Fourier Systems
Data Acquisition Solutions
Fourier Systems Ltd.
www.fouriersystems.com

Fourier Systems is recognized as an innovative developer, manufacturer and distributor of compact portable data logging devices and accessories for advanced data acquisition, communications and analysis. Our products are the ideal cost effective solution across the full spectrum of industry, including pharmaceutical, food transportation, storage, air conditioning and ventilation, clean rooms, warehouses and galleries.

Fourier Systems data acquisition solutions include:
- MicroLite: Multi-trip plug-and-log USB temperature data logger
- DataNet: Wireless RF network logger, based on ZigBee protocol
- DaqPRO: 8-channel, stand-alone, multi-data acquisition logger
- MicroLog/MicroLogPRO: Temperature and humidity, long-term, portable data logger

Fourier is dedicated to providing sophisticated quality 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’s Competitive Advantage:

<table>
<thead>
<tr>
<th>Product Advantages</th>
<th>Company Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate ROI: Zero implementation and infrastructure costs</td>
<td>Nearly 20 Years of Experience: Established knowledge-base &amp; proven applications</td>
</tr>
<tr>
<td>Quality: Better specifications in inputs, accuracy, memory, sampling rates</td>
<td>In-house Wireless Technology: Reducing cost &amp; time to market</td>
</tr>
<tr>
<td>Flexibility: Data transfer to PC</td>
<td>Responsive: High R&amp;D investment meeting distributor feedback and market needs</td>
</tr>
<tr>
<td>Independence: On-site monitoring via graphic displays</td>
<td>Low Pricing: Efficient operation &amp; outsourced manufacturing</td>
</tr>
<tr>
<td>Intuitive: Simple keypads &amp; icon driven menus</td>
<td>**</td>
</tr>
</tbody>
</table>
Fourier Systems partners with value added resellers in more than 60 countries across all continents. Our distributors have sales experience and expertise in the data acquisition market and understand the importance of commitment to excellence.

“The intuitive, easy to use MicroLab software facilitates detailed analysis of the shipment from origin to destination and allows Sea Star to optimize its shipping process. The MicroLite has paid for itself many times over in shipping and materials savings.”

*Robert Soares, Marketing Administrator, Sea Star Seafood Corporation*

“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*
“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

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

Marcial Ferro, Director MF Instruments, Spain

“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

“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, Managing Director, 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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**Committed to Quality**

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DataNet Solution

Wireless intelligent logging network

DataNet is a multi-unit data acquisition system. Data transmission from end units to the central computer utilizes the ZigBee wireless telemetry protocol. DataNet data loggers feature 16-bit resolution, with four external channels supporting direct measurement and recording of PT-100, thermocouple, voltage, current, dry contact, frequency and pulse. Internal sensors include temperature and humidity.

ZigBee wireless protocol uses a 2.4 GHz license-free frequency RF Band. Each DataNet unit also serves as a transmission repeater to neighboring units, forming a reliable mesh network of up to 65,000 units. The ZigBee key features include:

- Reliable bi-directional transmission ensuring no data loss
- Transmission range can be constantly expanded by adding additional network units
- Minimal costs thanks to wire-free infrastructure
- Portable units facilitating easy deployment in various environments
- Receiver, recognizing up to 8 end units and 16 Repeaters
- Repeaters, recognizing up to 24 end units and 16 Repeaters (simultaneously)
DataNet System Contains:

- Temperature data logger with 4 external inputs
- RH/Temperature data logger with 4 external inputs
- Receiver/Repeater
- Mini DataNet DNL810 (RH/Temperature)
  DNL808 (external NTC 10 KΩ)

DataNet Infrastructure Network

Hospital Parallel Monitoring Within a Single DataNet Network

DataNet Network - Supermarket

www.fouriersystems.com
DataNet Features

DataNet system comprises two models meeting a wide range of industry applications:

- DNL910 logger with four external inputs and one internal Temperature sensor.
  Supported external inputs: 4 to 20 mA, 0 to 1 V, 0-50 mV, PT-100 2-wires, Thermocouples (J, K and T), Dry Contact, Pulse Counter and Frequency.
- DNL920 logger with four external inputs and one internal Temperature and Humidity sensor.
  Same supported external inputs as DNL910 logger.

DataNet Solution Case Study

Company:
Teva Pharmaceutical Industries Ltd. One of the top 20 Global pharmaceutical companies in the world. Develops and markets branded pharmaceuticals & active ingredients.

Challenge:
- 10 large storage facilities in separate cities with perishable pharmaceuticals.
- Temperature must be measured wirelessly but external RF interference threatened data loss.

Requirements:
- Online multiple point monitoring and alert system.
- Avoid costly infrastructure by using wireless network.

Solution:
- DataNet provides a secured intelligent data logging system.
- Overcomes RF interference, recovering data losses.

Method:
Multiple DataNet units with external PT100 temperature probes monitor ambient temperature every 15 minutes. Repeaters are used to cover distances of 200 to 300m inside the warehouse. Data is exported to Microsoft Excel for further analysis.
Mini DataNet Loggers

Supported by the DataNet wireless ZigBee network

The Mini DataNet, a single and dual channel data monitoring system, reduces potentially redundant costs of the four-channel monitoring system.

- Dual channel internal Temperature and Humidity sensor for cost effective data acquisition
- Also supports external NTC sensor, providing an easily extended solution
- External antenna, increasing transmission distance
- Runs up to 12 months on a single battery
USB DataNet Stand Alone Solution

Broadening the functionality of the DataNet system, the low-cost, stand-alone USB DataNet is an ideal solution for non-wireless applications. Users requiring just 4 external inputs and internal temperature and humidity can still leverage the benefits of the DataNet system. With this simpler and more budget-friendly option, customers only need a single USB DataNet unit and PC software suite to start recording and analyzing data.

The USB DataNet extends the DNL910 and DNL920 to offer both wireless and non-wireless operational modes with full functionality including:

- Manual operation (Run/Stop)
- Long battery life - 6 months between recharges
- Option to include DatPass software meeting 21 CFR Part 11 requirements
- Four alarm levels with unit external visual and audio alarm
- External AC power operation and internal rechargeable batteries
- Periodical download of data
- Real-time operation with live data results appearing on screen
- Firmware updates via the software
- Option to work in parallel to the ZigBee wireless network

DataNet specifications apply but wireless features are not enabled.

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The DataNet PC Suite software provides security for your products with online monitoring and control of the entire intelligent DataNet system.

