

**Competition Rules**

## GENERAL RULES

- G1.** When interpreting the rules of Airineers, please remember that common sense always applies.
- G2.** Each team must have two people present in the Pilots Box – one Pilot and one Spotter.
  - a. The Pilot must sit in the Pilot's Seat whilst the Match or race is in progress.
  - b. The Spotter must stay in the Spotter's Station by the Pilot for whom they are spotting.
- G3.** The transmitter may only be touched by the Pilot.
- G4.** Prior to the Match starting, each Drone must be placed on a Launch Pad by a Team Member.
  - a. Drones must be Disarmed when they are being placed and must remain Disarmed until an Event Official states that it is safe to Arm.
  - b. Any Drones that are Armed prior to an Event Official stating that it is safe to Arm may be Disqualified from the Match.
- G5.** The Organisers and Event Officials can request that any or all Drones are Disarmed at any point during the Match.
  - a. Organisers and Event Officials reserve the right to intervene and Disarm any drones at any time if for any reason they feel it is necessary to do so.
- G6.** No Team Members are permitted to enter the Live Area at any point during a Match.
- G7.** Whilst it is expected that there may be contact between Drones during a Match, strategies aimed at intentionally crashing into opponents Drones could result in a Warning or Disqualification.

## DRONE RULES

- D1.** Each Drone may have a maximum of 4 Motors, with each one no larger than 6mm in diameter and 15mm in length.
- D2.** The Transmitter and Receiver for all flight controls must operate on the 2.4GHz frequency.
- D3.** Each Drone must be powered by a maximum of one 3.8V battery.
- D4.** The maximum dimension shown below are to the furthest extremes in each direction and include propellers, antennas and any other part of the drone required for it to operate:
  - a. Length: 150mm.
  - b. Width: 150mm.
  - c. Height: 50mm.
- D5.** Only one Drone design may be used by a Team at any given Event and must be used for all types of Matches and Races.
  - a. It is expected that damage will be sustained throughout the course of an event so any parts including Frames, Propellers, Motors, Flight Controllers etc. may be changed or replaced. However, these must be identical to those when the Drone passed inspection.
  - b. The adding or removing of any subsystems or attachments for different types of Matches is not permitted.
- D6.** All Drones must be able to be Disarmed via a single switch on the Transmitter. This switch must be clearly identified with a red marker such as heat-shrink tubing or red PVC tape tightly wrapped to the switch actuator.
- D7.** Drones must be fitted with a Failsafe that cuts power to all Motors in the event of loss of signal between the Transmitter and the Drone.

## SAFETY RULES

- S1.** If at any time a Drone or the actions of the Team responsible for that Drone are deemed to be unsafe or behaving in an unsafe manner, the offending Team's Drone may be Disarmed by the Event Officials and the Team may be disqualified from the Match or Race. Serious breaches of safety may result in Disqualification from the Event.
- S2.** Any Team Members entering the Live Area at any time must wear suitable eye protection.
- S3.** Lithium Polymer batteries may only be charged when all the following criteria are satisfied:
- Charging takes place in the designated Charging Zone(s) which will be defined by the Event Organisers in the briefing.
  - Batteries are contained in a suitable fireproof LiPo safe bag whilst being charged.
- Failure to comply with this rule will be considered a breach of S1.
- S4.** Drones may only be connected to a battery when in a designated Live Area.



