

Solution Brochure

RECON RPAS



ARA Robotics inc.

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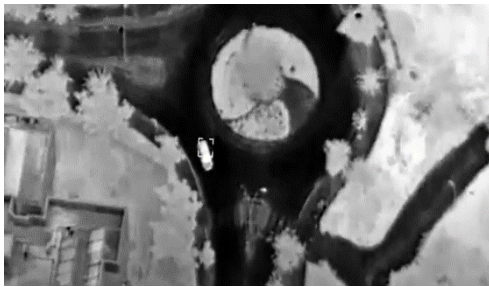
Montréal QC Canada

<https://ara-uas.com>



KEEP YOUR TEAM SAFE

The RECON RPAS is a tactical reconnaissance system with state-of-the-art sensors that provides real-time mapping, precise positioning and comprehensive situation awareness. This solution can quickly capture visual data and detect and identify potential threats to ground troops, empowering operators with actionable intelligence to successfully carry out missions. Developed in close collaboration with military organizations, the RECON RPAS is specifically engineered to support the execution of a wide variety of operations. From conducting surveillance operations and reconnaissance missions to acquiring detailed imagery and inspecting critical infrastructure, the RECON RPAS offers unmatched ISR technology, designed to excel even in the most sensitive and demanding situations.



TRANSMISSION PERIMETER

The RECON RPAS is equipped with an RF communication module capable of transmitting video feeds up to a distance of 4 km.

4 km/RF 2,4 GHZ 5,8 GHZ/MANET Network Compatibility

DESIGNED FOR RECON MISSIONS

The RPAS RECON can integrate up to 2 kg of payload for a flight time of 40 minutes. It is compatible with several camera models on the market.

Compatible Camera Models
Next vision/Night Hawk 2
Sony
Alliedvision
Teledyne/Flir



ARA-408 with LIDAR



ARA-408 with camera



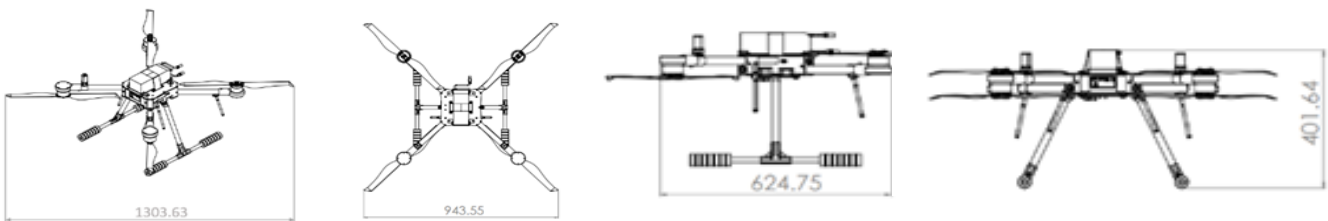
CLOSED SYSTEM

ACCESS TO PROTECTED DATA «CYBER HARDNESS»

The RECON-RPAS integrates ARA’s proprietary embedded software and is coupled with advanced security measures to safeguard against data theft. The military-grade software ensures that no flight data is recorded, guaranteeing protection to sensitive information. Additionally, all radio communication is encoded according to the AES 256 encryption standard.



TECHNICAL SPECIFICATIONS



RECON-RPAS dimensions (mm)

Unladen weight : 5,2 kg

Flight Controller Technology (autopilot)	SKYMATE Black edition/ARA Robotics
Maximum flight time (Unladen)	50 minutes
Transmission perimeter	4 km
GNSS system	Multiband, 1 m precision, 1 cm with RTK
Orientation measurement system	Dual GNSS measurement (without magnetometer)
Wind resistance	up to 45 km/h wind gusts
Operating temperature	-30 °C to 40 °C
Rain/snow resistance	Light to moderate rain and snow (See IP53 payload technical specifications for more information)
Batteries	LiPo 6S 22000mAh Lithium-Ion
Flight performance	Horizontal speed : 18 m/s + Vertical speed : 4 m/s
Communication link*	2.4 GHz/5,8 GHz/LTE/4G or other Ethernet protocols
Automatic flight	Automated Take-off and Landing Functions
Ground station software compatibility	SkyControl (ARA Robotics) ATAK - CivTAK

* Integration possible with Persistent, Silvus, Doodle, etc.



ARA ROBOTICS MILITARY PROJECT CASE STUDY

US MARINES CORPS 2021 – NAWAD OTHER TRANSACTION AGREEMENT (OTA): N00421-19-9-0001

PERISCOPE AVIATION CARGO DELIVERY DRONES WITH SKYMATE™, ARA ROBOTICS' AUTOPILOT

Collaborating with Periscope Aviation (Washington, DC), ARA Robotique delivered five cutting-edge tactical resupply drones with a 40 kg cargo capacity. This initiative's aim was to offer an automated cargo delivery solution using drones, where ARA Robotics' Flight Controller SKYMATE was used to remotely control the drones. A data security assessment was carried out during this project and the team successfully concluded that it was impossible for an individual to have access to the GPS coordinates of the launch point of the RPAS. The solution was also capable of releasing packages in-flight and had access to altitude readings via a lidar. Furthermore, SKYMATE was integrated into Autonomy's RCU-1000 ground control software.



DND – IDEAS CHALLENGE #8 COMPONENT 1B - RESILIENT NON-GLOBAL POSITIONING SYSTEM (GPS) BASED POSITIONING, NAVIGATION AND TIMING

MICRO-UAV BASED GPS-FREE 3D RECOGNITION SYSTEM

In November 2019, ARA Robotics secured a contract to develop a prototype solution with PNT (Positioning, Navigation and Timing) technology catered for infantry squads operating in GPS-denied environments. The proposed solution consists of two tandem systems, a portable remote control station (RPS) worn as a backpack, and a deployable aircraft remote control station (RPA). The RPS is equipped with a navigation and mapping module (NMM) to track the position of the squad in real time. The RPA is also equipped with an NMM to conduct aerial reconnaissance missions, exploration, and collaborative mapping. The NMM uses a novel SLAM (Simultaneous Localization and Mapping) algorithm that fuses lidar odometry, visual odometry, and loop-closure methods to navigate in GPS-denied environments. The solution is scalable, providing the flexibility to integrate multiple NMMs into a unified network to perform collaborative positioning and mapping. The RPA is capable of conducting autonomous flights in unknown and complex environments while avoiding obstacles.



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