GeoVision inc
The Vision of Security

GV-HD-SDI Camera

GV-SDI-BX100 User's Manual

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

Contents

1. Safety Precautions and Installation Consideration

<table>
<tr><td></td><td>CAUTION</td><td></td></tr>
<tr><td></td><td>RISK OF ELECTRIC SHOCK.
DO NOT OPEN!</td><td></td></tr>
<tr><td colspan="3">CAUTION :
TO REDUCE THE RISK OF ELECTRICAL SHOCK,
DO NOT OPEN COVERS (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.</td></tr>
</table>
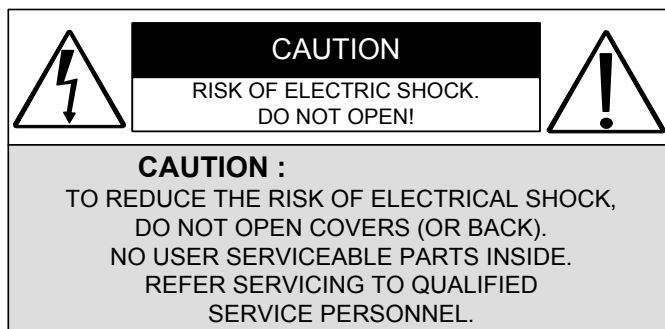
It is advised to read the Safety Precaution Guide through carefully before operating the product, to prevent any possible danger.

WARNING: Alert the user to the presence of un-insulated "dangerous voltage".

CAUTION: Alert the user the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.

Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems).

This symbol indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Please be extra careful not to shake the product.

Please avoid places where frequent vibrations or shocks.

Do not install the product in extreme temperature conditions.
Only use the camera under conditions where temperatures are between -10℃ and +60℃. Be especially careful to provide ventilation when operating under high temperatures.

Do not install the product in an environment where the humidity is high.

Unless the product is waterproof or weatherproof, otherwise it can cause the image quality to be poor.

Do not expose to strong light (sun rays), as color filters will be discolored.

Do not spill liquid of any kind on the product.

If it gets wet, wipe it dry immediately. Alcohol or beverage can contain minerals that corrode the electronic components.

When any abnormal occurs, make sure to unplug the unit, and contact your local dealer.

Installation Consideration:

It is recommended to use RG-59 cable, with the maximum cable distance of 100 meters, to maintain a stable signal.

2. Introduction

This HD-SDI digital image camera uses a high sensitive color Sony 1/2.8" interline transfer Charge Coupled Device (CMOS) image sensor, producing pictures reaching up 900 lines of horizontal resolution.

Super ATR-EX technology can achieve the WDR application through the normal image sensor. The camera-side initiatively provides mobile detection warnings offering more comprehensive monitoring of safety protection. Carefully planned privacy zone enables monitoring more at ease.

There are two models of cameras:

Model No.	Lens	Description
GV-SDI-BX100-0	Varifocal	2 MP, D/N, Auto Iris
GV-SDI-BX100-1	Fixed	2 MP, D/N, Fixed Iris

3. Features

High Resolution
CMOS Sensor provides high resolution reaching up 900 TVL with advanced and clear picture quality.

Excellent Sensitivity
High sensitivity, low smear, high anti-blooming and high S/N ratio

ATR-EX (WDR)
High-quality ATR-EX (Augmenting Tone Reproduction) or WDR (Wide Dynamic Range). Functions perfectly show the image details between dark and light. Newly added environment dynamic detection switch, enhancing image efficiency.

Digital Noise Reduction (DNR)
2D DNR, realize the clear image at low light environment, clear picture quality saving hard disk storage size of DVR.

Day & Night
Mechanic IR cut-filter driving unit with AE provides change from color to B&W mode automatically for day and night 24-hour surveillance. Selectable between manual Day & Night control or from external input signal Day & Night control.

Resolution Support
Support 12 types of resolution and Auto switch image output. 1080P60 ,1080P50 ,1080I60 , 1080I50, 1080P30, 1080P25 , 1080P59.94 , 1080P29.97 , 1080I59.94 ,720P60, 720P50 , 720P59.94.

Privacy Mask
Privacy image masking with free position supports up to 16 privacy mask areas.

RS485 / RS422 Function
Support PELCO P/D protocol , RS485 / RS422 function output.

Lens (C/CS Mount)

Support the auto-iris lens by DC type (DC-Drive) or fixed iris lens.

Extra Connection

Control the camera easily by keyboard/PT Driver via RS485 interface.

OSD

OSD (On Screen Display) Setup Menu. Camera title setup of up to 16 alphanumeric letters.

Image Control

Performance: positive/ negative image, mirror function (left/ right), reverse turn (up/ down), and 180° rotation.

Hotkey (Factory Default)

Press Up button for approximately 10 seconds after power-on, the camera will be reset to its factory settings.

Application

All functions can be operated from OSD: AES (Automatic Electronic Shutter), AI (Auto Iris), GC (Gain Control), WB (White Balance) and BLC (Back Light compensation).

4. Packing List

Check and make sure all the items shown below are included in your product package. If something is missing, contact your dealer as soon as possible.

1. GV-HD-SDI Camera (with Varifocal or Fixed Megapixel Lens)
2. DC 12V Power Adapter
3. Accessories
   - Screw x 2
   - Mounting Tripod Base x 1
   - L-wrench x 1
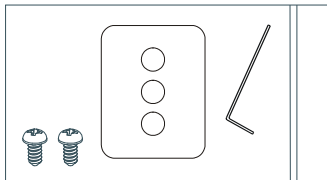
4. User's Manual

5. Name and Function of Each Part

5.1 Front View

GV-SDI-BX100-0 (Varifocal Lens)

①	**Focus Screw**	Adjusts the focus of the camera.
②	**Zoom Screw**	Adjusts the zoom of the camera.
③	**Auto Iris Connector**	Plug the iris control cable to the connector.
④	**Mounting Tripod Base**	Mounting base for installing the camera.

GV-SDI-BX100-1 (Fixed Lens)

①	**Focus Screw**	Adjusts the focus of the camera.
②	**Auto Iris Connector**	Not functional.
③	**Mounting Tripod Base**	Mounting base for installing the camera.

