

BAFANG FM G020.500.D

BAFANG 48V 500W Front Hub Motor Electric Bike Conversion Kit

MODEL: FM G020.500.D

1. Product Overview

The BAFANG 48V 500W Front Hub Motor Electric Bike Conversion Kit is designed to transform a standard pedal bicycle into an electric-assisted bicycle. This kit provides a powerful and efficient drive system, enhancing riding comfort and versatility for various terrains and uses.

Key Features:

- **Easy Installation:** Designed for straightforward conversion of your existing bicycle.
- **Multiple Riding Modes:** Offers Pure Electric Mode, Pedal Assisted Mode, and Push Assisted Mode for flexible riding experiences.
- **Stable Drive System:** Features a 500W front drive motor compatible with both disc and V-brakes, providing ideal power.
- **High Efficiency:** Achieves speeds up to 38-40 KM/H with an efficiency of $\geq 80\%$.
- **Comprehensive Accessories:** Includes essential components for a complete conversion.



Figure 1: Overview of the BAFANG 48V 500W Front Hub Motor Kit, highlighting key specifications and riding modes.

2. Safety Information

Always prioritize safety when operating your electric bicycle. Failure to follow safety guidelines may result in injury or damage to the product.

- **Wear a Helmet:** Always wear a certified helmet when riding.
- **Obey Traffic Laws:** Follow all local traffic laws and regulations.
- **Pre-Ride Check:** Before each ride, inspect brakes, tires, and all electrical connections.
- **Motor and Battery Care:** Ensure the motor and battery (if purchased) are securely mounted and connections are tight. Avoid exposing electrical components to excessive moisture.
- **Awareness:** Be aware of your surroundings, especially in traffic or on trails.
- **Weight Limits:** Do not exceed the recommended weight capacity of your bicycle.

3. Package Contents (Packing List)

Verify that all components listed below are included in your package:

- Front hub motor with wheel
- Controller
- Brake lever or hydraulic brake sensor (default is brake lever)
- Thumb throttle
- Controller case
- LCD display (optional)
- Battery and charger (optional)
- Left PAS sensor
- 1T4 cable
- Headlight
- Plastic straps
- Sticker



Figure 2: Visual representation of the components included in the BAFANG Front Hub Motor Kit.


4. Installation Guide

Converting your pedal bike to an e-bike with the BAFANG Front Hub Motor Kit is designed to be

straightforward. An installation video and manual are provided to assist you.

4.1. Choosing the Correct Wheel Size

Ensure you select the correct wheel size (20", 26", 28"/29"/700C) that matches your bicycle. The tire size is typically marked on your tire's sidewall.



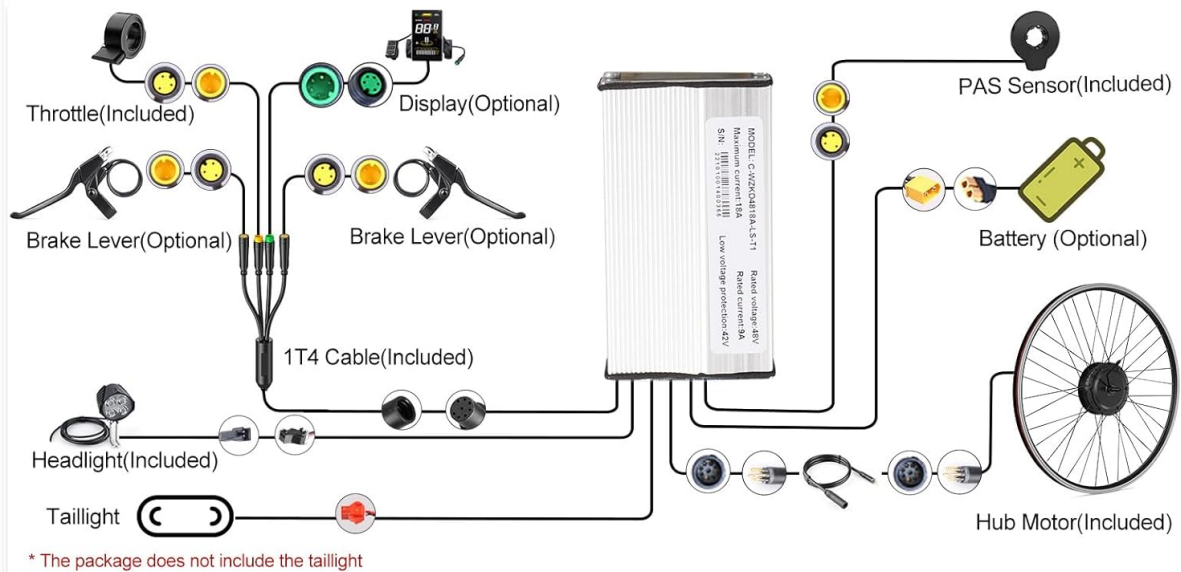
Product Name	Motor option	Rated Voltage (DCV)	Rated Power (W)
Front hub motor	48V500W	48V	500W
No-load current	Rated Current	Wheel Diameter (Inch)	Max Torque (N.m)
≤1.8A	≤13.8A	20/26/700C	65N.M
Max Speed	Spoke Specification	Weight	Efficiency (%)
40KM/h	36H*12G	7.100KG	>75%
Noise Grade (dB)	Waterproof Grade	Installation Widths (mm/OLD)	Maximum current (Controller)
<55	IPX5	100±1	18A

