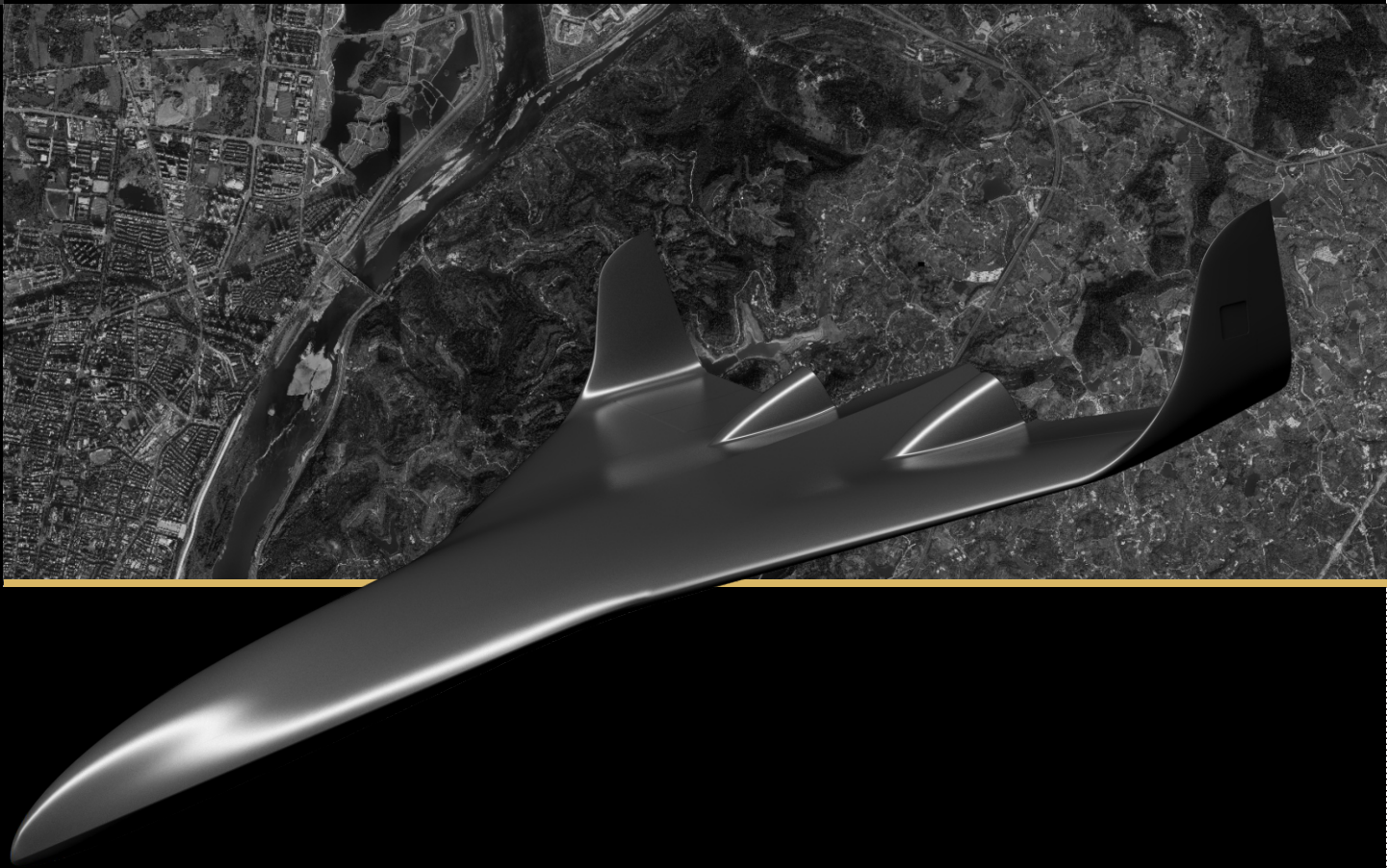


Product Catalogue

Moss Ace

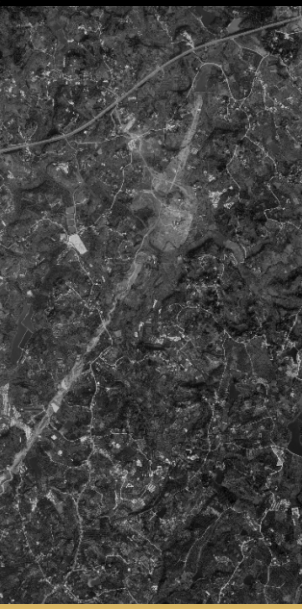


Visual Matching Navigation



ABOUT US

Chengdu Sinv Dynamics Technology Co., Ltd., founded in May 2024, aims to integrate AI with drones to deliver advanced UAV system solutions. These solutions enable UAVs—whether individual units or swarms—to execute preset commands, make autonomous decisions, engage in autonomous learning, and think like intelligent agents. The product will be applied across multiple fields including scientific research, industry, and national defense.



Moss Ace

