



KEY-DISP

eBike Display

User Manual

KD686

Product Name and Model

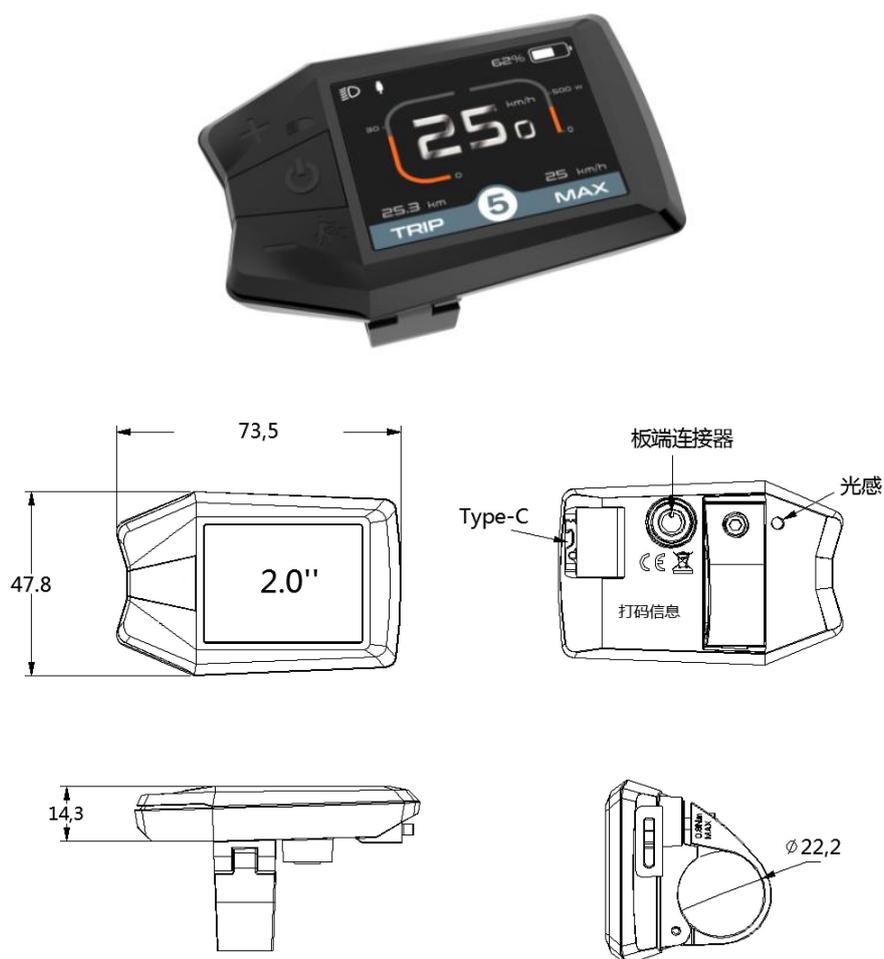
Intelligent ebike color display; Model: **KD686 (UART)**

Specification

- 2.0" IPS color screen
- 36V/48V/52V power supply power supply
- Meter rated operating current: 22mA
- Shutdown leakage current: <1uA
- Operating temperature: -10~ 60°C
- Storage temperature: -20 to 70°C

Exterior Dimensions

Physical drawing and dimensional drawing of the display (unit: mm)



