

ThermalTronix
TT-1150PXB2-DVACS
Technical Specifications

User Manual



Intellisystem Technologies S.r.l.

Via Augusto Murri, 1 – 96100 Siracusa - Phone +39 (0)931-1756256 / +39 (0)2-87167549 - Mobile (+39) 335 1880035
em@il: info@intellisystem.it WEB: <http://www.intellisystem.it>

Restriction

Intellisystem Technologies shall reserve copyright of document. Under no circumstances, this document shall be reproduced, distributed or changed, partially or wholly, without formal authorization of Intellisystem Technologies.

Disclaimer

Intellisystem Technologies makes the best to verify the integrity and correctness of the contents in this document, but no formal guarantee shall be provided. Use of this document and the subsequent results shall be entirely on the user's own responsibility. Intellisystem Technologies shall have the right to change the contents of this manual without prior notice for the purpose of enhanced performance.

Warranty

If the product does not operate properly in normal conditions, please let us know. Intellisystem Technologies will resolve the problem for free of charge. The warranty period is 1 years. However, the followings are excluded:

- If the system behaves abnormally because you run a program irrelevant to the system operation.
- Deteriorated performance or natural worn-out in process of time.

**CAUTION**

RISK OF ELECTRIC SHOCK.
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

2



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Warnings

- Please avoid aiming the lens at extreme high temperature radiation source, such as the sun, molten steel or laser in any situation; otherwise the detector may be damaged.
- Please do not touch the lens to avoid contaminating and damaging. Please pay attention to protect the lens to avoid causing abrasion, scratches even breaches, otherwise, it will affect the device performance badly, even damage the device.
- This device is a precise optoelectronic product. Please protect it properly during usage, storage and transportation, where improper use (such as drop and collision) will cause damage to the device.
- Make sure that the power control connection is reliable. If the power control wire is in bad connection, it will damage the device.
- Ensure the proper connection of power control cable and data cable. Wrong connection may cause damage to the device.
- Do not swag fiercely or collide the device during transportation, otherwise it will cause performance-reduction and even damage to it.

If the product works abnormally, please contact the dealer or the nearest after-sale service center. Please do not dismantle or replace it in any manners.

Contents

1 Introduction	5
1.1 FEATURES	5
1.2 INCLUDED	6
2 Component names and functions	7
2.1 Device appearance	7
2.3 How to assembly	8
2.4 Connector definition	9
2.4.1 Definition of 19 Pin connector	9
2.4.2 Definition of 10 Pin connector	10
2.4.3 Power input of CCD and PTZ	11
2.4.4 Power input of thermal imaging camera	11
2.4.5 CCD camera video output	11
2.4.6 Video output of thermal imaging camera	12
2.4.7 485 connection	12
3 Control keys description	12
4 Menu description	19
4.1 Main menu	19
4.2 system menu	21
4.3 Mode menu	23
5 Camera operation guide	24
5.1 Focus setup	24
5.2 Zoom setup	24
5.3 Aperture setup	24
5.4 Thermal calibration	25
6 PTZ setup	26
6.1 DIP switch setup	26
6.2 PTZ terminal resistor setup	26
6.3 PTZ protocol setup	27
6.4 PTZ baud rate setup	27
6.5 PTZ address (ID)	27
7 PTZ instruction	28
7.1 Boot interface	28
7.2 Main menu	28
7.3 PTZ address setup	29
7.4 PTZ baud rate setup	30
7.5 PTZ protocol setup	30
7.6 PTZ preset setup	30
8 Troubleshooting	32
9 Technical specifications	34

1 Introduction

TT-1150PXB2-DVACS is composed of uncooled infrared thermal imaging module and visible light camera, which can be applied in the following fields: long-range seaports, border, airport; middle-range power stations, public places; short-range gate of entry and exit, equipment storage sites; day and night to monitor people, vehicles, ships and so on.

5

1.1 FEATURES

Thermal Camera

- 1) Manual calibration
- 2) Start-up auto calibration
- 1) Manual brightness and gain adjustment
- 2) User configuration settings
- 3) black hot / white hot polarity reversal
- 4) Crosshair display/movement/save
- 5) Image Noise Reduction function, reduce Image background noise
- 6) Image enhancing function: enhance the ability to detect small object
- 7) PAL video output
- 10) Standard R485 serial port

CCD Camera

- 1) The built-in optical zoom lens is a highly durable component. It features auto focus, auto iris, and zoom functions.
- 2) Color/monochrome switch
- 3) Color mode 600TVL, white/black 700TVL
- 4) lowest light intensity: Colored 0.7lux, black and white 0.07Lux
- 5) focal distance: 3.5mm~129.5mm, 37x

PTZ

- 1) Preset: 80 presets can be setup
- 2) Support 0°~360°(pan) continuous rotation
- 3) Top load of tilt is $\pm 80^\circ$

1.2 INCLUDED

List for accessories and files

No.	accessory	quantity	remark
1	User Manual	1	
2	Guard	1	
3	PTZ	1	
4	Screws	12	
5	Packing list	1	
6	qualification	1	

