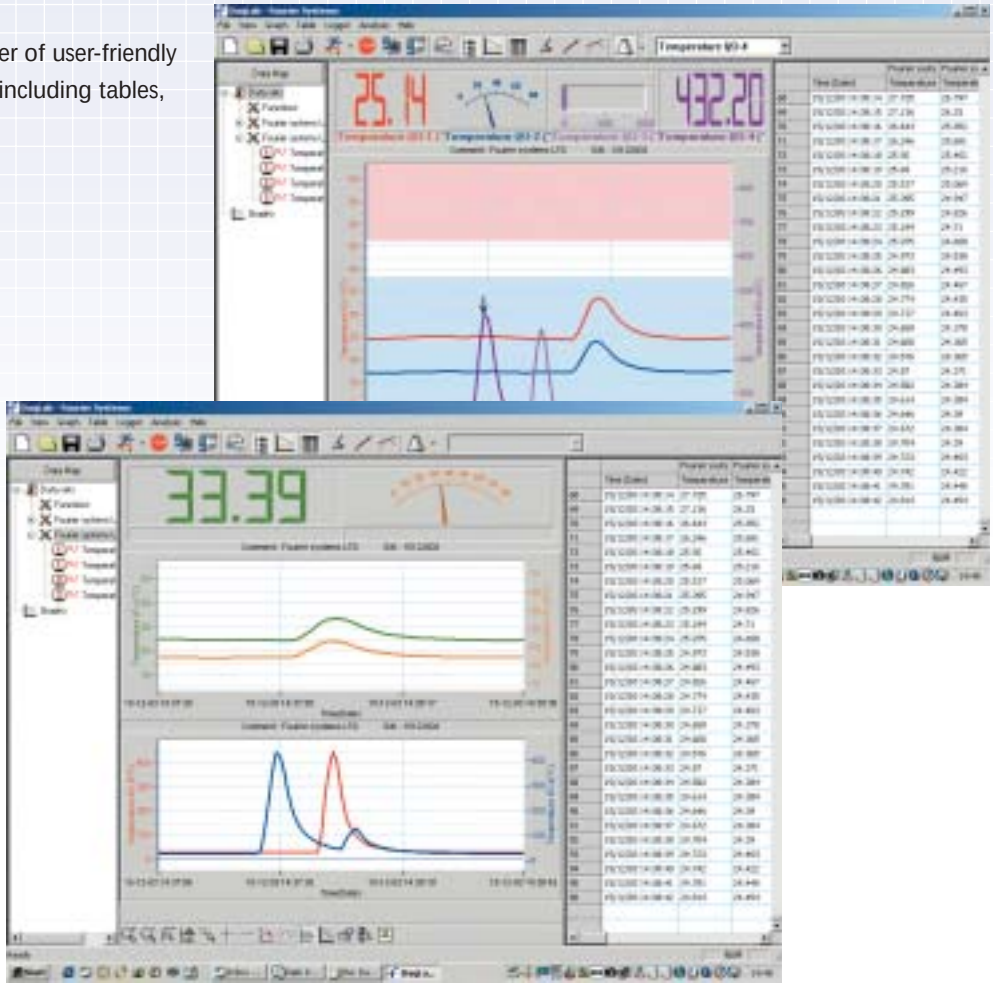


Simply by clicking the linear fit icon on the tool bar, DaqLab fits a linear regression to data. This enables users to establish patterns across groups of data points.



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
MicroLog
MicroLogPRO

Specifications

MicroLog

MicroLog Data Logger

Models

EC600	Temperature and external sensor data logger
EC650	Temperature, relative humidity and external sensor data logger

Input (Built In Sensors)

Temperature	-30ºC to 50ºC (resolution 0.5ºC, accuracy 0.6ºC)
Relative Humidity	0-100% (resolution 0.5%, accuracy ± 3%)

Output

- Two digit 7-segment LCD
- IRDA interface to portable HP printer
- RS-232 cable connection to the PC

Memory capacity	16,000 samples
Power supply	• Internal lithium battery: 3.6V TL5902 • Battery life: Approximately two years
Sampling rate	User defined: From 1 per 10 seconds to 1/two hours
Dimensions	• Thickness: 22.9mm • Round: 72mm diameter • Weight: 55gr

Standards

- Water and dust proof IP65 standard
- compliance, for EC 600 model
- CE and FCC standard compliance