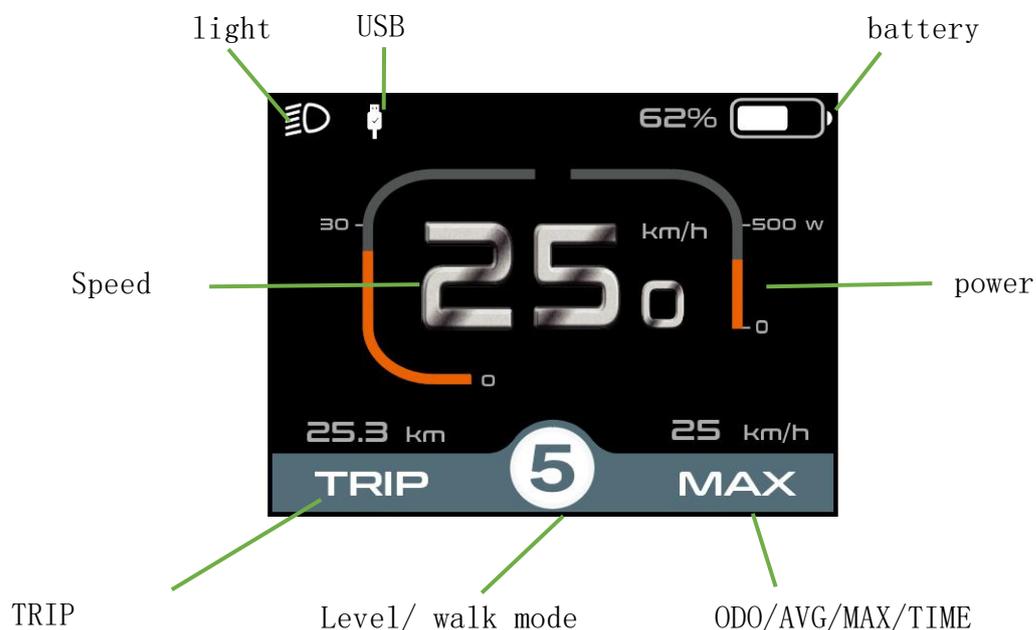
The KD686 model gauges offer a variety of features to meet your riding needs, including:

- Intelligent power indication: real-time voltage/power percentage
- Intelligent display: single mileage TRIP, total mileage ODO, real-time

speed SPEED, maximum speed MAX, average speed AVG, riding time Time

- Motor output power display
- Assisted gear adjustment and display
- Backlight control and headlight display
- walk assistance
- Error code display.
- Type-C charging function
- Light-sensitive function
- Multiple parameter settings (e.g. single mileage clearing, backlighting, metric/imperial system, power setting, gear setting, wheel diameter speed limit setting, power-on password setting, etc.)
- Restore factory default settings
- Error code display
- Bluetooth function (optional)

display area



◆ Button Definition

The KD686 display has three buttons: ON/OFF, UP/HEADLIGHT, and DOWN/BUZZER; in subsequent instructions, ON/OFF is replaced by the words "ON/OFF", UP/HEADLIGHT is replaced by the word "UP", and DOWN/BOOSTER is replaced by the word "DOWN". The word "DOWN" is used instead of "ON/OFF" for ON/OFF, "UP" for UP/HEADLIGHT, and "DOWN" for DOWN/WALK BOOST.

General operation

◆ Power on/off

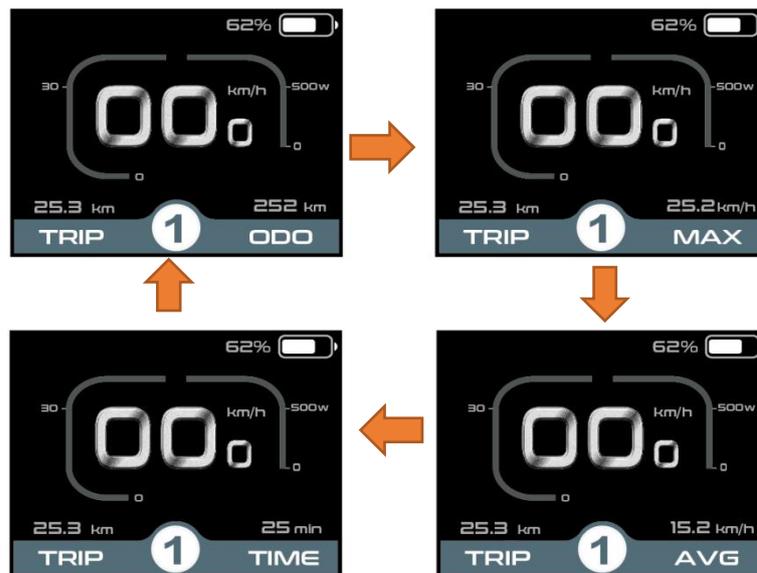
After long pressing the power button, the meter starts to work and provides the working power for the controller. In the power-on state, long press the power button to turn off the power of the EV. In the off state, the meter no longer uses the power from the battery and the leakage current of the meter is less than 1uA.

