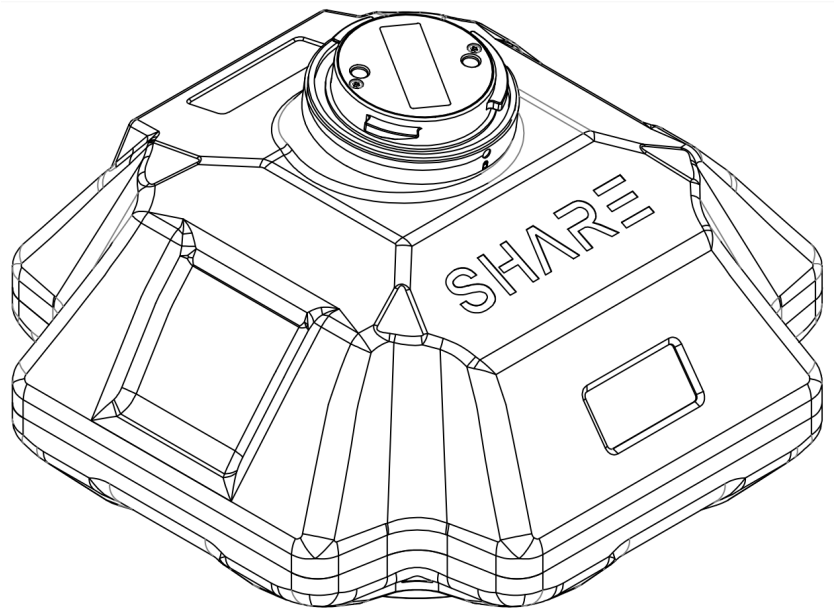
# PSDK 102S V2 - 5 Lens Oblique Camera
# User Manual V1.3.2

2021.09




深圳赛尔智控科技有限公司
SHENZHEN SHARE UAV TECHNOLOGY Co., Ltd.

## Disclaimer and Warning

Please read this entire document carefully to ensure proper configuration before use. The c
of this document and all other collateral documents belong to SHENZHEN SHA
TECHNOLOGY CO., LTD. (abbreviated as “SHARE UAV”). SHARE UAV has the final interpretati
of this document and all other collateral documents.

SHAR EUAV has right to update, modify or terminate the content of this document witho
notice. For update information, visit website http://www.shareuavtec.com/en/ and click
product page for this product.

Do not allow people under the age of 18 to use the PSDK 102S V2.

Do not modify or disassemble the PSDK 102S V2. SHARE UAV accepts no liability for damag
or any legal responsibility incurred directly or indirectly from the use of this product. The u
observe safe and lawful practices including, but not limited to, those set forth in this manua

By using SHARE UAV products, you hereby signify that you have read this disclaimer and
carefully and that you understand and agree to abide by the terms and condition herein.

You agree that you are solely responsible for your own conduct while using this product,
any consequences thereof. You agree to use this product only for purposes that are prope
accordance with all applicable laws, rules, and regulations.

# Contents


2. Product Overview ..... 3
1.PSDK 102S V2 Introduction ..... 3
2.Features ..... 3
1.3 In the box ..... 4
1.4 Parameter ..... 5
2.Installation ..... 5
2.1.Camera Introduction ..... 5
2.2.Payload Installation/Removal ..... 6
3.Camera Operation ..... 7
3.1.Powering On ..... 7
3.2.Taking Photos ..... 8
3.3.DJI Pilot Setting ..... 9
3.4.Repair ..... 12
4.Share Data Manager ..... 12
4.1.Introduction ..... 12
4.2.Operation environment ..... 12
4.3.Workflow ..... 12
4.4.Software Installation ..... 13
4.6 Functions ..... 15
4.6.1 Copy Flights ..... 15
4.6.2 Clean Flights ..... 19
4.6.3 Firmware Upgrade ..... 22
4.6.4 Camera Information ..... 22
5.Camera Maintenance ..... 23
6. After sales ..... 24
6.1 Delivery ..... 24

6.2 After-sales Service ..... 24

# 2. Product Overview

The Share UAV PSDK 102S aerial oblique camera is equipped with five individual 24.3-megapixel sensors, which can break through the limitations of single-angle images on traditional mapping camera.

By mounting multiple camera sensors on the same flying platform, it will acquire imagery with more spatial information from multiple angles, vertical and tilt providing more details and textures of captured features.

The 3D data of obtained from the PSDK 102S can realistically reflect the appearance, position, height and other attributes of ground features. Enhancing immersion and makes up for the shortcomings of low artificial simulation of traditional modeling.

It can bring revolutionary efficiency improvements to the mapping field by using UAV and automatic modeling systems.

## 1.PSDK 102S V2 Introduction

| | | | |
|---|---|---|---|
| **Manufacturer:** | SHARE UAV | **Camera Type:** | Oblique Camera |
| **Model No.:** | PSDK 102S V2 | **Material:** | Aluminium alloy |
| **Size:** | 140 x140 x 85 mm | **N.W.:** | ≈660 g |
| **Power Supply:** | SkyPort integrated | **Exposure Interval:** | ≥0.8s |
| **Sensor Size:** | 23.5*15.6mm | **Storage:** | 1280GB |

The PSDK 102S V2 features five professional mapping sensors with a total pixel count of 120 million. It uses an advanced and professional integrally-formed structure in this industry.

Through excellent shape and structural design and manufacturing, it creates a professional 5 sensor oblique camera. The body of the camera uses both aluminium alloy and composite material, which is strong structurally while being light weight. The camera only 660 g and has an operating temperature range of -10 ~50℃.

The camera has the best performance in electromagnetic interference resistance, heat resistance and dissipation, water resistance, drop resistance, UV resistance and dust resistance.

USB Type-C interface for fast data transfer without requiring the camera to be powered on greatly improves workflow efficiency.

## 2.Features

* Mounting via DJI SkyPort, compatible with DJI M210 RTK V2 & M300 RTK drones
* No modifications are required when mounted with DJI SkyPort

* DJI Terra supports high-precision POS file import without laying ground control points
* Camera firmware is automatically upgraded online through Share UAV Data Manager
* SHARE UAV Data Manager software provides flight data management of captured imagery
* Real-time image transmission and telemetry data can be viewed on the DJI RC/App
* Five fully closed-loop intelligent detection system
* USB Type-C interface for fast data transfer of captured imagery
* Professional mapping system provides a high capture rate of imagery

## 1.3 In the box

| Items | Oblique Camera | Protection Case | Data Cable | Lens Cover | SkyPort Cover | Wipe Cloth | User Manual |
|---|---|---|---|---|---|---|---|
| QTY | 1pc | 1pc | 1pc | 1pc | 1pc | 2pcs | 1pc |

## 1.4 Parameter

| PSDK 102S V2<br>Aerial Oblique Camera Parameters | | |
|---|---|---|
| **Sensor parameters** | QTY of Lens | 5 pcs |
| | Power on/off | Auto on/off |
| **Electrical parameters** | Power supply | SkyPort integrated |
| | Endurance | Power supply by drone |
| | Data Transfer | USB Type-C |
| **Camera parameters** | Effective pixels | 24.3 million (total 120 million pixels) |
| | Sensor size | APS-C (23.5*15.6mmm) |
| | Pixel size | 3.9um |
| | Image resolution | 6000 x 4000 |
| | Tilt degree | 45° |
| | Storage | 1280 GB |
| | Exposure mode | Autopilot trigger |
| | Exposure time | ≥0.8s |
| | Focal length | Ortho 25mm, tilt 35 mm |
| **Working environment** | Working temperature | -10℃ ~50℃ |
| | Humidity | ≤ 95% |
| **Dimensions** | Size | 140 x140 x 85 mm |
| | Weight | ≈660 g |

# 2.Installation

## 2.1.Camera Introduction

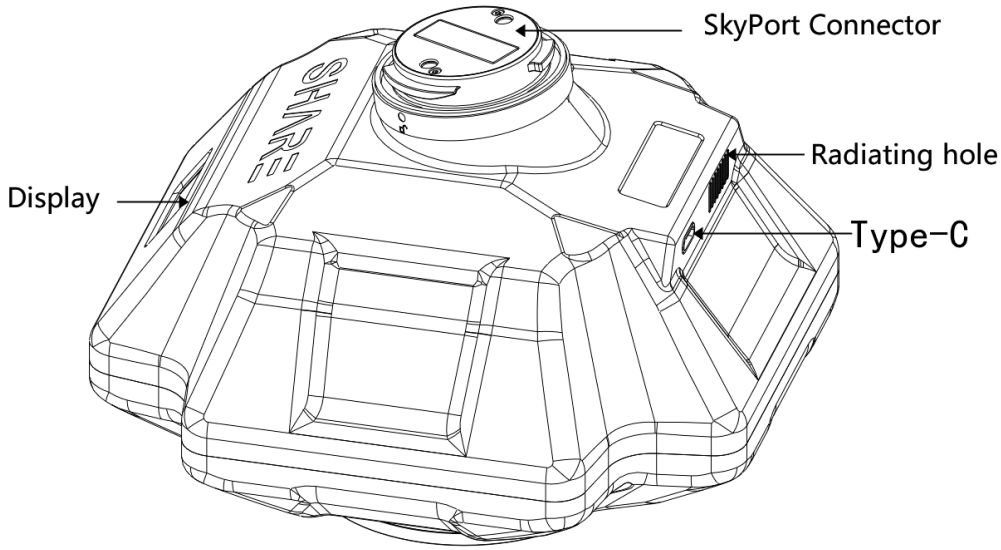
The PSDK 102S V2 has an OLED display on the front. When installing the camera, ensure that the display is aligned with the aircraft nose. The lens near the front of the camera is the

back-view, and the drive letter is named after the lens Angle orientation, which is opposite to the lens mounting position.

The top of the camera is equipped with DJI SkyPort interface, which is compatible with DJI M300 RTK. Through one interface, it integrates power supply, data transmission, RTK signal, graph transmission, mounting and other functions.

The integrated DJI SkyPort has been designed with a slope that compensates for the angle of the aircraft while in forward flight to improve data capture.