5.2 Rear View
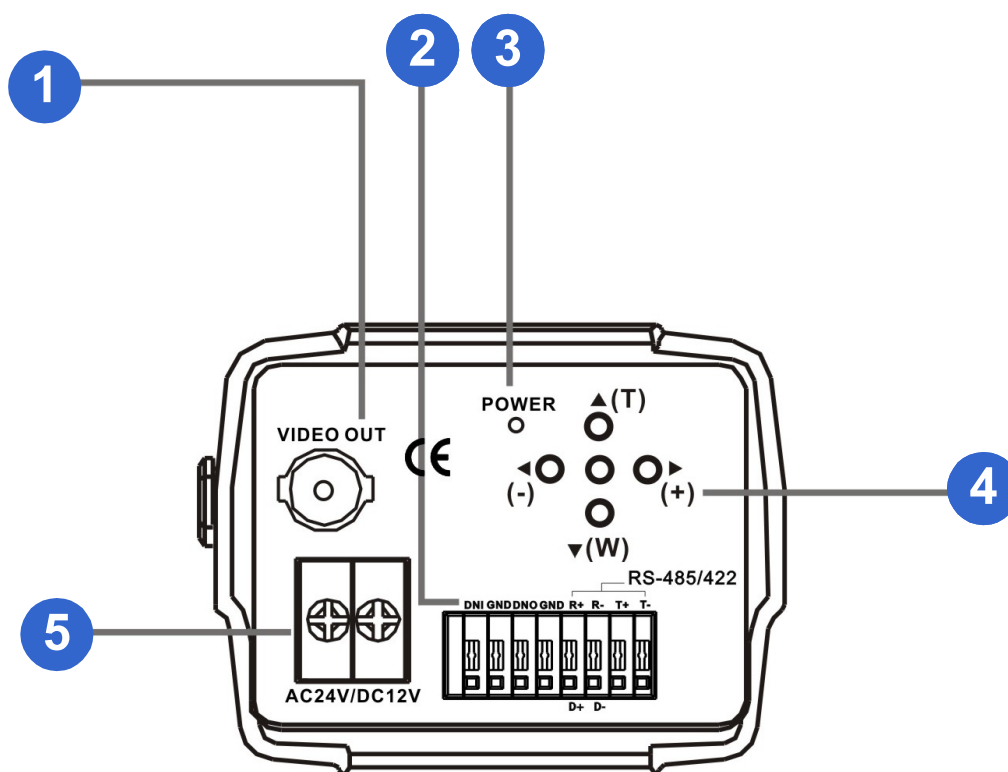
①   **Video-Out terminal:**   Sends video signal (HD-SDI) and connects to the video input terminal of the monitor.

②   **Function Input/ Output and RS-485 Interface**
(Protocol: AUTO/ NATIVE/ PELCO/ LG. Speed: 2.4K/ 4.8K/ 9.6K/ 115.2K BPS)

No.	Name	Function
1	DNI	External Day/ Night input
2	GND	Ground
3	DNO	Day/ Night output
4	GND	Ground
5	D+ R+	RS-422/ RS-485 Interface R+
6	D- R-	RS-422/ RS-485 Interface R-
7	T+	RS-422/ RS-485 Interface T+
8	T-	RS-422 RS-485 Interface T-

③   **Power LED:**   This lamp is lit when the camera is receiving power normally.

④ **OSD Button:**

No.	Name	Function
1	▲	Up (▲)
2	▼	Down (▼)
3	(+)/►	Increase Value (＋)
4	(-)/◄	Decrease Value (－)
5	Menu	Enter or Exit Setup Menu

• Up button: Used to move cursor up in the menu screen and to zoom-in.

<Note>
Press Up button for approximately 10 seconds after power-on, the camera will be reset to its factory settings.

• Down button: Used to move cursor down in the menu screen and to zoom-out.

• Right button: Used to move the cursor right in the menu screen and to increase a setup value.

• Left button: Used to move the cursor left in the menu screen and to decrease a setup value.

• Menu Button: Displays the menu on the screen and to enter or exit the selection.

⑤ **Power input terminal:** Connects to the appropriate power.

6. Installation
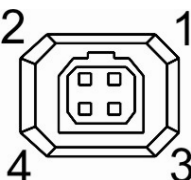
6.1 Lens Type

The camera is supplied with a CS-mount lens. You could refer to the below steps only when changing lenses.

6.2 Using Auto Iris Lens

Fit the cover of the auto iris connector plug, remove the protective glass cover from the front of the camera, and fasten the auto iris lens by turning it clockwise.

Auto Iris PIN definitions

Pin	VIDEO DRIVER	DC DRIVER (Direct DRIVE)
1	VDC OUT	DAMP-
2	IRIS OUT	DAMP+
3	N.C.	DRIVE+
4	GND	DRIVE-
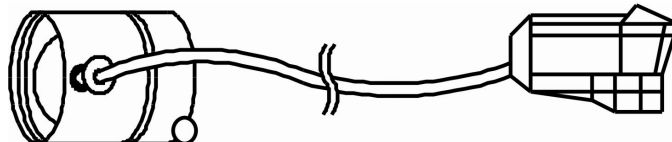
1. Fit the cover of the auto iris lens connector plug, remove the protective glass cover from the front of the camera, and fasten the auto iris lens by turning it clockwise.
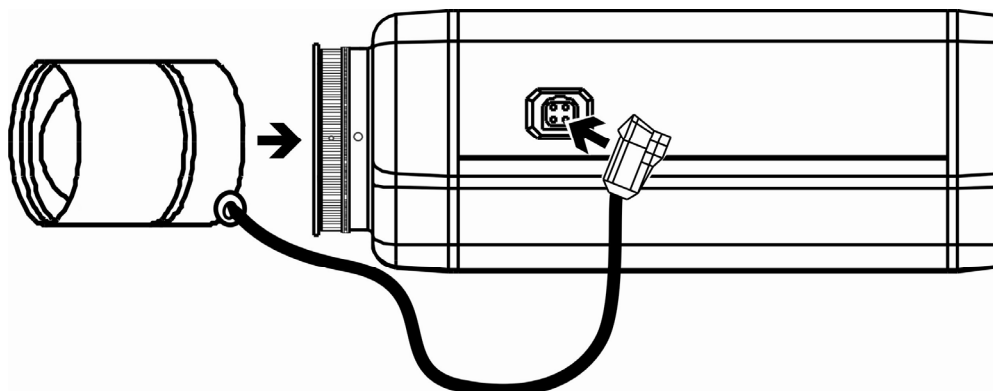
3. When a lens is mounted, adjustment of the back-focus may sometimes be required. Adjust the lens focus ring when the correct focus cannot be obtained.
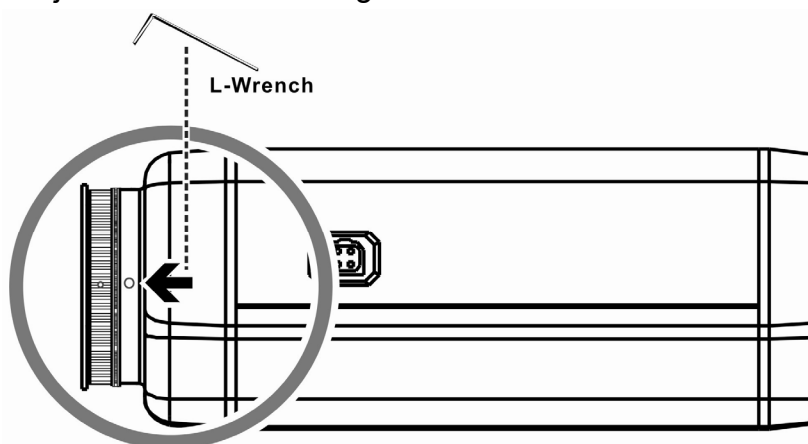
Back Focus Adjustment

