



DR23

The ebike Display

User Manual

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Product name and model

E-bike Intelligent LCD

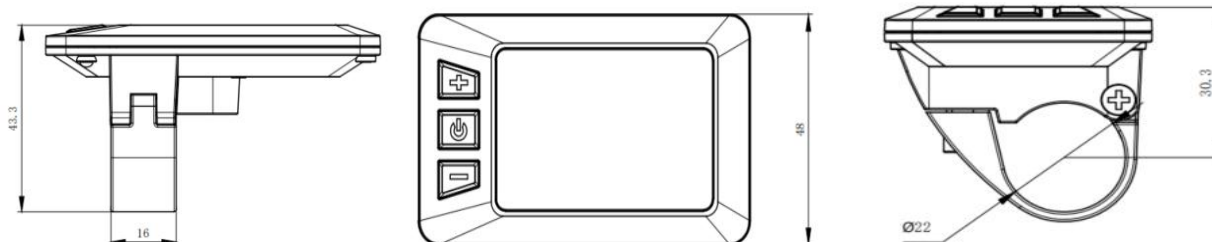
Model: DR23

Specifications

- 36V/48V Power Supply
- Rated working current: 10mA
- The maximum working current: 30mA
- Off-state leakage current: $<1\mu\text{A}$
- Working temperature: $-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$
- Storage temperature: $-30^{\circ}\text{C}\sim 70^{\circ}\text{C}$

Appearance and Size

Product appearance and dimensional drawing (unit: mm)



***Display side is cable free.**

Function and Button Definition

◆Function Summary

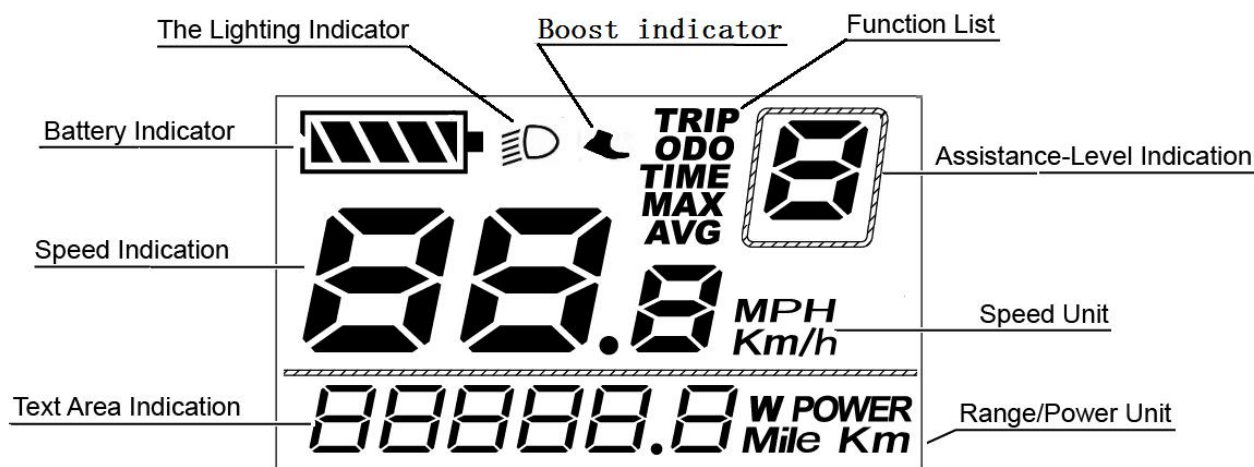
DR23 has many functions to meet riders' needs. The indication elements are as follows:

- Intelligent battery SOC indication
- Motor output power indication
- Assist level selection and indication
- Speed indication (incl. current speed, Max. speed and Avg. speed)
- ODO and Trip
- Push-assistance function and indication
- Trip time indication
- Backlight ON/OFF and indication
- Error code indication

- Various Parameters Settings (e.g. wheel diameter, speed limit, battery power bar, assist level, current limit, password enable, etc.)




