Speed Dome

EPTZ1000

USER MANUAL

Date: Aug. 11th, 2005

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1. EPTZ1000 OVERVIEW

1.1. Introduction

EPTZ1000, an intelligent high-speed dome camera is ready to secure your property with its omni-directional and exact monitoring. An 18X optical and 12X digital zoom combining with a high-performance chip makes captured images clear and vivid. The other powerful camera functions EPTZ1000 equips with:

- PAL / NTSC image format suppose.
- Auto and fast focus increases the searching speed and precision.
- Auto Iris adjusts the monitoring image to the best brightness.
- White Balance function makes the shades of color more natural in different light conditions.
- BLC (Backlight Compensation) function makes objects clear in a high illumination background.
- Color / B&W images auto switching to enhance the sensitivity in a low light condition or at night.

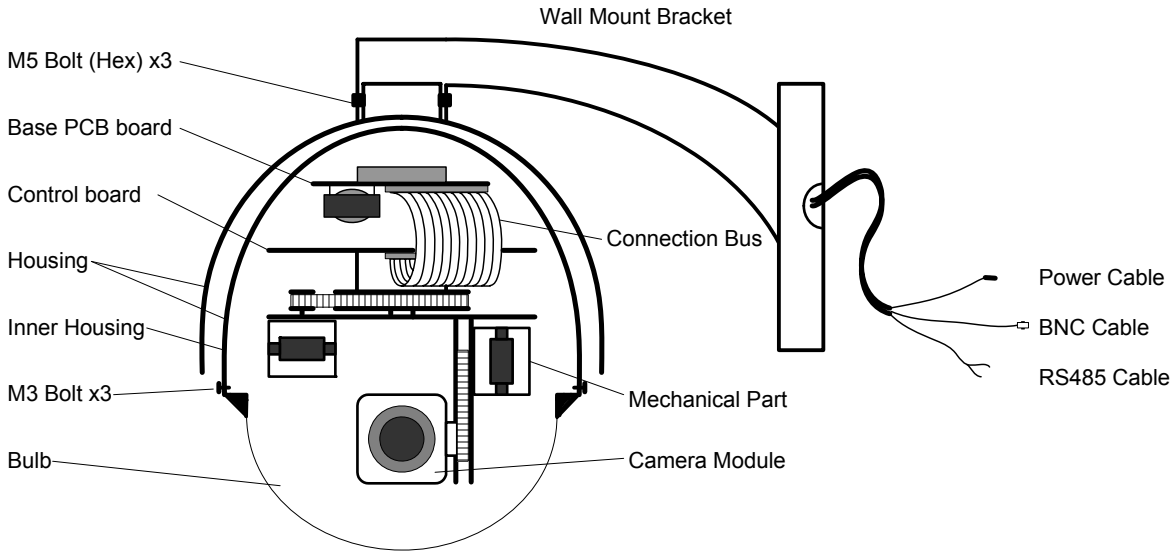
Furthermore, the micro control unit enables camera a nimble and exact movement from minimal 0.01°/sec to maximal 360°/sec. It can go to every preset position in 1 second. It also has other advantages such as:

- 192 preset positions are available.
- 16 cruise tours can be set, and each tour contains up to 16 positions.
- Up to256 speed domes can be supported on a RS485 bus when all speed domes are controlled by keyboard EKB500.
- Auto heater and fan to fit all kinds of temperature.
- Provide 4 alarm inputs and 1 alarm output.

All of the features make the intelligent high-speed dome camera works for a wide range and demanding application such as banks, airports, stations, casinos, streets of cities, intelligent buildings, and etc.

1.2. Feature

1.2.1. Profile of EPTZ1000

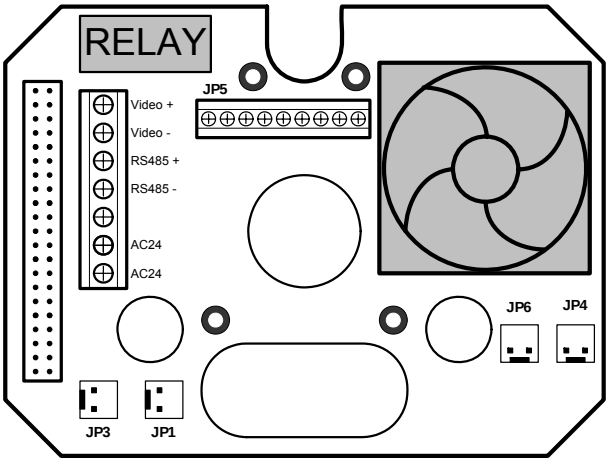


1.2.2. EPTZ1000 Base Board

The base board that is on the bottom of the housing connects to power cable, video cable, control cable, alarm cable, fan and heater. In order to connect to cables, the board needs to be taken off, and put back after finishing connecting to all cables. The connectors of cable names are marked on the board in white text. The details of the alarm connector (JP5) are shown on the APPENDIX A.

