



Video Tracker

ZX-GZ8-D2V3

User Manual

CATALOG

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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 IPM should be ranging between 8V~16V, otherwise the device would be damaged.

Introduction

Video tracker (including video tracker ZXTP for SD and ZXTH for HD) is a device that tracks the static/moving target in the complex background of UAV and other high-speed moving platforms on a real-time basis. The video tracker could perfectly process the image affine transformation caused by the high speed movement of the platform, as well as the panning, zooming and rotation of the target. Product is composed of 3 pieces circuit board at 38mm*38mm dimensions with FPGA+ARM structure and arrives at good performance in operation and instantaneity.


List of products

Video tracker*1	10pin testing cable*1
	

Ethernet testing cable*1	30pin connecting cable*1
	
BNC-JC cable*2	422 cable*1
	
<p> Note: To prevent the equipment from being damaged, please connect it to the power in the last step. Please note the insertion pin.</p>	

Connection specification

Pic 1 Obverse Connection



SDI video output (connect to BNC-JC) ←

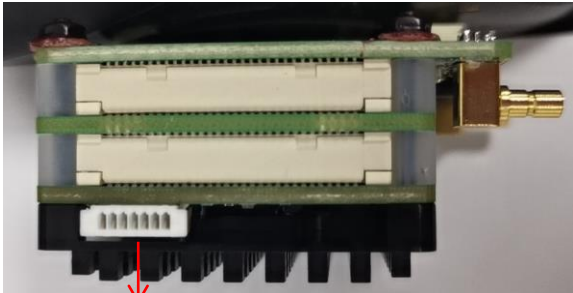
Connect to 10pin testing cable ←

AV video input (connect to BNC-JC) ←

→ LVDS video input (connect to 30pin cable)

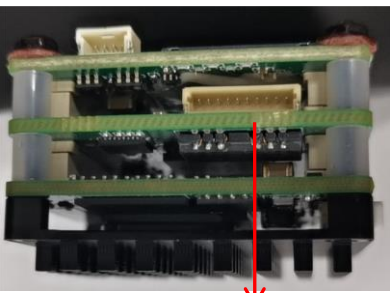
→ RS 422 video output

Pic 2 Side Connection



Do not connect upgrading (7pin)

Pic 3 Side Connection



Connect to Ethernet (10 pin)

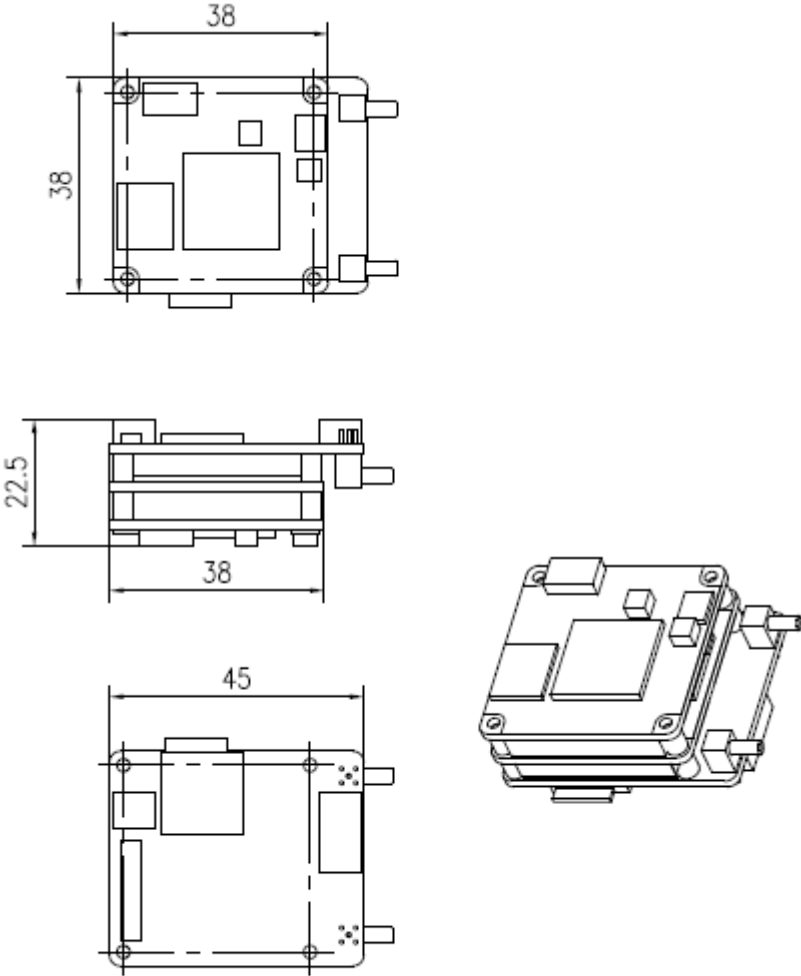
Simple malfunction diagnosis and exclusion

Please use the form below to check the video tracker when it has any trouble.

