

User's Guide

EXTECH INSTRUMENTS

Temperature / Humidity Datalogger

Model 42270



Warranty

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at www.extech.com (click on 'Contact Extech' and go to 'Service Department' to request an RA number). A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. 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. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

Introduction

Congratulations on your purchase of the Extech 42270 Temperature/Humidity Datalogger. The Datalogger can be used to monitor the temperature in °C or °F and the Relative Humidity in % of greenhouses, warehouses, food transports, aircraft cabins, refrigerated trucks, containers, art galleries, museums, and HVAC equipment. The Datalogger can store 16,000 readings (8,000 temperature readings and 8,000 relative humidity readings) that can later be transferred to PC or directly printed using the Model 42276 Programmer/Printer. Careful use of this device will provide years of reliable service.

Specifications

Display	Multi-function LCD
Front panel status LEDs	Two (2): RECORD and ALARM
Temperature range	-40 to 185°F (-40 to 85°C)
Temperature resolution	0.1 / 1°F or C
Temperature accuracy	±1.2°F (0.6°C) from -4 to 122°C (-20 to 50°C) ±2.4°F (1.2°C) all other ranges
Humidity range	0.0 to 100.0% Relative Humidity
Humidity accuracy	±3%
Datalogger storage	16,000 readings (8,000 each for temperature and humidity)
Sampling rate	Programmable. 1 to 7200 seconds (2 hours)
Power supply	One (1) CR2 or ½ 'AA' lithium battery
Battery Life	1 year: 5 second sample rate in sleep mode 3.8 months: 24 hour sample rate in non-sleep mode
Low battery indicator	Display shows 'LO'
Cable length	60" (150cm)
Operating Temperature	32 to 104°F (0 to 40°C)
Operating Humidity	10 to 80% RH
Dimensions	4.9 x 3.6" (124 x 92mm)

Description

Refer to Figure 1.

1. LCD display
2. Mounting hole
3. Docking station
4. Interface Cable
5. Status LEDs
6. Supplied Software CD

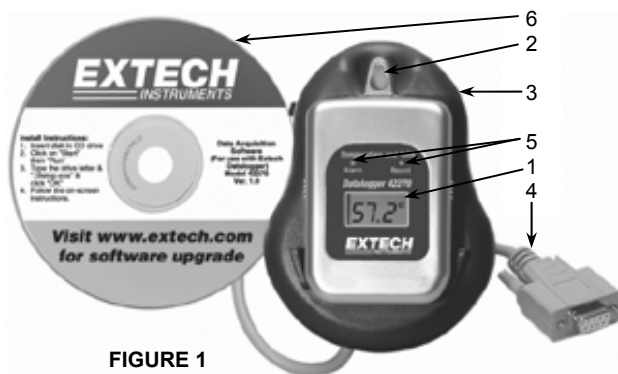


FIGURE 1

Displays

LCD Display

REC: Displayed while logging temperature or humidity. Read 'Recording Status' section below for further details.

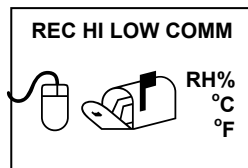
HI and LOW: Displayed when the High or Low Alarm limit is exceeded. See 'Alarm Status' below for further information.

RH%: Relative Humidity.

C or F: Temperature units.

COMM: Appears when Datalogger is communication with a PC.

Note: The datalogger module will not display any characters until it is placed in the docking station, connected to the PC, and activated by the software in the LOGGER SET menu as described later in this manual. In LOGGER SET the user selects the type of recording activation. When the logger begins logging the display and status LEDs will switch on.



Recording Status Indication

Both the RED status LED and the display indicator 'REC' will flash every 5 seconds if the sampling rate is set to 5 seconds or higher. If the sampling rate is set lower than 5 seconds, the indicators will flash every 1, 2, 3, or 4 seconds as programmed.

