

## Barometric Compensation: Relating compensated values to a datum

Aqua4Plus and Aqua4Plus Lite will give you multiple choices in relating compensated values to a datum, for example 'Top of Well'. When an absolute logger is used without a data cable then relating compensated readings to a datum is possible after exporting the data to Excel.

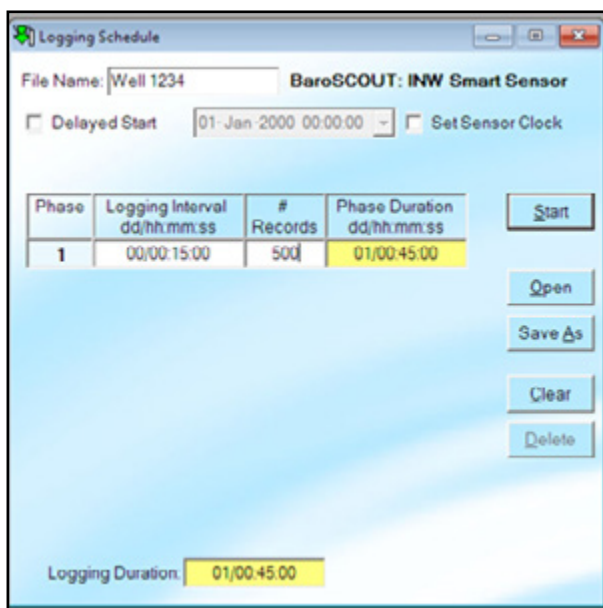
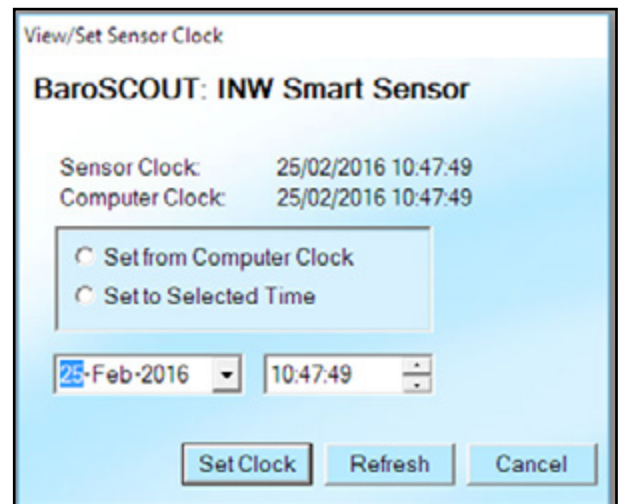
Groundwater monitoring protocol demands a manual dip to water measurement is always required when using absolute water level loggers. In principle this dip measurement can be made at any point in the time sequence but good practice prefers that you do this at deployment. We would recommend that in the first instance you use the top of the well as your initial datum. This is for practical reasons as there is a clear edge against which to measure.

The dip to water measurement should be done AFTER deployment of the logger. This is especially important in narrow diameter wells because of the logger's water displacement. Take time over the measurement and make sure that it is as accurate as possible ensuring that your dip meter is straight and without any kinks. Please read the software manual but, in addition, and because of the flexibility of Aqua4Plus and Lite versions there are some additional steps we strongly recommend you follow:

### Start with the BaroSCOUT

First set the time (Configure>Set Configuration>Sensor Clock)

Then Set the logging Interval on the BaroSCOUT and press 'Start'



In order that the time sequences are fully populated we would always recommend that you set and start the BaroSCOUT first and read it last.

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### Set your Logging Intervals

After retrieval of the data, compensate the files using the Configure>Program Configuration>Barometric

Statistical Data	Pressure (cm H2O)	Temperature (degC)	Manual Dip	Cable Length
Sensor Range	30 psia		308	466.6
Minimum	354.88	8.67		
Maximum	359.75	8.81		
Mean	356.77	8.70		
Variance	1.78%	0.000331		
Std Deviation	1.328	0.0182		

Rec #	Date/Time	Pressure (cm H2O)	Temperature (degC)	Sensor Pressure (cm H2O)	Barometric Date/Time
1	23/03/2016 14:00:00	356.9	8.81	1394.48	23/03/2016 14:00:00
2	23/03/2016 14:30:00	356.49	8.72	1394.18	23/03/2016 14:30:00
3	23/03/2016 15:00:00	356.49	8.72	1393.97	23/03/2016 15:00:00
4	23/03/2016 15:30:00	358.58	8.75	1395.85	23/03/2016 15:30:00
5	23/03/2016 16:00:00	358.30	8.70	1395.55	23/03/2016 16:00:00
6	23/03/2016 16:30:00	358.45	8.73	1393.34	23/03/2016 16:30:00
7	23/03/2016 17:00:00	358.37	8.73	1393.19	23/03/2016 17:00:00
8	23/03/2016 17:30:00	358.3	8.74	1394.17	23/03/2016 17:30:00
9	23/03/2016 18:00:00	358.36	8.73	1393.05	23/03/2016 18:00:00
10	23/03/2016 18:30:00	358.14	8.73	1392.98	23/03/2016 18:30:00
11	23/03/2016 19:00:00	357.99	8.73	1393.05	23/03/2016 19:00:00
12	23/03/2016 19:30:00	358.09	8.73	1392.91	23/03/2016 19:30:00

- 1) Create a new cell and record your **Manual Dip**
- 2) Calculate the **Cable Length** (cable length = In water pressure reading (same time as manual dip) + manual dip) In this example formula =C40+\$J\$32
- 3) Insert Column **Depth to Datum**

Rec #	Date/Time	Pressure (cm H2O)	Temperature (degC)	Sensor Pressure (cm H2O)	Barometric Date/Time	Depth to Datum
1	23/03/2016 14:00:00	356.9	8.81	1394.48	23/03/2016 14:00:00	308.0
2	23/03/2016 14:30:00	356.49	8.72	1394.18	23/03/2016 14:30:00	308.1
3	23/03/2016 15:00:00	356.49	8.72	1393.97	23/03/2016 15:00:00	308.1
4	23/03/2016 15:30:00	358.58	8.75	1395.85	23/03/2016 15:30:00	308.2
5	23/03/2016 16:00:00	358.30	8.70	1395.55	23/03/2016 16:00:00	308.2
6	23/03/2016 16:30:00	358.45	8.76	1394.44	23/03/2016 16:30:00	308.3
7	23/03/2016 17:00:00	358.37	8.73	1393.19	23/03/2016 17:00:00	308.2
8	23/03/2016 17:30:00	358.3	8.73	1393.12	23/03/2016 17:30:00	308.3
9	23/03/2016 18:00:00	358.36	8.73	1393.05	23/03/2016 18:00:00	308.2
10	23/03/2016 18:30:00	358.14	8.73	1392.98	23/03/2016 18:30:00	308.3
11	23/03/2016 19:00:00	357.99	8.73	1393.05	23/03/2016 19:00:00	308.6
12	23/03/2016 19:30:00	358.09	8.73	1392.91	23/03/2016 19:30:00	308.5

- 4) Calculate data to datum (Cable length - pressure reading (remember to drag down the cell) (in this example formula =J\$33-C40).