HTM

User's Manual

Version date 16/12/2008

**Management Software for *HumiStick*
Temperature and Humidity Dataloggers**

Software version 1.6

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Introduction

The *HumiStick* system is composed of a temperature and humidity Data Logger, a software and a reading interface.
The *HumiStick* Data Logger is a miniaturized temperature acquisition device: its dimensions are 50X22 mm and it's 15 mm high. It has several applications: temperature monitoring of transported and stored goods, monitoring of fridges and freezers and other temperature sensitive environments in conformity with ISO 9001 standards. Its reduced size together with the fact that it doesn't need an external power supply make the sensor an extremely versatile system for temperature measurement.
Thousands of readings could be stored and then downloaded via the probe and the application software. Using the software provided in the kit, the user can view the acquired data in graphic and table format, with the option of exporting the data in Excel (.XLS) file format, as well as program the data logger for future missions.

Every Data Logger has its own unique serial number; each data logger can come (on your request) with calibration certificate, which is valid for one year, in order to guarantee validity of acquired readings.

System Requirements

Hardware

Description	Minimum	Recommended
Microprocessor	Celeron 300	Pentium III 400
Memory	64 MB	128 MB
Video	800x600; 256 colours	1024x768; 16 Mil. colours
Free serial port (RS232) or free USB port		

Software

Description	Supported
Operating system	Windows 2000 / XP / Vista

Installation

After having switched on the PC, insert the software CD in your CD-ROM reader; click on **Start – Run** and type "D:\setup.exe" (N.B. Your CD-ROM device could have a different name to "D").
When the installation program is running, carefully follow the instructions and select your preferred options when requested. Following the welcome window, you will be asked for your details; the *Name* and *Company* fields must be completed prior to clicking on the **Next** button.
The program will then ask you to a confirm the installation directory path; by clicking on the browse button one can select a different installation directory. We recommended installing the software in the default directory (C:*Program Files\Tecnosoft\HTM*). The installation program will then ask for the *Start* menu group in which you would like to install the link from which you can run the HTM program.
Click on **Next** to proceed: the last preparation window with allow you to confirm and verify all settings prior to proceeding with the installation.

Click again on **Next** and program files will be copied to the hard disk. Once the installation is complete, click on **Finish** to proceed.

Main Operations

Datalogger description

The *HumiStick* datalogger is made up by a main body with a temperature and humidity sensor, the memory, the clock and the battery, and a flat part used for communication. On one side there is also a filter for correct data reading.
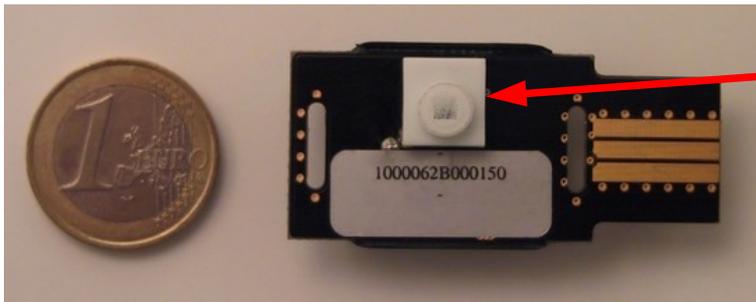
Temperature and
Humidity sensor
filter

RH measurement range	0% ÷ 100%
Accuracy	±2% (10%-90% RH); ±4% (0%-100% RH)
RH Resolution	0,1 RH
Temperature measurement range	-30°C ÷ +65°C
Accuracy in temperature measurement	±0,4°C from +5°C to +40°C ±1°C from -20°C to +65°C
Resolution in temperature measurement	0,2°C
RH stability	<0,5% RH/year
Calibration certificate if requested	
N° of acquisitions	1365 (date, time, RH and T)
Acquisition interval	from 1 per minute to 1 every 255 minutes
Acquisition mission length	from 22 hours and 45 mins. with 1 acq. per minute till 241 days with 1 acq. every 255 mins.
Expected product life (internal battery)	10 years or 3.000.000 acquisitions
Protection degree	IP67
Response Time	30 seconds; conditions:1/e (63%) in slowing moving air (0,03 m/s)