Moss Ace Visual Integrated Navigation Module is a high-performance product designed for UAVs, enabling fully autonomous navigation and scene matching. It integrates pre-loaded map images and advanced visual navigation algorithms to achieve autonomous positioning and navigation for UAVs. Through the combination of gimbal and intelligent AI image algorithms, it realizes autonomous scene matching for UAVs. This module is suitable for fully autonomous navigation and scene matching of UAVs in GPS-denied and data-link-denied environments.



NO GPS!

NO DATA LINK!

NO PROBLEM!

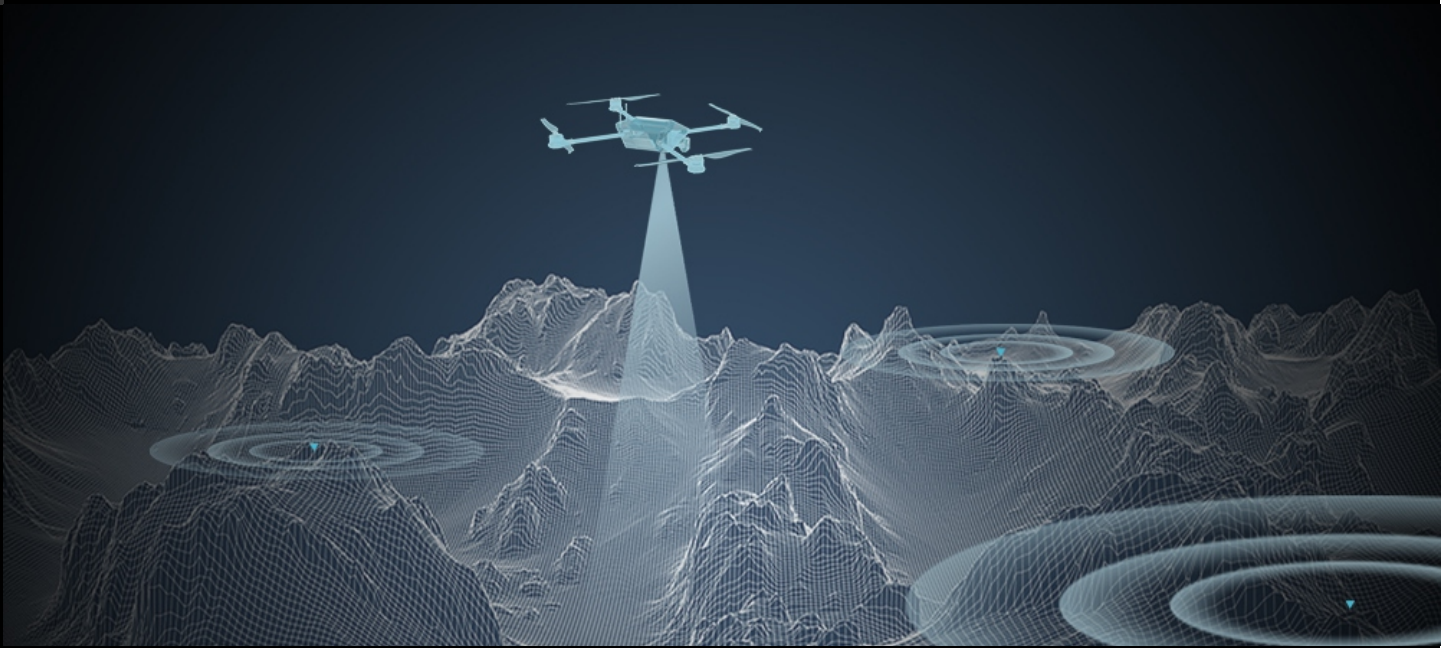
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Autonomy

