Programming Guide

Surveyor® MKII Analog Camera Domes

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CE

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Notice

Copyright Statement

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FCC Warning

The Surveyor MKII Analog PTZ Domes comply with the FCC rules.

Operation is subject to the following two conditions.

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

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

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

Important Safety Instructions and Warnings

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

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

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

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

Table of Contents

Chapter I System Introduction

1.1 Product Description

Vicon's Surveyor MKII is a compact analog PTZ dome camera comprised of a camera/lens and pan/tilt drive in an attractive covert enclosure. The Surveyor MKII analog domes provide video transmission over coaxial cable. They are compatible with the leading controllers in the market, and can be controlled directly by Vicon keypads/controllers and Vicon Valerus and ViconNet VMS via a compatible encoder.

Vicon's Surveyor MKII analog domes provide optical zoom of 36X with digital zoom of 12X.

The domes support a total of 254 presets (including special presets), 4 autopan and 4 auto tours to facilitate site surveillance. Each preset can be called up either manually or automatically upon alarm; 4 alarm inputs and 1 relay output are provided, significantly enhancing the domes' alarm handling capabilities.

The dome supports up to 16 areas. Users can assign names and boundaries to these areas. Privacy masks can be defined to prevent users from viewing undesirable areas.

Four (4) motion detection areas can be set in the screen. Alarms will be sent if there are any changes in the area, and users can receive the alarm signal from the external devices.

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

The camera domes are available in outdoor and pressurized models to suit different applications, installation sites and budgets. Their compact structure and user-friendly design significantly simplify the installation procedures and routine maintenance.

Chapter II System Features

2.1 High-Performance Image

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

2.2 Outstanding Autoiris Camera

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

2.3 Open Protocol Design

- The Surveyor MKII analog domes are compatible with Vicon and Pelco-P/D protocols and can recognize the protocol being used. This wide compatibility enables the domes to be used in various CCTV systems.

2.4 Automated Operation

Note: Some advanced features of the dome may not be accessible by all Vicon control products or systems.

- Up to 254 **presets** (special presets, pre-defined pan/tilt/zoom positions) can be programmed and stored in the non-volatile memory of the domes. Each preset can be called up either manually via controller or automatically upon alarm.
- In addition to presets, the analog domes also provide 4 **auto tours** (stored navigation courses) to facilitate routine surveillance. Users can easily activate an auto tour with simple keystrokes.
- "**Autopan**" function: 4 autopans are provided in total. Once called up, enables the domes to scan through a surveillance area automatically. A description title for the autopan can be programmed and stored in the domes.
- The domes, after receiving no command for a programmed period of time, will automatically return to a preset position ("**home position**"). This allows the domes to keep an "eye" on a key area even if an operator has inadvertently pointed it at an insignificant position.
- When a tilt operation exceeds the straight down position, e.g., when following a person that moves right beneath the domes, the domes will automatically rotate 180 degrees. This "**auto flip**" feature eliminates the possibility of inverted images, and ensures that the surveillance view will always be seen in an upright position.

2.5 Sector Partition and Privacy Mask

- With the help of the "**sector partition,**" users can divide the entire surveillance area into a maximum of 16 sections, and define a 16-character description title for each section.
- To prevent users from viewing a specific sensitive area in the video, the analog domes provide a "**privacy mask**" feature that can screen out the undesirable area.

2.6 Intuitive Menu Programming

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

2.7 Powerful Alarm Handling

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

2.8 Wide Application & Easy Installation

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

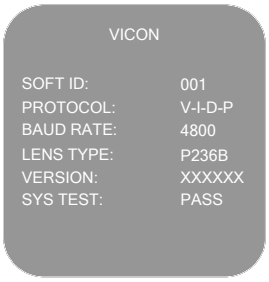
Chapter III Dome Operation

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

3.1 System Initiation

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

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



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

The information will remain on screen until a control signal is received.

3.2 Basic Operations

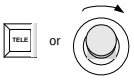
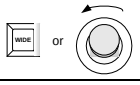
The Surveyor MKII analog domes can be easily controlled via a Vicon keypad (ex., V1411) controller or a Vicon VMS. Listed in the table below are some guidelines for basic operations

Please note that all these operations are performed in the normal **OPERATE** mode using a Vicon V1411J-DVC keypad.

Menu Navigation

The intuitive OSD menu structure can be navigated using the following keys and joystick movements. This may be different if using a non-Vicon control system.

A/P Key (or Joystick Right) – Select/Save item
A/I Key (or Joystick Left) – Exit/Cancel item
Joystick Up/Down/Left/Right - Menu navigation

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

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

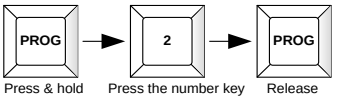
3.3 Setting and Calling Up a Preset

Presets enable users to pre-define and save camera information such as pan/tilt angle and zoom to create specific views that can be called up for display either automatically (upon home position or alarm) or manually (via keypad commands). The analog domes are capable of storing up to 254 (dependant on control system) such camera views.

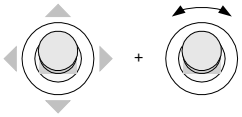
The following is a brief introduction on how to define and call up a preset using the keypad. For preset instructions on your control system, refer to relevant manuals provided with your system keypad.

To set a preset view

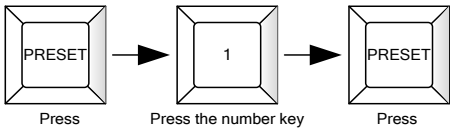
1. Press and hold PROG button, then press the number key 2, and then release PROG button to enter into the Preset Store mode.



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

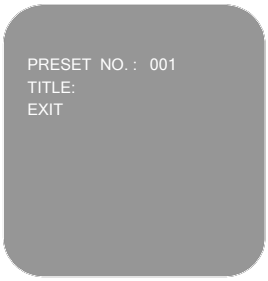


3. Press PRESET button, then press number keys (1-79), and then press PRESET button to store the settings.

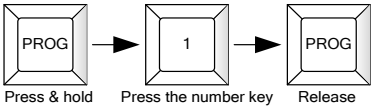


Note: If the TITLE DISP entry of PRESET SET menu (see section 4.5.1) is set to "ON," a descriptive title must be assigned to the preset. Otherwise, if "OFF," the preset setting is finished.

4. When the following information is displayed, move the cursor to the first entry of the TITLE item and select by moving the joystick to the right.

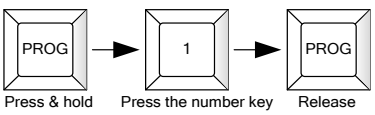


5. Deflect the joystick downward (or upward) to select a character and press the A/P key to enter.
6. Move the cursor to the next entry.
7. Repeat Steps 5 through 6 until the entire title has been entered.
8. Exit title editing menu by pressing the A/I key at each level.
9. Press and hold PROG button, then press the number key 1, and then release PROG to enter into the Normal operating mode.



To call up a preset

1. Press the PRESET button, then press number key (1-79) and then press the PRESET button to call a preset.



Note: Some preset numbers have special functions.

3.4 Setting and Calling up an Auto Tour

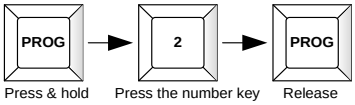
An Auto Tour is a series of defined steps the dome can take and can be called up by a keypad. The dome can save horizontal, vertical and zoom operations and it can repeat these operations accurately when applied. These steps can be used to define normal route.

You can set the title of an auto tour through the AUTO TOUR SET menu and clear the title via TITLE CLEAR. The defining and calling up the auto tour can be performed by using the system keypad.

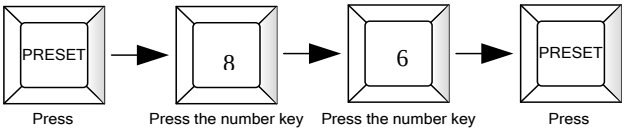
The following are guidelines for defining and calling the four auto tours with Vicon system keypad using Vicon protocol.

To define an Auto Tour

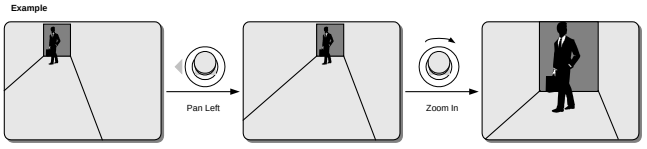
1. Press and hold PROG button, then press the number key 2, and then release PROG, to enter into the Preset Store mode.



2. Press PRESET button, press number keys 8 and 6, and then press PRESET button to set Auto Tour 1. Press AUX 1 to start.

