



KEY-DISP

The eBike Display
Users Manual

KD686

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Product model

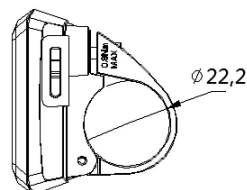
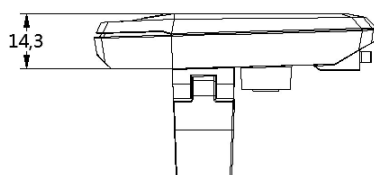
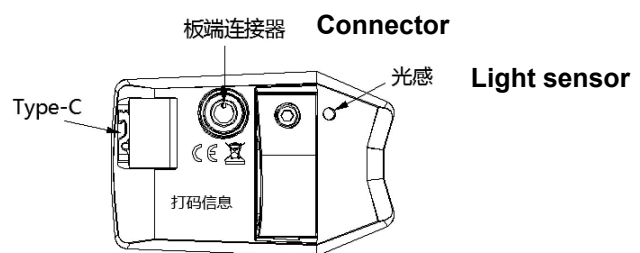
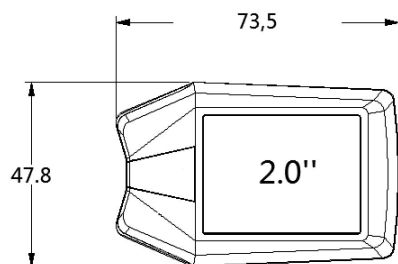
E-bike Intelligent color display
Model: KD686

Specifications

- 2.0 " IPS TFT
- 24V/36V/48V/52V/60V/72V Power Supply
- Rated working current :22mA
- Off-state leakage current: <math><1\mu\text{A}</math>
- Operating temperature: $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$
- Storage temperature: $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$

Appearance and dimension

Product appearance and dimensional drawing (unit: mm)

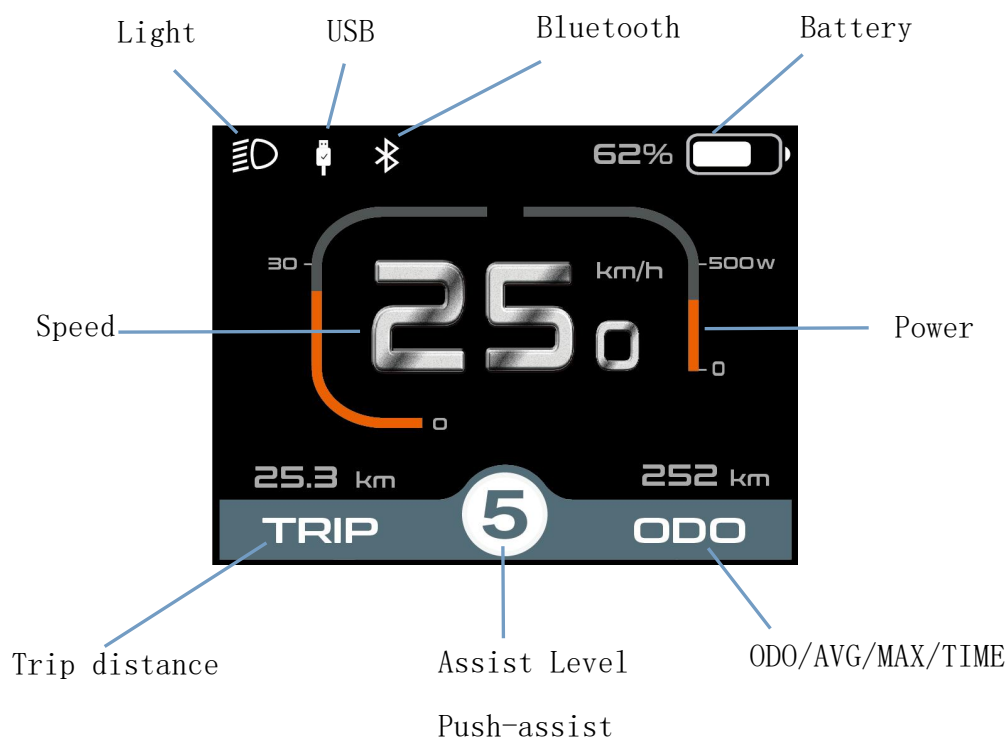


Function Summary

KD686 has many functions to meet the Users' needs. The indicating contents are as follows:

