INSTALLATION / OPERATION
USER'S MANUAL

20X Full HD
Megapixel HD-SDI
Speed Dome Camera

Please read this manual thoroughly before use, and keep it handy for future reference.
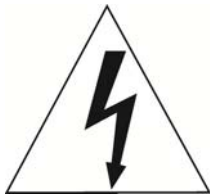
WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

CAUTION

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER(OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

EXPLANATION OF GRAPHICAL SYMBOLS

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FCC COMPLIANCE STATEMENT

FCC INFORMATION: THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS A DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

CET APPAREIL NUMÉRIQUE DE LA CLASSE A EST CONFORME À LA NORME NMB-003 DU CANADA.

CE COMPLIANCE STATEMENT

WARNING
THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been moisture, does not operate normally, or has been dropped.
15. *CAUTION – THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU QRE QUALIFIED TO DO SO.*
16. *Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.*

Table of Contents

Chapter 1 — Introduction

1.1 Features

The HD-SDI Speed Dome and the keyboard controller make up the building blocks for any surveillance/security system. Using multiple Keyboard Controllers and multiple dome cameras, no place is too large for monitoring. Extensible and flexible architecture facilitates remote control functions for a variety of external switching devices such as multiplexers and DVRs.

- Built-in optical power zoom camera with True Night Shot function.

- 240 Preset positions

- 8 Tours consist of Preset, Pattern, Auto-Scan and other Tours can be programmed with over 300 functions and Preset location. While moving, each Preset scan can be watched in smooth **Vector Scan** mode.

- 16 Auto Scans with the normal, the vector, and the **random** mode and the Endless Auto-Pan with 13 speed steps.

- 8 Patterns (up to 500second) and 12 Privacy zones

- 4 Alarm inputs / 2 Alarm outputs

- Variable speed from 0.1°/sec to 380°/sec

  Three Variable speed (SLOW, NORMAL, TURBO)

  Turbo speed is Max 380°/sec with Ctrl key pressed.

- Pan / Tilt speed is inversely proportional to the zoom ratio with the option.

- Maximum speed is 380°/sec when preset command.

- Auto Calibration from 0.1° to 6° (Tilt range is 0° to 180°).

- Programmable user preferences (alarm, preset, title, etc.).

- 180° Digital Flip or 90° Auto Flip

- Up to 999 selectable camera addresses (3999 by software setting).

- Function Run menu using DVR without function key (Pattern, SCAN,..)

- Built-in RS-485 receiver driver

- Optional Clear bubble with black liner (shelter) for concealing the camera

- Optional Tinted Bubble, Indoor & Outdoor pendant housing with heater & blower, Indoor Flush mount, Parapet mount & Roof Top mount.
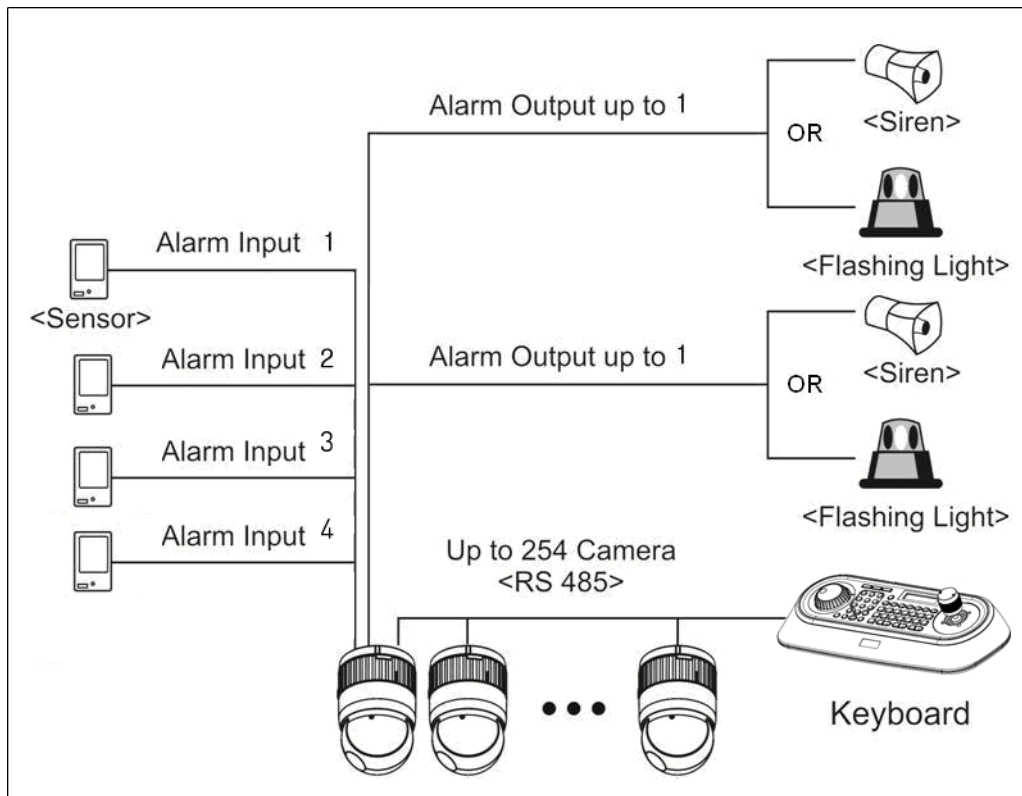
Figure 1 – Typical System Configuration

remove window

assemble bubble ring ass'y
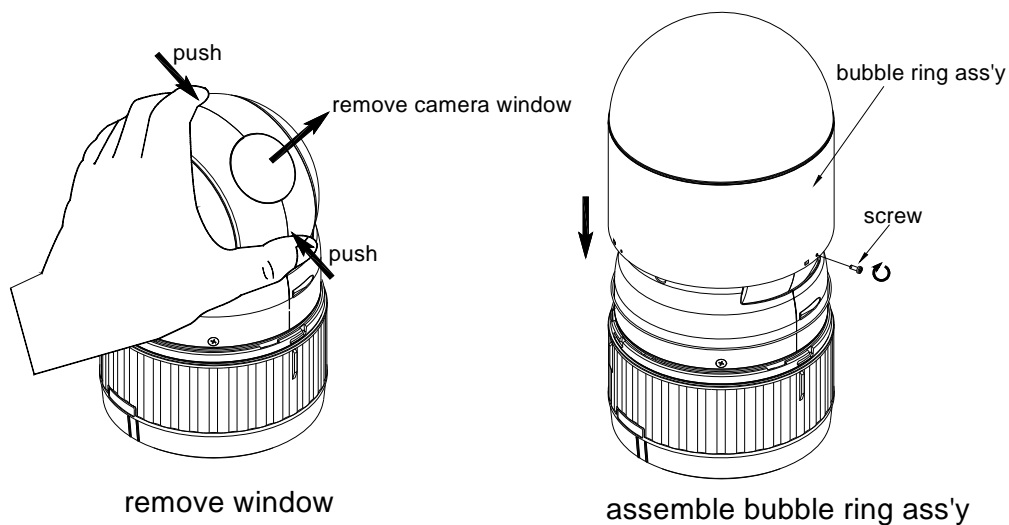
Figure 2 –Assemble bubble ring ass'y (Optional)

Note: It is recommended to remove camera window for improving picture quality when you use bubble ring ass'y.

Chapter 2 — Installation and Configuration

2.1 Package Contents

The package contains the following.

HD-SDI Speed Dome Camera	………………………1
Bubble Ring	……………………1(Optional)
Instruction Manual (This Document)	………………………1
Plate Adaptor	………………………1
16 Pin Cable	………………………1

The HD-SDI Speed dome camera is for use in surface mounting applications and the mounting surface should be capable of supporting loads up to 10lb (4.5kg).

The HD-SDI Speed dome camera 's base should be attached to a structural object, such as hard wood, wall stud or ceiling rafter that supports the weight of the HD-SDI Speed dome camera.
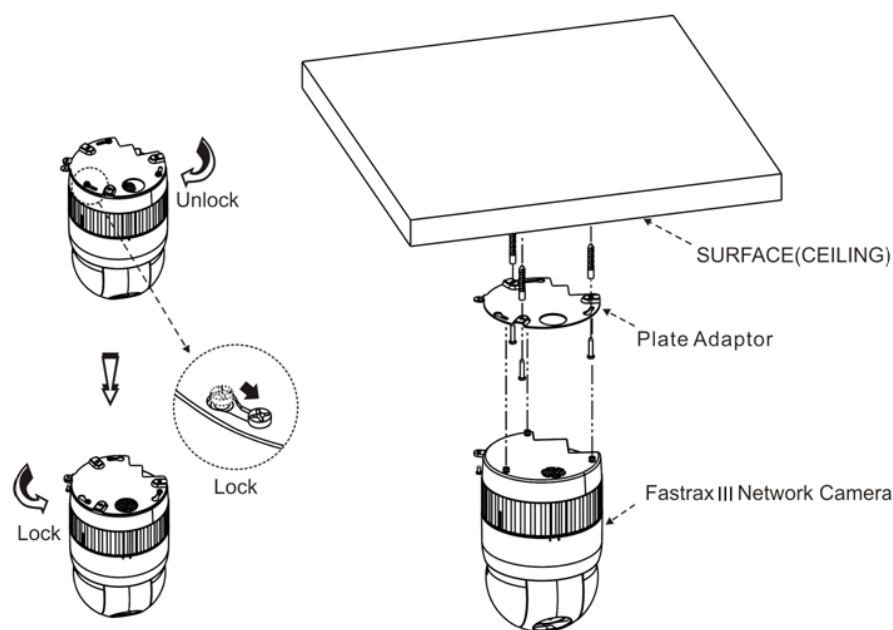
Figure 3 – Installation
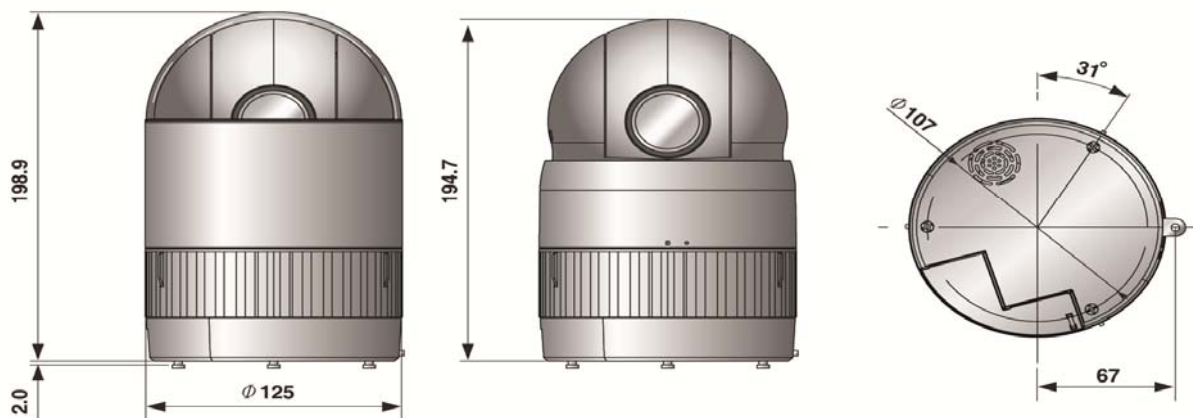
Figure 4 –Dimension

