

# **Cross-vision World**

## **K001 product design specification**

**Date: AUG. 8, 2017**  
**Authors: Zhifeng Yang**

**Report No: F-00X Rev 0.4**

## TABLE OF CONTENTS

### Contents

<b>1</b>	<b>Revised History</b>	<b>3</b>
1.1	Revised History	3
<b>2</b>	<b>Intro</b>	<b>4</b>
2.1	File Purposes	4
2.2	Design Range	4
2.3	Development Scope	4
2.3.1	Hardware Function	4
2.3.2	FW Function	5
2.3.3	Interface	6
<b>3</b>	<b>Key function and definition</b>	<b>7</b>
3.1	The key position diagram	7
3.2	Key Definition	7
3.2.1	A key function and operation process	7
3.2.2	B key function and operation process	7
3.2.3	3.3.3 other instructions	8
3.2.4	C key function and operation process	8
<b>4</b>	<b>Product Feature</b>	<b>9</b>
<b>5</b>	<b>Hardware Environment</b>	<b>10</b>

## 1 REVISED HISTORY

### 1.1 Revised History

revision	author	Revision Content	Revised On
0. 1 edition	Zhifeng Yang	first, description hardware, structure, FW development	August 8, 2017
0. 2 edition	Zhifeng Yang	Added hardware parameters, amendment algorithm/drivers	September 21, 2017
0. 3 edition	Zhifeng Yang	added product feature	November 20, 2017
0. 4 edition	Zhifeng Yang	added interface display, optimization key function and others	December 12, 2017
the following blank			

## 2 INTRO

### 2.1 File Purposes

This product design specification mainly includes two parts: product definition and development design specification. Product definition provides the framework information of product function, appearance and cost. Development design specifications include hardware and software design, software and hardware design definitions and solutions.

### 2.2 Design Range

This design document contains the design reference of the core hardware, structure and FW part.

### 2.3 Development Scope

With light motion as the orientation, both sports mining and OLED screen display.

#### 2.3.1 Hardware Functions

category	project	Specification description	note
Appearance/material	size	Diameter:35.5mm aggregate thickness:7mm	
	stents	POM	
	color	white	
hardware parameters	machine core	RONDA 762	
	PCB specifications	0.6mm, FR4	
	bluetooth chip	nRF51822AC SOC	
	motor	Linear motor, consider the power consumption	
	aerial	ceramic&others	
	G-SENSOR	ST LIS3DH	
	battery	302025/110mAh	
	Power consumption	average≤40uA	
	power input	DC 5V±5%, 110mA, Anti-static processing	
display	charge	SGM40561, 1.5 hours	
	OLED	0.68 Inch, 9632TSWEG01, SPI interface	
keypad	“A” key	Switch button, Bluetooth and system switches.	

	“B” key	Screen function cycle switch, anti - static treatment.	
Static level	Contact discharge	8KV	
	Air discharge	15KV	
Use environment	humidity	10~90%	
	temperature	-20~55°C	

### 2.3.2 FW function

category	Functional description	note
BLE SOC	Watch system operation, OLED driver, charging control, power control	
	Algorithm running, G-sensor, HRM (Heart Rate Monitor)	
	Bluetooth communication, mobile phone app interaction	
Display content	date, Solar calendar/lunar calendar, second	
	Phone calls reminding, short message to remind, WeChat/qq information to remind, the alarm clock to remind, power, symbolic form	
	Step number/calorie display	
Algorithm/ drive	Steps, calories	
	OLED Display	
	Charge display, charge and discharge	
	Power consumption, late-night sleep function	
	Display arrangement	
	Key (chapter 3 key function definition)	

### 2.3.3 Interface

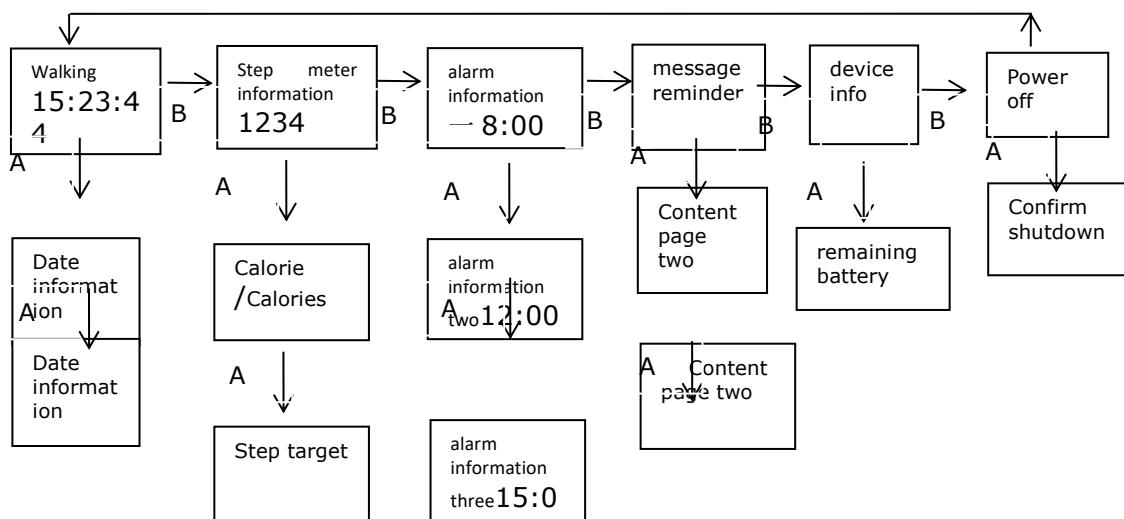
#### 1. No fonts

The default interface is a walking time interface, and the upper right is a bluetooth connection icon.

