User Manual

DIGI-SENSE™

Temperature and Temperature/RH Data Loggers with USB Interface

Models 20250-41, -42, -43, -44

CE

THE STANDARD IN PRECISION MEASUREMENT

Introduction

The Digi-Sense USB Data Logger measures ambient temperature and records up to 32,000 readings). Models 20250-42 and 20250-43 also measure relative humidity. Program sampling rate, high/low alarm levels, and start mode using the provided software. Download logged data via the integrated USB interface for analysis, graphing, and documentation. Careful use of this instrument will provide years of reliable service.

Unpacking

Check individual parts against the list of items below. If anything is missing or damaged, please contact Cole-Parmer immediately.

1. Data logger
2. Clear USB connector cover
3. Type K thermocouple (model 20250-44)
4. Mounting clip with screws
5. Software CD
6. One 3.6 V battery
7. User manual

Key Features

- Status indication via green and yellow/red LEDs
- Integrated USB interface for setup and data download
- User-settable high/low alarms
- Real-time mode—lets you monitor and log measured data in real time while the logger is still plugged into the computer's USB interface

Logger Description

1. Clear USB connector cover
2. USB interface to PC port
3. Manual START button
4. Access to battery
5. Internal sensor (models 20250-41, -42, -43)
6. Input for external type K thermocouple sensor (model 20250-44)
7. Record LED (green)
8. Alarm LED (yellow/red)
9. LCD (model 20250-43)
10. Mounting clip

Setup and Operation

1. Insert the software CD into the PC. Double click the set up.exe file to launch the software installation program.

2. Follow the installation wizard to complete installation; when complete, the “Datalogger” software icon shortcut will be automatically placed on the PC desktop.

3. Plug the data logger into the computer USB port and double click on the “Datalogger” software icon to launch the software.

4. Left click on the “Datalogger Setup” icon (tool image) in the top left corner to open the “Setting” tab.

   Manual start mode: Allows you to move logger to a remote location. To start recording, press and hold the Start button for 3 seconds until the green LED lights up. To stop recording, press and hold the Start button for 6 seconds until the red LED lights up.

   Instant start mode: Recording begins automatically once the logger is removed from the computer USB port.

5. Refer to the "Software Setup and Operation" section on pages 4–7 for full instructions.

Note: Model 20250-44 must have the external type K thermocouple sensor connected before recording.

LED Status Guide

LEDs	Indication	Action needed
REC ○ ALM ○	**Both LED lights off**	
	– Logging not active	—
	– No battery inserted or dead battery‡	Replace battery and download data
REC ● ALM ○	**Green single flash every 10 seconds***	
	– Logging in progress, no alarm condition	—
	Green double flash every 10 seconds*	
	– Delayed start	To start, hold the Start button until green and yellow LEDs flash
REC ○ ALM ◐	**Yellow single flash every 10 seconds***	
	– Logging in process, LOW alarm condition†	—
	Yellow double flash every 10 seconds*	
	– Logging in process, HIGH alarm condition†	—
	Yellow single flash every 60 seconds	
	– Memory is full	Download data
REC ○ ALM ●	**Red single flash every 60 seconds**	
	– Low battery‡	Replace battery and download data

*To conserve battery life, increase the LED flashing cycle to 30 seconds using the provided software.

†The LED status indication alternates every cycle. For example: If there is one alarm, the REC LED blinks for one cycle and ALM LED will blink for next cycle.

‡When the battery is low, all operations will be disabled automatically (logged data will be retained). Replace the battery and use provided software to restart logging operation and to download logged data.

Software Setup and Operation

Installation

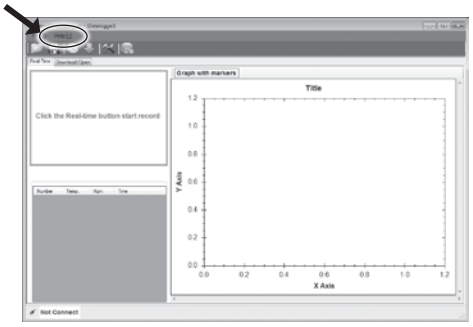
1. Insert the supplied data logging software CD into the PC.

2. Double click the set up.exe file to launch the software installation program

3. Follow the installation wizard to complete the installation.

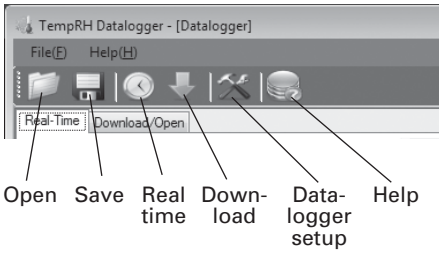
4. Upon successful installation, the "Datalogger" software icon shortcut will be automatically placed on your PC desktop.

5. To initiate the software, double click on the "Datalogger" software icon. An easy to follow user interface will display. A user guide can be produced by selecting the "Help" option followed by "contents" from the user interface.



