



JHYOCH MOTOR TECHNOLOGY CO.,LTD



**E-BIKE**

**MID DRIVE MOTOR SYSTEM**

**(MODEL:MD.M11/12)**

**USER'S GUIDE**

**System composition**



**Catalog**

<p><b>Central Motor</b> 1</p>	<p>1.1 Scope of application and numbering rule 1.2 Material and waterproof grade 1.3 Main technical parameters 1.4 Installation diagram 1.5 Installation procedure</p>	<p>4 4 4-5 5-7 7-12</p>
<p><b>Display</b> 2</p>	<p>2.1 Material and waterproof grade 2.2 Dimension 2.3 Function 2.4 Button definition 2.5 Display Area 2.6 Power on/off 2.7 walking assist 2.8 Backlight and Capacity 2.9 Parameter setting 2.10 Malfunction Code</p>	<p>12 12-13 13 13-14 14-15 15 15 15-16 16-18 19</p>
<p><b>Speed Sensor</b> 3</p>	<p>3.1 Installation dimension 3.2 Installation</p>	<p>19-20 20-21</p>
<p><b>System connection diagram</b> 4</p>	<p>4 System connection diagram</p>	<p>22</p>
<p><b>Notes</b> 5</p>	<p>5 Notes</p>	<p>22</p>
<p><b>After service &amp; Warranty</b> 6</p>	<p>6 After service &amp; warranty</p>	<p>23</p>
<p><b>Packing list</b> 7</p>	<p>7 Packing list</p>	<p>24</p>



# 1. Central Motor

- ★ Can be installed on standard bike frame easily.
- ★ High starting torque, Max torque≥80Nm, good performance on climbing.
- ★ Double clutch is used on drive unit, more safety.
- ★ Speed sensor and torque sensor can be applied, controller integrated.
- ★ High efficiency, low consumption, long travel mileage.

Countermark serial number on motor casing as following:

## 1.1 Scope of application and numbering rule

MD.M12---36V500W;48V500W;48V750W;48V1000W

1.MD.M11 and MD.M12 all with speed sensor

2.The Bottom Bracket 68mm and 100mm is optional

3.MD.M11 and MD.M12 can be added your brand as your requirements.

## 1.2 Material and waterproof grade

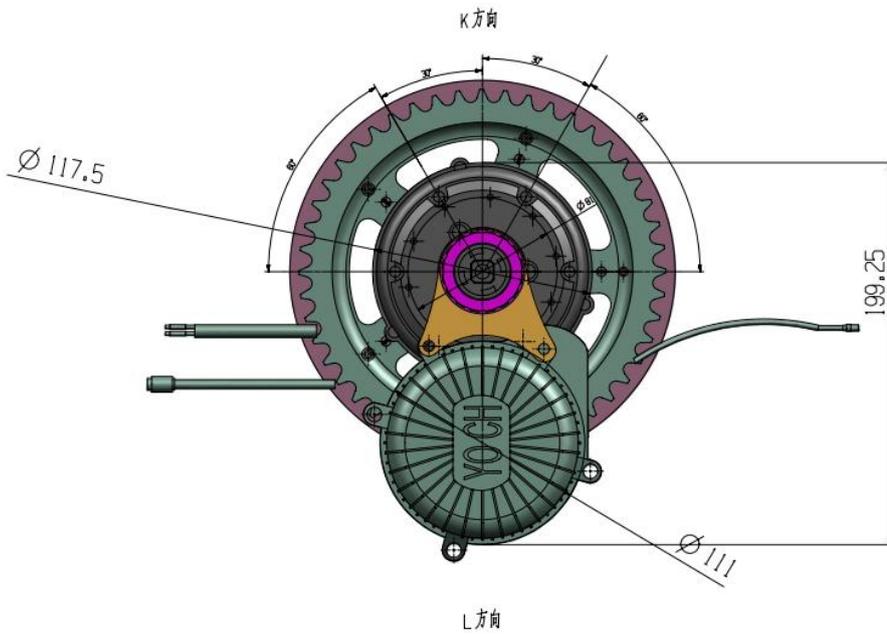
Die-cast aluminum electrophoresis black treatment, working environment temperature:-25°C-55°C, waterproof grade: IP65.

