Smart E-box＆APP meter

Release 1.11
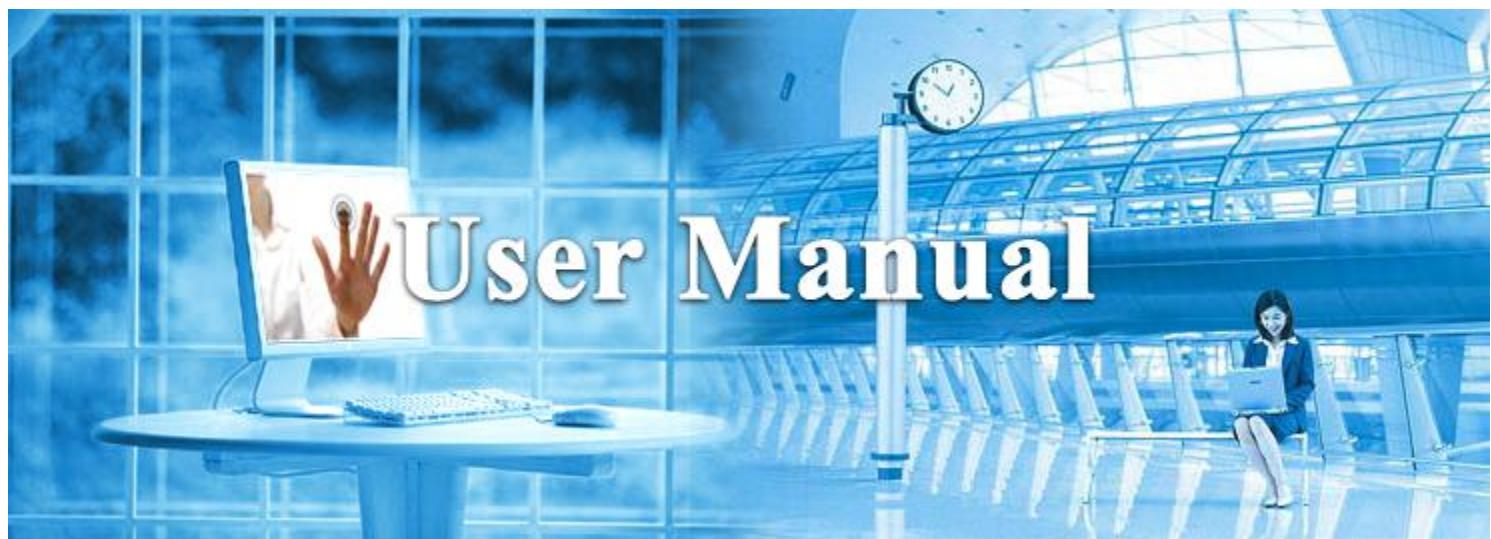
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WARNING:

This equipment has been tested and found to comply with the limits for a Class A and Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.

--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

Manufacturer:
Jingtek Electronics, Inc.
http://www.jingtek.com

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1.0   GENERAL INFORMATION

"Love the earth is action" has been established Jingtek center, we are committed to research

and development of electric vehicle controller for many years, has published a wide variety of

controller, led the world in more put forward combining with Bluetooth module, controller, electric cars

further enhance to individual action platform, even to the cloud. Let users can more convenient to use

electric cars, in order to achieve energy conservation and carbon reduction of green life. The smart e

- box& App electric vehicle wireless platform is divided into two parts, one part is hardware smart

e-box can all external controller, the other part is to put as for app in the mobile device. Both of the

electric vehicle wireless display instrument.

1.1   Hardware System Overview

Figure 1-1: Smart E-box module (positive)

Figure 1-2: Smart E-box module (opposite)

Smart E - box is a Jingtek device for electric vehicle wireless platform, using the latest

technology of Bluetooth 4.0 support IOS and Android. Bluetooth 4.0 uses iSSC BM77SPP03MC2

Bluetooth module :BM77SPP03MC2 ,The iSSC BM77SPP03MC2 Bluetooth module is design for

Bluetooth standard SPP/ BLE electronic accessories via Bluetooth connectivity. It is available in the

2.4GHz ISM band Class 2 Radio, compatible with Bluetooth Core Specification Version 3.0/ 4.0 +

EDR. iSSC IS1677NM single chip solution combines transceiver and baseband function to decrease

the external components. It narrows down the module size and minimizes its cost. The optimized

power design minimize power consumption to keep low battery.

