



## P2546A-L

### Three-Cup Anemometer with MEASNET Calibration



## IEC 61400-12 Class 1 Performance

Ideal for wind-energy applications

### Overview

The P2546A, manufactured by WINDSENSOR, is a Class 1 anemometer often used for wind speed resource assessment and wind turbine power performance monitoring. Wind speed is sensed by a three-cup rotor assembly. Magnets mounted on the shaft cause a switch to close and open two times per revolution. Our data loggers measure the switch closure and convert the signal to engineering units (mph, m/s, knots). The anemometer is mounted using the 27739 30-inch mounting

pole. The P2546A comes with a MEASNET calibration certificate.

The [P2546C](#) (coil version) and [P2546D](#) (electronic version) are also available.

**Note:** The P2546A, which includes a mercury reed switch and is not CE- or RoHS-compliant, has been replaced for most applications by the [P2546D](#).

### Benefits and Features

- ▶ IEC Class 1 performance
- ▶ Constructed from only durable materials such as anodized aluminum and stainless steel
- ▶ No bounce switch
- ▶ Mechanism reduces the variation in operating time over the frequency range
- ▶ Compatible with many Campbell Scientific data loggers

### Detailed Description

The P2546A is constructed with durable anodized aluminum and stainless steel. Its switch has no bounce and has a

mechanism that reduces the variation in operating time over the frequency range.

### Specifications

Sensor 3-cup anemometer

Measurement Description Wind speed

Signal Type/Output	Contact closure (pulse)
Range	0 to 70 m/s
Starting Threshold	< 0.4 m/s
Starting Speed	0.27 m/s
Gain	0.6201 m
Distance Constant	$\lambda_0 = 1.81 \pm 0.04$ m
Standard Deviation of Offset	0.014 m/s
Standard Deviation of Gain	0.027 m
Variation among Units	$\pm 1\%$
Non-Linearity	< 0.04 m/s
Temperature Influence	< 0.05 m/s (-15° to +60°C)

*-NOTE- 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  $9\text{ ms}^{-1}$ , 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 assure that the temperature influence on the calibration is within the specified limit.*

### Calibration

Standard	$U=A_0+B_0 \times f$
Wind Speed	U [m/s]
Offset	$A_0=0.27$ m/s ("starting speed")
Gain	$B_0=0.620$ m
Output Frequency	f [Hz]

### Switching Characteristics

Signal Type	Potential free contact closure
Duty Cycle	40% to 60%
Maximum Switching Voltage	30 V
Maximum Recommended Switching Current	10 mA
Series Resistance	330 $\Omega$ , 1 W
Operating Temperature Range	-35° to +60°C

For comprehensive details, visit: [www.campbellsci.com/p2546a](http://www.campbellsci.com/p2546a) 



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