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To.
ACSL SOTEN owners

September 12, 2025

Service Letter ACSL-SOTEN-SB25-004
ACSL TAKEOFF for SOTEN
Version 2.0.4 Release Notes

Thank you for your continued use of ACSL SOTEN. On July 31, 2025, ACSL TAKEOFF for SOTEN version 2.0.4 was released with the improvements described in this document. Please read this document thoroughly and then follow the instructions in the TAKEOFF User Manual to update ACSL TAKEOFF on your devices and the firmware of your ACSL SOTEN aircraft and accessories.

The ACSL TAKEOFF for SOTEN ground control application version 2.0.4 includes SOTEN aircraft (Nx) firmware version 1.2.18, There are no updates to the firmware for the controllers or cameras with this release. When the SOTEN aircraft is successfully updated, the “System Information” tab in the “Settings” view of the TAKEOFF application should indicate “Nx 1.2.18” as shown in Figure 1.

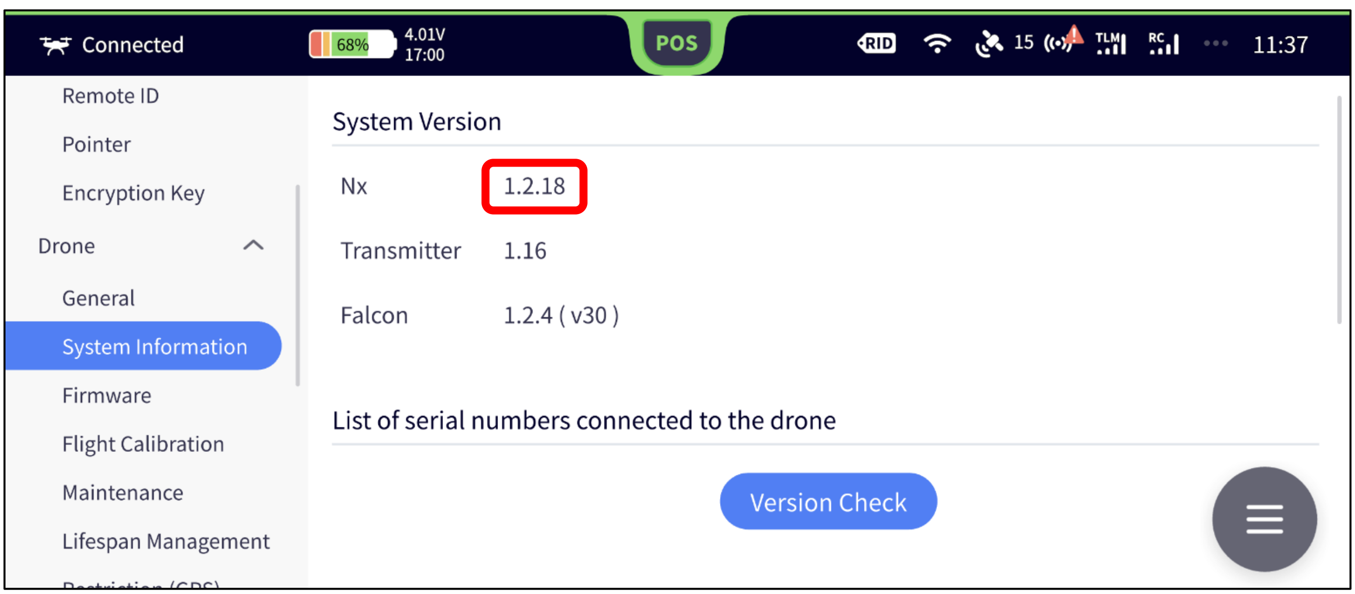

Figure 1. ACSL TAKEOFF ground control application "System Information" tab.
**Note that Falcon versions 1.1.1 or 1.0.9 may alternatively be displayed without any change in functionality.*

Ensure aircraft battery and controller are fully charged before starting the firmware update.

If 'BATTERY FIRMWARE OLD' appears on the controller's LCD during the SOTEN firmware update, the battery firmware will update automatically after the aircraft firmware is successfully updated and the aircraft is powered on again.

