



## V1700 Series Super Domes Operation/Programming Manual



This manual addresses operation and programming of Infinova V1700 series super domes. The domes stand out for their state-of-the-art precision technologies and provide a highly reliable and cost-effective solution to various applications.

This manual applies to the following models: V1723, V1743, V1725, V1745, V1726, V1746, V1727, V1747, V1728, V1748, V1729 and V1749. V1723, V1725, V1726, V1727, V1728 and V1729 are indoor Super Domes; while V1743, V1745, V1746, V1747, V1748 and V1749 are outdoor Super Domes. The model V1725/V1745, V1726/V1746, V1727/V1747, V1728/V1748, V1729/V1749 and V1723/V1743 have optical zoom 18X, 22X, 23X, 26X, 35X and 36X respectively. To distinguish these six series, the convention used in this manual is [For 18X Super Dome only], [For 22X Super Dome only], [For 23X Super Dome only], [For 26X Super Dome only], [For 35X Super Dome only] and [For 36X Super Dome only].

Please familiarize yourself with the instructions and guidelines discussed in this manual before attempting to operate and program your super domes.



# Notice

## Copyright Statement

This manual may not be reproduced in any form or by any means to create any derivative such as translation, transformation, or adaptation without the prior written permission of Infinova.

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## Trademarks

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## FCC Warning

The Super Domes comply with the FCC rules.

**Operation is subject to the following two conditions.**

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

The Super Domes have been tested and found to comply with the limits for a Class A digital device, pursuant to the FCC rules. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation.

**Read this manual carefully before installation. This manual should be saved for future use.**

## **Important Safety Instructions and Warnings**

- Electronic devices must be kept away from water, fire or high magnetic radiation.
- Clean with a dry cloth.
- Provide adequate ventilation.
- Unplug the power supply when the device is not to be used for an extended period of time.
- Only use components and parts recommended by manufacturer.
- Position power source and related wires to assure they will be kept away from ground and access way.
- Refer all service matters to qualified personnel.
- Save product packaging to ensure availability of proper shipping containers for future transportation.



Indicates that the un-insulated components within the product may carry a voltage harmful to humans.



Indicates operations that should be conducted in strict compliance with instructions and guidelines contained in this manual.

**Warning: To avoid risk of fire and electric shock, keep the product away from rain and moisture!**

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## Chapter I Product Description

With its super domes series, Infinova offers a line of cost-effective and highly reliable security cameras that represent the peak of CCTV surveillance/security technology.

Utilizing newly developed digital signal processing technology, the super domes provide clear and crisp images with high resolution and sensitivity. Their excellent image controls, such as auto iris, white balance and backlight compensation enable it to reproduce smear-free images and natural colors even in a poorly illuminated area.

With an open protocol design, the domes are compatible with multiple protocols, such as RS485 and Up the Coax. The selectable video coaxial control function brings cost saving and great convenience to users. The domes can be applied to a host of CCTV systems including those from other leading manufacturers.

The domes support a total of 128 presets, 1 autopan and 4 patterns to facilitate site surveillance. Each preset can be called up either manually or automatically upon alarm. Altogether, 4 alarm inputs and 1 relay output are provided, significantly enhancing the domes' alarm handling capabilities. The number of presets varies in different protocols.

The domes provide an "area" feature that divides the whole surveillance site into a maximum of 16 sections, each with an independently defined text description. Privacy mask can be defined to prevent users from viewing undesirable areas.

When no command is received for a certain period of time, the domes can automatically return to "home position" (a selected preset, autopan point or pattern point) to view a key area. An "auto flip" feature enables the domes to turn 180 degrees to follow a subject passing right beneath it.

Other features include on-screen character information; menus for setting up, and built-in surge protection.

A variety of super dome models are designed to suit different applications, installation sites and budgets. Their compact structure and user-friendly design significantly simplify the installation procedures and routine maintenance.

## Chapter II System Feature

### 2.1 High-Performance Image

- The Super Domes utilize the newly developed 1/4" CCD that features significantly optimized image quality and dramatically reduced smear level.
- The **Digital Slow Shutter (D.S.S.)** allows the camera a considerably long exposure time of 1/1.5 second, enabling it to capture more color data. This also greatly enhances the camera's sensitivity.
- Optional 36X, 35X, 26X, 23X, 22X and 18X optical zoom lenses are provided to meet various needs. Combined with an up to 12x digital zoom, the maximum zoom ratio can reach 432X, 420X, 312X, 276X, 264X and 216X respectively.

### 2.2 Outstanding A.I. Camera

- The domes provide continuous **auto focus** to help operators navigate a surveillance site or trace a moving subject.
- The pan and tilt speeds are automatically adjusted in proportion to the zoom position. This capability ensures steady images when the camera moves.
- When surrounding illumination changes, the camera automatically adjusts its iris size ("**auto iris**") to keep the output image at a fixed level of lighting.
- The "**auto white balance**" function features built-in sensors to measure the current color temperature, and uses an algorithm to process the image so that the final output image may be close to what the human eyes see.
- Operators can use the "**backlight compensation**" feature to automatically adjust the exposure level for an object in a strong light background, so as to avoid a sharp contrast of brightness and darkness that usually leads to a vague silhouette of the object.

### 2.3 Open Protocol Design

- The Super Domes are compatible with multiple protocols, such as RS485 and RS422. The selectable video coaxial control function brings cost saving and great convenience to the users. This wide compatibility enables the domes to be used in various CCTV systems including those from other leading manufacturers.

### 2.4 Automated Operation

- Up to 128 **presets** (pre-defined pan/tilt/zoom positions) can be programmed and stored in the non-volatile memory of the domes. Each preset can be called up either manually via keyboard or automatically upon alarm.
- In addition to presets, the super domes also provide four **patterns** (recorded navigation course) to facilitate routine surveillance. Users can easily activate a pattern with simple keystrokes.
- "**AUTOPAN**" function, 1 autopan could be provided in total. Once called up, enables the domes to scan through a surveillance area automatically. A description title for the AUTOPAN can be programmed and stored in the domes.
- The domes, after receiving no command for a certain period of time, will automatically return to a preset position ("**home**

position"). This allows the domes to keep an "eye" on a key area even if an operator has carelessly pointed it at an insignificant position.

- When a tilt operation exceeds the straight down position, e.g., when following a person that moves right beneath the domes, the domes will automatically rotate 180 degrees. This "auto flip" feature eliminates the possibility of inverted images, and ensures that the surveillance view will always be seen in an upright position.

## 2.5 Area Partition and Privacy Mask

- With the help of the "area partition", users can divide the whole surveillance area into a maximum of 16 sections, and define a 16-character description title for each section.
- To prevent users from viewing a specific sensitive place, the Super Domes feature a "privacy mask" that can screen out the undesirable area.

## 2.6 Intuitive Menu Programming

- The super domes provide text overlay menus for setting up operation parameters. The menus are mostly self-explained and easy to operate. To configure these parameters, users only need to move the joystick.
- Various functions may be programmed via on-screen menus, including lens and pan/tilt parameters, camera A.I. controls, on-screen title descriptions, area partition, privacy mask and other automatic operations.

## 2.7 Powerful Alarm Handling

- The domes provide 4 alarm inputs to follow external alarm devices such as motion sensors, door contacts, etc. Upon alarm, the domes will be automatically return to a certain preset.
- The preset to call upon alarm, as well as the normal state (normally open or closed) of each alarm input, can be easily configured via on-screen menus.
- As an added security feature, 1 alarm output is also provided to activate such auxiliary devices as time elapse recorders or digital video recorders.

## 2.8 Wide Application & Easy Installation

- Different dome models are designed to meet the needs of an ever-changing market of CCTV security/surveillance. They stand out in applications from state security to residential communities, and from luxury hotels to hostile outdoor environments.
- With their compact structure and user-friendly design, the domes can be installed easily and quickly at any location. This timesaving advantage becomes especially useful when the installation site is large and the surveillance spots are scattered.

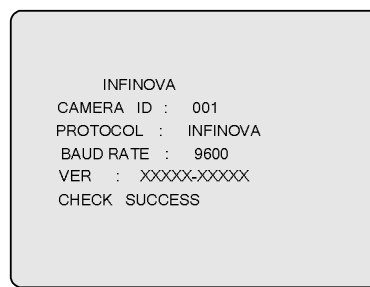
# Chapter III Dome Operation

Before attempting to power on and operate the domes, please make sure that the domes have been properly installed and the DIP switches have been correctly set.

## 3.1 System Initiation

Once powered, the domes will automatically perform an initiation sequence to start configurations and self-check the system status. They will pan, tilt and zoom to verify the correctness of system parameters as well as the normal operation of the dome drive.

When the initiation is finished, the domes stop and the following on-screen information will be displayed.




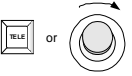
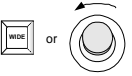




The overlay text displays the camera ID number, the selected protocol, the baud rate, the version of the embedded software, and indicates the success of the auto detection.

The information will remain on screen until dome operation starts.

## 3.2 Basic Operations

The super domes can be easily controlled via the keyboard controllers. Listed below (see the below table) are some guidelines for basic operations

Please note that all these operations are performed in the **OPERATE** mode, i.e., with the key switch at the **OPERATE** position.

Operations	Instructions
Camera Call-up	<b>NOTE:</b> The dome cameras must be called up (put under the control of) via the keyboard before operation or programming. To call up a camera, enter the camera ID number, and press the CAM key. For details on setting camera ID, please refer to Installation Manual.
Pan & Tilt	Move the joystick in the desired direction. 
Zoom In	Press the TELE key, or turn the joystick clockwise for a close view of distant objects. 
Zoom Out	Press the WIDE key, or turn the joystick counterclockwise for a wide scene. 
Iris Open	Press the OPEN key to manually increase the aperture to make the image brighter. 
Iris Close	Press the CLOSE key to manually decrease the aperture to make the image darker. 
Focus Near	Press the NEAR key to manually adjust focus on near objects. 
Focus Far	Press the FAR key to manually adjust focus on distant objects. 

For more details on camera control and video switching operations, please refer to relevant manuals supplied with your matrix switching system. Operations concerning some particular features of the domes will be further discussed in the next chapter, Menu Programming.

### 3.3 Setting and Calling up a Preset

Presets enable users to pre-define and save camera information such as pan/tilt angle and zoom to create specific views that can be called up for display either automatically (upon home position or alarm) or manually (via keyboard commands). The super domes are capable of storing up to 128 such camera views.

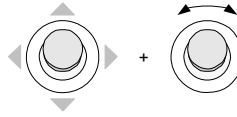
The following is a brief introduction on how to define and call up a preset using the V2117 system keyboard. For preset instructions on your control system, please refer to relevant manuals provided with your system keyboard.

#### To set a preset view

1. Place the key switch at the **PROGRAM** position;



2. Move the joystick to change the pan/tilt and lens positions;

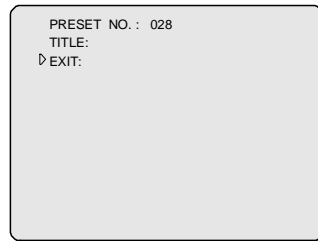


3. Enter the preset number on the keypad, and press the SHOT key to store the settings;



**Note:** If the PRESET TITLE DISP entry of OSD SETUP menu (see section 4.6) is set to “ON”, a description title must be assigned to the preset. Otherwise, if “OFF”, skip to step 9 directly.

4. When the following information is displayed, move the cursor to the first entry of the TITLE item;

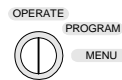


5. Deflect the joystick downward (or upward) to select a suitable character (or a space);
6. Move the cursor to the next entry;
7. Repeat Steps 5 through 6 until the whole title has been edited;
8. Exit title editing menu by deflecting the joystick leftward at the EXIT entry;
9. Place the key switch at the **OPERATE** position.



