VINKA EBIKE Display User Manual DS20

Catalogue

Product introduction

1. Product name and model

Product name: E-Bike intelligent LCD instrument

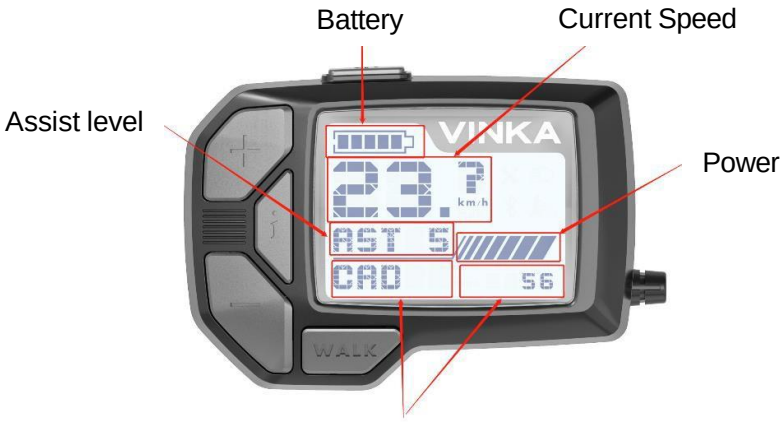
Product Model: DS20

2. Specifications

- 36V/48V power supply
- Off-state leak current：＜1uA
- Usage temperature：-20～40℃

Function Summary And Key Definition

1. Function Area Distribution



DS20 functional layout

2.Function Summary

DS20 display offers a variety of functions to meet the riders' needs

- Intelligent power display
- Motor power display
- Power gear setting and display
- Speed display (including real-time speed, maximum speed, average speed)
- Mileage display (including single mileage and total mileage)
- Help implement Settings and displays
- Backlight setup and display
- Error code is displayed
- Multiple parameter Settings (such as: wheel diameter, speed limit, help implement speed limit setting, etc.)
- Bluetooth function optional, USB function optional TYPE A

3.Button definition

DS20 instrument key: including Power key, MODE key, Plus/Headlight key, minus/push key; In the following instructions, the Power button is replaced with the word "ON/OFF"; The MODE button is replaced with the word " i "; The plus/headlight key is replaced with "+"; Replace the DOWN button with "-", and the push key with "WALK".

General Operation

1. Switch ON/OFF

To switch on the E-bike system and provide the power supply to the controller, hold the ON/OFF button for 1s.

To switch off E-bike system, hold the " ON/OFF " button for 1s. The E-bike system no longer uses the battery power.

When E-bike system is switched off, the leakage current is less than 1 μA.

- **When the E-bike is parked for over 15 minutes, the E-bike system switches off automatically.**

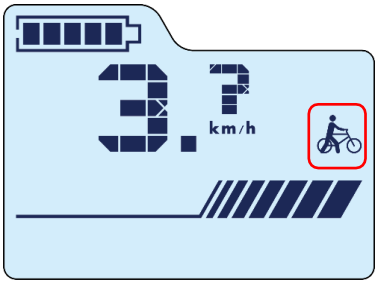
2. Display Interface

After switching on the E-bike system, Current Speed and CAD is shown by default. Short press " i " button to switch between ODO (km) -- AVG Speed (km/h)-- MAX Speed (km/h) – Cadence(rpm)--TRIP (km)

3. Switching Push-assist Mode On/Off

Short press the " i " button, and then within 3s, keep holding " WALK " button. The E-bike is activated with a uniform speed while the screen displays shown “ ”. (Without special settings, the E-bike will start at a constant speed at a standard speed of 6km/h by default).

The push-assistance function will be switched off as soon as you release the " WALK " button or other button pressing is engaged in parallel and E-bike gets back to the status before the push-assistance is engaged.



Push-assistance mode

- **Push-assist function may only be used when pushing the E-bike. Be aware of danger of injury when bike wheels do not have ground contact while using the push-assist function.**

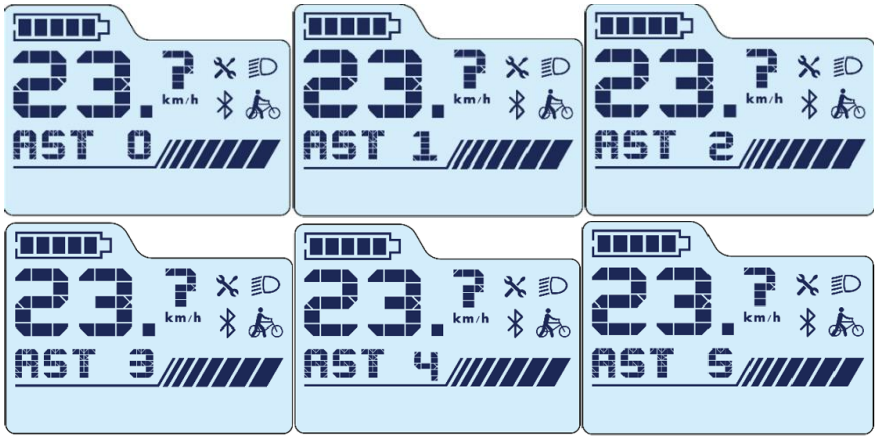
4. Switching Lighting ON/OFF

When bike is electrified and display is on, Tap and hold " + " for over 1 second, the bike light is on. Display shows lighting icon and display backlight reduces by 50%. when bike light is on, press " + " for more than 1 second, the bike light is off. The lighting icon disappears and backlight brightness recovers.