Figure 3: Instructions for identifying your bicycle's wheel size to ensure compatibility with the conversion kit.

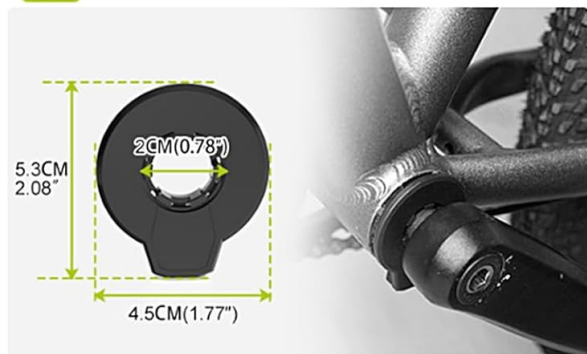
4.2. Component Connection Diagram

Follow the connection diagram carefully to ensure all components are correctly wired. The kit includes a 1T4 cable for simplified connections.

KIT CONNECTION DIAGRAM



PAS Sensor - Left



PAS Sensor - Right



Figure 4: Detailed wiring diagram showing how to connect the hub motor, controller, display, throttle, brake levers, and PAS sensor.

4.3. Torque Arm Installation

For hub motor installations, especially on higher power motors, a torque arm is recommended to prevent axle spin-out and frame damage. Refer to the video for proper installation.

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Video 1: This video demonstrates the installation of a universal torque arm conversion kit for an e-bike hub motor, ensuring secure and safe operation.

4.4. General Installation Overview

This video provides a general overview of installing a Bafang hub motor conversion kit, covering various aspects of the setup process.

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Video 2: A comprehensive guide to installing a Bafang Hub Motor Conversion Kit for an e-bike, detailing the steps involved in the conversion.

Another video showcasing the components and general assembly of a hub motor kit.

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Video 3: An unboxing and overview of a hub motor kit, demonstrating the various parts included and initial setup.

5. Operating Modes

The BAFANG conversion kit offers three distinct riding modes to suit your preferences and riding conditions:

- **Pure Electric Mode (E-bike):** Engage the throttle for full electric power without pedaling. Ideal for effortless cruising or when you need a boost.
- **Pedal Assisted Mode:** The motor provides assistance as you pedal, making climbs easier and extending your range. The level of assistance can typically be adjusted via the display.
- **Push Assisted Mode:** Provides low-speed assistance, useful when walking the bike up a steep incline or through crowded areas.

5.1. E-bike Displays

The kit supports various LCD displays (optional) that provide essential riding information and allow you to control motor settings. Common display features include speed, battery level, assist level, trip distance, and more.



Figure 5: Comparison of different E-bike display models (EKD01, VD18MT, DZ40, SW2-M56, DPC18) showing screen types, assist gears, and features.