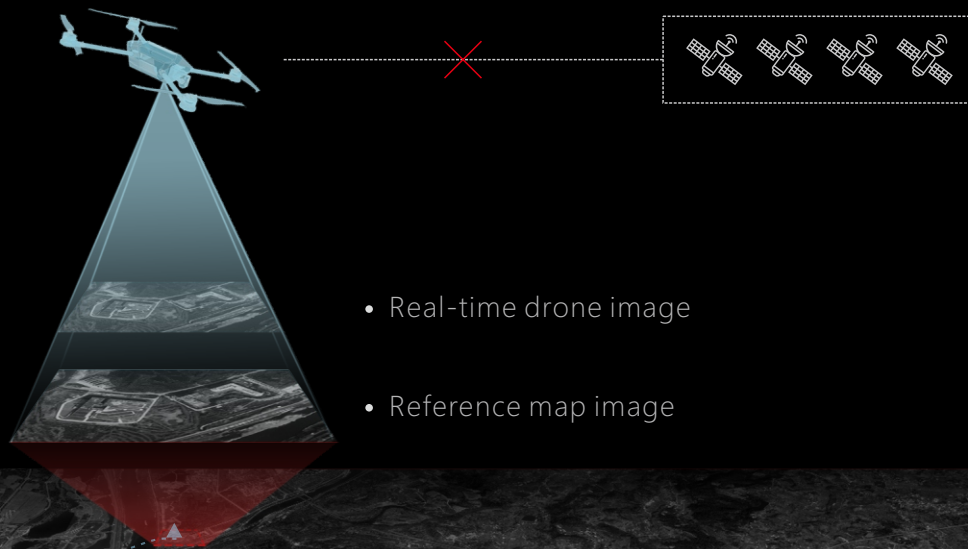
Moss Ace is a professional visual navigation and scene-matching module for UAVs, designed for use in GPS-denied and data-link-denied environments. It includes features such as path planning, map matching, visual navigation, and scene matching, enabling fully autonomous mission.