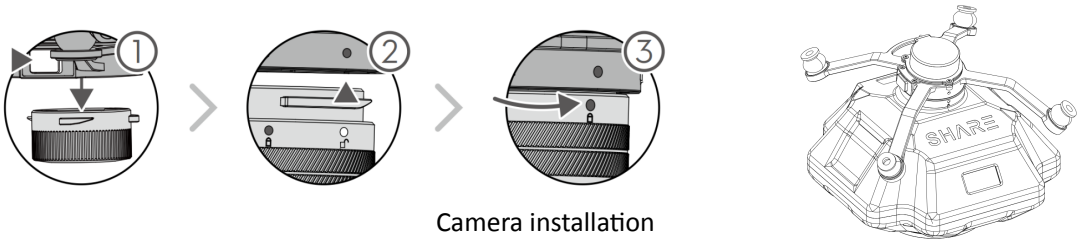
## 2.2.Payload Installation/Removal




Interface of PSDK 102S V2

Installation steps：

(1)To remove SkyPort cover of the drone, press and hold the release button and turn the cover so it can be removed.
(2)Remove SkyPort cover of the camera, align the white point of the camera with the red point of the drone, and embed it in the installation position.
(3)Rotate the camera to the lock position, align the red dots, the camera is installed.




Camera installation

Removal steps:

(1)To remove camera, press and hold the release button, rotate the camera in the opposite direction until the red point is aligned with the white point, then remove the camera;
(2)Replace the SkyPort covers and lens cover.

# 3.Camera Operation

## 3.1.Powering On

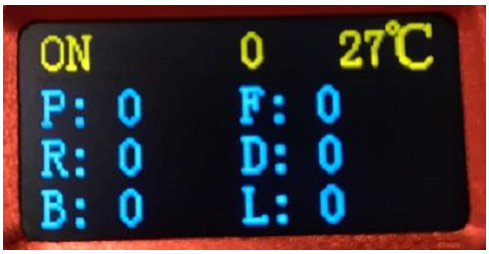
The camera is powered directly from the craft and is switched on and off automatically. Taking the installation of DJI M300 RTK as an example, steps of power on:

（1）Mount the PSDK 102S on the DJI drone, and make sure the camera is secured；

（2）Turn on the drone, the camera will start automatically and enter the self-test. The total startup duration of the camera will be ~35s, the camera will beep once the startup is completed.

【During the startup process, the camera display successively displays: LOGO and firmware version → initialization → starting up → startup completed】

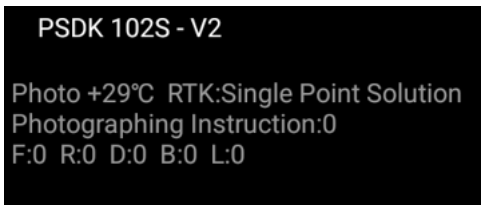
（3）After the camera is turned on, the OLED display interface is shown below：




Camera display

| OLED Display | Meaning | Remark |
|---|---|---|
| ON | The camera is power on | When powered off, it will show OFF |
| 50 | RTK status | RTK has 4 display modes<br>1 - No solution<br>16 - Single point solution<br>34 - Floating point solution<br>50 - Fixed solution<br>For accurate imagery geolocation, RTK mode should be used with a RTK flag of 50 |
| 30℃ | Camera temperature | Current camera temperature |
| P | The number of times the trigger been received | The trigger times camera has received |
| F, R, D, B, L | Number of photos taken on each lens | F - Lens facing to the back<br>R - Lens facing to the left<br>D - Lens facing to the downward<br>B - Lens facing to the front<br>L - Lens facing to the right<br>(Will initialize after the camera restart) |

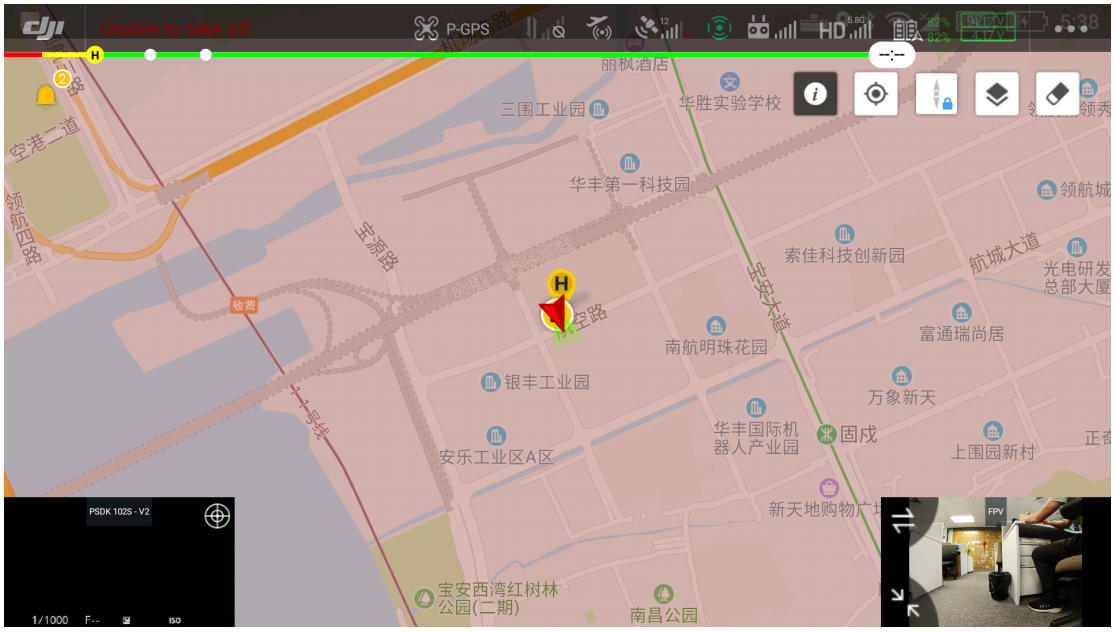
（4）During the camera start up process, the real-time data window of the Pilot screen shows the photo-unavailable state, and displays the photo-capable state after normal booting.




Camera status window

（5） During the camera start up process, the time setting or camera setting interface will appear on the image transmission interface. At this time, the camera initialization will automatically switch the interface. After the camera is turned on and self-test has been completed, the image transmission display will show the camera interface.

## 3.2.Taking Photos

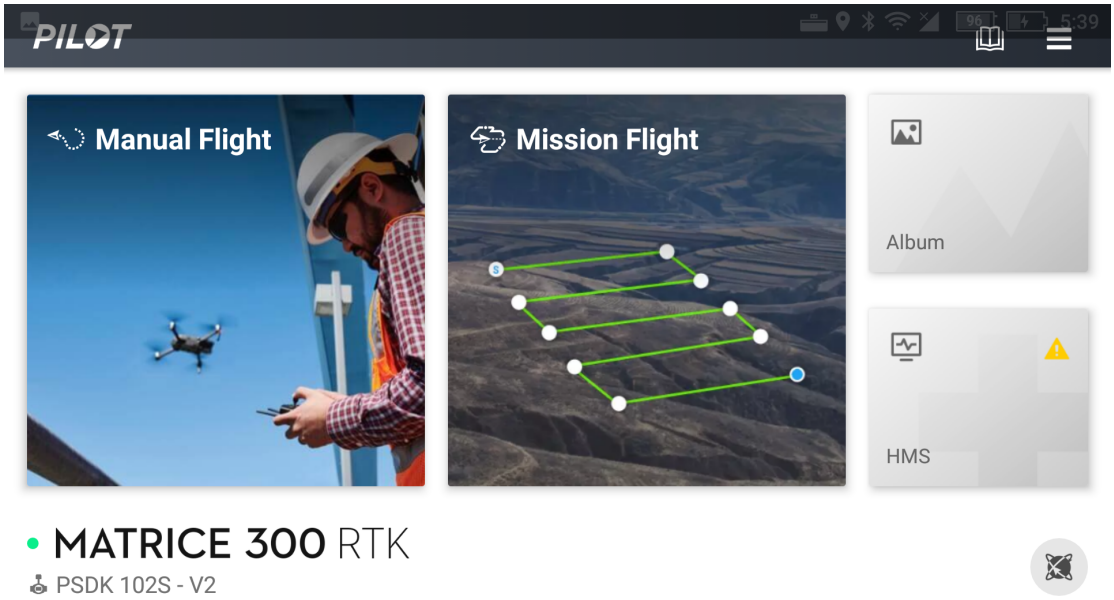



Pic 5 Pilot screen（indoor）

Take working with DJI M300RTK for example, camera is on， Left top window shows the status of camera, 5 times trigger and each lens have take 5 photos. The left bottom window shows the real-time image of the down view lens. In this example the indoor light is insufficient and the left bottom image is black.

## 3.3.DJI Pilot Setting

Take working with DJI M300RTK for example，Using DJI Pilot for route planning and set flight parameters.




