

LaserCatch 3000 Laser Night Vision Camera

User Operation Manual



Laseroptronix AB Sweden

www.laseroptronix.se

Thank you for using our company's product. Please read this operation manual carefully before using it, as it can provide you with correct technical indicators and the things that you should pay attention to!

Please contact us if you come across problems that are not mentioned in this instruction. We will supply you with satisfying technical support.

You can also visit our company's website www.laseroptronix.se to get the latest information on laser night vision products!

LaserCatch 3000 is a long range active laser camera for operation up to 3000 meter at zero light conditions and at longer ranges at day time.



Image of persons at night time at 1500 meter in distance and close to zero light conditions.

Warning : Remind user of potential danger!

1. Please read this instruction carefully before installing this device.
2. Please obey the warnings on the device and the instruction.
3. Please use the power supply and voltage appointed in the instruction.
4. When connect or cut the output/input wire, please turn off the power supply.
5. Please protect the power supply wire from damaging, or it may hurt people and the device.
6. Please install the lightning proof device in order to protect the device from damaging.
7. This device should be fixed on a stable flat in order to protect people and the device.
8. Make sure there are no obstructions around the device, or they may cause short circuit and damage the device.
9. Don't open the device by yourself, or else it may cause electric shock or machine damage. If there are problems, please contact us and remember that never try to mend it by yourself.
10. Don't look at the laser window in close distance when the device is under operation, or else it may hurt your eyes.
11. Laser cameras have a laser emitter that can be dangerous if
12. you stare directly into the light source aperture. This is dangerous and can damage the eye. Use protection glasses for near IR spectra when making service close to the laser when turned on.

Laser Class 3B light source.

Attention!

1. Don't hide the photosensitive resistance in the front of night vision camera, or else it may affect the normal operation of the device.
2. Please avoid strong lighting source around the device at night, or it may cause unnormal switch between black/white and color.
3. Don't use organic impregnant / cloth to wipe the shell, or it may affect the air proof of the device.
4. When the power supply is cut, please restart the device after 30 seconds.

Section One Introduction**I. Features**

LaserCatch 3000 night vision camera has adopted the infrared laser illuminating technology and has the features of good background contrast, clear image and uninfluenced by the outside lightings. It can realize continuously monitoring day and night, with the illuminating distance of 5000 meters at daytime and 3000 meters at night.

System use a 750 mm high ratio special zoom lens and a zoom function of laser as well that can track the camera lens automatically or on demand

Based on a long period of research on laser infrared night vision technology, this product has realized simultaneous vary focal length when lighting and imaging, laser beam shaping, light intensity homogenization, elimination of red glow, imaging correction and homogenization compensation.

This product has adopted many key technologies on the material and process and special sealing reinforcement. The shell adopts the high intensive aluminum and stainless steel, which can be widely used in many occasions such as night, harsh environment, long distance, large scope and hidden real-time monitoring.

All systems can have a web interface and IP address as an option.

• Simultaneous electric vari-focus when lighting and imaging

This system has adopted the long distance large scope laser infrared illuminating technology, which can make the lighting angle ranges from 0.3°-17° so that it can realize centralized observation of long distance small scope or short distance large scope monitoring. It uses the initiated lens developed by ourselves and has many infrared plating pellicle, can realize more than 95% penetrating rate and it has already won the patent.

• Lighting source shaping homogenization technology

Our company's laser illuminator has adopted the particular technology of lighting source shaping homogenization, and it really improves the lighting effect.

- **Laser supply power soft start technology**

In order to protect the laser illuminator at utmost, this system has adopted laser supply power soft start technology. When turn on the illuminator, the drive current slowly become large. This process only takes one second, which efficiently protects the illuminator and prolong the lifetime.

- **Illuminator temperature automatic adjust technology**

The night vision camera works in the outside and the environment is relatively poor. The temperature ranges in a large scope, but the illuminator needs to work between the temperature of 10°C-30°C. So this system has adopted the semiconductor automatic temperature-control technology. It can detect the temperature of laser and keep the temperature between 10°C-30°C.

- **The function of penetrating fog**

This system has adopted the special processing technology and has changed the traditional simple method of plating pellicle on the protection glass, which make the device reach a high function of penetrating fog.

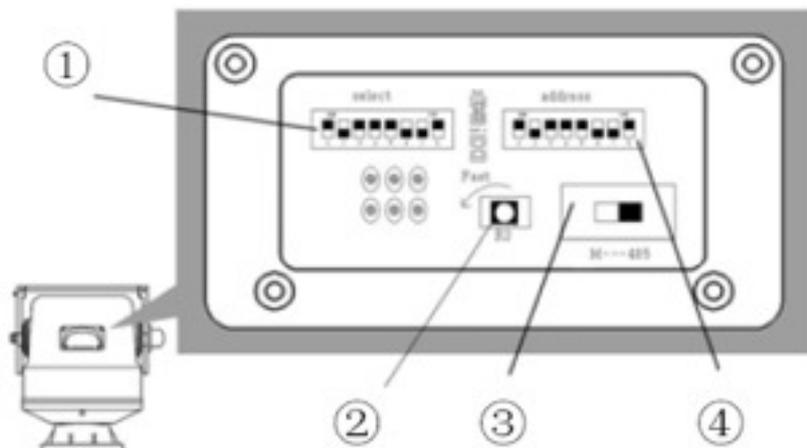
II. System Configuration and Main Technical Indicators

Night Vision Camera	Lens	60X long focal length lens, focal length 12.5~750mm, can reach 1500mm;automatic iris, F : 3.8-700, import from Japan, high infrared penetrating rate.Advanced coatings for visible and near IR spectra.
	Camera	1/2" infrared sensitive CCD, automatic color to black, color 540 line, black and white 600 line, the minimum illumination 0.0009LUX, Can penetrate fog at day and night time better than what normal cameras can do
	Illuminator	15W fiber laser illuminator, 100mm focal length lens, wave length 808nm, active array heat out, lifetime more than 10000 hours
	Power Supply	AC220V +-10% 50-60Hz
	Illuminating Switch	Photo sensitive switch automatic control
	Protection Cover	Integrated protection cover, high intensive aluminum, special sealed reinforcement, IP66 protection
	Interface	AC220V ; AC24V video、 zooming control、 lens presetting-bits control, penetrating fog control
	Video Output	improved CCD digital video output.PAL is standard and NTSC on demand.
Lighting /or operating distance	5000 meters at daytime, 3000 meters at night	

