FAST DOME CAMERA

PIH-7000 SERIES
PIH-7600 SERIES

INSTALLATION / OPERATION MANUAL

CONTENTS

PREFACE

After launch the first generation Fast Dome colour camera in 1998, today in 2001 we at Li-Lin would like to announce our next generation new integrated Fast Dome Camera: PIH-7000 & PIH-7600. The new model measures a mere 145 mm (5.6") in diameter yet pack in even more features than the previous model, now smaller and even quieter, the number of potential applications are limitless.

The fast Dome's high performance colour camera is equipped with either a 17 X optical auto-focus zoom lens (PIH-7000) or 22X (PIH-7600). A resolution of 480 TV lines provides high definition images and Digital Signal Processing, maintains optimum quality in varying conditions with intelligent use of Back Light Compensation, Auto Zoom…Etc.

With continuous rotation and a speed range of 0.18°/sec to 360°/sec the dome is easily controlled, direct and accurate response ensures targets are easily located and tracked. Up to 128 preset positions can be programmed and recalled with an accuracy of 0.25°. 6 individual alarm inputs (expandable to 64) can drive the dome to any position in under a second; there is also a patrol facility with individual settings for speed and dwell.

This is a fully-functional and user-friendly fast dome camera. It will meet your need for a wide range of surveillance applications.

FEATURES

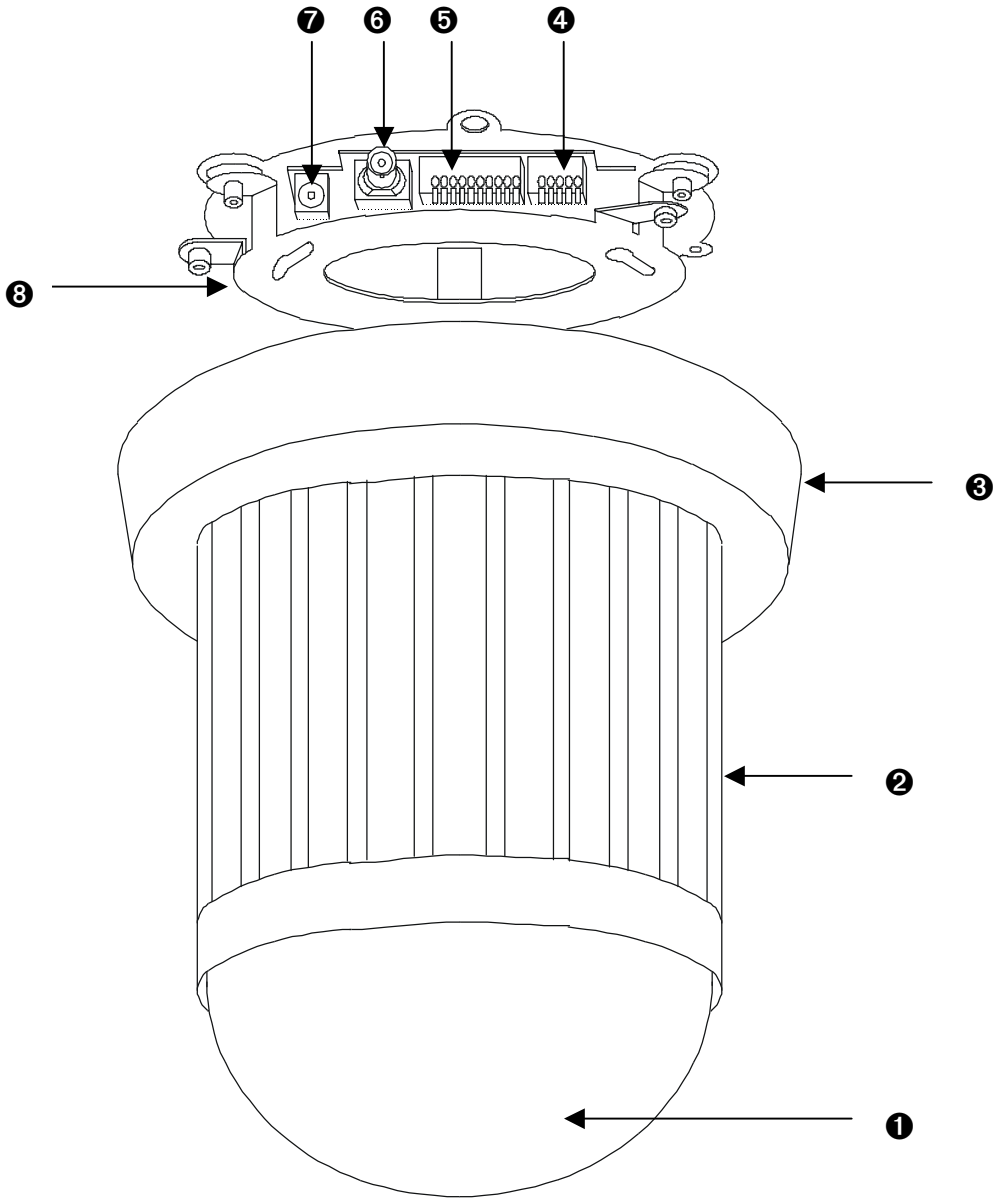
- 17X Auto Focus Lens (PIH-7000)
  Build-in 17X optical zoom lens with focal length 3.9 – 66.3 mm
- 22X Auto Focus Lens (PIH-7600)
  Build-in 22X optical zoom lens with focal length 3.9 – 86 mm
- Automatic/Manual Iris Control
- 360° continuous rotation
- Up to 128 programmable preset positions
- AutoPan preset position
- High speed rotation and tilt, speed range varies from 0.18° sec - 360° sec
- Instant Flip 180°
- 6 alarm inputs, 1 alarm output can be set as NO (normally open) or NC (normally close) for each Fast Dome
- Two types of alarm response mode: Lock Mode, Release Mode
- Build in 1/4" CCD high resolution DSP colour camera:
  1. 480 TV Lines high resolution
  2. 0.8 Lux high sensitivity
  3. White Balance Control (Auto White Balance and Manual White Balance (Indoor/Outdoor))
  4. Back Light Compensation (ON/OFF)
  5. Auto Gain Control (ON/OFF)
- RS-485 control interface
- Up to 64 Fast Dome configuration
- Compatible with PC control (protocol required)
- 12Vdc voltage input (power supply options: 90～260Vac or 24Vac)
- Flexible Mounting: Indoor- embedded and attached types, Outdoor-with weather resistant housing

WARNINGS & CAUTIONS

Please read the manual before attempting installation or operation

1. Please be aware to the warnings and cautions notice.
2. Don't use any chemical detergent to clean the machine surface, use a damp cotton cloth only. Regularly clean the dome cover to assure proper focus ability.
3. Please install the Fast Dome in a dry area, water and high humidity may cause damage on internal parts. External housing should be used for outdoor installation.
4. Please use parts supplied by the manufacturer only, any unqualified part using in the equipment may violate the warranty.
5. Avoid installing the equipment in an unstable area. Make sure the area is firm and stable. Falling equipment may injure personnel and damage the equipment.
6. Do not install the equipment near any flammable gas. Violation may cause fire or injury.
7. Avoid running video cable and signal cable through or passing interference sources such as video waves, broadcast station, power generator, elevator motor or high voltage area… etc. Violation may cause interference.
8. Make sure the power cable is properly fixed. Un-suitably fixed cable may cause serious short circuit or fire
9. Correct cable connection is important. Do not place any object on the connection cable and change the cable if there is damage on cable. Violation may cause short circuit, fire and injury.
10. Make sure ground is well connected to avoid damage caused by lightning.
11. Do not put any foreign objects inside the equipment and do not spray any liquid on equipment. This will avoid short circuit damage.
12. Do not touch power connection with wet hands to avoid short circuit or electricity shock.
13. Do not apply smash-force on the equipment. Violation may cause damage.
14. Do not install the equipment in a location that may expose the equipment directly to sunlight. Violation may cause colour fading or damage.
15. Do not install the equipment in high temperature or low temperature environment to avoid damage. The normal operational temperature is between -5℃ ～ +50℃.
16. Fast Dome contains high sensitive electric parts inside. Do not try to repair them without qualified personnel.
17. Turn off the power immediately and contact the technician when the following occurs:
    A. Damage on power cable or plug
    B. Water leak into the equipment
    C. Fast Dome can not be operated normally
    D. Equipment falling on ground or damage on external case
    E. Unusual occurrence
18. Warning: Do not try to repair the equipment. Only a qualified technician may disassemble and repair the equipment. Shut off the power before disassemble the equipment and don't put power on unless the case is completely assembled.

STRUCTURAL ELEMENT



❶ Dome Cover

❷ Camera Case

❸ Decoration Ring

❹ RS-485 In / Out Jack

❺ Alarm In / Out Jack

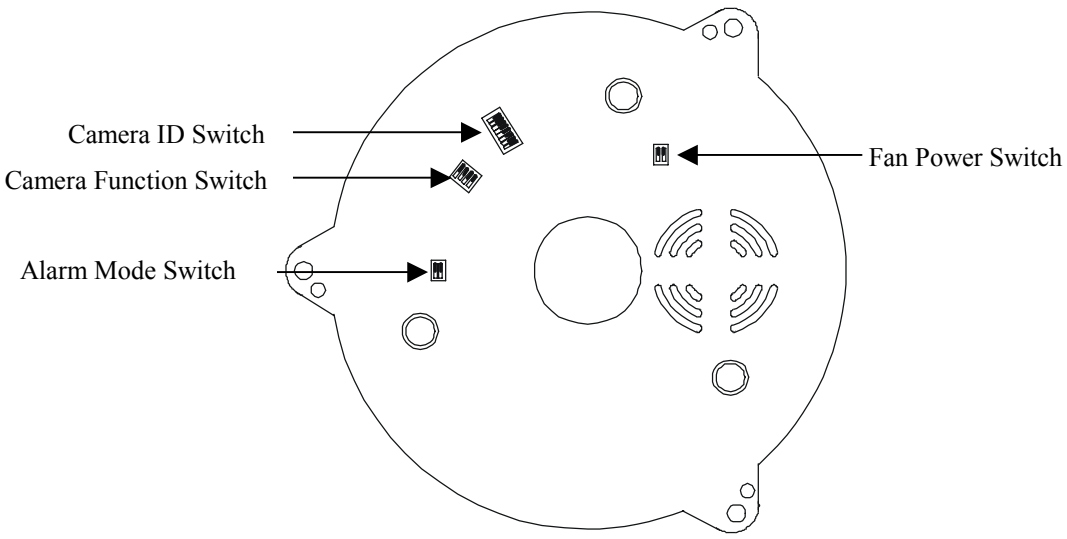
❻ Video In / Out Jack

❼ Power In Jack

❽ Camera Base

FAST DOME CAMERA SET UP

DIP Switch Setting



Fan Power Switch

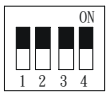
Turn the number 2 switch to ON position to activate the internal fan. This will maintain the temperature inside and make the electric parts longer life.

Alarm Mode Switch

Alarm Mode can be set as Lock or Release mode. Turn number 1 switch to ON position to choose Release mode. Turn number 1 switch to OFF position to choose Lock mode.

Fast Dome has 6 alarm inputs and 1 output, which can be set either NC (normally close) or NO (normally open) mode. Turn number 2 switch to ON position to choose NC mode. Turn number 2 switch to OFF position to choose NO mode.