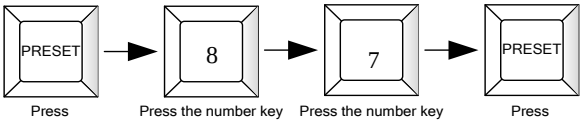


3. Use the joystick to perform a series of pan, tilt and zoom operations to define a navigation course.

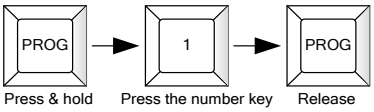


4. Press A/to save the auto tour.

5. If another auto tour is needed (i.e., Auto Tour 2), press "PRESET+8+7+PRESET" to start saving Auto Tour 2; if no other auto tours are needed, skip to step 8.



6. Repeat step 3 and 4 to save Auto Tour 2.
7. If more auto tours are required, repeat the steps above using presets 8/8 and 8/9; if no other auto tours are needed, skip to step 8.
8. Press and hold PROG, press the number key 1, and then release PROG, to enter into the Normal operating mode.



To call up an auto tour

1. Enter one of the following code combinations to call up the designated auto tour:
   Press "PRESET+8+6+PRESET" to call up Auto Tour 1;
   Press "PRESET+8+7+PRESET" to call up Auto Tour 2;
   Press "PRESET+8+8+PRESET" to call up Auto Tour 3;
   Press "PRESET+8+9+PRESET" to call up Auto Tour 4.

3.5 Setting and Calling up Autopan

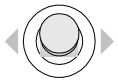
With the AUTOPAN features, the domes can automatically move back and forth between two pre-defined positions (AUTOPAN boundaries). This allows the domes to continuously scan through an area when no manual operation is performed.

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

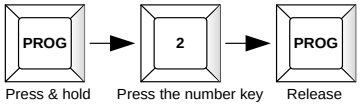
To program and call up an autopan, follow the steps below.

To define the start point Autopan

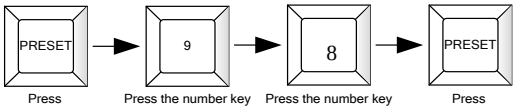
1. Use the joystick to move the camera to the position that is desired as the start point.



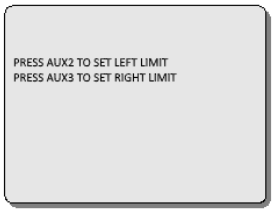
2. Press PROG button and hold, press the number key 2, and then release PROG, to enter into the Preset Store mode.



3. Press PRESET button, press number keys 9 and 8, and then press PRESET button to start programming autopan.

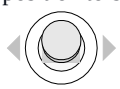


4. The following overlay messages will be displayed. Press AUX2 to set the left autopan limit.

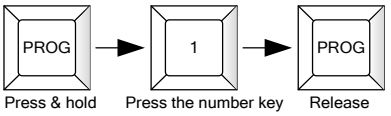


To define the end point Autopan

1. Move the joystick to the position to be set as the end point.



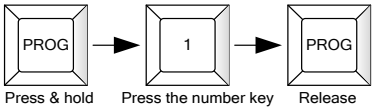
2. Press AUX3 to set the right autopan limit.
3. Set the keypad to Normal operating mode.



Note: Vicon control protocol only allows one autopan to be programmed.

How to call up AUTOPAN

1. Set the keypad to Normal operating mode.



2. Press the Autopan key (A/P) to start or stop the autopan. Moving the joystick will also cancel the autopan operation.

3.6 Special Operations

Other presets to control the dome are provided. The following table outlines the operations of special functions with Vicon keypad.

Preset Number	Store/Recall	Dome Preset Functions Using Vicon Control System
1 to 79	Store/Recall	Preset Position
80 to 85	Store/Recall	Normal Tours
86 to 89	Store/Recall	Auto Tours
90	Store	Pan/Tilt Locked
94	Store	Enter Dome OSD Menu
95	Store	Redetect Control Protocol
96	Store	Program Partition Sectors
97	Store	Soft Reset
98	Store	Set Auto Pan Limits
99	Store	Set Manual Pan Limits

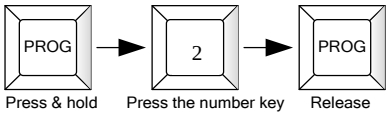
Chapter IV Menu Programming

The Analog Domes feature OSD menus for setting up various operation parameters. To utilize functions like AUTOPAN, home position, area partition and privacy mask, appropriate settings must be defined via these menus.

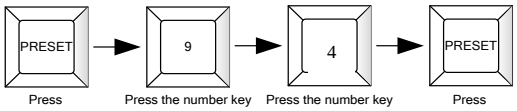
4.1 Menu Navigation and Operation

The system keypad can be used to call up and navigate through the programming menus, as well as to define system parameters. For guidelines on menu navigation and operation, refer to the table below Note that these operations are made in the Preset Store mode.

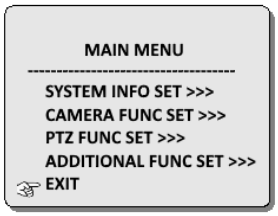
1. Press and hold PROG button, then press the number key 2, and then release PROG to enter intor the Preset Store mode.



2. To access the main menu enter PRESET + 9 + 4 + PRESET.



3. The following screen will appear.



4. The joystick can now be used to navigate the menu options up and down. Moving the joystick to the RIGHT (or pressing the A/P key) will select the desired option. Moving the joystick to the LEFT (or pressing the A/I key) will exit or cancel the option.

5. If the Menu screen is left open and unused for more than 5 minutes it will exit automatically.

4.2 MAIN MENU

1. SYS-INFO SET

1.1 SYSTEM SET

- Display the current S/N number
- Display the camera ID number
- Display the broad ID
- Display the control protocol
- To select the baud rate
- To select the communication mode
- Display the current software version
- Display the lens type

Note: The displayed address and baud rate in the menu can not be changed if they are set via DIP switch.

1.2 DOME TITLE SET

- To set the title
- To set the title display line and column
- Enable/disable title display
- Clear title

1.3 SYSTEM TITLE SET

- Set the position of the system text
- Enable/disable individual system titles:
  Lens, Temperature, Humidity, Pressure and Pressure Alarm

1.4 SYSTEM INFO DISP

- Display the exposure mode
- Display the focus mode
- Display the iris level
- Display the day/night switching mode
- Set the Language (currently English/French)

1.5 FACTORY DEFAULT

- Select to default all or some parameters
- System Default
- Camera Default
- All Title Clear
- PTA Info Clear
- All Parameters Default

1.6 DOME RESTART

- Perform a soft reset

1.7 DATE AND TIME SET

- Set the Date and Time settings and format

1.7 DST SET

- Enable and configure Daylight Saving Time

2. CAMERA FUNCTION SET

2.1 ZOOM SET

- Enable/disable digital zoom function
- Set zoom speed

2.2 IRIS SET
- Set iris mode
- Set iris level
- Set iris default level

2.3 FOCUS SET
- Set focus limit
- Set focus mode

2.4 WHITE BALANCE SET
- Select white balance mode
- Adjust WB-R
- Adjust WB-B

2.5 EXPOSURE SET
- Select exposure priority mode
- Set exposure level
- Enable/disable backlight
- Set digital slow shutter (DSS)
- Select B/W mode
- Select B/W sensitivity
- Enable/disable WDR
- Stabilize

2.6 SPECIAL FUNCTION
- Set mirror mode Off/Mirror/Reverse/Rev-Mir
- Enable/disable image freeze
- Set the camera sharpness
- Set the DNR Mode On/Off
- Set the manual DNR level
- Max AGC level
- Slow AE
- High Rex On/Off

3. PTZ FUNCTION SET
3.1 PRESET SET
- Enable/disable preset title display
- Set Preset
- Set preset title
- Clear title
- Clear preset

3.2 AUTOPAN SET
- Enable/disable title display
- Autopan number
- Direction
- Speed
- Boundary lagging time
- Set autopan title
- Clear title
- Clear autopan

Note: Autopan start and end positions must be set by keypad.

3.3 AUTO TOUR SET
- Enable/disable auto tour display
- Auto tour number
- Set auto tour title
- Clear title
- Clear auto tour

3.4 HOME RETURN SET
- Set home return position
- Home return time
- Power off save

3.5 NORM TOUR SET
- Tour number
- Action and Time

The dome can be set with the maximum of 6 normal tours, and each normal tour can includes 14 actions (preset, auto tour, autopan), with each action time being set independently.

