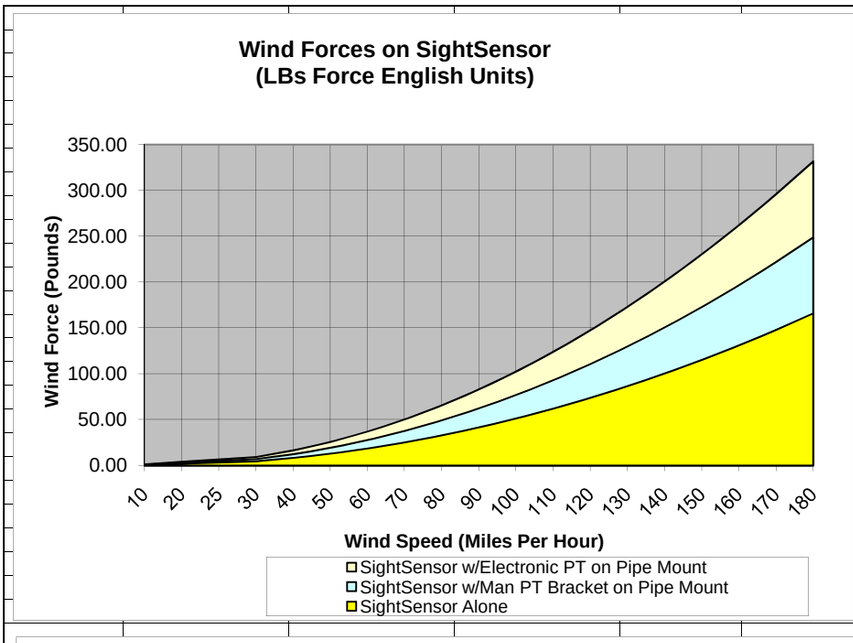

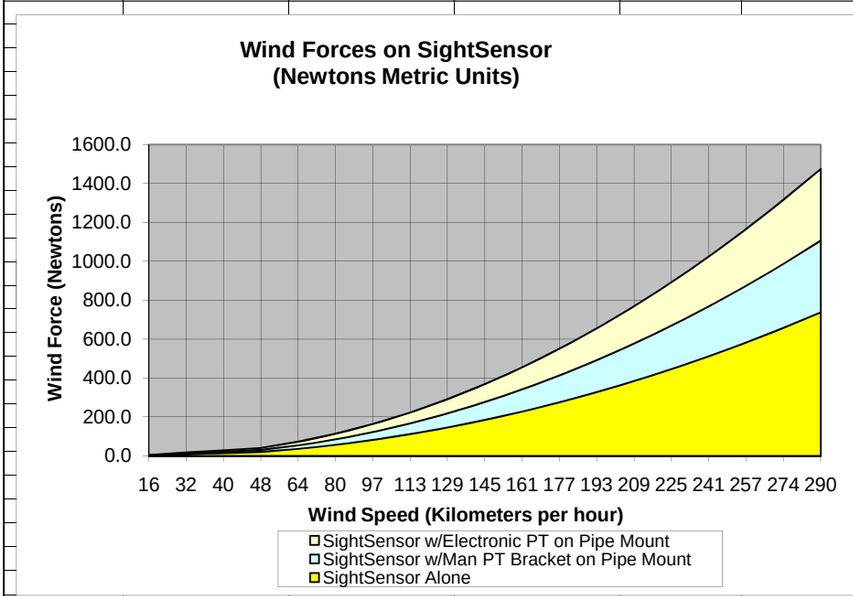

Sight Sensor Wind Induced Loading: the wind loading on the SightSensor is based on projected surface area. The total surface area is the summation of the surface area of the SightSensor, and if the SightSensor is mounted on any type of mount and/or pivot bracket or Pan Tilt unit, the surface area of these items are added to the calculation.

Any mounting arrangement using a pipe or bracket to hold the Sightsensor away from the mounting point such as a wall or pole or tower, is subjected to an induced moment at the fixation point due to wind loading. Without additional bracing, such loads are magnified at the attachment point due to the moment arm and under heavy winds these forces can rotate or deflect the entire mounting arrangement.

Generic Wind Force Formula:
Force = A × P × Cd
A = projected area of the item (ft2)
P = wind pressure (lb/ft2) = .00256 x V^2 (V= wind speed in mi/hr)
Cd = Drag coefficient = 2.0 for flat plates. For a long cylinder (like most antenna tubes), Cd = 1.2

The SightSensor better approximates a plate rather than a thin round cylindrical object. So selecting a Drag Coefficient closer to 2.0 rather than 1.2 is more conservative. Plus for the SightSensor, the angle where a worst case where drag coefficient may be approximated is when the wind hits the SightSensor almost from the side, except that the front or rear is angled toward the wind, enough to increase the cross sectional area slightly, plus the fact that one end (face) of the sunshield acts like a scoop to "catch" a small part of the wind in the sunshield. Therefore, the estimated maximum projected surface area is ~ 1.0 ft^2.

Note: these are estimates to offer guidance for planning. Actual values should be calculated using site specific mounting equipment and dimensions.

Wind Force on SightSensor English Units (LB force)				Wind Force on SightSensor Metric Units (Newtons)			
Wind Speed	**SightSensor Mounted Alone**	**SightSensor Mounted w/Manually Adjustable PT Bracket on Pipe Mount**	**SightSensor Mounted on Electronic Pan Tilt Unit and Pipe Mount**	**Wind Speed**	**SightSensor Mounted Alone**	**SightSensor Mounted w/Manually Adjustable PT Bracket on Pipe Mount**	**SightSensor Mounted on Electronic Pan Tilt Unit and Pipe Mount**
Cross Sectional Area (ft^2)	1.00	1.50	2.00	Cross Sectional Area (cm^2)	929	1394	1858
Drag Coefficient (C_d)	2.00	2.00	2.00	Drag Coefficient (C_d)	Values calculated in English units, converted to N	Values calculated in English units, converted to N	Values calculated in English units, converted to N
Miles per hour	SightSensor Alone	SightSensor w/Man PT Bracket on Pipe Mount	SightSensor w/Electronic PT on Pipe Mount	Kilometers per hour	SightSensor Alone	SightSensor w/Man PT Bracket on Pipe Mount	SightSensor w/Electronic PT on Pipe Mount
10	0.51	0.77	1.02	16	2.28	3.4	4.6
20	2.05	3.07	4.10	32	9.11	13.7	18.2
25	3.20	4.80	6.40	40	14.23	21.4	28.5
30	4.61	6.91	9.22	48	20.50	30.7	41.0
40	8.19	12.29	16.38	64	36.44	54.7	72.9
50	12.80	19.20	25.60	80	56.94	85.4	113.9
60	18.43	27.65	36.86	97	81.99	123.0	164.0
70	25.09	37.63	50.18	113	111.60	167.4	223.2
80	32.77	49.15	65.54	129	145.76	218.6	291.5
90	41.47	62.21	82.94	145	184.48	276.7	369.0
100	51.20	76.80	102.40	161	227.75	341.6	455.5
110	61.95	92.93	123.90	177	275.57	413.4	551.1
120	73.73	110.59	147.46	193	327.96	491.9	655.9
130	86.53	129.79	173.06	209	384.89	577.3	769.8
140	100.35	150.53	200.70	225	446.39	669.6	892.8
150	115.20	172.80	230.40	241	512.43	768.6	1024.9
160	131.07	196.61	262.14	257	583.03	874.6	1166.1
170	147.97	221.95	295.94	274	658.19	987.3	1316.4
180	165.89	248.83	331.78	290	737.90	1106.9	1475.8