

TruVision Mini PTZ 12X Camera User Manual



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Chapter 1

Product introduction

Product overview

The TruVision Mini PTZ 12X Camera is an innovative camera designed for middle and small surveillance applications. It possesses true PTZ camera features and has a graphical programming interface for easier customization of camera settings.

Installation of the TruVision Mini PTZ 12X Camera is simplified because it has a single cable to connect it to power, data, alarms, and video outputs. It can be integrated with various digital surveillance products, such as DVRs, control keyboards and various accessories for a total surveillance solution. The dome camera incorporates several protocols to enhance control and connectivity.

The dome camera is ideal for all surveillance requirements in a wide variety of buildings such as hotels, department stores, intelligent buildings, amusement parks, parking lots, factories, hospitals, schools, and stations.

Features

This section describes the TruVision Mini PTZ 12X Camera features.

Precise and accurate dome camera performance

- High resolution 540 TV lines
- Preset speed up to 300°/sec
- 360° endless pan
- Proportional pan and tilt speed
- Preset positions / Autopan / Preset Tour / Shadow Tour
- Auto-calibration
- Digital/mechanical image flip (180°)

Dynamic Dome applications

- Schedule function
- Multiple built-in protocols
- Lightweight design for easy installation
- Flexible indoor mountings
- 16 privacy masks
- 8 alarms and 1 relay

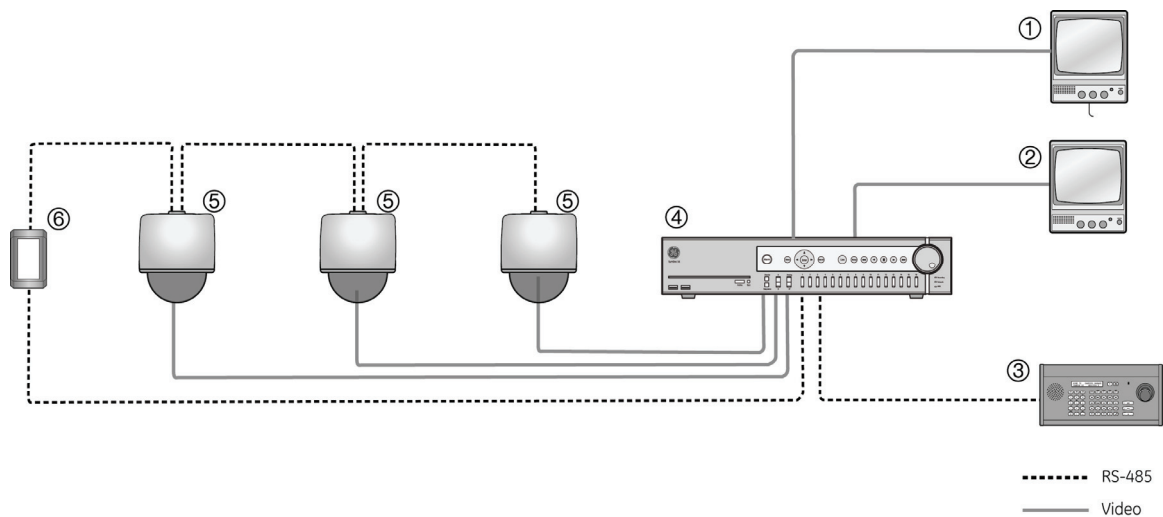
Superior dome camera image quality

- 12X optical zoom
- 12X digital zoom
- Digital auto slow shutter
- Backlight compensation
- Auto focus
- Auto white balance
- Auto gain control
- Auto iris control
- Removable IR cut filter
- Minimum illumination: 1 Lux, 0.2 Lux (B/W)
- 2D / 3D video noise reduction

System requirements

For proper operation, adhere to the following operational, cable, and power requirements for TruVision PTZ Mini 12X cameras.

Figure 1: Example of a system



- | | |
|-------------------|------------------------------------|
| 1. Monitor A | 4. DVR /Multiplxer/ Quad/ Switcher |
| 2. Monitor B | 5. Dome camera |
| 3. Control keypad | 6. Repeater |

Cable requirements

Table 1 below lists the requirements for the cables that connect to the dome camera.

Table 1: Recommended cable requirements

Operation	Cable requirement	Max. length	
		feet	meters
Data (RS-485)	STP (shielded twisted-pair) cable Cat-5 cable recommended. If the total cable length exceeds 1219 m (4000 feet), using a repeater to maintain the signal is recommended.	4000	1219
Video	75 ohm RS-59 coaxial cable with BNC ends		
Alarm	Cat-5 cable recommended.	1250	381
Power	24 VAC cable. To determine the size of cable needed for individual applications, see "Power cable size and length requirements" on page 4.		

Power cable size and length requirements

Using the proper gauge of power cable will ensure proper operation and avoid voltage drops. See Table 2 below for the recommended cable gauge for varying maximum cable lengths and power draws.

Table 2: Recommended power cable gauges based on maximum lengths for an operating voltage of 24 VAC ($\pm 10\%$)

Wire gauge		Indoor dome cameras (14 W)		Outdoor dome cameras (54 W)	
AWG	mm (diameter)	feet	meters	feet	meters
10	2.59	2061	628	534	163
12	2.05	1294	394	335	102
14	1.63	813	247	211	64
16	1.29	512	156	133	41
18	1.02	322	98	83	25
20	0.81	203	62	53	16
22	0.64	127	39	33	10

Chapter 2

Installation

This chapter provides information on how to install the dome camera.

Use a control keyboard, such as the GE KTD-405/KTD-405-2D keypad or other control device, to control the dome camera.

Installation environment

When installing your product, consider these factors:

- **Handling:** Handle the camera carefully. Avoid striking, shaking, etc. Improper handling or storage could damage the camera.
- **Electrical:** Install electrical wiring carefully. It should be done by qualified service personnel. The input electricity to the unit has a tolerance of 24 VAC \pm 10%. Do not overload the power cord or adapter.
- **Ventilation:** Ensure that the location planned for the installation of the camera is well ventilated.
- **Temperature:** Do not operate the camera beyond the specified temperature, humidity or power source ratings. The operating temperature of the indoor camera is between 0°C to 50°C (32°F to 122°F) and that of the outdoor camera is between -30°C to 50°C (-22°F to 122°F). Humidity is below 90%.
- **Moisture:** Do not expose the indoor camera to rain or moisture, or try to operate it in wet areas. The indoor camera is designed for indoor use or locations only where it is protected from rain and moisture. Turn the power off immediately if the camera is wet and ask a qualified service person for servicing. Moisture can damage the camera and also create the danger of electric shock.
- **Cleaning:** Clean only with a dry cloth. If the dirt is difficult to remove, use a mild liquid non-abrasive detergent and wipe gently.
- **Protect from strong light:** Never face the camera towards the sun. Do not aim the camera at bright objects. Whether the camera is in use or not, never

aim it at the sun or other extremely bright objects. Otherwise, the camera may be smeared or damaged.

- **Servicing:** Do not attempt to service this camera yourself. Any attempt to dismantle or remove the covers from this product will invalidate the warranty and may also result in serious injury. Refer all servicing to qualified service personnel.

Unpacking the dome camera

When you receive the product, check the package and contents for damage, and verify that all items are included. If any of the items are damaged or missing, please contact your local supplier.

Items shipped with the indoor (Figure 2 below) and outdoor (Figure 3 on page 7) dome cameras include:

Figure 2: Indoor dome camera package

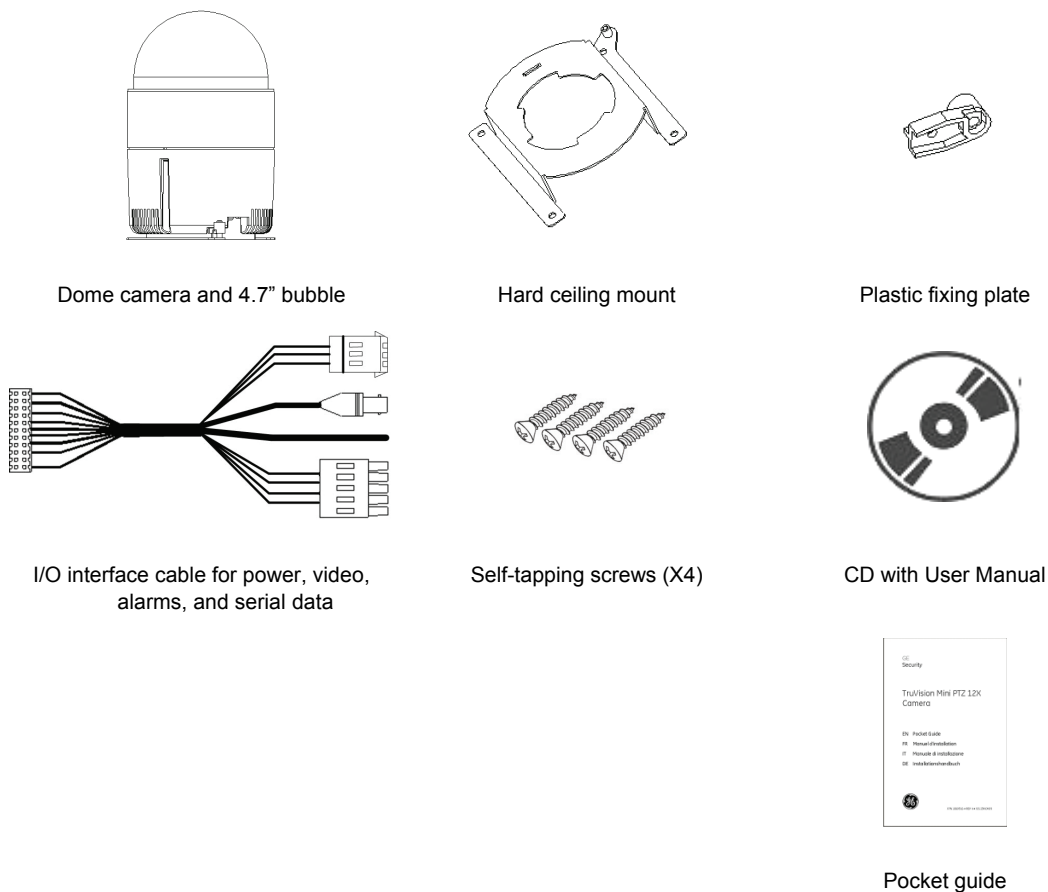
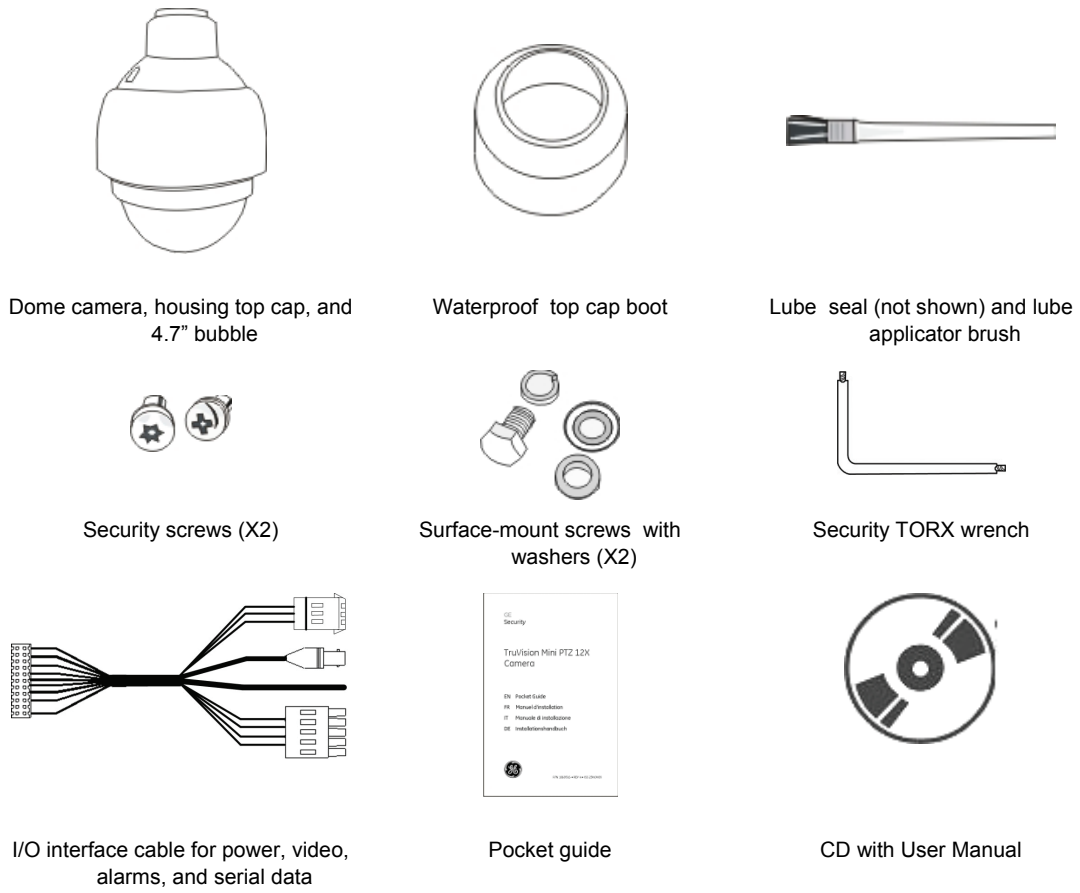


Figure 3: Outdoor dome camera package



Removing the protective cover from the outdoor dome camera

The outdoor dome camera is shipped with a protective cover and PE sheet on the dome camera for protection. These must be removed before installation.

