starcopter

THE HIGHDRA

OPERATIONAL INSTRUCTIONS

1

Guidelines for Safe Efficient UAV Operation

2

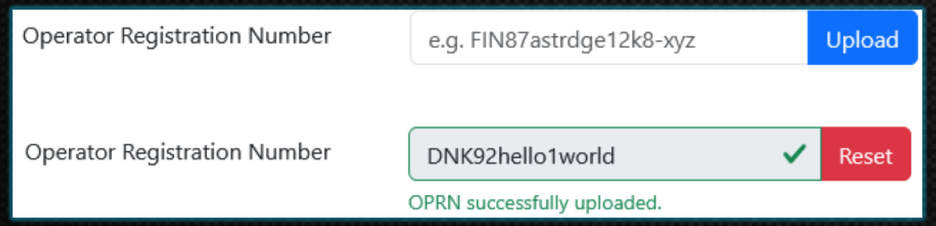
Transportation, Storage, Pre/Post-Flight, Safety, Precision and Optimal Performance

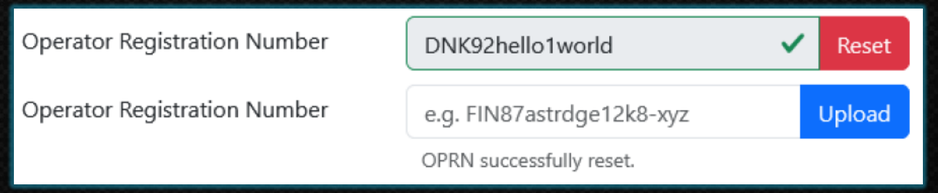
According to the HIGHDRA Operating Manual v1.1

Direct Remote Identification

Starcopter HIGHDRA must use Dronetag Agent for legal operation

- Access via Chrome on Herelink: http://192.168.144.20/...
- Required: Operator Registration Number (OPRN) upload
- Check Remote ID before each flight using a DRI app
- OPRN reset via red "Reset" button in web UI if drone changes hands





Crew Health Precautions

- *Operators must comply with EU Regs: 2019/945, 2019/947, prEN 4709-001*
- *Pilots must be physically & mentally fit (vision, hearing, cognition)*
- *Self-checks before shifts; breaks to avoid fatigue*
- *Standby personnel must be available for emergencies*
- *First aid & emergency protocol training is mandatory*

Pre-Flight Operations

- Follow Pre-flight Checklist & set Failsafe Settings
- Define flight paths by population density:
  - Low: Flexible, emergency zones required
  - Moderate: Risk planning needed
  - High: Risk assessments, corridors, insurance required
- Check local limits (EASA/dipul/UTM links)

https://www.easa.europa.eu/en/domains/civil-drones/naa

Country	Where you are allowed to fly
Germany	https://dipul.de/homepage/en/information/geographical-zones/
Austria	https://utm.dronespace.at/avm/#p=7.28/47.751/13.23
Switzerland	https://www.bazl.admin.ch/bazl/de/home/drohnen/general/drone-maps.html

Pre-Flight Operations

Unboxing and Assembly

Step 1: Open the Transport Case
•Unlock all seven closures on the UAV transport case and open the lid.
Step 2: Prepare the Landing Legs
•Take one vertical landing leg out of the case and insert it into its designated slot on the UAV body.
•Secure the leg using the fastener. Repeat for the second vertical leg.
•Attach the horizontal landing leg pieces to the vertical legs and secure all fasteners.
Step 3: Remove the UAV from the Transport Case
•Place the UAV onto the assembled landing legs.
Remove the top foam layer of the transport case to access the arms and propellers.
Step 4: Open the arm locking lever on the UAV body.
•Take one arm from the transport case and match its number with the corresponding slot on the UAV body.
•Insert the arm flatly into the slot — do not insert at an angle.
•Gently press the arm into place and press down the lever to lock it.
•Repeat for all arms.
Step 5: Insert the Batteries
•Retrieve the battery packs from the battery transport case and ensure all batteries have the same Set-ID.
Press the button to lift the battery handle.
•Gently insert the battery into its slot on the UAV.
•Close down the handle to lock it in place. Repeat for all required batteries.

