

Specifications

MicroLogPRO

MicroLog Solution Models:

EC600	Temperature plus external sensor
EC650	Temperature, relative humidity plus external sensor
EC700	MicroLogPRO for temperature plus external sensors
EC750	MicroLogPRO for temperature & humidity plus external sensors

Built-In Sensors:

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

MicroLog Humidity	
Range:	0-100%
Resolution:	0.5%
Accuracy:	± 3%

MicroLogPRO Temperature	
Range:	-40°C to 80°C
Resolution:	0.2°C (-40°C to -20°C) 0.1°C (-21°C to 50°C)
Accuracy (all ranges):	0.2°C

Software calibration is possible

MicroLogPRO Humidity	
Range:	0 to 100%
Resolution:	0.1%
Accuracy:	3%

Software calibration is possible

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

Communication:

- MicroLog/MicroLogPRO IRDA -interface to portable HP printer
- MicroLog RS-232 cable connection to the PC
- MicroLogPRO RS-232 cable connection to the PC with 19200 kbps
- USB 1.1 (no water & dust proof) for Temp/Hum data logger only

Memory	
MicroLog	16,000 samples
MicroLogPRO	1 sensor - 52000 samples 2 sensors - 26000 samples 3 sensors - 16000 samples

Power supply
Internal lithium battery: 3.6V TL5902
Battery life: Approximately two years

Sampling rate
User defined: From 1 per 10 seconds to one/two hours

Dimensions	
Thickness:	22.9mm
Diameter:	72mm
Weight:	55gr

Standards

- Water and dust proof IP65 standard compliance, for EC 600 model
- CE and FCC standard compliance
- FDA Title 21 CFR Part 11 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

MicroLog 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 for External DC supply
 - Screw Terminal Board connections:
 - Power supply: DC 6-30 V
 - External sensor
 - External contact sensor
 - High alarm open connector 30V/2A
 - Low alarm relay open connector 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 American 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

MicroLog Plus 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 American 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

MicroLab Plus 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 with**
- The ID of each of the cradles
 - The alarm levels of each cradle
 - A comment per cradle
 - 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

About Fourier Systems

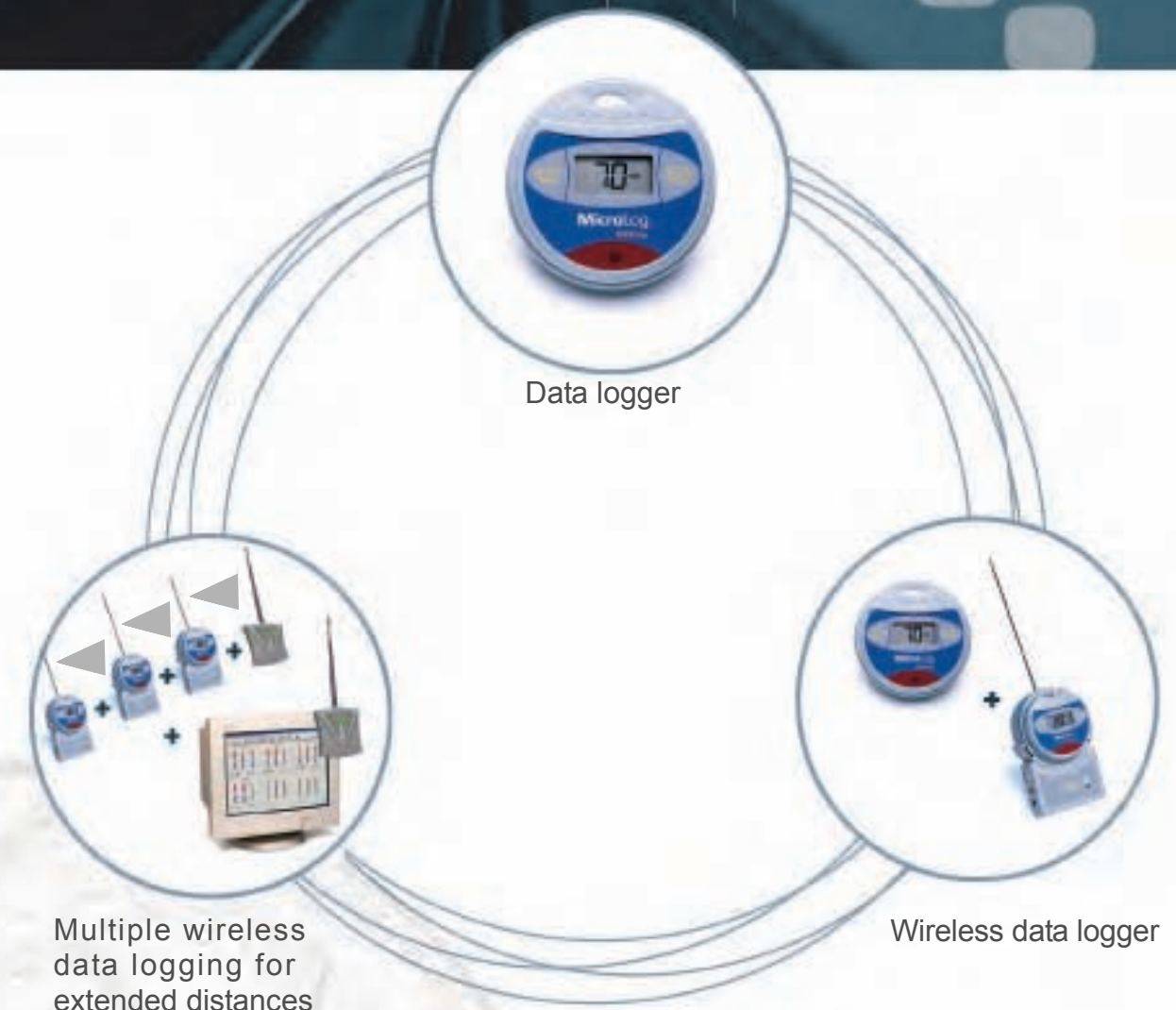
Fourier Systems Ltd. is an innovative provider of compact portable data logging devices and accessories for advanced data acquisition, communications and analysis. Our products are the ideal cost effective solution for ongoing data logging needs across the full spectrum of industry, including food transportation, storage, air conditioning and ventilation, clean rooms, warehouses and galleries to name but a few.