2 Component names and functions

2.1 Device appearance



Fig. 1

2.2 PTZ Structure

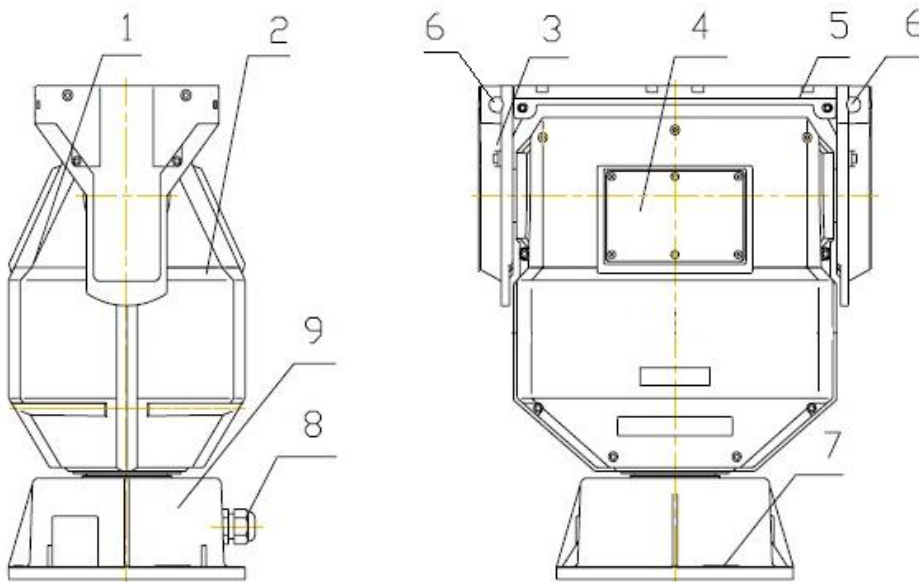


Fig. 2

No.	Description	Remark
1	Front cover	
2	Rear cover	
3	Bracket	
4	DIP switch cover	definition refers to chapter 6
5	Splint	
6	Guard cable outlet hole	output cable connect thermal camera to CCD camera
7	Water level	In the process of the PTZ installation, the level bubble within two water level on the base should be in the middle of the water level in order to ensure PTZ in a horizontal position.
8	Wire hole	used to connect power supply, monitor and keyboard control
9	Base	

2.3 How to assembly

- 1、 Put the guard onto the PTZ and fix it with screws.

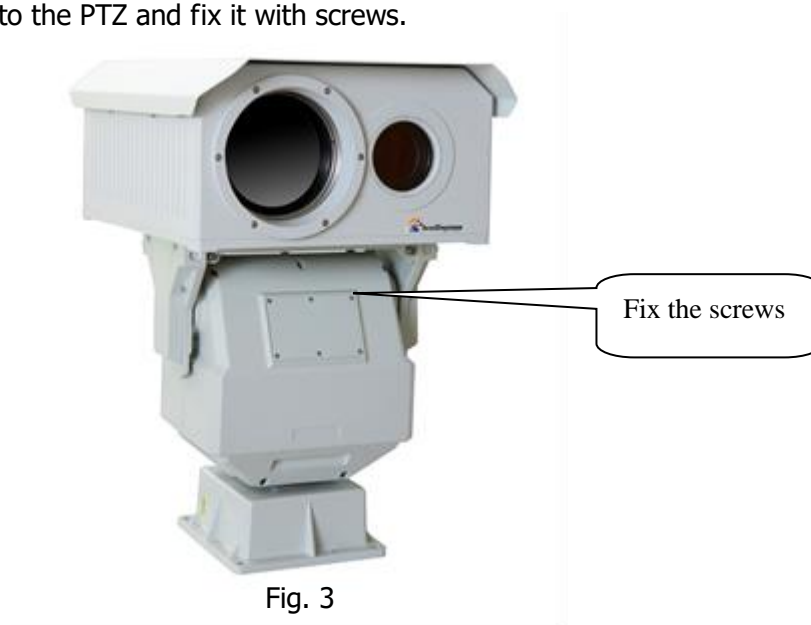


Fig. 3

2、 Connecting 10Pin and 19Pin to the port of the guard.

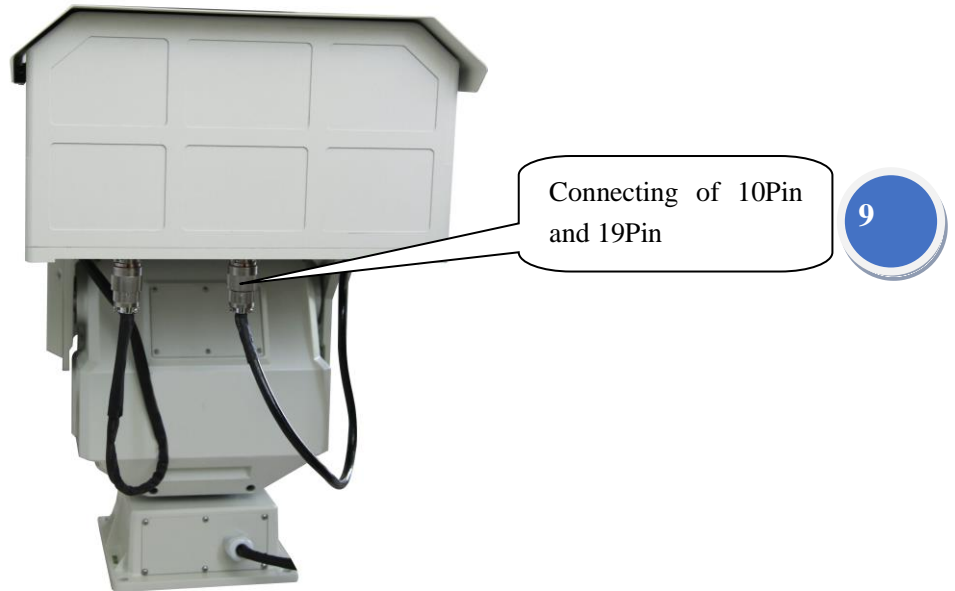


Fig. 4

3、 Connecting CCD, PTZ, and thermal imaging camera with the power, details can be referred to 2.4.3 and 2.4.4.