2.2 Basic Configuration of 20x HD-SDI Speed Dome Camera System
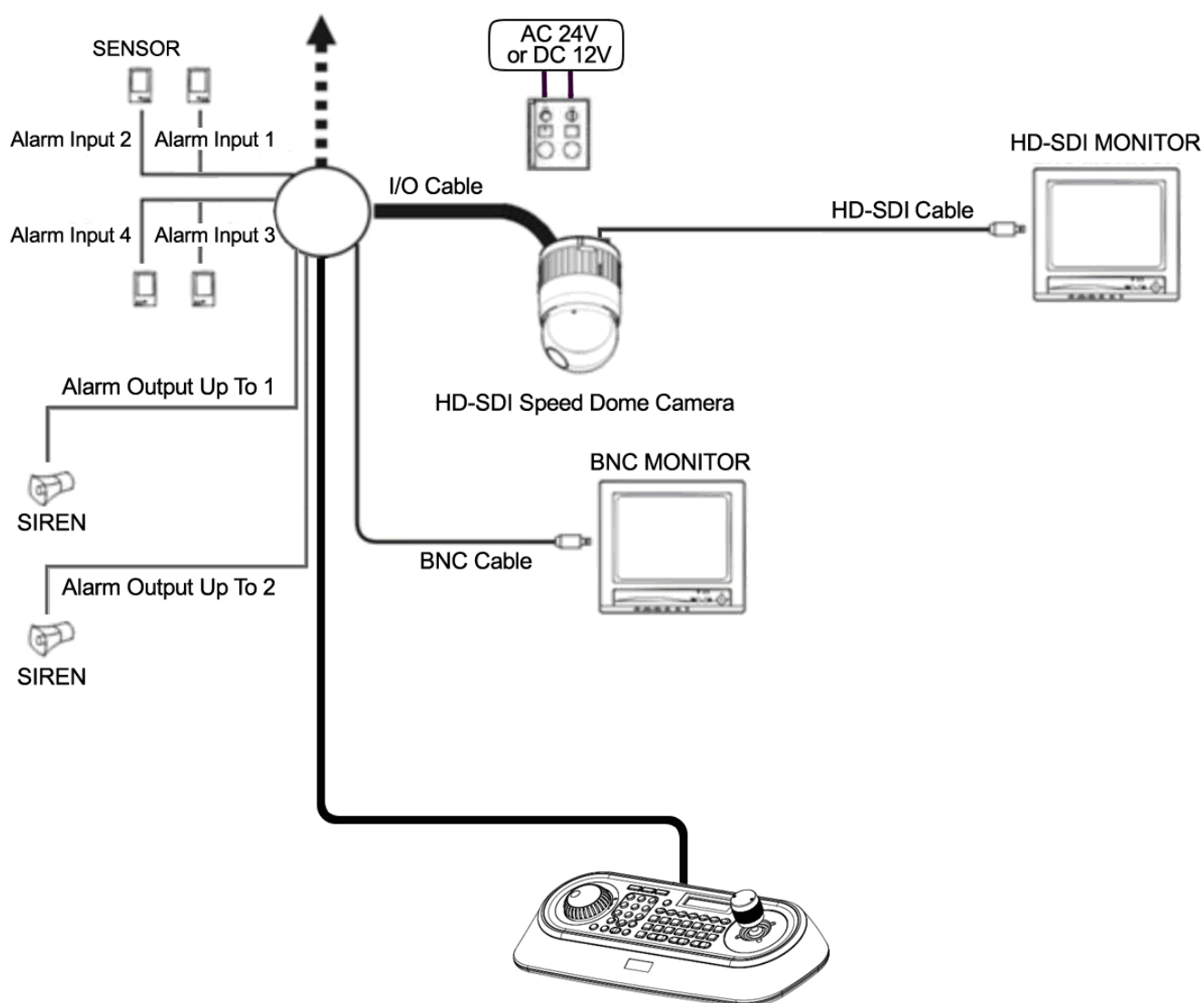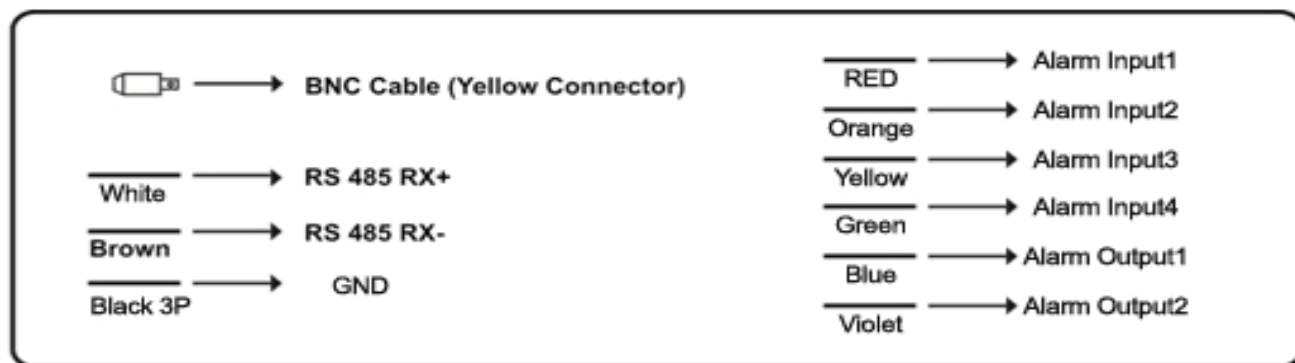
Figure 5 – Basic installation diagram

The HD-SDI Speed dome camera must be installed by qualified service personnel in accordance with all local and federal electrical and building codes. The system should be installed according to Figures 5 through 9.
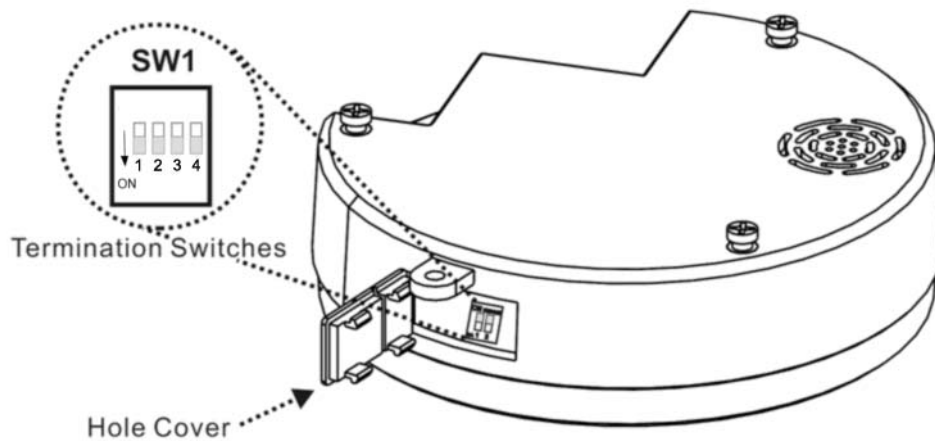
Figure 6 – Layout of Switches

2.3 Setting Dome Camera (Dip Switch)
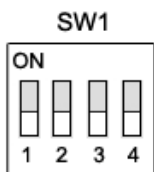
SW1	1	2
9000bps	ON	ON
10 kbps	ON	OFF
20 kbps	OFF	ON
40 k bps	OFF	OFF

Figure 7 – One Cable Baud Rate
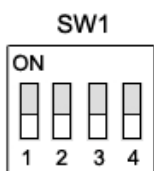
SW1	3
PAL	ON
NTSC	OFF

Figure 8 – Composite Video Signal
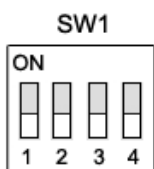
SW1	4
Terminated	ON
Not Terminated	OFF