MicroLab Software

- Running on WINDOWS 95/98/2000/ME/XP and NT
- Fast data download from the MicroLog
- Graphic visualization of the MicroLog data
- Data displayed in Graphs and Tables
- Data Export to EXCEL
- Graphic analysis tools such as Markers, Zoom
- Data Map allowing the users to easily see many MicroLog data loggers in one screen
- MicroLog SETUP windows, for setting up the MicroLog sample rate, sensors and alarm level
- MicroLog sensor calibration
- Display of MicroLog Battery Level
- Working with the wireless MicroLog cradle and Receiver
- Showing daily reports of a fleet of data loggers
- Visual alarm levels on the Graph and Table

External Sensors

Temperature Sensor
This MicroLog sensor takes external temperature measurements in a wider range than the internal temperature sensor. With a faster response time than the internal sensor, it enables measuring materials that cannot be measured with the internal sensor.

Range:	-50ºC to 100ºC
Resolution:	• Better than 1ºC • Between -20º to 75º
Accuracy:	±2% of reading
Probe Length:	100mm
Probe OD:	3.2mm
Max. temperature:	150ºC

pH Sensor
Will help you monitor pH level of liquids.

Range:	1-14pH
Resolution:	0.116pH
Accuracy:	2% of reading

Calibration single point, done with a small trimmer on the sensor.

0-10 Voltage Sensor
A general sensor that will measure any device or transmitter that produces a linear analog 0-10V output. The voltage can easily be converted to the correct measured units with the help of the MicroLab program.

Range:	0-10V
Accuracy:	± 3% before calibration
Input Impedance:	3 M
Calibration:	Two point calibration
OV protection:	+30V
Resolution:	0.05V

0-20 mA Current Sensor
This MicroLog external sensor can sample any device or transmitter, producing a linear current between 0-20 mA. The 0-20 mA can be converted to the correct measured units by using MicroLab's calibration option.

Range:	0-20 mA
Resolution:	±0.1 mA
Accuracy:	± 3% before calibration
Calibration:	Two point calibration
OC protection:	55 mA

Contact Adapter
This MicroLog sensor monitors reed relay contacts and switch status (open/closed), to identify the correlation between phenomena such as temperature change and door status.

Range:	Open/Close
Connector:	Screw Terminal
Cable Length:	2.5 m

Internal Pull-Up Resistor: No need for external power source

Ordering Information

Part No.	Description
MicroLog	
EC600	Temperature data logger
EC650	Temperature and relative humidity data logger
External Sensors	
DT132	Temperature Sensor
DT140	0-10 Voltage Sensor
DT139	0-20 mA Current Sensor
DT141	Contact Adapter
DT168	pH Adapter
DT018	pH Electrode
DT132N	Needle probe
DT163	Light
DT093	General 8m cable probe
DT252	PT100 -100°C to 10°C
DT253	PT100 100°C to 120°C
DT279	Conductivity electrode
Cradle	
DT174	Alarm Cradle
DT175	Wireless Cradle with Alarm
Software (Windows® 95/98/2000/ME/XP)	
PC-KIT	MicroLab™ (Graphic data logging interface)
SFTMCL007	MicroLab™ Plus (Central data logging administration)
SFTMCL009	MicroLog 2 Excel™ (Export to standard worksheet programs accessory application)

To order: www.fouriersystems.com

MicroLogPLUS

MicroLogPLUS Data Logger

Models
- EC600 temperature and external sensor data logger
- EC650 temperature, relative humidity and external sensor data logger

Inputs (Two built-in sensors)

Temperature	-30ºC – 50ºC (resolution 0.5ºC, accuracy ±0.6ºC)
Relative Humidity	0 – 90 % (resolution 0.5%, accuracy ±3%)

External Sensors

Voltage	0 – 10 V
Current	0 – 20 mA
Temperature	-50 – 100 ºC
PT100 Temperature	-10 – 10 °C -100 – 120 °C
pH	0 – 14 pH

Outputs
- Three digit 7 segment LCD
- IRDA interface to HP-printer
- RS232 serial communication at 19,200 bps

Memory Capacity 16,000 recording samples

Power Supply

Internal Battery	Lithium - 3.6V 1.2AH 1/2AA
Battery Life	Approximately two years, replaceable (May vary when connecting external sensor)

Sampling Rate

User Defined	From every 10sec to every 2h

Dimensions

Round	72mm diameter
Thickness	22.9mm
Weight	55gr

CE and FCC standard compliance

MicroLogPLUS Cradle

Cradle Alarms
- Audible Alarm
- Visual Alarm Led

Serial Communication Channels
- RS232 at 19.2Kbps
- USB at 1.5Mbps

Cradle Memory 2000 samples holding the sensor samples

Connectors
- 4-pin flat connection to the MicroLog
- 4-pin flat connection to any MicroLog external sensor
- Screw Terminal Board connections:
  - Power supply: DC 6-30 V
  - External sensor
  - External contact sensor
  - High alarm open collector 30V/2A
  - Low alarm relay open collector 30V/2A