- Battery indicator: voltage value or battery percentage
- Intelligent indication of TRIP, ODO, Current speed, MAX. speed and AVG. Speed, and TRIP time
- Motor power
- assist-level selection and indication
- The push-assist control and indication
- Backlight On/Off and headlight icon indication
- Error code indication
- Type-C port
- Light sensor
- Various Parameters Settings (e.g., Trip clearance, Back-light, Unit toggle, wheel size, speed-limited, battery level bar, assist level, controller limited current, power-on password settings, etc.)
- Recover Default Settings
- Bluetooth function(**optional**)

Function layout:



Button definition

3 buttons on KD686 display, on/off, +/light, -/push-assist

General Operation

◆ Switching the E-bike System On/Off

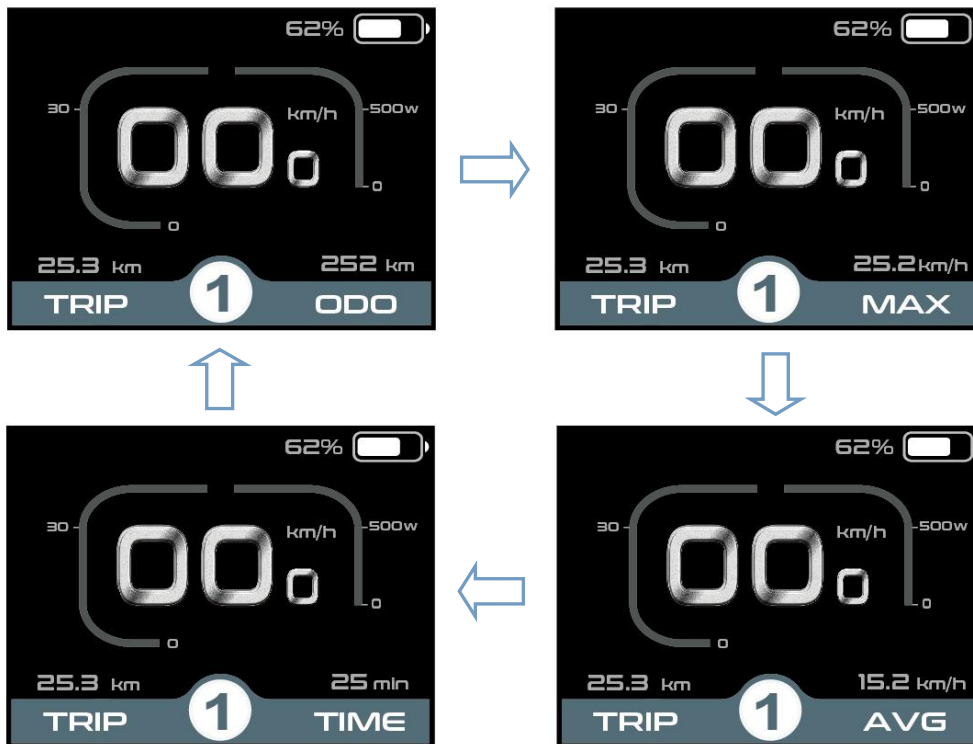
Hold the **on/off** button to switch on E-bike system and provide the power supply for the controller. When display is on, hold the **on/off** button to switch off the bike system. The E-bike system no longer uses the battery power. When the E-bike system is switched off, the leakage current is less than 1 μ A.

■ When E-bike is not in use for 5 minutes, the E-bike system will switch off automatically.

◆ Display Interface


After switching on the E-bike system, the display will show Current Speed and Trip Distance, ODO, Power, Battery level, and Assist level.

Press the “**on/off**” button to check: **ODO (km)**--> **Max Speed (km/h)**--> **AVG speed (km/h)**--> **Trip time (min)**

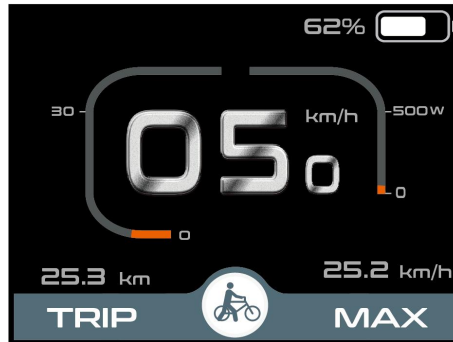


Display interface cycle

◆ Switching Push-assist Mode On/Off

To activate the push-assist function, keep holding “-” button. After 2 seconds , E-bike is activated to go at a uniform speed of 6 Km/h while the screen displays  .