Pic 6 Pilot App

### 3.3.1.DJI Pilot Mission Planning - PSDK 102S V2

1) Open DJI Pilot
2) Select Mission Flight
3) Create a route
4) Mapping Mission
5) Select Camera
6) Select PSDK 102S
7) Input mission parameters
    a) Flight Height
    b) Speed
    c) Overlap
    d) Margin
    e) Photo Capture Mode
    f) Other parameters as required
8) Plan flight area
9) Fly mission

### 3.3.2 PSDK 102S V2 parameter

If using a third party app, camera parameters may need to be set manually.

| | | | |
|---|---|---|---|
| PSDK 102S V2 | Photo resolution (W) | Sensor size (W) | Focus |
| | 6000px | 23.5mm | 25.0mm |
| | Photo resolution (H) | Sensor size (H) | Minimum interval |
| | 4000px | 15.6mm | 1.0s |

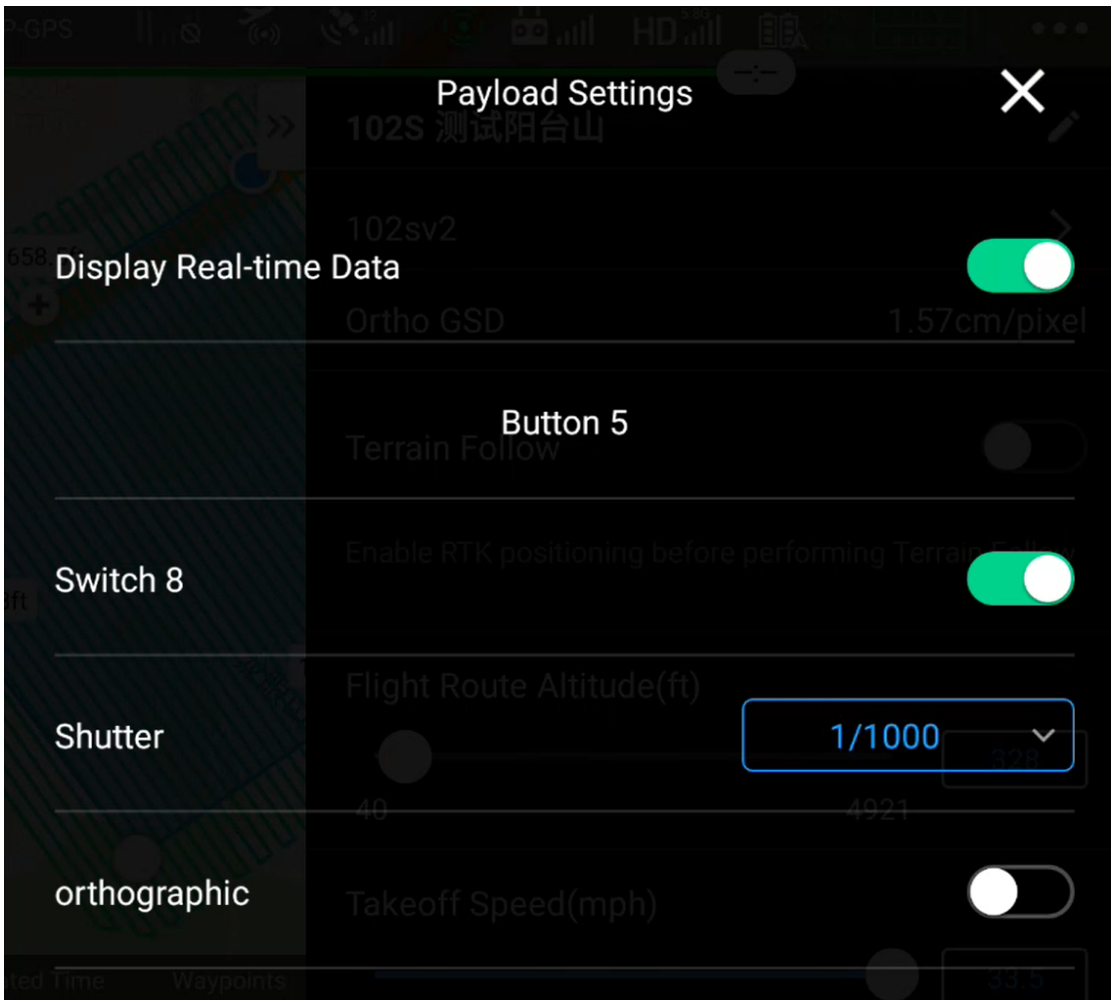
Click save after setting done。

Pic 7 Create new camera PSDK 102S V2 parameter

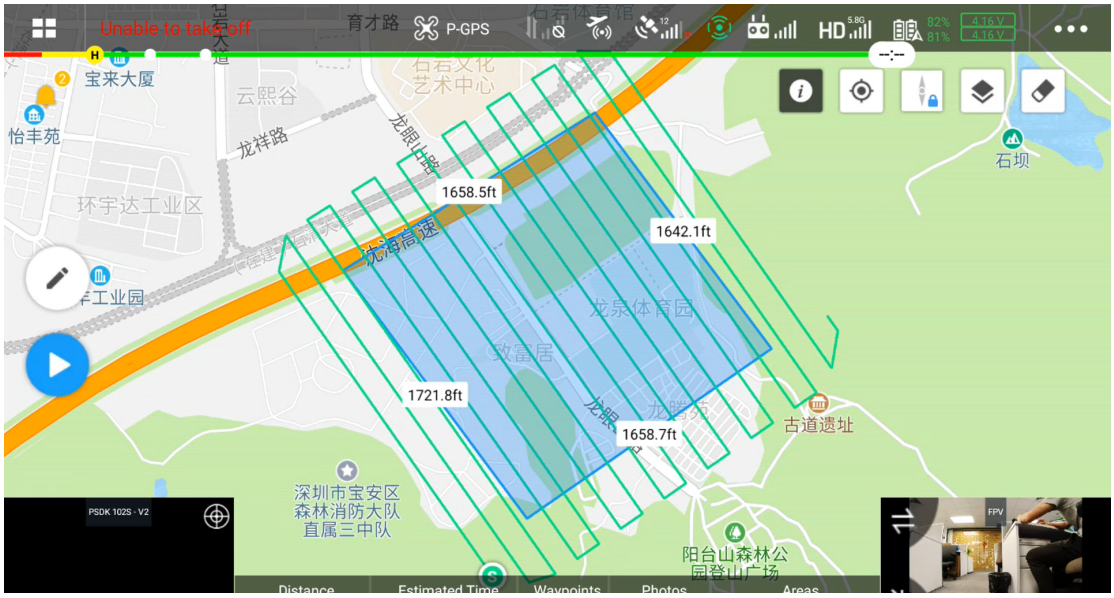
### 3.3.3 Payload setting

Enter the payload setting menu, which has those functions:

| Items | Functions |
|---|---|
| Real-time data ON/OFF | Real-time data window hide/show 【default: show】 |
| ENTER | Enter button, using when the camera reports an error |
| ON/FF | Control camera on/off 【default: off】 |
| Shutter | Change shutter speed (640/800/1000/1250)【default: last set】 |
| Test | Control camera 1/s shooting【default: off】 |




Pic 8 Payload setting




Pic 9 Display of Pilot when working

As shown in Pic 9, the working environment has relatively weak light intensity. The user can adjust the camera's shutter speed according to the actual situation to meet the camera's sufficient amount of light to ensure the quality of the photo. The camera saves the shutter speed used last time by default.

## 3.4.Repair

1)**Common problems might happen when using oblique camera PSDK 102S V2.**
A.Payload cannot find the image database file
B.Image database file error
C.Payload cannot write in the storage card correctly

**2)When the above errors happen, there are two methods to repair resolve the issue.**
A. Automatic repair: user can restart the device, and the camera will automatically initiate the repair.
B. Manual repair: Click the ENTER button in the payload settings and confirm the selection according to the instructions.

# 4.Share Data Manager

## 4.1.Introduction

Share Data Manager is a data processing auxiliary software designed for oblique photography camera, designed to improve the efficiency of oblique photography in the industry, simplify the data pretreatment operation. The main functions include flight management, copy/ clean photo data, write geographic location information to photos, generate engineering files, upgrade camera firmware, etc. The use of Share Data Manager can help users more convenient management of camera information, camera firmware maintenance.

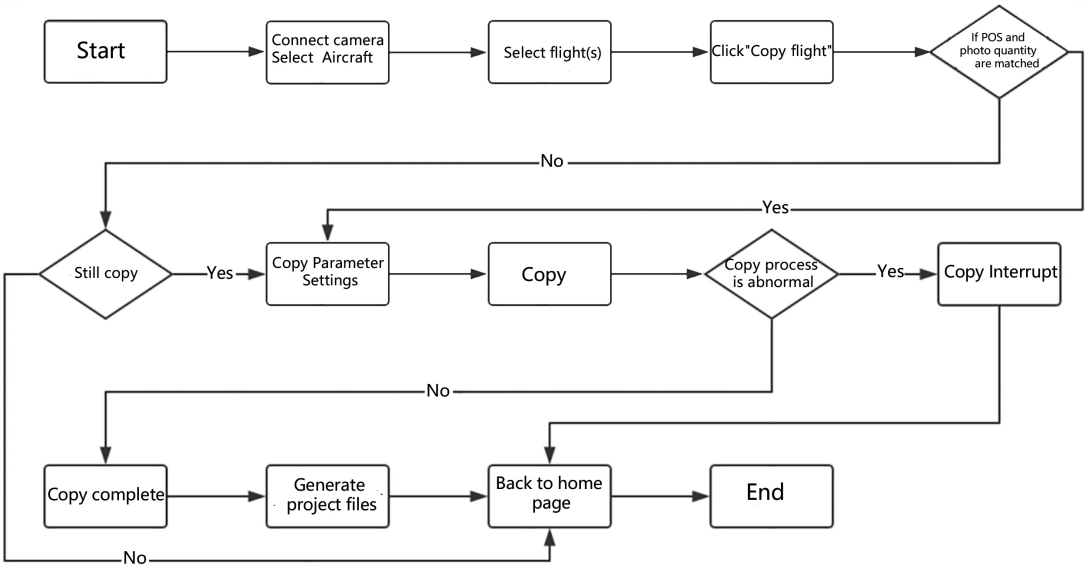
## 4.2.Operation environment

Recommend Min Specs

| Items | Specs |
|---|---|
| CPU | Intel Core i7 |
| RAM | 8GB |
| Hard Drive Space | 512GB |
| Operation System | Windows 7/10 |

