

# User Manual



## 37X REVO ELITE PTZ SPEED DOME CAMERA

**Model RESPTZ37-SERIES**  
**24 VAC @ 60 Hz, 12W NTSC**

**Publication No. RESPTZ37-10B**

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# Safety 1st

REVO America wants to ensure that your installation experience is a safe and pleasant one. Please read and adhere to these Safety Instructions.



## CAUTION

Model RESPTZ37-1 is an indoor camera and not meant for outdoor use. Models RESPTZ37-1HSC and RESPTZ37-1HSW are provided with weather-proof enclosures and can be used outdoors.

1. **Never perform any installation procedure or open the camera case with power on.**
2. **Pay attention to the Warnings and Cautions in the instructions. They are there for your safety and to ensure that the equipment does not get damaged.**
3. **Do not discard this manual after installation. You may need to reference it in the future.**
4. **Use a Certified/Listed Class 2 power supply only.**
5. **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.**
6. **Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.**
7. **Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, DO NOT MODIFY THE PLUG OR OUTLET. Consult an electrician for replacement of the obsolete outlet.**
8. **Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.**
9. **Only use attachments/accessories specified by the manufacturer.**
10. **Do not submerge the camera in water or any liquid.**
11. **Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, submerged in liquid, does not operate normally, or has been dropped.**

## Model RESPTZ37-SERIES

## FCC Compliance

**FCC INFORMATION:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Improper operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This Class A digital apparatus complies with Canadian ICES-003.  
Cet appareil numérique de la classe a est conforme à la norme NMB-003 du Canada.

## CE Compliance

**WARNING:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



### WARNING

The lightning flash within an equilateral triangle is intended to alert the user to the presence of dangerous voltage that may be of significant magnitude to constitute a risk of electric shock.



### CAUTION

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating or maintenance instructions that should be noted to avoid damage to the equipment or loss of data.

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# Features

- **37X optical zoom PTZ dome camera**
- **Three models are offered: Indoor Flush Mount, Outdoor Wall Mount and Outdoor Ceiling Mount**
- **Superb resolution of 650 TV lines provides high-quality video day or night**
- **High-end features such as Presets (240), Tours (8), Auto Scan (17) and Patterns (8) normally found in cameras costing thousands more**
- **Day/Night camera with True Night Shot feature**
- **Built-in motion detection**
- **8 Alarm inputs and 4 Alarm outputs**
- **Easy-to-use menu system allows setup in minutes**
- **Wide optical range with PTZ provides coverage of large areas with just one camera**
- **Variable speeds for PTZ functions: Slow, Normal and Turbo enable you to customize camera operation**
- **Titling so you can identify up to 16 camera locations**
- **IP66 rated for durability, vandal resistance and operation in dusty or wet environments (Outdoor models)**



#### TIP

Browse the entire manual prior to installing the camera. There is a lot of useful information and tips that will help you to install your system effectively.

# What's in the Box

The RELPTZ37 Series consists of three models that are preconfigured as follows:



**Model RESPTZ37-1 Indoor Flush-Mount Dome Camera**



**Model RESPTZ37-1HSC Outdoor Ceiling-Mount Dome Camera**



### **Model RESPTZ37-1HSW Outdoor Wall-Mount Dome Camera**

Each model is provided with mounting hardware and installation guide. Refer to the following manuals for installation and mounting instructions.

**Model**

RESPTZ37-1 Indoor Flush-Mount Dome Camera  
RESPTZ37-1HSC Outdoor Ceiling-Mount Dome Camera  
RESPTZ37-1HSW Outdoor Wall-Mount Dome Camera

**Manual**

HCS251-HV  
RESPTZH-1

# Settings

Prior to installing the camera, you must set it up for use in the video system. To do this you will need to access the switches on the bottom of the camera. Remove the camera from the box and the enclosure. To access the switches, you must remove the bottom cover as shown in Figure 1.



### TIP

Use a small paper clip to set the DIP switches to ensure that you set each one correctly.

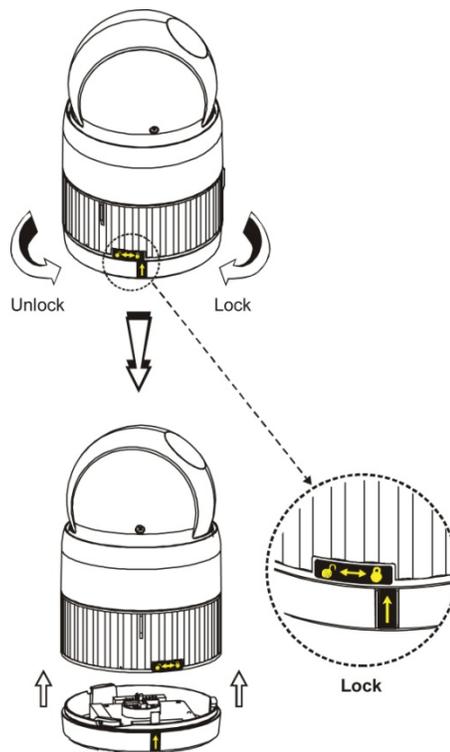


Figure 1. Removing Bottom Cover



### NOTE

Setting DIP switches correctly is very important. If you do not set them correctly, there will be communication errors.

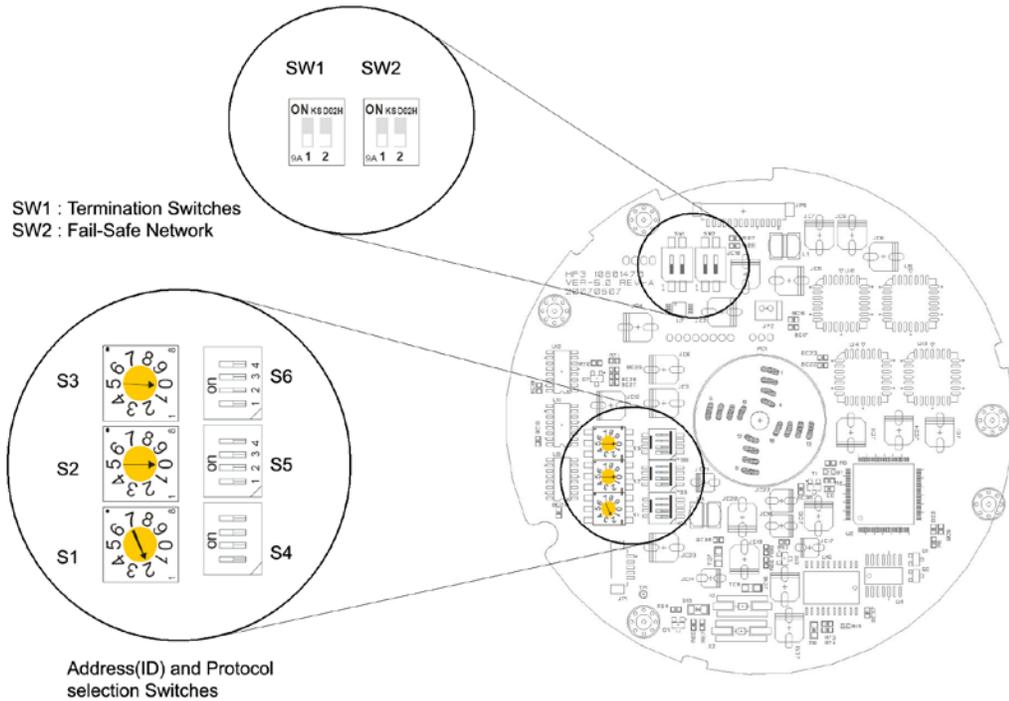


Figure 2. Switch Layout

## Setting Camera Termination

When you set up your video system, you will be connecting the cameras, keyboard controller and any other devices in a daisy-chain arrangement (as shown in Figure 3). All of the devices are set up in a line. The last device in the line must be set so that the control device knows it is the last device. Set this using DIP switch SW1 (Figure 2). If this camera is to be the last device, set SW1 DIP switches 1 and 2 to ON as shown below. If it is not the last device, set the switches to OFF.

SW1	1	2
Terminated	ON	ON
Not terminated	OFF	OFF

The diagram shows a two-pin DIP switch labeled SW1. Both pins, labeled 1 and 2, have their sliding covers moved to the 'ON' position.



**TIP**

Set up all of your devices now to ensure that you only have one selected as the last device. Record the device, which is the last device for future reference.