1.2   The Bluetooth module features :

-Bluetooth 3.0/ 4.0+ EDR compliant

- Low power 1.8V RF operation

- RF transmitter output power Class 2

- RF receiver GFSK typical -90dBm, π/4 PSK typical -90dBm, 8DPSK typical -83dBm,

  BLE typical -92dBm

- Internal ROM and 4Mibts of flash

- HCI over UART

- I2C for external EEPROM

- 1 LED driver

1.3   Smart E-BOX Features

The Smart E-box features the following:

- ▪   TI 430 MCU

- Bluetooth 3.0/ 4.0+ EDR compliant

- Internal ROM and 4Mibts of flash

- I2C for external EEPROM

- Support 24V,36V,48V,60V,72V controller , CE/FCC pass by 36V.
- Support UART/I2C display Communication protocol
- RoHS compliance
- BQB/CE/FCC passed
- Communication/Power LED

- Low power 1.8V RF design

- Support hot plug
- Support line display and BT display at the same time

1.4 Hardware Application

Smart E-box is convenient external integration to each controller is designed and replace traditional cable instrument, just need to know each controller communication agreement can match, and the controller internal information via Bluetooth. The user can install the APP in the mobile phone or mobile device meter software, can use the software as instrument with terminal information platform for use with device.

1.5 Hardware Smart E-box Specifications

| Specification	Smart E-BOX -01
E-BOX Size	70mm x 35mm x 15mm
MCU	Ti 430MSP
Red led	BT Error
Greed Led	Communication
Vibration	GB 2423.10
Waterproof	IPX3
Operating Temperature	-10°C~60°C
Storage Temperature	-40°C~85°C
Weight	2g
Fixed method	Double-sided Foam adhesive tape (27mm X 33mm)
CE/FCC	Passed

Communication Port define	
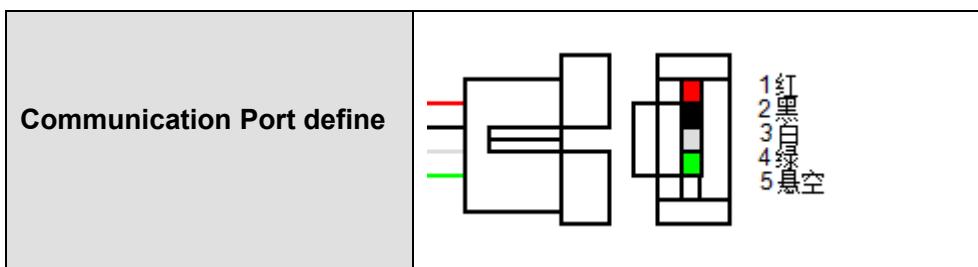
Table 1-1 Smart E-box Specifications

PIN number	Content
PIN1 red	24V or 36V or 48V input
PIN2 black	GND
PIN3 white	Signal wire
PIN4 green	Signal wire
PIN5 empty	Not used