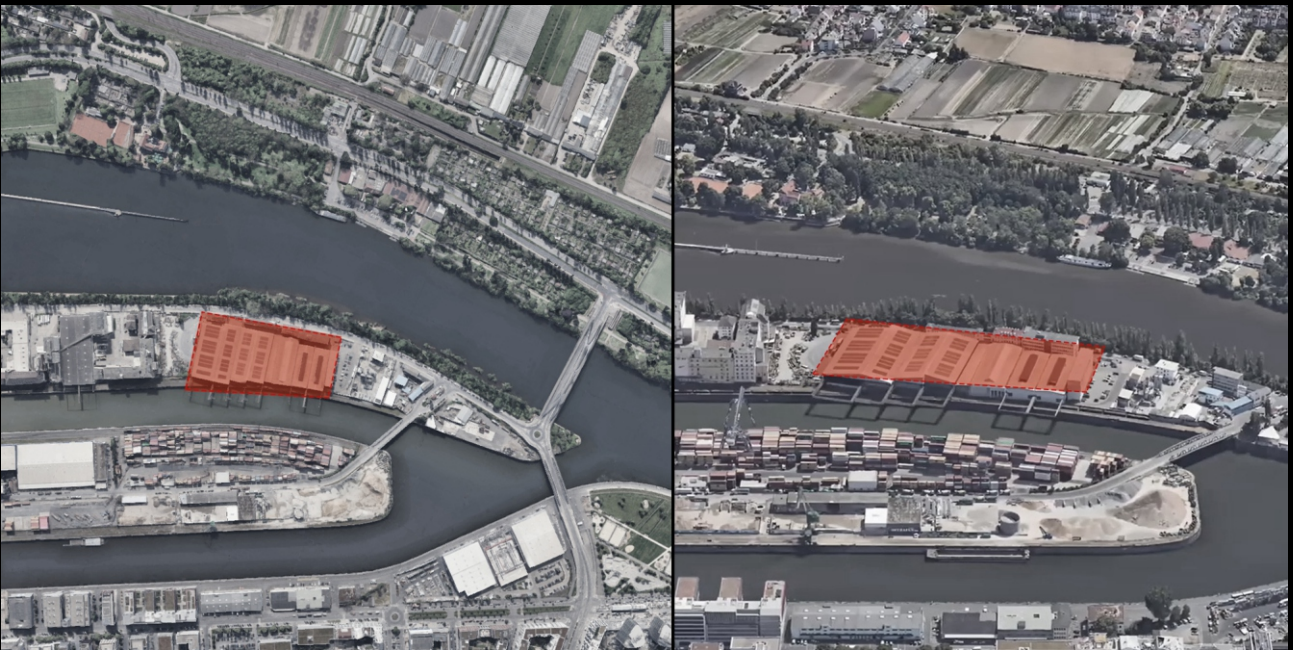
Visual Navigation

The module enables UAVs to achieve visual autonomous positioning and navigation in GPS-denied environments through the integration of user-uploaded offline satellite maps, imagery captured by the downward-facing camera, and the visual navigation algorithms of the edge computing module.



Scene Matching

The module enables UAVs to achieve scene-matching functionality for autonomous target searching and locking in data-link-denied environments through the integration of the gimbal with the computing module, its built-in AI image algorithms, and pre-loaded target image information for comparison.



Compared to traditional AI algorithms, it offers the advantage of requiring no training or learning.

Highly Compatible

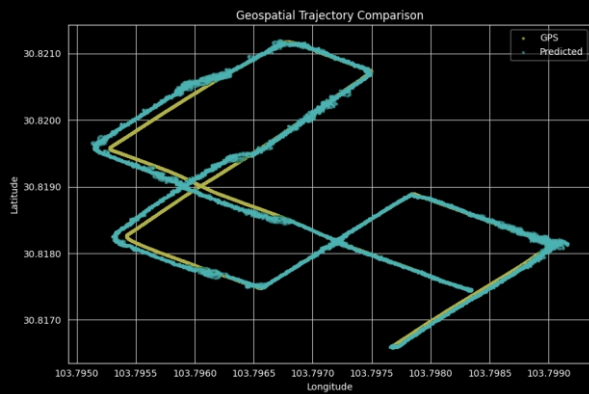


It outputs the standard NMEA positioning protocol, offering compatibility with all flight controllers. Integration with PX4 or ArduPilot platforms is typically achievable within 30 minutes, and it is simple to use.



Compatible with fixed-wing and multi-rotors

Measured Data



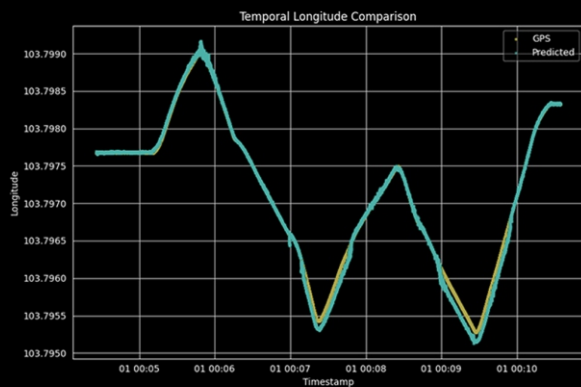
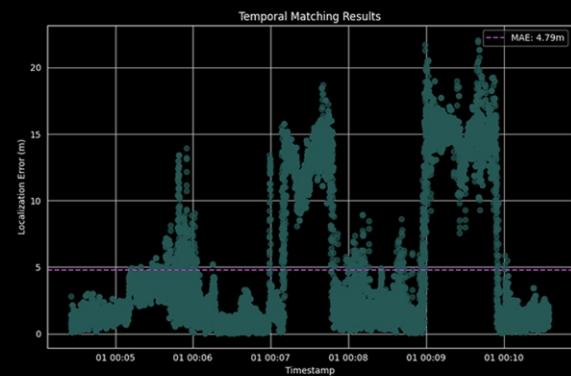
Geospatial Trajectory Comparison

