VBOX

Latitude and Longitude Calculations

The VBOX outputs Long and Lat in minutes to the compact flash card and CAN. To convert this to degrees and minutes use the example below.

Calculating Long and Lat in degrees and minutes

Latitude = Latitude (mins) * 100,000 (**311924579 = 3119.24579** Minutes North). Latitude highest bit indicates north/south hemisphere. 0=north, 1=south, Bit 7 in Status is also set.
Divide the minutes by 60 to get minutes 3119.24579/60 = 51.98742983 degrees.
Then subtract the round degree number from this result and multiply the remainder by 60 to get the minutes 0.98742983 * 60 = 59.24579
So combining the two degrees and minutes results gives **51 degrees 59.24579Minutes**

Longitude = Longitude (Mins) * 100,000 (**5882246 = 58.82246** Minutes West). Longitude highest bit indicates east/west of Greenwich meridian. 0=west,1=east. Bit 6 in Status is also set.
In this case the number of minutes is less than 60 so there is no need to divide by 60 to get a degrees component. **0 degrees 58.82246minutes**

Calculating Long and Lat in meters or feet

Work out the latitude in degrees then use the look up table below to find the correct scale factor
i.e. 0 degrees multiply by 1 89 degrees multiply by 0.0175.

Then convert latitude and longitude to minutes.
To convert to metres
latitude * 1853
longitude * 1853 * scale factor

To convert to feet
latitude * 6079
longitude * 6079 * scale factor

1	1.0000,
2	0.9996,
3	0.9988,
4	0.9977,
5	0.9964,
6	0.9947,
7	0.9927,
8	0.9904,
9	0.9879,
10	0.9850,
11	0.9818,
12	0.9783,
13	0.9745,
14	0.9705,
15	0.9661,
16	0.9614,
17	0.9565,
18	0.9512,

19	0.9457,
20	0.9399,
21	0.9338,
22	0.9274,
23	0.9207,
24	0.9137,
25	0.9065,
26	0.8990,
27	0.8912,
28	0.8831,
29	0.8748,
30	0.8662,
31	0.8573,
32	0.8482,
33	0.8388,
34	0.8292,
35	0.8193,
36	0.8092,
37	0.7988,
38	0.7882,
39	0.7773,
40	0.7662,
41	0.7548,
42	0.7433,
43	0.7315,
44	0.7195,
45	0.7072,
46	0.6948,
47	0.6821,
48	0.6693,
49	0.6562,
50	0.6429,
51	0.6294,
52	0.6158,
53	0.6019,
54	0.5879,
55	0.5737,
56	0.5593,
57	0.5447,
58	0.5300,
59	0.5151,
60	0.5001,
61	0.4849,
62	0.4696,
63	0.4541,
64	0.4385,
65	0.4227,
66	0.4068,
67	0.3908,

68	0.3747,
69	0.3584,
70	0.3421,
71	0.3256,
72	0.3091,
73	0.2924,
74	0.2757,
75	0.2589,
76	0.2420,
77	0.2250,
78	0.2079,
79	0.1908,
80	0.1737,
81	0.1565,
82	0.1392,
83	0.1219,
84	0.1045,
85	0.0872,
86	0.0698,
87	0.0523,
88	0.0349,
89	0.0175