

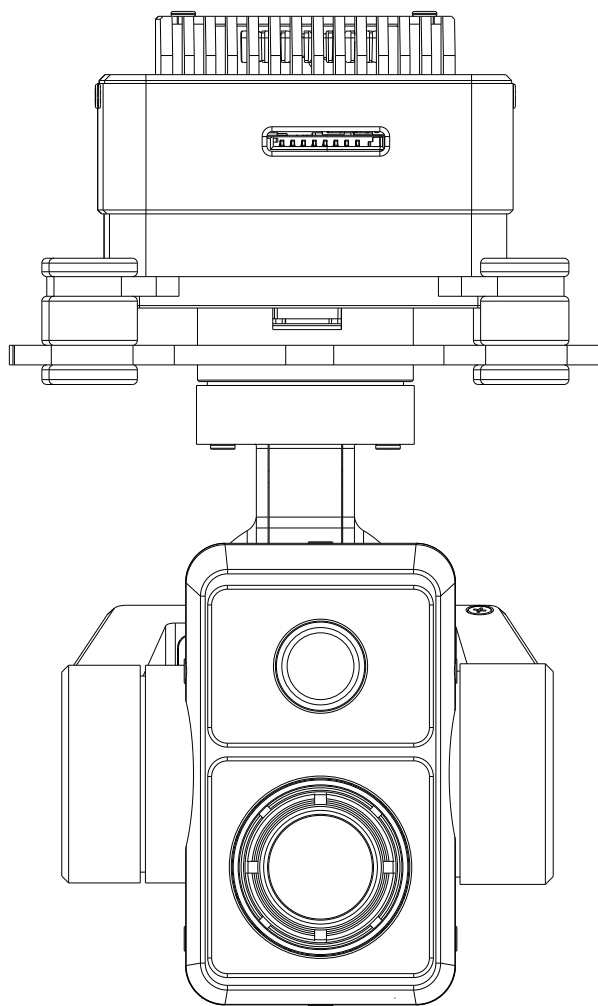


K8T-V3 Dual-Sensor Gimbal

Quick Start Guide and Disclaimer

V1.0

20260701



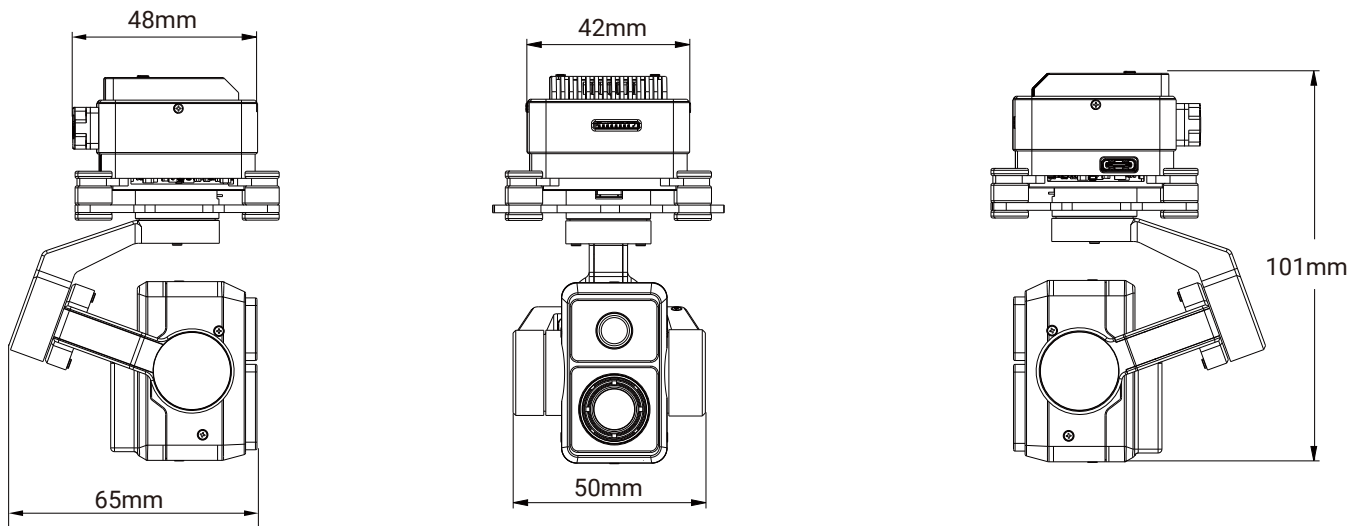
1. Product Introduction

The K8T-V3 is a three-axis gimbal camera that integrates visible-light imaging with a high-resolution thermal imaging sensor. The complete unit weighs only 147 g, combining a lightweight body with high performance.