	Lighting Angle	0.3°~17°, simultaneous automatic vari-focus
	Power Consumption	≤ 60W
	Operation Temperature	-25°C~+60°C
	Storage Temperature	-40°C~+85°C
	Anti-vibration	15m/s ² 5~200Hz
	Anti-impact	150m/s ² 11ms
	Saltfog Proof	PH value 6.5-7.2, 48 hours spraying
	Weight	40kg(pan and tilt unit included)
	Size	700mm×350mm×200mm (include sun protection cover)
	Work without Failure	≥10000h MTBF
Pan-tilt	Input power supply	AC24V±10%, 50Hz for camera unit alone
	Power	≤85W (with the built-in heater's power about 35W)
	Revolving angle of pan and tilt unit	Pan : 0° ~ 360° continuous revolving Tilt : +75°~ -75°
	Revolving speed	Pan : 3°/S ; Tilt : 1.5°/S
	Lens Control	Presetting interface equipped in the pan-tilt
	Presetting bits	80 (under AD/AB protocol, 70)
	Weight	17Kg
	Burden Weight	35kg
	Dimension	length*width*height : 290 mm×196 mm×358mm

III. Protocol and Address Setting

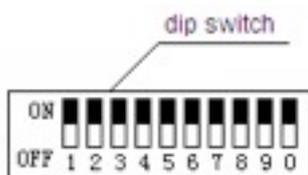
The night vision camera's protocol and address setting needs the help of select switch. Use the cross screwdriver to loosen the four cross bolt on the select switch cover. Take down the select cover; you can see the select switch on the circuitry board, as follows:



Picture:

- ① Function option select switch (Select)
- ② Power supply of lens drive adjust tapped resistor
- ③ RS485 switch
- ④ address option select switch

The function option DIP switch(Select) and the address option select switch(Address)is 8 bits dip switch, the order from left to right is 1、 2、 3、 4、 5、 6、 7、 8 bit. When the switch is up, it is“ON”; when the switch is down, it is “OFF”. As follows:



1. Set Communication Protocol

The function option dip switch (Select)’s 1、 2、 3、 4 bit can be used to set the night vision’s communication protocol. The detailed dip switch definition as follows:

Protocol	The first bit	The second bit	The third bit	The fourth bit
Industry protocolV0.0	OFF	OFF	OFF	OFF
YAAN	ON	OFF	OFF	OFF
Pelco-P	OFF	ON	OFF	OFF
Pelco-D	ON	ON	OFF	OFF
AD/AB	OFF	OFF	ON	OFF
Samsung	OFF	ON	ON	OFF
Inter	ON	ON	ON	OFF
Industry protocolV1.0	Address9	Address10	Address11	ON

PS: When you choose industry protocol V1.0, the dip switch method is “the switch fourth bit is “ON”, the first、 second and third bit are as

address option bit, and is the address coding's ninth, tenth and eleventh bit, at this time you can set 2048 pan-tilt address at most.

2. Set up the night vision communication baud rate

The function option dip switch (Select)'s fifth, sixth bit can be used to set up the night vision's communication baud rate, the detailed dip switch are as follows:

Baud Rate	The fifth bit	The sixth bit
2400	OFF	OFF
4800	ON	OFF
9600	OFF	ON
19200	ON	ON

3. Set up the night vision's terminal resistor

The function option dip switch (Select)'s eight bit can be used to connect RS485's 120 ohm terminal resistor. When this night vision camera is on the terminal of the RS485 communication line, the eighth bit should be in the position of "ON".

PS: At present, the seventh bit has no definition; please turn it on "OFF".

4. Set up the night vision's address (ID)

The address option dip switch (Address) can be used to set the night vision's communication address (ID). It adopts the eight bit binary system and the setting scope is from 1 to 255. The detailed regulations are as follows and the detailed definition please refer to the appendix.

Address	The first bit	The second bit	The third bit	The fourth bit	The fifth bit	The sixth bit	The seventh bit	The eighth bit
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

5. Set RS485 communication protocol select switch

When you choose the Manchester code, please put the RS485 communication protocol select switch (two-throwing switch) on the side of “M” of the circuitry board, facing the left of the switch.

When you choose the industry protocol V0.0、YAAN、Pelco-P、Pelco-D、industry protocol V1.0, please put the RS485 communication protocol select switch (two-throwing switch) on the side of “485” of the circuitry board, facing the right of the switch.

Pan tilt function set
1. pre-setting bits function
2. scan function
3. cruise function
4. keep looking function

IV. How to use the night vision camera

The pan-tilt and lens are controlled by the pan-tilt's decoder.

You can directly use the keyboard or controlling software to control the pan-tilt's revolving, the presetting positions of the pan-tilt and the lens and the lens focus.

The lens is automatic iris. The controlling iris key-press of the keyboard and software can be used to control the “ON” or “OFF” of the two-times extender. The assistant switch 1 of the pan-tilt's decoder can be used to control the function of penetrating fog at daytime. When the switch is close, the function of penetrating fog is on; while the switch is cut, the function is off. At night, the function of penetrating the fog is of no effect.

The other function need to be set or controlled after you enter the menu.