#### To call up a preset

1. Place the key switch at the **OPERATE** position;



2. Enter the desired preset number on the keyboard, and press the SHOT key to call up.



Note: Some preset number is endowed with special function. Also the number of programmable presets varies under different protocols, for details, please refer to “Operations under different protocols” in Chapter V.

### 3.4 Setting and Calling up a Pattern

Pattern is the patrol record of dome and could be applied by keyboard. Dome could record horizontal, vertical and zoom operation and it could repeat the recorded operation accurately when applied. This identity could be used to define normal route.

Under INFINOVA, PELCO-D/P, Up the Coax protocols, dome could define and store 4 independent patterns.

You can set the title of a pattern through the menu of PATTERN SET and clear the title via OSD SETUP. And the defining and calling up the pattern can be performed by using V2117 system keyboards.

Below is the way to define and call pattern under different protocols.

The following are guidelines for defining and calling these four patterns with Infinova V2117 system keyboards under INFINOVA protocol.

#### To define a pattern

1. Place the key switch at the **PROGRAM** position;

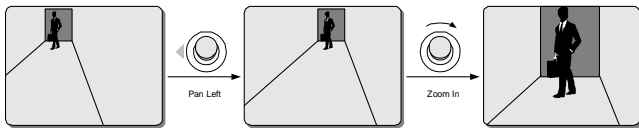


2. Enter "70, SHOT" or "1,PATRN" to start recording Pattern 1;

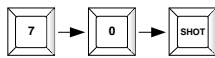


3. Use the joystick to perform a series of pan, tilt and zoom operations to finish a navigation course;

Example



4. Enter "70", and then press the SHOT key or "1 PATRN" to save the navigation course as the pattern, for Pattern 1;

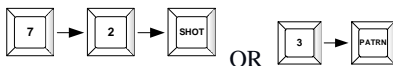


5. If pattern 2 is needed, Enter "71, SHOT" or "2, PATRN" to start recording Pattern 2 (or otherwise skip to step 11);



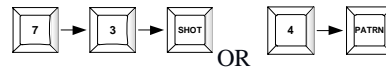
6. Repeat step 3 to finish the course. Enter "71, SHOT" or "2 PATRN" to save Pattern 2;

7. If pattern 3 is needed, Enter "72, SHOT" or "3, PATRN" to start recording Pattern 3 (or otherwise skip to step 11);



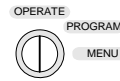
8. Repeat step 3 to finish the course. Enter "72, SHOT" or "3 PATRN" to save Pattern 3;

9. If pattern 4 is needed, Enter "73, SHOT" or "4, PATRN" to start recording Pattern 4 (or otherwise skip to step 11);



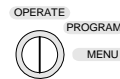
10. Repeat step 3 to finish the course. Enter "73, SHOT" or "4 PATRN" to save Pattern 4;

11. Place the key switch at the **OPERATE** position;



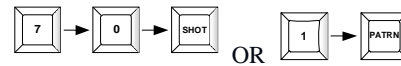
#### To recall a pattern once

1. Place the key switch at the **OPERATE** position;

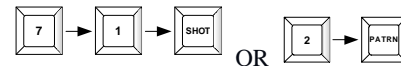


2. Enter one of the following code combinations to recall up the designated pattern:

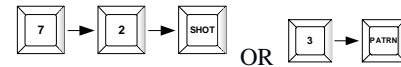
- Enter "70, SHOT" or "1,PATRN" to recall Pattern 1;



- Enter "71, SHOT" or "2,PATRN" to recall Pattern 2;



- Enter "72, SHOT" or "3,PATRN" to recall Pattern 3;



- Enter "73, SHOT" or "4,PATRN" to recall Pattern 4.



#### To recall a pattern repeatedly

1. Place the key switch at the **OPERATE** position;
2. Enter one of the following code combinations to recall the designated pattern repeatedly:

Enter "69, SHOT" + "70, SHOT" to recall Pattern 1 repeatedly;

Enter "69, SHOT" + "71, SHOT" to recall Pattern 2 repeatedly;

Enter "69, SHOT" + "72, SHOT" to recall Pattern 3 repeatedly;

Enter "69, SHOT" + "73, SHOT" to recall Pattern 4 repeatedly;

The following are guidelines for defining and calling these four patterns with Infinova V2117 system keyboards under PELCO-D/P protocols.

#### To define a pattern

1. Place the key switch at the **PROGRAM** position;

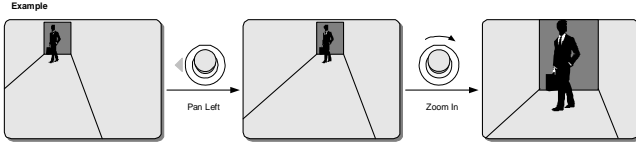


2. Enter "70, SHOT" OR "1,PATRN" to start recording Pattern 1;

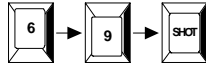


3. Use the joystick to perform a series of pan, tilt and zoom

operations to finish a navigation course;



4. Enter "69", and then press the SHOT key to save the navigation course as a pattern;

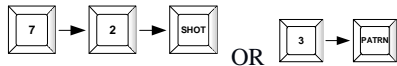


5. If pattern 2 is needed, Enter "71, SHOT" OR "2, PATRN" to start recording Pattern 2 (or otherwise skip to step 11);



6. Repeat step 3 and 4 to save Pattern 2;

7. If pattern 3 is needed, Enter "72, SHOT" OR "3, PATRN" to start recording Pattern 3 (or otherwise skip to step 11);



8. Repeat step 3 and 4 to save Pattern 3;

9. If pattern 4 is needed, Enter "73, SHOT" OR "4, PATRN" to start recording Pattern 4 (or otherwise skip to step 11);



10. Repeat step 3 and 4 to save Pattern 4;

11. Place the key switch at the OPERATE position;



**To recall a pattern once**

The procedures to recall a pattern once under PELCO-D/P protocols are the same with those under INFINOVA protocol.

**3.5 Setting and Calling up a Autopan**

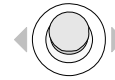
With the AUTOPAN features, the domes can automatically move back and forth between two pre-defined positions (AUTOPAN boundaries). This allows the domes to continuously scan through an area when no manual operation is performed.

The parameters of autopan such as direction, speed, dwell time, title can be set via AUTOPAN SET menu. While the start/end point and calling of autopan are programmed via Infinova V2117 system keyboards.

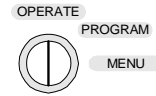
Below is the way to program and call up autopan under INFINOVA, PELCO-D/P protocols:

**To define the start point**

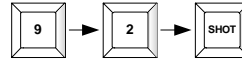
1. Use the joystick to move the camera to the position that is desired as the start point;



2. Place the key switch at the OPERATE position.



3. Enter code commands "92, SHOT" to set the current position as the start point.

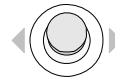


4. The following overlay messages will be displayed, indicating the start point has been defined, and the system is ready for setting the other boundary.

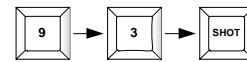


**To define the end point**

1. Once the above messages are displayed, deflect the joystick to the position to be set as the end point;

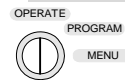


2. Enter code commands "93, SHOT" to set the current position as the end point.

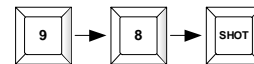


**How to call the AUTOPAN**

1. Place the key switch at the OPERATE position.



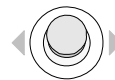
2. Enter code commands "98, SHOT" to call the AUTOPAN.



Under INFINOVA protocol, there is another way to program the start/end point and call up the autopan.

**To define the start point**

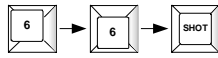
1. The joystick to move the camera to the position that is desired as the start point;



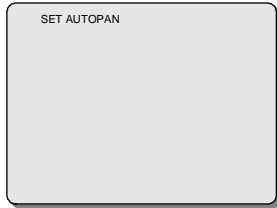
2. Place the key switch at the PROGRAM position.



3. Enter code commands "66, SHOT" to set the current position as the start point.

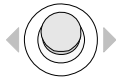


4. The following overlay messages will be displayed, indicating the start point has been defined, and the system is ready for setting the other boundary.

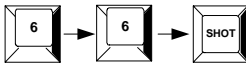


### To define the end point

1. Once the above messages are displayed, deflect the joystick to the position to be set as the end point;



2. Enter code commands "66, SHOT" to set the current position as the end point.



3. Place the key switch at the OPERATE position.

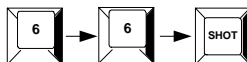


### How to call the AUTOPAN

1. Place the key switch at the OPERATE position.



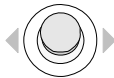
2. Enter code commands "66, SHOT" to call the AUTOPAN.



Below is the way to program the start/end point and call up autopan under Up the Coax protocol:

### To define the start point

1. Use the joystick to move the camera to the position that is desired as the start point;

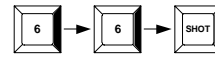


2. Place the key switch at the PROGRAM position;



3. Set the current position as the start point:

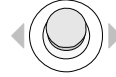
For example: enter code commands "66, SHOT" when use V2015+V2414 (DATALINE convert to Up the Coax) +Up the Coax dome.



4. The following overlay messages will be displayed, indicating the start point has been defined, and the system is ready for setting the other boundary.

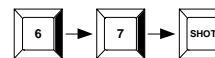
### To define the end point

1. Once the above messages are displayed, deflect the joystick to the position to be set as the end point;



2. Set the current position as the start point:

For example: enter code commands "67, SHOT" when use V2015+V2414 (DATALINE convert to Up the Coax) +Up the Coax dome



3. Place the key switch at the OPERATE position.



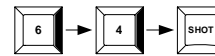
### How to call the AUTOPAN

1. Place the key switch at the OPERATE position.



2. Call up the AUTOPAN.

Enter code commands "64, SHOT" when DATALINE convert to Up the Coax.



### 3.6 Special Operations

There are some shortcuts to control the dome under different protocols. Below shows the operations of special function.

#### 1. 180 ° Auto Flip

Place the key switch at the **OPERATE** position.

Under INFINOVA, Up the Coax protocols, enter “33, SHOT” or “65, SHOT” to recall 180 ° flip automatically.

Under PELCO-D/P protocol, enter “33, SHOT” to recall auto 180 ° flip.

#### 2. Recall Home Position Manually

Place the key switch at the **OPERATE** position.

Under INFINOVA, PELCO-D/P protocols, enter “34, SHOT” to recall home position manually.

#### 3. Autoscan

Place the key switch at the **OPERATE** position.

Under Infinova, Pelco-P/D protocol, enter “99, SHOT” to recall autoscan.




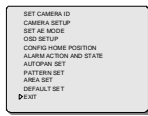



Under Up the Coax protocol, enter “66, SHOT” when using V2117 + V2414 (DATALINE convert to Up the Coax) + Up the Coax dome.

## Chapter IV Menu Programming

The super domes feature on-screen overlay menus for setting up various operation parameters. To utilize functions like AUTOPAN, home position, area partition and privacy mask, appropriate settings must be defined via these menus.

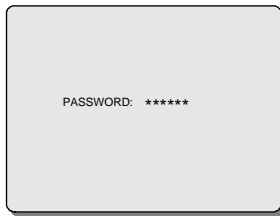
### 4.1 Menu Navigation and Operation

The V2117 system keyboard can be used to call up and navigate through the programming menus, as well as to define system parameters. For guidelines on menu navigation and operation, please refer to the table below. Please note that these operations are made in the **PROGRAM** mode.

