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## BAFANG FM G020.500.D

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

Model: FM G020.500.D

Brand: BAFANG

## INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your BAFANG 48V 500W Front Hub Motor Electric Bike Conversion Kit. This kit is designed to transform a standard pedal bicycle into an electric bicycle, offering enhanced riding comfort and efficiency.

The BAFANG 48V 500W Front Hub Motor is compatible with 20", 26", and 700C wheel sizes and is suitable for touring bikes, commuter bikes, and mountain bikes. Please read this manual thoroughly before beginning installation or operation to ensure safe and correct usage.

## PRODUCT OVERVIEW AND COMPONENTS

The BAFANG Electric Bike Conversion Kit includes all necessary components to convert your bicycle. The primary components are listed below:

- Front Hub Motor with Wheel
- Controller
- Brake Levers (or Hydraulic Brake Sensor)
- Thumb Throttle
- Controller Case
- LCD Display (Optional)
- Battery and Charger (Optional)
- Extension Cable
- PAS (Pedal Assist Sensor)
- 1T4 Cable
- Headlight



Figure 1: Overview of BAFANG Electric Bike Conversion Kit components.

# packing list

- Controller box
- Optional Battery with Charger
- Optional Display
- Thumb throttle



• Controller



• Brake Lever



• Headlight



• Front Hub Motor



• Motor cable



• PAS Sensor



• 1T4 cable

Figure 2: Detailed packing list showing all included parts for the conversion kit.

## SPECIFICATIONS

### Hub Motor Specifications

# SPECIFICATIONS



• Position	Front Motor	• Max Torque (N.m)	60
• Model No.	FM G020.500.D	• Noise Grade (dB)	<55
• Wheel Size	20/26/27.5/700C/28/29	• Spoke Specification	36H * 12G
• Rated Voltage	48 DCV	• Installation Widths	100mm / OLD
• n0	380 Rpm	• Weight	3.5
• Rated Power	500W	• Usage	eRoad
• nT	330 Rpm	• Waterproof Grade	IP X5

Figure 3: Detailed specifications for the BAFANG Front Hub Motor.

## BAFANG Front Hub Motor Specifications

Feature	Detail
Product Name	Front hub motor
Motor Option	48V500W
Rated Voltage (DCV)	48V
Rated Power (W)	500W
No-load Current	≤1.8A
Rated Current	≤13.8A
Wheel Diameter (inch)	20/26/700C

Feature	Detail
Max Torque (N.m)	65N.M
Max Speed	40KM/h
Spoke Specification	36H*12G
Weight	7.100KG
Efficiency (%)	≥75%
Noise Grade (dB)	<55
Waterproof Grade	IPX5
Installation Widths (mm/OLD)	100±1
Maximum Current (Controller)	18A

## General Product Specifications

- Bike Type:** Electric Bike
- Age Range:** Adult
- Number of Speeds:** 9
- Frame Material:** Aluminum
- Suspension Type:** Dual
- Special Feature:** LCD-Display
- Brake Style:** Disc
- Power Source:** Battery
- Wattage:** 500 watts
- Lithium Battery Energy Content:** 624 Watt Hours (for 48V13Ah option)
- Assembly Required:** Yes
- Skill Level:** Intermediate
- Item Package Dimensions:** 21.65 x 21.65 x 7.09 inches
- Package Weight:** 19.8 Pounds
- Grip Type:** Ebike Thumb Throttle

## CHOOSING THE CORRECT WHEEL SIZE

It is crucial to select the correct wheel size for your conversion kit to ensure compatibility and proper function. The kit supports 20", 26", and 700C wheel sizes. Refer to the tire marking on your bicycle to determine the correct size.