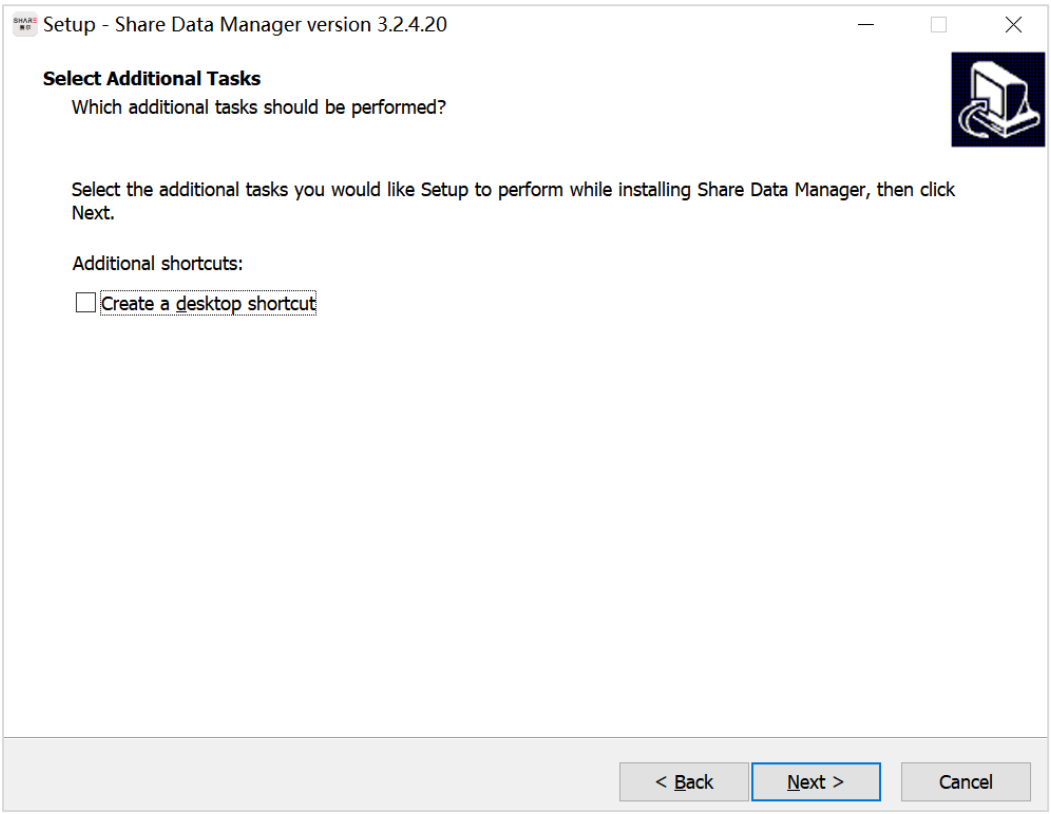
## 4.3.Workflow

The main operation of Share Data Manager is to copy photo data from camera and write shooting information and geographic information. The operation process of copying photos is as follows:

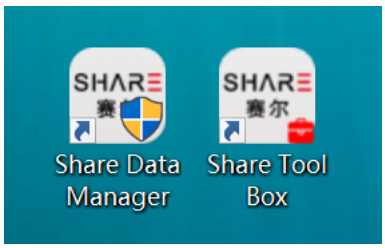



## 4.4.Software Installation

1)Once the Share UAV Data Manager has been downloaded, open the file and follow the prompts to complete the installation. All installation settings will be set to the default.




Once the installation is complete, Share Data Manager creates two shortcuts on the desktop: "Share Data Manager" and "Share Toolbox".




**2)** Please log in to the website below to view the latest online tutorial of Share Data Manager：

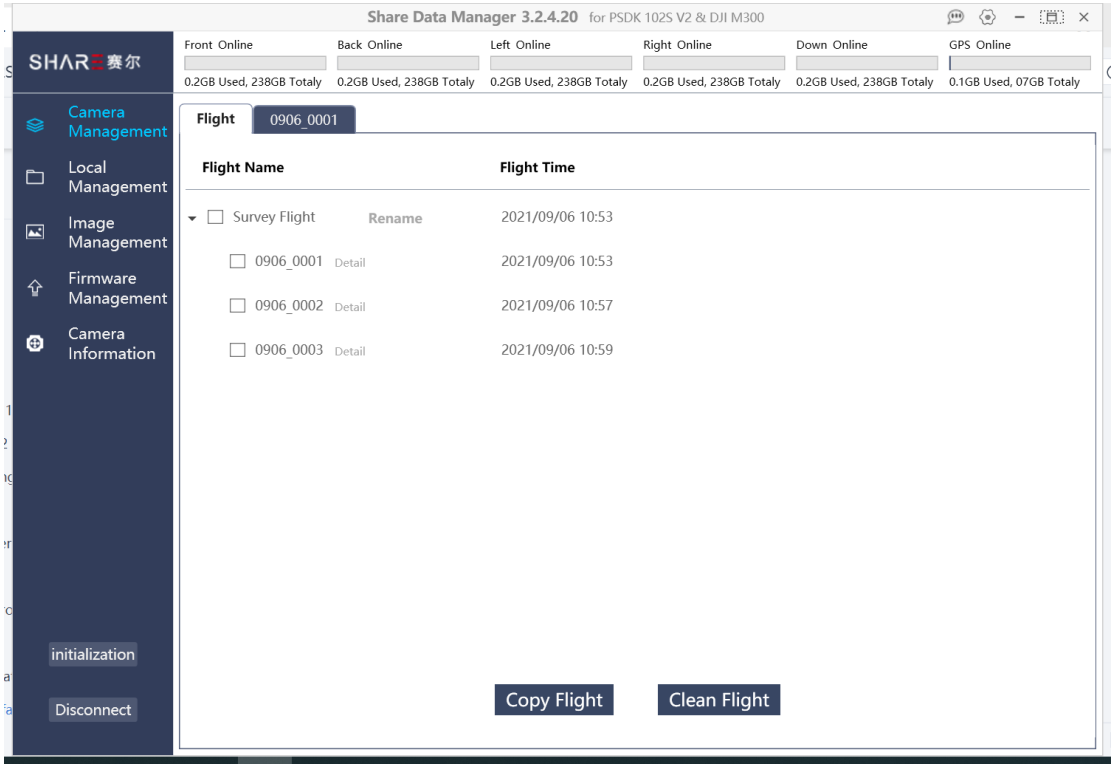
http://bbs.shareuavtec.com/upload/software/ShareElfInstaller.exe

## 4.5 Software interface

Open Share Data Manager, select the camera model as PSDK 102S V2, and select the UAV that was used to conduct the flight with. Connect the camera and computer with USB Type-C data cable. The camera does not need to be powered on during data transfer. The first time the camera is connected to the computer It will automatically install drivers to allow data transfer and communication, please wait patiently.

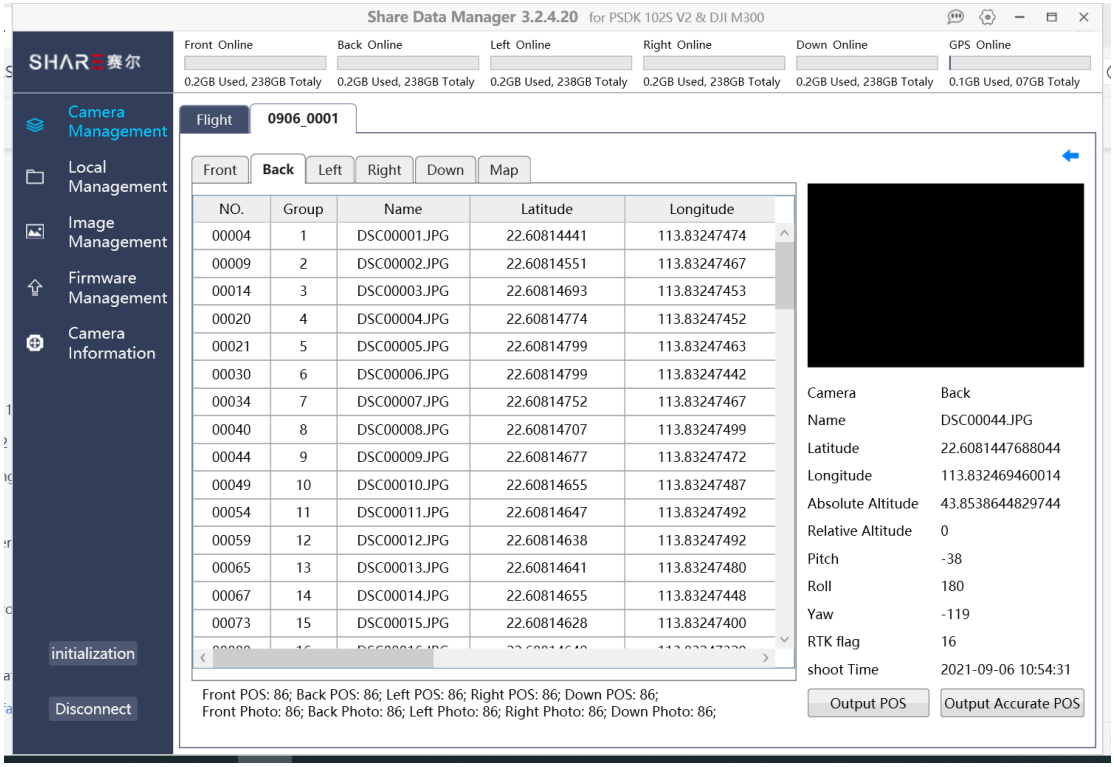
After the camera software is connected, the device details screen is automatically displayed. The home screen consists of three parts: The function list is displayed on the left. The upper part of the right side shows the connection state and capacity of the memory of each lens; The lower right side shows the flight sorties, and when the mouse is placed over the sorties it shows the number of POS and photos contained in the sorties.

There is also a "Disconnect" button in the lower left corner. Click this button to Disconnect the camera from your computer after data transfer has been completed, and then unplug the CAMERA USB. Removing the CAMERA USB without using the disconnect button may cause camera failure.




As shown in the image above, flights are sorted by shot time and all are displayed on the Share Data Manager. We can see the name of the flight (corresponding to the POS file on the GPS disk) and the time of shot

There is a “detail” button for each flight. Click to go to the individual flight details screen.




