

BOLIDE®

User Manual

BC2002-AT88 Integrated Positioning System



① Before use the product, please read this manual carefully.

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Welcome

Thank you for purchasing this product!

Features:

- Precise stepping motors ensure 0.1° positioning accuracy and drive the unit to run smoothly without vibration
- 220 presets, 4 sequences with up to 32 presets each, 4 patterns with min. 180 seconds each, 4 panning, 8 zones.
- High quality slip ring ensures 360° continuously pan more than ten million times
- -77° to 40° tilt
- With RS485, Manchester, Bi-phase or Coaxitron control interfaces, support Factory, VCL, PELCO-P, PELCO-D, PELCO-C, PHILIPS, VICON, KALATEL, AMERICAN DYNAMICS, MOLYNX, PANASONIC etc. protocols.
- Up to 8 privacy masks.
- Color/Mono auto, manual or switch at a set time. (for day/night models).
- With 4000V video, data, power lightning proof and surge proof.
- Fit for the atrocious outdoor environment with thermostate heater, fan, sun-shield, deforster and wiper
- With wall mount, pedestal mount, pole mount and corner mount options.

Declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of FCC rules and European Union 89/336/EEC directive and its latest amended version. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in that case the user will be required to correct the interference at his own expense. Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under **CE** and **FCC** rules.

Precautions:

1. Only qualified and experienced person can carry on this installation.
2. Always conform to national and local safety codes during installation.
3. Use reliable tools only, poor quality tools may cause danger. e.g. ladder.
4. Check the space and toughness of the site before installing. It should be able to bear 4 times the weight of the unit and its accessories.
5. Keep all the original unit package materials in case of future repacking and transporting.

Warnings:

1. **DO NOT** install this unit in hazardous places where combustible or explosive materials are stored or used.
3. This camera runs on 24V AC. **DO NOT** connect higher or lower voltage to it.
4. **DO NOT** turn power on before completing installation.
5. **DO NOT** disassemble any part of the items.
6. Use soft towel to clean the cover when necessary. **DO NOT** use caustic detergent.
7. To protect CCD, **avoid** facing the camera directly to the strong light. e.g the sun.

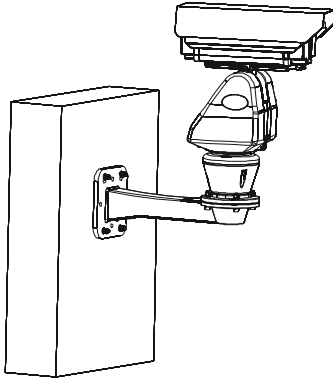
Installation Type Guide

Four main kinds of installation are available for integrated positioning system:

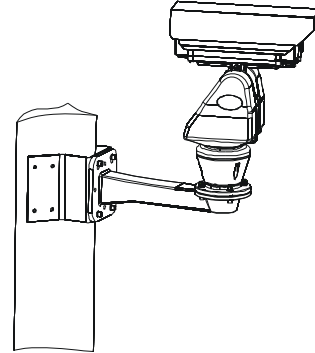
- 1) Wall Mount
- 2) Corner Mount
- 3) Pole Mount
- 4) Pedestal Mount

NOTE: Installation site should be able to bear at least 4 times the weight of the positioning system.

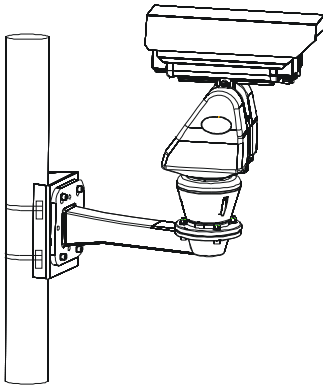
1. Wall Mount



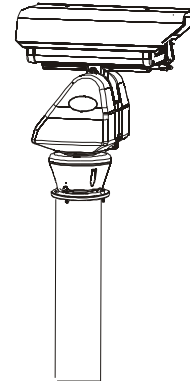
2. Corner Mount



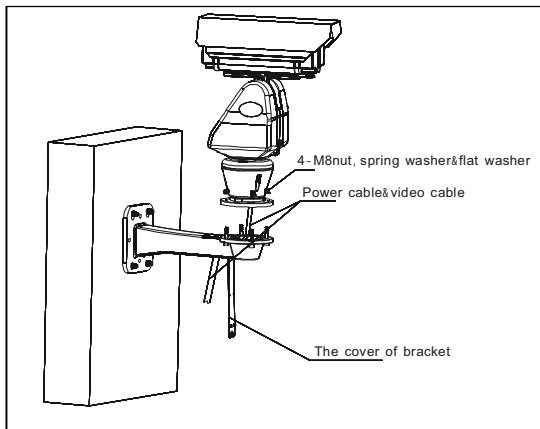
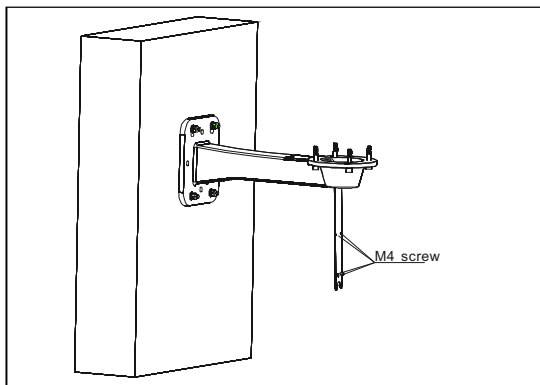
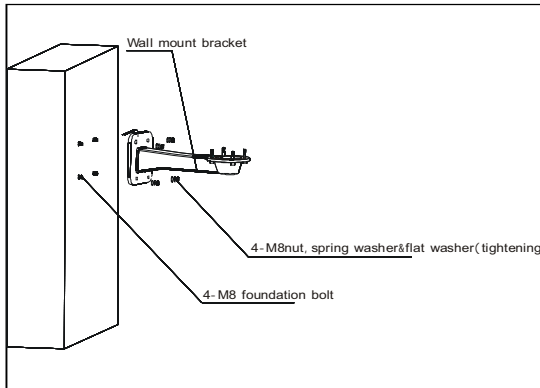
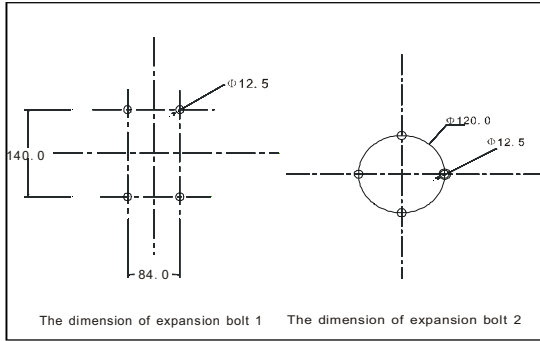
3. Pole Mount



4. Pedestal Mount



Wall Mount



Setup conditions:

It is suitable for the the hard wall which is indoor or outdoor.

- • **Wall thickness:** be enough to install M8 (100mm length) expansion bolt.
- • **Bearing load:** 4 times the weight of the integrated camera assembly

1.Mark the screws position on the wall as the left picture illustrated, and insert M8 expansion bolts.

2.Fix the mount on the wall with M8 nut ,spring washer and flat washer.

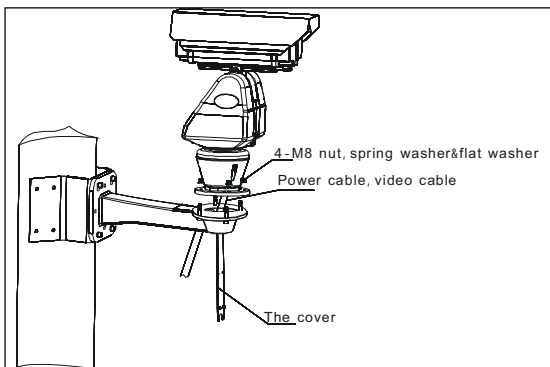
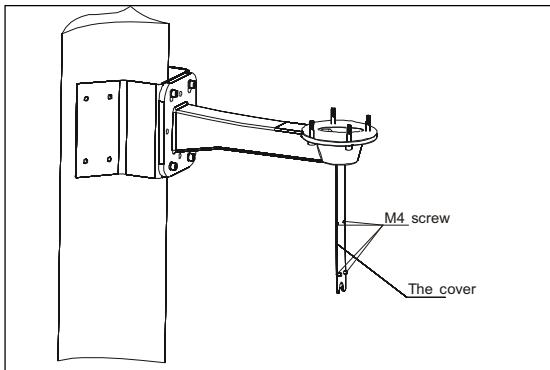
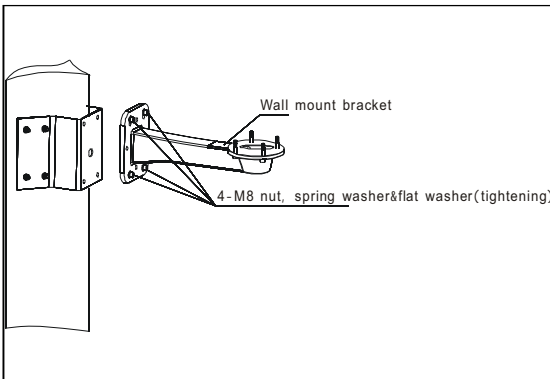
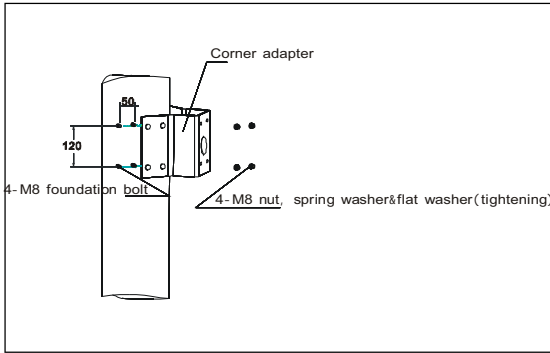
3.Unscrew M4 screw and uncap the covering of the mount.

4.Aim the 4 holes on bracket adapter to the 4 M8 screws on bracket, route the power cable and video cable through the cable hole and tighten the 4 M8 flat washers, spring washers and nuts. The last step is to route wires and cables through the centre of the mount bracket and close the cover.

NOTE: it is recommended that two persons will carry out the installation for the sake of safety.

5.Turn on the power. If self-testing is not carried out , please refer to Troubleshooting.

Corner Mount



Setup conditions:

It is suitable for the hard walls which are both indoor or outdoor and can make a vertical angle.

- • **Wall thickness:** be enough to install M8 (80mm length) expansion bolt.
- • **Bearing load:** 4 times the weight of the integrated camera assembly

1. Mark the screws position on the wall as the left picture illustrated, and then insert four M8 expansion bolts, fix the corner adapter on the wall with M8 nut, spring washer and flat washer.