- GPS position
- visual position

Absolute positioning error

----- MAE:4.79m

- Visual positioning error

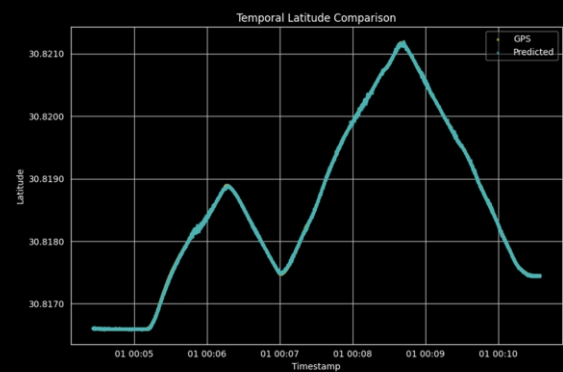


Temporal Longitude Comparison

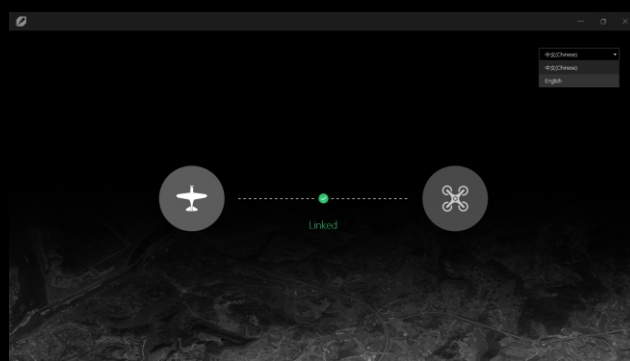
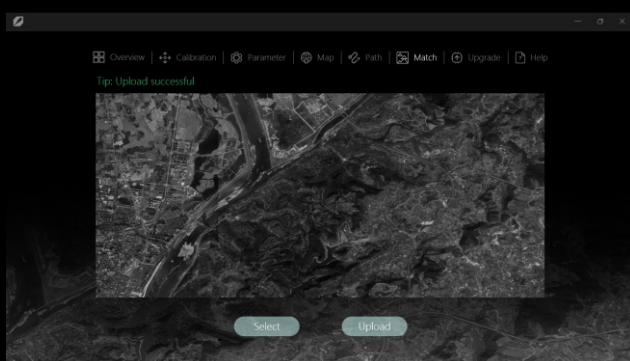
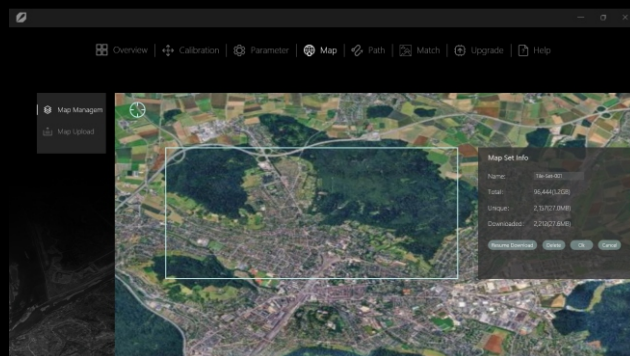
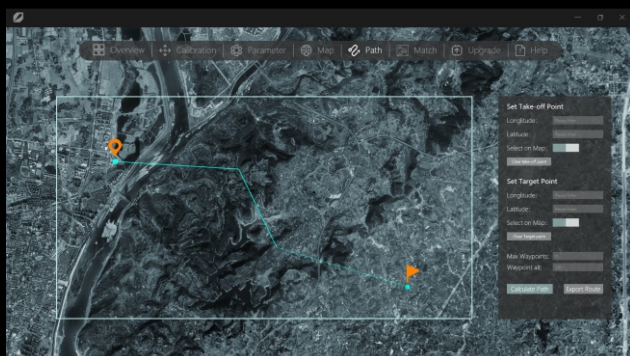
- GPS position
- visual position

Temporal Latitude Comparison

- GPS position
- visual position



Software



The Moss Ace configuration software includes features such as software setup, map uploading, path planning, and scene matching, and is simple to use.