To remove the protective cover and PE sheet

1. Unpack the dome camera.
2. Turn the dome camera upside down and place it on the cushion. Then rotate the housing top cap counterclockwise and detach it from the main dome camera housing.
3. Remove the protective cover and PE sheet from the dome camera.
4. Use the applicator brush and smear some lubricant on the surface of the bubble waterproof rubber gasket.
5. Then attach the bubble to the dome camera body by first aligning the center point on the cover with one of the four holes on the dome camera housing, as shown.
6. Using both hands on either side of the bubble, gently press down the bubble. Make sure the two slotted screws and the screw hole on the bubble align with the three holes on the dome camera housing.



Caution: Do not press on the top of the bubble as shown in the figure as it might damage the unit.



7. Screw the bubble and dome camera body together with the supplied surface-mount screw. Use the supplied security TORX to fasten the security screws.



8. Further secure the bubble by turning the two slotted screws counterclockwise so that they touch the dome camera housing.



9. Set the DIP switches.

Setting up the dome camera

To quickly put the Mini PTZ 12X dome camera into operation:

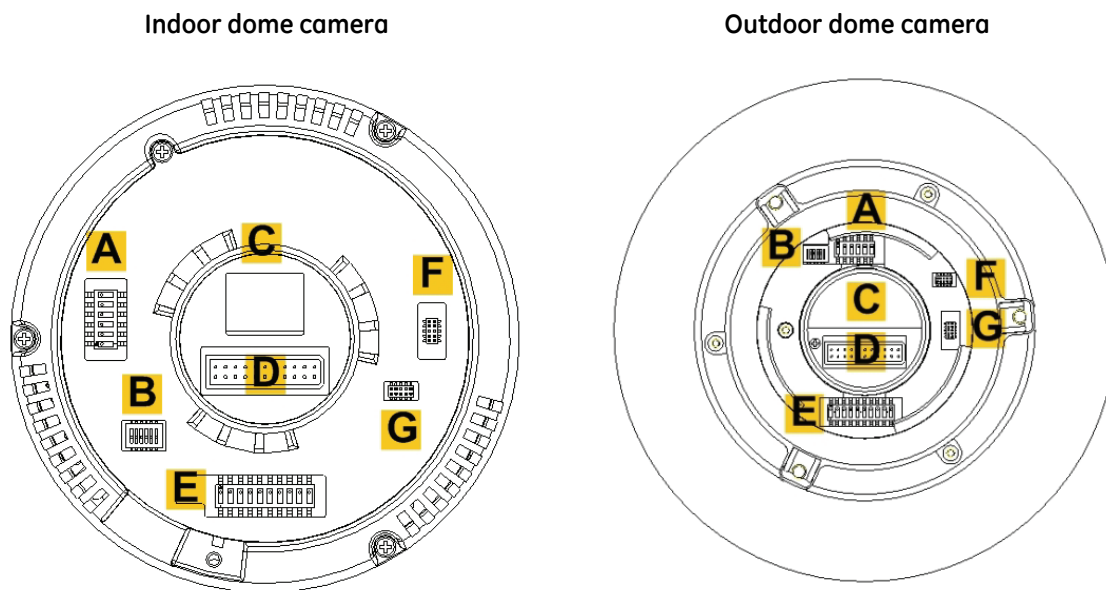
1. Configure the dome camera's DIP switches, which are located on the top of the dome camera.
2. Set the dome camera communication protocol.
3. Set the RS-485 communication DIP switch.
4. Verify and set the communication termination, if required.
5. Set the dome camera ID.
6. Mount the dome camera to the wall/ceiling.
7. Wire the dome camera.
8. Connect the dome camera to a monitor.
9. Program the dome camera.

Dome camera DIP switches

Configure the dome camera's ID and communication protocol before connecting the analog dome camera to other devices. The DIP switches used for configuring these settings are located on the top of the dome camera housing. See Figure 4 below for the location of the DIP switches on both the indoor and outdoor dome cameras.

The 22-pin connector for I/O interface cable connection is located on the back plate.

Figure 4: Dome camera DIP switches



A. Dome camera protocol DIP switches
B. RS-485 communication DIP switches
C. None

D. 22-pin connector
E. Dome camera site ID DIP switches
F. Reserved
G. Reserved

See the following sections on how to setup the ID and control protocol of the dome camera.

Setting the dome camera communication protocol

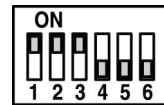
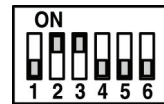
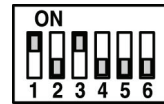
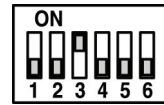
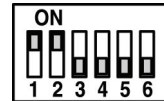
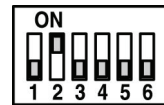
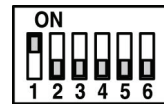
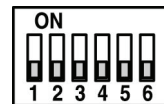
The TruVision Mini PTZ 12X Camera can use several different protocols for communication. To select a protocol, you must set the protocol DIP switches to the correct sequence of 1s (on) and 0s (off).

To set a dome camera protocol using the DIP switches

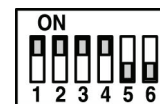
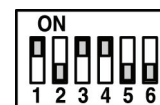
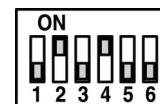
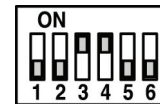
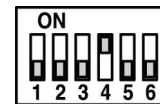
1. Locate the protocol DIP switch block (A, Figure 4 on page 10).
2. Using Table 3 below, find the DIP switch sequence for the desired protocol and set the switches accordingly.

Table 3: Protocols supported

Protocol	Baud rate	Switch position
GE Impac RS-485	9600	000000
GE Digiplex RS-422	4800	100000
Pelco D	2400	010000
Pelco D	4800	110000
Pelco D	9600	001000
Pelco P	2400	101000
Pelco P	4800	011000
Pelco P	9600	111000



Protocol	Baud rate	Switch position
Philips	9600	000100
VCL	9600	001100
JVC	9600	010100
DSCP	9600	101100
Chiper	9600	111100



Functions supported by third party protocols

Table 4: Functions supported

Function	Key commands			
	Pelco	AD 422	VCL	Philips
Enter menus	Preset 95	Preset 94 (alternate Preset 77)	Wipe or Preset 77	Preset 77
Exit menus	Preset 95	Preset 95	Preset 97	Preset 77
Select/enter in menus	Iris+	Iris+	Iris+	Iris+
Set auto pan limits	Preset 92 and 93	Preset 62 and 63		
Start auto pan	Preset 99	Preset 79	Preset 79	On - 2 - Enter
Play Shadow Tour #1	Pattern #1	Preset 65	1 + Autopan	Preset 70 - 76 = S Tours 1-7, Preset 78 = S Tours 8
Play Preset Tour #1	Preset 98	Preset 70	Preset 70	On - 8 - Enter
Turn 180 degrees on pan	Preset 33	N/A	N/A	On - 1 - Enter

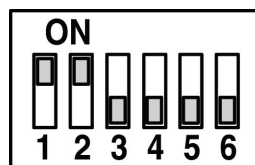
Function	Key commands			
	Pelco	AD 422	VCL	Philips
Show splash screen	N/A	N/A	N/A	On – 997 - Enter

Setting the RS-485 communication

RS-485 is the interface that connects the dome camera to the control device. Consequently the RS-485 setup of the dome camera and the control device must be identical.

Locate the communication DIP switch block (see B, Figure 4 on page 10). See Figure 5 below for an explanation of the communication DIP switches of the dome camera.

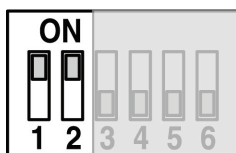
Figure 5: Communication DIP switch



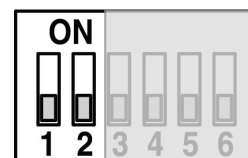
- | | |
|-------------------|--------------------------|
| 1. RS-485 setting | 4. Line lock |
| 2. RS-485 setting | 5. System initialization |
| 3. Termination | 6. Not used |

The RS-485 default setting is half-duplex (see Figure 5 above). This setting should only be changed by a qualified CCTV specialist. DIP switches SW3 and SW4 are used for termination and Line Lock adjustment respectively. The SW5 DIP switch is used to restore the dome camera to the factory default status.

Figure 6: RS-485 setting



Half-duplex (Default)



Full-duplex

Setting the dome camera site ID

Before turning on the dome camera, you must set the dome camera site ID. Each dome camera connected to the same network must have a unique ID. Use the 10-bit DIP switch to set the dome camera's site ID setting.

To set a dome camera site's ID

1. Locate the dome camera site ID DIP switch block (E, Figure 4 on page 10).
2. Using Table 5 below, determine which DIP switches when turned on will add up to the site ID number for that dome camera. See Figure 7 on page 15 for an example.
3. Place the switches that correspond to those values in the On position.
4. Carefully record the site ID of each dome camera installed.

Table 5: DIP switch positions and equivalent values

DIP switch position number	1	2	3	4	5	6	7	8	9	10
Equivalent value	1	2	4	8	16	32	64	128	256	512

Table 6: Dome camera site ID DIP switch settings for dome cameras 1 to 30

Unit	DIP switch	Unit	DIP switch	Unit	DIP switch
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	

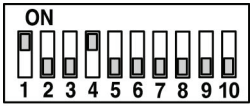
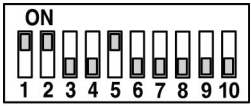
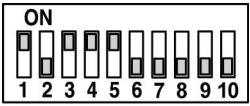
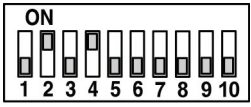
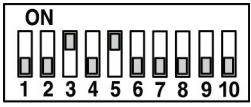
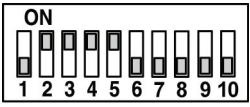
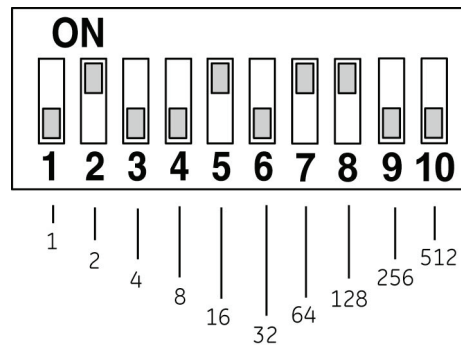
Unit	DIP switch	Unit	DIP switch	Unit	DIP switch
9		19		29	
10		20		30	

Figure 7: Example of setting DIP switches for the dome camera site ID 210 (128 + 64 + 16 + 2)



22-pin connector description

The 22-pin connector for I/O interface cable connection is located on the back plate of the dome camera. See Table 7 below for the pin locations if you need to attach, for example, alarm input and output devices.

