ThermalTronix

TT-1100PXB-DVACS
Technical Specifications

User Manual

Restriction

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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.

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

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1. Introduction

TT-1100PXB-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; day and night to monitor people, vehicles, ships and so on.

Thermal Camera

- Auto/Manual calibration
- Manual brightness and gain adjustment
- User configuration settings
- Black hot / white hot polarity reversal
- Crosshair display/movement/save
- Image Noise Reduction function, reduce Image background noise
- Image enhancing function : enhance the ability to detect small object

CCD Camera

- With the state-of-the-art digital signal processing technology, full digital image processing and special algorithm of 600-line high resolution implemented.
- High Sensitivity: It implements images of high sensitivity using the up-to–date Super-HAD CCD.
- High performance surveillance camera, 25X optical zoom and 16X digital zoom
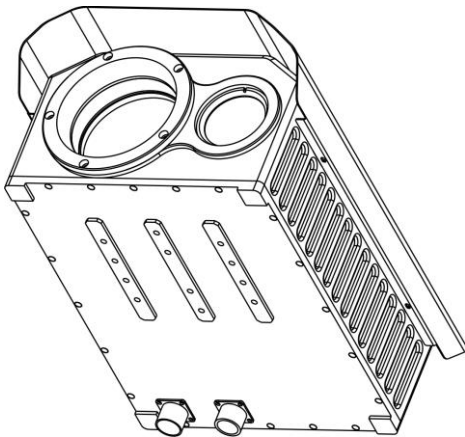
PTZ

- Preset：80 presets can be setup
- Support 0°~360° (pan) continuous rotation
- Top load of tilt is -75° ~ +40°
- Analog thermal video and CCD video output
- Standard R485 serial port, PELCO-D/PELCO-P protocol
- IP66, full weatherproof
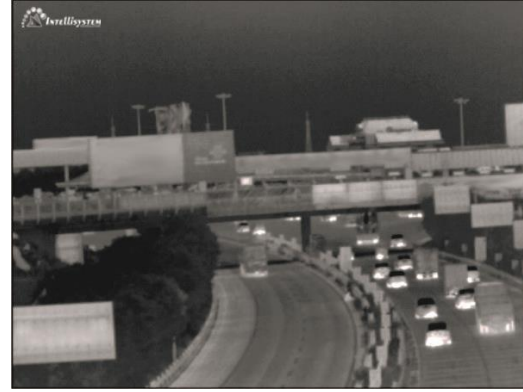
2. How to assembly

