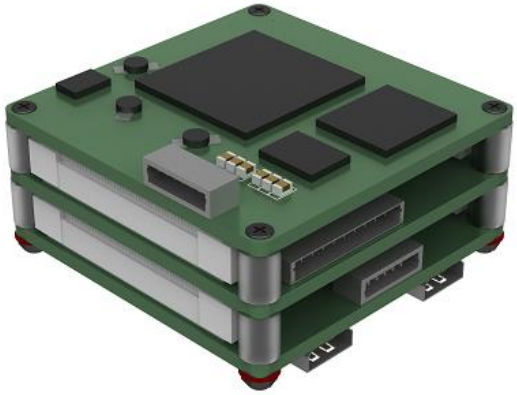

T1Series HD Video Tracker

ZX-GZ1-B1V3

Product Test Instructions

V1.3

CATALOGUE

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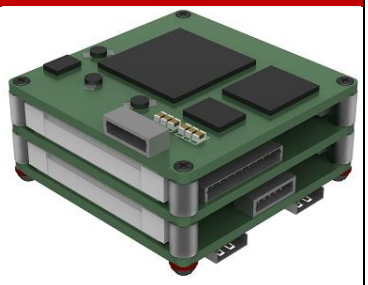
Notice

- In order to ensure the instruments are in good technical condition, the daily maintenance of the operating personnel is only limited to the replacement and inspection of cables, cleaning and functional inspection.
- Please do not open the cabinet in any case even if the system runs into malfunction. Troubleshooting has to be taken on by professional technicians after thorough examinations.
- The video tracker should be kept in a cool, dry environment for storage.
- Please make sure that the connector assemblies were inserted after aligned with sockets. Please do not pull the cable directly for unplugging.
- Wearing anti-static gloves when using and connecting the product to prevent it from being penetrated.
- The power input voltage of the device should be ranging between 8V～12V, otherwise the device would be damaged.

Product List

HD video tracker ×1	
12V power supply, HDMI micro video in/output, 5pin testing connector on side face, 10pin Ethernet connector, 7pin connector for software upgrading please do not connect any cable	
USB cable ×1	
To connect the computer	
5pin testing cable ×1	

To connect the testing connector

Power line ×1

Power supply ranges 8V～12V

HDMI cable ×1

The end of HDMI micro connects to video output of the tracker while standard end connecting to screen

HDMI micro cable ×1

One end links to camera, the other connects to video input of the tracker

Ethernet ×1

To connect internet cable

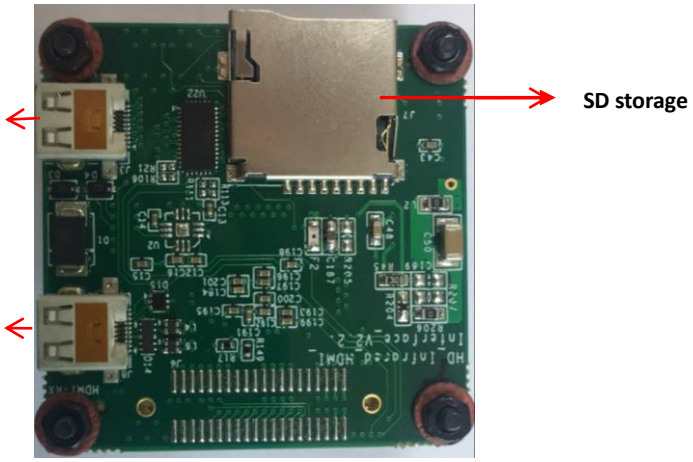
Ethernet video output ×1

10pin connector for ethernet video output

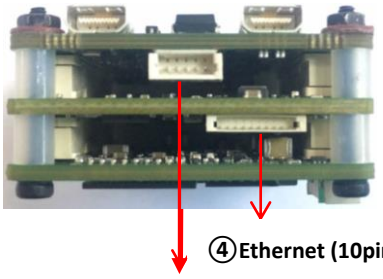
⚠ To prevent device from breaking down, please power on after all cables have been well connected, in particular, the direction of the contact pin.