ALARM Status Indication

Both the YELLOW status LED and the display indicator 'ALM' will flash when the recorded value is higher than the user programmed High Alarm value or lower than the Low Alarm value. The Alarm status LED and the 'ALM' display indicator flash every 5 seconds if the sampling rate is programmed for 5 seconds or higher. If the sampling rate is set lower than 5 seconds, the indicators will flash every 1, 2, 3, or 4 seconds as programmed.

Low Battery Indication

When the lithium battery weakens, the LCD displays 'LO'. To replace the battery, refer to the Battery Replacement section of this manual.

Software Installation and Operation

Installation

1. Slide the logger onto the RS-232 PC Interface docking station.
2. Connect the PC interface cable to the PC com port (1 or 2).
3. Insert the supplied software disk in the PC CD-ROM drive.
4. The main software screen will appear with the following selections:
 - INSTALL SOFTWARE: Click to install the software.
 - WEBSITE: Visit website.
 - BROWSE CD-ROM: View all items on the CD-ROM.
 - EXIT: Close the software.
 - MANUAL PDF: Open the operation manual in PDF format.

Main Software Screen

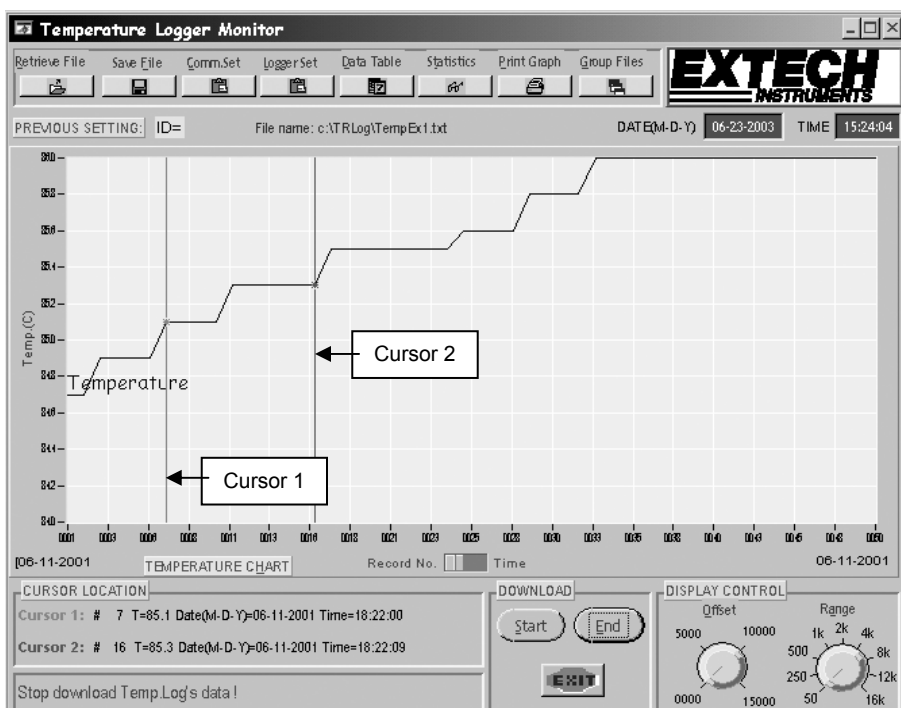


FIGURE 2

When the software is run, the window shown in Figure 2 (above) will appear. The window items are described below. If the PC and Datalogger are not communicating, the following error message will appear on the lower left hand corner of the software screen.

<<WARNING: Datalogger not plugged into interface module!>>. If this occurs, check the COM Port settings under the 'Com Set' button located on the top row of the software window.

Retrieve File

Open a data file currently stored on the PC.

Save File

Save data to a new file on the PC.

COM Set

Set the COM Port number, baud rate, data bits, parity, & stop bits.

