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**BEDIENUNGSANLEITUNG
OPERATING MANUAL
MANUEL D'UTILISATION**



TROTEC
AT WORK.

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1. Introduction

The temperature and humidity data logger is a particularly sturdy, high-precision measuring instrument, which is characterised by its fast response time. The data logger is already used in many places to monitor both the ambient temperature and the relative humidity and to collect meaningful measurement data.

2. Functions and technical specifications

The data logger is a particularly efficient and handy measuring instrument, which is particularly suitable for longer lasting measurement assignments. The measurement results are stored in the data logger and transferred to the PC via a USB cable. The data can subsequently be read out on the PC. The display shows the current MAX, MIN, TIME, DATE, temperature and humidity values.

⚠ *Moving the appliance from a cold to a warm environment (and vice versa) can lead to the formation of condensation on the measuring circuitry of the appliance. This physical effect, which cannot be prevented by structural means for any measuring instrument, leads to false measurement values. Depending on the temperature difference, the appliance requires an 'acclimatisation time' of approx. 15 - 30 minutes before the measuring procedure can be resumed.*

⚠ Make sure that the data logger is always used/ stored in an upright position. This also applies after measurements taken at low temperatures or in highly humid environments. The intention is to avoid any condensation that forms collecting in the appliance; instead, it can escape from the lower part of the appliance. Wait until any moisture which may have formed inside the appliance due to physical processes has completely evaporated before the collected data are read out for evaluation. In order to preserve the batteries, the data logger can also be directly connected to the PC via USB. When connected in this manner it draws its power directly from the PC.

3. Special features

1. Memory space for 32,700 measured values
2. Large, easily readable LCD
3. Freely selectable measurement cycle from 1 sec to 24 hrs
4. USB interface for data transmission to the PC

5. Alarm when exceeding/falling below user-defined limit values
6. Including analysis software for the purpose of graphically displaying the measurement data.

Spezifikationen

Humidity	Measurement range	0 to 100%
	Accuracy (0 - 20 and 80 - 100%)	± 5,0%
	Accuracy (20 - 40 and 60 - 80%)	± 3,5%
	Accuracy (40 - 60%)	± 3,0 %

Temperature	Measurement range	-40 to +70°C (-40 to +158°F)
	Accuracy (-40 to -10 and +40 to +70 °C)	± 2,0°C
Temperature	Measurement range	-40 to +70°C (-40 to +158°F)
	Accuracy (-10 to +40°C)	± 1,0°C
Temperature	Measurement range	0 to 100%
	Accuracy (-10 to +14 and +104 to +158 °F)	± 3,6°F
	Accuracy (+14 to +104 °F)	± 1,8°F


Resolution:0.1% R.H., 0.1°C

Memory space:32,700 measured values

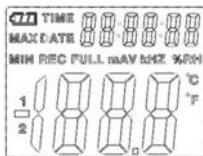
Measuring cycle:1 second to 24 hours

Analysis software:2000/XP/ Vista

4. Operation

01. The battery symbol  indicates the charge capacity of the battery. If the battery is flat, the „flat battery“ symbol appears. Insert a new battery. The lifetime of a conventional battery is at least 3 months. Use exclusively batteries of the same type and of high quality, as otherwise the proper function of the appliance cannot be guaranteed. No liability will be accepted for damage caused by the use of the wrong batteries or batteries of inferior quality.
02. Time displays the current time
03. Date displays the current date

04. The display of time and date changes automatically every 10 seconds
05. MAX: Displays the highest measured value, including the associated date and time.
06. MIN: Displays the lowest measured value, including the associated date and time.
07. REC: This message appears throughout the entire measuring procedure
08. FULL: This message appears if the data memory is full. No further data can be stored.
09. %RH: The measured humidity is displayed as a percentage.
10. °C: Temperature in degrees Celsius
11. °F: Temperature in degrees Fahrenheit
12. Press the MAX/MIN button in order to display the maximum or minimum values stored during the recording period. The appliances returns to measu



- ring mode after 40 seconds if no further button is pressed.
13. The message „-PC-“ appears on the display when transmitting the collected measured data to the PC. The data logger returns to measuring mode after data transmission is complete. The currently measured value is displayed and the recording is stopped. Perform a reset; in other words, prepare the data logger via the PC software for a new measurement in order to be able to start a new recording sequence. As a matter of principle, the measured values can only be read from the display. All settings in the data logger are performed exclusively via the software installed on the PC.
14. Alarm function: The LEDs flash once per minute in the case of exceeding or falling below the set limit values. The red LED indicates that the temperature has exceeded/fallen below the user-selected limit values. The yellow LED indicates that the relative humidity has exceeded/fallen below the user-defined limit values.