2. Attach the mount to the corner adapter securely with M8 screw, spring washer and flat washer.

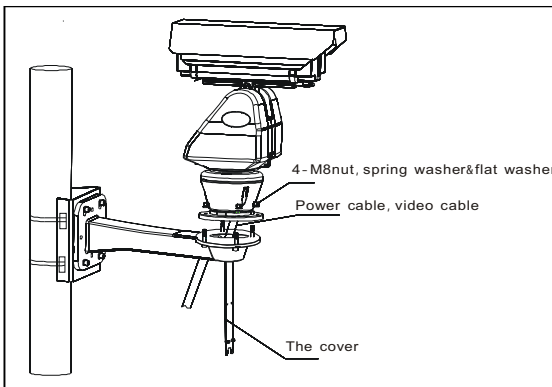
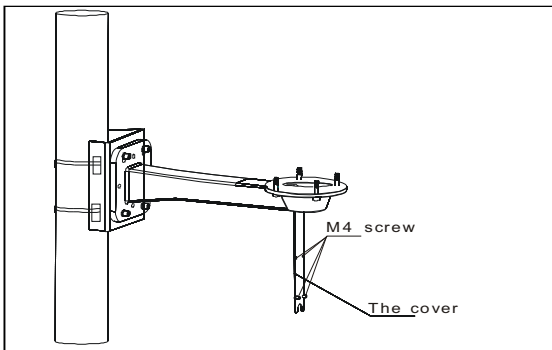
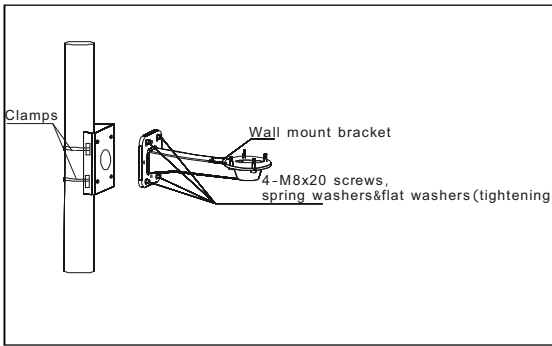
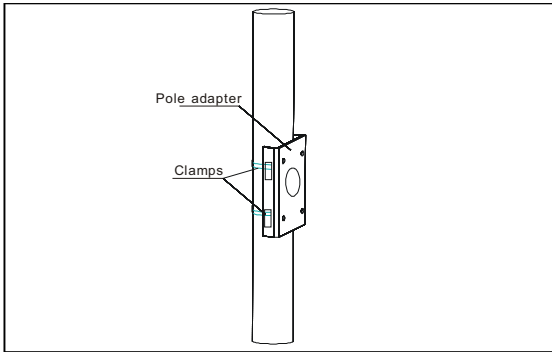
3. Unscrew M4 screw and uncap the covering of the mount.

4. Aim the 4 holes on bracket adapter to the 4 M8 screws on bracket, route the power cable and video cable through the cable hole and tighten the 4 M8 flat washers, spring washers and nuts. The last step is to route wires and cables through the centre of the mount bracket and close the cover.

NOTE: it is recommended that two persons should carry out the installation for the sake of safety.

5. Then turn on the power. If self-testing is not carried out, please refer to Troubleshooting.

Pole Mount



Setup conditions:

It is suitable for the hard pole which is indoor or outdoor.

- • **Pole diameter:** Φ 130-152mm
- • **Bearing load:** 4 times the weight of the integrated camera assembly

1. Fasten the pole adapter into the pole with the clamp as the left picture illustrated.

2. Match the screw holes of the mount and pole adapter, fasten M8 screw. Attach the mount to the adapter securely with M8 screw, spring washer and flat washer.

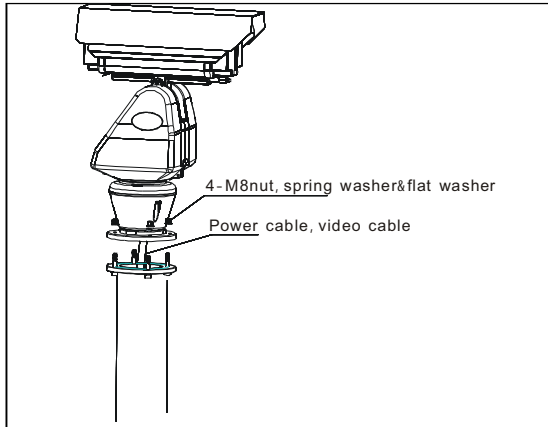
3. Unscrew M4 screw and uncap the covering of the mount.

4. Aim the 4 holes on bracket adapter to the 4 M8 screws on bracket, route the power cable and video cable through the cable hole and tighten the 4 M8 flat washers, spring washers and nuts. The last step is to route wires and cables through the centre of the mount bracket and close the cover.

NOTE: it is recommended that two persons will carry out the installation for the sake of safety.

5. Turn on the power. If self-testing is not carried out, please refer to Troubleshooting.

Pedestal Mount



Setup conditions:

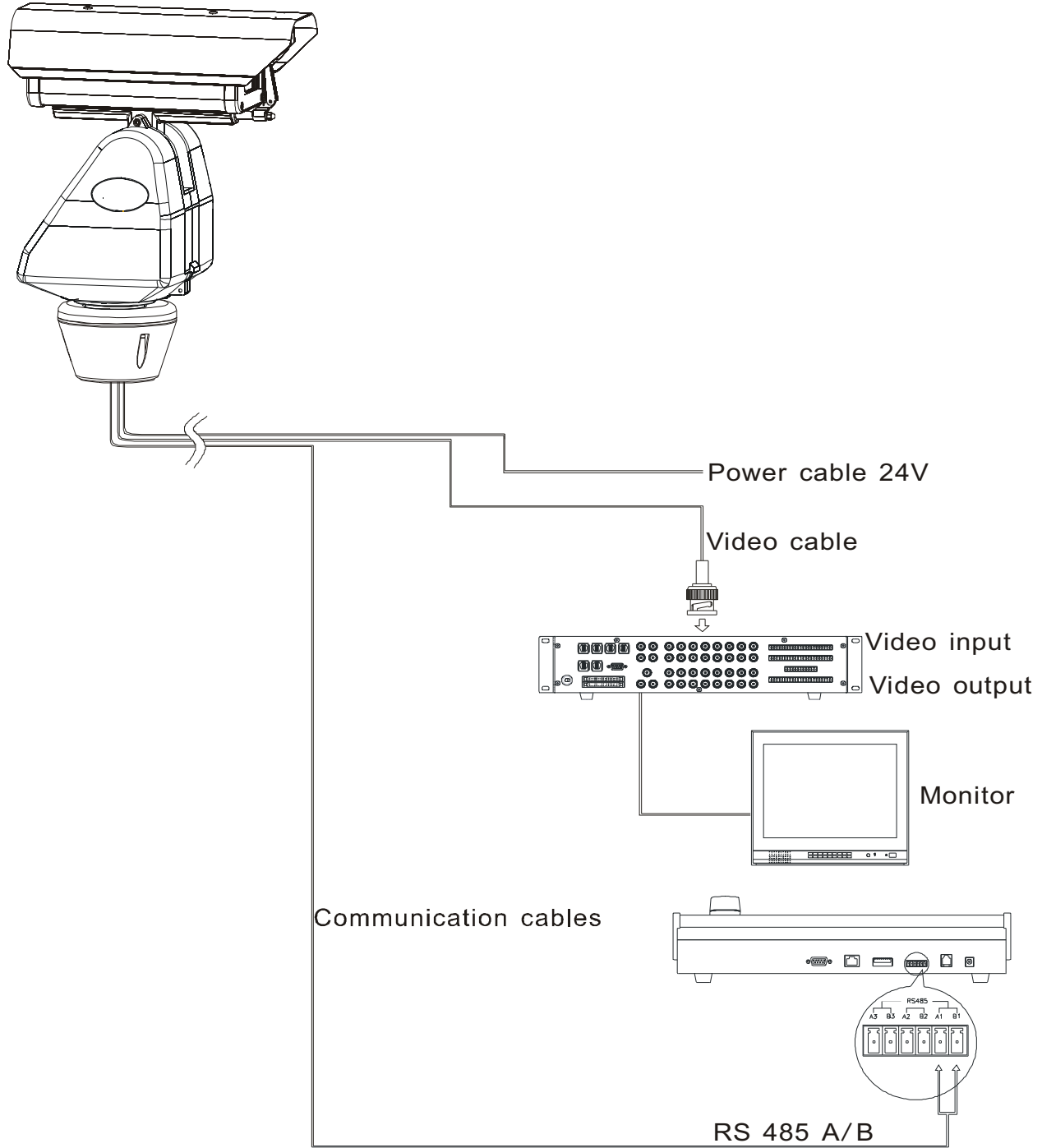
- • It is highly recommended to use the pole provided by the dealer.
- • Bearing load: 4 times the weight of the integrated camera assembly

1. Put the pedestal mount on a solid, aclinic ground, aim the 4 holes on bracket adapter to the 4 M8 screws on the flange, route the power cable and video cable through the cable hole and tighten the 4 M8 flat washers, spring washers and nuts. The last step is to route wires and cables through the centre of the pedestal mount.