Table 1-2 communication define

1.6 System architecture
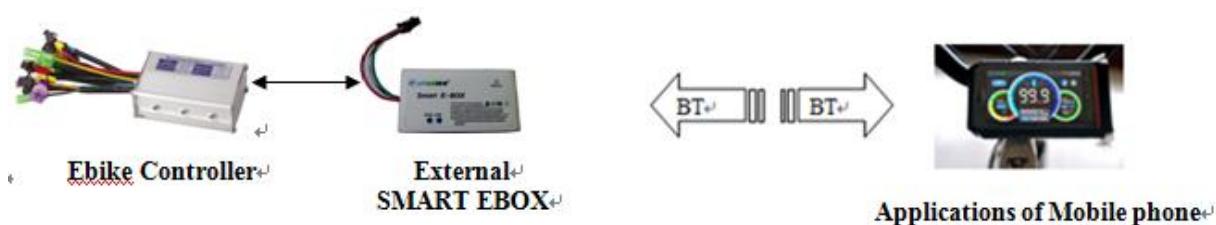
Figure 1-2: system architecture

Figure 1-3: system application

- External design
- BT 4.0
- Support IOS/Android

2.0　Mobile App overview

Along with the progress of time, the information age has evolved from PC to mobile information era. Since apple issued a landmark tablet phone, just a few short years published hundreds of millions of a application software, contains the game, the application of life, community chat.. Abound, such as software that changed the world, has also changed the lifestyle of human beings. We take the lead in applying such imported into the electric vehicle industry, with the content of the controller, Bluetooth transmission software developed by the sole E-BIKE provide users more ways to use electric METER, epoch-making product, leading trend.

2.1　E-bike Meter interface

IOS interface　　　　　　　　　*Android interface*
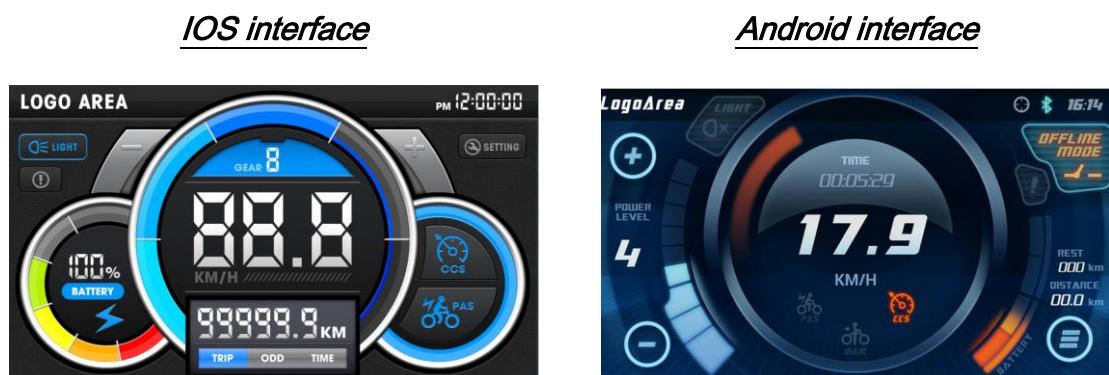
Figure 2-4: Main Page   Figure 2-1: Main Page

Figure 2-5:Error Page   Figure 2-2:Error Page

2.2   E-bike meter function list

		Estimate	Unit
1	Speed	CUR Speed	MPH，km/h
2		Average speed	MPH，km/h
3		MAX speed	MPH，km/h
4	battery	Battery power lever	Percentage
5		CUR Voltage	
6		CUR Current	
7		Battery Temperature	(Need battery SMbus support)
8		Battery Capacity	(Need battery SMbus support)
9		Battery Remain Capacity	(Need battery SMbus support)
10		Full charge	(Need battery SMbus support)
11		During charging	(Need battery SMbus support)
12		Number of discharge	(Need battery SMbus support)
13		Charge time the last time	(Need battery SMbus support)
14		Max interval of charge	(Need battery SMbus support)
15	LOGO	Custom LOGO	Design for all customs logo
16	Distance	ODO	
17		TRIP	
18		Range distance	
19		Range time(TRIP)	
20	ERROR	Brake Error	
21		Motor Error	

22		Thorttle Error	
23		Controller Error	
24		Battery Error	
25		Torque Error	
26	GPS meter	GPS mode	Show speed,trip with GPS signal
27	information	weather	Online
28		Temperature	Online
29	setting	Set wheel diameter	
30		Set language	
31		Set Bluetooth lock	
32		Set offline CL%	
33		Set Max speed limit	
34		Set/change login password	
35		Set community AP	
36		Set user data	
37	Power level（1-5 can be adjust）		
38	Assist 6km CCS		
39	Cruise control speed(CCS)		
40	The consumption of calories（CAL）		
41	Google map path planning		
42	Headlight		
43	PAS switch		
44	Fall down warning		
45	Bluetooth State		
46	Anti-theft Bluetooth lock		need use yiten controller
47	Advertising push		charges