3.6 PTZ TIME OUT
- Set Time out value
- Set Action Preset/Stop

3.7 SCHEDULE
- Set up scheduled events such as alarms or tours

4. ADDITIONAL FUNCTION MENU
4.1 MASK SET
Two privacy mask modes are available.
Under privacy mask mode 1:
- Enable/disable privacy mask
- Select mask number
- Enable/disable privacy mask status Title display

For mask set, the area is defined by the sector partition function.
Under privacy mask mode 2:
- Enable/disable privacy mask
- Set mask color
- Select mask number
- Set mask

Note: Mask mode 1 and 2 cannot be run concurrently.

4.2 ALARM SET
- Alarm enable switch
- Select alarm in number
- Set alarm input status
- Set action
- Set reset action
- Set acknowledgement mode
- Title controls

4.3 SECTOR SET
- Enable/disable Title display
- Set sector number
- Set sector title
- Sector set
- Clear title
- Increase Angle

4.4 COMPASS DISPLAY

- Enable/disable Compass display
- Set Title position

4.5 SYNC SET

- Enable/disable Compass display
- Set Title position

4.6 MOTION CONTROL

- Preset number
- Detect set

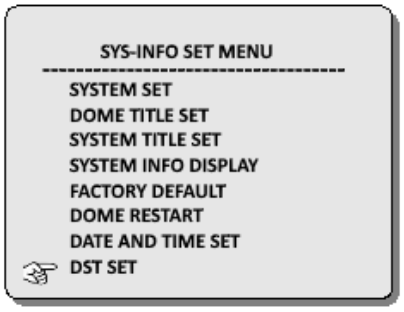
4.7 RELAY DRIVER

- Power On State
- Output Type (Latching/Momentary)
- State Display
- Title Position (Row/Col)

Each sub-menu contains RETURN and EXIT. Selecting RETURN returns to the level above; select EXIT to exit the menu system.

4.3 SYSTEM-INFO SET

The SYS-INFO SET menu is generally used to display the current serial number (S/N) and camera ID number of the dome, enable the users to select the baud rate, and to display the software version. Additionally, Date and Time, DST settings, dome title set, factory default and remote restart functions are in this menu.



4.3.1 SYSTEM SET

This menu is used to display the current serial number and the camera ID of the dome.

CURRENT S/N
Function: Display the current serial number of the domes.

MODEL
Function: Display the model name.

CAM ADDR
Function: Display the current address of the dome.

Note: The camera ID number can be selected via the DIP switch. For details on DIP switch settings, refer to **Installation Guide**. When the camera ID is set via software, users can set the camera ID on this menu.

BROAD ID
Function: Display the camera broad ID.
In both hard and soft address, the dome can be controlled by the broad ID. Users can use the function when the dome address is forgotten.

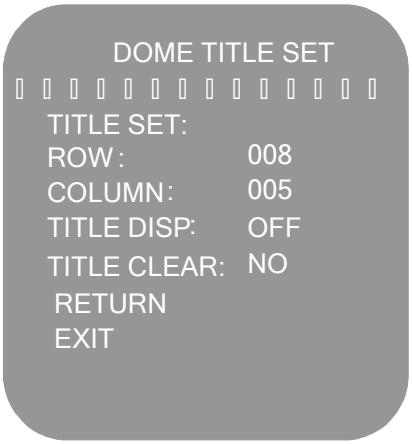
COMM MODE
Function: Display the dome communication mode. This can be set to RS-422 or RS-485 to match the control system.

BAUD RATE
Function: 2400 bps, 4800 bps, 9600 bps and 19200 bps available.
Note: When the baud rate is set manually via the DIP switch, the menu only displays the set baud rate and the displayed value can not be changed. The baud rate must match the control system.

LENS TYPE
Function: Display the camera lens type.

VERSION
Function: Display the software version number of the current dome.

4.3.2 DOME TITLE SET



TITLE SET
Function: Set title of the current dome, with a maximum 16 characters, including numerals 0 ~ 9 and the 52 capital and lowercase letters.

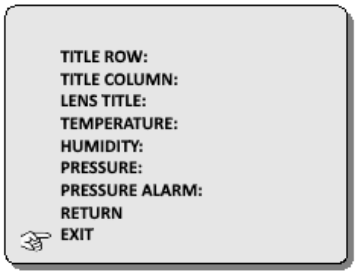
ROW
Function: Display the row of title position.

COLUMN
Function: Display the column of title position.

TITLE DISP
Function: Enable/disable the title display.

TITLE CLEAR
Function: Clear the current title of the dome.

4.3.3 SYSTEM TITLE SET



TITLE ROW
Function: Display the row of the system title position.

TITLE COLUMN
Function: Display the column of the system title position.

LENS TITLE
Function: Turn the Lens title ON/OFF.

TEMPERATURE
Function: Turn the Temperature title ON/OFF.

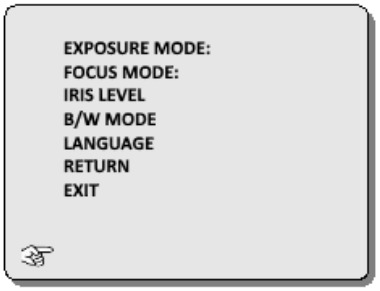
HUMIDITY
Function: Turn the Humidity title ON/OFF.

PRESSURE
Function: Turn the Pressure display ON/OFF.
Only available on pressurized model dome.

PRESSURE ALARM
Function: Enable/Disable the Pressure Loss Alarm.
Only available on pressurized model dome.

4.3.4 SYSTEM INFO DISP

This menu is used to display the exposure mode, the focus mode, iris level and the B/W mode information. These settings cannot be changed in this menu.



LANGUAGE
Function: Select English/French.
(Additional languages may be available in the future.)

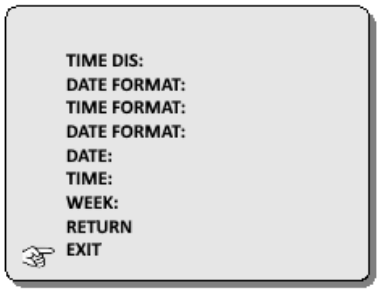
4.3.5 FACTORY DEFAULT

Function: In this Menu you can opt to default all or specific settings parameters. The camera will then return to its factory default setting.

4.3.6 DOME RESTART

Function: Allowing a Restart will perform a soft reset of the Dome. No settings will be lost.

4.3.7 DATE AND TIME SET



TIME DIS
Function: Turns the Time display ON/OFF.
DATE FORMAT
Function: Change the Date format YYYY/MM/DD, DD/MM/YYYY or MM/DD/YYYY.
TIME FORMAT
Function: Change 12HR/24HR.
DATE
Function: Set the current Date.
TIME
Function: Set the current Time.
WEEK
Function: Displays the Day of the week. This automatically changes with the setting of the Date.

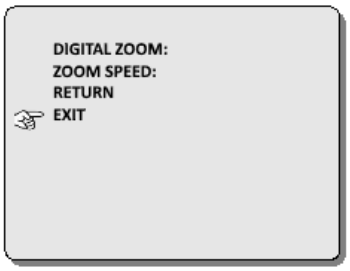
4.3.8 DST SET

DST MODE
Function: Turns the DST (Daylight Saving Time) function ON/OFF. Here you can configure the Start and End Week/Time when daylight savings occur. The dome will then automatically update the clock.

4.4 CAMERA FUNCTION SET

The CAMERA SET menu provides configuration of zoom, iris, focus, white balance, exposure and special functions.

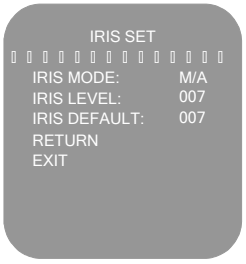
4.4.1 ZOOM SET



DIGITAL ZOOM
Function: Enable/disable digital zoom.
Options: OFF –Disable digital zoom function (default).
ON – Enable digital zoom function.

ZOOM SPEED
Function: Determine the zoom speed of the camera, i.e., how fast the camera will go from its full wide zoom to its maximum optical zoom.
Options:
HIGH - Set the camera at a high zoom speed (default).
LOW - Set the camera at a low zoom speed.

4.4.2 IRIS SET

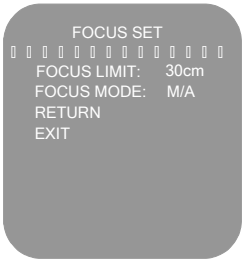


IRIS MODE
Function: Set the camera iris mode.
Options: M/A –In static status, the iris can be adjusted manually. After the operation of the joystick, the Iris Mode returns to Auto mode (default).
AUTO – Auto adjust the iris mode.
MANU – Manual adjust the iris mode.

IRIS LEVEL
Function: Set the level of the iris.
Options:
000~014 - The default is "007."