2. Turn on the power. If self-testing is not carried out , please refer to Troubleshooting.

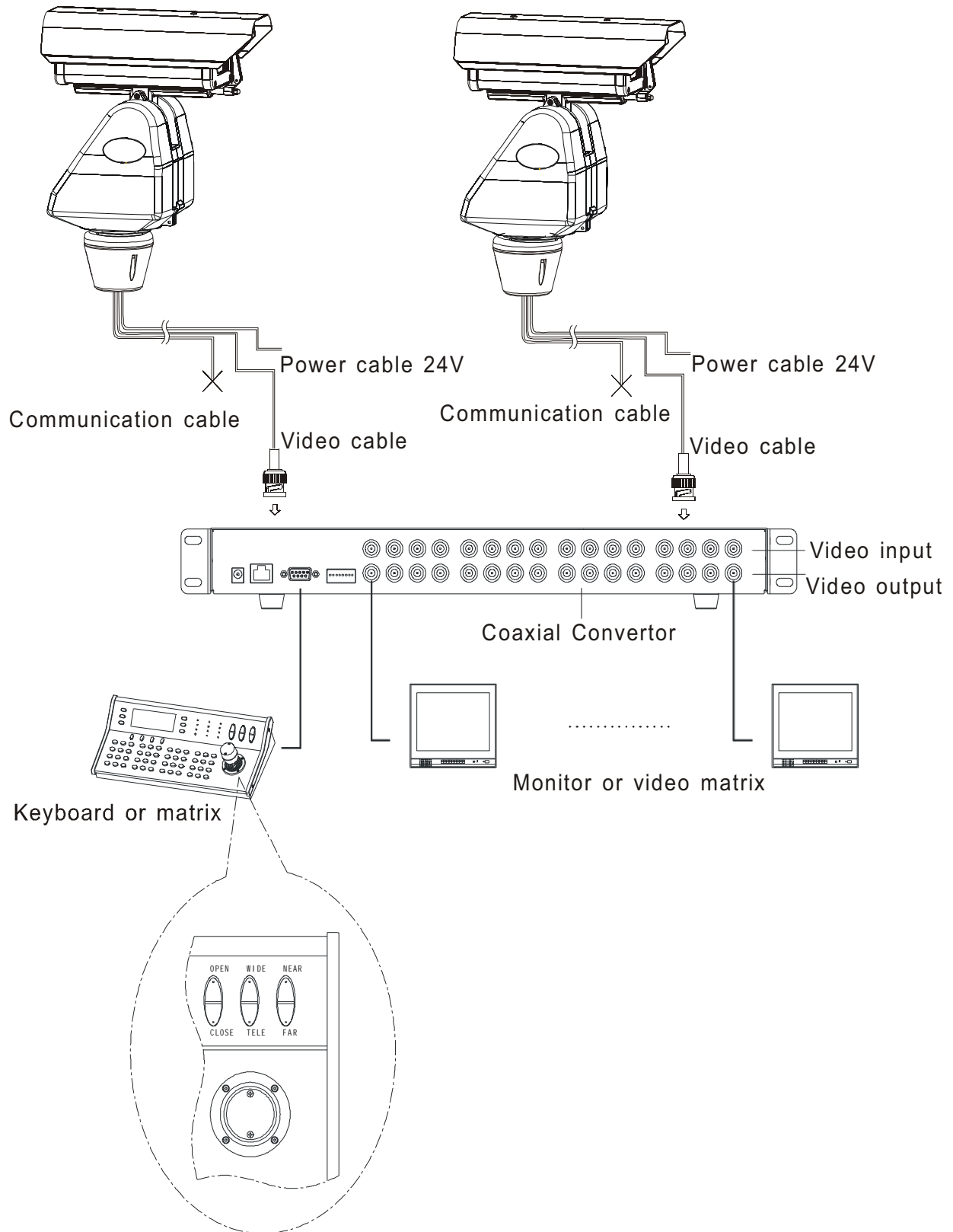
Connections

- Connections for using RS-485 control

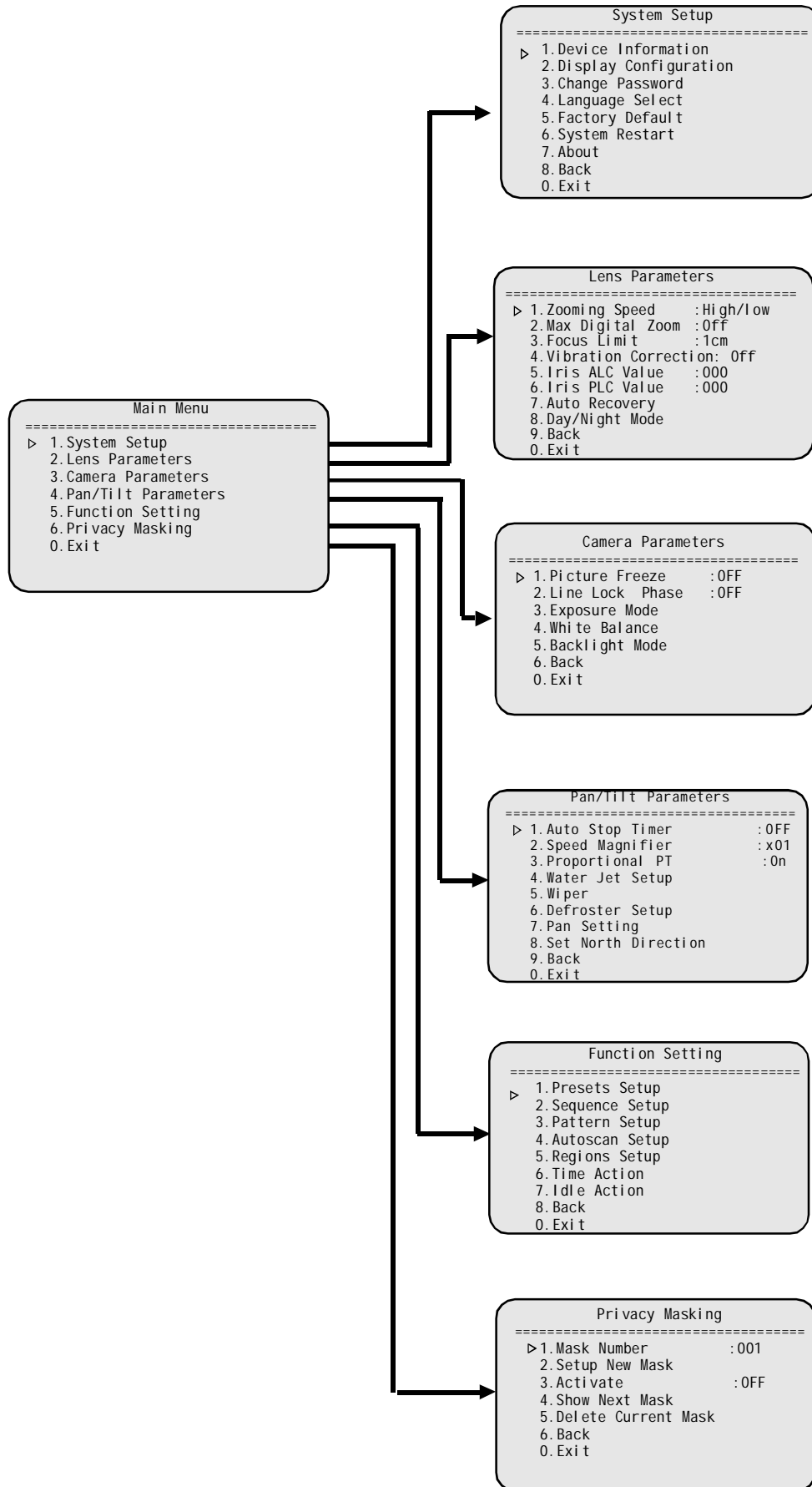


Connections

- Connections for using coaxial control



Menu Tree



Menu Operation

Operation Instruction

Two methods are available for carrying out the operation by the system controller.

1. Press the combined hot keys to operate different functions. Please refer to the system controller manual for the detailed commands.
2. Access the OSD menu and operate according to the following instructions.

Accessing the System Menu

- Access the system's main menu on your monitor by calling preset 95 once or calling preset 1 twice within 5 seconds.

Note: The way to call a preset may vary among keyboards with different manufactures. Please read those manuals to learn keyboard operation.

- When there is password protection, user needs to input the correct 6-bit password to access to the OSD menu. (Default password is 000000).
- To input the password, move the joystick up or down to select number (0-9), move the joystick left or right to choose password digit. If the input password is wrong, the password input window will close.

Note: You still can control the system with a wrong password, but can not access to the OSD menu.

Menu Cursor Positioning

POSITION THE CURSOR at a desired menu location:

- Move the joystick up or down to position the cursor beside the preferred item, and then move it to the right.
- Press the desired entry number on the keyboard

Editing the titles

Up to 16 characters can be used for a title. The following characters are available:

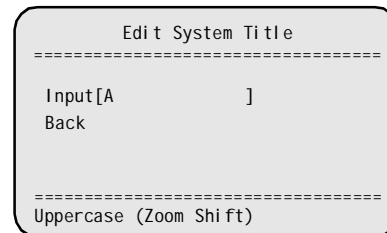
- A-Z(upper case)
- a-z (lower case)
- Symbol (+ - () % # ! \$ /)
- Ext Symbol (á í ó w é)
- 0-9 (numeric)

NOTE:

- If you want to switch the characters, move the joystick clockwise or anticlockwise and hold it for two seconds.
- If you want to scroll the next group of selection, move the joystick to the leftmost until the highlight symbol • appears, and then move the joystick up or down to do selection.

Take the System Title for example, to edit the title, do the following:

1. Select Device Information from System Setup.
2. Select Title, the following screen appears.



3. Move the joystick to the right to position the cursor beside a character.
4. Move the joystick up or down to view selection. When the desired character is highlighted, move the joystick to the right.

NOTE: If it sets to Numeric mode, directly move the joystick up or down to change the number.

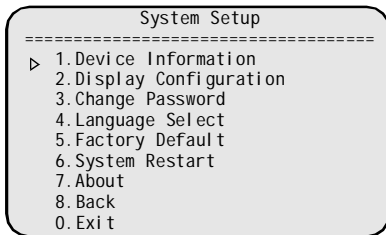
5. Move the joystick to the right or left to point the cursor to different position.
6. When finished, move the cursor to the leftmost, and then select Back to return to the previous menu.

TIPS:

- Change a character: Move the cursor to the character you want to change and directly repeat step 4.
- Clear a character: Switch the character to Symbol, and then position the character you want to delete, finally move the joystick up or down to select Blank Space character.

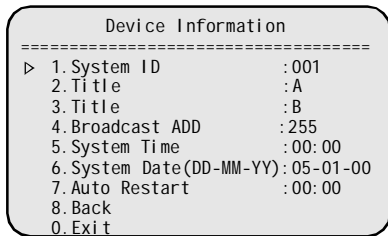
1. System Setup

Main menu • System Setup



1.1 Device Information

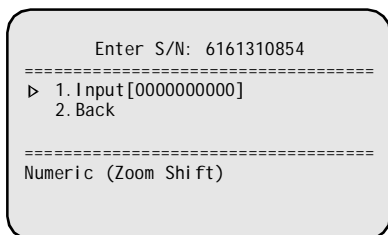
Main menu • System Setup • Device Information



1. System ID: Identifies the current system's ID number. Each system has its unique ID ranging from **001 to 255** (255 is default broadcast ID). The System ID can be set only when DIP switch is in Programmable ID mode.

To set the system ID:

1. Move the cursor to select **INPUT** from System ID. The **INPUT** setting will flash as the following picture shown.

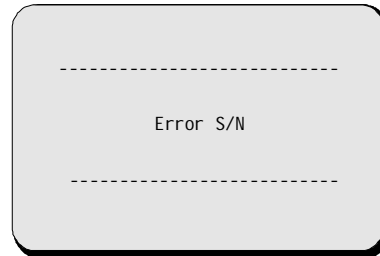


2. Move the joystick to the right and enter the serial number to be displayed for the "Enter S/N" setting.
3. Move the joystick up or down to select the figure, and move it to the left to save the setting.
4. Move the joystick to the left or right to quit this editing.
5. Select **BACK** to return to the previous menu.

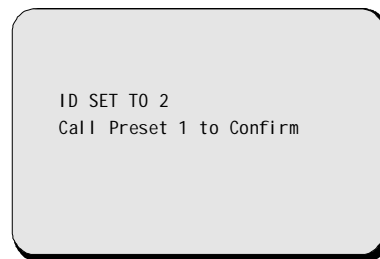
Tip: Move the joystick clockwise or anti-clockwise to select upper case, lower case and numeric input.

NOTE:

1. If the S/N is not identical with the original one, the following picture will pop out. Please repeat step 1 through step 5.

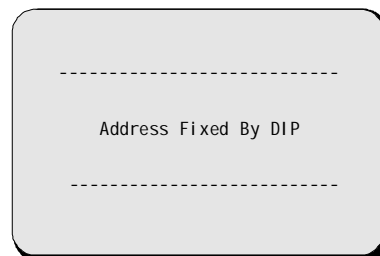


2. If the OSD menu will pop out as below, try to reset the system ID. That is because the system ID is not identical with the setting. Thus the system can not be controlled.



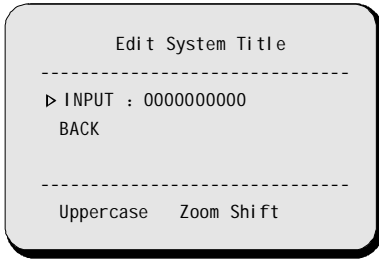
3. After correct the system ID, call preset No.1 to confirm the resetting.

4. If the OSD menu is appeared as below, it means that the current ID is hard address and cannot be programmed. You should set all 8 bits of SW1 ON to activate programmable address.



2.Title: Set the first 10 characters of the system name. Please refer to page 11.