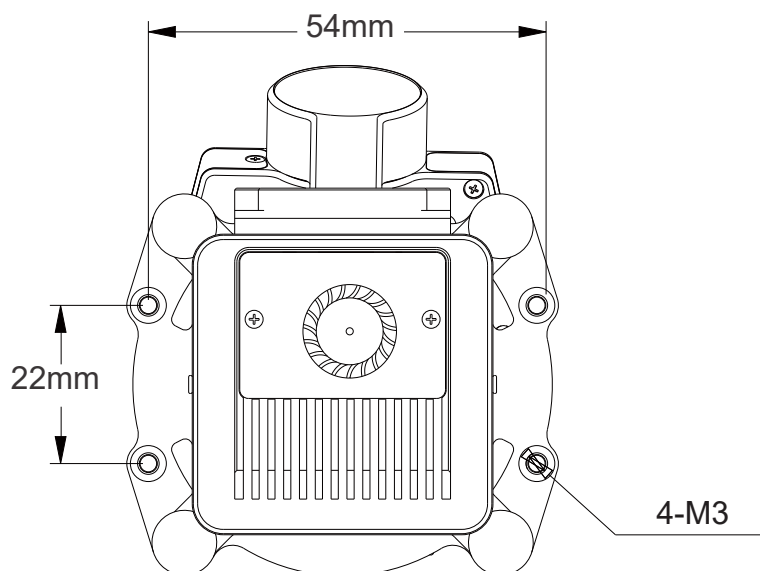
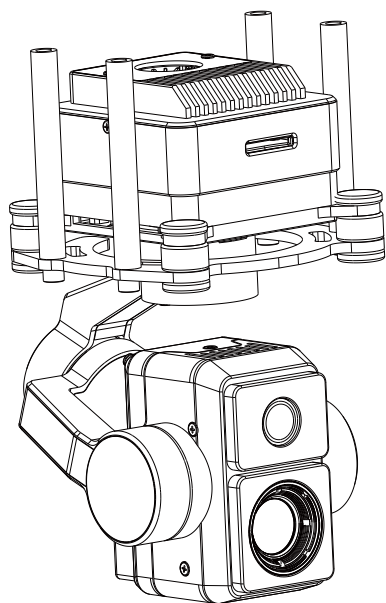
Equipped with a 48 MP visible-light lens, it delivers rich detail and natural color. Together with 640 x 512 thermal imaging, a 9.1 mm focal length and 30 fps frame rate, it quickly detects abnormal heat sources and supports non-contact temperature measurement for day-and-night dual-spectrum operation.

The gimbal has built-in AI recognition and tracking algorithms. It can automatically lock onto moving targets such as vehicles and people for stable following and real-time capture, improving operation efficiency and response speed. It is suitable for security patrol, emergency rescue, industrial inspection, environmental monitoring and other aerial observation tasks.