System information enquire
1. pan-tilt address
2. communication baud rate
3. communication protocol
4. date
5. time
6. edition information

Main Menu

1. pan tilt parameter set
2. pan tilt function set
3. screen information set
4. system information set
5. return to factory default
6. pan tilt assist function set

Pan tilt parameter set

1. pan tilt address
2. Baud Rate
3. communication protocol
4. pan tilt title
5. date set
6. time set
7. language set

Pan-tilt parameter set

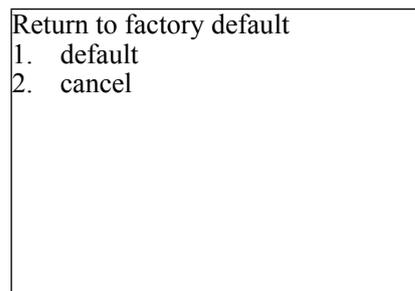
1. pan-tilt address→001
2. baud rate 9600
3. communication protocol v0.0
4. pan-tilt title XXXX
5. date set 2006-12-12
6. time set 01:35
7. language English

Pan-tilt function set

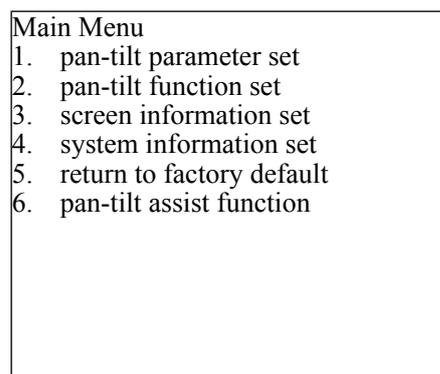
1. switch 1
2. switch 2
3. set pan origin
4. set tilt origin

Screen information set

1. pan tilt title
2. pre-setting bits
3. scanning route
4. orientation
5. date
6. time



1. Main menu



In the main menu, operating the rocker of the keyboard can change the position of the cursor's direction. Turn the rocker up or down can choose the 1-6 item of the main menu. Turn the rocker to right can enter the submenu you choose; turn the rocker to left will leave the main menu.

Attention: in order to make description concise, please allow us to definite the "shortened form".

"Turn the rocker up or down" take "turn up or down" for short.

"Turn the rocker to left" take "turn left" for short.

"Turn the rocker to right" take "turn right" for short.

2. pan-tilt parameter setting

In the main menu, turn up or down can choose the item of set the pan-tilt parameter, turn right can enter the submenu of setting the pan-tilt parameter.

2.1 night vision camera address setting

In the submenu of setting the pan-tilt's parameter, turn up or down to choose the address item, turn right will enter the follow picture:

```
Pan tilt parameter set
1. pan-tilt address→001
2. baud rate 9600
3.communication protocol v0.0
4. pan-tilt title XXXX
1. date set 2006-12-12
2. time set 01:35
7. language English
```

The above number is the current setting number of the pan-tilt. Put the cursor in front of parameter, turn it up for one time, the address will add one; turn down for one time, the address will minus one. Turn right for one time, the address will add ten, and so the address number will be changed. Turn left will leave the item of setting the pan-tilt address and save the settled address of the pan-tilt.

Attention: when using the menu to set the above soft-address, the dip switch settled address loses of effect. When it is not compliance with the dip switch settled address, you should re operate the dip switch to make the soft-address lose of effect.

2.2 set pan-tilt communication baud rate

In the submenu of setting the parameter, turn up or down to choose the baud rate item, turn right to enter the following parts:

```
Pan tilt parameter set
1. pan-tilt address 001
2. baud rate → 9600
3.communication protocol v0.0
4. pan-tilt title XXXX
5.date set 2006-12-12
6.time set 01:35
7. language English
```

Turn up, the baud rate number will add; turn down, the baud rate number will decrease. Communication baud rate includes: 2400, 4800, 9600 and 19200. Turn left to leave the item of baud rate and save the baud rate number you settled.

2.3 set pan-tilt communication protocol

In the submenu of setting pan-tilt parameter, turn up or down to choose the communication protocol item, turn right to enter the following parts:

Pan tilt parameter set	
1. pan-tilt address	001
2. baud rate	9600
3. communication protocol	→ v0.0
4. pan-tilt title	XXXX
5. date set	2006-12-12
6. time set	01:35
7. language	English

Turn up or down to choose the communication protocol that needs setting. Communication protocol includes: industry protocol V0.0、YAAN、Pelco P、Pelco D、AD/AB、Samsung, Inter and industry protocol V1.0. Turn left to leave the item and save the protocol's name you settled.

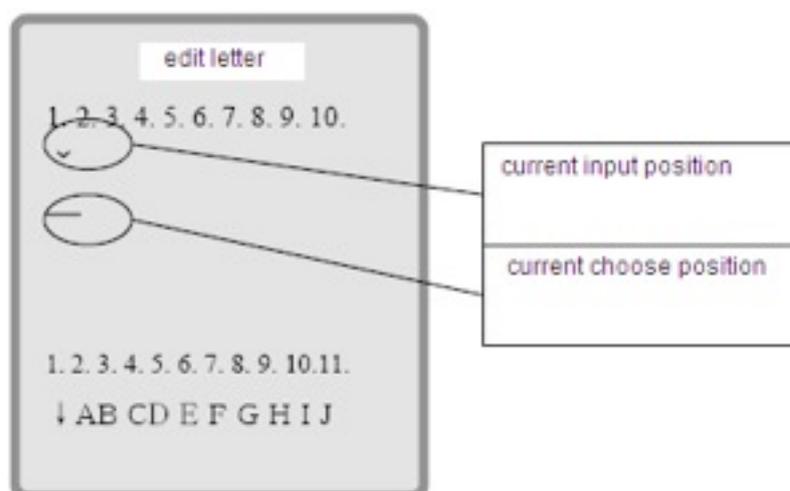
2.4 set pan-tilt title

In the submenu of setting pan-tilt parameter, turn up or down to choose the pan-tilt title item, turn right to enter the following parts:

Edit letter	
1. capital letter:	ABCD..
2. small letter:	a b c d...
3. number:	1 2 3 4...
4. signal:	# ! ?...