- Recover Default Settings




◆Function layout



Functional Area Distribution

◆Button Definition

There are three buttons ( ,  , ) on DR23 display. In this manual, we use words

ON/OFF, **UP**, **DOWN** to represent these 3 symbols ( ,  , ).

+/light button _____

On/Off button _____

-/push assist _____



Installation

DR23 can be mounted on the left side of handlebar close to its grip. Adjust the angle for a good screen view.

Cut off the power before connecting the corresponding connectors between display and controller.

General Operation

◆Switching the E-bike System mode 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 μ A.

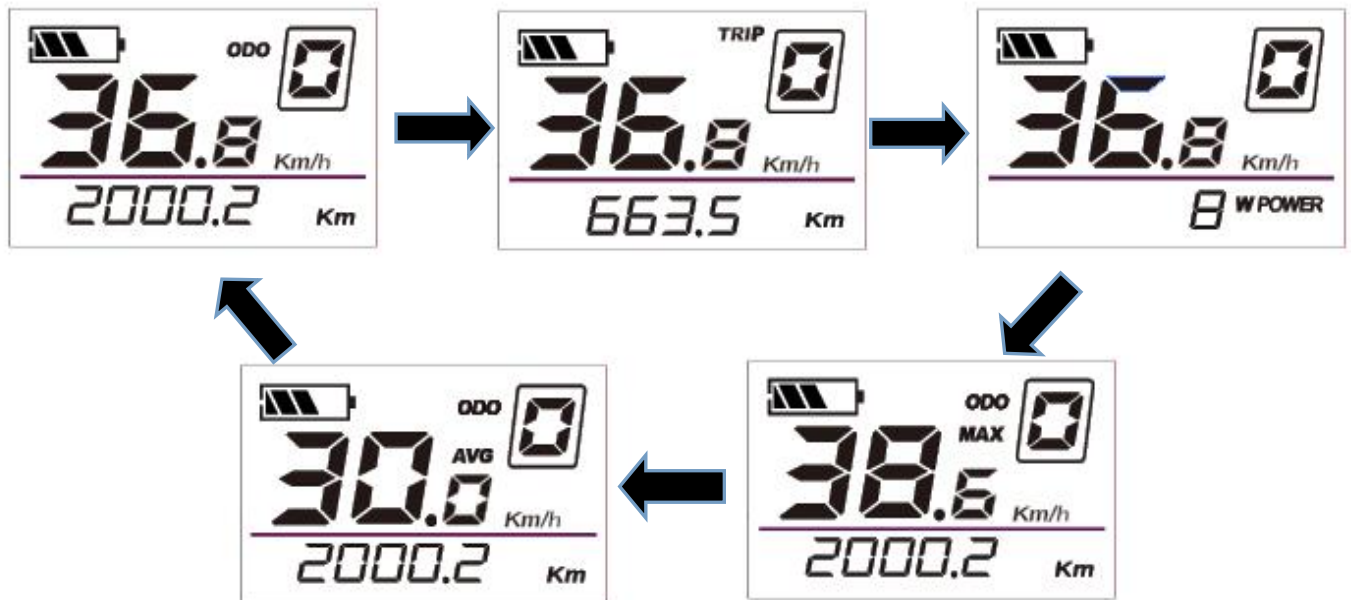
■When the E-bike is parked for over 15 minutes, the E-bike system switches off automatically.

◆Display Interface

After switching on the E-bike system, the display shows Current Speed and ODO(total distance) by default.


Press the **ON/OFF** button to switch between indication functions below:

ODO (Km)→ Trip (Km) → Motor Power (W)→ODO (Km)→ Max. Speed (Km/h)→ Avg. Speed (Km/h) , it cycles back to ODO km again.



