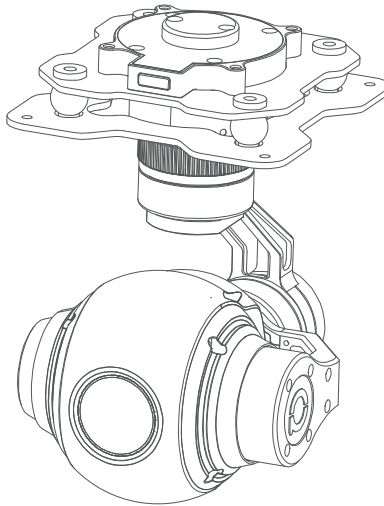
Q10F 10x Optical Zoom Gimbal Camera

User Manual



For more details please scan the QR code or visit our website:
www.viewprotech.com

Disclaimer and Warning

Congratulations on purchasing your new Viewpro product. Please read this entire document carefully. Failure to read or follow instructions and warnings in this document may result in damage to your Viewpro product. Disassemble the gimbal camera by user is not permitted, as which may cause the camera does not work normally.Viewpro accepts no liability for damage, injury or any legal responsibility incurred directly or indirectly from the use of this project. Users of the device are required to follow safe and lawful practices, including but not limited to those outlined in the manual.

Legends

Warning

Important Note

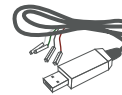
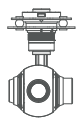
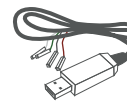
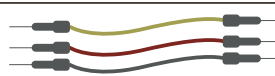
1.Product Introduction

1.1 Introduction

Q10F is a gimbal camera with 3 axis, 10x optical zoom lens, effective 4 megapixel. It features light and compact, metal housing and anti-interference. The 3 axis gimbal can achieve stabilization in yaw, roll and pitch. The integrated design of damping system and gimbal can greatly reduce mechanical vibration.

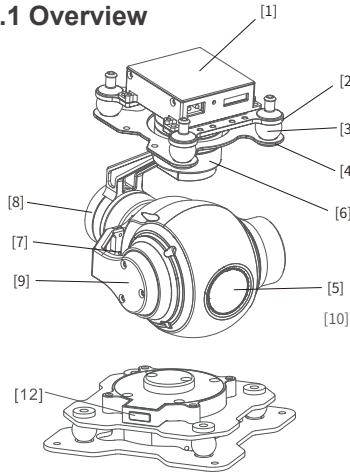
Q10F is widely used in UAV industries of public security, electric power, firefighting, zoom aerial photography and more.

1.2 In the Box

A. Standard Version			
Gimbal Camera ×1 pcs		USB to TTL Cable x1 pcs	
Aluminum Cylinder ×4 pcs		M3 Screw x8 pcs	
Power Cable ×1 pcs			
B. Viewport Version			
Gimbal Camera ×1 pcs		USB to TTLCable ×1 pcs	
Aluminum Cylinder ×4 pcs		M3 Screw ×8 pcs	
Power Cable ×1 pcs			
PWM Control Cable ×1 pcs			
TTL/S.BUS Control Cable ×1 pcs			
TTL Connect Cable ×3 pcs			

