

Battery-operated Data Loggers and Controllers with Industry Leading Performance from Therma-Stor

HOBO[®] by onset

Easy to use products available at a fraction of the price of other data loggers.

Data loggers are the ideal way to accurately record specific information over time at pre-determined intervals. Common uses for data loggers include the measurement of temperature, relative humidity, on/off, open/closed, carbon monoxide, external temperature, light intensity, and more. Available for indoor and outdoor applications, HOBO data loggers offer a wide range of solutions to your data collection needs. Once the data is collected, it is accessed through the BoxCar software package, which runs on Windows[®] based PCs.

Hobo H8

The HOBO H8 family of data loggers provides easy-to-use data collection at affordable prices. Choose single-, two- or four-channel models to measure temperature, relative humidity, light intensity, or external channels accepting external temperature, AC current sensors and 4-20mA or DC voltage cables for input from third-party sensors.



Temperature	AC Current
Relative Humidity	4-20 mA
Light Intensity	0-2.5 Volt
External Temperature	

- 4 Models
- 12-bit Resolution
- Direct USB Interface
- High Accuracy Temp/RH
- 64k Memory

HOBO Pro

The HOBO Pro family of data loggers are ruggedly designed for years of reliable use in outdoor applications. HOBO Pro models offer Onset's highest level of temperature accuracy and excellent RH accuracy. There are four models to choose from:

- Single Channel: Temperature
- Two-Channel: Temperature - RH
- Two-Channel: Intrinsically Safe Temperature - RH
- Two-Channel: Temperature - External Soil/Water Temperature Probe on 6' Cable



Temperature
Relative Humidity
External Temperature

- Weatherproof Case
- High-Accuracy Temp and RH
- 12-bit Resolution

HOBO LCD

When temperature and humidity conditions are critical, the HOBO LCD Temp/RH Logger offers reliable notification of out-of-range conditions. A remote alarm and auto dialer are available for additional security. An optional protective case allows deployment in wet, dusty or condensing environments.



Temperature
Relative Humidity

- Real-Time Display
- Alarm Indication & Output
- Optional Remote Alarm & Autodialer

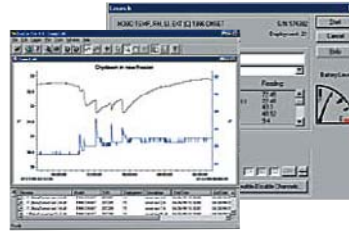
Small, battery-powered loggers and logger/controllers are easy to deploy in any monitoring site.



Therma-Stor

BoxCar Software

BoxCar Pro 4.3 is our most powerful software application for graphing, data analysis, data export and management of multiple loggers. BoxCar Pro 4.3 supports all currently available HOBO and StowAway loggers except HOBO U12 loggers which require GreenLine™ software.



Easy logger set up allows users to select their sampling interval, start time and memory mode.

- Easy Logger Setup
- Graphing
- Data Export
- Analysis Functions

HOBO Shuttle

A data shuttle is a pocket-sized device that can be used to offload/restart multiple data loggers and transport the data back to a personal computer, allowing the loggers to stay in place for continuous monitoring/recording. The shuttle connects to a PC and is used with the turn-key software to readout and view the data.



- In-field Collection of Logged Data
- For H-8, H-6 and HOBO Pro series loggers
- Convenient single-purpose shuttle option for offloading data from remote sites
- Single button operation
- LEDS show status
- Clear styrene case, weatherproof when closed
- User-replaceable batteries last 1 year
- Synchronizes HOBO data logger clocks
- One-foot connector cable fits inside case (included)

HOBO CO

Monitors and records CO levels for use in identifying problems with furnaces, vehicles, water heaters, stoves, fireplaces, ventilation, air supplies and flues.

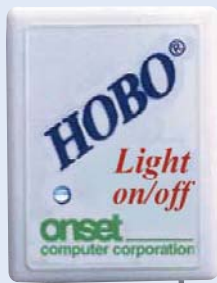


Three range settings, for optimizing accuracy and resolution.

- 0-125 ppm
- 0-500 ppm
- 0-2000 ppm

HOBO H-6 Loggers

The HOBO H6 loggers record On/Off or Open/Closed status changes, storing time, date, and state information for each change. Use your PC to readout and analyze the data or readout and relaunch while in the field using the optional HOBO Shuttle or HandCar.



Motor On/Off
Light On/Off
State-Open/Closed
Contact Open/Closed

- Records time and date of device changes to determine usage and run times.

Sample Applications:

Device Run Time
Device Usage
Turnstiles
Industrial Counting

Thermocouples & Probes

HOBO Thermocouple data loggers accept standard type J, K and T thermocouple probes with plug-in subminiature connectors. Each logger includes cold-junction compensation and two software-selectable measurement ranges for optimal resolution and accuracy. The loggers also have an internal temperature sensor that can be used to record ambient temperatures.