Figure 8: 22-pin connector



Table 7: Dome camera's 22-pin connector description

Pin	Wire color	Description	Pin	Wire color	Description
1	Red	Power In AC 24 – 1	12	Red	Alarm Contact 1
2	White	Alarm Relay NC	13	Purple	Alarm Contact 2
3	Black	Power In AC 24 – 2	14	Grey	Alarm Contact 3
4	Black/white	Alarm Relay NO	15	Blue	Alarm Contact 4
5	Yellow	Power Earth Ground	16	Black / white	Alarm Contact 5
6	Green/ black	Relay Com	17	Orange/ black	Alarm Contact 6

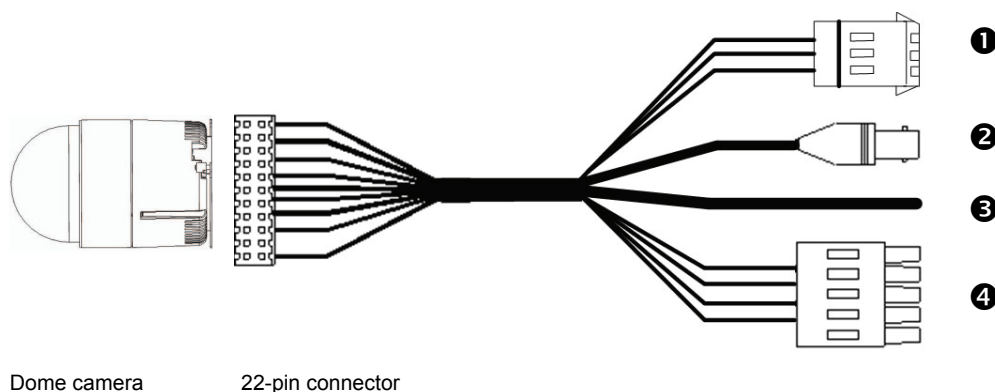
Pin	Wire color	Description
7	Yellow/ black	Control T+
8	Orange	Control R-
9	Green	Control T-
10	Brown	Control R+
11	Blue/ white	ISOG

Pin	Wire color	Description
18	Purple/white	Alarm Contact 7
19	Grey/ black	Alarm Contact 8
20	Brown/ white	Alarm Contact GND
21	Black	Video GND
22	Red	Video

Wiring the dome camera

The TruVision Mini PTZ 12X Camera is shipped with a 24 VAC I/O interface cable (see Figure 9 below). This cable facilitates installation as there is only one cable to connect to the dome camera.

Figure 9: 24 VAC I/O interface cable

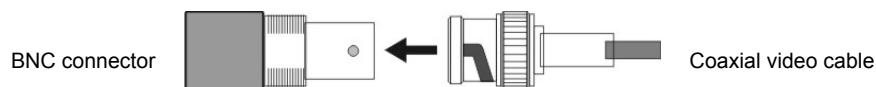


1. Power input cable: Provides 24 VAC power supply to the dome camera.
When wiring the power cable, ensure that the ground wire is terminated into the middle pin of the power terminal block.
2. Video output cable: Sends video signals to a remote viewing site. A coaxial cable is recommended.
3. Alarm cable.
4. RS-485 serial data connector: This twisted pair cable carries serial commands from a control device to the dome camera. A CAT 5, 24 gauge cable is recommended. (See "Cable requirements" on page 3 for more information.)

Caution: During installation carefully pull the cables so as not to damage them. It is recommended to fasten the cables once they are connected.

To wire the dome camera

1. Connect the 22-pin connector of the I/O interface cable to its connector in the base of the dome camera. See Figure 4 on page 10 for its location.
2. Connect the crimp-on BNC connector of the video output to the coaxial video cable of a monitor or DVR.



3. Connect the control keyboard to the dome camera through the serial terminal block.
4. Connect the alarm cable to a dry contact, for example, a PIR detector or an access control system.
5. Connect the RS-485 serial data connector to the DVR/keypad, as shown below.

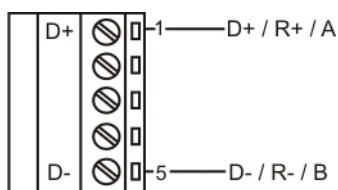


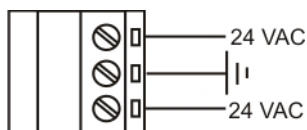
Table 8: Pin definition of the serial data connector

Pin	Corresponding pins (22-pin connector)	Definition
1	7, 10	T+, R+ (D+ or A)
2 - 4	Reserved	
5	8, 9	T-, R- (D- or B)

Note: See “Cable requirements” on page 3 for information using a RS-485 cable for the dome camera.

5. Connect the power cable to the power source. As soon as the dome camera is connected, it is operational.

Note: The ground wire must be inserted into the center pin of the power input terminal block.



Mounting the dome camera on a ceiling

The indoor dome camera can be mounted on a solid ceiling using the hard ceiling mount that is shipped with the dome camera.

Caution: Complete all installation steps before supplying power to the camera.

Items needed for mounting

- A. Indoor dome camera, which is shipped with:
 - I/O interface cable
 - Hard ceiling mount
 - Plastic fixing plate
- B. Screws and screw anchors for fixing the standard ceiling mount to a hard ceiling (not supplied.)

Tools needed

- Tool for drilling
- Tool for screwing

To mount the dome camera on a ceiling:

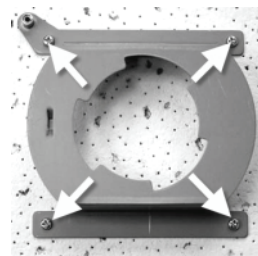
Caution: For safety reasons the dome camera must be properly anchored to the ceiling structure. It is important to ensure that a dome camera cannot be pulled through ceiling tiles on which it is mounted.

It is recommended to mount the dome camera to an electrical box and not directly to ceiling tiles. The electrical box must be properly anchored.

1. Screw the plastic fixing plate to the matching screw hole on the edge of the dome camera, as shown.



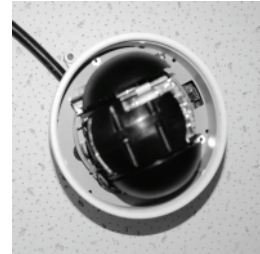
2. Place the hard ceiling mount in the desired position on the ceiling and mark the position of the four screw holes.
3. Drill a hole in each marked position.
4. Fix the hard ceiling mount to the ceiling using the self-tapping screws, as shown.



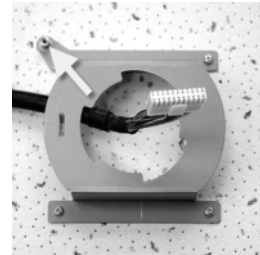
5. Thread the I/O interface cable through the center hole of the mount and connect the cable to the 22-pin connector on the base of dome camera.



6. Attach the dome camera to the hard ceiling mount. Ensure that the central part of dome camera base is locked into the central hole of the mount.



Note: The dome camera's plastic fixing plate must align with the mate screw hole on the mount, as shown.



7. Tighten the fixing screw to securely fix the dome camera.



8. If the dome camera bubble had been removed earlier, reattach it now.

The installation is complete.



Mounting the dome camera on a wall

The dome camera can be mounted on a wall using a pendant mount. It is used for indoor and outdoor use. This mount is ordered separately from the dome camera.

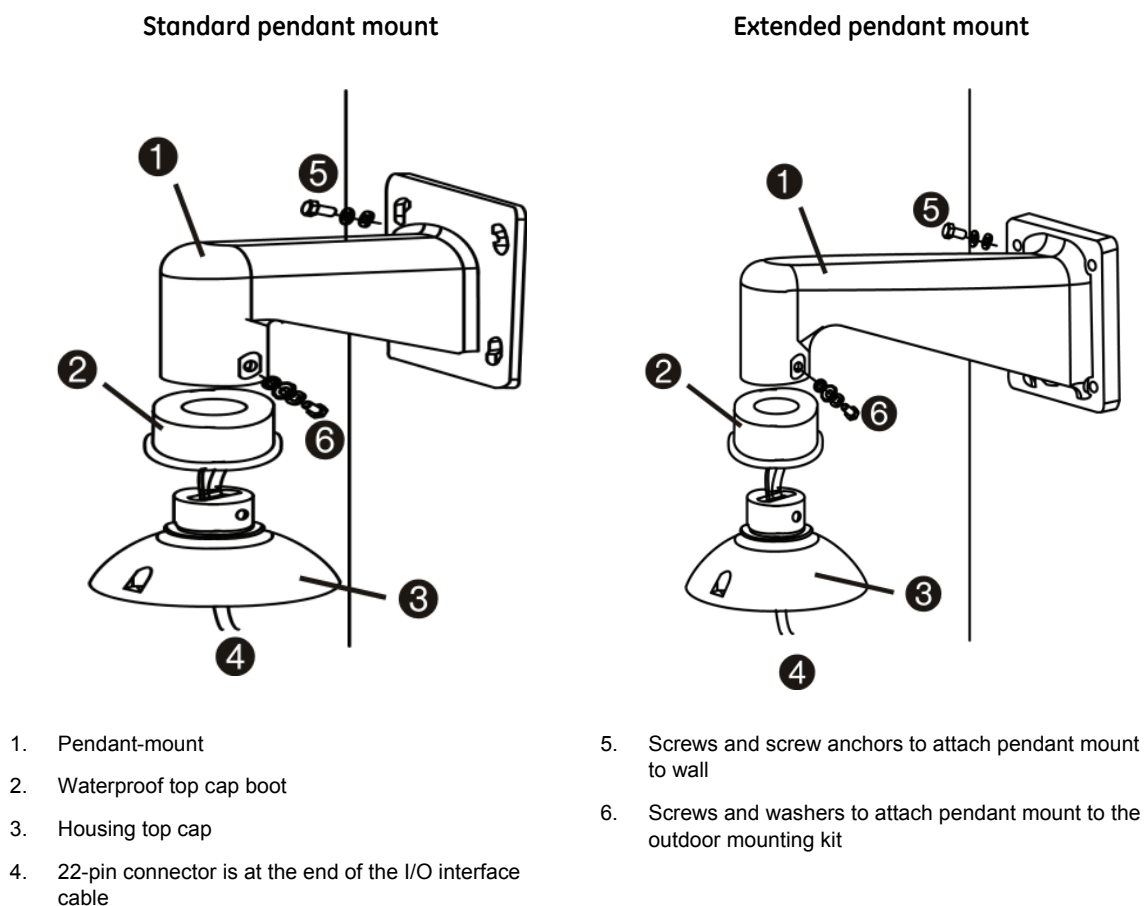
There are two mounting kits available:

- Standard pendant mount (TVP-WM)
- Extended pendant mount (TVP-LWM)

Caution: Complete all installation steps before supplying power to the camera.

Please contact your local supplier for information on other mounting kits available.

Figure 10: Pendant-mount



Items needed for mounting

- A. Outdoor dome camera package (see Figure 3 on page 7)
- B. Pendant mount kit (standard or extended), which is shipped with:
 - Pendant mount (standard or extended)

- Sponges
 - M5 standard/security screws
- C. Screws and screw anchors for fixing the standard pendent mount onto the wall (not included)

Tools needed

- Tool for drilling
- Tool for screwing

To pendant mount the dome camera:

1. Drill a cable-access hole in the wall where you want to install the pendant mount.
2. Using the correct screws and screw anchors, fix the pendant mount to the wall.
3. Attach the waterproof top cap boot to the pendant mount.
4. Run the cable through the pendant mount. The 22-pin connector of the I/O interface cable should exit from the pendant mount.

Note: Block the cable-entry hole in the wall with the supplied sponges to prevent insects from entering the pendant mount.

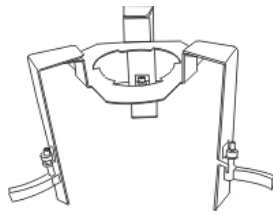
5. Thread the cables through outdoor mount kit.
6. Attach the outdoor mount kit to the pendant mount arm using the supplied screws and washers. Adjust the rubber boot to the joint.
7. Connect the 22-pin connector of the I/O interface cable to the dome camera.
8. Attach the dome camera to the outdoor mount kit with the supplied screws and washers.

Mounting an indoor dome camera in a ceiling

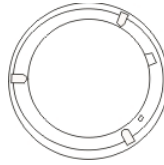
The indoor dome camera can be mounted in a ceiling using the optional flush-mount kit. The items and tools needed for the flush-mount installation are listed as follows.

Items needed for mounting

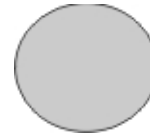
- Indoor dome camera package (see Figure 2 on page 6)
- Flush-mount kit, which contains:



In-ceiling mount



Flush-mount ring



Ceiling sticker



Surface-mount screws and washers (X2)



Flush-mount support ring

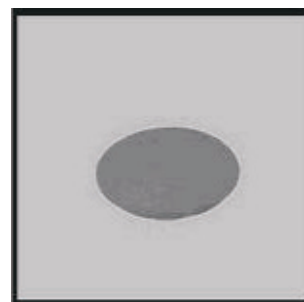
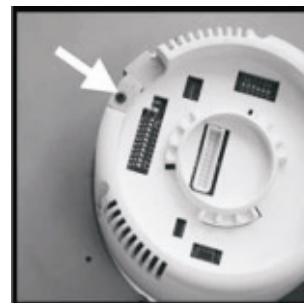
Tools needed

- Tool for cutting a hole in the ceiling
- Tool for screwing (#2 Phillips)

Caution: Always check local building codes and safety regulations for additional precautions.

