OPTOSKY Spectroscopy Solutions

Datasheet

Multi-Gas Sensing & Mapping System GF910

Features

- Continuous real-time monitoring of CO, NO_2, SO_2, O_3, PM2.5, PM10, VOCs, temperature, and humidity (expandable).
- Compact design (<160*120*100mm) with lightweight, rugged housing.
- Active pump-suction sampling (1.2 L/min) for fast, accurate readings.
- Built-in energy storage for 30-day standby and instant cold startup.
- Multi-status indicators: network, storage, PSDK, GNSS, alarm.
- NB-IoT wireless communication with no distance limit.
- Built-in high-precision GNSS module.
- DJI Cloud API compatible for real-time data on controller.
- Automated inspection via area scan or path cruise.
- Export reports and logs via mobile app.
- Up to 55 minutes of continuous flight time.

Description

The GF910 Project is a professional, portable ecological environment protection monitoring system for typical applications, capable of monitoring seven key parameters. It consists of various high-precision gas sensors, a highly stable quadcopter drone, and is equipped with intelligent visualization analysis software, enabling real-time and precise acquisition of air pollution distribution information.

Compared to traditional detection methods, the drone-mounted environmental monitor offers advantages such as wide adaptability to scenarios, high flexibility, and strong mobility. It can quickly determine the presence of toxic, harmful, flammable, or explosive gases on-site.

It is suitable for providing timely and effective decision-making support across various industries including pollution source tracing, public interest litigation, emergency fire and rescue operations, environmental protection, air quality monitoring, and dust monitoring. It helps workers significantly improve work efficiency while reducing safety risks and costs.

Applications

1) Atmospheric Pollution Source Investigation

Rapidly conduct high-resolution scans of specific areas such as residential zones, industrial parks, construction sites, and traffic routes. Simultaneously obtain three-dimensional concentration distributions of multiple pollutants, quickly identifying pollution source locations and transmission pathways to provide precise support for pollution source tracing.

2) Gas Leakage Point Detection

Overcome complex terrain limitations and eliminate risks associated with manual climbing or close contact with hazardous gases. Efficiently inspect petrochemical plants, pipeline systems, landfill sites, and other areas to swiftly detect potential leakage points, offering real-time data support for environmental regulatory authorities and corporate decision-making.

3) Emergency Response to Toxic and Hazardous Gas Incidents

In emergency situations, enter the incident site ahead of rescue personnel to monitor the types, concentrations, and diffusion trends of toxic and hazardous gases in real time. Assist on-site commanders in quickly delineating evacuation zones and selecting appropriate protective equipment, enhancing the efficiency and safety of emergency responses.

4）Dust Emission Monitoring

1. Appearance

2. GF910 Workflow

Air quality data collected by the environmental monitor mounted on the drone is transmitted in real time to the drone remote controller via PSDK connection. The measurement data and video stream are then uploaded to the cloud through the controller's 4G network capability. The ground control station displays the real-time data and video streams, and a task report can be generated with one click via data analysis software upon mission completion.

3. Selection Guide

Camera (DJI Zenmuse H20) optional	
Angle Jitter	±0.01°
Function	Zoom + wide angle + laser ranging
Controllable Rotation Range	Pitch: -120° to 30° Pan: ±320°
Installation Method	Removable
Maximum Zoom Factor	200× (DFOV: 0.5°, equivalent focal length: 4800mm)
Eye Safety Level	Class 1M (IEC 60825-1:2014)
Operating Temperature	-20℃-50℃
Protection Level	IP44
Size	150×114×151 mm
Weight	678±5°
Remote control Android software	
Basic Function	Parameters related to drones, cameras, and environmental monitors can be flexibly set
	Real-time display of environmental monitor measurement values
	Can support path inspection and automatic cruise
	After the task is completed, the inspection report can be exported with one click
PC software	
Basic Function	Support real-time data analysis and seamless connection with the inspection site
	Supports three types of visual data switching (2D grid, contour pollution concentration distribution map, 3D point cloud pollution distribution map)
	Supports real-time display of camera images, and the correspondence between pollution concentration values and real scene information is clear at a glance (optional)
	Supports importing real-life photos (optional)
	Supports importing high-definition orthophotos to avoid the impact of old maps (optional)
	Supports one-click generation of task reports/export data tables
	Supports connection with multiple drones to meet simultaneous sampling in multiple places
	Support cloud function

UAV platform parameters (DJI M300RTK)	
Size	Dimensions (expanded, excluding blades): 810×670×430 mm (length×width×height) Dimensions (folded, including paddles): 430×420×430 mm (length×width×height)
Symmetrical Motor Wheelbase	895mm
Weight (Including Lower Single Pan/Tilt Bracket)	Empty weight (without battery): 3.6 kg Empty weight (including dual batteries): 6.3 kg
Maximum Load Capacity Of Single Gimbal Weight-Reducing Ball	930g
Maximum Takeoff Weight	9kg
Hover Accuracy (P-Gps)	vertical: ±0.1 m (when visual positioning is working normally) ±0.5 m (when GPS is working normally) ±0.1 m (when RTK positioning is working normally) level: ±0.3 m (when visual positioning is working normally) ±1.5 m (when GPS is working normally) ±0.1 m (when RTK positioning is working normally)
Maximum Flight Altitude	5000m
Maximum Withstand Wind Speed	15m/s (Wind speed level seven)
Maximum Flight Time	55min
Protection Level	IP45
Gnss	GPS+GLONASS+BeiDou+Galileo
Working Temperature	-20℃-50℃
Maximum Effective Working Distance Of Ground Station	15km 1080P Picture transmission

4. Parameter

Environmental Monitor		
Detection Object		CO, NO2, SO2, O3, PM2.5, PM10, VOCs, Temperature, Humidity (Supports parameter expansion)
Detection Principle		Electrochemistry, laser scattering
Detection Method		pump suction
	CO Sensor	10ppm

Measuring Range	NO2 Sensor	1ppm
	SO2 Sensor	1ppm
	O3 Sensor	1ppm
	vocs Sensor	10ppm
	PM2.5/PM10 Sensor	0-1000ug/m3
Responding Speed		≤30S
Power Supply Voltage		5V/24V
Operating Temperature		-20℃ ~＋55℃
Working Humidity		<95%RH, no condensation
Signal Output Mode		NB
Satellite Positioning		GPS
Data Storage		SD card
Instrument Weight		800±20g
Size		163*107*65mm

5. Packing List

NO	Item	Number	Optional/Standard
1	Environmental monitor	1	Standard
2	DJI Matrice M300RTK drone	1	Standard
3	Zenmuse H20 camera	1	Optional
4	Remote control flight software	1	Standard
5	PC data analysis software	1	Standard