Press B to display 6 main interfaces:

Walking → step meter information → alarm information → information → Settings → shutdown - walking

Press A key loop shows that A child of the interface for each interface.



The step interface can be set to the default main interface, the Settings of the APP, the configuration of the Settings and the time of the time when the interface is replaced; Press and hold B to display the default counting interface from any interface.

#### 2. Add the word stock, push interface display

Phone calls reminding, according to contain a phone number and call people name; You can press any key to hang up the phone; After hanging up, press A to check the phone number. Press B to exit the information interface.

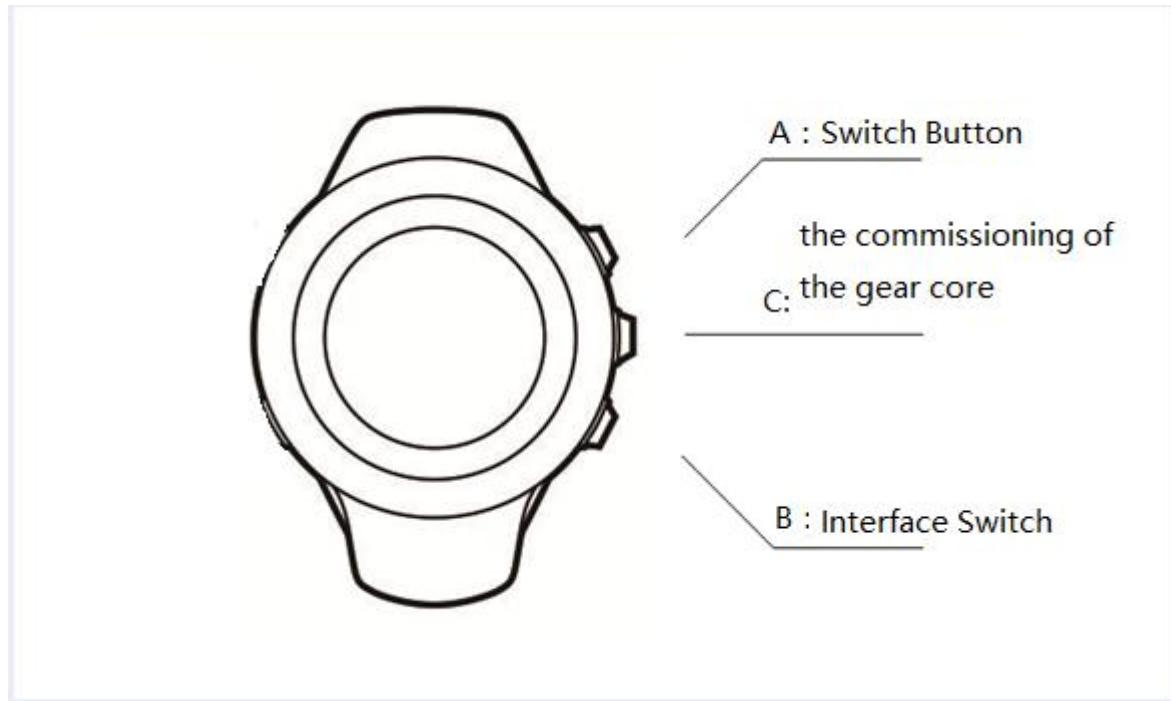
SMS alerts display, contain content and the source information, press A key can turn page display content, press B key can exit the interface.

Message alert display, display information content only, press A key can turn page display content, press B key can exit the interface.

Remote control photos display, press any key to take photos, press and hold any key can exit remote control photograph.

### 3 KEY FUNCTION AND DEFINITION

#### 3.1 The key position diagram



#### 3.2 key definition

K001 contains three buttons, one of which is C for the commissioning of the gear core and no functional definition. The other two buttons A and B are functional keys, so there is A functional definition.

##### 3.2.1 A key function and operation process.

Function: switch button.

1. press and hold 3s to start up ;
2. Boot state, the arbitrary interface, press two times can turn on the Bluetooth or turn off Bluetooth;
3. Boot state, press the A key, enter the next menuinterface for this function.

##### 3.2.2 B Key B function and operation process

Function: menu key.

1. It is valid when switched on;

2. Press the B key to switch function interface, different functions may exist multiple interfaces (press A key to switch).
3. Press "B" 1S, restore the default display.