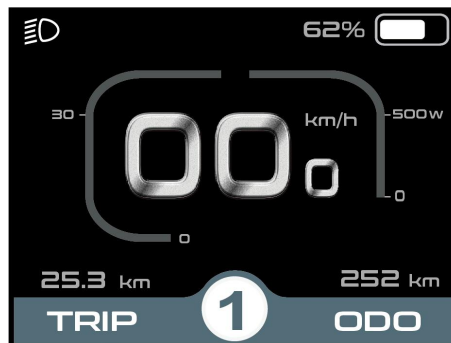
The push-assist function is switched off as soon as you release the “-” button. The E-bike system stops the power output immediately and get backs to the status before the push-assist is activated.



Push-assist Mode

◆ light sensor function and switching the lighting ON/OFF manually

Display has a light sensor which automatically switches ON/OFF the lights. When there's a lack of light or riders drive ebike at night, display backlight is on and in the meantime, display sends command to controller to turn on the bike headlight. When the light condition is good, display back-light and bike light will be off. However, when the user **manually** holds the + button for over 2 seconds, display will be turning on/off the headlight and the light sensor function is not in effect any more.



Lighting on/off

◆ Assist Level

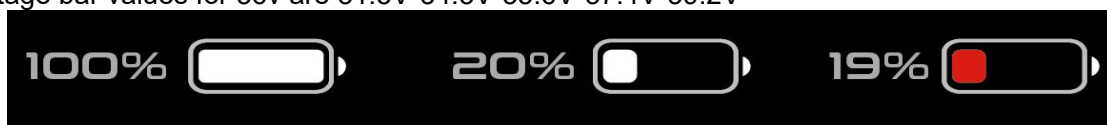
Press "+" or "-" button to switch the E-bike system assist level, change the motor output power, The default assist level ranges from level “0”to level “5”, The output power is zero on Level “0”. Level “1” is the minimum power. Level “5” is the maximum power. The default value is level “1”.



Assist Level Interface

◆ **Battery Indicator**

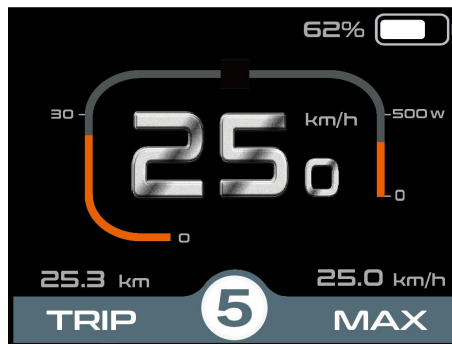
Battery voltage is switchable between 36 and 48 volts. The default voltage is 36V. and the voltage bar values for 36v are 31.5V-34.5V-35.6V-37.4V-39.2V



Battery Indicator interface

◆ **Motor Power Indicator**

The power of the motor is shown below



Motor Power Indication Interface

◆ **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.

Here is the detail message of the error code in Attached list 1.

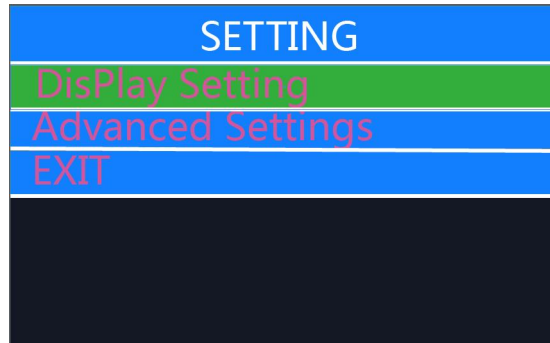


Error Code Indication

■ when an error code appears, please repair the fault. Or you will not be able to ride the bike normally.

Settings(Display Setting)

Press the power button to switch on the display. To access settings page, hold both the “+” and “-” button for 2s.



Settings Interface.

