



FlightScope | X3C



with Fusion Tracking



X3C USER MANUAL

Notices:

The following notices and general precautions must be observed during the operation, service and repair of this equipment. Failure to comply with these precautions or with warnings elsewhere in the manual violates standards of the design, manufacture and intended use of the equipment. FlightScope accepts no liability for failure to comply with these notices.

Operation of the device in any country may require approval in accordance with local telecommunications and safety regulations.

The equipment has been designed for sheltered or clear weather use.

Electrostatic Discharge (ESD) Notice: This product is sensitive to electrostatic discharge, which may occur when it is touched. An ESD event may cause the device to temporarily cease operation. If this happens, simply turn the power off and then on again to restore functionality. The interruption is a minor inconvenience and does not affect the overall reliability of your product.

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Japanese caution: for Indoors use only.

++++++本機器の使用に係る注意事項++++++

本機器が使用する10.5GHz帯の電波は、

免許を受けて屋外で稼働する一部無線局も利用しています。

これら無線局の稼働を妨げないよう、

本機器は屋内(住宅、ビル、マンション内部等)でのみご利用ください。

万一、無届で本機器を屋外使用すると電波法違反として罰則を受けることがあります。

(地方総合通信局に申請し無線局免許を取得すれば屋外でも使用できるようになります。
詳しくは販売元にお問い合わせください)

FCC Statement

Changes or modifications not expressly approved by FlightScope (Pty) Ltd could void the user's authority to operate the equipment.

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 an office or 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 other electronic equipment, which can be determined by turning this equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Increase the separation between the equipment causing and experiencing the interference. Install a radio frequency shield between the equipment causing and experiencing the interference. Consult your dealer 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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

IC Statement

This device complies with Industry Canada license-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.

Déclaration IC

Cet appareil est conforme au CNR-310 d'Industrie Canada. Son exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage préjudiciable, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This guide will help you set up and use the
FlightScope X3C.

The **FlightScope X3C** is battery operated
and connects by Wi-Fi to your tablet or
PC, or by Ethernet cable to your PC.

Contents

Welcome	1
Package Contents	2
Feature Overview	3
Product Overview	4
LED Indicators	6
X3C Safety	10
The Battery	11
Self-Leveling Feet	14
Tilt Angle.	15
Roll Angle	16
Set Up Tips	17
Switching On	20
Position & Alignment	22
Aim the X3C	25
Using the System	26
Compatible Devices	26
Software Applications	27
Communications	28
First Time Use.	29

Set Operating Mode	31
Normal Play Modes, Short Game Modes	32
Set units, distances, height & altitude	32
Units	32
Sensor to Tee Distance	32
Tee Surface Height	33
Altitude	33
Marking the Ball for Indoor Measurements	34
Switching Off	34
Care & Maintenance	35
Basic Care	36
Storage & Transport	36
Damage	36
Cleaning	37
Trouble Shooting	39
Physical Specifications	40
Electrical Specifications	42
Notes	43
Serial Number & Purchase Date	44
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Welcome

Congratulations on purchasing the FlightScope X3C, featuring brand new Fusion Tracking technology.

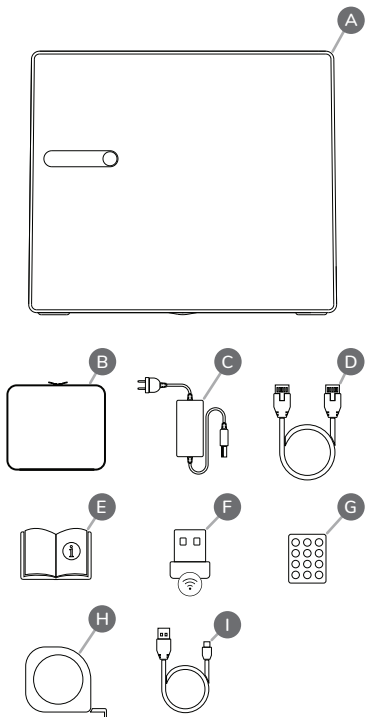
The X3C can be used for equipment or player testing, from tee drives to chipping and putting, and operates indoors and outdoors.

