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## **InfoCrank upgrade guarantees precise cadence measurement and makes magnets and accelerometers obsolete**

***4th April 2016 Verve Cycling, the developer and manufacturer of InfoCrank, has just simplified precise cadence measurement by eliminating the need for additional sensors – including magnets. After extensive testing by pro-teams, it's new CPS technology is now available as a free firmware download for existing InfoCrank customers as the Revolution Update (RevUp).***

InfoCrank, the crank-based integrated PowerMeter that provides true and precise power measurements using torque signals without the need for ongoing calibration, was first released late in 2014. It provided a clean measure of torque by using a very high rate of 256Hz (samples per second) so that every pedal stroke was sampled more than 50 times, even at very high cadences (>200rpm), using magnets and high quality reed switches to give the cyclist data accurate to the watt.

However, bike frame design was making magnet placement problematic and almost required a different solution for every bike. The option to use accelerometers did not fit with the ethos of Verve due to the latent loss of accuracy.

The company continued to work hard on developing their proprietary Crank Position System (CPS), which precisely detects every cadence pulse regardless of rider intensity and individual pedal style. It does this without magnets, accelerometers or any other additional sensors for determining where the crank is located at any time during the pedal stroke. Pound the pedals or turn them lightly, the CPS will ensure precise cadence measurement in detail. The CPS' integrated technology offers greater accuracy with less margin for error, while making zip ties a thing of the past.

## **Intelligent cadence measurement**

The CPS also has a built-in intelligence system. If there are magnets on the rider's bike, the CPS will recognize them and work as a magnet-based system. Otherwise, it will work on its own power if no magnets are present. It will also recognize if only one crank is magnet-equipped and run that one crank on magnets with the other crank using its own power.

Bryan Taylor, President of Verve Cycling said "Precision has been sacrificed by most in order to get rid of magnets, but that goes against the grain at Verve. We spent years perfecting the CPS so that our customers could keep their accuracy, lose the problems of magnets, maintain and even extend the life of their batteries and JUST RIDE". We are very proud to bring this ground-breaking engineering to the bike world and continue to make everything about having a PowerMeter easier.

## **Proven by professional testing**

Verve called on two of their professional teams, One Pro Cycling and Verva Active Jet, to assist them with the final testing phase of the CPS system. With invaluable input from the team members and their coaches, they were able to thoroughly test it in record time under varied scenarios.

The CPS will be released as a free firmware upgrade called RevUp for InfoCrank customers so that they are not required to purchase a new product to benefit from this new technology. This will make the swapping of cranks from one bike to another even more simple.

Every upgrade of the new CPS comes with a personal guarantee from Verve that the accuracy of cadence measurement will remain at the highest level. The CPS release date is 04/04/2016.

For more info, please visit [www.vervecycling.com/firmware-updates](http://www.vervecycling.com/firmware-updates)

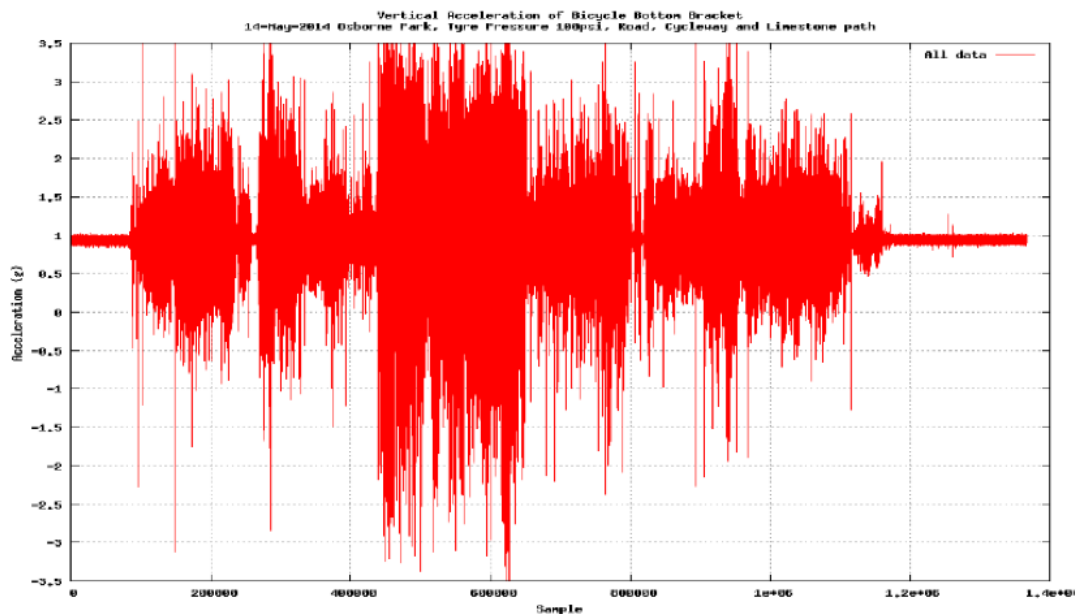
## Background on Accelerometers and Gyros for cycling use.