Operations	Guidelines
Access the Main Menu	For INFINOVA protocol (using V2117 keyboard): enter 65/95 and then press SHOT key. For PELCO D/P Protocol (using V2117 Keyboard): enter 95 and then press SHOT key.
Position the Cursor	Move the joystick in the desired direction. 
Access a Sub-Menu	Move the cursor to the sub-menu, and deflect the joystick rightward.  ▷SET CAMERA ID   CAMERA ID : 001
Return to the Main Menu	Move the cursor to the bottom line (Return), and deflect the joystick leftward.  ▷Return   
Select a Parameter	Move the cursor to the desired parameter entry, deflect the joystick upward (or downward) to choose an appropriate value, and then move the cursor back or to the next entry filed.  ▷DIGITAL ZOOM: OFF   DIGITAL ZOOM:▷OFF    DIGITAL ZOOM:▷ON   ▷DIGITAL ZOOM: ON
Exit the Main Menu	Move the cursor to the EXIT line in the main menu, and deflect the joystick rightward to exit.  ▷EXIT

### 4.2 Main Menu

After the successful key operation, the main menu will be displayed directly on the screen when the password protect feature is disabled. Entering the preset password to access the main menu if the password protect feature is enabled.

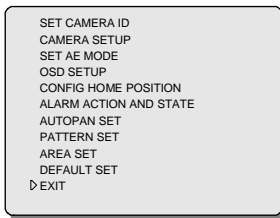


**Follow these steps to enter system access password:**

1. Move the cursor to the first \* symbol;
2. Push the joystick upward (or downward) to toggle through available numbers (0 ~ 9);
3. After choosing the desired number, move the cursor to the next \* symbol;
4. Repeat steps 2 through 3 until the entering of the whole password is finished.

If the wrong password is entered, the system will prompt “ACCESS DENY” and deny access to the menu.

If the correct password is entered, the main menu will be displayed on the screen, shown as below:



The main menu provides access to eleven sub-menus as well as some other system functions, which are briefly outlined in the following section.

**1. SET CAMERA ID**

- Display the dome's current S/N number.
- Allow users to enter a new S/N number.
- Display the camera ID number.
- Set system password
- Confirm password
- Enable/disable password protection
- Display version number

**2. CAMERA SETUP**

- Enable/disable 12X digital zoom.
- Set zoom speed (high/low).
- Set default iris value.
- Set level iris value [For 22X/23X/35X super domes only].
- Select iris mode (M/A/Manual Priority)
- Turn on/off backlight compensation.
- Select white balance mode (M/A)
- Set white balance R-gain.
- Set white balance B-gain.
- Select focus mode (M/A/Manual Priority)

**3. SET AE MODE**

- Set digital slow shutter. [Except for 18X super domes with FCB-EX45CP camera]
- Set shutter speed.
- Select exposure mode.
- Define B/W mode. [For 23X/26X/35X/36X super domes]
- B/W change. [For 23X/26X/35X/36X super domes]
- Pro-B/W [For 23X/35X super domes]
- Reverse current image. [For 23X/26X/35X/36X super domes]
- Mirror current image [For 18X/26X/36X super domes and 22X super domes with VK-S274ER/R camera]
- Freeze current preset's image [For 23X/26X/35X/36X super domes and 22X super domes with VK-S274ER/R camera]
- WDR [For 23X/35X/36X super domes only]
- AGC Level [For 22X /23X/35X super domes only]
- CAM FUNCTION [For 23X/35X/36X super domes only]

**4. OSD SETUP**

- AUTOPAN title display mode
- Preset title display mode
- Zoom display mode
- Cursor moving speed
- Enable/disable alarm function
- Line Lock
- Phase adjust
- Clear title
- Privacy mask set

**5. CONFIG HOME POSITION**

- Set a home position action parameter.
- Determine how long before the domes return to its home position (return time).
- Motor Check

**6. ALARM ACTION AND STATE**

- Define alarm action for each alarm input.
- Define alarm priority.
- Define relay output for each alarm input.
- Set the N.O. or N.C. state for each alarm input.

**7. AUTOPAN SET**

Set parameters for AUTOPAN, including:

- Pan direction,
- Pan speed,
- Time to stay at pan limits,
- Title information.

**8. PATTERN SET**

- Select a pattern to set title information.
- Define title information for selected area.
- Title information ON/OFF

## 9. AREA SET

- Set serial number for 16 areas
- Define title for 16 areas
- Area display switch
- Set boundaries among 16 areas

## 10. DEFAULT SET

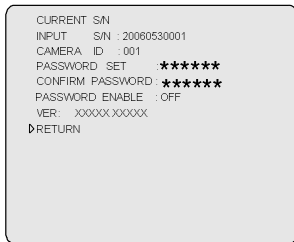
- Set the parameters to factory defaults.
- Reset Camera

## 11. EXIT

- Exit the main menu.

## 4.3 Camera Information

The SET CAMERA ID menu is generally used to display the current serial number (S/N) and camera ID number of the domes. The users could enter a new serial number or enable the password protection.



### CURRENT S/N

**Function:** Display the current serial number of the domes.

### INPUT S/N

**Function:** Allow a user to enter a new serial number.

**Operation:** To input a desired serial number,

1. Move the cursor to the first digit entry;
2. Deflect the joystick downward (or upward) to toggle through available numbers (0 ~ 9);
3. When the desired number is displayed, move the cursor to the next digit entry;
4. Repeat Steps 2 through 3 until the entire serial number is entered.

### CAMERA ID

**Function:** Display the current ID number for the domes.

**Note:** The camera ID number can be selected via the DIP switch of S1. For details on S1 settings, please refer to **Installation Guide**.

### PASSWORD SET

**Function:** Set/change system access password.

**Operation:** To input a desired system access password

1. Move the cursor to the first \* symbol;
2. Push the joystick upward (or downward) to toggle through available numbers (0 ~ 9);
3. After choosing the desire number, move the cursor to the next \* symbol,
4. Repeat steps 2 through 3 until entering of the whole password is finished.

### CONFIRM PASSWORD

**Function:** Input the same password as the “PASSWORD SET” entry to confirm a new password.

**Operation:** Follow the steps described in “PASSWORD SET” to input the confirming password.

**Note:** If the confirming password is incorrect, the system will deny return to the main menu, and display the following information to require correct password setting and confirmation:



### PASSWORD ENABLE

**Function:** Enable/disable the password protect feature.

**Operation:** ON - enable the password protect feature, i.e. require entering system access password before access the main menu.

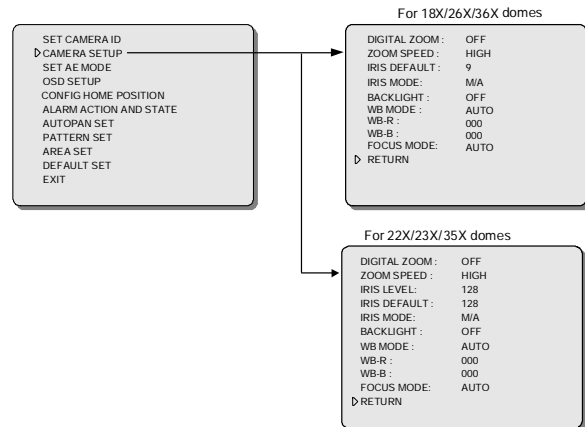
OFF - (default) disable the password protect feature.

**VER:** Version No.

**Function:** Show current operation program version number..

## 4.4 Camera Setup

The CAMERA SETUP menu provides configuration for most lens/optics parameters.



### DIGITAL ZOOM

**Function:** Enable/Disable digital zoom. Determine digital zooming multiple.

**Options:** OFF – Disalbe digitao zoom function (default)

**0/02X-0/12X** - Zooming multiple is from 2 to 12. With full capacity of optic zoom, releasing button first then pressing button to enter the digital zoom status.

**01X-12X** - Zooming multiple is from 1 to 12. With full capacity of optic zoom, pressing button continuously to enter the digital zoom status.

**Note:** It cannot enter the **0/02X-0/12X** digital zoom status when using the pattern. (For 36X, 26X domes and 18X domes with FCB-45CP camera, there are only ON/OFF options: namely

enable/disable digital zoom function. The default is OFF.)

#### ZOOM SPEED

**Function:** Determine the zooming speed of the camera, i.e., how fast the camera will go from its full wide zoom to its maximum optic zoom.

**Options:** **HIGH** - (default) set the camera at a high zooming speed.  
**LOW** - set the camera at a low zooming speed.

#### IRIS LEVEL [For 22X/23X/35X Super Domes only]

**Function:** Set the level of the iris.

**Options:** **0 ~255** - the default is "128" [For 22X/23X/35X Super Domes]

#### IRIS DEFAULT

**Function:** Set the default value of the iris.

**Options:** **0 ~015** - the default is "9" [For 18X/26X Super Domes]  
**0 ~255** - the default is "128" [For 22X/23X/35X Super Domes]

#### IRIS MODE

**Function:** Select the iris mode.

**Options:** **M/A** - (default) when the camera is still, users can adjust the iris manually, and otherwise, when the camera is under control of the joystick, the camera can adjust the iris automatically.  
**MANU** - Users can adjust the iris manually.  
**AUTO** - The camera can adjust the iris automatically.

#### BACKLIGHT

**Function:** Turn on/off the backlight compensation feature.

A sharp contrast of brightness and darkness may arise when a bright backlight is present. This usually leads to a vaguely dark or even silhouetted image of a subject under surveillance. Under such circumstances, the backlight compensation can be used to achieve a suitable exposure level so as to get a clear view of the subject.

With backlight compensation, the camera becomes more sensitive to the light level in the center of the picture, and thus, enhances the image quality of the subjects in this area.

**Options:** **ON** - enable the backlight compensation.  
**OFF** - (default) turn off the backlight compensation.

#### WB MODE

**Function:** Select the white balance mode.

The domes feature built-in sensors to measure the current color temperature, and use an algorithm to automatically process the image so that the final output image may be close to what the human eyes see.

Under some particular situations, however, users can

also manually adjust the white balance parameters to achieve what they consider to be the best-balanced pictures.

**Options:** **AUTO** - (default) enable the camera to automatically make white balance.

**MANU** - allow a user to manually adjust white balance parameters (see below).

#### WB-R

**Function:** Allow manual adjustment of R-gain value for customer white balance.

**Options:** **000 ~ 255** - The color shift will be viewed on the monitor when changing the R-gain value. The greater the number is, the more reddish the picture becomes.

#### WB-B

**Function:** Permit manual adjustment of B-gain value for customer white balance.

**Options:** **000 ~ 255** -The color shift will be viewed on the monitor when changing the B-gain value. The greater the number is, the more bluish the picture becomes.