Switching the Lighting Mode On/Off Interface

5. Assist Level Interface

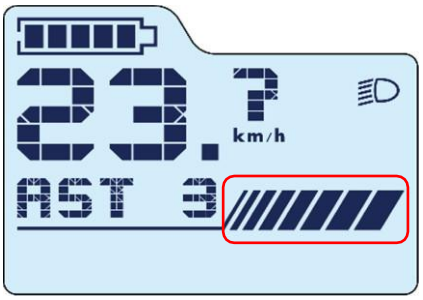
Short press " + " or " - " to change the assist levels and change the motor output power. The default assist level ranges from 0 to 5. 0 is no power. 1 is the minimum power and 5 is the maximum power. When at 5, press " + " again and display still shows 5. when at 0, press " - " again and display still shows 0.



Assist Level Interface

6. Motor Power Display

The meter displays the motor output power through the power energy bar.



Motor Power Display

7. Battery Display

The five-segment indicate of battery SOC, when the battery voltage is high, the five-segment LCD is all on. When the percentage is 0, the battery needs to be charged immediately.

Battery Display

The default voltage of display battery is 36V.

The segmented voltage values are 30.5V-32.5V-34.35V-36.03V-37.48V-39.46V.

The percentage of remaining battery power and the corresponding battery power ICONS are displayed as follows:

SOC percent	Visualization	Details
80% ≤ SOC		Full segments/5 segments
60% ≤ SOC < 80%		4 segments
40% ≤ SOC< 60%		3 segments
20% ≤ SOC< 40%		2 segments
10% ≤ SOC < 20%		1 segment
2% ≤ SOC < 10%		Zero segment but frame is not flashing
0% ≤ SOC < 2%		Battery frame flashes at frequency of 1 HZ

8. Error Code Indication

The components of the E-bike system are continuously and automatically monitored. When an error is detected, the respective error code is indicated in text indication area. Refer to detailed definition of the error codes in Attached list 1.

- **Have the display inspected and repaired when an error code appears. Or else, you will not be able to ride the E-bike normally. Please always refer to an authorized bicycle dealer.**

General Settings

Press and hold the " i " and " - " buttons 1S and above at the same time to enter the general parameter setting state.

1. Push Assistance Speed

PUSH SPEED means to implement the speed limited setting, short press the " i " button to enter the setting, you can help implement the speed limit through the " +/- " button setting, the setting range is: "3-6km/h", long press the " i " button to save and exit the implementation of the speed limit configuration. Go to the next setting interface with" +/- ".

2. Speed Limit

SPEED LIMIT means speed limited setting, and the speed limited is not adjustable. Go to the next setting interface with " + " or " - "

3. Backlight

BLG means backlight brightness setting, short press the " i " key to enter the setting, you can set the backlight brightness level through the " + " or " - " button, the setting range is: "5-4-3-2-1" 5 levels of brightness, 5 corresponds to the highest brightness, 1 corresponds to the lowest brightness. Press and hold the " i " button to confirm and exit the backlight brightness setting. Go to the next setting interface with " + " or " - ".

4. Unit

UNIT TYPE means imperial and metric unit conversion, short press the " i " key to enter the setting, you can select "km/h" (metric) / "mph" (imperial) through the " +/- " button, long press the " i " button to save and exit to the metric imperial conversion interface. Go to the next setting interface with " + " or " - ".

5. Voltage type

VOLT TYPE means voltage type setting, and the voltage type is not adjustable. Go to the next setting interface with " + " or " - "

6. Display Software Version Number

DISP SW represents the display software version number. Go to the next setting interface with " + " or " - ".

7. Controller Software Version Number

MC SW represents the controller software version number. Go to the next setting interface with " + " or " - ".

Installation

The DS20 instrument is mounted on the left side of the handlebars. Adjust the Angle for a good view of the screen. Disconnect the power supply before connecting the meter and controller.

- Front handle diameter 22.2mm
- Recommended locking torque: 0.6N.m (to prevent screw slipping)

Quality assurance and warranty scope

I Warranty

1. The warranty will be valid only for products used in normal usage and conditions.
2. The warranty is valid for 24 months after the shipment or delivery to the customer.

II Others

The following cases do not belong to warranty scope:

1. The display is demolished.
2. The damage of the display is caused by wrong installation or operation.
3. The shell of the display is broken after the display is out of the factory.
4. The cable of the display is broken.
5. Beyond warranty period.
6. The fault or damage of the display is caused by the force majeure (e.g., fire, earthquake, etc.).

Warnings:

1. Use the display with caution. Don’t attempt to disconnect or link the connector when battery is power on.
2. Try to avoid hitting the display.
3. Don’t modify system parameters to avoid parameter disorder.
4. Make the display repaired when an error code appears.

■ ***This manual instruction is a universal version for VINKA DS20 display. Software specific, features of this display may be different. Please always refer to the actual version.***

Attached list 1: Error code definition

Error code	Definition
90	Torque Zero Error
11	Torque Out Range
92	Torque Sensor Fault
13	Gear Sensor Error
15	Speed Sensor Error
18	Cadence Error
20	PCB Over-Temp Warning
A1	PCB Over-Temp Error
22	PCB Sensor Fault
25	Motor Over-Temp Warning
A6	Motor Over-Temp Error
A7	Flash Error
80	Communication Lost
32	LORA Communication Lost
01	Communication CRC Error
40	Motor EST Error
41	Motor Over-Peak Current
C2	Motor Loss Phase
43	Motor Over DC Current
D0	Battery Over Voltage
51	Battery Low Voltage
52	Battery Over Current
E0	Battery Version Error
E5	Display Version Error
F1	Display MOSFET short-circuited
F2	UP key is stuck
F3	DOWN key is stuck