Display indication cycle interface

◆Push-assistance

To activate the push-assistance function, press and hold the **DOWN** button. After 1 seconds, E-bike is activated to go at a uniform speed of 6 Km/h while the screen displays “ & P ”.

The push-assistance function will be switched off as soon as you release the **DOWN** button and ebike gets back to the status before the push assistance is engaged.



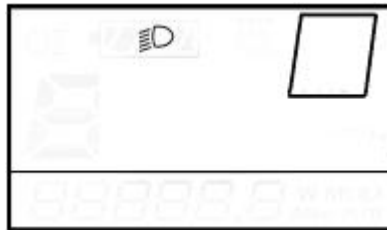
Push-assistance mode

■The power-assisted push function can only be used when the user pushes the electric vehicle, please do not use it in the riding state

◆Switching Lighting ON/OFF

Long press the UP button for more than 1 second to turn on the headlights, the instrument display shows the headlight symbol, and the brightness of the display backlight decreases.

Press and hold the UP button here for more than 1 second to turn off the headlights, the headlight symbol on the instrument display disappears, and the backlight brightness is restored.



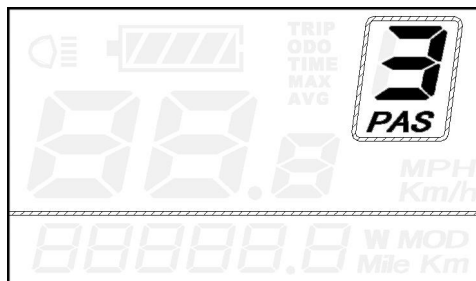
Switching Lighting on/off

◆Assist Level Selection

The assist level of the E-bike drive can be changed anytime, even during riding.

The assist level ranges from 0 to 5 (level 0 to level 5). The default assist level is “1” when the display is started. The output power is zero on Level “0”. Level “1” is the minimum output power. Level “5” is the maximum output power.

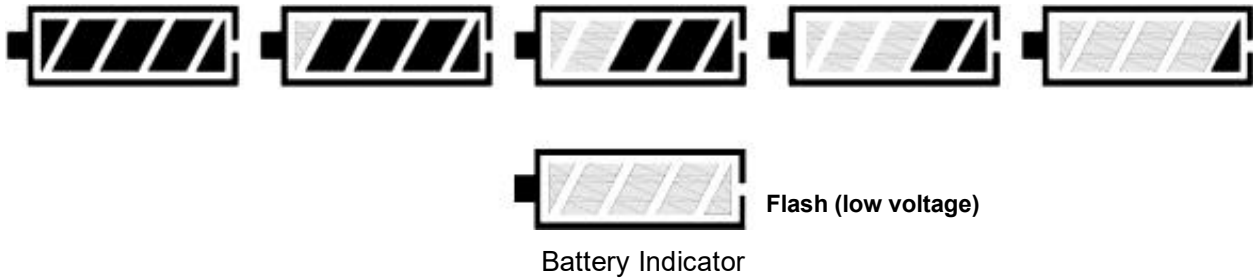
Press **UP/DOWN** button to switch between the E-bike system assist levels and change the motor output power.



Assist Level “3”

◆ Battery Indicator

The five battery power bars represent the capacity of the battery. The five battery bars are bright when the battery is in full voltage. When the battery is in low voltage, battery frame will flash at the frequency of 1HZ to give a notice that the battery needs to be recharged immediately

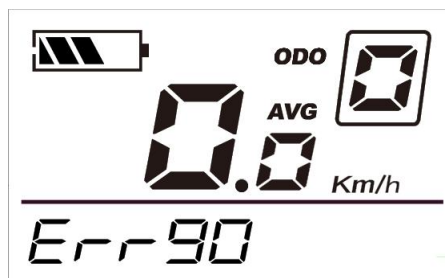


◆ Error Code Indication

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**.