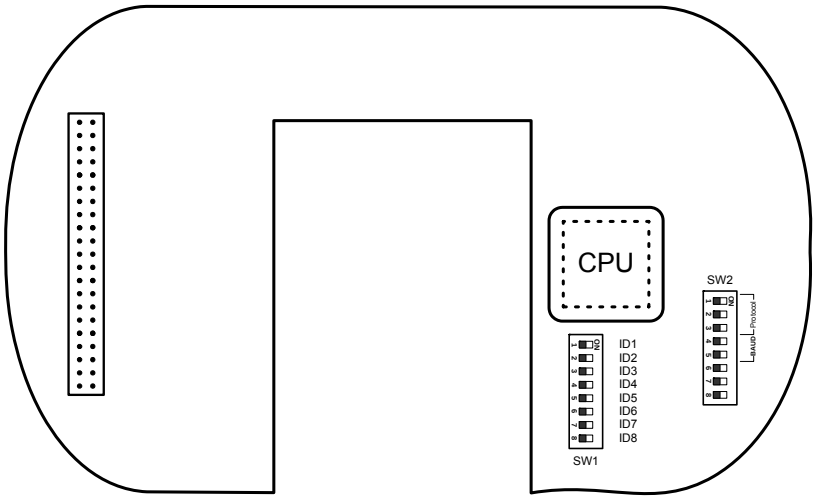
JP1, JP3 and JP6 that are two-pin connectors need to be taken of during installing. JP1

and JP3 are connectors for heater, and they can be switched. JP6 is a fan controller connector that turns on/off of the fan. The 3 cables are too short to be connected to a wrong connector when putting them back.

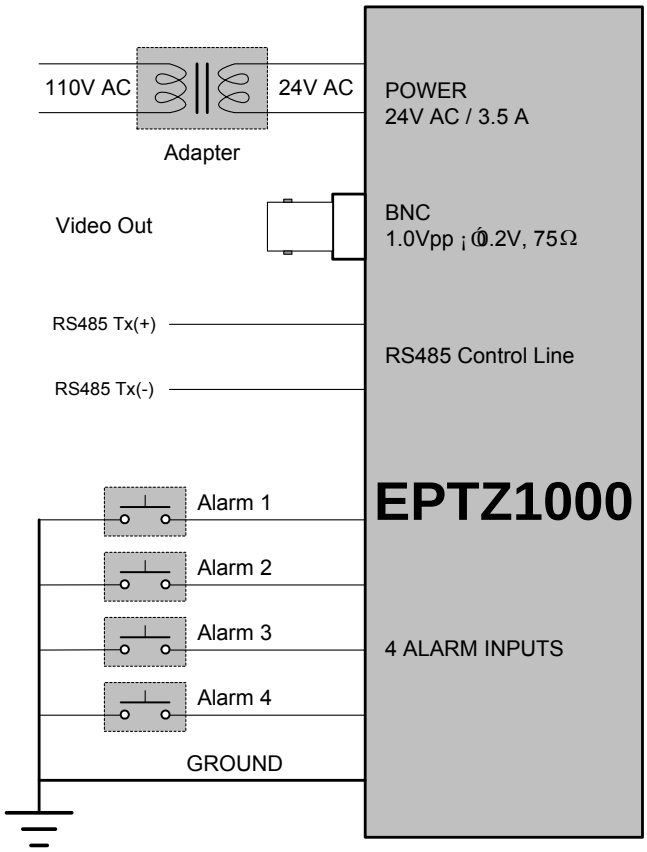


1.2.3. EPTZ1000 Control Board

The PCB board with two dipswitches is the control board of EPTZ1000. The two switches are used to set address, protocol, Baud Rate, video format and terminator resistance.



1.3. EPTZ1000 Connection



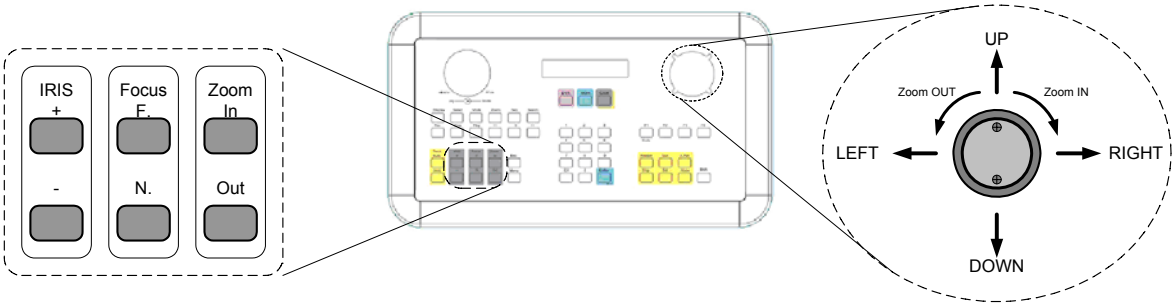
1.4. EPTZ1000 Quick Operation Guide (Work with EKB500)

EPTZ1000 and EKB500 (Keyboard) can work together by using factory default setting. You just need to connect cables by the following steps:

1. Connect the RS485 cable to EPTZ1000 and a keyboard (EKB500).
2. Connect a video cable from EPTZ1000 to a monitor.
3. Connect the power to EPTZ1000 and a keyboard (EKB500).

After the EPTZ1000 finishes the self-test mode, you can start to operate the EPTZ1000 via the keyboard.

To operate the EPTZ1000:



1. Shift the Joystick up/down or right/left to view from camera.
2. Turn the top of the Joystick to zoom in/out.
3. Press Zoom In/Out, Focus F. /N. and IRIS +/- function keys to operate the EPTZ1000.

