



X30 Optical Zoom Pod

User's Manual V1.1

Revision Date Jul. 2017

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www.topxgun.com

Explanation

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You can also obtain the usage information or technological support of the product through official service Tel., WeChat client-side or micro blog client-side, we will offer dedicated service to you. There may be slight difference on the appearance or function of the products due to different production batches, and it will not affect the normal use of the product.

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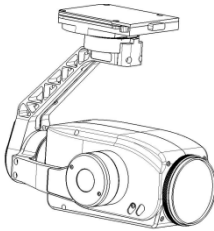

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1 Overview

1.1 Inventory

Name	Quantity	Schematic diagram
X30 optical zoom pod	1	
16GB Micro SD card	1	

1.2 Application Suggestion

TOPXGUN provides the following materials for the users

User' s Manual for X30 Optical Zoom Pod

User' s Manual for Rainbow R1 Data Chain

Please continue reading the *User' s Manual for X30 Optical Zoom Pod* after checking the inventory of all articles.

1.3 Matters Needing Attention

1. Insure that there is no shelter within the range of activity of the pod, or serious effect like failure in proper functioning and even over burning, etc. of the rod may be caused.
2. X30 optical zoom pod (hereinafter X30 pod) is a precision equipment. Please do not change the unofficial UV lens or add other articles like lens hood and counter weight, etc., or serious effect like bad working effect of pod and even over burning, etc. of the rod may be caused.
3. Please keep the lens clean, and can scrub it with the dust-free glasses cloth. If the lens is too dirty, it may cause effects like slowdown in focusing speed and even failure in focusing, etc.
4. Tension the SD card case after installing the Micro SD card, or it may cause bad work efficiency of the pod.
5. Please do not pull out the Micro SD card during the shooting or

recording process, or the images obtained during the shooting process may be lost.

6. Please do not privately disassemble and maintain it, or you may not enjoy the warranty policy.
7. X30 pod can be normally used with the data chain, please do not install it on unofficially-appointed products, or serious effect like failure in proper functioning and even over burning, etc. of the rod may be caused.

2 Product Brief Introduction

2.1 Brief Introduction

TopXGun X30 optical zoom pod adopts the 30-time optical zoom lens, 1/1.8CMOS sensor, the effective pixels is 5 million, it is equipped with high-precision triaxial could deck and can be broadly applied in fields including routing inspection, reconnaissance and monitoring, etc.

2.2 Item Name

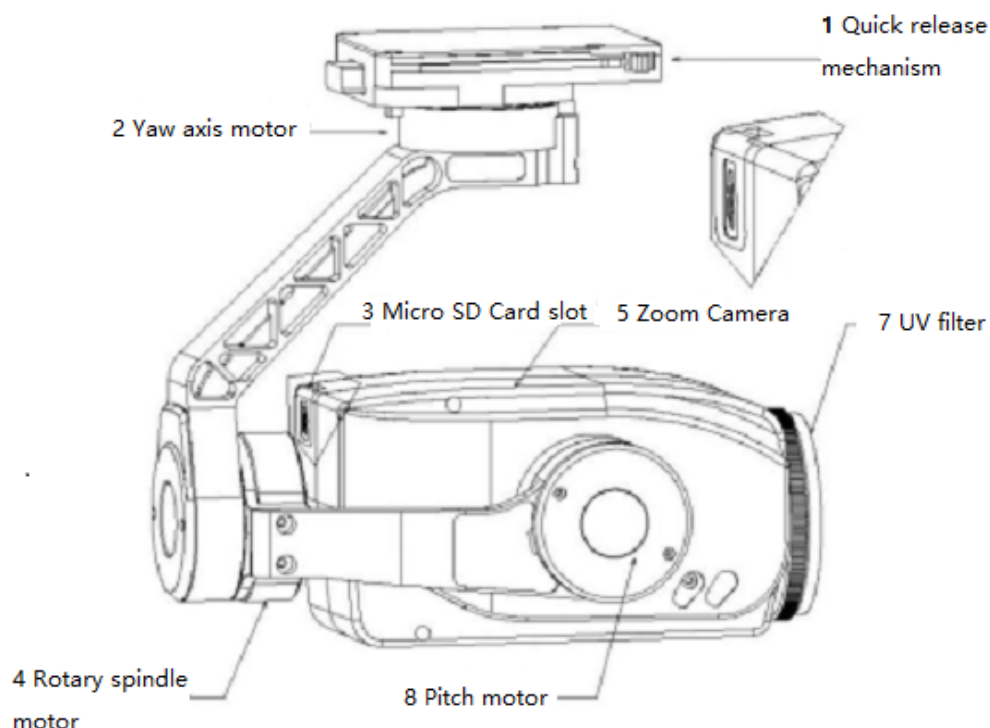


Figure 2-1 Name of articles of X30 pod

3 Installation

3.1 Installation Preparation

1. Device type that is supported to be installed

The X30 optical zoom pod can be normally used with the Rainbow R1 data chain.