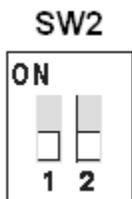
**Fail-Safe Network**

The camera may be controlled by both REVO and non-REVO devices such as keyboard controllers or DVRs. Using these devices, you can set up the camera and all of the functions. The ideal way to do this is using a REVO keyboard. It provides the easiest way to take full advantage of the camera’s capabilities. It also provides a fail-safe network by protecting the camera if any of the following conditions occur:

- When the RS-485 circuit is open (Break)
- When the RS-485 circuit is shorted
- When RS-485 circuit is damaged

When a non-REVO device is used, there also may be some problems with the communication between the camera and controller device. To compensate for this, set DIP switch SW2 poles 1 and 2 (Figure 2) to ON in the camera closest to the controller device. Typical connections are shown in Figure 3.

See *Setting Camera Protocol and Video Standard* for additional instructions on using non-REVO keyboard controllers or DVRs.



SW2	1	2
ON	PULL-UP	PULL-DOWN
OFF	NONE	NONE

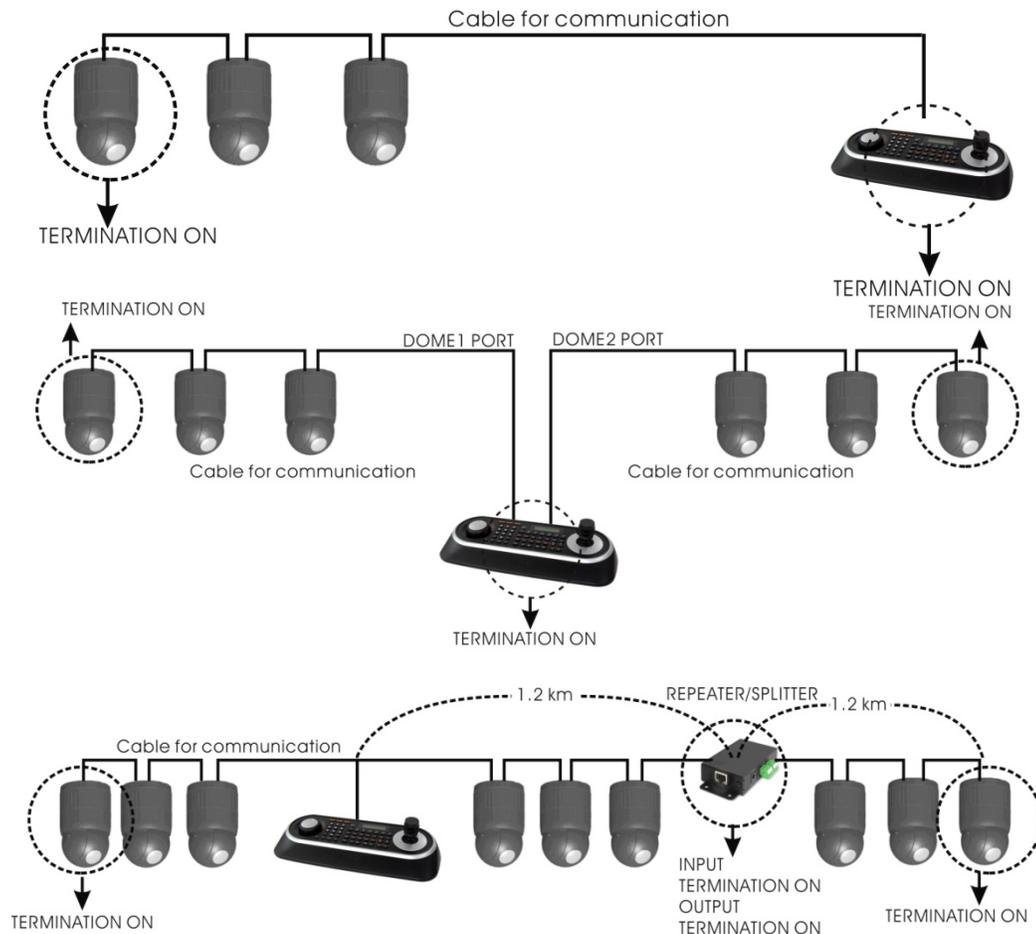


Figure 3. Termination Connections for Various Camera Configurations

## Setting Camera Address

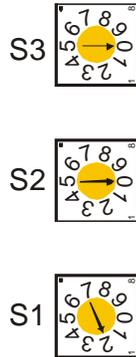
Each camera requires a unique camera address so that the control device knows which camera is at your back door and which camera is monitoring your driveway. Think of the camera address as a telephone number. In order for the video system to work with multiple cameras, it has to know which one is which.

Switches S1 through S3 (Figure 2) are used to set the camera address. Apply the settings for each camera in your video system as shown in the following table. Up to 999 cameras may be set up.



**NOTE**

This is an important step. If you do not set the camera addresses correctly, there will be communication errors.



DOME ID	S3	S2	S1
1	0	0	1
2	0	0	2

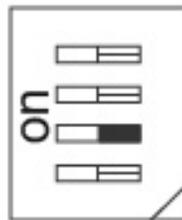
Figure 4. Setting Camera Addresses

## Setting Camera Protocol, Video Standard, Baud Rate and Parity (Optional)

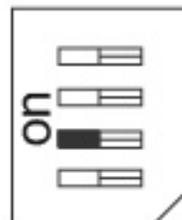
If you are using a REVO America keyboard controller and using the camera in the United States or other NTSC standard country, there is no need to change the default settings of switches S4, S5 and S6 (Figure 2). You can use the default settings.

If you need to make changes, see the setting options that follow. The switches are set as follows:

### Switches S4, S5 and S6 Typical



Switch set OFF



Switch set ON

The following settings are used for the Alarm function enable/disable (S4-1), PAL/NTSC selection (S4-2), and RS-422/RS-485 selection (S4-4). Set the switches as indicated in the table below.

S/W		On	Off	FUNCTION
D1	S4-1	Enable	Disable	Alarm
D2	S4-2	PAL	NTSC	NTSC/PAL
D3	S4-3		Default	Reserved
D4	S4-4	RS-422	RS-485	RS-422/RS-485

The following settings are used to set the protocol the camera will use to communicate with the video controller. If you are using a keyboard controller or DVR other than REVO America, check the protocol required and set switch S5 as follows:

D5	D6	D7	D12	PROTOCOL
S5-1	S5-2	S5-3	S6-4	
Off	Off	Off	Off	F2, REVO TRAX, Pelco-D, Pelco-P ( <b>Default</b> )
Off	Off	On	Off	F2, REVO TRAX
Off	On	Off	Off	Sensormatic RS422
Off	On	On	Off	Pelco-D, Pelco-P
On	Off	Off	Off	Vicon
On	Off	On	Off	Ernitec
On	On	Off	Off	Reserved
On	On	On	Off	F2
Off	Off	Off	On	Philips(Bosch)
Off	Off	On	On	Reserved
Off	On	Off	On	Dynacolor
Off	On	On	On	Reserved



**NOTE**

Some of the camera features may not be available when using protocols other than the defaults listed above.

To change the BAUD rate and Parity to match your keyboard controller, set switch S5-4 and S6 as follows:

D8	D9	D10	BAUD RATE
S5-4	S6-1	S6-2	
Off	Off	Off	2400 bps
Off	Off	On	4800 bps
Off	On	Off	9600 bps (Default)
Off	On	On	19200 bps
On	Off	Off	38400 bps

D11	PARITY BIT
S6-3	
Off	None
On	Even

# Dimensions

The dimensions shown in Figure 5 are for the base camera unit. To view the dimensions for your model, refer to the following installation manuals.