Wide range of temperatures (-200 to 1250 C); Type J, K, and T thermocouples

- Two Software Selectable Ranges
- Cold Junction Compensation

Sample Applications:

HVAC
Cold Storage / Refrigeration
Incubators
Clean Rooms
Warehouses

**Call for More Information
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onset Data Loggers in Action

Water Damage Restoration Application

Situation: An insurance company contacts you to provide water damage restoration services for a commercial customer. The business is a manufacturer that has experienced a sprinkler head failure. In addition to quickly drying out the water damage site, the insurance company is concerned about secondary damage to humidity sensitive materials in the production parts and completed goods inventory. Damage to these items could easily double or triple the amount of the loss. You set up your drying equipment and isolate the parts and finished goods areas. You place additional dehumidifiers into each of these areas to protect the inventory.

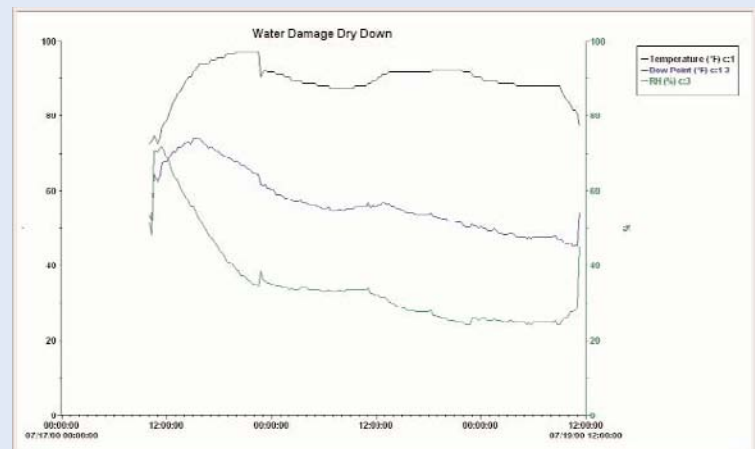
Application: In order to show the effectiveness of your drying procedures and the steps taken to protect the inventory items, you place data loggers in each of the areas to monitor the humidity conditions.

Methodology: While your crew is dispatched to the loss site to begin water extraction and clean-up, you launch 4 HOBO PRO Temp/RH data loggers and select a 15 minute interval between readings. You also select a "delayed start" at 9:00 AM (this gives you time to travel to the site and set the loggers before they start recording). You place one logger in the area of primary water damage, one logger in the production parts area, one logger in finished goods area and one logger in the maintenance/break area. This last area is not being given special attention and provides an example of the conditions the inventory areas would have experienced. After five days, you have determined that the structure is dry. You collect the data loggers and return to your office.

Results: The temperature, relative humidity and dew point data for each of the loggers are reviewed. The data from the damage site shows an initial humidity spike when the air movers and dehumidifiers are turned on. At 12:00 AM this spike begins to drop. 24 hours after

the drying began, the relative humidity has dropped to 40% and this trend continues down to 25% where it levels out. The dew point graph rises until 3:00 PM when it reaches a dew point temperature of 74.0F. Then this line descends until it reaches 32.0F. The graphs for the parts and inventory areas show a descending curve to the same levels achieved in the primary damage area with out the initial spike. This clearly shows that these areas have been protected from secondary damage. The logger that was in the maintenance/break area begins at the same relative humidity and dew point temperature as the other loggers. The relative humidity and dew point levels rise and fall throughout each 24 hour period with only a gradual reduction at the end of the 5 days.

These graphs demonstrate that you have aggressively dried the water damage and have protected the humidity sensitive materials.



Heating and Air Conditioning Application

Situation: A customer's home is experiencing chronic high indoor relative humidity. This has caused visible mold growth on some indoor surfaces and has increased allergy sensitivities of some inhabitants.

You have recommended installing a whole-house dehumidification system. How do you show the performance of the existing air conditioning system and the impact of the added dehumidification?

Application: Monitor indoor and outdoor air temperature, relative humidity, and dew point. The monitoring begins at least two weeks before the dehumidification system is installed. Continue the monitoring for at least two weeks after the new system is installed.

Methodology: Two HOBO RH/TEMP loggers are launched for 41 days of monitoring, taking a reading every 15 minutes. One HOBO is placed in the general living area near the moldy areas. The other HOBO is placed outside in a sheltered area free of direct sunlight or rainfall. After two weeks, you install the dehumidification system; but leave the monitors in place for another two weeks.

Results: Readouts are obtained from both the indoor and the outdoor HOBO RH/TEMP loggers using BoxCar Pro 4.3. These readouts can be viewed in tabular form or in graphical form for easier understanding.

By viewing the data in tabular form, you will be able to see the exact readouts for each time interval. By viewing the data in graphical form, you will be able to track trends in the data throughout the span of collection. You can choose to zoom in on specific data selections that are of interest. Each of these readouts can also be printed for further analysis.

Using the 4.3 software the data from inside and outside the house can be compared on a single graph. By looking at this graph, it is clear to see that the relative humidity inside leveled out significantly once the dehumidification system was installed. You are also able to show that the indoor relative humidity experienced a noticeable decrease, which will eliminate mold growth and dust mites in the future.

Overall, you and the homeowners are now convinced that the whole-house dehumidification system will correct the chronic high indoor relative humidity. Your presentation was able to show effectively the impact of the added dehumidification.