4、 Connecting CCD and thermal imaging camera with the display device, details can be referred to 2.4.5 and 2.4.6.

5、 Connecting 485 control line with the control device, details can be referred to 2.4.7.

2.4 Connector definition

2.4.1 Definition of 19 Pin connector

19-pin connector on the guard, as shown in the following fig 5:

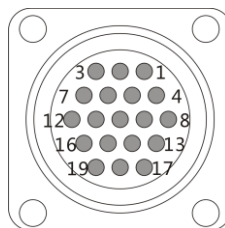


Fig. 5

Definition for each pin:

Pin No.	Definition	Description	Remark
PIN 1	CCD_DC12V+	Connect power 12V	
PIN 2	CCD_DC12V-		
PIN 3	NC		
PIN 4	NC		
PIN 5	CCDCVBS+	CCD video output	
PIN 6	CCDCVBS-		
PIN 7	ZOOM+	Connect PTZ	
PIN 8	ZOOM-		
PIN 9	FOCUS+		
PIN 10	FOCUS+		
PIN 11	LENS+		
PIN 12	LENS-		
PIN 13	AC24V	Connect power 24V	
PIN 14	AC24V		
PIN 15	SW1+		
PIN 16	SW1-		
PIN 17	SW2+		
PIN 18	SW2-		
PIN 19	NC		

2.4.2 Definition of 10 Pin connector

10-pin connector on the guard, as shown in the following fig.6:

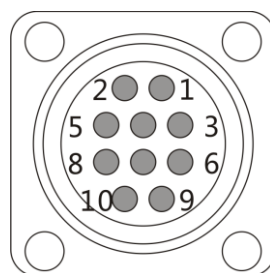


Fig. 6

Definition for each pin:

Pin No.	Definition	Description	Remark
PIN 1	POWER+	Connect power 24V	
PIN 2	POWER-		
PIN 3	RS485+	RS485	
PIN 4	RS485-		
PIN 5	IRCVBS+	Thermal video output	
PIN 6	IRCVBS-		
PIN 7	NC		
PIN 8	NC		
PIN 9	NC		
PIN 10	NC		

2.4.3 Power input of CCD and PTZ

At the port of PTZ output, a blue line and a brown line are connected with AC24V, which is the power source of PTZ and CCD equipments.

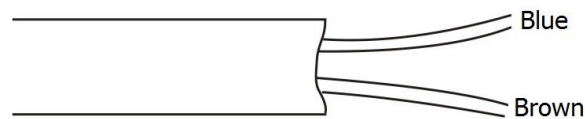


Fig. 7

2.4.4 Power input of thermal imaging camera

At the port of PTZ output, 2 yellow lines are connected with AC24V, which is the power source of thermal imaging camera.

2.4.5 CCD camera video output

At the port of PTZ output, the following as shown in Fig.8 is CCD video output.



Fig. 8

2.4.6 Video output of thermal imaging camera

At the port of PTZ output, the following as shown in Fig.9 is video output of thermal imaging camera:



Fig. 9

2.4.7 485 connection

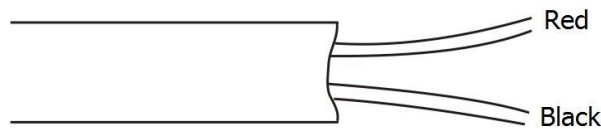


Fig. 10

Pin	Definition	Description	Remark
red	485+	connecting 485 control device	
black	485-		

3 Control keys description

The default protocol is PELCO-D, and the following is the protocol details. The format for a message is:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Synch Byte	Address	Command1	Command2	Data1	Data2	Check Sum

1. All values below are shown in hexadecimal (base 16).
2. The synchronization byte is always FF.
3. The address is the logical address of the PTZ.
4. The check sum is the 8 bit (modulo 256) sum of the payload (bytes 2 though 6) in the message.

Note: the check sum calculation for the last message looks likes this:

For example: FF 0A 88 90 20 00 42

FF 1111 1111 Sync byte is not used for the checksum

0A 00001010

```

88      10001000
Subtotal 10010010  92
90      1001 0000
Subtotal 0010 0010  22 (modulo 256 allows the high bit to roll off)
0x20    0010 0000
Subtotal 0100 0010  42
0x00    0000 0000
         0100 0010  42  Final checksum value
    
```

Assume PTZ address is 1, the following all PELCO-D protocol will be described under this condition.

Thermal camera control key description

Setting preset No.30 will shift to control the switch of thermal camera. The PELCO-D command of setting preset No.30 is: FF 01 00 03 00 1E 22.

1. Basic function of Thermal camera:

Operational keys	Function	The PELCO-D command
Up	PTZ up	FF 01 00 08 00 Vt XX FF 01 00 00 00 00 01 Vt refers to the vertical rotation speed (0-63)
Down	PTZ down	FF 01 00 10 00 Vt XX FF 01 00 00 00 00 01 Vt refers to the vertical rotation speed (0-63)
Left	PTZ left	FF 01 00 04 Vp 00 XX FF 01 00 00 00 00 01 Vp refers to the horizontal rotation speed (0-63)
Right	PTZ right	FF 01 00 02 Vp 00 XX FF 01 00 00 00 00 01 Vp refers to the horizontal rotation speed (0-63)
Aperture-off(I-)	Enter the menu or move the cursor from up to down	FF 01 04 00 00 00 05 FF 01 00 00 00 00 01
Aperture-on(I+)	Manual calibration	FF 01 02 00 00 00 03 FF 01 00 00 00 00 01