Typical applications include:

- Teaching
- Club fitting
- Practice and self-assessment
- Equipment testing
- Equipment retail
- Golf game simulation

FlightScope will fully support you in your use and enjoyment of the system. FlightScope's ongoing R&D commitment also means that new features and levels of performance will be readily available to you when new developments are made. We look forward to being your technology partner as you and your customers Master your Passion®.

Package Contents



- A X3C unit
- B sleeve
- C AC adaptor
- D ethernet cable
- E user manual
- F connection adaptor
- G aluminum stickers
- H tape measure
- I USB cable (support)

Feature Overview



Fusion Tracking technology

Patented technology that combines tracking radar and image processing



Multi-frequency radar

Direct distance measurement for more accurate ball & club tracking



Chipping & putting data

Short game tracking to complete game improvement



Built-in image processing

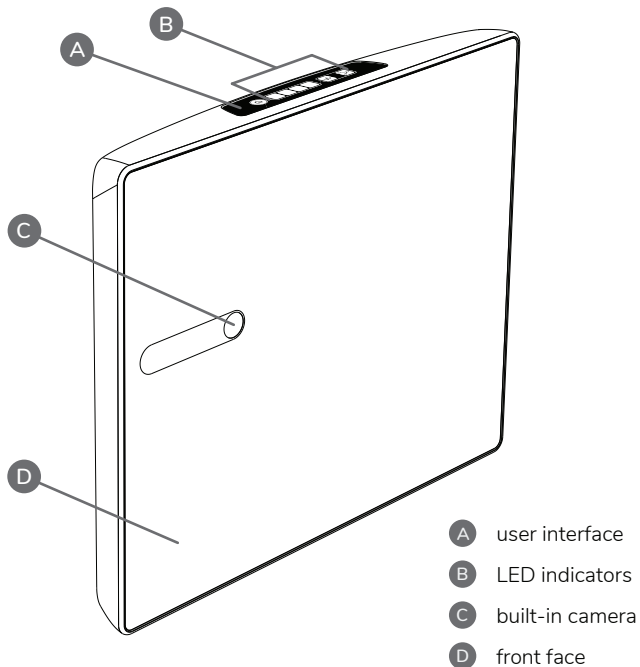
Boresight camera for radar & image processing, data fusion

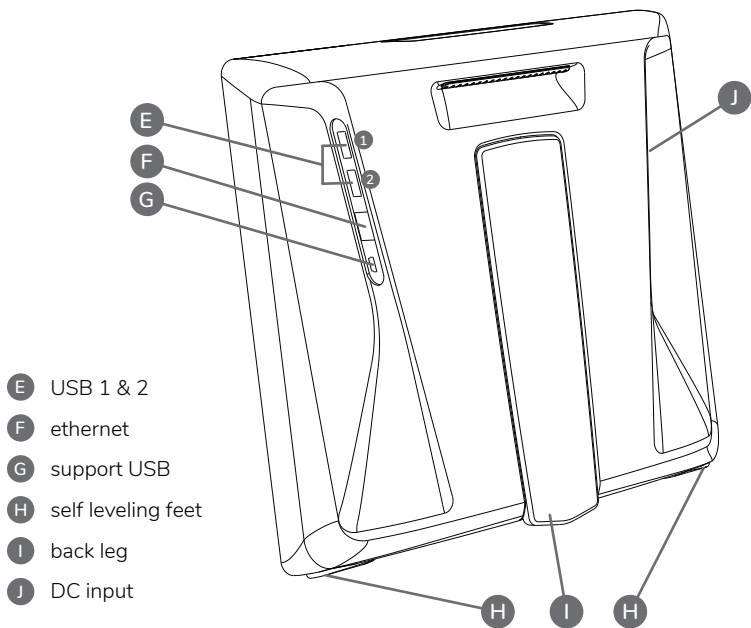


Improved Wi-Fi

Connect multiple listener devices through an existing Wi-Fi network

Product Overview





LED Indicators

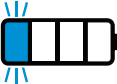
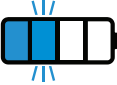
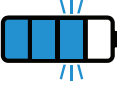
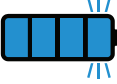
Connection