A higher pointing accuracy can be obtained if used with the flight controller (flight controllers of TOPXGUN are all temporarily supported), and can restrain the course drifting. Meanwhile the information like GPS of flight controller, etc. can be written in the photos or video information.

If not connecting the flight controller, the read-in function of information like GPS, etc. may be lost, but it can still be normally used.

2. Types of supported Micro SD cards

Capacity of cloud deck camera in standard configuration is a 16GB Micro SD card, and it can support 64GB to the maximum. Please use Micro SD cards with the specification of Class 10 or UHS-1 or above, so that the videos can be guaranteed to be normally recorded.

3.2 Pod Installation

1. Align the sliding rail of X30 pod with the Rainbow R1 data chain quick-release rail, then push it in.
2. The locking mechanism is dead locked when hearing a clatter, and the installation is completed (locking standard: as the following figure, the triangle arrow should completely come out).
3. Install the Micro SD card to the camera. It is recommended to use the Micro SD card with standard configuration.

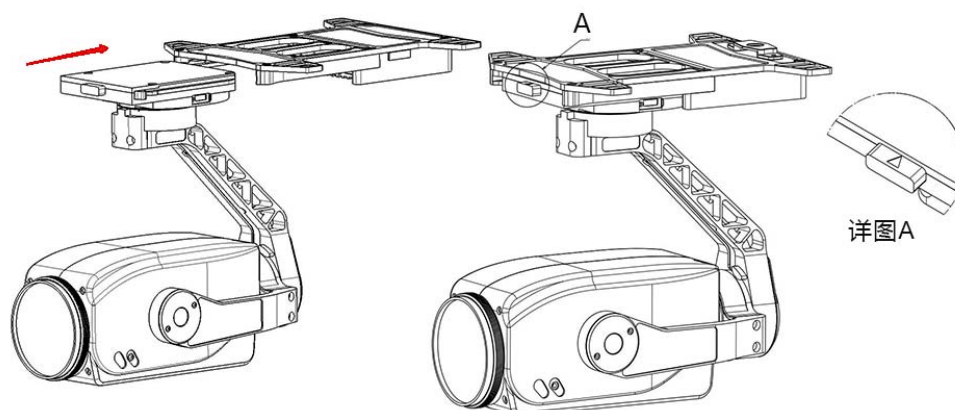


Figure 3-1 Pod installation

4 Ground Station

4.1 Brief Introduction

X30 pod can be used together with the Rainbow R1 data chain, display of images can be done at the computer terminal of ground PC, and all controllers like lens zoom, shooting, recording and cloud deck movement, etc. can be realized. (the mobile client-side like pad or mobile phone, etc. is being developed)

For the in-depth customization and integration demands of major accounts, the needed SDK interface protocol can be opened.

4.2 Installation of Version 1.0

1. Installation of video player plug-in.

After decompressing the files, the File 1.0 of TopXGun X30 pod software will contain vc-redist, X64.exe video player plug-in and a file named X30-Video.

2. Open the software

Version 1.0 is an installation-free software. Open the X30-Video file and find the X30 Video.exe application program. Double click and open it. To be convenient in operation, the users can establish desktop shortcut.