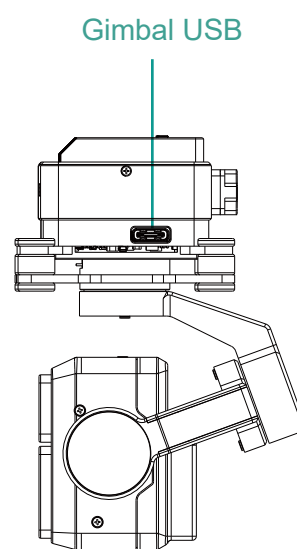
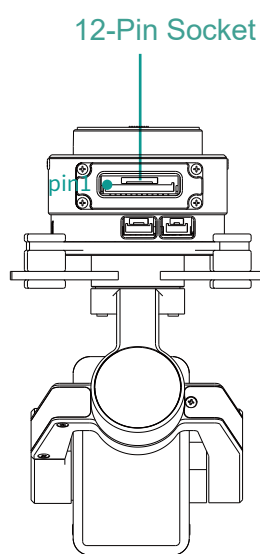
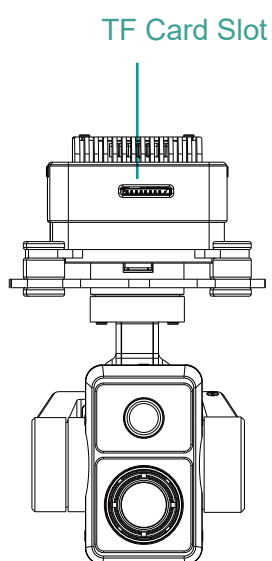
2. Appearance and Lens Dimensions (Unit: mm)



3.Installation Diagram (Unit: mm)



4. Product Hardware Interfaces



Model	Interface Type	Function
Gimbal USB	USB Port	Gimbal Upgrade Port
Memory Card Interface	TF Card Interface	Store Photos and Videos

No.	Model	Interface Type	Interface Definition	Function
1	12PIN(GH1.25mm) Connector	Power Interface	GND	GND
2		Power Interface	GND	GND
3		Power Interface	12V-18V	Power Input
4		Power Interface	12V-18V	Power Input
5		Communication Interface	T+	Network Interface
6		Communication Interface	T-	Network Interface
7		Communication Interface	R+	Network Interface
8		Communication Interface	R-	Network Interface
9		Communication Interface	SBUS	
10		Communication Interface	GND	
11		Communication Interface	TX	TTL Serial Port
12		Communication Interface	RX	TTL Serial Port

5. Gimbal Parameter List

Wide-Angle Camera Parameters

Sensor Size	1/2 inch
Wide-Angle Focal Length	4.49 mm
Effective Pixels	48 MP
Wide-Angle Aperture	F2.8
FOV	H: 71° V: 56° D: 84° ± 1°

Infrared Camera Parameters

Detector Type	Vanadium oxide (VOx) microbolometer detector
Resolution	640x512
Pixel Pitch	12 um
Frame Rate	30 Hz
Spectral Range	8-14 um
Focal Length	9.1 mm
FOV	48.3 ° (H) x 38.6 ° (V), 62.4 ° (D)
Aperture	F1.0