**Model**

RESPTZ37-1 Indoor Flush-Mount Dome Camera  
RESPTZ37-1HSC Outdoor Ceiling-Mount Dome Camera  
RESPTZ37-1HSW Outdoor Wall-Mount Dome Camera

**Manual**

HCS251-HV  
RESPTZH-1

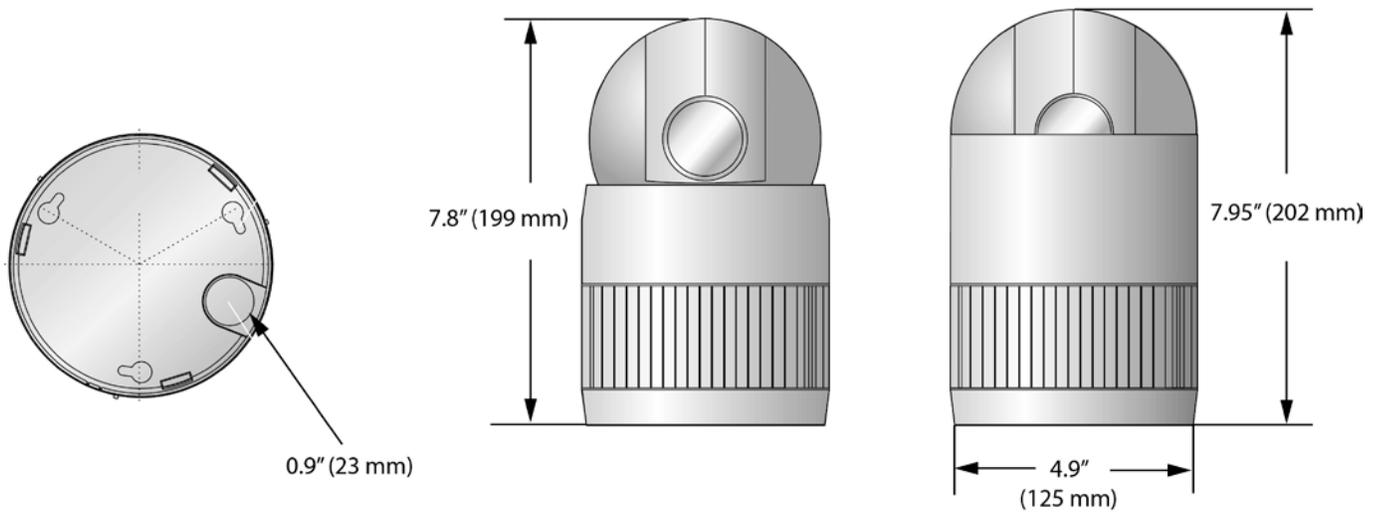


Figure 5. Dimensions

# Installation

## Considerations

You should carefully consider installation of the camera(s) to ensure a successful and easy installation. The camera may be used indoors or outdoors (with outdoor housing), but there are conditions that should be avoided to ensure high-quality video and avoid damage to the cameras.

Please review the following list prior to starting your installation.

- Camera Location – Cameras should be located in places where they will be protected from direct exposure to the sun, strong light or water immersion. Exposure to any of these will impair video quality and damage the camera.
- Wiring – The cameras are connected to the video system using coaxial cable. They require power from a Class 2 power supply and if you choose to connect alarms or sensors, other wiring. Make sure that you can provide the wiring to the locations that you select, and that power is available for the power supply. Contact REVO America for all the accessories that you will need to install the camera.
- Visibility – The cameras should be mounted so there are no obstructions or blind spots.
- Mounting – The camera should be mounted in a sturdy location capable of supporting its weight (see specifications for your model).

### TIP



If this is your first time installing a video system, you may want to connect all of the cameras and other devices to the DVR prior to installing and mounting the equipment. This will give you the opportunity to wire the system and ensure you have everything connected properly before you mount the cameras and run the wiring.

## Tools Required

There are no special tools required to install the camera. Standard flat and Philips head screw drivers, a power drill and power saw may be required to create access for the wiring required for the camera.

## Installing the Camera

Refer to the following manuals to install your camera model.

### Model

RESPTZ37-1 Indoor Flush-Mount Dome Camera  
RESPTZ37-1HSC Outdoor Ceiling-Mount Dome Camera  
RESPTZ37-1HSW Outdoor Wall-Mount Dome Camera

### Manual

HCS251-HV  
RESPTZH-1

## Wiring



### WARNING

Never work with power on. You should always disconnect electrical power prior to installation or removal of any equipment.

A typical system configuration is shown in Figure 6. Figure 7 shows the wiring connections.