To install the indoor dome camera in a ceiling:

1. Using one of the enclosed surface-mount screws, attach the lock bar to the mating screw hole on the camera's base plate as shown.
2. Place the enclosed ceiling sticker on the ceiling, and cut around the circle to create a 162 mm (6 in.) hole in the ceiling.



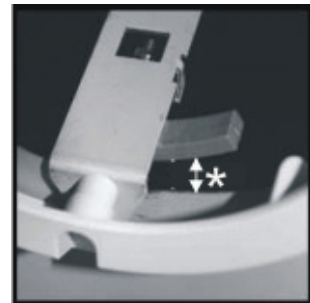
3. Place the flush-mount support ring inside the ceiling hole.

Caution: For safety reasons the dome camera must be properly anchored to the ceiling structure. It is important to ensure that a dome camera cannot be pulled through ceiling tiles on which it is mounted. Use the flush-mount support ring provided for additional strength when mounting the dome camera on to ceiling tiles.



4. Place the in-ceiling mount into the opening.

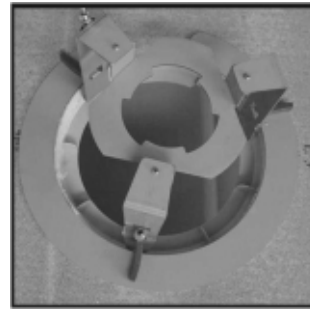
Note: Keep some space (*) between the in-ceiling mount's wings and the ceiling board so that the mount can be completely recessed into the opening.



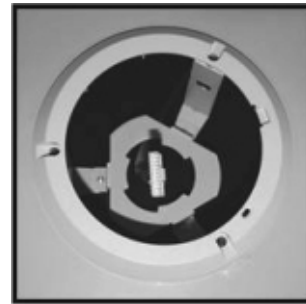
5. Tighten the flush-mount's three fixing screws as shown. (View shown is looking up at the ceiling.)



Note: Ensure that the in-ceiling mount's wings are completely flush with the ceiling board as shown. (View shown is from inside the ceiling.)



6. Run the data cable through the center hole of the in-ceiling mount. Then connect the cable to the mating 22-pin port on the dome camera's base plate.



7. Mount the dome camera onto the in-ceiling mount with the exact orientation as shown.
First align the fixing screw hole on the lock bar with the mating slot on the ring of the in-ceiling mount. Then rotate the camera clockwise, and let the screw hole on the lock bar align with the fixing screw hole on the in-ceiling mount's ring.



8. Screw the dome camera onto the in-ceiling mount with the second enclosed surface-mount screw. The installation is now complete



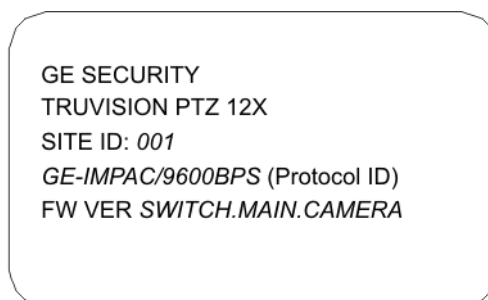
Chapter 3

Menu overview

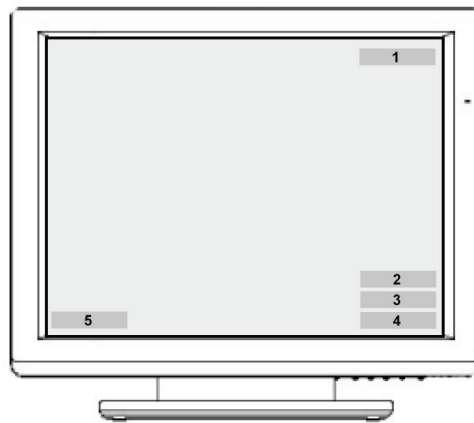
On-screen information

When the unit is powered up, a splash screen appears that displays important system information (see Figure 11 below.) Items marked in *italic* in the figure can change depending on the settings.

Figure 11: Splash screen that appears when the dome camera is powered up



Information on the status of several dome camera functions can be displayed on the monitor screen. The on-screen display (OSD) shows the current zoom focus, alarm number, time and date, as well as the dome camera area title and site ID. See Figure 12 on page 26 and Table 9 on page 26.

Figure 12: Position of on-screen information**Table 9: Dome camera information displayed on-screen**

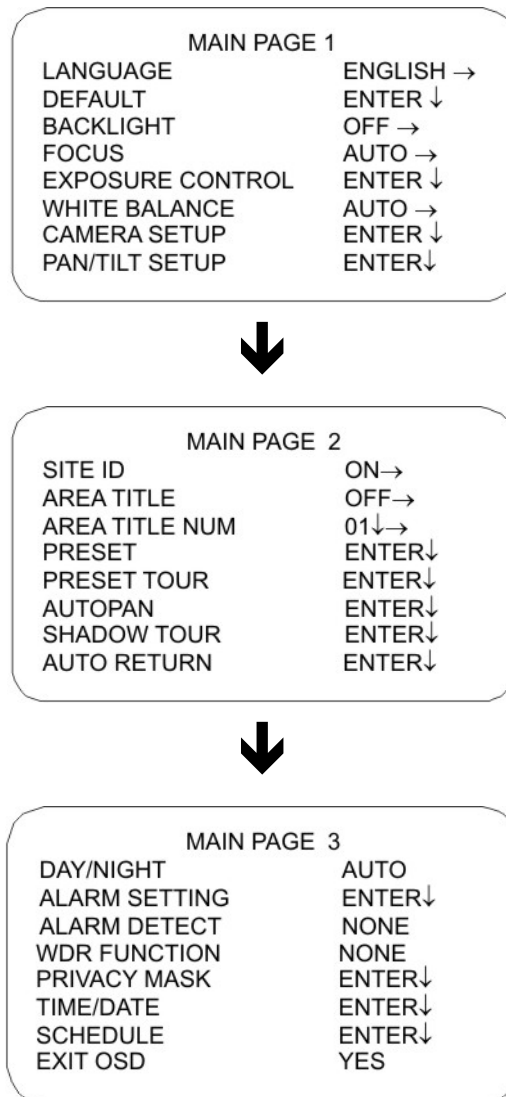
Position	Function	OSD	Description
1	Alarm number	Alarm #	Alarm Message
2	Current zoom ratio	1X	Present Zoom Ratio (Optical Zoom/Digital Zoom)
3	Camera site ID	Camera site ID displayed	
4	Date and time	Date and time displayed	
5	Area title	Area title displayed	

Main menu overview

The dome camera is programmed through the on-screen (OSD) menus. To access the OSD menus, you must open the main menu. The main menu, which appears over three screens, lets you set up the dome camera or change the default settings to suit your installation.

Note: The OSD menu can be pre-programmed to time-out after certain number of minutes of inactivity. The default value is two minutes.

Figure 13: Main menus



Main menu commands options

Table 10 below provides a list of controls and options available on each screen that you can access from the main menu. Access to the menu screens can depend whether the system has been set up to require a password.

Table 10: Main menu descriptions

Command	Function
Language	Configures the language of the on-screen display.
Default	Configures the remote system reset, or is used to default all the settings of the system or of a dome camera.
Backlight	Enable/disable the backlight setting.
Focus	The dome camera always operates in auto focus mode.
Exposure control	Configures exposure compensation, shutter speed, iris control,
White balance	Configures white balance.

Command	Function
Camera setup	Configures digital zoom, automatic slow shutter, digital noise reduction, video invert, image freeze, and aperture.
Pan/Tilt setup	Configures image flip, tilt limits, proportional speed, auto calibration, password, OSD menu duration.
ID display	Configures the camera site ID.
Title display	Configures the camera title display.
Title setting	Configures the wording of the camera title.
Preset	Configures preset points.
Preset tour	Configures preset tour, preset tour step, preset position, preset tour speed, dwell time, and manual preset tour.
Autopan	Configures autopan, start point, end point, direction, speed, and execution.
Shadow tour	Configures the shadow tour number, record start, and record end.
Auto return	Configures auto return, return action selection, preset point selection, preset tour selection, autopan selection, shadow tour selection, return time, and manual auto return.
Day/Night (D/N cameras only)	Configures IR cut filter threshold, and manual control.
Alarm setting	Configures alarm settings.
Alarm detection	Enable/disable alarm detection.
WDR function	Enable/disable the wide dynamic range feature.
Privacy mask	Configures the privacy mask.
Time and date	Configures the time and date of the dome camera. The camera can time sync to Digiplex or Impac master time signals, or can be manually set.
Schedule	Configures schedules for preset tours/autopans/shadow tours.

Using a keypad to program menus

Use a control device such as a control keypad to configure the camera menu options. We use the KTD-405 keypad controller (Figure 2) in this manual to explain the features of the TruVision Mini PTZ 12X Camera because of the KTD-405's ability to control all of the camera's features. (For detailed keypad instructions, refer to the KTD-405/KTD-405-2D Controller Keypad User Manual.)

You can record the settings for the dome cameras using the checklist in Appendix B "Camera settings checklist" on page 55. This checklist also lists the default values of the settings, where applicable.

Accessing the programming menus

To access the programming menus using a KTD-405/KTD-405-2D keypad

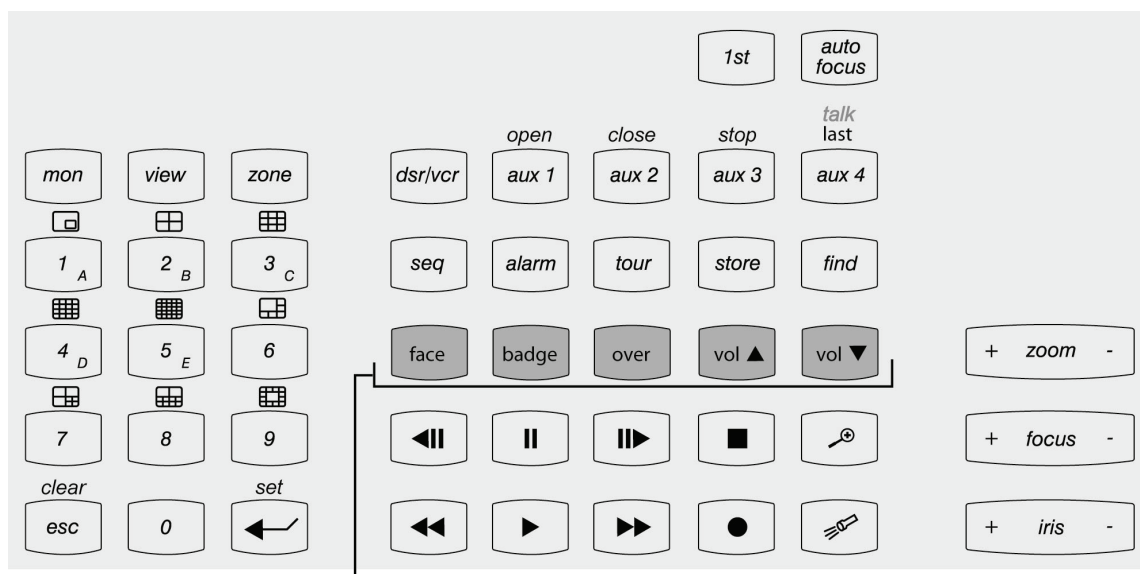
1. Switch the keypad to the camera site you want to program.
2. Press and hold the **set** key until Enter programming code displays.
3. At the code entry display, enter the programming code 9, 5, 1. Then press the **seq** button.
4. At the first menu display, press 3 to select the option Camera.
5. At the Enter camera site number screen, enter the site number of the dome camera you wish to program. Camera default value is 1. The Main Page 1 menu appears.

Caution: If the camera times out while you are in a menu and exits the menu system, all changes are automatically saved.

Navigating the menus

You can use the keypad joystick and keys to navigate through the menu system. See Figure 14 below and Figure 15 on page 30 for further information on their use.

