

Temperature and Humidity USB Data Logger

User's Manual



HT71_E20091203_R00

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1. General Information

This data logger measures and stores up to 16,000 temperature reading over a –35 to +80C (-31 to +176F) range and 0 to 100%RH and 16,000 relative humidity measurement ranges.

The user can easily set up the logging rate and start-time, and download the stored data by plugging the module straight into a PC's USB port and running the purpose designed software under windows 2000/XP/Vista.




Temperature data can then be graphed printed and exported to other applications.

The data logger is supplied complete with a long-life lithium battery, which will last for least 1 year. Software is included with each data logger.







1.1. Feature Overview

- Memory for 32,000 readings (16000 temperature and 16,000 humidity readings)
- Dew point indication
- Status Indication
- USB Interface
- User-Selectable Alarm
- Analysis software
- Multi-mode to start logging
- Long battery life
- Selectable measuring cycle: 10s, 20s, 1m, 2m, 10m, 20m or 30m

1.2. DESCRIPTION

	1. Protective cover
	2. USB connector to PC port 3. Alarm LED (Yellow) 4. Record LED (Green) 5. RH and Temperature sensors (Inside) 6. Battery Cover (Back side)
	7. Mounting clip

1.3. LED Status Guide

LED	Indication	Description
 	Both LED lights OFF	Logging not active Or Low Battery
 	One green flash.	Data Logging
 	Both LED lights ON	Data Logging and Alarm for Temp and/or RH.

2. Specifications

Item		Description
USB interface		Set-up and data download
Temperature sensor		Internal semiconductor
User-programmable alarm		Programmable high and low limits
LED indication		Green LED blinks to indicate device has been started, Yellow LED blinks if an alarm condition exists
Temperature	Range	-35 to +80°C (-31 to 176°F)
	Resolution	0.1°C
	Accuracy	±1°C (±2°F)
Humidity	Sensor	Internal semiconductor
	Range	0 to 100%RH
	Resolution	0.5%RH
	Accuracy	±3.5%RH (20 to 80%RH), ±5%RH (0 to 100%RH)
Data Logger Memory		16,000 points for Temperature 16,000 points for Relative humidity
Logging rate		10s, 20s, 1m, 2m, 10m, 20m or 30m
Operating environment		-35 to 80°C, 0 to 100%RH
Battery type		3.6V lithium battery(1/2AA) included
Battery life		1 year typical at 25°C, 1 minute reading intervals
Software		Windows 2000/XP/Vista based software

Sample rate	10 Sec	20 Sec	1 Min	2 Min	10 Min	20 Min	30 Min
Period	45 Hours	90 Hours	11 Days	22 Days	110 Days	220 Days	340 Days

3. USB Interface Operations

This section explains how to install the USB device driver.

If you have any questions after reading this information, please contact your local service representative.

3.1. USB / Serial Device Installation

3.1.1. System Requirements

Desktop or Laptop computer with:

- 1) The IBM PC or Compatible Computer.
- 2) The Windows operating system..
- 3) The CD-ROM Drive.
- 4) USB Port for Connection with Instrument

This is restricted to devices that have USB ports and for which the manufacturer of the computer guarantees the operation of the USB port.

3.1.2. Operating System

- Microsoft Windows 2K/XP/2K3 or above

3.2. Installing the USB Device

- 1) Ensure that the USB Data Logger is plugged in.
- 2) Right click on the My Computer icon and open [Properties].
- 3) Select the [Hardware] tab and click the [Device Manager] button to open [Device Manager].
- 4) Check that [Ports (COM & LPT)] is displayed.

* If [Ports (COM & LPT)] is not displayed, the USB device driver cannot be used.

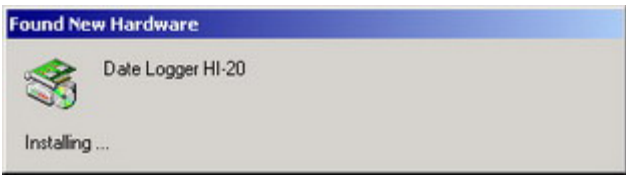



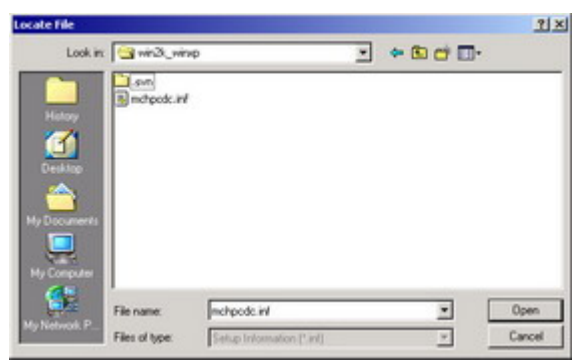

3.2.1. Windows Driver Installation

You need to have administrator privileges to install any new drivers under Windows. To install the driver or update the configuration, please log onto Windows as “Administrator” or ask your system administrator to install the Data Logger driver.

