



ELECTRIC BICYCLE INSTRUMENT

Users guide



Voyage

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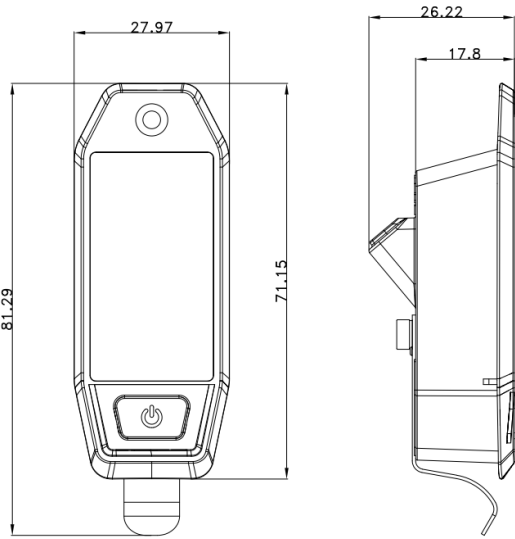
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Part1 Product name and mode

Intelligent LCD instrument;model:DZ45/T.

Part2 Appearance & Size

The product shell material is ABS+PC and the window is tempered glass.




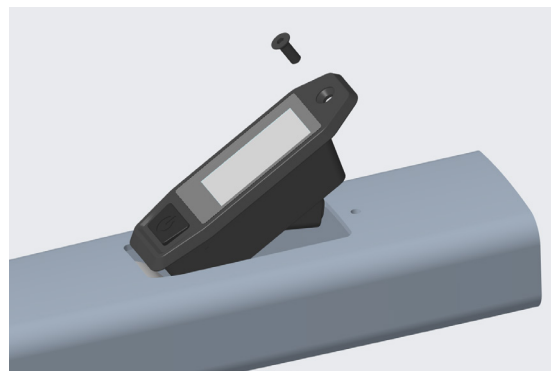
Part3 Specifications

- Power supply: DC 24V/36V/48V
- Rated operating current: 12mA
- Shutdown leakage current: <1uA
- Screen specification: 1.37 TFT (161*320)
- Communication mode: UART/ CAN bus
- Operating temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 80°C
- Waterproof rating: IPX5

Part4 Installation

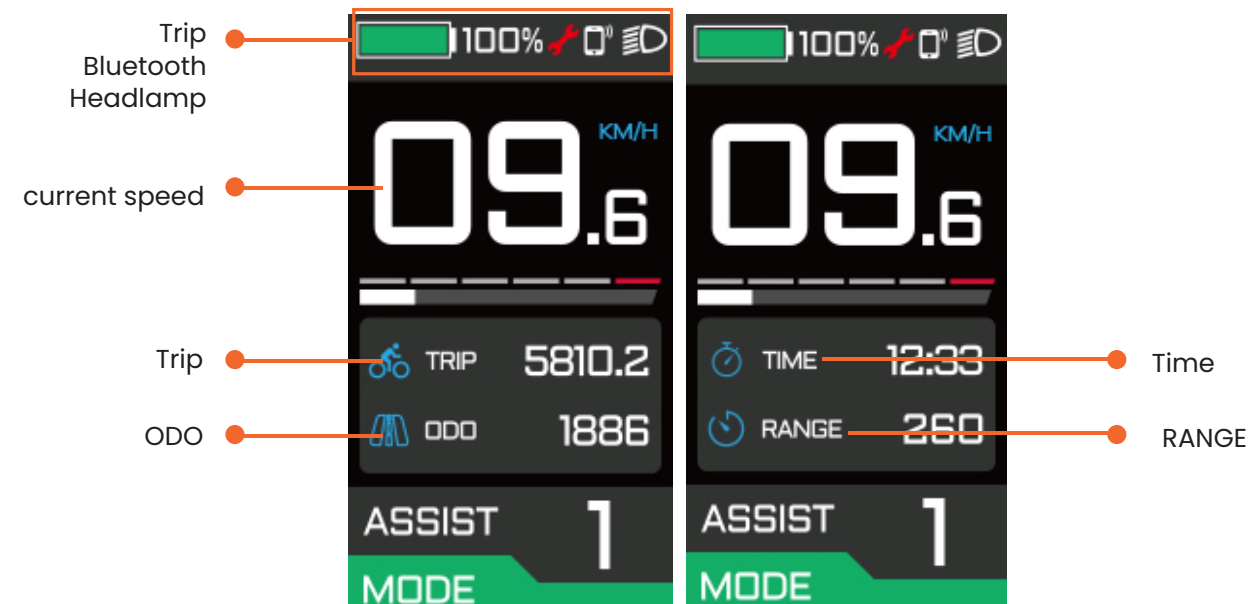
- Match the instrument waterproof inserts with the connectors of the controller and control switch respectively. Tidy up the cables and insert them into the upper tube of the frame.
- Insert the end with metal shrapnel diagonally down into the opening of the frame tubing; place the other end of the meter down so that the meter screw holes are aligned with the frame threaded holes.
- Use M3 countersunk hexagonal socket head to fix and tighten the fixing screws. **Locking torque: <1 N.m.**