Figure 14: Menu keys of the KTD-405/405-2D keypad



Note: Shaded keys appear on the KTD-405A/ KTD-405-2DA only

Table 11: Navigating the programming menus using the KTD-405/405-2D keypad







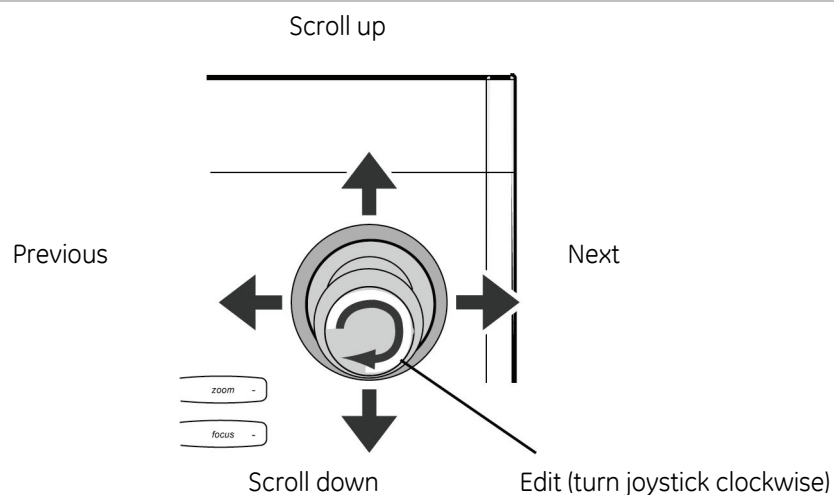
Key	Function
	Scrolls up the menus.
	Scrolls down the menus.
 	Scrolls left or right when indicated by → in the menu.
	Enters or exits a menu or submenu when indicated by ↓ in a menu option. When a menu has →↓, scroll left and right to select a menu function and then press the set key to enter the submenu.
	Iris +: Enters or selects a menu option Iris -: Esc. Exits a menu option. There is no need to select the menu option Exit to quit a menu.

Figure 15: Joystick motion

Chapter 4

Basic setup

This chapter describes how to configure the basic options for the TruVision Mini PTZ 12X Camera.

The default values (where applicable) of the settings are listed in the checklist in Appendix B “Camera settings checklist” on page 55.

Language selection

The dome camera is shipped with on-screen display (OSD) menus available in several languages. They include English, French, German, Italian, Portuguese, and Spanish. The default language is English.

To change the language of the OSD menus:

1. Display the Main Page 1 OSD screen.
2. Select Language. The OSD menu will automatically change to the selected language.

Camera site ID displayed on a monitor

You can display the camera site ID on the monitor to identify each dome camera. The ID is a number. See Figure 12 on page 26 for the on-screen position of the camera ID.

See section “Setting the dome camera site ID” on page 14 for information on setting up a camera site ID.

To display the site ID on the monitor:

1. Display the Main Page 2 OSD screen.
2. Select ID Display and then select one of the options:

On	Display camera ID on the monitor screen.
Off	Hide the camera ID on the monitor screen. Default setting.

Area title displayed on a monitor

You can display the area title of the dome camera on the monitor so that it is easy to identify which area is being shown is on-screen.

To display an area title:

1. Display the Main Page 2 OSD screen.
2. Select Area Title and then select one of the options:

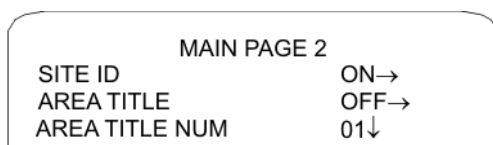
On	Display the title of the selected area on the monitor screen.
Off	Hide the title of the selected area on the monitor screen.

Area title settings

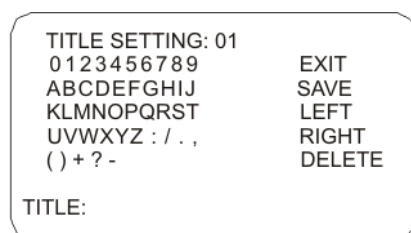
You can configure up to 16 area titles. Each title can have up to 20 characters.

To create an area title:

1. Using the keypad, select the SET POS menu selection and point the dome camera in the direction for which you want to set a title. Press the **set** key.
2. Display the Main Page 2 OSD screen.
3. Select Area Title Num.
4. Enter a number for the view area; 01, for example.



5. On the keypad press the **set** key to enter the editing page. The Title Setting screen appears as shown below.



6. Using the direction keys of the keypad select a character and press the **set** key to input.

For example: A **set** B **set** C **set**

TITLE: ABC

- 7: To delete characters, select a character by moving the cursor to LEFT or RIGHT and press **set** on the keypad. Then move the cursor to DELETE and press **set** to delete the selected character.
- 8: When the title is completed, move the cursor to SAVE and press **set** to save it and to return to Main Menu 2.

Preset points settings

The dome camera can be programmed to execute preset positions that can then be recalled, for example, when an alarm is triggered or when the user requests it. See “Schedule settings” on page 51 for more information on programming when a preset position or tour can be triggered.

You can program up to 256 preset points depending on the protocol used.

Table 12: Preset menu description

Function	Description
Preset Set	Set the preset points. You need to set up at least two points in order to be able to then set up a preset tour.
Show Preset	Select the preset point that you want to execute. After pressing the set key, the camera will turn to the appointed point.
Exit	Select Yes to save any changes and return to Main Page 2.

To set a preset point:

1. Display the Main Page 2 OSD screen.
2. Select Preset to enter the Preset OSD menu.
3. Select a number by either pressing the right/left keys on the keypad to select a number (001 represents preset point 1, 002 represents preset point 2, etc.), or by using the **iris+** key to increase or decrease the number by 10.
4. Press the **set** key on the keypad, and then rotate the dome camera to a targeted pan, tilt, and zoom position.
5. Press the **set** key again to save the defined preset point.

Once the preset point is saved, move the cursor to the next menu item to execute the preset point and confirm it is correct.

Note: To freeze the image as the dome camera moves between preset points, see the option “Image Freeze” under “Camera settings” on page 42.

Preset tour settings

The function executes pre-positioning of the pan, tilt, zoom, and focus features in a certain sequence for a dome camera. Before setting this function, you must have set up at least two preset points.

This function is located on Main Page 2.

Preset Tours are saved as follows:

- Preset Tour #1 = PTZ Tour 3
- Preset Tour #2 = PTZ Tour 4
- Preset Tour #3 = PTZ Tour 7
- Preset Tour #4 = PTZ Tour 8
- Preset Tour #5 = PTZ Tour 11
- Preset Tour #6 = PTZ Tour 12
- Preset Tour #7 = PTZ Tour 15
- Preset Tour #8 = PTZ Tour 16

Figure 16: Preset Tour menu

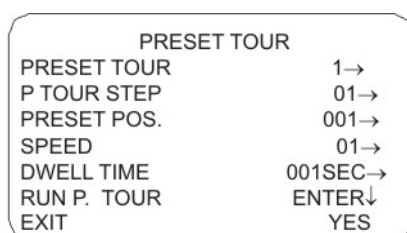


Table 13: Preset Tour menu description

Function	Description
Preset Tour	Set up to eight preset tours. Using the left/right direction keys, select a preset tour number and then set its preset tour steps. This option is also called P Tour.
P Tour Step	Set up to 64 points for each preset tour. The preset tour steps are order in which the preset points are carried out by the camera. Preset position, speed, and dwell time will also influence how the camera Show P Tours through each preset tour step.
Preset Pos.	Set a specific preset position to the selected preset tour step. You can specify one of up to 255 preprogrammed positions. The unit will automatically make the step after the last programmed step, which is an End step. The Preset Tour will then loop and keep running.
Speed	Set each preset tour step to a different speed, ranging from 01 to 15. Within this range, pan, and tilt speed varies from 5 to 300 (degrees/sec.)

Function	Description
Dwell Time	Set the period of time that the camera will stay at a preset tour step. The range is from 0 to 127 seconds. The camera will move to the next preset tour step when the dwell time expires. If the setting is 0, the dome will stay at this preset your step until the camera is manually moved.
Run P Tour	Manually select which P Tour to view after programming.
Exit	Select Yes to save any changes and return to Main Page 2.

Autopan settings

The autopan feature allows the dome camera to pan continuously between right and left limit settings. An autopan movement requires the start and end points to be defined as well as specifying whether the movement is clockwise or counterclockwise.

This function is located on Main Page 2.

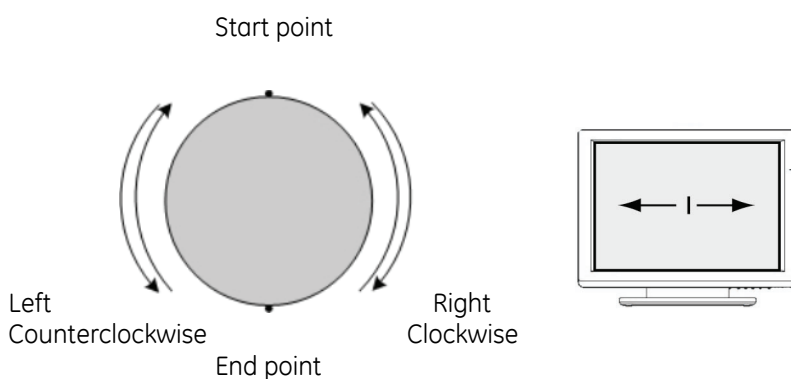
Figure 17: Autopan menu

AUTOPAN	
AUTOPAN	1→
START POINT	TO FIND↓
END POINT	TO FIND↓
DIRECTION	RIGHT→
SPEED	01→
RUN AUTOPAN	ENTER↓
EXIT	YES

Table 14: Autopan menu description

Function	Description
Autopan	<p>You can set up to four autopan functions. Use the LEFT/RIGHT direction keys on the keypad to choose a line to execute.</p> <p>You can also have the camera to do endless panning by setting the start point the same as the end point.</p>
Start point	<p>To set the start position of the autopan path, proceed as follows:</p> <ol style="list-style-type: none"> 1. While the menu option To Find is flashing, move the cursor to Start Point and press set. The option will then become To Save. 2. Move the dome to the desired position and press set to save the position as the start point. The cursor will move to End Point automatically. Set the end point to complete the autopan setting. <p>Note: The tilt and zoom values of the start point are recorded and fixed for the selected autopan.</p>
End Point	Set the end position of the P Tour. See "Start Point" above for further information.

Function	Description
Direction	<p>You need to specify whether the camera moves clockwise or counterclockwise from the start point to the end point before then returning to the start point.</p> <p>Select Right for the camera to pan clockwise from the start point to the end point, and then return to the start point.</p> <p>Select Left for the camera to pan counterclockwise from the start point to the end point, and then return to the start point. See the picture below.</p>
Speed	Select the speed at which the camera automatically pans. Choose from four speed settings (10 to 45°/sec.) where 1 is the slowest.
Run Autopan	Once the autopan setup is completed, you can run the autopan function.
Exit	Select Yes to save any changes and return to Main Page 2.



Shadow tour settings

A Shadow Tour is a route formed with manual operation, through adjusting pan and tilt position, which can be stored and recalled to execute repeatedly.

This function is located on Main Page 2. See Figure 18 on page 37.

Shadow Tours are saved as follows:

- Shadow Tour #1 = PTZ Tour 1
- Shadow Tour #2 = PTZ Tour 2
- Shadow Tour #3 = PTZ Tour 5
- Shadow Tour #4 = PTZ Tour 6
- Shadow Tour #5 = PTZ Tour 9
- Shadow Tour #6 = PTZ Tour 10
- Shadow Tour #7 = PTZ Tour 13
- Shadow Tour #8 = PTZ Tour 14

Figure 18: Shadow Tour menu



Table 15: Shadow Tour menu description

Function	Description
Shadow Tour	Up to eight shadow tours can be defined. Using LEFT/RIGHT direction keys to select a shadow tour number first and then follow the steps below to start recording the Shadow Tour path.
Record Start	You need to define where the shadow tour starts.
Record End	You need to define where the shadow tour ends.
Run Shadow Tour	When the shadow tour is recorded, select this option to playback the Shadow Tour.
Exit	Select Yes to save any changes and return to Main Page 2.

To record a “quick” shadow tour (shadow tour #1):

1. Rotate the dome camera to the desired view and setup the tilt and zoom start position. Using a KTD-405 keypad, hold the **esc** key and press **tour**. Then press **zoom +**.

Note: You must be in normal operation mode when carrying out this function. It cannot be done from programming mode.

2. Press **esc** to exit and save Shadow Tour #1.

To record a shadow tour:

1. In the Shadow Tour menu, select the number of the shadow tour being recorded.
2. Select Record Start and press **set** (ENTER). Move to the desired start position.
3. Press **set** (ENTER) to start recording the shadow tour using the joystick or keypad to create the shadow tour path.
4. Press **set** (ENTER) once to save the shadow tour. The cursor moves automatically to Record End.