Basic Parameters

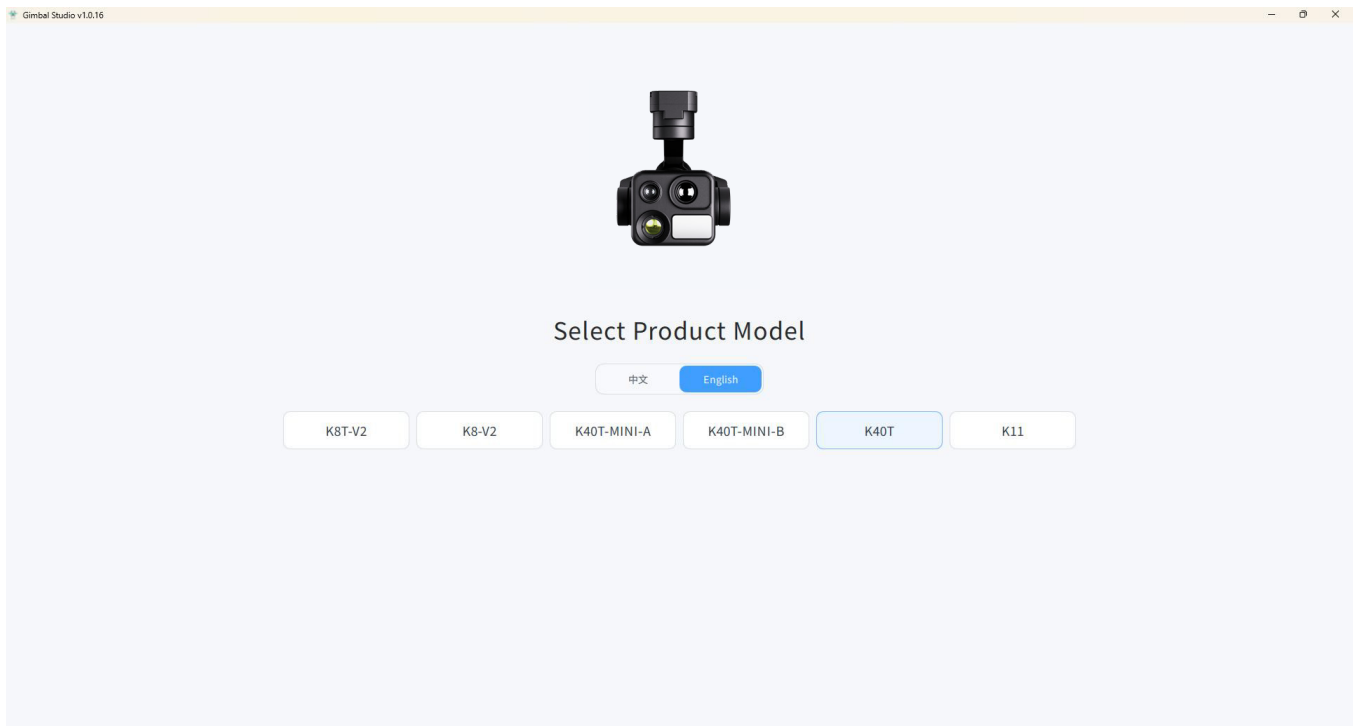
Weight	147 g ±5 g
Operating Voltage	12 V-18 V
Number of Axes	Mechanical three-axis
Software Limit Angle	Pitch: -90° to +30° Yaw: -120° to +120°
Mechanical Angle Range	Pitch: -135° to +45° Roll: -45° to +45° Yaw: -135° to +135°
Max. Control Speed	180°/s
Angle Jitter	±0.005°
Interfaces	Ethernet / Serial / SBUS
Gimbal Modes	Recognition, Auto Tracking
Operating Temperature	-40°C to +65°C
Communication Protocol	HEQ Private Protocol
Protection Rating	IP44
Power Consumption	8 W
Digital Zoom	32x
Visible-Light Resolution	48 MP
TF Card Photo Format	JPG
TF Card Video Format	MP4
Video Resolution	4K@30fps / 12MP@30fps
Photo Resolution	4K / 12MP / 48MP
Encoding Format	H.264, H.265
AI Recognition Tracking	Supported

6. Assistant Software User Guide

Download the Assistant software from the Download Center at: <https://www.hequavtech.com/>

