



DC31

VINKA Display User Manual

VERSION	1.0
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1. Product name and model

E-bike adopts smart LCD screen

Model: DC31 (Optional Bluetooth)

2. Specifications

- 36V/48V Power Supply
- Rated working current :23mA
- Off-state leakage current: <1 μ A
- Operating temperature: -20℃~ 60℃
- Waterproof Grade: IP65

3. Appearance and Size

Product appearance and dimensional drawing (unit: mm)

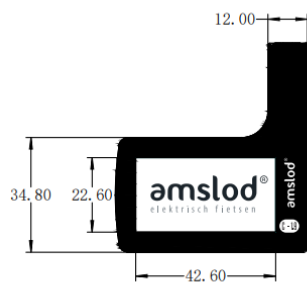


Figure 1

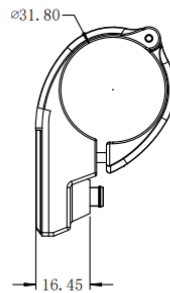


Figure 2

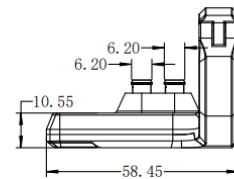


Figure 3

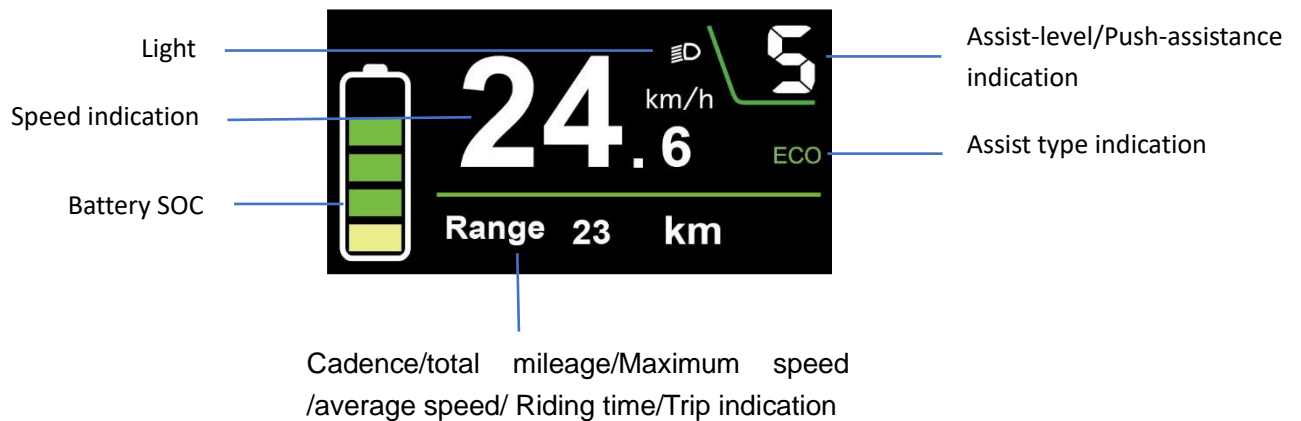
4. Function Summary

DC31 display has many functions to meet the user's needs.


- With independent left buttons, ergonomics design
- Support metric/imperial unit switching, UI support customization (need to evaluate UI design first)
- Assist-level mode usage status statistics function
- Smart battery SOC display, real-time voltage display
- Intelligent indication of RT Speed, Cadence, ODO, TRIP, MAX Speed, AVG Speed, Motor Power and Battery.
- Assist level adjustment and indication
- Backlight control and lighting indicator

- The push-assist control and indication
- Error code indication
- Various Parameters Setting/Info (e.g. wheel size info, speed limit info, etc.)

5. Function Area Distribution



6. Button definition

DC31 has four buttons. Power button  is on the top of the right button. MODE button "i" is on the lower of the right button. Light/plus button "+", , and minus button "-" are on the independent left button. In this manual we use words "ON/OFF", "UP", "MODE" and "DOWN" to represent these 4 buttons.

7. Installation



DC31 can be mounted on the middle of the two handlebars. Adjust the angle for a good screen view. Cut off the power before connecting the corresponding connectors between the display and controller.

