



DATALOGGERS

DataHog2 - setting up a barometer sensor

The DataHog and barometer is set up at Skye to measure absolute air pressure, as we usually do not know the final installation location. It is usual procedure to take barometric pressure readings relative to sea level, i.e. allow for the local altitude of the installation site. The DataHog logger can be programmed to allow for this altitude automatically as follows:

1. Firstly you need to make the calculations to enter into the DataHog configuration.
 - A) Full Scale Value this value is individual for each barometer sensor, but no adjustment is required for altitude of installation.
 - i) If you have purchased the sensor and logger together from Skye, they will have already made this calculation for you and entered the figures into the logger. The value you require will be shown on the DataHog Hardware Configuration Certificate. E.g. **4000.0**
 - ii) If you need to make the calculation yourself, please follow these steps:
 - 1) Note the sensitivity of the barometer which will be shown on the sensor's Calibration Certificate (usually around 20.00 mbar per millivolt).
 - 2) The DataHog2 needs to be set to use the range 0-200 mV, which is a Gain of 10
 - 3) The Full Scale Value is calculated using the equation
Full Scale Value = Barometer sensitivity (in mbar per mV) / Gain * 2000
E.g. this example = 20.00 / 10 * 2000 = 4000
 - 4) The DataHog entry is required as 5 digits plus a decimal point, without any leading zeros. So the Full Scale Value will be entered as **4000.0**
 - B) Offset Count this is the configuration setting which is adjustable for altitude
 - i) Note the barometer zero offset in mV, this will be found on the DataHog's Hardware Configuration Certificate and / or the barometer Calibration Certificate. It can be either a positive or negative mV value.
E.g. +0.18 mV
 - ii) Example, to adjust for 100m altitude.
1 metre of air = 0.118 mbar so 100 m altitude requires a 11.8 mbar adjustment
 - iii) This altitude adjustment must be converted to mV and subtracted from the barometer's zero offset before it is entered into the DataHog's configuration:
 - 1) In this example the sensitivity of the barometer = 20.00 mbar per mV and its zero offset is + 0.18 mV
 - 2) To convert 11.8 mbar altitude adjustment to mV, divide by the barometer sensitivity
E.g. 11.8 mbar / 20.00 mbar per mV = 0.59 mV

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- 3) To obtain the total altitude and offset adjustment, subtract the altitude adjustment from barometer zero offset
E.g. $+0.18 - 0.59 = -0.41$ mV
 - 4) The DataHog Offset Count is calculated using the equation:
Offset Count = total adjustment in mV * Gain * 9.5
E.g. this example = -0.41 mV * 10 * 9.5 = -38.95
 - 5) The DataHog entry is required as 4 digits (no decimal point) plus the sign. So the Offset Count will be entered as **0039** and with a (minus) sign.
2. These Full Scale Value and Offset Count figures must be entered into the DataHog as follows:
- A) Connect the DataHog 2 up to the PC as usual and start the communication software.
 - B) Wake up the DataHog 2 to bring up the Main Menu.
 - C) Press '9' to choose the option SET Ax+B CALIBRATION FACTORS
 - D) Enter the software channel to be used for the barometer - check the logger's Hardware Configuration Certificate
 - E) Enter the Full Scale Value as calculated above
E.g. as above **4000.0**
 - F) Enter the Offset Count as calculated above
E.g. as above **0039** and a (minus) sign
 - G) The full scale and offset values you have entered will be shown for your confirmation.
 - H) If OK press 'Y' and you will return to the Main Menu.
 - I) Press ESCAPE from the menu to return to logging mode.
3. **IMPORTANT, if you do not press escape when finished, the logger will remain in Main Menu mode, will not log and will drain its batteries in just a few days.**
4. NOTE - if the barometer is to be located below sea level, for example underground, the altitude offset in mV must be ADDED to the electrical offset to give the adjusted value.

