Wind Speed Sensor RPM Conversions

Use of Synchronous Motors with
Climatronics P/N 100075 F460 Wind Speed Sensors
Climatronics P/N 102083 WM-III Wind Speed Sensors

Purpose:
A synchronous motor is used to spin a wind speed sensor at a known rate to check system linearity.

Technique:
The motor should be connected to the sensor with a "hard" coupling. A piece of tubing may accelerate sensors at higher speeds. Do not use this. Climatronics motors are provided with the correct "hard" coupling for this application.

Conversions:
Meters per Second = MPH x .44704
Knots = MPH x .86897
Kilometers per Hour = MPH x .1.6094

Calculations for 100075 F460 Wind Speed Sensors:

Cup Type	Cupset P/N	Output Frequency	Velocity in MPH	Velocity in M/S
Lexan (Black)	102104	Rpm / 2	= ((Frequency / 9.511) + 0.3) = ((RPM / 19.022) + 0.3)	= ((Frequency / 21.28) + 0.13) = ((RPM / 42.55) + 0.13)
Heavy Duty Aluminum	101287	Rpm / 2	= ((Frequency / 9.511) + 0.5) = ((RPM / 19.022) + 0.5)	= ((Frequency / 21.28) + 0.22) = ((RPM / 42.55) + 0.22)
Stainless Steel	100057	Rpm / 2	= ((Frequency / 10.425) + 0.5) = ((RPM / 20.850) + 0.5)	= ((Frequency / 23.31) + 0.22) = ((RPM / 46.64) + 0.22)
Vinyl (Gray)	100083	Rpm / 2	= ((Frequency / 9.511) + 0.5) = ((RPM / 19.022) + 0.5)	= ((Frequency / 21.28) + 0.22) = ((RPM / 42.55) + 0.22)

Calculations for 102083 WM-III Wind Speed Sensors:

Cup Type	Cupset P/N	Output Frequency	Velocity in MPH	Velocity in M/S
Lexan (Black)	102138	Rpm / 3	= ((Frequency / 6.95) + 0.3) = ((RPM / 20.85) + 0.3)	= ((Frequency / 15.55) + 0.13) = ((RPM / 46.64) + 0.13)
Heavy Duty Aluminum	101286	Rpm / 3	= ((Frequency / 6.95) + 0.5) = ((RPM / 20.85) + 0.5)	= ((Frequency / 15.55) + 0.22) = ((RPM / 46.64) + 0.22)
Stainless Steel	100160	Rpm / 3	= ((Frequency / 6.95) + 0.5) = ((RPM / 20.85) + 0.5)	= ((Frequency / 15.55) + 0.22) = ((RPM / 46.64) + 0.22)
Vinyl (Gray)	100053	Rpm / 3	= ((Frequency / 6.34) + 0.5) = ((RPM / 19.02) + 0.5)	= ((Frequency / 14.18) + 0.22) = ((RPM / 42.55) + 0.22)

Climatronics Corporation
140 Wilbur Place Bohemia, NY 11716 (631) 567-7300
www.climatronics.com

Revision	Description	Date	Approved
-	Released to Production	06/05/06	D.A.