Interface sketch

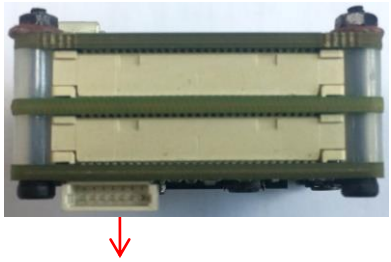
P1: Video connections



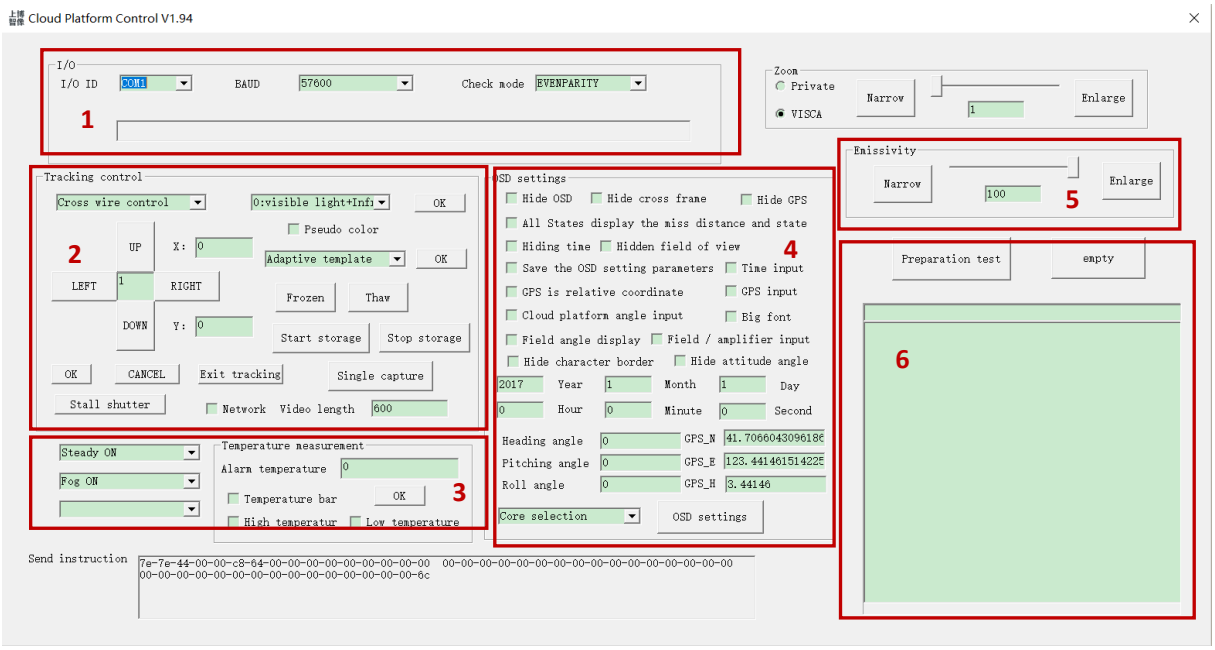
P2: Testing and Ethernet connectors



P3 Upgrading access

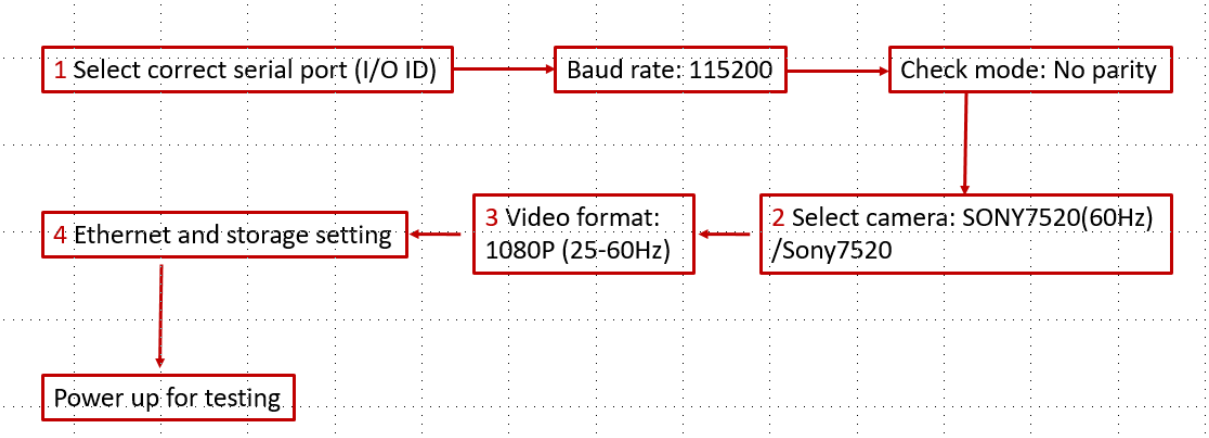


Test software



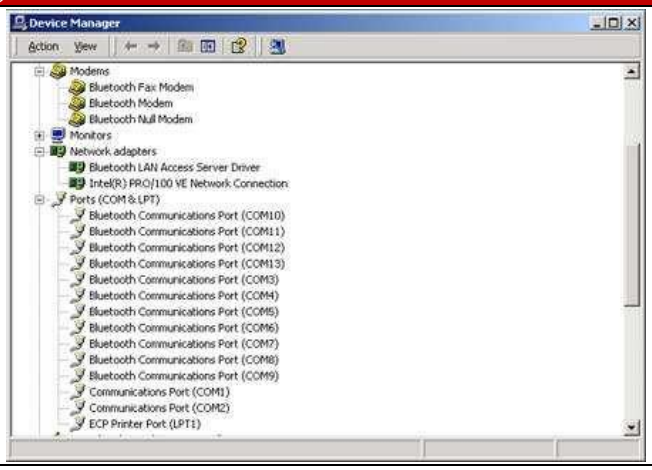
No.	Function
1	Communication control
2	Tracking control
3	Video format configuration
4	OSD setting & camera selection
5	Emissivity control
6	Command receiving box through serial port

Flow chart of software communication access



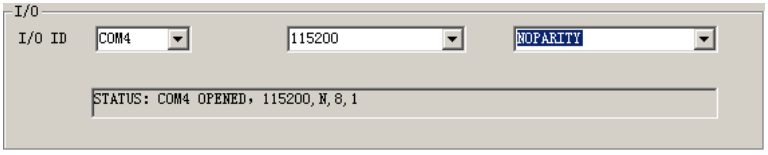
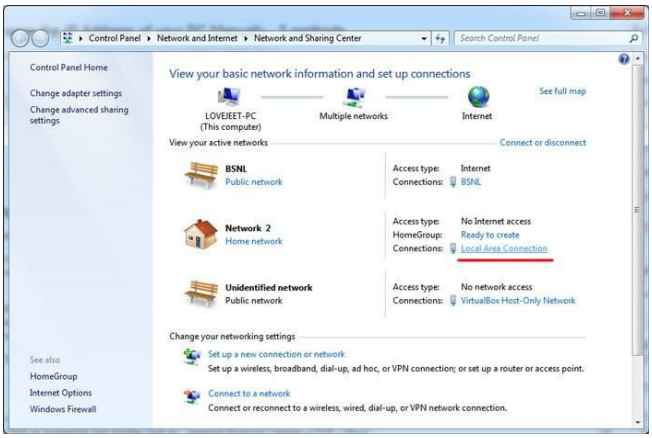
Select correct serial port (I/O ID)

Right-click the "My Computer", and select "Manage" then the window on the right will show up **(please install CH340 driver when no serial port number or exclamation mark shows up)** Normally, the serial port number is the one comes up after controlling cable being connected



Double-click the port（COM and LPT）, choose the refreshed USB port, as shown in the picture

Choose serial port number accordingly

Click the drop-down list of I/O ID, select the corresponding serial number（Status: opened, the port is well connected）	
Select camera/core selection	1. Sony7520: frame rate of video output is up to that of video format 2. Sony7520(60Hz): frame rate of video output is 60Hz
Video format	Only support 1080P（25Hz-60Hz）
Ethernet & SD card storage setting	
1. please shut down the firewall 2.Click “Network” 3.Click “Start storage” 4.Open “Control Panel” → “Network and sharing center” of computer	
Click “local connection”→ “property”, double click “internet protocol 4（TCP/IPv4）”	