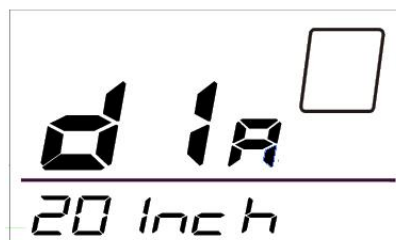
Error Code Indication

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

General Settings

◆wheel diameter settings

d1A refers to wheel size settings. Settable values are 12,14,16,18,20,22,24,26, 700C,28,29. Press UP/DOWN to choose the correct wheel size to ensure the correctness of speed and mileage indication. The default value is 20 inch. Press on/off button to access speed limit setting interface.



Wheel diameter settings

◆ Controller software version

CLS refers to controller software version number. The version number is reported by the controller. It can not be adjusted from display side



Controller version number reading interface

◆ display software version

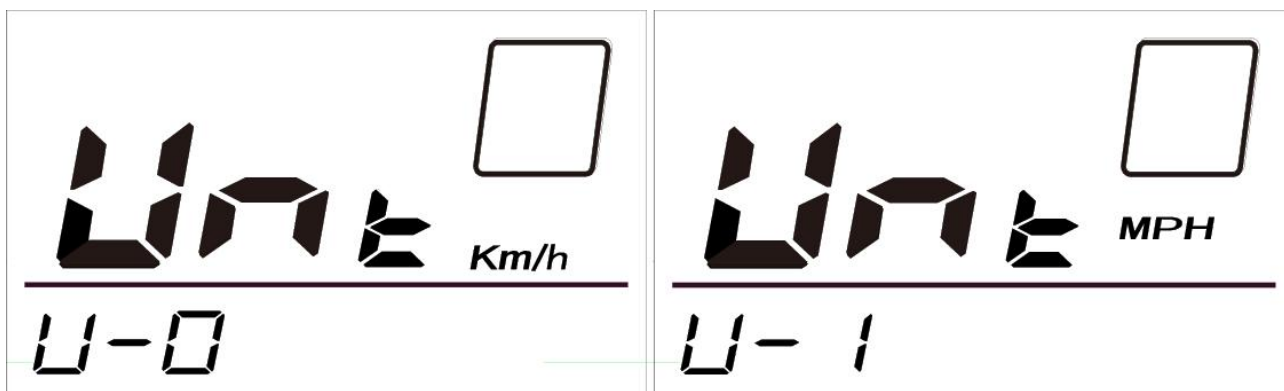
DPS refers to display software version number. The display software version is not adjustable. It is decided by the software.



Display software version interface

◆ unit exchange

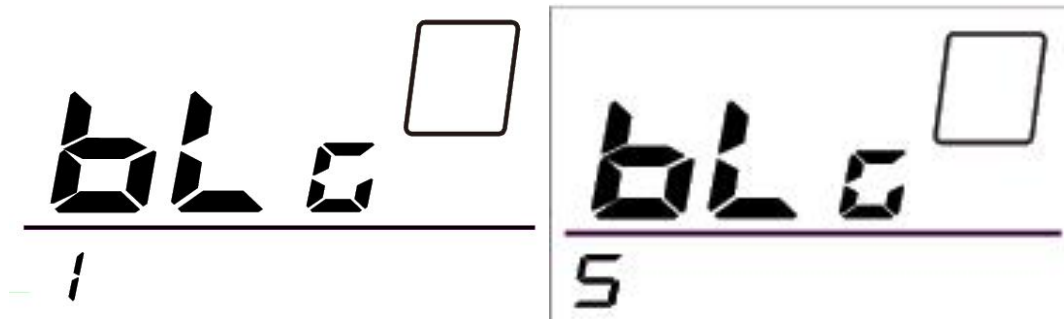
U refers to unit. 1 is metric and 0 is imperial. Press UP/DOWN to change the unit for speed and mileage. Press on/off button to confirm. The default unit is metric(km/h and km)



Unit exchange interface

◆Brightness

bLG refers to Backlight level settings. The settable range is 1 2 3 4 5. 1 is the darkest, 3 is standard and 5 is the brightest. The default value is decided by the controller when the display leaves factory. Press UP/DOWN to change the brightness levels. Hold the on/off button to confirm and exit the settings.