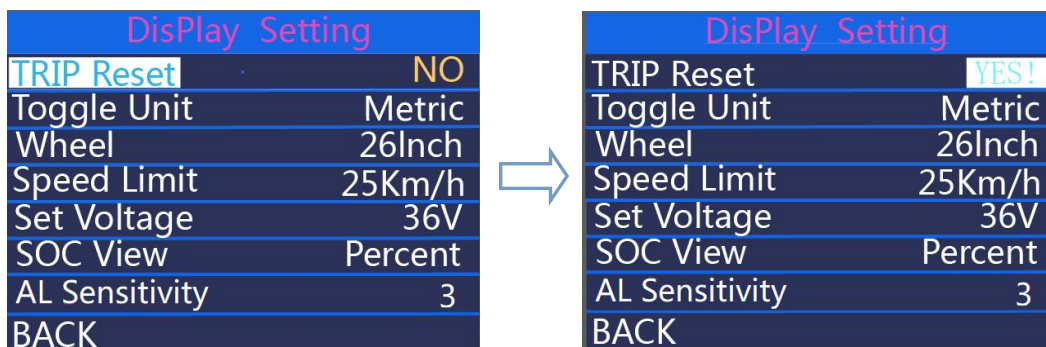
Note: all the settings must be done to a parked bike with no spe

● DisPlay Setting

◆ Trip Reset

Trip Reset represents trip distance clearance setting. *And at the same time, **Max. Speed, AVG Speed, Trip time** will be cleared as well. Press the “+” button or the “-” button to select Yes or No. To confirm and store a changed setting, press the “on/off” button. When display or E-bike system is off, the above data will not be cleared automatically. The default setting is “**TRIP Rest-NO**”

Or Hold “on/off” button to return to home page or press **BACK** to return home page.



Trip reset interface

◆ Toggle unit

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

“Metric”. To toggle unit, press the “+” button or the “-” button to choose the desired setting item, and then press the “on/off” button to save and return back to “Toggle Unit”

Hold “on/off” button to return to home page or press **BACK** to return home page.

Display Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	

Display Setting	
TRIP Reset	NO
Toggle Unit	Imperial
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	

Toggle unit interface

◆ **Wheel represents wheel diameter settings.**

Press the “+” or the “-” button to increase or decrease until the desired value is displayed. To store a changed setting, press the “on/off” to save and return back to **Wheel**.

hold “on/off” button to return to home page or press **BACK** to return to home page.

Display Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	

Display Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	28Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	

Wheel setting interface

◆ **Speed limit**

Press +/- to select “Speed limit” and press **on/off** to enter the settings. Press +/- to choose the speed limit value from 12-40 km/h. press **on/off** to save and return back to “ **Speed limit**” .

hold “on/off” button to return to home page or press **BACK** to return to home page.

Display Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	

Display Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	20Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	


Speed limit interface

◆ **Set Voltage represents voltage settings.**

Press **on/off** button to set the voltage power bar values. 5 bar values are to be set one by one. For example (36V mode), the first bar voltage value by default is 31.5V and press **+/-** button to change this value and press **on/off** to confirm and access the next bar value setting. After 5 values are set, press **on/off** to confirm.

hold “**on/off**” button to return to home page or press **BACK** to return to home page.


DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	



DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	48V
SOC View	Percent
AL Sensitivity	3
BACK	

Voltage 36V/48V changeable

DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
1 - 31.5V	25Km/h
2 - 34.5V	36V
3 - 35.6V	Percent
4 - 37.4V	3
5 - 39.6V	



DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
1 - 31.9V	25Km/h
2 - 34.5V	36V
3 - 35.6V	Percent
4 - 37.4V	3
5 - 39.6V	


Segmented voltage values

◆ **SOC view**

Press **+/-** to select SOC View and press **on/off** button to enter the setting. Press **+/-** to change between Voltage values and percentage of Battery. The default view method is percentage. Press **on/off** to store the data and exit SOC view settings.

Hold “**on/off**” button to return to home page or press **BACK** to return to home page.

DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	



DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Voltage
AL Sensitivity	3
BACK	

SOC view interface

◆AL Sensitivity

AL Sensitivity means light sensor sensitivity. Press +/- button to change the sensitivity value, the optional value is 01 to 05. press **on/off** button to confirm and store a changed setting.

Hold “**on/off**” button to return to home page or press **BACK** to return to home pag

DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Percent
AL Sensitivity	3
BACK	



DisPlay Setting	
TRIP Reset	NO
Toggle Unit	Metric
Wheel	26Inch
Speed Limit	25Km/h
Set Voltage	36V
SOC View	Voltage
AL Sensitivity	4
BACK	

AL Sensitivity interface

●Advanced Settings

When **DisPlay Setting** is done, choose **BACK** and press **ON/OFF** button to return to home page. And press +/- button to move to Advanced Settings

◆Assist Level Settings

Power Set represents assist level settings.