#### FOCUS MODE

**Function:** Select the focus mode of the camera.

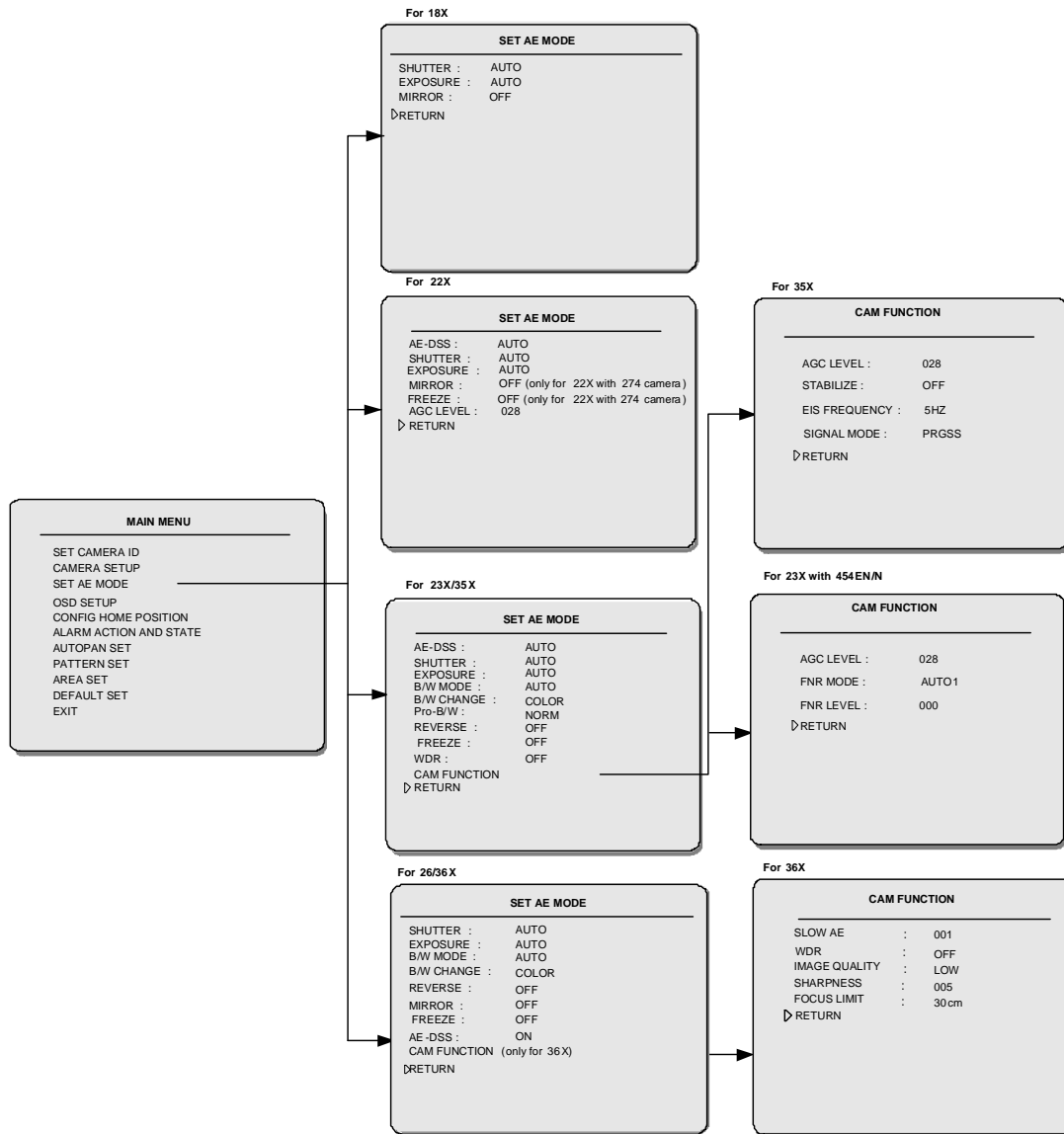
**Options:** **AUTO** - (default) enable the camera to automatically focus on the subject in the center of the picture.  
**MANU**- manually adjusts focus on the target.  
**M/A** - when the camera is still, users can adjust the focus manually, and otherwise, when the camera is under control of the joystick, the camera can adjust its focus automatically.

**Note:**The camera may not perform the best auto focus when the target stays at the following conditions:

- is not in the center of the image;
- appears too dark or vague;
- is a strong light object, e.g., a flash light;
- is a large blank area such as a white wall;
- is located behind a screen-like object such as a painted glass window or a safety net;
- moves too fast.

### 4.5 Setting AE (Automatic Exposure) Mode

The AE mode menu helps a user to set up an appropriate AE (Automatic Exposure) mode to have the camera automatically set the shutter speed and/or aperture value to match the brightness of the scene. Digital Slow Shutter (DSS) can also be set in this menu.



### AE-DSS [For 22X/23X/35X/26X Super Domes only]

**Function:** Enable/disable the DSS capability, and set the digital slow shutter.

The digital slow shutter (DSS) slows the picture frame rate and enhances the camera's sensitivity in poor light environments. Light sensitivity improves as the value of DSS increases.

**Option :** **AUTO** - (default) auto digital slow shutter function

The classification of manual DSS is relating to the formats of the Super Domes.

Under the PAL format, the range could be adjusted as follows:

**1/1.5, 1/3, 1/6, 1/12, 1/25, 1/50**

Under the NTSC format, the range could be adjusted as follows:

**1/2,1/4,1/8,1/15,1/30,1/60**

**Note:** It only could sets the ON/OFF status when using the 26X/36X domes.

### SHUTTER

**Function:** Select the shutter speed-priority AE mode, and set a suitable speed.

Once a shutter speed is set, the camera will automatically select an aperture value to match the brightness. Faster shutter speeds allow the camera to capture instantaneous streak-free images of a moving subject, while slows speeds improve light sensitivity in poorly illuminated areas.

**Option :** **AUTO** - ( default ) auto shutter speed priority AE mode

The classification of manual shutter speed is relating to the formats of the Super Domes.

### [For 18X Super Domes]

Under the PAL format, the adjustment range of the shutter speed is as follows:

**1/50, 1/75,1/100,1/120, 1/150, 1/215, 1/300,1/425,1/600,1/1000, 1/1250,1/1750,1/2500, 1/3500, 1/6000, 1/10000**

Under the NTSC format, the adjustment range of the shutter speed

is as follows:

**1/60, 1/90,1/100,1/125, 1/180, 1/250, 1/350,1/500,1/725,1/1000, 1/1500,1/2000,1/3000, 1/4000, 1/6000, 1/10000**

#### [For 26X/36X Super Domes]

Under the PAL format, the adjustment range of the shutter speed is as follows:

**1/1,1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/75,1/100,1/120, 1/150, 1/215, 1/300,1/425,1/600,1/1000,1/1250,1/1750,1/2500, 1/3500, 1/6000, 1/10000**

Under the NTSC format, the adjustment range of the shutter speed is as follows:

**1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90,1/100,1/125, 1/180, 1/250, 1/350,1/500,1/725,1/1000,1/1500,1/2000,1/3000, 1/4000, 1/6000, 1/10000**

#### [For 22X/23X/35X Super Domes]

Under the PAL format, the range could be adjusted as follows:

**1/1.5, 1/3, 1/6, 1/13, 1/25, 1/50, 1/100, 1/150, 1/250 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/30000**

Under the NTSC format, the range could be adjusted as follows:

**1/2,1/4,1/8,1/15,1/30,1/60,1/120,1/180,1/250,1/500 1/1000,1/2000,1/4000,1/10000,1/30000**

#### EXPOSURE

**Function:** Select exposure compensation mode or set an appropriate internal reference brightness level.

**Options:** **AUTO** - (default) auto exposure compensation mode.

**[For 18X/26X/36X Super Domes]**

**0~15** - set an appropriate internal reference brightness level.

#### [For 22X/23X/35X Super Domes]

**F1.6, F2.2, F3.2, F4.4, F6.4, F8.8, F12, F17, F24, F34**

#### B/W MODE [For 23X/26X/35X/36X Super Domes only]

**Function:** Select black & white /color conversion mode.

In a brightly illuminated area, the camera will generate normal color images. If the illumination fades and the area becomes dark, the camera will convert color images into black & white images to increase light sensitivity.

**Options:** **AUTO** - (default) enable the camera to automatically switch between color and black/white imaging according to changes of lighting condition.

**MANU** - Require a user to manually switch imaging mode between color and black/white.

#### B/W CHANGE [For 23X/26X/35X/36X Super Domes only]

**Function:** Change imaging mode between color and black/white manually.

**Options:** **COLOR** - (default) enable the camera to display color image no matter how illumination conditions may change.

**B/W** - Make the camera output black & white images regardless of lighting conditions.

#### PRO\_B/W [For 23X/35X Super Domes only]

**Function:** Change different illumination conditions for black &

white/color conversion.

**Options:** day, norm (default), night

As illumination decreases, a setting of “day” will cause a hard conversion from color to B/W, while a setting of “night” will cause an easier conversion from color to B/W. As illumination improves, a setting of “day” will cause an easier conversion from B/W to color, while a setting of “night” will cause a hard conversion from B/W to color. Intermediate value “norm” is the default status.

#### REVERSE [For 23X/26X/35X/36X super domes]

**Function:** Reverse the current image vertically.

**Options:** **OFF** - (default) turn off the image reverse function of the camera.

**ON** - turn on the image reverse function of the camera.

**Note:** For 23X/35X domes, the functions of REVERSE and PRIVACY MODE 2 cannot be simultaneously enabled.

#### MIRROR [For 18X/26X/36X super domes and 22X super domes with VK-S274ER/R camera]

**Function:** Mirror the current image horizontally.

**Options:** **OFF** - (default) turn off the image mirror function of the camera.

**ON** - turn on the image mirror function of the camera.

#### FREEZE [For 23X/26X/35X/36X super domes and 22X super domes with VK-S274ER/R camera]

**Function:** Freeze the current image.

**Options:** **OFF** - (default) turn off the image freeze function of the camera.

**ON** - turn on the image freeze function of the camera.

**PST** - turn on the image freeze function when using the preset function.

#### WDR [For 23X/35X/36X Super Domes]

**Function:** Present the clear image on the conditions that black and white showing a striking contrast. The illumination’s proportion between indoor and outdoor can reach to 1:128 at farthest.

**Options:** **[For 23X Super Domes]**

There are 5 options for selection: OFF/AD WDR\* /AD WDR/WDR\* /WDR

**OFF** - (default) turn off the image wide dynamic range function of the camera.

In other 4 modes of WDR, users can get highlight and shadow detail under high contrast conditions. Compared with WDR mode, AD WDR provides color details in highlight scene. While in WDR\* and AD WDR\* modes, the brightness of lighting area would be reduced.

**[For 36X Super Domes]**

**OFF** - (default) turn off the image wide dynamic range function of the camera.

**ON** - turn on the image wide dynamic range function of the camera.

**Note:** WDR settings for 36X domes are in CAM FUNCTION menu.

**[For 35X Super Domes]**

**OFF** - (default) turn off the image wide dynamic range function of the camera.

MD1 –WDR image processing mode 1

MD2 –WDR image processing mode 2

**Note:** WDR function for 35X is available only when STABILIZE is OFF and SIGNAL MODE is PRGSS.

**AGC LEVEL [For 22X/23X/35X Super Domes only]**

**Function:** It can increase light sensitivity automatically under lower illumination conditions and heighten the CCD semaphore intensity to obtain clear image.

**Options:** 000~040 levels can be selected. The default is 028. The higher AGC level is, the higher sensitivity the camera detected. It suits to adjust the light under lower illumination conditions.

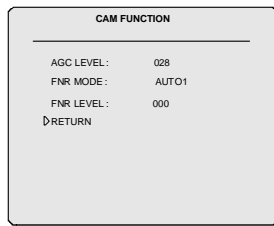
The lower AGC level is, the lower sensitivity the camera detected. It suits to adjust the light under higher illumination conditions.

**Note:** For 23X/35X domes, AGC LEVEL can be adjusted in the submenu of CAM FUNCTION.

**CAM FUNCTION [For 23X/35X/36X super domes]**

The settings of submenu of CAM FUNCTION are varied for different optical zoom domes, of which AGC and WDR function has been introduced above, thus this part will be skipped below.

**[For 23X super domes]**



**FNR MODE** – to set noise reduce mode

**Options:** **AUTO1/AUTO2/AUTO3:** auto mode, the larger the number behind AUTO is, the more effective the noise reduce is. The default is AUTO 1.

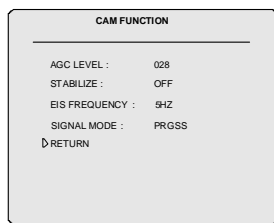
**OFF** – Disable noise reduce function

**MANU** – Set noise reducing parameters manually

**FNR LEVEL** – to set noise reducing parameters in MANU mode, the larger the number is, the higher the level is.

**Options:** **000~015:** adjustable, The default is 000.

**[For 35X Super Domes]**



**Function:** Stabilize function could proof the image shaking when the domes're operating on the acceleration or abrupt halting condition. Please note that if CAM FUNCTION is ON, Digital Zoom will be affected, and the digital zoom can reach 64 at the most.