Logger Set

The Datalogger must be configured before each recording session using the following parameters (refer to Figure 3):

- Sample Points: Set the number of data points to record (1000, 2000, 4000, 8000, 12000, 16000)
- Sample Rate: Set from 1 to 7200 seconds (interval between recorded readings).
- Start Mode: IMMEDIATE (recording starts when OK is selected), SCHEDULE (see Start Date/Time below), MAGNETIC (recording begins when a magnet is passed over back of the datalogger).
- Start Date and Start Time: Set date/time when Datalogger is to begin recording data.
- Unit: Select degrees C or F for temperature.
- High and Low Alarm: Temperature limits that, if exceeded, enable the front panel 'ALARM' LED and the LCD icon 'ALM' to flash.
- Logger Date and Logger Time: Set the Datalogger's internal real-time clock.
- Sleep Mode setting: When enabled, the Datalogger automatically shuts off after 10 minutes of use.
- Logger ID setting: Unique name given to each Datalogger (up to 8 characters).

The screenshot shows the 'Logger Setting' window with the following values:

- Next Logger Setting:**
 - Sample Points: 1000
 - Sample Rate(Sec.): 1
 - Start Mode: Immediate
 - Start Date: 06-23-2003
 - Start Time: 16:00:42
 - Unit: oC
 - High Alarm: 60.0
 - Low Alarm: 50.0
- Logger's Clock Setting:**
 - Logger Date: 06-23-2003
 - Logger Time: 16:00:45
- Sleep Mode Setting:**
 - Non-Sleep: [checked]
 - Sleep: [unchecked]
- Logger's ID Setting:**
 - Identifier: [empty]

FIGURE 3

Data Table

View a list of all the data. Right-click in the list window to call up the following commands:

- GOTO: Specify a target cell to locate using its row and column.
- FIND: Search for a text string in all of the alpha-numeric cells in the entire table or for a selected range.
- SORT: First right-click on a column header in the Data Table. Now sort the cells using the data in one of the rows or columns as the sort key.

Note that in the table, data can be cut (ctrl-c) and pasted (ctrl-v).

Statistics

Statistics can be applied to all the data or only the data between the moveable cursors located on the main software screen.

- The Temperature data is shown on the top graph and the Relative Humidity on the bottom graph.
- The maximum, minimum, mean, and standard deviation values are shown on the right side of each graph.
- Use the mouse to adjust the yellow knobs (left side of Statistics screen shown in Figure 4) to equally divide all readings into divisions (up to 130 divisions are possible). This can also be done by clicking the up/down arrows or by keying in the value directly.

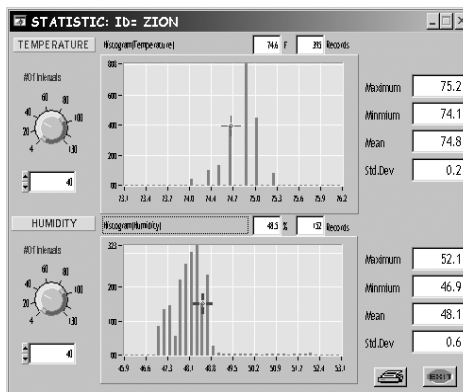


FIGURE 4

Group Files

Click Group Files to view the 'Multi Logger Monitor' designed to view and compare data files. Figure 5 shows the screen as it appears before a file icon (top of screen) is selected.

- To open a file in the 'Multi Logger Monitor', click on the file open icon next to the color block. The filename will appear next to the letter designation and the data will appear in the grid when a file is selected.
- Select the color of the curve by clicking the color block next to the file names.
- Use the OFFSET and RANGE controls to manipulate the view as described in Offset and Range knob sections below.