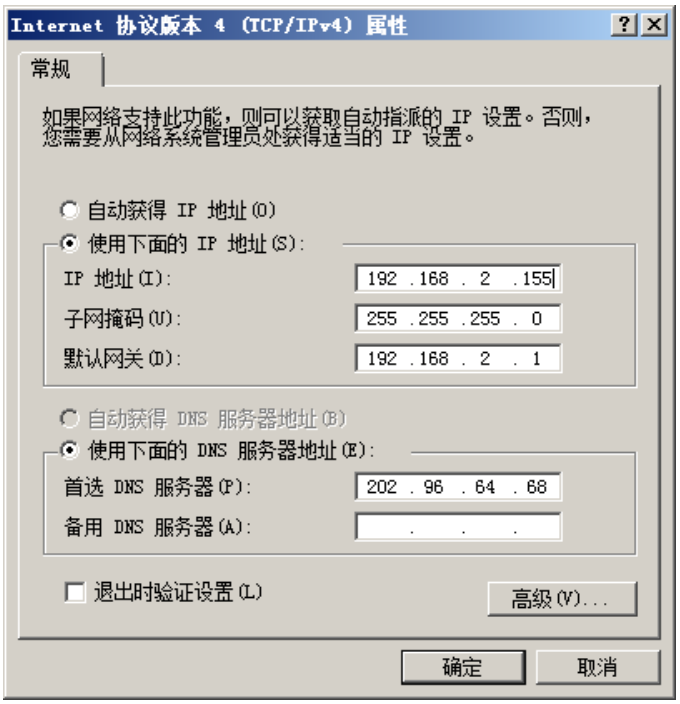
Complete the configuration according to the screen shot on the right.

Suggested software for PC are vlc media player and easy player, both of which could be downloaded from internet.

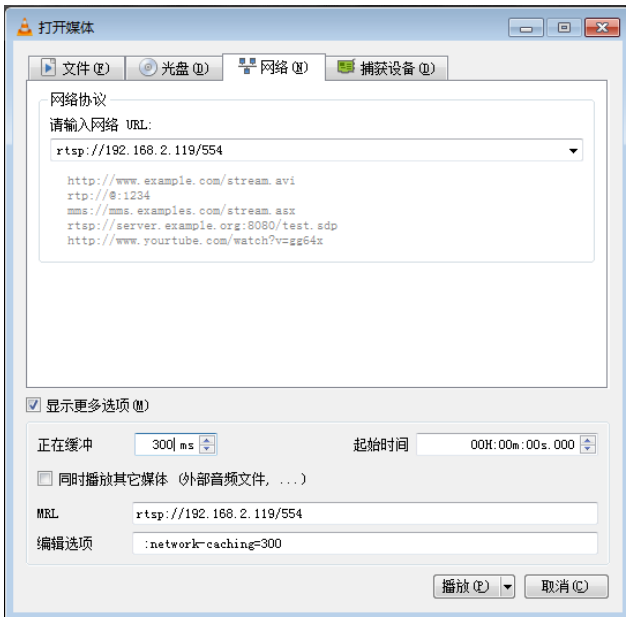
Easy player downloading address: https://github.com/EasyDSS/EasyPlayer/tags

Vlc media player downloading address: http://www.videolan.org/

[Easy player] fill in the IP address of tracker in any address field of Easy player +/554(e.g.: 192.168.2.119/554), cancel “TCP” option, and keep “Hard Decode” option, then click “play”

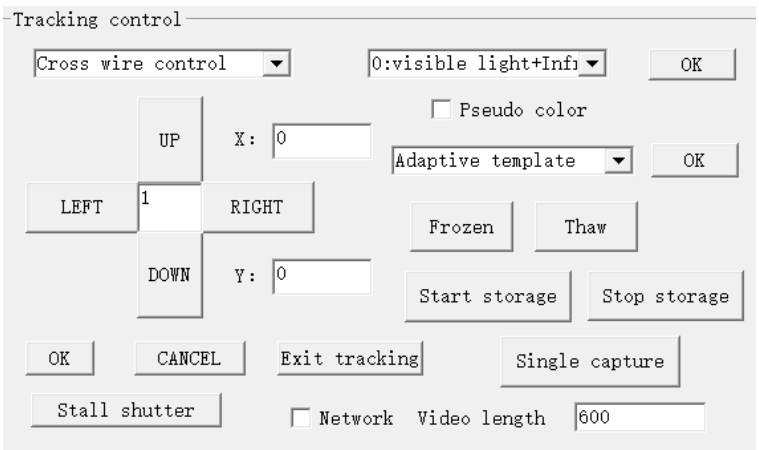


Vlc media player：媒体(M) → 打开网络串流(N)... → 网络(N) input internet URL (**rtsp://192.168.2.119/554**) → 显示更多选项(M) → 正在缓冲 300 ms (输入 300ms for the best video outcome)