**Data View Features**

- Real-time data in multiple displays (show table, graph, Excel)

- International date format
- Ability to rename every logger and external input
- Map View displaying unit location, signal path and signal strength to the PC

**Operating System:**
- Internet Explorer 5.01 or higher
- Pentium 800 MHz or higher
- 256 MB RAM
- 250 MB available disk space
**Alarm Features**

Alarm level setup with email & SMS notifications

Four alarm levels, allowing for programming of 4 separate parameters, with alarm delay and duration

**Alarm Notification Setup**

Alarm notifications sent to selected Contacts and Groups during working hours
Analysis Features

Dew point analysis, FO Pasteurization, histogram, statistics with export to Excel and CSV formats

Setup Features

Logger setup with Celsius or Fahrenheit view

User configurable data file and text file storage path

Ability to define custom sensors based on current, voltage and pulse inputs
Reporting Features

Individual Report Profile Manager:
- User can define up to 10 report profiles
- Report generated and automatically sent to multiple defined user profiles
- Reports received according to predefined date interval selection
- Configurable report periods (start/end dates)
- Daily, weekly and monthly reports available
- Report file formats available in Excel and PDF

Report Content:
- Alarm and Event log
- Data and Graph (Sensor histogram) Views
- Email and SMS log

Hardware Communication Features

Over-the-air firmware updates and calibration
MicroLite Solution
The plug & record mini data logger

Aesthetic and innovative, MicroLite is a small data logger for monitoring and recording temperature. MicroLite is the ultimate plug and record data logger with direct USB connection to the computer. Despite the compact design, MicroLite data is clearly displayed on the logger's numeric screen. In addition, the MicroLite stored data can be downloaded automatically to the MicroLab Lite software. The MicroLite has been dustproof and waterproof tested to meet highest market standards (IP68). To further ensure easy global usage, the battery is easily replaceable since it is a standard model used worldwide.

The product is designed for ultimate application accessibility, whether mobile or static. Typical applications for this product include transportation as well as warehousing of food, drugs and hi-tech equipment.

- High functionality, multi-trip plug-in logger
- Dust and water proof, IP68/NEMA6; 30 minutes at 0.5 m (1.7 ft) depth
- LCD numeric decimal point display - showing min/max and current values
- Real-time, accurate historical data indicator
- Long battery life with easily replaceable industry standard
- Supports USB 2.0 interface enabling fast track communication
- High resolution 16-bit (0.1 °C) and high accuracy of 0.3 °C
- Large sample memory: Optional 8,000 or 16,000 samples
- Fast sampling rate of once per second
- Range -40 °C to 80 °C (-40 °F to 176 °F)
- Start sampling options: Magnet key, automatic and timer
- Fast automatic data download to graph, table, export to Excel
MicroLite Solution

MicroLite Features

USB Connector
Water Tight Cap
LCD Screen

MicroLite Case Study

Company:
Sea Star, Established in 1983
Ships highly perishable frozen seafood samples to brokers and customers across the United States.

Challenge:
Using correct quantities of frozen gel packs during shipments. Too few would result in product spoilage, and too many causing excessive air freight charges.

Requirements:
• A water resistant logger that is compact, accurate, low cost and easy-to-use.
• Data analysis software that could provide detailed analysis of the shipment from origin to destination, allowing Sea Star to optimize its shipping process.

Solution:
MicroLite: Accurate and reliable temperatures monitoring during shipping

Result:
Substantial cost savings in air freight, refrigerant packs, and minimized product loss.

Method:
• MicroLite placed inside insulated shipping boxes with a postage-paid return envelope to Sea Star after shipment delivery.
• The logger is programmed to start when the courier arrives to pick up the package.
• Samples are recorded at 1 minute intervals during the overnight shipment.
• Once the logger is returned to Sea Star, data is downloaded for analysis.
MicroLab Lite Software for MicroLite

Operating System:
Windows 2000/ME/XP/Vista
16 MB RAM
10 MB Disk space
Screen resolution 800/600 or higher

MicroLite works with MicroLab Lite software whose features have been designed specifically in response to requests from the field enabling a broader and more complex range of application environments. Features include analysis functionality such as Statistics – maximum, minimum and average, enabling a quick glance summary of the environment and historical analysis. This is typically useful for applications requiring a constant bird’s eye picture of the conditions their materials are kept in.

Download MicroLab Lite software from Fourier Systems website: www.fouriersystems.com

Setup
MicroLite configuration

Analysis
Histogram + Statistics

Output
Table view + Graph alarm + Excel export

GMT Recording
Setting data recording to meet with GMT - Greenwich Mean Time for use in international environments, particularly export and import.


**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-bit, high-resolution, 8 channel data logging. The DaqPRO features powerful graphical display and analysis functions for measuring voltage, current and temperature. It is designed to provide a professional, compact, stand-alone low cost data logging system for a wide variety of applications.

- High-end data acquisition hand-held mobile solution
- 8 channels each capable of measuring seven popular parameters
- Setup on every port makes it viable for all industries
- Stand-alone operation: Display and keyboard for field programming and analysis (graph/table)
- Rechargeable 7.2V battery with over 500 charging cycles
- High sampling rate – up to 4,000 samples/second
- Large data storage 512 KB RAM
- Fast communication channels: USB
- Multiple logging storage of up to 100 sampling sessions
- Scales readings into meaningful engineering units e.g. bar, ppm
- Built-in clock and calendar keeps track of time and date for each data recording
- On screen text editing to annotate collected data

www.fouriersystems.com
DaqPRO LCD Screens

DaqPRO provides truly independent data acquisition with full setup, data display and analysis all on the DaqPRO.
DaqPRO Features

- Detachable screw terminal
- LCD screen
- Enter/Start button
- Forward/Back button
- Escape/Stop button
- On/Off buttons

DaqPRO Solution Case Study

**Company:** American Honda Car Manufacturer

**Challenge:**
- Honda technicians perform onsite Honda engine compatibility tests
- Measuring different engine location operating temperatures

**Requirements:**
- Simple, turn-key, independent, battery operated
- Onsite data display and analysis without PC connection

**Solution:**
DaqPRO can provide on-the-spot accurate and complete information

**Method:**
- 6 different scenarios are used on the DaqPRO when testing, each at default setting
- Ambient temperature sensor in I/O-1 and anywhere from 2 to 5 type K thermocouples for other inputs
DaqLab Software for DaqPRO

- Runs on Windows 95/98/2000/ME/XP and VISTA, as well as PDA platforms
- 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

Analysis Wizard
Scientific Functions - Statistics

Sensor Calibration

Online Logger Setup

Online Graph & Table View

Meter View
For Analog, Bar or Digital data display

Export to Excel

Define New Sensors:
Defining a custom sensor
**MicroLog Solution**

General data logger

The MicroLog solution family offers two low-cost portable data loggers:

- **Microlog**
- **MicroLogPRO**

**Internal sensor models for:**
- Temperature
- Temperature/RH

**Plus selected range of external sensors**

- 8 year legacy of customer satisfaction, reliability and application experience
- Up to 3 parameters: Temp, RH and external sensors
- Accurate, portable 8-bit (MicroLog) and 10-bit (MicroLogPRO) data loggers
- All data viewing, export, and printing is done via two function keys
- View up to 30 days min/max history on LCD screen
- Water and dust proof (IP65/NEMA 4)
- Infrared communication to portable thermal printer
- Records months of data – up to 16,000 or 52,000 samples
- External sensors include: Temperature, pH, 4 to 20 mA, 0 to 10 V
- 4 to 20 mA and 0 to 10 V inputs allow for connection with any industry standard sensors
- Sensor values are displayed in their own units on the LCD
- MicroLab analysis software enabling powerful monitoring and data analysis capability
A compact 8-bit data logger capable of recording data for months, even long-term shipping and storage. All data viewing, data export, and printing is done via two function keys.