Note: When the Record Start is saved, a message will automatically appear on-screen to show how much of the buffer memory remains. Once the buffer percentage reaches 100%, the path will not be recorded.

5. Select Run S. Tour to replay the saved tour.
6. When you are happy with the shadow tour recorded, exit the menu and return to the main menu.

Auto return settings

Set the dome camera to automatically return after a period of inactivity to a specific preprogrammed preset, preset tour, autopan, or shadow tour position. This feature is disabled by default.

This function is located on Main Page 2.

Figure 19: Auto Return screen (screen for Preset mode shown)

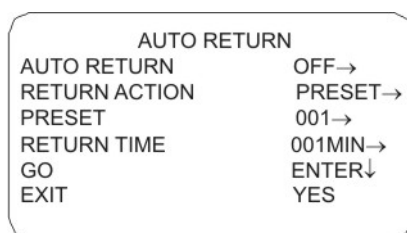


Table 16: Auto Return menu description

Function	Description
Auto Return	Enable or disable the function.
Return Action	<p>This function tells the camera which mode to execute when auto return is enabled and the set return time is reached.</p> <p>Select one of the four following modes: Autopan, Preset Tour, Shadow Tour, and Preset. Depending on which mode is selected, the menu item below changes.</p>
Preset	<p>This is listed if Preset was selected as the return action mode (see Figure 19 above.)</p> <p>Select a preprogrammed preset point to where the camera should return when the return time is activated. See "Preset " on page 33 for more information.</p>
Preset Tour	<p>This is listed if Preset Tour was selected as the return action mode.</p> <p>Select a preset tour that the camera should execute after a period of inactivity. See "To set a preset point" on page 33" for more information.</p>
Autopan	<p>This is listed if Autopan was selected as the return action mode.</p> <p>Select a preprogrammed autopan that the camera should execute after a period of inactivity. See "Autopan " on page 35 for more information.</p>
Shadow Tour	<p>This is listed if Shadow Tour was selected as the return action mode.</p> <p>Select a preprogrammed shadow tour that the camera should execute after a period of inactivity. See "Shadow tour " on page 36 for more information.</p>
Return time	Select the period of inactivity (return time) after which the auto return is activated. The time period ranges between 1 and 128 minutes.
Go	If Auto Return has been enabled, you can execute an auto return manually.
Exit	Select Yes to save any changes and return to Main Page 2.

Chapter 5

Advanced setup

This chapter describes how to configure the advanced options for the TruVision Mini PTZ 12X Camera.

The default values (where applicable) of the settings are listed in the checklist in Appendix B “Camera settings checklist” on page 55.

Default

Use this menu to reset the unit.

Function	Description
System Reset	Select to reboot the camera.
Default System	Select to restore all camera settings and functions back to factory default. The camera will reboot.
Default Camera	Select to restore back to factory default the camera settings under AE, White Balance, and Camera Setup menus.
Exit	Select Yes to save any changes and return to Main Page 1.

Backlight compensation

The backlight compensation function improves image quality when the background illumination is high. It prevents the object in the center from appearing too dark.

One practical application of backlight compensation enables you to see detail inside a room with a window on a bright day. The auto exposure will average all the light in the scene, so bright areas, such as windows, get greater weight, and the dome camera will adjust so you can see the bright area (outside). Backlight correction forces the dome camera to ignore areas of high brightness, so the rest of the scene (the inside of the building) will be properly exposed. You can see detail inside, but in

the process the lighting at the window will be adjusted so seeing outside is not possible.

The default setting is Off.

Note: Leaving backlight compensation on all the time on an unattended PTZ dome camera will produce a picture that is washed out or too bright under normal daylight or bright room conditions.

This menu is located on Main Page 1.

Focus adjustment

The camera’s focus works in Auto Focus mode by default. You can control the focus manually using the keypad control. However, the focus returns to Auto as soon as the Pan or Tilt is moved. The focus control behavior cannot be controlled from the menus.

This menu is located on Main Page 1.

Table 17: Focus menu description

Function	Description
Auto	The lens continuously adjusts to the correct focus automatically for the sharpest picture. This is the default setting.
Manual	Focus is adjusted manually by pressing the Focus + / - button on the controller keypad or by using the joystick. Once the manual adjustments have been made, the camera returns to the default setting, Auto focus.

Exposure control settings

Auto exposure (AE) allows you to automatically set the proper exposure according to the existing light conditions. You can select the AE mode to have an aperture (iris) – priority, shutter-priority, or set the options manually.

Exposure is the amount of light received by the camera’s image sensor and is determined by how wide you open the lens diaphragm (iris adjustment), by how long you keep the sensor exposed (shutter speed), and by other exposure parameters.

This menu is located on Main Page 1.

Figure 20: Example of the AE mode menu with the Shutter option selected

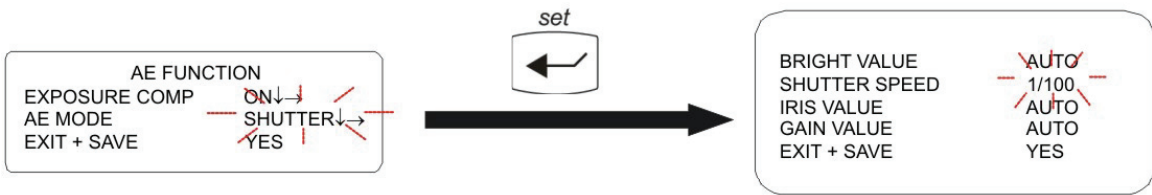


Table 18: AE mode menu description

Function	Description
Exposure Compensation	Select the exposure value, which ranges from -10.5 dB to +10.5 dB. The default setting is Off.
AE mode	<p>Set the method the camera uses to adjust to different light levels:</p> <p>Iris: The iris value is fixed at F1.6.</p> <p>Manual: Manually select a shutter speed (1/10000 to 1/50 for PAL; 1/10000 to 1/60 for NTSC) and gain value (-3 dB to 28 dB) to optimize the video output. Select a higher value to see movement and a lower value to see clearer images.</p> <p>Auto: Select for the camera's brightness, shutter speed, iris and AGC (Auto Gain Control) control circuits work together automatically to get consistent video output level.</p> <p>Shutter: The shutter speed takes main control of exposure, and both iris and AGC will function automatically in cooperation with the shutter speed to achieve consistent exposure output.</p> <p>Select a shutter speed by format:</p> <p>NTSC: 1/60, 1/90, 1/100, 1/250, 1/500, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2,000, 1/3000, 1/4000, 1/6000, or 1/10000 sec.</p> <p>PAL: 1/50, 1/100, 1/250, 1/500, 1/1000, 1/2,000, 1/5000, or 1/10000 sec.</p> <p>Select a higher value to see movement and a lower value to see clearer images</p>
Exit + Save	Select Yes to save any changes and return to Main Page 1.

To change the AE mode values:

1. Display the Main Page 1 screen.
2. Select AE Mode. It will start flashing. Press **set**.
3. Select one of the AE Mode options (Auto, Iris, Manual, or Shutter) using the **set** button. The option's sub menu appears.
5. Select the desired value. The other AE mode options cannot be changed.
6. Exit the menu and return to Main Page 1.

White balance

White balance (WB) tells the dome camera what the color white looks like. Based on this information, the dome camera will then continue to display all colors correctly even when the color temperature of the scene changes such as from daylight to fluorescent lighting, for example.

The unit for measuring this ratio is in degree Kelvin (K). You can select one of the White Balance control modes according to the installation condition. The following table shows the color temperature of some light sources.

Table 19: Examples of the color temperatures of different light sources

Light sources	Color temperature in °K
Cloudy sky	6,000 to 8,000
Noon sun and clear sky	6,500
Household lighting	2,500 to 3,000
75-watt bulb	2,820
Candle flame	1,200 to 1,500

See Table 20 below for a description of the functions available.

This menu is located on Main Page 1.

Table 20: White balance menu description

Function	Description
Auto	Select to enable or disable automatic white balance. Its color temperature range is 3000 to 7500°K. The white balance value is calculated using color information from the entire screen. This is the default setting.
Indoor	Select for a static indoor setting. Optimizes the WB for typical indoor conditions. It is set at 3200°K base mode.
Outdoor	Select for a static outdoor setting. Optimizes the WB for typical outdoor conditions. It is set at 5800°K base mode.
ATW	Auto Tracing White Balance. Select to enable or disable auto tracing white balance. Its color temperature range is 2000 to 10,000°K. The white balance is calculated, or "traced", more quickly than by the Auto function.
Manual	Select to make manual adjustments to the white balance. R (red level) and B (blue level) gains are adjustable and range from 0 to 127.
<div style="border: 1px solid black; padding: 10px; text-align: center;"> WHITE BALANCE MENU R GAIN 050 B GAIN 050 EXIT + SAVE YES </div>	
Exit	Select Yes to save any changes and return to Main Page 1.

Camera settings

You can select whether to activate several dome camera functions including Digital Zoom, Auto Slow Shutter, Noise Reduction, Video Invert, and Image Freeze. See Figure 21 on page 43 and Table 21 on page 43 for information on these functions.

This menu is located on Main Page 1.

Note: The Image Flip and the Image Invert functions are automatically disabled when the Privacy Mask function is enabled.

Figure 21: Camera setup menu

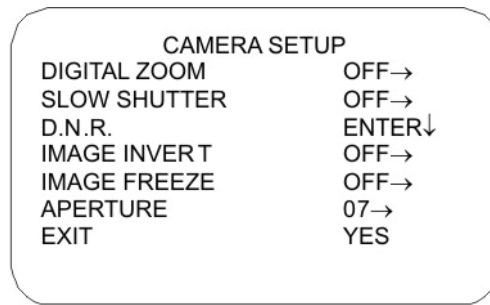
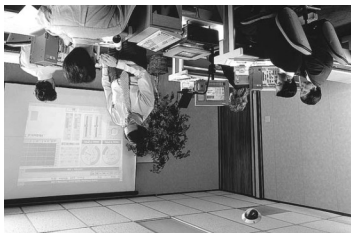



Table 21: Camera setup menu description

Function	Description
Max. Digital Zoom	<p>Set the digital zoom on the camera. Digital zoom (also known as electronic zoom) indicates how much zoom the camera's software can add to the optical limit. The maximum optical zoom limit will be multiplied by the electronic zoom setting to increase total zoom. Digital zoom is activated when the full optical zoom level is reached. It can be set up to a maximum of 12X. The zoom speed of the camera is fixed (8).</p> <p>The default setting is 4X.</p> <p>Note: Digital zoom may degrade image quality.</p>
Slow Shutter	<p>Automatic Slow Shutter.</p> <p>Select to delay the switch to night mode. This feature only works when the camera is in day (color) mode. It extends the useful range of the color mode in dark situations and keeps the camera in color mode longer before having to switch to night mode. However, motion can become blurry when the shutter is set to auto slow. The default setting is On.</p> <p>Note: This feature is only available on cameras with day/night capability. See "Day/night (Day/night models only)" on page 46 for more information.</p>
D.N.R.	<p>Digital Noise Reduction.</p> <p>Select to improve image quality in low light levels. The default setting is Off.</p> <p>With 2D / 3D noise reduction, the processor analyzes the camera images pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light levels. 3D DNR generates better noise reduction than 2D DNR.</p>

Function	Description
Video Invert	<p>Sets whether images will be inverted. See the photos below.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Video Invert Off</p>  </div> <div style="text-align: center;"> <p>Video Invert On</p>  </div> </div> <p>By default images appearing on-screen are upside down as cameras are usually installed on ceilings, for example. However, by enabling this option the image can be inverted. This may be required during testing or demonstrations, for example.</p> <p>When this function is enabled, the preset mask(s) will be set to off automatically. See "Privacy mask settings" on page 49 for more information. The default setting is Off.</p>
Image Freeze	<p>Sets whether the most recent camera image will freeze on the screen while the camera is traveling to a preset position.</p> <p>Enable this function to freeze the camera image while the camera moves between preset positions. The camera freezes the last image while it is moving and displays a static image until it stops moving. Disabling this function causes the camera to display live video as the camera moves to the preset position.</p> <p>The default setting is Off.</p> <p>See "Preset points settings" on page 33 for further information on setting preset points and tours.</p>
Aperture	<p>Use this to set the definition of objects. When this function is enabled the edges of objects in an image are more sharply defined. There are 16 levels of adjustment from 01 to 16, where 01 is no enhancement.</p> <p>This function could be used, for example, when there is text in a camera image. Enabling the function would make the text appear sharper.</p>
Exit	Select Yes to save any changes and return to Main Page 1.