Assist Level Modes

3 assist level modes for your choice: 0-5, 0-7, 0-9. The default mode is 0-5. To change the mode of assist level, press the “+” or the “-” button to choose the desired mode and press the “ **on/off** ” button to confirm and access PAS ratio settings automatically.

Advacned Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	01
Slow Start	0
LCD Luminance	100%
Password	>
BACK	



Advanced Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	01
Slow Start	0
LCD Luminance	100%
Password	>
BACK	

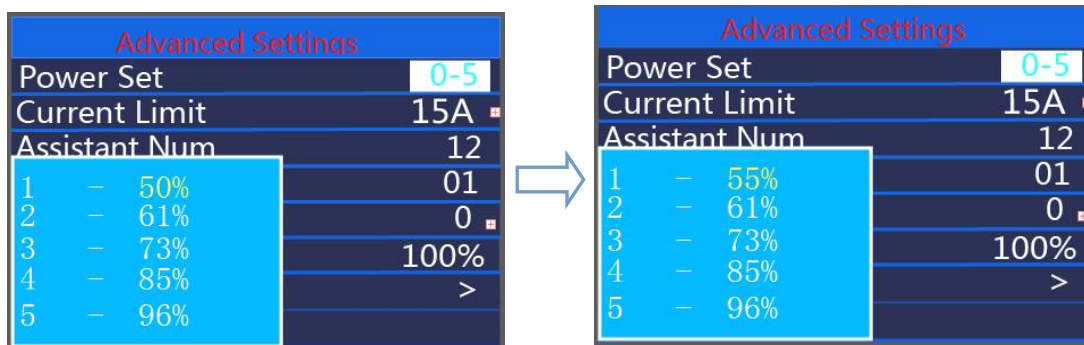
Assist level mode interface

Assist level Ratio Settings

To change the assist level ratio, press the “+” button or “-” button to choose the desired percent

value, and press the " on/off " button to confirm and move to the next assist level ratio settings. After all assist level ratios were set, *Please refer to assist level ratio defaults in **Attached list 2**.

hold **on/off** button to confirm and store the settings.

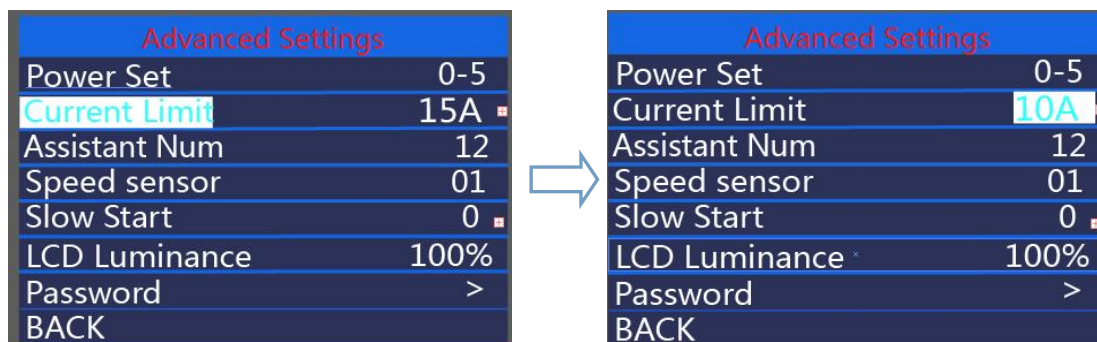


Assist level ratio settings

◆Current limit

Current Limit represents controller current limit settings. To change basic settings, press the "+" or the "-" button to increase or decrease the value. To store a changed setting, press the "on/off" button. Or

Hold **on/off** button to return to the home page or press **BACK** to return to home page.




Current limit interface

◆Assistant Num

Assistant Num represents numbers of magnets in the PAS sensor. The settable numbers is 04 to 09, 12, 24, 32. To change the numbers of magnets in the PAS sensor, press the "+" or the "-" button to increase or decrease the values. To confirm and store a changed setting, press **on/off** button.

Hold **on/off** button to return to the home page or press **BACK** to return to home page.