- External input enables additional data collection from a variety of external sensors
- View up to 30 days min/max history
- Built-in quality sensors for temperature and humidity
- Programmable sampling rate
- Records months of data - up to 16,000 samples
- Low and high alarm level programming

The 10-bit MicroLogPRO has all of the benefits of the 8-bit MicroLog in addition to the following enhancements:

- Higher sampling resolution for more accurate readings
- Increased memory - 52,000 samples
- Enhanced 4 digit LCD

MicroLog Case Study

Challenge:
High temperature and humidity levels during worldwide export journeys of up to a week reduce quality and humidity, causing botrytis.

Requirements:
Tracking and tracing system charting delivery from supplier to customer and determine where obstacles occur to enable proactive, preventative measures.

Solution:
MicroLog humidity and temperature data logger monitor the journeys’ climate conditions and help structurally reduce quality loss of the flowers by developing a quality progress report.

Method:
MicroLog data loggers are attached to the flowers, measuring temperature and humidity every 30 minutes. Upon arrival in Japan, the data loggers are removed by the customer and mailed back to Greenwings in attached envelopes. The data on the data loggers is then uploaded via an Internet site to a central database.
**MicroLog Operating Method**

1. Record data
2. Connect to PC via RS232 cable
3. Display data graphically in MicroLab

1. Record data
2. Recorded data is printed via infrared beam
3. Data printout displays Min, Max, Average and Duration

**MicroLog External Sensors**

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>MicroLog Temperature DT132 (2.5 m)</td>
<td>Range: -50 to 100 °C (-58 °F to 212 °F)</td>
</tr>
<tr>
<td>MicroLog Temperature DT093 (10 m)</td>
<td>Resolution: &lt;1 °C (33.8 °F)</td>
</tr>
<tr>
<td>MicroLogPRO Temperature DT132 (2.5 m)</td>
<td>Range: -50 to 110 °C (-58 °F to 230 °F)</td>
</tr>
<tr>
<td>MicroLogPRO Temperature DT093 (10 m)</td>
<td>Resolution: &lt;0.3 °C (37.4 °F)</td>
</tr>
<tr>
<td>MicroLog DT168 pH Adapter &amp; Electrode</td>
<td>Range: 1 to 14 pH</td>
</tr>
<tr>
<td></td>
<td>Resolution: 0.116 pH</td>
</tr>
<tr>
<td>MicroLogPRO DT168 pH Adapter &amp; Electrode</td>
<td>Range: 1 to 14 pH</td>
</tr>
<tr>
<td></td>
<td>Resolution: 0.02 pH</td>
</tr>
<tr>
<td>MicroLog DT140 Voltage Adaptor</td>
<td>Range: 0 to 10 V</td>
</tr>
<tr>
<td></td>
<td>Resolution: 0.05 V</td>
</tr>
<tr>
<td>MicroLogPRO DT140 Voltage Adaptor</td>
<td>Range: 0 to 10 V</td>
</tr>
<tr>
<td></td>
<td>Resolution: 0.01 V</td>
</tr>
<tr>
<td>MicroLog/MicroLogPRO DT139 Current Adapter</td>
<td>Range: 4 to 20 mA</td>
</tr>
<tr>
<td></td>
<td>Resolution: ±0.1 mA</td>
</tr>
</tbody>
</table>
MicroLab Software for MicroLog & MicroLogPRO

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

- Downloads from MicroLog
- Graph & table displays
- Alarm levels per MicroLog displays
- Ability to configure MicroLog
- Sensor definition
- Comments for each data logger
- Automatic data saving
- Daily status reports in various formats

Data can be clearly identified according to the ID number of the logger it came from and the threshold relevant to that logger. MicroLab automatically saves the data and produces daily status reports of your environment.

Data Management
Data records can be exported to Excel or CSV file format using the Export to Excel feature

Data Analysis
Mean kinetic temperature, an expression of cumulative thermal stress in different temperatures during storage, transportation and distribution.

Pasteurization provides analysis for the most common methods of pasteurization in Industry: High Temperature Short Time (HTST); Ultra Pasteurization (UP) and Ultra High Temperature (UHT) pasteurization.

Histogram provides a graphical view of historical results presented according to defined parameters of periods of time and percentage levels. This provides a level of analysis which can be tailored to specific environment needs for an immediate picture. For example, this can be used in a museum environment where the percentage of time the humidity reached certain levels can be viewed.

Annotation feature enables text marks to be placed on the graph at relevant points where certain information needs to be highlighted.

GMT Recording
Setting data recording to meet with GMT - Greenwich Mean Time for use in international environments, particularly export and import.
# MicroLog & MicroLogPRO Comparison Table

<table>
<thead>
<tr>
<th></th>
<th>MicroLog</th>
<th>EC650</th>
<th>EC700</th>
<th>MicroLogPRO</th>
<th>EC750</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sampling resolution</strong></td>
<td>k-bit</td>
<td></td>
<td></td>
<td>k-bit</td>
<td></td>
</tr>
<tr>
<td><strong>Internal range</strong></td>
<td>-30 to 50 °C/22 to 122 °F</td>
<td></td>
<td></td>
<td>-40 to 80 °C/40 to 176 °F</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature accuracy</strong></td>
<td>±0.6 °C/+1.08 °F</td>
<td></td>
<td></td>
<td>±0.2 °C/+0.36 °F</td>
<td></td>
</tr>
<tr>
<td><strong>Humidity accuracy</strong></td>
<td>N/A</td>
<td>±3 %</td>
<td>N/A</td>
<td>±2 %</td>
<td></td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>0.5 °C,-30 to -29 °C/0.9 °F (-22 to -20 °F)</td>
<td>0.4 °C, -29 to -30 °C/0.76 °F (-18 to -22 °F)</td>
<td>0.3 °C, -21 to 22 °C/0.54 °F (-5 to 71 °F)</td>
<td>0.4 °C, -22 to 32 °C/0.76 °F (73 to 89 °F)</td>
<td>0.3 °C, -29 to 39 °C/0.9 °F (90 to 102 °F)</td>
</tr>
<tr>
<td><strong>Memory capacity</strong></td>
<td>1 sensor, 16,000 samples</td>
<td></td>
<td></td>
<td>1 sensor, 52,000 samples</td>
<td></td>
</tr>
<tr>
<td><strong>Sampling rate</strong></td>
<td>1 sensor, 52,000 samples</td>
<td>2 sensors, 9,000 samples</td>
<td>3 sensors, 5,912 samples</td>
<td>1 sensor, 26,000 samples</td>
<td>3 sensors, 16,000 samples</td>
</tr>
<tr>
<td><strong>LCD display</strong></td>
<td>Two digit 7-segment LCD</td>
<td></td>
<td></td>
<td>Four digit, 7-segment LCD with decimal point</td>
<td></td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>USB 1.1</td>
<td></td>
</tr>
<tr>
<td><strong>Infrared printer</strong></td>
<td>Minimum, maximum and duration up to 30 days</td>
<td>Wireless report to portable thermal printer HP2240B</td>
<td>Minimum, maximum and duration up to 30 days</td>
<td>OR</td>
<td>Real-time data print-out up to last 128 values</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>Internal lithium battery 3.6 V, 1/2 AA, 1.2 AH</td>
<td></td>
<td></td>
<td>Internal lithium battery 3.6 V, 1/2 AA, 1.2 AH</td>
<td></td>
</tr>
<tr>
<td><strong>Battery life</strong></td>
<td>Approximately 24 months</td>
<td></td>
<td></td>
<td>Approximately 24 months</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>72 mm diameter, 22.9 mm thickness</td>
<td></td>
<td></td>
<td>72 mm diameter, 22.9 mm thickness</td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>55 g</td>
<td></td>
<td></td>
<td>55 g</td>
<td></td>
</tr>
</tbody>
</table>
Password

