Pre-Flight Checklist for PPK Scans

☐ **Flight Plan Preparation**

- Incorporate convergence maneuvers for best IMU initialization:
    - Take off vertically to mission altitude.
    - Fly forward laterally for at least 5 seconds at 5 m/s or faster.
    - Perform at least one figure eight at constant altitude.
    - After mapping, fly forward again for at least 5 seconds at 5 m/s or faster before landing.
    - Land vertically with minimal lateral motion.

☐ **Mission Area Assessment**

- Choose a take-off and landing location with strong GNSS signal quality.
- Avoid proximity to trees, buildings, or reflective surfaces.
- Confirm no nearby interference from radios or obstructions.

☐ **High Altitude Flight Preparation**

- If flying above 50 meters AGL, and using a Livox Avia, enable High Sensitivity Mode:
    - GUI → Settings > LiDAR Service → Enable “High Sensitivity Mode”
- For Hesai scanners, no change is required.

☐ **Base Station Setup (if applicable)**

- Place the base station in an open area with clear sky view.
- It should record all available GNSS constellations (GPS, GLONASS, Galileo, BeiDou, QZSS, Navic).
- Confirm that it records in a PCMasterPro-compatible format.
- If using a public base station, ensure it is within 40 km of the flight area (preferably closer).

☐ **Power Connection**

- Connect RESEPI to power via one of the following:
    - XT60
    - Skyport/Other
    - Binder Connector

    - Ethernet (GEN-II only)
- Ensure power supply is 9–36VDC (up to 45V max) with 24–28W available.

☐ **Web Interface Access**

- Connect to the RESEPI's Wi-Fi.
    - SSID is printed on the unit label.
    - Password: LidarAndINS
    - Access the Web GUI at 192.168.12.1 using a laptop or mobile device.

☐ **Data Management**

- Offload all data and flights from the USB drive and/or SSD to ensure adequate space.

☐ **USB and Storage Verification**

- Use only the provided RESEPI-certified USB drive.
- Confirm that the USB is securely inserted into a supported port.
- Avoid using ports reserved for other onboard components (e.g., camera).

☐ **Firmware Check**

- Ensure the RESEPI is running the latest firmware version.
- You can find the firmware version in the top right corner of the GUI.

☐ **Vehicle to IMU Rotation**

- Go to Settings > Geometry > Vehicle to IMU Rotation.
- Ensure the rotation offsets reflect the RESEPI's mounted orientation on the aircraft.
- Incorrect values can likely cause post-processing alignment errors.
- Click Save after confirming or adjusting the values.

☐ **Antenna Lever Arm Offsets (Optional, but recommended)**

- Go to Settings > Geometry > IMU to Antenna Offset.
- Enter the accurate lever arm values (X, Y, Z) in meters.

☐ **GNSS Time Fix (REQUIRED)**

- Connect the GNSS antenna to RESEPI securely.
- Power the unit outdoors in a GNSS-visible area before flight.
- In the GUI, confirm the INS status shows:

    - Current date and time
    - Message: "Ready to log"
        - Do not begin data capture without this message.

☐ **Camera Trigger Configuration**

- Adjust the trigger period based on planned flight speed:
    - Example: 5 m/s → 5 seconds
    - Faster speeds → shorter intervals (e.g., 10 m/s → 2.5 seconds)
        - Avoid high trigger rates at slow speeds to prevent blurry or redundant images.
        - Confirm trigger settings are applied via the GUI.

☐ **Final System Check**

- Ensure all cables are secure (power, antenna, USB, trigger, etc.).
- Confirm that the LiDAR sensor is unobstructed by props or mounting hardware.
- Recheck USB/SSD status in the GUI.
- Ensure drone is static before recording to ensure IMU settles for alignment.