Connecting the Reading Interface

In the *HumiStick* package there is an interface able to read and transmit to the PC the acquisition data from the Data Logger. There is a serial or USB cable used to connect it to the computer; connect the USB or serial side of this cable to the USB or serial port on the PC and the other side to the connection of the interface (you'll have to install the USB drivers in order to use the USB interface properly).

To read the Data Logger's data you have to insert the flat end of the device in the interface. You can insert the logger from both sides.

Installing the USB drivers for the TecnoStick Interface

To install the drivers refer to the instructions from the installation menu.

Launching the Program

After the installation is completed double click on the **HTM** icon on the desktop to start the program, or select the **Start – Program Files** (or **All the Programs**, if you're using *Windows XP*) **– Tecnosoft - HTM – HTM**. After the program has been started, it may open a window called *Create Database* (see chapter *Configuration* at page 11): click twice (not double click) on the **Create** button to proceed.
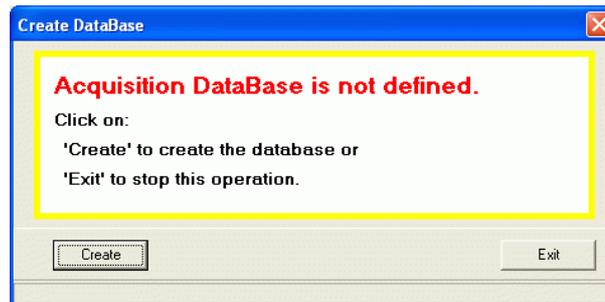
The Main Window

The *Main Window* of the program will open; its composed by a bar that will stay at the top of the screen and it has a title, *HTM (Humidity and Temperature Monitor)*, the three buttons of every *Windows* window (**Iconize**, **Enlarge**, **Close**), and a series of buttons corresponding to the different program functions.

Configuration

Clicking on the **Configuration** button a window will be opened, with 3 labels: *Settings*, *Language* e *Utility*.

Settings

Here you can change several program settings so that it can be personalized depending on what you need.
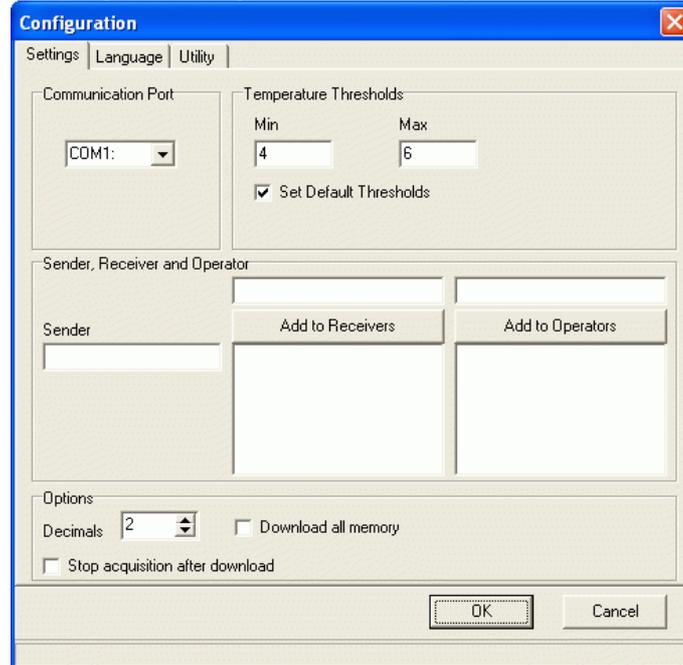
Communication Port

In the *Communication Port* you can set to which port the reading device is connected. Select from the drop down list with 8 COM ports and USB port, the one to which you connected the cable.