Figure 9 – Setting Dome Camera Termination
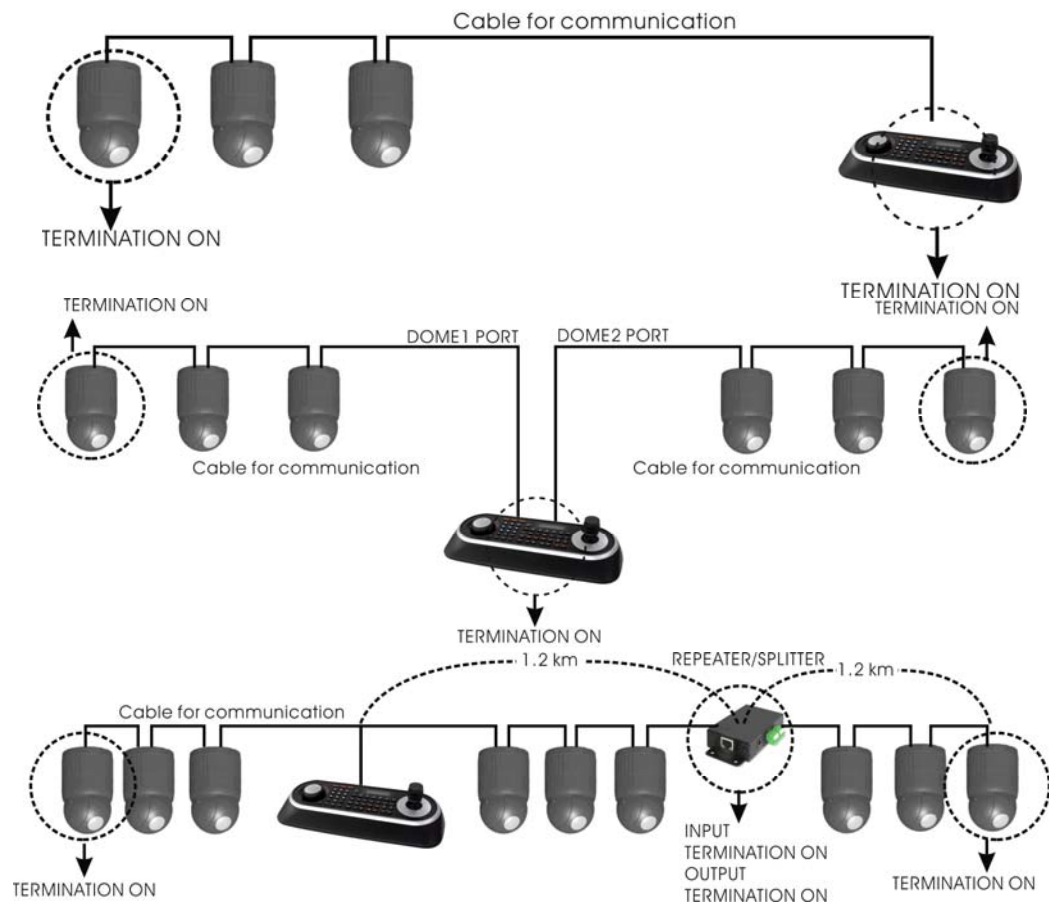
Figure 10 - Termination Diagram

2.4 Setting Dome Camera Address (ID)

To prevent damage, each HD-SDI Speed dome camera must have a unique address (ID). When installing multiple HD-SDI Speed dome cameras using a multiplexer, it is suggested that the dome camera address match the multiplexer port number.

If you want to set the address more than 3999, you should contact the service provider.

Refer to 'Dome Configuration – DOME ID' section for detailed information.

2.5 Setting Dome Camera Protocol

If a dome camera is to be installed with a Fastrax keyboard controller,
select the default protocol.

Consult service personnel if a dome camera is installed with device other than a keyboard controller.

Refer to 'Dome Configuration – DOME ID' section for detailed information.

2.6 Connections

• Connecting to the RS485

The HD-SDI Speed dome camera can be controlled remotely by an external device or control system, such as a control keyboard, using RS485 half-duplex serial communications signals. Connect Marked Rx+, Rx- to Tx+, Tx- of the RS485 control system.

• Connecting Video out connector

Connect the video out (BNC) / HD-SDI out connector to the monitor or video input.

• Connecting Alarms

AL1 to 4 (Alarm In)

You can use external devices to signal the HD-SDI Speed dome camera to react on events. Mechanical or electrical switches can be wired to the AL (Alarm In) and GND (Ground) connectors..

GND (Ground)

Connect the ground side of the Alarm input and/or alarm output to the GND connector.

Alarm Output 1 to 2

The HD-SDI Speed dome camera can activate external devices such as buzzers or lights. Connect the device to the Alarm Out and COM (Common) connectors.

• Connecting the Power

Connect the power of 24VAC or 12VDC to the HD-SDI Speed dome camera.

When using a 12VDC adapter, connector the positive(+) pole to the '+' position and
the negative(-) pole to the '-' position.

Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.

2.7 Getting Started

Once installed apply power to the dome camera. The dome camera will start a configuration sequence.

STATUS of
FOCUS and AE

PRESET TITLE
AREA TITLE

FUNCTION
UNDER RUNNING

INFORMATION
DISPLAY

CAMERA TITLE
CAMERA ID

PAN & TILT ANGLE

ALARM DISPLAY

```
AF  AE
001


          EMPTY  DATA


DOMEID: 0001
360. 0, 090. 0
ALARM: 1
```

OSD Position
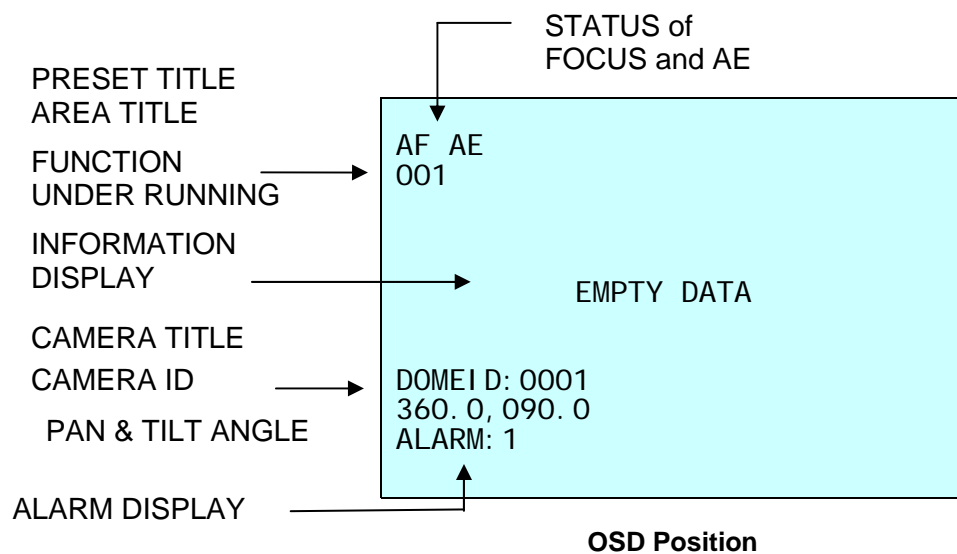
Chapter 3 — Program and Operation

3.1 Dome Camera Selection

Before you program or operate a dome camera, you must select the dome camera by pressing the dome camera No. + CAM

Example: Pressing 1 , 0 and CAM key sequentially will select dome camera 10. The selected dome camera ID will be displayed on the LCD monitor of the keyboard controller.

3.2 Accessing the On-Screen Menu Utility

You can call up the On-screen menu utility on your monitor by pressing MENU key on the keyboard controller, the following On-screen menu utility will appear:

```
            DOME  MENU

       AUTO  SCAN
       PRESET
       TOUR
       PATTERN
       PRIVACY  ZONE
       CAMERA
       DOME  COMMUNICATION
       ALARM
       DOME  SETUP
       EXIT
```
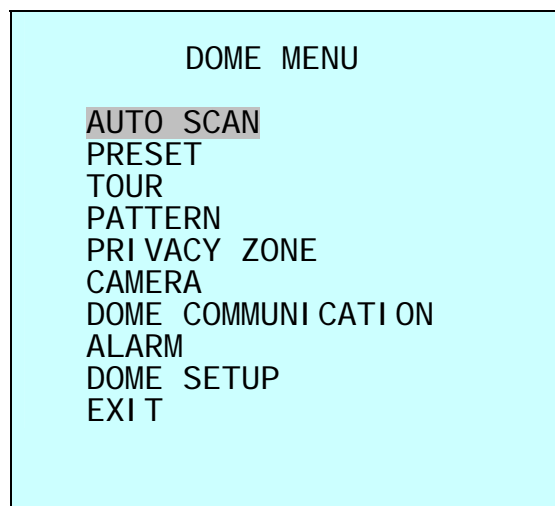
3.3 How to control the On-Screen Menu Utility

Function	Button
Call the On-screen menu utility	**MENU**
Navigate through the menu items.	**Joystick up or down**
Go into the sub-menu items.	**Joystick left or right** or **IRIS Open**
Change value. Enter the editing title mode.	**Joystick left or right or** **Zoom handle twist or** **Tele** , **Wide**
Change value of angle	**CTRL + Joystick**
Enter the changing angle mode.	**IRIS Open**
Exit the changing angle mode.	**IRIS Close**
Escape (EXIT)	**ESC**

3.4 Auto Scan (Shortcut: **SCAN**)

The Auto scan supports up to 17 programmed angles at user-programmable speeds. Follow these steps to program Auto Scan:

```
         AUTO SCAN SETUP

    NUMBER      : 01
    TITLE       : A01
    MODE        : NORMAL
    SPEED       :  5 STEP
    START ANGLE : ----- -----
    END ANGLE   : ----- -----
    SCAN DIR    : CCW
    SWAP        : OFF
    DWELL       : 03 SEC
    SAVE AND EXIT
```

NUMBER :01 -08, 10-17, **09**:AUTO PAN mode
TITLE :up to 12 characters.
MODE :NORMAL, VECTOR, RANDOM (AUTO PAN mode :NORMAL, RANDOM only)
NORMAL: Move from start point to end point in panning only.
VECTOR: Move from start point to end point including tilt and zoom simultaneously and linearly. In some model, the zoom is fixed at wider angle and the zoom magnification information is not displayed.
RANDOM: Move randomly between the start point and the end point.

