

User's Guide

EXTECH INSTRUMENTS

Datalogger Programmer with Printer

Model 42276



Introduction

Congratulations on your purchase of the Extech 42276 Datalogger Programmer with Printer. The Programmer is a docking station for the Datalogger module and it also allows the user to configure, download, and print data from the Datalogger. The removable Datalogger module stores up to 8000 Temperature and 8000 Relative Humidity measurements (for a total of 16,000). The programmer allows the user to configure the Datalogger module as well as print readings and display details of the recorded data. Detailed instructions on the Datalogger module are provided in the separate 42270 manual. This manual covers the operation of the programmer/printer exclusively. Careful use of this device will provide years of reliable service.

Warranty

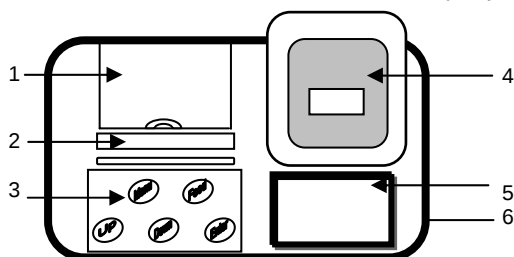
EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, 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.

Specifications

Temperature Range	-40 to 185°F (-40 to 85°C)
Temperature Resolution	0.1°F/°C
Temperature Accuracy	±1°F (-4 to 122°F) ±2°F (-40 to -4°F and 122 to 185°F) ±0.6°C (-20 to 50°C) ±1.2°C (-40 to 20°C and 51 to 85°C)
Humidity Range	0 to 100% Relative Humidity
Humidity Resolution	0.1% RH
Humidity Accuracy	±5%
Repeatability	±1°C
Datalogging interval	1 second to 2 hours
Memory	16,000 reading storage in Datalogger Module (8,000 temperature + 8,000 RH readings)
Power	Four (4) 'AAA' 1.5V batteries (optional AC adapter)
Power consumption	< 3.2A peak when printing < 300mA average when printing 0.5 to 2mA (idle) 40 to 80uA (powered down)
Auto power off	Device turns off automatically after 10 minutes to conserve battery energy
Printer paper size	57mm x 4M (length)
Dimensions	6.1 x 4.8 x 1.9 (155 x 122 x 48mm)
Weight	12 oz. (338g)

Description

- | | |
|------------------------------|----------------------|
| 1. Printer paper compartment | 4. Datalogger Module |
| 2. Paper output feed | 5. LCD Display |
| 3. Push-buttons | 6. AC adapter jack |



Note: The battery compartment is located on the back of the instrument

Initialization

The datalogger module will not operate until it has been initialized. The datalogger will remain dormant (blank LCD) until it receives its programming instructions through the programmer printer.

Push-Button Operation

MENU Button

1. Use the MENU button to turn the Programmer on.
2. Once the Programmer is on, use the MENU key to step through the available display pages.
3. Hold down the MENU button for 3 seconds to turn the Programmer off.
4. Press MENU during a save operation to escape from saving data.
5. Press MENU during a print session to cancel printing.

ENTER and UP/DOWN Buttons

1. Press the ENTER button to run a command that is highlighted on the LCD display.
2. Use the UP and DOWN buttons to scroll through the available commands. (When a selection is highlighted it has a blue background). The UP/DOWN buttons are also used to increase or decrease a highlighted value (press and hold a button to scroll quickly).
3. Use the MENU button as described above to scroll through the available display pages.

FEED button

Press the FEED button once to advance the printing paper by one line. Press and hold the button to advance the paper continuously.

Display Pages Summary

The Programmer is configured and operated using four display pages. The pages are selected using the MENU push-button. Each page is summarized below and then explained in greater detail on the following pages.

