
Product specification

Product Name: Yarbo Controller

Product Type : C1

Number of pages: 9 pages

Edition: V1.1

| Effective date | Compiled by | Audit | Approvals |
|----------------|-------------|-------|-----------|
| 13-7-2022 | Songqing He | | |

☒Product specification

☐Sample Specification

| Date | Versions | Modifications | <i>responsible person</i> |
|-----------|----------|--|---------------------------|
| 202207013 | V1.0 | Preliminary specification | Songqing He |
| 20220808 | V1.1 | 1、 1. wireless pairing & reconnect light & connection success changed from blue to yellow. | Songqing He |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

FCC

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

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.

- 1 This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

ISED

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

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

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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;

2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet émetteur ne doit pas être colocalisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Le matériel a été évalué pour répondre aux exigences générales d'exposition aux radiofréquences. Le dispositif peut être utilisé dans des conditions d'exposition portables illimitées.

I Brief description of the product

The handle supports wireless Xinput mode only, for use with the Dongle connection.

II Basic functions

2.1. Handle support platform / mode

The USB Dongle supports PC platforms, PC360 mode only, and motor vibration.

USB Dongle connection steps (1 USB Dongle only supports 1 joystick connection)

1) The handle is not connected to the Dongle for initial use.

A: The USB Dongle connects to the Android device and is automatically recognized. Short press the pairing button on the USB Dongle and the USB Dongle enters the pairing state.

B: When the joystick is switched off, press and hold the Home button + A button for 2 seconds, the joystick turns on, the yellow LED flashes and the joystick enters the USB Dongle pairing state.

C: The handle and USB Dongle are successfully connected and the yellow LED of the handle is always on.

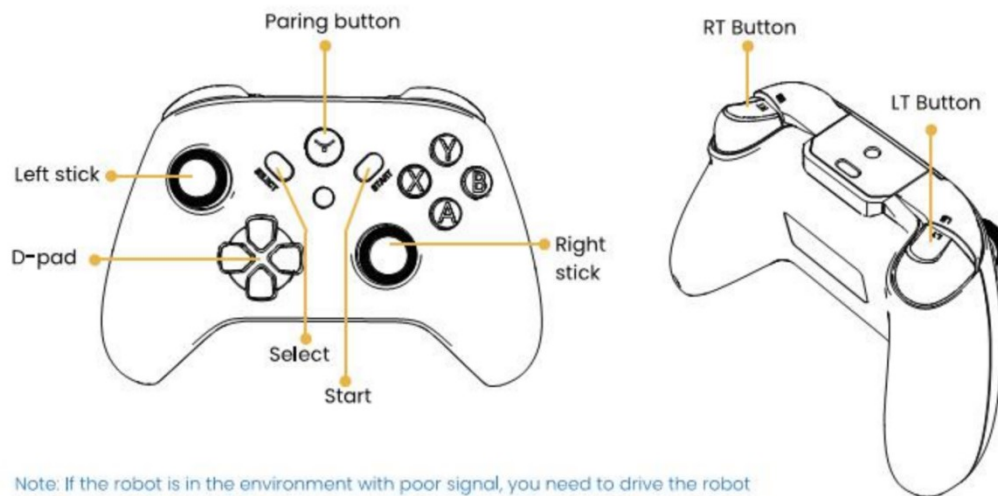
1) The joystick has been paired and connected to the USB Dongle.

A: The USB Dongle connects to the Android device; it is automatically recognized and the USB Dongle enters the back connection state.

B: When the joystick is off, press the Home button briefly for 1 second. The joystick turns on, the yellow LED shows and the joystick enters the USB Dongle back connection state.

C: The handle and USB Dongle are successfully connected and the yellow LED of the handle is always on.

2.5 Handle buttons



Note: If the robot is in the environment with poor signal, you need to drive the robot with the controller into the coverage of RTK signal (stay with RTK base as closer as possible when they are pairing with each other).

Paring button: Start to search and pair with the robot (Emergency stop button: pairing button can also use as emergency stop button, press the paring button once to stop the robot.)

Light indicator light: (1. Blinking yellow light: searching and paring with robot; 2. Solid yellow light: connected with robot successfully; 3. Blinking red light: low battery)

Left stick: Control the robot movement.

Right stick: Control the robot movement (same as the left stick button).

D-pad: Control the discharge chute.

Up & down key: Hold the button to raise or lower the chute throwing angle.

Left & right key: Hold the button to rotate the chute.

SELECT: Get access to controlling the robot (Considering the safety, it requires to get access to controlling the robot before starting to control the robot with the controller). It will start vibrating after getting the access successfully.

START: Reset the overload current.

Y button: Hold the button to raise up the robot's head.

A button: Hold the button to lower down the robot's head.