Pan/tilt settings

This menu provides access to pan/tilt, password, and speed settings that can be changed or customized. See Figure 22 on page 45 for the screen.

This menu is located on Main Page 1.

Note: The Image Flip and the Video Invert functions are automatically disabled when the Privacy Mask function is enabled.

Figure 22: Pan/Tilt setup screen

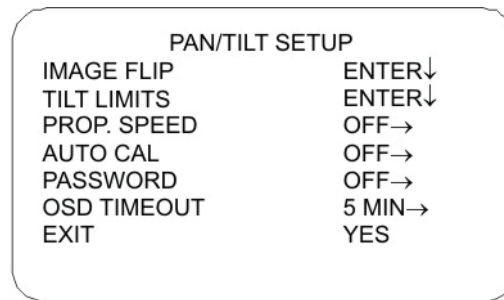


Table 22: Pan/Tilt setup menu description

Function	Description						
Image Flip	<p>Image flip automatically rotates the camera 180 degrees when the bottom tilt limit is reached. This feature enables tracking of a target passing directly under the camera.</p> <div data-bbox="608 824 1070 945"> <table border="1"> <thead> <tr> <th colspan="2">FLIP SETTING</th> </tr> </thead> <tbody> <tr> <td>IMAGE FLIP</td> <td>OFF</td> </tr> <tr> <td>EXIT+ SET</td> <td>YES</td> </tr> </tbody> </table> </div> <p>E-Flip: Select this option to seamlessly track objects. Almost no delay occurs compared to the spin mode.</p> <p>The privacy mask function is automatically disabled if the E-flip function is enabled, and the screen will show "Mask will be set off."</p> <p>Spin: This is a standard mechanical operation. As the dome tilts to the maximum angle, it will pan 180°, and then continue tilting to keep tracking objects.</p> <p>Off: Select this option to disable the image flip function. This is the default setting.</p> <p>Note: To make the camera tilt within a specific range, such as between -10° to +100°, set the range of tilt angle in the Tilt Limits menu (see next section). The default tilt setting is 90°.</p>	FLIP SETTING		IMAGE FLIP	OFF	EXIT+ SET	YES
FLIP SETTING							
IMAGE FLIP	OFF						
EXIT+ SET	YES						
Tilt Limits	<p>Use this setting to adjust the minimum and maximum camera viewing angles.</p> <p>The minimum angle can be adjusted between -10° and +10°. Default value is 0°.</p> <p>The maximum angle can be adjusted between 80° and 100°. Default value is 90°.</p>						
Prop. Speed	<p>Proportional speed.</p> <p>Proportional speed decreases the pan/tilt speed of the camera to provide better tracking when the camera is zoomed in. This helps reduce pan/tilt overshoot when zooming in on objects far from the camera.</p>						
Auto Cal.	<p>Auto calibration.</p> <p>There are one horizontal and one vertical infrared ray check points in each dome. When the camera's position is moved during installation or maintenance, the relative distance between the original set point and the check point could be changed. Enable the Auto Calibration function, the dome will automatically detect the distance change and reset the point</p>						


Function	Description
	back to the original position.
Password	<p>The camera is shipped without password protection. When this function is enabled, you will be prompted to enter the password to proceed whenever the OSD menus are accessed.</p> <p>To set or change a password:</p> <ol style="list-style-type: none"> For the password function, select On and press the set key. The New Password screen appears. <div data-bbox="566 517 1029 721" data-label="Form"> </div> <ol style="list-style-type: none"> Using the arrow keys on the keypad or the jogging stick, select a number from the list and press the set key to input. For example, for password 0134, select: For example: 0, set, 1, set, 3, set, 4, set Passwords must have four digits. The default password is 0000. In the Confirm Password line enter the same password again to confirm the setting. Select Save and return to Main Page 1. <p>Caution: Record your password in a safe place. If you should forget your password, you will not be able to access the camera menus. Please contact technical support for assistance.</p>
OSD Timeout	<p>Set the period of time that menus will stay on-screen.</p> <p>Select one of the time options, which is up to 5 minutes. Default value is 2 minutes. If Off is enabled, the menus remain on-screen.</p>
Exit	Select Yes to save any changes and return to Main Page 1.

Day/night (Day/night models only)

This function controls when the dome camera switches to day or night mode. The dome camera produces high-quality color video during the day or when light levels are high. It then switches monochrome and removes the infrared filter to improve IR sensitivity at night or when light levels are low.

Note: This menu will only be present if the dome camera supports day/night switching.

Table 23: Day/night menu description

Function	Description
Auto	<p>Select this option for day/night mode to be automatically activated. The internal circuit will automatically decide the threshold to remove the IR cut filter according to the value of light condition calculated by internal light algorithms. The options include Low, Mid, and Hi.</p> <p>Low indicates a higher sensitivity and can improve reliability of lens so that it is fast to switch to Day mode and relatively difficult to change into Night mode; Hi indicates that it is fast to switch to Night mode and difficult to change into Day mode.</p> <p>This is the default setting.</p>
Manual	<p>Select manually whether day or night mode is activated.</p> <p>Select On to deactivate the IR cut filter and put the camera in B/W (Night) mode. Select Off to activate the IR cut filter and put the camera in color (Day) mode.</p> <p>It can be toggled on and off using the KTD-405 keypad by pressing the esc key and flashlight  buttons together.</p>
Exit	Select Yes to save any changes and return to Main Page 3.

Alarm settings

You can program actions for alarms. The camera has eight alarm inputs and one alarm output (NO and NC) to which to connect alarm devices.

Figure 23: Alarm setting menu

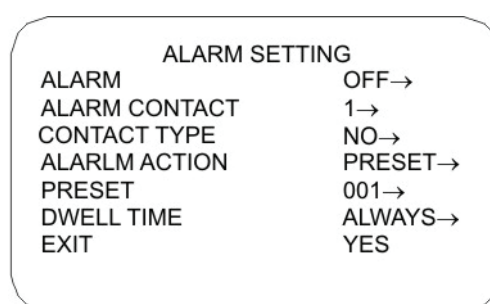
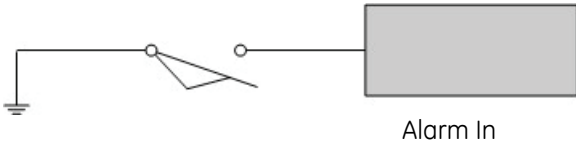
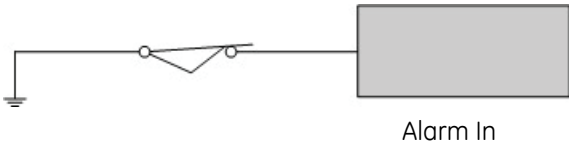


Table 24: Alarm setting menu description


Function	Description
Alarm	Enable or disable this option. The default setting is Off.
Alarm Contact	<p>Select a number for the alarm contact being setup. For alarm contact definitions, please refer to "22-pin connector description" on page 15. Up to eight alarm contacts can be set.</p> <p>Note: If two or more alarm contacts are triggered at the same time, the lower alarm contact number will have priority. For example, if Alarm 1 and Alarm 3 are triggered simultaneously, only Alarm 1 will be handled.</p>

Function	Description										
Contact Type	<p>Select the contact type (NO, NC).</p> <p>Normally Open (NO):</p>  <p>Normally Closed (NC):</p> 										
Alarm Action	<p>Select one of the pre-programmed modes to be executed when the alarm is triggered (Preset, Preset Tour, Autopan, or Shadow Tour.) The option listed below will depend on which mode has been selected.</p> <p>When an alarm is triggered, there will also be a warning flashed on-screen. See Figure 12 on page 26.</p>										
Preset	<p>Select a pre-programmed preset number that the camera should execute when an alarm contact is triggered.</p> <table> <tr> <td>ALARM CONTACT</td><td>1→</td></tr> <tr> <td>CONTACT TYPE</td><td>NO→</td></tr> <tr> <td>ALARM ACTION</td><td>PRESET→</td></tr> <tr> <td>PRESET</td><td>001→</td></tr> <tr> <td>DWELL TIME</td><td>ALWAYS→</td></tr> </table>	ALARM CONTACT	1→	CONTACT TYPE	NO→	ALARM ACTION	PRESET→	PRESET	001→	DWELL TIME	ALWAYS→
ALARM CONTACT	1→										
CONTACT TYPE	NO→										
ALARM ACTION	PRESET→										
PRESET	001→										
DWELL TIME	ALWAYS→										
Preset Tour	<p>Select a pre-programmed preset tour number that the camera should execute when an alarm contact is triggered.</p> <table> <tr> <td>ALARM CONTACT</td><td>1→</td></tr> <tr> <td>CONTACT TYPE</td><td>NO→</td></tr> <tr> <td>ALARM ACTION</td><td>P. TOUR→</td></tr> <tr> <td>PRESET TOUR</td><td>001→</td></tr> <tr> <td>DWELL TIME</td><td>ALWAYS→</td></tr> </table>	ALARM CONTACT	1→	CONTACT TYPE	NO→	ALARM ACTION	P. TOUR→	PRESET TOUR	001→	DWELL TIME	ALWAYS→
ALARM CONTACT	1→										
CONTACT TYPE	NO→										
ALARM ACTION	P. TOUR→										
PRESET TOUR	001→										
DWELL TIME	ALWAYS→										
Autopan	<p>Select a pre-programmed autopan number that the camera should execute when an alarm contact is triggered.</p> <table> <tr> <td>ALARM CONTACT</td><td>1→</td></tr> <tr> <td>CONTACT TYPE</td><td>NO→</td></tr> <tr> <td>ALARM ACTION</td><td>AUTOPAN→</td></tr> <tr> <td>AUTOPAN</td><td>001→</td></tr> <tr> <td>DWELL TIME</td><td>ALWAYS→</td></tr> </table>	ALARM CONTACT	1→	CONTACT TYPE	NO→	ALARM ACTION	AUTOPAN→	AUTOPAN	001→	DWELL TIME	ALWAYS→
ALARM CONTACT	1→										
CONTACT TYPE	NO→										
ALARM ACTION	AUTOPAN→										
AUTOPAN	001→										
DWELL TIME	ALWAYS→										
Shadow Tour	<p>Select a pre-programmed shadow tour number that the camera should execute when an alarm contact is triggered.</p> <table> <tr> <td>ALARM CONTACT</td><td>1→</td></tr> <tr> <td>CONTACT TYPE</td><td>NO→</td></tr> <tr> <td>ALARM ACTION</td><td>S. TOUR→</td></tr> <tr> <td>SHADOW TOUR</td><td>001→</td></tr> <tr> <td>DWELL TIME</td><td>ALWAYS→</td></tr> </table>	ALARM CONTACT	1→	CONTACT TYPE	NO→	ALARM ACTION	S. TOUR→	SHADOW TOUR	001→	DWELL TIME	ALWAYS→
ALARM CONTACT	1→										
CONTACT TYPE	NO→										
ALARM ACTION	S. TOUR→										
SHADOW TOUR	001→										
DWELL TIME	ALWAYS→										
Relay Action (Dwell Time)	<p>Set the duration during which the camera will keep the relay energized when an alarm is triggered. This relay timer starts counting from the second the alarm is triggered.</p> <p>Time options are 1 to 127 seconds, OFF, or Always (on) when</p>										

Function	Description
	alarm occurs.
Exit	Select Yes to save any changes and return to Main Page 3.

Wide dynamic range (WDR)

When enabled, this feature allows you to see details of objects in shadows or details of objects in bright areas of frames that have high contrast between light and dark areas.

The default setting is Off. It can be toggled on and off using the KTD-405 keypad by pressing the **esc** key and the magnifying glass  keys together.

This menu is located on Main Page 3.