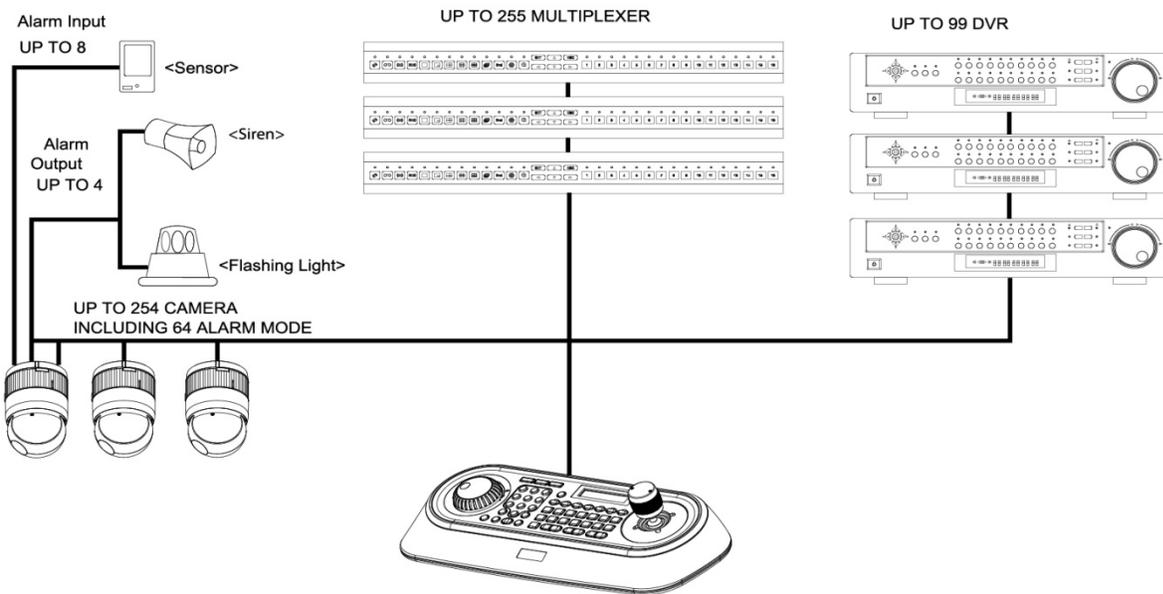


Figure 6. Typical System Configuration

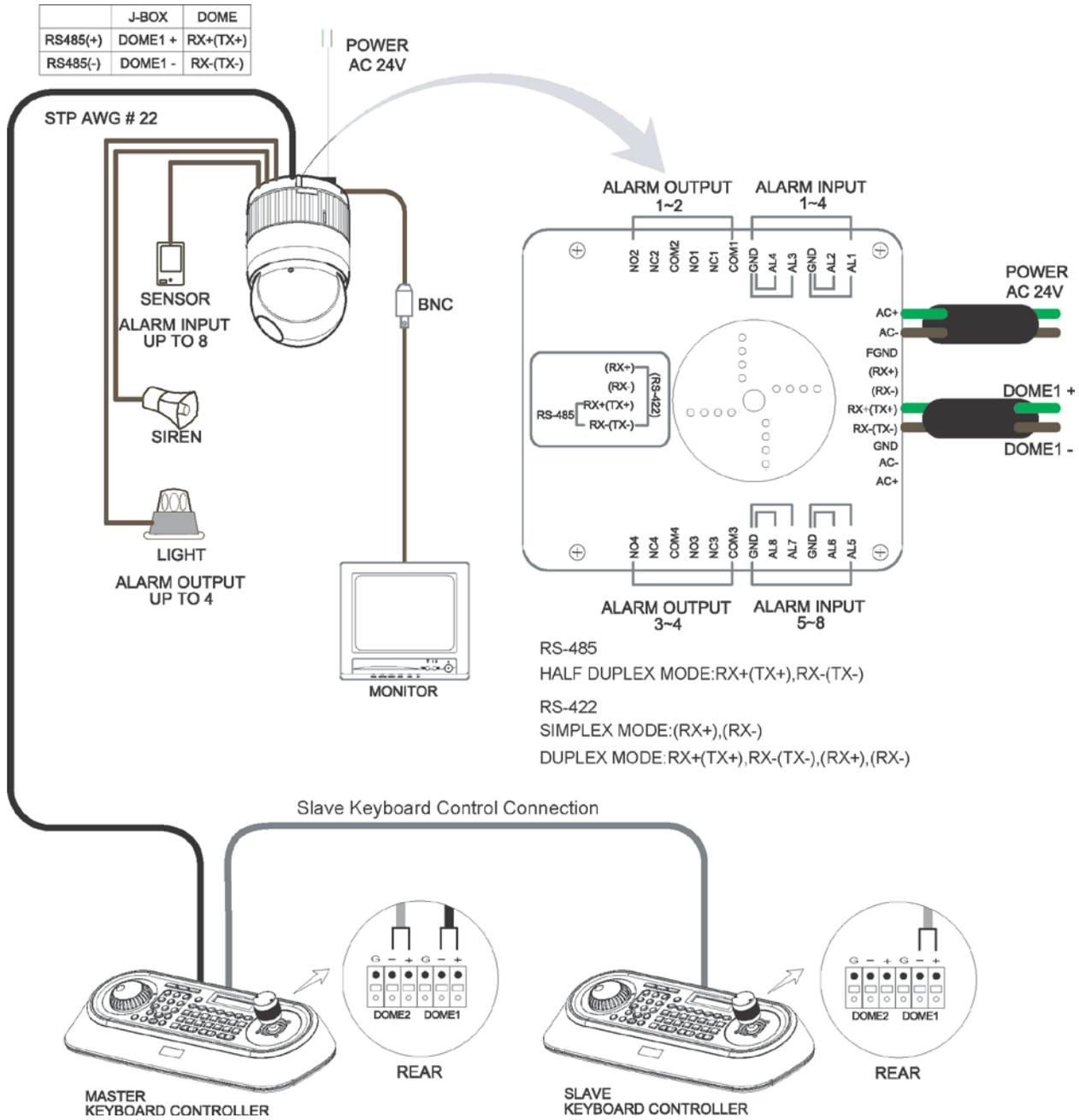


Figure 7. Dome Camera Wiring

- Video Out (BNC)** Connect the video out (BNC) connector to the monitor or video input on DVR.
- Power In (3-pin)** With power off, connect a certified/listed 24 VAC Class 2 power supply to the dome camera connector.
- RS-485 or RS-422 Keyboard Controller (2-pin)** The dome camera can be controlled remotely by an external device or control system, such as a control keyboard, using RS-485 half-duplex, RS-422 full duplex or simplex serial communication signals. Connect terminals Tx+, Tx- to Tx+(Rx+) and Tx-(Rx-) of the RS485 control system.
- If control system is RS-422, connect Rx+(Tx+), Rx+(Tx-) and Rx+, Rx- of the dome camera to Rx+, Rx- and Tx+, Tx- of the control device respectively.
- Alarm Inputs and Outputs (4-pin)**
- Alarm Input (AL1 thru AL8 and GND):** You can use up to 8 external devices to trigger the dome camera to react to an event, such as a door that has an alarm on it being opened. Mechanical or electrical switches can be wired to the AL (Alarm In) and GND (Ground) connectors.
- Alarm Output (NC/NO1 thru NC/NO4 and GND):** The dome camera can activate up to 4 external devices such as buzzers or lights upon motion detection. GND is the common ground. Refer to the Programming and Operation instructions for more information on using these functions

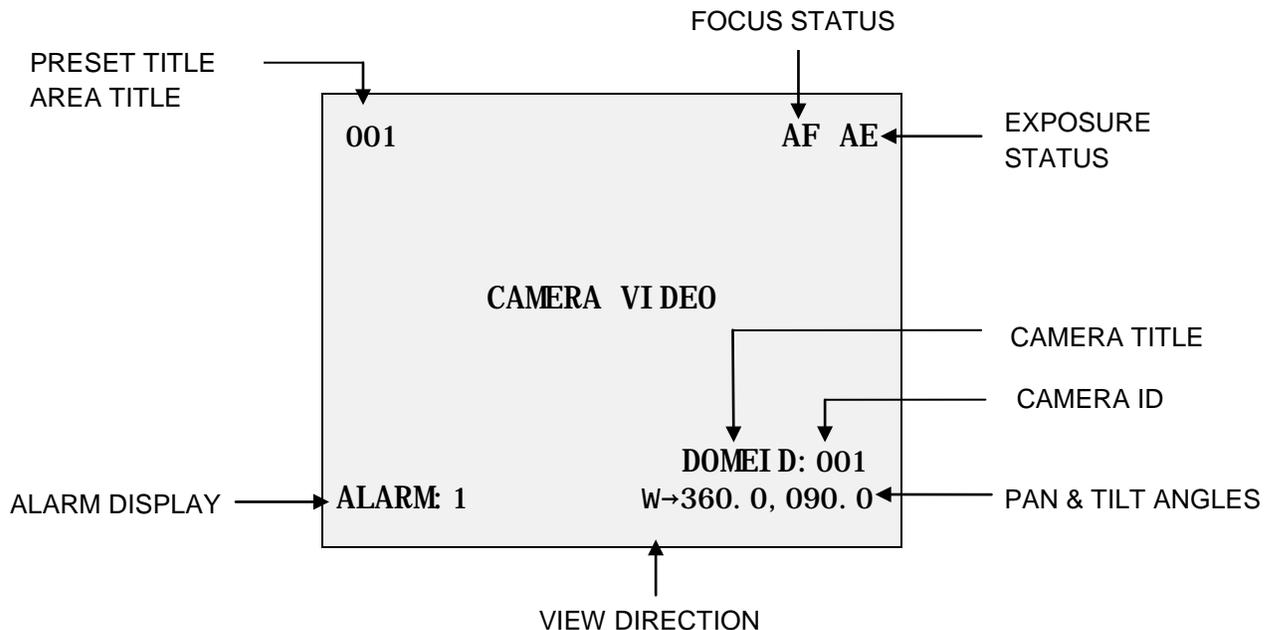
# Camera Configuration

Now that the system is installed, your next step is to configure the camera for operation. These instructions will guide you through optimizing the camera for use and setting it up for your installation. You can customize the camera's movements and many other functions using the camera's menu system. Please note that for most applications, the default settings that your REVO America camera has will work just fine and should not require any further adjustment.

For the purposes of describing the commands and configurations available on the camera, all commands and operation of the camera will be initiated using a REVO America keyboard controller. This is the ideal setup and offers the greatest flexibility and ease of operation. However, a REVO America DVR may also be used to control the camera, as well as non REVO America keyboard controllers or DVRs, which may be used providing you set the protocols correctly. See the Settings section. Refer to the applicable user manual to determine the equivalent command keys on your device.

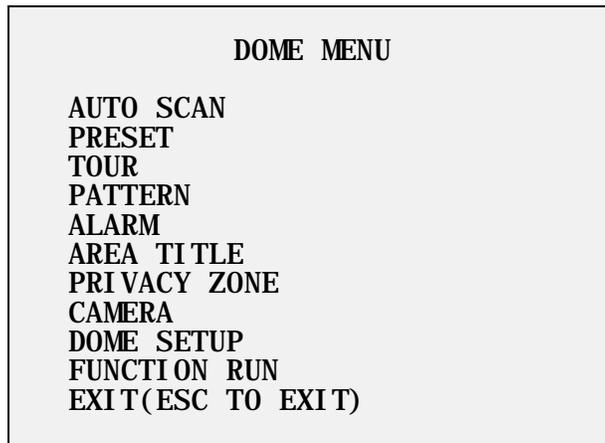
## Getting Started

Once the system is fully connected, apply power. The DVR, camera and keyboard controller will begin a boot up routine. This will take a few minutes. Once the system is fully powered up, you should see the following.



Access the camera menu as follows:

1. Log into the keyboard controller by entering the administrator's password. On the REVO America keyboard controller, the default password is: 9999.
2. Select camera by pressing the camera number, for example 1, and then the CAM key on the keyboard controller.
3. Press the MENU key on the keyboard controller. The DOME MENU displays.



You can make selections on the menu by using the keyboard controller shortcut keys, DVR or non REVO device (depending on the device).

Function	Keyboard Controller Key
Call the on-screen menu utility	<b>MENU</b>
Navigate through the menu items.	<b>Joystick up or down</b>
Go into the sub-menu items.	<b>Joystick left or right</b>
Change value. Enter the editing title mode.	<b>Joystick left or right or Zoom handle twist</b>
Change value of angle	<b>CTRL + Joystick</b>
Escape (EXIT)	<b>ESC</b>

## Understanding the Dome Menu

The Dome Menu is the main menu for the camera. From the Dome Menu, you can access all of the functionality of the camera to customize its operation for your video installation. For purposes of this guide, the Camera and Dome Setup menus will be described. The other menus are described in the Advanced Features manual RESPTZ37-10AF, which is a companion to this manual.