2. Installation Instruction

2.1 Overview

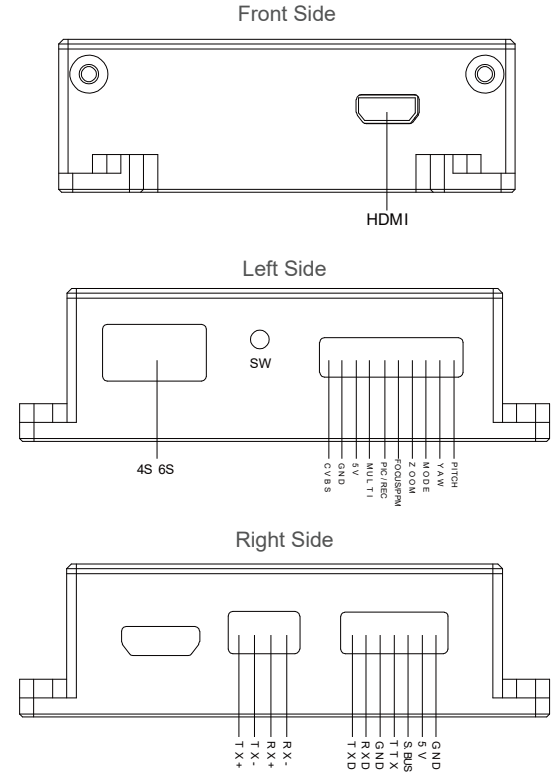


Viewport　　Control Box

[1] Control box
[2] Upper damping board
[3] Damping ball
[4] Lower damping board
[5] FHD zoom camera
[6] Yaw axis motor
[7] TF card slot
[8] Roll axis motor
[9] Pitch axis motor
[10] 4-6S power interface
[11] Micro HDMI interface
[12] Ethernet interface
[13] Viewport unlock button

- Please ensure that there isn't any obstacle while the motor rotating.
- Please remove the obstacle immediately if gimbal camera is blocked during rotation.

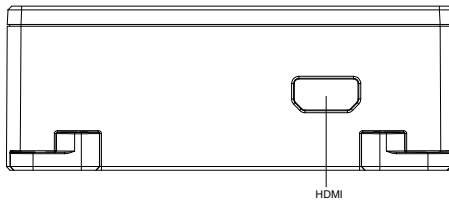
2.2.1 Control Box Printing (Standard Version)



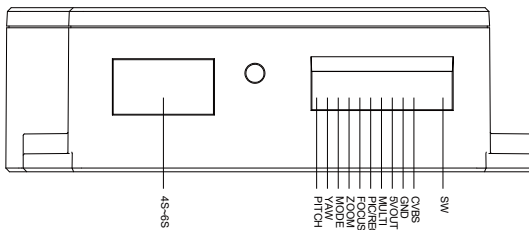
- The input voltage cannot be higher than 6S.
- The pin insertion interface cannot be connected with power supply.
- The yellow jumper cap cannot be removed

2.2.2 Control Box Printing (Viewport Version)

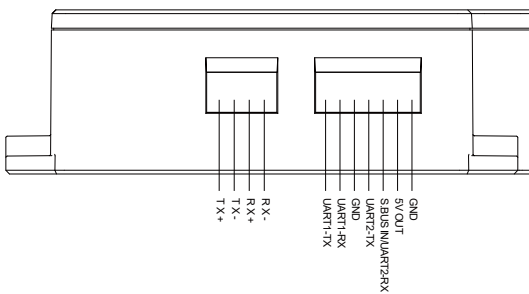
Front Side



Left Side

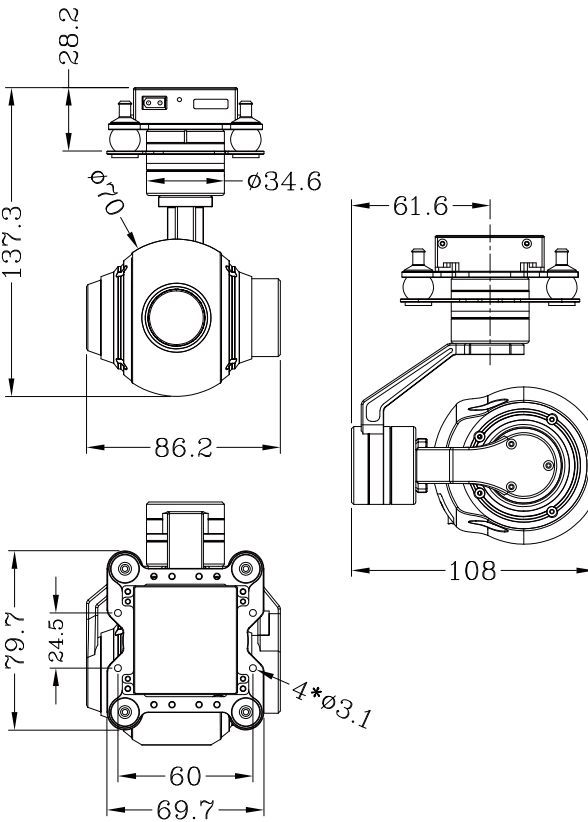


Right Side



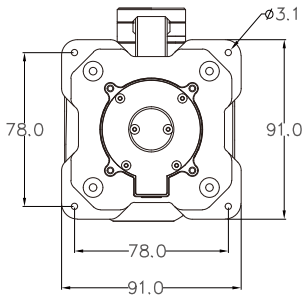
2.3.1 Device Dimensions (Standard Version)