Flow chart of software communication access
Software interface

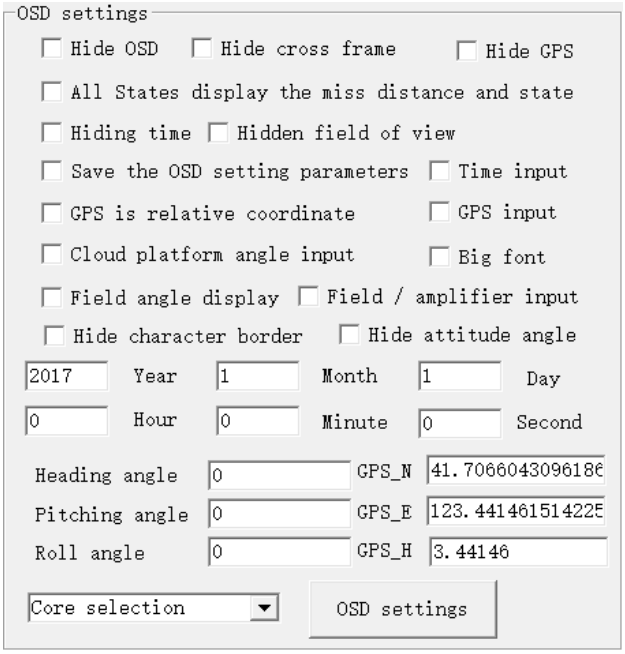
Tracking

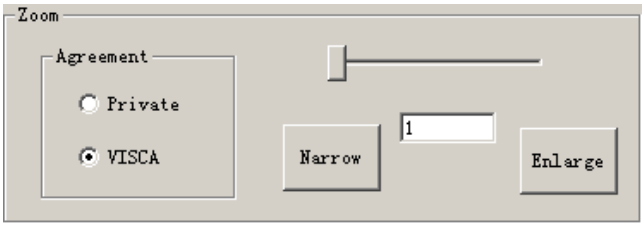


Click the UP, DOWN, LEFT and RIGHT button and the cross cursor will show	
Locate the tracking target Click the Direction button in the tracking control interface and the cross cursor will show up, input the cursor in the input-box of the tracking control interface to adjust the steps. Adjust the position of the cross cursor through UP, DOWN, LEFT and RIGHT button. Click ‘confirm’ button and complete the target locating after the tracking box appear.	

Step 2: Secondary target tracking Click the ‘second time tracking’ button in the tracking control interface, the cross cursor will show up again in the location of current tracking box. And you can adjust the cursor position according to step 1 and then locking the tracking target.	
Step 3: Cancel target tracking Click ‘cancel’ button in tracking control interface and cross cursor will disappear, and target tracking is cancelled.	

OSD setting	

Remarks： select OSD option and click OSD settings ‘OSD Setting’ to complete the setting.	

Zooming control interface	
Private: for thermal camera VISCA： for RGB camera	

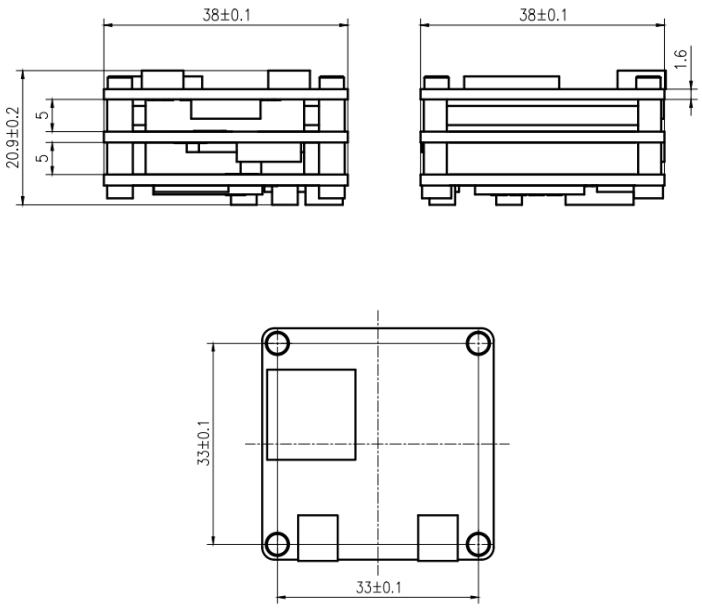
Simple malfunction diagnosis and exclusion