Product Combination



Moss Ace A1-P
Suitable for fixed-wing ▶



◀ Moss Ace A1-R
Suitable for multi-rotors

Fixed-wing Parameter

Category	Item	Parameter/Details
Product Model	Moss Ace A1-P050010	
Product Performance	Maximum Flight Speed	Unrestricted
	Flight Altitude	200m - 500m
	Positioning Accuracy	±10m (Positioning error increases with altitude)
	Noise	±8m
	Effective Output Frequency	10Hz
	Ambient Illuminance	Daytime
	Applicable Scenarios	Applicable to all areas except those with weak or repetitive textures such as deserts, seas, and grasslands
Data Input and Output	Positioning Map Source	Satellite map / Custom map source
	Positioning Area Range	200km * 200km
	Positioning Data Output Protocol	NMEA 0183
	Positioning Output Data	GGA, RMC, PHD
	Scene Matching	Private Protocol
Visible Light Camera	Wavelength Band	0.4μm - 0.9μm
	Resolution	720×540
	Focal Length	f = 3.37mm
	Field of View	H 71.8°, V 57.5°
Laser Ranging	Wavelength Band	1535nm
	Ranging Range	10m - 500m
	Ranging Accuracy	±1m
	Ranging Frequency	1 - 10Hz
Electrical Performance	Voltage	18-28v 2.5A
	Power	30w (24V@1.25A)
	Storage Capacity	2T
	Communication Interfaces	Serial port, Network port
Size and Weight	Size	Core module: 120.3* 92*37mm
		Front-end module: 79.4* 52*52mm
	Weight	Core module: 350g
		Front-end module: 180g
Reliability	Operating Ambient Temperature	Minimum temperature: 0°C
		Maximum temperature: 50°C
	Storage Temperature	Minimum temperature: 0°C
		Maximum temperature: 70°C

Multi-rotor Parameter

Category	Item	Parameter/Details
Product Model	Moss Ace A1-R030010	
Product Performance	Maximum Flight Speed	16m/s
	Flight Altitude	200m - 300m
	Positioning Accuracy	±10m (Positioning error increases with altitude)
	Noise	±8m
	Effective Output Frequency	10Hz
	Ambient Illuminance	Daytime
	Applicable Scenarios	Applicable to all areas except those with weak or repetitive textures such as deserts, seas, and grasslands
Data Input and Output	Positioning Map Source	Satellite map / Custom map source
	Positioning Area Range	20km * 20km
	Positioning Data Output Protocol	NMEA 0183
	Positioning Output Data	GGA, RMC, PHD
	Scene Matching	Private Protocol
Visible Light Camera	Wavelength Band	0.4μm - 0.9μm
	Resolution	720×540
	Focal Length	f = 3.37mm
	Field of View	H 71.8°, V 57.5°
Laser Ranging	Wavelength Band	1535nm
	Ranging Range	10m - 500m
	Ranging Accuracy	±1m
	Ranging Frequency	1 - 10Hz
Electrical Performance	Voltage	18-28v 2.5A
	Power	30w (24V@1.25A)
	Storage Capacity	2T
	Communication Interfaces	Serial port, Network port
Size and Weight	Size	Core module: 120.3* 92*37mm
		Front-end module: 79.4* 52*52mm
	Weight	Core module: 350g
		Front-end module: 180g
Reliability	Operating Ambient Temperature	Minimum temperature: 0°C
		Maximum temperature: 50°C
	Storage Temperature	Minimum temperature: 0°C
		Maximum temperature: 70°C



Chengdu Sinv Dynamics Technology Co.,Ltd