fourier

Committed
to Quality

Data Logging Wireless Solution for data acquisition & analysis



Multiple wireless
data logging for
extended distances

Wireless data logger



fourier

Compact Data Logger



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.

- Large digital display for easy viewing
- External input enables additional data collection from a variety of external sensors
- View up to 30 days min/max history
- Water and dust proof (IP65/NEMA 4)
- Built-in quality sensors for temperature and humidity
- Infrared communication to portable thermal printer
- Programmable sampling rate
- Records months of data - up to 16,000 samples
- Low and high alarm level programming

Compact 10-bit Data Logger



The new 10-bit MicroLog has all the benefits of the 8-bit MicroLog in addition to the following innovative new features:

- Higher sampling resolution for more accurate readings
- Increased memory - 52000 samples
- Enhanced 4 digit LCD

MicroLog & MicroLogPRO Integrates

Thermal portable printer - simply scan MicroLog's infrared beam

External sensor input



Transmitter - monitoring up to 200 loggers and transmitting data to PC

MicroLab software automatically saves and produces daily status reports

Both MicroLog 8-bit and MicroLogPRO 10-bit offer a temperature data logger and combined temperature and humidity data logger.

- Temperature plus external sensors
- Temperature and humidity plus external sensors

MicroLog + MicroLogPRO External Sensors

Temperature
DT132 (2.5m)
DT093 (8m)



Range: -50 to 100 °C (*-50 to 110 °C)
Resolution: $\lt; 1^\circ\text{C}$ (*$\lt; 0.3^\circ\text{C}$);

PT100
Temperature Adapter
DT252 -10 -10°C
DT253 -100 - 120°C



Range: -10 to 10 °C; -100 to 120 °C
Resolution: -10 to 10 °C up to 0.1°C

DT168
pH Adapter
& Electrode



Range: 1-14pH
Resolution: 0.116pH (*0.02pH)

DT140 Adapter
Voltage 0-10V



Range: 0-10V
Resolution: 0.05V (*0.01V)