Power Supply

Internal	Lithium battery, 3.6V
External	6 – 30 V, minimum 300mA

European RF Transmission
- EMC conformant to EN 301 489-3
- Type approved to ETS 300-220
- Usable range to 300m (75m indoors)
- 418 (UK) & 433.92MHz
- 1mW on 418MHz, 10mW on 433.92MHz
- 2nd harmonic < -60dBc
- 16cm length antenna

North America RF Transmission
- EMC conformant to EN 301 489-3, FCC PART 15.249
- Usable range to 120m (30m indoors)
- 1mW at 914.5MHz
- Harmonics/spurious emissions -55dBc
- 8cm length antenna

CE and FCC standard compliance

MicroLogPLUS Receiver

European Version
- Usable range to 300m (75m indoors)
- One RS232 communication port to the computer

Power Supply

Internal	Lithium battery 3.6V, 1.2AH, 1/2AA
External	AC/DC 6V adapter

RF Receiver
- Red LED indicating RF signal
- Green LED indicating valid data being received
- Type approved to ETS 300-220

CE and FCC standard compliance

North America Version
- Usable range to 120m (30m indoors)
- RS232 communication port to the PC

Power Supply

Internal	Lithium battery 3.6V, 1.2AH, 1/2AA
External	AC/DC 6V adapter

RF Receiver
- Red LED indicating Ext power connected
- Green LED indicating valid data being received

CE and FCC standard compliance

MicroLabPLUS Software

Data Displaying (from up to 200 MicroLogs)
- Real-time temperature and humidity readings
- Visual alarm when the logger crosses an upper or lower alarm threshold for temperature or humidity
- Battery level
- An Excel file containing all of the measured data received from the device
- email/SMS messaging

Setting up the MicroLog
- The ID of each of the monitors
- The alarm levels of each monitor comment
- The sampling rate from every minute to every hour

Minimum PC requirements
- Windows 95/98/2000/XP/NT
- 6MB available disk space
- CD ROM drive for software installation
- Available communication port

Ordering Information

Part No.	Description
EC600	Temperature data logger
EC650	Temperature and relative humidity data logger
DT132	External temperature sensor
DT252	External PT100 temperature sensor -10 – 10 °C
DT253	External PT100 temperature sensor -100 – 120 °C
DT140	External 0 – 10 V adapter
DT139	External 0 – 20 mA adapter
DT141	External contact sensor
DT175	Transmitter and alarm cradle
DT152	MicroLog Plus receiver
SFTMCL007	MicroLab Plus software
SFTMCL012	MicroLog Delux
DT047	Serial communication cable
DT180	USB communication cable
DT242	110/6V AC/DC receiver adapter
DT243	220/6V AC/DC receiver adapter
DT245	220/6V AC/DC transmitter adapter
DT246	110/6V AC/DC transmitter adapter
DT086	3.6V Lithium battery
10940	External antennae
DT163	Light
DT279	Conductivity electrode

To order: www.fouriersystems.com

TriLog

TriLog Data Logger

Inputs

Mode: Up to 4 simultaneous analog inputs with automatic sensor identification

Outputs

- RS-232 PC Host Interface at 38,400 bps
- USB PC Host interface at 1.1Mbps PALM m Series interface at 19,200 bps

Sampling

Capacity: Up to 256,000 memory cells
Sampling rate: Variable, 1 sample/hour to 14,000 sample/sec

Resolution 12 bit (4096 levels)

Man Machine Interface

- Full keypad operation enabling manual programming of the TriLog
- Alphanumeric LCD

Power Supply

Voltage supply: Internal rechargeable 2.4V NiMH battery, external 6V DC input

Operating Temp. Range
0°C to 50°C

Features

- Stand-alone operation - working and sampling without connection to a PC
- PC/MAC on line sampling
- Palm interface
- Automatic or manual sensor identification
- Saving and loading of last setup
- Triggering
- Automatic calibration of offset sensors
- Built-in timer for delayed logging
- Backup memory battery: 3V Lithium battery saving samples data for up to 5 years
- Automatic data recovery after power failure
- Built-in clock & calendar
- Built-in battery charger for charging the 2.4 NiMH internal battery
- Automatic shut off after 15 minutes
- Event recording
- User defined sensors