SPEED : 1 - 13 step, the lower number means the slower speed.
SCAN DIR : Set the scan direction, CCW(Counter Clock Wise), CW(Clock Wise)
SWAP : Swap the start point for the end point.
DWELL : Set the dwell time at the both end, 01 – 99 seconds

1. Press the **SCAN** key to enter the auto scan menu directly. Or press the **MENU** key to display the main menu on the monitor. Scroll to Auto Scan and push the **Joystick** to the right.

2. Select the" NUMBER" and set the desired number by pushing the **Joystick** left or right.

3. Select the "TITLE" and twist the **Joystick** to enter the title edit mode.

4. Twist the **Joystick** by changing the alphanumeric characters and move the next position. Or move down to the character table and press **CTRL** or **IRIS OPEN** at the desired character then the cursor position moves to the next position automatically. Push the **Joystick** left or right at the "ALL DELETE" field to delete all characters. Push the **Joystick** left or right at the "EXIT" field to finish title edit menu.

```
        TITLE EDIT MENU
               CTRL KEY
     A01
     $

     A B C D E F G H I J
     K L M N O P Q R S T
     U V W X Y Z 0 1 2 3
     4 5 6 7 8 9
     ALL DELETE
     EXIT (ESC TO EXIT)
```
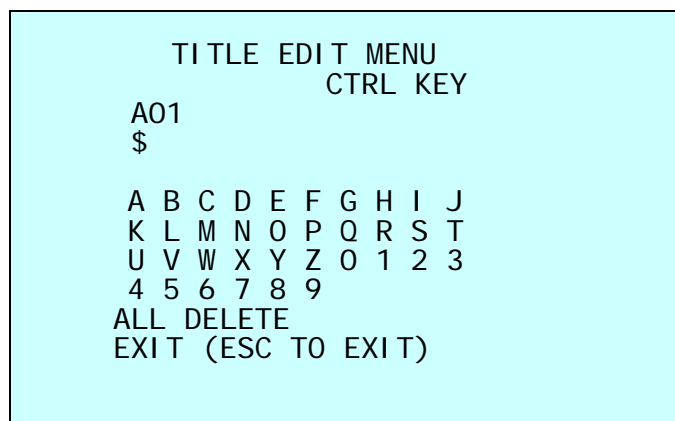
5. Select "MODE" and "SPEED".

6. Select "START ANGLE". Hold down the **CTRL** key while selecting the start position using the **Joystick**. Current panning position will be displayed. Release **CTRL** key to complete the selection of the start position. Or Press **IRIS Open** then the "CTRL" displays. Move the desired position and the zoom position. Press **IRIS Close** then the "CTRL" disappears. To adjust at the 0.1 degree interval, twist the **Joystick** at the pan field and the tilt field. To adjust at the one zoom interval, twist the **Joystick** at the zoom field.

7. Select "END ANGLE." Hold down the **CTRL** key while moving the Joystick to select the end position. The end position angle should be larger than start position. Release the **CTRL** key to complete the selection of the end position. Or Press **IRIS Open** then the "CTRL" displays. Move the desired position and the zoom position. Press **IRIS Close** then the "CTRL" disappears. To adjust at the 0.1 degree interval, twist the **Joystick** at the pan field and the tilt field. To adjust at the one zoom interval, twist the **Joystick** at the zoom field.

8. Set "SCAN DIR" to CCW or CW.

9. Select "SWAP". Set to ON, to exchange the start angle and the end angle.

10. Set "DWELL TIME".

11. Select Save and Exit and push the **Joystick** to the right or press **IRIS Open**. Press **ESC** or **IRIS Close** to exit the program without saving.

Pressing the **HOME** key delete stored data at the angle field.

To set the position using the preset position:

a. Before entering the Auto Scan menu, select a preset position as a starting point for Auto Scan.

Example: 2 + **PRST** and do step 1 to 4. In step 5, just press the **Ctrl** key at the start angle position, the current position will be displayed as a start position.

b. Save and exit from the menu.

c. In normal mode, call a preset to be the end point of scan. Press **3** + **PRST** then press **Scan** key to enter the Auto Scan menu. Move the cursor position to END ANGLE. Just press **CTRL** key at the end angle position. Save and exit from the menu.

Press **SCAN** key on the angle field to display with the small OSD. Then the screen will show as below.

```
    AUTO  SCAN  AREA  SETUP
                        CTRL  KEY




    NUMBER01
    START:  -----  -----
    END  :  -----  -----
    EXIT
```
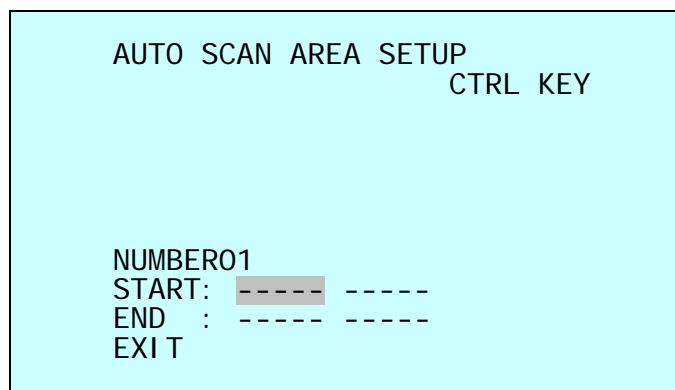
The setting procedure is the same as above.

NOTE: 09:AUTO-PAN mode(Endless panning)

3.5 Preset (Shortcut: **PRST**)

If you need to view specific places routinely, you should program presets. A preset is a programmed video scene with automatic pan, tilt, zoom, focus, and AE settings. Once programmed, placing the number position and pressing a **PRST** button on your controller calls up that preset automatically. In addition, presets may be assigned to alarm actions or
as the "home" position for the dome camera. As many as 240 presets, whose positions are saved in the dome's firmware, may be programmed.

There are three pages of preset menu. Each page has 80 presets. Pages can be scrolled
by pushing the **Joystick** to the Left or Right on the first or last No. of Preset.

```
          PRESET  SETUP
       NUMBER    :  001   CTRL  KEY
       TITLE     :  ---
       CAMERA  SET
       DWELL     :  --- SEC
          1234567890
          ----------
          ----------
          ----------

       NEXT  PAGE
       SAVE  AND  EXIT
```
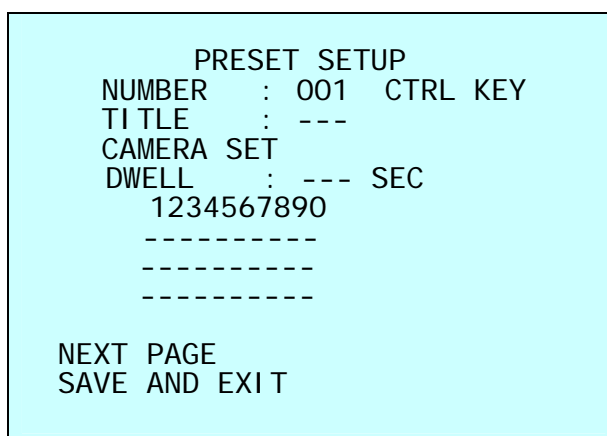
- **-** : blank preset position
- **$** : position has the preset
- **!** : Current cursor position

Follow steps below to store the Preset positions:

1. Press the **PRST** key to enter the preset menu directly. Or press the **MENU** key to display the main menu on the monitor. Scroll to preset and push the **Joystick** to the right.

2. Select the blank preset position to be stored by pushing the **Joystick** up, down, right, or left.

3. After selecting a blank position, press and hold **CTRL**, Use the **Joystick** to control the direction of the camera and lens.

4. After aiming the camera (view direction and lens control), release **CTRL**. The cursor will be on the Title then twist the **Joystick** handle or Press **Tele** or **Wide** Key to edit the preset title. Follow the procedure of the auto scan above to edit titles.

5. Select "CAMERA SET" and pushing the **Joystick** left or right. Then the preset camera setup displays.

```
            PRESET CAMERA SETUP

        FOCUS        :  AUTO
        MOTION       :  OFF
        MOTION SETUP
        AE SETUP

        SAVE AND EXIT
```

Set FOCUS: AUTO, MANUAL, ONE PUSH
Set MOTION: OFF, ON
Select "MOTION SETUP" and pushing the Joystick left or right. Then the MOTION setup displays.

```
            MOTION SETUP

        SENSITIVITY :  12
        POSITION    :  ALL
        DELAY       :  OO SEC
        OUTPUT      :  OFF
        HOLD TIME   :  O3 SEC
        EXIT
```

Set SENSITIVITY: 1~15
Set POSITION: ALL, CENTER
Set DELAY: 0~5 SEC
Set OUTPUT: OFF, OUT1, OUT2
Set HOLD TIME: 3~99 SEC

Select "AE SETUP" and pushing the **Joystick** left or right. Then the AE setup displays. Refer to the AE SETUP in the camera setup.

6. Set "DWELL TIME"(03-99second)

7. To select the next page of presets, scroll the page by pushing the **Joystick** to the Left on the first and last columns of the menu.

8. Repeat steps 2 through 7 for each additional preset position.

9. Select Save and Exit by pushing the Joystick to the right. Press ESC to exit the Preset menu without saving.

NOTE: Press the HOME key at programmed preset position($) to delete a programmed preset view.