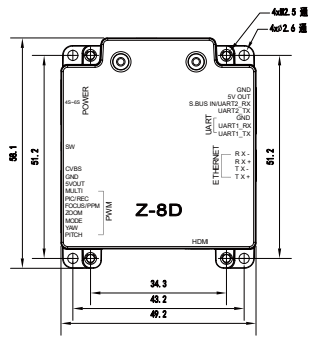
Unit: mm



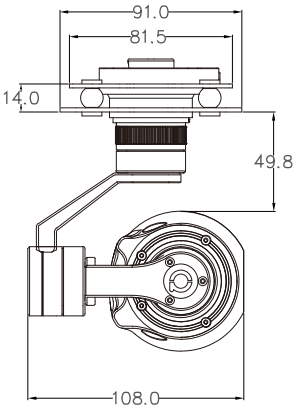
2.3.2 Device Dimensions (viewport Version)

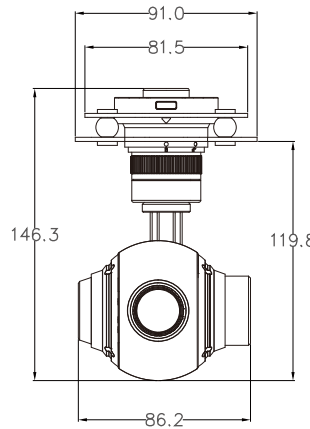
Unit: mm





Control Box



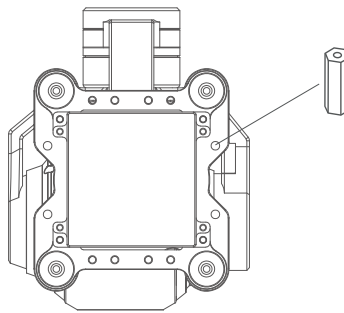


2.4 Mounting Part Installation

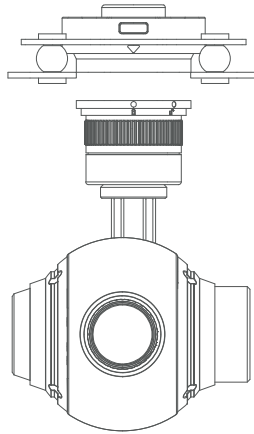
(1) Find out the arrow on the gimbal which indicating the yawheading of the payload (i.e.the lens direction when the camerapower on), and synchronize with the direction specified by theUAV.

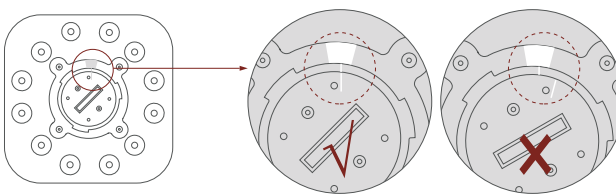
(2) Fix one end ofthe copper cylinder on the screw hole of lowerdamping board,and use M3 screw to fasten it.

(3) According to the provided screw hole dimension you can make suitable mounting holes on the UAV mounting board,and fixes the other end of the copper cylinder on the mounting board of the UAV(Viewport version is the same).

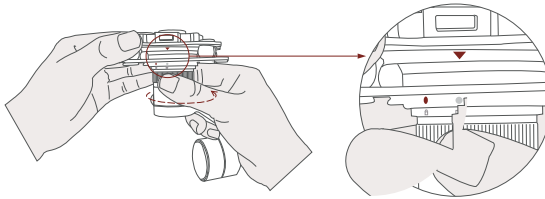


2.5 Viewport Release Instruction

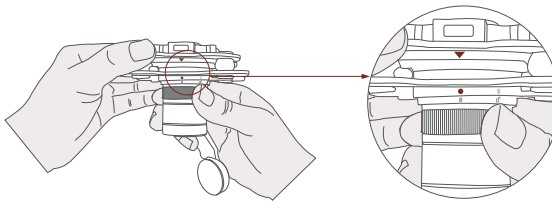




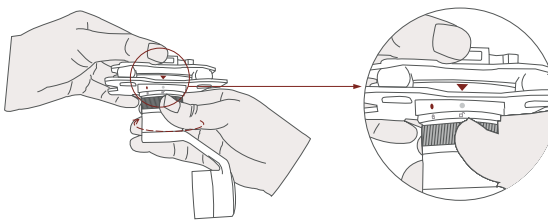
1. Make sure the two white stripes indicated above picture are aligned with each other. (If the stripes are not aligned to each other, please pinch the connector part and turn it to left manually)