State		Color
Off	No light	
Ready	Blue solid	
Connected	Green solid	

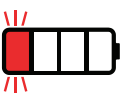
Status

State		Color
System Off	No light	
Power on, switching on	Blue flashing	
Processor start-up 30-60 seconds	Flashing blue & green	
Standby mode	Green solid	
Armed, ready to measure	Red solid	
Processor shutdown 15-30 seconds	Flashing blue & yellow	
Error	Flashing yellow	

Battery - Charging Status

State		Color
Off	White/no light	
Charging 0-25%	Blue flashing	
Charging 25-50%	Blue solid second flashing	
Charging 50-75%	Blue solid third flashing	
Charging 75-100%	Blue solid fourth flashing	
Fully charged	Blue solid	

Battery - Remaining Charge

State		Color
On battery 75-100%	Green solid	
On battery 50-75%	Green solid	
On battery 25-50%	Yellow solid	
On battery 10-25%	Red solid	
Charge low, under 10%	Red flashing	
Battery fault, dead or overheating	Yellow flashing	

X3C Safety

Lithium Battery

The X3C contains a rechargeable lithium ion battery.

The battery is not user replaceable. If necessary a battery must be replaced **ONLY** at a **FlightScope Repair Center**. The product and its battery must be recycled or disposed of properly.

Air Transport

The X3C battery meets the existing FAA and IATA specifications for the X3C to pass as carry-on or as checked luggage on passenger airlines (below 100 W-h). Always switch the X3C off before packing for a flight.

Electrical Shock Hazard

Do not expose the AC adapter and main power connections to rain or wet conditions. This may cause a lethal electrical shock.

Handling

Keep fingers clear when closing the X3C leg. If closed incorrectly, pinching of fingers or hand may occur. See back leg operation illustrated in Switching Off section of manual.

The Battery

The X3C is delivered with some power stored in its internal battery. The battery should however be fully charged for 8-10 hours with the included power adapter before first use.



WARNING

Using damaged mains cords or chargers, or charging when moisture is present, can cause **electric shock**.

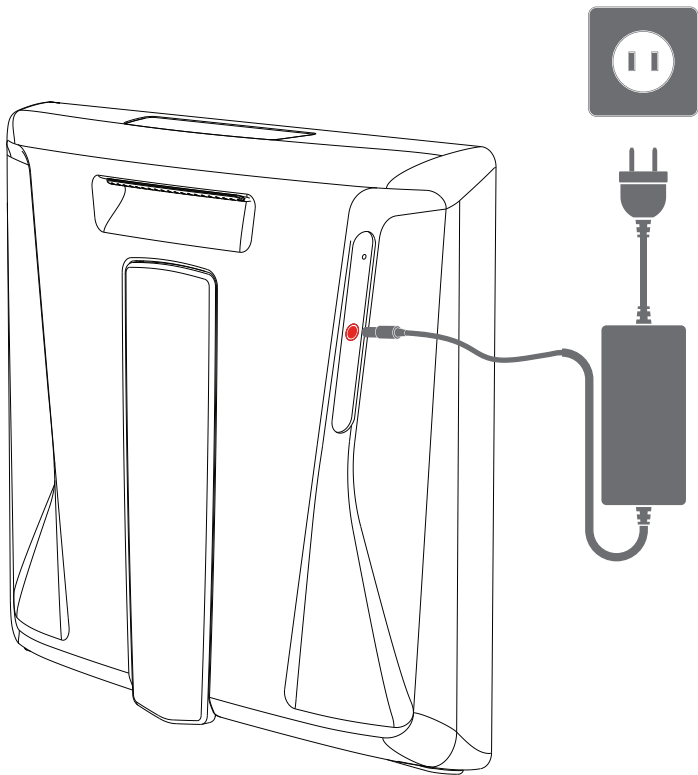
CAUTION

Do not use a power adapter other than the one supplied or specified by FlightScope. If an adapter with incorrect voltage rating is used, the X3C electronics can be damaged. If an adapter with insufficient current rating is used, the adapter may overheat and become damaged.

NOTE

1. The power adapter may become warm during normal use. Always allow adequate ventilation around the power adapters during use.
2. If the X3C is left switched on, the battery will drain and might become completely discharged. If battery is completely discharged, you must charge the battery with the system “OFF” for at least 30 minutes before using.

Battery Charging



Charging the X3C to **full capacity** takes up to **10 hours** using the supplied power adapter.