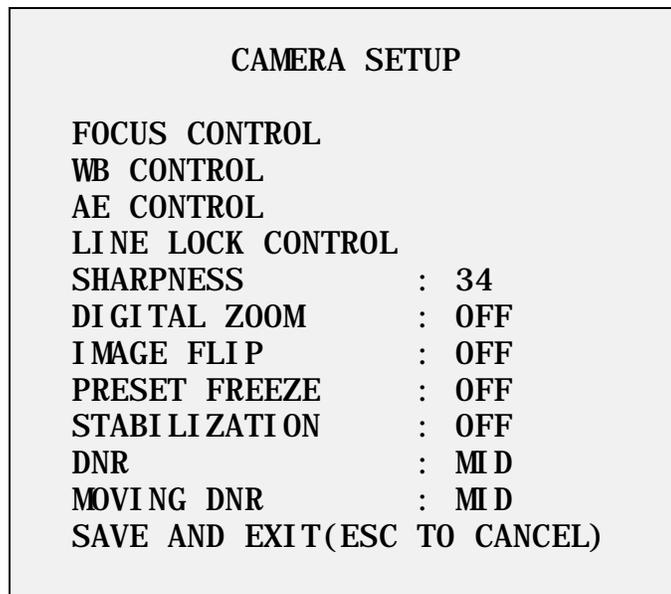
A brief description of the functionality that each menu offers follows:

- Auto Scan** Enables you to set a programmed scan of an area such as a room. You can set the camera to start in one location and move to another location and then back to the starting location at a preconfigured speed. Up to 17 different Auto Scans may be configured. ***Advanced Features manual.***
- Preset** Enables you to create presets, which are programmed video scenes, based on specific pan, tilt, zoom, and focus settings. For example, one preset may be a close up view of the back door, while another may be a window in the same room. Think of a preset as if you had a camera in your hand and were taking photos of various objects in a room. Up to 240 Presets may be programmed for this camera. ***Advanced Features manual.***
- Tour** This menu provides the options for creating tours, which are a programmed sequence of Presets, Auto Scans, Patterns and even other Tours. Up to 8 tours may be programmed. ***Advanced Features manual.***
- Pattern** A Pattern is a user defined set of camera movements. Think of it as a recorder that records the movements you make with the camera. You can move the camera by panning, tilting and zooming to create the sequence that you want to monitor and then save it. This menu enables you to create and save Patterns. Up to 8 patterns may be created. ***Advanced Features manual.***
- Alarm** This menu manages input alarms, which will trigger camera action and output alarms, which may be used to trigger an audio or visual alarm indication. ***Advanced Features manual.***
- Area Title** A user defined name for a specific area that the camera views that has a specific pan and tilt range. This menu guides you through the process of defining and naming the area. ***Advanced Features manual.***

- Privacy Zone** Privacy Zones are user defined areas that are blocked from viewing by the camera. For example, if you have an outdoor camera that has a tour set up and it pans across a neighbor's yard, to avoid problems, you may want to block the view when the camera passes by the neighbor. This menu allows you to define a privacy area. **Advanced Features manual.**
- Camera** This menu sets exposure, focus, white balance, noise reduction and other parameters.
- Dome Setup** This menu sets up both basic, such as the user language, and advanced features, such as how the camera will return to programmed operation after being controlled manually (Home Function Setup).
- Function Run** The Function Run Setup menu allows you to quickly execute a function such as Preset, Pattern, Tour or Scan (Auto Scan) from the menu using either a keyboard or a DVR. **Advanced Features manual.**

## Camera

Select the Camera option from the Dome Menu to adjust the camera parameters and optimize performance for your installation.



- FOCUS CONTROL** The Focus Control submenu controls camera focus options including automatic and manual modes.

**FOCUS SETUP**

MODE : AUTO  
FOCUS LIMIT : 50 CM  
SAVE AND EXIT(ESC TO CANCEL)

**MODE:** AUTO/MANUAL/ONE PUSH/CONSTANT MANUAL

**AUTO:** Lens in autofocus mode. The lens motor will automatically move the lens to find the best focal point.

**MANUAL:** Lens is focused manually. For normal use, manual mode should be used.

**ONE PUSH:** In certain situations, the lens may not be able to find a focal point. This will cause the lens motor to continuously move. Using One Push Focus will choose a point to focus on and lock into that point.

**CONSTANT MANUAL:** Sets the focal point to where the camera was set, by the user, to focus and stay there. With manual focus the image that is being focused on can become out of focus due to wind or other factors. Using Constant Manual will adjust the focus for these minor changes by keeping the desired image in focus.

**FOCUS LIMIT:** This sets an approximate value that the camera will remain in focus from the setting value. The options are: 50 cm, 1.8 m, 3.0 m, 6.0 m.



**CAUTION**

Avoid continuous use of the Auto Focus mode. It will shorten the life of the lens. Use Manual mode as default.

**WB CONTROL** The White Balance WB setup submenu provides control to adjust the color hue (red and blue) gain for a camera so that true white appears white in the image. It is normally compensated for by the automatic gain control (AGC). In

some lighting conditions, you may need to manually adjust the red and blue settings for optimal viewing. When Automatic White Balance is enabled, the camera measures the image and automatically adjusts the red and blue settings to balance white. When automatic white balance is disabled, the camera uses the values set for the red and blue gain to balance white.

```
WB SETUP

MODE      :  AUTO
R GAIN    :  ---
B GAIN    :  ---
SAVE AND EXIT(ESC TO CANCEL)
```

**MODE:** AUTO/INDOOR/OUTDOOR/AWB/MANUAL

**AUTO:** Wide range automatic white mode. Color range from 1700 to 11000 °K.

**INDOOR:** Indoor white balance mode. Optimized for indoor use.

**OUTDOOR:** Outdoor white balance mode. Optimized for outdoor use.

**AWB:** Automatically computes the white balance value output using color information from the entire screen automatically. Color range from 2900 to 6500 °K.

**MANUAL:** Enables setting of RGAIN (Red) and BGAIN (Blue) manually to obtain white balance.

**RGAIN:** Red Gain. Adjustable from 0-200.

**BGAIN:** Blue Gain. Adjustable from 0-200.  
RGAIN / BGAIN modes are controllable only in MANUAL mode.

**AE CONTROL**

The AE Setup submenu provides setting options for automatic and manual exposure to obtain the best exposure settings to provide a well exposed video scene.

```

                AE SETUP

MODE           : AUTO
SLOW SHUTTER  : OFF
IRIS          : AUTO
GAIN LIMIT    : 07
BRIGHT       : 050
SHUTTER       : AUTO
WDR/BLC      : OFF
WDR/BLC LEVEL : ---
NIGHT SHOT    : AUTO
SAVE AND EXIT(ESC TO CANCEL)
    
```

**MODE:** AUTO/MANUAL/IRIS PRIO/SHUTTER PRIO

**AUTO:** Automatically calculates and adjusts exposure settings to ensure that objects in the video scene are visible and rendered properly with respect to each other.

**MANUAL:** User controlled iris and shutter settings.

**IRIS PRIO:** Iris Priority sets the iris as the controlling factor in determining the shutter speed and exposure of a scene. For example, areas that are dark require wider iris openings to ensure that the scene is exposed.

**SHUTTER PRIO:** Shutter Priority sets the shutter as the controlling factor in determining the lens opening and exposure of a scene. For example, areas with a lot of movement require higher shutter speeds to ensure that the scene remains in focus.

**SLOW SHUTTER:** Used in low light situations. ON/OFF.

**IRIS:** 0 (closed) to 255 (f1.5).

**GAIN LIMIT:** 1-10.

- BRIGHT:** 0-100.
- SHUTTER:** When camera is in Manual Mode, allows user to set shutter speeds. Selections are from 1/60 through 1/120000. A.FLK is 1/100 for NTSC operation and 1/120 for PAL.
- WDR/BLC:** Wide Dynamic Range/Backlight Compensation. Provides compensation for bright and dark objects to provide viewable images of all objects in the scene. Settings are:  
OFF/WDR/WDR'ACE/BLC/HSBLC.  
When set to **OFF**, Backlight is disabled.  
**WDR:** Wide Dynamic Range on.  
**WDR'ACE:** Wide Dynamic Range with Adaptive Color Enhancement.  
**BLC:** Backlight Compensation on.  
**HSBLC:** High Light Suppression Backlight Compensation.  
WDR and WDR'ACE are only available when Auto or Iris Prio modes are selected.
- WDR/BLC LEVEL:** LOW/MIDDLE/HIGH.
- NIGHT SHOT:** The camera uses an IR cutoff filter, which blocks infrared light to accurately render color images. The Night Shot feature removes the IR cutoff filter, so that the camera can produce images in low light environments. The settings are:
- AUTO:** Camera automatically goes into B&W mode in low light.
- GLOBAL:** Controlled by the keyboard controller. The operator can enable Night Shot for all dome cameras at the same time. If the Night Shot mode is set to GLOBAL, pressing 999 + ENTER on the keyboard controller will turn off Night Shot mode. Pressing 888 + ENTER on the keyboard controller will turn on Night Shot mode.
- ON:** B&W mode.
- OFF:** Color mode.
- Night Shot Auto is available when Auto or Iris Prio modes are selected.

