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ebikefans M500/M510/M600/G520/G521/G522

BAFANG Electric Bicycle Speed Sensor User Manual

Model: M500/M510/M600/G520/G521/G522 Compatible

1. Product Overview

The BAFANG Speed Sensor is designed to provide accurate speed measurement for your electric bicycle. It is specifically engineered for compatibility with a range of Bafang torque motors, ensuring seamless integration and reliable performance for your e-bike system.

- **Reliable Speed Measurement:** Ensures precise speed data for your e-bike display and motor control.
- **Broad Compatibility:** Works with Bafang M500, M510, M600, G520, G521, G522, M800, and M820 torque motors.
- **Durable and Protected:** Features an IP65 waterproof rating, protecting against dust ingress and low-pressure water jets.
- **Essential Component:** A crucial part for Bafang e-bike conversion kits, ideal for replacing existing speed sensors.



Figure 1.1: The BAFANG Speed Sensor, showing the main sensor body, connecting cable, and included small components such as a screw and a magnet.

2. Setup and Installation

Proper installation of the speed sensor is crucial for accurate readings. Follow these steps carefully:

1. **Identify Mounting Location:** The speed sensor is typically mounted on the chainstay of your bicycle frame. Locate a suitable flat surface near the rear wheel where the sensor can be securely attached and aligned with the wheel's magnet (if applicable).
2. **Secure the Sensor:** Use the provided screw to firmly attach the sensor body to the designated mounting point on the chainstay. Ensure it is stable and does not wobble.
3. **Connect the Cable:** Route the sensor cable along the bicycle frame, securing it with cable ties if necessary, to prevent it from interfering with moving parts. Connect the blue connector end of the sensor cable to the corresponding port on your Bafang motor or controller. Ensure the connection is snug and fully seated.

4. **Magnet Placement (if applicable):** If your system uses a separate magnet on the wheel spoke, ensure it is positioned to pass closely by the sensor body with each wheel rotation, typically within 5-10mm.
5. **Test Functionality:** After installation, power on your e-bike system and manually spin the rear wheel to verify that speed readings are displayed correctly.



Figure 2.1: The speed sensor and its accompanying hardware, including various screws and a rubber cap, ready for installation.



Figure 2.2: A detailed view of the blue connector, which plugs into the Bafang motor or controller.

3. Operating Instructions

The BAFANG Speed Sensor operates automatically once correctly installed and connected to your e-bike system. It continuously monitors the rotation of your bicycle wheel and transmits speed data to your motor controller and display.

- **Automatic Detection:** The sensor automatically detects wheel rotation and calculates speed.
- **Real-time Data:** Provides real-time speed information to your e-bike's display unit.
- **No User Interaction Required:** Once installed, no further manual operation of the sensor itself is needed.

4. Maintenance

To ensure the longevity and accurate performance of your BAFANG Speed Sensor, follow these simple maintenance guidelines:

- **Regular Cleaning:** Periodically wipe the sensor body and cable with a damp cloth to remove dirt, dust, and debris. Avoid using harsh chemicals or abrasive materials.
- **Inspect Connections:** Regularly check the cable connection to the motor/controller to ensure it is secure and free from corrosion or damage.

- **Check Mounting:** Verify that the sensor remains firmly mounted on the chainstay. Tighten the screw if any looseness is detected.
- **Cable Integrity:** Inspect the cable for any signs of wear, cuts, or kinks. Damaged cables can lead to intermittent or no speed readings.
- **Avoid Impact:** Protect the sensor from physical impacts, which can damage its internal components or housing.

5. Troubleshooting

If you encounter issues with your speed sensor, refer to the following troubleshooting tips:

Problem	Possible Cause	Solution
No speed reading on display	Loose or disconnected cable Sensor misaligned or too far from magnet Damaged sensor or cable	Check and secure all cable connections. Adjust sensor position relative to the magnet. Inspect sensor and cable for visible damage; replace if necessary.
Intermittent speed readings	Loose connection Debris obstructing sensor/magnet Weak magnet or faulty sensor	Ensure connections are tight. Clean the sensor and magnet area. Test with a known good magnet or replace sensor.
Incorrect speed readings	Incorrect wheel circumference setting (on display) Sensor interference	Verify and adjust wheel circumference setting in your e-bike display unit. Ensure no strong magnetic fields or electrical interference sources are near the sensor.

6. Specifications

Detailed technical specifications for the BAFANG Speed Sensor:

Feature	Specification
Product Type	Speed Sensor
Compatibility	BAFANG M500/M510/M600/G520/G521/G522/M800/M820 Torque Motors
Length	39 cm
Mounting Position	Chainstay
Input Voltage (DCV)	4.2-5.5V
Waterproof Level	IP65
Certifications	EN 15194/RoHS
Color	Black



Figure 6.1: Close-up view of the sensor body, showing the BAFANG branding.

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