

# Barometer

The Hobby Boards Barometer measures atmospheric pressure, with a range of approximately 28-32 inHg, +/- 1.5%. The resolution of this device is approximately 0.007 in Hg. These tolerances are altitude dependent.

Your Barometer should be installed indoors, away from direct sunlight. To connect it to the 1-Wire network, you can simply plug a standard network cable into either one of the RJ45 jacks. The second RJ45 connector acts as a pass-through, enabling you to daisy-chain devices. Alternatively, you can use the screw terminals, connecting the ground wire to the terminal marked GND, and the data wire to the terminal marked DQ. For more information, please see our general discussion of Connecting Devices to the 1-Wire Network. Cases for this device are available, and instructions for putting the device in the case are available on our cases page.

The Barometer requires external power, with a minimum of 14 volts DC. If you use our Power Injector along with our AC Adaptor, you will have provided this power. Alternatively, you can provide the necessary power directly to the screw terminal marked +14v. PLEASE NOTE that this power requirement is stricter than that of most of our other devices.

Each Barometer must be calibrated to your altitude, and if you provide us with your elevation in the comments box when you order we will calibrate your device for you before shipping. If you do not provide us with your elevation, if you move, or if you purchase this device as a kit, (re)calibration is fairly straightforward.

1. Install the Barometer on your 1-Wire network.
2. Go to the Barometer Calibration Calculator on our website, enter your altitude (in feet).
3. The Pressure Low and Pressure High values in the calculator default to typical values, but you are given the option to set these yourself if you prefer.
4. Clear the Offset Voltage field, and click the "Update" button. The calculator will re-calculate the needed Offset Voltage according to your elevation. Keep this number handy, you will use it in the next steps.
5. On your barometer board, remove the jumper from pins 2 & 3, and move it to the calibration setting (pins 1 & 2).
6. This step requires the OneWireViewer from Dallas. (We're assuming you know how to use the 1-Wire viewer. If you do not, please see the instructions on Dallas's site.) Open the 1-Wire viewer, and select the DS2438 from the device list. Click on the "A to D" tab, and look at the voltage reading for "Channel 1". Using a small screwdriver, adjust the resistor labeled R4 until the voltage shown in the viewer matches the Offset Voltage from the Calibration Calculator. Adjust this resistor slowly, it normally does not require much to obtain the desired Offset Voltage.
7. Once done, remove the jumper from pins 1 & 2 and replace it on pins 2 & 3. Let the Barometer run for a few days while you track it using a local weather station as your baseline. At this point, your Hobby Boards Barometer should match the weather station to within a few hundredths of an inch of mercury. To achieve further precision, your software should offer additional calibration options.