**Options:** **OFF** (default): disable the function

**ON:** enable the function

**EIS FREQUENCY:** 5 HZ (default), 10 HZ

**SIGNAL MODE:**

**PRGSS** (default): Progress scanning;

**INTRL:** Interlace scanning.

**Note:** Please restart the system after changing signal mode.

**[For 36X super domes]**



**SLOW AE**

**Function:** Exposure time setting

**Options:** 001~032 adjustable, the larger the number is, the longer the camera exposes.

**IMAGE QUALITY**

**Function:** Image quality setting

**Options:** **HIGH-** Resolution is 530TVL

**LOW-**(default) Resolution is 470TVL

**SHARPNESS**

**Function:** Adjust the brightness of edges of a subject.

**Options:** 001~015 for selection, default'005''. The larger the figure is, the clearer the image is, vice verse.

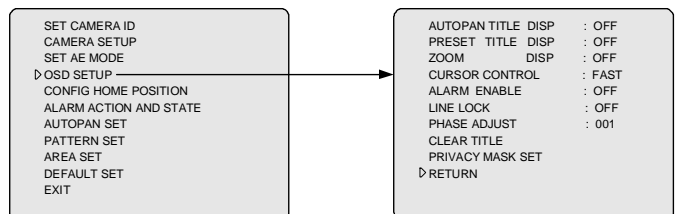
**FOCUS LIMIT**

**Function:** Focus adjustment

**Options:** 10cm, 30cm(default), 1m

**4.6 OSD (On-Screen Display) Setup**

The domes can generate overlay text descriptions concerning various operations to facilitate site surveillance. Use the OSD SETUP menu to activate the on-screen displays (OSD) for these descriptions:



### AUTOPAN TITLE DISP

**Function:** Enable/disable the on-screen title information for a running AUTOPAN or not.

**Options:** **OFF** - (default) turn off the on-screen display for AUTOPAN.

**ON** - display the title information of AUTOPAN.

**Note:** The title information for AUTOPAN is defined in the AUTOPAN menu.

### PRESET TITLE DISP

**Function:** Determine whether to display the title information for a called-up preset.

**Options:** **OFF** - (default) disable the on-screen display for preset title.

**ON** - display the title information for a called-up preset.

### ZOOM DISP

**Function:** Turn on/off the on-screen display of the current zoom value (i.e., lens magnification times).

**Options:** **OFF** - (default) turn off the on-screen zoom information.

**ON** - enable the on screen display of the current lens magnification times.

### CURSOR CONTROL

**Function:** Adjust the moving speed of the on-screen cursor.

**Options:** **FAST** - (default) set the on-screen cursor to move at a high speed.

**SLOW** - slow the moving cursor.

### ALARM ENABLE

**Function:** Enable/disable the alarm function of the domes.

**Options:** **OFF** - (default) disable the alarm function of the domes.

**ON** - enable the alarm function of the domes.

### LINE LOCK

**Function :** Turn on/off the line lock SYNC function of the camera.

**Options :** **OFF** - ( default ) Turn off the line lock SYNC function of the camera

**ON**- Turn on the line lock SYNC function of the camera

**Note :**The option could not resume default in DEFAULT SET menu.  
The function is available when the power supply is AC.  
The function is invalid when the power supply is DC.

### PHASE ADJUST

**Function :**Adjust forward/afterward the line lock SYNC level of the camera

**Option :** Under the PAL format

**001~198** Slightly adjust the line lock SYNC level of the camera

Under the NTSC format

**001~165** Slightly adjust the line lock SYNC level of the camera

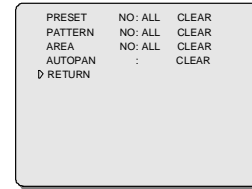
**Note :**The option could not resume default in DEFAULT SET menu.

### CLEAR TITLE

**Function:** Clear the programmed title information of presets,

patterns, areas and AUTOPAN.

Move the cursor to **CLEAR TITLE** and deflect the joystick rightward, the following information will be displayed.



### PRESET NO

**Function:** Clear part of or all preset title information.

**Options:** **001~128** - Clear title information of the selected preset.

**ALL** - Clear the title information of all presets.

### PATTERN NO

**Function:** Clear part of or all pattern title information.

**Options:** **001~004** - Clear title information of the selected pattern.

**ALL** - Clear the title information of all patterns.

### AREA NO

**Function:** Clear part of or all area title information.

**Options:** **001~016** - Clear title information of the selected area.

**ALL** - Clear the title information of all areas.

### AUTOPAN

**Function:** Clear AUTOPAN title information.

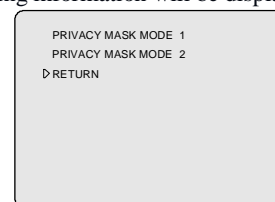
**To clear title information:**

1. Move the cursor to "ALL" (To clear AUTOPAN title, start from step 3 directly);
2. Deflect the joystick upward or downward to select a desired number (of presets, patterns or areas) or ALL;
3. Move the cursor to the relevant CLEAR;
4. Deflect the joystick upward or downward to clear title information;
5. Continue to clear other title information or return to the previous menu from RETURN.

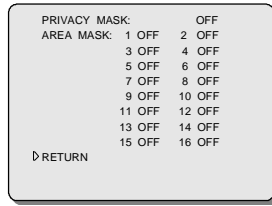
### PRIVACY MASK SET

**Function:** "Privacy Mask" can be used when some specific areas need to be covered and avoid being seen by operators. The system will cover those areas by displaying blank screen, and operators are unable to see those areas on the monitor. The covered areas would not expose with the movement of lens or zoom operations, and by doing so the areas will always be screened.

Move the cursor to **PRIVACY MASK SET** and deflect the joystick rightward, the following information will be displayed:



Enter PRIVACY MASK MODE 1, the following information will be displayed:



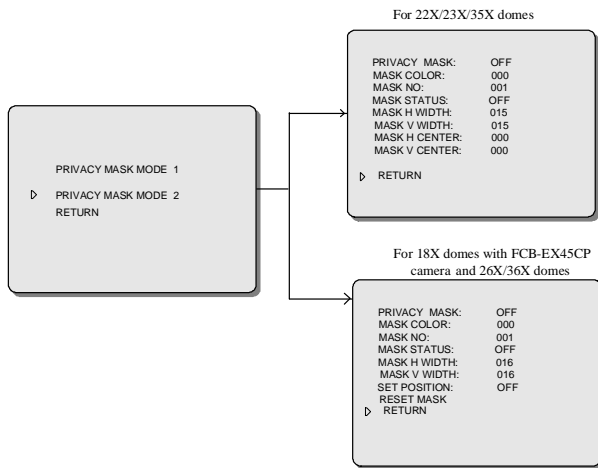
### PRIVACY MASK

**Function:** Turn on/off Privacy Mask function.  
**Options :** **OFF** - ( Default ) Turn off Privacy Mask function.  
**ON** - Turn on Privacy Mask function.

### AREA MASK

**Function:** Set the number of those areas that needs to be hidden (1-16).  
**Options :** **OFF** - ( Default ) The area is exposed.  
**ON** - The area is hidden.  
**Note:** Because all the areas in this menu are divided by “Setting Area” function, the range and number of each area should be defined in AREA SET menu before the setting.

Enter “PRIVACY MASK MODE 2”, the sub-menu varies a little for different cameras, and please note that this mode is unavailable for 22X super domes with VK-S214ER/R camera.



### PRIVACY MASK

**Function:** Turn on/off Privacy Mask function.  
**Options :** **OFF** - ( Default ) Turn off Privacy Mask function.  
**ON** - Turn on Privacy Mask function.

### MASK COLOR

**Function:** Select the color for the private areas. The color changes with the numbers.  
**Options:** 000~015. The default number is 000 (Black)

### MASK NO

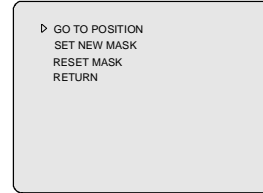
**Function:** Select the area No. for the private areas.

**Options:** 001~008 for 22X/23X/35X domes; 001~024 optional for 18X/26X/36X domes.

### MASK STATUS

**Function:** Turn on/off Privacy Mask function.  
**Options:** **OFF** - ( default ) Turn off Privacy Mask function.  
**ON** - Turn on Privacy Mask function.

When the mask status is set to“ ON ”: The other menu can be set. For 22X/23X/35X domes, the following sub-menu can be obtained through MASK STATUS.



Choose “GO TO POSITION”, “PRESS 1 SHOT END” will be displayed on the screen. In operation mode, deflect joystick to the desired privacy area and click “1”+ “ SHOT ” to accomplish it. Choose “SET NEW MASK” to set the center, dimension and color of privacy mask. The dimension of privacy mask can be adjusted via MASK H WIDTH / MASK V WIDTH/ MASK H CENTER/ MASK V CENTER options.  
 Choose “RESET MASK” to resume primary privacy mask.

### MASK H WIDTH

**Function:** Set the horizontal width of the private areas.  
**Options:** 000~127. For 22X/23X/35X domes, the default number is 015. For 18X/26X/36X domes, the default number is 016.

### MASK V WIDTH

**Function:** Set the vertical width of the private areas.  
**Options:** 000~127. For 22X/23X/35X domes, the default number is 015. For 18X/26X/36X domes, the default number is 016.

### MASK H CENTER

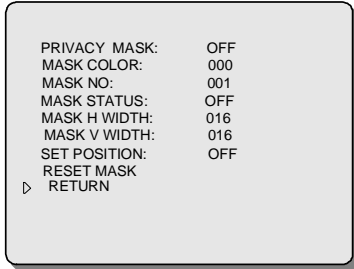
**Function:** Set the horizontal distance deflecting from the screen center.  
**Options:** 000~255. The default number is 000.

### MASK V CENTER

**Function:** Set the vertical distance deflecting from the screen center.  
**Options:** 000~255. The default number is 000.

For 18X domes with FCB-EX45CP camera and 26X domes with FCB-EX980/980P camera and 36X domes, when setting the PRIVACY MASK as ON state and selecting SET POSITION menu, “PRESS 1 SHOT TO END” will be displayed on the screen and the image on the screen becomes netted. In operation mode, click “1”+ “ SHOT ” to accomplish it.

For 18X domes with FCB-EX45CP camera and 26X/36X domes



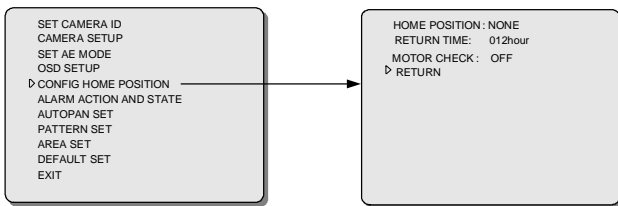
Choose “RESET MASK” to resume primary privacy mask.  
Choose “RETURN” to return to the “PRIVACY MASK SET” interface.

**Note:** In order to ensure that the areas could be completely screened, operators should also pay attention to below points:

1. Reset to the factory default when using the dome for the first time;
2. Return to the previous menu to set the next private area after finishing setting one private area;
3. When in “PRIVACY MASK MODE 2”, The horizontal corner of all privacy areas should be between 0 ° and 45 °, the vertical corner should not be bigger than 45 °.

#### 4.7 Home Position

After receiving no command for a certain period of time, the domes can automatically return to a position that has been previously defined (“home position”). This feature ensures that the domes view a key area when not controlled by a user. It can be set up in the CONFIG HOME POSITION menu.



#### HOME POSITION

**Function:** the home position parameters.

**Options:** **NONE** - disable the home position feature.

**PRESET 001 ~ PRESET 128** choose one of the 128 presets as the dome's home position.

**AUTOPAN / PATTERN 1 ~ 4** choose one as the dome's home position



**Note:** Before selecting a preset as the home position, please make

sure that it has been properly set.