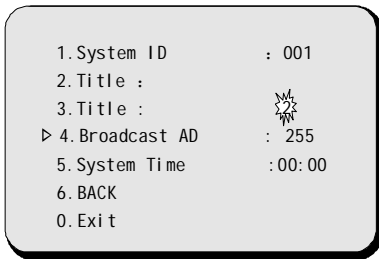
3.Title: Set the second 10 characters of the system name. Please refer to page 11.



4. Broadcast ADD: Set broadcast address.

ID number (001~255). The ID number should be different from any other system, default setting is 255.

When a command is sent to broadcast ID, all the systems connected to the control bus accept the command. Please refer to appendix to get information about ID setting.



5. System Time: Configure the system time to display on the screen and enable timer scheduled functions. Display format: **hour : min**

6. System Date: Display the current date, the display mode is DD-MM-YY.

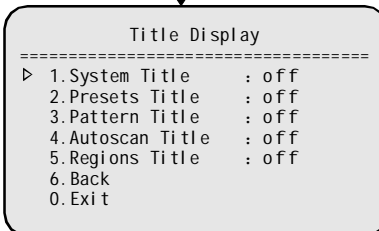
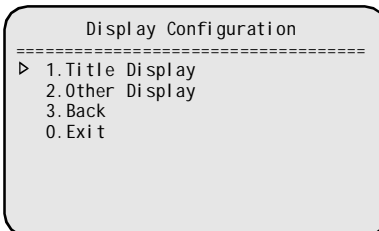
7. Auto Restart: The system will restart at this time. When the time is 00:00, this function is default to be closed.

8. Back: Return to the previous menu.

0. Exit: Quit the menu.

1.2 Display Configuration

Main Menu • System Setup • Display Configuration



1.2.1 Title Display

This allows you to program how titles are display on the monitor. The following titles can be set:
System Title (ON,OFF, 2s-60s): Displays the system title.

Presets Title (ON, OFF, 2s-60s) :Displays preset title when calling up the preset.

Pattern Title (ON, OFF, 2s-60s):Shows the pattern title when running the pattern.

Autoscan Title (ON, OFF, 2s-60s) :Shows the title during automatic scanning operation.

Regions Title (ON, OFF, 2s-60s) :Displays the region title for the region mode settings.

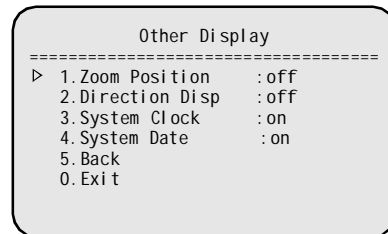
The following settings are available for each title:

OFF: The title is not displayed when enabled.

ON: The title is displayed after activation.

2s-60s: The title is displayed within a range of two seconds to sixty seconds after activation.

1.2.2 Other Display



Zoom Position (ON, OFF, 2s-60s): Display time of the zoom times.

Direction Disp (ON, OFF, 2s-60s): Display time of camera pointing direction.

System Clock (ON/OFF): Display the system time.

System Date (ON/OFF): Display the current date of displaying.

Select **BACK** to return to the previous menu.

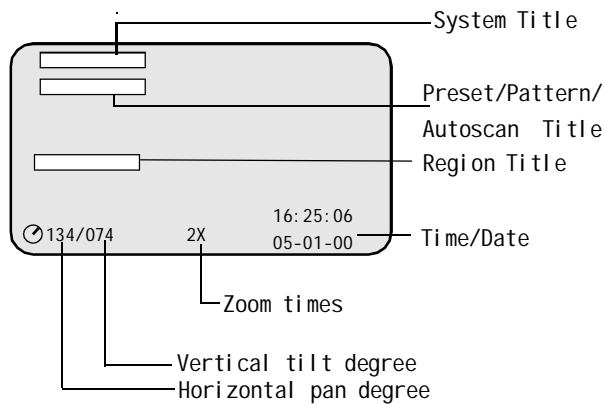
The following settings are available for each one:

OFF: This function is disabled.

ON: This function is enabled.

2s-60s: The function is displayed within a range of two seconds to sixty seconds after activation.

.. Information Text Position

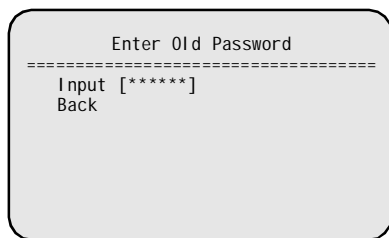


1.3 Change Password

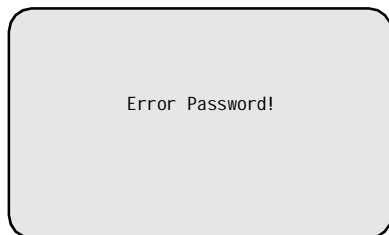
Main menu • System Setup• Change Password

Changing the password:

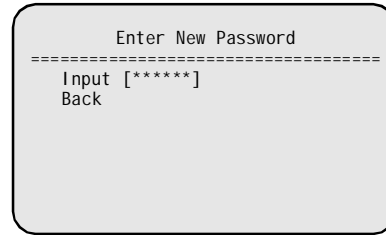
1. Select **SYSTEM SETUP** from Main Menu.
2. Select **CHANGE PASSWORD**.
3. If no old password is set previously, start from step six.
4. If an old password is existed, move the joystick to select INPUT, and then enter the old password as the following picture shown.



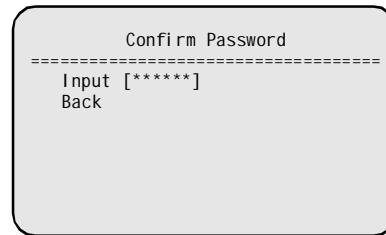
5. If the old password is input wrongly, the following picture is shown on the screen. The screen menu is closed automatically. You must re-enter this menu.



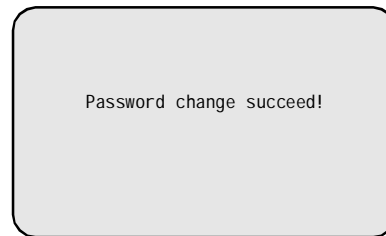
6. Set new password as the following submenu appears on the screen.



7. Confirm the new password. It is necessary to enter the new password again.



8. If the password is input correctly, the following picture will pop out .



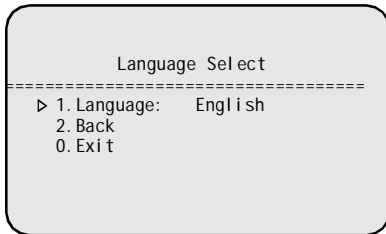
9. If the password is not input correctly, the following picture will be displayed. Thus it is necessary to enter again in the same way, otherwise you can not access to OSD menu.



Note: The default password is 000000. If it is changed , the password protection is activated. It is necessary to enter the password whenever you want to access the OSD menu.

1.4 Language Select

Main menu • System Setup• Language Select



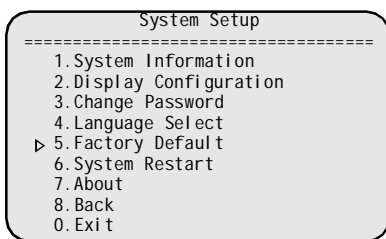
The language for the on-screen menus is selectable. Available languages include English, Chinese, Espanol, Italiano, Deutsch.

To select the language:

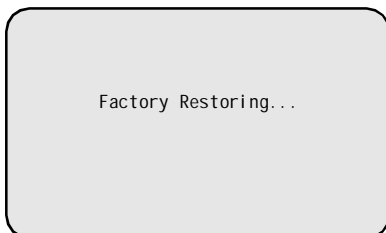
1. Select **SYSTEM SETUP** from Main Menu.
2. Select **LANGUAGE SELECT**.
3. Move the joystick up or down to view selections, and then move it to the left or right to save the setting.
4. Select Back to return to the previous menu.

1.5 Factory Default

Main menu • System Setup• Factory Default



Select **FACTORY DEFAULT** to restore factory default settings. System will request password to set it. Factory default will not change dome ID.

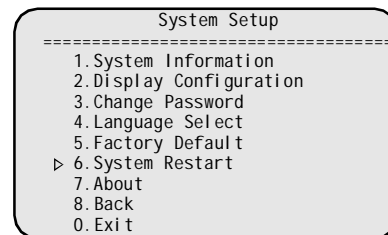


List of Default Setting(All settings vary from different types of cameras.)

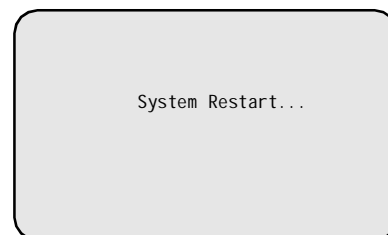
Zooming Speed	HIGH	User Defined R	N/A
Max Digital Zoom	off	User Defined B	N/A
Focus Min Limit	30CM	Backlight Mode	Off
Iris ALC value	084	Backlight Value	N/A
Iris PLC value	016	Auto Stop Timer	Off
Preset Freeze	Off	Speed Magnifier	X01
Line Lock Phase	Off	Proportional PT	ON
Exposure Mode	Auto	Input Channel	1
Exposure Level	N/A	AlarmAction	Off
Slow Shutter	1/1.5	Input Mode	NO
White Balance	Auto	AlarmLinkage	Off
Reset Delay	Off	AlarmOutput	Off

1.6 System Restart

Main menu • System Setup• System Restart

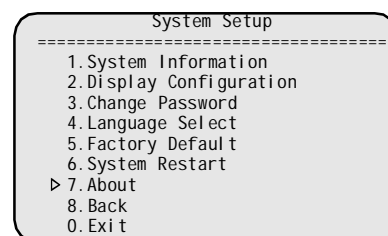


Move the joystick to select **SYSTEM RESTART**, the following picture will display on the screen. Settings will not change after restarting.



1.7 About

Main menu • System Setup• About



Move the joystick to select **ABOUT**, the following picture will display on the screen.

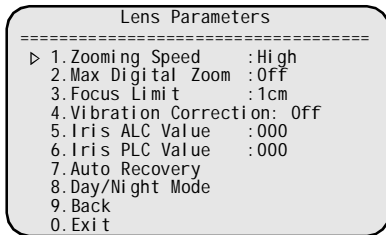
```
System S/N : 0000000000000000
System ID  : 0001<Hard>
Baudrate   : 4800
Protocol   : FACTORY
Model      : BC2002-AT88
Camera temp : +25C/+77F
P/T temp   : +33C/+91F
Version    : f001(081015)
Copy right : 2003 2008

Any Command to Exit
```

Note: The menu screen is closed automatically as any command is carried out.

2. Lens Parameters

Main menu • Lens Parameters



2.1 Zooming Speed

This function allows the user to define how fast the camera will zoom. Available settings includes the following:

High : High zooming speed

Low : Low zooming speed

2.2 Max Digital Zoom

Max Digital zoom magnifies the picture by duplicating pixels. The picture is enlarged but the resolution remains the same. This menu item sets max. digital zoom magnification times.

OFF : Turn off digital zoom

X1~X10 : Max digital zoom times

NOTE: Different camera has different Max. digital zoom times.

2.3 Focus Limit

The focus limit sets the minimum distance between the object and the camera. Focus is not achieved if the distance is less than the current setting. The following values for focus limit are available:

1 cm, 10cm, 30cm, 100cm

2.4 Vibration Correction(Some camera only)

This prevents the image from intensively vibration, eg. the system is installed on the highway in the condition of vehicles frequently passing.

