starcopter

THE HIGHDRA

FLIGHT MODES

1 **Pilot Controlled Modes**

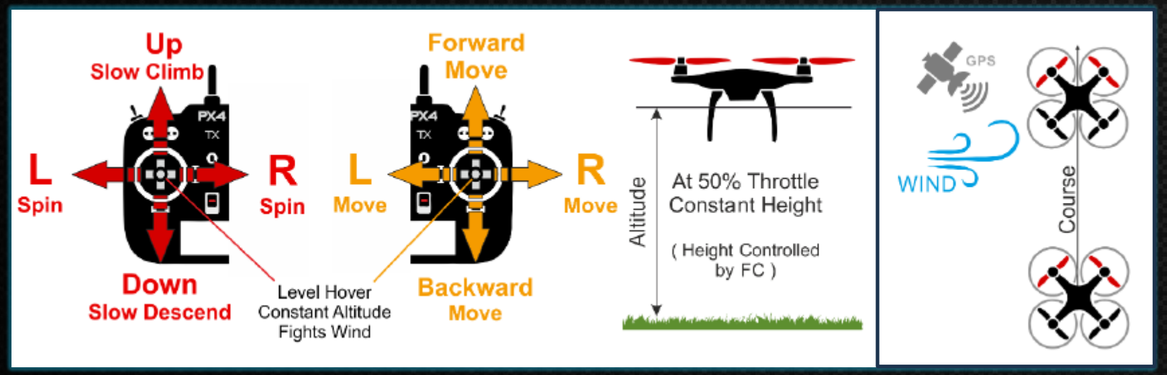
2 **Automatic Modes**

According to the HIGHDRA Operating Manual v1.1

Pilot Controlled Modes

Position Mode

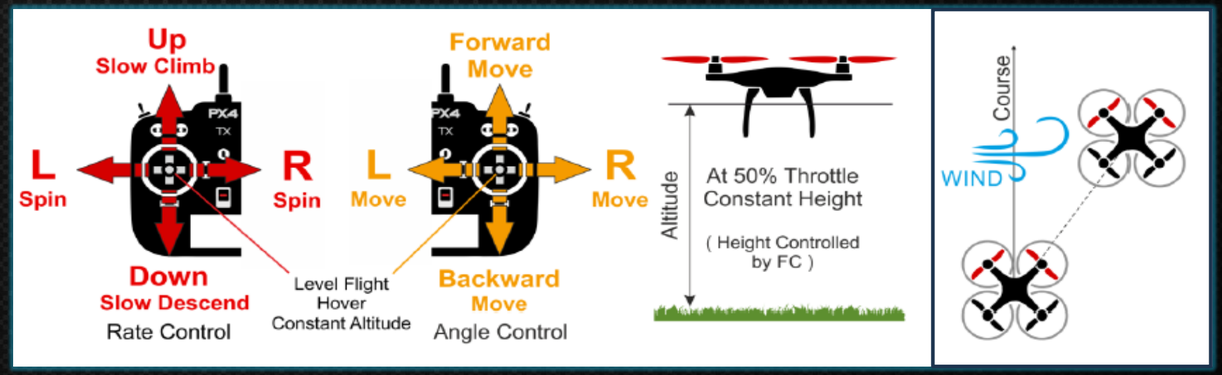
- Uses GPS & barometer to maintain position and altitude
- Automatically hovers when sticks are centered
- Requires strong GPS signal



Standard Condition for this flight mode	Value
Hover	Drone hovers in place without stick inputs.
Minimum radius of turn	0 m
Max. Tilt Angle	36°
Max. Climb Rate	4.5 m/s
Max. Descent Rate	3 m/s
Max. Vertical Speed at landing	1 m/s
Max. Horizontal Speed	12 m/s

Altitude Mode

- Maintains altitude
- No position lock (GPS optional)
- Horizontal movement influenced by momentum and wind



Standard Condition for this flight mode	Value
Hover	Drone drifts with the wind.
Minimum radius of turn	0 m
Max. Tilt Angle	36°
Max. Descent Rate	3 m/s
Max. Vertical Speed at landing	1 m/s
Max. Horizontal Speed	No inherent limit; speed depends on tilt angle, wind conditions, and other system

Pilot Controlled Modes

Position Mode

Operational Tips:

- Avoid GPS-compromised areas
- Use smooth stick movements
- Choose flat, open ground for takeoff/landing
- If GPS lost drone switches to Altitude Mode

Altitude Mode

Important Notes:

- Takeoff in Altitude Mode is prohibited
- Use smooth stick movements
- Use only for emergency landings
- Switch back to Position Mode for stability
- Avoid switching modes mid-flight—hover first

Takeoff Mode

Automatic Modes

Mission Mode

- Follows predefined flight plans
- Supports Survey, Waypoint, and Corridor Scan
- Engaged only when armed with GPS

Operational Tips:

- Perform pre-mission checks (waypoints, GPS, obstacles)
- Default speed: 12 m/s
- Use "Resume Mission" if interrupted
- Monitor telemetry throughout
- Avoid setting waypoints below 10 m AGL

Hold Mode

Return to Launch (RTL)

Takeoff Mode

Land Mode

Takeoff Mode

Automatic Modes

Hold Mode

- Drone hovers in place using GPS
- Engaged via Quick Actions Sidebar
- Useful for pausing missions or during planning
- Switches back to Position Mode with stick input (unless failsafe)

Mission Mode

Return to Launch (RTL)

Takeoff Mode

Land Mode

Takeoff Mode

Automatic Modes

Return to Launch (RTL)

- Automatically returns to Home or Rally Point
- Engages manually through RC button (“RTL") or automatically during failsafe
- Requires valid GPS signal

Key Points:

- Set Return Altitude high enough to clear obstacles
- Descends at 0.5 m/s, slows down before landing
- Can be overridden (except in certain failsafe cases)

Mission Mode

Hold Mode

Takeoff Mode

Land Mode

Automatic Modes

Takeoff Mode

- Not permitted
- Manual takeoff in Position Mode only

Mission Mode

Hold Mode

Return to Launch (RTL)

Land Mode

Takeoff Mode

Automatic Modes

Land Mode

- Automatic descent and disarm
- Descends at 0.5 m/s, slows to 0.3 m/s near ground

Use Cases & Guidance:

- Activate via Quick Actions Sidebar
- GPS not mandatory but may drift in wind
- Manual override possible unless failsafe triggered
- Ensure flat, obstacle-free landing area

Mission Mode

Hold Mode

Return to Launch (RTL)

Takeoff Mode

Optional Flight Mode Limitations

Specific Conditions

The optional flight mode limitations ensure operational safety by restricting the UAV's behavior under specific conditions, such as breaching a maximum height. These limitations apply across various flight modes, automatically adjusting the UAV's actions to maintain compliance and protect against unintended violations.

Maximum Height Limitation Function

Configured in Geofence Failsafe (3.1.10.2.4).

Limits UAV altitude to a set maximum (120m AGL in EASA Open Category).

If exceeded:

- Drone enters Hold Mode and hovers at the set height.
- If overshot due to speed, it descends back to limit.

Applies in all flight modes (Position, Altitude, RTL, Mission).

Pilot can regain control by switching modes (Position → Altitude → back to Position).

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