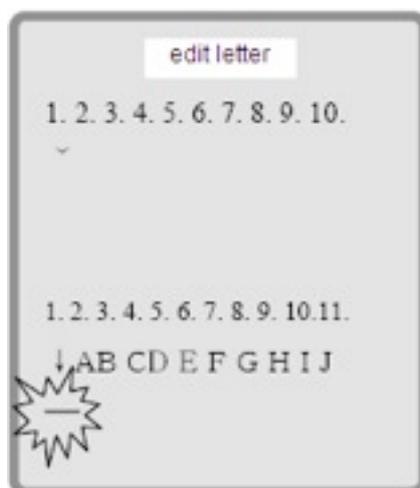
(1) Input the capital letter

In the submenu of character editing, turn up or down to choose the capital letter item, turn right to enter the following parts:

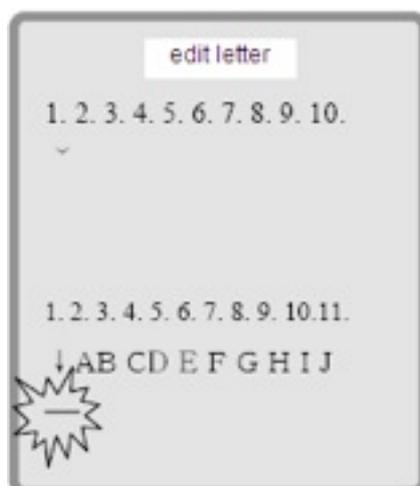


“~”indicating the position is where to input the letter, “_”indicating the position is the current position you choose.

Turn down the rocker to enter the state of choosing letter:



In the position of “↓”indicating, turn up or down to choose the page(show another group of English letter; turn right or left to choose the letter you want to input.



When you choose the letter, turn up, the letter will appear at the position as the “” indicates. As follows:



You can choose letter in the same method. After all the letters have been

input, you can roll the rocker or operate thekey-press to quit, and the letters will be saved. As follows:



When you need to cancel letter, in the position of cursor, turn left for one time, one letter will be deleted.

(2) Input small letter

The same method as capital letter

(3) Input number

The same method as capital letter

(4) Input sign

The same method as capital letter

Attention: you can input 10 letters at most of the pan-tilt title.

2.5 set pan-tilt date

In the menu of setting pan-tilt parameter, turn up or down to choose the date setting edit, turn right to enter the following part:



The current situation is the year that the cursor's chooses, turn up, the year will be added, turn down, the year will be decreased.

Pan-tilt parameter set	
1.	pan-tilt address 001
2.	baud rate 9600
3.	communication protocol v0.0
4.	pan-tilt title XXXX
5.	date set 2006-12-12
6.	time set 01:35
7.	language → English



After the year is settled, turn right to choose month and date (the same method as setting the year). You needn't to input the week, the system will automatically do that. By revolving the rocker or operating the keyboard to leave the setting of the date and save the date you settled.

2.6 set pan-tilt time

In the menu of setting pan-tilt parameter, turn up or down to choose the time setting item, turn right to enter the following part:



Moving cursor to choose the hour, turn up, the hour will add one; turn down, the hour will decrease one. The machine uses the 24-hour system. Turn right to choose minute, as follows:



Turn up, the minute will add one, turn down, the minute will decrease one. After the time is settled, by revolving the rocker or operating the zooming key-press to leave the item and save the time you settled.

2.7 set pan-tilt language

Presetting bits
 →1. move pan-tilt start to control
 2 .set presetting bits: 001
 3. call back presetting bits: 001
 4. edit title: presetting bit 1

Pan tilt function set
 →1. presetting bits
 1. cruise
 2. scan
 3. keep watching

In the menu of setting pan-tilt parameter, turn up or down to choose the language setting item, turn right to enter the following part:

Turn up or down to choose the Chinese or English showing mode, turn left to leave the item and save it.

After the menu goes back to the upper menu, the language setting will take effect.

3 pan-tilt function setting

Presetting bits
 1. move pan-tilt: start to control
 →2. set presetting bits: 001
 3. call back presetting bits: 001
 4.edit title: presetting bit 1

Main Menu
 1. pan tilt parameter set
 →2. pan tilt function set
 3.screen information set
 4.system information set
 5.return to leave-factory default
 6.pan tilt assist function set

In the main menu, turn up or down to choose the pan-tilt function setting item, turn right to enter the following part:

Presetting bits
 1. move pan-tilt: start to control
 2. set presetting bits: 001
 →3.call back presetting bits: 001
 4.edit title: presetting bit 1

3.1 presetting bits function

In the main menu, turn up or down to choose the presetting bits function setting item, turn right to enter the following part:

(1) Turn up or down to choose the team number item, turn right to enter.

Turn up or down to choose the team number (has no connection with communication protocols), can set 32 teams, turn left to leave. The following operation will be under the team number you choose.

(2) **set left border**

Turn up or down to choose left border item, turn right to make sure the current position of pan-tilt is in the scan left border

(3) **set right border**

Turn up or down to choose right border item, turn right to make sure the current position of pan-tilt is in the scan right border. Turn left to leave and save the right border you settled.

(4) **entitle scan route**

Choose the item of editing name to entitle the scan route. The operation is the same as setting the pan-tilt title.

Pan tilt function set
1. presetting bits
2. scan
→3. cruise
4. keep watching

(5) **scan route select the left, right border**

Choose the running pan-tilt item to select the left and right border for the..... route. The operation is the same as setting the running pan-tilt.

(6) **execute automatic scan**

Choose the scan item, turn right to start the selected route to execute the automatic scan

(7) **stop automatic scan**

Choose stop automatic scan item, turn right to stop it. Turn left to leave. Or you can operate the rocker on the keyboard to stop the automatic scan

Cruise function
→1. team number 001
2.add cruising bit 001
3.delete cruising bit 001
4. delete all
5. stopping time 003
6. start cruising
7. stop cruising

3.3 automatic cruising functions

In the menu of setting pan-tilt function, turn up or down to choose the cruising item, turn right to enter the following part:

(1) **team number setting**

Turn up or down to choose the team number item; turn right to enter; turn up or down to choose the team number (has no connection with communication protocols). You can set 32 teams. Turn left to leave the menu. The following operation will be under the team number you choose.

(2) **add cruising point**

Turn up or down to choose the adding cruising point item, turn right to enter. Turn up or down to choose the cruising point number which will be added (this number is the pre-setting bits number, can be 1-255). Turn left to leave and save the cruising point you added.

