Anemometer

Calculating wind speed

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 and 60 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:

Wind Speed (in meters per second) = (π * D * RPM) / (2 * 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 your case:

- D = 80mm = 0.08m
- RPM = 60 (revolutions per minute)
- C = 155mm = 0.155m

Plugging in the values into the formula:

Wind Speed = (π * 0.08 * 60) / (2 * 0.155)

Simplifying the equation:

Wind Speed ≈ 7.307 m/s

Therefore, with a rotation speed of 60 RPM, the resulting wind speed would be approximately 7.307 meters per second.