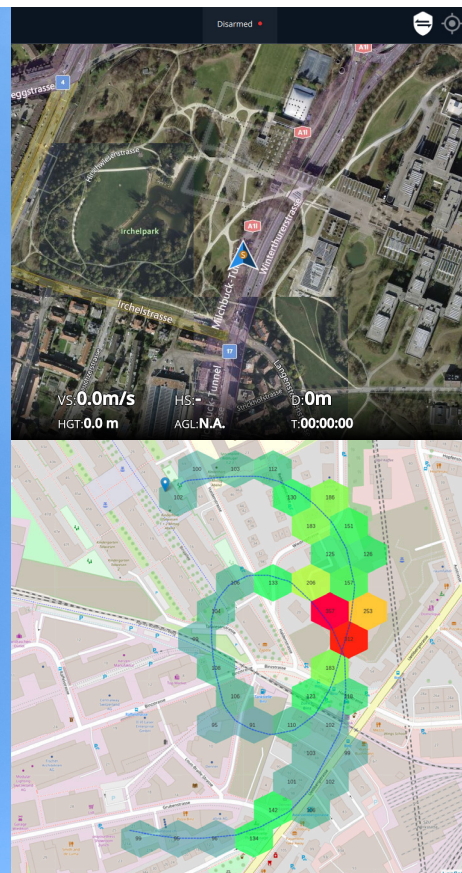


Radiation Detector Drone

Uncrewed Aerial System (UAS) for radiation mapping and source search



Highest efficiency per weight

This radiation detecting drone can map an area of 100'000m² in a single flight of 20 minutes. The system is about 50x more sensitive than typical drone-based detectors.

Flying a tight search pattern, it can map radiation at speeds of 2–20 m/s. Equipped with a large area Flat Panel Gamma (FPG) detector, the system can rapidly find and localize radioactive sources.

This tool is indispensable to prepare for, or react to a reactor accident, locating stolen radioactive sources or inspecting bulk goods for excess radioactivity.

Key Features

Best-in-class performance

- Large area detector (300 cm²) with very high sensitivity
- Unbeatable for large area search missions
- Spectral distinction between artificial sources and Naturally Occurring Radioactive Materials (NORM)
- LIDAR-based altitude measurement enables precise altitude compensation and ground projection of dose rate
- Minimal power consumption allows 20-minute missions per battery
- Unlike PMT-based systems, SiPM readout unaffected by changing magnetic fields

Ease of operation

- Minimal setup time
- Computer assisted mission planning allows rapid deployment with minimal training
- Mission control software has intuitive Graphical User Interface (GUI) for flight control, data taking and analysis
- Outdoor and indoor (IP54 or better)
- Interoperable with Arktis and 3rd party systems

Radiation Detector Drone

“Finally an airborne detector sensitive enough to rapidly deliver high count statistics”

Typical applications include

- Wide area search for radioactive sources
- Contamination mapping
- Defining exclusion zones following radiological incident
- Venue profiling in preparation of large events
- Targeted primary screening of vehicles, boats, small aircraft



Within few minutes, operators can define the UAS flight path for upcoming missions. Depending on the mission type, and the expected amount of radioactivity, an operator will choose an according altitude above ground, flight speed, and flight path overlap.

Specifications		
Physical Specifications of FPG scintillation detector	Scintillator dimensions: 250 x 125 x 14 mm Scintillator weight: 447.5 g Total payload weight: 1.8 kg (incl LIDAR & camera) Custom configurations available, including for other platforms	
In-flight detection performance	Cs-137 (100 MBq)	Co-60 (100 MBq)
2 meters above ground	Dose rate: 1.90 μ Sv/h Net count rate: ~ 7'151 cps (~ 36 x background)	Dose rate: 7.63 μ Sv/h Net count rate: ~ 12'937 cps (~ 65 x background)
5 meters above ground	Dose rate: 0.30 μ Sv/h Net count rate: ~ 1'150 cps (~ 6 x background)	Dose rate: 1.21 μ Sv/h Net count rate: ~ 2'085 cps (~ 10 x background)
10 meters above ground	Dose rate: 0.07 μ Sv/h Net count rate: ~ 286 cps (~ 1.4x background)	Dose rate: 0.30 μ Sv/h Net count rate: ~ 523 cps (~ 2.6x background)
15 meters above ground	Dose rate: 0.03 μ Sv/h Net count rate: ~ 129 cps (~ 65% above background)	Dose rate: 0.13 μ Sv/h Net count rate: ~ 232 cps (~ 1.2 x background)
Environmental	-20°C to 50°C operating temperature IP54 ingress protection (other options available)	
Flight time	20 mins per battery with 1.8 kg payload Batteries are hot-swappable	
Flight modes	Typical search missions executed at 2–20 m/s ground speed Manual: Aircraft auto-stabilized. All other controls are manual Position: Aircraft holds its position at set altitude above a point on the ground Altitude: Aircraft holds constant altitude Mission: Aircraft autonomously executes configured flight plan	
Includes	UAS, FPG detector, color camera, LIDAR, ground control station and laptop with pre-installed software for data taking, analysis and flight control	