Major Firmware Updates

1. User interface improvements

   The flight view has been improved, and various icons and UI elements have been redesigned to minimize obstruction of the real-time video feed and to improve overall usability.

2. Improved display and added voice alerts when switching flight modes

   The flight mode indicator has been moved to the top-center of the screen and is now color coded for better visibility and quicker identification. In addition, a change in flight mode will be accompanied by an audible voice alert announcing the new mode.

3. Selectable emergency mode behavior

   In certain situations, such as lost link, the aircraft will automatically enter emergency mode and begin hovering in place. Previously, the aircraft would automatically enter Go Home/ELS mode if it didn't receive any commands within 60 seconds of entering emergency mode. It is now possible to either have the aircraft hover in place indefinitely, or to select the amount of time that the aircraft will hover in place before initiating Go Home/ELS. The selectable times are 30, 60, 90, and 120 seconds. The default setting is "Go Home/ELS after 60 seconds".

4. Added a feature to automatic create a DIPS-compatible flight logbook

   There is now an option to have an automatically created CSV logbook that is compatible with the Japan Drone Information Platform System (DIPS). This feature is disabled by default but can be enabled under the "App" → "General" settings menu.

5. Added acceptable radio lost link time in position (POS) mode.

   It is now possible to have the aircraft accept a brief disruption of the controller radio link when in position (POS) mode. During the disruption, the aircraft will automatically enter a hover. If the link is not recovered within the preset time, then the aircraft will enter emergency mode. The acceptable radio lost link time can be set in 0.1 second increments up to 2 seconds. The default value is 0 seconds.

   *Note: A setting of 0 seconds carries a different meaning for this new feature and for the existing acceptable radio lost link time in auto (ATU) mode. In the case of position mode, 0 seconds means immediate entry to emergency mode upon lost link, whereas for auto mode, 0 seconds means that emergency mode will NEVER be entered upon lost link.

6. Sending a flight plan while in flight

   It is now possible to send a flight plan to the aircraft while it is in flight. The aircraft will only accept a flight plan while in flight if the flight mode is set to auto (AUT) and in the Directional Pad (D-Pad) mode or if an existing flight plan is paused. A new plan that is received by the aircraft will begin from the first waypoint of that new plan, regardless of where the previous plan was paused.

7. New enhanced takeoff safety check

   With this new feature enabled, the aircraft will not allow the motors to be started when in position (POS) or auto (AUT) flight mode unless certain criteria related to GPS quality and magnetic field integrity are met. This feature may prevent takeoff in challenging environments (e.g. near buildings or metal structures) and should be enabled when maximum takeoff safety is required. This feature can be set under the "Drone" → "Safety Features" settings menu. It is enabled by default.

   *Note: If this function is enabled, it may not be possible to take off indoors in position (POS) flight mode, even if the visual odometry feature is performing soundly, because of effects of the indoor environment on factors such as GPS reception, multipath, and magnetic field interference. To take off indoors in position (POS) mode using the visual odometry feature, understand the risk and disable this feature.

8. Chanes to the handling of the takeoff reference point for planned flights

   For automatic takeoff to a planned flight, (including surveys and corridors), the aircraft first ascends to the automatic takeoff altitude set in the "Drone" → "Restriction (GPS)" settings menu and then ascends (or descends) to the altitude specified in the takeoff point in the flight plan before proceeding in a straight line to the first waypoint.

   With this change, two additional points are affected:

   a. If a Go Home is initiated and the Go Home route is set to "Reverse order" the aircraft will move through the flight plan in reverse order until arriving at waypoint 1. After that the aircraft will ascend to the Go Home altitude if higher than the current altitude and then move horizontally to the home location before initiating an automatic landing.
   b. When executing an automatic takeoff for resuming a mission, the aircraft will first ascend to the aircraft's automatic takeoff altitude, then ascend (or descend) to the altitude of the flight plan takeoff point and then ascend (or descend) to the altitude of the first resumed waypoint, before finally moving horizontally to the first resumed waypoint.