# CHOOSE THE CORRECT SIZE

- 28" / 29" / 700C



- 26"



- 20"



• How to Choose?			
• Rim Size	28"/29"/700C	26"	20"
• Rim Diameter	630mm(24.8")	570mm(22.4")	425mm(16.7")
• Spokes	12G*36H	12G*36H	12G*36H
• Compatible Brake	V brake & Disc Brake	V brake & Disc Brake	V brake & Disc Brake
• Compatible Tire	1.5-2.4 inch		

## • Installation Width / OLD 100mm



Where the tire is marked

## Example:

- 1-The tire is on the outer tire
- 2-The label reads 26\*1.95,
- 3-It can be judged that the tire is 26 inches

\* Tires are not included

Figure 4: Guide to choosing the correct wheel size based on tire markings.

## How to Choose:

1. Find where the tire size is marked on your bike's outer tire.
2. Check the label number (e.g., if it says 26x1.95, the tire is 26 inches).
3. Determine your bicycle's tire size and select the corresponding kit.

The kit is designed for a front dropout width of 100mm. Ensure your bike's front fork dropout width matches this specification for proper installation. Both V-brake and disc brake compatible frames are supported.

# HUB MOTOR SPECIFICATIONS



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 5: Illustration of compatible frame types and dropout width.

## DISPLAY SPECIFICATIONS

The kit offers various LCD display options, each with different features and functionalities. Choose the display that best suits your needs.

# DISPLAY SPECIFICATION

● ○ ●

Model	 • EKD01 	 • 500C	 • DZ40 Mini	 • DM03
PAS Level	3/5/9	3/5/9	0-5	3/5/9
Screen Size	2.4inch	2.2inch	1.68inch	1.3inch
Holder(mm)	22.2/25.4	22.2	22.2	22.2
Navigation	✓	✗	✗	✗
Bluetooth	✓	✗	✗	✗
USB Charger DC 5V 500mA	Type-c	✗	✗	✗
Model	 • C18-9	 • P860ML	 • 800S	 • SW2-M58
PAS Level	3/5/9	3/4/5/9UBE	0-3,1-3,0-5,1-5,0-9,1-9,UBE	3/5/9
Screen Size	3.1inch	3.5inch	2.8inch	3inch
Holder(mm)	22.2/25.4/31.8	22.2/25.4/31.8	22.2/25.4/31.8	22.2/25.4/31.8
Navigation	✗	✗	✗	✗
Bluetooth	✗	✗	✗	✗
USB Charger DC 5V 500mA	✓	✓	✗	✗

Figure 6: Comparison of various BAFANG Ebike LCD display models.

Key features to consider when selecting a display include screen size, PAS (Pedal Assist System) levels, navigation, Bluetooth connectivity, and USB charging capabilities.

# Flexible And Compatible

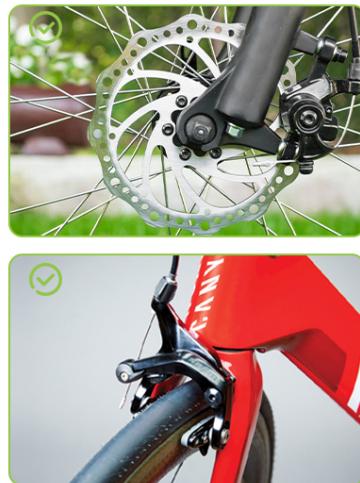


Figure 7: Features of optional smart digital displays, including color screens and navigation.

## BATTERY SPECIFICATIONS (OPTIONAL)

If you choose to include a battery with your kit, several options are available, differing in voltage, capacity, and form factor. All batteries are designed for durability and safety.