8. General Operation

(1). 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.

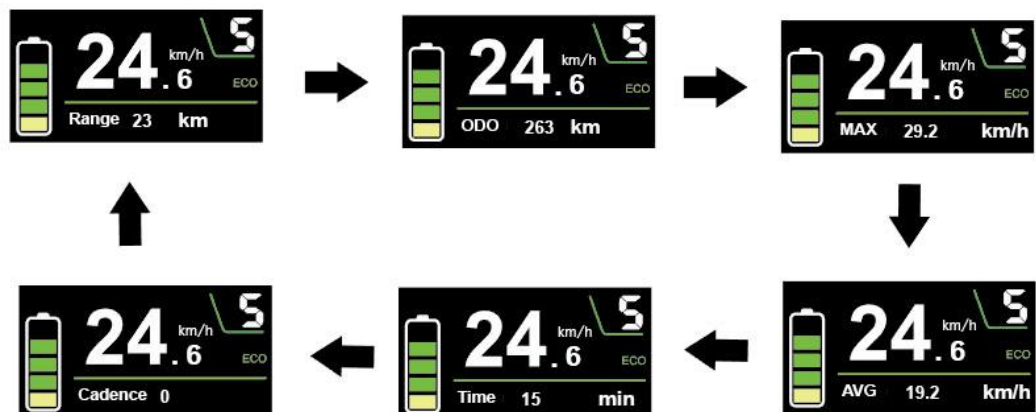
- ◆ **When the E-bike is parked for over 15 minutes, the E-bike system switches off automatically.**

(2). Display Interface


After switching on the E-bike system, the display will show Current Speed、battery SOC、assist type、Assist-level and Trip Distance by default.

Press (1s) the **MODE** button can switch Cadence/total mileage/Maximum speed /average speed/ Riding time and Trip indication.

Press (>1s) the **MODE** button can switch **ECO**、**TOUR** and **BOOST**.



(3). Switching Push-assist Mode On/Off

To activate the push-assistance function, short press the **MODE** button and hold the **DOWN** button between 3S. 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 **DOWN** button 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

To switch on bike light, hold the **UP** button for 1s. The lighting icon comes out and display backlight brightness is automatically reduced.

Likewise, hold the **UP** button for 1s again, the bike light switches off. The lighting icon is gone and display resumes backlight brightness.



Switching the Lighting Mode On/Off Interface

(5). Assist Level Selection

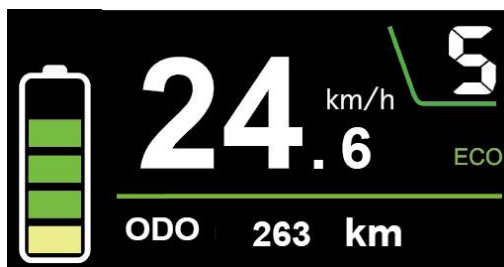
Press the **UP** or **DOWN** button to switch between the assist levels and change the motor output power, the default assist level ranges from level **0** to level **5**. The output power is zero on Level **0**. Level **1** is the minimum power. Level **5** is the maximum power.



Assist Level Interface





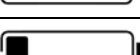
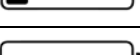
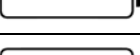
(6). Battery Indicator

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 SOC Interface

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.

Battery percentage	Battery bar indicator	Detailed introduction
$80\% \leq \text{SOC}$		Show Full grids (5 grids)
$60\% \leq \text{SOC} < 80\%$		Show 4 grids
$40\% \leq \text{SOC} < 60\%$		Show 3 grids
$20\% \leq \text{SOC} < 40\%$		Show 2 grids
$10\% \leq \text{SOC} < 20\%$		Show 1 grids
$5\% \leq \text{SOC} < 10\%$		Show 0 grids
$0\% \leq \text{SOC} < 5\%$		Show 0 grid, and the battery symbol flashes at a frequency of 1HZ as a whole

(7). Motor Power Indicator

The motor output power is shown via Power bar interfacing.



Motor Power Indication Interface

(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.



Error Code Indication

- ◆ 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.