2. EPTZ1000 INSTALLATION

2.1. Packing List

There are 3 boxes that are housing, bulb and mechanical part with a camera module, one wall mount bracket, one power adapter and one tool packet in the package. The detail accessories list below:

- Housing x1
- Bulb x1
- Mechanical part with a camera module x1
- Wall mount bracket x1
- Adapter x1
- Tool packet
  - Glove x2
  - Screw driver (small) x1
  - Screw driver (big) x1
  - M5 Hex Allen wrench x1
  - Pin connector x1
  - M5 screw (Hex) x3 for wall mount bracket fixing
  - M3 screw x3 for bulb fixing

2.2. Cable Needed

Power Cable

An adapter with 24V AC/3.5A output provides the power to EPTZ1000. An extension power line may be needed.

Note: The input AC voltage range of an adapter depends on different area.

Please make sure the voltage range before installing.

Video Cable

A BNC cable is used for connecting EPTZ1000 to a DVR or a monitor. An amplifier may be needed if the video cable is too long.

Control Cable

Basically, EPTZ1000 uses a differential pair to connect to other devices by cascading. A cable that has low signal decline can be used as a control cable.

Alarm Cable

An alarm cable is not included in the packing list. A suitable wire can be used as an alarm cable.

2.3. Initial Setup

Initial setup includes dome address, communication protocol, transmission speed, video format, and terminator resistance settings. All of the settings should be confirmed before the dome is installed. The control-related setting that is address, communication protocol and transmission speed have to be set consistently with the control device such as a keyboard or a DVR.

Notice: Please make sure the power is off before setting, and restart the EPTZ1000 to enable a new value after changing.

2.3.1. Address Setting

The address code of the EPTZ1000 should be set to correspond properly with a control device to control multiple dome cameras. The address codes are made up by the dipswitch SW1 (8 bits) on the PCB board. The 8 bits dipswitch indicates the binary coded of the address, and there are 256 addresses can be selected (0 ~ 255, 2^8 = 256). It also means that there up to 256 dome cameras can cascade on the RS485 bus. The dipswitch setting and the indicated address are represented in the following chart.

Note: The factory default address is 1.

Notice: Please make sure the power is off before setting, and restart the EPTZ1000 to enable a new value after changing.

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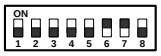
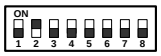
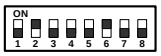
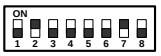
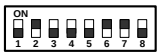
	0		32		64		96
	1		33		65		97
	2		34		66		98
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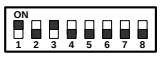
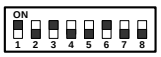
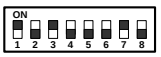
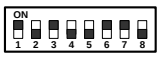
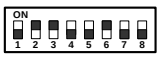
	5		37		69		101
	6		38		70		102
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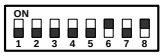
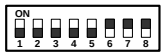
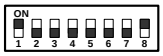
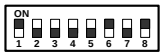
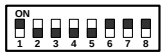
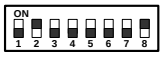
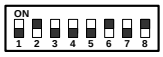
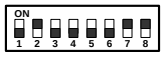
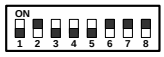
	160		160		192		224
	129		161		193		225
	130		162		194		226
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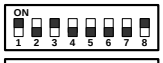
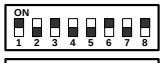
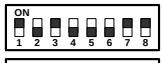
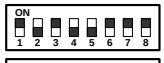
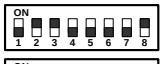
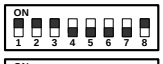
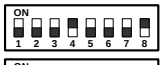
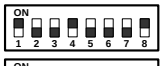
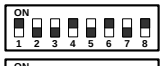
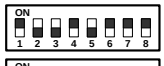
	133		165		197		229
	134		166		198		230
	135		167		199		231
	136		168		200		232
	137		169		201		233
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	158		190		222		254
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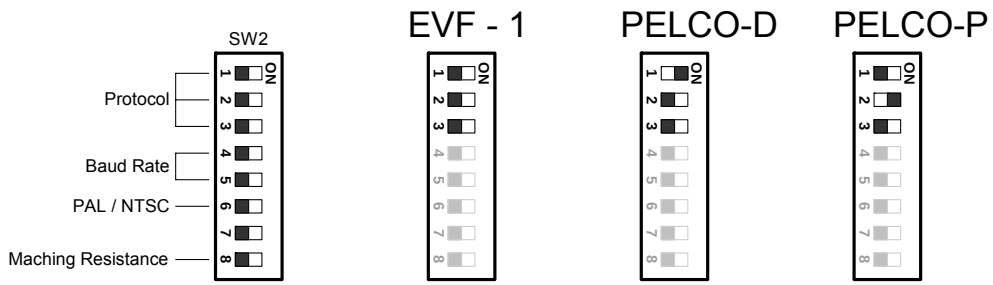
2.3.2. Communication Protocol Setting

The 1st, 2nd and 3rd bits of the SW2 are used to set communication protocol. The factory default protocol is EVF-1.

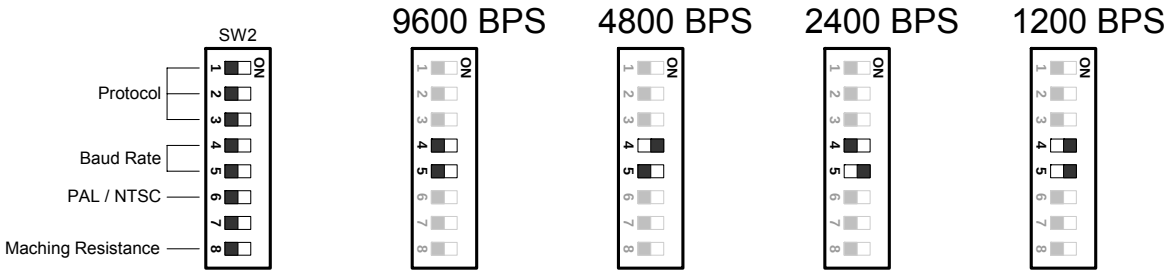


Notice: Please make sure the power is off before setting, and restart the EPTZ1000 to enable a new value after changing.