**LINE LOCK CONTROL** The Line Lock Setup submenu allows you to sync the camera to the line voltage frequency to avoid flicker and roll.

```
LINE LOCK SETUP

MODE      :   INTERNAL
PHASE     :   000
SAVE AND  EXIT(ESC TO CANCEL)
```

**MODE:** INTERNAL/EXTERNAL.

**INTERNAL:** Syncs camera to AC line frequency.

**EXTERNAL:** Syncs camera to other cameras in the system

**PHASE:** Adjusts phase of picture in sync with other cameras in EXTERNAL mode (0-255).

**SHARPNESS:** Used to control picture sharpness. The higher the setting (0-64), the sharper the picture.

**DIGITAL ZOOM:** **OFF:** No digital zoom, only optical.

**2X:** Zoom is extended up to 2X of digital range.

**4X:** Zoom is extended up to 4X of digital range.

**8X:** Zoom is extended up to 8X of digital range.

**MAX:** Zoom is extended up to 16X of digital range.

**IMAGE FLIP:** Reverses the video image both horizontally and vertically.

**PRESET FREEZE:** ON/OFF. When set to ON, the video image is frozen on a preset.

**STABILIZATION:** OFF/ON. Stabilizes image in windy or other conditions that would cause camera to shake.

**DNR:** Digital Noise Reduction. Minimizes noisy video when camera is on a still shot, that is, no panning, tilting or zooming. OFF/LOW/MIDDLE/HIGH.

**MOVING DNR:** Digital Noise Reduction. Minimizes noisy video when camera is panning, tilting or zooming. OFF/LOW/MIDDLE/HIGH.

## Dome Setup

From the DOME MENU, navigate to the DOME SETUP menu item and select it. The CONFIGURATION MENU displays.



### NOTE

Many of the features described in this section, such as Presets, Tours, Alarms, etc. are described in the Advanced Features manual RESPTZ37-10AF.

```
CONFIGURATI ON MENU

LANGUAGE      : ENGLISH
HOME FUNCTI ON SETUP
OSD DISPLAY
VIEW ANGLE SETUP
INITIALIZE DATA
ORIGIN OFFSET
DO ME RESET
SYSTEM MENU
SYSTEM INFORMATION
SAVE AND EXIT(ESC TO CANCEL)
```

**LANGUAGE** Selects the language that you want to use for the menu display. English, French, German, Italian, Spanish, Polish or Portuguese are options

**HOME FUNCTION SETUP** Displays the following submenu:

```
HOME FUNCTI ON SETUP

HOME FUNCTI ON : Preset
FUNCTI ON NUMBER : 10
WAITING TIME : 120 SEC
FUNCTI ON ENABLE : ON
SAVE AND EXIT(ESC TO CANCEL)
```

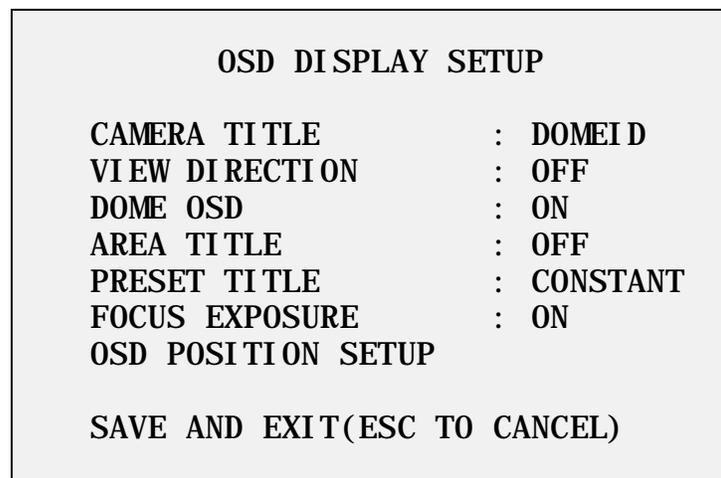
The **Home Function** defines the camera's normal operation when left unattended. The Home Function, once programmed, will return the camera to its normal or programmed operation after manual control of the camera has stopped. For example, if you are using the keyboard controller or DVR to manually zoom, pan or tilt the camera to view something of interest, setting the Home Function to one of the functions will program the camera to automatically begin one of the following: None/Tour/Pattern/Auto Scan/Preset, after a user defined waiting time.

In the example shown above, the camera will go to Preset 10, 120 seconds after manual control has stopped, when Function Enable is set to ON. If None is selected or Function Enable is set to OFF, nothing will happen.

- HOME FUNCTION:** None/Tour/Pattern/Auto Scan/Preset.
- FUNCTION NUMBER:** The number of the Tour, Pattern, Auto Scan or Preset that you want to start.
- WAITING TIME:** The amount of time the system will wait before starting the Home Function. You can set it for 10-240 seconds.
- FUNCTION ENABLE** ON/OFF. Set to ON to enable the Home Function.

### **OSD DISPLAY SETUP**

The OSD Display Setup menu allows you to customize the camera display. You can select what information you want to display and select the location on the screen where you want it to display.



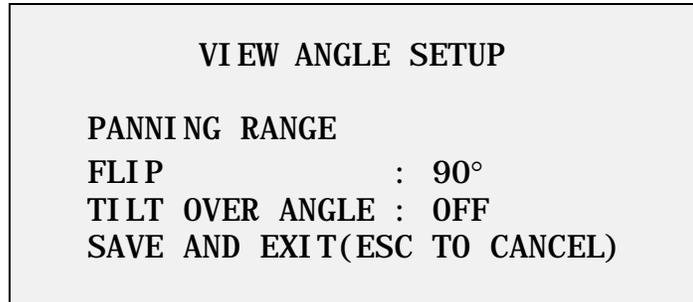
- CAMERA TITLE:** Creates a name for the camera. Up to 6 characters.
- VIEW DIRECTION:** ON/OFF. ON sets the current direction as N (North) and the coordinate angle to 000. Every 90 degrees of clockwise rotation will change the title to E (East), S (South), W (West). If you use the ON/OFF option frequently, it is recommended that you set “North” as a Preset. Recall the “North” Preset before enabling the directional title. OFF turns the direction indication off.
- DOME OSD:** ON/OFF. When set to OFF, the OSD does not display.
- AREA TITLE:** ON/OFF. When set to ON, the Area Title displays as the camera moves.
- PRESET TITLE:** CONSTANT/OFF/ 3, 30, 60,120,180 seconds. Sets the Preset title display time.
- FOCUS EXPOSURE** ON/OFF. When set to ON, the Focus and Exposure settings display. For example, Auto Focus (AF) and Auto Exposure (AE).
- OSD POSITION SETUP:** You can customize the appearance of the OSD menu using this function. You will need to use a keyboard controller and select the OSD option with the joystick up and down, press the CTRL key and adjust the position by the joystick. See the OSD Position Setup menu that follows.

### OSD Position Setup Screen

(AREA TITLE)	(AF AE)
(FUNC TITLE )	
(CTRL KEY TO MOVE)	
SAVE AND EXIT(ESC TO CANCEL)	
(ALARM MESSAGE)	DOMEID...XXX XXX. X XXX. X

## VIEW ANGLE SETUP

Displays the following submenu.

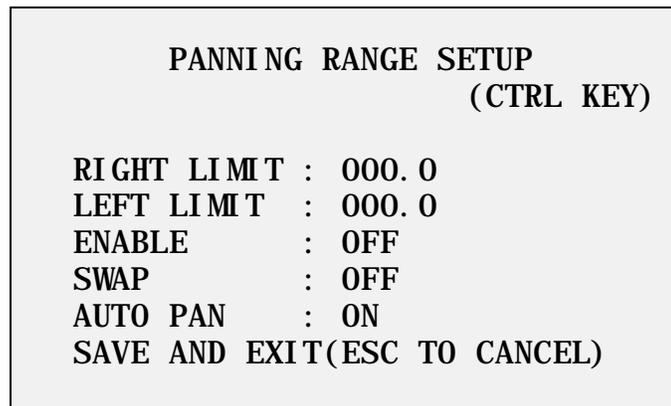


The View Angle Setup menu enables you to set panning limits, flip angle and tilt limit.

### PANNING RANGE:

Allows you to set limits on the amount of panning capability the camera will have. This is particularly useful when installing the camera near a wall.

Displays the following submenu.



To set the Panning Range, proceed as follows:

1. Set the RIGHT LIMIT to 90 degrees as a starting point.
2. Press **CTRL** key on keyboard controller and set RIGHT LIMIT by pushing the Joystick to the right until desired right limit is achieved.
3. Repeat the operation for the LEFT LIMIT by pushing the joystick to the left to achieve desired left limit.
4. Set ENABLE to ON to use
5. To exchange the right and the left limit, set SWAP to ON.
6. To apply limits on the AUTO PAN (endless panning), set AUTO PAN to ON.