1. Connect the included power adapter to a wall outlet and plug the power lead into X3C power connector.
2. The battery indicators will show the battery level in BLUE (see LED Indicators – Battery).

NOTE:

Charging time is approximately **8-10 hours**.

Contact **Support** at FlightScope if battery needs replacement.

Battery Safety & Care

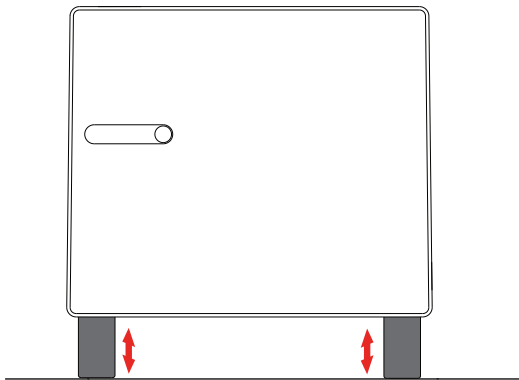
Don't attempt to replace the X3C battery yourself. The X3C battery should be replaced only by an authorized FlightScope Repair Center.

A defective or end of life battery must be recycled or disposed of separately from household waste.

Do not burn the battery.

Self-Leveling Feet

The X3C's self-leveling feet automatically adjust tilt and roll angles to compensate for uneven surfaces.



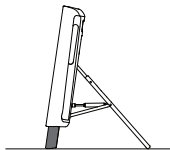
Tilt Angle

The X3C's operating tilt angle is optimized by the app for best tracking performance and can vary. The default settings are **4°** for **Normal golf mode** and **2°** for Short Game.

Ground slope **MUST be less than 5°** for self-leveling function.

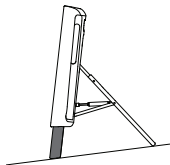
FLAT

(Actuators extend mid-way)



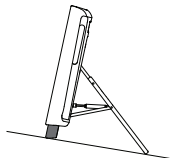
DOWN SLOPE

(Actuators extend more)



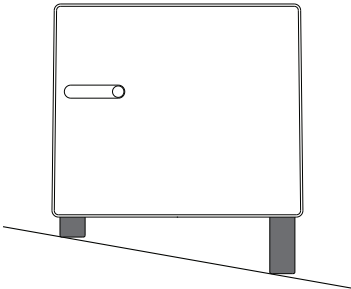
UP SLOPE

(Actuators extend less)

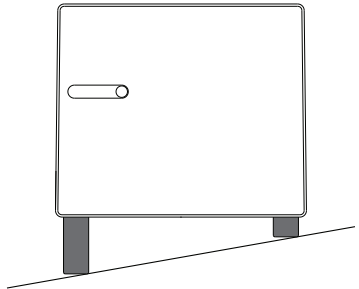


Roll Angle

- Sensor operating roll angle is 0° .
- Ground slope must be $< 3^\circ$ for self-leveling to function.



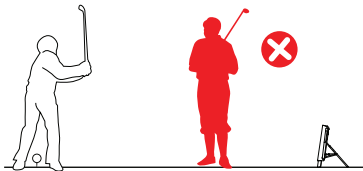
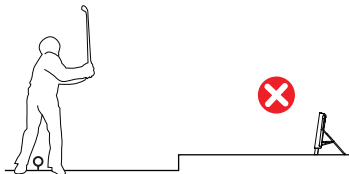
Left slope 3° max



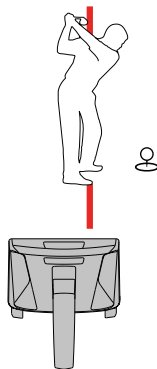
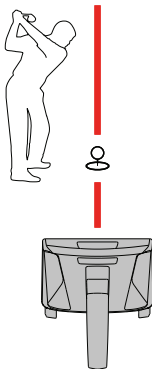
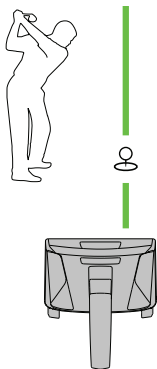
Right slope 3° max