The position, which is marked with $, already has the preset view assigned. To review the stored preset, press **PRST** key on the $, The camera will show the stored preset scene.

```
                    PRESET AREA SETUP
                                CTRL KEY



                         14


            NUMBER OO1
            PAN     TILT
            OOO.O   OOO.O
            EXIT
```
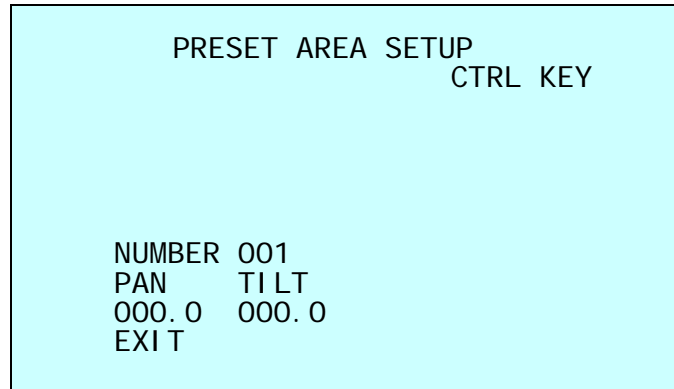
Hold down the **CTRL** key while selecting the desired scene using the **Joystick**. Current position will be displayed. Release **CTRL** key to complete. Or Press **IRIS Open** then the "CTRL" displays. Move the desired position and the zoom position. Press **IRIS Close** then the "CTRL" disappears. Select Exit and push the **Joystick** to the right.

3.6 Shortcut of Preset Program

After selecting the desired scene, press No. (**1** to **240**), and press **CTRL** and **PRST** subsequently. The current view will be stored to the selected preset number if the preset number is empty. If selected preset number is not empty, "*OVER WRITE*" message will be displayed on the monitor and select the "OK" and push the **Joystick** to the right to overwrite.

Example: **1** , **0** , **1** + **CTRL** + **PRST** will store current view as preset No. **101**. In this case, focus will be programmed as Auto, dwell time will be set to 3 second, and the current AE mode will be programmed.

3.7 Tour (SHORTCUT: TOUR)

There are 8 programmable Tours. Each Tour consists of up to 42 Preset positions, Patterns, Scans or other Tours (second-level). Using second-level tours, it can be expanded to over 300 functions in a single tour.

```
              TOUR SETUP
   NUMBER     :   01
   TITLE      :   T01
   SCAN TYPE  :   NORMAL
   SPEED      :    5 STEP
   TOUR FUNC



   SAVE AND EXIT
```

```
          TOUR FUNC SETUP
    DWELL    :   -- SEC
    003 A08 --- --- ---
    --- --- --- --- ---
    --- --- P01 --- ---
    --- T02 --- --- ---
    --- --- --- --- ---
    --- --- --- --- ---
    --- --- --- --- ---
    --- --- --- --- ---

    EXIT
```

---	: blank position
SCAN TYPE	: NORMAL/ VECTOR
DWELL	: 03-99 Sec
003	: Preset (1~240)
A08	: Auto Scan (1~8,10~17)
P01	: Pattern (1~8)
T02	: Tour (1~8)

Follow the steps below to program the Tours:

1. Press MENU to display the main menu on the monitor. Scroll to Tour and push the Joystick to the right to enter the Tour menu. Or just press the TOUR key on the keyboard.

2. Select the" NUMBER" and set the desired number by pushing the Joystick left or right.

3. Choose a blank position to be programmed by pushing the Joystick up, down, right, or left.

4. To add a stored preset, twist the Joystick then the stored preset number displays.

5. To place functions other than preset, press TOUR, PTRN, or SCAN for Tour, Pattern or Auto Scan respectively.

6. You can also overwrite the programmed number and to remove a stored number from the Tour, press the HOME key on the stored number, a blank position mark (---) will be displayed.

7. Repeat Step 2 through 5 for each desired position. Each title will be displayed on top of the line.

8. To edit the title, follow the procedure of the auto scan above to edit titles

9. Select Save and Exit and push the **Joystick** to the right. Press **ESC** to exit the program without saving.

You can expand the Tour sequence by calling other programmed tours.

NOTE: The speed applies in the vector mode only.
NOTE: In the Tour mode, in conjunction with preset and Auto Scan, you can make the camera travel from a preset position to another preset position at a specific speed.

Example: Preset 001>002>003>004>005>006, Auto Scan 01 starts at preset 002, ends at preset 003, Auto Scan 02 starts at preset 005, ends at preset 006; Tour 001, 002, A01, 004, A02.

<div align="center">

1 ➔ 2 2~3 ➔ 4 ➔ 5~6, repeat
where ➔ : Quick move, ~ : Programmed speed

</div>

To change the dwell time of the preset in the tour:
Use the **Joystick** to move the cursor to a stored preset position. By pressing **PRST** key, the camera will move to the stored Preset view and the cursor moves to the dwell time field. After changing the dwell time, press **PRST** key and the cursor moves to the preset number.

To assign the functions other than preset in the tour when the function key is not existed:
Use the **Joystick** to move the cursor to a stored preset position. Pressing **CTRL** key or **IRIS OPEN** key will change the preset number to other function (auto scan, pattern, tour, preset) with the first programmed number. To change the number, twist the joystick or press **Tele** or **Wide** key.

3.8 Pattern (Shortcut: PTRN)

The Pattern feature records user control of the selected dome camera. Up to four 8 patterns can be stored and played back by pressing No.+ PTRN keys subsequently.

```
              PATTERN  SETUP

   N      TITLE       SEC    PERCENT
   01 :    P01        000     00.0
   02 :    P02        000     00.0
   03 :    P03        000     00.0
   04 :    P04        000     00.0
   05 :    P05        000     00.0
   06 :    P06        000     00.0
   07 :    P07        000     00.0
   08 :    P08        000     00.0
   SAVE AND EXIT
```

Follow steps below to program the Pattern:

1. Press MENU to display the main menu on the monitor. Scroll to Pattern and push the Joystick to the right to enter the pattern menu. Or just press the PTRN key on the keyboard.

2. Select the desired pattern to be programmed by pushing the Joystick Up or Down. If the pattern is not 000, a pattern has already been recorded. Patterns can be overwritten.

3. Press and hold down the CTRL key while controlling the camera direction and zoom with the Joystick. The dome will be automatically recorded until you release the CTRL key. Or Press IRIS Open then the "CTRL" displays. Move the position and the zoom position. Press IRIS Close then the "CTRL" disappears.

4. Select Save and Exit and push the Joystick to the right. Press ESC to exit the program without saving.

5. To edit the title, follow the procedure of the auto scan above to edit titles.

NOTE: Press the HOME key at any programmed position to delete the pattern.
NOTE: If total recording time reaches 500 seconds, it will automatically stop for a moment.

Press PTRN key on the title field to display with the small OSD. Then the screen will show as below.

```
   PATTERN  AREA  SETUP
                          CTRL  KEY


   NUMBER  01
    000      00.0%
   0001     01.0%
   EXIT
```

The setting procedure is the same as above.

3.9 Privacy Zone

Hide up to 12 unwanted scenes in a camera.

```
          PRIVACY ZONE SETUP
   N                    CTRL KEY
  O1 ON    BLOCK   BLACK
  O2 ON    BLOCK   GRAY
  O3 ON    BLOCK   BLACK
  O4 ON    BLOCK   BLACK
  O5 ON    BLOCK   BLACK
  O6 ON    BLOCK   BLACK
  NEXT

  SAVE AND EXIT
```

1. Place the cursor at the title field.

2. Holding down the **CTRL** key displays the privacy area menu while selecting the position using the **Joystick**. Current position will be displayed. Release **CTRL** key to complete the selection of the position.

    Or Press **IRIS Open** then the privacy area menu displays. Move the desired position. Press **IRIS Close** then the "CTRL" disappears and returns to the previous menu.

```
          PRIVACY AREA MENU
               CTRL KEY




   NUMBER OO1
   354.8   344.8
    EXIT
```

3. Place the cursor at the title field. Twist the **Joystick** to enter the title edit mode. Follow the procedure of the auto scan above to edit titles.

4. To turn the stored zone On or Off, twist the **Joystick** handle or press **Tele** or **Wide** Key.

5. Set the method, "BLACK" or "GRAY"

6. Select the Save and Exit option by pushing the **Joystick** up or down. Save and exit the program by pushing the **Joystick** to the right. Press **ESC** to exit the program without saving.

Press the **HOME** key to delete programmed privacy zone at the title field.

3.10 Camera Menu

```
            CAMERA SETUP

    FOCUS CONTROL
    WB CONTROL
    AE CONTROL
    CAMERA CONTROL
    SHARPNESS   :  10
    DIGITAL ZOOM :  OFF
    IMAGE FLIP  :  OFF
    PRESET FREEZE :  OFF
    RESOLUTION  :  720P/60


    SAVE AND EXIT
```

• FOCUS CONTROL

```
            FOCUS SETUP

      MODE          :  AUTO
      SENSITIVITY   :  NORMAL
      FOCUS LIMIT   :  1M
      SAVE AND EXIT
```
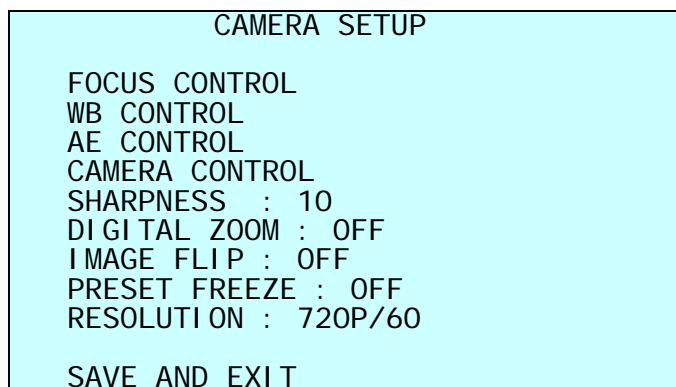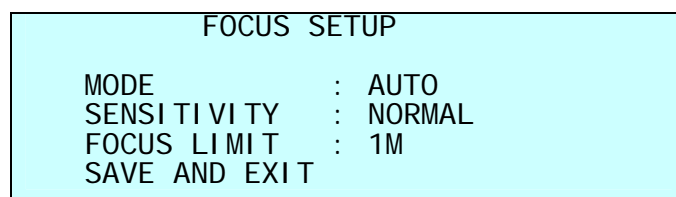
MODE	AUTO / MANUAL / ONE PUSH / CONSTANT MANUAL
	Use manual mode in normal use.
SENSITIVITY	NORMAL / LOW
	NORMAL: Use this option when shooting fast motion.
	LOW: Offers better focus stability. In low luminance conditions, Auto Focus stops operation even when brightness changes, enabling stable images of moving objects.
FOCUS LIMIT	This distance is approximate value and the focus operate from the setting value.