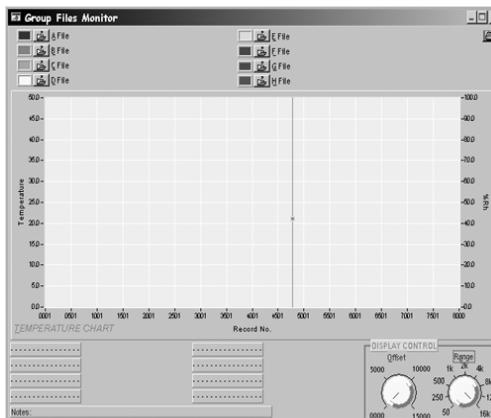


FIGURE 5

- Print the data by clicking the print icon at the top right of the screen.

Temperature and Relative Humidity displays on Main Software Screen

Refer to Figure 2 for the Main Software Screen. The temperature and humidity readings are represented on the main grid of the software window after data is transferred from PC. The temperature units are shown on the left side of graph and the humidity units on the right. Use the OFFSET and RANGE knobs located on the bottom right of the main software screen to manipulate the data view. Details on their use are provided below:

OFFSET Knob

The Offset knob allows the user to select the data point that appears on the left-hand side of the data graph on the main software screen. With the knob set to '0000', the beginning

of the data list will be shown on the left side of the display graph. With the knob set to 2500, reading number 2500 will start on the left side of the display graph.

RANGE Knob

Use the Range knob to select the number of readings represented on the display graph. If the knob is set to '50', fifty readings will be shown on the display graph. With the knob set to '2K', two thousand readings will be represented on the display graph.

Cursor 1 and 2

Cursor 1 and Cursor 2 (red and green vertical lines on main software screen grid) can be used to select a region of data (click and drag to select data). Selected readings are between the two cursors. Click on a cursor line to select it (its color will turn bold). The Cursor Location field (lower left) shows the cursor positions. As the arrow keys are used to select the last record or the next record, the location numbers change to reflect the new position.

Left arrow key	Moves to previous point on the current plot.
Right arrow key	Moves to next point on the current plot.
<Shift> left arrow	Moves back 10 points on the current plot.
<Shift> right arrow	Moves ahead 10 points on the current plot.
<Home>	Moves to first visible point on the current plot.
<End>	Moves to last visible point on the current plot.

Zoom and Pan on Graphs

To zoom in on a data point, <ctrl> left click on the desired point. The view resolution increases until the mouse is released. To zoom out, right click the data point.

To pan, <ctrl-shift> click on the desired data point and drag to another point. The graph view scrolls so that the original point now appears under the new mouse location. Drag the mouse anywhere on the screen, even beyond the view port.

RECORD NO. / TIME Switch

This switch is located just below the center of the graph on the main software screen. When in the RECORD NUMBER position, the data will be plotted against each record number 1 through n (n = total number of records). When in the TIME position, data is plotted against the time of day that the readings were logged.

Previous Setting

Click on Previous Setting to download data from another datalogger without first closing the program.

Company Logo

The company logo at the top right hand corner of the main software screen can be customized. Please contact Extech for further information.

Message Board

The field on the bottom left hand corner of the main software screen is reserved for program alerts, instructions, and messages. The software will instruct the user; please observe this field during operation for helpful hints, instructions, and messages.

Download Commands

The Download area of the main software screen (bottom, center) is used to START and STOP the transfer of the data from the Datalogger to the program. Press EXIT to return to the normal operation mode.

Battery Replacement

When the low battery icon ('LO') appears on the LCD display, replace the Lithium CR2 battery.

1. Open Datalogger housing by first removing the four (4) rear Phillips screws.
2. Carefully pry off the rear of the Datalogger.
3. The cylindrical lithium battery is located on the bottom of the PCB board.
4. Replace the battery, observing polarity.
5. Assemble the Datalogger housing.

Calibration and Repair Services

Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.



Support Hotline (781) 890-7440

Tech support: Ext. 200; Email: support@extech.com

Repair>Returns: Ext. 210; Email: repair@extech.com

Website: www.extech.com

Copyright © 2003 Extech Instruments Corporation

All rights reserved including the right of reproduction in whole or in part in any form.