Set Up Tips

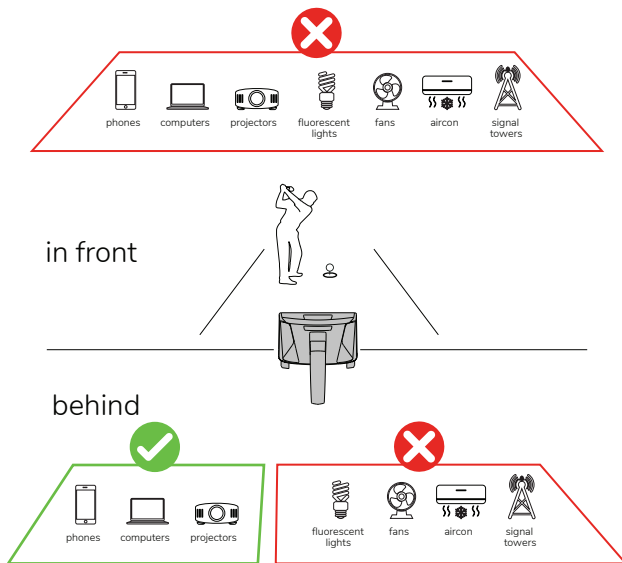
1. Use the X3C on reasonably leveled surfaces. Ensure that there are no obstructions or steps in front of the unit, and it has a clear unobstructed view of the club swing and ball trajectory.



2. Remember to set the **correct mode** ('Limited flight' or 'Outdoor').
Align the X3C so that the camera is in line with the ball.



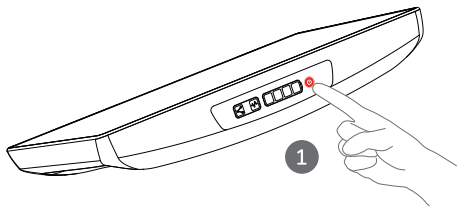
3. Certain items can cause **false triggers** (ghost shots) depending on their position in relation to the X3C. The below illustration shows these items and where they may cause false triggers.



- Try to prevent false triggers by switching such lights or machines **off**, or install a **wire mesh screen** in the light covers or over the interfering machines.

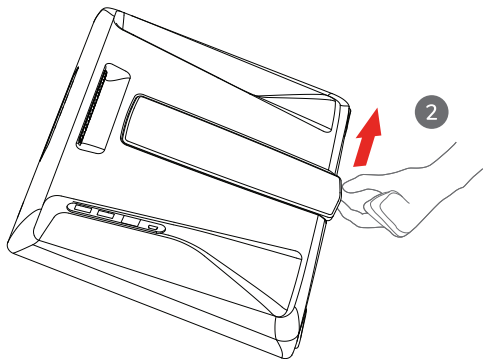
Switching On

To switch the system ON:

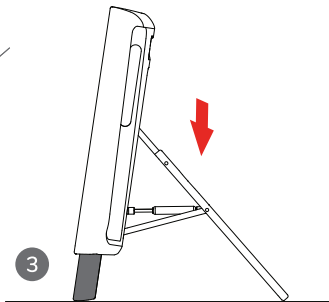


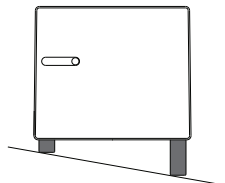
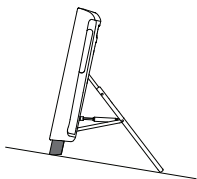
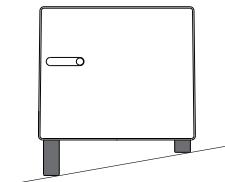
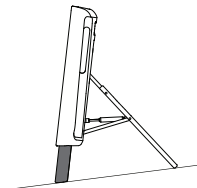
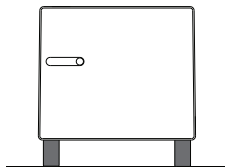
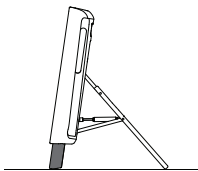
Press and hold the power button until a beep is heard and the user interface illuminates.

Open leg by lifting the bottom edge. The feet will then extend automatically .



Once feet are fully extended place the device on ground or floor in its intended operating position.