Camera Function Switch



Turn number 1 switch to ON position for AGC function
Turn number 2 switch to ON position for BLC function
Turn number 3 switch to ON position for AWB function
Turn number 3 switch to OFF position for Manual White Balance (MWB)

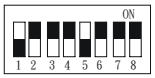
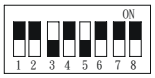
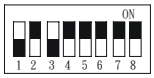
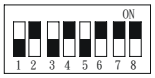
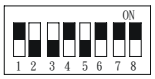
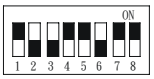
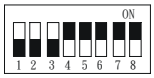
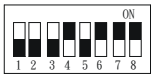
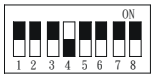
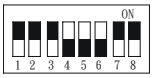
When fast dome is set to MWB, turn number 4 switch to ON for Outdoor (colour temp. 3200K) or to OFF for Indoor (colour temp. 6300K)

Fast Dome ID Address Setting Refer Chart

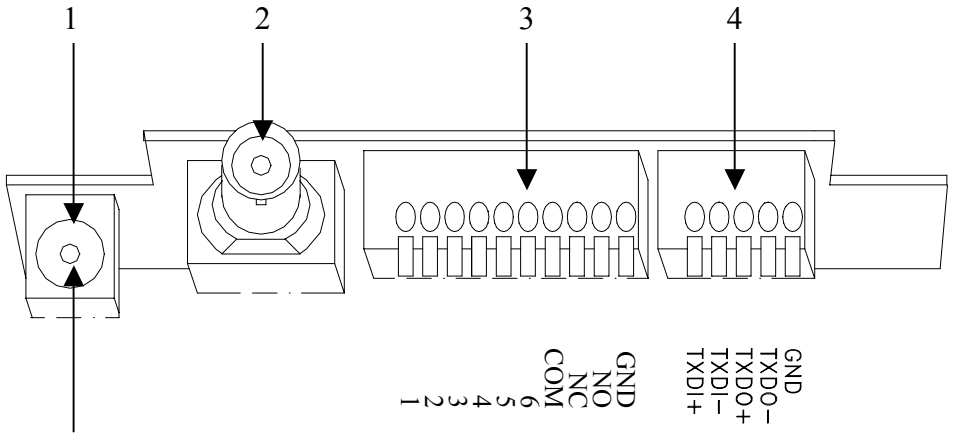
Up to 64 Fast Dome Camera can be in serial linking in one system.

Therefore each dome is addressing by ID switch located at the base of the Fast Dome.

Below is the address setting for camera 1 ~ 64:

1 	17 	33 	49 
2 	18 	34 	50 
3 	19 	35 	51 
4 	20 	36 	52 
5 	21 	37 	53 
6 	22 	38 	54 
7 	23 	39 	55 
8 	24 	40 	56 
9 	25 	41 	57 
10 	26 	42 	58 
11	27	43	59
12	28	44	60
13	29	45	61
14	30	46	62
15	31	47	63
16	32	48	64

Fast Dome Connection Jack and Cable Requirement



1. Power In Jack

DC 12V Input Voltage , Power Consumption 1.2Adc , Center Pin 2.0mm
Require Cable : 18 AWGx2C

2. Video out BNC Jack

Video Signal Output CVBS 1.0Vpp 75Ω BNC
Recommend Data Cable : 5C2V

3. Alarm In / Out Jack

Each fast dome contains 6 alarm inputs and 1 alarm output
Alarm Input Voltage 5.6 Vmax, Output 0.5A 120Vac/1A 24Vac
Recommend Data Cable : UL 26 AWG 80℃ 300V
UL 24 AWG 80°C 300V

4. RS-485 In / Out Jack

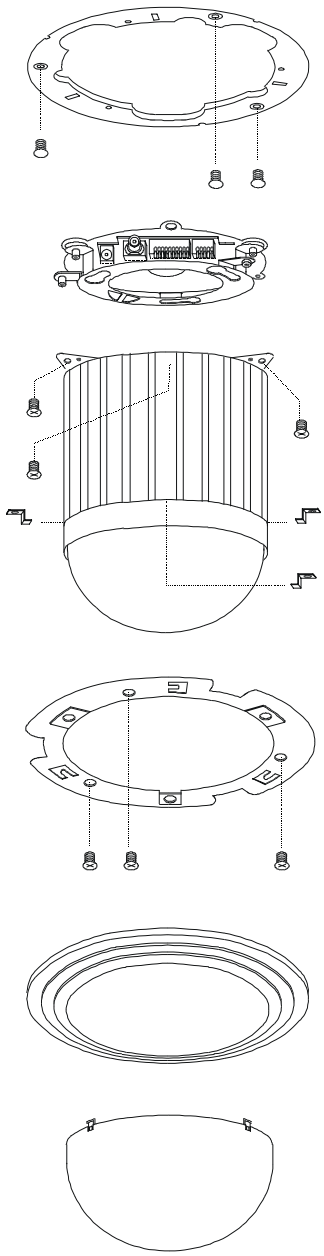
RS-485 Input (TXDI +, TXDI-) to receive signal from keyboard , matrix , DVR or multiplexer through twisted pair cable
RS-485 Output (TXDO+, TXDI-) sending out signal to next fast dome through twisted pair cable
Recommend Data Cable： 2547 E41396 VW-ISC UL 24 AWGx2C
Transmission Distance： Max. 1 Kilometer

＊ When 24VAC PSU is used , the recommend cables are：
UL SPT-1 VW-1 E94163 18AWGx2C
UL SPT-2 VW-1 E94163 18AWGx2C
UL E115988 SUT 105℃ VW-1 18AWGx3C
The distance between 24Vac PSU and fast dome can not exceed 200 meters

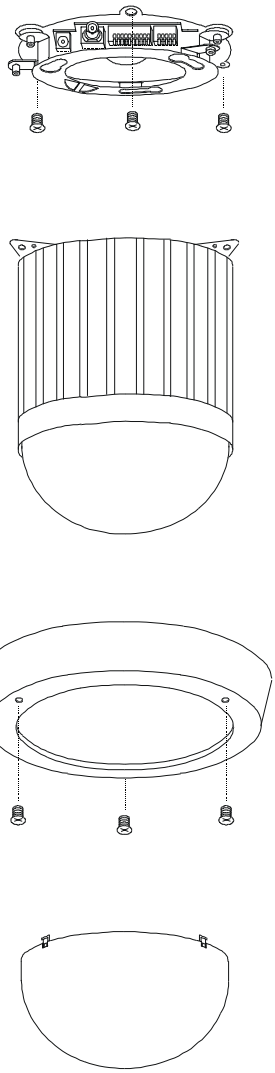
INSTALLATION

Indoor Installation Structural Drawing

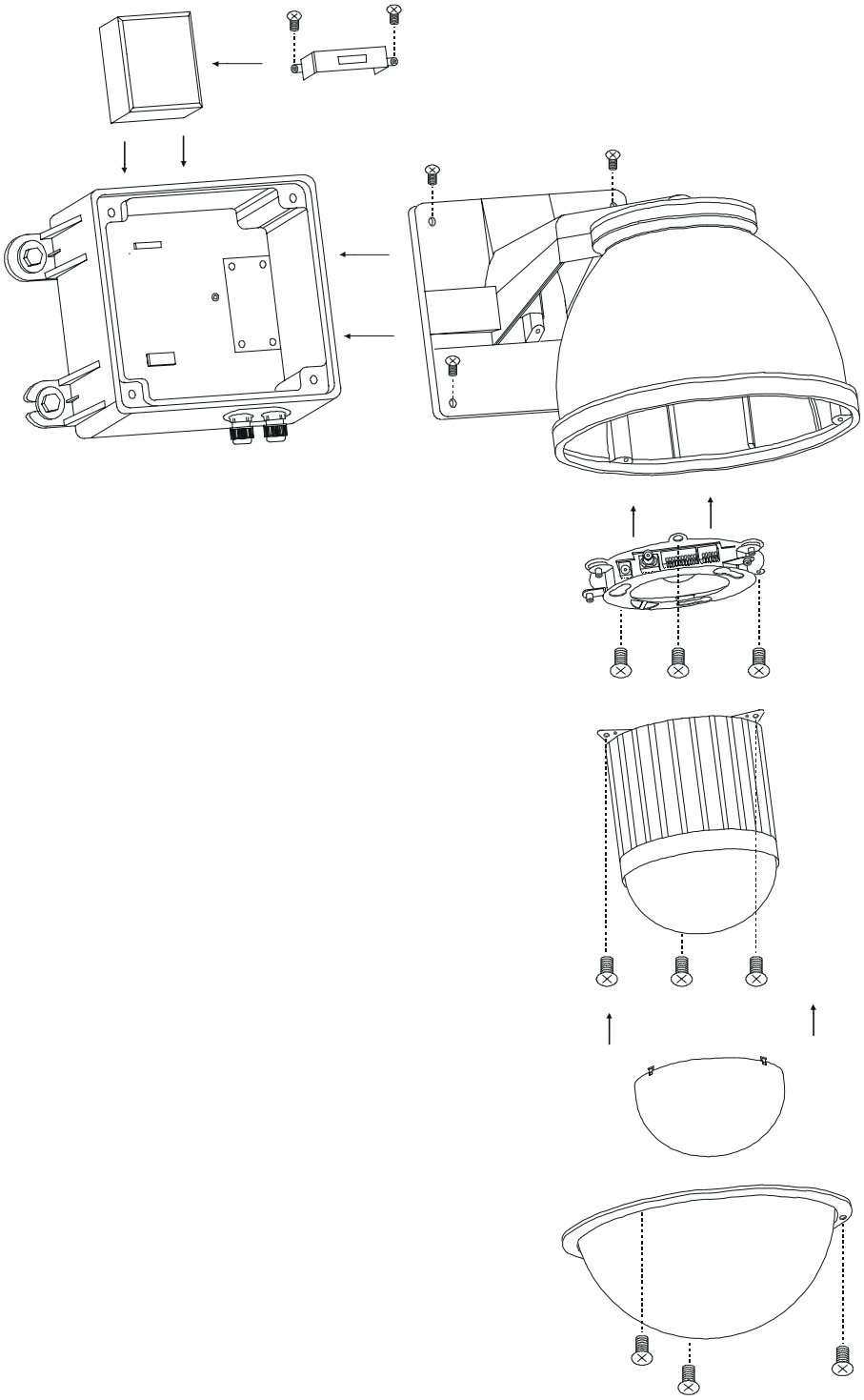
Embedded Mounting



Attached Mounting

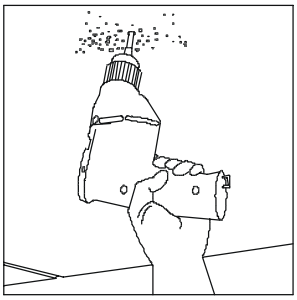


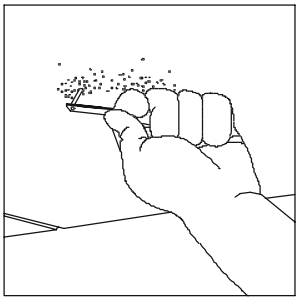
Outdoor Installation Structural Drawing (Pendant Mounting)



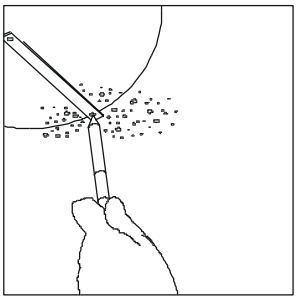
Embedded Mounting (False Ceiling)

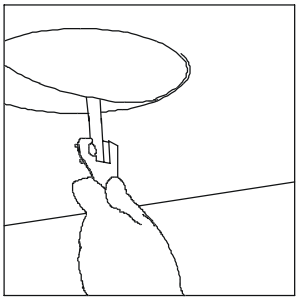
Step 1 Ceiling Preparation





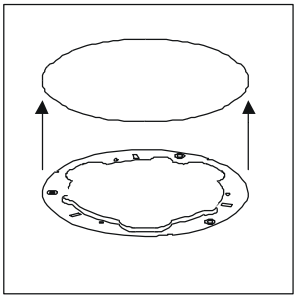
① Drill a 3/32”(2.4mm) hole at the center of the chosen area



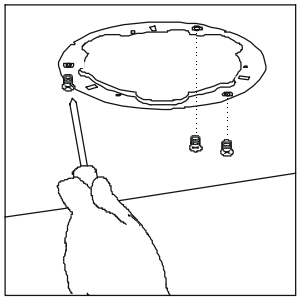


② Use a pencil and a compasses to mark a circle 6.7” (170 mm) in diameter and cut the circle