1. Carefully take out the housing and PTZ, refer to the image below

Housing
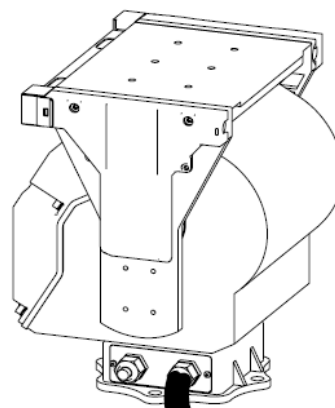
PTZ

2. Remove 4 inner hexagon screw (used to fix the housing) on the PTZ mounting platform

PTZ mounting platform

3. Install the housing on the PTZ mounting platform (If the installation is correct, The mounting bracket of the housing fit together with PTZ mounting platform very well).
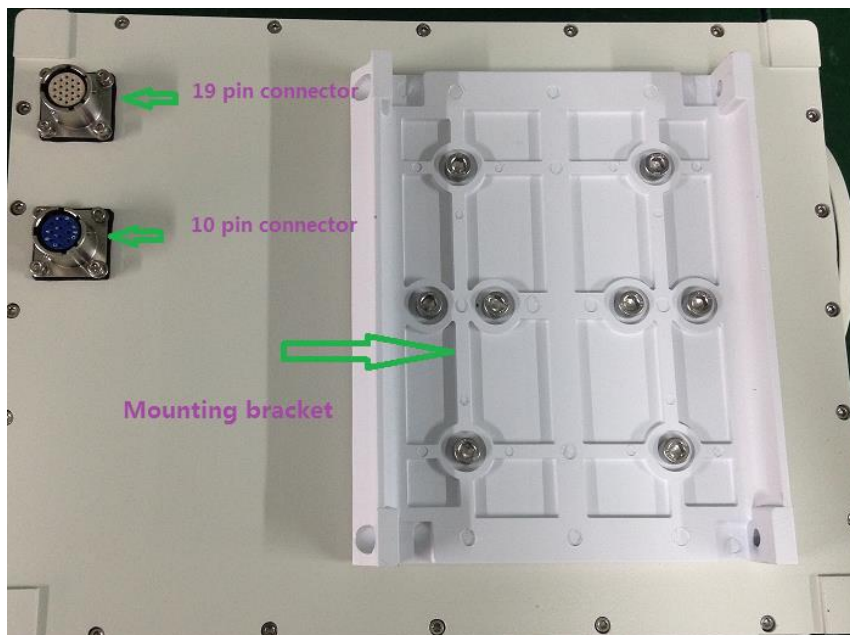
Back view of the housing

4. Screw 4 inner hexagon back, to fix the housing, refer to the image below

5. Plug the connector into the socket, 10 pin plug connect with 10 pin connector (socket), 19pin plug connect with 19 pin connector (socket). Refer to the image below.

Cable connection

Note: when connect the plug into the socket, point the red stripe of the plug directly to the red strip of socket, screw and tighten the plug ,refer to 3 images below
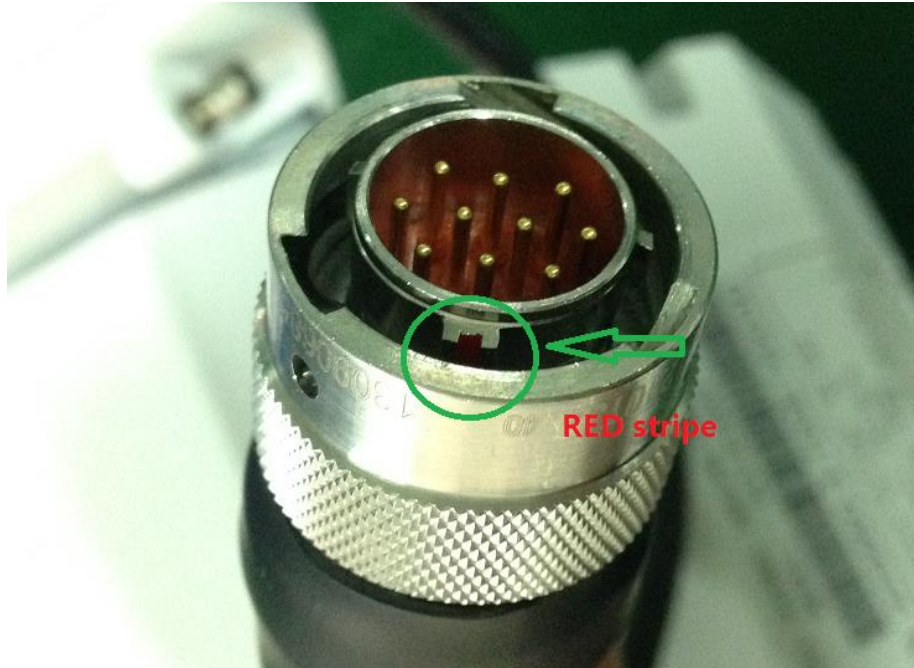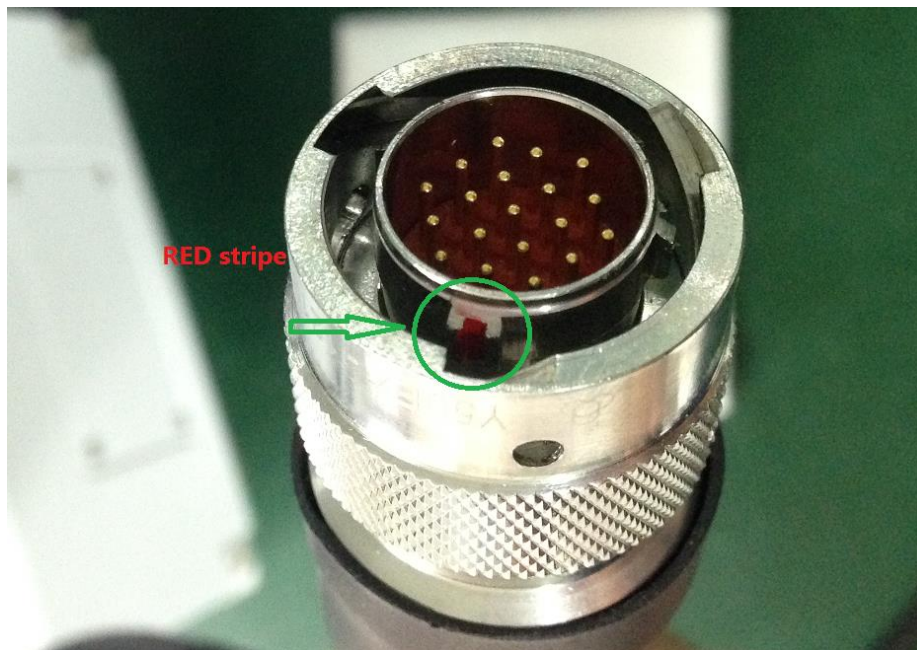
10 pin plug