15. The message „-LO-“ indicates that the sensor for the temperature and humidity is not correctly connected. In this case, you can proceed as follows: Open the back of the appliance and connect the sensor correctly. As soon as the sensor is correctly connected, the message disappears and the appliance is ready for operation once again. If this action is unsuccessful, please contact our customer service department.

5. Software installation

1. First of all, insert the CD supplied into the CD-ROM drive. A pop-up menu appears shortly afterwards. Follow the instructions in the menu to install the software on your PC.
2. Leave the CD in the drive even after completion of the software installation. Connect the data logger to your PC using the USB cable supplied. A window for the USB driver is opened. Follow the instructions and select the path for the USB driver (CD drive). The installation takes place shortly afterwards.

Software applications:

You can transfer the collected measured data to your PC with the data logger's USB software. The program supports Excel or similar spreadsheet programs. The data can also be displayed graphically. The most important functions can all be seen in the superordinate main window.

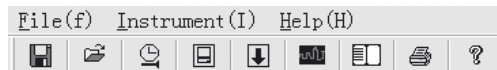
System requirements:


Windows 2000 /Windows XP/Vista, Windows 7


Minimum hardware requirements:

PC or Notebook with Pentium 90 MHz processor or higher; 32 MB RAM; At least 7 MB free hard disk space for the installation of the HT data logger USB software. The recommended display resolution is 1024 x 768 with high colour (16 bits).

Main menu




 **Save:** To save the collected data on the hard disk


 **Open:** To open a stored file

 **Current time/update the time in the data logger**

 **Data logger setup**

 **Download data from the data logger**

 **Display graph:** displays the collected data as a graph

 **Show list:** displays the collected data as a list




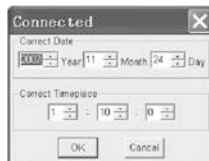
Print: prints out the graph or list




Help

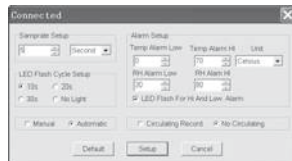
Reset time and date

Click on the  icon in order to reset the time and date. A new window appears. Enter the correct time and the correct date. Then click on „OK“.



Data logger setup


- Click on the  icon in the menu. The setup window appears (see below). Proceed as described below in order to set the individual menu items.



- You can set the measurement sampling rate for the data logger with the field „Samprate setup“. Enter the desired number in the left-hand box and the unit of time in the right-hand box.
 - You can set the time intervals at which the LEDs flash by clicking the three time intervals (10s/20s/30s=seconds) listed in the „LED Flash Cycle Setup“ field. (If you click „No Light“, the LEDs do not flash when the values exceed/fall below the user-defined limit values. This mode preserves the batteries and ensures a longer life span.
 - Click on „Manual“ or „Automatic“ to specify whether the data logger automatically enters recording mode when you close the setup window („Automatic“) or only at a later time („Manual“) by manually pressing one of the two buttons.
 - You can configure the upper (HIGH) and lower (LOW) limit values for the temperature and the humidity with the „Alarm Setup“ field. In this field you can also set the temperature units (°C/°F) and deactivate the LEDs.
 - By clicking „Circulating Record“ or „No Circulating“, you can decide whether the stored data should be overwritten (Circulating Record) when the memory is full or whether the data logger should not store any further data in this case (No Circulating) and the recording should stop. Click on the SETUP button to save the settings. Click on the „Standard/DEFAULT“ button in order to restore the data logger's factory settings. Click on the „Cancel“ button in order to abort the setup.
- ⚠ If the new settings are saved with „Setup“ after the execution of a setup, all previously saved measured values are automatically deleted! In order to prevent such a loss of data, click on the „Cancel“ button during the setup to end the setup procedure prematurely. This way the stored data can still be transferred to another medium (e.g. PC) beforehand. On account of the duration or intensity (e.g. borderline climatic conditions) of an application, the battery life may not be sufficient for the in**

