

MTP

INSTRUCTION MANUAL

Temperature & Humidity Datalogger

Model ST-172



MTP Instruments

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Introduction

Congratulations on the purchase of your Temperature and Humidity Datalogger, model **MTP ST-172**. This Temperature and Humidity Datalogger is designed with a high accuracy temperature and humidity sensor. The datalogger is provided with features of high accuracy, fast response and stability. It is widely used for monitoring and collecting data of environment temperature and humidity. Careful use of this instrument will provide years of reliable service.

Functions and Technical Specifications

Functions:

You can monitor temperature and humidity values efficiently and conveniently for long time periods by using the datalogger. The readings are saved in the logger and simply read out by your PC with USB cable. The LCD can show current readings, Max, Min, Time, Date and Temperature or Humidity values.

Note:

This datalogger should be placed upright when in use. If used in low temperature, high humidity environment, the datalogger should be placed upright in a dry area to remove any condensation before reading the data on the device.

Battery life can be extended by leaving the datalogger connected to a PC.

Features:

- Memory for 32700 values
- LCD to show logging information easily
- Freely selectable measurement cycle, from 1 sec. to 24h
- Download collected data through PC's USB
- Alarm display if user's defined maximum/minimum values are exceeded
- Analysis software used to view graph for logging data

General Specifications:

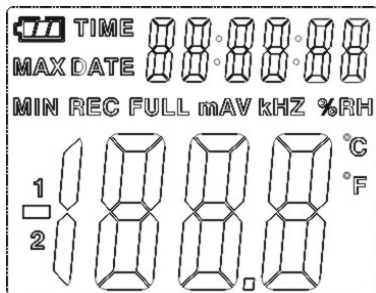
| | |
|----------------------|--|
| Dimensions: | 94 x 48 x 33mm |
| Weight: | 115g |
| Power Supply: | 3.6V Lithium battery |
| Accessories: | USB cable, analysis software, (1) battery and instruction manual |



Technical Specifications:

| | | |
|-------------------|--|----------------------------|
| Relative Humidity | Overall Range | 0 to 100% |
| | Accuracy (0 to 20 and 80 to 100%) | ±5.0% |
| | Accuracy (20 to 40 and 60 to 80%) | ±3.5% |
| | Accuracy(40 to 60%) | ±3.0% |
| Temperature | Overall Range | -40 to 70°C (-40 to 158°F) |
| | Accuracy(-40 to -10 and +40 to +70°C) | ±2°C |
| | Accuracy(-10 to +40°C) | ±1°C |
| | Accuracy (-40 to +14 and 104 to 158°F) | ±3.6°F |
| | Accuracy(+14 to +104°F) | ±1.8°F |

Resolution: 0.1% RH, 0.1°C
Memory: 32700 values
Measuring cycle: 1s to 24h
Analysis software: 2000/XP/Vista

Display Description



1.  Battery symbol. When battery is exhausted,  symbol will be displayed. Replace battery when symbol appears. Battery life is more than 3 months
2. **TIME:** Current time is displayed
3. **DATE:** Current date is displayed
4. **Time/Date:** Time and date automatically toggle every 10 seconds
5. **MAX:** Display maximum value during measuring
6. **MIN:** Display minimum value during measuring
7. **REC:** Indicates that datalogger is in recording mode
8. **FULL:** Memory is full indicator. The datalogger will stop recording
9. **%RH:** Indicates that the datalogger is measuring humidity
10. **°C:** Celsius temperature unit
11. **°F:** Fahrenheit temperature unit

- 12. MAX/MIN:** Press the **MAX/MIN** button to view the recorded Max and Min values with the time and date they were recorded. While in **MAX/MIN** mode, if no button is pressed for 40 seconds, the display will automatically exit the **MAX/MIN** mode and return to the real time display. The time and date display will automatically toggle every 10 seconds.
- 13. PC symbol:** When downloading the data to the PC, "**PC**" symbol will be displayed on the LCD. After the download is completed, the datalogger will display the last value recorded, but it will stop recording. The logger needs to be re-set from the software to begin a new recording session.
You can only read the data from the logger itself. All settings will be carried through the software installed in PC.
- 14. Alarm function:** When the measured value exceeds the set upper limit or lower limit, the LED alarm will blink one time per minute. Blinking **red** LED indicates that temperature value exceeds limit while blinking **yellow** LED indicates that humidity value exceeds limit.
- 15. "LO" symbol:** "**LO**" symbol will be displayed if the temperature/humidity sensor is not well connected. When this symbol is displayed, please open the back cover and re-install the sensor.

Software Installation

The datalogger **USB** software is a program for collecting data from the datalogger when it is connected to a PC or notebook computer. The data may be displayed graphically, as **Excel** or similar programs. The major functions are all listed in the main window.