21 CFR Part 11

DatPass

Administration Software
Digital Signature
DatPass
FDA Title 21 CFR Part 11 Compliant
Supporting DataNet & MicroLab software

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

Data Loggers

Ordering Info

Sensors
# DataNet Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DataNet System</th>
<th>Technical Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNL910</td>
<td>Internal Temperature RF logger + 4 external inputs</td>
<td>- External Inputs: 0 to 1 V, 4 to 20 mA, Thermocouple (J, K, T), PT-100 (2-wire), Pulse Counter, Dry Contact, Frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 12 V power excitation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Includes AC power adapter</td>
</tr>
<tr>
<td>DNL920</td>
<td>Internal Temperature/Humidity RF logger + 4 external inputs</td>
<td>- External Inputs: 0 to 1 V, 4 to 20 mA, Thermocouple (J, K, T), PT-100 (2-wire), Pulse Counter, Dry Contact, Frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 12 V power excitation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Includes AC power adapter</td>
</tr>
<tr>
<td>DNL810</td>
<td>Internal Temperature/Humidity RF logger</td>
<td>- Temperature range: -20 to 50 °C (-4 to 122 °F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Humidity range: 5 to 95 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Internal 3.6 V battery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- External antenna</td>
</tr>
<tr>
<td>DNL808</td>
<td>External NTC 10 kΩ RF logger</td>
<td>- NTC 10 kΩ probe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Range: -50 to 150 °C (-58 to 300 °F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Internal 3.6 V battery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- External antenna</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- NTC probe length 240 cm</td>
</tr>
<tr>
<td>DNR900</td>
<td>Receiver / Repeater *</td>
<td>- Built-in amplifier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Includes AC power adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Every ZigBee DataNet wireless network requires one DNR900 Receiver.</td>
</tr>
<tr>
<td>12504</td>
<td>GSM Modem (for SMS alerts)</td>
<td>- RS232</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Frequency Bands: GSM-850/EGSM-900/DCS-1800 PCS-1900 MHz Quad-Band</td>
</tr>
</tbody>
</table>

### Ordering Tips!
1. Every DataNet network purchased must be ordered with at least one DNR900 Receiver unit, in order to create and manage the network.
2. Add more Repeaters to your network in order to cover potential RF blind spots.
3. Stand alone DNL910 and DNL920 loggers run on the same software as the wireless DataNet loggers. No Receiver is needed to download the data to the PC.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DataNet Accessories</th>
<th>Technical Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>12753</td>
<td>PT-100 sensor (2-wire)</td>
<td>- Range: -70 to 400 °C (-94 to 752 °F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2.5 m (8.2 ft) Teflon cable length</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Teflon cable range: -65 to 200 °C (-85 to 392 °F)</td>
</tr>
<tr>
<td>12752</td>
<td>PT-100 sensor (2-wire)</td>
<td>- Range: -70 to 400 °C (-94 to 752 °F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 4 m (13 ft) Teflon cable length</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Teflon cable range: -65 to 200 °C (-85 to 392 °F)</td>
</tr>
</tbody>
</table>
### DataNet Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DataNet Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>12751</td>
<td><strong>PT-100 sensor (2-wire)</strong></td>
</tr>
<tr>
<td></td>
<td>• Range: -70 to 400 °C (-94 to 752 °F)</td>
</tr>
<tr>
<td></td>
<td>• 6 m (19 ft) Teflon cable length</td>
</tr>
<tr>
<td></td>
<td>• Teflon cable range: -65 to 200 °C (-85 to 392 °F)</td>
</tr>
<tr>
<td>11304</td>
<td><strong>Internal battery pack</strong></td>
</tr>
<tr>
<td></td>
<td>• 4.8 V 800 mAh NiMH (2 batteries in series)</td>
</tr>
<tr>
<td></td>
<td><strong>PC Suite</strong></td>
</tr>
<tr>
<td></td>
<td>• DataNet software CD</td>
</tr>
<tr>
<td></td>
<td>• Mini USB communication cable (for DNR900)</td>
</tr>
<tr>
<td></td>
<td>• User guide</td>
</tr>
<tr>
<td></td>
<td>* One DN-PCSUITÉ is needed in every ZigBee DataNet network</td>
</tr>
<tr>
<td>SFTMCL025A-2</td>
<td><strong>DatPass for DataNet</strong>, meeting 21 CFR Part 11 compliance</td>
</tr>
<tr>
<td></td>
<td>• DatPass software CD</td>
</tr>
<tr>
<td></td>
<td>• USB security dongle</td>
</tr>
<tr>
<td></td>
<td>• Validation manuals</td>
</tr>
<tr>
<td>12655</td>
<td><strong>Mini USB communication cable</strong></td>
</tr>
<tr>
<td></td>
<td>• For DNR900</td>
</tr>
<tr>
<td></td>
<td>• 5-pin Mini USB to Type A</td>
</tr>
<tr>
<td></td>
<td>• 1 m cable length</td>
</tr>
<tr>
<td>DT246</td>
<td><strong>110/12V AC/DC US adapter</strong></td>
</tr>
<tr>
<td></td>
<td>• For DNR900, DNL910 and DNL920</td>
</tr>
<tr>
<td>DT245</td>
<td><strong>220/12V AC/DC European adapter</strong></td>
</tr>
<tr>
<td></td>
<td>• For DNR900, DNL910 and DNL920</td>
</tr>
<tr>
<td>DT282</td>
<td><strong>220/12V AC/DC UK adapter</strong></td>
</tr>
<tr>
<td></td>
<td>• For DNR900, DNL910 and DNL920</td>
</tr>
</tbody>
</table>
# DataNet Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Mini DataNet Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>13129</td>
<td>Mini DataNet external antenna</td>
</tr>
<tr>
<td></td>
<td>2.4 GHz SMA 5 DBI</td>
</tr>
<tr>
<td>12928</td>
<td>Mini DataNet internal battery</td>
</tr>
<tr>
<td></td>
<td>2/3 AA 3.6 V lithium</td>
</tr>
<tr>
<td>DT332</td>
<td>Temperature probe</td>
</tr>
<tr>
<td></td>
<td>• NTC 10 kΩ</td>
</tr>
<tr>
<td></td>
<td>• Range: -50 to 150 °C</td>
</tr>
<tr>
<td>DN-PCSUITE</td>
<td>PC Suite</td>
</tr>
<tr>
<td></td>
<td>• DataNet software CD</td>
</tr>
<tr>
<td></td>
<td>• Mini USB communication cable (for DNR900)</td>
</tr>
<tr>
<td></td>
<td>• User guide</td>
</tr>
<tr>
<td></td>
<td>* One DN-PCSUITE is needed in every Mini DataNet network</td>
</tr>
<tr>
<td>SFTMCLO25A-2</td>
<td>DatPass for DataNet, meeting 21 CFR Part 11 compliance</td>
</tr>
<tr>
<td></td>
<td>• DatPass software CD</td>
</tr>
<tr>
<td></td>
<td>• USB security dongle</td>
</tr>
<tr>
<td></td>
<td>• Validation manuals</td>
</tr>
<tr>
<td>12655</td>
<td>Mini USB communication cable</td>
</tr>
<tr>
<td></td>
<td>For DNR900</td>
</tr>
<tr>
<td></td>
<td>• 5-pin Mini USB to Type A</td>
</tr>
<tr>
<td></td>
<td>• 1 m cable length</td>
</tr>
</tbody>
</table>
### MicroLite Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>MicroLite Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>LITE5008</td>
<td>MicroLite USB Temperature logger</td>
</tr>
<tr>
<td></td>
<td>- Range: -40 to 80 °C (-40 to 176 °F)</td>
</tr>
<tr>
<td></td>
<td>- 8,000 sample memory</td>
</tr>
<tr>
<td>LITE5016</td>
<td>MicroLite USB Temperature logger</td>
</tr>
<tr>
<td></td>
<td>- Range: -40 to 80 °C (-40 to 176 °F)</td>
</tr>
<tr>
<td></td>
<td>- 16,000 sample memory</td>
</tr>
<tr>
<td>11597</td>
<td>Replacement magnet key</td>
</tr>
<tr>
<td>13052</td>
<td>Replacement O-ring</td>
</tr>
<tr>
<td>10734</td>
<td>Replacement lithium battery</td>
</tr>
<tr>
<td></td>
<td>- Range: -40 to 80 °C (-40 to 176 °F)</td>
</tr>
<tr>
<td></td>
<td>- 3V CR2032</td>
</tr>
</tbody>
</table>