Temperature Thresholds

Set here the standard *Maximum* and *Minimum Temeprature Thresholds*, with which you want to program each Data Logger; if the *Set Default Thresholds* option is selected, these thresholds will appear in the programming window and you'll be able to change them anyway before starting the mission. If the option is not activated, in the same program window will appear the last programmed thresholds for the Data Logger or, if the device has been never programmed, will appear the logger's temperature limits.

Sender, Receiver and Operator

In this box you can set some parameters useful to track down the acquisition mission once it has been stored in the *Archive*. In the *Sender* field you can write the origin of the transport or the name of the person or company who started the mission. The other two fields can be completed by adding items to the list. To add an item just write it in the proper field and then click the button below it: **Add to Receivers** and **Add to Operators**; then the name typed in will appear in the list below the button. To delete a name from the list, you'll just have to select it by right clicking on it and then click on the command **Delete** that will appear.

Options

In the last box there are some other options to personalize the program. The first one lets you set the number of decimal digits you want the program to show: using the up and down arrows on the right of the field, you'll be able to choose from a minimum of 0 to a maximum of 3 (1 decimal is suggested).

The second option, which you can select by clicking on the small box next to it will stop the mission of the logger you're reading: the data won't be deleted, but, unless the memory is full (the mission is already automatically stopped), the acquisitions will be stopped.

The third option, on the right, *Download all memory*, if checked, let the program download all the memory of the Data Logger, even the part not used for the current mission. However, only the current mission data will be displayed.

Note: if you program a delayed start mission and you check it by downloading the data and this last option is selected, you stop the mission; if it is not already started, it won't start at the programmed time, since it has been aborted.

Language

Here you can select the language of the program, choosing from two: Italian, *English* and *Fench*.

Each time you change it, you'll have to click on the **OK** button, exit the program and start it again.
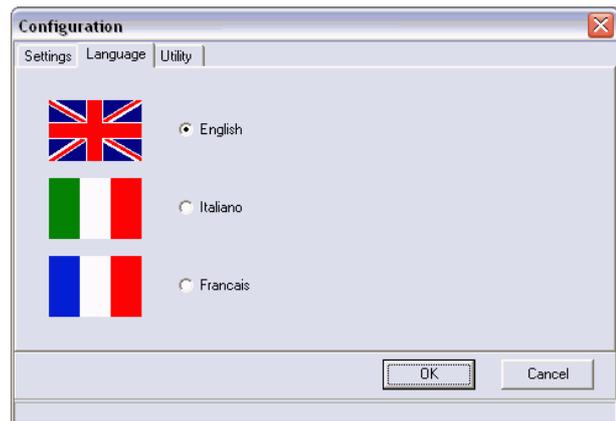
Utility

Here there are two important buttons: *Reset Database* and *Recycle bin*.
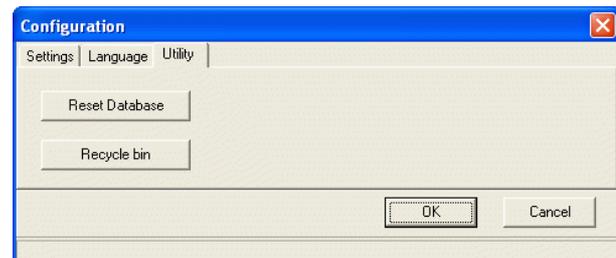
Reset Database