MESSAGE (MSG) PAGE SUMMARY

1. Retrieve the readings stored in the Datalogger by selecting DOWNLOAD. Retrieved readings can then be printed using the PRINT command on the PRN page.
2. The current date and time is shown on the display if the Datalogger is not connected to the Programmer.
3. The summary of the data (if any) stored in the programmer is shown: The number of readings, the unique Datalogger ID code, the sampling rate (time between data points), and the unit of measure ($^{\circ}\text{C}/^{\circ}\text{F}$).

PRINTER (PRN) PAGE SUMMARY

1. Adjust the contrast of the print on the printer paper.
2. Enable or Disable the High and Low Temperature Alarms (program the High and Low Alarm limits on the LOG page).
3. Choose from three types of Print Modes: TEXT, GRAPH, or REPORT (print examples are shown in the Addendum).
4. Select the range of data to print.
5. Print the data using the PRINT command.

DATALOGGER (LOG) PAGE SUMMARY

1. Select a unique ID number for each Datalogger module (up to 7 characters).
2. Disable or Enable the Sleep Mode (10-minute auto power off feature).
3. Set the High and Low Alarm limits (Activate the Alarm mode on the PRN page).
4. Set the Datalogger's internal Real Time Clock.
5. Under OTHER SETTINGS:
 - Select the Number of data points that the Datalogger will record.
 - Set the Datalogger Sampling interval (time between recorded data points).
 - Set the Temperature Units (C or F) of the recorded data points.
 - Select the method that the Datalogger uses to start recording (automatically, scheduled start, or magnetic strip activation). Detailed in the Appendices.

CONFIGURATION (CFG) PAGE SUMMARY

1. Set the Programmer's LCD display contrast.
2. View the communication Baud Rate.
3. Select the date format.
4. Set the Date and Time of the Programmer (the Datalogger Time and Date is set in the LOG page).

Display Pages in Detail

Message (MSG) Page

When the Programmer is powered up, the screen shown below at left will appear. If the Datalogger Module is not connected to the Programmer, this screen will remain the same. However, if the Datalogger Module is connected to the Programmer, the screen shown below right will appear after several seconds. The display icons are defined below.

MSG	PRN	LOG
LOGGER OFFLINE		
6-13-03		10:13:55

Datalogger Not Connected

MSG	PRN	LOG
ID:	9101417	
Total:	16,000 Rec.	
Rate:	1 Sec.	
Unit:	°F	
DOWNLOAD		

Datalogger Connected

- MSG (Message Page): Current page icon is always shown on the top left.
- PRN (Printer): Icon for the page that follows the current page is shown top center.
- LOG (Logger Page): Icon for the page that is two pages ahead of the current page is always shown top right. Use the MENU button to browse the pages.
- ID: Number used to identify each Datalogger (programmed on the LOG page).
- Total: Number of records retrieved from the Datalogger Module.
- Rate: Current data sampling interval (programmed on the LOG page).
- Unit: Units of measure (programmed on the LOG page).
- LOGGER OFFLINE: Datalogger not connected.
- 6-13-03: Date (MM-DD-YT). Date format selected on the CFG page.
- 10:13:55: Time (HH:MM:SS). Time format selected on the CFG page.
- DOWNLOAD: Transfer data (Module to Programmer) by pressing the ENTER button.

Printer (PRN) Page

Use the UP/DOWN arrow buttons to move through the programmable fields described below. Once a parameter is highlighted, use the ENTER key to start the parameter blinking. Once blinking, use the UP/DOWN arrow buttons to change the value. When finished, press the ENTER key again.

PRN	LOG	CFG
Contrast:	1	
Alarm:	Disable	
Mode:	Text	
Content:	Point	
	1	-52
PRINT		

- PRN: Icon for the current page.
- LOG: (Logger Page) page after the PRN page.
- CFG: (Configuration Page) Page after the LOG page.
- Contrast: Darkness of print on printer paper. Select 1 through 9 (darkest).
- Alarm: Enable/Disable Alarm (alarm limits programmed on the LOG page below).
- Mode: Select REPORT (summary of recorded data), TEXT (list of data points), or GRAPH (graph of data points) printing mode. Print examples provided in Appendices.
- Content: Select a range of data (in the diagram, data points 1 through 52 are selected).
- PRINT: Scroll down to PRINT and press ENTER to print the selected data range.