CAUTION: Avoid continuous, 24-hour use of the auto focus. This will shorten the lifespan of the lens.

• WB (White Balance) CONTROL

```
            WB SETUP

      MODE       :   ATW
      R GAIN     :   213
      B GAIN     :   174
    SAVE AND EXIT
```
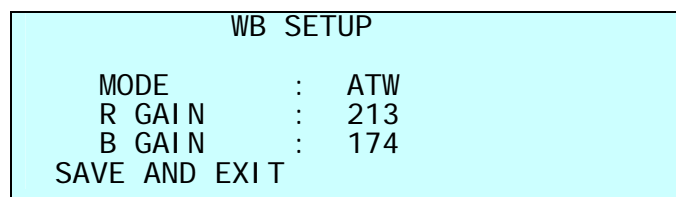
MODE	ATW / MANUAL / OUTDOOR AUTO / SODIUM AUTO / SODIUM AUTO / INDOOR / OUTDOOR

ATW	Auto tracing white balance. (2000 to 10000° K)
MANUAL	Control of R and B gain
OUTDOOR AUTO	Auto mode specifically for outdoors.
SODIUM AUTO	Auto mode that is compatible with sodium vapor lamps
SODIUM	Fixed mode specifically for sodium vapor lamps
AUTO	Computes the white balance value output using color information from the entire screen automatically. (3000 to 7500 °K)
INDOOR	3200 K base mode
OUTDOOR	5800 K base mode
RGAIN	0 ~ 255
BGAIN	0 ~ 255

RGAIN / BGAIN modes are controllable only in MANUAL Mode

• AE CONTROL

```
            AE SETUP

   MODE          :  MANUAL
   SLOW SHUTTER :  - - -
   IRIS          :  F1.6
   GAIN          :  0 DB
   BRIGHT        :  - - -
   SHUTTER       :  1/60
   BACK LIGHT    :  OFF
   WDR           :  OFF
   ADDITIONAL AE
   SAVE AND EXIT
```

MODE   AUTO / MANUAL / IRIS PRIO / SHUTTER PRIO / BRIGHT

   AUTO   Auto Iris and Gain, Fixed Shutter speed
                      (NTSC: 1/60 sec, PAL: 1/50 sec)
   MANUAL   Variable Shutter, Iris and Gain.
   IRIS PRIO   Variable Iris, Auto Gain and Shutter speed.
   SHUTTER PRIO   Variable Shutter speed, Auto Iris and Gain.
   BRIGHT   Variable Iris and Gain
SLOW SHUTTER   ON/OFF
IRIS   CLOSE / F14 / F11 / F9.6 / F8.0 / F6.8 / F5.6 / F4.8 / F4.0 / F3.4 / F2.8 / F2.4 / F2.0 / F1.6
GAIN   0 / 2 / 4 / 6 …… / 28 / -3 DB
BRIGHT   0, 1,2, 3, 4 25
SHUTTER   1/1 , 1/2 , 1/4(3), 1/8(6). .. 1/4000(3500), 1/6000, 1/10000
BACK LIGHT   Objects in front of bright backgrounds will be clearer with BLC ON.
WDR   ON,OFF

NOTE: Values in ( ) are for PAL Camera.
NOTE: The Back Light operates in AUTO mode only.
For example, if you change the back light to ON, the camera will change AE mode to "AUTO".

```
        ADDITIONAL AE SETUP

   NIGHT SHOT    :  OFF
   SLOW RESPONSE :  01
   HIGH SENS     :  OFF

   EXIT
```

NIGHT SHOT   AUTO,ON,OFF,GLOBAL

The NIGHT SHOT option removes the IR cutoff filter of the camera and makes the camera sensitive to near infrared.

   AUTO   Camera goes in to B&W mode at low light.
   GLOBAL   Controlled by the keyboard.
  The operator can enable NIGHT SHOT for all dome cameras at the same time.
  If the NIGHT SHOT mode is set to GLOBAL, "999" + ENTR will turn Off the NIGHT SHOT mode and
  "888" + ENTR will turn On the NIGHT SHOT mode.
  ON: B/W mode.
  OFF: Color mode.
  NOTE : Selecting the Night Shot to Auto mode will change AE mode to "AUTO".

SLOW RESPONSE 1-32

SLOW RESPONSE
The slow response function allows you to lengthen the automatic exposure response speed from 1 up to 32 times. For example, with the normal setting (about 1 second), if the headlights of a car are caught by the camera, the camera automatically adjusts the exposure so that it can shoot a high-intensity subject (in this case, the headlights). As a result, images around the headlights, that is, the rest of the subject, except the headlights, becomes relatively dark, and poorly distinguished. However, using the slow response function can still easily distinguish the portions of the image surrounding the headlights.

HIGH SENS   ON,OFF

• **CAMERA CONTROL**

```
              CAMERA CONTROL

    DNR CONTROL
    DN THRESHOLD          :  10
    BRIGHT OFFSET         :  0
    GAIN LIMIT            :  24 DB
    GAMMA                 :  STANDARD
    CHROMA                :  MID
    COLOR GAIN            :  130

     SAVE AND EXIT
```

DNR CONTROL

```
               DNR CONTROL

     DAY DNR              :  03
     DAY MOVING DNR       :  02
     NIGHT DNR            :  05
     NIGHT MOVING DNR  :  03

     EXIT
```

DAY DNR	**:** 0~5, DNR filter effect level when pan/tilt stop
DAY MOVING DNR	**:** 0~5, DNR filter effect level when pan/tilt move
NIGHT DNR	**:** 0~5, DNR filter effect level when pan/tilt stop
NIGHT MOVING DNR	**:** 0~5, DNR filter effect level when pan/tilt move

DN THRESHOLD   5, … 18 (default),…, 28
                         Adjusts the level of light at which the camera automatically switches out of night mode (B/W) operation.

BRIGHT OFFSET   (-7,…,0(default),…7) : Adjust the brightness level
                          (AUTO, SHUTTER PRIO, IRIS PRIO mode only) .

GAIN LIMIT   4~15, Gain limit in the AE mode

GAMMA   STANDARD / STRAIGHT / S-CURVE-LOW / S-CURVE-MID
                         S-CURVE-HIGH

COLOR GAIN   60 ~ 200

SHARPNESS   The higher the value, the more edges in the picture will be enhanced (0~15)

Digital ZOOM   OFF : Zoom range is limited to the optical.
                         2X   : Zoom is extendable up to 2X of digital range.
                         4X   : Zoom is extendable up to 4X of digital range.
                         MAX: Zoom is extendable Max digital zoom range

IMAGE FLIP   This function turns the video output from the camera upside down and reverses it horizontally.
                         This option is helpful to install in the opposite side.

PRESET FREEZE   ON: the image is frozen during calling preset.
RESOLUTION   720P/60fps, 720P/50fps, 720P/30fps, 720p/25fps
                           1080P/30fps, 1080P/25fps, 1080i/60fps, 1080i/50fps

3.11 Dome Communication

```
            DOME  COMMUNICATION

     DOME  ID     :  OOXX
     DOME  ID     :  XXOO
     PROTOCOL     :  AUTO
     BAUD  RATE   :  9600
     PARITY       :  NONE

     SAVE  AND  EXIT
```

DOME ID   : Setting the dome camera address (ID) selection (1 ~ 3999)
PROTOCOL   : AUTO, Fastrax II / IIE, Pelco-P / D
BAUD RATE   : Setting the RS 485 Baud Rate (2400, 4800, 9600, 19200, 38400)

3.12 Alarm Setup

```
              ALARM  SETUP

     N   P   FUN  IN    O     H     L
     01  1   OO1  X    OFF   03    OFF
     02  2   AO1  X    OFF   03    OFF
     03  1   ---  X    OFF   03    OFF
     04  1   ---  X    OFF   03    OFF

     DWELL    :   O3
     ALARM  OUT  SETUP

     SAVE  AND  EXIT
```

NO   : Alarm input number
PRI(Priority)   : The lower number has higher priority. (0-8)
FUN(function) : Stored function number to be called by alarm.
IN   : X - ignore, ON - Enable
OUT   : OUT1 ~ OUT2, OFF - No output.
HLD(HOLD)   : Alarm will be held for programmed time (03 to 99 seconds)
LATCH   : ON - Shows all alarms including past alarm.
                    OFF - Shows activated alarms only.
DWELL   :Means the dwell time during multiple alarms, 03 to 99 seconds.

