ACCURATE, AFFORDABLE, PORTABLE POWER FOR YOUR ANT+ BIKE COMPUTER.

OUR POWER METER DELIVERS AMAZING VERSATILITY FROM AMAZING TECHNOLOGY.

PowerPod BLE/ANT power meter wirelessly transmits its power measurements *simultaneously* in the two most popular formats: ANT and Bluetooth Low Energy (BLE). So, PowerPod BLE/ANT works with popular bike computers such as Garmin, *and also* with BLE smartphone apps such as Strava, Powerhouse ® Bike, and Wahoo Fitness.

## Technology

PowerPod takes into account opposing forces, including wind, hills, acceleration and friction. According to Newton's Third Law, "Opposing forces equal applied forces". So, the total opposing force caused by wind, hill slope, acceleration and friction is EXACTLY THE SAME as the applied pedal force.

Digital accelerometer, dynamic pressure, and barometric pressure sensors are mounted inside PowerPod. Unlike applied-force power meters, PowerPod sensors experience nearly zero stress, so they don't wear-out and do not require maintenance and factory recalibration. A wireless sensor mounted on the chain stay measures bike speed.

As part of initial setup the user enters total bike/rider weight, tire size, road surface, rider height and ride position. From these inputs the rider's CdA (coefficient of drag), and bike Crr (coefficient of rolling resistance) are determined. PowerPod's "Physics Engine" converts air pressure, accelerometer and speed sensor data into: wind, hill slope, acceleration and frictional forces. The total of these opposing forces, multiplied by bike speed, equals cyclist power.

As you turn the crank, your left *and* right legs accelerate (power) the bike. PowerPod measures bike acceleration 800 times *per second*, capturing the effort of *both* legs, and delivering **both-leg**, +/- 2% accuracy.

## PowerStroke Technology measures pedalling efficiency

PowerStroke pedalling efficiency and economy reveals not only *how much power* you produce, but *how well you produce power* as you turn the crank. PowerStroke shows wasted watts, wasted motion, and wasted energy in left/right, front/back, and side/side views. You also get a view of your pedalling smoothness as you turn the crank!

## PowerPod vs. Direct Force Power Meters (DFPM)

How does PowerPod technology compare to direct force power meter (DFPM) technology? When cyclists apply power, bike components (hub/chain/bottom bracket/crank/pedals) flex in response. Traditional DFPMs use strain gauges, mounted in the pedals/crank/hub, to measure bike component mechanical flexing. Note that strain gauge measurements are NOT power measurements. In fact, electronics and complex algorithms located inside the

hub/crank/pedals convert strain-gauge-flex voltage into applied torque (rotational force) measurements. When torque is multiplied by cadence (rotational speed) a power number is calculated.

High-quality, both-leg DFPMs measure, moment-by-moment, the forces produced by BOTH legs. Using many strain gauges, both-leg DFPMs measure forces during the *entire* turn of the bike crank. Measuring the forces of both legs, over the full turn of the crank, is a very solid technical approach that has been proven over the years. But both-leg power meters are expensive.

Less accurate, lower cost, one-leg DFPMs measure the *strain/torque of one leg only*. By using fewer strain gauges, and measuring the forces of one leg only, the manufacturing cost of the one-leg DFPM is less. But how does a one-leg power meter measure the TOTAL power of BOTH legs? The truth is, IT DOESN'T; a one-leg power meter multiplies its one-leg measurement by 2.0, making the assumption that both of your legs apply power *identically*. No cyclist has a perfect 50-50 split between left and right legs, and the real-life split can't be measured with a one-leg power meter. So no matter what their marketing brochures say, the actual accuracy of a one-leg power meter on YOUR bike is unknown.

Finally, *all* DFPMs are electromechanical devices that experience the full, concentrated energy of the cyclist, *every ride, and every turn of the crank, every year.* Consequently, DFPMs periodically require factory recalibration/refreshing.

PowerPod measures the power produced by both legs, without mechanically stressing any PowerPod sensor. It's maximum accuracy with minimum stress.

**WHAT REVIEWERS ARE SAYING**

- **DC Rainmaker:** "Overall, I've found that the PowerPod can be solidly accurate in most situations, assuming you are aware of the limitations – or aware of changes to configuration that could impact it. Further, it's ability to seemingly 'heal' itself does act as a bit of a safety net should the aerodynamic profile change significantly enough to otherwise impact power readers. I'd sum it up as: If you do a clean calibration ride – things are impressively accurate across a wide range of riding environments and positions." https://www.dcrainmaker.com/2016/03/powerpod-depth-review.html
- **Flatslowtriathlete**: "I played around with cadence, mashing, spinning to see how it affected and they all seemed to correspond. The result? I was much worse than even I thought I was… After I got home I decided to compare to the power I could generate on Zwift… The result? Almost exactly the same amount of average and normalized power over the same course. I'll count that as accurate." http://fatslowtriathlete.com/2016/08/31/product-review-powerpod-power-meter/
- **Biketestreviews:** "PowerPod is simple to use and [would be] a bargain at even twice the price. Highly recommended - A true 5/5 star rating!" http://biketestreviews.com/velocomp-powerpod-power-meter