Near Focus(F-)	1. When there is no menu, near Focus 2. when there is a menu, modify the option or reduce the value	FF 01 01 00 00 00 02 FF 01 00 00 00 00 01
Far Focus(F+)	1. When there is no menu, far Focus 2. when there is a menu, modify the option or increase the value	FF 01 00 80 00 00 81 FF 01 00 00 00 00 01
ZOOM-(Z-)	Auto focus	FF 01 00 40 00 00 41 FF 01 00 00 00 00 01
ZOOM+(Z+)	Switch FOV	FF 01 00 20 00 00 21 FF 01 00 00 00 00 01

2. Set preset:

You can at most setup 80 presets, and the following is the preset format:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
FF	01	00	03	00	Preset No. (01-50)	Check Sum

Eg. If you setup the preset No. 01, the corresponding PELCO-D protocol is FF 01 00 03 00 01 05.

3. Delete preset:

The format is shown in the following:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
FF	01	00	05	00	Preset No. (01-50)	Check Sum

If you delete the preset No. 01, the corresponding PELCO-D protocol is FF 01 00 05 00 01 07.

4. Callback preset:

The format is shown in the following:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
FF	01	00	07	00	Preset No. (01-50)	Check Sum

Eg. If you callback the preset No. 01, the corresponding PELCO-D protocol is FF 01 00 07 00 01 09.

5. Preset cruise

Preset cruise only supports one cruise path, the default cruise is top 15 preset positions, and if less than 15 preset, all preset position will be arranged in the cruise.

Function	PELCO-D command
Start cruise	FF 01 00 07 00 62 6A
Stop cruise	FF 01 00 00 00 00 01

6. Scan:

Function	PELCO-D command
L-Limit	FF 01 00 03 00 5C 60
R-Limit	FF 01 00 03 00 5D 61
Starting scan	FF 01 00 07 00 63 6B
Stop	FF 01 00 00 00 00 01

7. Go to PTZ menu

Function	PELCO-D command
Go to PTZ menu	FF 01 00 03 00 5F 63

CCD camera keys description

Default is CCD control. If it was shifted to thermal camera, you can shift the control to CCD again by calling preset No.30. The PELCO-D command of calling preset No.30 is: FF 01 00 07 00 1E 26.

1. Basic functions of CCD:

Operational keys	Function	The PELCO-D command
Up	PTZ up	FF 01 00 08 00 Vt XX FF 01 00 00 00 00 01 Vt refers to the vertical rotation speed (0-63)
Down	PTZ down	FF 01 00 10 00 Vt XX FF 01 00 00 00 00 01 Vt refers to the vertical rotation speed (0-63)
Left	PTZ left	FF 01 00 04 Vp 00 XX FF 01 00 00 00 00 01 Vp refers to the horizontal rotation speed (0-63)
Right	PTZ right	FF 01 00 02 Vp 00 XX FF 01 00 00 00 00 01 Vp refers to the horizontal rotation speed (0-63)
Z+	Zoom in	FF 01 00 20 00 00 21 FF 01 00 00 00 00 01
Z-	Zoom out	FF 01 00 40 00 00 41 FF 01 00 00 00 00 01
F+	Far Focus	FF 01 00 80 00 00 81 FF 01 00 00 00 00 01
F-	Near Focus	FF 01 01 00 00 00 02 FF 01 00 00 00 00 01
I+	Aperture-on	FF 01 02 00 00 00 03 FF 01 00 00 00 00 01
I-	Aperture-Off	FF 01 04 00 00 00 05 FF 01 00 00 00 00 01

2. Set preset:

You can at most setup 80 presets, and the following is the preset format:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
FF	01	00	03	00	Preset No. (01-50)	Check Sum

Eg. If you setup the preset No. 01, the corresponding PELCO-D protocol is FF 01 00 03 00 01 05.

3. Delete preset:

The format is shown in the following:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
FF	01	00	05	00	Preset No. (01-50)	Check Sum

If you delete the preset No. 01, the corresponding PELCO-D protocol is FF 01 00 05 00 01 07.

4. Callback preset:

The format is shown in the following:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
FF	01	00	07	00	Preset No. (01-50)	Check Sum

Eg. If you callback the preset No. 01, the corresponding PELCO-D protocol is FF 01 00 07 00 01 09.

5. Preset cruise

Preset cruise only supports one cruise path, the default cruise is top 15 preset positions, and if less than 15 preset, all preset position will be arranged in the cruise.

Function	PELCO-D command
Start cruise	FF 01 00 07 00 62 6A
Stop cruise	FF 01 00 00 00 00 01

6. Scan:

Function	PELCO-D command
L-Limit	FF 01 00 03 00 5C 60
R-Limit	FF 01 00 03 00 5D 61
Starting scan	FF 01 00 07 00 63 6B
Stop	FF 01 00 00 00 00 01

7. Go to PTZ menu

Function	PELCO-D command
Go to PTZ menu	FF 01 00 03 00 5F 63

When using Intellisystem KD-402 external keyboard, details refer to the following instruction.

- 1) Please keep address, protocol and baud rate of KD-402 as same the parameter as PTZ setup (PTZ setup shown as Chapter 6 & Chapter 7).
- 2) Using KD-402 to control thermal camera or CCD camera. Default is CCD control, setting preset No.30 will shift to control the switch of thermal camera. If it was shifted to thermal camera, you can shift the control to CCD again by calling preset No.30. The following is Keys Function:
 - a. 『CLOSE』: CCD: Adjust aperture
 Thermal camera: Go to menu
 - b. 『OPEN』: CCD: Adjust aperture
 Thermal camera: Manual calibration
 - c. 『NEAR』: CCD: Adjust focus
 Thermal camera: When there is no menu in the interface of the device, trigger this key to manually adjust the lens toward positive direction; when there is a menu , trigger this key to modify the option or increase the value.
 - d. 『FAR』: CCD: Adjust focus
 Thermal camera: When there is no menu in the interface of the device, trigger this key to manually adjust the lens toward positive direction; when there is a menu , trigger this key to modify the option or increase the value.

