

Varstrom VSM01

Varstrom VSM01 750W 48V Mid Drive Ebike Conversion Kit User Manual

Model: VSM01

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your Varstrom VSM01 750W 48V Mid Drive Torque Sensor Motor Ebike Conversion Kit. Please read this manual thoroughly before attempting installation or operation to ensure proper function and safety. This kit is designed to convert a standard bicycle into an electric bicycle, offering enhanced power and assistance for various riding conditions.

2. PRODUCT OVERVIEW

The Varstrom VSM01 is a high-performance 750W mid-drive motor system featuring a torque sensor for natural and responsive pedal assistance. It delivers 130 Nm of torque and supports speeds up to 28 mph (45 km/h). Key features include:

- **Powerful Mid-Drive Motor:** 750W rated power, 48V system, providing strong and efficient assistance.
- **Torque Sensor:** Delivers instant and natural pedal assistance, adapting to your pedaling effort.
- **Four Versatile Ride Modes:** Includes throttle-only, torque-sensing pedal assist, and walk-assist modes.
- **Ride-Saving Redundancy System:** Automatically switches to sensorless mode if the internal Hall sensor fails, preventing unexpected power loss.
- **Superior Cooling and Water Resistance:** IP66-rated aluminum housing with oversized heat fins ensures optimal temperature management and protection against dust and water.
- **Complete Conversion Kit:** Includes motor, display, chainring, brake sensors, cranks, headlight, throttle, and speed sensor.



Image: Varstrom VSM01 Mid Drive Motor highlighting 750W rated power, 43 KM/H top speed, 130 N.m max torque, 4KG weight, and IP66 waterproof rating. Also shows throttle, pedal assist, and walk assist modes.

3. PACKAGE CONTENTS

Before beginning installation, verify that all components listed below are present in your kit:

- VSM01 Mid Drive Motor
- DZ41 Color LCD Display
- Fixed Chainring
- Brake Sensors (or Brake Levers, if specified)
- Crank Arms
- Headlight
- Thumb Throttle
- Speed Sensor with Magnet
- 1T4 Cable (main wiring harness)
- Lock Nuts and mounting hardware

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Image: Visual representation of the Varstrom VSM01 kit contents, including the torque motor, display, optional brake type, sprocket, 1T4 cable, speed sensor, lock nut, and crank arms.

4. INSTALLATION

The VSM01 motor is designed for bicycles with a bottom bracket shell width of 68-73mm and an inner diameter between 33.5-36mm. It is not compatible with belt drive chainrings or coaster bikes.

4.1 Compatibility Check

Before installation, measure your bicycle's bottom bracket dimensions to ensure compatibility.