4.3 Interface

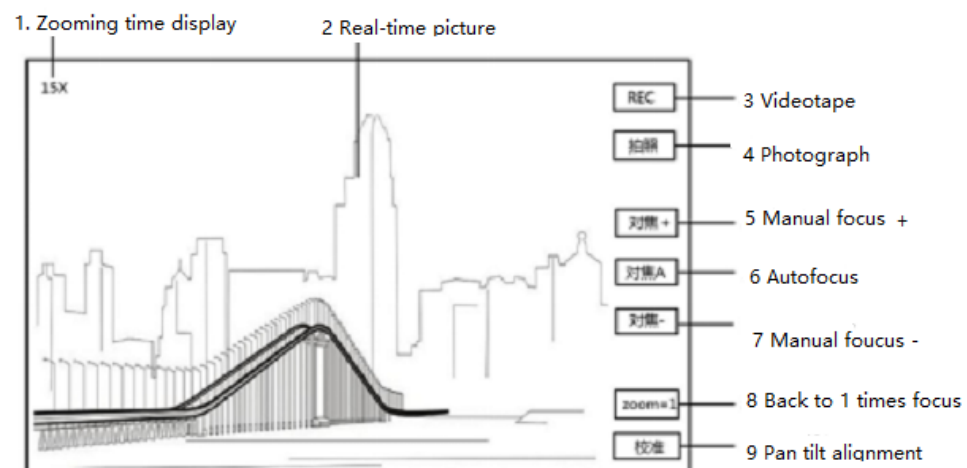


Figure 4-1 Operation interface

4.4 Operation Pod

The PC pod software of Version 1.0 realizes all operations of the pod through mouse and virtual key.

1) Adjust of course and pitching

Press the left mouse button and move up, down, left and right in the interface. The lens should move with the locations of the mouse. Release the left mouse button, and the lens stops moving and keeps at the present location.

2) Pointing zoom

Double click the left mouse button, double click the image of location and move it to the center of the screen, double amplify it and accumulate on this until it is to maximum focal length.

The amplification and narrowing of focal length of the lens can also be controlled through sliding the mouse wheels.

Click the right mouse button, and the image will go back to the 1-time focal length automatically. This operation can also be realized through the virtual key "zoom=1" .

3) Focusing

Default of the camera is the automatic focusing mode, when the background of the picture is complex, manual focusing can be conducted through using the virtual key "focusing+" and "focusing -" .

If the picture is dim for a long time, can click the "focusing A" virtual key to conduct initiative focusing.

4) Calibration

If the users do not use the flight controller of TOPXGUN series, fail to connect the data transmission or CAN tieline, when working in the environment with relatively large temperature differences before and after flying (e.g.: the air vehicle plies from rooms and vehicles to the outside in winter), it is suggested conducting calibration before flying to reduce the drift distance of the course.

The magnetic compass in the flight controller will restrain the course drift. No calibration is needed after joining in the flight controller.

5) Calibration steps

After the pod initialization is completed and entering the normal operation condition, click the calibration virtual key and the pod will enter the calibration condition (the manifestation is that the electrical machinery of cloud deck will not function). The insure that the air vehicle and cloud deck is at state of rest (there is no need for the cloud deck to keep horizontal), after 5-10 seconds, the pod will reinitialize and complete the calibration.

5. Parameters

General parameters	
Product name	TopXGun X30
Size (length, width, height)	183*145*175mm (temporary)
weight	918g (temporary)
Working voltage	12V-25V
Power consumption	7W
Environment parameters	
Working temperature	-10° to 45°
Storage temperature	-20° to 60°
Pan tilt parameters	
Angle shake amount	±0.01°
Installation mode	detachable
Controllable rotation range	pitch: +60° to -120°; course: ±160°
Structure design range	pitch: ±175°course: ±175°; roll:+90° to - 50°
Maximum controllable speed	pitch: 120°/s; course:180°/s
Camera parameters	
Sensor	CMOS:1/1.8"; total pixel:600w
Camera lens	30X optical zoom F 6~180mm aperture:1.5~4.3 minimum shooting distance:10mm~1500mm(close focus ~

	far focus) viewing angle (horizontal):61~2.3°
Digital zoom	4 times
Image storage format	JPEG
Video storage format	MP4
Working mode	video; picture; replay
Photograph	Single shooting; continuously shooting ; camera timer
Electronic anti-shake	supported
Penetrating fog	supported
Exposure mode	Automatic exposure; manual exposure; shutter priority exposure ; the aperture priority exposure
Screen resolution	50Hz;25fps(2560*1920)500w
Lowest light	color: 0.05Lux/F1.5; black-and-white: 0.005Lux/F1.5
Day-night switching mode	Automatic mode
2D de-noising	supported
3D de-noising	supported
Electronic shutter	1/3~1/30000 second
exposure	Automatic mode; manual mode
Information video overlap (OSD)	supported
Clicking zoom	supported
Clicking zoom range	1~30 times optical , 4 times digital
One-key zoom to single image	supported
Supported storage card type	Micro SD card
Data transmission、 image transmission information	
Frequency range	2.4g/900 megabit

Transmission distance	5.7km no shadow, no interference
Antenna gain	5db (sky) 7db (ground) omnidirectional antenna
Effective omnidirectional radiation power	100mw~1w adjustable
Video output interface	Network interface
Working temperature	-45°~+80°