(3) delete cruising point

Turn up or down to choose the deleting cruising point item, turn right to enter. Turn up or down to choose the cruising point number which will be deleted (this number is the pre-setting bits number, can be 1-255). Turn left to leave and save the cruising point you deleted.

(4) delete all

Turn up or down to choose the entire item, turn right to delete all of them. Turn left to leave and save the setting.

(5) staying hour

Turn up or down to choose the staying hour item, turn right to enter. Turn up or down to choose the staying hour, can be 1-255 seconds. Turn left to leave and save the staying hour you settled.

(6) start cruising

Turn up or down to choose start cruising item, turn right to start the selected cruising route to execute the automatic cruising. Turn left to leave.

(7) stop cruising

Turn up or down to choose stop cruising item, turn right to stop the selected cruising route to stop the automatic cruising. Turn left to leave. You can also operate the rocker on the keyboard to stop the automatic cruising.

Keep watching function
→1. choose keep watching function
2. keep watching time
3. keep watching function state: forbidden

3.4 keep watching function

In the menu of setting pan-tilt function, turn up or down to choose the keep watching item, turn right to enter the following part:

(1) choose keep watching function

In the menu of keep watching function, turn up or down to choose the keep watching function, turn right to enter the following parts:

Keep watching function
1. call back presetting bits: 001
→2. cruise 001
3. scan 001
Current function is: cruising 001

Turn up or down to choose the “call back pre-setting bits”、“cruising”、“scan”, turn right to enter, then turn up or down to make sure the pre-setting bits number or the automatic cruising team number or the automatic scanning team number, turn left to leave and save the set.

Attention: You can only choose one function among “call back pre-setting bits”、“cruising”、“scan” in the keep watching function. After the settling is done, the screen will show the current keep watching function and data.

For example: “the current keep watching function is cruising 001”. It means that the current keep watching function is under the team 001.

(2) keep watching waiting hour

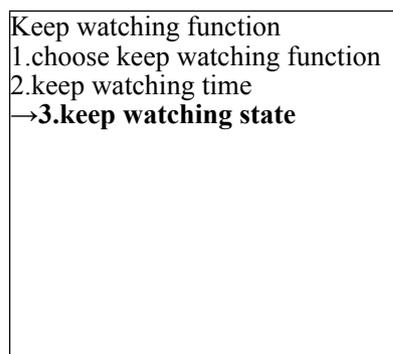
In the menu of keep watching function, turn up or down to choose the keeping

watching waiting hour item, turn right to enter the following part:

Turn left or right to choose “hh”、 “mm”、 “ss”, turn up or down to choose and set the time. Revolving the rocker to leave and save the waiting hour you set.

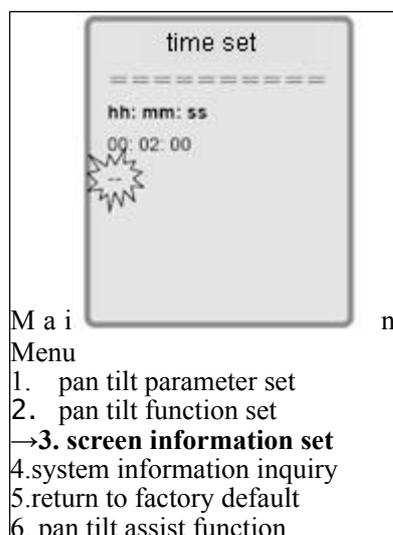
(3) keep watching function state

In the menu of keep watching function, turn up or down to choose the keep watching function state item, turn right to enter the following part:

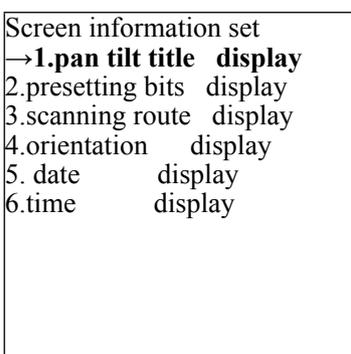


Turn up or down to choose “open” or “close” the keeping watching function. Turn left to leave and save the setting.

4 set the showing information



In the main menu, turn up or down to choose the showing information item, turn right to enter, as follows:



4.1 pan-tilt title

Turn up or down to choose the item of pan-tilt title, turn right to enter; then turn up or down to choose “on” or “off”, turn left to leave and save the setting.

Screen information set
 →**1.pan tilt title display**
 2.presetting bits display
 3.scanning route display
 4.orientation display
 5. date display
 6.time display

- 4.2** Pre-setting bits: same as the operation of showing pan-tilt title
4.3 Scan route: same as the operation of showing pan-tilt title
4.4 Orientation: same as the operation of showing pan-tilt title
4.5 Date: same as the operation of showing pan-tilt title
4.6 Time: same as the operation of showing pan-tilt title

5 system information inquiry

Screen information set
1.pan tilt title → close
 2.presetting bits display
 3.scanning route display
 4.orientation display
 5. date display
 6.time display

In the main menu, turn up or down to choose the item of system information inquiry, turn right to enter the following part:

This menu can only be used for inquiry, cannot be changed. Turn left to return to the main menu.

6 resume to factory default

In the main menu, turn up or down to choose this item, turn right to enter the following part:

Main Menu
 1. pan tilt parameter set
 2. pan tilt function set
 3. screen information set
 →**4.system information inquiry**
 5.return to factory default
 6. pan tilt assist function

System information inquiry
 →**1.pan tilt title display**
 2.baud rate 9600
 3.communication protocol: YAAN
 4.pan tilt title YAAN
 5.date 2006-12-12
 6.time 01:35
 7.edition information : YP3080-V0.0

Turn up or down to choose this item, turn right to resume to the leave-factory default. Turn left to return to the main menu. Here, the set of pre-setting bits, scan, cruising, keeping watching will not be saved.