2. Align the white dot (unlock icon) to the red triangle (below unlock button),push the gimbal into the Viewport completely and then rotate the gimbal camera anti-clockwise



3. When vou hear "click" sound (when red dotis aligned to the red triangle)means the gimbal camera and viewport has been ocked.



4. To unlock the Viewport, you need to press on unlock button and rotate the gimbal camera clockwise till the white dot align to the red triangle. Then pull the gimbal out from the Viewport.

2.6 TF Card Installation

TF(Micro SD card):Installthe TF card to the card slot(Re.2.1.1Overview).Support max 32GB.Request Class 10 (10m/s) transmission speed or higher and FAT32 or exFAT format.

- Make sure device is power off when inserting the TF card, hot plugging is not supported.

2.7 Image Output Interface

HDMI: micro HDMIoutput, FHD 1080P 60fps as default AV: analog signal output, connect with pins AV and GND(Re.2.1.1Overview)

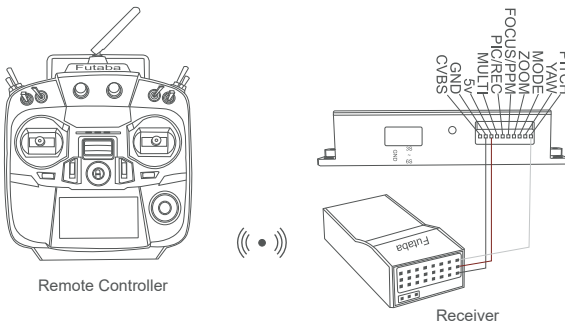
- Above output mode is optional. Please subject to your actual product.
- When using user interface software Viewlink for network connection, the network of external device (computer) should be the IP address: 192.168.2.2 (choose the last byte among 2~254, can not be 119 same as the gimbal), subnet mask: 255.255.255.0, Default gateway: 192.168.2.1, and all firewalls of the computer must be closed. Then enter the IP address of the gimbal camera, Open Video, the video stream can be outputted.

3. Signal Control

3.1 PWM Control

Control the gimbal camera functions by the multiplex pulse width modulation signal outputted by PWM channel of the emote control receiver. The camera needs up to 6 control channels of PWM (to expand tracking function use up to 7 PWM channels).You can choos needed functions according to actualusage to reduce the required number of PWM channels.

3.1.1 PWM Coonection (Connect Pitch channel as an example)



Connection Diagram

3.1.2 PWM Control Operation Instruction

1) Pitch (PWM Pitch channelin to control Pitch. Joystick, rotary knob or 3-gear switch on remote control are optional. 3-gear switch as example.)

Position 1

Low Gear
Pitch Up

Position 2

Middle Gear
Pitch Stop

Position 3

High Gear
Pitch Down

2) Yaw (PWM Yaw channel in to control Yaw. Joystick, rotary knob or 3-gear switch on remote control are optional. 3-gear switch as example.)

Position 1

Low Gear
Yaw Left

Position 2

Middle Gear
Yaw Stop

Position 3

High Gear
Yaw Right

3) Mode (PWM Mode channel in to adjust speed control/one key to Home position etc functions. Rotary knob or 3-gear switch on remote control are optional. 3-gear switch as **example.)**

Position 1

Low Gear

Position 2

Middle Gear

Position 3

High Gear

Position 1: Low speed mode, control pitch / yaw with this mode at lowest speed;
Position 2: Middle speed mode, control pitch / yaw with this mode at middle speed;
Position 3: High speed mode, control pitch / yaw with this mode at highest speed;
(If it is controlled by rotary knob, the speed will change according to switch position)

Function of continuous switching:

3.1) Operate 1 time continuously and quickly, from position 2 - 3 - 2.to Home position.