**NOTE**

When the flip mode is set to 90°, 100°, 110°, 120° the camera will flip when it reaches the preconfigured setting. This will cause the camera to appear to pan in the opposite direction as the control arrows.

**FLIP:**

OFF/AUTO/90°/100°/110°/120°.

**OFF:** The dome camera moves until it reaches 90° vertically.

**AUTO:** When the camera reaches the floor directly above the moving object, it stops. At that time, release the joystick instantly and pull it down again to run the auto-flip function. If you are using the Panning Range function, set the Flip mode to AUTO.

**90°/100°/110°/120°:** Allows the image to flip digitally when the camera moves over the setting angle vertically.

**TILT OVER ANGLE:**

This option is used to set the limit of the horizontal view angle so that the trim ring or ceiling does not obstruct the horizontal image when zooming out (wide angle).

**ON:** In some installations it is desirable for the dome camera to be able to see above the horizon. When this option is chosen, the dome will tilt up over the horizon (about 10 °). When the lens is zoomed out, you can see the ceiling line. When the lens is zoomed in, the viewing angle is narrower, and the ceiling line disappears.

**Without Bubble:** This option will limit the tilt range of the camera to show the horizon so that the picture shows part of the ceiling line.

**With Bubble:** The tilt range of the camera is limited to see below the horizon (10 °).

If Over Angle is not sufficient enough to avoid ceiling obstructions, adjust the Origin Offset of tilt angle. See the Origin Offset section that follows for more information..

**INITIALIZE DATA**

The Initialize Data submenu will allow you to reset some or all of the factory default settings and erase any programming that you have done.



**CAUTION**

Use care when accessing the Initialize Data menu. Depending upon your selections, it will erase all your custom settings.

INITIALIZE DATA

FACTORY DEFAULT  
ERASE PROGRAMMED DATA  
PRESET FOCUS DEFAULT  
EXIT(ESC TO EXIT)

**FACTORY DEFAULT** Selection of Factory Default displays the following submenu.

FACTORY DEFAULT

ARE YOU SURE ?

CANCEL  
OK

Selecting OK will restore the factory defaults and delete any changes that you have made.

**ERASE PROGRAMMED DATA** Selecting this submenu will enable you to choose which of the data that has been stored on the camera's Flash-ROM you wish to erase. You will be asked to enter ON or OFF. If you desire to erase all data then select ERASE, otherwise press the **ESC** key on the keyboard controller to exit without erasing. The erased data includes all stored data (Auto Scan, Preset, and Tour....) except Origin Offset.

The Origin Offset value is still valid after all data is erased. See the Origin Offset section that follows for more information.

ERASE PROGRAMMED DATA

AUTO SCAN : ON  
PRESET : ON  
TOUR : ON  
PATTERN : ON  
ALARM : ON  
AREA TITLE : ON  
PRIVACY ZONE : ON  
CAMERA : ON  
DOME SETUP : ON  
ERASE  
SAVE AND EXIT(ESC TO CANCEL)

**PRESET FOCUS DEFAULT**

Selecting the Preset Focus Default submenu allows you to select the default focus mode of the camera. The choices are: AUTO/MANUAL/ONE PUSH.

PRESET FOCUS DEFAULT

FOCUS : AUTO  
SAVE AND EXIT(ESC TO CANCEL)

**ORIGIN OFFSET**

This feature is used to align a new dome camera to exactly the same position as the previously installed camera. Note that the Initialize Data and Dome Reset functions will not override the Origin Offset values. If you want to change the offset value that you have set, you can do it using this menu.

**OFFSET SETUP**  
(CTRL KEY)

PAN OFFSET : 000.0  
TILT OFFSET : 000.0  
ENABLE : OFF  
SAVE AND EXIT(ESC TO CANCEL)

***DOME RESET***

This submenu is used to reset the dome camera. If you select OK, the dome will go through a reset procedure.



**CAUTION**

Use care when accessing the Dome reset menu. It will recalibrate the orientation of the dome.

**DOME RESET**  
**ARE YOU SURE ?**  
  
CANCEL  
OK

**SYSTEM MENU**

This submenu enables you to change system parameters and set a password.

```

SYSTEM MENU

MOTOR SETUP
PASSWORD EDIT
ORIGIN CHECK
CALIBRATION           : ON
PASSWORD ENABLE       : OFF
MENU TIME OUT        : OFF
BLINK CURSOR          : ON
DOME ANSWER           : ON
SAVE AND EXIT(ESC TO CANCEL)
    
```

**MOTOR SETUP**

You can set the dome pan and tilt motor speed with this submenu.

```

MOTOR SETUP

PROPORTIONAL P/T      : ON
P/T MODE              : NORMAL
SLOW PAN MAXIMUM      : 40°/SEC
SLOW TILT MAXIMUM     : 40°/SEC
NORMAL PAN MAXIMUM    : 90°/SEC
NORMAL TILT MAXIMUM   : 90°/SEC
TURBO PAN MAXIMUM     : 360°/SEC
TURBO TILT MAXIMUM    : 100°/SEC
SAVE AND EXIT(ESC TO CANCEL)
    
```

- PROPORTIONAL P/T** : ON/OFF
- P/T MODE** : SLOW/NORMAL/TURBO
- SLOW PAN MAXIMUM** : 19-90°/second
- SLOW TILT MAXIMUM** : 19-90°/second
- NORMAL PAN MAXIMUM** : 40-360°/second

**NORMAL TILT MAXIMUM** : 40-200°/second

**TURBO PAN MAXIMUM** : 200-380°/second

**TURBO TILT MAXIMUM** : 90-300°/second

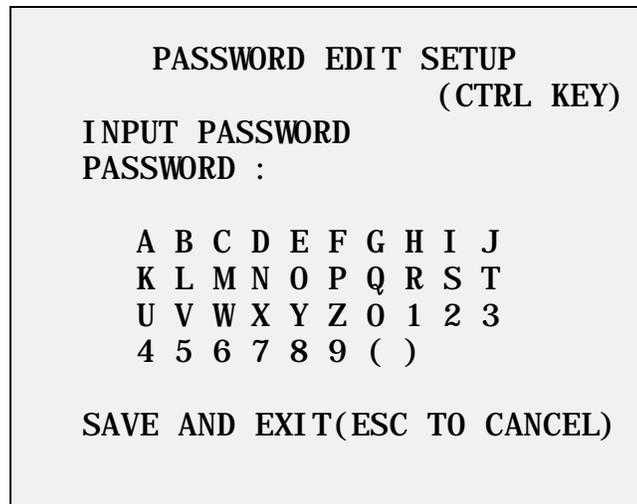


**NOTE**

Pressing and holding the **CTRL** key on the keyboard controller while moving the joystick will enable it to operate in the Turbo speed mode regardless of the setting.

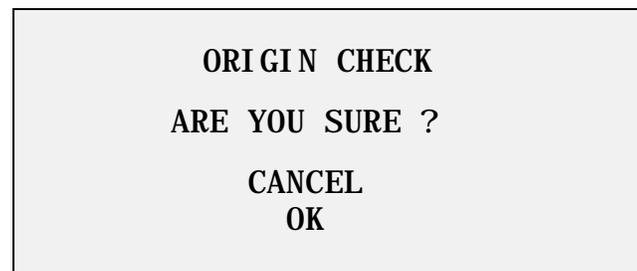
**PASSWORD EDIT**

You can change the password with this menu. Password length is 6-digits or characters. The default password is 555555. When password enable is on, the input password window displays to enter the menu. To set a new password, select the character or number with the joystick and press the **CTRL** key on the keyboard controller to use that character.



**ORIGIN CHECK**

If the camera is out of position during operation and you want to reset it to the origin position, using this function will reset it.



- CALIBRATION:** ON(Auto origin check) / OFF.
- PASSWORD ENABLE:** ON. Requires the password to enter menu.  
OFF. No password required. The default password is 555555.
- MENU TIME OUT:** ON. (5 minutes and menu turns off.) OFF (Menu displays constantly).
- BLINK CURSOR:** ON. OFF (No blinking cursor).
- DOMES ANSWER:** ON. OFF (Does not acknowledge commands from the dome).

