



GOLFWAVER Golf Radar Sensor

User Manual

Version V1.0

PMN:GOLF Waver Launch Monitor

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Revision History

Date	Versions	Implementer	Description
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1 Summarize

The radar sensor is mainly used in the swing parameters and flight parameters of golf shots. It is connected with the Bluetooth of the Yueqiu APP on the mobile phone to display related parameters of golf, so as to facilitate customers to evaluate their own shots and provide reference data for improving their own level.

1.1 System Description

1.1.1 Radar sensor system

Radar sensor system: including 5V2A power adapter, 1m Type-C Charging cable, Radar sensor;

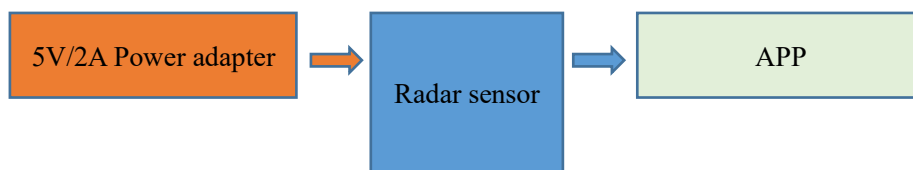


Figure 1. Block diagram of radar sensor system

1.2 Product Application scope

- 应用于室内外高尔夫等非专业和专业人员提供评估的数据参考，提升自身的击球水平和专业性。
- used in indoor and outdoor golf amateur and professional personnel to provide data to the evaluation of the reference, to raise their level and professional.



2 Product specifications

2.1 Specifications

Hardware characteristics	
CPU	Based on STC12C5A6052 MCU
Radar radio frequency module	Infineon's BGT24MTR11\BGT24MR2 radar scheme is adopted
WiFi/BT module	ESP32-WROOM-32E
WiFi module	ESP8266-12F
Battery	18650,2600 mAh rechargeable lithium battery
Charging interface	5V/2A
Machine power	≤2W
Software characteristics	
Operating system	RT-Thread

2.2 Interface Description

Interface type	Description
Network interface	2.4G Bluetooth, 2.4G Wifi
Power interface	TYPE-C interface (5V2A)

2.3 General Specifications

Adapter power supply



Power	Use a 5V/2A adapter for power supply
Full load power	2.5W
Working environment	
Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 70°C
Humidity	20% ~ 70%
Mechanical parameter	
Size (L*W*H)	170*100*29mm
Net fuselage weight	230g
Shell	Painted plastic case (Yellow , Grey , Silver , Black)

3 Product Appearance description

3.1 Appearance



Figure 2 Top view



Figure 3 Side view



Figure 4 Rear view



Figure 4 Charger and charging cable

3.2 Device Usage

3.2.1 The device interface contains the following configurations

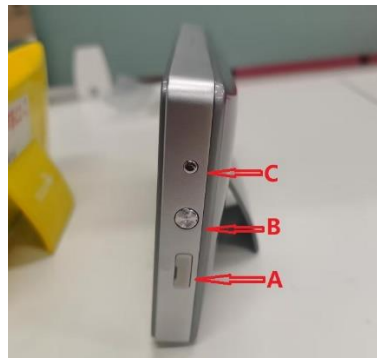


Figure 5

(1)A: TYPE-C Indicates the interface

Used to connect the 5V2A adapter to charge the radar sensor;

(2)Power button

Press the power button to turn on the machine, and the buzzer will sound 3 times. Press the power button to turn off the machine, and the buzzer will sound 1 times.

(3)Positioning laser start button

Button press, line laser light 20S, according to the direction of play set up radar sensor;

3.2.2 Top LED and other display instructions

(1) On the startup display, if 4 green LED lights are on, the electricity quantity is greater than 85%; if 3 green LED lights are on, the electricity quantity is greater than 50%; if 2 green LED lights are on, the equal circuit is greater than 25%;



Figure 6

- (2) Plug in the charging cable, the first light on the right is blue, indicating that the radar sensor is in the charging state;

If the blue indicator is blinking, the battery is not installed or there is no battery.



Figure 7

- (3) During normal operation, the middle two lights are lit;



Figure 8

- (4) The red light on the LED on the left indicates that the battery is installed backwards and needs to be installed again in the correct way;



Figure 9

- (5) Instructions for radar battery warehouse



Figure 10

3.2.3 Instructions for use

(1) Download and install APP



Figure 11

- (2) Turn on the radar, the radar LED lights up two green lights in the middle (as shown in Figure 8);
- (3) Place the radar 2 meters away from the TEE position, turn on the positioning laser (start with the button on the body or start the laser in the APP), align the laser line with the center of the golf ball at the tee position, and keep the laser line in a straight line with the



direction of the shot;



Figure 12

(4) APP Turn on the Bluetooth of the mobile phone and open the APP;



Figure 13

- (5) Click the upper right corner to search for the device, click the corresponding Bluetooth number, the link is successful;