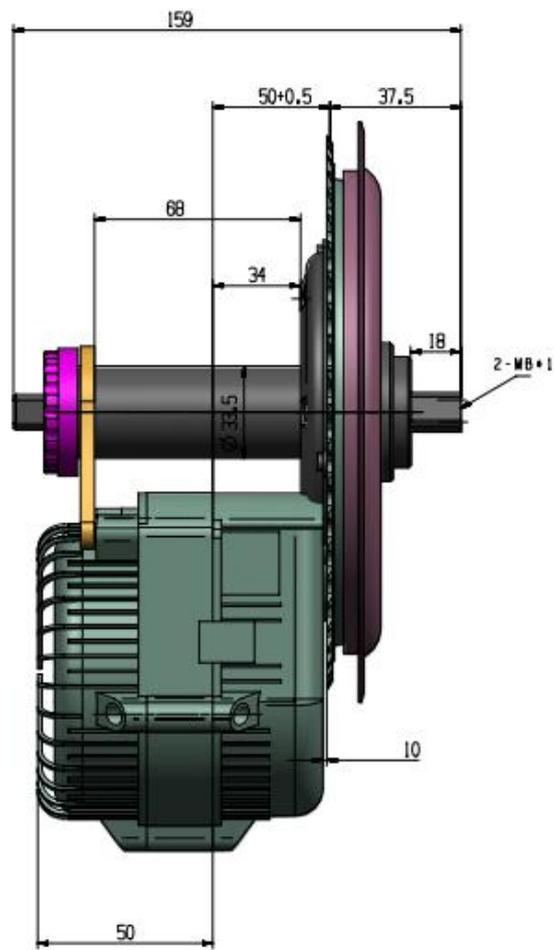
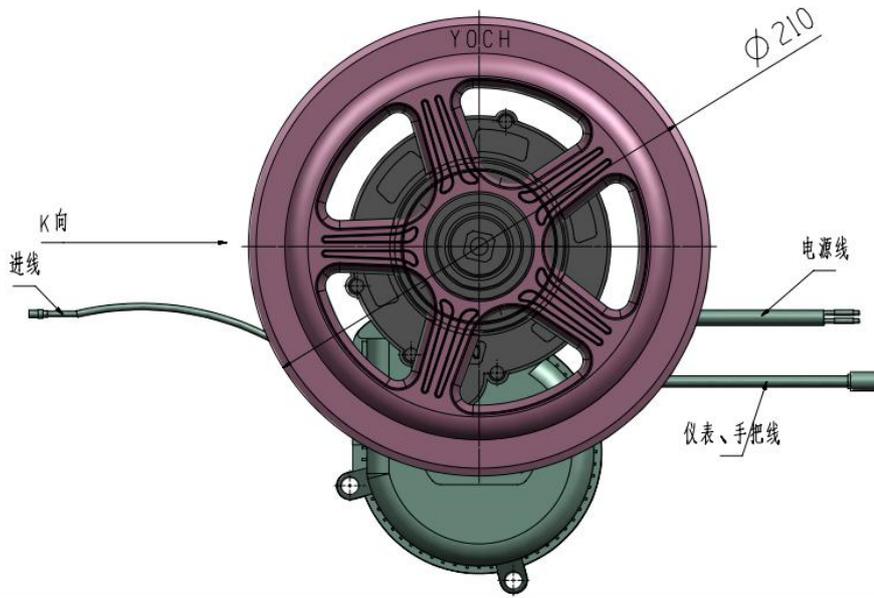
## 1.3 Main technical parameters