6. Specifications

6.1. Hub Motor Specifications

Feature	Specification
Product Name	Front hub motor
Motor Option	48V500W

Feature	Specification
Rated Voltage (DCV)	48V
Rated Power (W)	500W
No-load Current	≤ 1.8A
Rated Current	≤ 13.8A
Wheel Diameter (inch)	20 / 26 / 700C
Max Torque (N.m)	65 N.m
Max Speed	40 KM/H
Spoke Specification	36H*12G
Weight	7.100 KG
Efficiency (%)	≥ 75%
Noise Grade (dB)	< 55
Waterproof Grade	IPX5
Installation Widths (mm/OLD)	100 ± 1
Maximum Current (Controller)	18A



100% tested battery
Every cell used in our battery has been tested for charging and discharging to ensure the quality of our battery.



85% capacity after 1000 cycles
After we simulate daily use, our battery can still have 85% capacity remaining after 1000 times cycles. Our engineering test battery has worked on our electric bikes for more than 3 years.



Waterproof technology
The battery has a certain waterproof function, you don't need to worry about it when it rains. But for safety, we still recommend that the battery is not in contact with water.



BMS Security System
The BMS chips integrated in our e-bike batteries feature multiple layers of protection, such as overvoltage, overcharge and reverse charge protection, to ensure optimal safety during use.



Anti-theft Lock
It can protect your battery very safely when there is a thief, it can also prevent accidental falling off.



USB port connection
Output is 5V 1A. You can charge your phone or other devices whenever you want. ⚠️ 52V20Ah don't have the USB port.

Figure 6: Comprehensive table outlining the technical specifications of the BAFANG Hub Motor.

6.2. Optional Battery Specifications

If you choose to purchase an optional battery, refer to the specifications below. Note that battery options may vary.

BATTERY SPECIFICATION

Battery Model	Downtube Battery 36V 15.6Ah	Downtube Battery 48V 13Ah	Downtube Battery 48V 16Ah	G80 Downtube Battery 48V 19.2Ah	G80 Downtube Battery 48V 20Ah	VoltzX Battery 48V 20Ah	YingWu Battery 52V 20Ah	Rear Rack Battery 48V 17.5Ah
Battery Cell	18650 2600mAh	18650 2600mAh	18650 3200mAh	L*G 21700 4800mAh	Sam'sung 21700 5000mAh	Sam'sung 21700 5000mAh	Sam'sung 21700 5000mAh	18650 2600mAh
BMS Max Protection Current	30A	30A	30A	30A	30A	30A	30A	30A
USB Port	✓	✓	✓	✓	✓	✓ USB/TYPE-C	✗	✓
Weight	3.9kg	4.25kg	4.23kg	4.95kg	4.7kg	5.2kg	5kg	6kg
Cycle Life	1000 times	1000 times	1000 times	1000 times	1000 times	1000 times	1000 times	1000 times
Battery Charger	✓	✓	✓	✓	✓	✓	✓	✓

Figure 7: Detailed specifications for various optional battery packs, including voltage, capacity, cell type, and features.

7. Maintenance

- **Regular Cleaning:** Keep the motor, controller, and battery clean from dirt and debris. Use a damp cloth; avoid high-pressure washing directly on electrical components.
- **Check Connections:** Periodically inspect all electrical connections for tightness and corrosion. Ensure waterproof connectors are properly sealed.
- **Cable Management:** Secure all cables to the bike frame using the provided plastic straps to prevent snagging or damage.
- **Battery Care:** If using a battery, follow the manufacturer's charging and storage instructions. Avoid fully discharging the battery and store it in a cool, dry place.
- **Brake Inspection:** Regularly check brake levers and pads for wear and proper function.

8. Troubleshooting

If you encounter issues with your BAFANG conversion kit, refer to the following common troubleshooting steps:

- **Motor Not Engaging:**
 - Check all electrical connections for tightness.
 - Ensure the battery is charged and properly connected.
 - Verify the display is powered on and showing no error codes.
 - Check the PAS sensor for proper alignment and function.
- **Display Not Working:**
 - Ensure the main power switch (if present) is on.
 - Check the display cable connection to the controller.
 - Verify battery power.
- **Intermittent Power:**
 - Inspect all wiring for loose connections or damage.

- Ensure the battery is fully seated and making good contact.

For persistent issues, contact customer support.

9. Warranty and Support

The BAFANG Front Hub Motor and optional battery come with a one-year limited warranty. North American after-sales service centers provide technical support and maintenance.

For technical assistance, warranty claims, or any questions regarding your product, please contact Greenergia customer support. Refer to your purchase documentation for specific contact details.