In the flight details, you can see the total number of photos and POS from all angles of the flight, as well as the details of the included photo location data. Click on a row of photo data to see a thumbnail of the photo and detailed data on the right

In the camera, the photos and POS data are stored separately. Through the Share Data Manager, the photos can be associated with the corresponding POS, and the POS can be written into the photos when copying data

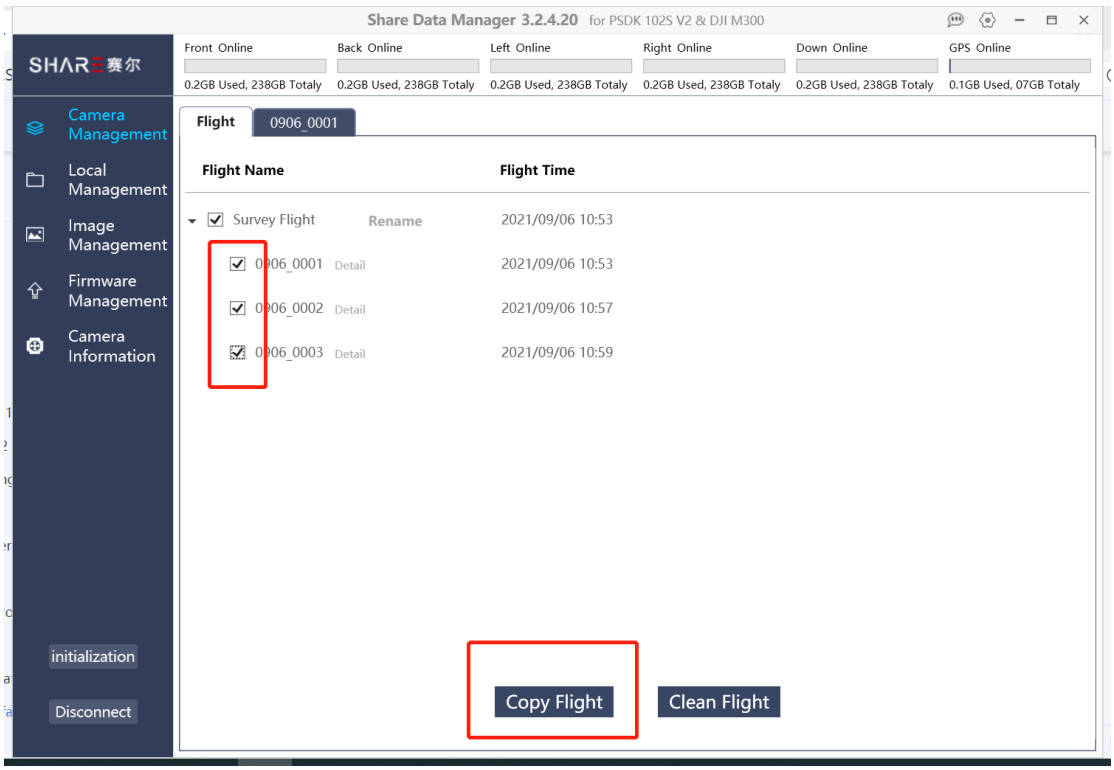
## 4.6 Functions

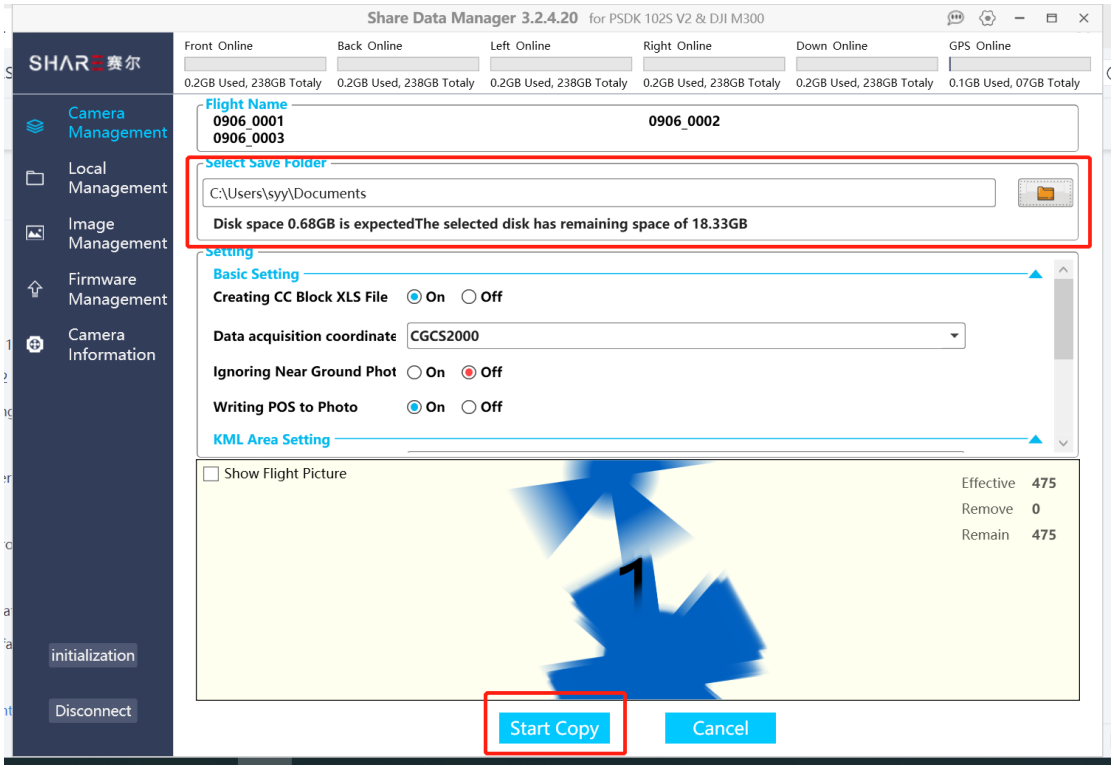
### 4.6.1 Copy Flights

Copying flight is the copying of POS data and photo data from one or more flights from the camera to the computer and preprocessing for modeling. The process for copying flights is as follows:

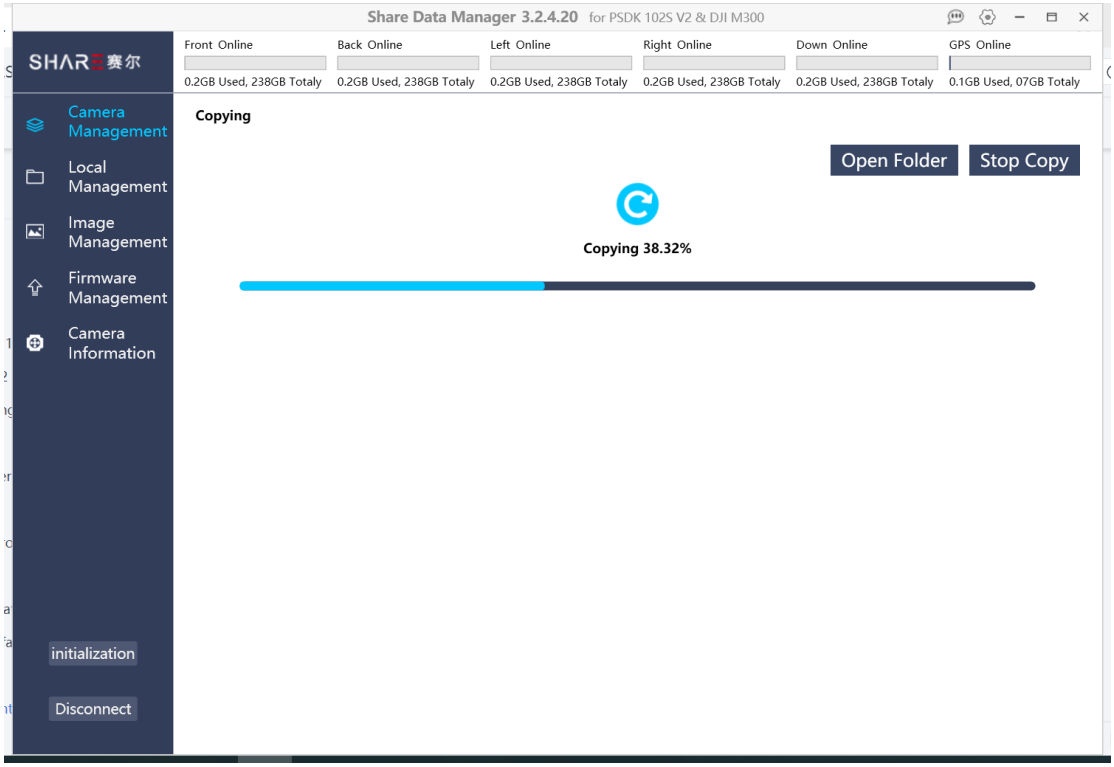
1.Select flights to be copied, for example, 100_0001, 100_0002, 100_0003;