(1) Fully open the aperture and set the focus ring to " | " (infinity).

(2) Loosen the two back-focus screws with L-wrench, and turn the lens mount to focus.

(3) After adjusting the back-focus, tighten the back-focus screw.

6.3 Using a C/CS-Mount Lens

You can optionally change the lens on the camera. Before installing a lens, identify the lens type first. (C-Mount or CS-Mount.)

6.3.1 Installing a CS Mount Lens

Remove the installed lens on the camera, and turn the CS-Mount Lens clockwise to install it. And set focus of the camera by loosening the two back-focus screw with an L-wrench.
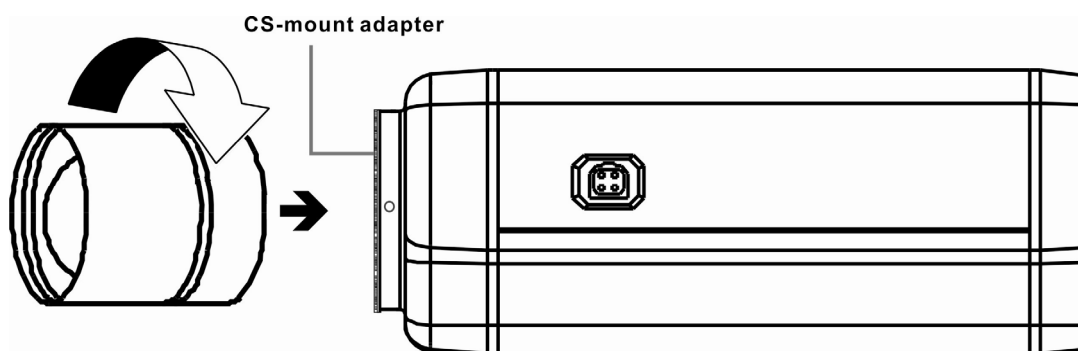
6.3.2 Installing a C Mount Lens

Remove the installed lens on the camera, and turn the C-Mount Lens clockwise to install it. And set focus of the camera by loosening the two back-focus screw with an L-wrench.

<Note>
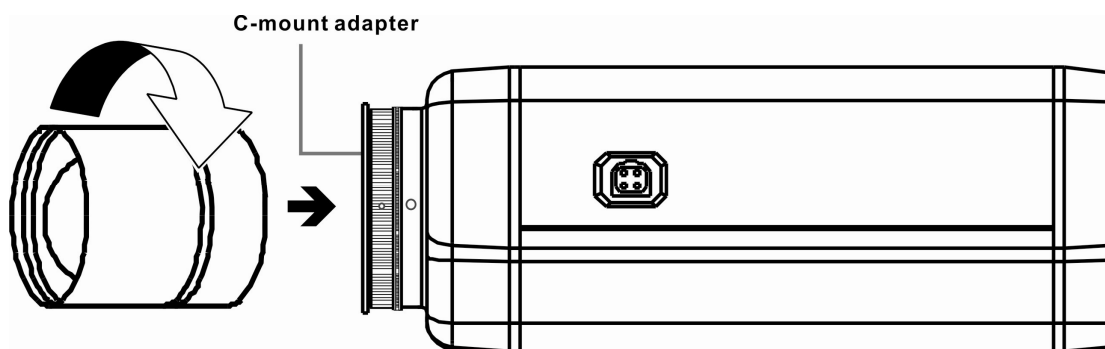
- C-mount adapter is not supplied with the camera.
- Use the lens connector shown in the following figure. If the dimensions of the connector are incorrect, it may damage the camera, or the lens may not be installed firmly.

C-Mount Lens: 10mm or less
CS-Mount Lens: 5mm or less
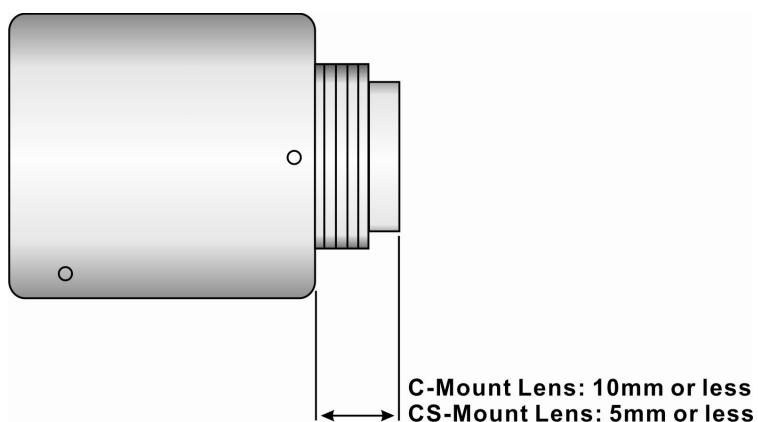
6.4 Connect to Monitor