7 pan-tilt assistant function

System information inquiry
1.pan tilt title display
 2.baud rate 9600
 3.communication protocol: YAAN
 4.pan tilt title YAAN
 5.date 2006-12-12
 6.time 01:35
 7.editioninformation :YP3080-V0.0

Main Menu
 1. pan tilt parameter set
 2. pan tilt function set
 3. screen information set
 4.system information inquiry
 →**5.return to factory default**
 6. pan tilt assist function

Return to factory default
 →**1. default**
 2. cancel

Main Menu
 1. pan tilt parameter set
 2. pan tilt function set
 3. screen information set
 4.system information inquiry
 5.return to factory default
 →**6. pan tilt assist function**

In the main menu, turn up or down to choose the item of pan-tilt assistant function, turn right to enter the following part:

7.1 assistant switch 1

Pan tilt assist function
 →**1. assist switch 1: close**
 2. assist switch 2: close
 3. set pan origin
 4. set tilt origin

Turn up or down to choose the assistant switch 1 item, turn right to enter the following part:

Return to factory default
 →**1. default**
 2. cancel

Turn up or down to choose “on” or “off”, turn left to leave and the set of assistant switch 1 will be saved.

Pan tilt assist function
 →1. assist switch 1: close
 2. assist switch 2: close
 3. set pan origin
 4. set tilt origin

7.2 Assistant switch 2:

the same operation as opening assistant switch 1.

7.3 Set the pan origin

Turn up or down to choose the item of setting the pan origin; turn right to make the current position of pan-tilt on level 0°.

7.4 Set the tilt origin: same operation as setting the pan origin.

8. Special functions of pan-tilt

When using Pelco D and Pelco P communication protocols, pan-tilt has the following special functions:

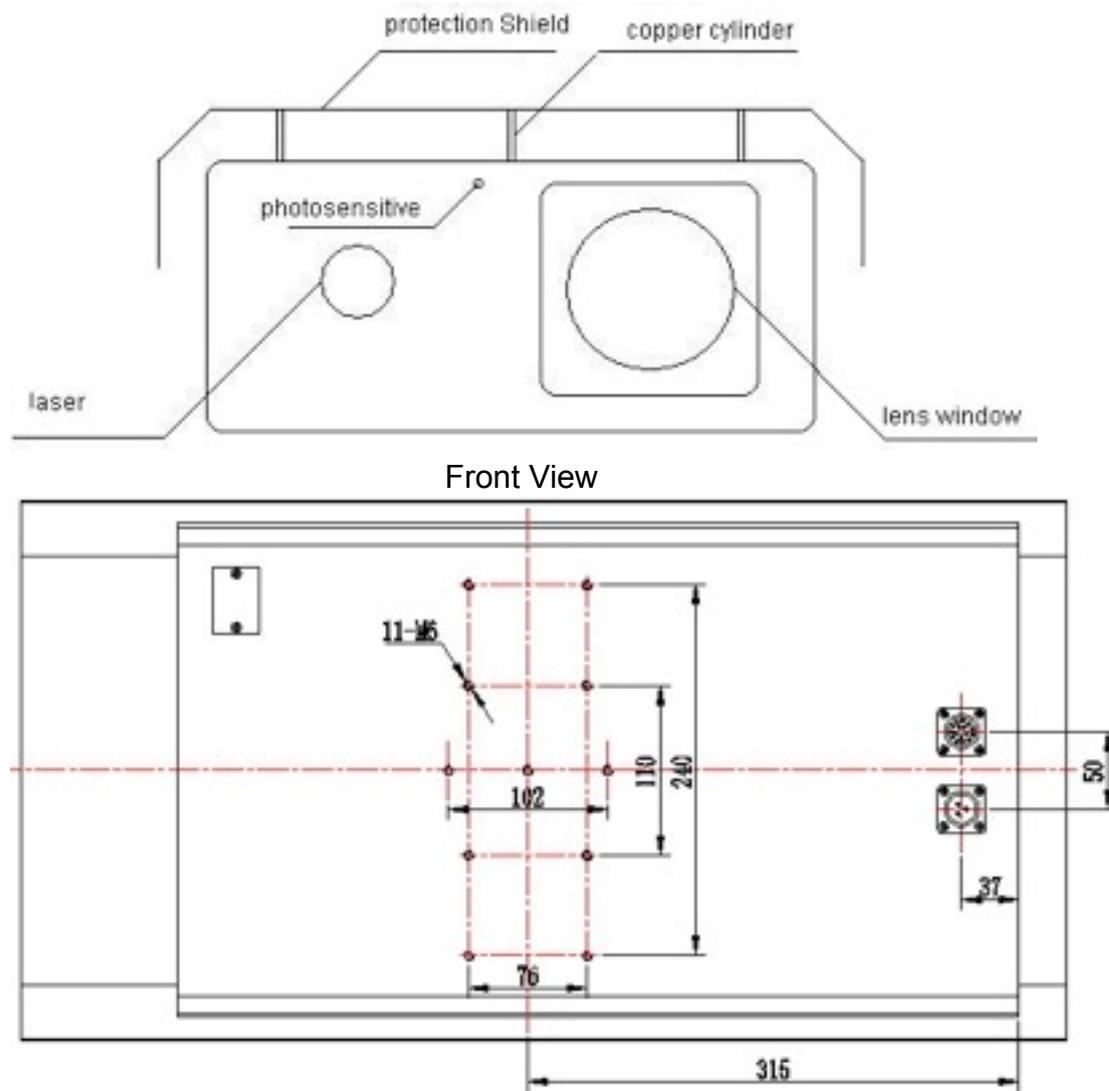
- (1) **set scan left border:** Operate “set the No.92 pre-setting bit” order
- (2) **set scan right border:** “Set the No.93 pre-setting bit” order
- (3) **start scan:** Operate “call back No.99 pre-setting bit” order
- (4) **start cruising:** Operate “call back No.98 pre-setting bit” order

Attention: Automatic cruising will move to-and-fro among all the pre-setting bits you set. It will stay 4 seconds in every pre-setting bit, this is unchangeable.