Advanced Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	01
Slow Start	0
LCD Luminance	100%
Password	>
BACK	



Advanced Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	01
Slow Start	0
LCD Luminance	100%
Password	>
BACK	


Assistant Num interface

◆Speed Sensor

Speed Sensor represents speed sensor settings. The default value is 01. To change speed sensor settings, press the “+” or the “-” button to select the numbers of magnets in the speed sensor (the settable range is 01 to 12). To confirm and store a changed setting, hold the “on/off” button. Or

Hold **on/off** button to return to the home page or press **BACK** to return to home page.

Advanced Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	01
Slow Start	0
LCD Luminance	100%
Password	>
BACK	



Advanced Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	06
Slow Start	0
LCD Luminance	100%
Password	>
BACK	


Speed Sensor interface

◆Slow Start

Slow start represents slow start up settings. The range is “0-3”, “3” is the slowest. The default is “ 0 ”. To change slow start up settings, press the +/- button to choose the desired value. To confirm and store a changed setting, press the **on/off** button. Or

Hold **on/off** button to return to the home page or press **BACK** to return to home page.

Advanced Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	01
Slow Start	0
LCD Luminance	100%
Password	>
BACK	



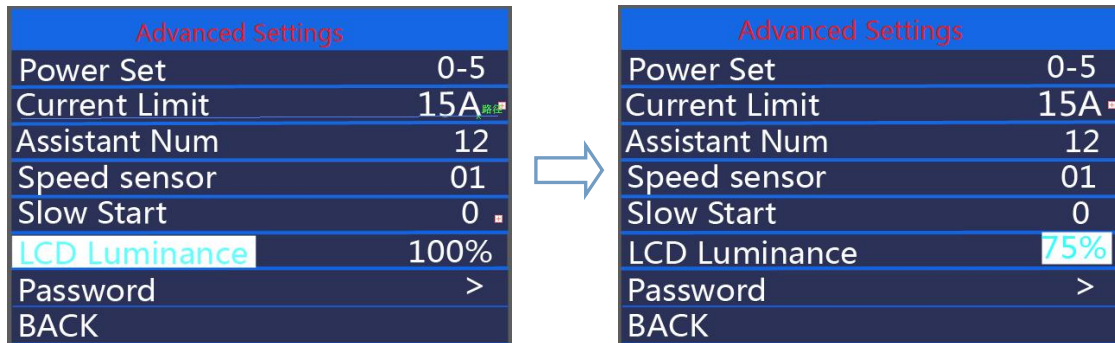
Advanced Settings	
Power Set	0-5
Current Limit	15A
Assistant Num	12
Speed sensor	01
Slow Start	2
LCD Luminance	100%
Password	>
BACK	

Slow start interface

◆ **LCD luminance**

LCD Luminance represents display backlight brightness. 100% is the highest brightness. 10% is the lowest brightness. 5 settable levels: 100%-75%-50%-30%-10%. The default is 100%. To change the backlight brightness, press the “+” button or the “-” button to choose the desired percentage. To confirm and store a changed setting, press the “ on/off ” button.

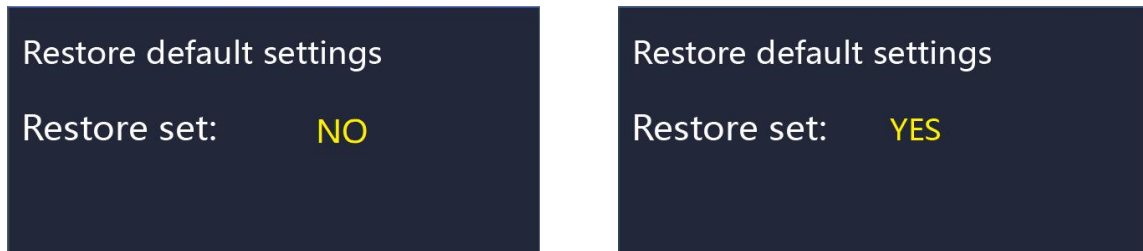
Hold **on/off** button to return to the home page or press **BACK** to return to home page.