3.2) Operate 2 times continuously and quickly, from position 2 - 3 - 2- 3 - 2, the camera lens looks vertically down.

3.3) Operate 3 times continuously and quickly, from position 2 - 3 - 2- 3 - 2 - 3 - 2, to disable Follow Yaw Mode (gimbal yaw not follows by frame)

3.4) Operate 4 times continuously and quickly, from position 2 - 3 - 2- 3 - 2 - 3 - 2 - 3 - 2, to enable Follow Yaw Mode (gimbal yaw follows by frame)

3.5) Operate 5 times continuously and quickly, from position 2 - 3 - 2- 3 - 2 - 3 - 2 - 3 - 2 - 3- 2, to restore factory settings

4) Zoom (PWM Zoom channel in to control Zoom.joystick rotary knob or 3-gear switch on remote control are optional.3-gear switch as example.)

Position 1

Low Gear
Zoom Out

Position 2

Middle Gear
Stop Zoom

Position 3

High Gear
Zoom In

5) Focus (PWM Focus channel in to control Manual Focus.default auto-focus mode, 3-gear switch on remote control are optional.3-gear switch as example.)

Position 1

Low Gear
Focus Tele

Position 2

Middle Gear
Stop Focus

Position 3

High Gear
Focus Near

6) Pic/Rec(PWM Pic/Rec channelin to controltake picture and ecord. Joystick, rotary knob or 3-gear switch on remote controlare optional.3-gear switch as example.)

Position 1

Low Gear

Position 2

Middle Gear

Position 3

High Gear

Switch from Position 2 to 1:

Photograph / Record:

- Picture mode: from 2 to1, take a picture
- Record mode: from 2 to 1, start record, repeat operation to stop record

Switch from Position 2 to 3:

Picture / Record Mode Switch

- Picture mode: the number is picture quantity that SD card can store.
- Record mode: the time is recording time

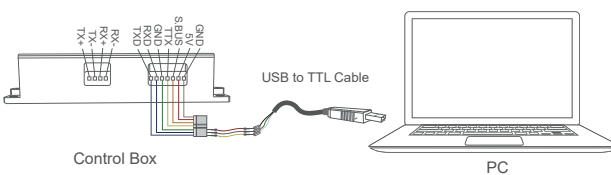
7) Multi: backup PWM channel, no control

3.2 Serial Port/TTL Control

TTL communication requirements: TTL signal is 3.3V, baud rate: 115200,data bit 8, stop bit 1, no parity, HEX send and receive.

Connection Diagram(PC -USB to TTL Cable- Gimbal Camera as example):

Gimbal Camera	**Cable**
TX ⟷	RX (White)
RX ⟷	TX (Green)
GND ⟷	GND (Black)



Connection Diagram

Diagram of USB to TTL Cable:

Connect the camera to the upper computer by USB to TTL cable (Adopt connection method of TX to RX, RX to TX, GND to GND at Dupont ends of the provided USB to TTL cable, connect to the specified TTL of the gimbal, and the USB end of the cable connect to computer).

Install Viewlink control software to test the functions directly. Users may choose to develop their own software, please contact technical support for TTL control protocol file.

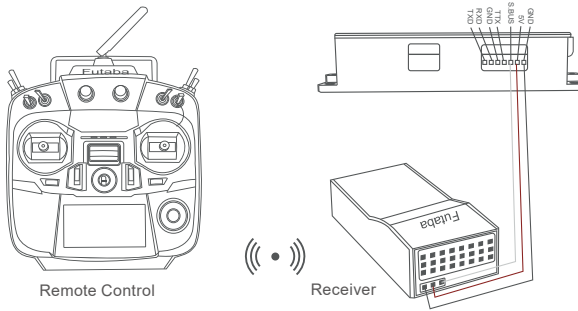
ViewLink is a user interface developed by Viewpro for Viewpro gimbal cameras, you can download it from Viewpro website (www.viewprotech.com) or ask distributors for installation package.

- Connect serial port of gimbal to pins, DO NOT connect with power supply.
- The default baud rate of serial port is 115200, which can be changed according to the docking equipment.