   Be mindful of these potential altitude changes when planning and executing a flight plan and emergency procedures.

9. Other Improvements

TAKEOFF Ground Control Application

- Added "Move route to aircraft location" as an option in the Plan view for moving the entire route (except for surveys and corridors) so that the route's takeoff point coincides with the current location of the aircraft.

  If a route includes surveys and corridors, only the take-off reference point and individual waypoints will be moved (surveys and corridors are not eligible for movement).
- Added a dropdown list to aid in selecting overlapping viewpoints in the Plan View.
- Improved the accuracy of mission times for planned flights (excluding surveys and corridors). Note that when estimating the duration of a planned flight, turns while hovering, thresholds, automatic landing, and Go Home are not included.)
- Some improvements to the wording on the settings screens.

SOTEN Aircraft

- Relaxed the requirement for the controller sticks to be centered when transitioning from auto mode to another mode

  In consideration of certain operational circumstances, it is now possible to switch modes even if a controller stick is about 80% away from the center position.
- Added the ability to resume a mission from a waypoint with wait time

  With this change, after the aircraft has arrived at a waypoint with a wait time, it is now possible to command the aircraft to move immediately to the next waypoint by pressing the resume button in the Flight view.
- Cancellation of easy landing in position (POS) mode

  If the Easy Takeoff and Landing feature is enabled, and easy landing is inadvertently triggered above 1.6 ft (0.5 m) while flying in position (POS) mode, it can now be cancelled by turning off Vision on the TAKEOFF app.

Note that this update can be performed from any previous version and all updates from all previous versions will be included in the update.

Precautions

When updating using the ACSL TENSO controller, **be sure to remove the SD card from the TENSO**, uninstall the TAKEOFF app before installing the latest TAKEOFF app, then perform the aircraft firmware update procedure.

When the SOTEN aircraft is updated with the firmware that is included with this version of TAKEOFF **some of the aircraft settings will be automatically reset to their default values**. Any previous changes to those aircraft settings will not be retained. If you wish to keep the current settings, make a record of the settings prior to the update and reenter those settings after the update. The settings that will be reset are summarized in the screenshots below.

- Restrictions (GPS) settings will reset those shown in Figure 2.