# BATTERY SPECIFICATION

<b>48V 13Ah</b>		<b>48V 19.2Ah</b>	
<b>48V 17.5Ah</b>		<b>48V 20Ah</b>	
Battery Model	Shark Battery 48V 13Ah	Shark Battery 48V 17.5Ah	G80 Shark Battery 48V 19.2Ah
Battery Cell	18650 2600mAh	L*/G Sam*/sung 18650 3500mAh	L*/G 21700 4800mah
BMS Max Protection Current	30A	30A	30A
USB Port	✓	✓	✓
Weight	4.25kg	4.045kg	4.95kg
Cycle Life	1000 times	1000 times	1000 times
Battery Charger	✓	✓	✓
<b>48V 20Ah</b>		<b>52V 20Ah</b>	
Battery Model	VoltzX Battery 48V 20Ah	YingWu Battery 52V 20Ah	Rear Rack Battery 48V 17.5Ah
Battery Cell	Sam*/sung 21700 5000mAh	Sam*/sung 21700 5000mAh	18650 2600mah
BMS Max Protection Current	30A	30A	30A
USB Port	✓ USB/TYPE-C	✗	✓
Weight	5.2kg	5kg	6kg
Cycle Life	1000 times	1000 times	1000 times
Battery Charger	✓	✓	✓
<b>48V 17.5Ah</b>			

Figure 8: Overview of various optional ebike battery types and their specifications.

Key battery features include:

- 100% Tested Battery:** Each cell is tested for charging and discharging to ensure quality.
- 85% Capacity After 1000 Cycles:** Designed for long-term performance, retaining significant capacity after extensive use.
- BMS Security System:** Integrated Battery Management System provides multiple layers of protection against overcharge, overdischarge, and reverse charge.
- Anti-theft Lock:** Secures the battery to prevent theft and accidental detachment.
- USB Port Connection:** Allows charging of other devices (e.g., smartphones) from the battery.
- Waterproof Technology:** Designed to withstand rain, but direct submersion is not recommended.

## VARIOUS HIGH-TECH EBike DISPLAY

Model	 DZ40	 DM03	 500C	 EKD01	 SWM58	 C18	 P860ML
mounting size	22.2mm	22.2mm	22.2mm	22.2/25.4mm	22.2/25.4/31.8mm	22.2/25.4/31.8mm	22.2/25.4/31.8mm
screen size	1.7inch	1.3inch	2.2inch	2.4inch	3.8inch	3.5inch	3.5inch
PAS Level	5	3,5,9	3,5,9	3,5,9	3,5,9	3,5,9	3,5,9,UBE
Advanced password	/	1657	1919	2020	1919	1919	1919
USB function	X	X	X	✓(Type-C port)	X	✓	✓
Bluetooth	/	/	/	✓	/	/	/
Auto headlight	X	X	X	X	X	✓	✓
Backlight Setting	/	1~3	1~5	30%/50%/75%/100%	1~5	1~5	1~5

Figure 9: Detailed features of the BAFANG ebike batteries, including safety and convenience.

## SETUP AND INSTALLATION

Converting your pedal bike into an electric bike with the BAFANG kit is designed to be straightforward. An installation video and detailed manual are provided to assist you.

### Installation Steps Overview:

- 1. Prepare Your Bicycle:** Ensure your bike is clean and stable. Remove the existing front wheel.
- 2. Install the Front Hub Motor Wheel:** Carefully place the new front hub motor wheel into the front fork dropouts. Ensure it is seated correctly and secure the axle nuts.
- 3. Mount the Controller:** Install the controller in the provided controller case, typically on the bike frame.
- 4. Install Brake Levers/Sensors:** Replace your existing brake levers with the new ones, or install the hydraulic brake sensors. These cut off power to the motor when brakes are applied.
- 5. Attach Thumb Throttle:** Mount the thumb throttle on the handlebar.
- 6. Install PAS Sensor:** Mount the Pedal Assist Sensor near the crank arm. Ensure proper alignment for accurate pedal detection.
- 7. Connect Display (Optional):** If using an LCD display, mount it on the handlebar and connect it to the system.
- 8. Connect Battery (Optional):** Securely mount the battery (if purchased) and connect it to the controller.
- 9. Wire Connections:** Connect all components using the provided cables (1T4 cable, extension cables). Ensure all connections are secure and waterproof. The kit features durable waterproof connectors.
- 10. Cable Management:** Neatly route and secure all cables using zip ties to prevent interference with moving parts and for a clean appearance.

