PRODUCT DATA SHEET

DETAILS AND SPECIFICATIONS

FORK TRACER

Description

Tracer is the first-of-its-kind tool to measure and tune your ride while you ride. With a rugged design built for Downhill, Enduro, and Cross Country mountain bikes, the Tracer sensor pairs with the game-changing MotionIQ smartphone app to deliver real-world, actionable data about your bike and suspension performance. Never before has this much power been in the palm of your hands.

Install and set up quickly

Tracer is easy to install yourself. It comes in either 200mm or 300mm sizes and secures beneath your fork air cap. The MotionIQ app will walk you through setup, help pick your bike model, and verify connection with the sensors.

Measure real-world performance while you ride

The Tracer sensor's innovative flexure design maintains rigidity and minimizes stiction in the direction of measurement, but also stays out of the way of the fork leg's motion. As your fork moves up and down, position samples are collected 200 times per second. Those samples are sent wirelessly to the MotionIQ app, which instantly quantifies the data for mid-ride tweaks or later review.

In addition to position, Tracer gathers vibration data from an embedded motion processor. Tracer's electronics are motion referenced to the bike, not the lower fork tube. This means that the vibration measurements reflect g forces that are not suppressed by the fork. This ensures our data is referenced to what the rider feels, not just the motion of the fork.

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Make adjustments with data, not guesses

Tracer along with MotionIQ visualizes a treasure trove of real-time performance and suspension data. For the first time, you can set aside the guesses and gut feelings, and make tuning decisions based on your unique bike and experience. Typical adjustments such as: Tokens, High and Low Speed Rebound and Compression, and Preload can be easily navigated with the feedback provided by MotionIQ.

How accurate is Tracer?

Over 2 years of research and testing with real-world professional riders led to the Tracer's innovative, affordable, and accurate design. With any system that collects analog data and transfers it to the digital domain, there is predetermined error in the system. Tracer's error is negligible based on hours of verification testing on a top of the line suspension dyno.

How reliable is Tracer?

Tracer uses an industrial strength potentiometer rated for 10 million cycles. We improved on this design by replacing the standard wiper with a rotating circular magnet (patent pending). This design greatly reduces the wear-and-tear and extends the life of the product because it completely eliminates any scraping against the potentiometer. Your mileage will vary, but with proper care and cleaning you should expect several years of normal use. And when the Tracer reaches end of life you can rest easy knowing the Tracer was designed to be easily refurbishable.

Lastly, as previously noted, all potentiometer-based position sensors have a finite life span. But we have a plan for that. An added bonus of the Tracer is that the potentiometer and any component is refurbishable. At the end of Tracer's potentiometer life, just send it back to Motion Instruments and we will refurbish it for a fraction of the cost of a traditional position sensor. If you crash and bend things up, it's steel, try to bend it back. If you can't, we have replacement parts. It was not designed to be thrown away. Tracer will give you years of service over many bikes. All parts are serviceable and replaceable.

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Feature	Description
Replaceable battery	CR2032 Coin Cell Battery is easily replaced
System Run Time: Advertising (Not Connected, 230 mAH battery)	545 Hours
System Run Time: Sleep (Designed to wake up when bike is shaken 1g)	~40,000 Hours
System Run Time: Connected, Live Streaming to Phone (Non continuous, IE: normal use)	>150 Hours @ 200 Hz
Supported Fork Stroke Range	Tracer 200: 180mm or lessTracer 300: Any DH fork
Accelerometer Range	16g +/-
Vibration sample rate	100 Hz
Position sample rate	200 Hz
Tracer 200 Weight	99.2 grams
Tracer 300 Weight	100.6 grams
Position Wiper Weight	11.3 grams
Wireless Protocol	BLE 4.2
Supported Recording Devices	iOS Only: Version 12 or newer
Position sample digital resolution	Tracer 200: 0.049 mmTracer 300: 0.073 mm
Non Linearity Error Rate	1% (Potentiometer)
ADC Error Rate	~0.15%
Water Resistant	Yes (Do not power wash directly). Sensor can be sprayed for cleaning. Riding in the rain is ok, but sensor life will be reduced.
Sleep mode activation	Shake bike, sensor remains awake and advertising for 10 seconds.. Vibration <1g will not wake up sensors. Designed to save battery life when transporting your bike.
Lean Angle	Future support through embedded 6 axis MPU
Power optimization when not in motion	Controlled by MotionIQ in Auto (GPS enabled) recording mode.
Warranty	90 days, normal use. All parts are replaceable.
Supported operating environment	Can be used in wet environments but potentiometer life will be diminished. Sensor can be removed and cleaned. Position sensor is designed to be used in harsh environments like chemicals, but avoid it if possible. Clean with soap & water, wipe clean. No additional lubricants needed. Wiper needs to be occasionally sprayed and cleaned (blown out with forced air), squirt with WD40 on occasion.