Backlight settings

◆Maximum speed limits

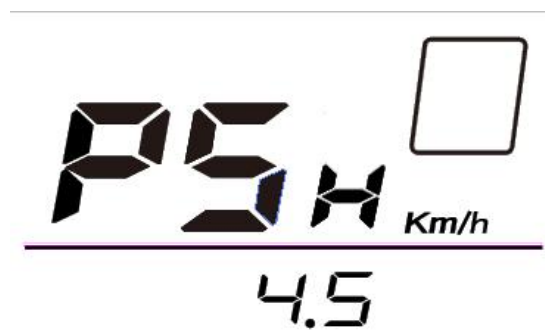
SPd refers to top speed limit settings, the settable range is 5 to 46 km/h. The top speed on the display is reported by the controller. Press **UP/DOWN** to increase or decrease the numbers to your desired value. Hold the **ON/OFF** buttons 1 seconds to confirm and exit the settings.



Speed limit settings

◆Push assistant speed settings

PSH refers to push assistant speed settings. The settable range is 3km/h to 6km/h. Press **UP/DOWN** to increase or decrease the speed limit to your desired value. Hold the **on/off** button 1s to confirm and exit the settings status.



Push assistant speed settings

◆TRIP clear function

In TRIP mode and Trip is not 0, press the UP and DOWN buttons at the same time for more than 1 second to clear the trip data information.

◆Exit settings

In personalized parameter settings interface,

Short press the **ON/OFF** button is to confirm the input.

Hold the **ON/OFF** button is to store the settings and exit the current setting.

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.

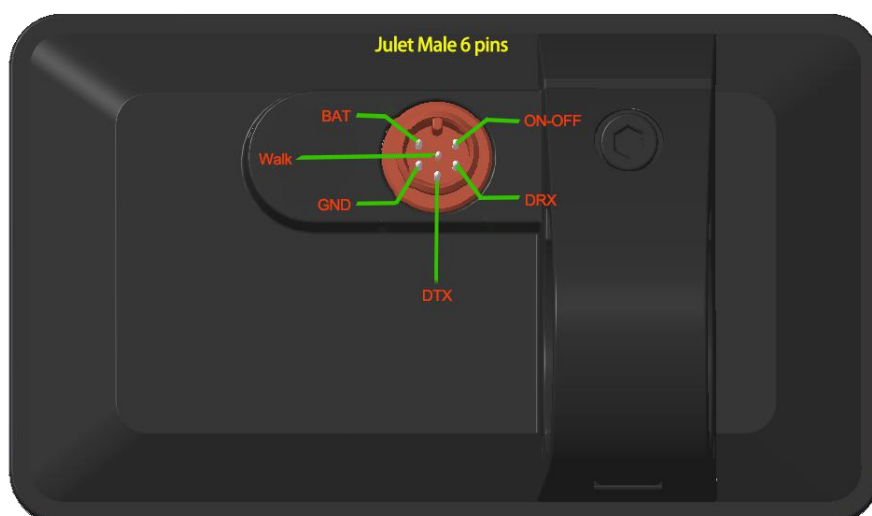
II Others

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.)