■ **The meter will automatically turn off if the electric vehicle is not used for more than 5 minutes.**

◆ Display Interface

After the meter is turned on, the meter defaults to display real-time speed, single mileage, total mileage, power, charge, and gear.

Short press "ON/OFF" button can switch between single mileage total mileage ODO (km), maximum speed MAX (km/h), average speed AVG (km/h), time (min).



Display interface switching

◆ Walk mode

Press and hold the "DOWN" button, after 2 seconds, the electric vehicle enters the state of electrically assisted driving. The electric vehicle is traveling at a constant speed of not more than 6Km/h. At the same time, the screen displays "🚲". Release the "DOWN" button, the electric vehicle will stop power output immediately and return to the state before walk mode is engaged.



Walk mode

◆ Light-sensitive function and manual on/off backlighting

The display has a light-sensitive function, which can sense the light and darkness of external light and turn on/off the headlights automatically. When the external light is not enough or when driving at night, the backlight of the display **will be dimmed**, and at the same time notify the controller to turn on the headlights; when the external light is enough, the backlight of the display **will be brightened**, and at the same time notify the controller to turn off the headlights.

Press and hold the **UP** button manually for more than 2 seconds, the display performs the on/off headlight function, and the light sensing function is disabled at the same time.



Turn on the backlit display interface

◆ assist level selection

Short press the **"UP"** or **"DOWN"** button to switch the assist levels, change the motor output power. The default output power range of the meter is 0-5, 0 is stop power output, 1 is the lowest power, 5 is the highest power.



Assist level Interface

◆ Battery SOC

Display battery voltage 36V; 36V voltage segments: 31.5V-34.5V-35.6V-37.4V-39.2V



Battery SOC interface

◆ Motor power indication

The meter displays a progress bar of motor output power. The display is shown below.



Motor power display interface

◆ Error Code Display

When there is a malfunction in the electric control system of the electric vehicle, the meter will display an error code, refer to **Exhibit 1** for detailed error code definitions.



Error Code Display Screen

■ When an error code is displayed, please troubleshoot the problem in time, the electric car will not be able to run normally after a malfunction.

General Parameter Settings

In the power-on state, the vehicle is stationary, press and hold the "UP" and "DOWN" buttons at the same time for more than 2 seconds, the display will enter the setting interface.



● Display Setting

◆ TRIP RESET

Short press "ON/OFF" to confirm, short press "UP" or "DOWN" to toggle "NO (not clear)" and "YES (clear)"; (Clear data including maximum speed (MAX), average speed (AVG), single mileage (TRIP), riding time (T). " and "YES (clear)"; (clear data including maximum speed (MAX), average speed (AVG), single mileage (TRIP), riding time (Time)), after confirming, press "ON/OFF" again briefly to save and exit to "ON/OFF", then press "UP" or "DOWN" to save and exit to "ON/OFF". After confirming, press "ON/OFF" briefly again to save and exit to "Trip reset", the display defaults to "Trip reset-NO".

Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>



Display Setting	
Trip reset	YES
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>

Single Mileage Zero Setting

◆ **units**

Short press "UP" or "DOWN" to select "Unit", short press "ON/OFF" to enter the Setting, press "UP" or "DOWN" to select "Metric" (kilometer)/"Imperial (mile)", press "ON/OFF" to enter the setting. Select "Metric"/"Imperial" by pressing "UP" or "DOWN", press "ON/OFF" to save and exit to "Unit".

Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>



Display Setting	
Trip reset	No
Unit	Imperial
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>

English and Metric Unit Conversion Setting Screen

◆ **Backlight Brightness Setting**

Short press "UP" or "DOWN" to select "Brightness", short press "ON/OFF" to enter the setting, by short press "UP" or "DOWN", the backlight brightness range is "100%-75%-50%-30%-15%". Enter the setting, by short press "UP" or "DOWN", the backlight brightness range is "100%-75%-50%-30%-15%" 5 levels of brightness, short press "UP" or "DOWN", the backlight brightness range is "100%-75%-50%-30%-15%". The brightness range of backlight is "100%-75%-50%-30%-15%", 100% corresponds to the highest brightness, 15% corresponds to the lowest brightness; short press "ON/OFF" to save and exit to "Brightness". The default backlight brightness of the display is "100%".

Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>



Display Setting	
Trip reset	No
Unit	Metric
Brightness	75%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>

Backlight brightness setting interface

◆ **Battery percentage and voltage display**

Short press "UP" or "DOWN" to select "SOC View", short press "ON/OFF" to enter the setting. "Enter the setting, short press "UP" or "DOWN" to switch to: "Voltage (Voltage Display)"; the default meter is "Percent", press "ON/OFF" to save and exit to "SOC View".

Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>



Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	Voltage
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>

Power percentage/voltage display setting screen

◆ **Auto Power Off Time Setting**

"Auto Off" indicates the setting of automatic shutdown time. Short press "i" to enter the setting, by short press "UP" or "DOWN" to select the automatic shutdown time, the range is "OFF, 1-9 (Min)", short press "i" to save and exit to "Auto Off". The range is "OFF, 1-9 (Min)", short press "i" to save and exit to "Auto Off". The default auto off time of the meter is 5Min.

Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>



Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	8Min
AL Sensitivity	5
Set Voltage	36V
Password	>

Auto Power Off Time Setting Screen

◆ **Light Sensor Sensitivity Setting**

"AL Sensitivity" indicates the sensitivity setting of light sensor. Short press "i" to enter the setting, and short press "UP" or "DOWN" to select the sensitivity value of the light sensor. The range is "5-4-3-3-2-1-OFF", press "i" to save and exit to "AL Sensitivity". The default sensitivity of the meter is 5.

Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	5
Set Voltage	36V
Password	>



Display Setting	
Trip reset	No
Unit	Metric
Brightness	100%
SOC View	percent
Auto Off	5Min
AL Sensitivity	3
Set Voltage	36V
Password	>

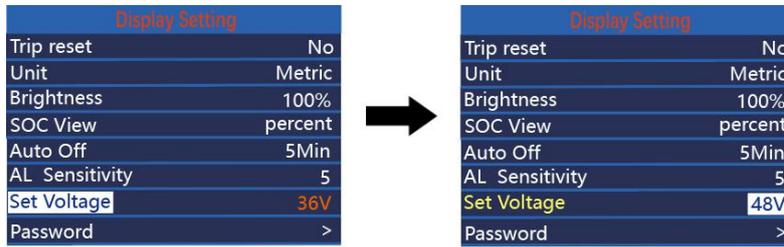
Light Sense Sensitivity Setting Interface

◆ **Battery voltage setting**

Short press "UP" or "DOWN" to select "Set Voltage", the meter defaults to 36V

and cannot be changed.

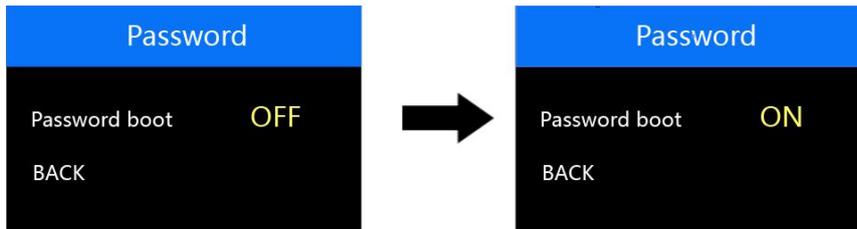
Press and hold **"ON/OFF"** to return to the main screen or **"BACK"** to return to the main screen.