System Required:

Windows 2000 or Windows XP or Vista

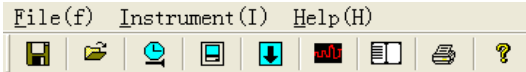
Minimum Hardware Required:










PC or NoteBook with Pentium 90 MHz or higher 32 MB RAM

At least 7 MB byte hard disk space available to install HT datalogger USB software

Recommended display resolution 1024x768 with high color (16 bit)

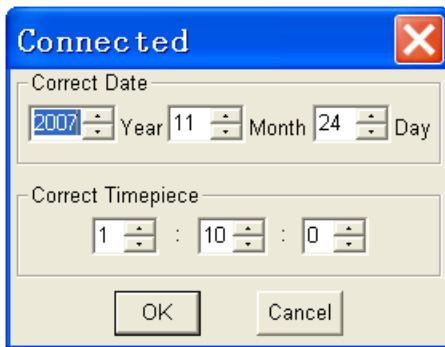
Main Menu




| | | |
|---|-------------------------|--------------------------------------|
|  | Save | Save the recorded data to the disk |
|  | Open | Open a saved file |
|  | Correct time | Setup of time and date on datalogger |
|  | Datalogger Setup | Setup of datalogger |
|  | Download Data | Download data from the datalogger |
|  | Show Graph | Show the recorded data as a graph |
|  | Show List | Show the recorded data as a list |
|  | Print | Print the graph or the list |
|  | Help Document | Access to help document |

Operation Mode

Correct Time




If datalogger time is incorrect, click on the  icon to open the **Correct Time Dialog Box**. Input the correct date and correct time and click **"OK"** button; the datalogger time will update.

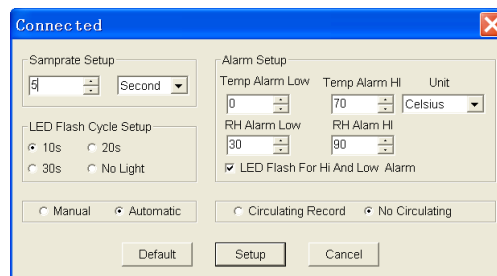
Datalogger Setup

Note:

Any stored data will be permanently erased when **Setup** is finished. To enable you to save data before it is lost, click on "**Cancel**" and download the data.

Always ensure that the remaining charge in the battery is sufficient to last the complete duration of your logging exercise. If in doubt, we recommend that you always install a fresh battery before logging critical data.


- Click on the  icon on the menu bar. The **Setup** window will appear as shown below; descriptions for each field in the **Setup** window are listed below the illustration.



- The **Samprate Setup** field instructs the datalogger to log readings at a specific rate. You can input specific data at the left **Edit** box and select the time unit at the right **Combo** box.
- The **LED Flash Cycle Setup** field can be set by the user (select "**No Light**", LED will not flash and battery life will last longer).
- The **Manual** and **Automatic** options allow the user to start datalogging immediately when the **Setup** window is exited (automatic) or at a later time (manual).
- The **Alarm Setup** field allows the user to set **HIGH** and **LOW** temperature and relative humidity limits and disables the flashing data logger's LEDs thereby conserving the battery energy.
- The **Circulating Record** and **No Circulating** options instruct the datalogger to continue logging data to cover the earlier data (Circulating Record) or stop logging (No Circulating) when the datalogger is full.
- Click on "**Setup**" to save changes. Click on "**Default**" to set the logger to factory default condition. Click on "**Cancel**" to abort the setup.

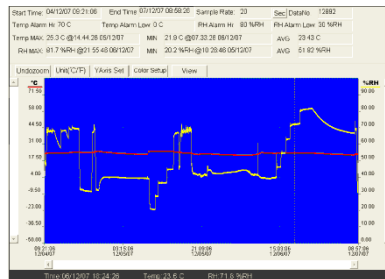
Datalogger Download

To transfer the readings stored in the logger to the PC:

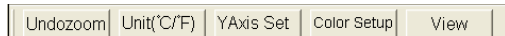
- Connect the datalogger to the same USB port used when the datalogger was initialized.
- Open the HT datalogger software program if it is not running.
- Click on the **Download** icon  .
- The window shown below will appear. Select **Download** to begin transferring readings.



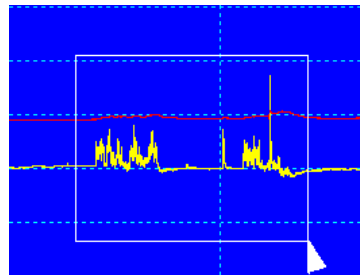
If readings are successfully transferred, the **Data Graph** window will appear.