# Easy Installation

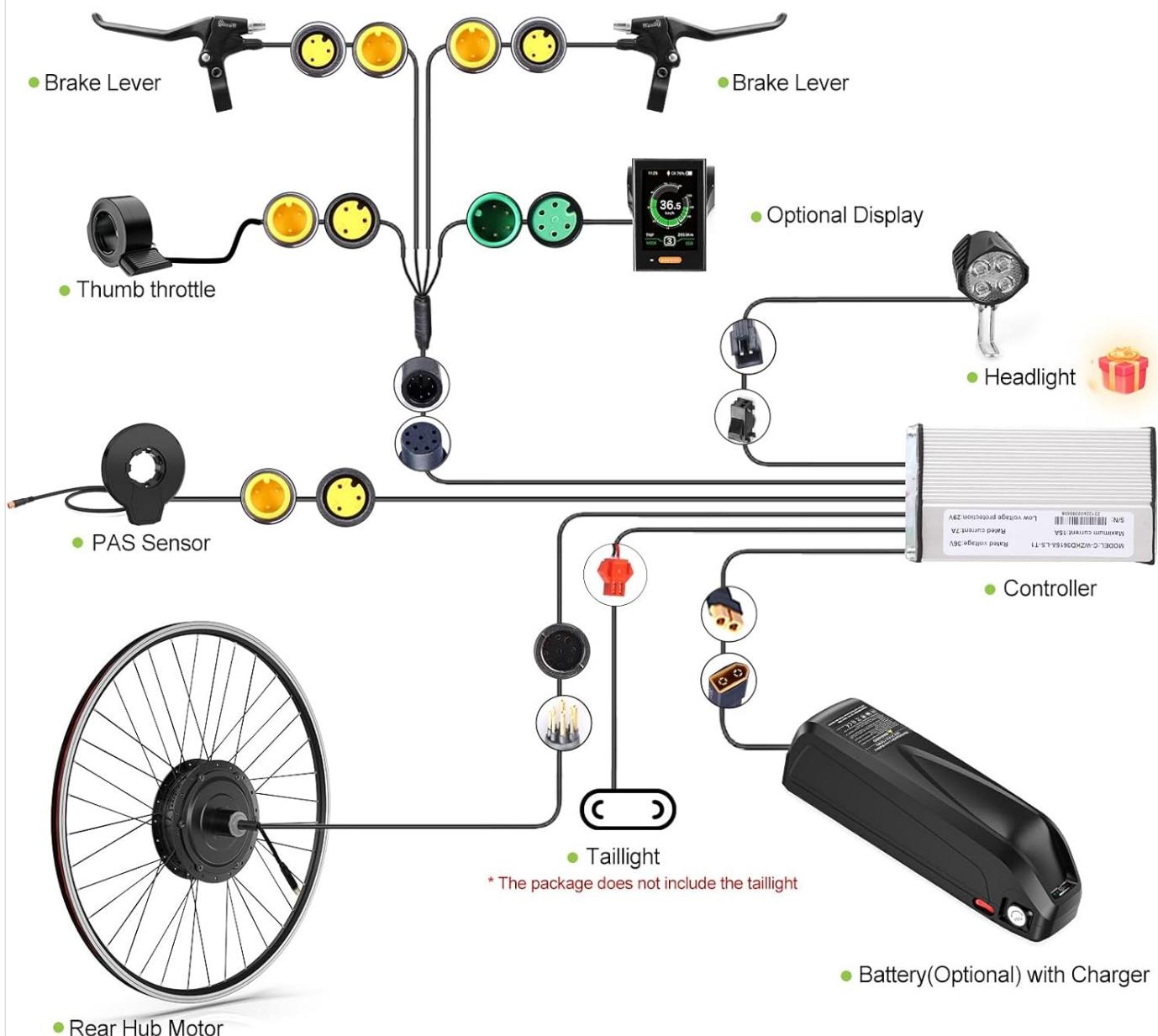


Figure 10: Wiring diagram for easy installation of the conversion kit components.