---

**Ordering Tips!**

1. MicroLite is defined as IP68. You can submerge the logger to a depth of half a meter for up to half an hour only.

2. No need to purchase MicroLab Lite software since it is available for free download from www.fouriersystems.com.
**DaqPRO Solution** Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DaqPRO</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBS301</td>
<td>DaqPRO 8-channel data acquisition device</td>
<td>Measuring 0-10 V, 4-20 mA, TC / J, K, T, PT-100 (2 and 3-wire), NTC 10 k and 100 k, Pulse Counter, Frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bundle includes: DaqPRO data logger, DaqLab software, USB communication cable, user guide and carrying case</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DaqPRO Accessories</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT332</td>
<td>DaqPRO compatible NTC Temperature probe</td>
<td>NTC 10 kΩ, Range: -25 to 150 °C (-13 to 302 °F)</td>
</tr>
<tr>
<td>12753</td>
<td>PT-100 sensor (2-wire)</td>
<td>Range: -70 to 400 °C (-94 to 752 °F), 2.5 m (8.2 ft) Teflon cable length, Teflon cable range: -65 to 200 °C (-85 to 200 °F)</td>
</tr>
<tr>
<td>12752</td>
<td>PT-100 sensor (2-wire)</td>
<td>Range: -70 to 400 °C (-94 to 752 °F), 4 m (13 ft) Teflon cable length, Teflon cable range: -65 to 200 °C (-85 to 200 °F)</td>
</tr>
<tr>
<td>12751</td>
<td>PT-100 sensor (2-wire)</td>
<td>Range: -70 to 400 °C (-94 to 752 °F), 6 m (19 ft) Teflon cable length, Teflon cable range: -65 to 200 °C (-85 to 200 °F)</td>
</tr>
<tr>
<td>11460A</td>
<td>Weather box</td>
<td>IP67 standard compliant</td>
</tr>
<tr>
<td>ACO40</td>
<td>10 W solar panel</td>
<td>(DaqPRO must be modified)</td>
</tr>
<tr>
<td>11791</td>
<td>6A charging regulator</td>
<td></td>
</tr>
</tbody>
</table>

**Ordering Tips!**

When ordering the DaqPRO, all necessary accessories (e.g. AC adapter, USB cable, etc.) are bundled together with the logger. There is no need to order them separately.
## DaqPRO Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DaqPRO Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT084</td>
<td>Rechargeable battery</td>
</tr>
<tr>
<td></td>
<td>12 V, 1.2 AH for solar panel</td>
</tr>
<tr>
<td></td>
<td>(2 batteries required)</td>
</tr>
<tr>
<td>DT180</td>
<td>USB communication cable</td>
</tr>
<tr>
<td>DT246</td>
<td>110/12 V AC/DC US adapter</td>
</tr>
<tr>
<td></td>
<td>For DaqPRO</td>
</tr>
<tr>
<td>DT245</td>
<td>220/12 V AC/DC European adapter</td>
</tr>
<tr>
<td></td>
<td>For DaqPRO</td>
</tr>
<tr>
<td>DT282</td>
<td>220/12 V AC/DC UK adapter</td>
</tr>
<tr>
<td></td>
<td>For DaqPRO</td>
</tr>
<tr>
<td>11599</td>
<td>Replacement rechargeable battery pack</td>
</tr>
<tr>
<td></td>
<td>(GP1600MA 7.2 V battery pack)</td>
</tr>
</tbody>
</table>
### MicroLog Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>MicroLog/MicroLogPRO</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC600A</td>
<td>MicroLog Temperature logger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Range: -30 to 50 °C (-22 to 122 °F)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 8-bit resolution</td>
<td></td>
</tr>
<tr>
<td>EC650A</td>
<td>MicroLog Temperature and Humidity logger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Range: Temperature -30 to 50 °C (-22 to 122 °F)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Humidity 10 to 90 % rH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 8-bit resolution</td>
<td></td>
</tr>
<tr>
<td>EC700A</td>
<td>MicroLogPRO Temperature logger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Range: -40 to 80 °C (-40 to 176 °F)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 10-bit resolution</td>
<td></td>
</tr>
<tr>
<td>EC750A</td>
<td>MicroLogPRO Temperature and Humidity logger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Range: Temperature -40 to 80 °C (-40 to 176 °F)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Humidity 5 to 95 % rH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 10-bit resolution</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>MicroLog/MicroLogPRO Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK041</td>
<td>User Guide</td>
</tr>
<tr>
<td></td>
<td>For MicroLog/MicroLogPRO system</td>
</tr>
<tr>
<td>DT058</td>
<td>MicroLog/MicroLogPRO communication cable</td>
</tr>
<tr>
<td></td>
<td>Connecting to Serial port only</td>
</tr>
</tbody>
</table>