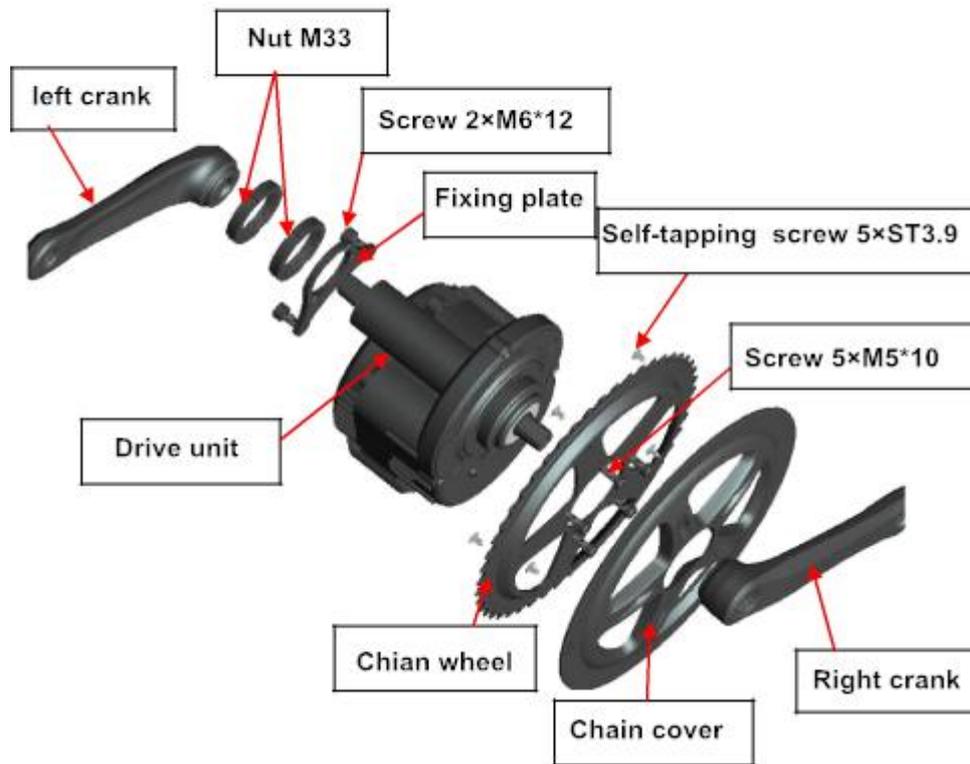
Voltage		DC36V						
Limit current		15A						
Limit speed		25KM/H						
Motor weight		3.7KG						
no-load value		Rated value					Max value	
current (A)	speed (RPM)	Output power (W)	speed (RPM)	efficiency (%)	torqu e (N m)	current (A)	MAX torque	MAX efficiency (%)
≤1.0	83±5	250	78±5	≥80%	≥30	≤9	≥80N.m	≥80%

Above parameters as the default parameters, can be customized according to customer requirements.

**1.4 Installation diagram**







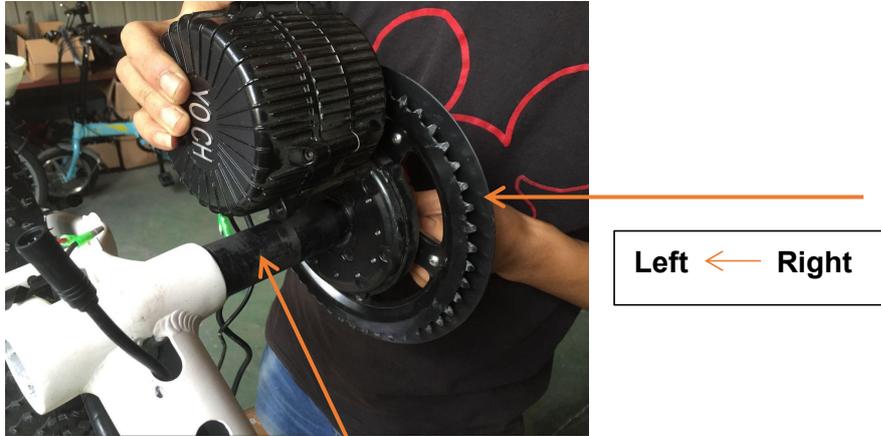
**1.5 Installation procedure**

1. Open the package and take out the drive unit and accessories; And check the specification whether it is correct.
2. Fix the chain wheel on drive unit with 5pcs screw M5\*10, (see picture 1), then fix chain cover on chain wheel with 5pcs screw ST3.9.



Picture 1

3. Fix the drive unit axle tube on frame bottom bracket (see picture 2,picture 3)



Picture 2

Drive unit axle tube



Picture 3

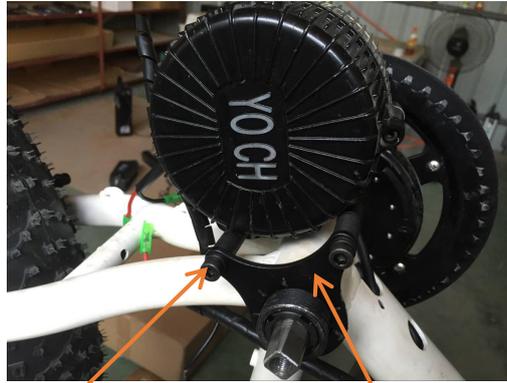
ensure thread of axle tube extend bottom bracket more than 10mm