#### RETURN TIME

**Function:** Determine how long before the inactive dome returns to its home position.

**Options:** **000 ~ 010min (Step by 1)** set the return time  
**010min ~ 001hour (Step by 10)** set the return time  
**001 ~ 012hour (Step by 1)** set the return time.

#### MOTOR CHECK

**Function:** Implement position emendation.

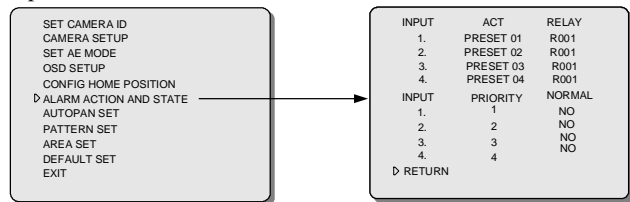
**Options:** **ON** -When dome has not passed by optical coupling for a long time and accumulative error reaches some value, the dome will be compelled to pass by the optical coupling and the error will be reset to proceed.  
**OFF** -The former verifying method is adopted. When the dome passes by the optical switch, position emendation is to be done.

**AUTO** When dome has not passed by optical coupling for a long time and accumulative error reaches some value, and Pattern or Preset is called up, the dome will pass by the optical coupling and the error will be reset to proceed.

#### 4.8 Alarm Action and State

The super domes provide 4 alarm inputs and 1 relay output. Each input can be used to connect an external alarm device such as door contact, motion sensor or smoke alarm. Relay output can be set to respond to the alarm input.

By programming the ALARM ACTION AND STATE menu, you can define the normal state (N.O. or N.C.) for each alarm input, and assign it with an action (a preset), so that when the normal state changes to abnormal, the domes will be automatically positioned at the preset for surveillance.



#### ACT

**Function:** Assign each alarm input with a preset to call upon alarm.

**Options:** **NONE** - (default) indicate a no-action command that disables the automatic preset call.

**PRESET 001 ~ PRESET 128** - select one of the 128 presets for automatic call up.

**AUTOPAN / PATTERN 1 ~ 4** choose one as the dome's alarm action

**Operation:** To assign alarm inputs with desired actions (presets)

1. Move the cursor to the ACT entry associated with an alarm input in use (i.e., that has been properly connected to an alarm device);
2. Deflect the joystick downward (or upward) to select the preset (1-128);

3. Move the cursor to the ACT entry for the next alarm input in use;
4. Repeat Steps 1 through 3 until all the desired entries have been defined.

### To set alarm linkage priority

1. 1,2,3,4 four priority in total and the grade become higher in turn. If several alarm links, the system will response to the one with higher priority grade;
2. If priority grades are the same, the system will enter cycle response mode automatically;
3. If other operation commands are entered while alarm links occur, the alarm link operation will be interrupted. The message on display will show: "ALARM BLOCKED";
4. If alarm linkage operation is interrupted, press corresponding manual command according to different protocols to recover the former alarm action.

### RELAY

**Function:** Assign each alarm input with a relay output.

**Options:** NONE - (default) changes of alarm state will not lead to a relay output.

**R 001** - one relay output.

**Operation:** To assign alarm inputs with specific relay:

1. Move the cursor to the RELAY entry associated with an alarm input in use;
2. Deflect the joystick downward (or upward) to select a relay output; Move the cursor to the next RELAY entry associated with an alarm input in use;
3. Repeat Steps 2 through 3 until all the entries have been defined.

### NORMAL STATE

**Functions:** Define the normal state of each alarm input.

**Options:** NO - (default) indicate the normal state as normally open (N.O.).

NC - set the normal state as normally closed (N.C.).

**Operation:** To define the normal state for each alarm input in use.

1. Move the cursor to the STATE entry associated with a used alarm input;
2. Deflect the joystick downward (or upward) to select an appropriate normal state; **Note:** Since a variety of alarm devices may be utilized, please refer to the manuals supplied with a particular device to determine the normal state for the connected alarm input.
3. Move the cursor to the STATE entry associated with the next alarm input in use;
4. Repeat Steps 2 through 3 until all the entries have been programmed.

**Example:**

INPUT	ACT	RELAY
1.	PRESET 01	R001
2.	PRESET 02	R001
3.	PRESET 03	R001
4.	PRESET 04	R001
INPUT	PRIORITY	NORMAL
1.	1	NO
2.	2	NO
3.	3	NO
4.	4	NO
▷ RETURN		

### This sample menu indicates:

- Alarm Input 1 has been defined as normally open, assigned with Preset 001 as its alarm action, and R001 as its relay output;
- Alarm Input 2 has been defined as normally open, and assigned with Preset 002 as its alarm action, and R001 as its relay output;
- Alarm Input 3 has been defined as normally open, assigned with Preset 003 as its alarm action, and R001 as its relay output;
- Alarm Input 4 has been defined as normally open, assigned with Preset 004 as its alarm action, and R001 as its relay output;

### Therefore:

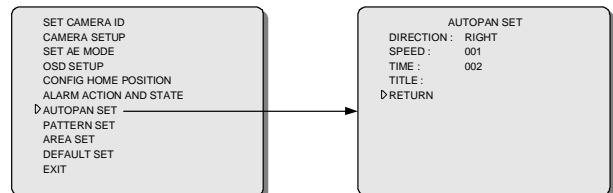
- When Alarm Input 1 detects an alarm (i.e. Alarm Input 1 changes from normally closed to open), the domes will be automatically positioned at Preset 1 and startup relay 1 output;
- When Alarm Input 2 detects an alarm (Alarm Input 2 changes from normally open to closed), the domes will be automatically positioned at Preset 2 and startup relay 1 output.
- When Alarm Input 3 detects an alarm (i.e. Alarm Input 3 changes from normally closed to open), the domes will be automatically positioned at Preset 3 and startup relay 1 output;
- When Alarm Input 4 detects an alarm (i.e. Alarm Input 4 changes from normally closed to open), the domes will be automatically positioned at Preset 4 and startup relay 1 output;

**Note:** Dome under the Up the Coax only has one RELAY output.

## 4.9 AUTOPAN

Dome could scan between two boundary lines and so the dome could monitor some area continuously under system automatic running state.

AUTOPAN parameters including direction, speed, dwell time and title could be set in AUTOPAN SET menu.



### DIRECTION

**Functions:** Set the original orientation when dome do horizontal running.

**Options:** RIGHT & LEFT

**RIGHT (default):** Start pointing that camera aims at and runs to the

right.

**LEFT:** Start pointing that camera aims at and runs to the left.

**SPEED**

**Functions:** Select the scanning speed.

**Options:** 001~022. The smaller the digit is, the faster the speed will be. Default is 008.

**TIME**

**Functions:** Set the period when dome stays on the left & right boundaries.

**Options:** 000~030 (S). The default is 000.

**TITLE**

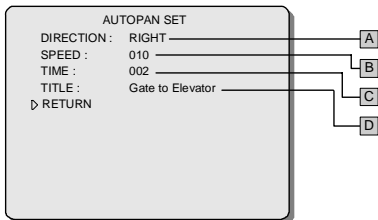
**Functions:** Define AUTOPAN route (no more than 16 characters). Display could show or conceal the appellation. If the set is ON, the appellation will show on display when scanning.

**Options:** 62 characters could be applied in total when define the appellation. 52 big & small English letter and 0-9 Arabic numerals are available. Blank is allowed in appellation.

**Steps :**

1. Move the cursor to the first character of TITLE.
2. Move the operation hand up and down to select character or blank.
3. Move the cursor to the next character.
4. Repeat step 2 and step 3 to complete the appellation.

**Example:**



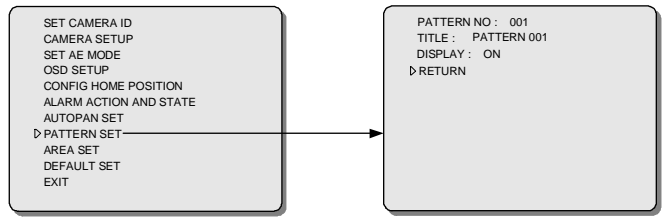
**Above menu will show after enabling AUTOPAN function:**

- Camera will go to boundary A automatically and run to right (A) to scan at the speed of 10 grade (B).
- When camera moves to another boundary, stays 2s(C), return to the starting boundary and stays 2s.
- Camera moves to scan between 2 boundaries and display will show route appellation " Gate to Elevator "(D).

**4.10 Pattern**

Pattern is the patrol record of dome and could be applied by keyboard. Dome could record horizontal, vertical and zoom operation and it could repeat the recorded operation accurately when applied. This identity could be used to define normal route.

Client could use apply to PATTERN SET menu in below list to define the pattern serial number and add appellation.



**PATTERN NO**

**Functions:** Select pattern needs to be added appellation.

**Options:** 001~004 ;Under RS485 protocol, dome could define and store 4 independent patterns. Under up the coax protocol, dome could define and store 1 independent pattern Each pattern is allowed to have independent appellation.

**TITLE**

**Functions:** Define appellation for pattern. (no more than 16 characters)

**Options:** 62 characters are available including 52 big and small English letters and Arabic numerals 0-9. Blank is available in appellation.

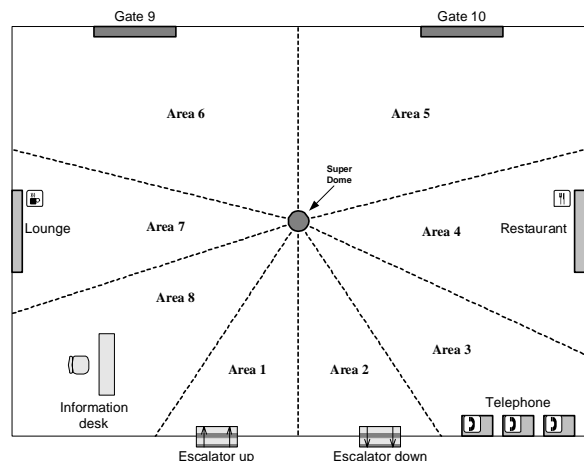
**Edit pattern appellation:**

1. Move the cursor to the first character of TITLE;
2. Move the operation hand to select character or blank;
3. Move the cursor to the next character;
4. Repeat step 2 & step 3 to complete the appellation.

**4.11 Setting Areas**

The "area" feature allows the whole surveillance site to be divided into a maximum of 16 sections (areas). Each section can be labeled with a unique area number and a description title, which will be displayed on the screen when the camera navigates through it.

Illustrated below is a waiting hall at an airport passenger terminal that is under the surveillance of a super dome and has been partitioned into 8 sections using the "area" feature.



As the example shows, partitioned areas together usually constitute

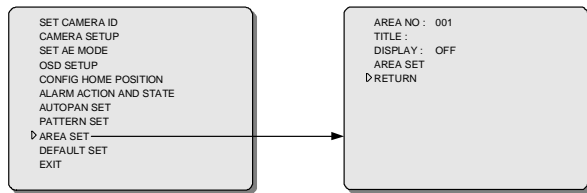
a contiguous 360-degree view around the domes, with the ending point of one area as the starting point for the next. Please note that the ending point of the last area cannot surpass the starting point of the first.

Areas may be assigned different sizes to meet the requirements of a particular installation. In the example shown above, the two areas covering the boarding gates (Areas 5 and 6) are much larger than those covering the escalators (Area 1 and 2).

The zoom level may also affect the area size during camera operations. As the camera zooms in, the size of an area becomes smaller, and its boundaries draw closer. Please refer to the following illustrations on how zoom operations affecting the area size. This feature may become helpful when the area boundaries need to be precisely located (see later discussions in this section).



Using the AREA SET menu shown, users can easily mark the boundaries for the required areas, and label them with description titles.



**AREA NO**

**Function:** Select an area to define its title and on-screen display status.

**Options:** 1 ~ 16

The super domes support a total of 16 areas. Each area may have a unique description label set below.