2.5 Iris ALC Value(Some camera only)

This sets the iris average level control value. The value ranges from 000 to 255. Default value is illustrated as below:

22X color camera: 066,

23X color/mono camera: 084 (different camera has different ALC default value)

Note: Changing default value is strongly **NOT** recommended.

2.6 Iris PLC Value(Some camera only)

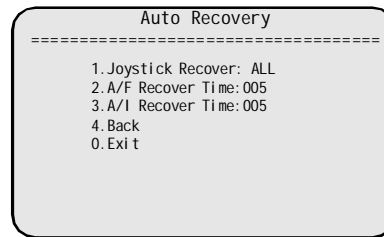
This sets the iris peak level control value. The value ranges from 000 to 127.

Default value: 23X color/mono camera: 016

(different camera has different PLC default value)

Note: Changing default value is strongly **NOT** recommended.

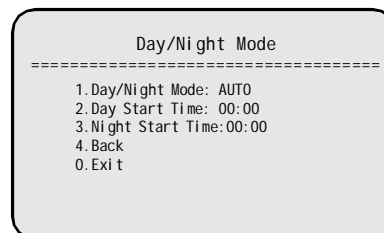
2.7 Auto Recovery



This uses to configure the auto focus and auto iris resume settings. Four settings are available:

Setting	Description
All	Both return to auto focus and return to auto iris setting are enabled. (default setting)
None	Both return to auto focus and return to auto iris setting are disabled.
Iris	Only return to auto iris is enabled.
Focus	Only return to auto focus is enabled.

2.8 Day/Night Mode

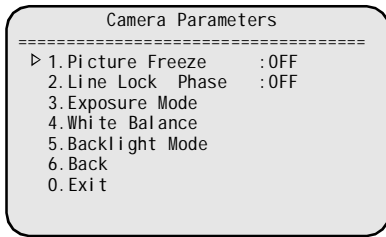


The Day/Night mode automatically switches between color and monochrome mode in accordance with the environment illumination. Four settings are available:

Setting	Description
Auto	The dome will automatically change modes according to light condition.
Day	The dome is in colorful mode only.
Night	The dome is in monochrome mode only.
Time	Set schedule for mode change.

3. Camera Parameters

Main menu • Camera Parameters



3.1 Picture Freeze

This feature is to reduce useless data traffic in web application and save storage space for DVR. Available selections include the following:

ON: The current image is frozen when a preset is called.

OFF: The current image is never frozen.

Note: Not every camera has this feature.

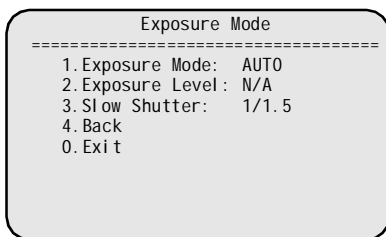
3.2 Line Lock Phase

This feature prevents vertical rolling or adjusts the appearance of overlay text on color monitors. The following selections are available:

OFF: This function is disabled.

001-360: It allows you to choose the suitable phase to obtain synchronous video.

3.3 Exposure Mode



To set exposure mode. The value options are: **Auto, Shutter, Iris and AGC.**

Shutter:

Set Shutter speed in priority, values are 1/1.5, 1/3, 1/6, 1/12, 1/25, 1/100, 1/150, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/30000

Iris:

Set Iris in priority. Values are: F1.6, F2.2, F3.2, F4.4, F6.4, F8.8, F12, F17, F24, F34

AGC:

Set Auto gain control in priority. Values are: 0dB, 6dB, 12dB, 18dB, 24dB, 30dB. Higher dB value makes image brighter.

Note: Only if Exposure Mode is not set to AUTO, Exposure Level can be changed.

Only one of settings for Shutter, Iris and AGC will take effect

Mode	Shutter	Iris	AGC
Auto	N/A	N/A	N/A
Shutter	1/1.5、 1/3、 1/6、 1/12、 1/25、 1/50、 1/100、 1/150、 1/250、 1/500、 1/1000、 1/2000、 1/4000、 1/10000、 1/30000	N/A	N/A
Iris	N/A	F1.6、 F2.2、 F3.2、 F4.4、 F6.4、 F8.8、 F12、 F17、 F24、 F34	N/A
AGC	N/A	N/A	0dB、 6dB、 12dB、 18dB、 24dB、 30dB

Slow Shutter: Available settings include: 1/1.5, 1/3, 1/6, 1/13, 1/25, 1/50.

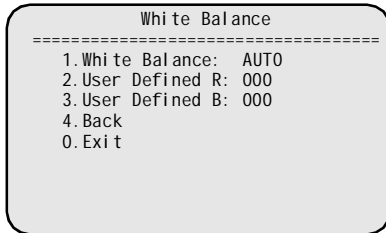
Note: Only if Exposure Mode is set to AUTO, Slow Shutter can be changed.

3.4 White Balance

This is used to manually adjust red and blue settings for optimal viewing. Available settings include:

AUTO: Auto white balance.(default setting)

USER: Manually set the red and the blue values.

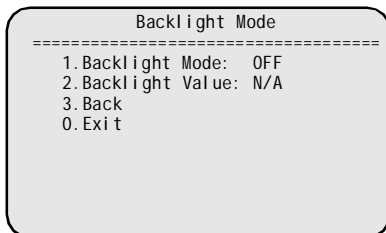


User Defined R: The value for the red setting increases, the image appears more red.

User Defined B:The value for the blue setting increases, the image appears more blue.

Note:Only if White Balance is set to USER mode, the value of User Defined R and User Defined B can be changed.

3.5 Backlight Mode



This sets backlight compensation.If the backlight is bright, the objects in the center of the picture may be dark. The system can automatically adjust the brightness of the whole image according to the brightness of center point.

Mode	Normal	WDR
Off	N/A	N/A
Normal	000-255	N/A
WDR	N/A	000-127

OFF: This function is disabled.

Normal: Standard BLC mode.

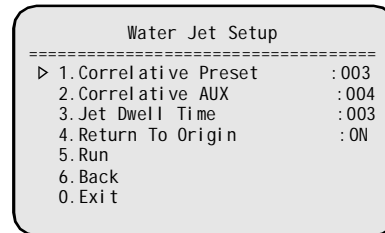
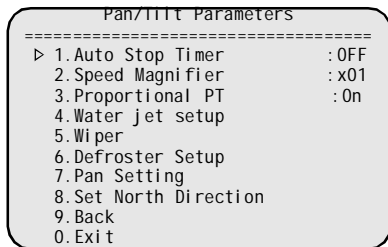
WDR: Wide Dynamic Range mode.

Note: 1.Only if the backlight mode is set to Normal or WDR mode, Backlight value can be changed.

2.Not every camera has the function.

4. Pan/Tilt Parameters

Main menu • Pan/Tilt Parameters



4.1 Auto Stop Timer

For some particular protocols, the camera does not stop moving even if no operation comes from the controller. But this function enables the camera to stop at a fixed time you set in advance.

OFF: This function is not activated. (default setting)

001~100: The camera will automatically stop moving, before the user sets the time schedule. For example: 003 means that it will automatically stop moving after 150ms.

4.2 Speed Magnifier

Some protocols' controlling speed is either faster or slower, however it can be adjusted via Speed Magnifier. The selections are as follows:

X1: Original speed (default setting)

↑ 2 ~ ↑ 32: Times faster than original speed.

↓ 2 ~ ↓ 32: Times slower than original speed.

4.3 Proportional PT

The camera moves at a speed of certain degrees per second. Objects on screen move much faster in telescope than in wideangle, even undesirable too faster in some case. This function decreases the dome movement speed while zooming in.

ON : Enable the function (default setting)

OFF: Disable the function

4.4 Water Jet Setup

User can control the water jet by setup the correlative parameters. when the camera receive the command °call AUX X ±, the camera will carry out correlative action automatically.

Correlative Preset(001~220): set the position pointed to water jet as Preset N, then select Preset N as correlative Preset.

Correlative AUX (002~255):select the correlative AUX. When the system protocol is PELCO P/D, the correlative AUX is 002

NOTE: AUX 001 is for wiper control only.

Jet Dwell Time (000-255): Dwell time for jetting. 000 means OFF, 001 means 1second.

Return to Origin(ON/OFF): return the camera back to the original place after jetting.

ON: Enable the function

OFF: Disable the function

Run:run the jetting function by choosing it in this menu.

4.5 Wiper

If the wiper is started currently:By moving the joystick to the left or right,user can make the wiper stop running.

If the wiper is closed currently:By moving the joystick to the left or right, user can make the wiper start running.

4.6 Defroster Setup

This function is for cleaning the froster congregated inside the glass. You can start the defroster by moving your joystick left or right on "Defroster" item after setting its running minutes. Available values are: 2min, 5min, 10min, 15min,30min and 60min.

4.7 Pan Setting

This function is for customers to connect an added device which cannot circumscribe for 360 degrees.

Pan Mode: When pan mode is 360° , it can move for 360 degrees, and it cannot move for 360 degrees when the mode is -180° /+180° .

Pan Origin Direction: When it is ON, it will check the original direction of observation. When it is OFF, it will take the current observation position as the original direction.

Define the Origin of -180/+180: Set the start/ end observation position of -180/+180 mode.

4.6 Set North Direction

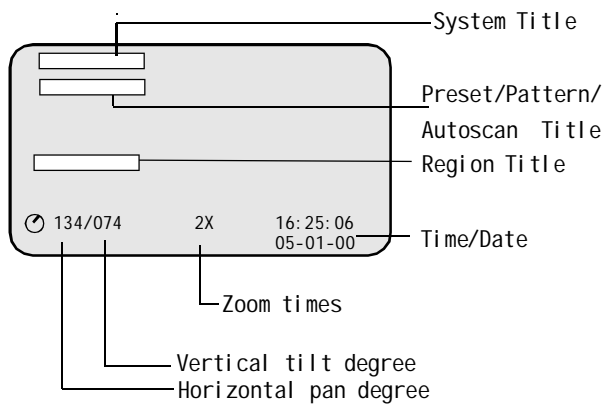
User can set the camera's orientation on screen by using joystick to position north. Pan degree is the relative degree to a specific direction. That direction is called NORTH.

Note: Not restrict to geographical north.

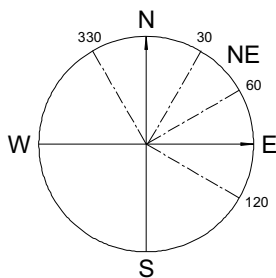
For example:



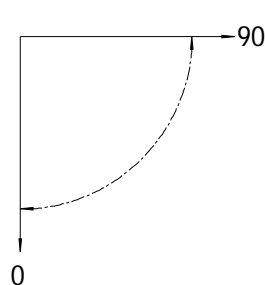
.. Move to a position and call preset 1 to confirm.



Horizontal 0~360

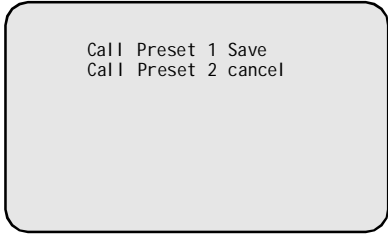
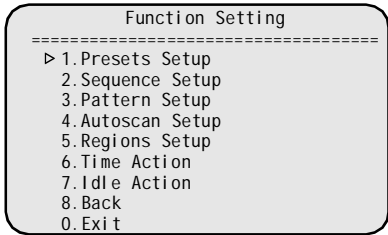


Vertical 0~90



5. Function Setting

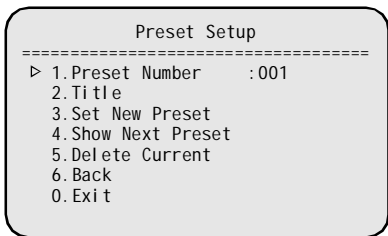
Main menu• Function Setting



Move to the desired position and zoom to a suitable level, call preset 1 to save the current preset, call preset 2 to cancel.