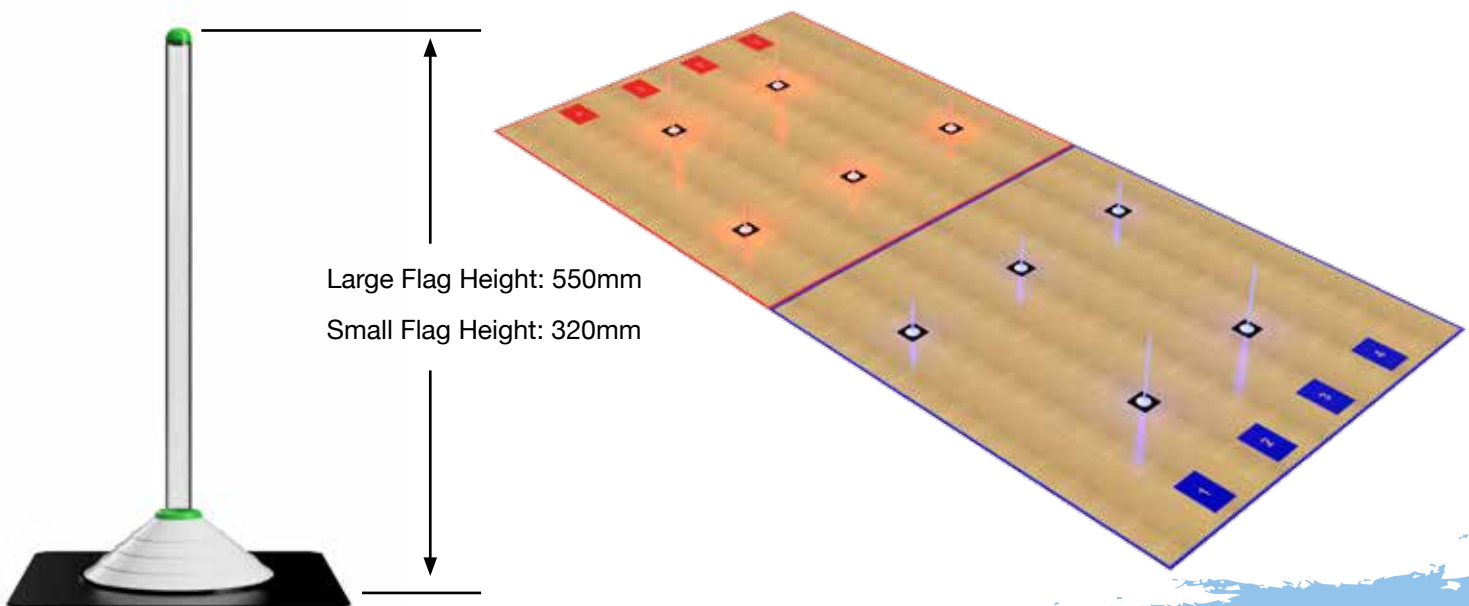
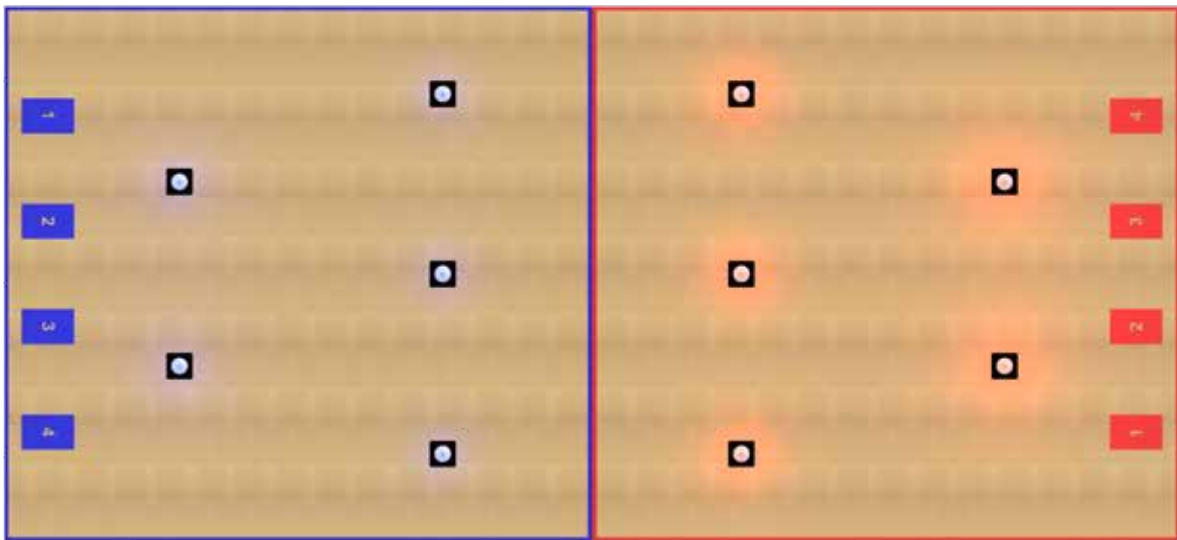
## CAPTURE THE FLAG RULES

Capture the Flag is an individual or team game played by 2 Squadrons, one Red and one Blue. Each Squadron is made up of 1 to 4 Drones who must work together to Capture more Flags than the opposition.

The game is played on a Flying Field of approximately 13.4 by 6.1m – the size of a standard badminton court. However, the actual size of the Flying Field may vary depending on the venue and is at the discretion of the Event Organisers. The Flying Field is divided into two halves, one Red and one Blue. Each half contains 2 Large Flags and 3 Small Flags which start the Match set to the same colour as the half that they are in.