4. The surface with teeth of fixing plate towards inside, then fix the plate on drive unit with 2pcs M6\*10.(see picture 4,picture 5)



the surface with teeth of fixing plate

Picture 4



2xM6 nut

Outside surface without teeth

Picture 5

5. Hold the drive unit near to bicycle fork, force less than 5KG, tight 1st nut M33 onto axle tube with force:30-40N.m (see picture 6)



M33 nut

Picture 6

6. Fix 2<sup>nd</sup> nut M33 onto axle tube, tightening force:30-40N.m(see picture 7)



M33 nut

Picture 7

7. Fix the left crank on the bike with M8 inner hexagon screw. Tightening force: 35-40N.m (see picture 8)

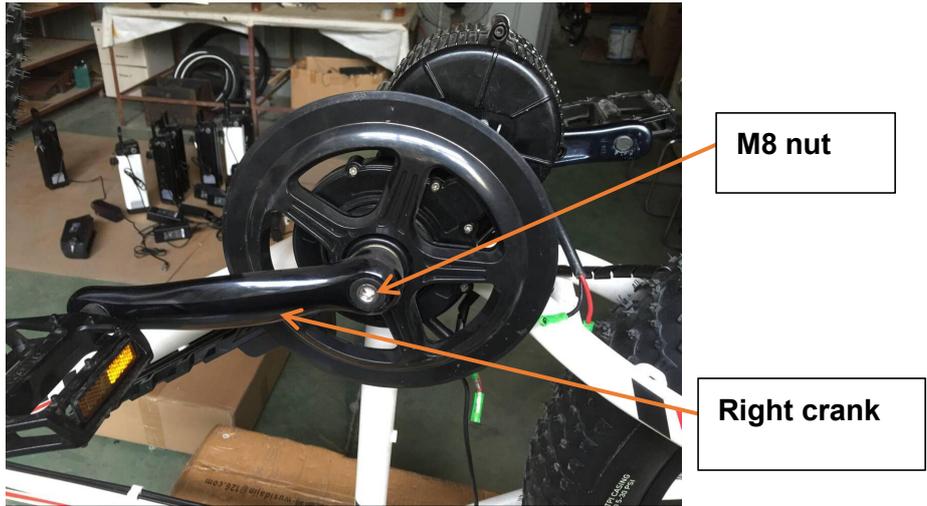


M8 nut

Left crank

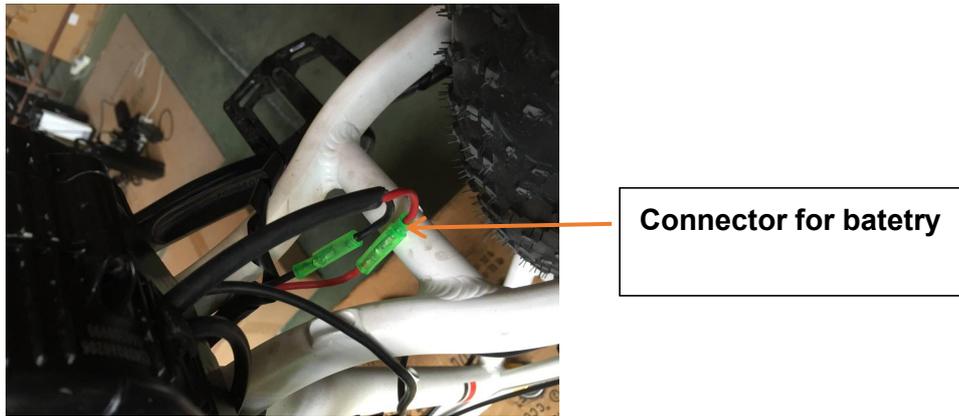
Picture 8

8. Fix the right crank on the bike with M8 inner hexagon screw. Tightening force: 35-40N.m (see picture 9)



Picture 9

9.Connect all cables for battery, display, speed detecting sensor and so on (see picture 10-12)