5.1 Presets Setup

Main menu• Function Setting• Preset setup

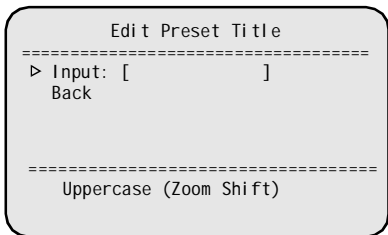


This allows you to program a preset with auto pan, tilt, focus and iris settings. Once programmed, entering the number and pressing PRESET button on your controller automatically calls up preset. As many as 220 preset positions can be programmed.

1. Preset Number: It sets the preset number, ranging from 001 to 220.

Note: If the current preset number is existed, it will go to the Preset position directly; if not, the screen will display “Preset Not Available”.

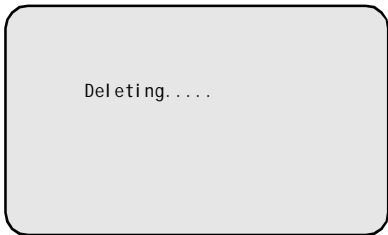
2. Title: It sets the name for the preset position, which can be displayed on the screen. Please refer to page 11 in details.



3. Set New Preset: This allows you to set the new preset. The following picture will pop out as you tilt the joystick.

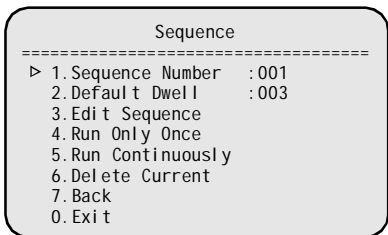
4. Show Next Preset: The next position is run according to the numerical order.

5. Delete Current: The current preset you select is deleted. The following picture will display on the screen.



5.2 Sequence Setup

Main menu• Function Setting• Sequence setup



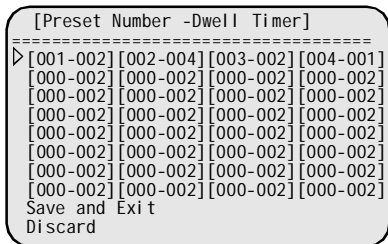
A “sequence” is defined as a sequential moving from one preset to the next at a fixed speed and pause for a specific time at each preset.

- Up to 4 sequences can be stored.
- Each of them can store 32 presets at maximum.

1. Sequence Number: This sets the sequence number ranging from 1 to 4.

2. Default Dwell: This sets the pause time (1 to 255) for each preset position.

3.Edit Sequence:This sets order and pause time spent at each preset position.It is possible to set 32 positions as shown in the following illustration.



E.g. 003-002 means that preset 003 is accessed and paused for 2 seconds. Move joystick to the left or right to select editing item, and then move it to up or down to change value.

Take the above picture for example, the camera rotates from preset 1 to preset 4 and the pauses time is for 2 seconds, 4 seconds, 2 seconds, 1 second respectively. Select **Save** to save the sequence, select **Discard** to quit without saving.

Note: When a preset's dwell time is set 0, system will skip that preset. System will consider preset 0 as the end of a sequence.

4.Run Only Once: The current sequence is run only once.

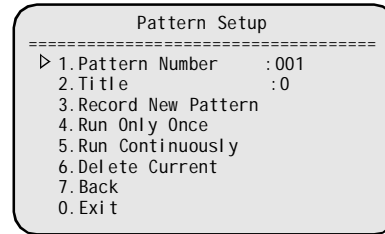
5.Run Continuously: The current sequence is run continuously and the system will loop the sequence.

6. Delete Current: The current sequence is deleted. The following picture is displayed on the screen.



5.3 Pattern Setup

Main Menu• Function Setting• Pattern setup

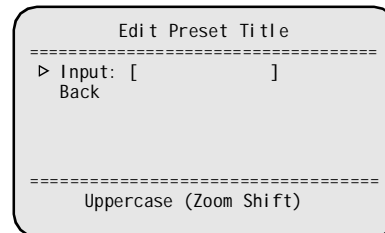


A pattern records and repeats a series of pan,tilt,zoom and preset function.The difference between sequence and pattern is that in a sequence, the camera moves from a preset to next at a fixed speed; in a pattern, the camera moves flexible curve at various speed.

- Up to four pattern mode can be set.
- Each of them can be set a duration of up to 180 seconds at maximum.

1.Pattern Number:It sets the pattern number ranging from 1 to 4.

2.Title: It sets the name for the pattern,which can be displayed on the screen.Please refer to page 11 in details.



3. Record New Pattern: This records each commands used for pan,tilt, and zoom operations.

Move the joystick at random firstly, and then press the 1 numerical and PRESET button of the system controller to start record.The following picture will display on the screen.

```

Move to start point
Call preset 1 to confirm
Call preset 2 to cancel

```

Move the joystick to record the zoom operation. Meanwhile the following picture will display on the screen.

```

Recording Pattern
Call preset 1 to confirm
02/100

```

To stop recording, press the 1 numerical button and PRESET button. The following picture will display on the screen.

```

End of record pattern...

```

4.Run Only Once: The current pattern is run only once.

5.Run Continuously: The current pattern is run continuously .

6. Delete Current: The current pattern is deleted. The following picture is displayed on the screen.

```

Deleting. ....

```

5.4 Autoscan Setup

Main menu • Function Setting • Autoscan setup

```

Autoscan Setup
-----
> 1. Autoscan Number : 001
2. Title :
3. Set Left Limit
4. Set Right Limit
5. Defaul Speed : 255
6. Run Continuously
7. Delete Current
8. Back
0. Exit

```

This function allows you to set the left and right edges of the area to be monitored, and the camera can move back and forth between these two points.

- Up to four autoscan modes can be set.
- The speed for autoscan can be set.

1.Autoscan Number: It sets the autoscan mode number, ranging from 001 to 004.

2.Title: It sets the name for the autoscan mode, which can be displayed on the screen. Please refer to page 11 in details.

```

Edit Autoscan Title
-----
> Input: [          ]
Back

```

3.Set Left Limit: This sets the left edge of the area to be scanned.

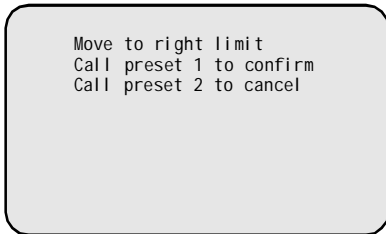
```

Move to left limit
Call preset 1 to confirm
Call preset 2 to cancel

```

Move the joystick to desired position, and then choose to save or cancel as the above picture indicated.

4.Set Right Limit: This sets the right edge of the area to be scanned.



Move the joystick to desired position, and then choose to save or cancel as the above picture indicated.

5.Default Speed: This sets the scanning speed ranging from 001 to 255.

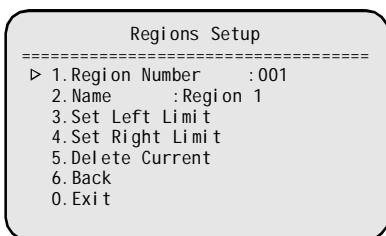
6.Run Continuously: The current autoscan mode is run continuously.

7. Delete Current: The current autoscan mode is deleted. The following picture is displayed on the screen.



5.5 Regions Setup

Main menu • Function Setting • Regions Setup

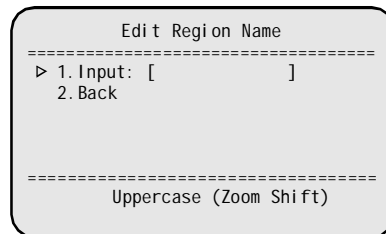


A region is an area between two sites. User can edit a title for a REGION. (E.g. Dangerous area). Whenever the camera moves into the region, the title will display on the screen to alert the user.

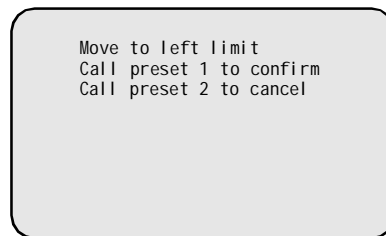
- Up to four regions can be set.

1.Region Number: It sets the autoscan mode number, ranging from 001 to 004.

2.Title: It sets the name for the region, which can be displayed on the screen. Please refer to page 11 in details.

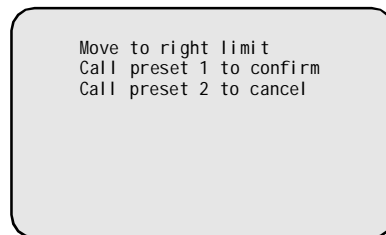


3.Set Left Limit: This sets the left edge of the region.



Move the joystick to desired position, and then choose to save or cancel as the above picture indicated.

4.Set Right Limit: This sets the right edge of the region.



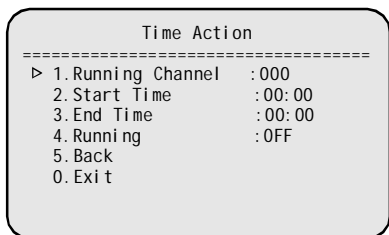
Move the joystick to desired position, and then choose to save or cancel as the above picture indicated.

5. Delete Current: The current region is deleted. The following picture is displayed on the screen.



5.6 Time Action

Main menu • Function Setting • Time Action



This function allows the system to run specified functions during the scheduled time. For example, enable the system to automatically run a Pattern from 3pm to 5 pm without any operator controlling at that time.

1. Running Channel: There are 8 channels available.

2. Start Time: Set the start time of Timer Running.

3. End Time: Set the stop time of Timer Running.

4. Running: Enable the timer to carry out this function during the specified period of time.

Available setting:

OFF: Disabled this function (default setting)

Preset (1~220): Enable Preset function.

Sequence (1~4): Enable Sequence function.

Pattern (1~4): Enable Pattern function.

Autoscan (1~4): Enable Panning function.

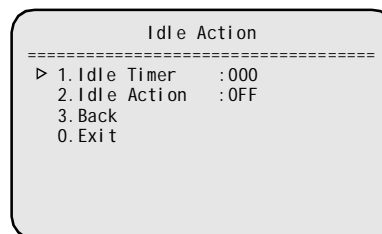
NOTE:

The specified time can not be overlapped. Otherwise, the assigned Timer Running functions are ineffective. Timer Running function is prior to Auto Action function.

Operations on keyboard will break the Timer Running function, however the function will continue after 10 seconds idle time.

5.7 Idle Action

Main menu • Function Setting • Idle Action



This function makes the system automatically run assigned function after the idle time. For example: the system is running a sequence and an operator breaks the sequence to do other work, the system can automatically carry on the sequence within a period of time after the operator finishes using it.

Idle Time : It is a specific time without any operation being performed. The selections are as follows:
Off, 005s~255s.