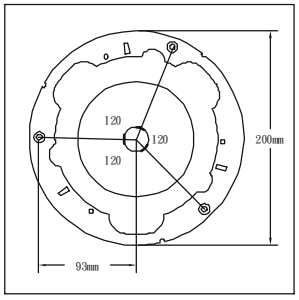
Step 2 The Ceiling Ring



① Attach the ring to ceiling

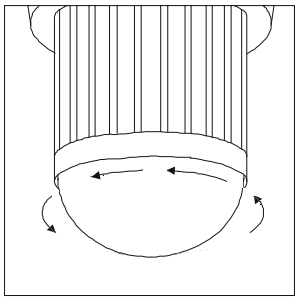


② Tighten the three tapping screws into the ceiling or three machine screws with three screw nuts

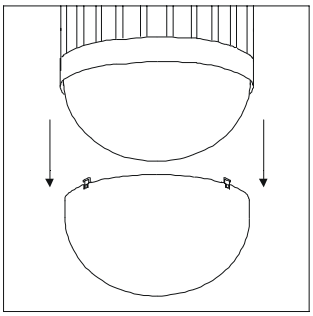


③ Ring size and screw location

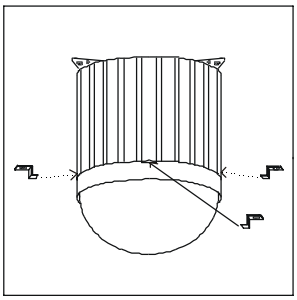
Step 3 The Fix Ring



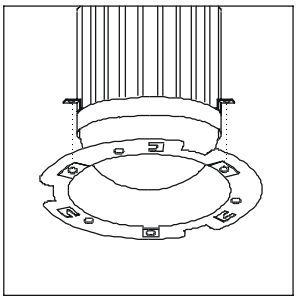
① Turn the dome cover anti-clockwise



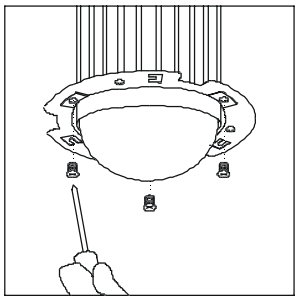
② Separate the dome cover from camera



③ Put on the three L shape screw nuts

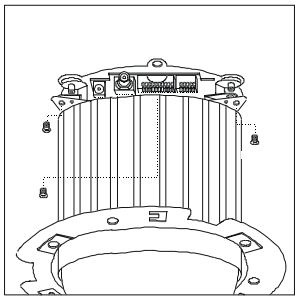


④ Attach fix ring with screw nuts

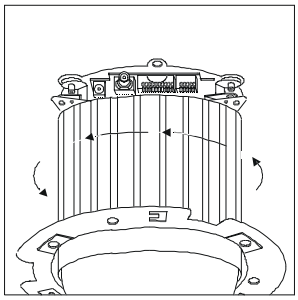


⑤ Tighten the three black screws into the screw nuts

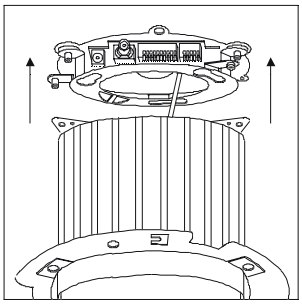
Step 4 Camera Setting



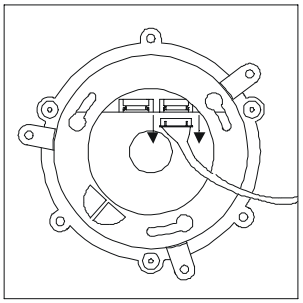
① Untighten the three screws from the base

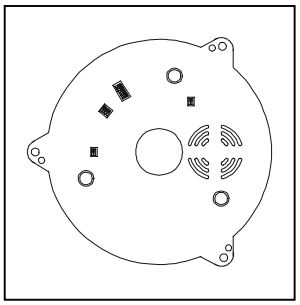


② Turn the camera body anti-clockwise



③ Separate the camera body and the base





Setting Fast Dome ID

Setting Alarm Mode

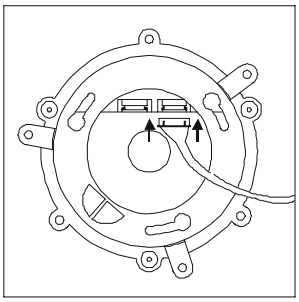
Setting Camera Function

Setting Fan Power

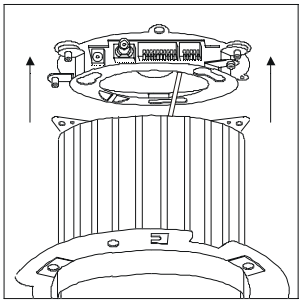
Refer to page 7,8 for the setting

④ Unplug the connection cable

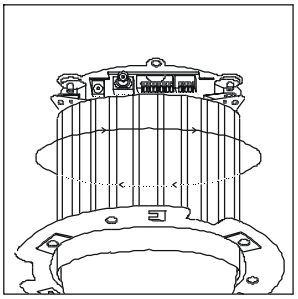
Step 5 Attach the Camera Body and Base



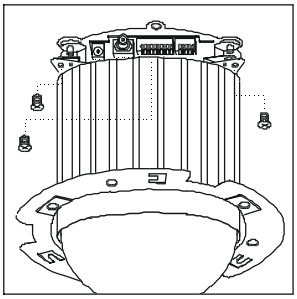
① Reconnect the connection cable



② Attach camera body to base

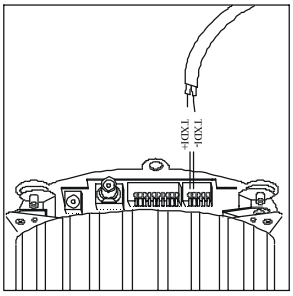


③ Turn camera body clockwise to tight position

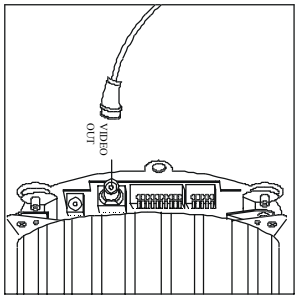


④ Tighten the three screws to fix the camera body

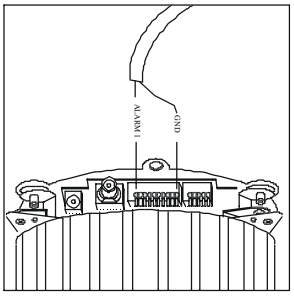
Step 6 Connection



① Connect RS-485 Cable

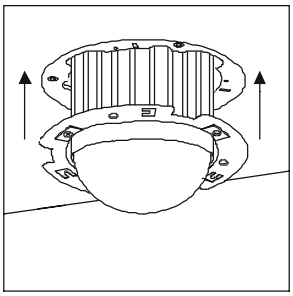


② Connect Video Signal Cable

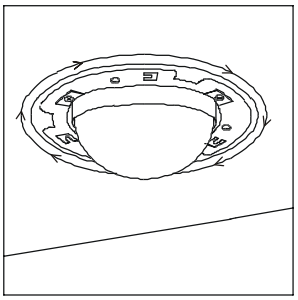


③ Connect alarm output cable

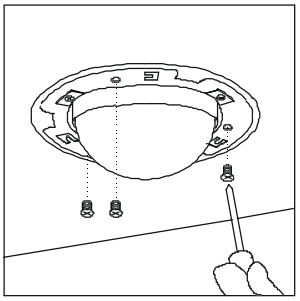
Step 7 Install Camera Body and Decoration Ring



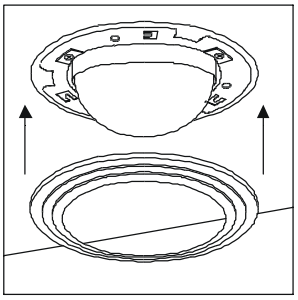
① Put camera body and the fix ring into the hole



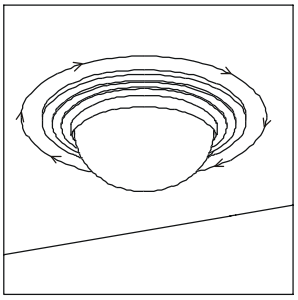
② Turn the camera body clockwise to tight position



③ Tighten three black screws

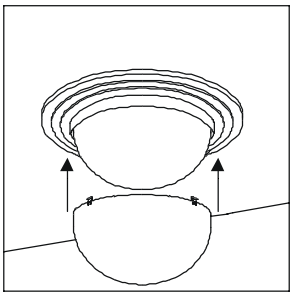


① Put on decoration ring

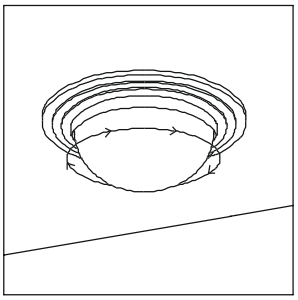


② Turn the ring clockwise to tight position

Step 8 Install The Dome Cover



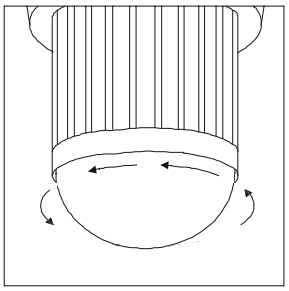
① Attach dome cover to camera body



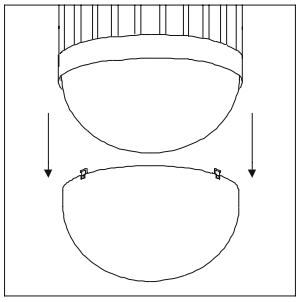
② Turn the dome cover clockwise to tight position

Attached Mounting (Fixed Ceiling)

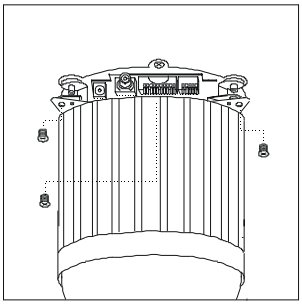
Step 1 Fix The Base



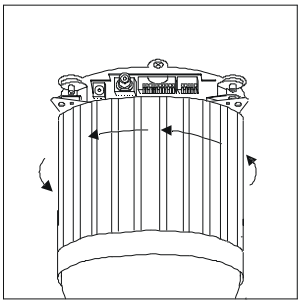
① Turn the done cover anti-clockwise



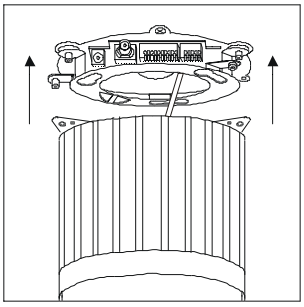
② Separate the dome cover from camera



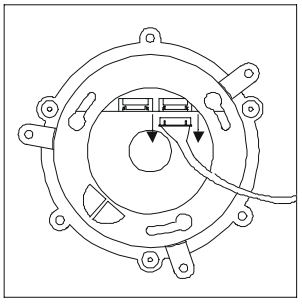
③ Untighten the three screws from the base