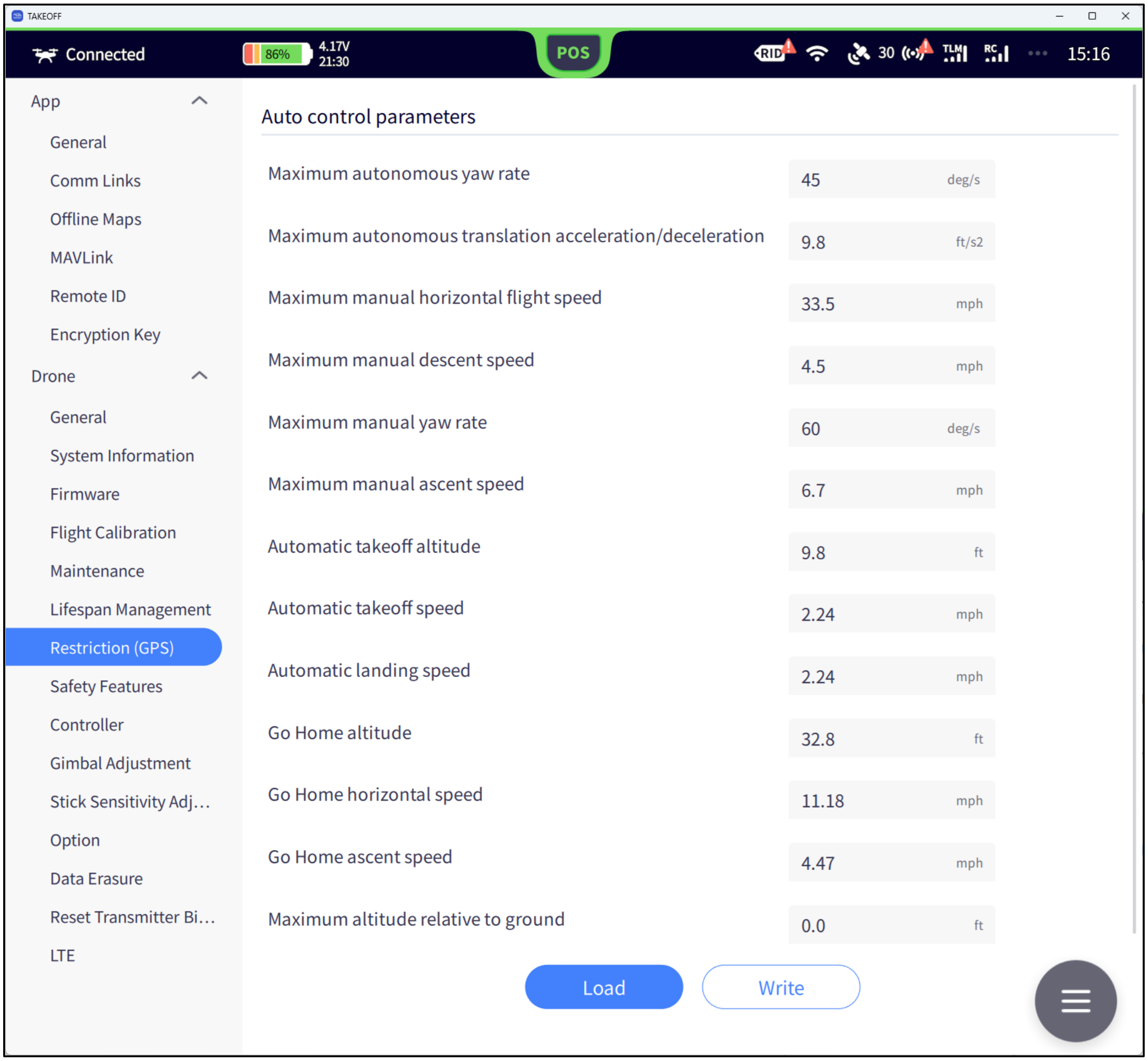

Figure 2. The Restrictions (GPS) default settings.

- The Safety Features settings will reset to those shown in Figure 3.

