

UAV Radiation Detector System

1. Features

- It's a foldable and light weight system, can be put into a rugged carry-on equipment case.
- Fully automatic flight, high precision, less terrain influence factors. With high precision laser altimeter for terrain following function as option.
- FPV system for remote transmission of flight video as option.
- The unfolded UAV can be deployed quickly, without massive installation which could lead the possibility of system failure and error.
- Survey data is transmitted to the ground station in real time and displayed in rugged windows tablet.
- Radiation Detection System can be combined with Aeromagnetic survey system, one flight two set of data.



2. Multiple Radiation Detector probes can be switched

- Different probes can be used to detect α , β , X, γ and neutron rays.
- Added background removal feature to remove 95% background noise.

Probe type	Description	Picture
CS30A Scintillation Probe	Measuring type: X ray and γ ray Sensor: $\phi 30 \times 30$ mm NaI Crystal Dose rate range: $0.01 \mu\text{Sv/h} - 1000 \mu\text{Sv/h}$ Sensitivity: $1 \mu\text{Sv/h} \geq 350 \text{cps} (^{137}\text{Cs})$ Energy response: 50keV-3MeV Accuracy: $\leq \pm 15\%$ Size: $\phi 50 \times 338$ mm Weight: 0.7kg	
N10 H Type Sensor Neutron γ Ray 4 π omnidirectional probe	Measuring type: γ rays and Neutron rays Omnidirectional sensors, Gamma suppression ratio 1000: 1 (^{137}Cs), At the same volume, the sensitivity is 20 times higher than the ^3He sensor Crystal size: $10 \times 10 \times 10$ (mm ³) Dose rate range: 10mSv/h(Neutron) , 20mSv/h(γ) Sensitivity: $1 \mu\text{Sv/h} \geq 0.5 \text{cps} (^{252}\text{Cf})$ Counting rate: 1-20kcps Size: $\phi 50 \times 140$ mm Weight: 0.34kg	

3. Including:

Subsystem	Items
Radiation Detector System	<ul style="list-style-type: none"> ➤ Different probes can be used to detect α, β X, γ and neutron ray ➤ 4 ARM Cortex-A53, 1.2 GHz CPU computer ➤ High Precision GPS data collection ➤ Radiation Detector and aeromagnetic survey can be integrated into one system ➤ Probes and rugged tablet can be used as walking radiation detector system
Carbon fiber UAV four axis payload 1kg (basic configuration)	<ul style="list-style-type: none"> ➤ Four axis H4 680 carbon fiber UAV folding frame. The diagonal motor distance is 680cm. ➤ Brushless motor 4110U KV400, ESC 40A, folding propeller 1555 ➤ UAV with Ardupilot, satellite map route autonomous flight ➤ Remote transmission and reception of 2.4 Ghz Transmitter X9D with long range receiver L9R, ➤ Long range 1W 433MHz data transmission module ➤ Aircraft UAV protection box, boarding verified ➤ Flight time 20-30 minutes
Battery system	<ul style="list-style-type: none"> ➤ 2 of 6S 8000mAh 25C battery ➤ 500w lithium battery charger
RTK GPS(optional)	<ul style="list-style-type: none"> ➤ Fast satellite capture, 0.02m accuracy
FPV system(optional)	<ul style="list-style-type: none"> ➤ HD 13 million Pixel aerial Motion wide Angle camera ➤ 5.8GHz transmitter, dual receiver integrated display
Laser altimeter (optional)	<ul style="list-style-type: none"> ➤ 120m measurement range, 1cm resolution, 0.1m high precision laser altimeter supports terrain following flight
10 inch rugged windows tablet (optional)	<ul style="list-style-type: none"> ➤ Installed with path planning, real-time data display for 4 rugged handheld tablets, 433MHz digital wireless connect to UAV



CS30A UAV radiation detector system



The CS30A probe and the rugged tablet connect directly as the walking detection system.