### Ordering Tips!

1. For the MicroLogPRO EC750 only, you can order the PC Kit which includes a mini USB cable instead of a Serial cable.
2. MicroLog bundle includes the logger only. The software must be ordered separately.
# Ordering Information

## MicroLog Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>MicroLog/MicroLogPRO Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT239</td>
<td><strong>Mini USB communication cable</strong>&lt;br&gt;For MicroLogPRO EC750A only</td>
</tr>
<tr>
<td>DT132A</td>
<td><strong>External Temperature sensor</strong>&lt;br&gt;- MicroLog range: -50 to 100 °C (-58 °F to 212 °F)&lt;br&gt;- MicroLogPRO range: -50 to 110 °C (-58 °F to 230 °F)&lt;br&gt;- 2.5 m (8.2 ft) cable length</td>
</tr>
<tr>
<td>DT093A</td>
<td><strong>External Temperature sensor</strong>&lt;br&gt;- MicroLog range: -50 to 100 °C (-58 °F to 212 °F)&lt;br&gt;- MicroLogPRO range: -50 to 110 °C (-58 °F to 230 °F)&lt;br&gt;- 10 m (32.8 ft) cable length</td>
</tr>
<tr>
<td>DT132N</td>
<td><strong>External Temperature needle sensor</strong>&lt;br&gt;- MicroLog range: -50 to 100 °C (-58 °F to 212 °F)&lt;br&gt;- MicroLogPRO range: -50 to 110 °C (-58 °F to 230 °F)&lt;br&gt;- 2.5 m (8.2 ft) cable length</td>
</tr>
<tr>
<td>DT139A</td>
<td><strong>External 4-20 mA adapter</strong></td>
</tr>
<tr>
<td>DT140A</td>
<td><strong>External 0-10 V adapter</strong></td>
</tr>
<tr>
<td>DT168A</td>
<td><strong>External pH adapter</strong>&lt;br&gt;1-14 pH (electrode not included)</td>
</tr>
<tr>
<td>DT018</td>
<td><strong>pH electrode</strong></td>
</tr>
<tr>
<td>DT086</td>
<td><strong>3.6 V Lithium battery</strong></td>
</tr>
</tbody>
</table>
### MicroLog Solution Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>MicroLog/MicroLogPRO Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC004</td>
<td>Infrared printer for data print-out</td>
</tr>
</tbody>
</table>
| 11199       | Calibration certificate  
Available through advance order  
*Price is per channel* |
| PC-KIT      | PC Kit  
- MicroLab software CD  
- MicroLog communication cable |
| PC-KIT-750-USB | PC Kit for EC750  
- MicroLab software CD  
- Mini USB communication cable for EC750 |
| SFTMCL025A  | DatPass for MicroLab, meeting 21 CFR Part 11 compliance  
- DatPass software CD  
- USB security dongle |
**DataNet Solution Specifications**

### INPUTS

- **4 channel inputs**
- **Select type for each input:** 4 to 20 mA, 0 to 50 mV, 0 to 1 V, PT-100, Thermocouple, Dry Contact, Pulse Counter (Input 4 only).
- **Frequency (Input 4 only) and user defined sensors.**

### INPUT TYPES

<table>
<thead>
<tr>
<th>4 to 20 mA</th>
<th>0 to 50 mV</th>
<th>0 to 1 V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range:</strong></td>
<td>4 to 20 mA</td>
<td>0 to 50 mV</td>
</tr>
<tr>
<td><strong>Resolution:</strong></td>
<td>4.76 µA</td>
<td>3 µV</td>
</tr>
<tr>
<td><strong>Accuracy:</strong></td>
<td>±0.5 %</td>
<td>±0.5 %</td>
</tr>
<tr>
<td><strong>Input impedance:</strong></td>
<td>25 MΩ</td>
<td>25 MΩ</td>
</tr>
<tr>
<td><strong>Maximum load:</strong></td>
<td>30 mA, 5.2 V</td>
<td>25 MΩ</td>
</tr>
</tbody>
</table>

### Temperature PT-100 (2-wires)

- **Range:** -200 to 400 °C
- **Resolution:** 0.1 °C
- **Accuracy:** ±0.5 %
- **Input impedance:** 25 MΩ
- **Maximum load:** 5.2 V

### Temperature Thermocouple J

- **Range:** -200 to 1,000 °C
- **Resolution:** 0.1 °C
- **Accuracy:** ±0.5 %
- **Input impedance:** 25 MΩ
- **Cold junction compensation error:** ±0.3 °C

### Temperature Thermocouple K

- **Range:** -200 to 1,000 °C
- **Resolution:** 0.1 °C
- **Accuracy:** ±0.5 %
- **Input impedance:** 25 MΩ
- **Cold junction compensation error:** ±0.3 °C

### Temperature Thermocouple T

- **Range:** -200 to 400 °C
- **Resolution:** 0.1 °C
- **Accuracy:** ±0.5 %
- **Input impedance:** 25 MΩ
- **Cold junction compensation error:** ±0.3 °C

### Dry Contact

- **Range:** Open/Closed

### Pulse Counter (Input 4 only)

- **Zero crossing detector**
- **Range:** 1 to 65,536 counts
- **Resolution:** 1 count
- **Frequency range:** 0 to 4,000 Hz

### Loop Impedance

- **21 Ω**

### Accuracy

- **±0.5 %**

### Resolution

- **4.76 µA**

### Range

- **4 to 20 mA**

### Operating Temperature Range

- **-20 to 50 °C**

### Casing

- **Plastic ABS box**
- **Dimensions:** 97 x 93 x 27 mm
- **Weight:** 200 gr

### Standards Compliance

- **CE, FCC**
- **Internal battery specs:** 4.8 V 800 mA NiMH battery (2 batteries in series)
- **External voltage specs:** DC 12 V @ 300 mA 3.6 VA

### GSM MODEM EZ-10

- **Frequency Bands:** GSM-850/EGSM-900/DCS-1800 PCS-1900 MHz Quad-Band

### GPDR

- **Class 10**

### RJ11 AUX Connector

- **GPIO**

### Interface Configurations

- **RS232:** Serial Interface
- **Power:** 12V DC

### Dimensions

- **83 x 107 x 64 x 33 mm**

### Temperature Range

- **Normal:** -10 to +55 °C
- **Extreme:** -20 to +70 °C
- **Storage:** -30 to +85 °C

