# HeliGuard HG-0800

Unmanned Helicopter System

## Quick Reference Manual

Based on User Manual v1.1 | March 2026

*Read this entire manual before operating the aircraft.*

# 1. Introduction

The HeliGuard HG-0800 is a professional-grade, single-rotor unmanned helicopter designed for commercial and industrial applications. It is intended to be operated by trained and certified pilots in compliance with local aviation regulations.

Use of the aircraft for espionage, military operations, or violating privacy and property rights is prohibited.

# 2. Safety Information

## 2.1 General Warnings

⚠ **WARNING:** The aircraft has high-speed rotating blades. Contact with spinning rotors can cause severe injury or death. Maintain a safe distance when motors are running.

⚠ **WARNING:** LiPo batteries are a fire and explosion hazard if damaged, punctured, short-circuited, or improperly charged. Follow all battery safety instructions.

⚠ **CAUTION:** Do NOT operate under the influence of alcohol, drugs, or impairing substances.

⚠ **CAUTION:** Do NOT operate if any part appears damaged, worn, or malfunctioning.

## 2.2 Operational Safety

1. NEVER fly over people, crowds, or populated areas.
2. Maintain a minimum safe distance of 6 m from all persons, animals, and vehicles.
3. Always have a planned escape path for the pilot.
4. Keep a LiPo-rated fire extinguisher available at the flight area.
5. Do NOT fly in adverse weather (strong wind, rain, snow, fog, lightning).
6. Do NOT fly near high-voltage power lines, transmission towers, or large metal structures.
7. Do NOT fly above the maximum altitude permitted by local regulations.
8. Do NOT fly beyond visual line of sight unless specifically authorized.
9. Always set an appropriate Return-To-Home (RTH) altitude before takeoff.
10. Do NOT fly indoors or in enclosed spaces.

## 2.3 Regulatory Compliance

Operators must comply with all applicable regulations, including registration, pilot certification, airspace restrictions, altitude limits (typically 120 m / 400 ft AGL), VLOS requirements, and privacy laws.

# 3. Specifications

### 3.1 Aircraft

| Parameter | Value |
|---|---|
| Empty Weight (no battery) | 5 kg |
| Battery Weight | 4 kg |
| Max battery quantity | 3 pcs |
| Max Takeoff Weight | 30 kg |
| Rotor Diameter | 1800 mm |

### 3.2 Flight Performance

| Parameter | Value |
|---|---|
| Maximum Range | 40 km |
| Flight Time (full charge) | 90 min (30 min at max weight) |
| Maximum Altitude (AMSL) | 3,000 m (4,000 m optional) |
| Maximum Speed | 120 km/h (150 km/h optional) |
| Maximum Wind Resistance | 17 m/s |

### 3.3 Communication

| Parameter | Value |
|---|---|
| Control Link Frequency | 2.4 GHz |
| Telemetry Frequency | 5 GHz |
| Transmitter Power (EIRP) | 117 mW |

### 3.4 Safety Systems

| Feature | Status |
|---|---|
| Geofencing | Yes |
| Return-To-Home (RTH) | Yes |
| Failsafe (Link Loss) | Return to Launch |
| Failsafe (Low Battery) | Automatic Landing |
| Parachute System | Optional |

## 4. Package Contents

Carefully unpack and inspect all items. Contact your dealer if anything is missing or damaged.

| Item | Qty |
|---|---|
| HeliGuard HG-0800 Aircraft (fully assembled) | 1 |
| Remote Controller (with antenna) | 1 |
| LiPo Flight Battery (13 Ah, 12S) | 1 (3 optional 39 Ah) |
| Landing Box | 1 |
| Battery Charger (12S compatible) | 1 |

# 5. Battery System

## 5.1 Battery Specifications

| Parameter | Value |
|---|---|
| Type | Lithium Polymer (LiPo) |
| Configuration | 12S (44.4V nominal), dual battery |
| Capacity | 13,000 mAh per pack |
| Max Discharge Rate | 160A |
| Charge Time | Approx. 200 minutes |
| Cycle Life | 300 cycles |
| Operating Temperature | −10°C to +50°C |
| Storage Voltage | 3.68V per cell |

## 5.2 Battery Safety

⚠️ **WARNING:** LiPo batteries can catch fire or explode if mishandled. Always follow these rules:

1. Do NOT use swollen, leaking, or damaged batteries.
2. Do NOT puncture, crush, or disassemble batteries.
3. Do NOT expose to temperatures above 60°C or flame.
4. Do NOT charge unattended.
5. Do NOT charge immediately after flight — let batteries cool first.
6. Do NOT store at full charge. Use storage voltage (3.68V/cell).
7. Do NOT leave batteries in the aircraft during storage.
8. Use only the supplied or approved charger.
9. If electrolyte contacts skin or eyes, flush with water and seek medical help.
10. Keep batteries away from children and animals.

## 5.3 Charging Procedure

1. Place battery on a fireproof surface in a ventilated area.

2. Connect to the approved charger.
3. Select 12S LiPo balanced charge profile.
4. Verify correct cell count and voltage detection.
5. Begin charging. Do not leave unattended.
6. Charging is complete at 4.2V per cell.
7. Disconnect and let battery rest before use.

### 5.4 Storage

- Store at 3.68V per cell.
- Temperature: +10°C to +30°C. Humidity: 30–45%.
- Use a LiPo-safe bag or fireproof container.
- Check voltage monthly during long-term storage.
- Keep away from sunlight, vehicles, and heat sources.