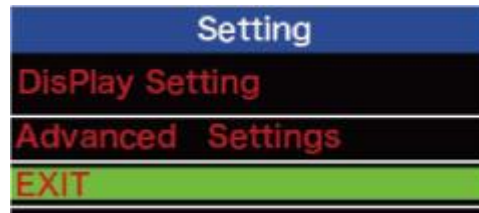
9. General Settings

Setting interface

Press the **ON/OFF** button to switch on the display.

To access **Setting interface**, hold both the **MODE** button and the **DOWN** button simultaneously for 1s.

- ◆ All the settings are implemented on a parked bike of no speed.



Setting interface

Display Setting

(1). Toggle Unit

Toggle Unit represents change unit between Metric and Imperial. The default is "Metric".

Enter the **Toggle UNIT**, press the **UP** or **DOWN** button to choose the desired setting item, and then press the **MODE** button to confirm and store the changed settings.

DisPlay Setting	
Toggle Unit	Metric
Wheel	20Inch
Speed Limit	26Km/h
Version Info.	>
Assist Mode	ECO
TRIP Reset	YES
BACK	

DisPlay Setting	
Toggle Unit	Imperial
Wheel	20Inch
Speed Limit	26Km/h
Version Info.	>
Assist Mode	ECO
TRIP Reset	YES
BACK	

Toggle Unit interface

(2). Wheel

Wheel represents wheel diameter.

The wheel size is only for your information, not settable.

DisPlay Setting	
Toggle Unit	Metric
Wheel	29Inch
Speed Limit	26Km/h
Version Info.	>
Assist Mode	ECO
TRIP Reset	YES
BACK	

Wheel Info

(3). Speed Limitation

Speed limitation value is just for your information, not settable.

DisPlay Setting	
Toggle Unit	Metric
Wheel	20Inch
Speed Limit	46Km/h
Version Info.	>
Assist Mode	ECO
TRIP Reset	YES
BACK	

Speed Limitation Info

(4). Version Info

Version Info refers to the version information, short press the **MODE** button to query the version information of the controller and the instrument.

DisPlay Setting	
Toggle Unit	Metric
Wheel	20Inch
Speed Limit	26Km/h
Version Info.	>
Assist Mode	ECO
TRIP Reset	YES
BACK	


Version Info

(5). Assist Mode

Version Info refers to the version information, short press the **MODE** button to query the version information of the controller and the instrument.

Assist Mode refers to the setting of the assist mode. After pressing **MODE** button(<1s), press **UP** button or **DOWN** button to select the type of assist gear that suits you, and then press **MODE** button to confirm and store the changed settings. Or you can directly press and hold **MODE** button on the main page to change the power-assisted gear type.

DisPlay Setting	
Toggle Unit	Metric
Wheel	20Inch
Speed Limit	26Km/h
Version Info.	>
Assist Mode	ECO
TRIP Reset	YES
BACK	



DisPlay Setting	
Toggle Unit	Metric
Wheel	20Inch
Speed Limit	26Km/h
Version Info.	>
Assist Mode	BOOST
TRIP Reset	YES
BACK	

Assist type switching interface

(6). TRIP Reset

TRIP Reset refers to clearing the single subtotal mileage. After pressing **MODE** button (<1s) , press **UP** or **DOWN** button to select whether to clear the single mileage. And press **MODE** button to confirm to change the selected setting.

DisPlay Setting	
Toggle Unit	Metric
Wheel	20Inch
Speed Limit	26Km/h
Version Info.	>
Assist Mode	ECO
TRIP Reset	YES
BACK	

Trip Reset Indication

Advanced Settings

(1). Power Set

Power Set refers to the type of power-assisted gear.

The power-assisted gear type is read-only and cannot be edited.

Advanced Settings	
Power Set	0-5
Walk Key	YES
LCD Luminance	3
Walk Speed	0.4 mph
Password	>
BACK	

Power Set interface

(2). Walk Key

Walk Key refers to the boost switch, press the **MODE** button (<1s) to choose to turn on or off the **Walk** function.