## HOW TO CHOOSE THE CORRECT SIZE ?

⚠ Tire is not included



• How to Choose?	20 x 1.35	26 x 1.95	28 x 2.125
• Rim Size	20"	26"	28" 29" 700C
• Rim Diameter	425mm(16.7")	570mm(22.4")	630mm(24.8")
• Compatible Brake	V brake & Disc Brake	V brake & Disc Brake	V brake & Disc Brake
• Spoke Specification	36H*12G	36H*12G	36H*12G

Step 1: Find where the tire size is marked on your bike  
 Step 2: Check the label number (example: if it says 26 x 1.95 as shown)  
 Step 3: Determine tire size. (Follow step 2 to determine and confirm that your bicycle tires are 26 inches.)



Figure 11: Illustration of the durable waterproof connectors used in the kit.

For a visual guide, please refer to the installation video provided by BAFANG. A link to the official user manual PDF is available [here](#).

## OPERATING INSTRUCTIONS

Your BAFANG electric bike conversion kit offers multiple riding modes to suit various preferences and terrains.

### Riding Modes:

- **E-bike Mode (Throttle Only):** Use the thumb throttle to engage the motor and propel the bike without pedaling. This mode is ideal for effortless cruising or when you need a quick burst of speed.
- **Pedal-Assisted Bicycle Mode (PAS):** The Pedal Assist Sensor (PAS) detects your pedaling and provides motor assistance, making pedaling easier. You can typically adjust the level of assistance via the LCD display. This mode extends battery life and provides a natural riding feel.
- **Push-Assisted Bicycle Mode:** Some displays offer a walk-assist function, providing low-speed motor assistance when pushing the bike, useful for navigating pedestrian areas or steep inclines while walking.
- **Normal Bicycle Mode:** The kit can be ridden as a traditional bicycle without any motor assistance, allowing you to exercise and conserve battery power.



Figure 12: Performance metrics and riding modes of the BAFANG 48V 500W Front Hub Motor.

### Display Operation:

The LCD display provides essential information and allows you to control various settings:

- **Power On/Off:** Press and hold the power button on the display to turn the system on or off.
- **PAS Level Adjustment:** Use the '+' and '-' buttons to cycle through different pedal assist levels (e.g., 0-5 or 0-9, depending on the display model).
- **Information Display:** View current speed, battery level, trip distance, total distance, and other metrics.
- **Headlight Control:** Some displays allow you to turn the headlight on or off.
- **Settings Menu:** Access advanced settings for wheel size, speed limit, and other parameters (refer to your specific display's manual for detailed instructions).

The BAFANG motor is designed to provide strong torque, making it easier to conquer steep slopes. Its efficiency and power greatly enhance riding comfort.

# HUB MOTOR SPECIFICATIONS



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 13: Illustration of BAFANG motor's ability to handle steep inclines.

## MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your BAFANG electric bike conversion kit. Always turn off the system and disconnect the battery before performing any maintenance.

- Cleaning:** Regularly clean the motor, battery, and other components with a damp cloth. Avoid using high-pressure water jets directly on electrical components. While the system has an IPX5 waterproof rating, it is not designed for submersion.
- Battery Care:**
  - Charge the battery regularly, even if not in use, to maintain its health.
  - Store the battery in a cool, dry place, away from direct sunlight and extreme temperatures.
  - Do not fully discharge the battery frequently.
- Cable and Connector Inspection:** Periodically check all cables and connectors for signs of wear, damage, or loose connections. Ensure waterproof connectors are properly sealed.
- Brake System Check:** Ensure brake levers are functioning correctly and cut off motor power immediately when engaged. Adjust brakes as needed.
- Tire Pressure:** Maintain correct tire pressure for optimal performance and safety.
- General Bicycle Maintenance:** Continue to perform regular maintenance on your bicycle's mechanical components, such as chain lubrication, gear adjustments, and bearing checks.

## TROUBLESHOOTING

This section addresses common issues you might encounter with your BAFANG electric bike conversion kit. If you experience a problem not listed here, please contact customer support.