### External Sensors

- **PT-100 Sensor**
  - **Range:** -70 to 400 °C
  - **Cable length:** 2.5 m
  - **Teflon cable range:** -70 to 400 °C
  - **Probe:** Diameter 6 mm, Length 81 mm

### RF Network Communication

- **Frequency:** 2.4 GHz
- **Data rate:** 250 Kbps
- **Full mesh network architecture supported**
- **128-bit network security encryption**
- **Worldwide license-free**
- **RF Transmission range boost mode 80 m (line of sight)**
- **RF Transmission range power amplifier 800 m (line of sight)**

### Power Supply

- **Internal rechargeable 4.8 V NiMH battery**
- **Built-in battery charger**
- **External 12 V DC input**

### DataNet Software

- **Main Features**
  - **Windows® based software**
  - **Data displayed in numeric or graphical display of all inputs**
  - **On-line retrieval and display of the collected data in real-time**
  - **Definition of new sensors**
  - **Ability to read the defined sensor's units on the logger's display**
  - **Full calibration of the loggers via the software**
  - **Ability to read the defined sensor’s units**
  - **Full calibration of the loggers via the software**
  - **Definition of new sensors**
  - **Alarm levels on graphs**
  - **Graphical alarm levels**
  - **Documentation and filing**

### Connectors

- **Mini USB type B**
- **USB 2.0 compliance**
- **PC Communication**
  - **Overload protection**
  - **Max. Load:** 50 mA, 3 V DC
  - **Close position resistance:** 50 Ω
  - **Open collector**
  - **Alarm Output (output 1)**
  - **Open collector**
  - **Close position resistance:** 50 Ω
  - **Max. Load:** 50 mA, 3 V DC

### Display

- **Full keyboard operation**
- **2 row LCD**
- **16 character display**

### RF Transmission range

- **800 m (line of sight)**
- **Boost mode 80 m (line of sight)**
- **Worldwide license-free**
- **128-bit network security encryption**
- **Full mesh network architecture supported**
- **Data rate:** 250 Kbps
- **Frequency:** 2.4 GHz

### Dimensions

- **83 x 107 x 64 x 33 mm**

### Power Supply

- **Internal rechargeable 4.8 V NiMH battery**
- **Built-in battery charger**
- **External 12 V DC input**

### DataNet Software

- **Main Features**
  - **Windows® based software**
  - **Data displayed in numeric or graphical display of all inputs**
  - **On-line retrieval and display of the collected data in real-time**
  - **Definition of new sensors**
  - **Ability to read the defined sensor’s units on the logger's display**
  - **Full calibration of the loggers via the software**
  - **Definition of new sensors**
  - **Alarm levels on graphs**
  - **Graphical alarm levels**
  - **Documentation and filing**
  - **Over-the-air firmware update**

### Length and Temperature Specifications

- **are provided in Metric and Celsius units**

### Specifications

- **External Power Excitation (transducers usage)**
  - **12 VDC @ 2 A**

### Alarm Output

- **Open collector**
- **Close position resistance:** 50 Ω
- **Max. Load:** 50 mA, 3 V DC
- **Overload protection**
- **50 mA reset fuse**

### PC Communication

- **USB 2.0 compliance**

### Type of USB Cable

- **Mini USB type B**

### RF Network Communication

- **Frequency:** 2.4 GHz
- **Data rate:** 250 Kbps
- **Full mesh network architecture supported**
- **128-bit network security encryption**
- **Worldwide license-free**
- **RF Transmission range boost mode 80 m (line of sight)**
- **RF Transmission range power amplifier 800 m (line of sight)**

### Sampling Features

- **Memory capacity:** 59,000 samples
- **Sampling rate:** 1 per sec to 1 per every 2 hours
- **For PT-100 or Thermocouple sensors:**
  - **Max Sampling rate with more than two sensors connected:** 1 sample per 2 sec
- **Sampling resolution:** 16 bit
- **Channel separation:** 80 dB

### Standards Compliance

- **CE, FCC**
- **Internal battery specs:** 4.8 V 800 mA NiMH battery (2 batteries in series)
- **External voltage specs:** DC 12 V @ 300 mA 3.6 VA

### GSM MODEM EZ-10

- **Frequency Bands:** GSM-850/EGSM-900/DCS-1800 PCS-1900 MHz Quad-Band

### Dimensions

- **83 x 107 x 64 x 33 mm**

### Temperature Range

- **Normal:** -10 to +55 °C
- **Extreme:** -20 to +70 °C
- **Storage:** -30 to +85 °C

### Power Supply

- **Internal rechargeable 4.8 V NiMH battery**
- **Built-in battery charger**
- **External 12 V DC input**

### DataNet Software

- **Main Features**
  - **Windows® based software**
  - **Data displayed in numeric or graphical display of all inputs**
  - **On-line retrieval and display of the collected data in real-time**
  - **Definition of new sensors**
  - **Ability to read the defined sensor’s units on the logger's display**
  - **Full calibration of the loggers via the software**
  - **Definition of new sensors**
  - **Alarm levels on graphs**
  - **Graphical alarm levels**
  - **Documentation and filing**
  - **Full calibration of the loggers via the software**
  - **Definition of new sensors**
  - **Alarm levels on graphs**
  - **Graphical alarm levels**
  - **Documentation and filing**
## Mini DataNet Solution Specifications

<table>
<thead>
<tr>
<th>DNL808 External Temperature Sensor</th>
<th>DNL810 Internal RH/Temperature Sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Range: -50 to 150 °C</td>
<td>• Temp range: -20 to 50 °C</td>
</tr>
<tr>
<td>• Resolution: 0.06 °C</td>
<td>• Temp resolution: 0.04 °C</td>
</tr>
<tr>
<td>• Accuracy: ±0.3 °C</td>
<td>• Temp accuracy: ±0.4 °C</td>
</tr>
<tr>
<td>60 to 150 °C ±0.5 %</td>
<td>• Humidity resolution: 5 to 95 %</td>
</tr>
<tr>
<td>• Humidity accuracy: ±0.5 %</td>
<td>• Humidity resolution: 0.5 %</td>
</tr>
<tr>
<td></td>
<td>• Accuracy: ±0.5 %</td>
</tr>
</tbody>
</table>

## MicroLite Solution Specifications

<table>
<thead>
<tr>
<th>Internal Sensor</th>
<th>Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature: -40 to 80 °C</td>
<td>Battery life: 2 years at 1 sample per minute</td>
</tr>
<tr>
<td>Thermal conductor enabling fast response time</td>
<td>Replaceable 3 V lithium battery CR2032</td>
</tr>
</tbody>
</table>

## DaqPRO Solution Specifications

<table>
<thead>
<tr>
<th>INPUTS (DaqPRO 5300)</th>
<th>Pulse Counter (Input 1 only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selectable type for each input: 0-24 mA, 0-50 mV, 0-10 V</td>
<td>Optocoupler input</td>
</tr>
<tr>
<td>NTC, PT-100, Thermocouple, Pulse and Frequency (Input 1 only)</td>
<td>Range: 0 to 65,000</td>
</tr>
<tr>
<td>Battery life: 2 years at 1 sample per minute</td>
<td>Input signal: 0 to 5 V</td>
</tr>
<tr>
<td>Battery charger</td>
<td>Input impedance: 470 Ω</td>
</tr>
<tr>
<td>Internal rechargeable 7.2 V NiMH battery</td>
<td>Bandwidth: 0 to 25 Hz</td>
</tr>
</tbody>
</table>

## Length and Temperature specifications

Length and Temperature specifications are provided in Metric and Celsius units.

