

\$1,550 (Ultegra), \$1,850 (Dura-Ace), \$300 (SGX-CA500 head unit), \$750 (SGX-CA900 Head Unit). Compatible Only with Ultegra 6800 and Dura Ace 9000 and adds 66 grams. pioneer-cyclesports.com and cyclo-sphere.com

PIONEER POWER

Those lime-green Jelly Beans stuck in the Belkin team cranks? Those are Pioneer Power meters. Yes, the power segment has exploded to such a degree that the same company making DJs' turntables is making power meters for bikes. Bizarre, no? Well maybe not. Many of the things Pioneer has perfected over the years make it a good fit for power—transmitting complicated data, correcting data errors in real time, and using GPS for route tracking.

The meter, now in its cleaner, streamlined second iteration, is used by Team Belkin and the UnitedHealthcare Pro Cycling team, and it's available to riders everywhere. It measures power at both cranks, and the guts are housed in the little Jelly Bean nestled in the cranks. In terms of delivering a stable, consistent and accurate wattage number, Pioneer is among the best. Calibration is easy, dropouts and ghost data were non-existent, connectivity to the head unit was bulletproof, and batteries are easily sourced and user replaceable. Using ANT+ it found heart-rate monitors quickly and WiFi made uploading to Pioneer's CycloSphere and Strava simple.

What sets Pioneer apart, or at least Pioneer hopes it does, is its ability to measure pedal-force vectors, essentially the amount and direction of force every 30 degrees of rotation. Only their head units can display this data, although the meter is compatible with other ANT+ head units. Pioneer offers two head units—a large color display and a smaller black and white display—both of which are touch screen and display an incredible amount of data with

seemingly endless options to customize. The touch-screen function is not the easiest to master, and it took us a few frustrating rides to get the feel of it.

With new data such as vectors and individual leg measurement the question becomes, what do we do with it? We proposed that question to Mike Tamayo, general manager and sports director of UHC Pro Cycling. "We're still learning how to best use this technology to its fullest potential," Tamayo told *peloton*, "but we've been able to use the Vector Measurement readout and data to identify and quantify whether riders are pedaling primarily with their toes or primarily with their heels and address those findings accordingly with each rider."

When the coaches find discrepancies between left and right leg power with the meter, they use core-training exercises to try and address it. Because of this the UHC team uses Pioneer's Cyclo-Sphere Web-based ride-analysis system, the only one that displays pedal-vector data.

If you already own a Garmin and simply want a consistent and stable measurement of your wattage, there are cheaper options than Pioneer, but for riders wanting that next step, wanting to dissect and analyze their pedal stroke, Pioneer Power, its head units and Cyclo-Sphere offer an unprecedented way to examine your ride. 