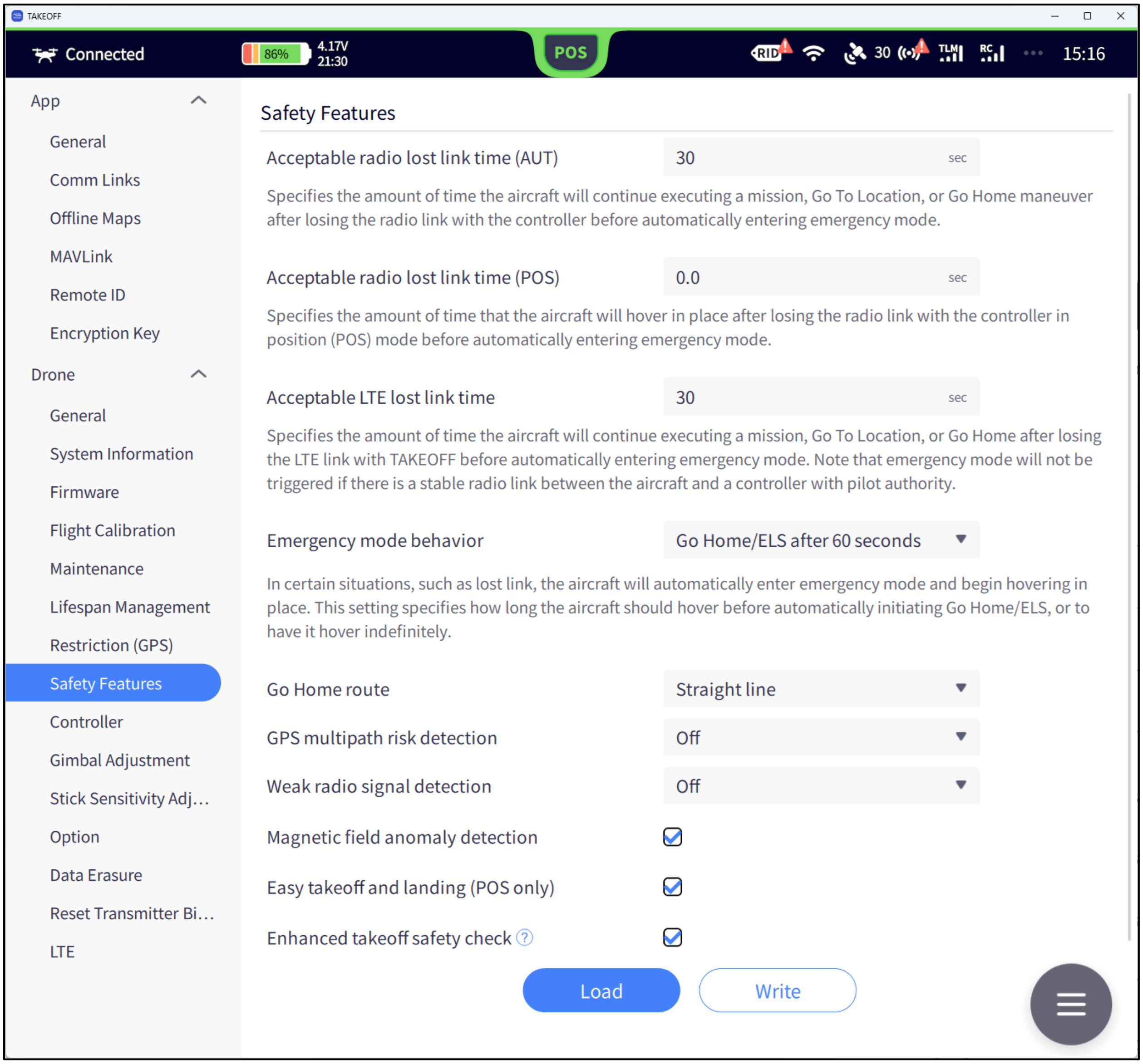

Figure 3. The Safety Features default settings.

- The Stick Sensitivity settings will reset to those shown in Figure 4.

Figure 4. The Stick Sensitivity default settings

- The Gimbal Adjustment settings will reset to those shown in Figure 5.