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<tr>
<th>Pulse Counter (Input 1 only)</th>
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<tr>
<td>Input impedance: 470 Ω</td>
</tr>
<tr>
<td>Bandwidth: 0 to 25 Hz</td>
</tr>
</tbody>
</table>

## MicroLite Solution Specifications

### Internal Sensor
- Temperature: -40 to 80 °C
- Thermal conductor enabling fast response time

### Outputs
- USB 2.0 communication

### Sampling
- Resolution: A/D resolution: 16-bit, 0.1 °C
- Memory capacity: 8 KB, 16 KB
- Sampling rate: 1 per second to 1 per 2 hours
- Accuracy: 0.3 °C

### Power Supply
- Battery life: 2 years at 1 sample per minute
- Replaceable 3 V lithium battery CR2032

### Design
- Dimensions: 11 x 3.9 x 2.6 cm
- Strap-on capabilities

### Weight
- 45.5 gr

### Display
- LCD with decimal point
- Visual Alert - Alarm icon when crossing predefined thresholds
- Low battery indication

### Operation
- Data scroll on the LCD
- Reed switch to start measuring

### Software
- MicroLab Lite for Windows 2000/XP/Vista
- Also available – DatPass 21
- CFR Part 11 Standards Compliance Software

### Standards Compliance
- CE, FCC, IP68/NEMA 6, 30 minutes for 0.5 m depth

## DaqPRO Solution Specifications

<table>
<thead>
<tr>
<th>Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 24 mA</td>
</tr>
<tr>
<td>Resolution: 4.76 μA</td>
</tr>
<tr>
<td>Accuracy: ±0.5 %</td>
</tr>
<tr>
<td>Loop impedance: 21 Ω</td>
</tr>
<tr>
<td>0 to 50 mV</td>
</tr>
<tr>
<td>Resolution: 3 μV</td>
</tr>
<tr>
<td>Accuracy: ±0.5 %</td>
</tr>
<tr>
<td>0 to 10 V</td>
</tr>
<tr>
<td>Resolution: 200 μV</td>
</tr>
<tr>
<td>Accuracy: ±0.5 %</td>
</tr>
</tbody>
</table>

### NTC Specifications
- NTC: 10/100 KΩ resistor
- Range: -25 to 150 °C
- Accuracy: ±0.5 %

### PT-100 Specifications
- Range: -200 to 400 °C
- Resolution: 0.1 °C (7 mΩ)
- Accuracy: ±0.5 %

### Thermocouple Specifications
- J, K, T
- Compensation error: ±0.3 °C
- Cold junction compensation error: ±0.3 °C
- Range: 0 to 10 V
- Resolution: 125 KΩ
- Accuracy: ±0.5 %

### NTC Specifications
- Input impedance: 50 Ω
- Accuracy: ±0.5 %
- Resolution: 0.05 ºC
- Range: 0 to 10 V
- Maximum current sink: 50 mA (fuse protected)
- Maximum input voltage: 5 V
- Input impedance: 50 Ω

### Communication
- USB 1.1 compliant

### Sampling
- Capacity: 512 KB
- Analog sampling rate: Variable, 1 sample/hour to 4,000 samples/sec, 1 channel
- Analog sampling resolution: 16-bit
- Channel separation: 80 dB

### Power Supply
- Internal rechargeable 7.2 V NiMH battery
- Built-in battery charger
- External 9 to 12 V DC input
- Battery life: 25 hours between charges

### Operating Temperature
- Range: 0 to 50 °C

### Casing
- Plastic ABS box
- Dimensions: 182 x 100 x 28 mm
- Weight: 450 gr

### Standards Compliance
- CE, FCC

### DaqLab Analysis Software
- Internet Explorer 5.01 or higher
- 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 and calibrating the DaqPRO
- Defining new sensors

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

[www.fouriersystems.com](http://www.fouriersystems.com)
MicroLog Solution Specifications

MICROLOG SOLUTION MODELS

MicroLog EC600  Temperature plus external sensor
MicroLog EC650  Temperature, relative humidity plus external sensor
MicroLogPRO EC700  Temperature plus external sensor
MicroLogPRO EC750  Temperature and relative humidity plus external sensor

BUILTIN SENSORS

MicroLog Temperature  Range: -30 to 50 °C  Resolution: 0.5 °C  Accuracy: ±0.6 °C

MicroLog Humidity  Range: 10 to 90 %  Resolution: 0.5 %  Accuracy: ±3 %

MicroLogPRO Temperature  Range: -40 to 80 °C  Resolution: 0.2 °C (-40 to -20 °C) 0.1 °C (-21 to 50 °C) 0.2 °C (51 to 80 °C)  Accuracy (all ranges): ±0.2 °C  Software calibration is possible

MicroLogPRO Humidity  Range: 5 to 95 %  Resolution: 0.1 %  Accuracy: ±2 %  Software calibration is possible

OUTPUT

MicroLog Display: 2 digit 7-segment LCD
MicroLogPRO Display: 4 digit 7-segment LCD with decimal point

Communication
- MicroLog IR - interface to portable HP printer
- RS232 communication to the PC with 19,200 kbps with MicroLog and MicroLogPRO
- USB 1.1 (MicroLogPRO)

Memory
- MicroLog: 16,000 samples
- MicroLogPRO: 1 sensor - 52,000 samples 2 sensors - 26,000 samples 3 sensors - 16,000 samples

Power Supply
- Internal lithium battery: 3.6V TLI902
- Battery life: Approximately 2 years (depending on sampling rate)

Sampling Rate
- User defined: From 1 every 10 seconds to 1 every two hours

Dimensions
- Width: 22.9 mm
- Diameter: 72 mm
- Weight: 55 gr

Standards
- Water and dust proof IP65 standard compliance, for EC600 and EC700 models
- CE and FCC standard compliance
- FDA Title 21 CFR Part 11 Compliance

MINICLAB SOFTWARE

- Runs on Windows® 95/98/2000/XP/Vista
- 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
- Showing daily reports of a fleet of data loggers
- Visual alarm levels on the graph and table

Minimum PC requirements
- Windows® 95 or later
- Pentium 300 MHz or higher
- 32 MB RAM
- 6 MB available disk space
- Available communication port

Length and Temperature specifications are provided in Metric and Celsius units.