IRIS DEFAULT
Function: Set the default value of the iris.
Options:
000~014 - The default is "007."

4.4.3 FOCUS SET



FOCUS LIMIT

Function: Set the closest focus limit.

Options: 30cm, 10cm, and 1m optional. Default setting is 30cm.

FOCUS MODE

Function: Select the focus mode of the camera.

Options:

AUTO - Enable the camera to automatically focus on the subject in the center of the picture.

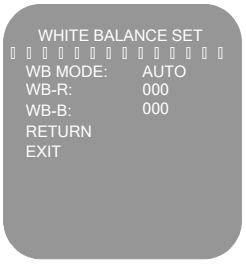
MANU- Manually adjusts focus on the target.

M/A - In static status, the focus can be set manually. After the operation of the joystick, then the Focus returns to Auto mode (default).

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

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

4.4.4 WHITE BALANCE SET



WB MODE

Function: Select the white balance mode.

Options: AUTO, SVL, OUTDOOR AUTO, ATW, OUTDOOR, INDOOR, MANU. Default setting is AUTO.

WB-R

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

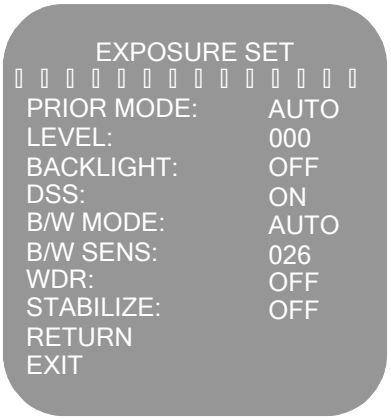
Options: **000 ~ 255 -** The color shift will be viewed on the monitor when changing the R-gain value. The greater the number is, the more reddish the picture becomes.

WB-B

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

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

4.4.5 EXPOSURE SET



PRIOR MODE

Function: Set the exposure mode.

Options: AUTO, BRIGHT, IRIS, SHUTTER available.

LEVEL

Function: Set the exposure level in different exposure modes.

Options: The exposure level can not be adjusted manually when the Exposure Mode is set to AUTO.

When the exposure mode is set to SHUTTER, the level can be set with the following parameters:

In NTSC format, the shutter speed ranges:
1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000.
In PAL format, the shutter speed range is shown as below:
1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000.

When the exposure mode is set to IRIS the level can be set with the following parameters:
F1.6, F2.0, F2.4, F2.8, F3.4, F4.0, F4.8, F5.6, F6.8, F8.0, F9.6, F11, F14, F16, F19, F22, F28, CLOSE.

When the exposure mode is set to BRIGHT, the exposure level can be set with the following parameters:
000~031 adjustable, default: 018.

BACKLIGHT

Function: Turn on/off the backlight compensation feature.
A sharp contrast of brightness and darkness may arise when a bright backlight is present. This usually leads to a vague dark or even silhouetted image of a subject under surveillance. Under such circumstances, the backlight compensation can be used to achieve a suitable exposure level so as to get a clear view of the subject.
With backlight compensation, the camera becomes more sensitive to the light level in the center of the picture, and thus, enhances the image quality of the subjects in this area.
Options: **ON -** Enable the backlight compensation.
OFF - Turn off the backlight compensation (default).

DSS (Digital Slow Shutter)
Function: Set the digital slow shutter function.
With the DSS function, the image frame speed can be slowed, and the lens sensitivity can be enhanced in low illumination.
When the exposure is in SHUTTER, IRIS, BRIGHT, or AGC mode, the DSS turns off automatically.
Only when the exposure mode is set to AUTO, can the DSS be adjusted.
Options: **ON** – Enable the DSS (default).
OFF – Disable the DSS.

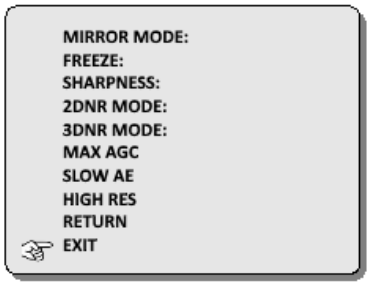
B/W MODE
When the exposure mode is AUTO, two B/W modes are available, AUTO/MANU. In other exposure modes, the B/W mode can only be MANU.
When the B/W mode is MANU, users can enter the next menu to set parameters.

B/W SENS
Function: Change the illumination conditions for switching between the B/W and color modes.
Options: 000 ~ 026 options; the higher the B/W SENS is, the higher the sensitivity is. Default: 024.

WDR
Function: Present a clear image when the conditions are that black and white show a striking contrast. When the target is exposure is correct, indoor or outdoor, the image can be presented clearly. The WDR function can be only be enabled when the Prior Mode of Exposure is set to Auto.
Options: OFF – Turn off the WDR (default).
AUTO – Auto adjust the WDR.
DVER COMP – Auto adjust the WDR using a digital WDR. This mode corrects shadows and highlights.
EXP RATIO – Auto adjust the WDR using a ratio between a short and long exposure. Light correction is not performed in this mode.

STABILIZE
Options: **ON –** Enable the digital image stabilize function.
OFF – Disable the digital image stabilize function (default).

4.4.6 SPECIAL FUNCTION



MIRROR MODE
Function: Activate the image mirror function.
Options: OFF – Disable the image mirror function (default).
REVERSE – Enable the reverse mirror function.
MIRROR – Enable the mirror function.
REV-MIR – Enable the mirror and reverse function.

FREEZE
Function: Freeze the current image.
Options: **OFF –**Disable the image freeze function (default).
ON – Enable the image freeze function.
PST – Enable the image freeze function when using the preset function. This freezes the image while travelling to a preset and can save data when recording.

SHARPNESS
Function: Adjust the brightness of edges of a subject.
Options: 001~015 options, default: 008. The larger the value is, the clearer the image is.

2DNR MODE
Function: Set the noise reduction mode.
Options: **ON** – Enable NR mode (default).
OFF – Disable NR mode.

3DNR MODE
Function: Manually set the NR level when the NR mode is enabled.
Options: 000 ~ 005. Default: 003.
Note: When NR is enabled there may be motion blur.

SLOW AE
Function: Adjust the exposure time. The larger the value is, the longer the exposure time is.
Options: 001 ~ 048. Default: 001.

HIGH RES
Options: OFF /ON.

4.5 PTZ FUNCTION

In the PTZ FUNCTION menu, users can set the preset, autopan, auto tour, home return, normal tour and the scheduler.

4.5.1 PRESET SET

Preset can enable users to set and store the camera position, such as vertical/horizontal angle, image zoom, etc. Preset positions can be called up and displayed automatically (home return/alarm triggered) or manually (via keypad commands).
The domes support 254 presets, but only 79 can be accessed by the Vicon control system.

TITLE DISP

Function: Enable/disable title display.

PRESET NO.

Function: Select preset number to be set with title. If the input value surpass 255, an error message will display.

TITLE SET

Function: Set title for the selected preset (up to 16 characters).

Operation: A total of 62 characters, including English letters in upper and lower cases, as well as numbers from 0 to 9, are available for editing the title.

Follow these steps to edit a description title:

1. Move the cursor to the first entry of the TITLE item.
2. Deflect the joystick downward (or upward) to select a suitable character.
3. Move the cursor to the next entry.
4. Repeat steps 2 through 3 until the title is complete.

TITLE CLEAR

Function: Clear some or all of the preset titles.

Options: **001 ~ 255** – Clear the selected preset title.

ALL – Clear all of the preset titles,

Note: When the set value surpasses 255, an error message will display.

PRESET CLEAR

Function: Clear some or all of the presets.

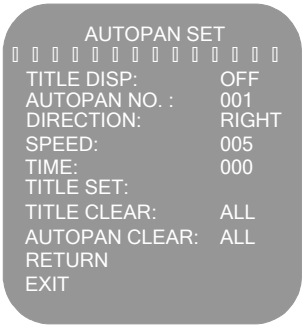
Options: **001 ~ 254** – Clear the selected preset.

ALL – Clear all of the presets.

Note: When the set value surpasses 255, an error message will display,

4.5.2 AUTOPAN

The dome can scan between two boundary lines to monitor a specific area continuously under system automatic running state.
Note: Vicon control system only supports 1 autopan and this is set up initially using the keypad. (Store Preset 98 Preset).



TITLE DISP

Function: Enable/disable the title display.

AUTOPAN NO.

Function: Select autopan to be set.

DIRECTION

Function: Set the original orientation when dome moves horizontally.

Options: RIGHT and LEFT.

RIGHT: Postion the camera at a starting point and it moves to the right (default).