Battery voltage setting interface

◆ Power-on password setting

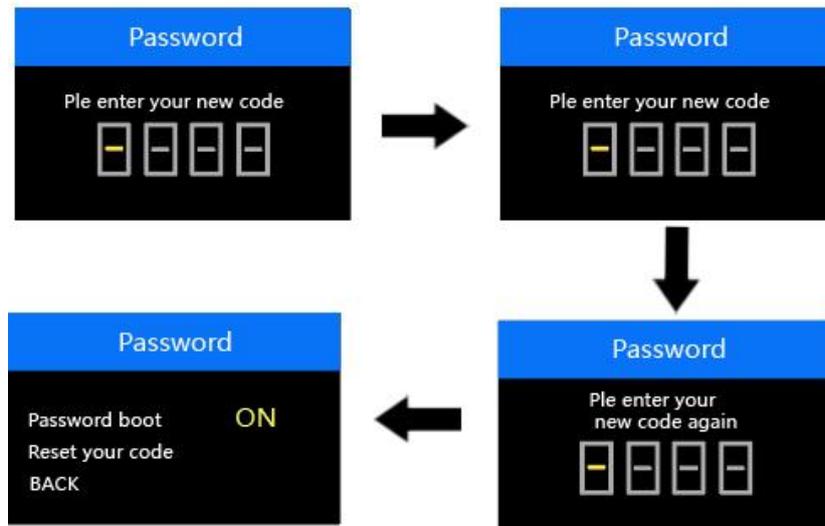
Short press **"UP"** or **"DOWN"** to select **"Password"**, short press **"ON/OFF"** to enter setting. Enter setting, select Start PassWord by short press **"UP"** or **"DOWN"**, short press **"ON/OFF"** to switch between **"PassWord"** and **"Password"**. Short press **"ON/OFF"** to switch **"OFF"/"ON"**, the following is the specific switching method. There is no power-on password by default.



Power-on password setting screen

◆ Power-on password enable

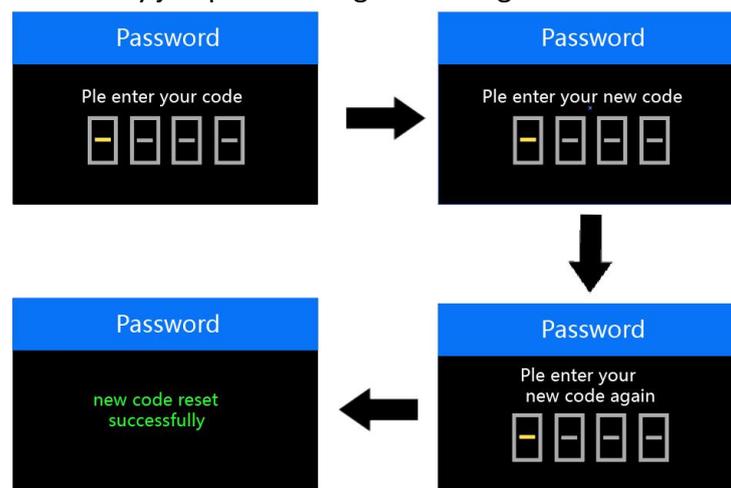
In the **"PassWord boot"** interface, select **"ON"**, press **"ON/OFF"** to confirm, the interface prompts to enter the password, press **"UP"** or **"DOWN"** to increase/decrease the input value, press **"ON/OFF"** to shift the value, after the 4-digit password input, press **"ON/OFF"** to shift the value. **UP"** or **"DOWN"** key to add/subtract the input value, short press **"ON/OFF"** key to shift the value, after 4-digit password input, short press **"ON/OFF"**. **"ON/OFF"** to confirm; the interface prompts to enter the password again, after the two inputs are the same, the system prompts the password set successfully, if the two inputs are not the same, then you need to repeat the first step to enter a new password and then confirm that the password is set successfully, the 2S interface automatically jumps to the original setup interface.



Password Enable Confirmation Screen

◆ **Power-on password change**

After opening the password, "Pass word" interface will add "Reset your code" option, short press "UP" or "DOWN" to select "Reset Password", short press "ON/OFF" again to make sure. Short press "UP" or "DOWN" to select "Reset Password", short press "ON/OFF" again to make sure, at this time, the interface prompts you to enter the current password, the password is entered correctly, the interface prompts you to enter the new password. The interface prompts you to input the new password after the password is input correctly, and the operation will be the same as the new password, after the password is modified successfully, the 2S interface will automatically jump to the original setting interface.



Password change screen

◆ **Disable Password**

After selecting "OFF" in the "PassWord" interface, press "ON/OFF" briefly to make sure, at this time, the interface prompts you to input the password, after the

password is correctly input, the interface prompts you that the password function is successfully turned off. After the password is correctly entered, the interface prompts that the password function is closed successfully, and the interface automatically jumps to the original setting interface after 2S.