Pre-Flight Operations

Visual Inspection Checklist

Component	Preparation Step	Check
UAV Body	Inspect for visual damage	☐
Landing Gear	Verify no visual damage. Ensure landing gear is correctly installed and securely fitted.	☐
Arms	Check for visual damage. Confirm locking mechanism is engaged and arms are firmly secured.	☐
Propellers	Remove protective caps and unfold propellers. Inspect for visual damage. Ensure propellers are firmly attached and spin freely without obstruction.	☐
Payload	Inspect for visual damage. Check for secure attachment.	☐
Batteries	Check batteries for visual damage. Ensure each battery is correctly inserted and securely connected.	☐
MTOM	Confirm that total UAV weight is ≤ 24.99 kg.	☐
Remote Control	Inspect for visual damage.	☐
Battery	Inspect for any damage, swelling, or other abnormalities.	☐

Boot-up Sequence

6.4.4.3 Booting of the UAV
Step 1: Turn on the batteries, wait until all of them are engaged.
Step 2: Turn on the Dronetag Beacon. While charging, it lights blue. Click the button on the bottom for a second and it will light green and orange. Wait until it flashes white.
Step 3: Turn on the RC.
Step 4: Navigate to the AMC Safety Setup. Click on the AMC Button on the top left. Click on System Overview. Click on Safety. Ensure that the values align with 6.4.4.3.1 Failsafe Settings.
Step 4: Navigate to the AMC Pre-Flight Checklist. Click on the AMC Button on the top left. Click on System Overview. Click on Safety. Ensure that you complete every point.
Step 5: Go through the functional checklist 6.4.4.4 Functional Checklist and verify that you check all items.
Step 6: Ensure that the takeoff area is clear of people, obstacles or animals. Ensure that the conditions follow named limitations in this manual and legal compliance. Arm the copter with

Pre-Flight Operations

Failsafe Settings

- Return to Launch: Climb Altitude based on terrain
- Battery Warnings:
  Warning: 30%
  Critical: 25%
  Emergency: 10%
- Data Link Loss: RTL after 10s
- Landing Settings:
  Descent rate: 0.5 m/s
  Disarm delay: 1s

Complete functional Checklist

6.4.4.4 Functional Checklist

Component	Booting Step	Check
UAV	Power on.	☐
RC Transmitter	Power on the RC transmitter and check the battery level.	☐
UAV Power	Power on the UAV. Confirm that all batteries are engaged.	☐
Controllability Lights	Check the colors of the controllability lights for correct indicators.	☐
Data Link	Verify that the data link is established.	☐
Battery Voltage	Read the voltage levels of all UAV batteries.	☐
LTE Connection	Confirm LTE connection is established.	☐
Data Link Signal Strength	Check data link signal strength.	☐
GPS Connection	Ensure a GPS fix is established.	☐
RTK GPS Heading	Verify that the “RTK” indicator is green, confirming RTK GPS heading is active.	☐
Sound Output	Confirm that sound output is audible.	☐
AMC Safety Menu	Ensure that the safety settings are set to 6.4.4 UAV Pre-Flight Preparation	☐
AMC Pre-Flight Checklist	Complete the AMC pre-flight checklist.	☐
Dronetag DRI	Verify that the DRI is functioning	☐

Takeoff Mode

Flight Operations

Flight Operations in Standard Conditions

- Arming: Left stick bottom-right
- Disarming: Left stick bottom-left
- Auto-disarm if idle after arming or post-landing
- Kill Switch:
  Immediate motor cutoff
  Do NOT use mid-flight unless in emergency

Flight Operation Contingencies

- Low Battery: RTL at 25%, Land Mode at 10%
- RC Battery Low: Land ASAP at 30% warning
- Loss of Orientation: Use AMC heading or switch to Position Mode
- Unexpected Behavior: Center sticks, land if erratic
- Loss of GPS: UAV switches to Altitude Mode, land ASAP
- Loss of Data Link: RTL after 10s if armed
- Loss of Control Link: RTL after 2s
- Loss of C2 Link: Initiates data link failsafe
- Simultaneous GPS & C2 Loss: Land Mode activated
- Emergency Stop: Immediate shutdown; use as last resort.

Takeoff Mode

Post-Flight Procedures

- *Disassemble UAV and store using Starcopter packaging*
- Retrieve payload & data carefully
- *Power off systems before handling electronics*
- Clean and inspect components for next operation

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The Highdra

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