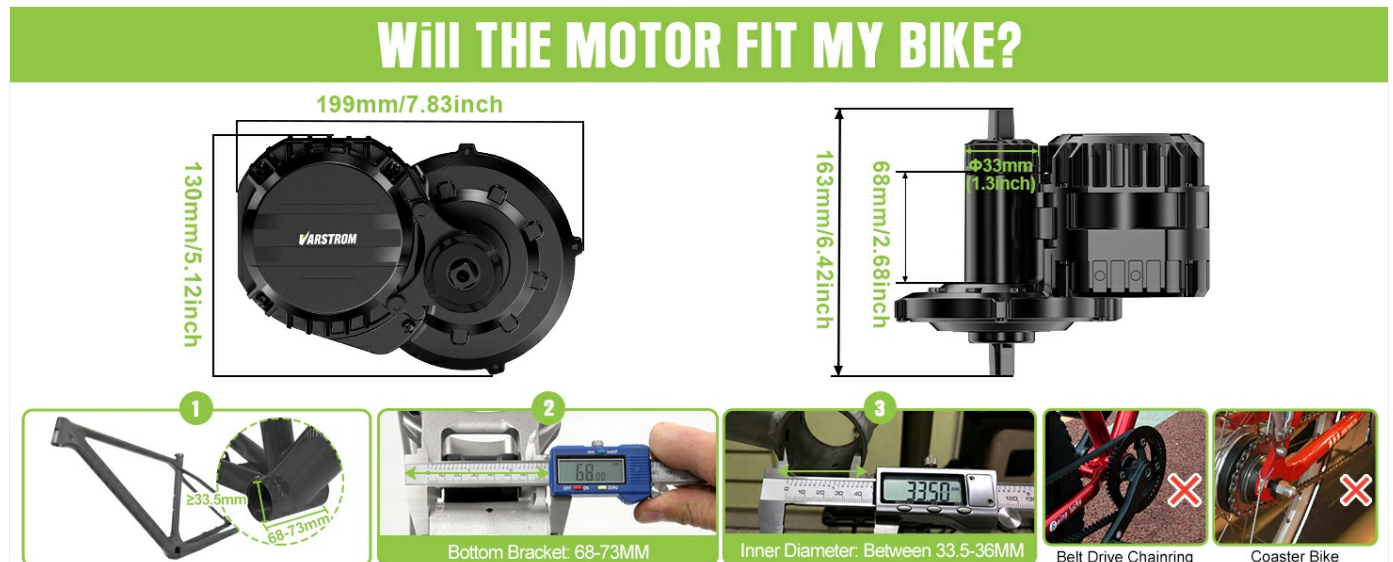


Image: Diagram illustrating how to measure bottom bracket width (68-73mm) and inner diameter (33.5-36mm) for VSM01 compatibility. Also shows incompatibility with belt drive and coaster bikes.

4.2 Installation Steps

Follow these general steps for installation. Refer to the wiring diagram for correct connections.

1. **Prepare the Bicycle:** Remove the existing crankset, bottom bracket, and any other components that interfere with motor installation.
2. **Mount the Motor:** Insert the VSM01 motor into the bottom bracket shell. Secure it using the provided lock nuts and mounting hardware.
3. **Install Crank Arms and Chainring:** Attach the new crank arms and chainring to the motor spindle.
4. **Install Display and Controls:** Mount the DZ41 display, throttle, and brake sensors onto the handlebars.
5. **Install Speed Sensor:** Attach the speed sensor to the rear chainstay and the magnet to a spoke on the rear wheel. Ensure proper alignment.
6. **Connect Wiring:** Use the 1T4 cable to connect the display, throttle, brake sensors, and headlight to the motor. Connect the motor to a compatible 36V/48V battery (not included). Ensure all connections are secure and waterproof.
7. **Cable Management:** Secure all cables neatly along the bike frame using zip ties or cable clips to prevent snagging or damage.

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4



Advanced Color LCD Display - Stay informed and engaged with real-time data and insights right at your fingertips

5



Speed Sensor - Quickly provide accurate data to the display unit, and automatically

6

44T Chainring - Offers $15.7\text{mm} \pm 0.2\text{mm}$ offset, ensures more stable and reliable gear shifting performance



Image: Detailed diagram showing the components of the VSM01 kit and their connections on a bicycle, including the motor, display, battery, thumb throttle, crank, speed sensor, and wiring harness.

5. OPERATION

The VSM01 kit offers multiple modes of operation and a clear display for monitoring your ride.

5.1 DZ41 LCD Display

The DZ41 color LCD display provides essential information at a glance:

- **Speed Mode:** Current speed (MPH/KMH).
- **Real-time Speed:** Live speed reading.
- **PAS Level:** Pedal Assist System level (0-5).
- **Mileage:** Trip distance and total mileage.
- **Power Level:** Battery charge indicator.
- **Headlight Indicator:** Shows if the headlight is on.
- **Walk-Assist:** Indicator for walk-assist mode.



Image: Close-up of the DZ41 LCD display showing various indicators like speed, PAS level, mileage, power level, and headlight status. It also highlights 1.8" screen, 0-5 PAS levels, 22.2mm holder size, English language, and 36V/48V compatibility.