6.1 Assistant Software Interface

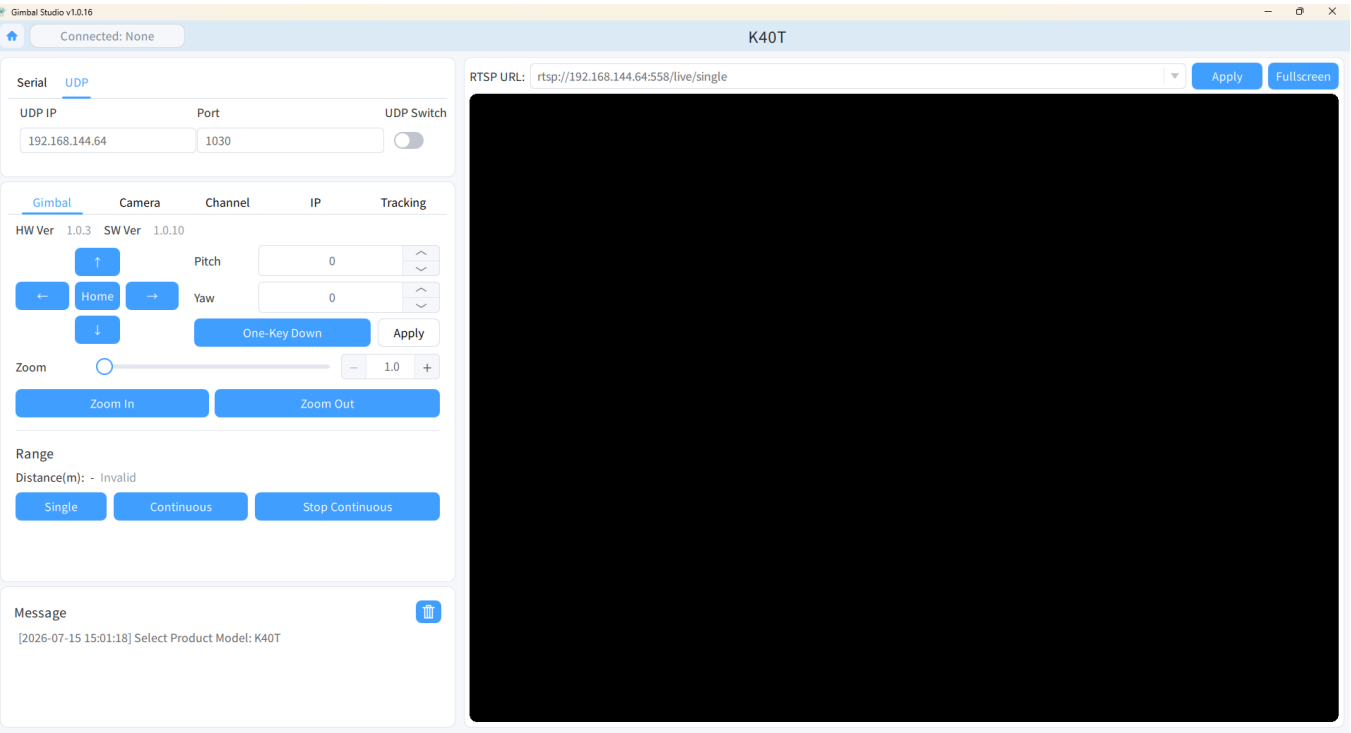
The K8T-V3 uses the same protocol as the K40T, so select K40T as the model.



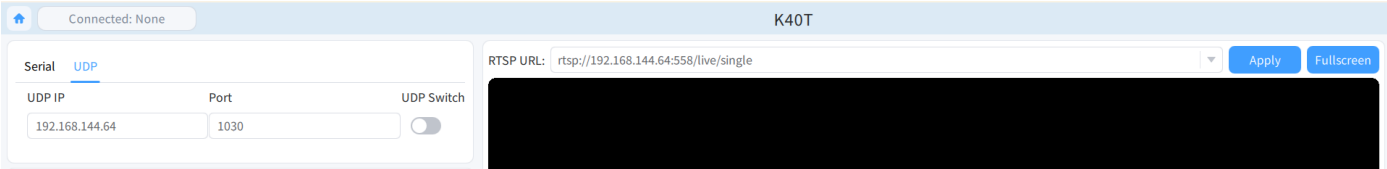
Open the PC software page and select the corresponding product model. To switch the language version, click the icon shown below.



After entering the corresponding product model page, the interface is shown below:



6.2 Connection Settings



Users can choose serial port or UDP connection mode according to actual conditions.
For specific parameter settings, refer to the table below:

Interface Type	Parameters/Settings	User Settings Supported Or Not
Serial port baud rate	Default: 115200	NO
UDP address	Default: 192.168.144.64	Yes (IP address)
Video playback address	Default : rtsp://192.168.144.64:558/live/single	Yes (IP address)

6.3 Gimbal Control

GimbalCameraChannelIPTracking

HW Ver 1.0.3SW Ver 1.0.10

↑

←Home→

↓

Pitch0

Yaw0

One-Key Down

Apply

Zoom

1.0

Zoom InZoom Out

Range

Distance(m): - Invalid

SingleContinuousStop Continuous

Users can click the gimbal control button to control the gimbal speed and angle. The gimbal control speed will have an adaptive relationship with the zoom ratio. For example, the higher the zoom ratio, the lower the gimbal movement speed.