### **3.2.3 3.3.3 other instructions**

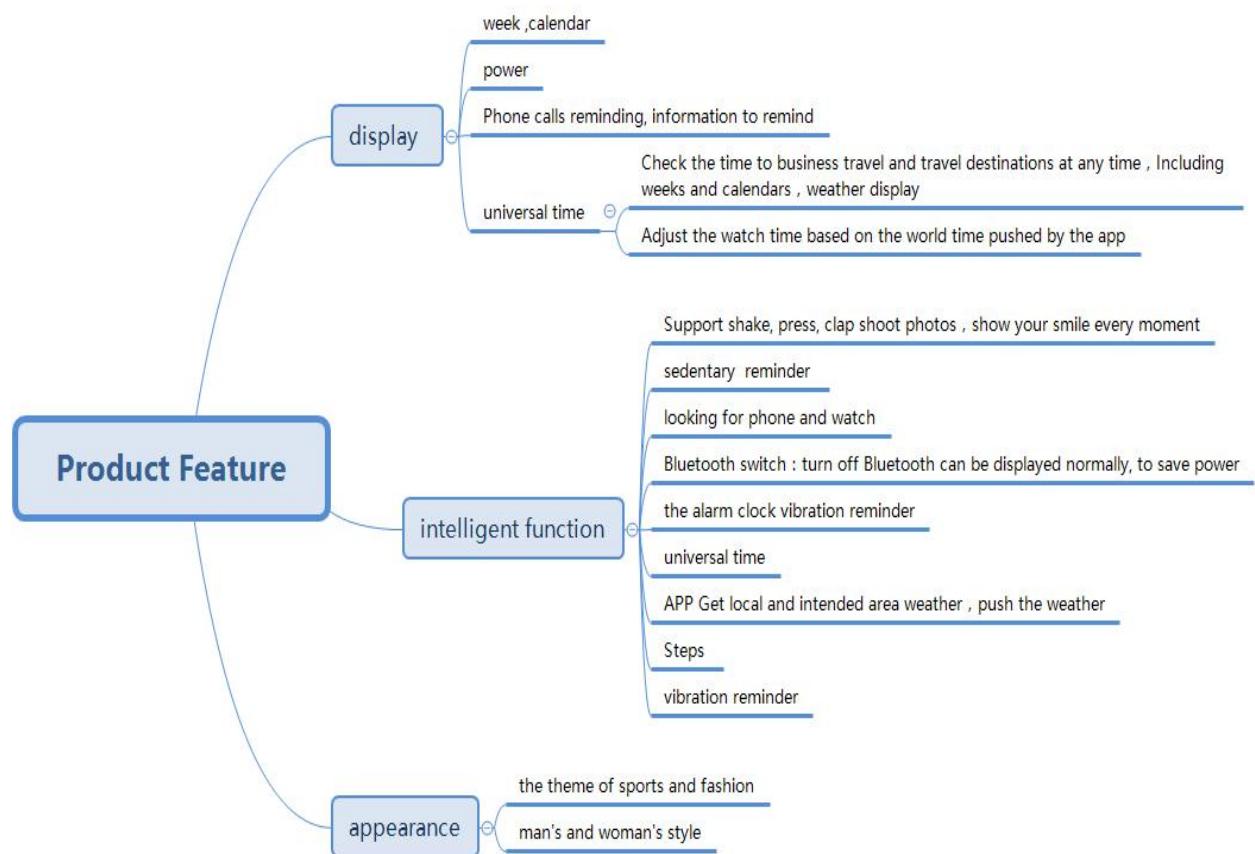
1. press and hold A+B key 5S, any interface can force the shutdown reset.
2. In case of call reminding, you can press any of the keys to hang the incoming call.
3. After hanging up, press A to check the phone number. Press the B key to exit the information interface;
4. When you get the message, press "A", you can look at the message, and you keep hitting "A", and the page shows the message; Press B key to exit the information interface.
5. When you take a photo into the remote control, can press any button to take photos, press and hold any key to exit the remote picture.
6. When the alarm goes off, press any key to stop the alarm and vibration.

### **3.2.4 C key function and operation process**

#### **3.2.5**

Function: unplug, adjust pointer according to demand, press in after adjustment.

## 4 PRODUCT FEATURE



## 5 HARDWARE ENVIRONMENT

The product is mainly aimed at the wearable market, so the hardware design needs to consider the following points:

Environmental requirements	Description
Temperature and humidity	Outdoor temperature difference and the characteristics of the summer and winter temperature difference, wash gargle, sweating will consequently affect the characteristics of electronic components, so must be listed as the product of hardware design requirements.
vibration	Walking or sports, transportation can affect the normal use of watches, and in the design and assembly process, it has to be avoided.
High voltage electrostatic	Friction with air, skin, and clothing is used to create static electricity, and it must consider the damage and protection of static electricity to the product.
Power consumption	The power supply of this product is powered by its own battery, so it has to be considered for the battery, to avoid the battery charge and the time of the watch.
space	The interior space of the watch is narrow, and the space of the product can be added. Therefore, the location and electrical characteristics of the components of the product must be taken into account.

**End of Document**

**FCC Notice:**

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. (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: 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.

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

**RF Exposure**

The equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance less than 5mm between the radiator & your body.