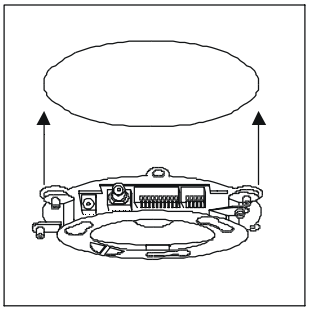
④ Turn the camera body anti-clockwise



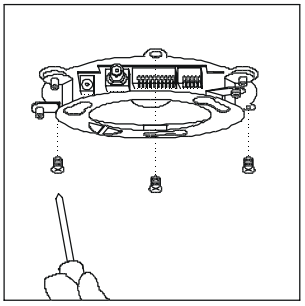
⑤ Separate the camera body and the base



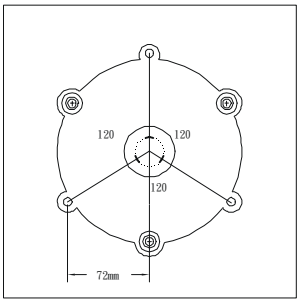
⑥ Unplug the connection cable



⑤ Attach base to ceiling

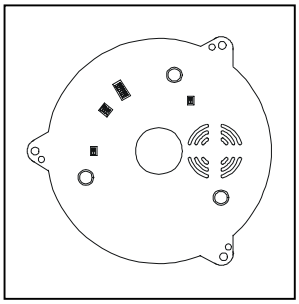


⑥ Tighten the three tapping screws into the ceiling



⑦ Base size and screw location

Step 2 Camera Setting



Setting Fast Dome ID

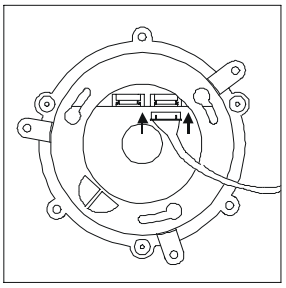
Setting Alarm Mode

Setting Camera Function

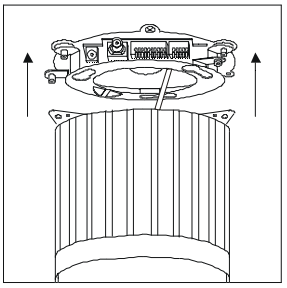
Setting Fan Power

Refer to page 7,8 for the setting

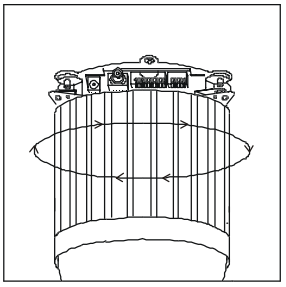
Step 3 Attach Camera Body and Base



① Reconnect the connection cable

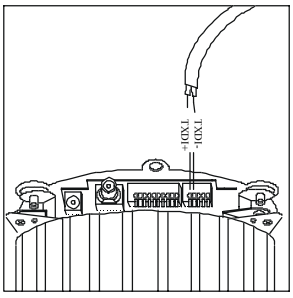


② Attach camera body to base

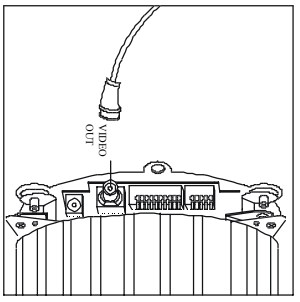


③ Turn camera body clockwise to tight position

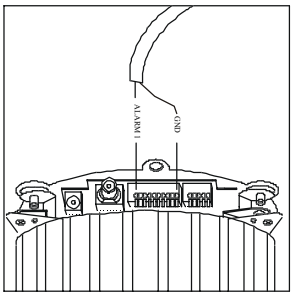
Step 4 Connection



① Connect RS-485 cable

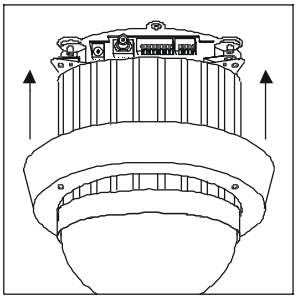


② Connect video signal cable

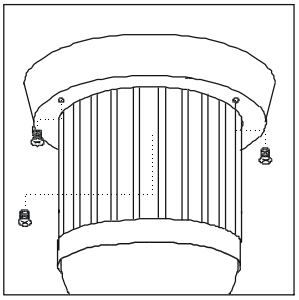


③ Connect alarm output cable

Step 5 Install Decoration Ring

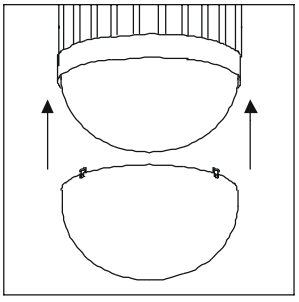


① Put on decoration ring to base

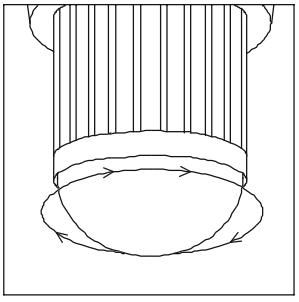


② Tighten the three screws

Step 6 Install Dome Cover



① Put on dome cover to camera body

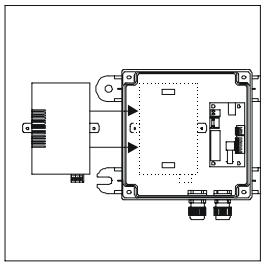


② Turn dome cover clockwise to tight position

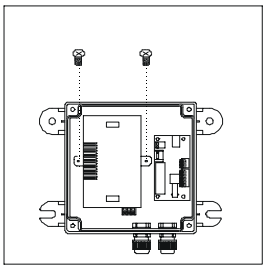
Pendant Mounting (External Housing)

Step 1 Install Power Supply Unit

1.1、When use 24Vac power source：

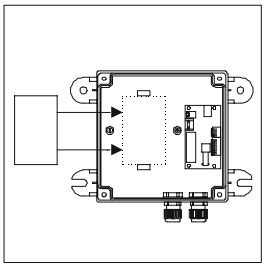


① Put the PSU into the box

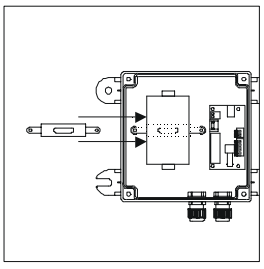


② Tighten 2 screws to fix the PSU

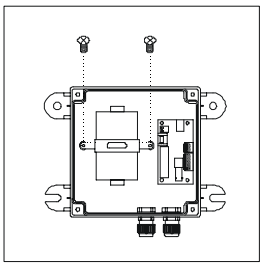
1.2、When use 90 ~ 260Vac power sources：



① Put PSU into the box

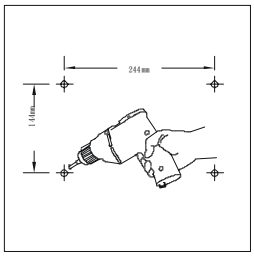


② Put the clamp on PSU

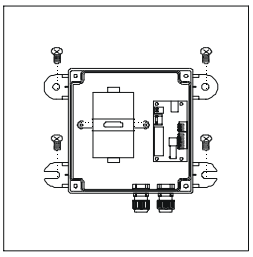


③ Tighten the 2 screws to fix the PSU

Step 2 Install the Power Box

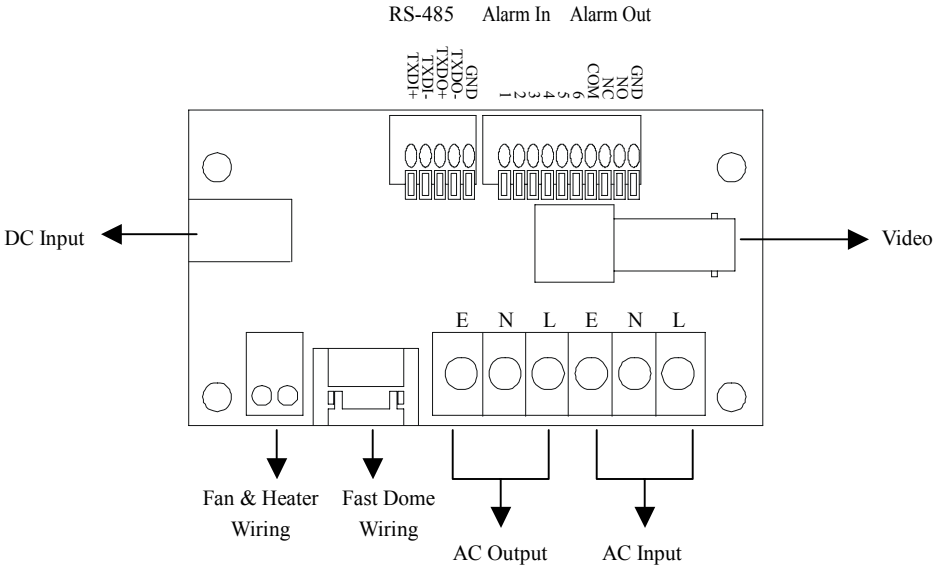


① Drill 4 holes on desired locations

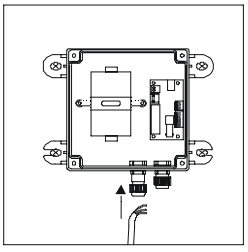


② Tighten 4 screws to fix the power box (These four screws are not supplied. User must prepare their own screws.)

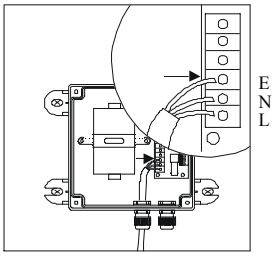
Step 3 Connection



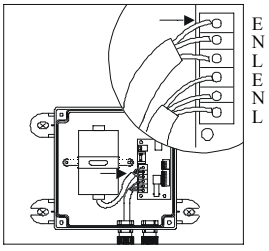
3.1、Connect AC / DC cables：



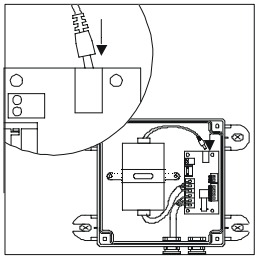
① Untighten the left knob , put the AC power cable through the hole and tighten the knob



② Connect the AC power cable to AC Input jack

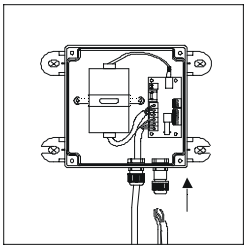


③ Connect the AC power cable (below) to AC Output jack

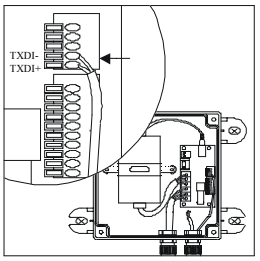


④ Connect the DC power cable (above) to DC Input jack

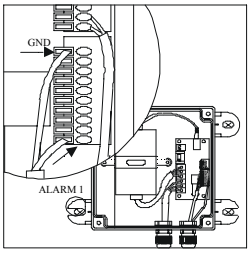
3.2、Connect Alarm, telemetry control (RS-485) and Video cables：



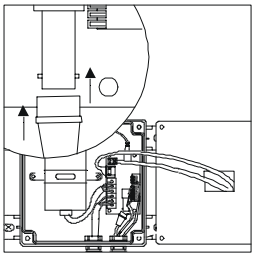
① Untighten the right knob , put the Alarm, RS-485 and video cables through the hole and tighten the knob



② Connect the telemetry control (RS-485) to RS-485 Input (TXDI+ , TXDI-)

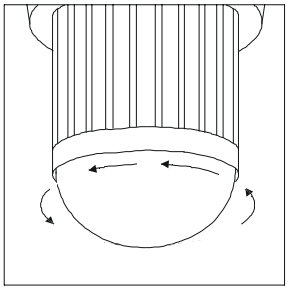


③ Connect the Alarm input cable to Alarm Input (Alarm 1 & GND)