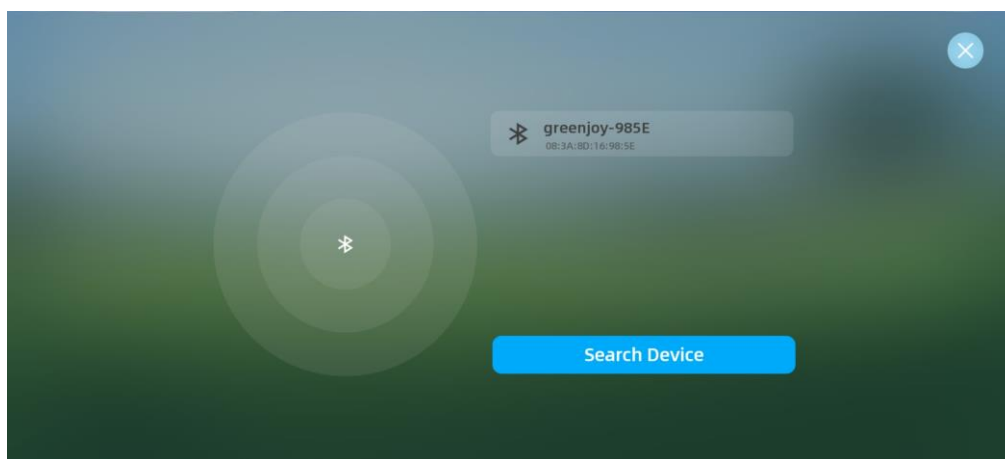


Figure14 Search for a device and click the corresponding device



Figure15 Successful connection



- (6) Check the relevant information of radar, check the version number, upgrade the radar, APP start the positioning laser switch;

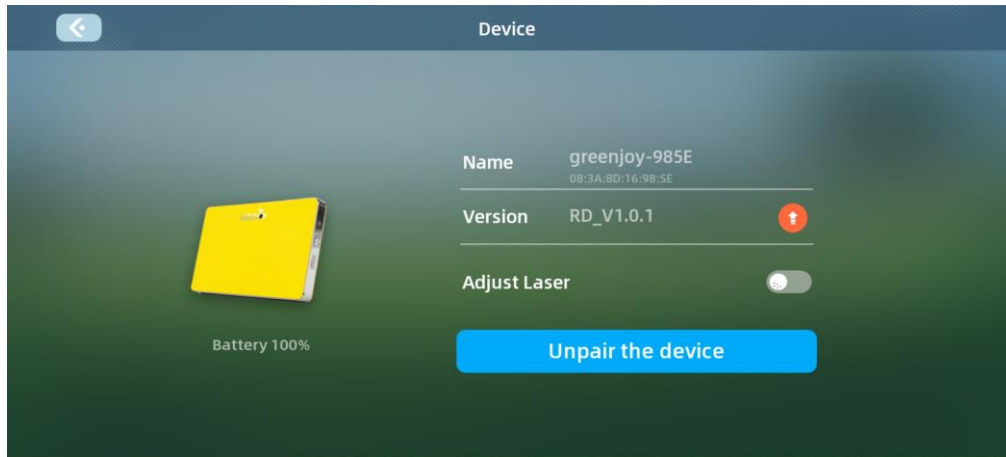


Figure 16 View information about connected devices



Figure 16 Top right check radar power

- (7) Open the driving range and other scenes, each successful shot will have the relevant parameters of golf flight;



Figure 17 View the motion parameters and trajectory of the golf ball

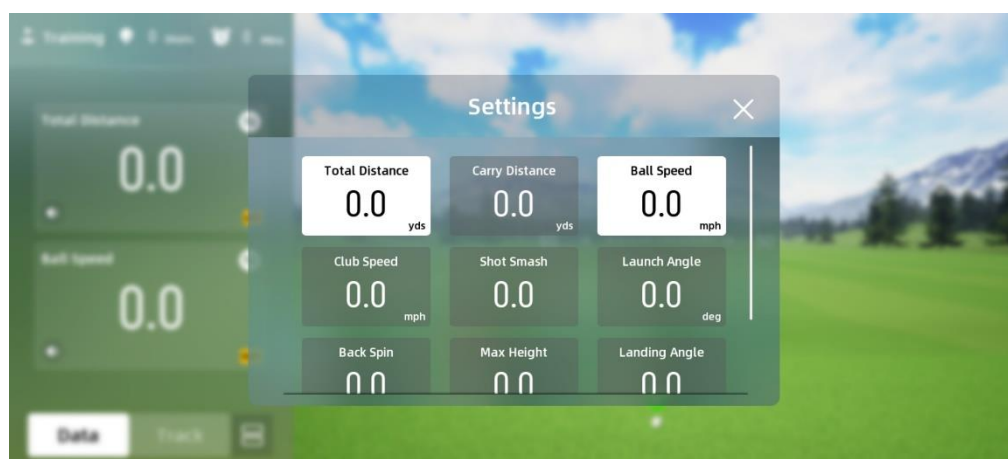


Figure 18 See more motion parameters and trajectories of golf balls

4 Packing List

Model	Color	Quantity
GOLFWAVER Radar sensor	Yellow/Silver/Black/Grey	1
Charger	Black/White	1
Charging cable	Black/White	1

FCC compliance statement:

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.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

ISED Canada compliance statements:

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.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication

The device has been evaluated to meet general RF exposure requirement. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

L'appareil a été évalué pour répondre aux exigences générales d'exposition aux RF. Cet équipement doit être installé et utilisé avec une distance minimale de 20cm entre le radiateur et votre corps.