**TITLE**

**Function:** Edit a description title (up to 16 characters) for the selected area.

**Operation:** A total of 62 characters, including English letters in upper and lower cases, as well as numbers from 0 to 9, are available for editing the area title. Spaces can also be created to separate description words.

A title may contain up to 16 characters and spaces.

**Take the following steps to edit a description title:**

1. Move the cursor to the first entry of the TITLE item;
2. Deflect the joystick downward (or upward) to select a suitable character (or a space);
3. Move the cursor to the next entry;
4. Repeat Steps 2 through 3 until the whole title has been edited.

**DISPLAY**

**Function:** Enable/disable the on-screen title description for the selected area.

**Options:** **ON** - turn on the accompanying description label.

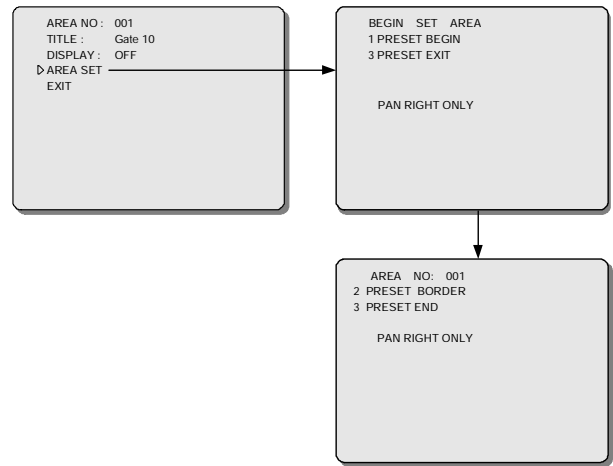
**OFF** - (default) turn off the accompanying description label.

**AREA SET**

**Function:** This menu item is used to access the menu for setting area boundaries. Details are addressed below.

**How to set area boundaries**

When access to AREA SET menu, the menu for setting area boundaries will be displayed, offering on-screen instructions for the operation.



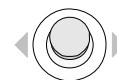
Code Commands: (see table 3)

**Table 3**

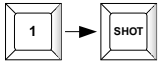
Commands	Operations	Functions
"1, SHOT"	Enter "1" on the numeric keypad, and then press the SHOT key.	Start the setting operation, and set the starting boundary for the first area.
"2, SHOT"	Enter "2" on the numeric keypad, and then press the SHOT key.	Set the ending boundary for the current area (the starting boundary for its next area).
"3, SHOT"	Enter "3" on the numeric keypad, and then press the SHOT key.	Designate the current area as the last, and finish the setting operation.

**To define boundaries for required areas**

1. Deflect the joystick to move the camera to the starting boundary of the first area.



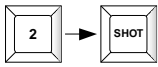
2. Enter code commands "1, SHOT" to start the setting operation. The current position will be defined as the starting boundary for the first area.



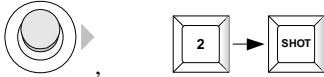
3. Move the camera to the right until the ending boundary of the area is displayed.



4. Enter code commands "2, SHOT" to set the current position as the ending boundary for this area. This position is also the starting boundary for the next area.

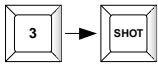


5. Repeat Steps 3 through 4 until the starting boundary of the last area has been defined.



**Note:** The starting boundary of the first area is the ending boundary of the last one.

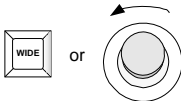
6. Enter code commands "3, SHOT" to finish the setting operation.



**To locate a boundary point precisely:**

If an area boundary needs to be precisely located,

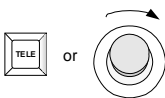
1. Zoom out the image to get a wide view (making the area appear large);



2. Move the camera until the desired boundary point is displayed somewhere near the center of the screen;



3. Zoom in the image to get a close view (making the area appear small but the objects appear large);

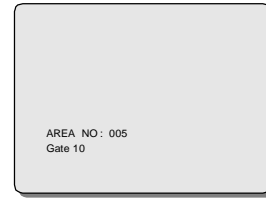


4. Move the camera until the enlarged image of the boundary point is displayed in the screen center;



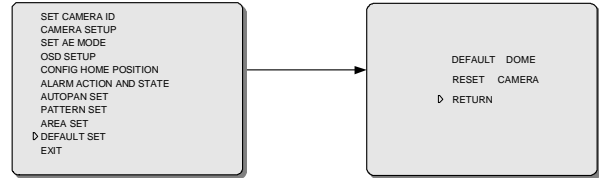
5. Enter appropriate code commands to set the boundary.

If the DISPLAY option has been set "ON" in the AREA SET menu, overlay texts indicating area number and title description will be displayed as long as the camera view stays in the area.



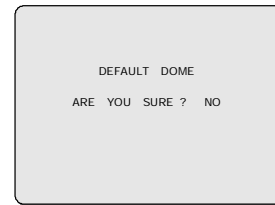
**4.12 Default Set**

The DEFAULT SET item in the main menu is generally used to clear most user-programmed data in the domes, and reset the dome system to factory default.



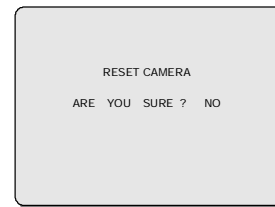
**DEFAULT DOME:**

Clear most user-programmed data in the domes, and reset the dome system to factory default



**RESET CAMERA:**

Reset the camera and resume the status as powered on



**WARNING:** This procedure will erase **MOST** user-programmed data.

**Note:** "LINE LOCK" and "PHASE ADJUST" in "OSD SETUP" menu could not resume default.

## Chapter V Operations Under Different Protocols

### 5.1 Performances and Features

Prior to operations, please make sure that DIPswitch, baud rate and address have been set correctly according to related protocol. Refer to Quick Installation Guide for detailed instructions.

The following table shows the performances and features of the domes under protocols.

	INFINOVA	PELCO-P	PELCO-D(bi-direction)	Up the Coax
Baud Rate	2400/4800/9600BPS	2400/4800/9600BPS	2400/4800/9600BPS	/
Camera Addresses	128	255	254	/
Preset (Controlled by keyboard)	127		128	127
Pattern	4		4	4
AUTOPAN	1		1	1
Area	16		16	16
Home Position	Yes		Yes	Yes
Password Protection	Yes		Yes	Yes
Alarm Contact	Preset Contact 4 Patterns Contact Autopan Contact		Preset Contact 4 Pattern Contact Autopan Contact	Preset Contact 4 Patterns Contact Autopan Contact
AUTOSCAN	1		1	1

### 5.2 Operations

For detailed operations under different protocols (including CAMERA CALL-UP, PAN/TILT, TELE /WIDE, OPEN/CLOSE, FAR/NEAR), please refer to users' manuals of INFINOVA keyboard system.

For Preset, Autopan, Pattern setup and calling up, shortcut operations for special functions, please refer to Chapter .

The following tables show the operation code via Infinova V2117 system keyboard under different protocols.

Menu programming of the domes under all protocols is basically the same as that showed in Chapter . Please follow the instructions showed on the screen during operation.

#### Keyboard operation code command under INFINOVA protocol:

Commands	Key Lock	Function
1 ~ 31, 35 ~ 64 , 74~91, 93, 94, 96, 97, 100~127 + SHOT	PROGRAM	Set preset 1 ~ 31,35 ~ 64,74~91,93,94, 96, 97, 100~127
	OPERATE	Call preset 1 ~ 31,35 ~ 64,74~91,93,94,96,97, 100~127
66 + SHOT	PROGRAM	Set/save autopan
	OPERATE	Call autopan
70 + SHOT / 1 PATRN	PROGRAM	Set/save pattern 1
	OPERATE	Call pattern 1
71 + SHOT / 2 PATRN	PROGRAM	Set/save pattern 2
	OPERATE	Call pattern 2
72 + SHOT / 3 PATRN	PROGRAM	Set/save pattern 3
	OPERATE	Call pattern 3
73 + SHOT / 4 PATRN	PROGRAM	Set/save pattern 4
	OPERATE	Call pattern 4
69+SHOT+70/71/72/73+SHOT	OPERATE	Repeatedly call pattern
68+SHOT	PROGRAM	Remote reset

Commands	Key Lock	Function
92 + SHOT	OPERATE	Set Autopan
93 + SHOT	OPERATE	Save Autopan
98+ SHOT	OPERATE	Call Autopan
65 + SHOT	PROGRAM	Enter menu
95 + SHOT	PROGRAM	
	OPERATE	
33、 65 + SHOT	OPERATE	Call flip 180°
34 + SHOT	OPERATE	Call home position
99 + SHOT	OPERATE	Call Autoscan
32、 68+SHOT	OPERATE	Call alarm

**Keyboard operation code command under PELCO-D/P protocol:**

Command	Key Lock	Function
1 ~ 31,35 ~ 64 , 74~91, 93, 94, 96, 97, 100~128 + SHOT	PROGRAM	Set preset 1 ~ 31, 35 ~ 64, 74~91, 93, 94, 96, 97, 100~128 ~ 31, 35 ~ 64
	OPERATE	Call preset 1 ~ 31, 35 ~ 64, 74~91, 94, 96, 97, 100~128
69 + SHOT	PROGRAM	Save pattern
70 + SHOT / 1 PATRN	PROGRAM	Set pattern 1
	OPERATE	Call pattern 1
71 + SHOT / 2 PATRN	PROGRAM	Set pattern 2
	OPERATE	Call pattern 2
72 + SHOT / 3 PATRN	PROGRAM	Set pattern 3
	OPERATE	Call pattern 3
73 + SHOT/ 4 PATRN	PROGRAM	Set pattern 4
	OPERATE	Call pattern 4
92 + SHOT	OPERATE	Set Autopan
93 + SHOT	OPERATE	Save Autopan
98 + SHOT	OPERATE	Call Autopan
95 + SHOT	PROGRAM	Enter menu
	OPERATE	
32、 68+SHOT	OPERATE	Call alarm
33 + SHOT	OPERATE	Call flip 180 °
34 + SHOT	OPERATE	Call home position
99 + SHOT	OPERATE	Call Autoscan