Connect the Video-out (HD-SDI) port on the rear panel of the camera to a monitor. As the connecting method varies depending on the instrument, therefore refer to the manual supplied with the instrument for more information.
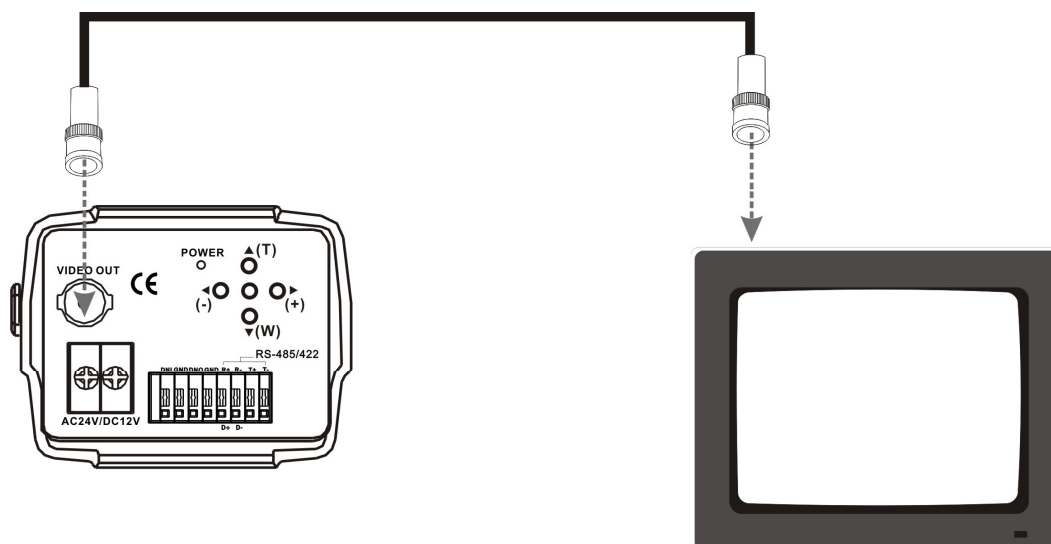
6.5 Connect the Power

Since the camera supports both AC and DC, you may connect an AC 24V, 1000mA adaptor or a DC 12V, 1000mA adaptor. There is no positive (+) and negative (-) difference for the two power connectors.
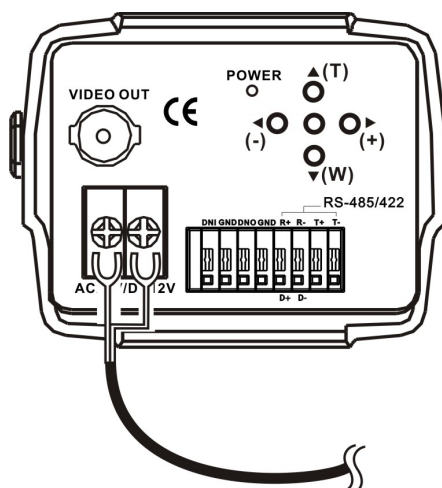
6.6 Connection Layout

To connect the keyboard and IR illuminator, follow the instructions shown below:
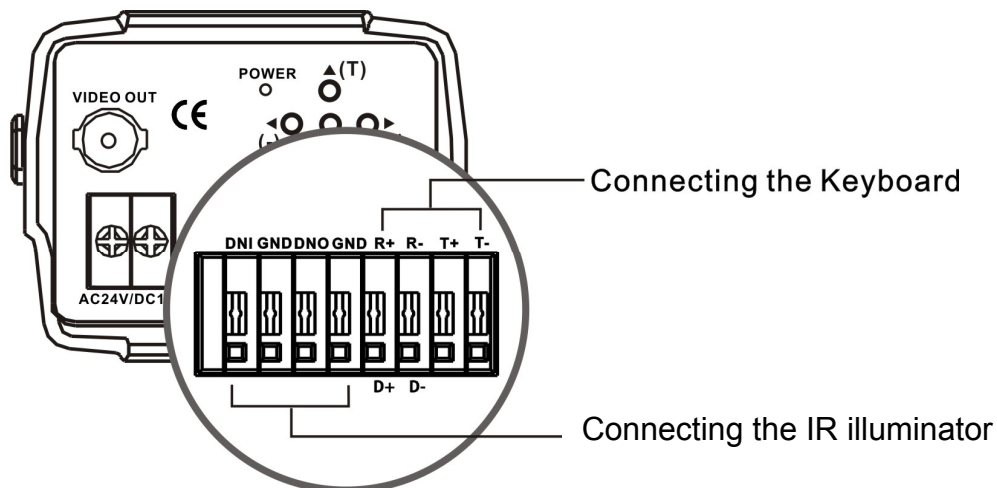
6.6.1 Connecting the Keyboard
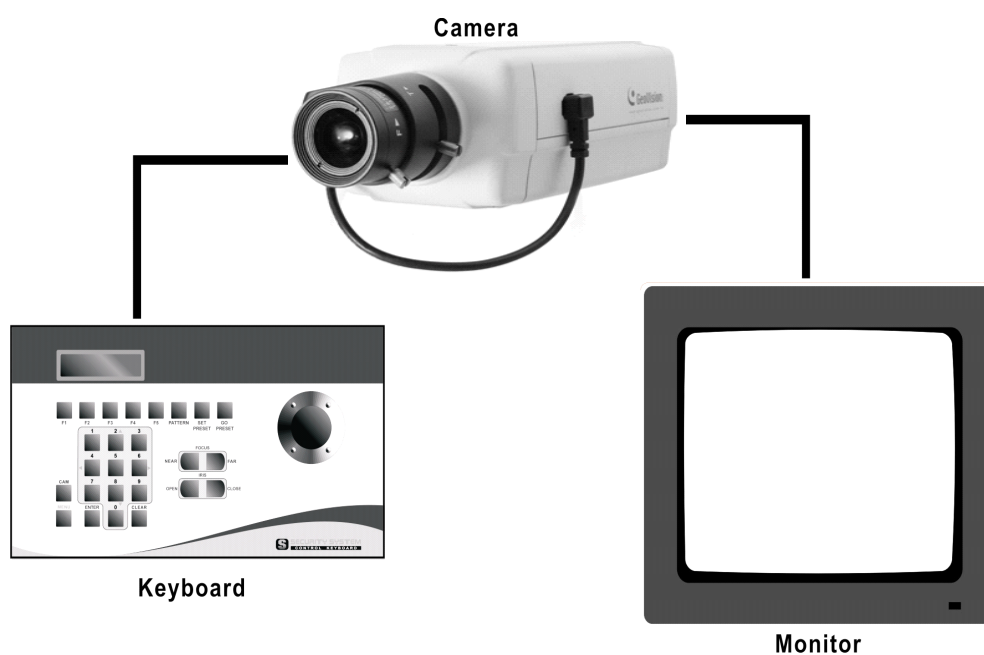
PELCO Keyboard (or compatible) Installation

RS-422 interface is used for communicating PELCO keyboard. Refer to Fig. 1; connect R+ of the camera to T+ of the PELCO keyboard. Connect R- of the camera to T- of the PELCO keyboard.