Idle Action: The function could include:

OFF: Disabled this function (default setting)

Preset (1~220): Call preset 001~220

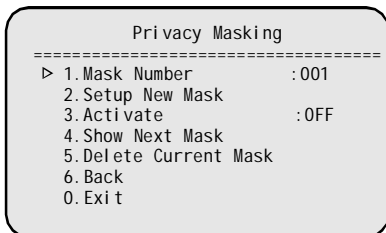
Autoscan (1~4): Run autoscan 001~004

Sequence (1~4): Run sequence 001~004

Pattern (1~4): Run pattern 001~004

6. Privacy Masking

Main menu • Privacy Making



This function uses grey masks to shield where monitoring may intrude on privacy, such as a resident's window, a toilet, etc.

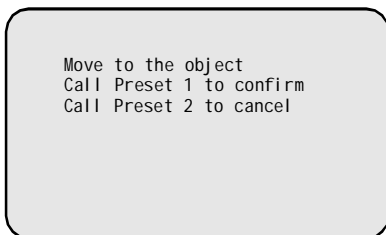
1.Mask Number: It sets the privacy mask number, ranging from 001 to 008.

To select the mask number:

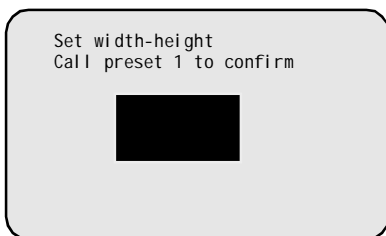
1. Select **MASK NUMBER** from Main Menu.
2. Move the joystick up or down to set the number ranging from 001 to 008, and then move it to the left or right to save the setting.

2.Setup New Mask: This enables you to determine the position to be masked according to the following steps.

1. Select **SETUP NEW MASK** from Main Menu.
2. Move the joystick to the left or right. The following picture will display on the screen.



3. Move the joystick to move the mask to the position to be masked, and then call **PRESET 1** to confirm, call **PRESET 2** to cancel. The following picture will display on the screen.



NOTE:

- User should select other place or delete other mask position to set a new one, if the total of mask number exceeds a maximum of eight.
- User should set new mask position, if the setting object is exceeded the limitation area. An alert message appears on the screen.

3.Activate: This sets whether each mask is flashing on the screen or not. For example, if mask number 002 is set to OFF, the mask will be cleared on the screen.

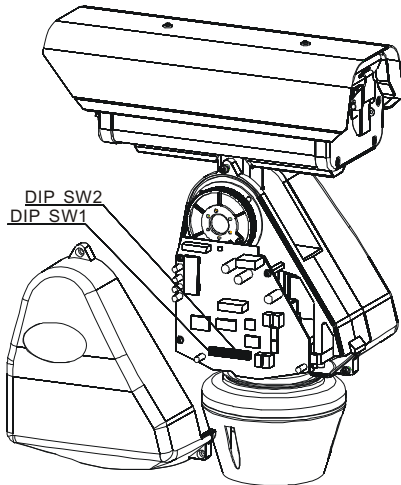
4.Show Next Mask: It automatically shows the next mask. If the next mask is not set, an alert message will pop on the screen.

5.Delete Current Mask: The current mask is deleted.

Appendix I: DIP Switch & Jumper Settings

To set the DIP switches:

1. Remove the plug from the left cover. It is not necessary to remove the pan and tilt cover.
2. Set the baud rate and receiver address.
3. Replace the plug.



Protocol and Baud rate setting

SW2 is used to set protocol and baud rate. The first six (1-6) bits of SW2 are for protocol setting and the last two (7-8) bits are for baud rate setting. Below chart shows the setting details. O means ON, blank means OFF. Default setting is 4800 bps.

Baud Rate	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
2400bps								
4800bps							O	
9600bps								O
19200bps							O	O

NOTE: If you are using **AD** or **PHILIPS** or **BBV** protocol, please set the baud rate to 19200 bps.

This speed dome supports multi-protocol. The setting chart is shown below, O means ON, blank means OFF, X means either ON or OFF. Default setting is factory.

Protocol	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
FACTORY								
VCL	O							
PELCO_P		O						
PELCO_D	O	O						
MOLYNX			O					
VICON	O		O					
DIAMOND		O	O					
KALATEL	O	O	O					
Reserved				O				
Reserved	O			O				
Reserved		O		O				
PELCO_C*	O	O		O				
Reserved			O	O				
Reserved	O		O	O				
PHILIPS *		O	O	O				
AD*	O	O	O	O				
Reserved					O			
PANASONIC	O				O			
Reserved		O			O			
SENSORNET*	O	O			O			
Reserved			O		O			
BBV*	O		O		O			
Reserved		O	O		O			
Reserved	O	O	O		O			
Reserved				O	O			
Reserved	O			O	O			
Reserved	O	O		O	O			
Reserved		O	O	O	O			
Reserved	O		O	O	O			
Reserved		O	O	O	O			
Reserved	O	O	O	O	O			

NOTE: Protocols marked with * need other protocol board.

System address setting

The control commands contain target system's ID. The system only reacts to the command sent to its own address or broadcast address. So, each system should be assigned an address. Four kinds of IDs are applicable for systems:









- • **Hard ID:** Hard ID is set via DIP SW1, it can not be changed from OSD menu. Hard ID ranges from 1 to 255.
- • **Programmable ID:** Set all 8bits of SW1 to ON to activate programmable address. Input 10-bit camera SN number, and then set system ID by controller (The system SN number can be found on the side of the camera or on the package.).
- • **Debug ID:** Set all the bites of the SW1 to 0 (all OFF), the system will react to any command for any ID.
NOTE: Debug ID only works with Factory protocol.
- • **Broadcast ID:** When a command is sent to broadcast ID, all systems connected to the control bus will respond to that command. Broadcast ID is definable, ranges from 1 to 255, the default broadcast ID is 255.

SW1 is used for seting dome ID. The setting is strictly in accordance with binary system, if you are not familiar with binary system please look up the address setting chart.

NOTE: When using Philips protocol, the first 5 bits of SW2 and all bits of SW1 are for address setting. Max address can be 8191. Example: in order to set address 2657, set bit 1, 6, 7 of SW1 and bit 2, 4 of SW2 ON. (2657=1+32+64+512+2048)

Address setting chart

O means ON, blank means OFF.

ID	Switch Number							
	 ON 1	 2	 3	 4	 5	 6	 7	 8
0								
1	O							
2		O						
3	O	O						
4			O					
5	O		O					
6		O	O					
7	O	O	O					
8				O				
9	O			O				
10		O		O				
11	O	O		O				
12			O	O				
13	O		O	O				
14		O	O	O				
15	O	O	O	O				
16					O			
17	O				O			
18		O			O			
19	O	O			O			
20			O		O			
21	O		O		O			
22		O	O		O			
23	O	O	O		O			
24				O	O			
25	O			O	O			
26		O		O	O			
27	O	O		O	O			
28			O	O	O			
29	O		O	O	O			
30		O	O	O	O			
31	O	O	O	O	O			
32						O		
33	O					O		
34		O				O		
35	O	O				O		
36			O			O		
37	O		O			O		
38		O	O			O		
39	O	O	O			O		
40				O		O		
41	O			O		O		
42		O		O		O		
43	O	O		O		O		

ID	Switch Number							
	<input checked="" type="checkbox"/> ON 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> 7	<input checked="" type="checkbox"/> 8
44			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		
45	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		
46		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		
47	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		
48					<input type="checkbox"/>	<input type="checkbox"/>		
49	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>		
50		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		
51	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		
52			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
53	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
54		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
55	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
56				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
57	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
58		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
59	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
60			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
61	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
62		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
63	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
64							<input type="checkbox"/>	
65	<input type="checkbox"/>						<input type="checkbox"/>	
66		<input type="checkbox"/>					<input type="checkbox"/>	
67	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
68			<input type="checkbox"/>				<input type="checkbox"/>	
69	<input type="checkbox"/>		<input type="checkbox"/>				<input type="checkbox"/>	
70		<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
72				<input type="checkbox"/>			<input type="checkbox"/>	
73	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>	
74		<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	
75	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	
76			<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	
77	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	
78		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	
79	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	
80					<input type="checkbox"/>		<input type="checkbox"/>	
81	<input type="checkbox"/>				<input type="checkbox"/>		<input type="checkbox"/>	
82		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	
83	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	
84			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
85	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
86		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
87	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	

ID	Switch Number							
	<input checked="" type="checkbox"/> ON 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> 7	<input checked="" type="checkbox"/> 8
88				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
89	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
90		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
91	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
92			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
93	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
94		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
96						<input type="checkbox"/>	<input type="checkbox"/>	
97	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	
98		<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	
99	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	
100			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
101	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
102		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
103	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
104				<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
105	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
106		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
107	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
108			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
109	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
110		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
111	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
112					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
113	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
114		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
115	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
116			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
117	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
118		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
119	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
120				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
121	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
122		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
123	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
124			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
125	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
126		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
127	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
128								<input type="checkbox"/>
129	<input type="checkbox"/>							<input type="checkbox"/>
130		<input type="checkbox"/>						<input type="checkbox"/>
131	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>

ID	Switch Number							
	ON 1	2	3	4	5	6	7	8
132			○					○
133	○		○					○
134		○	○					○
135	○	○	○					○
136				○				○
137	○			○				○
138		○		○				○
139	○	○		○				○
140			○	○				○
141	○		○	○				○
142		○	○	○				○
143	○	○	○	○				○
144					○			○
145	○				○			○
146		○			○			○
147	○	○			○			○
148			○		○			○
149	○		○		○			○
150		○	○		○			○
151	○	○	○		○			○
152				○	○			○
153	○			○	○			○
154		○		○	○			○
155	○	○		○	○			○
156			○	○	○			○
157	○		○	○	○			○
158		○	○	○	○			○
159	○	○	○	○	○			○
160						○		○
161	○					○		○
162		○				○		○
163	○	○				○		○
164			○			○		○
165	○		○			○		○
166		○	○			○		○
167	○	○	○			○		○
168				○		○		○
169	○			○		○		○
170		○		○		○		○
171	○	○		○		○		○
172			○	○		○		○
173	○		○	○		○		○
174		○	○	○		○		○
175	○	○	○	○		○		○

ID	Switch Number							
	ON 1	2	3	4	5	6	7	8
176					○	○		○
177	○				○	○		○
178		○			○	○		○
179	○	○			○	○		○
180			○		○	○		○
181	○		○		○	○		○
182		○	○		○	○		○
183	○	○	○		○	○		○
184				○	○	○		○
185	○			○	○	○		○
186		○		○	○	○		○
187	○	○		○	○	○		○
188			○	○	○	○		○
189	○		○	○	○	○		○
190		○	○	○	○	○		○
191	○	○	○	○	○	○		○
192							○	○
193	○						○	○
194		○					○	○
195	○	○					○	○
196			○				○	○
197	○		○				○	○
198		○	○				○	○
199	○	○	○				○	○
200				○			○	○
201	○			○			○	○
202		○		○			○	○
203	○	○		○			○	○
204			○	○			○	○
205	○		○	○			○	○
206		○	○	○			○	○
207	○	○	○	○			○	○
208					○		○	○
209	○				○		○	○
210		○			○		○	○
211	○	○			○		○	○
212			○		○		○	○
213	○		○		○		○	○
214		○	○		○		○	○
215	○	○	○		○		○	○
216				○	○		○	○
217	○			○	○		○	○
218		○		○	○		○	○
219	○	○		○	○		○	○

ID	Switch Number							
	ON 1	2	3	4	5	6	7	8
220			○	○	○		○	○
221	○		○	○	○		○	○
222		○	○	○	○		○	○
223	○	○	○	○	○		○	○
224						○	○	○
225	○					○	○	○
226		○				○	○	○
227	○	○				○	○	○
228			○			○	○	○
229	○		○			○	○	○
230		○	○			○	○	○
231	○	○	○			○	○	○
232				○		○	○	○
233	○			○		○	○	○
234		○		○		○	○	○
235	○	○		○		○	○	○
236			○	○		○	○	○
237	○		○	○		○	○	○
238		○	○	○		○	○	○
239	○	○	○	○		○	○	○
240					○	○	○	○
241	○				○	○	○	○
242		○			○	○	○	○
243	○	○			○	○	○	○
244			○		○	○	○	○
245	○		○		○	○	○	○
246		○	○		○	○	○	○
247	○	○	○		○	○	○	○
248				○	○	○	○	○
249	○			○	○	○	○	○
250		○		○	○	○	○	○
251	○	○		○	○	○	○	○
252			○	○	○	○	○	○
253	○		○	○	○	○	○	○
254		○	○	○	○	○	○	○
255 Program- mable Address	○	○	○	○	○	○	○	○

Appendix II: RS485 Bus Basic Knowledge

1. Characteristics of RS485 Bus

As specified by RS485 standards, RS485 Bus is of half-duplexed data transmission cables with characteristic impedance as 120 Ohm. The maximum load capacity is 32 unit loads (including main controller and controlled equipment).