The ALARM OUT setup is helpful when the outdoor housing is used with the dome.
Ex.) When you connect the relay output of the dome to the heater connector of the outdoor housing, the relay output can operate during the setting time only.

```
            ALARM OUT SETUP

        OUT1    : ALARM
        OUT2    : 1 MIN

        EXIT
```
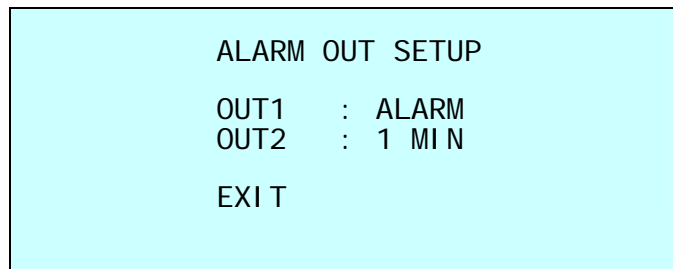
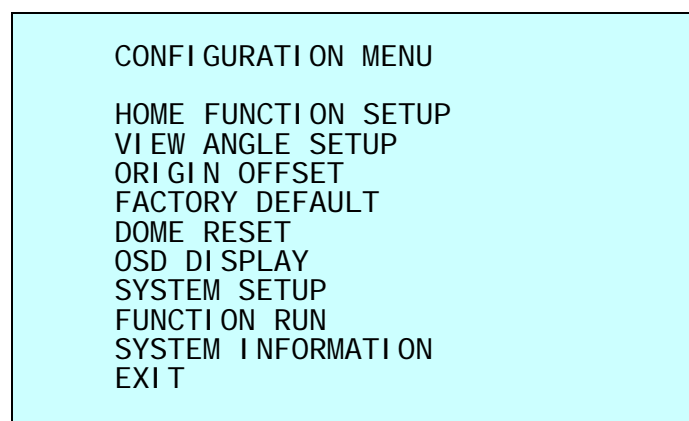**ALARM:** The alarm output is operated during an alarm operation or by the short key of our keyboard.
1-5 MIN(minute): The alarm output is operated during this setting time only by the function run of the dome menu or the short key of our keyboard.
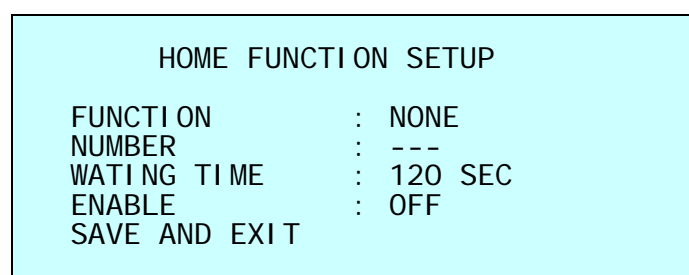**NOTE:** This **1-5 MIN** setting is not operated by an alarm.

There are 9 levels of priority. The function can be selected by Preset, Auto scan, Pattern or Tour and "0" is the highest priority. Lower priority alarms won't be serviced until the higher priority alarm is completed. Equal priority alarms will be serviced repeatedly with the dwell time.

3.13 Dome Setup

```
        CONFIGURATION MENU

        HOME FUNCTION SETUP
        VIEW ANGLE SETUP
        ORIGIN OFFSET
        FACTORY DEFAULT
        DOME RESET
        OSD DISPLAY
        SYSTEM SETUP
        FUNCTION RUN
        SYSTEM INFORMATION
        EXIT
```

• **HOME FUNCTION SETUP**

```
        HOME FUNCTION SETUP

    FUNCTION        : NONE
    NUMBER          : ---
    WATING TIME     : 120 SEC
    ENABLE          : OFF
    SAVE AND EXIT
```

HOME FUNCTION	: None/ Tour/ Pattern / Auto Scan / Preset
FUNCTION NUMBER	: - - -
WAITING TIME	: 10~240 Seconds
FUNCTION ENABLE	: ON/ OFF

The Home function can be set so that the camera automatically goes to Preset, Tour, Pattern, Auto Scan after the keyboard controller has been idle for a amount of time. For example, if the controller is idle for 120 seconds, the camera goes to preset 1.

Follow these steps to program the Home position:

1. Select Home Function by pushing the **Joystick** to the right or to the left to scroll through the None, Tour, Pattern, Auto Scan or Preset functions.

2. Select Function Number and push the **Joystick** to the right or to the left. The recorded function number will scroll.
3. Select WATING Time and push the **Joystick** to the right or to the left to select from 10 to 240 seconds.
4. Select Function Enable and turn to ON or OFF by pushing the **Joystick** to the right or to the left.

• VIEW ANGLE SETUP

```
       VIEW ANGLE SETUP

PANNING RANGE
FLIP              : 90°
TILT OVER         : ON
SAVE AND EXIT
```

FLIP: OFF,90°,100°,110°,120°,AUTO
   OFF: the dome camera moves until 90° vertically.
   90°, 100°, 110°, 120°: allows the image to flip digitally when the camera moves over the setting angle vertically.
   AUTO: When the camera reaches the floor directly above the moving object, it will stop. At that time, release the **Joystick** handle instantly and pull it down again to run the auto-flip function. When you use the panning range, we recommend using the flip mode to AUTO.

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

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

   Without Bubble: The tilt range of the camera is limited to see the horizon so the picture shows part of the ceiling line.

   With Bubble: The tilt range of the camera is limited to see below the horizon
   (10 degrees).
   Over Angle is not sufficient enough to avoid ceiling obstructions, please adjust Origin Offset of tilt angle as described below.

• ORIGIN OFFSET

```
        OFFSET SETUP
                    CTRL KEY

PAN OFFSET    : 000.0
TILT OFFSET   : 000.0
ENABLE        : OFF
SAVE AND EXIT
```

This feature is useful to align a new dome camera exactly the same as the previously installed dome camera.
Dome camera's origin set and all data initialize option do not override offset values. Only the default set option in this menu will set the offset value to zero. This can be used to avoid ceiling obstructions.

- **FACTORY DEFAULT**
  Select the Factory Default to initialize the Data.

```
                FACTORY DEFAULT

              ARE  YOU  SURE  ?

                   CANCEL
                     OK
```

• DOME RESET

```
                 DOME  RESET

              ARE  YOU  SURE  ?

                   CANCEL
                     OK
```

This feature is used to re-calibrate the orientation of a selected dome camera. Origin offset value is not affected by this function. (Offset is still valid after origin set)

• OSD DISPLAY

```
            OSD DISPLAY  SETUP

       TITLE              :  DOMEID
       DOME  OSD          :  ON
       FOCUS  EXPOSURE    :  ON

       SAVE  AND  EXIT
```

TITLE   : up to 6 characters.
DOME OSD   : ON / OFF
        All display or title will disappear when DOME OSD DISPLAY sets OFF

FOCUSE EXPOSURE   : ON / OFF
                        ON: FOCUS and EXPOSURE displays. (AF AE)

• SYSTEM SETUP

```
                SYSTEM MENU

       MOTOR  SETUP
       ORIGIN  CHECK
       CALIBRATION        :  ON
       MENU  TIME  OUT    :  OFF
       DOME  ANSWER       :  ON
       PST  FOCUS         :  AUTO

       SAVE  AND  EXIT
```

CALIBRATION   : ON (Auto origin check) / OFF
MENU TIME OUT   : ON(5mintues) / OFF(always menu display)
DOME ANSWER   ; ON / OFF(no acknowledge command from the dome) This option is helpful
to escape the collision of the command using some DVR.
PST FOCUS   : Set the default mode of the focus when you save the preset
                                    (AUTO / MANUAL / ONE PUSH)

MOTOR SETUP

Motor Setup menu provides the pan and tilt speed of a camera. User can set the desired speed with twist the **Joystick** left or right. During operation, pressing **153** **+** **ON** will change the speed to the SLOW mode and pressing **153** **+** **OFF** will change the speed to the Normal mode.
Holding and pressing **CTRL** and moving the joystick will operate with the TURBO speed mode.

```
            MOTOR SETUP

  PROPOTIONAL PT       : ON
  PT MODE              : NORMAL
  SLOW PAN MAX         :   40°/SEC
  SLOW TILT MAX        :   40°/SEC
  NORMAL PAN MAX       :   90°/SEC
  NORMAL TILT MAX      :   90°/SEC
  TURBO PAN MAX        : 360°/SEC
  TURBO TILT MAX       : 100°/SEC
  SAVE AND EXIT
```

PROPOTIONAL P/T   : ON / OFF
P/T MODE   : SLOW / NORMAL / TURBO
SLOW PAN MAXIMUM   : 19 ˚ - 90 ˚ /second
SLOW TILT MAXIMUM   : 19 ˚ - 90 ˚ / second
NORMAL PAN MAXIMUM : 40 ˚ - 360 ˚ /second
NORMAL TILT MAXIMUM : 40 ˚ - 200 ˚ /second
TURBO PAN MAXIMUM   : 200 ˚ - 380 ˚ /second
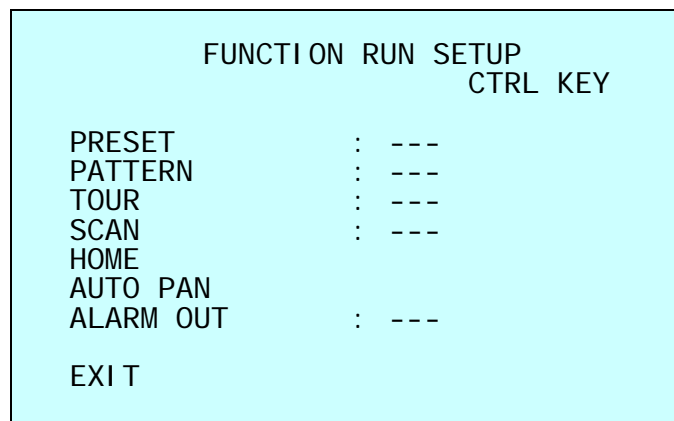**TURBO TILT MAXIMUM**   : 90 ˚ - 300 ˚ /second

ORIGIN CHECK

When you find the wrong position of the dome during operation, execute this origin check and the dome camera will arrange the right position after the origin check operation.
Pressing **151** **+** **ON** will execute the origin check.

```
            ORIGIN CHECK

          ARE YOU SURE ?

             CANCEL
               OK
```

‧ **Function Run**

This Function Run menu allows you to execute the function when you use a keyboard or a DVR without the function keys (Preset, Pattern, Tour and scan).

```
            FUNCTION RUN SETUP
                          CTRL KEY

    PRESET          :  ---
    PATTERN         :  ---
    TOUR            :  ---
    SCAN            :  ---
    HOME
    AUTO PAN
    ALARM OUT       :  ---

    EXIT
```

1. Select the desired Function by pushing **Joystick** Up or Down.

2. Select the number by twist the **Joystick** in PRESET,PATTERN,TOUR, and SCAN.

3. Press **CTRL** or **IRIS Open** to execute.

Note: To execute the function, you should save the function (PRESET, PATTERN, TOUR, and SCAN) first.