Squadrons must “Capture” the Flags that are owned by the opposing Squadron by tapping into the them to change the colour. Squadrons can receive bonus points by being Landed on one of their own Launch Pads before the Match ends.

The winner is the Squadron with the most points at the end of the match.



## Scoring

- A Small Flag is worth 3 points.
- A Large Flag is worth 2 points.
- A Landed Drone is worth 1 point.

- CF1.** At the beginning of each Match, each Drone must be placed so that it is only contacting a Launch Pad and no part of the Drone is touching the surrounding ground.
- a. Only one Drone may occupy each Launch Pad.
  - b. In a Match consisting of less than 8 Drones, the lowest number Launch Pads must be used first (i.e. in a 1 vs. 1 Match, both Drones must start from the no. 1 Launch Pad, in a 2 vs. 2 Match, Drones must start from no. 1 and no. 2 Launch Pads and so on).
- CF2.** Pilots must not take off until the starting beeper sounds. False starts may result in disqualification from the Match.
- CF3.** Scores are calculated as soon as the timer signals the end of the match. Any Flags captured or Landings completed after then end of the Match will not be scored.
- CF4.** Pilots are not permitted to Land on the opposing Squadron's Launch Pads. Minor violations will result in a Warning but Match affecting violations may result in Disqualification from the Match.
- CF5.** Any Flags that are damaged during a Match so that they do not display a colour will not be counted towards the score of either Squadron.
- CF6.** A Drone is considered Landed if:
- a. it is contacting a Landing Pad of the same colour as it's Squadron.
  - b. no part of the Drone is touching the surrounding ground.
  - c. rules CF7a and CF7b are satisfied before the Match ends.
  - d. rules CF7a and CF7b remain satisfied when the Drone is Disarmed.

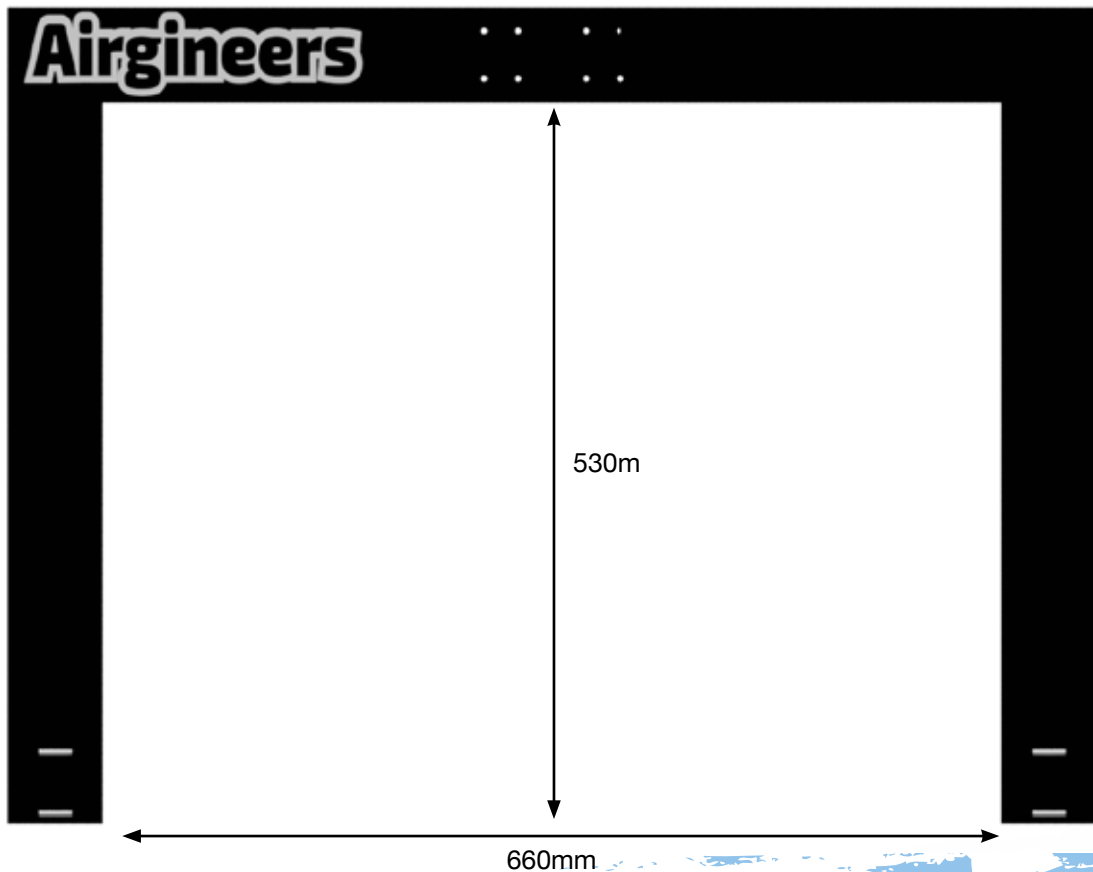
## HEAD TO HEAD RULES

Head to Head is a 1 vs. 1 Race around a circuit which is marked out by a series of Gates. The two Pilots will each race on individual circuits which are a mirror image of one another. The winner is the Pilot who completes the required number of laps of their circuit first.