- 2、 **Mode: X** Display the current image mode. Module has ten configuration setups under Auto2 mode. **Mode 0** and **Mode 1** are fixed factory default settings and **Mode 2-9** are user-defined settings. Details please refer to chapter 4.4.
 - 0: Suitable for observation of big-object under good weather condition
 - 1: Suitable for observation of target within sky-line under good weather condition
 - 2~9: User-defined based on different practical occasions.
- 3、 **G: XXX** Gain value, range: 0-255. This function is only effective when the auto imaging mode setup is **Auto 0** or **Auto 1**. In **Auto 2** mode, gain is automatically adjusted. When trigger 『Aperture- off』, cursor will skip gain setup option.
- 4、 **B: XXXX** Brightness value, range: -2048-+2048. This function is only effective when the auto imaging mode setup is **Auto 0**. In **Auto 1** or **Auto 2** mode, brightness is automatically adjusted. When trigger 『Aperture- off』, cursor will skip brightness setup option.
- 5、 **P: X** White/black hot display mode
 - 0: black hot 1: white hot
- 6、 **Z: X** Zoom status
 - 1: No zoom 2: 2
- 7、 **FOV:X** FOV mode display
 - N: narrow W: wide
- 8、 **E: X** NC
- 9、 **C: X** Cross cursor display
 - Y: on N: off
- 10、 **Setting:** use 『near focus』 and 『far focus』 to go to internal menu.
- 11、 **Exit: XXX** use 『near focus』 and 『far focus』 to exit the menu

Note: When exiting the main menu, all change will be saved automatically and will be taken effect when restarting next time.

4.2 system menu

In the main menu, move the cursor to “setting”, and use 『near focus』 or 『far focus』 to go to system menu.

You need to input password when go to system menu, the password is 『Aperture-on』 『Far Focus』 『Aperture-on』 『Near Focus』 『Aperture-on』 『Aperture-on』 . With the correct password, you will come to the system menu shown as Fig. 12:

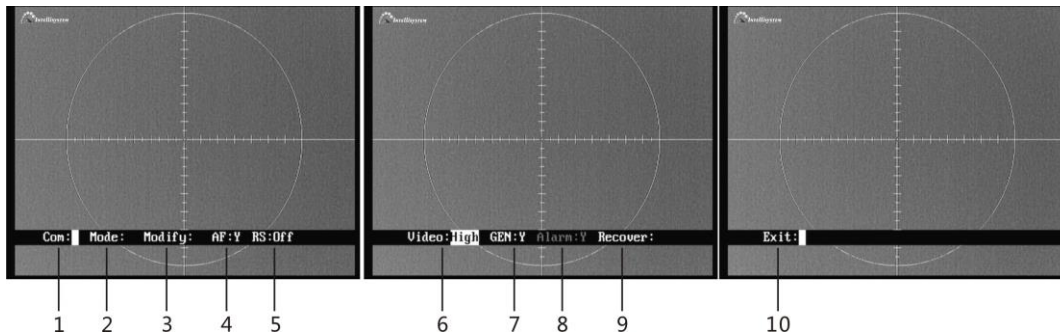


Fig. 12

Trigger 『Aperture- off』 and move the cursor , use 『near focus』 and 『far focus』 to modify the values or options. When you exit the menu, parameters will automatically be saved.

- 1、 **Com: XXX** Please do not change the items within this menu, or the thermal camera may not be normally controlled.
- 2、 **Mode: XXX** use 『near focus』 and 『far focus』 to go to internal menu to setup mode parameters, please refer to 4.4.
- 3、 **Modify:** For factory debugging
- 4、 **AF: X** auto-focus switch status of the current object, "N" is recommend.
 Y: on N: off

- 5、 **RS: XXX** auto calibration switch status of the current object.
Long: long means boot to calibration one time, and correct once every 2 minutes within 10 minutes; correct once every 5 minutes within 10 to 30 minutes; correct once every 10 minutes within 30 to 1 hour; correct once every 20 minutes above 1 hour.
Short: short means boot to calibration one time, and correct once every 1 minute within 10 minutes; correct once every 2 minutes within 10 to 30 minutes; correct once every 5 minutes within 30 to 1 hour; correct once every 10 minutes above 1 hour.
Off: Manually calibration
- 6、 **Video: XXX** Sensitivity, three modes:
Low sensitivity: User may select Low sensitivity when the ambient or object in high temperature
Middle sensitivity
High sensitivity: User select High sensitivity when the ambient or object in low temperature.
- 7、 **GEN: X** Set the switch status to protect the detector from being burned
- 8、 **Alarm: X** NC
- 9、 **Recover: XXX** Recover all menus setting for factory default, **Aperture-off (M) key** for restore, and **Aperture-on (C) key** for cancel.
- 10、 **Exit: XXX** use 『near focus』 or 『far focus』 to exit the menu.

4.3 Mode menu

In the system menu, move the cursor to “mode”, and use 『near focus』 or 『far focus』 to go to mode menu.

You need to input password when go to system menu, the password is 『Aperture-on』 『Far Focus』 『Aperture-on』 『Near Focus』 『Aperture-on』 『Aperture-on』 . With the correct password, you will come to the mode menu shown as Fig.13.