LCD Luminance interface

◆ **Factory settings**

Hold + and on/off button at the same time for 2 seconds to enter the factory settings page. Short press +/- to choose YES or NO. Choose YES and hold on/off button for 2s and the display will be reset to factory settings. When it is done, display returns to home screen. The default value is Restore set: NO



Factory settings

◆ **Password setting**

Short press "+" or "-" to select "Password", short press "ON/OFF" to enter the setting, short press "+" or "-" to select Start PassWord; short press "ON/OFF", Switch "OFF (close)"/"ON (open)" by following below details. The display password is disabled by default

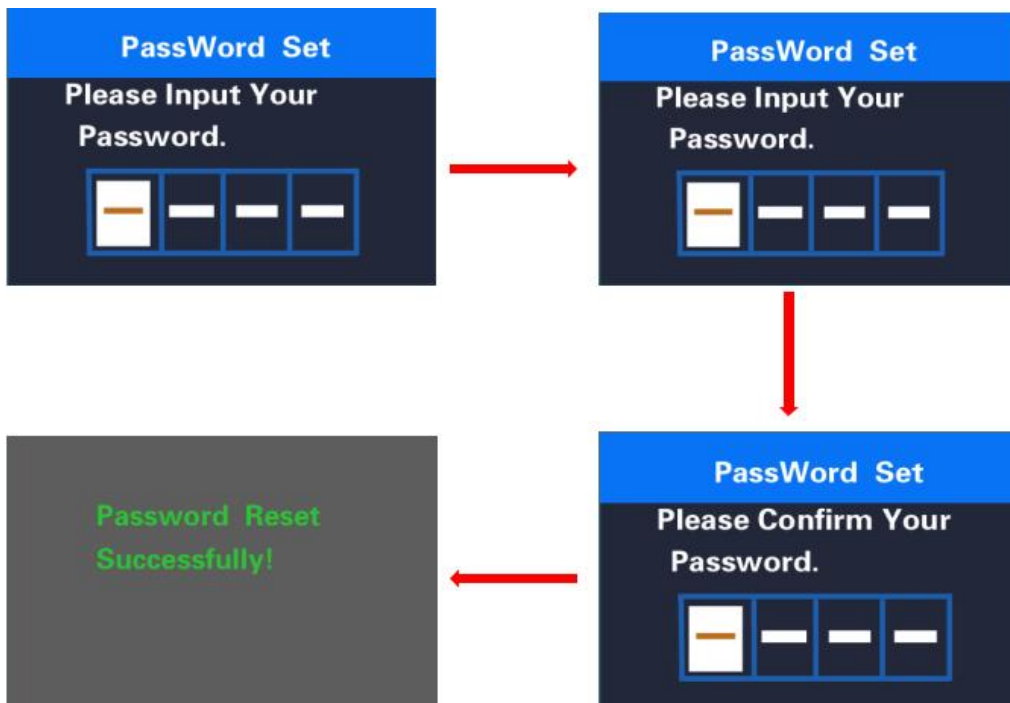


Password input setting interface

◆ **Power-on password enable**

In “**Start Password**” interface, choose ‘**ON**’ and press **on/off** to confirm. Meanwhile, display interface asks for a password. Press **+/-** button to increase or decrease numbers and press **on/off** to confirm the first digit and move to the next digit. After 4 digits of a password are input, press **on/off** to confirm and the interface will prompt for re-entering the password. If two inputs are consistent, the system prompts that the password is set successfully. If two inputs are inconsistent, the first input needs to be repeated correctly and confirm the new password again. The interface will be back to original settings page in 2 seconds after the password is set successfully.

Hold **on/off** to return to the home page or by route ‘**BACK**’ → ‘home page’.