 Damage to the meter caused by excessive torque is not covered by the warranty.



Part5 Display screen

5.1 LCD meter functional area distribution



5.2 Setting interface



Figure 5.2 Prompts the current setup screen

Exit: Short press the function key to exit the setting interface and return to the basic interface.

Unit: Speed, mileage unit setting;

Brightness: Backlight brightness level setting;

Auto Off: Auto off time (default 5 minutes);

Wheel: Wheel diameter information for the instrument;

Speed Limit: Maximum speed limit information of the instrument;

Password: You can change the power-on password or close it (the default password function is closed);

Battery: Battery information items;

HMI info: Hardware and software information items;

Clear: Clear the small mileage (TRIP), average speed (AVG) and maximum speed (MAX);

UI MDDE: UI interface switching settings;

P-SET: Advanced extended settings.

Part6 Key Definition

Single keystroke [P]. There are several ways to operate a key; single click; double click; double click and long press; long press;

Part7 Function Operation

7.1 Power on/off

Keep the normal connection state between the meter and the controller, long press the key [P] (2s) in the meter off state, the meter will display the on interface, then enter the basic interface normally and start to work; long press the key [P] (2s) in the on state the meter will turn off. If the rider does not operate the meter for 5 minutes (speed is 0), the meter will turn off automatically.

7.2 Power assist gear switching

Single keystroke, cycle switching power assist gear, change the power assist mode, there are 6 mode states: 0 / 1 / 2 / 3 / 4 / 5, the instrument defaults to 1 gear in the power-on state, and when 0 is displayed, it is the unassisted gear.

The interface for selecting the power assisting gear is as follows:



7.3 Display information switching

Double-click the key to switch the subtotal mileage, total mileage, riding time, remaining mileage, maximum speed, average speed, power, cyclic display: subtotal mileage (TRIP) - > Total mileage (ODO) - > Riding time (TRIP TIME) - > Remaining mileage (RANGE) - > Riding maximum speed (MAX) - > Riding average speed (AVG) - > Power (POWER). RANGE - > Maximum speed (MAX) - > Average speed (AVG) - > Power (POWER).

The mode switching interface is shown below:



7.4 Headlight switch

Long press the button [⏻], after 1s, the headlight turns on (need controller support), the instrument display interface, the headlight indicator icon lights up, the LCD brightness decreases, long press the long button [⏻] again, after 1s the headlight turns off, the headlight indicator icon goes out, and the display brightness is restored.