 - **HOME**
 Select the HOME menu and press **CTRL** key. Then dome camera goes to the default position to which the dome camera returns after an assigned period of inactivity passes.
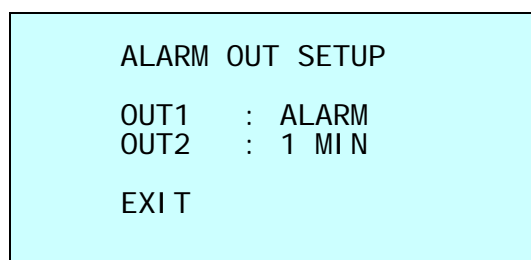The default position may be a Preset, Tour, Pattern or no action.

 - **AUTO PAN**
 You can execute the endless auto pan which is to turn one direction continuously by select the Auto Pan.

- **ALARM OUT**
This function can operate only when the alarm output setup has the time in the alarm menu.
Ex)

```
        ALARM OUT SETUP

        OUT1   :  ALARM
        OUT2   :  1 MIN

        EXIT
```

You can select OUT2 and press **CTRL** or **IRIS Open** then that relay operates during the setting time only.

Appendix A — Specifications

20X Full HD Mega Pixel HD-SDI Speed Dome Camera

MODEL	20X
MODULE	
Image Type	CMOS Sensor
Image Device	1/2.8 Inch
Image Readout	Progressive Scan
Optical / Digital Zoom	20x / 12x
Resolution	1280 x 720P / 60fps, 50fps, 30fps, 25fps 1980 x 1080P / 30fps, 25fps 1980 x 1080i/ 60fps, 50fps
Focal length	4.7mm ~ 94.0mm
Angle of view	4.7mm - 55.4°(H) 94.0mm - 2.9°(H)
White Balance Range	2500°K ~ 9600°K
Min. Illumination	
- Day Mode (Color)	1.7 Lux
- Night Mode (B/W)	0.26 Lux
Motion Detection(in PRESET)	YES
DOME	
Tilt angle	-10° ~ 190° (Digital Flip)
Image Flip	YES
Auto Calibration	0.1° ~ 6°
Panning angle	360 continuous rotation
Alarm	4 inputs / 2 outputs
Auto Scan	1 auto pan & 16 auto scans capability
Preset	240 presets with individual camera AE setup
Pattern	8 patterns (recording up to 500 sec)
Tour	8 tours (consist of 40 functions/1tour)
Max Speed	380° /sec
Privacy Zone	12 privacy zone masking

* Specifications are subject to change without notice *

| Electrical	
Input Voltage	24VAC / 12VDC ± 10%
Power Consumption	18W (1.5A)
Control	RS-485 baud rate: 2400~38.4k bps (default: 9600bps)
ID (Camera Address)	3999
Mechanical	
Dimension	See Figure below
Weight	Approx 1.2 kg
Pan Angle	360° continuous rotation
Speed	0.1° to 380°/sec. (proportional to zoom)
	380°/sec. maximum (with CTRL key pressed)
	Preset Speed: 380°/sec
Flip	180° Digital Flip or 90° Auto Flip.
Autoscan	16 auto scans and one endless panning
Preset Position	240 positions with camera status (6-character title)
Tour	8 tours
Pattern	8 patterns, up to 500 second
Privacy Zone	12 Privacy Zones
On-Screen Display	Displays camera ID and Pan & Tilt Angle
Environment	
Operating temperature	0°C to 50°C (32°F to 122°F)
Operating humidity	0 to 90%RH (non-condensing)
Storage temperature	-20°C to 60°C (4°F to 140°F)
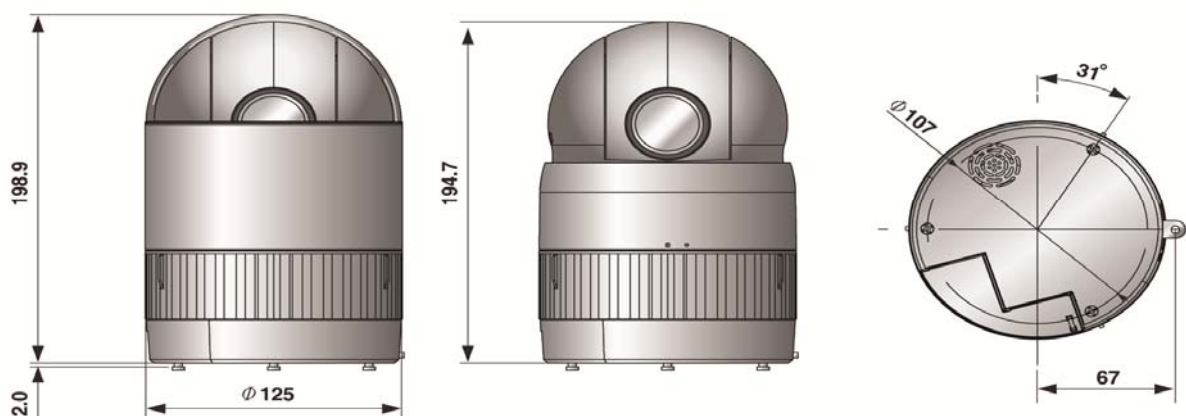
Figure 11 – Dimension

Appendix B — Glossary

ALARM ACTIONS

The assigned responses for the dome camera when inputs change from normal to abnormal states. The dome may run a Preset, Pattern, or have no assigned action for each of the four dome inputs. The dome may also send alarm states to the host controller for processing. See also Input and Normal Input State.

AUTOMATIC GAIN CONTROL (AGC)

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

FLIP

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

HOME POSITION

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

INPUT ALARM

A connection point on the dome camera that enables the system to monitor Input Devices. There are four inputs available for the dome camera.

INPUT DEVICES

External devices that provide information about the condition of system components that connect to the inputs on the dome camera. Typical input devices include door contacts, motion detectors and smoke detectors.

IR MODE

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

NAME INFORMATION

Relates to the display the dome name, the area where the dome is pointing, the name of the preset or pattern that is running, and alarm names. The display of each type of name setting can be enabled or disabled. When the display of camera or area title(name) is enabled, the information appears on the screen continuously. Preset, tour and pattern titles(names) appear only while they are active.

NORMAL INPUT STATE

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

SLOW SHUTTER

Setting used to improve the quality of video obtained in extreme low-light situations. When the Low Shutter setting is enabled, low-light information is collected over multiple fields based on the Shutter Limit setting. As a result, video may appear blurred or choppy in extreme low-light situations. This setting does not effect camera operation in normal lighting situations.

PATTERN

A series of pan, tilt, zoom and focus movements from a single programmable dome. Up to 8 patterns may be programmed for the dome camera.

PRESET

Programmed video scene, based on a specific pan, tilt, zoom, and focus settings. Up to 240 presets may be programmed for the dome camera.

PRIVACY ZONES

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

SHUTTER LIMIT

Setting used to define the maximum exposure time for the Open Shutter setting. The values for the setting range from 1/2 to 1/60. The default setting is 1/4.

VECTOR SCAN

Move from start point to end point including tilt and zoom simultaneously and linearly.

WHITE BALANCE

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

Appendix C — Short Cut Key

Short Cut Key	Function		
PRST	Pop up preset setup menu.		
TOUR	Pop up Tour setup menu.		
PTRN	Pop up Pattern setup menu.		
SCAN	Pop up Auto Scan setup menu.		
NO.+ CTRL + PRST	Store the current view at the selected number.		
Short Cut Key	**Function**	**Short Cut Key**	**Function**
1 + ON	Turn On Relay 1.	1 + OFF	Turn Off Relay.
2 + ON	Turn On Relay 2.	2 + OFF	Turn Off Relay.
7 + ON	Change FOCUS to AUTO	7 + OFF	Change FOCUS to manual
8 + ON	Change AE to AUTO	8 + OFF	Change AE to manual
9 + ON	Change Night Shot to AUTO		
10 + ON	Night Shot on (go to the manual mode)	10 + OFF	Night Shot off (go to the manual mode)
11 + ON	BLC on (AE auto mode)	11 + OFF	BLC off (AE auto mode)
12 + ON	Digital Zoom on (According to digital zoom setting)	12 + OFF	Digital Zoom off
13 + ON	Dome OSD on	13 + OFF	Dome OSD off
14 + ON	Dome Area Title Display on	14 + OFF	Dome Area Title Display off
100 + ON	Shutter speed auto		
101 + ON	Shutter speed 1/4(PAL 1/3)sec		
102 + ON	Shutter speed 1/2 sec		
103 + ON	Shutter speed 1 sec		
150 + ON	Image Flip ON	150 + OFF	Image Flip off
151 + ON	Origin Check		
152 + ON	Place the camera in the 0° area horizontally.		
153 + ON	Go to the slow speed mode	153 + OFF	Go to the normal speed mode
154 + ON	Display System Information		
155 + ON	Flip the camera in the 180° area horizontally.		
250 + PRESET	Set the dome ID up to 3999		
888 + ENTER	Night Shot on (in the global mode only)		
999 + ENTER	Night Shot off (in the global mode only)		

* Some function may not operate according to the model.

- MEMO -

- MEMO -

20X Full HD Megapixel
HD-SDI Speed Dome Camera