Clicking on **Reset Database**, a message will appear and will ask you to reset the *Database Archive* of the readings. In this way the tables of *Archive* will be recreated and emptied (page 18): the saved acquisitions files won't be lost, but you'll have to import them again. Click on **Create** to proceed or **Exit** to cancel.
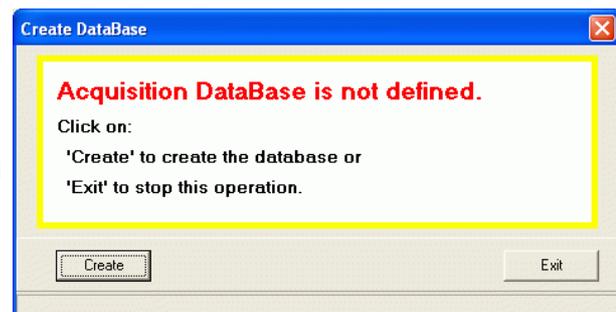
Recycle bin

When you delete an item from the *Data Archive*, this won't be displayed any more but it's not completely deleted: the acquisition file is transferred to the *Data/Del* folder, in the main folder of the program (by default is *C:\Program Files\Tecnosoft\HTM*). To clean the program from the delete files, click on this button: a *Report* will be displayed showing you the thrash status. Click **OK** to continue.

Start a New Mission

To start a new mission and program a Data Logger, be sure that the interface is connected to the right PC port and that a Data Logger is inserted in the interface. Then, click on the **New Mission** button in the *Main Window*; after a while the *Settings* window will appear: it is divided in different boxes.

Setting the parameters

Delay Acquisition Setting

In these fields type the delay, in days (*dd*), hours (*hh*) and minutes (*mm*), with which you want the device to start to acquire before the programming session. The maximum delay is 45 days, 12 hours and 15 minutes.

Acquisition Interval Setting

Set here the acquisition interval, the time between two acquisitions. You can set hours (*hh*) and minutes (*mm*) of the interval, from a minimum of 1 minute to a maximum of 255 minutes (4 hours and 15 minutes).

Temperature Thresholds Setting

Set a *Temperature Threshold* (*Maximum* and/or *Minimum*) if you want, when a mission ends and you have downloaded and saved the data, to see immediately when and how many times the temperature has gone out of the alarm range. It's not possible to set the same value for both thresholds. If you set, in the *Configuration* (page 10), the option that enables the default thresholds, here there will be the set values. Otherwise, there will be displayed the last thresholds programmed for that specific Data Logger. If you set thresholds out of the device's temperature range, the thresholds will be set exactly at the range limits.

Date and Time

Here you can see the PC date and time, so that you can synchronize the device with the clock on the computer. Be sure it is correct, otherwise change it by double clicking on the time in the right bottom corner of the Windows bar.

Additional Data

In the *Additional Data* box you can type in names useful to track down the mission you're about to start. In the first field, *Sender*, there is the same name typed in the field in the *Configuration* window (see page 10). In this

way, since probably it will be always the same person/company to start the missions from the same PC, you won't have to type it again each time. However, you can always change it by deleting its content and typing it a new name. In the other two fields you can directly type in the name you want or select a name from the drop down list. If you type here a name not in the list, this name won't be added to the list. To add a name to the list, see the instructions at page 10.

Identification

Here you can see the device serial number. You can't edit this field.

Identification Objects list

In the upper field of this box you can type in one or more names of items to identify the transported objects or the site you're monitoring. Each time you type in a value, click on **Add** or press *Enter* to add it to the list below the field. Select an item and click on **Delete** to delete it.

Notes

In the *Notes* box you can type in your considerations about the mission, if you feel that might be useful fort he operator who will download the data acquired.
Note: each time you add something to the fields described above, the blue bar at the bottom of the window will become full. This is the available memory of the logger for these informations. When you reach the limit, the program will tell you that you cannot add any more informations, unless you delete some you already added. While programming a HumiStick, the more you add informations, the more you have less memory for the acquisitions. The maximum number of acquisitions is 1365: if you just type in the Sender, Receiver, Operator, some items in the Objects/Sites list and a brief note, the number of acquisition wont' be less than 1365. If you add lots of notes or many items in the list, you could have less available acquisitions.