X button: Control the speed of auger.

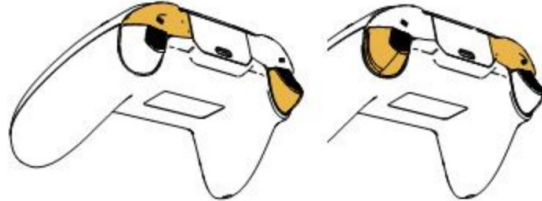
B button: Turn On/Off the front light on the robot.

RT button: Control the speed movement of the robot; Hold the RT button to speed up the robot.

LT button: Hold the button to Turn On the auger.

Shortcut introduction

1. Hold LB, RB, and LT RT to switch the work pattern.
2. Hold LB, RT (or RB, LT) to return the robot to docking station



Note: the controller has three work patterns, (snow mode, lawn mode, leaf mode) this function will be functional once the other modules are released

2.6 Charging function

- 1、Slow flashing green LED for off charging, green LED always on when full;
2. Connected state charging, green LED flashing slowly, full green LED always on, unplug charging cable, resume mode light always on.

2.7 Shutdown

1. not connected back to the equipment shutdown within 60 seconds.
2. 5 minutes of no movement of the handle to switch off after successful connection.
3. the handle and receiver beyond the connection distance, the handle into the back connected state, back connected 60 seconds without success shutdown.
4. Press and hold the SELECT+B key for 2 seconds to switch off the machine.

2.8 Low voltage alert/low voltage shutdown

- 1) When the handle is connected and the handle battery voltage is below 3.6V (error $\pm 0.05V$), the handle automatically low voltage prompts and the red light flashes slowly.
- 2) When the handle is connected and the handle battery voltage is below 3.45V (error $\pm 0.05V$), the handle automatically switches off.

2.9 Reset function

- 1) In the event of an abnormality in the handle, it can be reset by pressing the reset button on the back of the handle.

2.10. Rocker calibration

1) When there is an abnormality in the left and right rocker of the handle, the left and right rocker of the handle can be calibrated.

2) Rocker calibration method.

A: When the joystick is switched off, press and hold the "B" key and the "down" key of the cross key at the same time, then press the Home key briefly to switch on the joystick, the joystick will enter the calibration mode.

(Note: The left and right joysticks cannot be touched when performing joystick calibration. (When calibrating, it is the left and right joysticks that are calibrated at the same time.)

B: The rocker calibration is successful and the rocker value is centered.

(Note: All handles must be calibrated with the rocker as described above after assembly before they can be used properly)

2.11 Upgrade function

1) The handle firmware can be upgraded automatically without driver via USB cable, upgrade tool: Windows system computer, upgrade system support: Win7/Win10.

Method of operation :

A: Use your PC to open the upgrade software. (It is best to turn off your PC antivirus software before opening the upgrade software)

A: When the joystick is switched off, press and hold the B button + up button at the same time, then insert the USB cable to connect to the computer, the connection is successful and the joystick indicator light is always on.

B: After successful connection, the handle is automatically upgraded. The progress bar is completed and the phone is upgraded successfully.

2) USB Dongle firmware can be upgraded automatically without driver via USB cable, upgrade tool: Windows system computer, upgrade system support: Win7/Win10.

Mode of operation.

A: Use your PC to open the upgrade software. (It is best to turn off your PC antivirus software before opening the upgrade software)

A: Press and hold the button on the USB Dongle, then connect to the computer.

B: After successful connection, the handle is automatically upgraded. The progress bar is completed and the handle is upgraded successfully.

2.12 Lamp holder test/PCBA automatic test

1) Finished product testing :

The finished grip supports light stand testing, the grip uses a USB cable to connect to the light stand, testing functions include: buttons, joystick, trigger, Bluetooth connection.

III Product parameters

1) Operating voltage: 3.7V

2) Operating current: $\leq 35\text{mA}$

3) Quiescent current: $\leq 30\mu\text{A}$

-
- 4) Battery power: 450mAH
 - 5) Charging voltage: DC5V
 - 6) Charging current: 300 ± 50 mA
 - 7) Charging time (theoretical): ≤ 3 hours
 - 8) Distance used: 10m
 - (9) Theoretical wireless battery life: ≥ 10 hours

IV Special Notes

- (1) All information provided in this specification is accurate and reliable and the company accepts no liability for the consequences of any irregularities in operation or use.
- (2) Due to the official system, game, game platform upgrades or changes and other irresistible factors caused by part of the game or can not be connected to the operation, the company to assist in solving the abnormal problems. The company reserves the right of final interpretation in this regard.
- (3) Any changes to the specifications mentioned in this specification will be explained in writing.
- (4) This specification supersedes all information previously provided.