Set all of protocol switches to ON; the speed EPTZ1000 will enter a self-test mode.

2.3.3. Transmission Speed Setting (Baud Rate Setting)

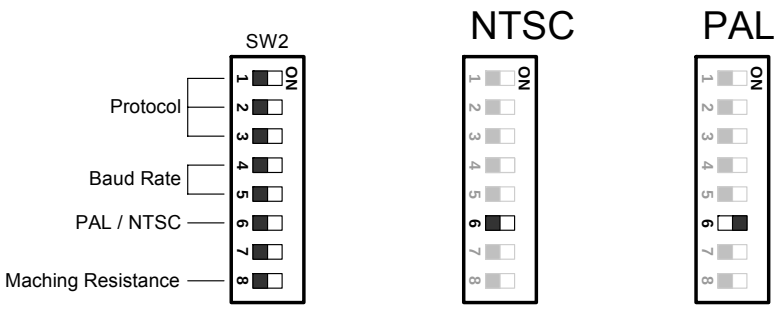
The 4th and 5th bits of the SW2 on the PCB board are used to set the Baud Rate. The default baud rate setting is 9600.



Notice: Please make sure the power is off before setting, and restart the EPTZ1000 to enable a new value after changing.

2.3.4. Video Format Setting

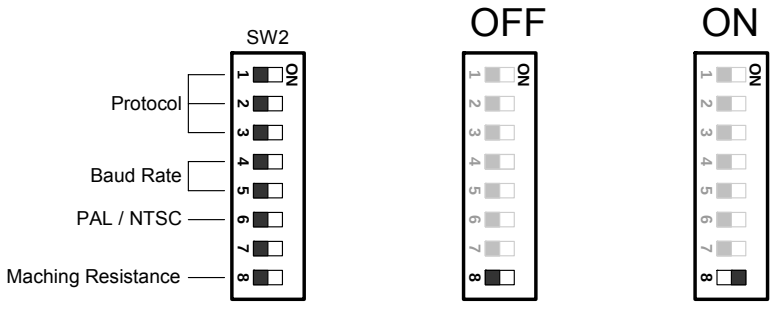
The 6th bits of the SW2 on the PCB board are used to set the video format. The default video format depends on the factory setting. Please do not to change it.

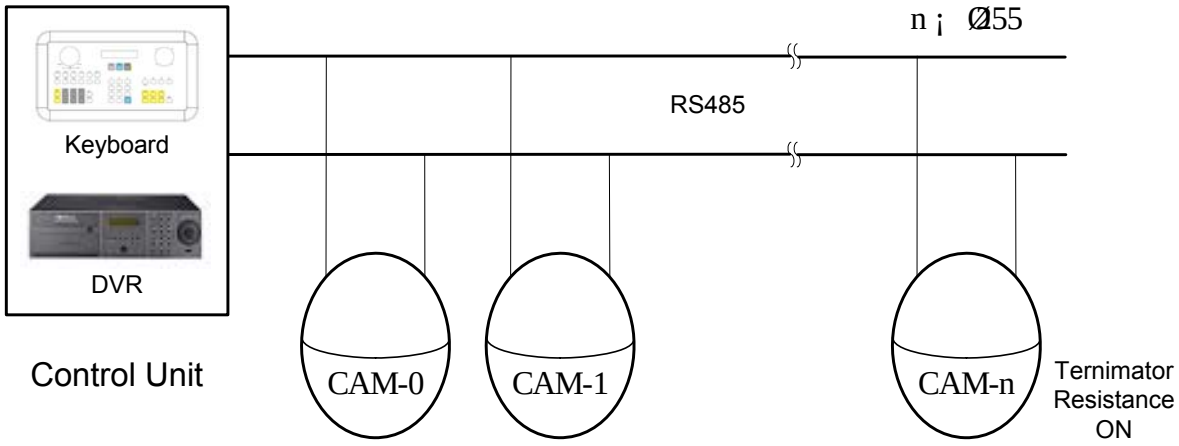


Notice: Please make sure the power is off before setting, and restart the EPTZ1000 to enable a new value after changing.

2.3.5. RS-485 Bus Terminator Resistance

For central controlling, the terminator resistance should be set for the device that is the furthest one away from the controller. The 8th bit on the SW2 is a switch to enable or disable the terminator resistance. When it is switched ON, the BUS terminator resistance is connected.





Note: When the dome is out of control, or does not work under control well, try to switch the terminator resistance ON.

Notice: Please make sure the power is off before setting, and restart the EPTZ1000 to enable a new value after changing.