Compatiable Models of Palm

Tungsten T
Tungsten W
Zire-71
M130
M515

Software MultiLab 1.2, ImagiProbe 3.0

Weight 160gr

Standards Compliance
CE, FCC

TriLog External Sensors

	Range	Accuracy	Resolution
Voltage	0 – 5 V	1%	1.5mV
Current	4 – 20 milliamp	1%	5μA
Temp.	-50 – 150 ºC	1%	0.1ºC

Analysis Software

- Running on Windows 95/98/2000/ME/XP/NT
- Fast data download from TriLog
- Data displayed in numeric or graphical display forms
- 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 TriLog
- Defining new sensors

Ordering Information

Part No.	Description
IPEX01	TriLog data logger
DT210	Serial communication cable
DT207	USB mini communication cable
DT267	220/6V AC/DC adapter
DT268	110/6V AC/DC adapter
IMAGIPROBE3.0	ImagiProbe software
SFTDAQ001	MultiLab 1.2 software
DT228V	Voltage sensor 0 – 5 V
DT234	Current sensor 4 – 20 miliamp
DT233	Temperature sensor -100 – 150 ºC
V11304	3V lithium battery
11312	2.4 NiMH internal battery

To order: www.fouriersystems.com

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:	0.47μA
Accuracy:	±0.5% FS
Loop impedance:	195Ω

0-50mV

Range:	0-50mV
Resolution:	3μV
Accuracy:	±0.5% FS

0-10V

Range:	0-10V
Resolution:	200μV
Accuracy:	±0.5% FS
Input impedance:	125KΩ

Temperature NTC

NTC:	10/100KΩ resistor
Range:	-25 – 150ºC
Resolution:	0.05ºC
Accuracy:	±0.5% FS

Temperature PT-100

Range:	-200 – 400ºC
Resolution:	0.1ºC (7mΩ)
Accuracy:	±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 – 1200ºC
Resolution:	0.1ºC (1μV)
Accuracy:	±0.5% FS
Cold junction compensation error:	±0.5ºC

Temperature thermocouple K

Range:	-250 – 1200ºC
Resolution:	0.1ºC (1μV)
Accuracy:	±0.5% FS
Cold junction compensation error:	±0.5ºC

Temperature thermocouple T

Range:	-200 – 400ºC
Resolution:	0.1ºC (1μV)
Accuracy:	±0.5% FS
Cold junction compensation error:	±0.5ºC

Internal temperature

Range:	-25 – 70ºC
Resolution:	0.1ºC (1μV)
Accuracy:	±0.5% FS

Pulse counter (Input 1 only)

Optocoupler input

Range:	0-65,000
Input signal:	0-5V
Input impedance:	470Ω
band width:	0-50hz

Frequency meter (input 1 only)

Optocoupler input

Range:	20-4,000Hz
Input signal:	0-5V
Input impedance:	470Ω

General A to D specifications

Noise:	30μV rms
Internal linearity error:	±0.08% of FSR
Offset error:	0.1%

Open collector output (Output 8)

Maximum current sink:	50mA (fuse protected)
Input impedance:	50Ω

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°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

DatPass™

Fourier Administration software complies with Title 21 Code of Federal Regulations Part 11

What is Title 21 CFR Part 11?

CFR is a Food and Drug Administration (FDA) issued regulation Title 21 Code of Federal Regulations, Part 11. This provides the criteria for acceptance by FDA, under certain circumstances, of electronic-records, electronic-signatures, and handwritten signatures which have been executed to electronic records as equivalents to paper records and handwritten signatures executed on paper. The intention of these regulations, which apply to all FDA program areas, are to permit the widest possible use of electronic technology, compatible with FDA's responsibility to promote and protect public health.

Part 11 applies to any record governed by an existing FDA predicate rule that is created, modified, maintained, archived, retrieved, or transmitted using computers and/or saved on durable storage media.

What is DatPass?

DatPass is basically a user administration software which supports the assignment of passwords and operating privileges for Fourier industry application software. DatPass works with Fourier MicroLab, MicroLabPLUS and DaqLab. DatPass defines the users that can log onto the DatPass being used, their passwords and the digital signatures needed for electronic records.

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AC/DC Receiver Adaptor 110/6V (MPLUS)	DT243	P40
AC/DC Receiver Adaptor 220/6V (MPLUS)	DT242	P40
AC/DC Transmitter Adaptor 110/6V (MPLUS)	DT246	P40
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