Programming the Data Logger

After doing all the operations described above and filled in all the necessary fields, click on the **Start Mission** button to send the programming informations to the Data Logger inserted in the interface. The first acquisition will be made immediately after the programming operation ends, unless you set a delay. If you decided not to start the programming of the device, just click on the **Cancel** button.

Read the Acquired Data

When you receive a Data Logger that has completed its mission, you can see the data acquired and edit them. Be sure that the interface is connected to the PC and insert the Data Logger you wish to analyze. Click on the **Download Data** button and wait for the bar under the buttons in the *Main Window* to become completely blue (this operation might take a while depending on the number of acquisitions saved in the device).
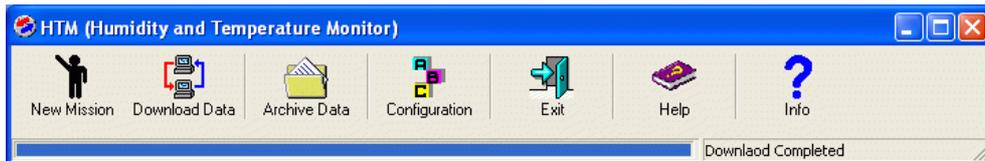
If in the *Configuration* window you set to stop the acquisitions before downloading the data (see page 10), the next window will open. Otherwise, if the option is not selected, a message will ask you if you want to stop the acquisitions: answer **Yes** or **No** to proceed.

The *Acquisition Data* window will be opened, and it has four labels: the upper part changes depending on the label you select, while the bottom zone, with the operations buttons remains the same for each label (note that in the next pictures, the bottom bar with these buttons is not present, but you'll find it at the end of this chapter).

General

Here you can see all the programming parameters set by the operator who started the mission; there are different boxes:
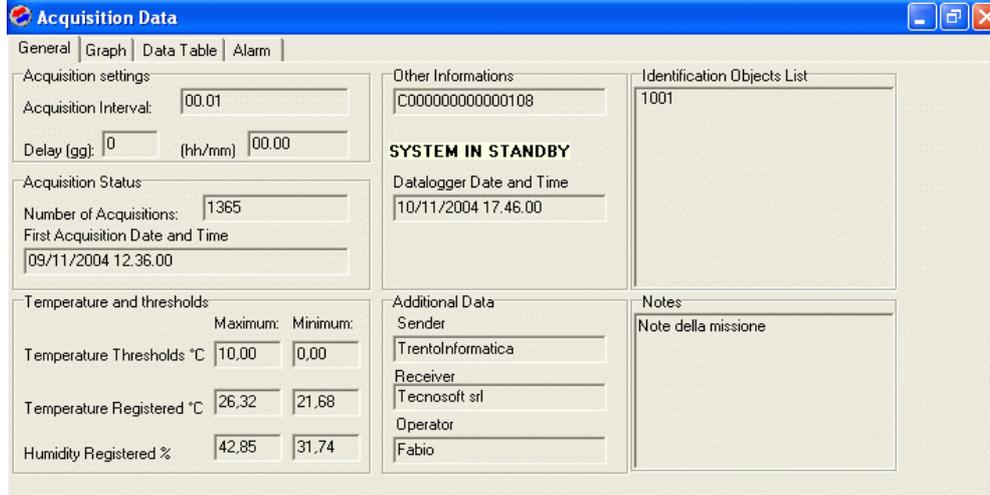
- *Acquisition Settings:*
    - *Acquisition Interval:* acquisition interval between two acquisitions.
    - *Delay:* the delay time between programming and start of the mission. In the first field there are the days (*dd*), while in the second there are the hours and minutes (*hh/mm*).
- *Acquisition Status*:
    - *Acquisition Number:* shows the number of acquisitions recorded.
    - *First Acquisition Date and Time:* the date and time of the first acquisition of the mission you've downloaded the data..
- *Temperature and thresholds*:
    - *Temperature Thresholds °C:* the thresholds set during programming.
    - *Temperature Registered °C:* the limit values registered for the temperature.
    - *Humidity Registered %:* the limit values for the humidity registered.
- *Other Informations*:
    - *Identification*: the serial number of the Data Logger.