DT139 Adapter
0-20 mA Current



Range: 0-20mA
Resolution: $\pm 0.1\text{mA}$

DT141
Contact Adapter



Range: Open/Close

DT279
Conductivity Adapter
and Electrode



Range: 0-20mS
Resolution: 0.04mS

DT163
Light



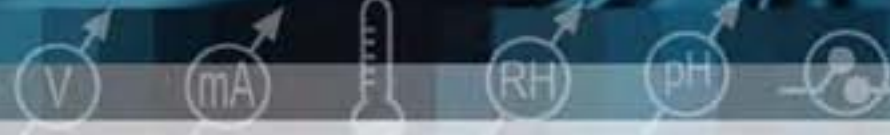
Range: 0-5000 Lux
Resolution: 25 Lux

DT288
Soil Moisture



Range: 0-100%

	MicroLog		MicroLogPRO	
	EC600 Temperature	EC650 Temperature/Humidity	EC700 Temperature	EC750 Temperature/Humidity
Sampling resolution	8-bit		10-bit	
Internal range	-30 to +50°C	-30 to 50°C (T), 0 to 100% (RH)	-40°C to 80°C	-40°C to 80°C (T), 0 to 100% (RH)
Temperature accuracy	$\pm 0.6^\circ\text{C}$		$\pm 0.2^\circ\text{C}$	
Humidity accuracy	$\pm 3\%$		$\pm 3\%$	
Resolution	0.5°C (-30°C to -29°C)		0.2°C (-40°C to -20°C)	
	0.4°C (-28°C to -22°C)	0.5%	0.1°C (-21°C to 50°C)	0.1%
	0.3°C (-21°C to 22°C)		0.2°C (51°C to 80°C)	
	0.4°C (23°C to 32°C)			
	0.5°C (33°C to 39°C)			
Memory capacity	1 sensor - 16000 samples, 2 sensors - 8000 samples, 3 sensors - 5312 samples 1 sensor - 52000 samples, 2 sensors - 26000 samples, 3 sensors - 16000 samples			
Sampling rate	Minimum - 1 per 10 seconds, Maximum - 1 per 2 hours			
LCD display	Two digit, 7-segment LCD		Four digit, 7-segment LCD with decimal point	
LCD units/icons	°C, °F, %RH, Ext		°C, °F, %RH, pH, V, mA, mS, AL-H, AL-L	
RS-232	Cable connection to the PC with 19200 kbps			
USB - optional	N/A	N/A	USB 1.1 Option for quantities over 200 units with low water & dust protection	USB 1.1 Coming soon
Infrared printout	Minimum, maximum and duration up to 30 days		Minimum, maximum and duration up to 30 days	
	Wireless report to portable thermal printer HP82240B		Real-time data printout up to 128 last values OR Wireless report to portable thermal printer HP82240B	
Power supply	Internal Lithium battery 3.6V, 1/2AA, 1.2AH			
Battery life	Approximately 24 months (may vary with number of sensors connected and the sampling rate settings)			
Dimensions	72mm diameter, 22.9mm thickness			
Weight	55g		55g	



Wireless Data Logger Transmitter Radio



A wireless data logging system for remote monitoring of up to 200 data loggers via the cradle technology and transmitting all real-time measurements to the PC.

- License-free wireless communication
- Handles data from up to 200 MicroLogs at up to a distance of 300m (120m US Version)
- Programmable audio and visual alarms
- Two open connector 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 connector output
- USB and Serial communication ports for the PC used for one-time cradle set-up

MicroLogPLUS Integrates



Screw Terminal Board

Allows the user to connect the DC power, external sensors, contact sensors, position sensors, or alarm open/relay collectors directly to the circuit board.