3.3 S.BUS Control

Control the gimbal camera functions by one combining signals. Connect the external S.Bus to S.Bus port on the control box, and the external S.bus signal GND connect to the GND interface of the control box.

Wiring Diagram (Take Futaba remote control for example):



Wiring Diagram

S.Bus control mode: default S.Bus signal channel 7-13 to control gimbal camera functions (the function of channel is consistent with corresponding channel in PWM function description)

Channel 7: Yaw Control
Channel 8: Pitch Control
Channel 9: Mode Control
Channel 10: Zoom Control
Channel 11: Focus Control
Channel 12: Pic/Rec Control
Channel 13: Multi Backup

- TTL control and S.bus control cannot coexist at the same time for standard version. The default control is TTL if no requirement. The user can set to S.bus control if needed (please contact with our technical support for the setting instruction.)

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4. Specifications

Hardware Parameters	
Working voltage	16V
Input voltage	4S ~ 6S
Output voltage	5V (connect with PWM)
Dynamic current	180~500mA @ 16V
Working environment temp	-20°C ~ +50°C
Output	micro HDMI(HD output 1080P 60fps/30fps) / Analog
Local-storage	SD card (Up to 256G,class 10, FAT32)
Photo storage format	JPG (1920*1080)
Video storage format	MOV (1080P 30fps)
Control method	PWM / SBUS / TTL
One-key to center	not support
Gimbal Spec	
Mechanical Range	Pitch/Tilt: ±120°, Roll: ±70°, Yaw/Pan:±300°
Controllable Range	Pitch/Tilt: -45°～90°, Yaw/Pan: ±290°
Vibration angle	Pitch/Roll: ±0.02°, Yaw: ±0.02°
One-key to center	√

Camera Spec	
Image Sensor	1/3inch CMOS
Total pixel	4MP
Effective pixels	2688*1520
Dynamic range	65dB
Lens	5MP
Optical zoom	10x, F=4.9~49mm
Min focus distance	1.5m
Scope of observation	Horizontal: 53.2°(close focus) ~ 5.65°(far focus)
	Vertical: 39.8°(close focus) ~ 4.2°(far focus)
	Focus: 66.6°(close focus) ~ 7.2°(far focus)
Sync system	Progressive scanning
HD output	1080P/720/480P 60fps HDMI1.4
Analog output	Standard CVBS 1Vp-p
SNR	38dB
Min illumination	Chromatic color 0.05lux@F1.6
Backlight compensation	Backlight compensation/strong light suppression
Gain	Auto
White balance	Auto/Manual
Electronic shutter	Auto
Control system	UART/IR/PWM

lCommunication protocol	PELCO-D, Hitachi protocol or VISCA
Focus	Auto/Manual/One-time automatic focus
Focus speed	2s
Lens initialization	Built-in
User presetting bit	20 sets
Image rotation	180°, Horizontal/Vertical mirror image
OSD	Not support
Camera Object Tracking(Optional)	
Update rate of deviation pixel	50Hz
Output delay of deviation pixel	5ms
Minimum object contrast	5%
SNR	4
Minimum object size	32*32 pixel
Maximum object size	128*128 pixel
Tracking speed	±48 pixel/frame
Object memory time	4s
The mean square root values of pulse noise in the object position	< 0.5 pixel

Packing Information	
N.W.	437g / 530g(Viewport version)
Product meas.	108*86.2*140.6mm / 108*86.2*146.3mm(Viewport version)

5. FAQ

1.What outputs that Q10F supports?
A: HDMI1080p 60fps(default)/HDM1080p 30fps, compatiblewith analog output.

2.Q10F cannot store pictures and videos?
A: Please make sure a TF card should be putinto the specified card slotin the camera, and the standard ofTF card is selected correctly.(Requirements: max capacity of 32G,class10 and above transmission speed, FAT32 or ex FAT format),If there are still problems,please format the TF card.

3.Does Q10F support taking photos during recording?
A: No, not support.Q10F has photo mode and record mode. You need to switch to photo mode to take picture.

4. What is the focusing mode of Q10F?
A: The camera can auto focus or manually.

This user manual is subject to update without notice. For details, please visit http://www.viewprotech.com/index.php to get the latest product information.
Technical support : support@viewprotech.com