- • *Device Status*: informations about the status of the device; it shows if the system is acquiring or in standby. If the mission is not ended you'll see the message *SYSTEM IS ACQUIRING*, otherwise there will be written *SYSTEM IN STANDBY*.
  - • *Datalogger Date and Time:* date and time of the internal clock of the device*.*
- • *Other Data*:
  - • *Sender:* the company or the person who sent the Data Logger.
  - • *Receiver:* the company or the person to whom the device is destined.
  - • *Operator:* it shows the code or the name of the operator who programmed the mission.
- • *Objects/Sites*: here you'll find the list of objects and sites monitored.
- • *Notes:* if the operator typed in some notes, you'll find them here.

Temperature and Humidity Graphs

Here you'll see the *Graph* of the acquisition. The *Graph* can display all the acquisitions recorded by the Data Logger.
There are six lines in the *Graph*:
- • red line: the maximum threshold set during programming;
- • blue line: the minimum threshold set during programming;
- • black line: the temperature acquisitions;
- • dark blue line: the humidity acquisitions;
- • grey line: the heat index values;
- • purple line: the dew point values.
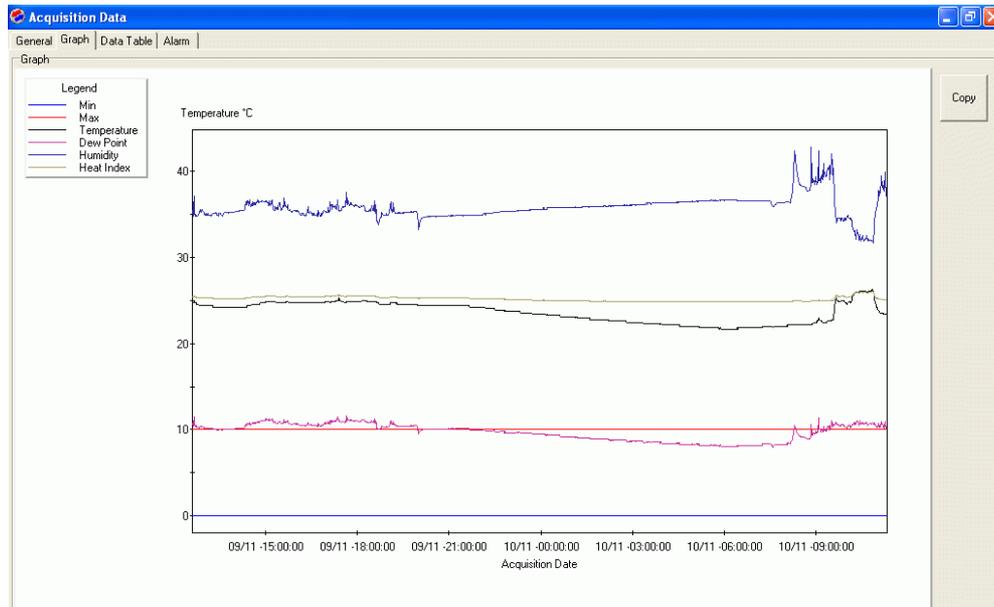
You can copy the graph to the clipboard and then paste it in a different program (*MS Word*, *MS Excel*, *Paint*, ecc.). Click on **Copy** and then, after you opened the program you wish to copy the graph to, click on **Paste** (or on **Edit – Paste**).

Data Table

These are the data that you saw in graph format in the previous label: there is the *Date Acquisitions*, along with the time, the *Temperature*, expressed in *C°*, the *Humidity*, expressed in a percentage value and the *Dew Point*, in *°C*. You can save this table in *MS Excel* format by clicking on the **Save...** button and, after you chose where to save the file, give it a name and then click on **Save** to proceed. Double clicking on the header of the columns, the *Header Name* window will open and you can type in a new name for it. Click **OK** to confirm or **Cancel** to cancel. You can print the table on the default printer by clicking the **Print** button.