2.Click the copy button to enter the copy setting interface

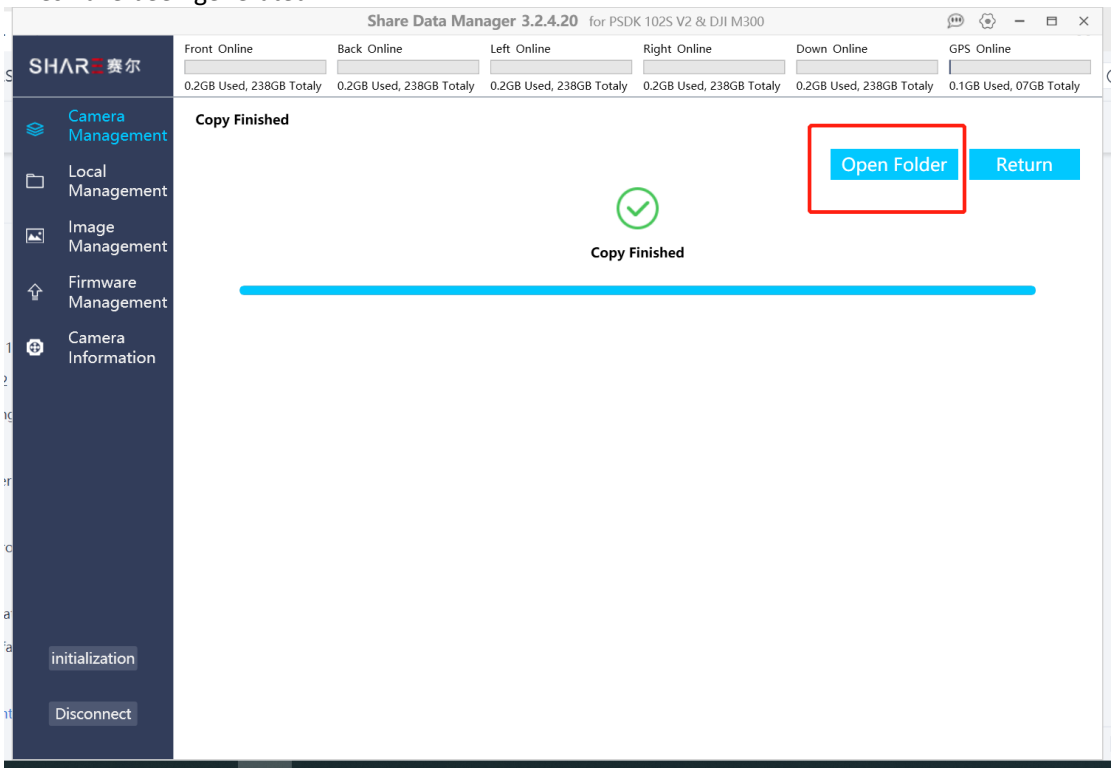


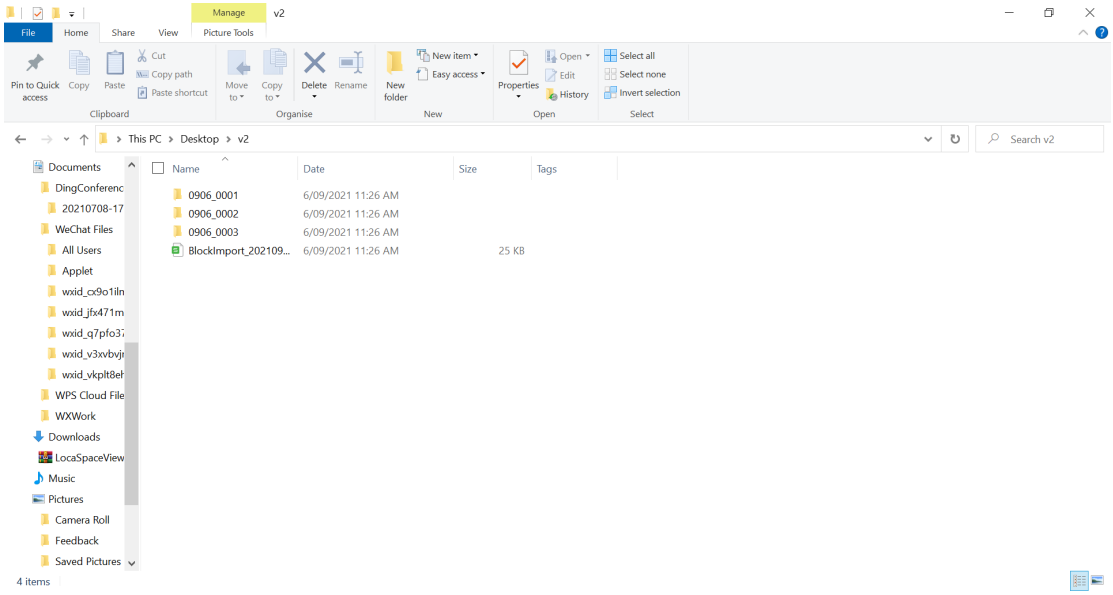

3.Copy Settings complete, click Start Copy to enter the copy process interface. The current copy progress and remaining time are displayed on the page.



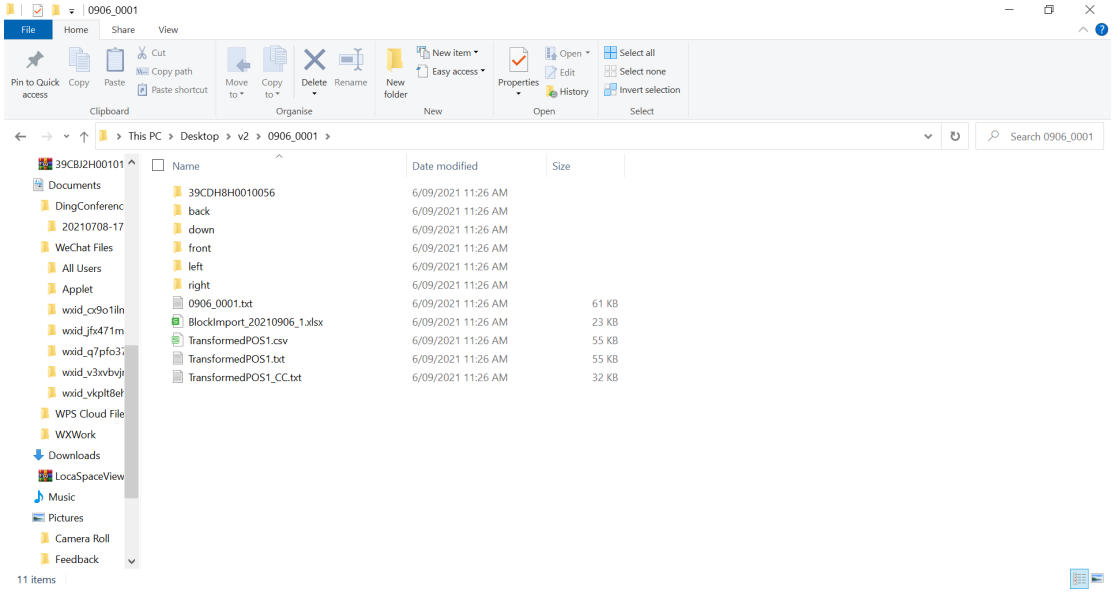

4.Under normal circumstances, the copy is completed when the copy progress reaches 100%. At this point, all the images have been copied to the save folder and the stand project files have been generated.




5.Open folder and view the copied imagery data. There are several flight folders and an Excel file that can be imported into ContextCapture as a block file.




（6）Under each flight folder there are 5 folders and a text file, the text file is the original POS file, the five folders are named with the first letter of "front, back, left, right and down", storing photos from five perspectives.




Each parameter in the copy setting screen must be set correctly to obtain the photos that meet the requirements. The specific meanings of setting parameters are shown in the following table:

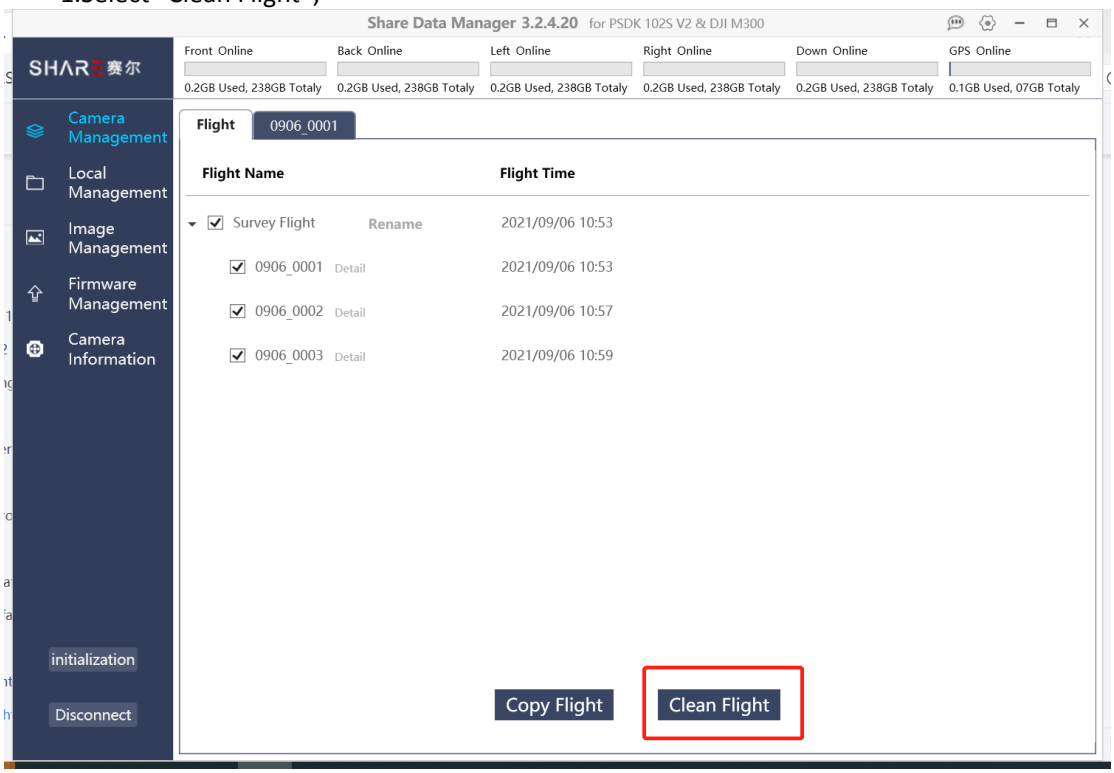
| Parameter | Meaning | Mandatory/Enable |
|---|---|---|
| Target folder | The target location of images to be copied | Yes |
| Generate CC project file | Whether to generate excel files imported into CC | Enable when use CC modeling |
| CC Project file coordinate system | The coordinate system used to import CC project files | Enable when use CC modeling |
| Do not copy ground photos | Photos that are low relative to the ground are not copied | No |

| | | |
|---|---|---|
| Write POS into photo | Write longitude and latitude information into the photo | Enable when use DJI Terra modeling |
| KML file | KML files are used to filter the photos of the aligned modeling area | No |