2. Transmission distances of RS485 Bus

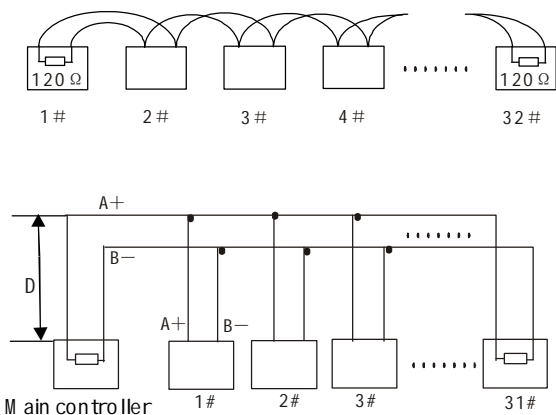
When user selects the 0.56mm (24AWG) twisted pair wires as data transmission cable, the maximum theoretical transmitting distances are as follows:

Baud Rate	Transmission Distance (Max.)
2400bps	5,906ft (1800m)
4800bps	3,937ft (1200m)
9600bps	2,625ft (800m)

If user selects thinner cables, or installs the system in an environment with strong electromagnetic interference, or connects lots of equipment to the RS485 Bus, the maximum transmitting distance will be decreased. To increase the maximum transmitting distance, do the contrary.

3. Connection and termination resistor

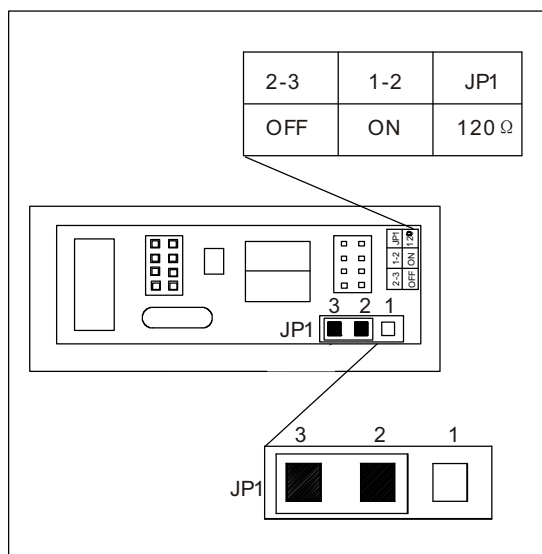
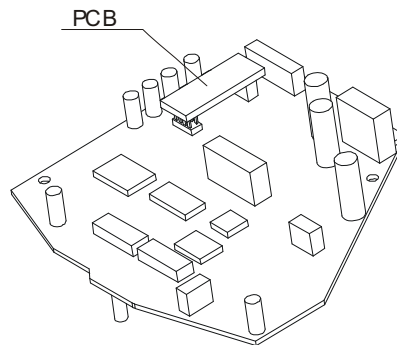
3-1 The RS485 standards require a daisy-chain connection between the equipment. There must be termination resistors with 120 Ohm impedance at both ends of the connection (refer to following pictures). Please refer to below picture for simple connection. Distance “D” should not exceed 7 meters.



3-2 The connection of 120 Ohm termination resistor:

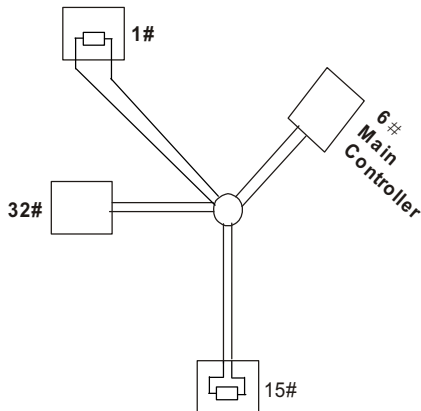
The termination resistor is ready on the Protocol PCB. There are two kinds of connection. Please refer to the Protocol PCB jumper setting form (refer to following pictures).

- 1) In the Picture it is the factory default connection. The jumper is seated on Pin2&Pin3 and the termination resistor is not connected.
- 2) when connecting the 120 Ohm termination resistor, user should pull out the protocol PCB and plug the jumper on Pin1&Pin2. Install the PCB back and the termination resistor is connected.

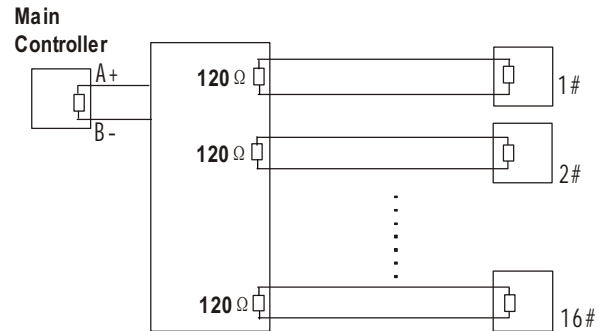


4. Problems in practical connection

In some circumstances user adopts a star configuration in practical connection. The termination resistors must be connected to the two equipment that are farthest away from each other, such as equipment 1# and 15# in the Picture as below. As the star configuration is not in conformity with the requirements of RS485 standards, problems such as signal reflections, lower anti-interference performance arise when the cables are long in the connection. The reliability of control signals is decreased with the phenomena that the system does not respond to or just responds at intervals to the controller, or does continuous operation without stop (refer to the following picture).



In such circumstances the factory recommends the usage of RS485 distributor. The distributor can change the star configuration connection to the mode of connection stipulated in the RS485 standards. The new connection achieves reliable data transmission (refer to following picture).



5. RS485 Bus Troubleshooting (refer to following form)

Trouble	Possible Cause	Solution
The system can do self-testing but cannot be controlled	<ol style="list-style-type: none"> 1. The address and baud rate settings of systems are not in conformity with those of controller 2. The "+" and "-" connection of RS485 Bus is incorrect 3. Wiring is not fully seated 4. There is breakage in the middle section of the RS485 Bus 	<ol style="list-style-type: none"> 1. Change the address and baud rate of controller or system 2. Correct the connection 3. Make sure the connections are fully seated
The system can be controlled but the operation is not smooth	<ol style="list-style-type: none"> 1. The RS485 Bus line is not in good contact with the connectors 2. One wire of the RS485 Bus is broken 3. The system is very far away from controller 4. There are too many systems connected in the system 	<ol style="list-style-type: none"> 1. Secure the connection 2. Replace RS485 Bus wires 3. Add termination resistors to the system 4. Install RS485 distributor

Appendix III: Lightning Proof & Surge Proof

The product adopts TVS lightning proof technology to prevent from damage by lightning strike below 4000V and impulse signals such as surge; but it is also necessary to abide by the following precautions to ensure electrical safety based on practical circumstances:

Keep the communication cables at least 50 meters away from high voltage equipment or cables.

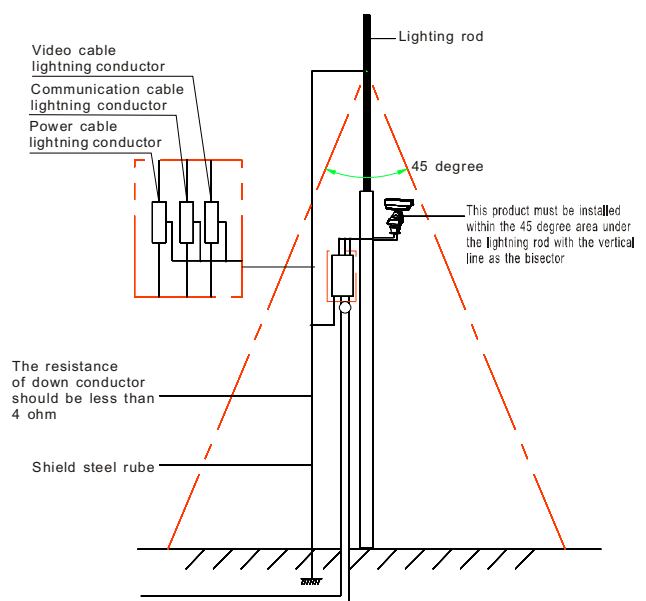
Make outdoor cable laying-out under eaves as possible as you can.

In open area shield cables in steel tube and conduct a single point ground to the tube. Trolley wire is forbidden in such circumstances.

In strong thunderstorm or high faradic zone (such as high voltage transformer substation), extra strong lightning proof equipment must be installed.

Take the building lightning proof requirements into account to design the lightning proof and grounding of outdoor equipment and cable laying-out in accordance with the national and industrial standards.

The system must be grounded with equal potentials. The earth ground connection must satisfy the anti-interference and electrical safety requirements and must not short circuited with high voltage electricity net. When the system is grounded separately, the impedance of down conductor should be less than 4 Ohms and the sectional area of down conductor should be greater than 25 square mm (refer to following picture).



Appendix IV: Trouble Shooting

Trouble	Possible Causes		Solutions
No action and no video after powered on	The red LED on the connection board is not lit:	1.The AC power supply is not connect to the port of the connection board or the contact is not good.	1.Check the connection of the power supply to ensure the socket is in good condition
		2.The color wire of the connection board is bad.	2.Check the connection of the color line in order to ensure the socket is in good condition.
		3.Fuse F1 in the main contorlling board is bad	3.Please contact the supplier for replacement of the main controlling board.
		4.The municipal power supply has been cut off or the transformer is in malfunction.	4.Check the municipal power supply .
	The red LED on the connection board is lit;	1.The main controlling board is malfunction.	2.Please contact the supplier for replacement of the main controlling board.
Self-testing and image are normal, but the controller does not work.	1.The DIP switch setting is incorrect.		1.Reset the DIP switchs according to the DIP switch setting chart.
	2.The wire connections of the controlling board are reversed or wrong.		2.Check the connection of controlling cables in order to ensure they are in good condition.
Vague image	1.Manual focus has been set		1.Operate the unit or call any preset.
	2.The cover of the camera is dirty.		2.Clean the cover of the camera..