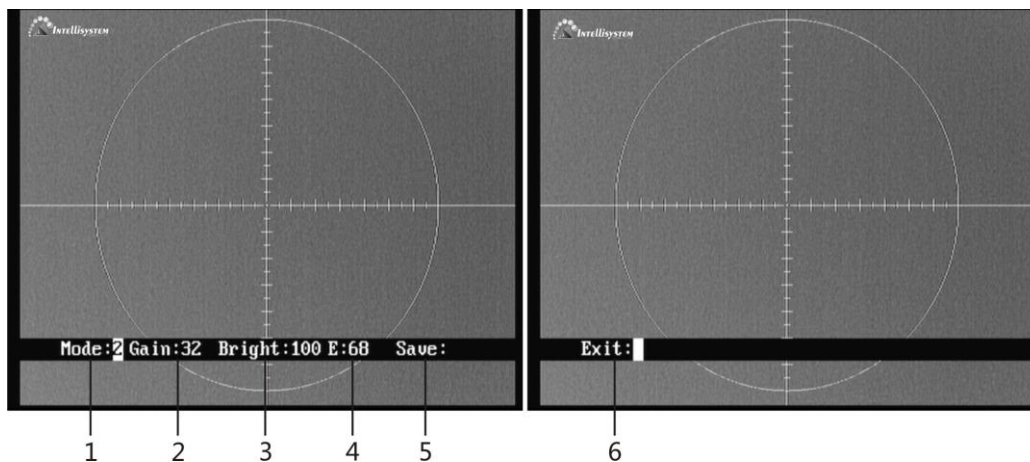


Fig. 13

Trigger 『Aperture- off』 and move the cursor, use 『near focus』 and 『far focus』 to modify the values or options.

- 1、 **Mode: X** display the current mode No.
- 2、 **Gain: XXX** Gain value, range: 0~255;
- 3、 **Bright: XXXX** Brightness value, range: 0~255;
- 4、 **E: XXX** Image enhancement status, range: 1~255. Effective only in **Mode1 or Mode 2**. The bigger the value is, the clearer the object is.
- 5、 **Save: XXX** use 『near focus』 or 『far focus』 to save the mode.
- 6、 **Exit: XXX** use 『near focus』 or 『far focus』 to exit the menu.

Note:

When configuration user-defined setup is activated, it is automatically changed into **Auto 2**, and goes back to original working state after exit.

5 Camera operation guide

5.1 Focus setup

- **Thermal imaging camera**

Default is CCD control. When setting preset No.30, you can shift to control thermal camera.

If no menu, trigger 『near focus』 or 『far focus』 to control electric lens; trigger 『Zoom-』, the electric lens will have a auto-focus.

- **CCD camera**

If it was shifted to thermal camera, you can shift the control to CCD again by calling preset No.30.

The camera has auto-focus function, users also can trigger 『near focus』 or 『far focus』 to control electric lens.

5.2 Zoom setup

- **Thermal imaging camera**

Default is CCD control. When setting preset No.30, you can shift to control thermal camera.

If no menu, trigger 『Zoom+』 to shift FOV.

- **CCD camera**

If it was shifted to thermal camera, you can shift the control to CCD again by calling preset No.30.

Trigger 『Zoom+』 or 『Zoom-』 to control electric lens.

5.3 Aperture setup

- **CCD camera**

If it was shifted to thermal camera, you can shift the control to CCD again by calling preset

No.30.

The camera has auto-aperture function, users also can trigger 『aperture+』 or 『aperture-』 to control electric lens.

5.4 Thermal calibration

25

System is already calibrated when boot. User can trigger 『Aperture- on』 to manually calibration. A "Cracking" sound in calibration is a normal phenomenon.

In the main menu, move the cursor to "setting", and use 『near focus』 or 『far focus』 to go to system menu. In system menu, select **RS: XXX** mode:

- 1) Long: long means boot to calibration one time, and correct once every 2 minutes within 10 minutes; correct once every 5 minutes within 10 to 30 minutes; correct once every 10 minutes within 30 to 1 hour; correct once every 20 minutes above 1 hour.
- 2) Short: short means boot to calibration one time, and correct once every 1 minute within 10 minutes; correct once every 2 minutes within 10 to 30 minutes; correct once every 5 minutes within 30 to 1 hour; correct once every 10 minutes above 1 hour.
- 3) Off: Manually calibration.

6 PTZ setup

Use a Phillips screwdriver to loosen six Phillips Screws on the DIP switch cover (refer to 2.2), remove the DIP switch cover, you can see the circuit board DIP switch as shown in Fig.14.

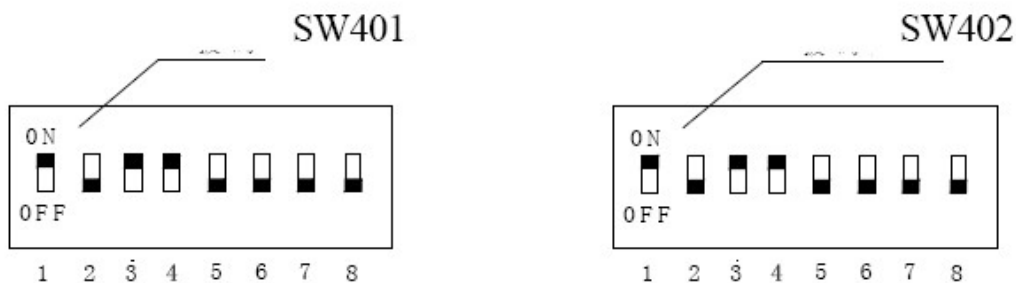


Fig. 14 SW401

SW402

Note : 1. function switch (SW401)
2. address switch (SW402)

6.1 DIP switch setup

Both function (SW401) and address (SW402) are 8 DIP switch, the order from left to right is No. 1, 2, 3, 4, 5, 6, 7, 8

6.2 PTZ terminal resistor setup

Function switch (SW401) No. 8 is for connection to RS485 120ohms terminal resistor. If the PTZ is in the end of RS485 communication cable, please switch it on.

