Anemometer

Calculating wind speed

If I have a three cup anemometer with half spherical cups of 80mm diameter and the cup canters are 155mm from rotation point. If the device turns at 1 rpm, what is the resulting wind speed?

To calculate the wind speed based on the given information for your three-cup anemometer, you can use the formula for cup anemometers:

Wind Speed (in meters per second) = (π * D * RPM) / (60 * C)

Where:

D	is the diameter of the cups (in meters)
RPM	is the revolutions per minute
C	is the distance from the cup center to the rotation point (in meters)

In our case:

D	80mm	0.08m
RPM	1	
C	155mm	0.155m

Plugging in the values into the formula:

Wind Speed = (π * 0.08 * 1) / (60 * 0.155)

Simplifying the equation:

Wind Speed ≈ 0.001295 m/s

Therefore, with a rotation speed of 1 RPM, the resulting wind speed would be approximately 0.001295 meters per second.