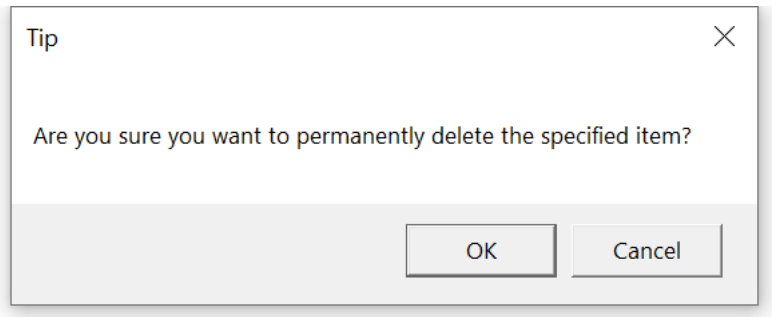
## 4.6.2 Clean Flights

Clearing flights is the function of clearing old, captured imagery from the camera. The cleaning process is as follows:

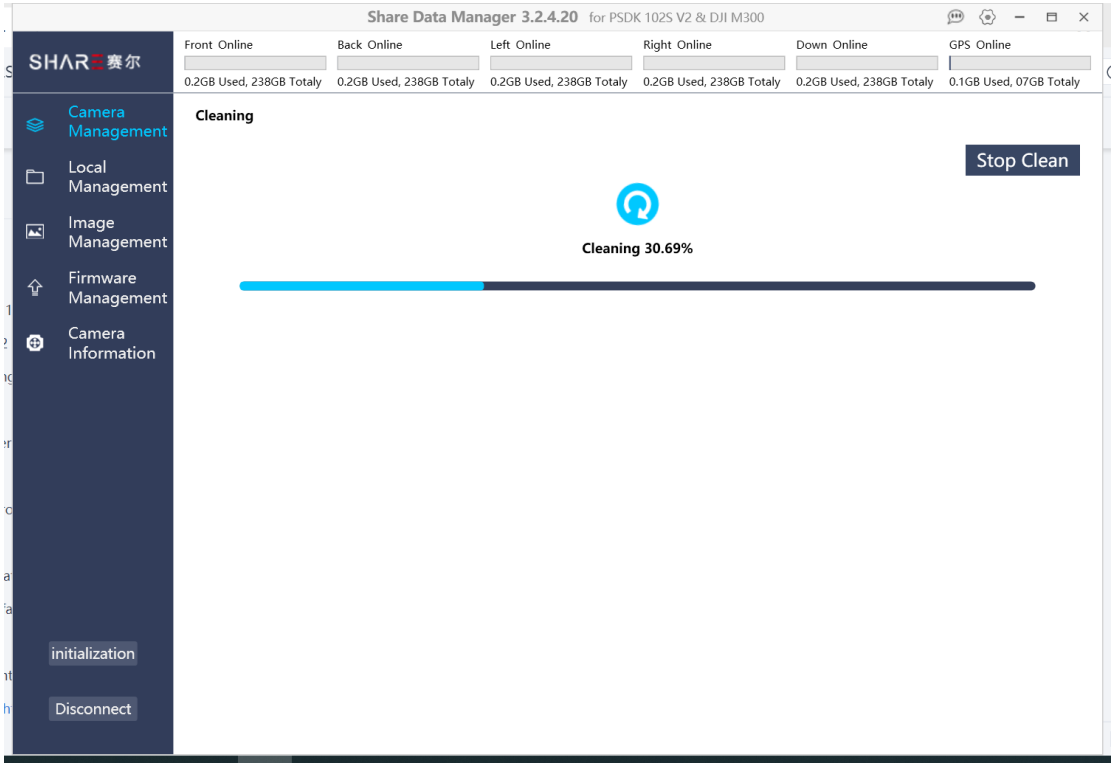
1.Select “Clean Flight”;

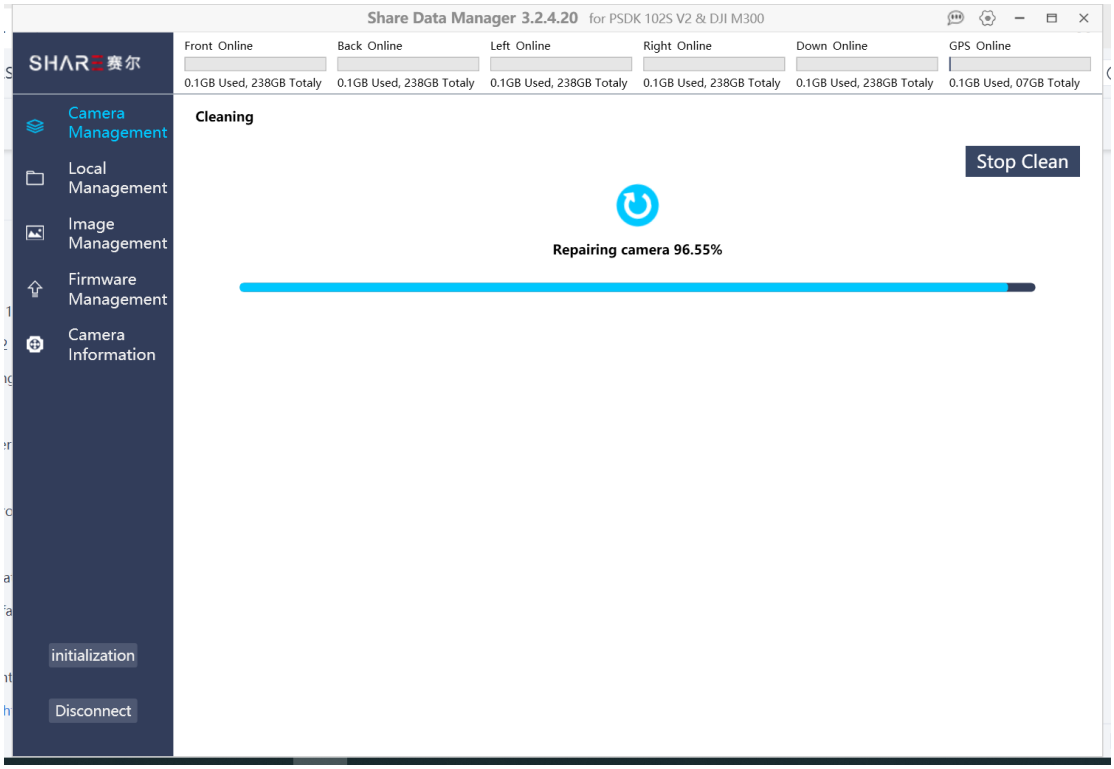



2.Click the Clean Flights button, the software will pop up a tip window, asking if you want to clean the selected flights to avoid the error deletion.

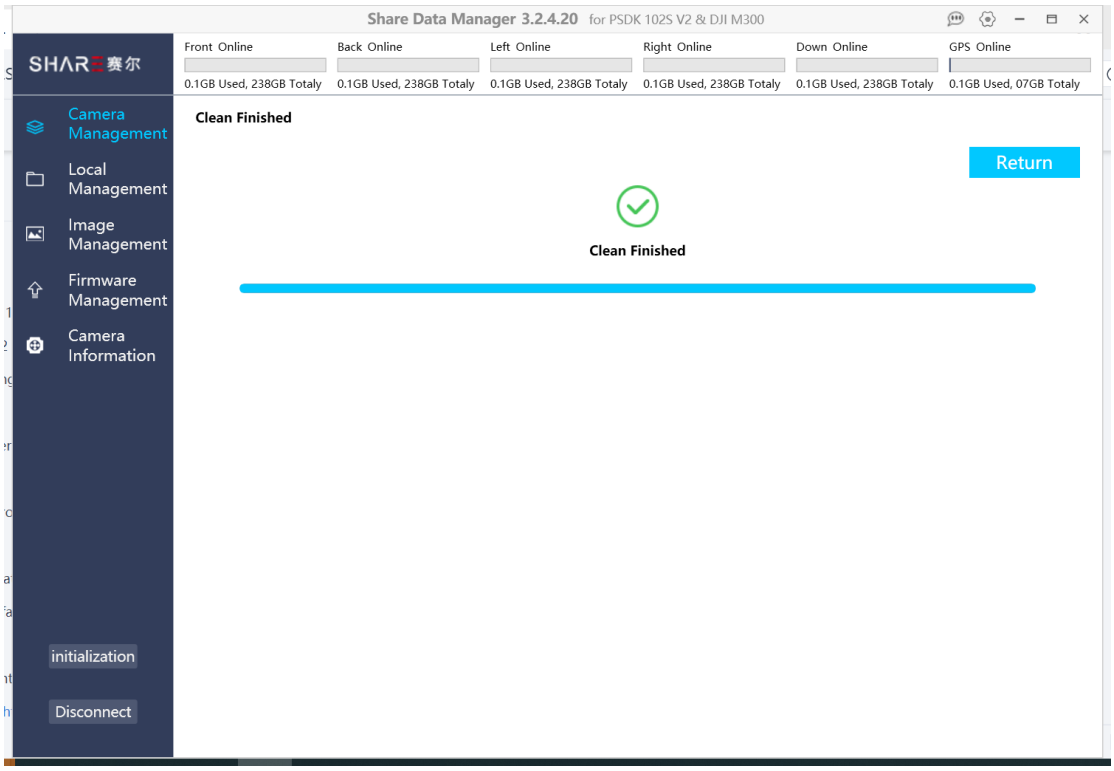



3.Click OK and the software will automatically delete the selected flights and restore the camera parameters.


Share Data Manager 3.2.4.20 for PSDK 102S V2 & DJI M300
SHARE 赛尔
Front Online
0.2GB Used, 238GB Totaly
Back Online
0.2GB Used, 238GB Totaly
Left Online
0.2GB Used, 238GB Totaly
Right Online
0.2GB Used, 238GB Totaly
Down Online
0.2GB Used, 238GB Totaly
GPS Online
0.1GB Used, 07GB Totaly
Camera Management
Local Management
Image Management
Firmware Management
Camera Information
Cleaning
Stop Clean
Cleaning 30.69%
initialization
Disconnect


Share Data Manager 3.2.4.20 for PSDK 102S V2 & DJI M300
SHARE 赛尔
Front Online
0.1GB Used, 238GB Totaly
Back Online
0.1GB Used, 238GB Totaly
Left Online
0.1GB Used, 238GB Totaly
Right Online
0.1GB Used, 238GB Totaly
Down Online
0.1GB Used, 238GB Totaly
GPS Online
0.1GB Used, 07GB Totaly
Camera Management
Local Management
Image Management
Firmware Management
Camera Information
Cleaning
Stop Clean
Repairing camera 96.55%
initialization
Disconnect

4.When the cleaning progress reaches 100%, the formatting is complete.




