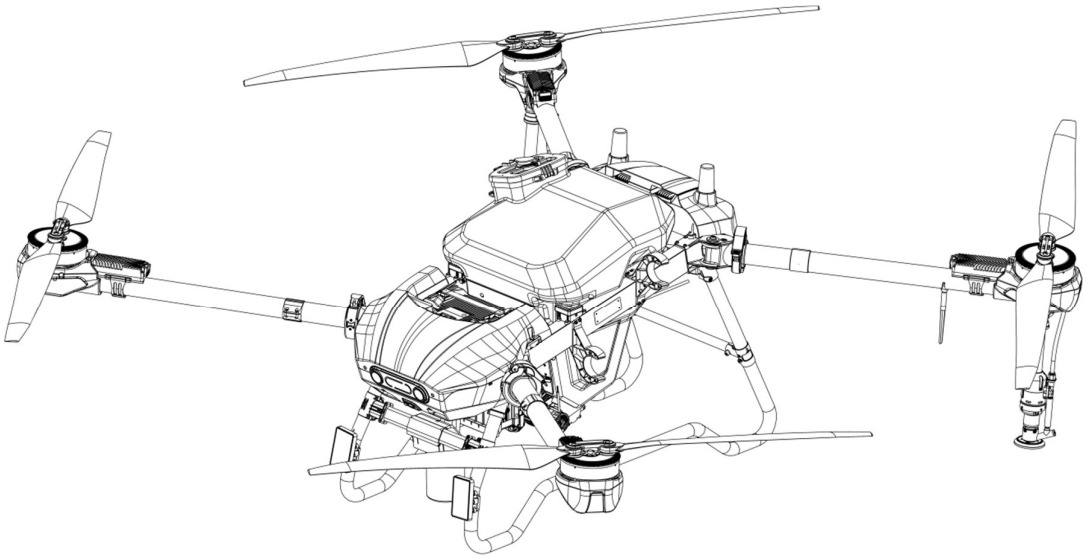
Agricultural Drone Instruction Manual

Efficient Operation of Agricultural Spraying Drone

Version 1.0



VECTOR AGR

Flight Route Planning – Spraying Operation

When performing spraying tasks, it is recommended to select long, straight flight routes. Since spraying operations require extended durations, using short routes with frequent turns will increase battery consumption. This may result in situations where the pesticide is not fully dispensed, but the battery is already depleted, ultimately reducing overall operational efficiency.

Flight Route Planning – Spreading Operations

For fertilizer spreading tasks, it is recommended to use short flight routes, with each route ideally ranging from 150 to 250 meters. Long flight paths increase non-productive flight time, waste battery power, and reduce overall operational efficiency. For fields that are 500 to 1000 meters in length, a mobile (progressive) operation is advised—after completing a few flight lines, move the drone’ s takeoff point progressively to the second point, third point, and so on, to improve efficiency.

Predicting Pesticide Depletion Point

During flight, a small spray tank icon (e.g., the red icon in the image on the right) appears along the route to indicate the predicted pesticide depletion point. Try to position this predicted depletion point as close as possible to the drone’ s takeoff and landing location. This helps ensure that the actual depletion occurs near the home point, reducing unnecessary battery consumption and improving overall operational efficiency.

Resume Spraying from Pesticide Depletion Point

After each sortie, the system automatically generates a return point based on pesticide depletion or low battery. The next sortie will automatically resume spraying from this pesticide depletion/low battery return point. If the field is long and the takeoff point is far from the depletion point, unnecessary battery consumption may occur during transit. Therefore, it is recommended to manually create the depletion point near the field edge closest to the takeoff point for pesticide refilling and battery replacement before flying back to the depletion point to continue spraying. The red dot in the image on the right indicates the depletion point.

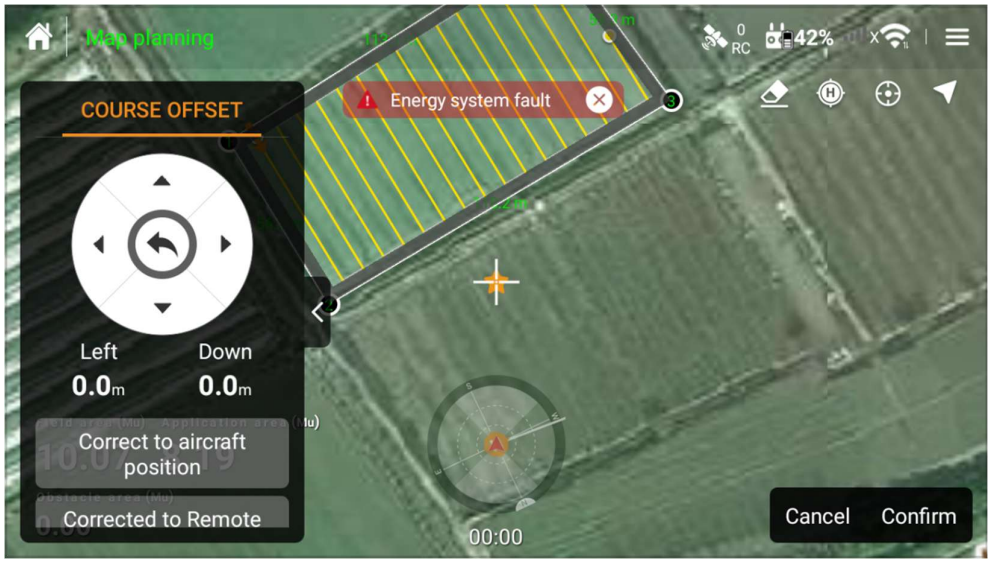
One-Click Route Correction

Purpose: Over time, the planned field boundaries and flight routes may shift, causing the drone to deviate from the original planned route. The one-click route correction feature allows you to realign the flight path back to the intended position.

Setting the Reference Point: During field planning, select a physically fixed landmark near the field boundary and mark it as a reference point using the remote controller. This requires RTK-based planning for accuracy.

Using the Reference Point: When loading the field, place the drone at the pre-set reference point (physically the same location). After connecting the remote controller

to the drone, check on the map whether the drone’ s current position overlaps with the original reference point. If not, use the correction function to adjust the flight path to the drone’ s actual location, completing the field position correction. The vertical and horizontal controls allow fine-tuning adjustments.



Drone Entry Angle

When the drone switches to autonomous operation, it will automatically fly to the starting point along the shortest path. To reduce the time the drone spends rotating in the air while fully loaded and thus lower battery consumption, it is recommended to manually pilot the drone to the starting point with its nose (heading) aligned as closely as possible to the intended flight direction.