2.4. Rack and Speed Dome Installation

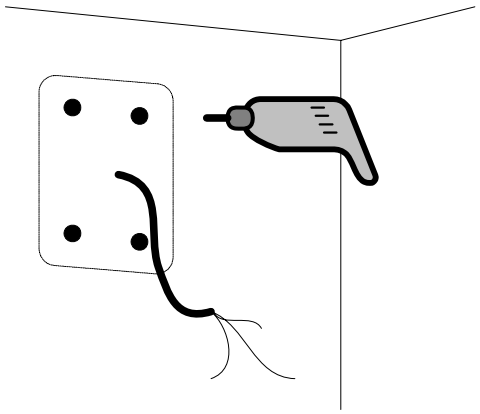
2.4.1. Installation Requirements

1. Installation should be handled by a qualified service agent and should comply with all local regulations. Service personnel should expect potential problems such as surface strength, surface material, falling objects, outer breaches, building vibration or other similar conditions.
2. Check for all necessary materials, and ensure if the selected installation location is suitable for the EPTZ1000.

2.4.2. EPTZ1000 Dome Camera Wall Mount Installation

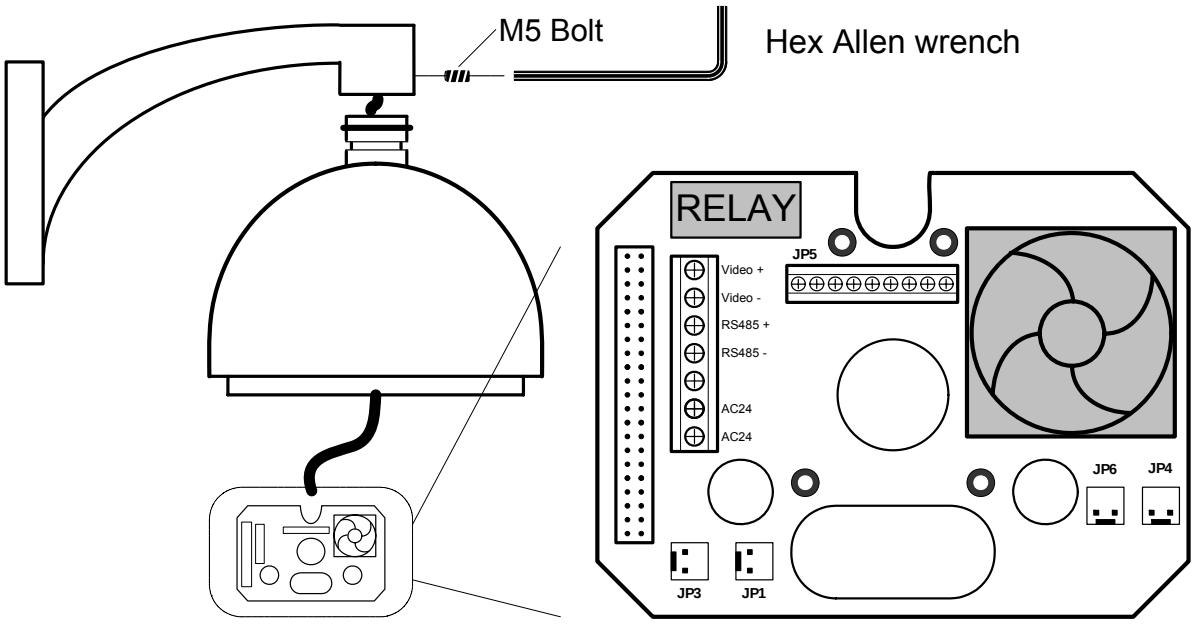
Notice: Installation location that is a wall, pole or a ceiling need to support above five times the total weight of the camera assembly (dome camera and bracket) to avoid shaken images, and dropping.

1. Set wall mount bracket on the wall. Mark the center of the holes on the wall against the bracket holes. Use a drill to make 4 M8 size holes at the marks, and nail in 4 M8 screws.



2. Thread the cable through the hole in the wall mount bracket, and screw in 4 M8 nuts for mounting the bracket.

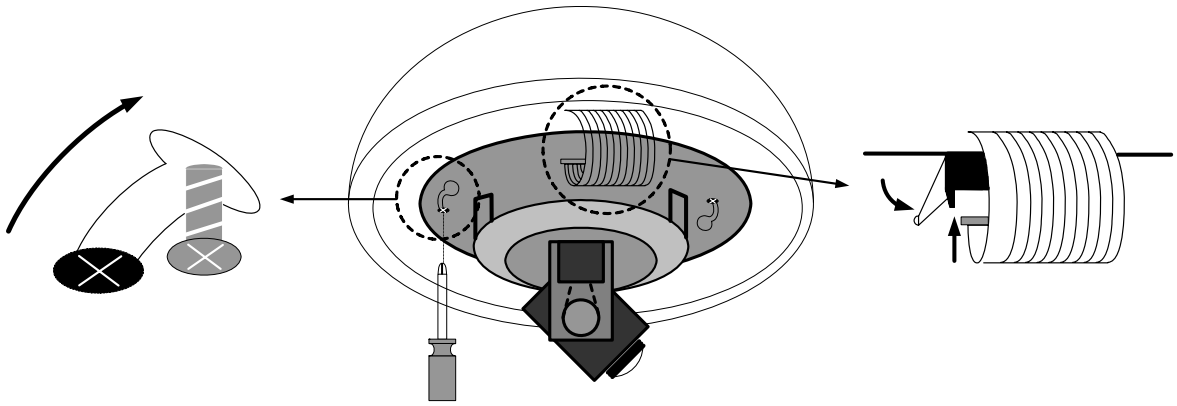
3. Take off the housing from the packing, and take off the PCB board (4 bolts on it.) inside the housing. Thread the cable through the top of the housing. Fix the housing on the wall mount bracket, and screw in 3 M5 bolts (Hex) on the top of the bracket with the attached Hex Allen wrench to fix the housing.