【Attention】

(1)The old photo data in the camera should be removed by Share Data Manager. Manual deletion of the photo data is not recommended. Manually deleting data will cause the camera to fail to take pictures.

(2)Once the data in the camera is removed, it cannot be restored. Therefore, before removing data, it is important to check whether the photos contained in the details of the flight are the ones to be deleted to avoid deleting flights by mistake.

(3)It is recommended that after exporting the photo data, the original photo should be kept in the camera before the completion of the aerial triangulation, and then delete the photos in the camera after the aero triangulation is successful.

## 4.6.3 Firmware Upgrade

Share Data Manager can upgrade the camera firmware online. Click the firmware upgrade button on the left of the software interface to enter the firmware upgrade function interface. This feature can only be used if you are connected to the Internet, so we recommend that you stay connected to the Internet when using the Share Data Manager, so that you do not miss the latest firmware updates.

The current firmware version and the latest firmware version of the camera are displayed on the upgrade screen. If there is a new firmware version, you can click "Download" button to upgrade.

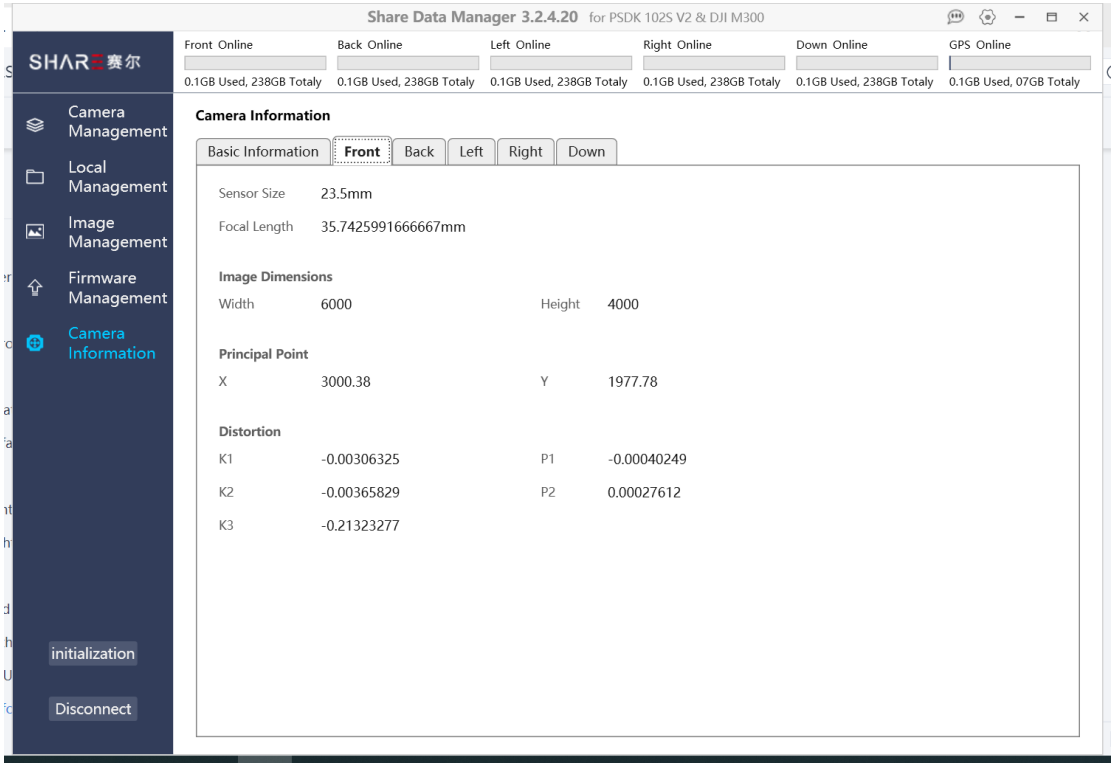
The downloaded firmware upgrade package is stored in the camera, and the upgrade will be completed automatically the next time the camera is powered on.

## 4.6.4 Camera Information

Before the camera disconnection, it will save the lens distortion correction and default offset compensation parameter settings to the GPS drive on the camera.

This information is important for the pre-processing of photo data, which can be viewed in the Share Data Manager and can be alerted in case of unexpected data loss.

Don't worry if you accidentally delete the camera info, we have saved an online backup for you, which can be downloaded to the camera using the Share Data Manager.




# 5.Camera Maintenance

When using the oblique camera, please pay attention to the daily maintenance.

1)Avoid storing the camera in a place of extreme hot, strong vibration, strong magnetic and high humidity.

2)Please do not use detergent containing diluent or gasoline and other organic solvents to clean UV Lens.

3)When storing the camera, avoid long-term exposure of light to the lens.

4)Avoid bringing the equipment directly from cold places to warm places, to prevent moisture condensation.

5)The working temperature of the equipment is about - 10 ~ 50 ℃. It is not recommended to work in extremely cold and hot environment beyond the working temperature range.

6)Pay attention to the cleaning and drying of DJI SkyPort connector and put on the protective when not attached to the craft.

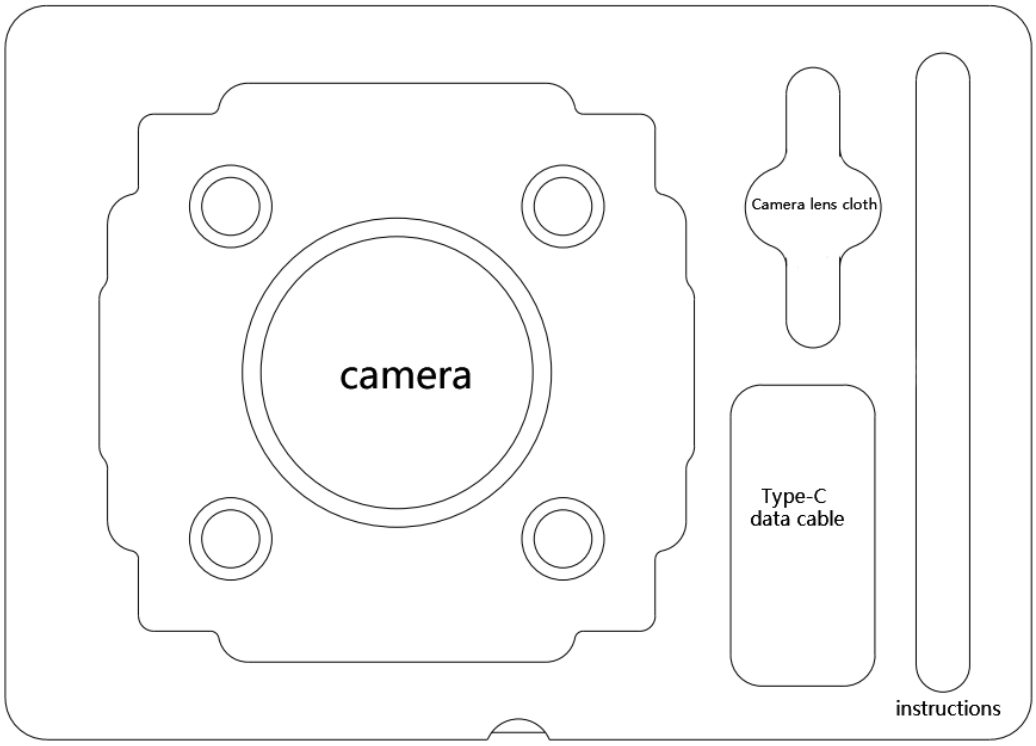
7)Camera shutter is consumable item, under normal circumstances, the effective number of shutter is about 200,000 times; 200~250 thousand will occur shutter fatigue, there is a risk of photo loss; Above 250 thousand, the camera has a high probability of losing the photo, not taking photos, slow reaction, camera error and other phenomena. After the number of camera shutters reaches 200k, it is recommended to return the camera to the factory for a paid replacement of the shutter, to avoid the impact of equipment failure on flight operations

# 6. After sales

## 6.1 Delivery

1)All equipment delivered by SHARE UAV shall be packed in accordance with the standard protective measures for packaging and transportation. Such packaging shall meet the requirements for long-distance transportation, moisture resistance, shock resistance, rust prevention, etc. required according to the specific properties of the equipment to ensure that the equipment arrived safely at the place of delivery.

2)Packaging




PSDK 102S V2 Case layout

The PSDK 102S camera transport case adopts an industrial-grade box manufacturing process. The case uses an engineering plastic moisture-proof box. The structure is strong and durable. The size of the box is 275*220*167mm
Keep the cover of the transport box upward, and do not place it upside down. Avoid severe vibration and turbulence during transportation.

## 6.2 After-sales Service

1)Hardware warranty terms: 1 year warranty since delivery. During the warranty period, Party B

shall only undertake the delivery, maintenance and quality guarantee of Party A's goods within the territory of the People's Republic of China.

2)Warranty conditions: Quality issues only. Devices with below conditions will be out of warranty even if within warranty time: damaged, water damaged, out of order caused by improper usage, failure caused by mis operation or software/firmware parameter changes, or disassembled without authorization etc.

3)Warranty service: Regulations on after-sales service of Share UAV

**Party A**: Buyer of Products **Party B**: Shenzhen Share UAV Technology Co., LTD

The after-sales service content shall refer to the after-sales service regulations of Share UAV;

If you have any questions, please contact Shenzhen Share UAV Technology Co., LTD

After-sales service and technical support tel: 0755-23216686 (working days 9:00-18:00 Beijing time)

**Feedback**

SHARE 赛尔

If you have any questions about the product
Please contact us via email：
INFO@SHAREUAVTEC.COM
**SHENZHEN SHARE UAV TECHNOLOGY CO.,LTD**