User could adjust Camera ID via rear panel keys or via remote commands. Protocol, Speed and Parity should only be adjusted via rear panel keys.

Communication	Setting
CAMERA ID	1 ~ 255 for P protocol
	1 ~ 255 for D protocol
PROTOCOL	PELCO
SPEED	2400, 4800, 9600, 115200
PARITY	NONE

The speed of camera should be the same as the speed of the keyboard. Adjusted function is only effective, after exiting the OSD setup menu.

<Note>
- Maximum cable distance for RS-485 communication over 24-gauge wire is 4,000 feet (1,219 m). Recommend using shielded twisted pair cable that meets the basic requirements for EIA RS-485 applications.
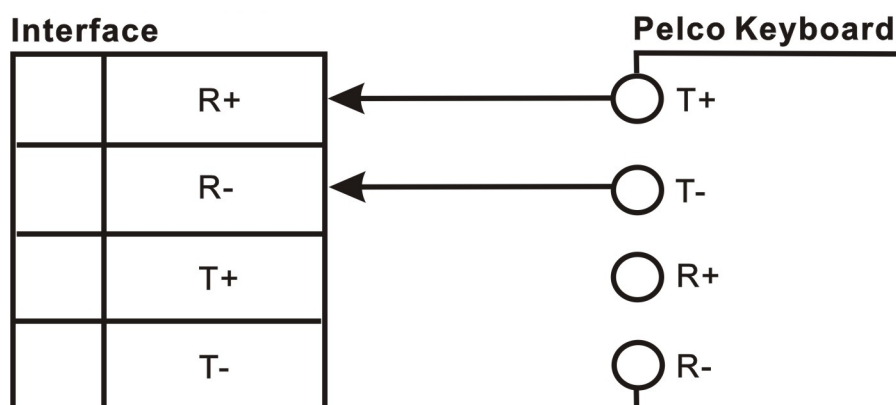
Fig.1

6.6.2 Connecting the IR Illuminator

IR Illuminator
(Light Sensor)

Camera

IR Illuminator
(Camera Control)
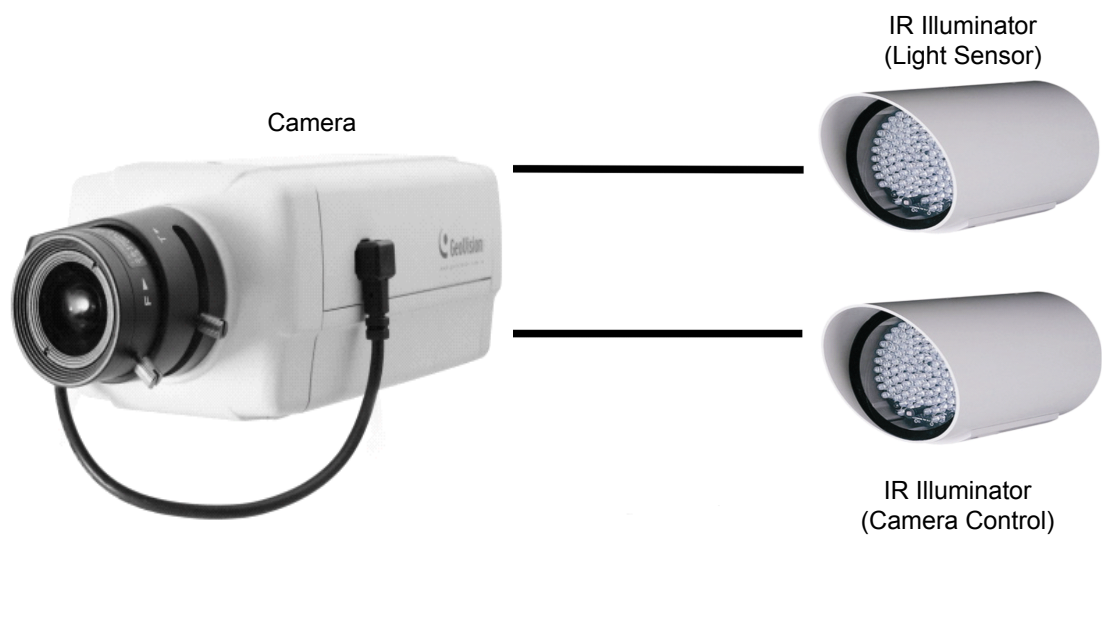
<Note>
* The camera supports GV-IR LED T2, but it does not support GV-IR LED.

GV-IR LED T2 Installation

1.   Connect DNO of the camera with the yellow wire of GV-IR LED T2, and connect GND of the camera with the green wire of GV-IR LED T2.

Camera

GV-IR LED T2

DNI
GND
DNO
GND

Green

Yellow
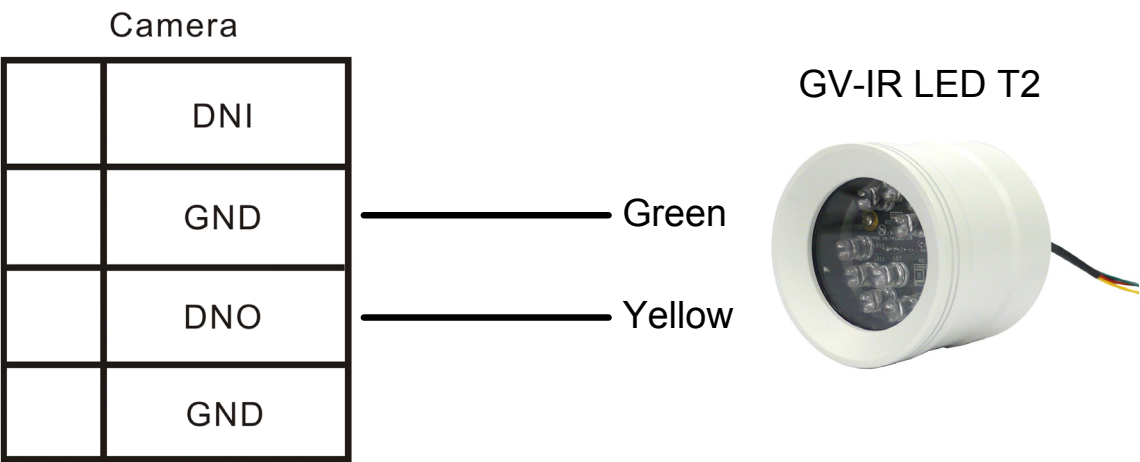
2. Twist the red wire from the GV-IR LED T2 to the power cable (DC 12 V) from the power adapter, which has the gray stripes on it, and twist the black wire from the GV-IR LED T2 to the power cable (ground) from the power adapter, which has the characters on it.