4. Connect the cable connectors to the nodes on the PCB board, and then fix the PCB board in the housing by screwing 4 bolts on it.

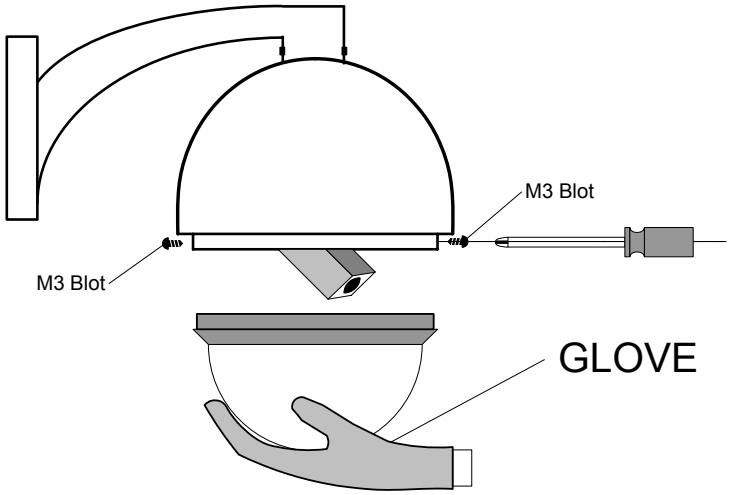
Notice: Please notice the polarity of control line. The EPTZ1000 will not work if the polarity of control line is mis-connected.

5. Align the two screw holes on the bottom of mechanical part to the two bolts on the base of the housing, and twist the mechanical part clockwise a little bit in order to engage it with the base. Screw the two bolts on the base, and then connect and fix the connection bus to the PCB board on the mechanical part.



Notice: The camera module on the mechanical part is very sensitive. Please be careful when installing this part.

6. Remove the lens protection cover before installing the bulb. Align the 3 bolt holes into the 3 housing bolt holes, and screw thee M3 bolts with the attached small screw driver to fix the bulb.



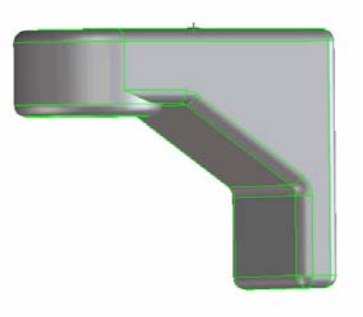
Notice: In order to protect the bulb from dirt and scrape, please put on the gloves before installing the bulb.

7. Turn on the power, and start to operate the EPTZ1000.

When turning on the power, EPTZ1000 will enter self-inspection mode, and carry out a self-testing program. After finishing self-inspection, you can start to operate the EPTZ1000.

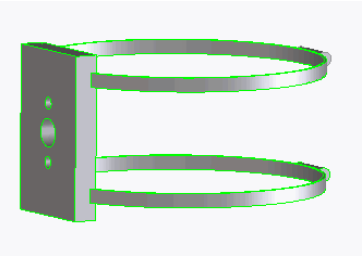
2.5. Separately Sold Brackets

2.5.1. Wall mount



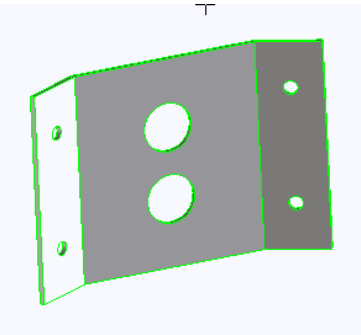
The wall mount bracket is used for installing speed domes on the wall indoors or outdoors.

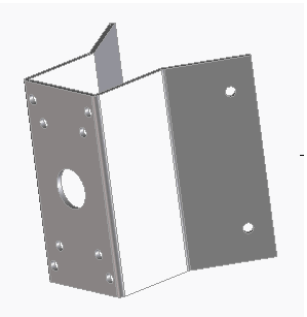
2.5.2. Pole adapter



The pole adapter is used for installing a wall mount bracket to a pole indoors or outdoors.

2.5.3. Corner mount

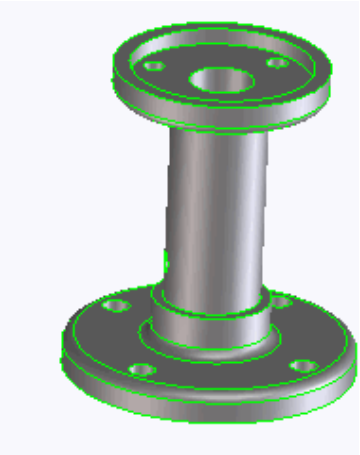




The corner mounts are used for installing a wall mount bracket to a corner of walls indoors or outdoors.

There are two kinds of corner mounts which are 90° and 270° mounts available.

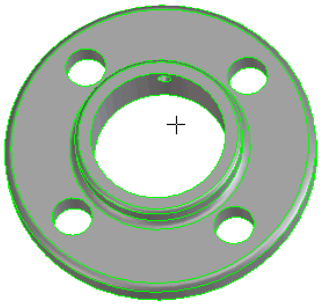
2.5.4. Pole mount



The pole mount is used for installing a speed dome on the ceiling indoors or outdoors.