6.3 PTZ protocol setup

Function switch (SW401) No. 1, 2, 3, 4 is for PTZ protocol setup. Definition please refer to the following table 1.

Table 1

protocol	No.1	No.2	No.3	No.4
Pelco-P	OFF	ON	OFF	OFF
Pelco-D	ON	ON	OFF	OFF

6.4 PTZ baud rate setup

Function (SW401) No. 5 and No.6 are for PTZ baud rate setup, definition please refer to table 2.

Table 2

Baud rate	No.5	No. 6
2,400	OFF	OFF
4,800	ON	OFF
9,600	OFF	ON

6.5 PTZ address (ID)

Address switch (SW402) is for PTZ communication address (ID), using eight binary coding system ranges from 1 to 255, specific DIP rules please refer to Table 3.

Table 3

Address	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
....							
254	OFF	ON	ON	ON	ON	ON	ON	ON
255	ON	ON	ON	ON	ON	ON	ON	ON

7 PTZ instruction

7.1 Boot interface

Turn on the power, PTZ will have a self-test to check whether the basic movements are normal or not, thus the test information will appear on the screen. Users can operation the device only after the successful test.

7.2 Main menu

Implement the order 『callback/ setup No.95 preset』 to start the menu shown as Fig.15. In the main menu, users can operate the arrow keys to change the position of the cursor 『up/down』 is for each item in main menu from 1 to 8, 『right』 for the selected submenu,

[[left]] for exit the main menu.

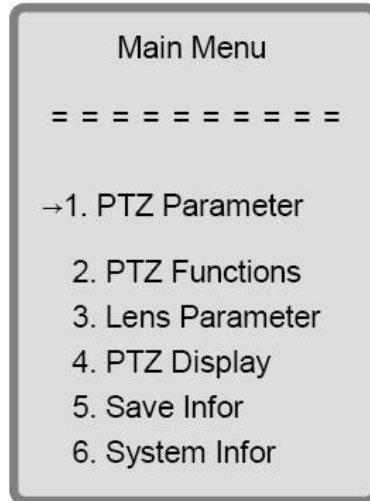


Fig. 15

7.3 PTZ address setup

In the main menu, [[up/down]] is for "PTZ parameter setup", and [[right]] for "selected submenu".

In the menu of "PTZ parameter setup", press [[up/down]] to choose "PTZ address", [[right]] to "editing address", [[left]] to "exit address" [[up]] to "address plus 1", [[down]] to "address minus 1", [[zoom+]] to "address plus 10", [[zoom-]] to "address minus 10".

Note: When PTZ address is finished setup through the above menu settings, the address set by DIP switch failed; when the address through menu is inconsistent with DIP switch settings, the address will be working up to the newest setup.

7.4 PTZ baud rate setup

In the main menu, 『up/down』 is for “PTZ parameter setup”, and 『right』 for “submenu of PTZ parameter setup”.

In the menu of “PTZ parameter setup”, press 『up/down』 to choose “baud rate option”, 『right』 to “baud rate interface”, 『up/down』 to “choose baud rate”, including 2400, 4800, 9600, 『left』 to “exit baud rate option”.

7.5 PTZ protocol setup

In the main menu, 『up/down』 is for “PTZ parameter setup”, and 『right』 for “submenu of PTZ parameter setup”.

In the menu of “PTZ parameter setup”, press 『up/down』 to choose “communication protocol”, 『right』 to “protocol interface”, 『up/down』 to “choose protocol”. You can select Pelco P or Pelco D, 『left』 to “exit protocol setup”.

7.6 PTZ preset setup

In the main menu, 『up/down』 is for “PTZ function setup”, and 『right』 for “submenu of PTZ function setup”.

In the menu of “PTZ function setup”, press 『up/down』 to choose “preset option”, 『right』 to “preset interface”.

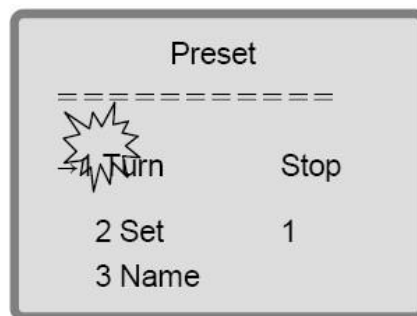


Fig. 16

(1) Rotate PTZ

PTZ rotating function provides convenience for user if not exit the menu.

『up/down』 is for "Turn", 『right』 for "option choose interface", and if you choose "start", press 『F+』 to control the PTZ, then 『callback any preset』 can return to the menu.

(2) Preset setup

『up/down』 is for "Set", 『right』 for "preset No. setup", 『up』 for "preset No. plus 1", 『down』 for "preset No. minus 1", 『zoom+』 for "preset No. plus 10", 『zoom-』 for "preset No. minus 10", 『left』 for "corresponding preset " and "exit preset setup".

(3) Edit preset name

If users edit the name of the preset, the preset bit name will display on the screen.

『up/down』 is for "Name", and 『right』 for "go to editing interface" shown in Fig.17.