Red Wire from the GV-IR LED T2 →

← **Black Wire from the GV-IR LED T2**

Power Cable (DC 12 V) → ← **Power Cable (ground)**
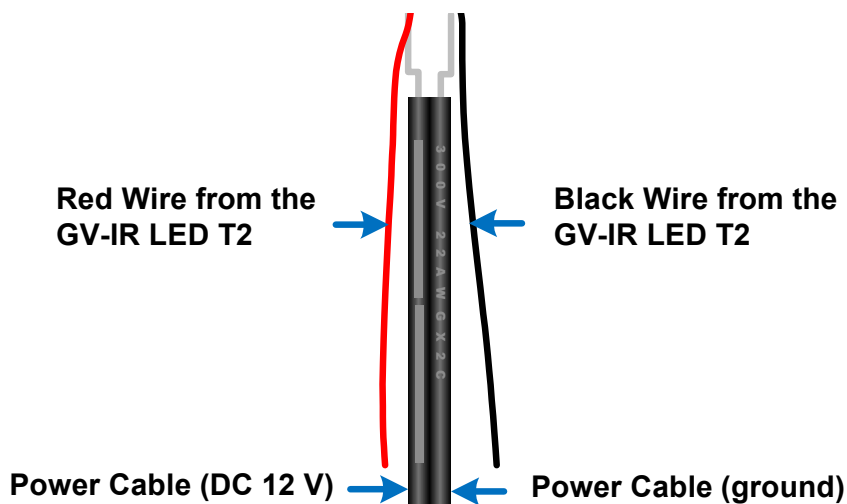
3. Connect the wires from step 2 to the power connectors on the camera.
4. On the OSD menu, select **Camera Setup** and set Day/Night Mode to **AUTO** (default value). Then select **Camera Setup** and set **DI/DO** to **DI/H : DO/L** or **DI/L : DO/L** (both selections are okay).

Light Sensor Installation

1. Connect DNI and GND of the camera to the DNI and GND of the IR illuminator (with light sensor).

Camera	IR Illuminator (Light Sensor)
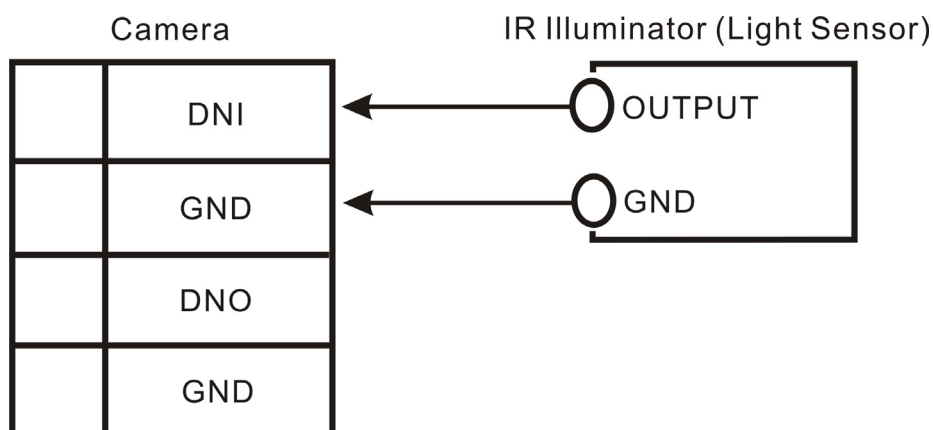
2. On the OSD menu, select **Camera Setup** and set Day/Night Mode to **EXT**.
3. If the operating IR illuminator (with light sensor) is of high voltage (5 V), select **Camera Setup** and set DI/DO to **DI/H : DO/L** or **DI/H : DO/H** (both selections are okay).
4. If the operating IR illuminator (with light sensor) is of low voltage (0 V), select **Camera Setup** and set DI/DO to **DI/L : DO/L** or **DI/L : DO/H** (both selections are okay).
5. If the IR illuminator (with light sensor) works in conjunction with the IR illuminator (of camera control), in which the light sensor will trigger the camera and then the camera will trigger the IR illuminator, you need to set up DI/DO on the OSD menu based on the operating voltage of the devices:

    *   The operating IR illuminator (with light sensor) of high voltage (5 V) + the operating IR illuminator (of camera control) of high voltage (5 V): select **Camera Setup** and set DI/DO to **DI/H : DO/H**.
    *   The operating IR illuminator (with light sensor) of high voltage (5 V) + the operating IR illuminator (of camera control) of low voltage (0 V): select **Camera Setup** and set DI/DO to **DI/H : DO/L**.
    *   The operating IR illuminator (with light sensor) of low voltage (0 V) + the operating IR illuminator (of camera control) of high voltage (5 V): select **Camera Setup** and set DI/DO to **DI/L : DO/H**.
    *   The operating IR illuminator (with light sensor) of low voltage (5 V) + the operating IR illuminator (of camera control) of low voltage (0V): select **Camera Setup** and set DI/DO to **DI/H : DO/L**.

For the OSD settings, see *8.2.3 DAY/NIGHT Setup* and *8.2 Sub Menu Description*.