### Common Troubleshooting Guide

Problem	Possible Cause	Solution
Motor not engaging / No power	Battery low or not connected; Loose cable connections; Display off; Brake levers engaged.	Charge battery; Check all cable connections (especially main power and 1T4 cable); Turn on display; Ensure brake levers are not engaged.

Problem	Possible Cause	Solution
PAS not working	PAS sensor misaligned or damaged; PAS level set to 0 on display.	Check PAS sensor alignment and ensure it's clean; Increase PAS level on display.
Display not turning on	Loose display cable; Battery low or off.	Check display cable connection; Ensure battery is charged and turned on.
Motor making unusual noise	Loose spokes; Internal motor issue; Obstruction.	Check spoke tension; Inspect for any obstructions; If noise persists, contact support.
Reduced range/battery life	Battery not fully charged; Old battery; Riding in high assist levels; Cold weather.	Ensure full charge; Consider battery replacement if old; Use lower assist levels; Battery performance can be reduced in cold temperatures.

## WARRANTY AND SUPPORT

BAFANG provides a warranty and support for its products to ensure customer satisfaction.

### Warranty Information:

The motor and battery components of your BAFANG conversion kit come with a **one-year warranty**. This warranty covers manufacturing defects and ensures that if you encounter any issues with the kit, support will be provided.

### Customer Support:

For technical support, troubleshooting assistance, or warranty claims, please contact the North American after-sales service center. The seller, Greenergia, is committed to supporting customers with their products.

You can also refer to the official user manual PDF for additional information and contact details [Download User Manual \(PDF\)](#)

For general inquiries or to join the riding club, please refer to the contact information provided with your purchase or on the official BAFANG website.

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This manual is for informational purposes only. Specifications are subject to change without notice.

## Related Documents - FM G020.500.D

<p>BAFANG BBS01/BBS02 Installation Manual</p>  <p>Prepared for Customers of eMax eBikes, Sydney, Australia</p> <p><sup>1</sup> eMax eBikes</p>	<p><a href="#">BAFANG BBS01/BBS02 Mid-Drive E-bike Motor Installation Manual   eMax eBikes</a></p> <p>Comprehensive installation manual for the BAFANG BBS01 and BBS02 mid-drive electric bike motor kits. Includes technical specifications, assembly steps, wiring diagrams, and warranty information from eMax eBikes.</p>
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	<p><b><a href="#">BAFANG BBS01/BBS02 Mid-Drive Electric Bike Conversion Kit Installation Manual</a></b></p> <p>Detailed installation guide for BAFANG BBS01 and BBS02 mid-drive electric bike conversion kits. Covers system overview, technical specifications, step-by-step assembly, component connections, and warranty information for e-bike DIY enthusiasts.</p>
	<p><b><a href="#">BAFANG M510 Mid Motor User Manual and Installation Guide</a></b></p> <p>Comprehensive user manual for the BAFANG M510 Mid Motor, covering specifications, installation procedures, maintenance, and troubleshooting for electric bicycles.</p>
	<p><b><a href="#">BAFANG HD Drive System Dealer Manual</a></b></p> <p>Comprehensive dealer manual for the BAFANG HD Drive System, covering installation, technical specifications, operation, and troubleshooting for the MM G32.1000 drive unit and DP C10.UART display.</p>
	<p><b><a href="#">Bafang Mid-Drive Ebike Programming Guide: Enhance Performance</a></b></p> <p>Learn how to reprogram your Bafang mid-drive ebike system for improved usability and performance. This comprehensive guide covers necessary hardware, software, configuration tool instructions, and detailed explanations of all settings for Bafang BBS02 and BBSHD motors.</p>
	<p><b><a href="#">Bafang BBS Mid Drive Electric Bike Conversion Kit User Manual</a></b></p> <p>Comprehensive user manual for the Bafang BBS mid-drive electric bike conversion kit, covering installation, operation, maintenance, and troubleshooting for BBS01, BBS02, and BBSHD models. Includes detailed steps, safety information, and problem-solving advice.</p>