LEFT: Postion the camera at a starting point and it moves to the left.

SPEED

Function: Select the scanning speed.

Options: **001~010**. The smaller the number, the faster the speed. Default is 006.

TIME

Function: Set the period of time that dome stays on the left and right boundaries.

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

TITLE SET

Function: Set title for the selected AUTOPAN (up to 16 characters).

Display can be set to display or not. If set to ON, the title will show on display when scanning.

Options: A total of 62 characters, including English letters in upper and lower cases, as well as numbers from 0 to 9, are available for editing the title.

Steps：

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

TITLE CLEAR

Function: Clear some or all of the autopan titles.

Options: 001 ~ 004 - Clear the selected title.

ALL - Clear all of the titles.

AUTOPAN CLEAR

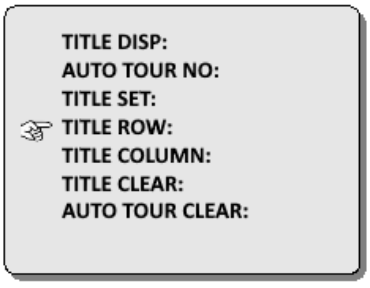
Function: Clear some or all of the autopans.

Options: 001 ~ 004 – Clear the selected autopan.

ALL – Clear all of the autopans.

4.5.3 AUTO TOUR

An Auto Tour is the patrol route of the dome and can be called up by keypad. The dome can store horizontal, vertical and zoom operation and repeat this operation accurately when applied. This auto tour identity can be used to define the normal route.



TITLE DISP

Function: Enable/disable title display.

AUTO TOUR NO.

Functions: Select auto tour to be set with title.

TITLE SET

Functions: Define name for auto tour (up to 16 characters).

Options: A total of 62 characters, including English letters in upper and lower cases, as well as numbers from 0 to 9, are available for editing the title.

Edit Auto Tour title:

1. Move the cursor to the first character of title.
2. Move the operation hand to select character or blank.
3. Move the cursor to the next character.
4. Repeat steps 2 and 3 to complete the title.

TITLE CLEAR

Function: Clear some or all of the titles.

Options: 001 ~ 004 – Clear the selected pattern title.

ALL – Clear all of the pattern titles.

AUTO TOUR CLEAR

Function: Clear some or all of the auto tours.

Options: 001 ~ 004 – Clear the selected auto tour.

ALL – Clear all the auto tours.

4.5.4 HOME RETURN

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

HOME POSITION

Function: The home position parameters.

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

PRESET 001 ~ PRESET 032: Choose one of the 32 presets as the dome's home position.

AUTOPAN/PATTERN 001 ~ 004: Choose one of the autopan or patterns as the dome's home position.

Note: Before selecting a preset as the home position, make sure that it has been properly set.

RETURN TIME

Function: Determine how long the dome can be inactive before it returns to its home position.

Options: 000s (default), 005s, 010s, 020s, 040s 060s, 5 mins, 10 mins, 20 mins, 40 mins, 1 hour.

Note: The option of “000s” means that there is no Home Return action.

POWER OFF SAVE

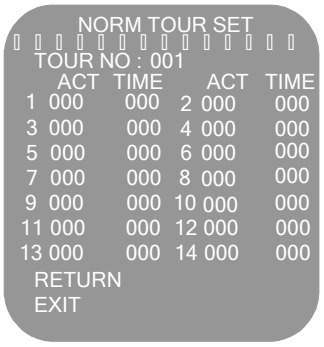
Function: Enable/disable power off save function.

Options: **OFF** – Disable the power off save function (default).

ON – Enable the power off save function.

PST 19 – Call up Preset 19 for restarting after power off.

4.5.5 NORM TOUR SET



Function: Link the actions in a tour.

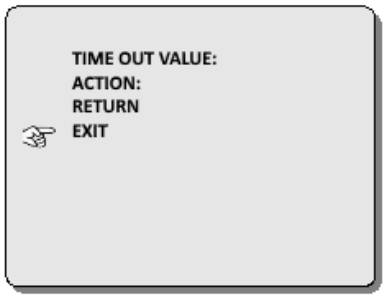
Options: The dome can be set with up to 6 tours, with each tour including 14 actions (displayed in two columns); the actions can be presets, patterns, autopans, and each action time can be defined independently.

TOUR NO.: 001 ~ 006

ACT: Move the joystick up and down or left and right to select the desired action (preset 1~32, pattern 1~4, autopan 1~4).
Note: Make sure the action is set correctly before using it in the tour set.

TIME: 000 ~ 060 sec.
Note: PRESET 80-85 PRESET (keypad switch is set at OPERATE position) can call up tour 1~6. The ACT will be determined by the TIME in the TOUR. If the tour is set with time only, no act, the dome will perform the tour by pausing at the set position for the set time without action.

4.5.6 PTZ TIME OUT



TIME OUT VALUE:

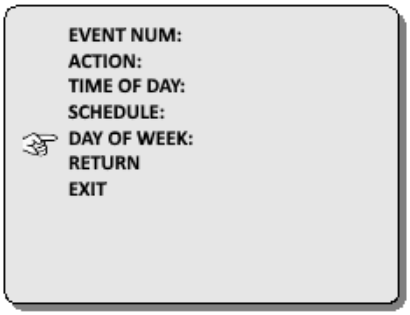
Function: Set a value after which an action will be carried out following a loss of telemetry control. This can prevent a dome from spinning uncontrollably.

Options: 1-255 Seconds

ACTION:

Options: Preset 1-32, STOP

4.5.7 SCHEDULER



EVENT NUM
Function: Select Event number.
Options: 1-64

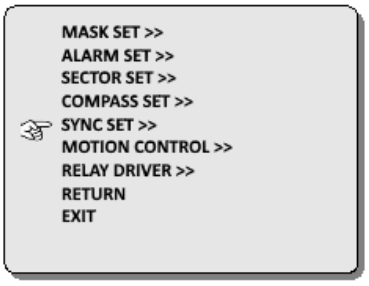
ACTION
Function: Select Action.
Options: Presets 1- 32, AutoTour 1-4, AutoPan 1-4
Aux ON/OFF, Alarm 1-4 ON/OFF, Tour 1-6, None.

TIME OF DAY
Function: Set the time of day that Scheduler starts.

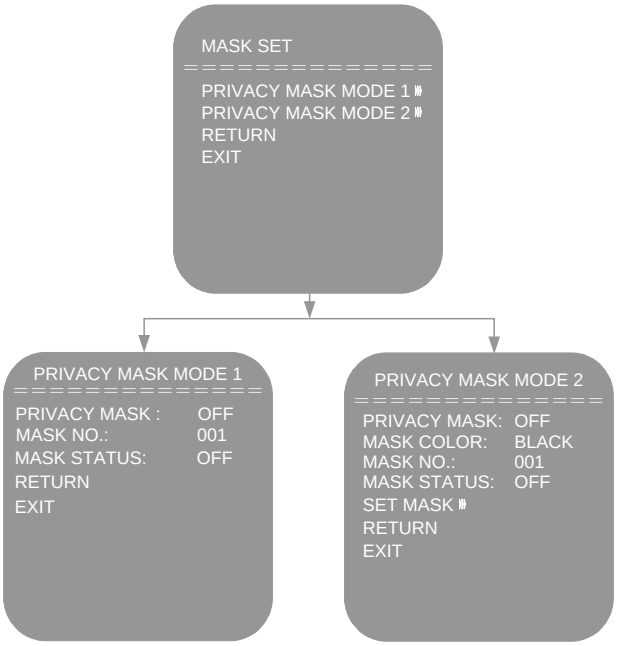
SCHEDULE
Function: Set the frequency of the schedule.
Options: Once, Weekly

DAY OF WEEK
Function: Set the day that Scheduler starts.
Options: Daily, Sunday - Monday

4.6 ADDITIONAL FUNCTION SET



4.6.1 MASK SET



Function: "MASK SET" is used when some specific areas need to be covered and avoid being seen by operators. The system will cover those areas by displaying blank screen, and operators are unable to see those areas on the monitor. The covered areas maintain in position with the movement of lens or zoom operations, so the areas will always be screened.

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

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

PRIVACY MASK

Function: Turn on/off Privacy Mask function.

Options: **OFF –** Enable the Privacy Mask function (default).
ON – Disable the Privacy Mask function.

MASK NO.

Function: Selected the area to be masked.

Options: 001~016 options.

MASK STATUS

Function: Enable/disable the privacy mask function of the area.

Options: **OFF** – Display the area (default).
ON – Mask the area.