Advanced Settings	
Power Set	0-5
Walk Key	YES
LCD Luminance	3
Walk Speed	0.4 mph
Password	>
BACK	

Walk Key interface

(3). LCD Luminance

LCD Luminance refers to the backlight brightness level of the meter. The setting range is Level 1~Level 5. Level 1 is the darkest and Level 5 is the brightest. The default value is determined by the controller when the monitor leaves the factory. After short pressing the **MODE** button, you can press **UP/DOWN** to change the brightness level. Press the **MODE** button for more than 1s to confirm and exit the setting.

Advanced Settings	
Power Set	0-5
Walk Key	YES
LCD Luminance	5
Walk Speed	0.4 mph
Password	>
BACK	




Advanced Settings	
Power Set	0-5
Walk Key	YES
LCD Luminance	1
Walk Speed	0.4 mph
Password	>
BACK	

LCD Luminance interface

(4). Walk Speed

Walk Speed refers to the mode of assisting implementation. The **Walk Speed** setting range is 3-6km/h. 3km/h is the minimum speed, and 6km/h is the maximum walk speed. The standard default speed is 6km/h, and users can manually adjust it according to their needs. After short pressing the **MODE** button, press **UP/DOWN** to increase or decrease the speed limit to the value you want. Long press the **MODE** button for more than 1s to confirm and exit the setting state.

Advanced Settings	
Power Set	0-5
Walk Key	YES
LCD Luminance	5
Walk Speed	3.0Km/h
Password	>
BACK	



Advanced Settings	
Power Set	0-5
Walk Key	YES
LCD Luminance	5
Walk Speed	6.0Km/h
Password	>
BACK	

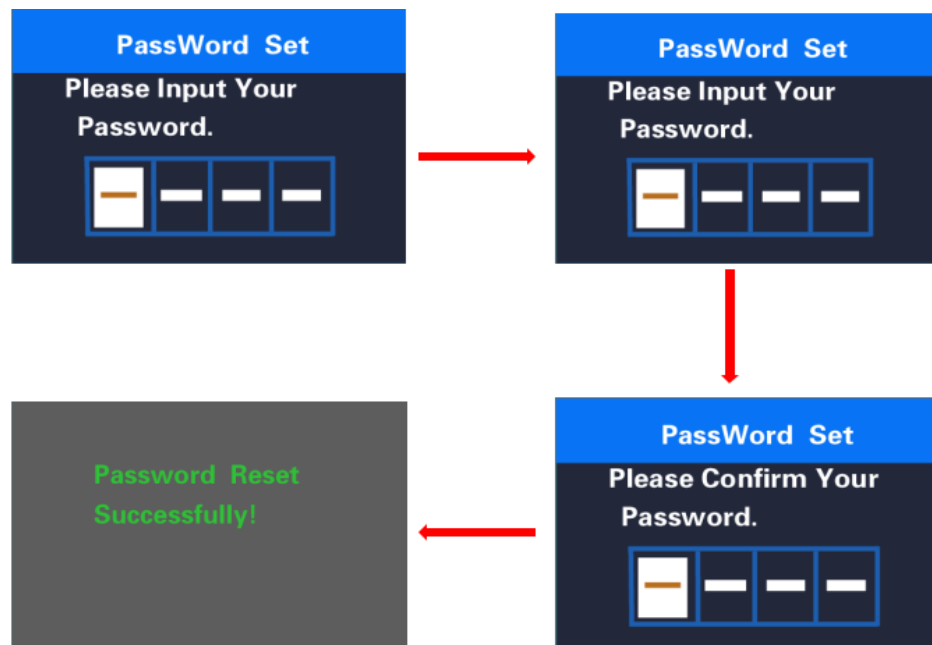
Walk Speed interface

(5). Password

Password refers to the power-on password setting. Short press **MODE** and enter the password setting page. After selecting Star **Password**, short press the

MODE button and select **ON** to enter the password setting page.