Please proceed with the following steps to install the driver:

- 1) Plug the USB Data Logger into USB port of your computer.
- 2) The connection brings up “Found New Hardware Wizard”.
- 3) Click “Next”.

- 4) Select "Search for a suitable driver for my device (recommended)", and click "Next"
- 5) Select "Specify a location" and click "Next". In the "Copy Manufacturer's file from", type "F:\USB-COM" where "F" is the location of your CD-ROM.
- 6) Windows driver file searches for the device "Data Logger"
- 7) Click "Next" to continue.
- 8) Windows has finished installing the software. Click "Finish" to complete the first part of installation.

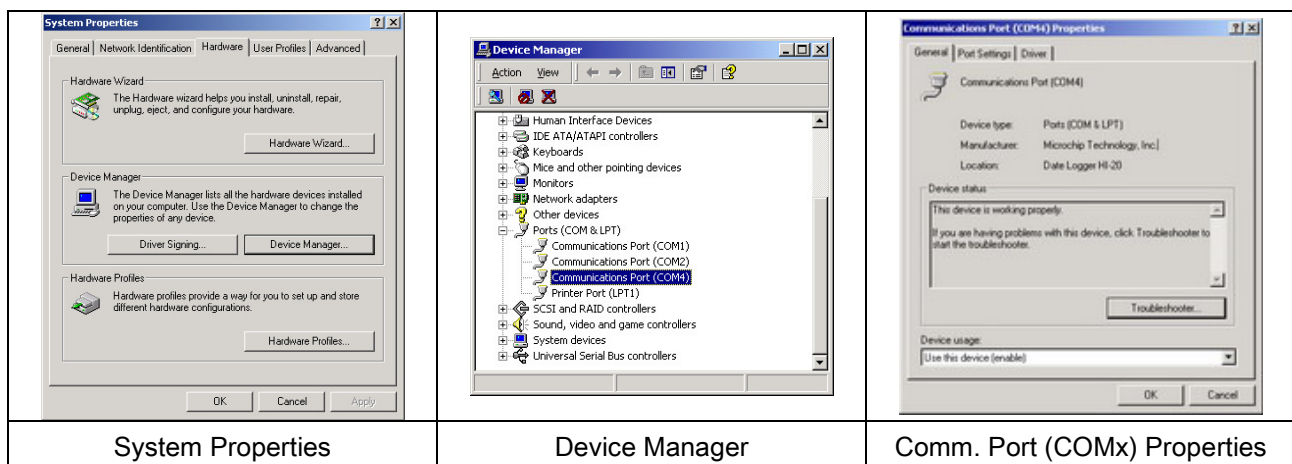
	
[Step 1: Found New Hardware]	[Step 2: Welcome to the... Wizard]
	
[Step 3: Found New Hardware Wizard]	[Step 4: Locate Driver Files]
	
[Step 5: Locate File]	[Step 6: Insert the Manufacture's... Click OK]

3.2.2. Check Installation

You can now verify the installation has completely successfully by looking under Device Manager of the System Properties screen. (Go there by Start-Setting-Control Panel-System Properties-Hardware-Device Manager)

The device should have installed as a “[Ports (COM & LPT)]” attached to “Communications Port (COMx) device”.

- 1) Right click on My Computer to open the System Properties - Hardware dialog. Then click on Device Manager.
- 2) Review the status of the [Ports (COM & LPT)] using the Device Manager.
- 3) Right click on the Ports (COM & LPT) to open the Properties dialog which contains the description and status of the Communications Port (COMx) device.
- 4) Check Manufacturer Microchip Technology, Inc.



3.2.3. Change COM Port Properties & COM Port Number

This feature is particularly useful for programs, such as HyperTerminal, which only work with COM1 through COM4. Please ensure that you do not change the COM Port Number already in use.