19 pin plug
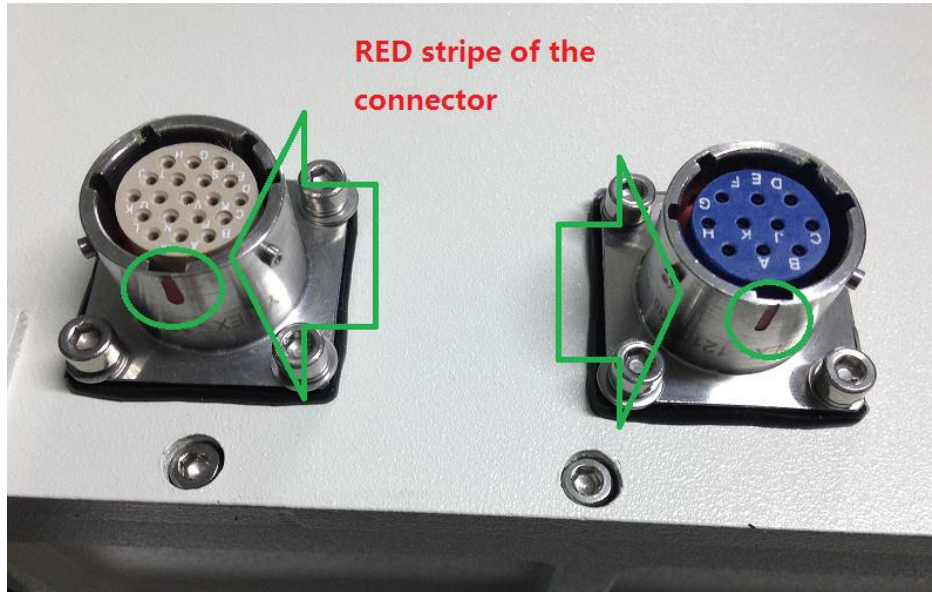
Back view of the housing: Socket (connector)