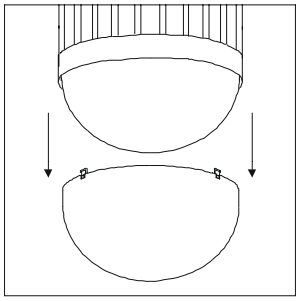


④ Connect the video cable to output jack

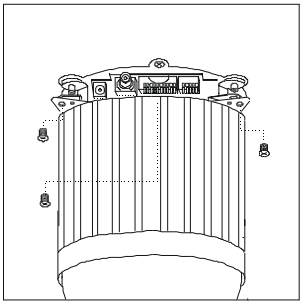
Step 4 Attach the base to housing



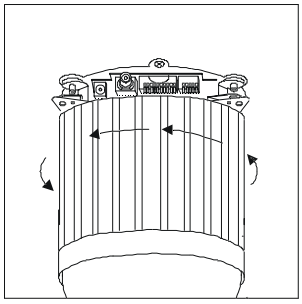
① Turn the dome cover anti-clockwise



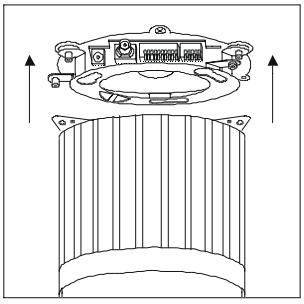
② Separate the dome cover from camera



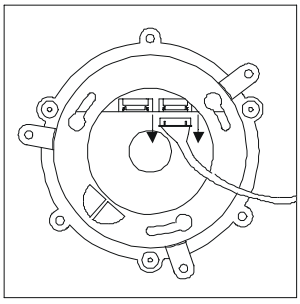
③ Untighten the 3 screws from base



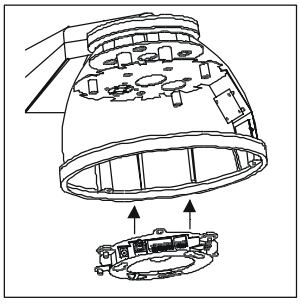
④ Turn the camera body anti-clockwise



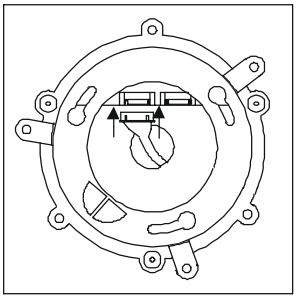
⑤ Separate the camera body to base



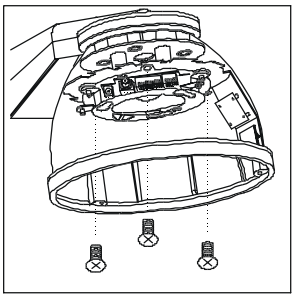
⑥ Unplug the connection cable



⑦ Attach the base to housing

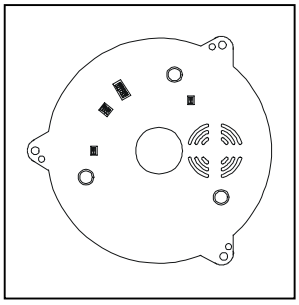


⑧ Connect the housing cable



⑨ Tighten 3 screws to fix base

Step 5 Camera Setting



Setting Fast Dome ID

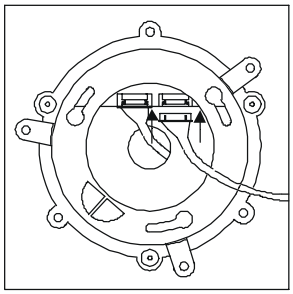
Setting Alarm Mode

Setting Camera Function

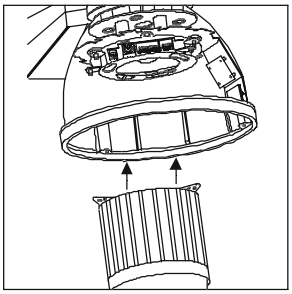
Setting Fan Power

Refer to page 7,8 for the setting

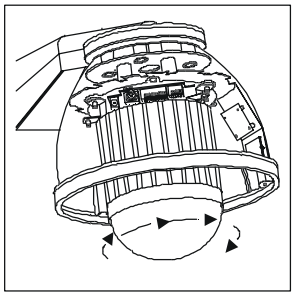
Step 6 Attach Camera Body and Base



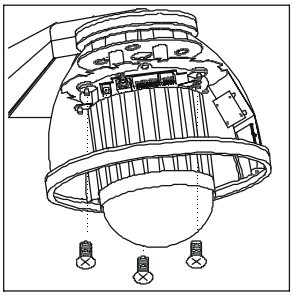
① Reconnect the connection cable



② Attach camera body to base

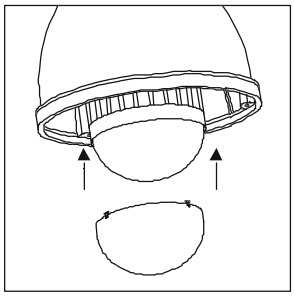


③ Turn camera body clockwise to tight position

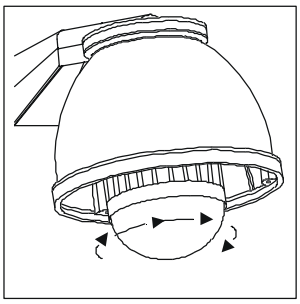


④ Tighten the three screws to fix the camera body

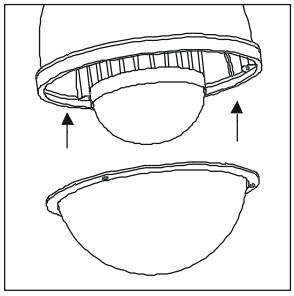
Step 7 Install The Dome Cover and Housing Cover



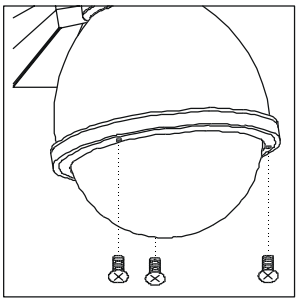
① Attach the dome cover to the camera



② Turn the dome cover clockwise to tight position

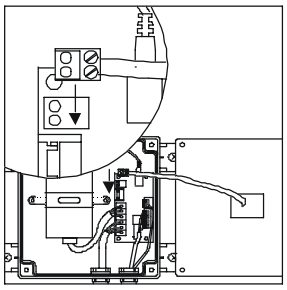


③ Attach the cover to housing

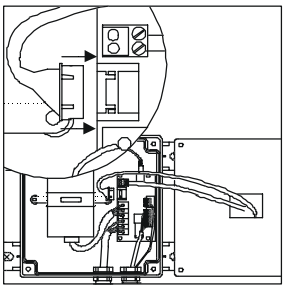


④ Tighten the 3 screws to fix the cover

Step 8 Connection Between Housing and Fast Dome

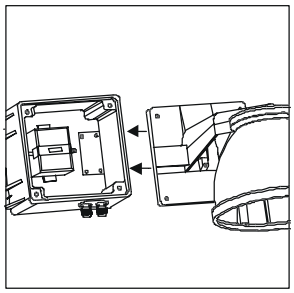


① Connect the fan & heater cable to pin jack

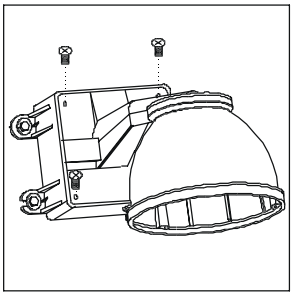


② Connect the FastDome cable to connection jack

Step 9 Install the Power Box, Bracket and Housing



③ Attach the bracket and housing to the box



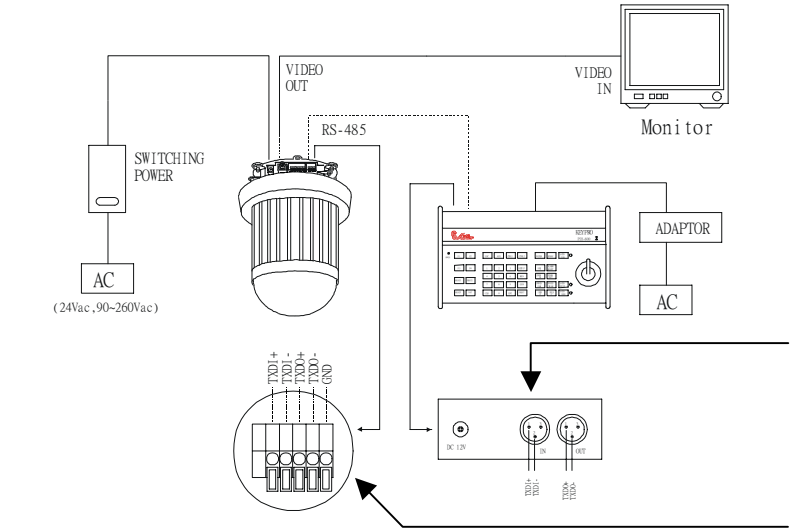
④ Tighten the 4 screws to fix the bracket

SYSTEM CONFIGURATION

Li Lin's integrated Fast Dome Surveillance System is suitable for a wide range of surveillance applications. The system can be as single fast dome with one keyboard or encompassing as 64 domes with comprehensive matrix switching , PC control and even Digital Video Recording. Such flexibility means future expansion is easily facilitated.

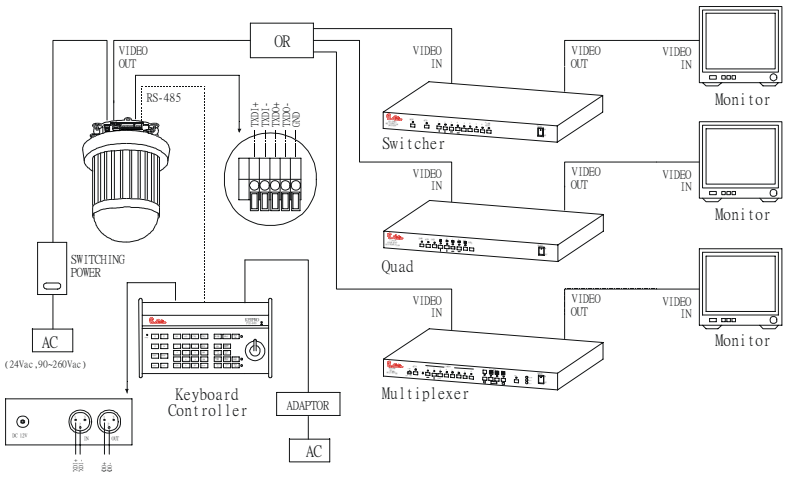
FastDome and Keyboard

Single dome configuration：One PIH-7000 or PIH-7600 connects to one PIH-800II.
Telemetry control is sent via twisted pair between Dome and keyboard.
Video signal from the dome is sent to monitor or multiplexer or quad or switcher.

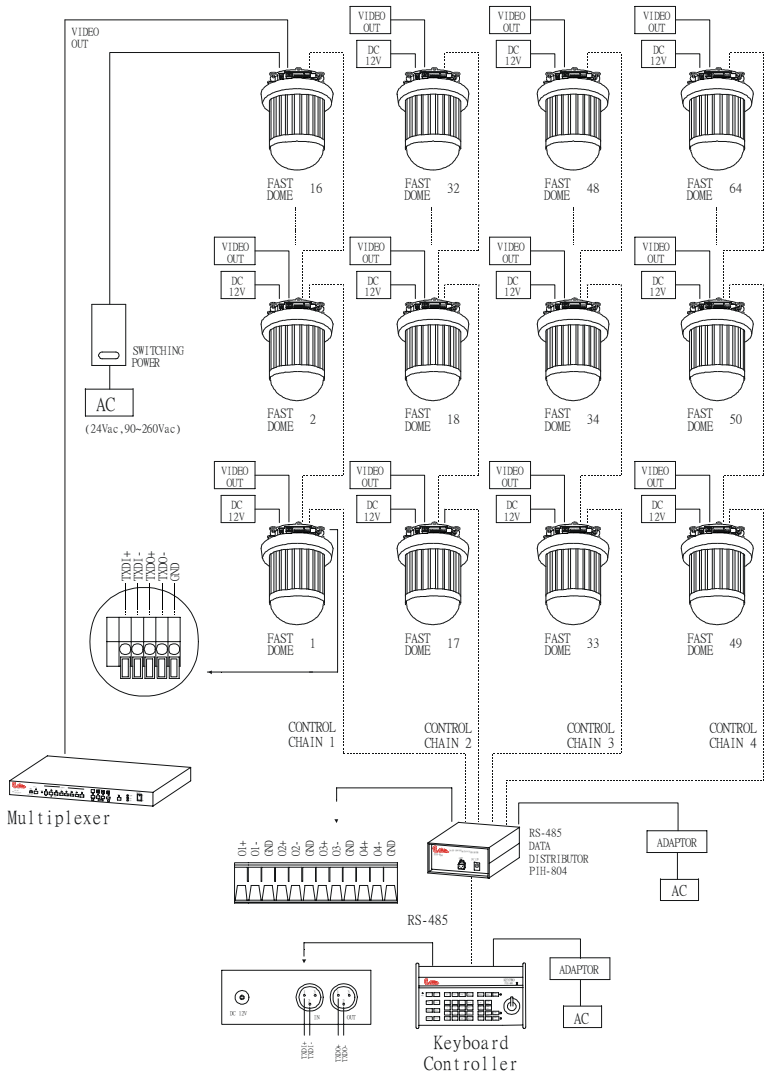


RS-485 Connection

1st pin TXDI+ of RS-485 jack at back of the keyboard connects to TXDI+ of RS-485 jack on fast dome and 2nd pin TXDI- of keyboard connects to TXDI- of fast dome.