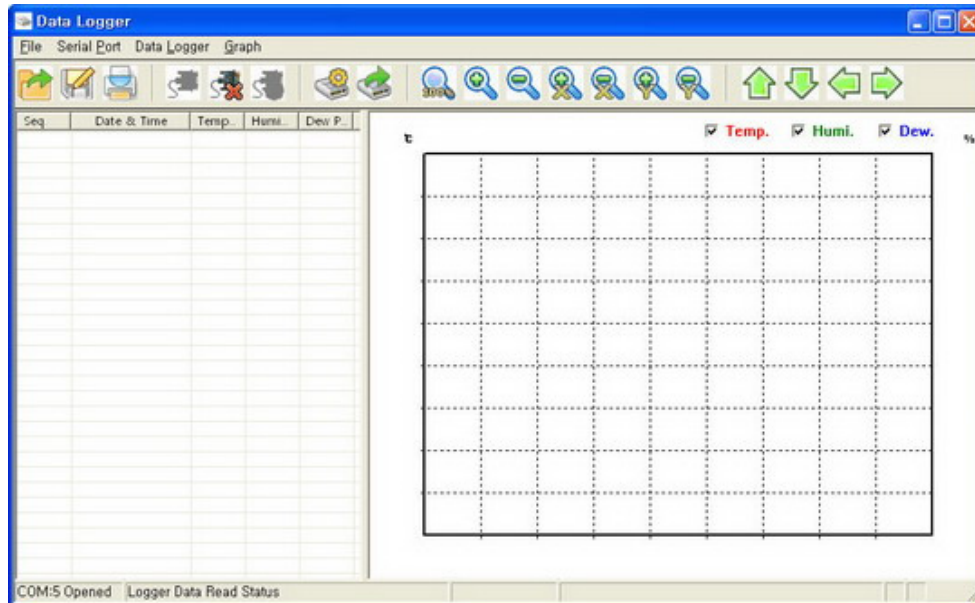
To change the virtual COM port properties:

- 1) Select the “USB Serial Port”
- 2) Click “Properties”
- 3) Select “Port Setting”
- 4) Select “Advanced”
- 5) Click the drop down arrow on COM Port Number and scroll to the required COM port.
- 6) Select “OK”
- 7) Return to the Device Manager Screen. You will see that the USB Serial Port installation has been changed to the new COM Port Number.

3.3. Running the Application Software

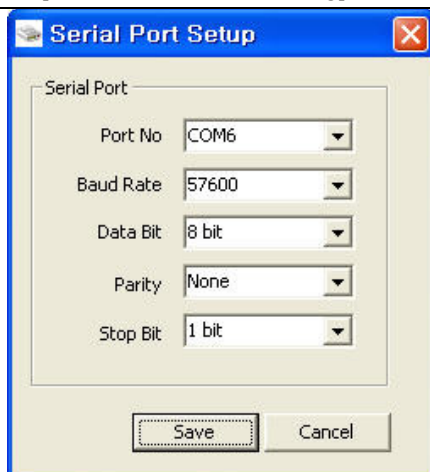
- 1) Plug the USB Data Logger into USB port of your computer.
- 2) Insert the Data Logger software installation guide CD into the CD-ROM drive of your PC.
- 3) Open Windows® Explorer and double-click the CD-Rome drive.
- 4) Windows users can simply double click on DataLogger.exe'.

The Data Logger window will pop up as below.



3.3.1. Data Logger Start

- 1) Click the [Serial Port→Port Setting] Menu.



- ① Com Port No:
- ② Baud Rate: Recommend 57600
- ③ Data Bit: 8 bit
- ④ Parity: None
- ⑤ Stop Bit: 1 bit

[Serial Port→Port Setting] Menu

- 2) Click the [Serial Port→Port Open] Menu.
- 3) Click the [Data Logger→Setting & Run] Menu.

Setting & Run

Scale
Select Temperature scale: ☒ Celsius ☐ Fahrenheit

Sample Rate
Select how frequently the Data Logger will log a reading. This also determines the period of times until the logger is full shown in brackets. 10 sec

Alarm Set
Select temperature and humidity alarms to be set.
High Alarm ☒ 38.0 °C Low Alarm ☒ 23.5 °C
High Alarm ☒ 62 % Low Alarm ☒ 32 %

Reservation for Start Time
To delayed the start of logger, set to the sleeping time. 0 Hour