Datalogger (LOG) Screen

Use the UP/DOWN arrow buttons to move through the programmable fields described below. Once a parameter is highlighted, use the ENTER key to start the parameter blinking. Once blinking, use the UP/DOWN arrow buttons to change the value. When finished, press the ENTER key again.

- LOG: Current Page.
- CFG: Page after the LOG page.
- MSG: Page after the CFG page.
- ID: User selectable code used to ID each Datalogger module used. The code can be up to seven digits long. Use the ENTER button to move from digit to digit and use the UP/DOWN buttons to scroll the available characters. Press ENTER when the cursor is on the displayed arrow (far right) to store the code. The Programmer will automatically identify each Datalogger module when connected.
- SLP Mode: (Sleep mode). When enabled, the Datalogger powers off automatically after a programmed datalogging session. Select 'disable' to deactivate this feature.
- Alarm setting: Program the HIGH and LOW Alarm temperature points. When these points are exceeded while the datalogging is recording, the ALARM status LED on the Datalogger Module will flash at the same time as the RECORD status LED flashes.
- Clock Setting: Set the real time clock for the Datalogger Module.
- Other Settings:
 1. Point: Select the number of data points that the Datalogger will record. The Datalogger will automatically stop when this programmed limit is reached. Select 1000, 2000, 4000, 8000, 12000, or 16000 readings.
 2. Rate: This is the interval of time between recorded readings. Select a sampling rate from 1 to 7200 seconds.
 3. Unit: Select the unit of measure for temperature (°C or °F)
 4. Mode: IMMEDIATE (Datalogger begins storing readings immediately), MAGNETIC (Datalogger begins recording when a magnet is passed over the back of the Datalogger), or SCHEDULE (Datalogger starts recording at scheduled time and date). The Appendix later in this manual provides more information on the starting modes.

LOG	CFG	MSG
ID:	9101417	
SLP Mode:	Enable	
Alarm setting		
LOG clock setting		
Other settings		

Datalogger (CFG) Screen

Use the UP/DOWN arrow buttons to move through the programmable fields described below. Once a parameter is highlighted, use the ENTER key to start the parameter blinking. Once blinking, use the UP/DOWN arrow buttons to change the value. When finished, press the ENTER key again.

- LCD Cont: Contrast adjustment for the LCD display. Select from 1 through 9 (darkest).
- Baud rate: PC Communication speed of the Datalogger Module.
- Date Format: Select MM-DD-YY, DD-MM-YY, or YY-MM-DD format.
- Date/Time Setting: Set the Programmer's Date and Time by first pressing ENTER when DATE/TIME SETTING is highlighted. Next, use the ENTER key to move from field to field and the UP/DOWN arrows to change settings.

CFG	MSG	PRN
LCD Cont:	6	
Baudrate:	9600	
Date:	MM-DD-YY	
Date/Time Setting		
06-13-03	17:22:44	

Appendices

Print Modes

The Programmer prints data in three modes: Text Mode (a brief summary followed by a line by line data list); Graph Mode (similar to Text but with a series of graphs representing all recorded data); or Report (Logger Summary) Mode (similar to Graph Mode but has only one graph representing all the data in the set). Example printouts are provided below.

