Varstrom EKD01

Varstrom EKD01 TFT LCD Display User Manual

Model: EKD01

For BAFANG Mid Motors (BBS02B, BBS-HD)

1. INTRODUCTION

The Varstrom EKD01 is a 2.4-inch IPS color TFT LCD display designed for BAFANG mid-drive electric bicycle motors. It features an intuitive interface with three integrated buttons, offering essential functions for your e-bike experience. This manual provides detailed instructions for the proper installation, operation, and maintenance of your EKD01 display.

Figure 1.1: The Varstrom EKD01 TFT LCD Display, showing its screen and control buttons.

2. PRODUCT SPECIFICATIONS

The EKD01 display is built with robust materials and designed for reliable performance in various conditions. Key specifications are detailed below:

PRODUCT SPECIFICATION

22.2mm(0.87")/25.4mm(1.00")

50.5mm (1.95")

200mm (7.87")

12.5mm (0.49")

86.8mm (3.41")

• Connector:	5PIN Female	• Size:	L86.8mm * W50.5mm * H12.5mm
• Protocol:	UART	• Holer:	φ22.2mm/25.4mm
• Screen:	2.4" TFT-LCD Screen	• Cable Length:	200mm
• Voltage:	12V / 36V / 48V / 60V	• Waterproof:	IP67
• PAS Level:	0-3,0-5,0-9 Optional	• Brightness:	30%-100% Optional
• Advanced password:	2020	• Operating Temperature:	-20°C ~ 70°C
• Speed Limited:	0km/h ~ 99km/h	• Storage Temperature:	-30°C ~ 80°C
• USB Port (Type-C):	Yes	• Light-sensitive:	No

Figure 2.1: Diagram illustrating the physical dimensions and key specifications of the EKD01 display.

Specification	Detail
Model	EKD01
Screen Size	2.4" IPS Color Matrix
Resolution	320*240px
Dimensions	86.8*50.5*12.5 mm
Waterproof Grade	IP67
Connector Type	5-Pin Female Round (M5 Waterproof Connector)
Voltage Compatibility	12V/32V/48V/60V
Working Temperature	-20°C to +70°C
Storage Temperature	-30°C to +80°C

USB Charger	Type-C
Default Password	2020
PAS Levels	0-3 / 0-5 / 0-9 (Optional)
Handlebar Fit	Ø22.2mm / Ø25.4mm
Communication Protocol	UART (versions 5.0 to 5.8)

3. SETUP AND INSTALLATION

Proper installation is crucial for the display's functionality and your safety. Follow these steps carefully.

3.1 Compatibility Check

The EKD01 display is specifically designed for BAFANG motors that utilize the **UART communication protocol** (versions 5.0 to 5.8). It features a **5-pin female round connector**. Ensure your motor's connector and protocol match these specifications. It is *not* compatible with CAN protocol motors or other connector types.

UNIVERSAL COMPATIBILITY

UART PROTOCOL
5 Pin Female Round

- M215 MMG340.250.C
- M315 MM G340.250.C
- M315 MM G340.350.C
- M315 MM G340.500.C
- M315 MM G340.750.C
- M615 MM G320.1000.C

BAFANG BBS Series Motor

- RM G020.36V 250w.DC
- RM G020.48V 500w.DC
- FM G020.500.D
- RM G0F0.48V 750w.DC
- RM G060.48V 750w.DC
- RM G062.48V 1000w.DC
- RM G0900.48V 750w.DC

BAFANG Hub Motor

CAN PROTOCOL
5 Pin Male Triangular

Other Brand Motor

- M620 MMG510.750.C
- M620 MMG510.1000.C
- M225 MM G341.250.C
- M325 MM G341.500.C
- M625 MM G321.750.C
- M625 MM G321.750.C
- M625 MM G321.1000.C
- M625 MM G321.1000.C

Other BAFANG Mid Drive Motor

⚠ We would send message to confirm the order detail with you,please notice your amazon inbox

Figure 3.1: Compatibility diagram showing supported BAFANG BBS Series and Hub Motors (UART protocol) versus incompatible CAN protocol motors.

3.2 Mounting the Display

1. Select a suitable position on your e-bike's handlebar (compatible with Ø22.2mm or Ø25.4mm diameters).

2. Loosen the clamp screws on the display's mounting bracket.

3. Place the display bracket around the handlebar and tighten the screws securely, ensuring the display is stable and visible. Do not overtighten.