3. Electronic and Power interface

3.1 Device appearance
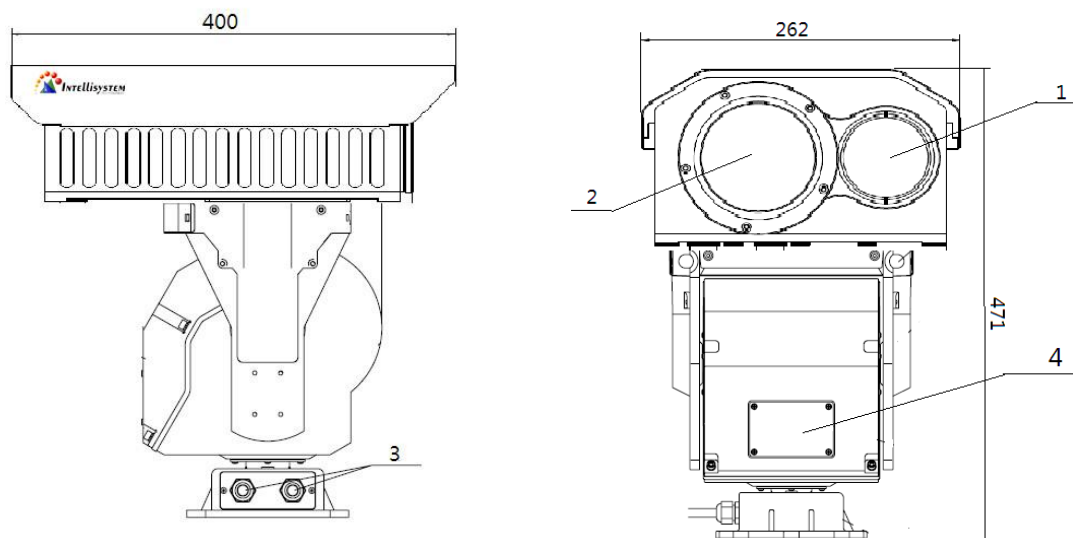
Fig.1

No.	Description	Remark
1	CCD window	Include CCD camera
2	Thermal window	Include thermal camera
3	Wire hole	AC24V+,AC24V-,RS485+,RS485-,CCD video output, Thermal video output(refer to the image below)
4	Rear cover	Include address and function of PTZ DIP switch

3.2 Wire definition

Two AC24V cables (YELLOW/YELLOW): Connect with AC24V power

RS485 cables (RED: 485+; Black: 485-): Connect with PTZ controller, DVR, other control device

IR CVBS cable: Thermal image video output, connect with monitor

CCD CVBS cable: Visible image video output, connect with monitor
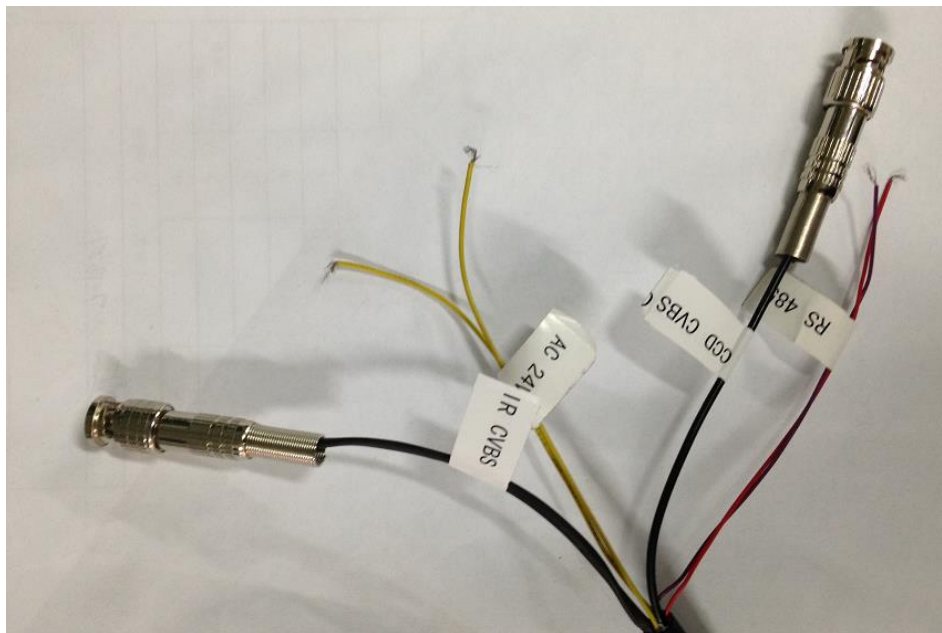
3.3 Power on the PTZ