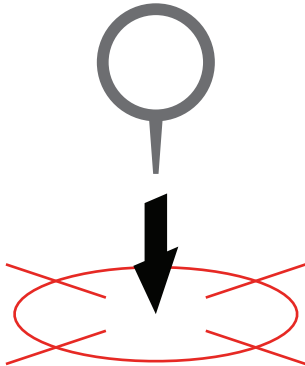




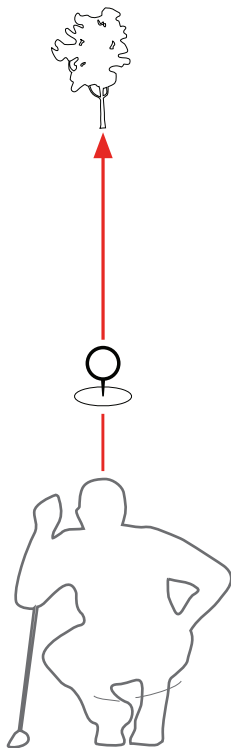
While starting up, the device will automatically adjust its level according to the slope of the ground or floor.

Position & Alignment

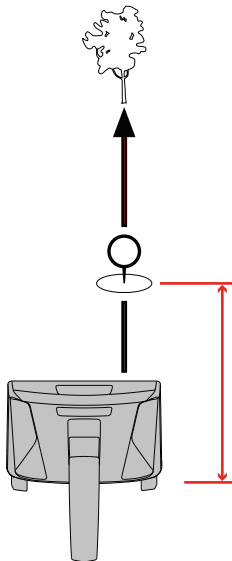
1. Choose your tee position.



2. Select a target line from the ball to a target (a tree in the distance, flag, or other marker).



3. Place the X3C behind the tee, with X3C's internal camera hole over the target line.



Distance behind tee:

Normal golf shots:

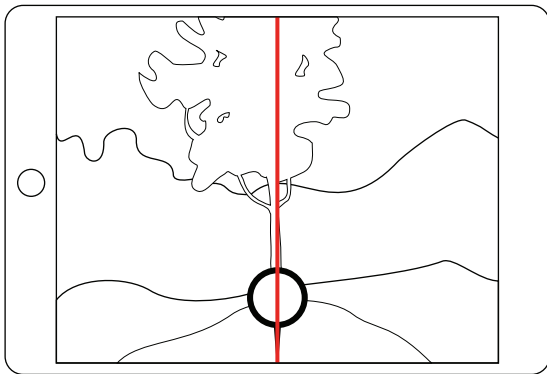
9ft. to 14 ft. (2.7 - 4.2m)

Short Game (putts, chips):

5ft (1.5m)

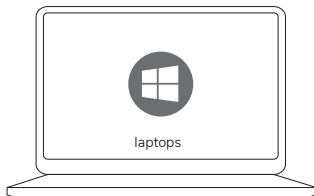
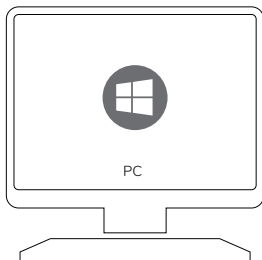
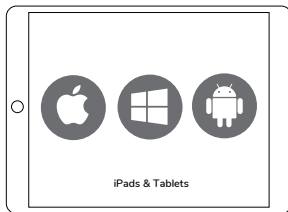
Aim the X3C

- a. On the app, select Alignment and view the image.
- b. Move and rotate the X3C to point the image center line (vertical line visible on your iPad screen) along the target line. Make sure the vertical line is in line with both the ball and target.



Using the System

Compatible Devices



Go to
flightscope.com/products
for minimum system requirements and compatible devices.

Software Applications

To download visit
your app store:



Short Game (X3C Only)

Providing chipping and putting data for complete lessons, short game data is automatically synced with customizable video recording.

Video Lessons

Featuring a customizable interface, data and video are combined for an all-in-one lesson recording solution.

FlightScope Skills

Play FlightScope Combines or create customizable challenges for player benchmarking.

FlightScope VX

A comprehensive teaching, fitting and training app with 3D views of ball flight and club data.

Communications



Ethernet Port

Use the supplied Ethernet cable to connect a PC Desktop or Laptop to the X3C.



USB Ports

Insert a Wi-Fi adapter into one of the USB ports to create a Wi-Fi connection to the X3C.

The USB Mini port connector is reserved for technical servicing.