3.3 Wiring Connection

Connect the EKD01 display to your e-bike's motor system using the 5-pin female round connector. Refer to the wiring diagram below to ensure correct pin alignment. Incorrect wiring can damage the display or motor.

CABLE PARAMETERS

- This image shows the wiring diagram of the display cable coming from the 1T4 cable.
- Please confirm with the seller of motor that if your cable is with the same wiring diagram.
- Attention: If the wiring diagram is different, the display will not work.

Female 5 Pins
Our Display Connector

Red
Positive

Yellow
RXD

Green
TXD

Orange
Display Lock Wire

Black
Ground
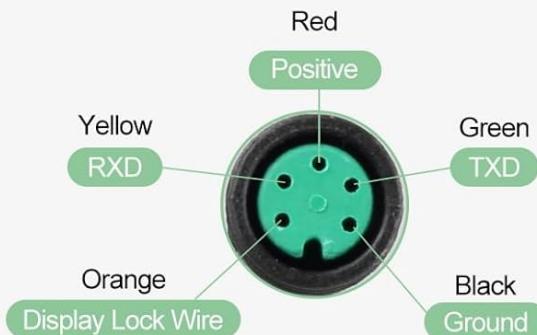
Male 5 Pins
Our EB1T4 Connector

Brown
Positive Pole of Power

Yellow
Date Acceptance

Green
Date Acceptance

Orange
Lock Wire

Black
Earth Wire

21.5
TRIP
9

Display

Brake Lever

Thumb Throttle

Brake Lever
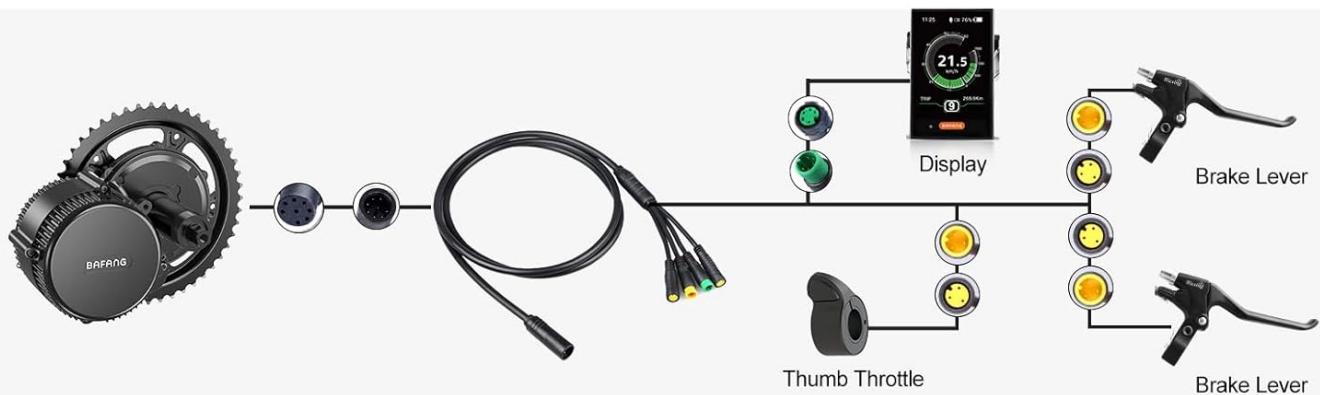
Figure 3.2: Detailed wiring diagram for the EKD01 display's 5-pin female connector and the corresponding male EB1T4 connector. Ensure your cable matches this configuration.

- **Red:** Positive
- **Yellow:** RXD (Receive Data)
- **Orange:** Display Lock Wire
- **Green:** TXD (Transmit Data)
- **Black:** Ground

Important: Confirm with your motor's seller that your cable's wiring diagram is identical to the one shown. If the wiring diagram differs, the display will not function correctly.

4. OPERATING THE DISPLAY

The EKD01 display provides comprehensive information and control over your e-bike's functions.

4.1 Power On/Off

Press and hold the power button ( ) located on the display to turn it on or off.

4.2 Display Interface Overview

The EKD01's color screen presents various data points to monitor your ride. Refer to the diagram below for an explanation of each indicator.