6.4 Video Stream Camera Type Settings

GimbalCameraChannelIPTracking

Camera Ver 1.1.3

Bitrate1M

RTSP Res☒ 1080P30fps☐ 720P30fps

Codec☒ H264☐ H265

Output☐ IR Only☒ Visible☐ Split

Photo Res3840 * 2160

Record Res1920 * 1080

The Assistant software can select the video stream camera type (visible light, thermal imaging, or split screen).

6.5 Sbus Function Settings

Gimbal

Camera

Channel

IP

Tracking

Channel Mapping

Stream

CH2

Gimbal Pitch

CH2

Zoom

NONE

Gimbal Yaw

CH2

Capture

NONE

Gimbal Home

NONE

Record

NONE

IR Palette

NONE

Read

Write

Channel Value Range

Power cycle required after change

Max

-

1500

+

Min

-

0

+

Read

Apply

If the user uses Sbus for gimbal camera control, the user can enter the interface shown above to set the channel mapping. After setting the corresponding channel, click "Write" to save the setting. Click "Read" to obtain the current mapping status.

Yunzhuo Remote Control Setting Range: 282-1722
Heqi Remote Control Setting Range: 281-1721
Siyi Remote Control Setting Range: 272-1712

6.6 Camera IP Address Setting

Gimbal

Camera

Channel

IP

Tracking

IP

192

.

168

.

144

.

64

Mask

255

.

255

.

255

.

0

Gateway

192

.

168

.

144

.

1

Get

Save

Users can set the IP address according to actual needs.
Note: Please keep a record after setting the IP address to avoid device connection failure. If you forget the IP address, please contact HEQ official for support.

6.7 AI Recognition And Tracking Function

Gimbal	Camera	Channel	IP	Tracking
Box Tracking ☐		AI Tracking ☐		
☐ Pedestrian	☐ Crowd	☐ Bicycle		
☐ Car	☐ Truck	☐ Lorry		
☐ Tricycle	☐ Canopy Tricycle	☐ Bus		
☐ Motorcycle				

K8T-V3 has multiple common models built in and provides two tracking modes.

Enable Recognition

Gimbal Studio v1.0.16

Connected: UDP

K40T

RTSP URL:

Serial UDP

UDP IP: Port: UDP Switch: ☒

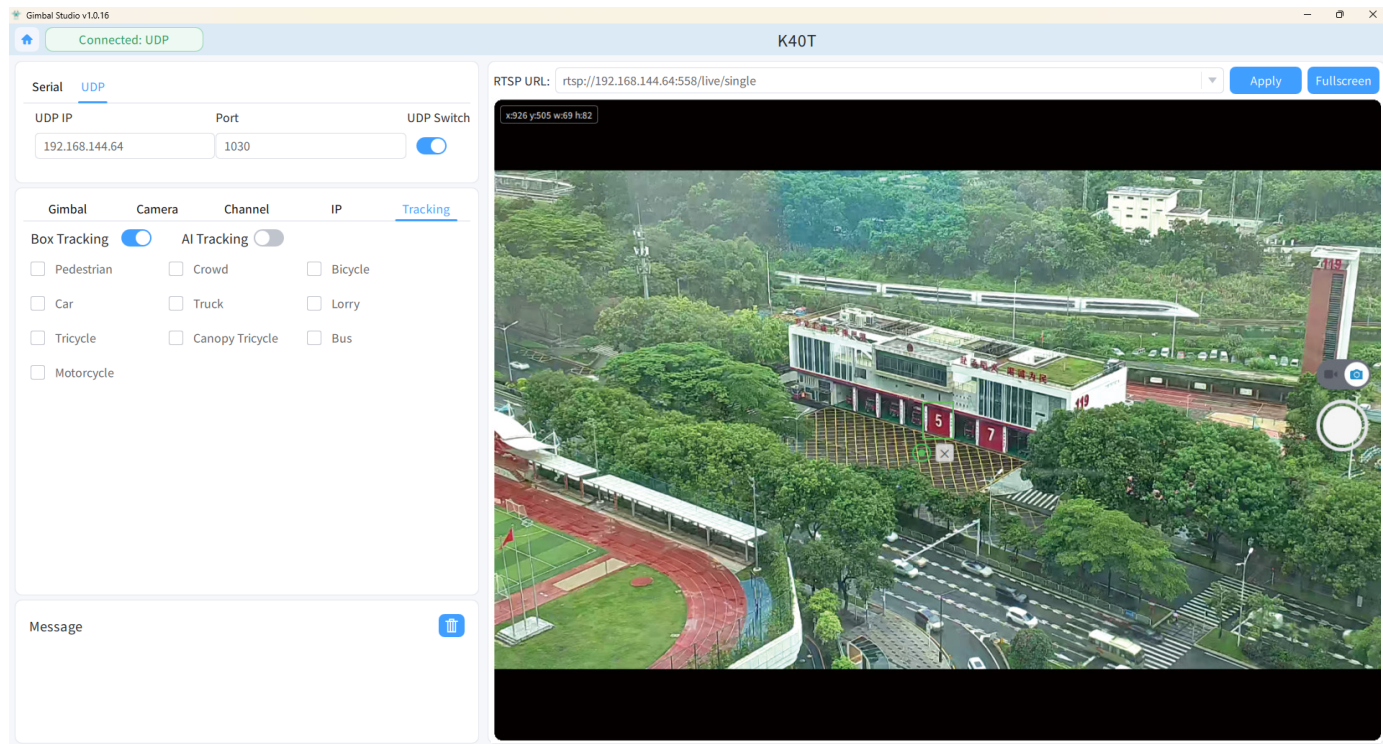
Gimbal	Camera	Channel	IP	Tracking
Box Tracking ☐		AI Tracking ☒		
☒ Pedestrian	☒ Crowd	☒ Bicycle		
☒ Car	☒ Truck	☒ Lorry		
☒ Tricycle	☒ Canopy Tricycle	☒ Bus		
☒ Motorcycle				