⚠ **CAUTION:** Follow local regulations for lithium battery disposal. Do NOT dispose in household waste.

## 6. Pre-Flight Procedures

Complete this checklist before every flight. Do NOT fly if any check fails.

### 6.1 Flight Area Assessment

1. Confirm area is clear of people, vehicles, and animals.
2. Verify adequate space for spool-up and emergency landing.
3. Check wind conditions are within limits.
4. Plan a pilot escape path.
5. Position fire extinguisher and LiPo safety equipment nearby.

### 6.2 Mechanical Inspection

**Main Rotor:**

- Blades installed correctly, grip bolts tight, tracking aligned.
- Blade bolts snug, not binding. Feathering shaft straight.
- Main shaft smooth rotation. Head dampers in good condition.
- Swashplate level at mid-stick. All linkages secure.

**Tail Rotor:**

- Tail blades tight and correctly oriented.
- Pitch slider moves freely through full range.
- Drive system at correct tension, no abnormal noise.

**Frame and Structure:**

- All frame screws tight.
- No visible cracks, deformation, or damage.

### 6.3 Electrical System

- Battery fully charged and cells balanced.
- Battery securely strapped (cannot eject during flight).
- Main connectors clean, tight, no arcing marks.

### 6.4 Avionics Check

- Wait for temperature stabilization after power-up.
- GPS lock acquired: minimum 3D fix required.
- Vibration levels within acceptable parameters.

### 6.5 Pre-Arm Sequence

1. Place aircraft on a level surface with tail clear.
2. Announce "ARMING" to all personnel.
3. Arm the system. Confirm no unexpected movement.
4. Slowly release throttle hold.
5. Observe spool-up: no abnormal vibration, swashplate stable, tail holding heading.

⚠ **WARNING:** Abort immediately if any abnormal sound, motion, or vibration is detected. Engage throttle cut and disarm.

## 7. Flight Operations

### 7.1 Takeoff

1. Complete all pre-flight checks (Section 6).
2. Arm the flight controller.
3. Disengage throttle hold.
4. Wait for full head speed.
5. Gradually increase collective pitch.
6. Climb to a safe hover altitude (2–3 m).
7. Verify stable hover before proceeding.

⚠ **CAUTION:** Do NOT attempt rapid climb-outs immediately after takeoff. Stabilize in hover first.

### 7.2 Flight Modes

- Stabilize — Manual control with electronic stabilization.
- AltHold — Automatic altitude hold, manual lateral control.
- Loiter — GPS-assisted position and altitude hold.
- RTL — Automatic return to takeoff point.
- Auto — Autonomous waypoint mission.
- Land — Automatic landing at current position.

### 7.3 Landing

1. Position over a clear, flat landing area.
2. Reduce altitude gradually.
3. Move throttle to full low to initiate landing.
4. Engage throttle cut to stop rotor.
5. Disarm the flight controller.
6. Wait for all parts to stop before approaching.

### 7.4 Emergency Procedures

**Emergency Stop:**

Engage throttle cut immediately and disarm.

⚠ **WARNING:** Emergency stop causes the aircraft to fall. Use only when continued flight is more dangerous.

**Loss of Control Link:**

Failsafe activates Return to Launch (RTL) automatically.

**Low Battery:**

Aircraft will automatically land at current position. Ensure the area below is clear.

**Flyaway Prevention:**

Geofencing is active. The aircraft will stop and return if it reaches the fence boundary. Verify geofence settings before each flight.

# 8. Maintenance

## 8.1 After Every Flight

- Inspect rotor blades for nicks, cracks, or delamination.
- Check all linkages and ball joints.
- Inspect frame for cracks or loose fasteners.
- Check landing gear for damage.
- Verify battery condition: no swelling or damage.
- Clean aircraft of dirt, grass, or debris.

## 8.2 Storage

- Store in a clean, dry environment (+10°C to +30°C, 30–45% humidity).
- Remove batteries from aircraft. Store at 3.68V/cell.
- Cover aircraft to protect from dust.

⚠ **CAUTION:** Do NOT store aircraft or batteries in a vehicle, near heat, in sunlight, or damp environments.

# 9. Troubleshooting

Consult the table below. If the problem persists, contact your authorized dealer.

| Symptom | Possible Cause | Solution |
|---|---|---|
| Will not arm | No GPS lock | Wait for 3D fix. Move to open area. |
| Will not arm | Pre-arm check failure | Review GCS messages. Fix issues. |
| Excessive vibration | Blade imbalance/damage | Inspect and replace blades. |
| Excessive vibration | Loose components | Tighten all bolts and linkages. |
| Tail wag | Gain too high/low | Adjust tail PID in GCS. |
| Tail wag | Mechanical issue | Check drive tension, pitch slider. |
| Drifting in hover | IMU not calibrated | Recalibrate on level surface. |
| Drifting in hover | Compass interference | Recalibrate away from metal. |
| Short flight time | Battery degraded | Check cell voltages. Replace if needed. |
| Short flight time | Excessive payload | Reduce payload. Check MTOW. |
| Control link lost | Range exceeded | Fly within 40 km. Check antenna. |
| Control link lost | RF interference | Change location. Avoid EMI. |

## 10. Warranty and Support

For warranty terms, spare parts, and technical support, contact your authorized dealer or visit the HeliGuard support portal.