Figure 4.1: Annotated diagram of the EKD01 display, detailing the various indicators and their meanings.

- **Headlight Indicator:** Shows if the bike's headlights are on.

- **Bluetooth Indicator:** Indicates Bluetooth connection status.

- **Brake Indicator:** Illuminates when brakes are applied.

- **Navigation Indicator:** Displays navigation prompts (requires activation).

- **Maintenance Tips:** Alerts for service or maintenance.

- **Battery Level Graphic:** Visual representation of remaining battery charge.

- **Real-time Speed:** Current riding speed.

- **Average Speed:** Average speed of the current trip.

- **Gear Indicator:** Current PAS (Pedal Assist System) level.

- **Odometer (ODO):** Total distance traveled by the e-bike. This value can be cleared on the EKD01.

- **Trip Distance (TRIP):** Distance traveled during the current ride.

4.3 Adjusting PAS Levels

Use the **+** and **-** buttons to cycle through the available Pedal Assist System (PAS) levels. The EKD01 supports 0-3, 0-5, or 0-9 PAS levels, depending on your motor's configuration.

4.4 Settings and Functions

The EKD01 offers several customizable settings:

Figure 4.2: Summary of advanced features available on the EKD01 display.

- **Language Selection:** The display supports 8 languages: English, French, German, Spanish, Italian, Polish, Dutch, and Czech. Navigate through the settings menu to change the language.

- **Brightness Setting:** Adjust screen brightness to 30%, 50%, 75%, or 100% for optimal visibility in different lighting conditions.
- **Navigation Function:** The display includes a navigation feature. Note that this function typically offers 5 free trials, and continued use may require payment. It provides seamless connection for real-time navigation and data synchronization.
- **Password:** The default password for accessing certain settings is **2020**.
- **USB Port (Type-C):** Use the integrated Type-C USB port for charging compatible devices.
- **ODO Reset:** Unlike some other models, the EKD01 allows the Odometer (ODO) to be cleared. Consult the display's menu for this option.

5. MAINTENANCE

To ensure the longevity and optimal performance of your EKD01 display, follow these maintenance guidelines:

- **Cleaning:** The display has an IP67 waterproof rating, meaning it is protected against dust and temporary immersion in water. However, for cleaning, use a soft, damp cloth. Avoid abrasive cleaners, solvents, or high-pressure water jets, which can damage the screen or housing.
- **Temperature:** Operate the display within its specified working temperature range of -20°C to +70°C. For storage, ensure temperatures are between -30°C and +80°C. Extreme temperatures can affect performance and lifespan.
- **Physical Protection:** While durable, avoid dropping the display or subjecting it to strong impacts. Ensure the connector is clean and free of debris before connecting.

6. TROUBLESHOOTING

If you encounter issues with your EKD01 display, refer to the following common problems and solutions:

Problem	Possible Cause / Solution
Display does not power on.	- Check the power connection to the display. Ensure the 5-pin connector is fully seated and undamaged. - Verify the e-bike battery is charged and providing power. - Confirm the wiring matches the diagram in Section 3.3.
Display shows no data or incorrect data.	- Ensure the display is compatible with your BAFANG motor's UART protocol (versions 5.0-5.8). - Check all cable connections for looseness or damage. - Verify the motor is functioning correctly.
Navigation function not working or asking for payment.	- The navigation function typically includes a limited number of free trials. Continued use may require a subscription or payment. - Ensure your display has a stable connection for data synchronization.
Display is loose on the handlebar.	- Tighten the mounting bracket screws. Do not overtighten. - Ensure the handlebar diameter is compatible (Ø22.2mm or Ø25.4mm).

If you are unable to resolve an issue using the troubleshooting steps above, please contact Varstrom customer support for assistance.

7. WARRANTY AND SUPPORT

7.1 Warranty Information

The Varstrom EKD01 display comes with a warranty that includes a **30-day return period** and **365 days for repair or replacement** from the date of purchase. This warranty covers manufacturing defects and malfunctions under normal use. It does not cover damage caused by misuse, accidents, unauthorized modifications, or improper installation.

7.2 Customer Support

For technical support, warranty claims, or any questions regarding your Varstrom EKD01 display, please contact Varstrom customer service. Provide your product model (EKD01) and purchase details when contacting support to expedite assistance. You can typically find contact information on the Varstrom official website or through the retailer where you purchased the product.