

Leader Fox 167975

Diagnostic Tool for Bafang Central Motorization (M300-M800 Series) User Manual

Model: 167975

1. PRODUCT OVERVIEW

This diagnostic tool is designed for electric bicycles equipped with Bafang central motorization, specifically compatible with M300, M400, M420, M500, M600, M620, and M800 series motors. It allows users to connect to the motor's electronic control unit (ECU) to read diagnostic information, identify errors, and potentially adjust motor parameters.



Figure 1: The Bafang BESST Diagnostic Tool. The device features multiple connection ports at the top for different motor types (UART, CAN) and a USB port at the bottom for PC connection. Indicator lights on the front panel show the status of PC, UART, CAN Bus, Run, Error, Bluetooth (BT), Test, and Power.

2. SETUP AND CONNECTION

Before using the diagnostic tool, ensure your electric bicycle's battery is adequately charged and the motor is accessible.

1. **Software Installation:** Install the necessary Bafang diagnostic software on your computer. This software is typically provided by the manufacturer or can be downloaded from their official website.
2. **Connect to PC:** Connect the diagnostic tool to your computer using the provided USB cable. The USB port is located at the bottom of the diagnostic device. Ensure the "Power" indicator light on the tool illuminates, indicating it is receiving power.
3. **Connect to Motor:** Identify the diagnostic port on your Bafang motor. This is usually a multi-pin connector. Select the appropriate cable from the diagnostic tool's top connectors (UART or CAN, depending on your motor model) and securely connect it to the motor's diagnostic port.

4. **Power On:** Turn on your electric bicycle's power system. The diagnostic tool's "Run" indicator light should illuminate or flash, signifying a successful connection to the motor.



Figure 2: Top view of the diagnostic tool, highlighting the UART and CAN connection ports for different motor types. Proper selection of the port is crucial for establishing communication.

3. OPERATING THE TOOL

Once connected, you can use the diagnostic software on your computer to interact with the motor.

- **Software Interface:** Open the Bafang diagnostic software. The software interface will display various options for motor diagnostics and parameter adjustments.
- **Reading Diagnostic Codes:** Navigate to the "Error Codes" or "Diagnostic Information" section within the software. The tool will communicate with the motor to retrieve any stored error codes, which can help identify issues with the motor, controller, or sensors.
- **Real-time Data:** Some software versions allow for real-time monitoring of motor parameters such as speed, power output, battery voltage, and sensor readings. This can be useful for diagnosing intermittent problems.

- **Parameter Adjustment (Advanced Users):** The tool may allow for adjustment of certain motor parameters, such as speed limits, power levels, or pedal assist settings. **Exercise caution when modifying these settings, as incorrect adjustments can affect motor performance or safety.** Refer to the Bafang software manual for detailed instructions on parameter modification.
- **Firmware Updates:** In some cases, the tool can be used to update the motor's firmware. Follow the software's instructions carefully during firmware updates to avoid bricking the motor.



Figure 3: Close-up of the diagnostic tool's indicator lights. These LEDs provide visual feedback on the tool's status: PC (connection to computer), UART/CAN Bus (communication with motor), Run (active operation), Error (fault detected), BT (Bluetooth, if applicable), Test (diagnostic mode), and Power (power supply).

4. MAINTENANCE

Proper maintenance ensures the longevity and reliable operation of your diagnostic tool.

- **Cleaning:** Wipe the tool with a soft, dry cloth. Do not use abrasive cleaners or solvents, as they can damage the casing or electronic components.
- **Storage:** Store the tool in a cool, dry place, away from direct sunlight and extreme temperatures. Keep it in its

original packaging or a protective case to prevent physical damage.

- **Cable Care:** Handle connection cables carefully. Avoid sharp bends, kinks, or pulling on the cables, which can damage internal wires or connectors.
- **Connector Protection:** Keep the connectors free from dust, dirt, and moisture. Use protective caps if provided.

5. TROUBLESHOOTING

If you encounter issues while using the diagnostic tool, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Tool not recognized by PC.	<ul style="list-style-type: none">◦ USB cable faulty or loose.◦ Missing or incorrect USB drivers.◦ PC USB port issue.	<ul style="list-style-type: none">◦ Try a different USB cable or port.◦ Install/reinstall USB drivers for the tool.◦ Restart your computer.
No communication with motor.	<ul style="list-style-type: none">◦ Incorrect motor connection cable (UART/CAN).◦ Loose connection to motor.◦ Motor not powered on.◦ Incompatible motor model.	<ul style="list-style-type: none">◦ Ensure the correct UART or CAN cable is used.◦ Check all connections are secure.◦ Verify the e-bike battery is charged and the system is powered on.◦ Confirm your motor model is within the supported M300-M800 range.
"Error" light on tool illuminates.	<ul style="list-style-type: none">◦ Communication error with motor.◦ Motor fault detected.	<ul style="list-style-type: none">◦ Check motor connections.◦ Refer to the diagnostic software for specific error codes and their meanings.◦ Consult your e-bike's user manual for motor-specific troubleshooting.

6. SPECIFICATIONS

- **Model Number:** 167975
- **Manufacturer:** LEADER FOX
- **Weight:** 400 grams
- **Compatibility:** Bafang Central Motorization M300, M400, M420, M500, M600, M620, M800 series.
- **Connectivity:** USB to PC, UART/CAN to Motor

7. WARRANTY AND SUPPORT

This product is covered by a standard manufacturer's warranty against defects in materials and workmanship. The warranty period typically begins from the date of purchase. Please retain your proof of purchase for warranty claims. For technical support, warranty inquiries, or further assistance, please contact your retailer or the official LEADER FOX support channels. Refer to the product packaging or the retailer's website for specific contact information.

Important: Unauthorized disassembly or modification of the diagnostic tool will void the warranty.