The top field shows detailed information of the readings (Time, Sampling Rate, Data Numbers, Alarm Hi, Alarm Low, Max Data, Min Data and Avg. Data).

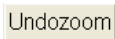


Zoom in:

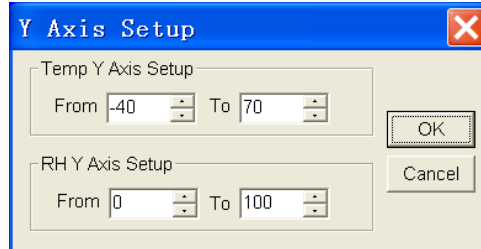


- Press the left mouse button and drag a rectangle around the area to be expanded.
- Release the mouse button.
- Use the horizontal scrollbar to scroll through all the data. Use the left vertical scrollbar to scroll through the temperature data. Use the right vertical scrollbar to scroll through the relative humidity data.

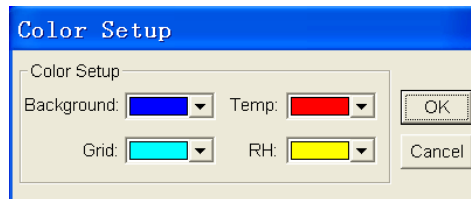
Zoom out:

Click on  to zoom out and return to full view.

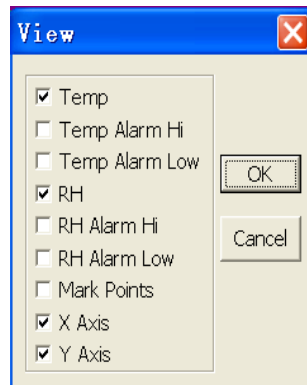
 Setup the Temp. and RH Y Axis.




 Setup the Background color, Grid color, Temperature and RH color.



 **Customize the graph window**




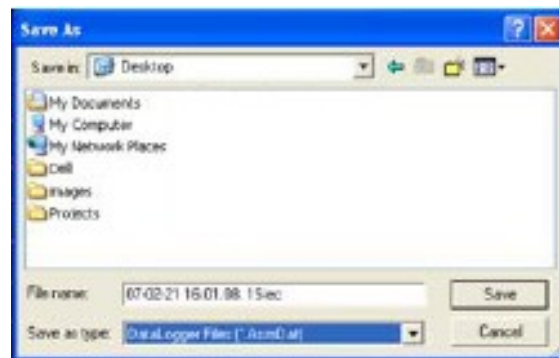
- Allows the user to select which data to view as a trace.
- Add or remove grid lines from "x" and "y" axes.
- Mark points: places dots on the traces for the actual data points, breaking up the continuous nature of a trace.
- Click on the **list** icon  to get the list window.


| No. | Time | (%RH) Humidity | (C) Temperature | (F) Temperature |
|-----|-------------------|----------------|-----------------|-----------------|
| 1 | 15/10/07 15:25:13 | 53.5 | 25.5 C | 77.9 F |
| 2 | 15/10/07 15:25:14 | 53.3 | 25.5 C | 77.9 F |
| 3 | 15/10/07 15:25:15 | 52.9 | 25.5 C | 77.9 F |
| 4 | 15/10/07 15:25:16 | 52.8 | 25.5 C | 77.9 F |
| 5 | 15/10/07 15:25:17 | 52.4 | 25.5 C | 77.9 F |
| 6 | 15/10/07 15:25:18 | 52.2 | 25.5 C | 77.9 F |
| 7 | 15/10/07 15:25:19 | 52.1 | 25.5 C | 77.9 F |
| 8 | 15/10/07 15:25:20 | 52.0 | 25.5 C | 77.9 F |
| 9 | 15/10/07 15:25:21 | 51.9 | 25.5 C | 77.9 F |
| 10 | 15/10/07 15:25:22 | 51.8 | 25.5 C | 77.9 F |

It shows specific time and data.



Save file as / Open Saved File



1. Click on the  icon to open the **Save As** dialog box.



2. Name the file and save it with the default extension. The file will be saved with the **"record"** extension to be reopened in the HT Datalogger software program and also as a **"xls"** file to be opened in spreadsheet program or other word processing program. To open an existing data file for viewing on the data graph window, click on the  icon. When prompted, select a record file saved earlier.

Print Graph and List

Click on the  icon to show the data as a graph and then click on the  icon to print the graph.

Click on the  icon to show the data as a list and then click on the  icon to print the list.

MTP Warranty

MTP Instruments warrants this instrument to be free of defects in parts and workmanship for one (1) year from date of shipment. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. **MTP Instruments** specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be held liable for any direct, indirect, incidental or consequential damages. **MTP Instruments** total liability is limited to repair or replacement of the product.

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