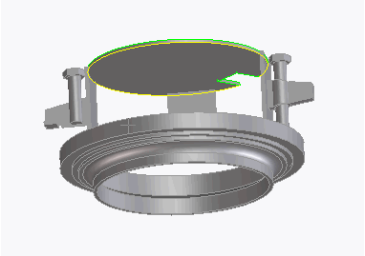
The extension poles are available for the pole mount.

2.5.5. Ceiling mount



The ceiling mount is used for installing a speed dome on the ceiling indoor.

2.5.6. Embedded ceiling mount



The embedded ceiling mount is used for lodging a speed dome in the ceiling indoor.

3. EPTZ1000 CAMERA SETUP MENU

In this section, setup and operation guide of EPTZ1000 will be introduced. There are 22 items of the setting menu. However, there is only one line on the line display, so using some combination keys to operate is necessary.

3.1. Structure of the Setup Menu

Items	Option
CAM ID	----------
DZOOM	OFF / ON
FOCUS	AUTO / MAN
IMG MIRROR	OFF / ON
IMG FLIP	OFF / ON
NEGATIVE	OFF / ON
ICR	AUTO / OFF
COLOR	OFF / ON
FREEZE	OFF / ON
DISPLAY	OFF / ON
BACKLIGHT	OFF / ON
WBC MODE	AUTO / INDOOR / OUTDOOR / MAN
TITLE DISPLAY	OFF / ON
AUTO FLIP	OFF / ON
ALM-IN1 SET	N.O. / N.C. / OFF
ALM-IN2 SET	N.O. / N.C. / OFF
ALM-IN3 SET	N.O. / N.C. / OFF
ALM-IN4 SET	N.O. / N.C. / OFF
ALM-IN PRIO	1234 / 2341 / 3421 / 4123
ALM-OUT	OFF / ON
LOAD DEFAULT	----------
EXIT MENU	----------

Note: In keyboard EKB500, press MENU to enter camera setup menu.

3.1.1. Camera Setup Menu

Press MENU to enter camera setup menu.

Shift Joystick up/down to change subentries, and right/left to change the setting.

1. CAM ID The name assigned to the camera.

2. DZOOM Digital zoom enable or disable.

ON: Enable a digital zoom.

OFF: Disable a digital zoom.

3. FOCUS Focus type, auto focus and manual focus are available.

AUTO: Auto focus is enabled.

MAN: Manual focus is enabled.

4. IMG MIRROR Mirror image.

ON: Enable a mirror image.

OFF: Disable a mirror image.

5. IMG FLIP : FLIP image up side down.

ON: Enable a mirror image.

OFF: Disable a mirror image.

6. NEGATIVE Negative image.

ON: Enable a negative image.

OFF: Disable a negative image.

7. ICR Day/Night Mode auto switch. The speed dome will auto switch to night mode, and display in B&W (Black and White) mode to increase the resolution when the illumination is low.

ON: Enable the ICR function.

OFF: Disable the ICR function.

8. COLOR Color display.

ON: Enable a color display.

OFF: Disable a color display, and show a B&W display.

9. FREEZE Freeze the display.

ON: To freeze a display.

OFF: To disable a freeze status.

10. DISPLAY Display system information and status.

ON: To display the system information and status on the screen.

OFF: Not to display the system information and status on the screen.

11. BACKLIGHT Backlight compensation.

ON: Enable backlight compensation.

OFF: Disable backlight compensation.

12. WBC MODE White balance mode.

AUTO: Auto white balance mode.

INDOOR: Indoor white balance mode.

OUTDOOR: Outdoor white balance mode.

MAN: Manual white balance mode.

13. TITLE DISPLAY : Display the title.

ON: Enable title display.

OFF: Disable title display.

14. AUTO FLIP Flip the camera when it tilts to the 90° end.

ON: Enable auto flip.

OFF: Disable auto flip.

15. ALM-IN1 SET The status of input alarm 1.

N.O.: Enable a normal open alarm input.

N.C.: Enable a normal close alarm input.

OFF: Disable alarm input.

16. ALM-IN2 SET The status of input alarm 2.

N.O.: Enable a normal open alarm input.

N.C.: Enable a normal close alarm input.

OFF: Disable alarm input.

17. ALM-IN3 SET The status of input alarm 3.

N.O.: Enable a normal open alarm input.

N.C.: Enable a normal close alarm input.

OFF: Disable alarm input.

18. ALM-IN4 SET The status of input alarm 4.

N.O.: Enable a normal open alarm input.

N.C.: Enable a normal close alarm input.

OFF: Disable alarm input.

19. ALM-IN PRIO The priority of alarms.

1234: The alarm priority is 1>2>3>4.

2341: The alarm priority is 2>3>4>1.

3412: The alarm priority is 3>4>1>2.

4123: The alarm priority is 4>1>2>3.

20. ALM-OUT Alarm output. There is a built-in relay to offer an alarm output.

ON: Enable alarm output.

OFF: Disable alarm output.

21. LOAD DEFAULT Load default setting.

Select this item, and then press "Enter" to load default setting.

Press "Clr" + "Menu" whenever you want to quit menu setting.

22. EXIT : To exit.

Select this item, and then press "Enter" to quit setting.

Press "Clr" + "Menu" whenever you want to quit menu setting.

4. EPTZ1000 FUNCTION SETUP AND OPERATION

4.1. Manual Control Mode

- **Manual control:** Shift Joystick Up/Down/Left/Right, and turn it Clockwise/Counterclockwise to control speed dome.

Use the control keys which are Zoom, Focus and IRIS function keys on the keyboard to zoom In/Out, focus N (near)/F (Far), or IRIS +/-.