First Time Use

The easiest way to connect your X3C and your PC or tablet computer is by using the QR code feature.

QR Code

The App should prompt you to connect by scanning the QR code before starting a session.

If not, then you can navigate to the Scan QR code in the app. In both cases, make sure your X3C is turned on.

To navigate to the QR code in the app:

1. Open App and navigate to setup/device settings/QR code.
This could be before or during a session depending on the App being used.
2. Click the scan button.
3. Scan the QR code located on the side of your X3C.

If you are unable to use the QR code feature, then you may still connect manually in your Wifi settings on your device.

Manual WiFi connection

1. Note the X3C's serial number (example: X3C-010234).
2. Switch the X3C and PC or Tablet ON.
3. On your PC or Tablet, find and select your FlightScope X3C unit from the list of connected devices in the Wi-Fi networks.
The serial number will be displayed.
4. Enter the unit's 10-digit serial number in the Password field, e.g. X3C-010234 (including the capital "X" and the dash (-) characters).

NOTE

For both QR code and Manual methods, once the connection has been made the first time, the software will remember the settings and reconnect automatically when the X3C is turned on.

Set Operating Mode

Setup must be done every time the unit is used. Setup includes:

- operating mode
- unit position and alignment in relation to the tee
- units of measurement (metric, imperial, etc.)

Play Modes

Mode	When to use
Limited flight	Where ball flight is limited to 8 ft. (2.4 meters) or more, but less than 44 yards (40 meters). For example with simulator setups.
Outdoor	On a driving range or golf course where ball flight is unrestricted.

Short Game Modes

Mode

Putting

When to use

When practicing putts on a putting green or putting surface (i.e. indoor putting green).

Chipping

When practicing bump and run chips on a green.

Set units, distances, height & altitude

Setup opens the Software **Settings** screen.

The software applications that are compatible with the X3C require certain settings to be entered by the user before use.

Units

Select Metric or Imperial units.

Sensor to Tee Distance

Enter the distance between the X3C face to the tee/hitting position in the software.

TIP: Always tee up within 6 inches (15 cm) of the specified position for optimum performance.

Tee Surface Height

Enter the height of the hitting surface above the surface on which the X3C is placed, e.g. 2.5 cm / 1" if a mat of such thickness is used.

Altitude

Enter the altitude (height above sea level) of the location.

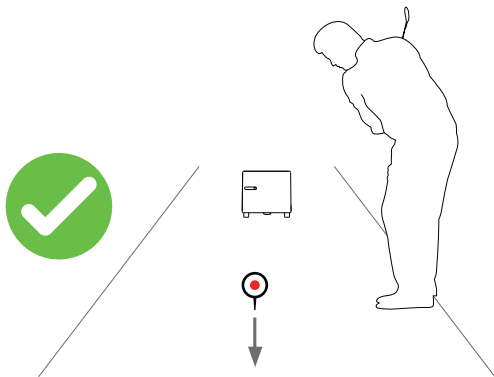
Save and close to continue. The system is now ready for use.

Marking the Ball for Indoor Measurements

Metallic stickers are included with the X3C's accessories. These must be used in **Limited flight** mode as follows:

Mark the ball with a single sticker for spin measurement.

Tee ball up with dot **facing forward** (towards the target/net/screen).



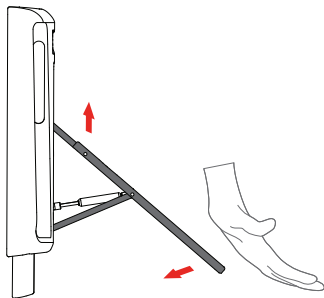
NOTES

Spin values and carry distances may be inaccurate if unmarked balls are used in Limited flight mode.

Do not use marked balls with Short Game applications (chipping and putting).

Switching Off

To switch the system OFF:

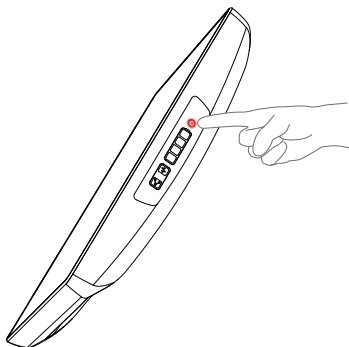


Lift up the X3C device and push the leg back to its closed position.