Notes:

1. The area in the Privacy Mask menu is defined by the Area Set menu, so be sure to set the range and serial number of the mask areas before the Privacy Mask function is set.
2. The two Privacy Mask modes are independent and can not be enabled at the same time.

Enter PRIVACY MASK MODE 2.

Function: Up to 24 privacy zones can be set.

PRIVACY MASK

Function: Turn on/off Privacy Mask function.

Options: **OFF -** Enable Privacy Mask function (default).
ON - Disable Privacy Mask function.

MASK COLOR

Function: Select the color for the private areas. The color changes with the numbers.

Options: Black, magenta, yellow, cyan, blue, green, white, red, gray 6, gray 5, gray 4, gray 3, gray 2, gray 1.
Default: black.

SET MASK

Function: Set width and height of the selected privacy mask area.

1. Enter the SET MASK menu; the central line turned on. Deflect the joystick to the desired position to set it as the center. Press "AUX1" to save the setting.
2. Set the width and height of the mask area by deflecting the joystick.

3. After the width and height are set, press “AUX2” to save the current width and height of the mask area.
4. After exiting the menu, in joystick PTZ operations, the set mask area will not change along with the position and size changes of the dome.

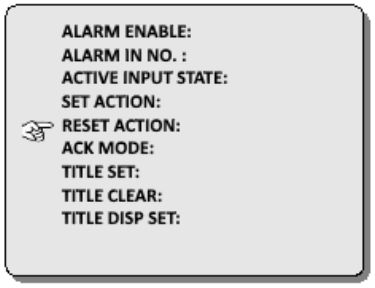
Notes:

1. The two privacy mask modes can not be enabled at the same time.
2. The corner of the center for the mask area can not surpass 50°.

4.6.2 ALARM SET

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

By programming the ALARM SET menu, you can define the input status and assign it with an action (a preset), so that when the normal state changes to abnormal, the dome will automatically position at the preset for surveillance.



ALARM ENABLE
Function: Enable/disable the alarm. Default: OFF.

ALARM-IN NO.
Function: Set the alarm input number. 1~4 options.

ACTIVE INPUT STATUS
Function: Select Low/High.

SET ACTION
Function: Assign each alarm input with a preset to call upon alarm.
Options: **NONE -** Indicates a no-action command that disables the automatic preset call (default).
PRESET 001 ~ PRESET 032 - Select one of the 32 presets for automatic call up.
AUTOPAN/AUTO TOUR 001~ 004: Choose one of the autopan/auto tours as the dome's alarm action.
NORMAL TOUR 001~ 004: AUX ON/OFF
Choose one of the Normal Tours or Relay output as the dome's alarm action.

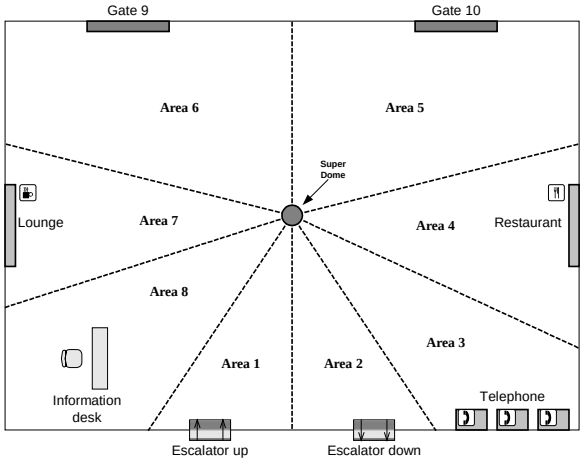
RESET ACTION
Function: Set a Reset action that occurs once the alarm has been acknowledged.
Options: **NONE -** Indicates a no-action command that disables the automatic preset call (default).
PRESET 001 ~ PRESET 032 - Select one of the 32 presets for automatic call up.
AUTOPAN/AUTO TOUR 001~ 004: Choose one of the autopan/Auto Tour as the dome's alarm reset action.
NORMAL TOUR 001~ 004: AUX ON/OFF
Choose one of the Normal Tours or Relay output as the dome's reset alarm action.

ACK MODE
Function: Sets the Acknowlegement mode and time following an alarm activation.
Options: Manual/Momentary/1 – 89 seconds.
Important Note: As this dome currently only supports Simplex telemetry, Alarm Acknowledgement mode must be set to Auto 1 – 89 Seconds.

4.6.3 SECTOR SET

The "SECTOR SET" feature allows the entire surveillance site to be divided into a maximum of 16 sections (sectors). Each section can be labeled with a unique sector number and a descriptive title, which will display on the screen when the camera navigates through it.

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

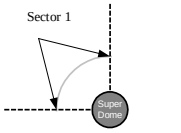


As the example shows, partitioned sectors together usually constitute a contiguous 360-degree view around the domes, with the ending point of one sector as the starting point for the next. Note that the ending point of the last sector cannot surpass the starting point of the first.

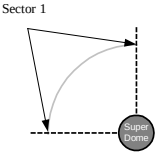
Sectors may be assigned different sizes to meet the requirements of a particular installation. In the example shown above, the two

sectors covering the boarding gates (Sectors 5 and 6) are much larger than those covering the escalators (Sectors 1 and 2).

The zoom level may also affect the sector size during camera operations. As the camera zooms in, the size of a sector becomes smaller and its boundaries draw closer. Refer to the following illustrations on how zoom operations affect the sector size. This feature may become helpful when the sector boundaries need to be precisely located.

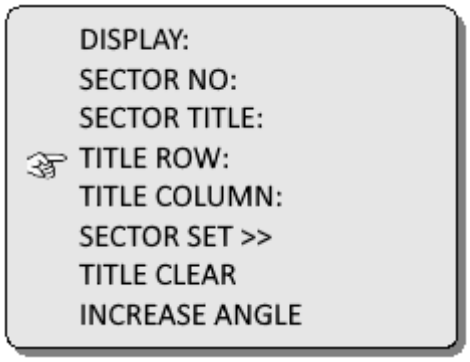


The size of Sector 1 becomes smaller when the camera zooms in.



The size of Sector 1 becomes larger when the camera zooms out.

Using the SECTOR SET menu shown below, users can easily mark the boundaries for the required sectors and label them with descriptive titles.



DISPLAY

Function: Enable/disable the sector title display.

SECTOR NO.

Function: Select a sector to define its title and on-screen display status.

Options: **1 ~ 16**
The dome supports a total of 16 sectors. Each sector may have a unique descriptive title set below.

SECTOR TITLE

Function: Edit a descriptive title (up to 16 characters) for the selected sector.

Operation: A total of 62 characters, including English letters in upper and lower cases, as well as numbers from 0 to 9, are available for editing the sector title.

Follow these steps to edit a descriptive title:

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

SECTOR SET

Function: Set sector boundaries. Details are addressed below.

How to set sector boundaries:

To define boundaries for required sectors:

1. Select Sector Set from the Additional Func Menu and then Sector Set again from the sub menu. Move the joystick to the start of the first desired sector.

2. Press AUX 1 to begin.
3. Move the camera to the right until the desired ending boundary of the sector is in view.

4. Press AUX 2 to set the current position as the ending boundary for this sector. This position is also the starting boundary for the next sector.

5. Repeat Steps 3 and 4 until the starting boundary of the last sector has been defined.

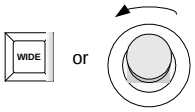
Note: The starting boundary of the first sector is the ending boundary of the last one.

6. Pressing AUX 3 at any stage will cancel the operation.

To locate a boundary point precisely:

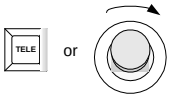
If a sector boundary needs to be precisely located:

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



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

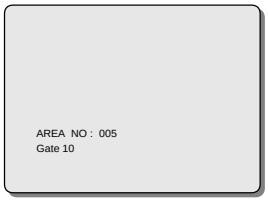
3. Zoom in the image to get a close view (making the sector appear small but the objects appear large).



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

5. Enter the appropriate code commands to set the boundary.

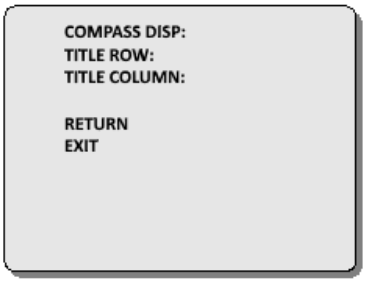
If the DISPLAY option has been set "ON" in the SECTOR SET menu, overlay texts indicating sector number and title description will be displayed as long as the camera view stays in the sector.