Picture 10



Picture 11



**Waterproof connector  
for speed sensor**

Picture 12

## 2.Display D961

### 2.1 Material and waterproof grade

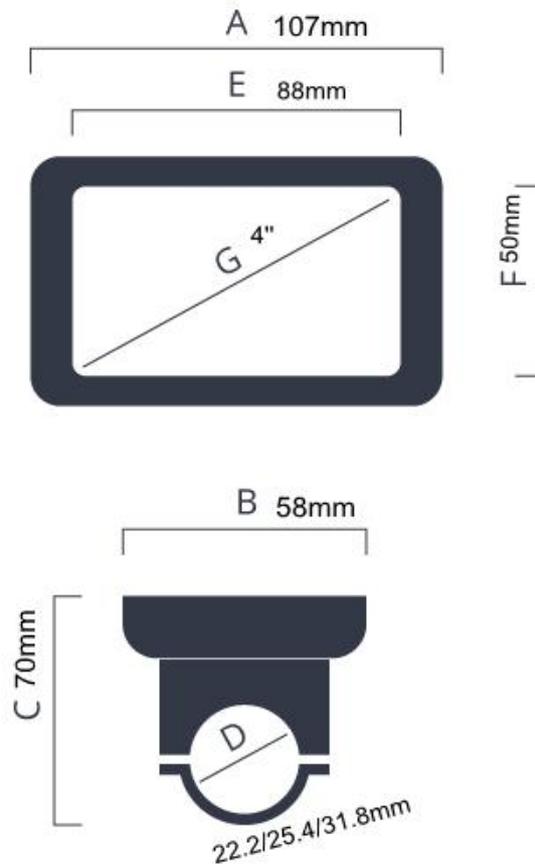
Display's casing use black/silver ABS materials, display window use acrylic white transparent material.

Working temperature of display: - 20°C- 80°C.

Waterproof grade: IP65.

Ultrasonic is used for welding casing and display window.

### 2.2 Dimension(unit: mm)



### 2.3 Function

D961 gets many functions for your enjoying riding. Show context:

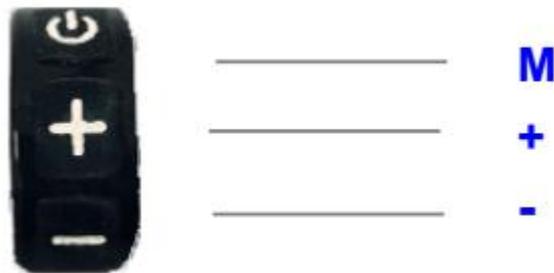
- 1.Capacity
- 2.Speed (Speed/ MAX/AVG)
- 3.Distance (TRIP/ TOLTAL)
- 4.Time
- 5.Assist walking
- 6.Backlight
- 7.Error code
- 8.Levels setting

### 2.4 Button definition

D961 display is equipped with integrated buttons. The three buttons are installed on the left side. The shape and location is as below:

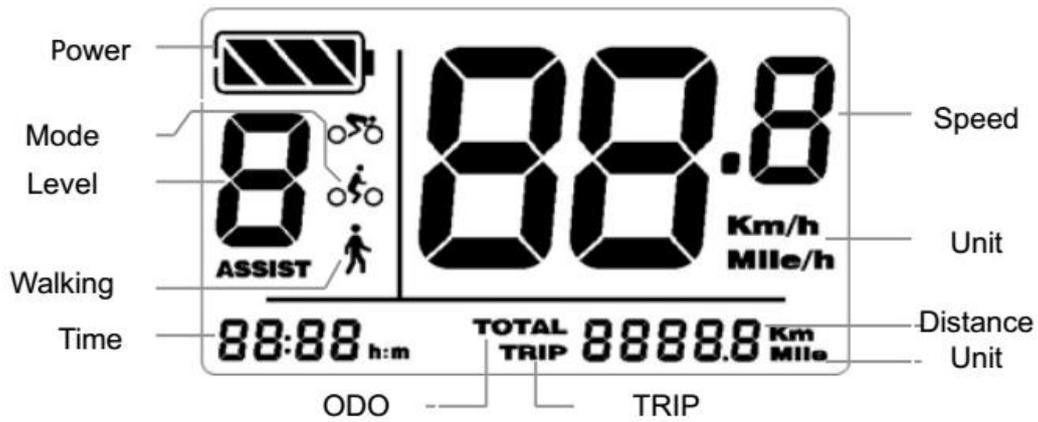


D961 gets three buttons:



**2.5 Display Area**

Display area includes battery capacity, riding mode, riding speed, single riding distance, total riding distance, and malfunction code of the electronic control system. Display area is as below:



**2.6 Power on/off**

Firstly, Long press Mode to start display. Long press **M** again to switch off.