IR Illuminator Installation

1. Connect DNI and GND of the camera to the DNI and GND of the IR Illuminator (of camera control).

```
            Camera
  ┌──────┬─────────────┐
  │      │             │
  │      │    DNI      │
  │      │             │           IR Illuminator (Camera Control)
  ├──────┼─────────────┤         ┌─────────────────────────────┐
  │      │             │         │                             │
  │      │    GND      │──────▶  │  ◯ GND                      │
  │      │             │         │                             │
  ├──────┼─────────────┤         │                             │
  │      │             │         │                             │
  │      │    DNO      │◀──────  │  ◯ INPUT                    │
  │      │             │         │                             │
  ├──────┼─────────────┤         └─────────────────────────────┘
  │      │             │
  │      │    GND      │
  │      │             │
  └──────┴─────────────┘
```
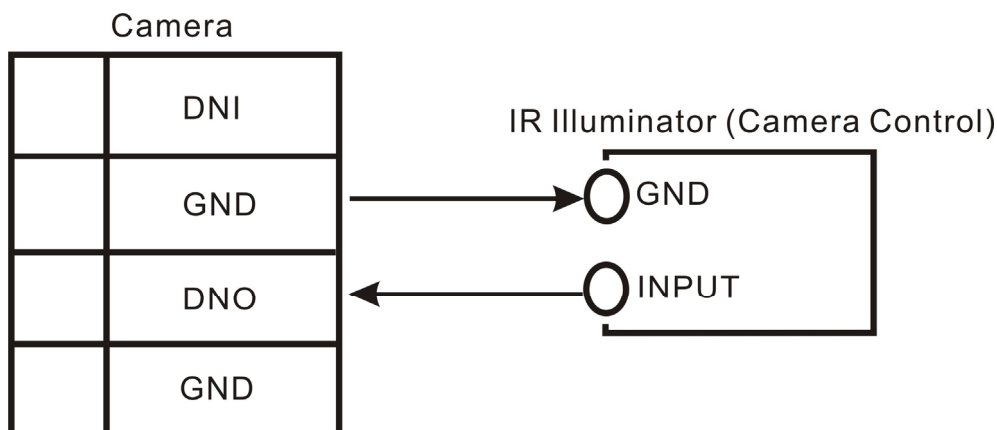
2. To automatically switching between night and day modes:
   - If the operating IR illuminator (of camera control) is of high voltage (5 V), on the OSD menu, select **Camera Setup** and set Day/Night Mode to **AUTO** (default value). Then select **Camera Setup** and set DI/DO to **DI/H : DO/L** or **DI/L : DO/L** (both selections are okay).
   - If the operating IR illuminator (of camera control) is of low voltage (0 V), on the OSD menu, select **Camera Setup** and set Day/Night Mode to **AUTO** (default value). Then select **Camera Setup** and set DI/DO to **DI/H : DO/H** or **DI/L : DO/H** (both selections are okay).

3. To remain the camera on the night mode,
   - If the operating IR illuminator (of camera control) is of high voltage (5 V), on the OSD menu, select **Camera Setup** and set Day/Night Mode to **NIGHT**. Then select **Camera Setup** and set DI/DO to **DI/H : DO/H** or **DI/L : DO/H** (both selections are okay)..
   - If the operating IR illuminator (of camera control) is of low voltage (0 V), on the OSD menu, select **Camera Setup** and set Day/Night Mode to **NIGHT**. Then select **Camera Setup** and set DI/DO to **DI/H : DO/L** or **DI/L : DO/L** (both selections are okay).

4. To have the IR illuminator (with light sensor) working with the IR illuminator (of Camera Control) together, see Step 5 of *Light Sensor Installation* mentioned earlier.

For the OSD settings, see *8.2.3 DAY/NIGHT Setup* and *8.2 Sub Menu Description*.

7. Operation

1. Mount the camera on the mounting bracket by using the hole on the top or bottom of the camera, and by using the enclosed mounting block, secured by 2 screws.
2. Connect the video output to the monitor or other video device via a 75 Ohms type coaxial cable.
3. Power Input Terminal (Dual Power): the camera accepts both AC 24V and DC 12 V power sources (non-polarity).

7.1 PELCO Keyboard (or compatible) Operation

OSD Setup Menu Mode

PELCO Keyboard	Camera Function
OPEN	Sub Menu Enter
CLOSE	Sub Menu Exit
Move Joystick Left	Decrease (-)
Move Joystick Right	Increase (+)
Move Joystick Up	Cursor Up
Move Joystick Down	Cursor Down

Connecting PELCO keyboard with the camera:
1. Find the DIP switch at keyboard back panel and press down No. 5, 6, and 7 to meet the required speed (2400).
2. Press buttons 0, 1 and CAM on the keyboard to set the camera ID.
3. Press buttons 9, 5 and PRESET for startup.
4. Press OPEN button to show the OSD menu for further camera control.

<Note>
- Refer to PELCO Keyboard manual for more information.

8. System Setup

8.1 OSD (On Screen Display)

Main Menu Display

```
MAIN MENU          V1.00 2012-04-03
        PROFILE              STANDARD
        CAMERA SETUP            —
        PRIVACY MASK            —
        DISPLAY INFO            —
        COMMUNICATION           —
        SYSTEM INFO             —
        DEFAULT               ON
```

Main Menu Setup

- In order to display the setup menu on the screen, set the menu command or press the button panel.
- Use ▲/ ▼ control buttons to select each item.
- Use ◄(—)/ ►(+) control buttons to change the data.
- Use MENU control button to ENTER/ EXIT the menu display.

<Note>
- The default option will set all the configuration settings to factory default values.

8.2 Sub Menu Description

```
┌─────────────────────────────────────┐
│           CAMERA SETUP              │
│                                     │
│   LENS                  DC          │
│   DI/DO                 DI/L : DO/H │
│   EXPOSURE              ─           │
│   DAY/NIGHT            ─           │
│   WHITE BALANCE        ─           │
│   EFFET                ─           │
│   RETURN               ON          │
│                                     │
└─────────────────────────────────────┘
```

8.2.1 CAMERA Setup

The box camera supports both DC-type and Manual-type lenses. DC-type lens application is suggested for best quality and performance.

8.2.2 EXPOSURE Setup

```
┌─────────────────────────────────────┐
│             EXPOSURE                │
│                                     │
│   ATR-EX              NORMAL        │
│   LEVEL               NA            │
│   SHUTTER             AUTO          │
│   BLC                 OFF           │
│   AGC                 HIGH          │
│   DNR                 OFF           │
│   DEFAULT             ON            │
│   RETURN                            │
│                                     │
└─────────────────────────────────────┘
```

1. There are two types of modes: NORMAL / ATR-EX

2. Level 0~4 step (ATR-EX default: 3). The larger the value, the larger the image efficiency.

3. SHUTTER consists of the following types :

   AUTO ,1/50 ,1/60 , 1/90, 1/100(FLK) ,1/120(FLK) ,1/180 , 1/250, 1/350 , 1/500,1/725, 1/1000, 1/1500,1/2000 ,1/2500 ,1/4000 ,1/5000 , 1/10000 ,1/20000 (Default Setup: AUTO).