Logger ID: 1

Save & Run Cancel

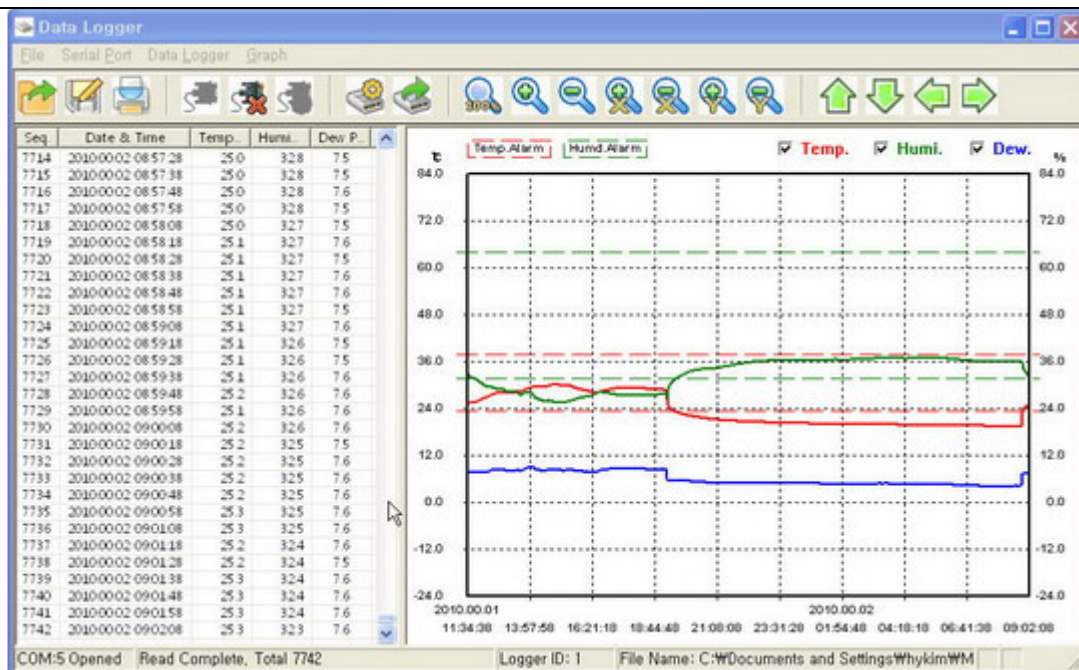
- ① Temperature Scale: Celsius or Fahrenheit
- ② Sampling Rate: Refer to Specifications
- ③ Alarm Set: Temp and/or Humidity
- ④ Start time for Data Logger
Value 0: At once execution
The other Value: Sleeping time (Max. 240)
- ⑤ Data Logger ID: Max. 254

[Data Logger→Setting & Run] Menu

4) Now Data Logger running.

3.3.2. Data Reading from the Data Logger

- 1) Click the [Serial Port→Port Setting] Menu.
- 2) Click the [Serial Port→Port Open] Menu.
- 3) Click the [Data Logger→Data Read] Menu.
- 4) Now Data will be read from the Data Logger.



3.4. Description Program

3.4.1. The Tool Bar



- 1) Data Open (Menu: File→Data Open): Data read from the file.
- 2) Data Save (Menu: File→Data Save): To be Saved Text File
- 3) Print (Menu: File→Print): Graph Print.
- 4) Port Open (Menu: Serial Port→ Port Open)
- 5) Port Close (Menu: Serial Port→ Port Close)
- 6) Port Setting (Menu: Serial Port→ Port Setting)
- 7) Logger Setting (Menu: Data Logger→ Setting & Run)
- 8) Logger Data Read (Menu: Data Logger→ Data Read)
- 9) Fit to 100% (Menu: Graph→ Fit to 100%)
- 10) Zoom In (Menu: Graph→ Zoom In)
- 11) Zoom Out (Menu: Graph→ Zoom Out)
- 12) Zoom In X Axis (Menu: Graph→ Zoom In X)
- 13) Zoom Out X Axis (Menu: Graph→ Zoom Out X)
- 14) Zoom In Y Axis (Menu: Graph→ Zoom In Y)
- 15) Zoom Out Y Axis (Menu: Graph→ Zoom Out Y)
- a) Move Up (Menu: Graph→ Move Up)
- b) Move Down (Menu: Graph→ Move Down)
- c) Move Left (Menu: Graph→ Move Left)
- d) Move Right (Menu: Graph→ Move Right)

3.4.2. The Mouse

- 1) Mouse Wheel: Zoom In & Out.
- 2) Double click on Graph: Change the Graph mode




3.4.3. The Status Bar

COM:5 Closed	Read Complete, Total 7742	Logger ID: 1	File Name: 02090223.lgf	2009,12,03 14:30:18
①	②	③	④	⑤

- 1) Com Port: Open or Closed.
- 2) Total Quantity of the Read Data.
- 3) Data Logger ID
- 4) Data file Name
- 5) Current Date and Time

4. Battery Replacement

Only use 3.6V lithium batteries. Before replacing the battery, remove the Data Logger from the PC. Follow diagrammatic and explanation steps 1 through 4 below:

		
1. Open the Battery Cover.	2. Pull the Battery from the Data Logger. 3. Replace/Insert the battery into the battery compartment observing the right polarity.	4. Open the Battery Cover. Now the data logger is ready for programming.

NOTE:
Leaving the model plugged into the USB port for longer than necessary will cause some of the battery capacity to be lost.

WARNING: Handle lithium batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.

5. Sensor Reconditioning

Over time, the internal sensor may be compromised as a result of pollutants, chemical vapors, and other environmental conditions which can lead to inaccurate readings. To recondition the internal sensor, please follow the procedure below:

Bake the Logger at 80 °C (176 °F) at <5%RH for 36 hours followed by 20-30 °C (70-90 °F) at >74%RH for 48 hour (for re-hydration)

If permanent damage to the internal sensor is suspected, replace the Logger immediately to insure accurate reading.