Table 2-1 communication define

2.3 E-bike meter power mode
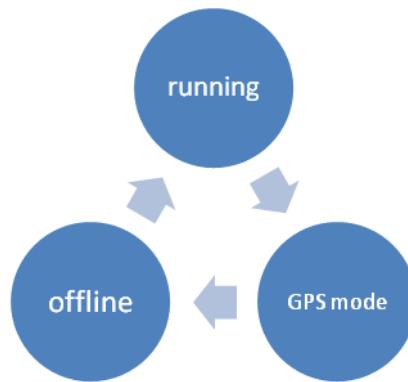
Figure 2-5:Power mode

2.4 E-bike meter advance plan

Smart E box provide the e-bike information by Bluetooth. It will setup one information platform for APPs. We have the unlimited imagination on this in the future.

Such as APPs plan for your reference:
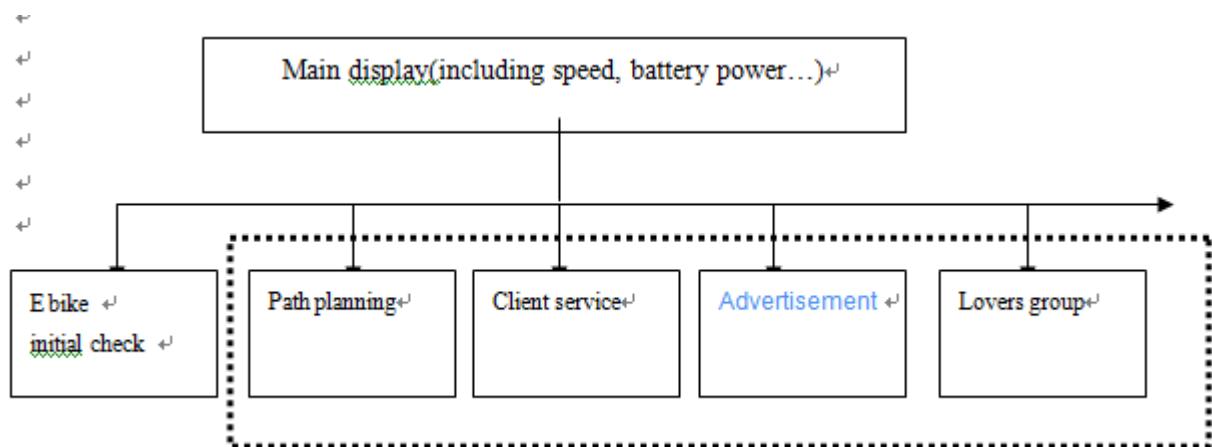
Figure 2-6:advance plan

Customize APPs
Animation introduction:
China version+demo : http://v.youku.com/v_show/id_XNTQxNzEzMDgw.html

2.5 Meter type

The **E-BOX＋Mobile E-bike Meter** solution can be applied to many types of E-Bike and variants.

Public city E-Bike	Citizen can utilize the smart phone to get the information about where to rent the E-bike and how many E-Bikes available. Automatic route planning and tour guiding can be easy implemented with the **Mobile E-bike Meter**.
Leisure and	By the instant battery capacity from the E-Bike, the **Mobile E-bike Meter**

Tourism E-Bike	can calculate the available remaining mileage to plan suitable leisure routes.
Seniors and Children Scooter	GPS tracking and emergency auto dialing can be integrated into the **Mobile E-bike Meter** for the safety issue.
DIY Assembling E-Bike	For easily and quickly self-assembling purpose, an integrated component of battery, BLDC motor controller, and E-Box is available. A complete package including additional throttle and DC motor is also provided.

2.6 Awards-2013 Taipei Cycle Organized by IF

3.0   Help Desk

Contact info:

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- **In the final product, the rating label of the Smart E-Box must be visible to the End-User**
- **The user manual provided to the End-user must contain the following statements:**

3.1 FCC statement

"This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help."

===

" This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3.2 IC Canada statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.