Pan tilt assist function
1. assist switch 1: →close
 2. assist switch 2: close
 3. set pan origin
 4. set tilt origin

Section Two Installation Struction

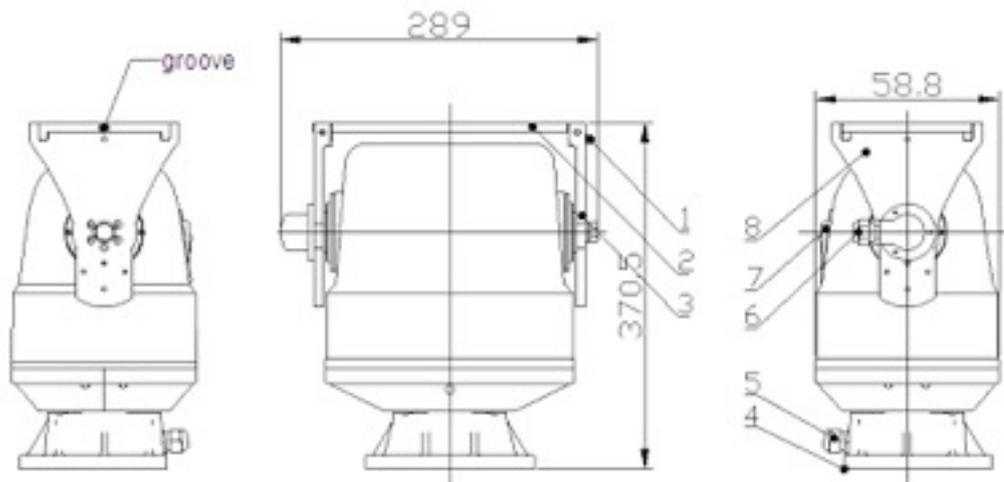
1. Structure:



Unit: mm

Size of holes on the bottom

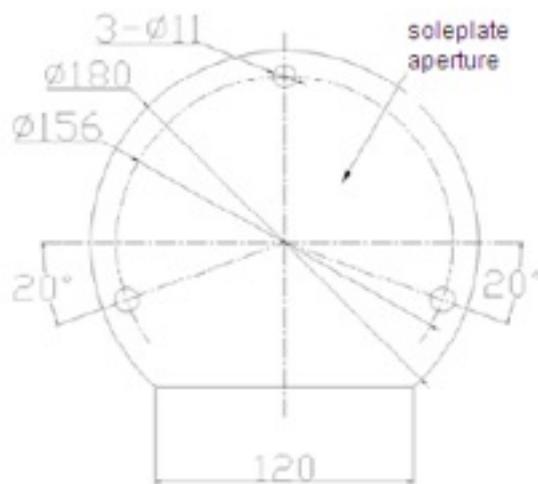
Please use M6*12 Inner Six-angle Bolt to fix the camera on the board, then fix it on the pan-tilt platform. No use bolt too long, in case the inner bottom of camera; also too short to fix stably.



Size of pan-tilt shape

Chart Note :

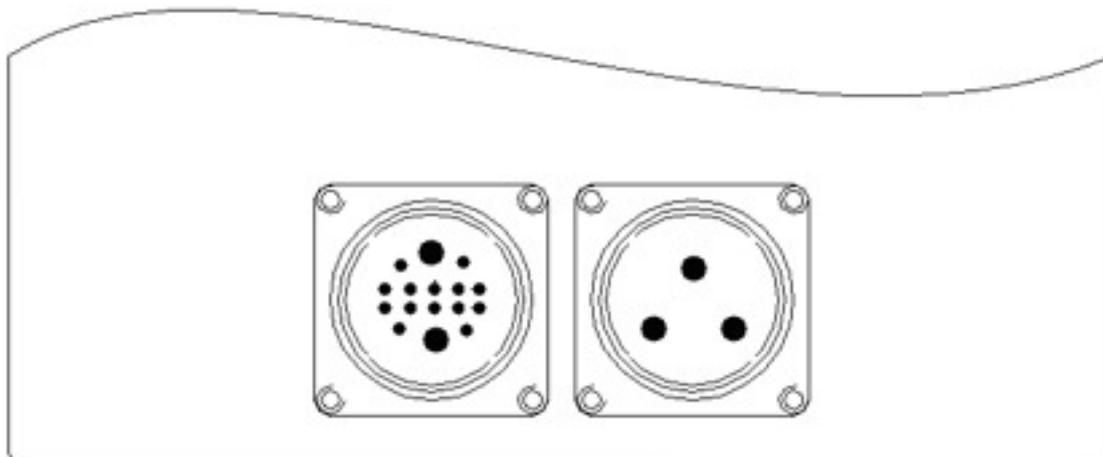
- 1、 M5 Inner Six-angle Bolt (front and back---4, left and right---2)
- 2、 Salver
- 3、 Right bracket
- 4、 Bottom
- 5、 Cable hole out of pan-tilt
- 6、 Cable hole to cover
- 7、 Switch top for dial
- 8、 Left bracket



Size of pan-tilt bottom

2. Interface

Interface uses three-hole and sixteen-hole waterproof plug, please refer to belows:



Interface on the bottom

Three-hole plug Definition:

NO	Definition
1	GND
2	AC220V N
3	AC220V L

Sixteen-hole plug definition:

No	Definition	Marks
1	AC24V	Power supply for camera
2		
3		
4	COM	Video(+)
5	ZOOM	Zoom
6	FOCUS	Focus
7	IRIS	Zoom Iris
8	VIDEO-	Video(-)
9	DC5V+	
10	DC5V-	
11	Zoom distinction	
12	focus	
13	VIDEO+	
14	Assistant switch	Fog penetration
15	Assistant switch	Fog penetration
16	AC24V	Power supply for camera

3 Pan-tilt base cable interface

The base cable includes AC220V for camera, AC24V for pan-tilt, RS485 control cable and video cable, etc.

Cable color	Red	Black	Yellow green	Orange	Yellow	Screen cable core	Screen cable coat
Definition	AC24V	AC24V	GND	RS485A	RS485B	Video+	Video-

Additional two thick yellow green cable is to be power supply of camera to AC220V.

4 Installation Step:

- (1). Please check and count accessories and read carefully the Operation Manual before installation, contact us upon any problem.
- (2). Fix the housing cover on the camera coping.
- (3). Fix the camera on the bracket, which is fixed on pan-tilt, and pan-tilt be fixed on the platform.
- (4). Connect two plugs, and video signal should be connected with monitor or PC, RS485 control cable be connected with keyboard or PC.
- (5). When confirm no mistakes, please switch on power supply and then you can do video display, zooming and focus control, illuminator focus control, etc.