Connect power cables to AC24V power, wait for about 60seconds, the PTZ will access into startup procedure, it will pan and tilt the camera itself. After the startup procedure, we can control the PTZ.

4. How to control it

Connect 485 cables with PTZ controller, do not mix up the 485+ cable and 485- cable, or you can't

control the PTZ normally.

4.1 Communication parameters

Thermal camera default address：**PELCO-D、 baud 9600、 address 2**

PT system default address：**PELCO-D、 baud 9600、 address 1**

Visual camera default address：**PELCO-D、 baud 9600、 address 1**

4.2 Thermal camera control key description

Before the operation. Set address 2 firstly.

When the menu isn't activated:

Calibration	IRIS+	IRIS-	Activate Menu
Electric Focus+	FOCUS+	FOCUS-	Electric Focus-
WFOV/NFOV Switch	ZOOM+	ZOOM-	Auto Focus
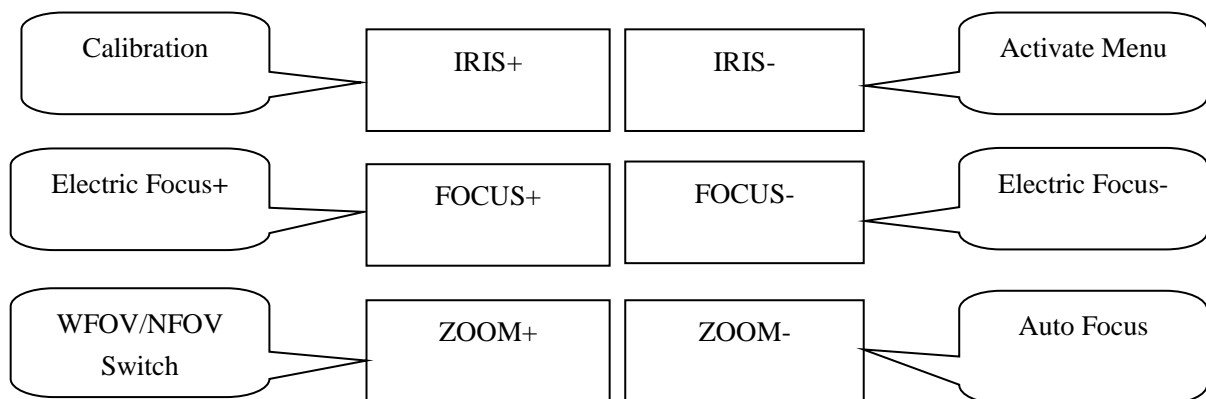
When the menu is activated:

IRIS-	move the cursor from up to down
IRIS+	Manual calibration
FOCUS-	when there is a menu, modify the option or reduce the value

FOCUS+	when there is a menu, modify the option or increase the value
ZOOM-	Auto focus
ZOOM+	WFOV/NFOV Switch

4.3 CCD camera keys description

Before the operation. Pls set address 1 firstly

Operational keys	Function
Up	PTZ up
Down	PTZ down
Left	PTZ left
Right	PTZ right
FOCUS-	Focus near
FOCUS+	Focus far
ZOOM-	Zoom out
ZOOM+	Zoom in

5 .Thermal imaging camera menu

5.1 Main menu

Trigger 〖**Iris-**〗to activate main menu, shown as Fig.2：

Fig. 2

When the menu pops-up, trigger the 〖**Iris-**〗to move the cursor, use〖**Focus-**〗and 〖**Focus+**〗 to modify the values or options. When you exit the menu, parameters will be saved automatically.