6. Ensure the data logger is connected successfully before programming.

Functions



Open Function

Click on it to open previously logged data file for viewing or further analysis. When selected, the open screen will list data files saved earlier. Clicking on a file of interest will automatically load and display the data graph.

Save Function

Save logged data to a file for keeping or future analysis. When selected, the software will allow you to save the data in a default location or one of your choosing for access later through the open selection. The data can be saved in the default ".ITMR" format or ".CVS format".

Real-time Function

Click on the clock icon to initiate data recording while the logger is still plugged into the computer USB port. This is particularly useful when familiarizing yourself with the data logger by allowing you to immediately view the impact of changing the various settings.

Download Function

Click on the arrow icon to download data currently saved in the data logger plugged into the computer USB port. When selected, the downloaded data will replace any data currently displayed.

Datalogger Setup Function

Click on the tool icon to set the start and logging mode and parameters of the data logger plugged into the computer USB port.

This settings menu allows you to select the start mode, the sample rate and maximum sample points, the LED flash rate, alarm levels, and temperature units. Once the settings are selected, they are accepted by clicking on the setup button on the screen. This will also clear any stored data on the data logger so data of value should be saved before initiating a new setup.

Help Function

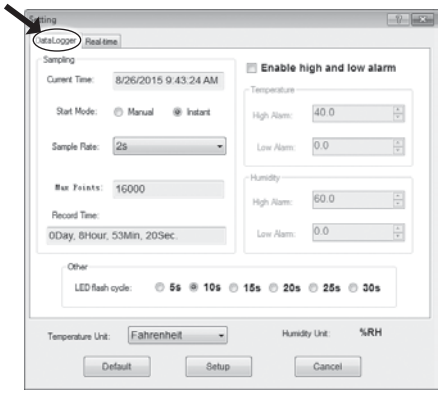
Click on it to download the user manual or find answers to data logger questions.

Operating Mode Settings

Data logger has two operational settings from which to choose: “Datalogger” operation or “Real-time” operation.

“Datalogger” Operating Mode:

Allows you to set up the logger for remote temperature and humidity logging with the user selectable settings as shown below:



Manual Start Mode: lets you remove the logger from the computer USB port once the settings are programmed and move it to the location of interest without it starting. Operation is initiated manually by pressing the Start button on the housing for 3 seconds until the green LED lights up.

Instant Start Mode: allows the logger to begin recording automatically once it is removed from the computer USB port.

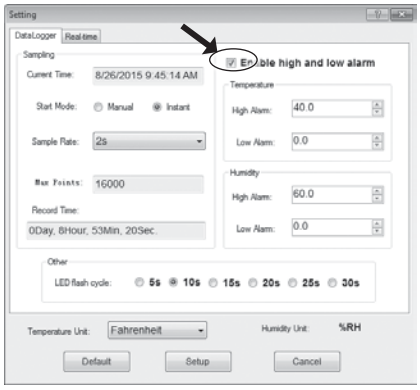
Sample Rate: set rate from 2 seconds to 24 hours between data samples.

Max Points: select the number of samples up to 32,000 (16,000 per channel).

Record Time: calculates the run time based on sample rate and max points selected.

LED flash cycle: increase the flash cycle to conserve battery life. (See "LED Status Guide" on page 3.)

Enable high and low alarm: click to access the Temperature and Humidity (RH models only) settings. Program both the high and low alarm limits. (See "LED Status Guide" on page 3 to identify alarm conditions.)



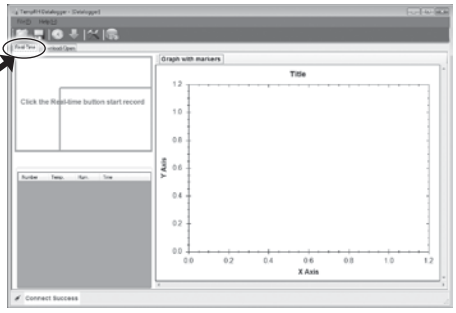
Temperature Unit: choose either Fahrenheit or Celcius to log and display temeperatures.

Humidity Unit (RH models only): preset as %RH.

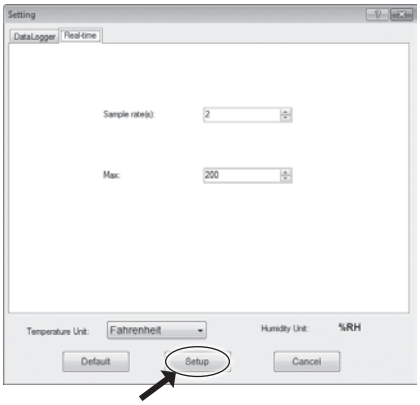
Software Setup and Operation (continued)

"Real-time" Operating Mode:

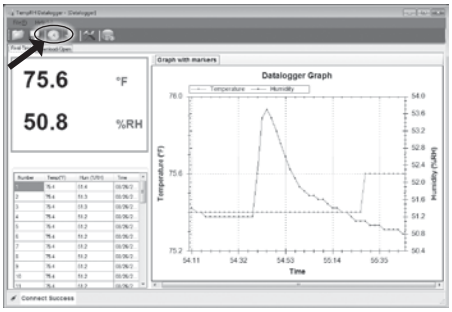
Allows you to monitor and log the measured data in real time while the logger is still plugged into the computer USB port.