◆Connection Layout

- ① Socket type male connector(display is cable free)

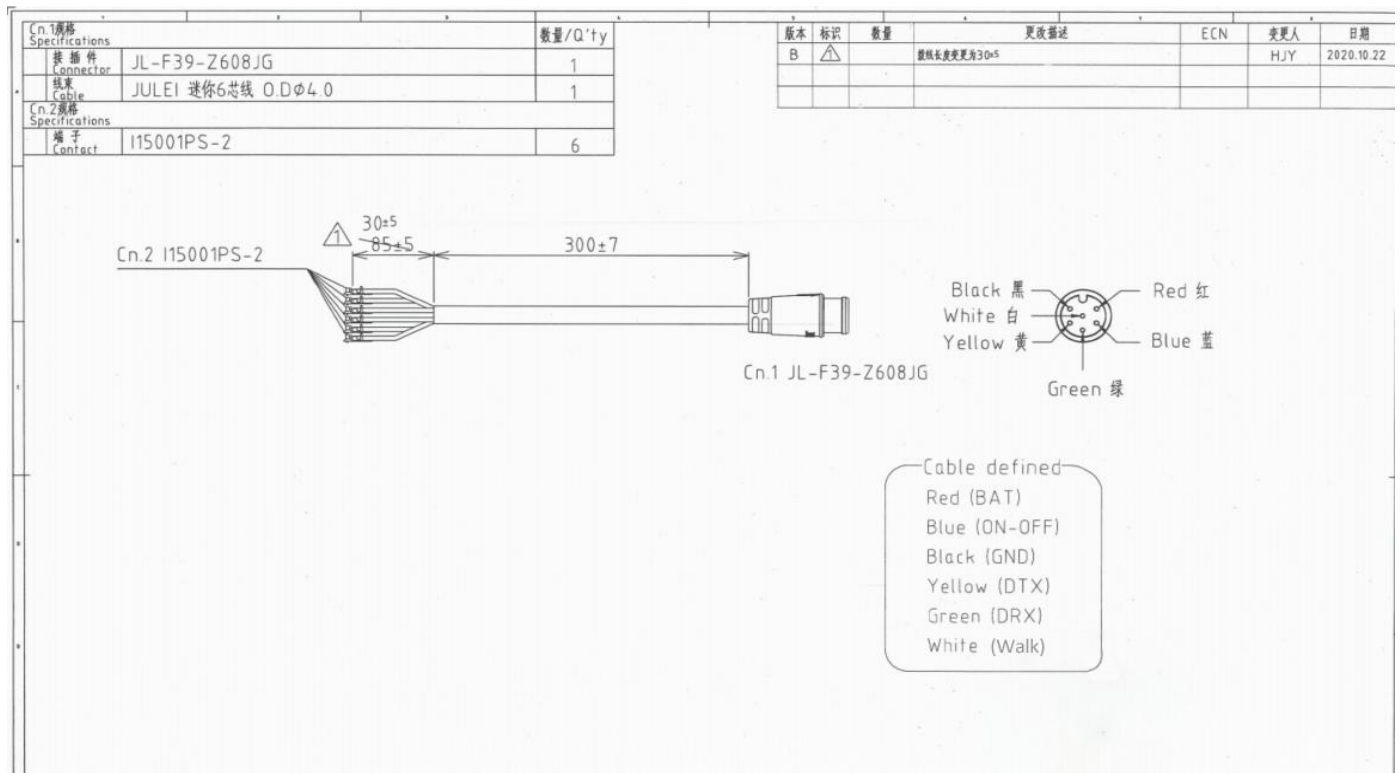


Wire sequence table

Wire serial	Code	Function
1	BAT	Battery power wire
2	GND	Ground wire
3	DTX	Data transmission wire of the display
4	DRX	Data receiving wire of the display
5	ON-OFF	Controller power control wire
6	Walk	Push control wire

■displays have wire connection with water-proof connectors, users can not see the pin wire colors.

②Outlet diagram that comes with the display



Warnings:








1. Use the display with caution. Don't attempt to release 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 error code appears.

■This manual instruction is a universal version for VINKA DR23 display. Software specific, versions of this display may be different. Please always refer to an 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

Attached list 2: Functions corresponding to instrument characters

NO.	Symbol	Definition
1		Wheel diameter
2		Controller software version
3		Display software version
4		Unit exchange
5		Backlight level
6		Speed limit
7		Push assistant speed