7.5 Power display

When the battery power is normal, the power display is divided into 1-5 frames according to the battery capacity change. When the battery power reaches the undervoltage warning value, only the flashing battery outer frame icon is displayed to remind the user of the need to charge immediately. The battery level display is shown below:



Battery Capacity (C) Percentage and Power Display Icon Correspondence Table (Power Indication can be adjusted upon request)

No.	Instrument (SOC)	Display on meter	Voltage (24V)	Voltage (36V)	Voltage (48V)
1	C≤5%	Battery outer bezel flashing	U≤23.1	U≤33	U≤42.9
2	5%<C≤15%	One cell	23.1<U≤24.5	33<U≤34.7	42.9<U≤45.1
3	15%≤C≤35%	Two cells	24.5≤U≤25.1	34.7≤U≤35.8	45.1≤U≤46.5
4	35%≤C≤55%	Three cells	25.1≤U≤25.6	35.8≤U≤36.7	46.5≤U≤47.5
5	55%≤C≤75%	Four cells	25.6≤U≤27	36.7≤U≤38.5	47.5≤U≤50.1
6	C≥75%	Five cells	U≥27	U≥38.5	U≥50.1

Part8 User Settings

Setting items: unit setting, brightness setting, auto shutdown, *wheel diameter information, *speed limit information, power-on password setting, *battery information, *system information, data clearing, language setting, advanced setting. (Items marked with * are fixed display items and do not provide user setting options)

8.1 Entering Setting

- Double press [⏻] and hold it down (1~2s), the system enters the user setting interface, in this state, you can set and view the related parameters.
- Long press [⏻] (1~2s) can confirm the setting status and return to the upper level; check [Exit] in the setting interface, long press [⏻] can also exit and save the setting status.
- Under the state of user setting interface, if no operation is performed for 10 seconds, the instrument returns to the normal riding state and does not save the parameter settings.
- Under the state of user setting interface, within the setting item, short press [⏻] cycles to switch the content of the setting item.
- Within the setting item, short press [⏻] to switch up and down items.

8.2 Unit setting

Under the unit setting interface, short press [⏻] to switch the setting item, long press to confirm, short press under Exit to return [⏻] to the setting interface, short press [⏻] under Km/Mile to switch the unit of Km and Mile.

Km: the unit of sub-mileage and total mileage is Km, and the unit of current speed, average speed and maximum speed is KM/H.
Mile: the unit of sub-mileage and total mileage is Mile, and the unit of current speed, average speed and maximum speed is MPH.



Figure 8.2



Figure 8.3

8.3 Brightness Settings

Brightness: Brightness percentage adjustment for backlight adjustment item, short press button to select the brightness, long press button to confirm the selection and exit to the backlight setting interface.

8.4 Auto Power Off Time

Under the auto shutdown interface, short press [⏻] to select the shutdown time item (default 5 minutes), long press [⏻] to save and return to the setting interface. The display interface is as follows:

8.5 Wheel Diameter Information

Wheel diameter information interface, 20 inch means the current meter applies to 20 inch wheel diameter cars, long press [⏻] to return to the setting interface. The possible wheel diameter values displayed are 16inch, 18inch, 20inch, 22inch, 24inch, 26inch, 27.5inch, 700C, 28inch, 29inch. The display interface is as follows:



Figure 8.4



Figure 8.5

8.6 Speed Limit Information

Speed limit information interface, prompting the current maximum speed limit value of the system; (only change through the serial port) Default maximum speed limit value: 25KM/H

The display interface is as follows:

8.7 Power-on password setting

Enter the power-on password setting, short press [⏻] to select the setting item, adjust to OFF/ON item, long press [⏻] to select OFF/ON, that is, turn off or turn on the power-on password; if you need the power-on password, select ON to set the password value; short press [⏻] to switch the password bit from left to right, short press [⏻] to adjust the password value, set up, select Exit (saved) to return to the previous level.