The Receiver

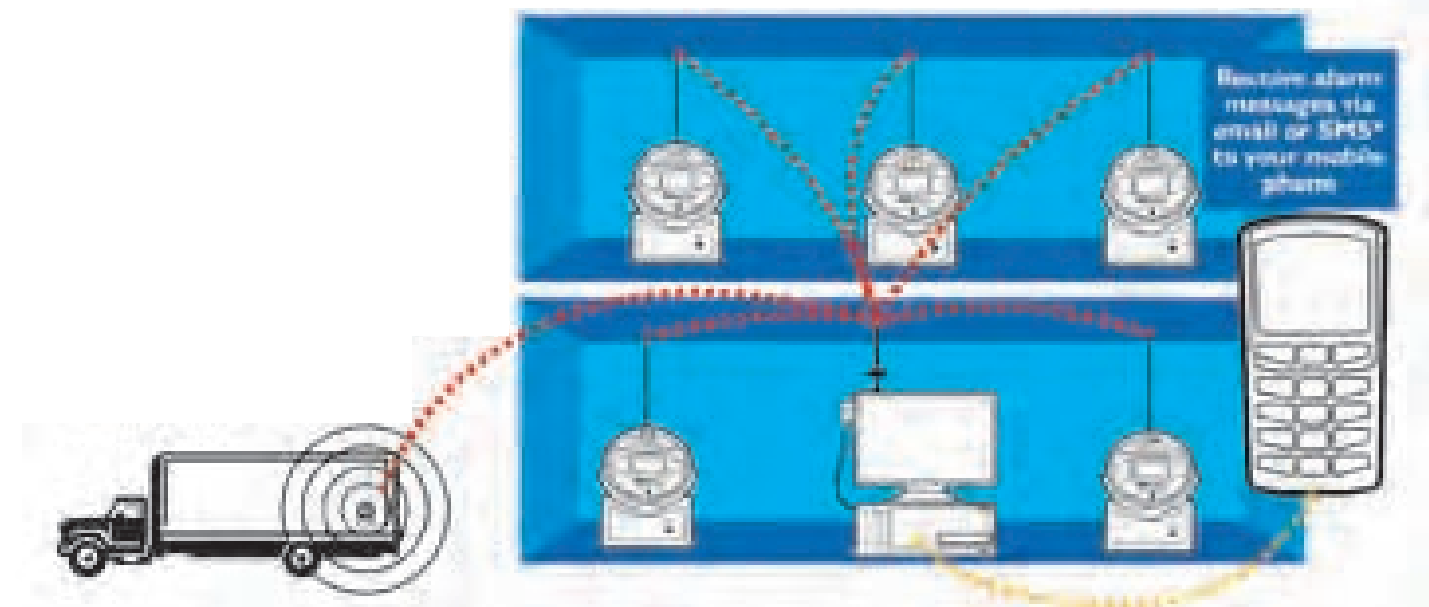
MicroLog PLUS Management Control Software lets you control and monitor up to 200 MicroLog Logger devices from a remotely located computer.

The Repeater

For use when no line of sight exists. Repeater uses built-in internal receiver to collect data and uses internal transmitter to send data on to the PC receiver. Up to 31 repeaters can be used in this system.



Examples of Wireless Data Logging

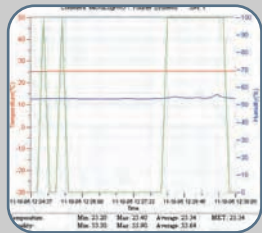


MicroLog Family Software

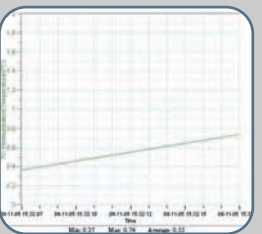
Data Analysis features for MicroLab and MicroLabPLUS software

In response to specific requests from the field, Fourier provides new software features for both programs that enable a broader and more complex range of application environments. Not only do both versions now support the new MicroLogPRO 10-bit datalogger but provide analysis functionality including statistics - maximum, minimum and average, enabling a quick summary of the environment and historical analysis. This is used by pharmaceutical companies who need a constant bird's eye picture of the conditions their materials are kept in.

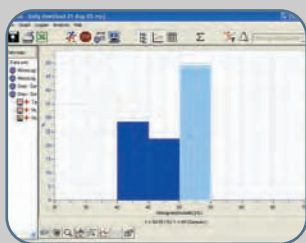
Mean kinetic temperature, an expression of cumulative thermal stress in different temperatures during storage, transportation and distribution.



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.

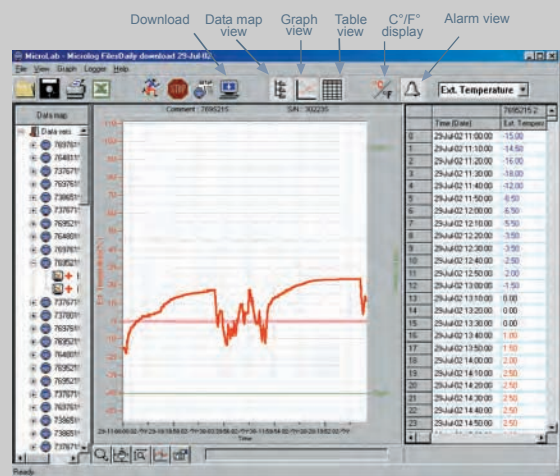


MicroLab MicroLog Software

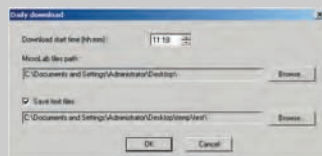
MicroLab Features

- Downloads from MicroLog
- Automatic daily download
- Graph & 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