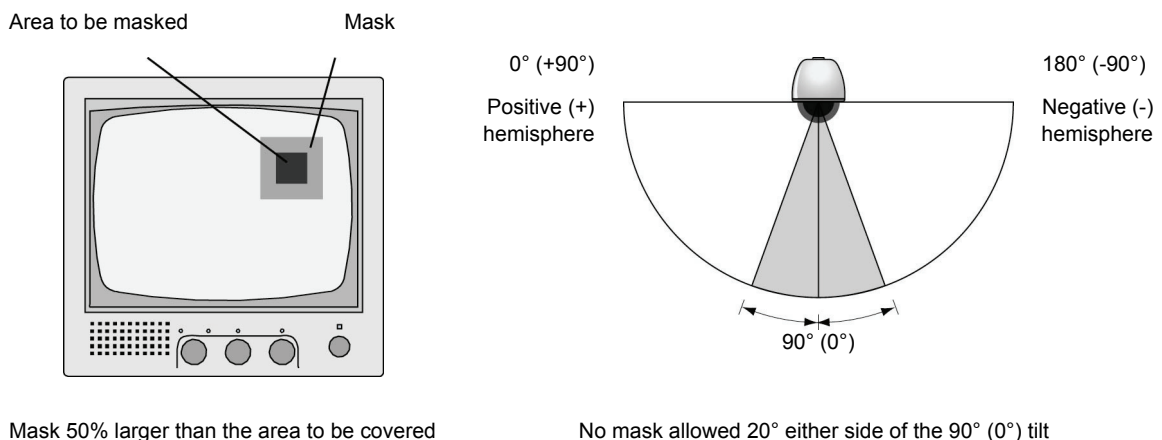
Privacy mask settings

Privacy masks let you conceal sensitive areas (such as neighboring windows) to protect them from view on the monitor screen and in the recorded video. You can create 16 privacy masks (numbered 1 to 16) per camera. A maximum of eight privacy masks can be displayed at one time.

When creating your masks, it is a common practice to make them 50% larger than the areas you wish to cover so that the masked areas remain concealed at all times. Masks cannot be created in the area directly below the dome camera.

The dome camera takes the center of the selected view as the starting point when setting a mask. The joystick is locked during setup.

Figure 24: Mask information



Note: The Image Flip function is automatically disabled when the Privacy Mask function is enabled.

Figure 25: Privacy mask menu

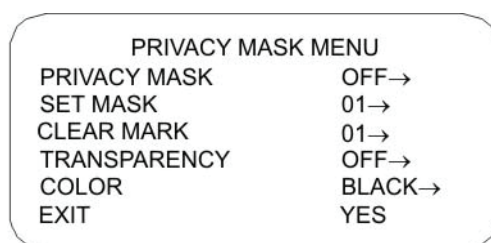


Table 25: Privacy mask menu description

Function	Description
Privacy Mask	Enable or disable this option. The default setting is Off.
Set Mask	<p>Up to 16 privacy masks can be set.</p> <p>To set a privacy mask</p> <ol style="list-style-type: none"> 1. Turn on the Privacy Mask feature, and select ON. 2. Select a mask number. Then select Set Mask and press the set key to enter the Set Mask menu. 3. Select each of the following options to position and size the mask on-screen: <ul style="list-style-type: none"> Center: Using the joystick or the left/right keys, adjust the mask's horizontal position. The camera will move according to the joystick movements. Size (H size range 00 to 80): Adjust Horizontal (Width) by moving the joystick Left and Right. Size (V Size range 00 to 60): Adjust the Vertical (height) by moving the joystick Up and Down. <p>Note: Set the H and V size to 0 to delete the selected mask.</p>
Clear Mask	<p>Delete a saved mark zone.</p> <p>To delete a privacy mask:</p> <ol style="list-style-type: none"> 1. Select the mask zone to be deleted (e.g. 01). 2. Press the set key to confirm the selection.
Transparency	Select Set whether the color of privacy mask is transparent. Select On to display transparent masks The default setting is Off.
Color	Select the color of the privacy mask. The available colors are black, white, red, green, blue, cyan, yellow and magenta
Exit	Select Yes to save any changes and return to Main Page 3.

Time and date settings

Set the time and date related parameters of the dome camera.

Note: Time and Date can be synchronized automatically using an Impac or Digiplex Protocol Time/date master signal on the serial line.

Table 26: Time/date menu description

Function	Description
Time Display	Select whether time is displayed on-screen. The default setting is Off.
Set Year	Select the year number.
Set Month	Select the month number.
Set Day	Select the day number.
Set Hour	Select the hour number.
Set Minute	Select the minute number.
Exit + Save	Select Yes to save changes and return to MainPage3.

Schedule settings

You can program the dome camera to activate a preset point or function (Preset Tour, Autopan, or Shadow Tour) automatically at a specific time of day.

Table 27: Schedule menu

Function	Description
Schedule	Enable or disable this option globally for all events. The default setting is Off.
Event Number	Select the event number to be programmed. Up to 32 schedule points can be programmed.
Hour	Select the hour during which the schedule point is executed every day.
Minute	Select the minute during which the schedule point is executed.
Event Action	<p>Select the mode that is activated for the schedule point:</p> <p>None: No action is executed.</p> <p>Preset: This mode is executed for the selected scheduled point.</p> <p>Preset Tour: This mode is executed for the selected scheduled point.</p> <p>Autopan: This mode is executed for the selected scheduled point.</p> <p>Shadow Tour: This mode is executed for the selected scheduled point.</p> <p>IR Func: Applies to Day/Night models only.</p> <p>Note: If the Day/Night mode is enabled, the Auto Day/Night will be</p>

Function	Description
	activated for a schedule point.
Schedule reset	Users can reset the whole schedule with the item
Exit	Select Yes to save any changes and return to Main Page 3.

Appendix A

Specifications

Environment	Indoor/Outdoor (model specific)
Controller interface	RS-485 / RS-422
Operating temperature (indoor)	0 to 50°C (32 to 122°F)
Operating temperature (outdoor)	-30 to +50°C (-22 to +122°F)
Dimensions (Height x Width)	131 x 200 mm (5.2 x 7.9 inches)
Weight	1.2 kg (2.6 lbs)
Power supply	24 VAC ±10%
Power consumption	14 W (Indoor), 52 W (Outdoor with heater on)

Battery removal

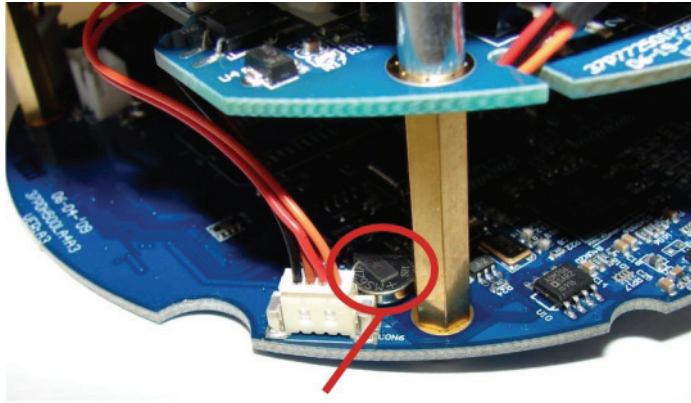
The TruVision Mini PTZ 12X Camera contains one 3 V Lithium battery.

To remove the battery:

1. Unscrew the single screw located on the base of the dome camera.



2. Unscrew each of the three screws on the side of the dome camera.
3. Locate the battery and carefully remove it.



Battery

4. Dispose of the battery as required by local ordinances or regulations.

Appendix B

Camera settings checklist

Use this checklist to record the menu settings of each dome camera.
Default values are highlighted in bold, where applicable.

Camera ID:		Camera title:		
Main Menu No.	Menu	Sub menus and options		Option configured
1	Language	English , French, German, Italian, Portuguese, Spanish		
1	Default Camera	System Reset, Default System, Default Camera		
1	Backlight	On, Off		
1	Focus	Auto (manual return to Auto)		
1	Exposure Control	Exposure Comp.	Off , Exposure Value -10.5 dB to +10.5dB	
		Exposure Control	Auto	
		Shutter	Shutter Speed PAL: 1/50 to 1/10000 sec. NTSC: 1/60 to 1/10000 sec.	
		Iris	Iris Value F1.6	
		Manual	Bright Value: Auto	
			Shutter Speed PAL: 1/50 to 1/10000 sec. NTSC: 1/60 to 1/10000 sec.	
			Iris Value F1.6	
1	White Balance	Auto (Auto White Balance)		
		Indoor		
		Outdoor		
		ATW		
		Manual	R Gain : 000 to 127	
			B Gain: 000 to 127	
1	Camera Setup	Zoom Speed	8	
		Digital Zoom	On, 1x, 2x, 3x, 4x , 5x, 6x, 7x, 8x, 9x, 10x, 11x, 12x	
		Auto Slow Shut	On, Off	
		D.N.R.	2D N.R. On , Off	
			3D N.R. On , Off	
		Video Invert	On, Off	

Main Menu No.	Menu	Sub menus and options		Option configured
1	Pan Tilt Setup	Image Freeze	On, Off	
		Aperture	01 to 16 (7)	
		Image Flip	Off, Spin, E-flip	
		Tilt Limits	Adjust Min. Angle -10 to +10 deg.	
			Adjust Max. Angle 80 to 100 deg.	
		Proportional Speed	On , Off	
		Auto Cal.	On , Off	
		Password	On, Off	
		OSD Auto Close	Off, 1 min, 2 min , 3 min, 4 min, 5 min.	
2	Site ID	On, Off		
2	Area Title	On, Off		
2	Title Setting	01 to 16		
2	Preset	Preset Set	001 to 256	
		Show Preset	001 to 256	
2	Preset Tour	Preset Tour	1 to 8	
		P Tour Step	01 to 64	
		Preset Pos.	001 to 255, End	
		Speed	01 to 15	
		Dwell Time	000 to 127 sec.	
		Show P Tour Sequence	ENTER	
2	Autopan	Autopan	1 to 4	
		Start Point	To Find, To Save	
		End Point	To Find, To Save	
		Direction	Right , Left	
		Speed	01 to 04	
		Show P Tour Autopan		
2	Shadow Tour	Shadow Tour	1 to 8	
		Record Start		
		Record End		
		Show P Tour Autopan		

Main Menu No.	Menu	Sub menus and options			Option configured
2	Auto Return	Enter	Auto Return	On, Off	
			Return Action	Preset	
				Preset Tour	
				Autopan	
				Shadow Tour	
			Preset Point	001 to 256	
			Preset Tour	001 to 008	
			Autopan	001 to 004	
			Shadow Tour	001 to 008	
Return Time	001 to 128 min.				
Go					
3	Day/Night (Optional)	Auto	Threshold Mid, Hi, Low		
		Manual	IR Manual: On, Off		
3	Alarm Setting	Alarm Contact	1 to 8		
		Alarm	On, Off		
		Contact Type	NO , NC		
		Alarm Action	Preset		
			Preset Tour		
			Autopan		
			Shadow Tour		
		Preset Point	001 to 256		
		Preset Tour	001 to 008		
Autopan	001 to 004				
Shadow Tour	001 to 008				
Relay Action	001 to 127 sec., Always, Off				
3	Alarm Detect	None			
3	Privacy Mask	Privacy Switch	On, Off		
		Transparency	On, Off		
		Color	Black , White, Red, Green, Blue, Cyan, Yellow, Magenta		
		Set Mask	01 to 16	H Center: L/R	
				V Center: D/U	
				H Size 00 to 80, 10	
				V Size 00 to 60, 10	

Main Menu No.	Menu	Sub menus and options			Option configured
3	Time/Date	Time Display	On, Off		
		Set Year	00 to 99		
		Set Month	01 to 12		
		Set Day	01 to 31		
		Set Hour	00 to 23		
		Set Minute	00 to 59		
3	Schedule	Schedule	On, Off		
		Day	01 to 31	01	
		Hour	00 to 23	00	
		Minute	00 to 59	00	
		Event Action	None	No Action	
			Preset	Preset Point 001 to 256	
			Preset Tour	Preset Tour 001 to 008	
			Autopan	Autopan 001 to 004	
			Shadow Tour	Shadow Tour 001 to 008	
			IR Func.	Day/Night Auto, On, Off	
3	Exit OSD				

Appendix C

Warranty and contact information

Warranty information

The warranty period for the TruVision Mini PTZ 12X Camera is three years from the date of delivery.

Contacting support

For help installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, contact us during business hours (Monday through Friday, excluding holidays).

Table 28: Technical support

North America	
T	888 GE Security (888.437.3287) Toll-free in the US, Puerto Rico, and Canada. 503.885.5700 outside of the toll-free area.
F	888.329.0332 (Tualatin tech support) 561.998.6232 (Boca Raton tech support)
E	nstechsrv@ge.com gesecurity.customerservice@ge.com
Europe, Middle East, and Africa	
W	Select Customer Support at www.gesecurity.eu
Australia	
E	techsupport@gesecurity.com.au

Latin America

F 1 305.593.4300

E InfraSec.TechnicalServicesLatinAmerica@ge.com

InfraSecCustomerService.LatinAmerica@ge.com

China, India, Singapore, Taiwan, Southeast Asia

E ges.asiatechservice@ge.com

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