Then press **e** to open system power (display below black font when power on)

**2.7 Walking assist**

Long press (-), to start assist walking.highlights on scree. Vehicle goes at 6km/h.

**Only in case of pushing, can this function be used. Please don't abuse when riding.**



Secondly, press “+” add up speed level,press “-” cut down speed level.

**2.8 Backlight and Capacity**

Long pree (+) to switch on backlight on scree, and front light on as well if front light

Note: Automatical backlight is available if controller gets this function.

Backlight & front light on automatically according to the lightness outside if controller gets light sensor inside. Automatical function off when manual operation on.

Level

Press (+) or (-) to change the levels. Default range 0 - 3, 0 no output, 3 max output.



Default level 1 when switch on.

### Capacity

Four sections highlights when battery is full.

Percentage of capacity for sections:



<20% 20%-40% 40%-60% 60%-80% 80%-100% Frame flashes at 1 Hz when low power.

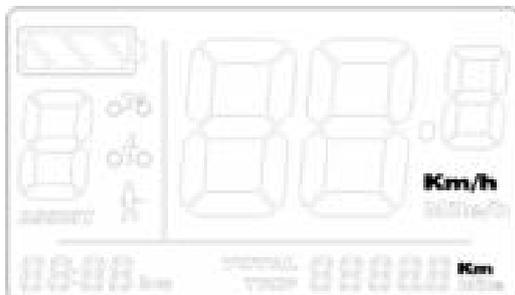
## 2.9 Parameter setting

Makes sure good connection then power on.

Long press **M** to start display. Long pree press (+) and (-) to setting mode.

### Unit

Press (+) to change unit Km or Mile.



Press **M** to save and skip to speed setting.

### Speed limit

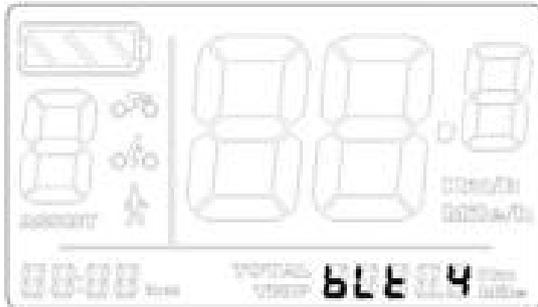
Limit range from 15Km/h to 40Km/h. Press press (+) or (-) to change the limit.



Press **M** to save and skip to backlight setting.

**Backlight**

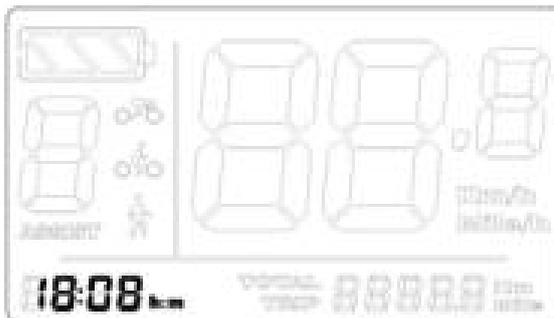
Press press (+) or (-) to change the brightness, range from 1 to 8.



Press **M** to save and skip to time setting.

**Time**

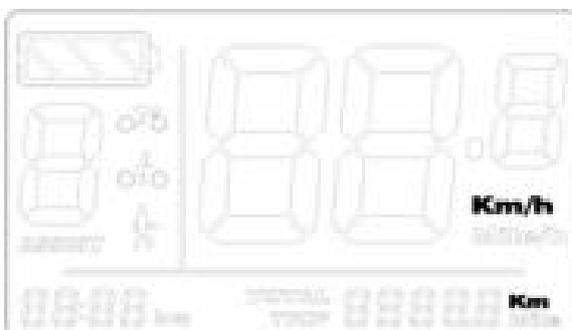
Press (+) or (-) to change the hour, then press **M** to minute setting, press (+) or (-) to change the minute.



Press **M** to save and exit.  
Setting effects after restart.