TEXT REPORT

ID: 9104743
Unit: °F
Total: 16,000 records
Rate: 1 second
Start: 05-07-2003 03:54:59
End: 05-07-2003 06:08:18
Point: 1-52
Min. Temp.: 70.3 °F
Max. Temp.: 71.2 °F
Avg. Temp.: 71.0 °F

Min.RH%: 47.3%
Max.RH%: 49.1%
Avg.RH%: 47.7%

05-07-2003 Record: 1

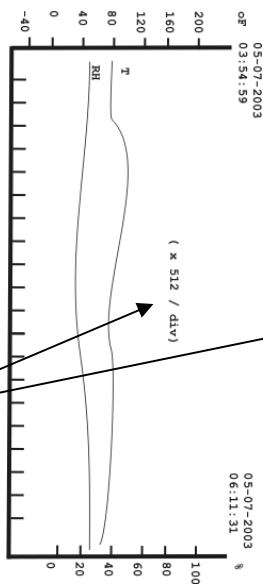
T °F	RH%	Time
70.3	49.1	03:54:59
70.3	48.9	03:55:00
70.5	48.8	03:55:01
70.5	48.6	03:55:01
70.5	48.5	03:55:03
etc.		

LOGGER SUMMARY

ID: 9104743
Unit: °F
Total: 16,000 records
Rate: 1 second
Start: 05-07-2003 03:54:59
End: 05-07-2003 06:08:18

Min. Temp.: 70.3 °F
Max. Temp.: 71.2 °F
Avg. Temp.: 71.0 °F

Min.RH%: 47.3%
Max.RH%: 49.1%
Avg.RH%: 47.7%

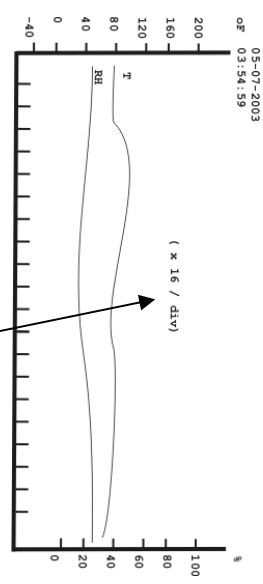


GRAPH SUMMARY

ID: 9104743
Unit: °F
Total: 16,000 records
Rate: 1 second
Start: 05-07-2003 03:54:59
End: 05-07-2003 06:08:18

Min. Temp.: 70.3 °F
Max. Temp.: 71.2 °F
Avg. Temp.: 71.0 °F

Min.RH%: 47.3%
Max.RH%: 49.1%
Avg.RH%: 47.7%



512/div or 16/div
indicates that there
are 512 or 16
readings
respectively
represented in each
division.

Datalogger Start Modes

There are three methods by which the Datalogger can be programmed to start recording. The three modes are: IMMEDIATE, SCHEDULE, and MAGNETIC. The three methods are described below:

1. IMMEDIATE: Datalogger starts recording as soon as this method is selected.
2. SCHEDULE: A time and date can be programmed prompting the Datalogger to begin recording at a specific point in time. Schedule the time and date by first selecting SCHEDULE under the OTHER SETTINGS parameter on the LOG page and then setting the Time and Date as prompted.
3. MAGNETIC: When a magnet is passed over the back of the Datalogger, recording starts.

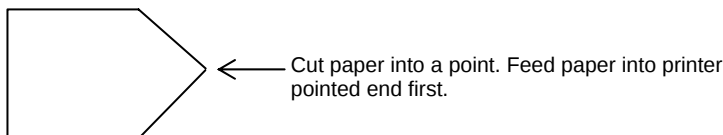
Maintenance

Battery Replacement

The battery compartment is located on the bottom of the Programmer. When the batteries are weak the display may appear very dim, blank altogether, or display 'LOW BATTERY'. Open the battery compartment by first laying the instrument face down on a soft surface and then lifting the compartment latch. Remove and replace the four 'AAA' 1.5V batteries observing polarity.

Printer Paper Replacement

When the instrument's paper roll is depleted, open the paper compartment located above the paper feed by lifting the compartment latch. Cut the beginning of the new paper roll into a point (see diagram) before feeding it through the printer.



Place the new roll of paper in the compartment (pointed end first) and feed it through using the FEED button. A 5-pack refill of printer paper is available using part number 422378.

Cleaning and Storage

Use a damp cloth to wipe the instrument housing periodically. Store in a cool, dry location with the batteries removed.

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

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