They have been very reliable and accurate for years in many applications. The PC tablet problem that people report is a software issue, where it is trying to compromise between changing orientation too often or not enough. However, vibration affects accuracy when using accelerometers.

On the bike, vibration is a major issue and the road surface variances can make cadence pulses difficult to detect. See the examples below, and try and pick out the cadence pulse.

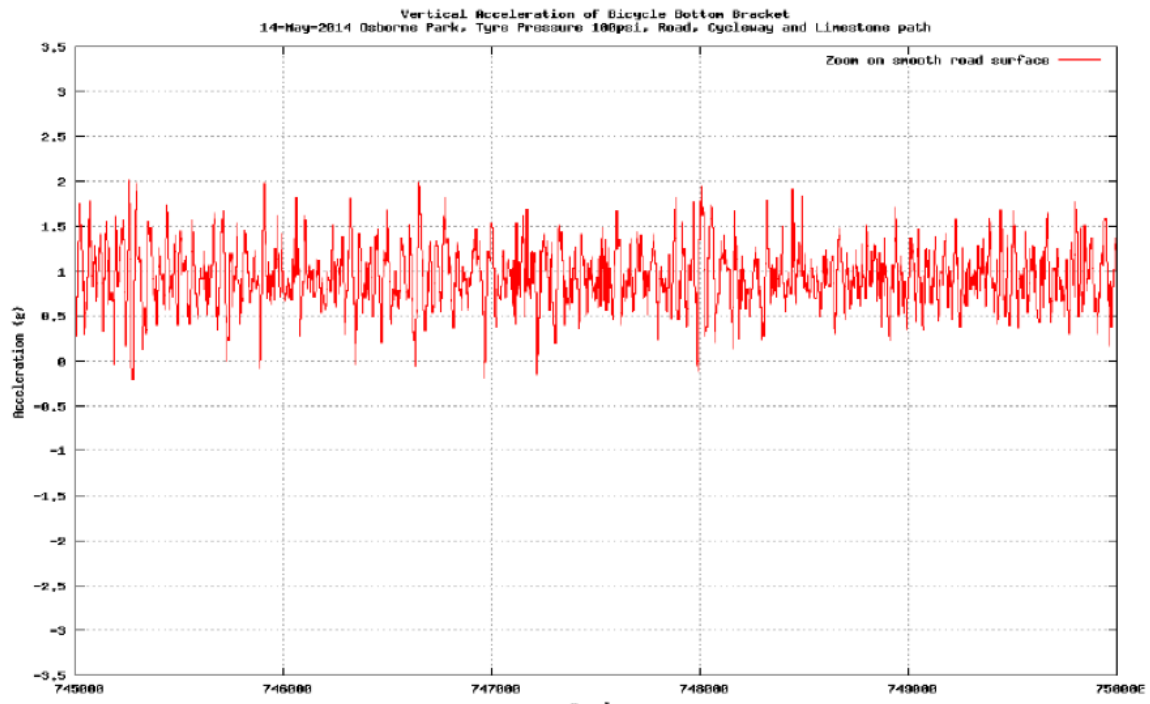
Accuracy

## Frame vibration



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# Bitumen Road – Close up



The equation for power requires precision in two numbers - the torque (tangential force applied to the crank) and the cadence. An error in either or both of those has a multiplying effect on the error. The designer must make a compromise between sensitivity and the maximum acceleration that can be measured, so a blanket statement cannot be made about all accelerometers. Each one needs to be analyzed to determine its capability.

Recently, many smart phones and consumer electric devices have started to utilize gyroscope technology. The integration of the gyroscope has allowed for more accurate recognition of movement within a 3D space than the previous lone accelerometer. We continue to review the latest technology.

## About Verve Cycling

Verve Cycling developed the InfoCrank as a scientific tool to bring cycling torque and power measurement up to the standard required by the most demanding performance based riders and teams. The aim was to produce a product that could be used by the professionals in their everyday world and then suitably priced and packaged for the aspiring Olympian, professional or amateur alike.

The InfoCrank is independently tested and is considered to be precise and true at all levels between 0 and 3000watts. However, the key attribute of the InfoCrank is it's simplicity and durability, both very important to elite cyclists who ride in all sorts of terrain and temperatures and climatic conditions.

The InfoCrank is distributed throughout the world at [vervecycling.com](http://vervecycling.com) and through affiliates and dealers.

Verve Cycling is actively recruiting distributors and interested companies are invited to approach the company.

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