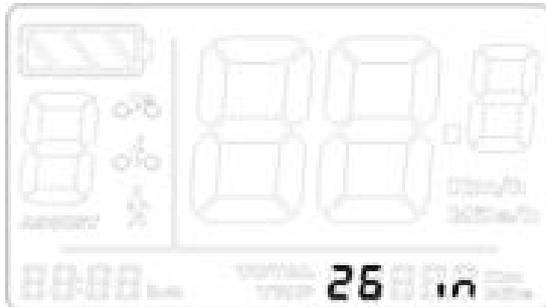
**Advanced setting**

Long press **M** to start display. Long pree press (+) and (-) to setting mode,



Then press (+) and (-) and no release, meanwhile press **M** eight times, to advanced setting.

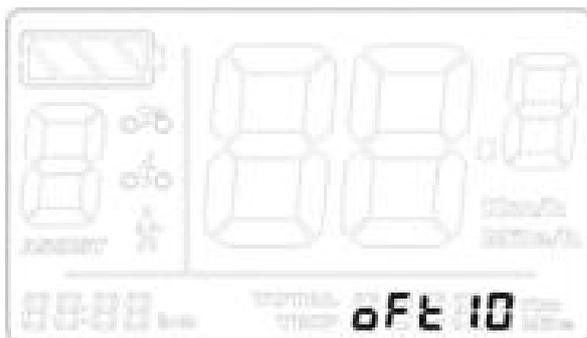
**Wheel size setting**



Press (+) or (-) to change the wheel size. Range from 8 to 32 inch. Press **M** to save and skip to sleep time interval setting.

**Sleep time interval setting**

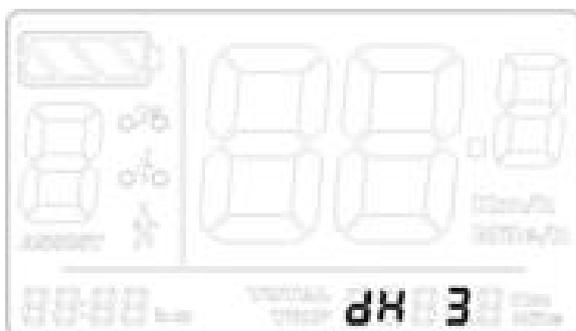
Press (+) or (-) to change the time, range from 0 to 60 minutes.



Display will sleep and cut off power after no operation on system for the setted time. Press **M** to save and skip to level amount setting.

**Level amount setting**

Press (+) or (-) to change the amount, range from 2 to 9 levels (excluding level 0).



Press **M** to save and exit.

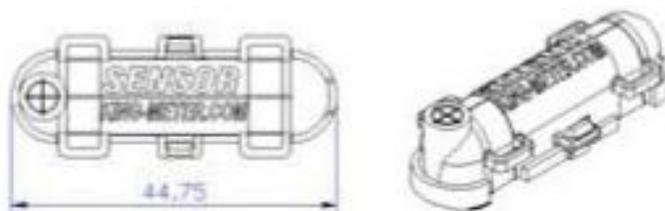
**2.10 Malfunction Code**

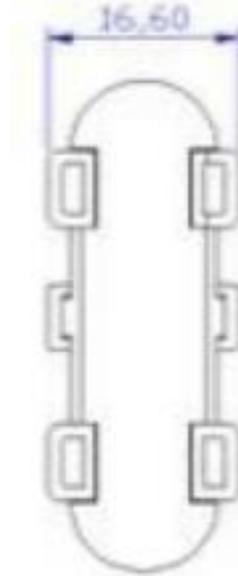
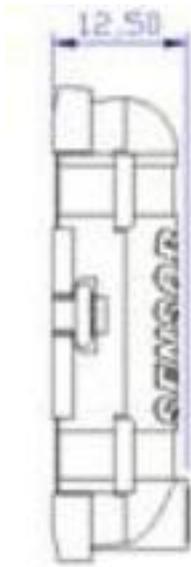
Error code	Definition
04	Throttle no homing
05	Throttle abnormality
06	Low voltage protection
07	Over voltage protection
08	Hall sensor abnormality
09	Phase line abnormality
10	Controller overheat
11	Temperature sensor in controller abnormality
12	Current sensor abnormality
21	Speed sensor abnormality
22	Communication abnormality in BMS

**3. Speed Sensor**

By measuring the wheel RPM, the signal is transferred to the controller, the speed and mileage will be showed on the display.

