SHARE UAV PSDK 1025

High Accuracy Aerial Oblique Camera for Surveying and Mapping

Product Overview

SHARE PSDK 102S aerial oblique camera is specially designed for high accuracy 3D cadastral surveying & mapping. Based on customized lens, SHARE PSDK 102S can offer superior image quality, highest accuracy.

- Weight: 650g
- Camera Specs: 5*24.3MP
- Support Model: DJI M210 RTK, M300 RTK



Product Features



- Profession —— using 35mm customized mapping lens whose lens distortion is small and imaging is clearer.
- Smaller body —— refined appearance design and CNC technology.
- Intuitive status —— OLED screen can display camera status, which can avoid manual errors.

Product Features



- Convenience one Type-C connecter for reading data of 5 cameras, SkyPort for mounting, power and communication.
- Efficient work —— SHARE's pre-processing software support one-click copy/clean up data function.
- Greater accuracy —— independent POS file in each cameras, it can be compatible with DJI Terra perfectly.

Product Features

Besides, PSDK 102S is specially designed for DJI drone, seamless docking through SKYPORT. PSDK 102S has two version, single port or dual port.



Applications



High accuracy 3D modeling for cadastral surveying & mapping

It's hard to acqurie accuracy data when using the traditional mapping solution. But with high precision, PSDK 102S can get complete landform information without setting Ground Control Points (GCPs), which can improve work efficiency.

Applications





Public Safety





Construction



Historic Sites



Inspection

Parameter

QTY of Lens	5 pcs	Material	CNC aluminum alloy
Focal Length	35mm	Size	140mm * 140mm *80mm
Effective Pixels	24.3MP, total pixels≥120MP	Weight	650g
Sensor Size	APS-C (23.5mm x 15.6mm)	Data Reading	USB3.0 Type-C
Lens Angle	45 degree	Data Preprocessing	SHARE Data Manager
Exposure Interval	≥0.8s	Real-time Image Transmission	Supported
Storage	640GB	Real-time Kinematic	Supported
Power Supply	SkyPort	Intelligent Temperature Control	Supported
Power On / Off	Auto On / Off	OLED	Supported
Operating Temperature	-10°C~50°C	One Key Reset / Reapair	Supported
Humidity	95%	Firmware Upgraded	Upgrade online
IP Rating	IP43	Aircraft	DJI M210 RTK

Case Study

Background:

In order to compared the accuracy and efficiency between Phantom 4 RTK and PSDK 102s, we choose the same area to map at the same time and same overlap ratio.



(Both using Terra V2.1.3 for 3D modeling)

Case Study

Efficiency comparison

	Phantom 4 RTK	PSDK 102S
GSD	3cm	3cm
Overlap	sidelap 70%/ frontlap 80%	sidelap 70%/ frontlap 80%
Height	110m	191m
Speed	13m/s	15m/s
Flight times	20	3
Square	1km²	1km²
Total pictures	7848	13530
KML filtering		5101

Case Study

Accuracy comparison

GCP Information Overview

Ground Check Point

ID	dx(m)	dy(m)	dz(m)	
1	0.006202	0.024117	0.017191	
4	-0.005344	0.030592	-0.005576	
5	-0.011219	0.002760	-0.003160	
6	-0.004253	-0.004034	0.003611	
7	-0.005584	0.004512	0.013177	
8	0.043572	0.004730	-0.031631	
9	0.023259	-0.014263	- <mark>0.013761</mark>	
10	0.037759	0.012166	-0.047441	

Check Point RMSE

dx(m)	dy(m) dz(m	
0.022659	0.015555	0.022259

Phantom 4 RTK

GCP Information Overview

Ground Check Point

ID	dx(m) dy(m)		dz(m)	
1	0.003826	0.015544	-0.000997	
2	- <mark>0.0104</mark> 17	0.012519	-0.029920	
3	0.015960	0.022963	-0.027515	
4	0.013653	0.016279	-0.024970	
5	0.002514	0.006269	-0.025738	
6	0.013447	0.023707	-0.028027	
7	0.013093	0.035198	-0.009514	
8	0.016289	0.027500	-0.027215	
9	0.002172	0.017831	-0.016881	
10	0.011880	0.021522	-0.008930	

Check Point RMSE

dx(m)	dy(m)	dz(m)	
0.011550	0.021374	0.022182	



Reason of acquiring high accuracy

Using high quality UV lens, PSDK-102S has more realistic color restoration.



Camera orientation elements (3): focal length f, image principal point offset X0, image principal point offset Y0

Camera distortion parameters (radial distortion, tangential distortion, etc.)

Reason of acquiring high accuracy

Time synchronization design, PSDK 102S can accuqire high accuracy data.



Elements of exterior orientation: X、Y、Z coordinate and omega、phi、kappa

Operation



Pre-surveying before flight



Set checkpoints



Create routes, flight operation, take photo



3D model reconstruction



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Import photos to DJI Terra, run aerial triangulation calculation

Use SHARE Data Manager to pre-process data

Workflow

SHARE Data Manager is an intelligent software developed by SHARE UAV to solve the problem of camera-computer interaction.Only THREE steps for pre-processing all data.

Step 1: Select the flights mission after connecting PSDK 102S with computer by Type-C cable.



Workflow

Step 2: Choose destination file then set basic data, POS information and KML.

			赛尔航测管家 V3.1.19	.2		- 🗆 X
SHARE	前视在线	后视在线	左视在线	右视在线	下视在线	GPS在线
SHAR #	已用0.1GB, 共59.4GB	已用0.1GB, 共59.4GB	已用0.1GB, 共59.4GB	已用0.1GB, 共59.4GB	已用0.1GB, 共59.4GB	已用0.1GB, 共7.4GB
◎ 果次管理	选择目标文件夹			desination	filo	
全 固件升级	E:\2			desination	me	
● 相机信息	预计需要硬盘空间0.19 基本设置 生成CC工程文件 CC工程文件坐标系 按定位精度筛选照片 忽略近地照片 图片写入POS信息	 GB, 选择的存储盘剩余3 ● 启用 ● 例 WGS84 拷贝所有照片 ● 启用 ● 例 ● 启用 ● 例 	空闲空间为872.80GB 9用 9用 9用	basic data		•
	POS偏移补偿设置一 KML区域设置			POS in	formation a	ind KML 🏅
晰开连接			开始拷贝 start to copy	取消 y / cancel		

Workflow

Step 3: Wait for copy processing, and it will show copy complete.

			赛尔航测管家 V3.1.19.2	2		- 🗆 X
SHAR事業家	前视在线	后视在线	左视在线	右视在线	下视在线	GPS在线
SHARE	已用0.1GB, 共59.4GB	已用0.1GB, 共7.4GB				
◎ 果次管理	拷贝成功					
位 固件升级					查看数据	3 返回
💌 相机信息			持贝	》 成功!		
			CO	py complet	e	
断开连接						