Circuits will vary in size and layout depending on the venue and the amount of space available but the Gates used will be the same regardless of venue.



Airineers Micro Class Gates can be laser cut from 5mm acrylic. Visit [www.airineers.co.uk](http://www.airineers.co.uk) to download the files for laser cutting.





## Scoring

- A Win is worth 10 points.
- The Pilot who sets the fastest lap in the race will receive a 2 point bonus.

Note: In the event that the Race consists of a single Lap, the Race Winner will also receive the fastest lap bonus.

- HH1.** The Event Schedule will determine which Pilot uses the Blue Lane and which Pilot uses the Red Lane. Pilots are not permitted to switch lanes.
- HH2.** At the beginning of each match, each Drone must be placed so that it is only contacting a Launch Pad, so that no part of the Drone is touching the surrounding ground.
- HH3.** Pilots must not take off until the starting beeper sounds. False starts may result in disqualification from the Race.
- HH4.** Pilots must navigate through the Gates in the correct order and in the correct direction. If an Event Official is not satisfied that the course has been successfully completed, the Lap may be voided.

## Glossary

<b>Abort Signal</b>	A safety instruction which means any Drones in flight must land immediately
<b>Armed</b>	A drone status where power is connected and drone can respond to control inputs
<b>Capture</b>	A Flag is Captured by the Squadron of the same colour that the Flag is illuminated
<b>Charging Zone</b>	An area designated by the Event Officials for the safe charging of Lithium Polymer batteries
<b>Disarmed</b>	A drone status where power is connected but the motors are not turning and where all other control inputs are disabled
<b>Disqualified</b>	A team that is Disqualified from a Race or Match will not receive any points or times for that Race or Match. Teams that are disqualified from an Event will not be able to compete in any further Races or Matches or receive any awards at that Event.
<b>Drone</b>	A multi-rotor model
<b>Event Official</b>	A member of the team responsible for the running of an Airineers event
<b>Failsafe</b>	A system that prevents the Drone from continuing to fly in the event of control signal failure
<b>Flag</b>	An electronically illuminated pole that can be illuminated either red or blue
<b>Flight Controller</b>	An electronic system mounted on a Drone consisting of sensors and processors to aid flight control
<b>Flying Field</b>	The area marked out within the Live Zone that indicates the boundaries of the space used for a match
<b>Frame</b>	The structural chassis of a Drone
<b>Gate</b>	A structure used for marking out the route of a circuit
<b>Inspection</b>	The process whereby a Drone is approved by the Event Officials to compete at an Airineers event
<b>Launch Pad</b>	The space from which a Drone must take off from at the start of a Race or Match
<b>Live Area</b>	An controlled area designated for the flying of Drones
<b>LOS</b>	Line of Sight
<b>Motor</b>	Any type of electric motor which is in any way connected to the propulsion system of a Drone
<b>Organisers</b>	The Airineers team
<b>Pilot</b>	The Team Member who will control the Drone for a given Race or Match
<b>Pilots Box</b>	The designated area when Pilots are positioned whilst a Race or Match is in progress
<b>Propellers</b>	A propeller or rotor that provides propulsion for moving the Drone
<b>Race</b>	A head-to-head between 2 or more Drones or a time trial around a defined circuit
<b>Receiver</b>	A device on a Drone for receiving radio control signals from the Transmitter
<b>Squadrons</b>	An alliance made up of a number of teams for the duration of a Match
<b>Student</b>	A person who is aged 16 years or younger at the time of the event
<b>Team Member</b>	A person who meets the definition of Student and is part of a team competing at an Airineers event
<b>Transmitter</b>	A device used by the Pilot to send radio control signals to their Drone
<b>Turn Flag</b>	A structure used for marking out the route of a circuit
<b>Warning</b>	Used to notify Team Members of unsafe or inappropriate behaviour. Multiple Warnings may result in disqualification from an event