

The Coffee Mug Test

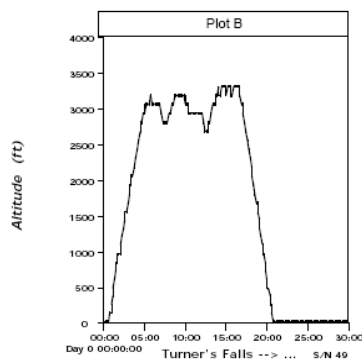


You can test a great number of our loggers using a coffee mug. Put a running logger in a coffee mug, and press the mug to your mouth, making sure that the **mug** contacts your face all the way around the rim.

Blow as hard as you can and also do your best to breathe the air out of the mug.

If you try hard you can change the pressure in the mug by about 10% in both directions.

The plot below shows what happened when we did it.



Battery Instructions

In normal usage the 3.6 volt HOBO battery is expected to last two years, although it is suggested that you change the battery every year.

To change the battery:

1. Remove Logger Cover
2. Remove the old battery by pulling it straight away from the board.
3. Install New Battery

To remove the high internal resistance that builds up when this kind of battery is not in use, short the new battery for one second by touching the leads with a paper clip before installing it. When the battery first makes contact, the status LED on the board should blink brightly five times. If it does not, remove the battery, wait ten seconds and try again.

4. Place the cover back on the HOBO Pressure logger, lining it up so that the LED shows through the intended spot on the label.

HOBO[®] Pressure Logger

User's Guide



onset[®]

Thank you for purchasing a HOBO® Pressure logger. The HOBO Pressure was designed as a general purpose pressure logger, measuring pressures in the range from 3% of atmospheric pressure to about 110% of atmospheric pressure. Each logger is individually calibrated so that the ranges may vary from logger to logger.

Calibration

Each HOBO Pressure logger is individually calibrated at ten pressures ranging from less than 10% to greater than 90% of full scale. The calibration is permanently stored in the HOBO Pressure logger ensuring accurate measurements. Calibration is done at room temperature. Accuracy is specified as $\pm 1\%$ of full scale over the pressure temperature range of 0 to 50°C.

Pressure/Altitude Ranges and Units

Pressure Range	Altitude Range
30 to 1100 millibars	0 to 32,000 meters
0.5 to 16 psia	0 to 32,000 feet
1- 33 in Hg*	Altitude is shown assuming a standard atmosphere. Like any other altimeter based on pressure, local pressure variations will lead to apparent altitude offsets.
*As barometric pressure is approximately 29 - 31 Hg, we do not suggest using the HOBO Pressure logger for weather studies.	

Launch and recovery

Connect the HOBO Pressure logger to the host computer using the appropriate interface cable (CABLE-PC-3.5 for a PC and CABLE-MAC-HOBO for a Macintosh). When connecting the 3.5 mm communications cable to your HOBO Pressure logger make sure that it is pushed completely into the connector! You will now be able to communicate with the HOBO Pressure logger using the logger software. (See the software user's manual for launch details).

Required software: BoxCar® 3.6+ or any version of BoxCar® Pro.

At the end of the deployment, reconnect your logger to the host computer for readout. The HOBO Pressure logger communicates at 1200 baud. Its cleverly optimized software allows a full 2K offload in only twenty seconds.

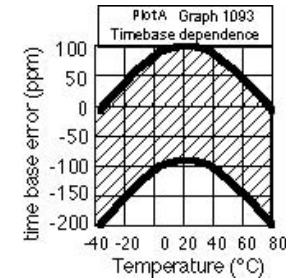
Operating environment

Your HOBO Pressure logger will operate correctly within the temperature range 0°C to +75°C. Do not expose to an environment where condensation will form on the logger. Condensation will cause corrosion.

The logger can be stored at temperatures as low as -40°C without damage. Continuous exposure to temperatures above +45°C will reduce the HOBO Pressure logger's battery life.

Time accuracy

At room temperature the logger's idea of time can vary from the actual time by as much as one hour per year (100 ppm). There is an additional temperature effect shown in Plot A to the right.



A rough calibration check

Some airplanes still use barometric altimeters. To determine an airplane's altitude, call the airport to find the atmospheric pressure corrected to sea level (Po) and adjust your altimeter with this information.

You can use the same trick to verify your HOBO Pressure logger's calibration. Call the local airport to get the atmospheric pressure corrected to sea level (Po), and then correct for your altitude (A) which you can get from a USGS map.

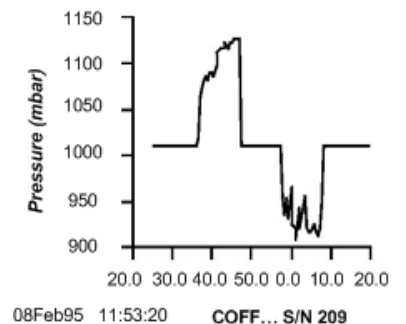
The correction equation shown below gives the local pressure (P), and works for altitudes up to about a mile. Here (Po) is the pressure corrected to sea level, (A) is the local altitude in feet: $P = P_o * (1 - .0000341 * A)$

Even more units

There are an amazing number of units for pressure and we couldn't address them all. Listed below are some conversions that will allow you to change your pressure measurement to other units: **KiloPascals** - divide millibars by ten, **mm Hg** - multiply millibars by 0.7501, **Atmospheres** - multiply millibars by 0.9867, **inches H2O** - multiply millibars by 0.4015

A Plot to Remember !

Skydiving reportedly is something to remember. Plot B archives the first dive made by an Onset employee. Note that the climb rate was about the same as the descent rate. Maybe the not so smooth ride at altitude helped motivate him to jump. The starting and ending values so close to zero is fortuitous. Normal atmospheric variations will cause altitude variations.



The HOBO Pressure logger has an altitude resolution of about 130 feet for low altitudes, adequate for recording the details of this jump.