The display interface is as follows:

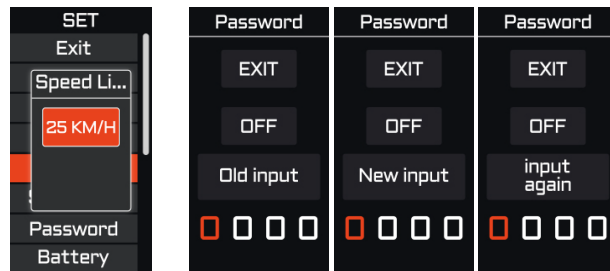


Figure 8.6



Figure 8.7

When it is turned on again, then it needs to be turned on with a new password, otherwise the meter automatically shuts down after 75s.

8.8 Battery Information

Under the battery information screen, long press [⏻] to return to the setting screen.

BAT %: battery power;

BAT V: battery voltage;

Charge: number of charging cycles;

The display interface is as follows: (some functions need BMS support)

8.9 System Information

Under the system information screen, long press to return to the setting screen.

S/N: device number;

FW Ver: firmware version number;

HW Ver: hardware version number;

The display interface is as follows:

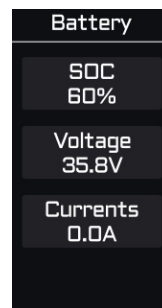


Figure 8.8



Figure 8.9

8.10 Data Clearing

Enter the data clearing interface, short press the key to clear the subtotal mileage (TRIP), ride time (TRIP TIME), average speed (AVG) and maximum speed (MAX) and return to the running interface. If not operated within 5 seconds, returns to the run screen but does not clear data. Normal shutdown or power failure does not clear the above data.

The display interface is as follows:

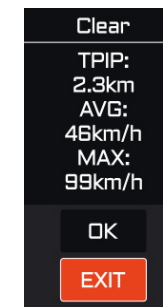


Figure 8.10



Figure 8.11

8.11 UI Interface

Under the UI information interface, short press to select different UI interface, long press to return to the setting interface.

The display interface is as follows:

8.12 Advanced Settings

Under the P-SET interface, long press [⏻] to switch the password bit from left to right, short press [⏻] to adjust the password value input to enter the advanced setting extended option, short press [⏻] to select the setting item, long press [⏻] under Exit to return to the setting interface.

The display interface is as follows:

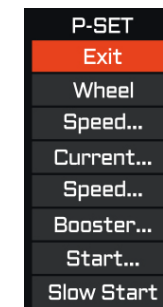


Figure 8.12

Part9 Fault messages

9.1 Fault Display

Instrumentation can provide warning of the vehicle faults, in the detection of faults in the instrument interface display fault code ERROR30, the rest of the error code is defined by the controller instrumentation only to do the display, specific reference to the communication protocol document. The interface display is as follows:

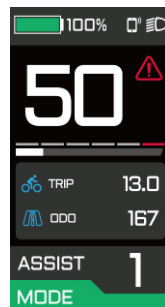


Figure 9.1

9.2 Fault Code Definition


Error codes are obtained from controller commands. It is generally up to the controller to define the meaning of the error code. The meter only defines the inability to communicate ERROR 30.

Fault Code	Fault Description	Troubleshooting Analysis
E30	Communication failure, the meter cannot receive data from the controller or the received data is wrong data.	1: Test whether TX and RX communication wires are connected correctly. 2: Check whether the wire harness and connector are loose or broken. 3: Check whether the instrument communication protocol matches

Part10 Wiring definitions


Table 1 Standard connector wiring sequence table

Standard Wiring Sequence	Standard wire color	Function
1	Red (VCC)	Instrument power cable
2	Blue (KP)	Controller power control line
3	Black (GND)	Instrument ground
4	Green (RX)	Data receiving line of the instrument
5	Yellow (TX)	Data transmission line of the instrument

 Note: The actual wire sequence definition is confirmed according to customer requirements.

Part11 Precautions

- In the process of using, pay attention to the use of safety, do not plug and unplug the meter in the energized working state;
- Try to avoid using in bad environment, heavy rain, heavy snow, sun exposure.
- When the meter can not be used normally should be sent for repair as soon as possible.

 These operating instructions are a generalized version. Some instructions of the actual software may differ from the specification depending on the actual version used.

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