Multiple Domes means that more than one fast dome is linked in the system. Each dome connects to next dome forming a serial linking. Each dome has an individual ID dip switch, which allows the keyboard to identify each fast dome and make command. Sometimes it is more convenient to wire a telemetry system in star configuration rather than daisy chain. To do this a PIH-804 data distributor is necessary. It takes an output from a keyboard or a matrix and splits the single data line into 4 separate data lines. One keyboard can control up to 64 cameras.



RS-485 Connection Between PIH-804 Data Distributor and Fast Dome

1st output TXDI1+ of PIH-804 connects to TXDI+ of 1st fast dome and TXDI1- of PIH-804 to TXDI- of fast dome

Linking 2nd Fast Dome

TXDO+ of 1st fast dome connects to TXDI+ of 2nd dome and TXDO- of 1st dome to TXDI- of 2nd dome

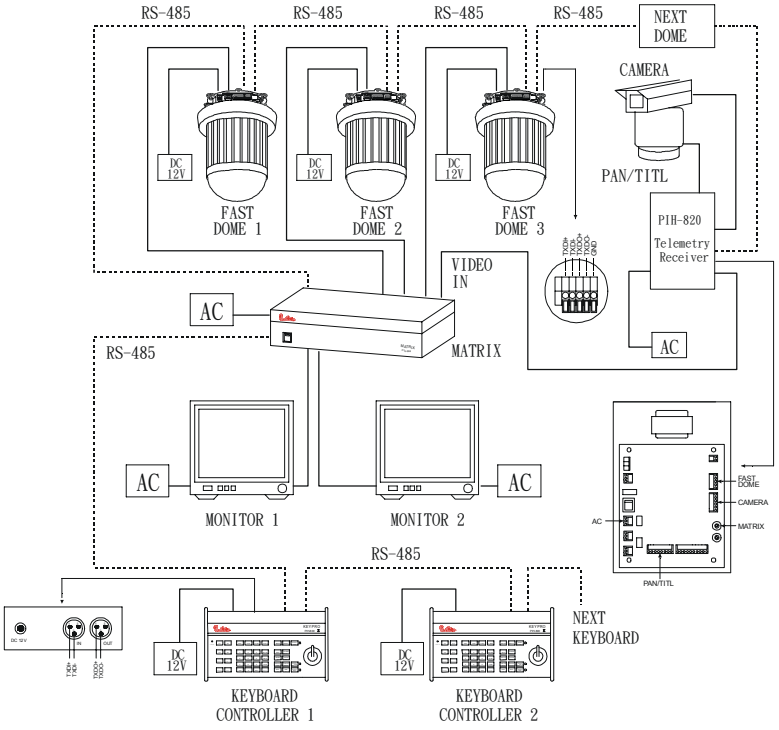
RS-485 Connection between PIH-804 data distributor and keyboard

1st pin TXDI+ on RS-485 IN jack of keyboard connects to TXDO+ on RS-485 OUT jack of PIH-804

2nd pin TXDI- on RS-485 IN jack of keyboard connects to TXDO- on RS-485 OUT jack of PIH-804

Fast Dome , Matrix and Keyboard

Matrix System is designed to process multiple video systems and video switching.
Its central process unit (CPU) can manage multiple video signals simultaneously and control other linking systems, such as PIH-7000 or PIH-7600 fast dome or PIH-820 telemetry receiver. All telemetry remote control and signal transmissions are through twisted pair. One matrix can manage up to 64 fast domes.



RS-485 Connection between Matrix and Fast Dome

TXD+ of receiver jack on matrix connects to TXDI+ of 1st fast dome and TXD- of matrix to TXDI- of fast dome

Linking 2nd Fast Dome

TXDO+ of 1st dome connects to TXDI+ of 2nd dome and TXDO- of 1st dome to TXDI- of 2nd dome

64 fast domes can be linked through the connection as shown

Multiple PIH-800II keyboards can be used for matrix control. 1st keyboard is the master and rests are slaves. Up to 8 keyboards can be used in one system. Each keyboard has a Dip Switch for ID setting. (Please refer to keyboard's manual for detail)

RS-485 Connection between keyboards

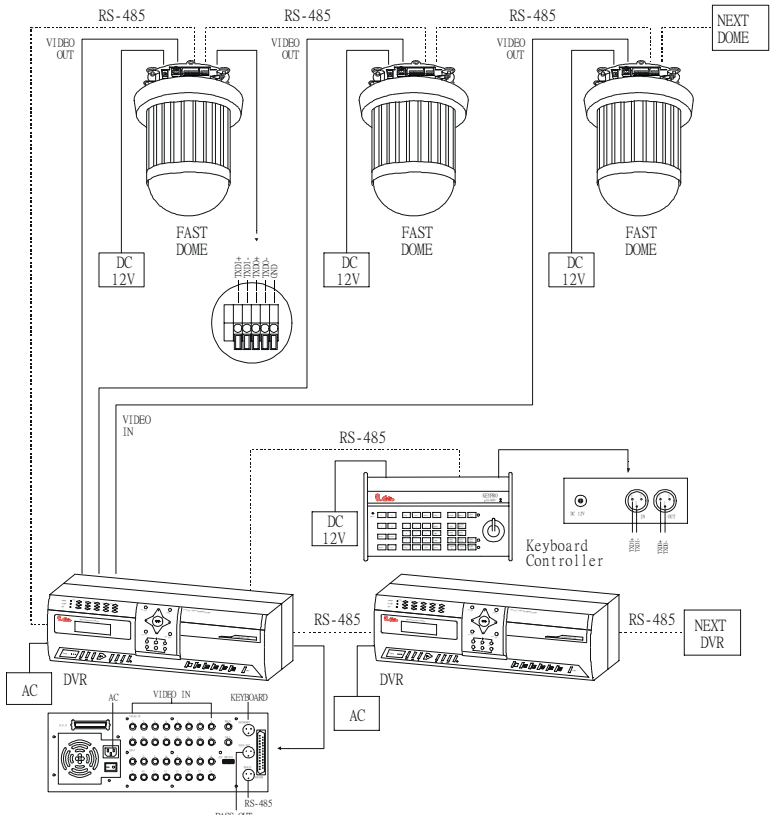
TXDO+ of 1st keyboard RS-485 OUT connects to TXDI+ of 2nd keyboard RS-485 IN
TXDO- of 1st keyboard RS485 OUT connects to TXDI- of 2nd keyboard RS-485 IN

RS-485 Connection between keyboard and matrix

TXDI+ of 1st keyboard RS-485 IN connects to 1st pin TXD+ of matrix's keyboard jack
TXDI- of 1st keyboard RS-485 IN connects to 2nd pin TXD- of matrix's keyboard jack

Fast Dome , DVR Multiplexer Video Management System and Keyboard

The DVR system is an advanced digital recording product, with long recording time and easy searching features. Telemetry remote control is twisted pair for data transmission to the fast dome. Fast Dome can be controlled directly from the control panel of the DVR, or from keyboard (PIH-800II). 16 LILIN stand along DVRs can be linked in one system.



RS-485 Connection Between Fast Dome and DVR

TXD+ of DVR RS-485 jack connects to TXDI+ of 1st fast dome and TXD- of DVR to TXDI- of fast dome

Linking 2nd Fast Dome

TXDO+ of 1st dome RS-485 jack connects to TXDI+ of 2nd dome and TXDO- of 1st dome to TXDI- of 2nd dome

1 DVR can link 16 fast domes through the connection as shown

Each DVR video management system can manage 16 video signals (fast domes). Through RS-485 connection, 16 LILIN stand alone DVRs can be linked in one system

RS-485 Connection Between DVRs

TXD+ of 1st DVR pass out RS-485 jack connects to TXD+ of 2nd DVR's keyboard jack

TXD- of 1st DVR pass out RS-485 jack connects to TXD- of 2nd DVR's keyboard jack

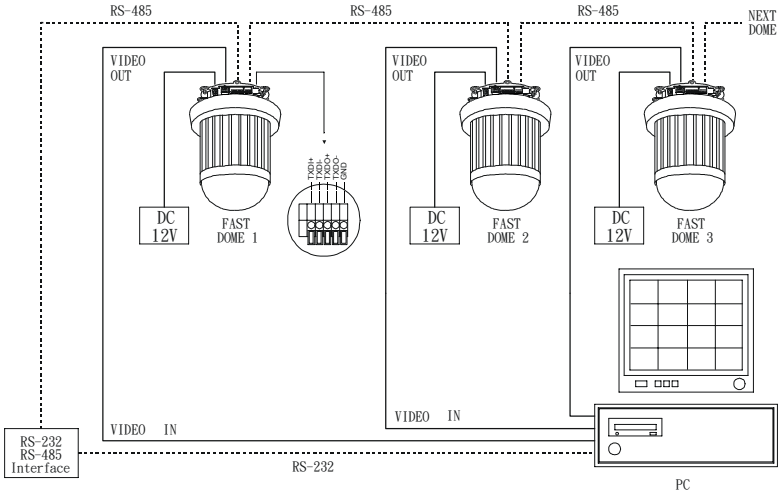
RS-485 Connection Between DVR and Keyboard

TXD+ of 1st DVR's keyboard jack connects to TXDI+ of keyboard RS-485 IN jack

TXD- of 1st DVR's keyboard jack connects to TXD- of keyboard RS-485 IN jack

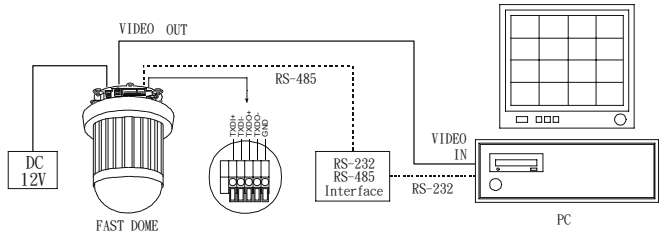
Fast Dome with PC Control

PC telemetry remote controls fast dome with standard RS-485 data format (format: N, 8, 1 Baud Rate 9600 bps). The PC control port RS-232 is converted to RS-485 format by interface. User may use their own software (protocol) or software provided by Li-Lin to control the dome. In this system up to 64 fast domes can be linked.



RS-485 Connection Between Fast Dome and Conversion Interface

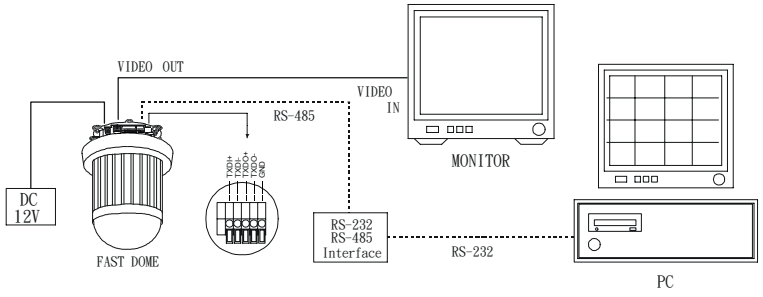
TXD+ of conversion interface RS-485 jack connects to TXDI+ of 1st fast dome and connect TXD- to TXDI-



Linking 2nd Fast Dome

TXDO+ of 1st dome connects to TXDI+ of 2nd dome and TXDO- of 1st dome to TXDI- of 2nd dome

64 fast domes can linked through the connection as shown



OPERATION

Initial Power Up Inspection

After the power is first applied to a dome it will perform a self-test procedure. This calibrates and checks the basic functions of the dome, control is not possible during this self-test period. Once the camera has stopped moving, it will then be ready to control. If preset positions and tours have been programmed into a dome and the power is turned off, the dome will enter the Auto Scan mode once the power is turned on again (after self test period). The dome will remain in Auto Scan until an operator cancels it.