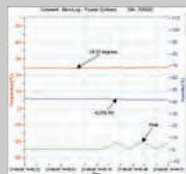
Data can be clearly identified according to the ID number of the logger it came from and the threshold relevant to that logger. MicroLab automatically saves the data and produces daily status reports of your environment.



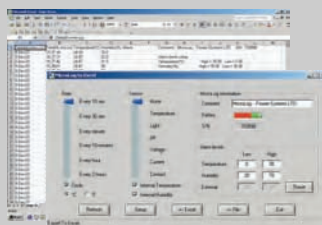
Daily download file management. In addition to the standard general method used in the MicroLab currently, Fourier is now providing a second method. This divides the data into daily 24 hour periods and stores them as separate whole files. Working with this method will complete data in corrupted files and provide full reports to meet external standards.



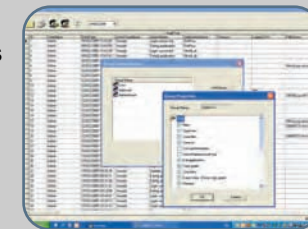
Text note enables text marks to be placed on the graph at relevant points where certain information needs to be highlighted.



Data records can be exported to your preferred spreadsheet using the included MicroLog 2 Excel software



DatPass 21 CFR Part 11 Compliance
All MicroLab software when used in conjunction with DatPass software provides FDA Title 21 CFR Part 11 compliance. 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. MicroLabPLUS software, when used in conjunction with DataPass software, is FDA title 21 CFR part 11 compliant.



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

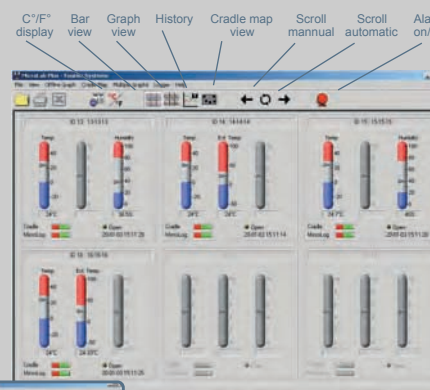


MicroLab PLUS MicroLog Software

MicroLogPLUS Features

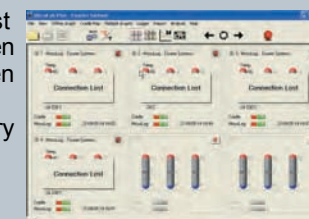
- Wireless communication with up to 200 MicroLogs
- Real-time multiple parameter sensor readings
- Data displayed in meters or graphs
- Visual and Audio alarms when data exceeds thresholds
- Email and cell-phone notification
- Battery level displayed
- Automatic data savings and exports to Excel
- MicroLog 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 seconds to 2 hours

A screen shot of the actual working environment indicates pictorially where the sensors are placed and allows for immediate alert identification and resolution.

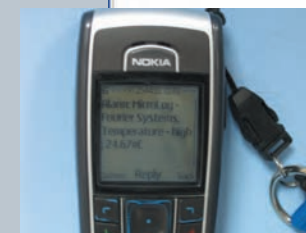
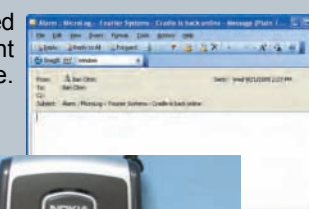


MicroLabPLUS Lost communication alarm

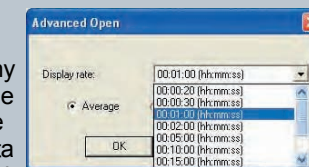
Added alarm features for lost communication, indicates when the signal has been lost, when communication has been regained and when the battery is low.



When data crosses pre-defined thresholds alarms can be sent via email or to your cellphone.



Selection of historic files according to sampling and average rates. On opening any given file, the software automatically provides the option to select a specific data transmission time period and sampling rate.



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