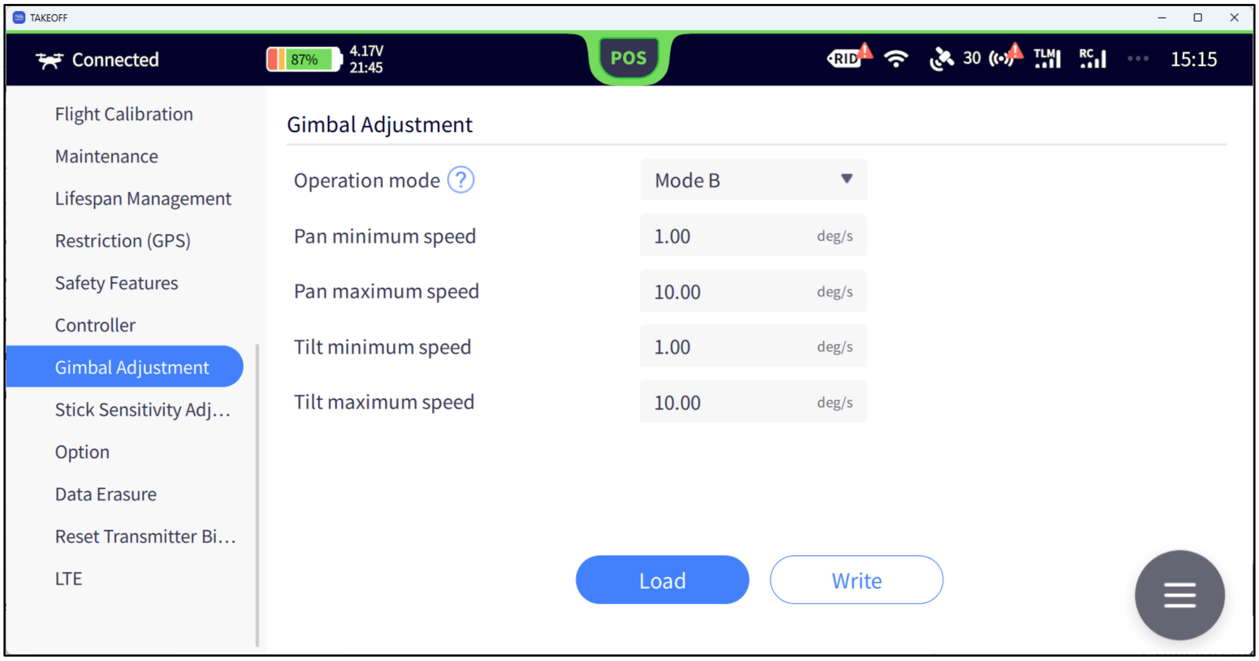

Figure 5. The Gimbal Adjustment default settings.

- The Option settings will reset to those shown in Figure 6.

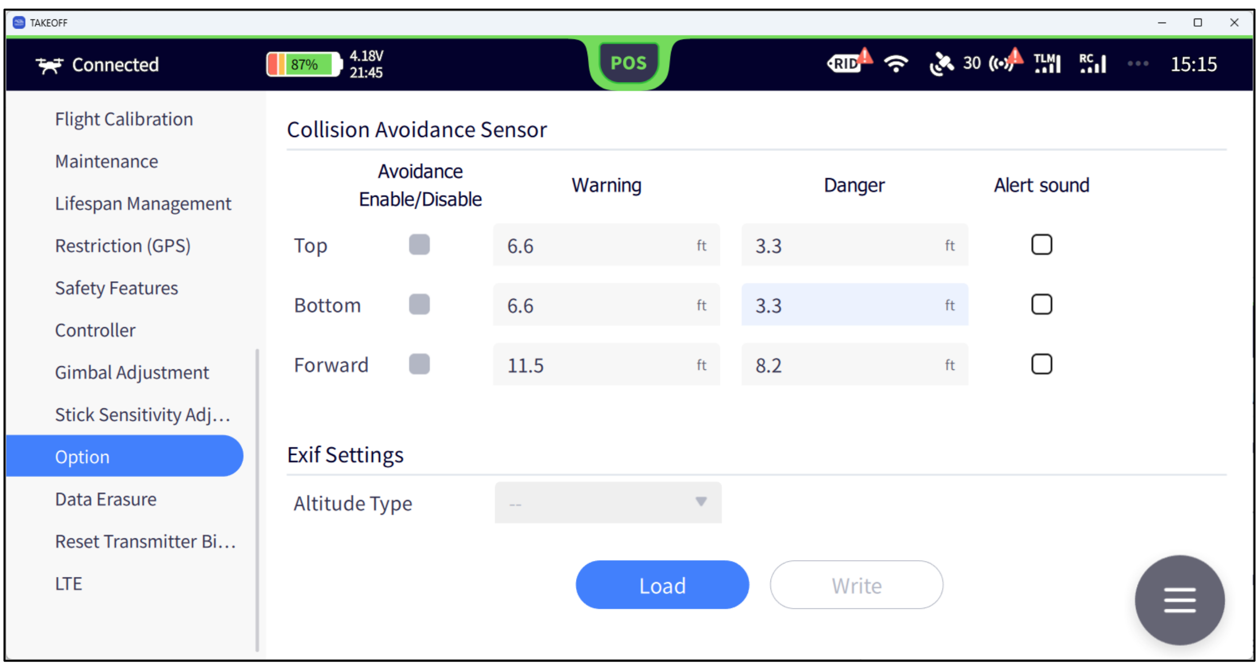

Figure 6. The Option default settings.