Manual Operation (Pan / Tilt Control)

To control the pan and tilt movement of the dome simply use the joystick on the keyboard; to pan the camera left push the joystick to the left, to tilt down pull the joystick down (towards you). To move the dome faster push the joystick further in that direction, the joystick is proportional to the speed of the dome; a small movement will move the dome slower.

❶ UP

Push the joystick forward , the camera tilt up.

❷ DOWN

Push the joystick down (towards you) , the camera tilt down.

❸ LEFT

Push the joystick left , the camera pan left.

❹ RIGHT

Push the joystick right , the camera pan right.

❺ DIAGONAL

Push the joystick diagonally , the camera moves to that direction (direction ❺ on figure 1)

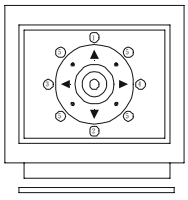


Figure 1

Relationship Between Joystick and Direction

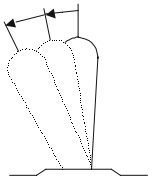


Figure 2

Relationship Between Joystick and Rotation Speed

Fast Dome Selection

To call out a dome controlling or setting

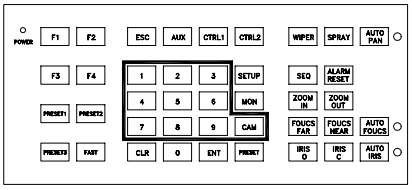
☞ **①To select 1st Fast Dome**

Push key [1] followed by [CAM] key , if selection is made , two beeps will be heard.

☞ **②To select 64th Fast Dome**

Push key [6] then [4] follow by [CAM] key if selection is made , two beeps will be heard.

Note：When matrix system is used , select monitor before camera selection. Please refer to matrix system user manual.



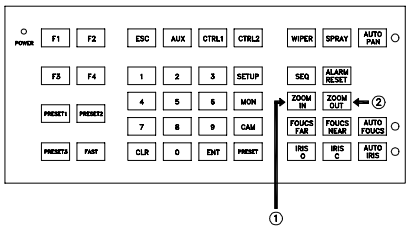
Zoom Lens Control (17X & 22X with Auto Focus)

☞ **①To Zoom In**

Push [ZOOM IN] key (one beep should be heard)
The viewing angle becomes narrower and target will become enlarged on the screen. Zooming will stop when the key is released.

☞ **②To Zoom Out**

Push [ZOOM OUT] key (one beep should be heard)
The viewing angle becomes wider and target will become smaller on the screen. Zooming will stop when the key is released.



Focus Control

The focus function on Fast Dome can be set as Auto Focus or Manual Focus.

☞ **①Manual focus far**

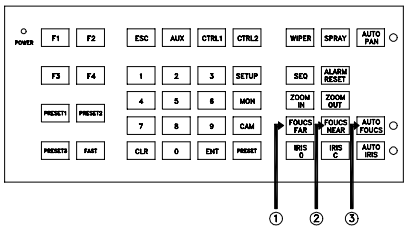
Push [FOCUS FAR] key (one beep should be heard)
The target will become farther. Focusing will stop when the key is released.

☞ **②Manual focus near**

Push [FOCUS NEAR] key (one beep should be heard)
The target will become nearer. Focusing will stop when the key is released.

☞ **③Auto Focus**

Push [AUTO FOCUS] key (one beep should be heard , and the LED will illuminate).
The lens will automatically adjust itself for optimum focus.



NOTE：UNDER “AUTO FOCUS” MODE

When dip switch #5 on keyboard is set to “ON” camera will always re-focus when object moves. When dip switch #5 of keyboard is set to “OFF” camera will automatically adjust itself for optimum focus when camera is pointed to a target initially.
But it will not re-focus even if there is any movement unless AUTO IRIS key is press again. An extremely useful function in an environment where there are a lot of movements constantly ie. shopping centers etc.

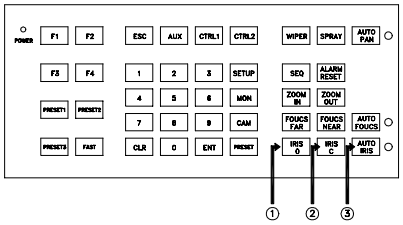
Iris Control

The purpose of iris control is to adjust target’s brightness.
It can be set as Auto Iris or Manual Iris.

☞ **①Iris Open**
Push IRIS O key (one beep should be heard) , to open the iris and brighten the picture. Iris will stop when the key is released.

☞ **②Iris Close**
Push IRIS C key (one beep should be heard) , to close the iris and reduce glare. Iris will stop when the key is released.

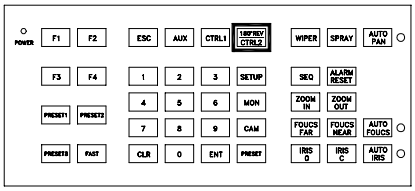
☞ **③Auto Iris**
Push AUTO IRIS key (one beep should be heard and LED will illuminate) , to select the Auto Iris mode.



Horizontal 180° Instant Flip

Some times it is hard to use the joystick to control the camera tracking the target directly under the camera. The instant flip key can rotate the camera 180° instantly. This allows the camera continue to track the target passing directly under the camera.

☞ **①180° Instant Flip**
Push 180º REV key (one beep should be heard) , to flip the camera 180° horizontally.



Preset Positions Setting

Each dome can have 128 individual preset positions. Each preset stores the exact position of the camera and automatic pan , tilt , zoom , focus and iris setting. Once the data is set , the preset can be recalled for viewing , or the presets can be set for auto pan.

＊Only the first 16 preset positions of fast dome can be set to auto pan mode and first 6 preset positions are corresponding with the 6 alarm inputs.

☞ **①Selecting Fast Dome**

Push key [1] followed by [CAM] key , two beeps will be heard confirming that first camera is selected.

Ex： To select 1st fast dome ： [1] [CAM] keys

To select 64th fast dome： [6] [4] [CAM] keys

☞ **②Selecting Preset Position**

Push key [1] followed by [PRESET] key , two beeps will be heard confirming that first preset position is selected.

Ex： To select the 1st preset position ： [1] [PRESET] keys

To select the 128th preset position： [1] [2] [8] [PRESET] keys

☞ **③Joystick Control**

Move the Joystick to bring the camera to the desired view position.

☞ **④Adjusting Lens**

By using ZOOM IN / OUT , FOCUS NEAR / FAR / AUTO and IRIS O / C / AUTO keys.

Please refer to page 31,32 for the manual setting.

☞ **⑤Setting Preset Speed**

The speed the dome travels to that preset position can be adjusted between 1° to 255° per second (the factory setting is 0° / sec).

To set speed as 10° / sec：Push key [1] [0] followed by [F1] key , two beeps will be heard confirming that speed is set.

Ex： To set preset speed to 10° / sec ： [1] [0] [F1] keys

To set preset speed to 255° / sec： [2] [5] [5] [F1] keys

☞ **⑥Setting Preset Dwell Time**

The dwell time means the time user wants to view on certain preset position. The preset dwell time can be set between 0 ~ 255 seconds. (The factory setting is 0 second)

＊If the dwell is set to 0 second then that position will be omitted from the Auto Scan Tour.

To set dwell to 5 seconds：Push key [5] followed by [F2] key , two beeps will be heard confirming that 5 seconds is set.

Ex： To set dwell to 5 seconds ： [5] [F2] keys

To set dwell to 10 seconds： [1] [0] [F2] keys

☞ **⑦Storing Preset Data**

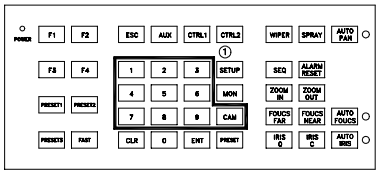
Once the above steps have been completed, the information must be stored or it will not be memorized by the system.

To store data：Push key 1 followed by F3 key , two beeps will be heard confirming that data is stored.

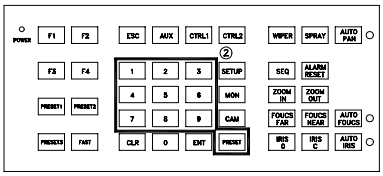
☞ ⑧For the first 16 Presets on each dome , the above steps must be repeated. For presets 17 ~ 128 there is a default speed and dwell setting so steps 5 and 6 are not required.

Follow are the 7 steps for setting preset position：

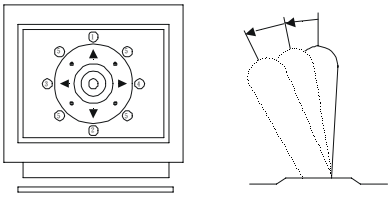
Step ① Select Fast Dome



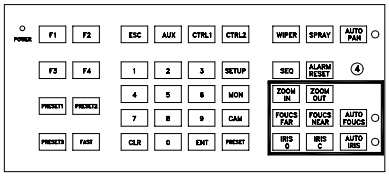
Step ② Select Preset Position



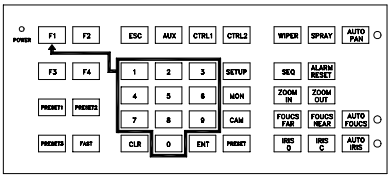
Step ③ Use Joystick to adjust position



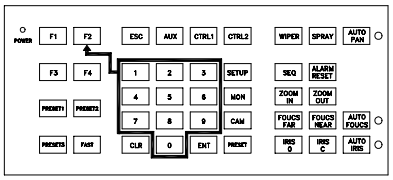
Step ④ Adjust Zoom / Focus and Iris



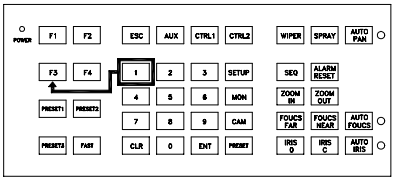
Step ⑤ Set Preset Speed



Step ⑥ Set Preset dwell Time



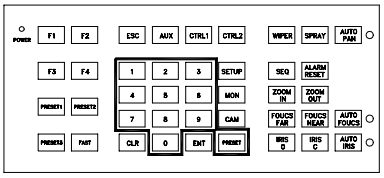
Step ⑦ Store Preset Data



Recalling Preset Position

Once the required preset positions have been stored in a dome, they may be quickly recalled , returning the dome to exact position.

☞ To recall 1st Preset Position：Push key [1] followed by [PRESET] key , two beeps will be heard when position is chosen. Meanwhile the dome will move to that position in speed of 360° / sec.



Ex： To recall 1st preset position：

[1] [PRESET] keys

To recall 128th preset position：

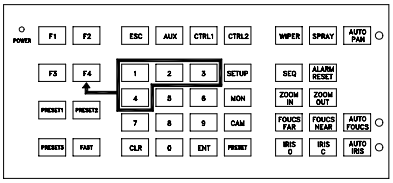
[1] [2] [8] [PRESET] keys

Setting Preset Group

The purpose of setting preset group allows the management of the 16 preset positions before Auto Scanning. The first 16 preset positions of each dome are separated into 4 groups. Preset group must be set for the auto pan reference.

Group 1 includes：1st 2nd 3rd and 4th preset positions.
Group 2 includes：5th 6th 7th and 8th preset positions.
Group 3 includes：9th 10th 11th and 12th preset positions.
Group 4 includes：13th 14th 15th and 16th preset positions.

☞ To set up group 1：Push key [1] followed by [F4] key , two beeps will be heard confirming that the group is set.



Ex： To set Group 1 [1] [F4]

To set Group 2 , 3 [1] [2] [F4]

To set Group 3 , 4 [3] [4] [F4]

To set Group 1 , 2 , 3 [1] [2] [3] [F4]

To set Group 2 , 3 , 4 [2] [3] [4] [F4]

To set Group 1 , 2 , 3 , 4 [1] [2] [3] [4] [F4]

Changing Preset Data

In order to change any preset position from the one stored , the dome must first be sent to that preset position.

📖 To change the 4th preset position of the Dome number 3 , perform the following steps：

☞ ① Push 3 CAM to select Dome 3

☞ ② Push 4 PRESET to go to 4th preset position

☞ ③ Move the joystick to bring camera to the desired view position.