5. Usual Trouble Analysis

Problems	Cause	Solution
No image after switch on.	Pan-tilt power not enough or broken	Replace a new power supply
	Mistakes on supply connection	Re-connect it
	Project circuitry problems	Inspect and repel problems
Controller can't work after self-inspection	RS485 control cable mistakes	Inspect connection
	Pan-tilt address code setting mistakes	Reset address code
	Pan-tilt protocol or baud rate mistakes	Reset it
Self-inspection ok, but no image	Power mistakes or turn off	Re-connect power supply
	Video circuit mistakes	Re-connect it
	Camera broken	Replace a new one
Image missing when pan-tilt revolving	Power of pan-tilt too low	Replace a new power supply
	Video cable connection mistakes	Inspect video connection
	Photosensitive resistance broken	Replace a new one

Laser illuminator can't work	Switch circuit board broken	Replace it
	Illuminator broken	Replace it

Section 3 Instructions of the guarantee of quality and after-sales service

Quality guarantee and after-sales service

We do business based on customers' satisfactions and quality is the most important thing for us. Our company has many kinds of military industry technologies and unique key technologies. Our products have advanced properties and the quality is reliable.

Because we have advanced technology, much experience and the customer-centered service idea, we can manufacture products according to your needs and give you a system that is practical and of good-quality.

All our products have the attachment of detailed installation and operation instructions. Therefore, it is very convenient. And with the permission of the situation, we can send technicians to install for you.

If you have any problem of the quality, technology and operation, welcome to contact us. And we will give you the satisfactory reply within 2 hours after we received your call. Then we will solve the problem for you as soon as possible.

Welcome all the customers to give us different kinds of suggestions. Your support is the driving force for our development forever, thank you!

Contact ways:

www.laseroptronix.se

info@laseroptronix.se

Appendix: the common operation

1. Set the keyboard address: the address's No. + CAM
2. lens zoom: WIDE/TELE
3. lens focus: NEAR/FAR
4. two-time extender: OPEN/OFF
5. function of penetrating fog: OPEN: 1+AUX+ON / CLOSE: 1+AUX+OFF
6. pan-tilt control: control the rocker to right, the pan-tilt will turn right; control the rocker to left, the pan-tilt will turn left; turn up the rocker, the elevation will become big; turn down the rocker, the elevation will become small; Attention: if you put the rocker in one direction, the pan-tilt will run faster.
7. set the pre-setting positions: pre-setting number+SHOT+ON
8. call back the presetting positions: pre-setting number+SHOT+ACK
9. set the AUTO SCAN left border: operate the "set the No.92 pre-setting position" order
10. set the AUTO SCAN right border: operate the "set the No.93 pre-setting position" order

11. start AUTO SCAN: operate the “call back the No.99 pre-setting position” order
12. start cruising: operate the “call back the No.98 pre-setting position” order.

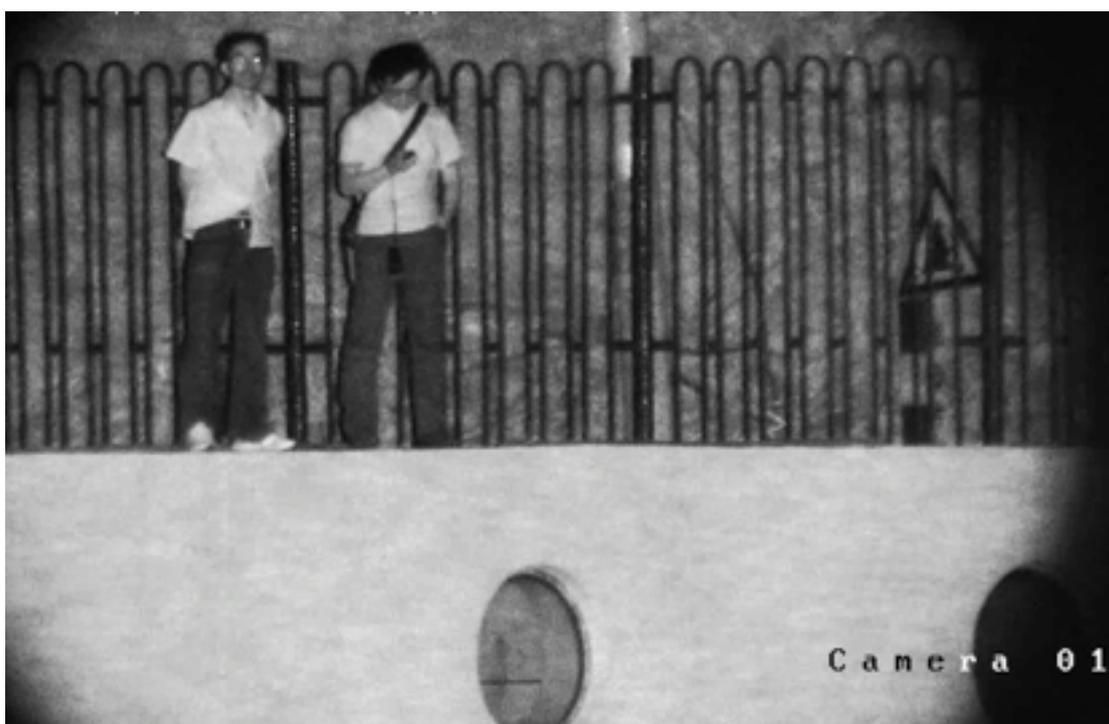
Images from this camera



Boat at 3000 meter distance in a harbor. Here it is night and good weather but small details can be seen anyway.

Pls compare what a thermal camera can do here. The active camera is far better in most cases. If needed we have a parallel thermal camera to work in fog and bad very bad weather.

1500 Meter zoom operation and viewing of this camera device.
Here camera have an optional 1000 mm focal length zoom
to get an personal long range identification possible



Close up at 1500 meter to see faces and identity of persons.