1、**Auto：X**   Display the current image auto mode. Three options:

        Auto 0：Manual gain, manual brightness. User can manually adjust gain and brightness according to the observed object.

        Auto 1：Manual gain, auto brightness. User can manually adjust gain (auto brightness) according to the observed object.

        Auto 2：Auto gain, auto brightness.

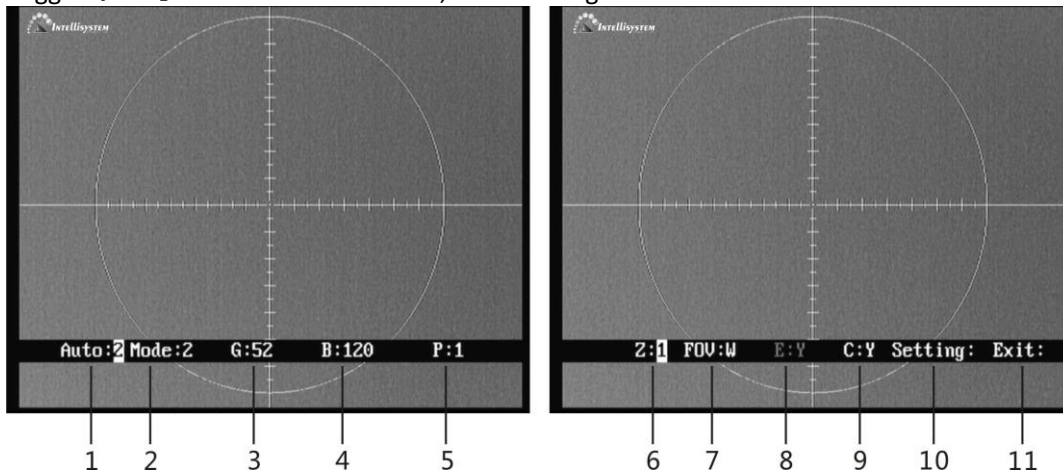2、**Mode：X**   Display the current image mode. Module has ten configuration setups under Auto2 mode. **Mode 0** and **Mode 1** are fixed factory default settings and **Mode 2-9** are user-defined settings. Details please refer to chapter 4.4.

        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 〖**Iris-**〗, 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 〖**Iris-**〗, 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 〖**Focus-**〗 and 〖**Focus+**〗 to go to internal menu.

11、**Exit：XXX**   use 〖**Focus-**〗 and 〖**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.

5.2 Setting menu

In the main menu, move the cursor to "setting", and use 〖**Focus-**〗or 〖**Focus+**〗 to go to setting menu.

You need to input password when go to setting menu, the password is 〖**Iris+**〗〖**Focus+**〗〖**Iris+**〗〖**Focus-**〗〖**Iris+**〗〖**Iris+**〗(This password is suitable for all the password dialog box in the thermal imaging camera). With the correct password, you will come to the system menu shown as Fig.3：
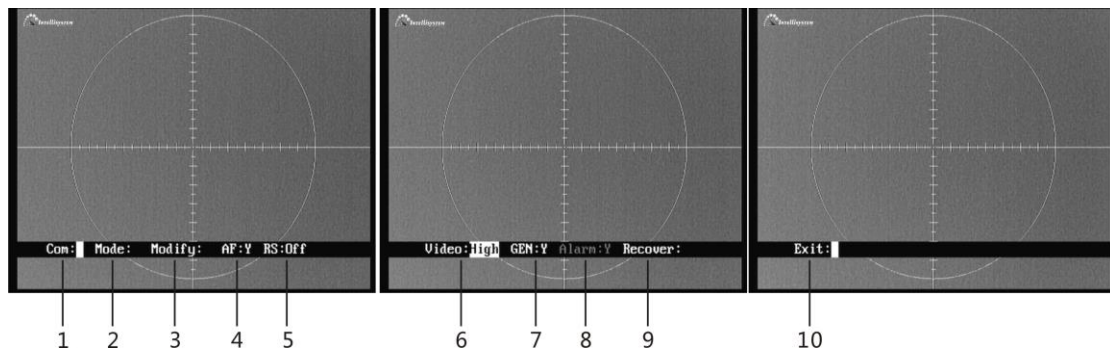
Fig. 3