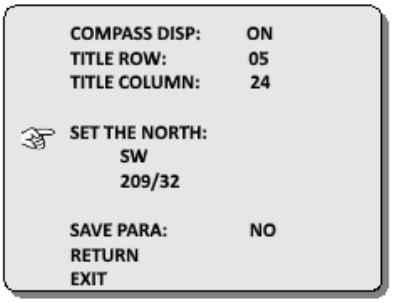
TITLE CLEAR
Function: Clear the selected or all of the sector titles.
Option: 001~016 – Clear the selected sector title.
ALL – clear all the sector title.

INCREASE ANGLE
Function: Configure the angle of the pan travel for the dome.
Option: 0 ~ -5° options.

4.6.4 COMPASS SET

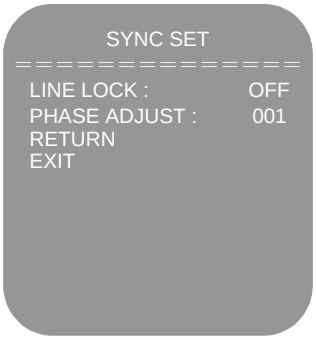


Function: Enable/disable the display of lens direction and angle.
Option: **OFF** – Disable the direction and angle display (default).
ON – Display the lens direction and angle in real-time
When the COMPASS DISP is set to “ON”, the COMPASS SET menu is shown as below.



SET THE NORTH
Operation: Set “COMPASS DISP” to “ON,” deflect cursor to “SET THE NORTH” and then move the cursor right and left to set the North point. Move cursor downward to “SAVE PARA” and click “YES” to default the current lens orientation as the North point. Move cursor downward to click “RETURN” to save the current North point setting. Select “NO” in “SAVE PARA” if this setting should not be saved.

4.6.5 SYNC SET



LINE LOCK

Function: Enable/disable the Line Lock function.

Option: OFF/ON

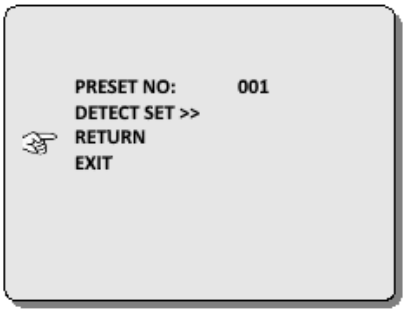
Normally this should be left in the OFF position (Default) when the line sync is locked internally by the Dome. If this is not suitable for your application you can manually adjust the line phase by turning the Line lock ON. Some settings may result in a disturbed picture.

PHASE ADJUST

Function: Manually adjust the line phase.

Option: 1-198

4.6.6 MOTION CONTROL

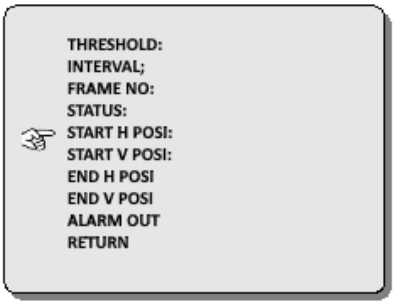


The dome capable of Motion Detection and can be enabled and configured in the following steps.

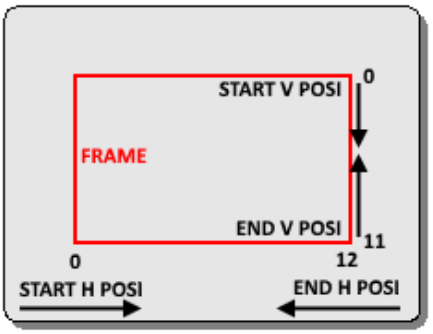
First configure a preset position that will be used for Motion Detection. Refer to 3.3, Setting and Calling Up a Preset.

PRESET NO
Function: Set the preset number to be used for Motion Detection.
Option: 1 - 79

DETECT SET
Function: Moving the joystick to the RIGHT or pressing A/P will allow you to configure the motion detection for the preset number set in the first step above. The menu below will then be displayed.



STATUS
Function: Changing the STATUS to ON will display a Red square on the screen. This is your Motion Detection Zone or 'Frame'.
The size and position can be adjusted by configuring the START and END H POSI and the START and END V POSI values by moving the joystick left or right. Be sure to avoid crossing over the values.



THRESHOLD
Function: Sets the amount of activity required to generate an Alarm.
Option: 0 – 255. The lower the value the more sensitive the detection.

INTERVAL
Function: Sets the amount of time that motion must occur before an alarm is activated.
Option: 0 – 255. The higher the number the longer it will take for motion to trigger an alarm.
The 2 settings above may need some testing and refinement in order to give the desired response.

ALARM OUT

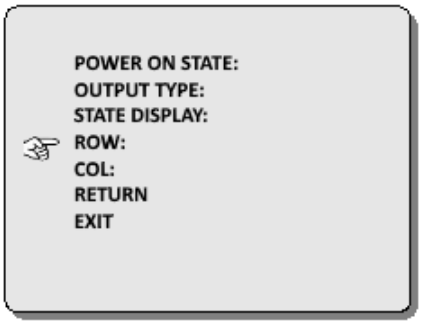
Function: Triggers an event when motion is detected.

Option: Presets 1-32, AutoTour 1-4, AutoPan 1-4, AuxON/OFF

FRAME NO
Function: Each preset can have up to 4 Frames (Motion Detection Zones) configured with different Alarm responses.
Option: 1-4

4.6.7 RELAY DRIVER

The menus below configure the on-board Relay (AUX 1).



POWER ON STATE

Function: Sets the state of the relay when the dome is powered on.

Option: ON/OFF

OUTPUT TYPE

Function: Sets the type of Relay output.

Option: Momentary/Latched

STATE DISPLAY

Function: Sets if the Relay state should be displayed.

Option: ON/OFF

ROW/COLUMN

Function: Sets the position of the Relay state text if enabled.

Option: 0 – 11/0 - 24

Chapter V Operations under Different Protocols

5.1 PERFORMANCES AND FEATURES

Prior to operations, make sure that DIP switch, baud rate and address have been set correctly according to related protocol.

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

	PELCO-P/ PELCO-D/VICON
Baud Rate	2400/4800/9600/19200BPS
Camera Addresses	255
Preset (controlled by keypad)	254
Auto Tour	4
Autopan	4
Sectors	16
Home Return	Yes
Motion Control	Associated to presets 1 - 79
Alarm Input	4 inputs, associated with presets, autopan, auto tour
Relay Output	1 output

5.2 OPERATIONS

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

Menu programming of the domes is basically the same for all protocols as that shown above. Follow the instructions shown on the screen during operation.

For Preset, Autopan, Auto Tour setup and calling up, shortcut operations for special functions, refer to the table that follows.

This shows the operation code via Pelco keypad/control system the Pelco protocols.

Keypad operation code commands for PELCO-D/P protocol:

Commands	Status	Function
1~32, 35~64	PROGRAM	Set preset 1~32, 35~64
	OPERATE	Call preset 1~32, 35~64
74~90	PROGRAM	Set preset 74~90
	OPERATE	Call preset 74~90
100~254	PROGRAM	Set preset 100~254
	OPERATE	Call preset 100~254
69	PROGRAM	Save pattern
70	PROGRAM	Set pattern 1
	OPERATE	Call pattern 1 (cycle)
71	PROGRAM	Set pattern 2
	OPERATE	Call pattern 2 (cycle)
72	PROGRAM	Set pattern 3
	OPERATE	Call pattern 3 (cycle)
73	PROGRAM	Set pattern 4
	OPERATE	Call pattern 4 (cycle)
91	PROGRAM	Set/save autopan 1
	OPERATE	Call autopan 1 (cycle)
92	PROGRAM	Set/save autopan 2
	OPERATE	Call autopan 2 (cycle)
93	PROGRAM	Set/save autopan 3
	OPERATE	Call autopan 3 (cycle)
94	PROGRAM	Set/save autopan 4
	OPERATE	Call autopan 4 (cycle)
95	PROGRAM	Enter menu
32+SHOT	PROGRAM	Restore alarm action manually
	OPERATE	
33	OPERATE	Call auto flip
34	OPERATE	Manual home return
97+1/2/3/4/5/6	OPERATE	Call tour 1 ~ 6
98	PROGRAM	Set motion detection
	OPERATE	Call motion detection
99	OPERATE	Call autoscan

Appendix I Specifications

The following table describes the general parameters of the Surveyor MKII Analog Domes.