Message

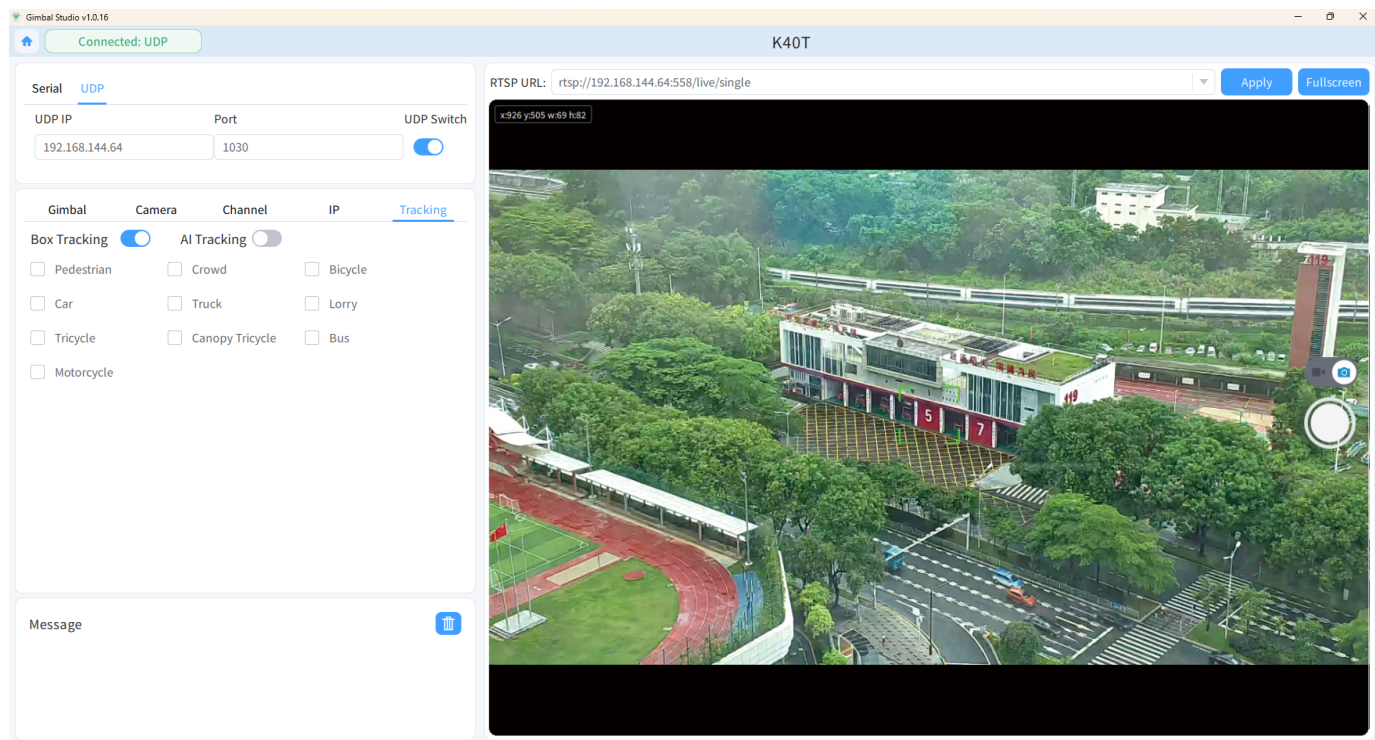


Recognition tracking: in recognition tracking mode, recognized targets are marked. Click a target box to enter tracking mode.

Enable Box Selection



Box Selection Successful



Box-selected target tracking: hold the left mouse button and drag from the upper-left corner to the lower-right corner of the target or area of interest to complete box selection. The device automatically enters tracking mode and centers the tracked target.
After box selection tracking is enabled, gimbal movement cannot be controlled.

(This function is being continuously optimized, and new recognition models will be added later. Users who need updates should visit www.hequavtech.com Download Center to download the latest Assistant software, device firmware, 3D drawings, and user manuals. We apologize for any inconvenience.)

7. Product Firmware Upgrade

K8T-V3 Dual-Sensor Gimbal upgrade includes two parts: camera firmware upgrade and gimbal firmware upgrade.

7.1 Camera Firmware Upgrade Method

Place the file in the root directory of the SD card and power on the device. Do not decompress the file. Wait about 3 minutes.

 MAT-K8T-V1.0.73-Upgrade.tar	2026/7/6 9:43	压缩存档文件夹	473,330 KB
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7.2 Gimbal Firmware Upgrade Method

Place the file in the root directory of the SD card and power on the device. During the upgrade, the gimbal motors will release force. After a successful upgrade, the gimbal will restart self-check and stabilization.

 K8T_V3_APP_V1.0.0.10_20260407.bin	2026/4/13 17:57	BIN 文件	110 KB
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8. Product Usage Precautions

8.1 Storage Environment Requirements

Store the camera in a normal-temperature, dry, and well-ventilated environment to prevent lens fogging caused by excessive humidity. If lens fogging occurs, the water vapor will usually dissipate naturally after the device runs for a period of time. Recommended storage temperature: 20 ±5°C; relative humidity: below 40%.

8.2 Avoid Exposure to Strong Energy Sources

Do not point the infrared camera lens directly at strong energy sources such as the sun, lava, or laser beams. The observed target temperature must not exceed 800°C; otherwise, the camera may burn out and suffer permanent damage.

8.3 Avoid High Temperature and Frequent Power Cycling

Do not place the product in direct sunlight, poorly ventilated areas, or near heat sources such as heaters. Avoid frequent power cycling. After each shutdown, wait at least 30 seconds before powering on again to avoid affecting product life.

8.4 Protection Rating Description

Under stable laboratory conditions, the K8T-V3 complies with the IP44 protection rating of the IEC60529 standard. This rating is not permanently effective and may gradually decrease after long-term use.

8.5 Lens Cleaning and Protection

Do not touch the lens surface with fingers or hard objects to avoid scratches or reduced image quality. When cleaning, gently wipe with a soft, dry, and clean cloth. Do not use alkaline cleaners.

8.6 Technical Support

If you have any questions, please contact Heqi Intelligent official customer service at any time. We will provide comprehensive technical support.