**3.1 Installation dimension**





### 3.2 Installation

1. Speed sensor component



2. Fix the speed sensor on appropriate position (bottom fork is suggested) of frame by ribbon.



Tied by ribbon

3. Fix the magnet on spoke of rear wheel



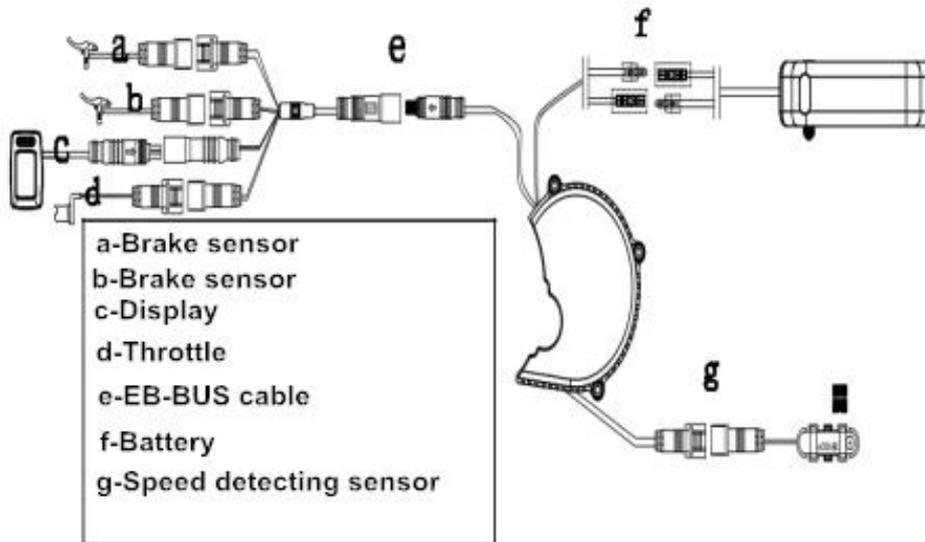
4. Adjust the distance between speed sensor and magnet within 5mm



Gap distance  $\leq 5\text{mm}$

Fix the nut after adjust appropriate position

## 4 System connection diagram



## 5. Notes

1. Should be stocked in a dry ventilated warehouse, do not be stocked in a humid, acidic and alkaline area, not coexist with magnetic object
2. Each connector inserted according to arrow to arrow
3. Avoid sharp objects impact on display
4. Avoid overload for long time when using
5. Avoid wading and soaking



## 6 After service & warranty

Timing and scope of warranty: Warranty period starts from date of Ex-factory, motor is within 24 months, controller, display, sensor and other electric components is within 18 months.

YOCH limited warranty does not cover or apply to the following:

- 1) Damage, failure and/or loss caused by refitting, neglect, improper maintenance, competition or commercial purpose, misuse, abuse or accident;
- 2) Damage, failure and/or loss caused by shipping;
- 3) Damage, failure and/or loss caused by improper installation, adjusting or repairing.
- 4) Damage, failure and/or loss irrelevant to material and workmanship, e.g., failure to follow instructions by consumers;
- 5) Damage, failure and/or loss caused by product's appearance and surface change which doesn't affect its function.
- 6) Damage, failure and/or loss caused by unauthorized service or installation;
- 7) Damage, failure or loss caused by normal wear and tear. YOCH reserves the right to repair the components or replace the

components, and is only responsible for repairing or replacing of the products.

In case bike manufacturers or dealers encounter quality problems when using or selling YOCH products, they can report the purchase order number and products' serial number to YOCH technology service department who makes sure that if the products are under warranty or not. If it is under warranty, YOCH will offer repair or replacement for free. If it is out of warranty, YOCH still can repair for customer, but the concerning material cost, labor cost, freight etc. will be paid by customer.

If you have YOCH components on complete bikes need to be repaired, please contact the bike manufacturer or dealer directly. If this warranty statement is against to Chinese current law, the Chinese law shall prevail. YOCH reserves the right to modify the terms without any announcing in advance.



## 7.Packing list

One set system per carton with packing list:

1.Mid motor	1 set
2.Didsplay	1 pcs
3.Brake	2 pcs
4.EB-BUS	1 pcs
5.Fixing plate	1 pcs
6.Chainwheel and chain cover	1 set
7.Crank	1 set
8.M5*10 nut	5 pcs
9.M6*16 nut	2 pcs
10.M33 nut	2 pcs
11.ST3.9 nut	5 cps
12.Speed sensor	1 pcs
13.Magnet	1 pcs
14.Specification	1 pcs

Above components list is for reference only, it can be changed with different requirement.