Long press "ON/OFF" to exit to the main interface or "BACK" to exit to the setting interface, short press "ON/OFF" to select EXIT to return to the main interface.



●Advanced Setting

In the **DisPlay Setting** menu, select **EXIT**, press **ON/OFF** to return to the main interface, press **UP** or **DOWN** to select "**Advanced Setting**", press **ON/OFF** to enter the **Advanced Setting** menu. Select "**Advanced Setting**" by short press "**UP**" or "**DOWN**", then short press "**ON/OFF**" to enter **Advanced Settings** setting menu;

◆Max pas modes

Short press "**ON/OFF**" to confirm, short press "**UP**" or "**DOWN**" to switch gear "**0-3, 1-3, 0-5, 1-5, 0-7, 1-7, 0-9, 1-9**" **8 modes**, short press "**ON/OFF**" to save the setting, and return to the setting item selection interface. **5, 0-7, 1-7, 0-9, 1-9**" **8 modes**, short press "**ON/OFF**" to save the setting and return to the setting item selection interface.



Gear setting interface

◆Wheel size

Short press "**UP**" or "**DOWN**" to select "**Wheel**", short press "**ON/OFF**". Enter the setting, short press "**UP**" or "**DOWN**" to switch the wheel diameter, the optional wheel diameter range is: "**18-29Inch**". Short press "**ON/OFF**" to save and exit to "**Wheel**".

Press and hold "**ON/OFF**" to return to the main screen or "**BACK**" to return to

the main screen.



The diagram shows two screenshots of the 'Advanced Settings' menu. The left screenshot shows 'Wheel size' set to '28.0Inch'. An arrow points to the right screenshot, where 'Wheel size' has been changed to '26.0Inch'. All other settings remain the same.

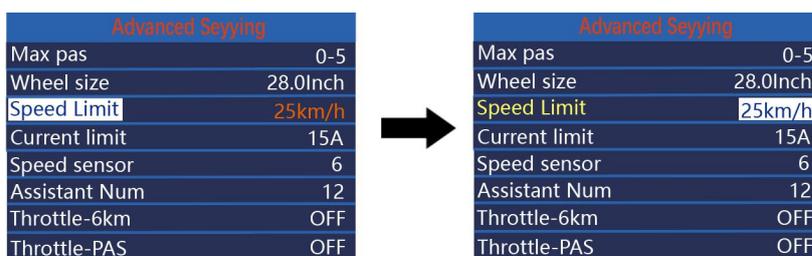
Advanced Settings	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Advanced Settings	
Max pas	0-5
Wheel size	26.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Wheel diameter setting interface

◆ Speed Limit

Short press "UP" or "DOWN" to select "Speed Limit" to see the speed limit value, default 25km/h, not adjustable. Press and hold "ON/OFF" to return to the main interface or "BACK" to return to the main interface.



The diagram shows two screenshots of the 'Advanced Settings' menu. The left screenshot shows 'Speed Limit' set to '25km/h'. An arrow points to the right screenshot, which is identical, showing 'Speed Limit' at '25km/h'.

Advanced Settings	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Advanced Settings	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Speed limit interface

◆ current limit

Short press "UP" or "DOWN" to select "Current Limit" to view the current limit value, the default current limit value is "15A". The default current limit value is "15A", which is not adjustable. Press and hold "ON/OFF" to return to the main interface or "BACK" to return to the main interface.



The diagram shows two screenshots of the 'Advanced Settings' menu. The left screenshot shows 'Current limit' set to '15A'. An arrow points to the right screenshot, which is identical, showing 'Current limit' at '15A'.

Advanced Settings	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Advanced Settings	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Current limit interface

◆ Speed Sensor

Short press "UP" or "DOWN" to select "Speed Sensor" to check the number of magnets of speed sensor, the default value is "6". The default value is "6" which is not adjustable. Press and hold "ON/OFF" to exit to the main interface or "BACK" → to exit to the main interface.

Advanced Setting	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF



Advanced Setting	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Speed Sensor

◆ Assistant Num

Short press "UP" or "DOWN" to select "Assistant Num" to check the number of assistant magnets, the default value is "12", not adjustable. The default value is "12", not adjustable. Press and hold "ON/OFF" to return to the main interface or "BACK" to return to the main interface.

