

## P2546A Cup Anemometer

### Features

- ▣ Low threshold speed
- ▣ Low distance constant
- ▣ Negligible overspeeding
- ▣ Angular response independent of wind speed
- ▣ Fully tested temperature performance
- ▣ Symmetrical geometry
- ▣ No external power source
- ▣ Bounce free reed switch

### Description

The P2546A Cup Anemometer is a sturdy wind sensor solely constructed by durable materials such as anodized aluminium and stainless steel.

The wind speed is sensed by a three-cup rotor assembly. Permanent magnets mounted on the shaft causes a switch to close and open two times per revolution.

The switch has no bounce and it is equipped with a special built-in mechanism, which reduces the variation in operating time over the frequency range. This feature provides the possibility of obtaining the instantaneous wind speed by measuring the time interval of each revolution.

### Specifications

Measuring range	0...70 m/s
Starting threshold	< 0.4 m/s
Distance constant	$\ell_0$ ▣ 1.81 ▣ 0.04 m
Standard Calibration	$U$ ▣ $A_0$ ▣ $B_0$ ▣ $f$
Wind speed	$U$ [m/s]
Offset ("starting speed")	$A_0$ ▣ 0.27 m/s
Gain	$B_0$ ▣ 0.6201 m
Output frequency	$f$ [Hz]
Standard deviation of offset	0.014 m/s
Standard deviation of gain	0.027 m
Variation among units	±1%
Nonlinearity	<0.04 m/s
Temperature influence, -15...60°C	< 0.05 m/s

### Switching characteristics

Signal type	potential free contact closure
Duty cycle	40...60%
Max switching voltage	30 V
Max. recommended switching current	10 mA
Series resistance	330 ▣ , 1 W
Operating temperature range	-35...60°C



The specifications are based on 80 wind tunnel calibrations performed according to the Measnet Cup Anemometer Calibration Procedure.

The specified offset and gain figures represent the mean values of these calibrations.

Variation among units designates the maximum deviation of any unit from the straight line representing these mean values.

All units are run-in for 225 hours at 9 m/s, in order to reduce the initial bearing friction to a level close to the steady state value.

After run-in, bearing friction is tested at -15 °C and at room temperature. The allowed limits for this test assures that the temperature influence on the calibration is within the specified limit.