The device will proceed to retract its feet.

CAUTION

Keep fingers clear as illustrated.



To shut down the device, press the power button until a beep is heard.

NOTE

The shut down time can be up to 30 seconds.

Care & Maintenance

Basic care

The FlightScope X3C sensor is a sensitive and complex electronics unit and should be handled with care. There are fragile components inside the sensor that can be damaged by improper or rough handling and impact.

Make sure to store and transport the sensor with suitable protection and care, for example in the padded carry bag or the original shipping packaging.

Storage & Transportation

- Store and transport the sensor in its carry bag or other suitable packaging when not in use.
- If the sensor is unused for a long period, remember to fully charge the battery before using again.

Damage

The following may cause damage to your X3C unit:

Physical impact



Internal water damage



Solvent chemicals



Heat and flames



Excessive weight loading



Moisture and liquids



Cleaning



Use a soft damp cloth to clean the sensor including the feet every time **after** use to remove dirt.

Troubleshooting

Symptom

Possible cause and remedy

Unit does not switch on

Make sure that the battery is charged, or otherwise connected to a main power source with the AC adapter. Make sure the leg is extended.

Low battery run time

Rechargeable batteries lose capacity over time. If your batteries have become too poor to use, contact FlightScope Support for a new battery.

Batteries run down

Make sure to charge batteries for 8-10 hours until full. When stored for a length of time, batteries will lose charge due to self-discharge. If a unit has not been used for a while, it is recommended to first charge the batteries or run it with the AC power adapter.

Symptom

Possible cause and remedy

Shot is not displayed

Check that the correct mode e.g. 'Indoor' or 'Outdoor', is selected.

Check that the sensor is switched on and positioned correctly behind the tee from which the shot is played.

Ensure that your PC/Tablet and the sensor is set up and connected.

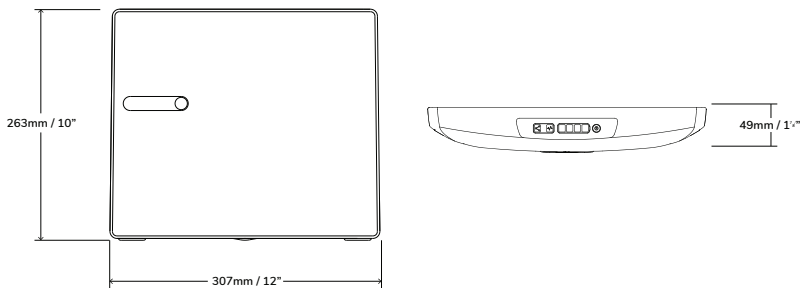
Sensor not connecting/ed

Make sure that the sensor is switched on, and check that the communications indicator is flashing.

Check the cable connection, as applicable.

Use the PC or Tablet's Setup Wizard or Connection tools to connect to the X3C, if not connected.

Physical Specifications



Dimensions:	307 x 263 x 49 mm (W x H x D) 12" x 10" x 17/8"
Mass:	3kg 6 lbs. 10 oz.
Operating tilt:	Normal play: 4 degrees Short game: 2 degrees
Tilt/roll adjustment range:	+/- 3 degrees
Ambient temperature:	0°C to 40°C (32°F to 104°F) (operating) -10°C to 55°C (-14°F to 130°F) (non-operating)
Ingress protection:	IP53 / NEMA-3

Electrical Specifications

RF Section

Detection method	Low power Doppler speed measurement
Operating frequency	Fixed frequencies pre-set in band 10.500 to 10.550 GHz
Transmitter power	10 mW (10 dBm) typical
Carrier/ Modulation	CW/None (Emission designator: NON)
Antenna gain	17 dBi
Antenna beam	25 degrees (vertical) ; 20 degrees (horizontal)

Electromagnetic Compatibility

FCC Class 15, Industry Canada

Communications

Wi-Fi (IEEE 802.11b/g)

USB 2.0

Power Supply

Supply input (AC adapter):	100-240 Vac / 0.2 A / 50/60Hz 1 ϕ
Output (AC adapter):	11-13 V dc ; 3.3A max ; 40W max
Battery:	7.4 V / 13500 mA-h

Notes:

44

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

MY SERIAL NUMBER:

PURCHASE DATE:



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