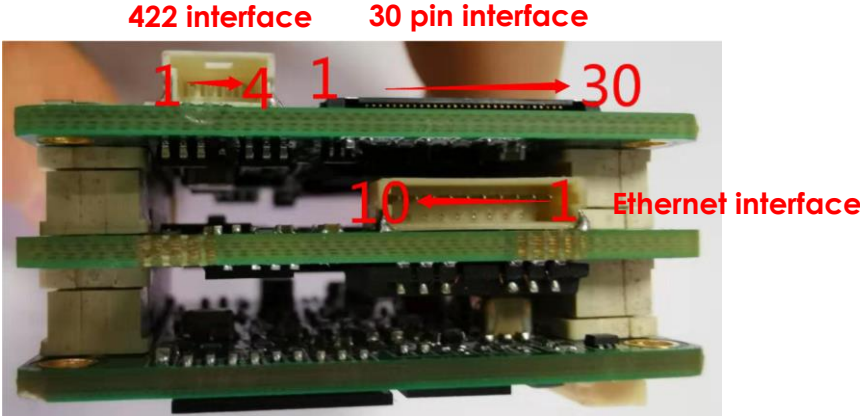
Disconnect the power and contact our technical team if problem remains.

Malfunction	Reason and solution
IPM 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 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.

Dimensions

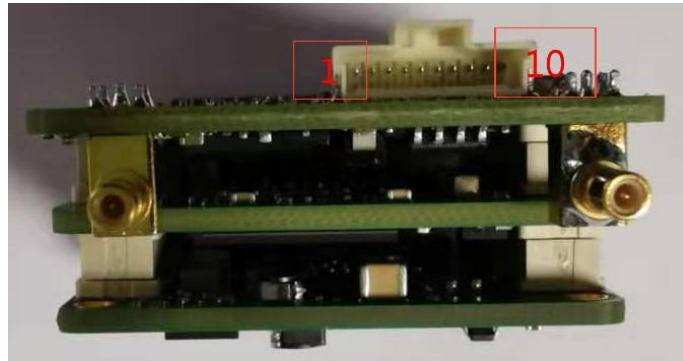


Pin definitions



Ethernet cable pin definition	
Pin No.	Function
1	TX_N
2	TX_P
3	RX_N
4	RX_P
422 Serial port pin definition	
Pin No.	Function
1	VCLK_P
2	VCLK_N
3	VDATA_P
4	VDATA_N
30 pin definition	
Pin No.	Function
1	TXOUT3+
2	TXOUT3-
3	TXCLKOUT+
4	TXCLKOUT-
5	TXOUT2+
6	TXOUT2-
7	TXOUT1+
8	TXOUT1-
9	TXOUT0+
10	TXOUT0-
11	GND
12	RXD
13	TXD
14-18	DC IN=12V
19-20	GND
21-30	NC

Testing interface



10 pin definition	
Pin No.	Function
1	12V
2	12V
3	GND
4	GND
5	TX_P
6	TX_N
7	RX_N
8	RX_P
9	SONY_TX
10	SONY_RX

Attachment 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	low 8 bits	Imaging setting mode
12	temperature	high 8	Imaging setting mode

	setting	bits	
13	Temperature bar		Imaging setting mode 0: Concealing 1: 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	Low	Default: 0x000A, 1time

	(or field angle)	eight bits	Resolution 0.1 time 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	
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2	Frame head	0x7E	
3	Address	0x44	
4	Reserved	0x00	<p>Display OSD part</p> <p>BIT0 0: Display OSD 1: Concealing OSD</p> <p>BIT1 0: Display middle frame/ cross 1: Concealing middle frame/ cross</p> <p>BIT2 0: Display attitude angle 1: Concealing attitude angle</p> <p>BIT3 0: Display miss distance under tracking state only 1: Display miss distance under all states</p> <p>BIT4 0: Display GPS 1: Concealing GPS</p> <p>BIT5 0: Display time 1: Concealing time</p> <p>BIT6 0: Display field of view/ magnification 1: Concealing field of view/ magnification</p> <p>BIT7 0: Small font 1: Big font</p>
5	Reserved	0x00	
6	Working state	0x83	0x83: OSD setting mode (HD)
7	OSD information		<p>BIT0 0: 1: Save OSD setting parameter</p> <p>BIT1 0: without time input 1: with time input</p> <p>BIT2 0: without GPS input 1: with GPS input</p> <p>BIT3 0: GPS is geographical coordinates 1: GPS is relative coordinates</p> <p>BIT4 0: without platform angle input 1: with platform angle input</p> <p>BIT5 0: without field of view/ magnification input 1: with field of view/ magnification input</p>

			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		