UVS.Dynamics

DATASHEET

UVS Vision

Onboard computer vision for UAVs: GPS-denied navigation and automatic target detection, with all inference on the aircraft.

KEY FEATURES

- GPS-denied navigation: position comes from matching the live camera view against pre-loaded satellite tiles, with no external signal. Built for areas where GPS is jammed or spoofed.
- Robust to a changed scene: position is held on the structure that survives (roads, field edges, treelines), even with an oblique view, over destruction and in a different season.
- Automatic detection of aircraft and armoured vehicles in two modes: wide-area sector scan, then real-time tracking.
- Two-stage detection: a fast single-stage detector finds candidates, and a two-stage verifier confirms the class.
- One sensor for both jobs: a 12.3 MP camera with an 8–50 mm varifocal lens covers both the wide-area survey pass and the automatic re-focus onto a detected object.
- Fully onboard: the module needs no ground link and does not depend on the radio link, which suits EW-saturated environments.

SPECIFICATIONS

Compute	Onboard embedded AI accelerator; all inference on the aircraft
Camera sensor	Sony IMX477, 1/2.3-inch CMOS, CSI interface
Resolution	12.3 MP (4056 × 3040)
Lens	8–50 mm varifocal, F1.4, with automatic re-focus
Navigation	GPS-denied visual positioning (Visual Place Recognition) against pre-loaded satellite tiles
Detection modes	Sector scan → real-time tracking
Detection pipeline	Single-stage detector + two-stage verifier
Analysis tile	No larger than 100 × 100 m per tile in sector-scan mode
Target classes	Aircraft, armoured vehicles; retrainable on new classes
Training dataset	3,782 annotated open-source images (3,026 train / 756 validation), two classes
Link dependency	None; operates with no ground link
Integration	Independent onboard payload; fitted on its own or on a platform already running UVS Link or UVS Link Pro
Weight, power, accuracy	In the technical documentation, by separate agreement (NDA)
Status	In development; GPS-denied navigation shown on recorded flight footage, onboard module in development

COMPOSITION

Onboard compute module with an AI accelerator; Sony IMX477 12.3 MP CSI camera with an 8–50 mm F1.4 varifocal lens and automatic focus and pan control; satellite-map navigation software with reference tiles for the area pre-loaded before flight; detection models (detector and verifier) with baseline classes, retrainable on new ones.

INTERFACES

Camera: CSI. Reference map: satellite tiles for the area, loaded onto the aircraft in advance. Onboard stack: standalone module; integration details are in the technical documentation, available by separate agreement.

AVAILABILITY By separate agreement: send a short brief through the contact form at uvsdynamics.com. We verify the counterparty and agree an NDA, then share a fuller demonstration, current performance figures and technical documentation.