**Keyboard operation code under Up the Coax protocol:**

<b>Example</b>	<b>MPT9500 +Up the Coax dome</b>	<b>V2015 +V2414 +Up the Coax dome</b>	<b>V2117 +V2414 +Up the Coax dome</b>	<b>V2117 +V2414 +Up the Coax dome</b>	<b>V2117 +V2414 +Up the Coax dome</b>	<b>V2117+V2414 +Up the Coax dome or V2011/V2015 +V2414+Up the Coax dome</b>
PORTOCOL FUNCTION	Up the Coax	DATALINE convert to Up the Coax	PELCO D convert to Up the Coax	PELCO P convert to Up the Coax	Infinova convert to Up the Coax	Manchester convert to Up the Coax
Set Preset	( 1~64 ) + PRESET SET	(P)(1~63) + shot	(P)(1~127)+shot	(P)(1~127)+shot	(P)(1~127)+shot	(P)(1~63)+shot
Call Preset	( 1~64 ) + PRESET GO	(O)(1~62) + shot	(O)(1~127)+shot	(O)(1~127)+shot	(O)(1~127)+shot	(O)(1~62)+shot
Flip 180 °	33+PRESET GO	(O) 33+shot or (O) 65+shot	(O) 33+shot	(O) 33+shot	(O) 33+shot	(O) 65+shot
Home Position	34+PRESET GO	(O) 34+shot or (P) 64+shot	(O) 34+shot	(O) 34+shot	(O) 34+shot	(P) 64+shot
Enter Menu	95/66+PRESET GO	(P) 65+shot	(P) 66+shot	(P) 66+shot	(P) 65+shot	(P) 65+shot
Call Autoscan	\	(O) 66+shot	(O) 99+shot	(O) 99+shot	(O) 99+shot	(O) 66+shot
Clear Screen	4+F1	(O) 67+shot	(P) 67+shot	(P) 67+shot	(P) 67+shot	(P) 67+shot
Remote Reset	\	(P) 68+shot	(P) 68+shot	(P) 68+shot	(P) 68+shot	(P) 68+shot
Resume Alarm manually	(O) 63/32+shot	(O)63/32+ shot	(O) 32+shot	(O) 32+shot	(O) 32+shot	(O) 63+shot
B/W to Color	88+PRESET GO	(O) 68+shot	(O) 88+shot	(O) 88+shot	(O) 88+shot	\
Color to B/W	89+PRESET GO	(O) 69+shot	(O) 89+shot	(O) 89+shot	(O) 89+shot	\
Set 1# Pattern	70+PRESET SET+F2	(P) 70+shot	(P) 70+shot	(P) 70+shot	(P) 70+shot	(P) 70+shot
Set 2# Pattern	71+PRESET SET+F2	(P) 71+shot	(P) 71+shot	(P) 71+shot	(P) 71+shot	(P) 71+shot
Set 3# Pattern	72+PRESET SET+F2	(P) 72+shot	(P) 72+shot	(P) 72+shot	(P) 72+shot	(P) 72+shot
Set 4# Pattern	73+PRESET SET+F2	(P) 73+shot	(P) 73+shot	(P) 73+shot	(P) 73+shot	\
Save Pattern	69+PRESET SET+F2	(P) 69+shot	(P) 69+shot	(P) 69+shot	(P) 70+shot\ (P) 71+shot\ (P) 72+shot\ 73+shot	(P) 69+shot
Call 1# Pattern	70+PRESET GO	(O) 70+shot	(O) 70+shot	(O) 70+shot	(O) 70+shot\ (P) 73+shot	(O) 70+shot
Call 2# Pattern	71+PRESET GO	(O) 71+shot	(O) 71+shot	(O) 71+shot	(O) 71+shot	(O) 71+shot
Call 3# Pattern	72+PRESET GO	(O) 72+shot	(O) 72+shot	(O) 72+shot	(O) 72+shot	(O) 72+shot
Call 4# Pattern	73+PRESET GO	(O) 73+shot	(O) 73+shot	(O) 73+shot	(O) 73+shot	\
Set Autopan	92+PRESET GO	(P) 66+shot	\	\	(O) 92+shot	\
Save Autopan	93+PRESET GO	(P) 67+shot	\	\	(O) 93+shot	\
Call Autopan	98+PRESET GO	(O) 64+shot	\	\	(O) 98+shot	\
<b>NOTE:</b> (P) means key PROGRAM position (O) means key OPERATE position						

The following table shows the operation procedures of function setting under PELCO P/D, take CM6800 (matrix switcher)+KBD200 (keyboard) of PELCO for example.

<b>CM6800+KBD200</b>	
Access Menu of the Dome	Enter 95 and then press "PRESET" key to access menu of the domes.
	Use the direction keys to position the cursor and select a parameter.
Setting and Calling Presets	Enter the desired preset number, and then press "PRESET" key for 2 seconds to enter PRESET menu to set a preset.
	Enter the desired preset number, and then press "PRESET" key to call a preset.
Setting and Calling Patterns	Enter 1, and then press "PATTERN" key for 2 seconds. After "PATTERN" is showed on the screen, use the keyboard to control dome cameras. Press "ACK" key to end pattern setting.
	Enter 1, and then press "PATTERN" key to call a pattern.
	When a pattern is set, the screen display is provided according to CM6800 matrix switcher.
Setting and Calling AUTOPAN	Enter 92 , and then press "PRESET" key to define the start point of the AUTOPAN.
	Enter 93 , and then press "PRESET" key to define the end point of the AUTOPAN.
	Enter 98 , and then press "PRESET" key to call the AUTOPAN.
	When AUTOPAN is set, the screen display is provided according to CM6800 matrix switcher.
AUTOSCAN	Enter 99 and then press "PRESET" key to call the AUTOSCAN.
Area	Use programming menu of the super domes to set the areas.
180° Flip	Enter 33 and then press "PRESET" key to call the flip.
Home Position	Enter 34 and then press "PRESET" key to call the Home Position.

## Appendix I Specifications

The following table describes the general parameters of Super Domes.

<b>Operational</b>	
Programmable presets (Pelco P/D).....	128 ( at most )
Programmable presets (Infinova "I").....	127 ( at most )
Programmable presets (Up the Coax).....	127 ( at most )
Programmable patterns (Infinova "I"/ PelcoP/D/ Up the Coax).....	4
Programmable areas.....	16
Alarm inputs.....	4
Relay output.....	1
Home position.....	Yes
Auto pan.....	Yes
Menu language.....	English
<b>Synchronization</b>	
Internal.....	Built-in sync generator
Power synchronization (Line lock).....	Phase adjusted
<b>Mechanical</b>	
Manual speed.....	1-90° per second
Max. preset speed.....	240° per second
Pan travel.....	360° continuous
Tilt travel.....	0~90°
Motor.....	stepping motor
<b>Electrical</b>	
Input voltage.....	24VAC/12VDC
Power requirements.....	12VDC: 25W; 24VAC: 50W (Outdoor) 12VDC: 15W; 24VAC: 25W (Indoor)
Power surge protection.....	Yes
<b>Environmental</b>	
Operating temperature.....	0°C~40°C (indoor), -40°C~50°C (outdoor)
Humidity.....	< 90% (non-condensing)
Air pressure.....	86~106 KPa

\* **NOTE:** The numbers of presets in different protocols please refer to 5.1 in this manual.

**Technical Specification of the Cameras.**

Optic Zoom	18X	22X	23X	26X	35X	36X
Video Type	PAL/NTSC (Color)	PAL/NTSC (Color)	PAL/NTSC (Color, B/W)	PAL/NTSC (Color, B/W)	PAL/NTSC (Color, B/W)	PAL/NTSC (Color, B/W)
Scanning System	2:1 Interlace Scanning					
Image Sensor	1/4" Interlace Scanning CCD		1/4" Progressive Scanning CCD	1/4" Interlace Scanning CCD	1/4" Progressive Scanning CCD	1/4" Interlace Scanning CCD
Resolution	PAL/440K: 752(H) x 582 (V) NTSC/380K: 768(H) x 494 (V)	PAL/440K: 752(H) x 582 (V) NTSC/380K: 768(H) x 494 (V)	PAL/450K: 752 (H) x 582 (V) NTSC/380K: 768 (H) x 494 (V)	PAL/440K: 752 (H) x 582 (V) NTSC/380K: 768 (H) x 494 (V)	PAL/440K: 752 (H) x 582 (V) NTSC/380K: 768 (H) x 494 (V)	PAL/440K: 752(H)x 582 (V) NTSC/380K: 768(H)x 494 (V)
Aperture/Focal Length	F1.4 ~ F3.0 f=4.1 ~ 73.8 mm	F1.6 ~ F3.8 f=4 ~ 88 mm	F1.6 ~ F3.7 f=3.6 ~ 82.8 mm	F1.6 ~ F3.8 f=3.5 ~ 91 mm	F1.4 ~ F4.2 f=3.4 ~ 119 mm	F1.6-4.5 f=3.4~122.4mm
Angle of View	48° (Wide) / 2.8° (Tele)	47.3°(214) 47°(274) (Wide) / 2.2° (Tele)	54° (Wide) / 2.5° (Tele)	54.2° (Wide)/ 2.2° (Tele)	55.8° (Wide) / 1.7° (Tele)	57.8°(Wide)/ 1.7°(Tele)
Minimum Focal Range	0.29m (Wide) ~0.8m (Tele)	0.01m (Wide) ~1.6m (Tele)	0.01m (Wide) ~1.0m (Tele)	0.32m (Wide) ~1.5m (Tele)	0.01m (Wide) ~1.0m (Tele)	0.32m ( Wide ) ~1.5m(Tele)
Sensitivity	1.0 lux (PAL: 1/50s, NTSC: 1/60s)	2.0 lux (214) 1.0 lux (274) (PAL: 1/50s, NTSC: 1/60s)	Color Mode (IR-Cut On): 1.0 lux (NTSC:1/60s, PAL: 1/50s) 0.1 lux (NTSC:1/4s, PAL: 1/3s) 0.05Lux (NTSC:1/2s, PAL: 1/1.5s) B/W Mode (IR-Cut Off): 0.01 lux (NTSC:1/4s, PAL 1/3s)	Color Mode (IR-Cut On): 1.0 lux (PAL: 1/50s , NTSC: 1/60s) 0.07 lux (PAL: 1/3s, NTSC: 1/4s) B/W Mode (IR-Cut Off): 0.15 lux (PAL: 1/50s, NTSC: 1/60s) 0.01 lux (PAL: 1/3s , NTSC: 1/4s)	Color Mode (IR-Cut On): 0.5 lux (PAL: 1/50s , NTSC: 1/60s) 0.05 lux (PAL: 1/3s, NTSC: 1/4s) 0.025Lux (PAL:1/1.5s, NTSC: 1/2s) B/W Mode (IR-Cut Off): 0.01Lux: (PAL: 1/3s, NTSC:1/4s)	Color Mode (IR-Cut On): 1.4Lux@F1.6 50IRE (NTSC: 1/60s,PAL: 1/50s) 0.1Lux@F1.6 50IRE: (NTSC: 1/4s,PAL: 1/3s) B/W Mode (IR-Cut Off): 0.01Lux@F1.6 50IRE: (NTSC: 1/4s,PAL: 1/3s)
Horizontal	480 TVL		540 TVL	480 TVL	540 TVL	530TVL
S/N Ratio	>50dB					
Video Output	1.0 ±0.2 Vp-p					
Backlight Compensation	Off/On					
Sync System	Internal/External					
WDR	/	/	OFF/WDR/ AD WDR/ WDR*/ AD WDR*	/	MD1/MD2/OFF	Off/On
FNR	/	/	OFF/AUTO/MANU	/	/	/
Digital Zoom	1~12X Adjustable					
DSS	No	Yes	Yes	Yes	Yes	Yes
Focus	Auto/Manual					
White Balance	Auto/Manual					
Shutter Speed	Auto: Default Set Manual: PAL: 1/50~1/10000s NTSC: 1/60~1/10000s	Auto: Default Set Manual: (214)PAL: 1/50~1/30000s NTSC:1/60~1/30000s (274)PAL: 1/1.5~1/30000s NTSC:1/2~1/30000s	Auto: Default Set Manual: PAL: 1/1.5~1/30000s NTSC: 1/2~1/30000s	Auto: Default Set Manual: PAL: 1/1~1/10000s NTSC: 1/1~1/10000s	Auto: Default Set Manual: PAL: 1/1.5~1/30000s NTSC: 1/2~1/30000s	Auto: Default Set Manual: PAL: 1/1~1/10000s NTSC: 1/1~1/10000s
Iris	Auto/Manual					

## Appendix II Troubleshooting

The following table describes the symptoms causes, and solutions for the problems.

Symptoms	Possible Causes	Solutions
Unit does not perform initiation sequence after powering on	Wrong power connection	Reconnect power cable
	Power supply failure	Repair or replace power supply
	Power PCB fuse damage	Replace the fuse
Unit can't be controlled after successful initiation.	New camera ID has not been activated	Recycle the power
	Protocol or Baud rate Dip switch settings are incorrectly chosen	Proper set the Protocol and Baud rate.
	Wrong camera ID	Reset the camera ID
	Camera is not properly called via keyboard	Use the camera ID to call it
No video signal is present.	Wrong video cable connection	Reconnect the video cable
	Video cable broken	Replace the video cable
Vague image	Unclear down cover	Clean the down cover
	Manual focus has been set	Set focus mode to "auto" or manually adjust the camera focus

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