Trigger 〖**Iris-**〗and move the cursor, use 〖**Focus-**〗and 〖**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.pls contact our technical support to change the address

2、 **Mode：XXX**   Use 〖**Focus-**〗and 〖**Focus+**〗to go to internal menu to setup mode parameters, please refer to chapter 3.3.

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, **Iris-(M) key** for restore,

and **Iris+ (C)** key for cancel.

10、 **Exit：XXX**   Use 〖**Focus-**〗or 〖**Focus+**〗to exit the menu.

5.3 Mode menu

Activate the "Mode menu", Fig.4.

Fig. 4

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 〖**Focus-**〗or 〖**Focus+**〗to save the mode.

6、 **Exit: XXX**   Use 〖**Focus-**〗or 〖**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.

6. Specifications

Items		*ThermalTronix* TT-1100PXB-DVACS
Thermal imaging camera	**Detector characteristics**	
	Detector type	Uncooled FPA microbolometer
	Pixels	384×288
	Pixel size	25μm
	Image manage	
	Focus length	30mm/100mm
	WFOV	16.7°×12.5°
	NFOV	5.5°×4.1°
	Spatial resolutions	0.75mrad/0.25mrad
	NETD	≤100mk@30℃
	Frame rate	50HZ
	Focus	Electronic focusing
	Spectral range	8-14μm
	Thermal image adjust	
	Brightness/Gain adjustment	Manual brightness/gain; Automatic brightness/manual gain; Automatic brightness/gain
	Automatic adjust brightness/gain mode	2 fixed modes, 8 user-defined modes
	Image polarity	Hot black/hot white
	Electronic zoom	2X
	Enhancement	Yes
	Calibration	Automatic timing correction
CCD camera	Resolution	Total pixels 795(H)x596(V), Effective pixels 752(H)x582(V)
	Imaging Device	1/4"Super HAD CCD
	Lens	3.66-91.36mm(F1.65-3.0), 25x optics, 16x digital
	Horizontal resolution	Color 600 line, black and white 700 lines
PTZ	Horizontal angle of rotation	0～360° Continuous rotation
	Vertical angle of rotation	-75°～+40°
	Horizontal rotation speed	0.01°～60°/S
	Vertical rotation speed	0.01°～30°/S
	Preset	80

Guards	Structure	Aluminum
	Fan	Yes
Power supply	External power	AC24V±10%
	Power consumption	≤250W @25°
Environment	Operating temperature	-20℃~55℃（can expand to -40℃~60℃）
	Storage temperature	-40℃~70℃
	Encapsulation	IP66
Physical characteristics	Weight	≤30Kg
	Dimensions （L×W×H）	400 mm×262mm×471mm
Interface	Power interface	Yes
	Video output	Analog IR video and analog CCD video output
	Serial ports	RS485, support PELCO-D/PELCO-P

NOTE: Specifications are subject to change without notice

7. Troubleshooting

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

Trouble	Possible cause	Solution
Thermal image and CCD image are in poor definition	Video output of thermal camera and CCD camera share a common-ground	Separately connect thermal image and CCD image to the different ground
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
	Address is not right, Wrong or poor connection of power lines	Check the address of thermal camera Check the connection of power lines
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.	Switch address 1
	PTZ error	Change PTZ

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 contact your dealer or supplier for further information.

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.