Please use the form below to check the infrared camera when it has any trouble. Disconnect the power and contract our technical support department if the problem cannot be fixed.

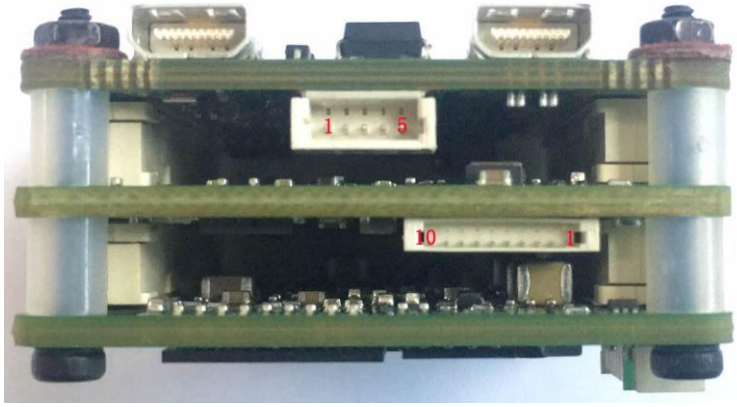
Malfunction	Reason and solution
Video tracker cannot start/Power light is not on	1. Check whether the power is connected. 2. Check whether the voltage is lower than required which should be 12V.
No image display	1. Check whether the serial port is open(not serial port 1) 2. Check whether the baud rate setting of the operation software is correct. 3. Check whether the video output format of the displayer is 1080I/1080P.
The serial command does not respond	1. Check whether the serial port is open(not serial port 1 open)Check whether the verification mode is correct.

No tracking box	1. The target is too close or not obvious, reselect target.

Appendix 1 Product Structure Chart



Appendix 2 Pin Definitions



Pin No.	Pin Name	Function
1	GND	Ground
2	TXD	Serial port sending
3	RXD	Serial port receiving
4	GND	Ground
5	POWER IN	+8V-12V power input

Pin No.	Pin Name	Function
1	DATA_1_N	Receiving input
2	DATA_1_P	Receiving input
3	DATA_0_N	Sending output
4	DATA_0_P	Sending output
5	GND	Ground
6	LED_Link	Connection success indicator light
7	LED_Active	Data indicator light
8	UART_RXD	Serial port receiving
9	UART_TXD	Serial port sending
10	GND	Ground

Appendix 3 Communication Protocol

Baud rate：115200

Without the start bit, 8 bit data bits, 1 bit stop bit，no check

Pod output protocol（pod-tracking module）

1	Frame header	0x7E	
2	Frame header	0x7E	
3	Address	0x44	
4	Reserved	0x00	
5	Reserved	0x00	
6	working states		0x00：Imaging mode 0x1d: Dimming mode 0x71：Tracking mode 0x78：Imaging setting mode 0x7C: SD card storage mode 0x81：Image freezing mode 0x83：OSD setting mode
7	Imaging setting mode/SD card storage switch		Imaging setting mode: 0: Grayscale 1：Pseudo color fusion 2：iron oxide red 3：rainbow 4：colorized SD card storage mode： 1：start to store 0：stop to store 2: single crawl Image freezing mode： 1：freeze 0：unfreeze
8	X-axis movement	low 8 bits	Tracking mode
9		high 8 bits	Tracking mode
10	Y-axis movement	low 8 bits	Tracking mode
11		high 8 bits	Tracking mode
12	Confirm tracking		Tracking mode 0x00：cancel tracking； 0x01：confirm tracking；
9	contrast adjustment		Dimming mode value range：1-100 default 50
13	brightness adjustment		Dimming mode value range：1-100 default 50
11	Warning temperature	low 8 bits	Imaging setting mode