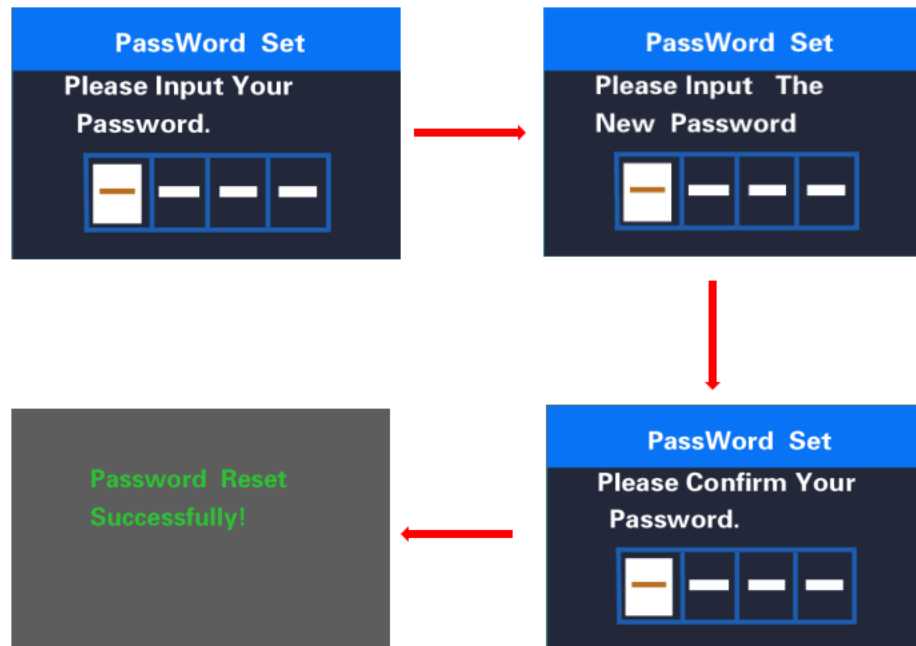
After the interface prompts to enter the password, short press the **UP** or **DOWN** button to switch the digits **0-9**, and short press the **MODE** button to switch the digits. After the input is completed, the interface prompts to enter the password again. After the two entries are consistent, the system prompts that the password is set successfully. If the input is inconsistent, you need to repeat the first step to enter the new password and then confirm. After the password is set successfully, the 1S interface will automatically jump to the original setting interface. Long press the **MODE** button to exit to the main page or exit to the main interface through **BACK**→**EXIT**. The operation steps are as follows.



Password Setting interface

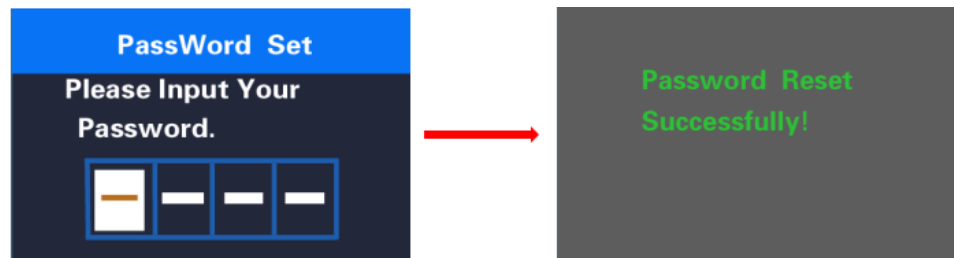
When the password has been turned on, the **Reset Password** option will be added on the **Password** page. Short press the **MODE** and **DOWN** keys to select **Reset Password** and then short press the **MODE** key to confirm. At this time, the interface prompts to enter the current password. After the password is entered 10 times incorrectly, the meter will automatically shut down. After the password is entered correctly, the interface prompts to enter the new password, and the subsequent operations are consistent with the new password. After the password is successfully modified, the 1S interface will automatically jump to the original setting

interface. Long press the **MODE** button (>1S) to exit to the main interface or press **BACK** → **EXIT** exits to the main interface. The operation steps are as follows.



Password modification interface

In the **Start Password** interface, select **OFF** and short press the **MODE** button to confirm. At this time, the interface prompts to enter a password. The meter will automatically shut down after 10 times of incorrect password input. After the password is entered correctly, the interface prompts that the password function is closed successfully, and the interface automatically jumps after 1S. Go to the original setting interface. Long press the **MODE** button to exit to the main interface or exit to the main interface via **BACK**→**EXIT**. The operation steps are as follows.



Password closed interface

- If there is no operation within one minute, the meter will automatically exit the setting state

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 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 DC31 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