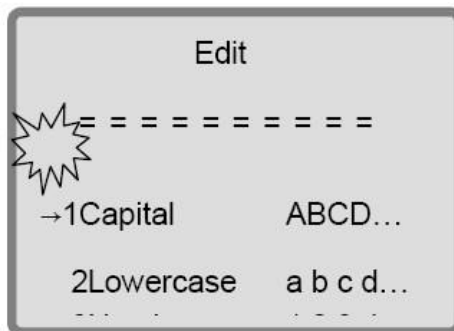


Fig. 17

『up/down』 is for "corresponding input mode ", and 『right』 for "character selecting interface" shown in Fig.18.

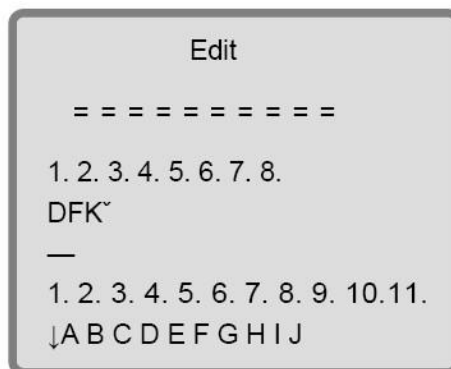


Fig. 18

The location indicated refers to the location that characters will be input, and “_” refers to the current selected location.

Press [down] to enter “letters selecting state”, and [up/down] to flip up and down in the location of “↓” (to display another set of capital letters), then [left/right] to choose the letter you need, lastly [up] to make the selected letters appearing in the location of “_”. When finished letters input, press [zoom+] to exit the editing. Letters will be saved automatically. Users can delete the character by pressing [left] in the position of cursor.

(4) Callback preset

[up/down] is for “callback preset option”, [right] for “preset No. setup”, [up] for “preset No. plus 1”, [down] for “preset No. minus 1”, [zoom+] for “preset No. plus 10”, [zoom-] for “preset No. minus 10”, [left] for “callback corresponding preset” and “exit preset callback setup”.

8 Troubleshooting

Please follow the below table to diagnose and solve the problem. If problem is still existed, please contact our service center.

Trouble	Possible cause	Solution
Thermal camera or CCD camera has no video output	Wrong or poor connection of power lines	Reconnect them
	Fault of power supply or transformer	Check if power supply is in normal condition
Unable to control thermal camera	Wrong or poor connection of power lines	Check the connection of power lines
	485 error	Check485
	When settling preset No.30, you can shift to control thermal camera.	When settling preset No.30, you can shift to control thermal camera.

Unable to control CCD camera	Wrong or poor connection of power lines	Check the connection of power lines
	485 error	Check485
	Current is thermal camera control.	When calling preset No.30, you can shift to control CCD camera.
	PTZ error	Change PTZ
After power-on, PTZ does not perform self-checking	Insufficient power of power supply	Replace it with required power supply
	Fault of power panel	Contact the supplier to replace power panel
After power-on and self checking, the controller does not work.	Wrong connection of wire for control panel or open circuit	Check connection of control wire, ensure correct and good connection
	Wrong address setting of PTZ	Set the address No. of pan tilt with reference to toggle switch setting
	Wrong setting of PTZ protocol or baud rate	Set the protocol or baud rate of pan tilt with reference to toggle switch setting
Camera image loss during rotation of PTZ	Insufficient power of power supply	Replace it with required power supply
	Poor connection of video line of camera	Check connection of video line and ensure correct and good connection
Blurred picture	Focus is in manual status	Operate the pan tilt or recall any presetting bit
	The shield screen is dirty	Wash the shield

9 Technical specifications

Items		<i>ThermalTronix TT-1150PXB2-DVACS</i>
Two head surveillance system		
Thermal Imaging Camera		
Detector type	Amorphous silicon micro-bolometer	
Spectral range	8~14μm	
Pixels	384×288	
Pixel size	25μm	
Focus length	150mm/60mm	
FOV	9.17°×6.88°/3.67°×2.76°	
Video output	PAL	
Frame rate	50Hz	
Electric zoom	2X	
Image polarity	Black hot/White hot	
Interface	RS485, PELCO-D/PELCO-P/Intellisystem	
Visual Camera		
All-in-one camera	Resolution	Totally 795(H)x596(V), Effective 752(H)x582(V)
	Pick-up device	1/4" Super HAD CCD
	Lens	3.5~138.5mm, 43x optical zoom
	Horizontal resolution	Color 600TVL, B/W700TVL
	Focus	Auto
	IRIS	Auto
Pan-tilt		
Angle show function	PELCO-D	
Horizontal angle of rotation	0 ~ 360°continuously rotation	
Vertical angle of rotation	-45° ~ +45°	
Horizontal rotation speed	0.01° ~ 30°/S	
Vertical rotation speed	0.01° ~ 15°/S	
Preset	80	
Auto scan	1	
Auto tour	1	
Material	Aluminum	
Housing		
Color	Anti-paint white	

Material	Aluminum
Connector	High level aviation connector
Sun shield	Yes
Heater	Built-in temp sensor for automatically control (heating and Fan)
Protection level	IP66
System characteristics	
Dimensions	650mm×500mm×650mm (with suns shield)
Protection level	IP66
Weight	50kg
Working Temp	-40°C ~ 60°C
Humidity	≤90% (non-condensing)
System interface	
Video output	2 CHs
Com	RS485
Protocols	PELCO-D/P
Baud rate	2400/4800/9600 bps
Power supply	AC 24V±25%
Power consumption	<300W (add heater)

Information on Disposal for Users of Waste Electronic Equipment (private households)



This symbol on the products and /or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product. Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human

health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contract your dealer or supplier for further information.

36

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.