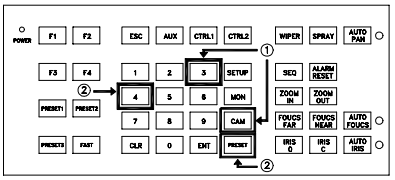
☞ ④ Adjusting lens

☞ ⑤ Setting preset speed

☞ ⑥ Setting dwell time

☞ ⑦ Store Data

(please refer to page 33 for step ③ ~ ⑦)



Activating Auto Pan

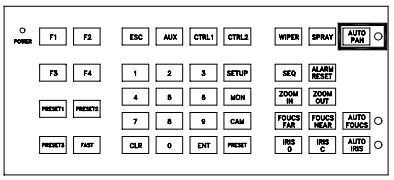
When the Auto Pan function is chosen , the fast dome will auto touring the preset groups by the entered data.

☞ **To activate Auto Pan：**

Push AUTO PAN key , one beep will be heard and the LED will illuminate confirming the activation of autopan.

☞ **To stop Auto Pan：**

Push AUTO PAN key again , one beep will be heard and the LED will be off confirming the stop of autopan.

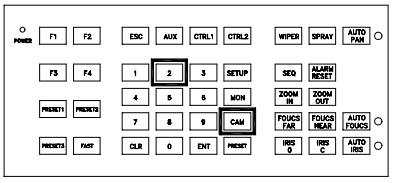


＊ If the AUTO PAN light is on , no other commands can be sent to that dome , but other dome can still be selected and operated manually.

☞ **To select (call out) another dome while it is under Auto Pan mode：**

simply push the numeric key followed by the CAM key.

Push key 2 followed by CAM key, two beeps will be heard confirming the 2nd camera is selected.

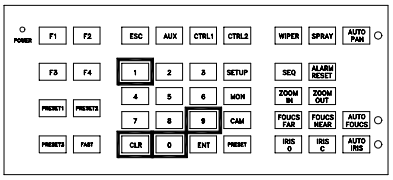


Deleting Preset Data

Sometimes it is necessary to delete the stored data. All the data can be cleared from a dome by pressing Key 9 0 1 1, followed by the CLR key.

＊All 128 preset data will be erased. This will be confirmed by 2 beeps.

☞ Push 9 0 1 1 , followed by CLR key.
This will be confirmed by 2 beeps.



Alarm Management

The 6 alarm inputs of each fast dome are corresponding with the first 6 preset positions. When an alarm signal is triggered , the dome will go to the relevant position at 360° / sec. Make sure the first 6 preset positions are set to desired alarm areas.

Alarm input can be set to NC (normally close) or NO (normally open) regarding the alarm detector. Please refer to page 7 for alarm switch setting.

Relationship Between Alarm Inputs and First 6 Presets

- ➢ Alarm Input 1 will send the dome to Preset Position 1
- ➢ Alarm Input 2 will send the dome to Preset Position 2
- ➢ Alarm Input 3 will send the dome to Preset Position 3
- ➢ Alarm Input 4 will send the dome to Preset Position 4
- ➢ Alarm Input 5 will send the dome to Preset Position 5
- ➢ Alarm Input 6 will send the dome to Preset Position 6

Alarm Response Mode

The fast dome alarm response can be set to Lock or Release mode.

Lock ：dome remains at last alarmed preset point.

Release：dome moves between alarmed points then reverts to prior status , such as autopan.

❶ Lock Mode

➢ When an alarm is triggered , the dome will go to the relevant position at 360° / sec and the keyboard will audio alert the user until it is cancelled manually.
To manually cancel the alarm trigger：Push ALARM RESET key.
If more than one alarm is triggered , the fast dome will lock on the last alarm triggered position.

❷ Release Mode

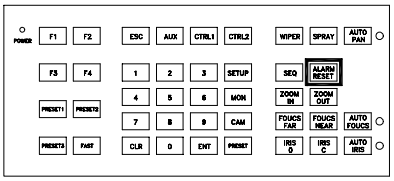
➢ Under Auto Pan Condition

When an alarm is triggered under AutoPan , fast dome will go to the relevant position at 360° / sec. After 60 seconds the alarm will be cancelled automatically and back to Auto Pan mode. If more than one alarm is triggered , the fast dome will moves between alarmed points every 5 seconds and back to Auto Pan mode after 60 seconds.

➢ Not Under Auto Pan Condition

When an alarm is triggered not under Auto Pan , the fast dome will go to the relevant position at 360° / sec. After 60 seconds the alarm will be cancelled automatically , and dome will be back to first preset position. If more than one alarm is triggered , the fast dome will move between alarmed points every 5 seconds and back to first preset position after 60 seconds.

The audio alert for alarm trigger will remain on until it is manually cancelled by push the ALARM RESET key.



Alarm Output

Each fast dome has 1 alarm output , with three contacts：Common , NC (normally close) and NO (normally open) to activate linking devices.

➢ When alarm response mode is set to LOCK mode：

When the alarm is triggered , NC contact to Common will be open and NO contact to common will be close. Alarm output will be back to the condition before alarm , 10 seconds after the last alarm is triggered.

➢ When alarm response mode is set to RELEASE mode：

When the alarm is triggered , NC contact to Common will be open and NO contact to Common will be close. Alarm output will be back to the condition before alarm , 60 seconds after the last alarm is triggered.

SPECIFICATION

Operational

Manual Pan / Tilt Speed	0.18° ~ 180° / sec (8 stages)
Preset Position Pan / Tilt Speed	1° ~ 255° / sec
Preset Position Dwell Time	0 ~ 255 sec
Recall Preset Position Pan / Tilt Speed	360° / sec
180° Instant Flip Rotation Speed	360° / sec
Pan Rotation	360° Continuous
Tilt Rotation	-5° ~ +95°
Pan / Tilt Accuracy	± 0.25°
Preset Position	128 preset positions (memory)
Preset Group Setting	4 Group (Corresponding with first 16 presets)
Address Setting	1 ~ 64 ID setting

Camera

Image Device	1/4 Inch Interline Transfer CCD
Horizontal Pixel	NTSC (811) PAL (795)
Vertical Pixel	NTSC (508) PAL (596)
Horizontal Effective Pixel	NTSC (768) PAL (752)
Vertical Effective Pixel	NTSC (494) PAL (582)
Scanning System	2 : 1 Interlace
Horizontal Resolution	480 TV Lines
Minimum Illumination	17X (0.7Lux at F1.4 and 20IRE) 22X (0.8Lux at F1.6 and 20IRE)
S / N Ratio	>50 dB (AGC OFF)
Synchronization	Internal
Horizontal Synchronization	NTSC (15734Hz) PAL (15625Hz)
Vertical Synchronization	NTSC (60Hz) PAL (50Hz)
Auto Gain Control	ON (20dB) / OFF (8dB)
Back Light Compensation	ON (Background Adjustable) / OFF
White Balance	Auto / Outdoor / Indoor
Video Output	CVBS 1.0Vpp 75Ω

Optical Lens

17X Lens Focal Length	f = 3.9 ~ 66.3mm / (PIH-7000)
17X Lens Aperture Max	F1.4 (wide) ~ F2.5 (telephoto)
17X View Angle	50.9° (wide) / 2.4° (telephoto)
22X Lens Focal Length	f = 3.9 ~ 86mm / (PIH-7600)
22X Lens Aperture Max	F1.6 (wide) ~ F3.6 (telephoto)
22X View Angle	55.9° (wide) / 3.5° (telephoto)
Focus Control	Auto Focus / Manual Focus
Iris Control	Auto Iris / Manual Iris
Zoom In / Out	Manual Control
Zoom In / Out Accuracy	± 0.25%

Electrical

Power Supply	24Vac or 90Vac~260Vac (Option)
Input Voltage	12Vdc
Power Consumption	13W
Control Interface	RS-485 (1 Input / 1 Output)
RS-485 Voltage	5.6V
Alarm Input	6 Inputs (Pull up)
Alarm Input Voltage	5.6V
Alarm Output	1 Output (NC or NO mode)
Alarm Output Voltage	0.5A 120Vac / 1A 24Vdc
Alarm Response Mode	Lock or Release Mode

Environmental

Operation Temperature	-5℃ ~ +50℃
Operation Humidity	0% ~ 90%

Mechanical

Height	208 mm (8.3")
Diameter	145 mm (5.6")
Weight (Fast Dome Alone)	2.5Kg
Weight (With External Housing)	5Kg

External Housing

Electrical

Power Supply…..……... 24Vac or 90Vac~260Vac (Option)
Input Voltage..……... 12Vdc
Power Consumption...……... 7.5W
Control Interface..……...RS-485 (1 Input / 1 Output)
RS-485 Voltage...…….. 5.6V
Alarm Input……... 6 Input (Pull up)
Alarm Input Voltage...……... 5.6V
Alarm Output..……... 1 Output (NC or NO mode setting)
Alarm Output Voltage……... 0.5A 120Vac / 1A 24Vdc

Environmental

Operation Temperature…..…… -20℃ ~ +50℃
Operation Humidity...…… 0% ~ 90%

Mechanical

Height..…… 340mm (13.4")
Diameter..…… 250mm (9.8")
Weight (Housing Alone)…….……... 2.5Kg
Weight (With Fast Dome)……..…… 5Kg

APPENDIX A

Quick Reference Table

Function		Operation
Pan / Tilt Control	To Tilt Up	Push Joystick Forward
	To Tilt Down	Push Joystick Down
	To Pan Left	Push Joystick Left
	To Pan Right	Push Joystick Right
Dome Selection		Numeric Key + CAM
Zoom In		ZOOM IN
Zoom Out		ZOOM OUT
Manually Bring The Object Farther		FOCUS FAR (Auto Focus LED Off)
Manually Bring The Object Closer		FOCUS NEAR (Auto Focus LED Off)
Auto Focus		AUTO FOCUS (Auto Focus LED On)
Open Iris		IRIS O (Auto Iris LED Off)
Close Iris		IRIS C (Auto Iris LED Off)
Auto Iris		AUTO IRIS (Auto Iris LED On)
180° Horizontal Instant Flip		180° REV
Set or Recall Preset Position		Numeric Key + PRESET (128 preset position)
Set Preset Speed		Numeric Key + F1 (1° – 255° / sec)
Set preset Dwell		Numeric Key + F2 (0 – 255 sec)
Store Preset Data		1 + F3
Set Preset Group		Numeric 1,2,3,4 + F4 (4 Groups)
Activate Auto Pan		AUTO PAN (Auto Pan LED On)
Stop Auto Pan		AUTO PAN (Auto Pan LED Off)
Delete 128 Preset Position Data		9 0 1 1 + CLR
Reset Alarm		ALARM RESET

APPENDIX B

Trouble Shooting

1. No Power

1-1. Check power input connection

1-2. Check fuse on the PCB

1-3. Check connection between camera body and base

2. No Video

2-1. Check camera video output on camera

2-2. Check cable (damaged cable)

2-3. Check video input connection on monitor

2-4. Check 20PIN connection between camera body and base

3. No Telemetry

3-1. Check camera ID switch setting

3-2. Check RS-485 cable IN/OUT connection on camera

3.3. Check RS-485 cable IN/OUT connection on keyboard

3-4. Check if the fast dome is under Auto Pan mode Please deactivate the Auto Pan

3-5. Check if alarm is triggered , Cancel triggered alarm

4. Poor Focusing

4-1. Dusts on dome cover or housing cover. Clean the cover with cotton cloth.

Installation Kit

Item	Unit	Type
Power Supply	1	Embedded / Attached
Power Cable	1	Embedded / Attached
M4 x 25 Tapping Screw-flat head	3	Embedded
M4 x 30 Machine Screw-flat head	3	Embedded
M4 x 6 Machine Screw-black	6	Embedded
Screw Nut	3	Embedded
Ceiling Ring	1	Embedded
L Shape Screw Nut	3	Embedded
Fix Ring	1	Embedded
Decoration Ring	1	Embedded
M4 x 25 Tapping Screw-round head	3	Attached
Plastic Screw Nut	3	Attached
Decoration Ring	1	Attached

NOTES：