Advanced Setting	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF



Advanced Setting	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Assistant Num

◆ Throttle-6km

"Throttle-6km" is OFF by default and non-adjustable. long press "ON/OFF" to exit to the main interface or exit to "BACK" to set interface. Setting interface.

Advanced Setting	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Throttle - 6km

◆ Throttle-PAS

"Throttle-PAS" is OFF by default. Non-adjustable.

long press "ON/OFF" to exit to main interface or "BACK" to exit to setting interface.

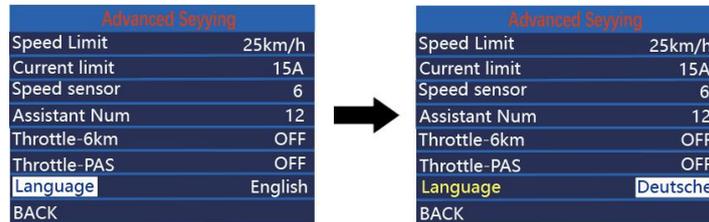
Advanced Setting	
Max pas	0-5
Wheel size	28.0Inch
Speed Limit	25km/h
Current limit	15A
Speed sensor	6
Assistant Num	12
Throttle-6km	OFF
Throttle-PAS	OFF

Throttle-PAS

◆ Language Selection

Language" stands for language setting, short press "UP" or "DOWN" to select

"Czech", "French", "German", "English". Short press "UP" or "DOWN" to select "Czech", "French", "German", "English", short press "ON/OFF" to confirm, the default is English, long press "ON/OFF" to confirm, long press "ON/OFF" to confirm, the default is English. "Long press "ON/OFF" to exit to the main interface or "BACK" to exit to the setting interface.

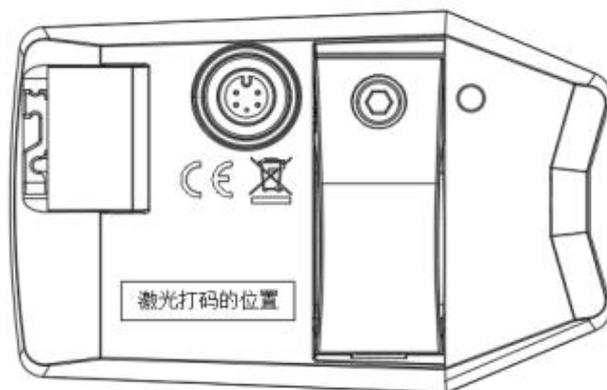


Language Selection Setting Screen

■ The display automatically exits the setup state if no operation is performed within 1 minute.

◆ Connector pinout.

Julet 5 pin male, Model No. JL-F39-Z508JG



Pinout table

serial number	names	functionality
1	VCC	display Power Cord
2	KP	Power control cable for controller
3	GND	GND
4	RX	Data receiving line of the display
5	TX	Data transmission line of the display

Exhibit 1: Error Code Definition Table

error code	define
21	current fault
22	Throttle fault
23	Motor phase is absent
24	Motor Hall signal abnormality
25	Brake abnormality
30	Communication fault between display and controller

Quality Commitment and Warranty Coverage

I. Warranty information:

1、Where the normal use of the product itself due to quality problems caused by the failure, in the warranty period the company will be responsible for giving limited warranty.

2、The warranty period of the product is within 24 months from the meter's factory.

II. The following are not covered by the warranty

1. Shell is opened
- 2、 Connector is damaged
- 3、 Meter factory, shell scratches or shell damage
- 4、 Meter lead wire scratched or broken
5. Failure or damage due to irresistible (e.g., fire, earthquake, etc.) or natural disasters (e.g., lightning strikes, etc.)
6. Product out of warranty

Warnings

Pay attention to the safety of use in the process, do not plug and unplug the meter under power.

- ◆ Avoid bumping the meter as much as possible.
- ◆ Regarding the background parameter settings of the meter, please do not change them arbitrarily, otherwise normal riding cannot be guaranteed.
- ◆ When the meter is not working properly it should be sent for repair as soon as possible.