Alarms

Here there is the list of each time the recorded temperature has gone out of the range of the set thresholds. Clicking on **Print** it is possible to print this table.

The operations buttons

Under the five labels there is a zone with some buttons that allows you to operate on the acquisitions.

On the left there is the *Acquisition Interval* box, divided in two parts, each with two fields: in the upper part, called *Acquisition Start Date and Time* have to be set the date, in the first field, and the time, in the second, that must be considered as the start of your mission in the *Graphs* and in the *Table*. If the data is after the first acquisition recorded by the device, the data between the two dates won't be considered (but not deleted!). The fields under the words *Acquisition End Date and Time* work in the same way, but these are for the ending date you wish to see.

To proceed with this operation you'll have to click on the **Refresh** button in the right part of the box.

On the right side of the bar there are four buttons.

The first one, **Print**, has two options too. Clicking on it you'll be able to print a report of the acquisition with all the parameters and the graph. If you select the first option, Preview (see page 17) the *Print Preview* window will open; selecting the option *Print Data Table* the table will be included in the report.

The second button, **Save**, allows you to save the acquisition in the *Archive* (see page 18). Before saving an acquisition you have to inizialize the archive (see page 11).

The third button, **e-Mail**, allows you to send the acquisition saved to another person with the *HTM* installed on his machine. After clicking on it, the *Send acquisition by e.-mail* window will open, divided in different fields. In order to send an email with the *HTM* software, you'll have to configure *Outlook Express*. The *HTM* uses the account and settings of the Email client for Windows and opens the *New message* window before sending the acquisition file. To set the client with an account is very easy since the software will guide you through all the parameters you have to set. If you don't have an Internet connection or an account, you won't be able to use this option.

In the first field, *Account*, select with which address you want to send the file, if you created more than one account on your client. In the next field, *To*, type in the receiver address: clicking on *To* you'll open the *Outlook* address book. The attached file is the acquisition file saved previously; the subject is the title of the mail and the text is the text message: both these fields can be edited.
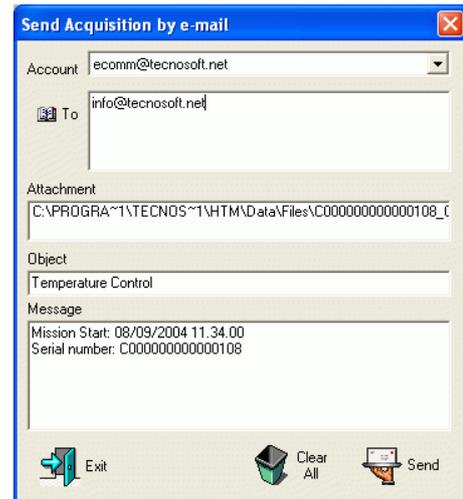
As soon as you select a receiver, clicking on **Send** a *New message* window of *Outlook* will open. Clicking on **Clear All**, all the fields will be deleted and you'll have to type in new values; to cancel the operation click on **Exit**.

The Print Preview Window

When you click on **Print** with the *Print Preview* option enabled, it will be opened a window with the same name (*Print Preview)*, where you can see the acquisition report that you're about to print. In the main part of the window there is the document, while in the upper bar there are some functions buttons. The first one, **Zoom to fit**, display the document so that it is visible completely on the screen. The second one, **100%**, zoom the document to its real dimensions, while **Zoom to width** zoom the document so that it's large as much as the window is. The next four buttons allows you to switch between pages: the first and last arrow bring you to the first and last page, the central ones can scroll one page after another. The **Printer Setup** button allows you to select the printer on which you wish to print the report; the **Print** button send the document to the printer. **Save Report** and **Load Report** allows you to save and load the report file, while **Close** closes and cancel the print operation.