Programmable Presets	254
Programmable Auto Tours	4
Programmable Autopans	4
Programmable Sectors	16
Video Blanking Sectors	16
Spherical Privacy Zones	24
Tour	6
Alarm Inputs	4 alarm inputs
Alarm Outputs	1 relay output
Motion Detection	Yes
Home Position	Yes
Image Mirror	Yes
WDR	Yes
Stabilization	Yes
FNR	Yes
Zoom Selected Area	Yes (PELCO-D)
Protocols	VICON, PELCO-P/D (auto-detect),
Number of Address	1~254
Baud Rate	2400/4800/9600/19200bps
Manual Speed	Pan: 400°/s; Tilt:150°/s
Preset Speed:	400°/s maximum
Pan Travel	360° continuous
Tilt Travel	-2.5°~90°
Preset Accuracy	±0.5°
Motor	Stepping motor
Mounting	Bracket, ceiling
Input Voltage	24VAC
Power Consumption	40W (with heater)
Power Surge Protection	Yes
Internal Synchronization	Built-in sync generator
Line-locked Synchronization	Remote V-phase adjustment
Operating Temperature	Outdoor: -40°F ~ 140°F (-40°C ~ +60°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ +60°C)
Operating Humidity	0~90%RH (non-condensing)

Technical Specification of the Cameras

Optic Zoom	36X
Video Type	NTSC/PAL (D/N)
Scanning System	2:1 Interlace scanning
Image Sensor	1/4" Progressive scanning CCD
Resolution (HxV)	NTSC/380K: 768×494 PAL/440K: 752×582
Aperture/Focal Length	F1.6~F4.5; f=3.4~122.4mm
Angle of View	57.8° (Wide) / 1.7° (Tele)
Min. Work Distance	0.32m (Wide) ~ 1.5m (Tele)
Sensitivity	Color mode (IR-Cut On): 1.4 lux (NTSC: 1/60s, PAL: 1/50s) 0.1 lux (NTSC: 1/4s, PAL: 1/3s) B/W Mode (IR-Cut Off): 0.01 lux (NTSC: 1/4s,PAL: 1/3s)
Horizontal	550TVL
S/N Ratio	>50dB
Video Output	1.0 ± 0.2Vp-p
Backlight Compensation	ON/OFF
Sync System	Internal/External
WDR	OFF/ DVER COMP /EXPOSURE RATIO/AUTO
FNR	ON/OFF
Stabilization	ON/OFF
Digital Zoom	1~12X adjustable
DSS	Yes
Focus	AUTO / MANU / M/A
White Balance	AUTO, SVL, OUTDOOR AUTO, ATW, OUTDOOR, INDOOR, MANU
Shutter Speed	Auto: Default Set Manual: PAL: 1/1~1/10000s NTSC: 1/1~1/10000s
Iris	AUTO / MANU / M/A

Appendix II Troubleshooting

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

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

Vicon Standard Equipment Warranty

Vicon Industries Inc. (the "Company") warrants your equipment to be free from defects in material and workmanship under Normal Use from the date of original retail purchase for a period of three years, with the following exceptions:

1. All IQEYE Cameras: Two years if purchased before 1/1/2011.
2. Alliance-mini (IQD3xx), Alliance-mx (IQMxxx) and 3 Series (IQ03xx): Five years if purchased between 1/2/2011 – 12/31/2014.
3. Alliance-Pro (IQA3xx): Five years if purchased between 3/2/2012 – 12/31/2014. Three years if the motorized lens (IQA3xx-A3) option.
4. Access Control System Components: Two year from date of original retail purchase.
5. Uninterruptible Power Supplies: Two years from date of original retail purchase.
6. VDR-700 Recorder Series: One year from date of original retail purchase.
7. V5616MUX: One year from date of original retail purchase.
8. Arecont Cameras: One year from date of original retail purchase.
9. FMC series fiber-optic media converters and associated accessories: Lifetime warranty.
10. For PTZ cameras, "Normal Use" excludes prolonged use of lens and pan-and-tilt motors, gear heads, and gears due to continuous use of "autopan" or "tour" modes of operation. Such continuous operation is outside the scope of this warranty.
11. Any product sold as "special" or not listed in Vicon's commercial price list: One year from date of original retail purchase.

NOTE:

- If the product is to be used outdoors or in dusty, humid, or other hostile environments, it must be suitably protected.
- Camera products must be protected, whether in use or not, from exposure to direct sunlight or halogen light as the light may damage the camera image sensor. This applies to both indoor and outdoor use of the cameras.
- For camera products supplied without a lens, extreme care should be used when mounting a lens on these products. Damage to the product due to incorrectly mounted lenses will invalidate this limited hardware warranty.
- Failure to comply with any of the aforementioned requirements will invalidate this Limited Hardware Warranty.

Date of retail purchase is the date original end-user takes possession of the equipment, or, at the sole discretion of the Company, the date the equipment first becomes operational by the original end-user.

The sole remedy under this Warranty is that defective equipment be repaired or (at the Company's option) replaced, at Company repair centers, provided the equipment has been authorized for return by the Company, and the return shipment is prepaid in accordance with policy. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer. When a product or part is exchanged the replacement hardware becomes the property of the original purchaser and all hardware or part thereof that is replaced shall become the property of Vicon.

The warranty does not apply (a) to faulty and improper installation, maintenance, service, repair and/or alteration in any way that is not contemplated in the documentation for the product or carried out with Vicon consent in writing, operation adjustments covered in the operating manual for the product or normal maintenance, (b) to cosmetic damages, (c) if the product is modified or tampered with, (d) if the product is damaged by acts of God, misuse, abuse, negligence, accident, normal wear and tear and deterioration, improper environmental conditions (including, but not limited to, electrical surges, water damage, chemical exposure, an/or heat/cold exposure) or lack of responsible care, (e) if the product has had the model or serial number altered, defaced or removed, (f) to consumables (such as storage media or batteries) (g) to products that have been purchased "as is" and Vicon the seller or the liquidator expressly disclaim their warranty obligation pertaining to the product, (h) to any non-Vicon hardware product or any software (irrespective of packaged or sold with Vicon hardware product) and Vicon products purchased from an unauthorized distributor/reseller, (i) to damage that occurs in shipment or (j) to damages by any other causes not related to defective design, workmanship and/or materials.

The warranty for the products shall run from Vicon to End User customers only (including product purchased through authorized partners and resellers). Vicon is not obligated under any circumstances to honor warranties on product(s) purchases from internet auction sites including eBay, uBid or from any other unauthorized resellers. Except as explicitly provided herein, Vicon disclaims all other warranties, including the implied warranties of fitness for a particular purpose and merchantability.

Software supplied either separately or in hardware is furnished on an "As Is" basis. Vicon does not warrant that such software shall be error (bug) free. Software support via telephone, if provided at no cost, may be discontinued at any time without notice at Vicon's sole discretion. Vicon reserves the right to make changes to its software in any of its products at any time and without notice.

The Warranty and remedies provided above are exclusive and in lieu of all other express or implied warranties including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. Certain jurisdictions do not allow the exclusion of implied warranties. If laws under such jurisdictions apply, then all express and implied warranties are limited to the warranty period identified above. Unless provided herein, any statements or representations made by any other person or firm are void. Except as provided in this written warranty and to the extent permitted by law, neither Vicon nor any affiliated shall be liable for any loss, (including loss of data and information), inconvenience, or damage, including, but not limited to, direct, special, incidental or consequential damages, resulting from the use or inability to use the Vicon product, whether resulting from breach of warranty or any other legal theory. Notwithstanding the foregoing, Vicon total liability for all claims under this warranty shall not exceed the price paid for the product. These limitations on potential liabilities have been an essential condition in setting the product.

No one is authorized to assume any liability on behalf of the Company, or impose any obligations on it in connection with the sale of any Goods, other than that which is specified above. In no event will the Company be liable for indirect, special, incidental, consequential, or other damages, whether arising from interrupted equipment operation, loss of data, replacement of equipment or software, costs or repairs undertaken by the Purchaser, or other causes.

This warranty applies to all sales made by the Company or its dealers and shall be governed by the laws of New York State without regard to its conflict of laws principles. This Warranty shall be enforceable against the Company only in the courts located in the State of New York.

The form of this Warranty is effective August 1, 2015.

THE TERMS OF THIS WARRANTY APPLY ONLY TO SALES MADE WHILE THIS WARRANTY IS IN EFFECT. THIS WARRANTY SHALL BE OF NO EFFECT IF AT THE TIME OF SALE A DIFFERENT WARRANTY IS POSTED ON THE COMPANY'S WEBSITE, *WWW.VICON-SECURITY.COM*. IN THAT EVENT, THE TERMS OF THE POSTED WARRANTY SHALL APPLY EXCLUSIVELY.

Vicon Part Number: 8006-9010-03-12 Rev 0815

VICON INDUSTRIES INC.

For office locations, visit the website: www.vicon-security.com