**SYSTEM INFORMATION** Displays the camera system information. This is useful if service is required. From this screen, you can determine the camera type, hardware and ROM versions.

```

                SYSTEM I NFORMATION

CAMERA TYPE   :  xxxxxx- xxxxxx
H/W VERSION   :  Vx. xx
ROM VERSION   :  Vx. xx
PROTOCOL      :  xxxx
BAUDRATE      :  9600

EXIT(ESC TO EXIT)
```

# Specifications

<b>Image Device:</b>	4.5mm (1/4 inch 960H Dual-Scan CCD )
<b>Optical/Digital Zoom:</b>	37X/12X
<b>Resolution:</b>	650 TVL
<b>Focal Length:</b>	f = 3.5 – 129.5 mm
<b>Angle of View:</b>	3.5 mm – 54.4° Horizontal 129.5 mm – 1.6° Horizontal
<b>Aperture:</b>	f/1.5 – f/4.1
<b>Sensitivity:</b>	Normal: 0.02 fc (0.2 lux) Slow Shutter: 0.0003 fc (0.003 lux) ICR On: 0.001 fc (0.01 lux) ICR On and Slow shutter: 0.000001 fc (0.00001 lux)
<b>ICR On (Day/Night):</b>	Yes
<b>Wide Dynamic Range (WDR):</b>	Yes
<b>Motion Detection (in Preset):</b>	Yes
<b>Image Stabilizer</b>	Yes
<b>Tilt Angle:</b>	-10° - 190° (Digital Flip)
<b>Image Flip:</b>	Yes
<b>Auto Calibration:</b>	0.1° - 6°
<b>Speed:</b>	0.1° to 380°/sec. (proportional to zoom); 380°/sec. maximum (with CTRL key pressed); Preset Speed: 380°/sec.
<b>Panning Angle:</b>	360° continuous rotation
<b>Alarm</b>	8 inputs (NC/NO), 4 TTL outputs
<b>Auto Scan:</b>	1 Auto Pan & 16 Auto Scans
<b>Preset:</b>	240 presets
<b>Pattern:</b>	8 patterns (recording up to 500 sec.)
<b>Tour:</b>	8 tours (42 functions per tour)
<b>Maximum Speed:</b>	380° /sec.
<b>Area Titles:</b>	16 titles with 12 characters each
<b>Privacy Zones:</b>	8 with two methods Block or Video Off
<b>Control Protocol:</b>	RS-485/422; Baud rate: 2400~38.4k bps (default: 9600 bps), REVOTRAX, Pelco-D, Pelco-P
<b>ID (Camera Address):</b>	1 - 255
<b>Dimensions:</b>	See Figure 3.
<b>Certifications:</b>	CE EMC, FCC Class A, CSA
<b>Input Voltage:</b>	18 to 30 VAC; 24 VAC, nominal
<b>Current:</b>	1 A ,nominal

<b>Power Consumption:</b>	20 W maximum
<b>Alarm Outputs:</b>	4 relays 24 VDC, 1A Max. (selectable NC/NO)
<b>Alarm Inputs:</b>	8 dry contact (selectable NC/NO)
<b>Weight:</b>	Approx. 1.2 kg
<b>Operating temperature:</b>	32° to 122° F (0° to 50° C)
<b>Operating humidity:</b>	0 to 90% relative, non-condensing
<b>Storage temperature:</b>	4° to 140° F (-20° to 60° C)

Specifications are subject to change without notice.

# Troubleshooting

Prior to calling product support, verify the installation of the camera as described in this manual. If everything is connected correctly, check the following:

Problem	Possible Solution
No video	<ul style="list-style-type: none"> <li>• Verify that power is connected to all pieces of equipment in the system.</li> <li>• Verify that the power switches are in the ON position.</li> <li>• Check the video connections.</li> <li>• Check video cable.</li> </ul>
Poor video quality	<ul style="list-style-type: none"> <li>• Check that the BNC connectors are inserted properly.</li> <li>• Check the voltage level of the dome camera.</li> <li>• Cable for video is shielded.</li> </ul>
Dome cameras lose their positions	<ul style="list-style-type: none"> <li>• Reset the cameras using the Dome Setup menu.</li> <li>• Check that the dome camera is inserted properly in the base.</li> <li>• Check the voltage level of the camera.</li> </ul>
Camera number does not match the multiplexer number.	<ul style="list-style-type: none"> <li>• If using a multiplexer. Check the camera ID and insert the BNC cable into the proper input of the multiplexer.</li> </ul>

Picture is torn when switching

- Check Line Lock setting and adjust phase of line lock.



**CAUTION**

Do not open the camera or attempt repair of the internal parts.

# Glossary

## **Alarm Action**

The assigned response for the dome camera when an input changes from a normal to an abnormal state. This is known as an Input Alarm. The response may be for the camera to run a Preset, Pattern, or have no assigned action.

The dome camera may also send an alarm state to the host controller for processing. This is known as an Alarm Output. See also Input Alarm and Normal Input State.

## **Area**

Programmed start and end points of the dome's field of view around its axis. Each area is a part of a circular viewing area that extends around the dome. The areas can be different sizes. Up to 8 areas can be programmed for the dome. Each can have its own title.

## **Automatic Gain Control (AGC)**

Allows for the amplification of the video signal in scenes with minimal ambient light. Typically, low-light scenes result in picture noise. As gain is increased, the picture noise is also amplified. When AGC is enabled, the value of the gain setting is based on feedback from the camera. When AGC is disabled, the camera uses the value set for the manual gain setting. The trade-off between picture level and noise may be adjusted when AGC is disabled.

## **On-Screen Menu**

The text overlay menu system used for setting dome features. The utility is accessed using a by pressing the **MENU** key on the keyboard controller or by accessing the menu through a DVR. The utility provides settings for camera functions, zoom, alarm, text display, and password protection.

## **Flip**

Allows the dome to automatically reverse the view from bottom to top, 180 degrees when the camera tilts to its lower limit and stays in that position for a brief delay. When the dome flips (rotates), the camera starts moving upward as long as the tilt control is kept in the down position. Once the control is released, the tilt control returns to its normal operational mode. The flip feature is useful when you need to track someone who walks directly beneath the dome and continues on the other side.

## **Home Position**

The default position to which the dome camera returns after an assigned period of inactivity passes. The default position may be a Preset, Tour, Pattern, or No Action.

## **Input Alarm**

A connection point on the dome camera that enables the system to monitor Input Devices. There is one alarm input.

## **Input Device**

An external device that provides information about the condition of system components that connect to the input on the dome camera. Typical input devices include door contacts, motion detectors or smoke detectors.

## **IR Mode**

A feature of the camera that permits manual or automatic switching between color and IR (black-and-white) operation when light levels are low. When IR mode is active, clearer images may be obtained under low-light conditions.

## **Line Lock**

Allows you to phase lock the video with the AC power line. When line lock is enabled, it prevents vertical video rolling when switching multiple cameras to a single monitor. Sometimes text appears slightly tinted on color monitors. Disabling the line lock may prevent this problem.

## **Normal Input State**

Describes the expected state of a device connected to dome camera's input. The normal state may be open or closed. When a device is not in its normal input state, an alarm is issued.

## **North Position**

User-definable setting that may correspond to magnetic north or some well-known landmark. Used to approximate the camera dome's pointing direction when Direction Indicators are enabled.

## **Slow Shutter**

Setting used to improve the quality of video obtained in extreme low-light situations. When the Slow Shutter setting is enabled, low-light information is collected over multiple fields based on the

Shutter Limit setting. As a result, video may appear blurred or choppy in extreme low-light situations. This setting does not affect camera operation in normal lighting situations.

## **Pattern**

A series of pan, tilt, zoom and focus movements. Up to 4 Patterns may be programmed for the dome camera.

## **Preset**

Programmed video scene, based on a specific pan, tilt, zoom, and focus settings. Up to 120 Presets may be programmed for the dome camera.

## **Privacy Zone**

Masked areas of the dome camera's viewing area. These masks prevent operators of the surveillance system from viewing these designated zones. The Privacy Zones move in relation to the dome camera's pan/tilt position. In addition, the apparent size of the Privacy Zone adjusts automatically as the lens zooms in or out. Up to 4 Privacy Zones may be established.

## **Vector Scan**

Allows the camera to move from start point to end point including tilt and zoom simultaneously and linearly.

## **White Balance**

Adjusts in the color hue (red and blue) gain for a camera so that true white appears white in the image. It is normally compensated for by the automatic gain control. In some lighting conditions, you may need to manually adjust the red and blue settings for optimal viewing. When Automatic White Balance is enabled, the camera measures the image and automatically adjusts the red and blue settings to balance white. When Automatic White Balance is disabled, the camera uses the values set for the red and blue settings to balance white.

# 37X REVO ELITE PTZ SPEED DOME CAMERA