Wind Forces on SightSensor
(LBs Force English Units)

Wind Force (Pounds) vs Wind Speed (Miles Per Hour)

Legend:
- SightSensor w/Electronic PT on Pipe Mount
- SightSensor w/Man PT Bracket on Pipe Mount
- SightSensor Alone
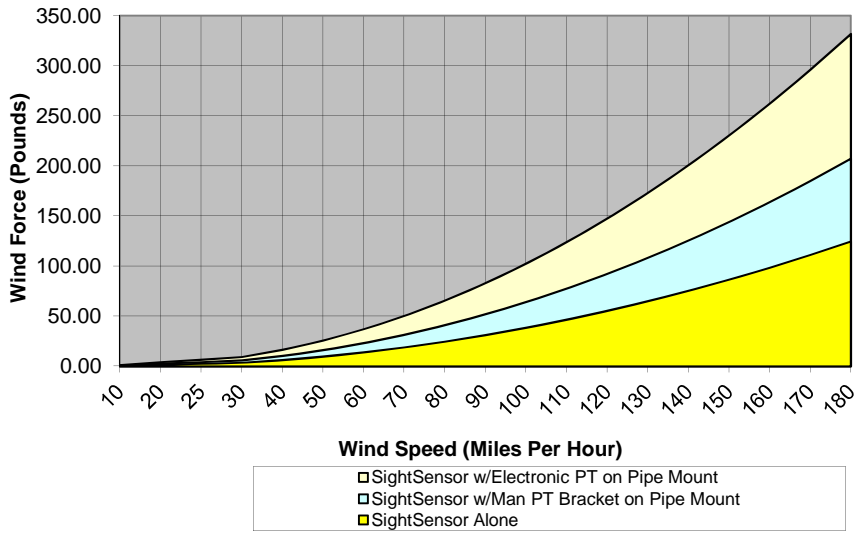
Wind Forces on SightSensor
(Newtons Metric Units)

Wind Force (Newtons) vs Wind Speed (Kilometers per hour)

Legend:
- SightSensor w/Electronic PT on Pipe Mount
- SightSensor w/Man PT Bracket on Pipe Mount
- SightSensor Alone
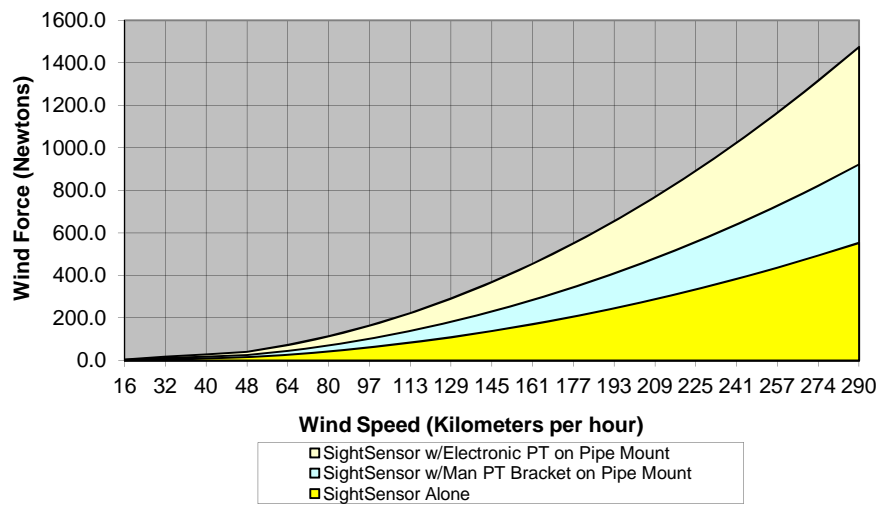
Sight Sensor Wind Induced Loading: the wind loading on the SightSensor is based on projected surface area. The total surface area is the summation of the surface area of the SightSensor, and if the SightSensor is mounted on any type of mount and/or pivot bracket or Pan Tilt unit, the surface area of 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 x P x 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)	0.75	1.25	2.00	Cross Sectional Area (cm^2)	697	1161	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	0.38	0.64	1.02	16	1.71	2.8	4.6	
20	1.54	2.56	4.10	32	6.83	11.4	18.2	
25	2.40	4.00	6.40	40	10.68	17.8	28.5	
30	3.46	5.76	9.22	48	15.37	25.6	41.0	
40	6.14	10.24	16.38	64	27.33	45.5	72.9	
50	9.60	16.00	25.60	80	42.70	71.2	113.9	
60	13.82	23.04	36.86	97	61.49	102.5	164.0	
70	18.82	31.36	50.18	113	83.70	139.5	223.2	
80	24.58	40.96	65.54	129	109.32	182.2	291.5	
90	31.10	51.84	82.94	145	138.36	230.6	369.0	
100	38.40	64.00	102.40	161	170.81	284.7	455.5	
110	46.46	77.44	123.90	177	206.68	344.5	551.1	
120	55.30	92.16	147.46	193	245.97	409.9	655.9	
130	64.90	108.16	173.06	209	288.67	481.1	769.8	
140	75.26	125.44	200.70	225	334.79	558.0	892.8	
150	86.40	144.00	230.40	241	384.32	640.5	1024.9	
160	98.30	163.84	262.14	257	437.28	728.8	1166.1	
170	110.98	184.96	295.94	274	493.64	822.7	1316.4	
180	124.42	207.36	331.78	290	553.43	922.4	1475.8	