- **HOME Mode:** The camera view will go back to the home position when there is no keyboard operation in a specific time. The home position and the specific time can be set by press Set + Home.

4.2. Auto Pan Mode

- **Two point auto pan**: Press A.Pan to enter the auto pan mode, and then the system will ask you to enter the auto pan speed (1~239). Press Enter to start auto pan.

In order to set the two points, press Set + A.Pan, and then enter the dwell time (1~239 seconds) of each point.

- **360° auto pan:** Press Shift + A.Pan to enter the 360° auto pan. The camera will turn 360° automatically, but not tilt.

4.3. Position Setting

- **Focus on a preset position:** Press the number key, and then press Position to focus on the number of preset position; or you can press Position, then enter the preset position number, and then press Enter to focus on the number of preset position.
- **Preset a position:** Shift the Joystick to the position you would like to preset, and

then press Shift + Position. The system will ask you to enter the preset position number (1~239), and then press Enter to save the position. There are up to 192 positions can be preset.

- **Set the parameter of a preset position:** Press Set + Position to set the parameter of a preset position. You can set the going-to speed (1~239), dwell time (1~239 seconds), and the title of the position. Shift the joystick Right/Left to change bits, and shift the Joystick Up/Down to change the alphanumeric characteristic. The available alphanumeric characteristics are 0~9, A~Z, &, ?, !, :, ‘, ., ,, /, -, and a space.
- **Delete a preset position:** Press Clr + Position to delete a preset position. The system will ask you to enter the position number that you would like to delete, and then press Enter.

4.4. Tour Mode

In the tour mode, you can set a tour for viewing. There are 16 tours can be set, and 16 preset positions in a tour.

- **One-way tour Mode:** Press Tour to enter the tour mode. The system will ask you to enter the tour number you would like to run, and starts the tour after pressing Enter. To preset a tour before running it is necessary.

  Preset a one-way tour: Press Set + Tour to preset a one-way tour. The system will ask you to enter preset position numbers (The positions need to be preset.). After finish entering all positions, press Stop to quit, and then press Enter to save the tour.
- **To-and-fro tour mode:** Press Shift + Tour to run a to-and-fro tour. The system will ask you to enter the tour number you would like to run, and starts the tour after pressing Enter. To preset a tour before running it is necessary.

Note: The difference between the One-way tour mode and To-and-fro tour mode is that the return modes are different. For example: There is a tour with 3 preset positions 1, 2 and 3. The camera runs 1→2→3→1→2→3 in the One-way tour mode, and 1→2→3→2→1 in the To-and-fro tour mode.

4.5. Alarm to Position/Tour Link

EPTZ1000 have 4 alarm inputs that can be set to link to a position or a tour when an alarm is triggered.

- **Set an alarm link:**

  Press **F1** to set an alarm link. Enter the alarm number, and then press **Enter**. Switch the Joystick up/down to select a position or a tour, enter a position or tour number, and then press **Enter** to confirm the alarm link setting.

- **Delete an alarm link:**

  Press **Clr** + **F1** to delete a link of alarm to position/tour.

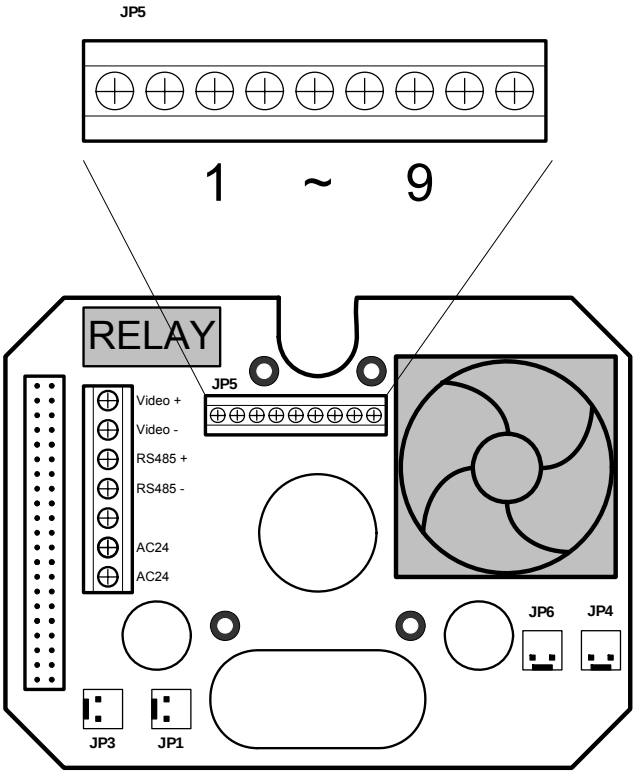
4.6. Other operations

The EPTZ1000 can work with a DVR that has PTZ control functions, and a matching protocol. The available control functions depend on different DVRs.

The EPTZ1000 can work with a keyboard that has PTZ control functions, and a matching protocol. The available control functions depend on different keyboards.

APPENDIX A: The Alarm I/O Connection

There are 4 alarm inputs and 1 alarm output available. The alarm I/O connector that is marked as **JP5** is a nine-pin connector. It is located on the PCB board of the housing.



Pin #	Function
1	Alarm Input 3
2	Ground
3	Alarm Input 2
4	Alarm Input 1
5	Ground
6	Alarm Input 0
7	Normal Open (N.O.)
8	Common (COM)
9	Normal Close (N.C.)

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