12	setting	high 8 bits	Imaging setting mode
13	Temperature bar		Imaging setting mode 0：Concealing1：Display
14	Tracking mode	0x00	The sixth bit is the template selection flag bit, if it is 1, then specify the module size. 0x24：small template 32 0x28：middle template 64 0x30：big template 128 The information above can be superimposed, for example： 0x2c is small template + middle template 0x38 is small template + big template
15	Video source	0x00	Imaging setting mode: 0x00：Visible light and infrared light (picture in picture) 0x01：infrared light； 0x02：infrared light and visible light(picture in picture)； 0x03：Visible light
16	Black hot mode	0x00	Imaging setting mode: 0: White hot 1：Black hot
17	Digital zoom	0x00	Imaging setting mode 0x00:1X 0x01:2X 0x02:4X
18	Highest temperature display		Imaging setting mode 0：Concealing 1：Display
19	Lowest temperature display		Imaging setting mode 0：Concealing 1：Display
20	Pitch angle	Low eight bits	Resolution 0. 01 degree
21		High eight bits	
22	Course angle	Low eight bits	Resolution 0. 01 degree
23		High eight bits	
24	Roll angle	Low eight bits	Resolution 0. 01 degree
25		High eight bits	
26	Magnification times（or field angle）	Low eight bits	Default：0x000A，1time Resolution 0.1time Resolution

27		High eight bits	
28	OSD display		OSD setting mode 0：concealing 1：display
29	Reserved		
48	Checksum		

Note：A full frame of communication contains 48 bytes, and the 48th byte is checksum.

1	Frame head	0x7E	
2	Frame head	0x7E	
3	Address	0x44	
4	Reserved	0x00	
5	Reserved	0x00	
6	Working state		0x83：OSD setting mode（HD）
7	OSD information		BIT0 0：concealing OSD 1：display OSD BIT1 0：without time input 1：with time input BIT2 0：without GPS input 1：with GPS input BIT3 0：GPS is geographic coordinates 1：GPS is relative coordinates
8-9	Year	U16	
10	Month	U8	
11	Day	U8	
12	Hour	U8	
13	Minute	U8	
14	Second	U8	
16-19	Course angle	Float	
20-23	Pitch angle	Float	
24-27	Roll angle	Float	
28-35	GPS X	Double	
36-43	GPS Y	Double	
44-47	GPS Z	Float	
48	Checksum		

Tracking module output protocol（tracking module-pod）

1	Frame head	0x7E	
2	Frame head	0x7E	
3	Address	0x44	
4	Reserved	0x00	Display OSD part BIT0 0：Display OSD 1：Concealing OSD BIT1 0：Display middle frame/ cross 1：Concealing middle frame/ cross BIT2 0：Display attitude angle 1：Concealing attitude angle BIT3 0：Display miss distance under tracking state only 1：Display miss distance under all states BIT4 0：Display GPS 1：Concealing GPS BIT5 0：Display time 1：Concealing time BIT6 0：Display field of view/ magnification 1：Concealing field of view/ magnification BIT7 0：Small font 1：Big font
5	Reserved	0x00	
6	Working state	0x83	0x83：OSD setting mode（HD）
7	OSD information		BIT0 0： 1：Save OSD setting parameter BIT1 0：without time input 1：with time input BIT2 0：without GPS input 1：with GPS input BIT3 0：GPS is geographical coordinates 1：GPS is relative coordinates BIT4 0：without platform angle input

			1：with platform angle input BIT5 0：without field of view/ magnification input 1：with field of view/ magnification input BIT6 0：display according to magnification times 1：display according to field angle BIT7 0：domestic core video 1：sony7520（can Not be Set）
8-9	Year	U16	
10	Month	U8	
11	Day	U8	
12	Hour	U8	
13	Minute	U8	
14	Second	U8	
16-19	Course angle	Float	
20-23	Pitch angle	Float	
24-27	Magnification times/field angle	Float	
28-35	GPS X	Double	
36-43	GPS Y	Double	
44-47	GPS Z	Float	
48	Checksum		

Note：

When the tracker module receives video switch instruction under tracking state, it needs to relieve the tracking state, so that the tracking box can return to the center of the video and reselect the target.