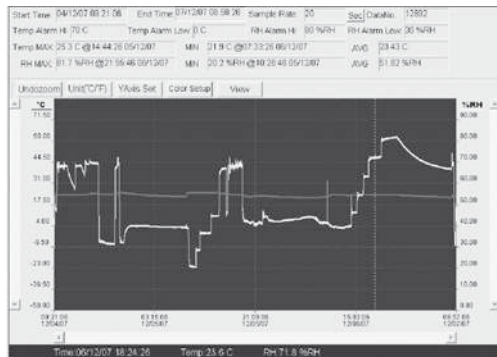
tended measurement. Therefore we strongly recommend before performing such an intensive measurement that you check the charge capacity of the batteries and replace them if necessary, in particular if the data are of particular value or the measured values are critical.

Transmission of the data from the data logger to the PC

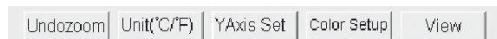
- Connect the data logger to the USB port of your PC by means of its USB interface.
- Open the data logger software program if the program is not already running
- Click on the Download icon 
- The following window appears. Click on „Download“ to transfer the measured values to the PC



After successful transmission of the data, a window appears with the following graphic display:

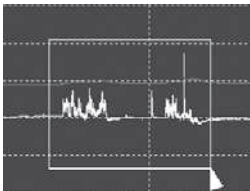


The field above the graphic display contains information on the time, sampling rate, number of data, alarm settings and the maximum, minimum and average values).



Zooming in:

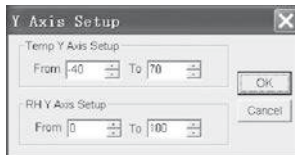
1. Press and hold the left mouse button. Draw a rectangle with the mouse around the section that you wish to enlarge.
2. Release the mouse button again.
3. Use the horizontal scrollbar to scroll through the data. Use the left-hand vertical scrollbar to scroll through the temperature data. Use the right-hand vertical scrollbar to scroll through the humidity data.



Zooming out:

Click on the **Undo zoom** in order to zoom out again and return to the original picture size.

Click on **Y Axis Set** in order to access the setup for the temperature and humidity axis (Y-axis).



Colour settings

Click on **Color Setup**, in order to set up the background colour, the grid colour and the colours for the temperature and humidity.



Adapting the graphic window

Click on **View** in order to adapt the graphic window individually.

With these settings the user can determine which data he wishes to see as the data trace or which grid lines should be added to or removed from the X/Y axes.

Marking points:

Set points on the traces in order to determine current data points and to interrupt the natural continuity of the trace.

List view

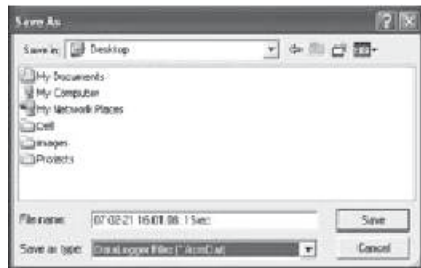
Click on the  to access the list window.

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	52.6	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



Saving and opening files

1. Click on the  icon to open the dialogue window „File save“ dialogue window.



2. Name the file and save it with the standard list of the file extension. The file is saved with the „record“ extension and opened with the HT data logger software program again. The file can also be opened as an „.xls“ file by a spreadsheet program or another word-processing program.

Click on the  icon to open an existing, previously saved file that you wish to view in the data graph window.

Printing out the graph and list

Click on the  icon to display the data as a graph. Then click on the  icon to print out the graph.

Click on the  icon to display the data as a list. Then click on the  icon to print out the list.



Electronic equipment may not be disposed of as domestic waste, but must be correctly disposed of in accordance with the EUROPEAN PARLIAMENT AND EUROPEAN COUNCIL Directive 2002/96/EC of 27 January 2003 regarding used electrical and electronic equipment. Please dispose of this equipment in accordance with the applicable legal regulations when its service life is ended.

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