5.2 Ride Modes

- **Throttle-Only:** Provides power without pedaling, ideal for cruising or starting from a stop.
- **Torque-Sensing Pedal Assist:** The motor provides assistance proportional to your pedaling effort. Select from 5 assist levels to customize the power output.
- **Walk-Assist:** Engages the motor at a low speed (approx. 3 mph) to help push the bike when walking alongside it.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your VSM01 conversion kit.

- **Cleanliness:** Keep the motor and electrical connections clean and free from dirt and debris. Use a damp cloth; avoid high-pressure washing directly on electrical components.
- **Cable Inspection:** Periodically check all cables and connectors for wear, damage, or loose connections. Ensure waterproof connections are sealed.
- **Motor Mount:** Verify that the motor is securely mounted to the bottom bracket and that all bolts are tightened to the recommended torque specifications.
- **Chain and Sprocket:** Maintain your bicycle chain and sprocket as you would on a regular bike. Keep the chain lubricated and check for wear.
- **Battery Care:** Follow the manufacturer's instructions for your e-bike battery (not included with this kit) regarding charging, storage, and maintenance.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with your VSM01 kit.

Problem	Possible Cause	Solution
Motor not providing assistance	Low battery, loose connection, PAS level 0, brake sensor engaged, Hall sensor failure.	Check battery charge. Ensure all cables are securely connected. Increase PAS level. Check brake levers for engagement. The VSM01 has a redundancy system; if Hall sensor fails, it should switch to sensorless mode. If not, contact support.
Display not turning on	Battery not connected, display cable loose, faulty display.	Ensure battery is connected and charged. Check display cable connection to the main harness. If issue persists, contact support.
Inconsistent power delivery	Loose speed sensor, torque sensor calibration issue, motor overheating.	Check speed sensor alignment and magnet position. Ensure motor has adequate cooling. If the issue is persistent or related to torque sensing, contact support.
Error code on display	Specific system fault.	Refer to the display's specific error code manual (if provided) or contact Varstrom support with the error code.

7.1 Hall Sensor Redundancy System

The VSM01 motor features an intelligent Hall system that adapts between Hall and sensorless modes for uninterrupted riding. If the internal Hall sensor ever fails, the VSM01 instantly switches to sensorless mode, allowing the motor to continue operating and preventing you from being stranded.



Image: Diagram illustrating the intelligent Hall system, showing the motor switching between Hall mode and sensorless mode for continuous operation.

8. SPECIFICATIONS

Specification	Value
Brand	Varstrom
Model Name	VSM01
Rated Power	750 Watts
Voltage	48 Volts (Compatible with 36V/48V batteries)
Max Torque	130 Nm
Max Speed (Assisted)	28 mph (45 km/h)
Bottom Bracket Compatibility	68-73mm shell width, 33.5-36mm inner diameter
Water Resistance Rating	IP66
Display Type	DZ41 Color LCD
Assist Levels	5 PAS Levels
Included Components	Motor & Assembly Kit (Motor, Display, Brake Sensors, Cranks, Headlight, Throttle, Speed Sensor, Chainring, 1T4 Cable, Lock Nuts)

9. WARRANTY AND SUPPORT

9.1 Warranty Information

The Varstrom VSM01 Ebike Conversion Kit comes with a **1-year warranty** from the date of purchase. This warranty covers manufacturing defects in materials and workmanship. It does not cover damage resulting from improper

installation, misuse, neglect, accidents, unauthorized modifications, or normal wear and tear. Please retain your proof of purchase for warranty claims.

9.2 Customer Support

For technical assistance, troubleshooting, or warranty claims, please contact Varstrom customer support. Provide your product model (VSM01) and a detailed description of the issue to facilitate a quicker resolution. You can typically find contact information on the Varstrom official website or through your retailer.

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Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

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you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question