Data Archive

When you save an acquisition after importing data from a Data Logger, the saved files are stored in the *Data Archive*. You have to reset the archive before starting to save (see page 11).
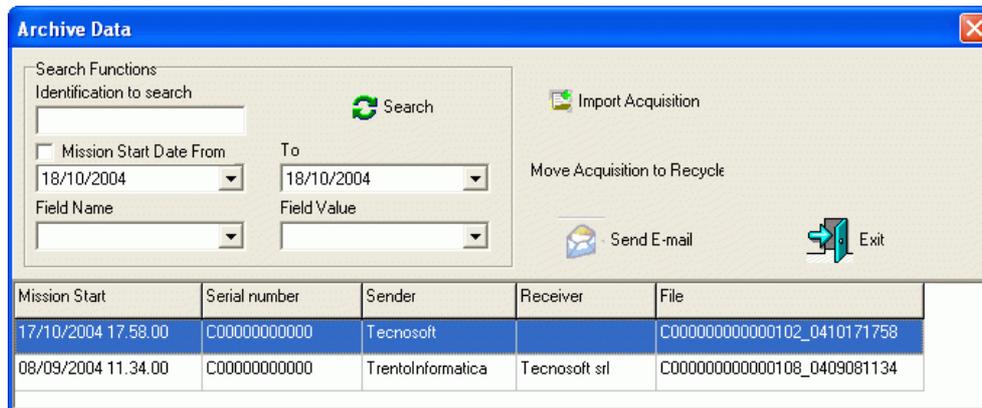
Clicking on the **Archive Data** button you'll open the new window; in the central area, below the grey bar, there is the list with all the acquisition saved. In the left-top box, called *Search Functions*, you can set some search parameters to find easily the acquisition you're looking for.

In the *Object/Site Identification* field you can type in the name or code of each item added in the list called, in the programming window, *Object/Site Identification* (see page 13).

Instead, selecting the *Mission Start Date From / To* option and filling the fields below with the interval of days to consider, there will be shown only the acquisition between these limits. Then, selecting an option from the drop-down list called *Field Name*, which are the names of the columns of the *Archive* table, you'll be able to select in the right field, *Field Value*, a value written at least in one saved acquisition. For example, if you select in the left field *Sender*, in the right field you'll be able to select all the values listed in that column of the *Archive*. After you selected the search parameters, click on the **Search** button to start. If the *Archive* remains empty, it means that none of the saved acquisitions matches those parameters.

If you received by email or on a diskette an acquisition file, you can add it to your database by clicking on **Import Acquisition**. In the next window you can choose the path from which to import the file. If you want to give to another person a specific file, but you cannot send it via email, you can save the file on a disk: the saved files are stored in the *Data/Files* folder, in the main folder of the program. To know which is the right file you want to export, look at its name in the archive list, under the column *File*.

From the *Archive* you can see an acquisitions in details by double clicking on it: you'll open the *Acquisition Data* window (see page 14).

The other buttons are: **Cancel Acquisition** which deletes the acquisitions selected from the list; if you want to import the files put in the thrash bin, click on **Import Acquisition** and search the file in the *Data\Del* folder, in the main directory of the program (which is by default *C:\Program Files\Tecnosoft\HTM*).

Then, there are **Send E-mail**, that it's the same of the one in the *Acquisition Data* window (see page 17) and **Exit**, that closes the *Archive* window.

Help Menu

Click on the **Help** button to open the *On-line Help* window. Browse through the different subjects to know the program in details and learn all the available functions. The *On-line Help* pages work exactly as web site pages, with hyperlinks to go from one page to another.

Information

Clicking on **Info** from the *Main Window* the window with the license contract and the contacts informations will appear.

Closing the program

To close the program just click on **Exit**, or on the **X** in the *Main Window.*

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