Set the *Sample rate(s)*, the *Max* number of data samples, and the *Temperature Unit* to your desired settings. The *Humidity Unit* (RH models only) is preset as %RH. Click the Setup button to approve the settings.



In the "Real-time" mode, the logger only has an immediate start mode which is initiated by clicking on the clock icon in the upper left of the display screen.



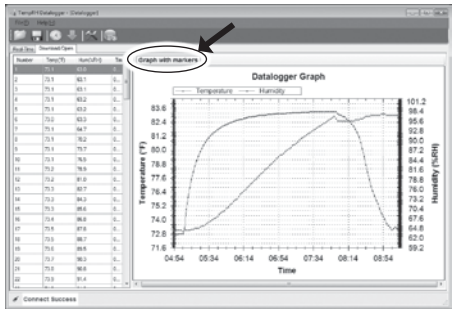
After a few seconds, the real-time temperature and RH readings measured by the logger will show in the upper left quadrant of the display and the logged data will show in the lower left sector of the screen. The graphic display will show the measured temperature trend.

Data in the real-time mode will continue to collect and display until the number of samples selected is logged.

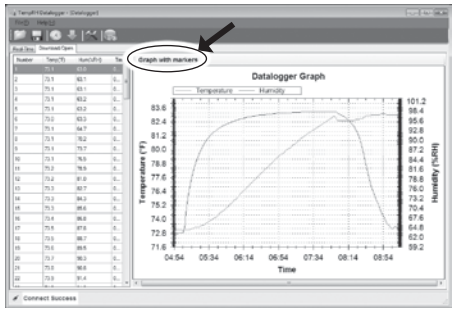
Graphing Options

Clicking on words “Graph with markers” toggles between adding or removing markers at each data point.

Graph with markers

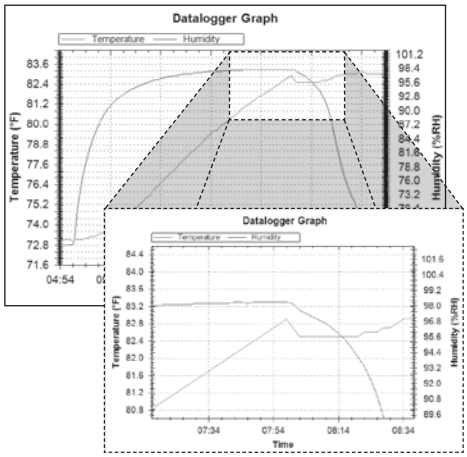


Graph without markers

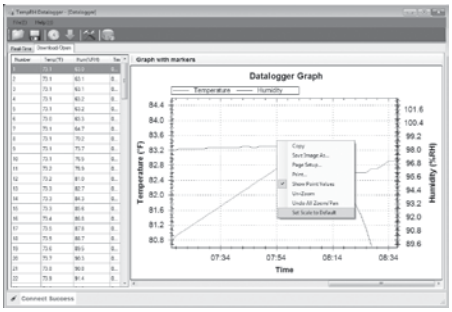


Zoom – Pan Options

Easy yet powerful zoom and pan options are available for providing a more detailed view of graphic data. The zoom option is automatically accessed by using the mouse roller adjustment to zoom in or out depending on roll direction. To pan through the graph, just click the left mouse button when pointing at the area of interest and hold it down while moving the mouse to a central location on the graph.



To return to the original view, right mouse click anywhere in the graph and click on “Set scale to default” from the pull-down menu. Other options available on the pull-down menu allow you to copy or save the graphic image, print a hard copy of the graph, and show the point values on the graph under the cursor.



Maintenance and Repair

Sensor Reconditioning (Models 20250-41, -42, -43)

Over time, the internal sensor may be compromised as a result of pollutants, chemical vapors, and other environmental conditions which can lead to inaccurate readings. To recondition the internal sensor:

- Bake the data logger at 176°F (80°C) at <5% RH for 36 hours, followed by 70 to 90°F (20 to 30°C) at >74% RH for 48 hours (for rehydration).

If permanent damage to the internal sensor is suspected, replace the data logger immediately.

Battery Replacement

With a pointed object (e.g. small screwdriver), open the casing. Gently pull off the casing and replace the 3.6 V lithium battery. The two LED indicators will briefly light up (alternating green, yellow, green). Slide the logger back into the casing until it snaps into place.

Note: Leaving the data logger plugged into the USB port for longer than necessary will cause some of the battery capacity to be lost.

For Product and Ordering Information, Contact:

1065DGMAN_20250-41,-42,-43,-44 Rev.1

Manual Part No. 00100-72