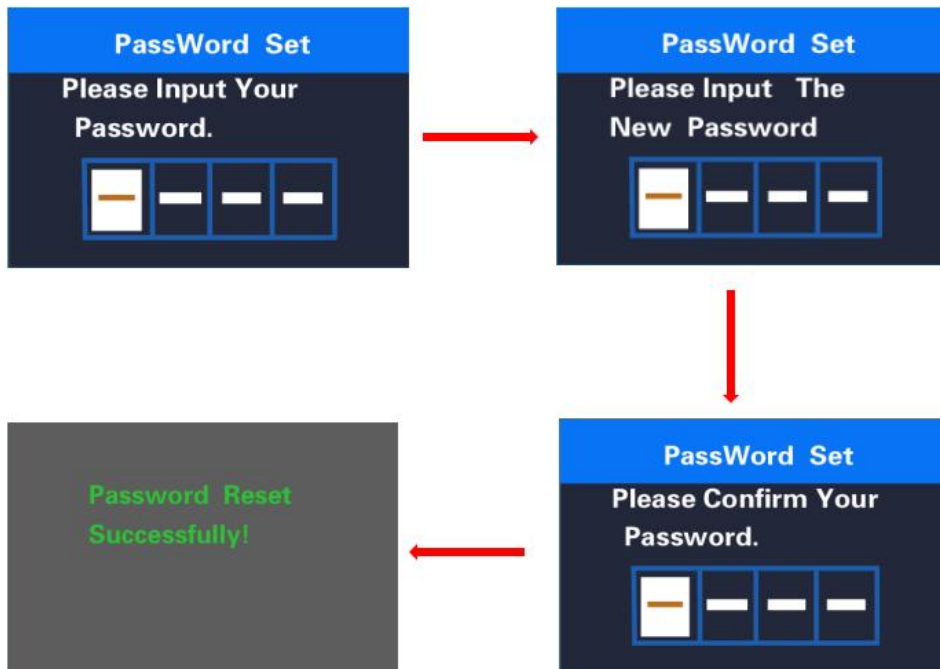


Password enable confirmation interface

◆ **Password Change.**

When password is enabled. '**Reset password**' will add to Password interface. Press +/- button to select '**Reset Password**' and press **on/off** to confirm. Meanwhile, the interface asks for current password. When the correct password is input, the interface prompts to set a new password. Then follow the operations of setting a new password. The interface will be back to original settings page in 2 seconds after the password is reset successfully.

Hold **on/off** to return to the home page or by route '**BACK**' → 'home page'.

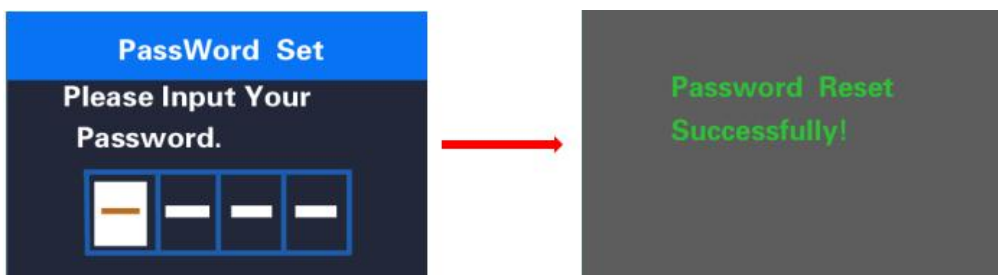


Password change interface

◆ **Password Disable**

In "**Start PassWord**" interface, choose **OFF** and short press **on/off** to confirm. Meanwhile, display interface asks for a password. When the correct password is input, the display prompts 'password function disabled'. After 2 seconds, the interface will be back to original settings page.

Hold **on/off** to return to home page or by route '**BACK**' → 'home page'.



Password disable interface

■If there is no operations in one minute, the display will exit the settings state.

◆Display connection layout:

Julet 5 pins male connector. Type: JL-F39-Z508JG



Display male connector wiring

Wire no.	Code	function
1	VCC	Display power supply
2	KP	Controller power control wire
3	GND	Display GND
4	RX/CAN H	Display - RXD
5	TX/CAN L	Display- TXD

Attached list 1: error code definition

Error code	Definition
21	Current fault
22	Throttle fault
23	Motor phase absence
24	Motor hall signal fault
25	Brake fault

30	Communication fault
31 (New EN standard)	Display MOSFET short circuited
32 (New EN standard)	on/off button is stuck.
33 (New EN standard)	- button is stuck
34 (New EN standard)	Over voltage

Attached list 2: PAS ratio default value table

level PAS level options	1	2	3	4	5	6	7	8	9
0-3/1-3	50%	74%	92%	—	—	—	—	—	—
0-5/ 1-5	50%	61%	73%	85%	96%	—	—	—	—
0-7/ 1-7	40%	50%	60%	70%	80%	90%	96%	—	—
0-9/ 1-9	25%	34%	43%	52%	61%	70%	79%	88%	96%

Quality Assurance and Warranty Scope

Warranty

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

II The following cases do not belong to our warranty scope.

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

Warnings:

- ◆ Use the display with caution. Don't attempt to release or link the connector when battery is on power.
- ◆ Try to avoid hitting the display.
- ◆ Don't modify system parameters to avoid parameter disorder.
- ◆ Make the display repaired when error code appears.

Special note: this KD686 manual is a general-purpose version, and the parameter values are for reference only.