<Note>

- When images appear fuzzy, select 1/60 for the country of NTSC (60 Hz) and 1/50 for the country of PAL (50 Hz).

4. BLC ON/OFF (Default Setup: OFF).

5. AGC modes: OFF / LOW / MID / MID.HIGH / HIGHT

6. DNR Level: OFF / 1~5 step. Enable / Disable 2DDigital Noise Reduction function (Default Setup: OFF).

7. DEFAULT: Return to exposure default setup.

8. RETURN: Return to previous status.

8.2.3 DAY/NIGHT Setup

```
                    DAY/NIGHT

        MODE              AUTO
        DAY TO NIGHT      148
        NIGHT TO DAY      73
        DELAY TIME        5
        B/W               OFF
        DEFAULT           ON
        RETURN

        VALUE   2074
        D2N   3996
        N2D   1971
```

1. There are four types of modes: AUTO/ DAY/ NIGHT/ EXT (Default Setup: AUTO).
   (1) AUTO: According to DAY→NIGHT and NIGHT→DAY (Threshold Value), it will auto switch to Color or B/ W.
   (2) DAY: Fixed to Color mode.
   (3) NIGHT: Fixed to B/ W mode.
   (4) EXT: When Day & Night mode is set to "External" on the camera OSD menu, this function will switch according to the IR Illuminator (light sensor). For more information, refer to the back panel function (Input Pin [DNI]).

2. DAY→NIGHT: The threshold value of color change (from color to B/ W) under AE mode. Switches to B/W when "D2N "$\leqq$ "VALUE".

3. NIGHT→DAY: The threshold value of color change (from B/ W to color) under AE mode. Switches to Color when "N2D"$\geqq$ "VALUE".

4. DELAY TIME: Adjust the level from 1 to 60 seconds.

5. B/W: Set to ON for B/W images and OFF for Color images.

6. DEFAULT: Return to day/night default setup.

7. RETURN: Return to previous status.

<Note>
- When D/N are set to AUTO, the value will be automatically adjusted regarding to the circumstances.
- Using DC LENS from different manufacturers may result in switching problems (unable to switch), you could adjust and operate according to current environment (adjust DAY-NIGHT or NIGHT-DAY value in order to meet the current environment).
- Day Night ambiguity suppression:
  Because the ICR filter of the camera switches according to the illumination environment. The system in order to avoid the occurrence of ICR hunting issue, as in some special environments, the Day/Night function may keep on switching the ICR filter. If the ICR keeps on switching for over three times, the camera will disable the Day/Night detection function. And the Day/Night detection function will return to Auto after 30 min.

8.2.4 WHITE BALANCE Setup

```
┌─────────────────────────────────────────┐
│             WHITE BALANCE                │
│                                          │
│     WB MODE              AWB             │
│     RED GAIN             NA              │
│     BLUE GAIN            NA              │
│     PUSH AUTO            NA              │
│     DEFAULT              ON              │
│     RETURN                               │
│                                          │
└─────────────────────────────────────────┘
```

1. WB MODE: Five types of mode: AWB, ATW, INDOOR, OUTDOOR, PUSH AUTO, and MANUAL (Default Setup: AWB).

2. RED GAIN/ BLUE GAIN operate only when WB MODE is set to MANUAL, otherwise it is NA (Not Available).

3. When WB MODE is set to PUSH AUTO:

   (1) PUSH AUTO ON: Enable auto tracing white balance.

   (2) PUSH AUTO OFF: Depending on environment, disable auto tracing white balance and record the current white balance value.

4. DEFAULT: Return to white balance default setup.

5. RETURN: Return to previous status.

8.2.5 EFFECT Setup

```
                    EFFECT

POSI/NEGA                   POSI
MIRROR                      OFF
DEFAULT                     ON
RETURN
```

1. POSI/ NEGA: Images can be set to POSI (Positive Image) or NEGA (Negative Image). (Default Setup: POSI).

2. Four Types of MIRROR Mode: OFF/ HORIZONTAL/ VERTICAL/ ROTATE (Default Setup: OFF).

3. DEFAULT: Return to effect default setup.

4. RETURN: Return to previous status.

8.2.6 PRIVACY MASK Setup

```
                 PRIVACY MASK

AREA                        1
MASK                        ON
START X                     16
END   X                     156
START Y                     12
END   Y                     84
COLOR                       WHITE
TRANSP                      2
MOSAIC                      ON
DEFAULT                     ON
RETURN
```

1. AREA: Maximum PRIVACY MASK area setting is 16 (Default Setup: 1).

1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	16

2. MASK: Set MASK to "ON", MASK AREA becomes available for setup and is shown on
   the monitor (Default Setup: OFF).

PRIVACY MASK	
AREA	1
MASK	ON
START X	16
END X	156
START Y	12
END Y	84
COLOR	WHITE
TRANSP	2
MOSAIC	ON
DEFAULT	ON
RETURN	

3. START X: Horizontal start position (0~600).

4. END X: Horizontal end position (40~640).

5. START Y: Vertical start position (0~330).

6. END Y: Vertical end position (30~360).

7. COLOR:WHITE , BLACK , RED , GREEN , BLUE , YELLOW , CYAN,

8. MAGENTA.

9. TRANSP : Transparency level (0~3).

10. MOSAIC : Mosaics ON/OFF.

11. DEFAULT: Return to privacy mask default setup.

12. RETURN: Return to previous status.

\<Note\>
- When privacy mask has been enabled the motion area that has been covered by
  the privacy mask becomes ineffective.

8.2.7 DISPLAY INFO Setup

```
                DISPLAY INFO

    DISPLAY                     —
    COLOR                       —
    RESOLUTION          1080P30
    RETURN
```

1. DISPLAY: Under this item user may decide whether to reveal or hide TITLE SET / TITLE DISPLAY / TITLE POSITION / ID DISPLAY / ID POSITION. For more setup details on display, follow the setup guide shown below:

```
                    DISPLAY

      TITLE
      ~~~~~~~~~~~~~~~~      ~~~~~~~~~~~~~~~~
      TITLE DISPLAY         OFF
      TITLE POSITION        LEFT UP
      ID DISPPLAY           OFF
      ID POSITION           LEFT UP


      DEFAULT               ON
      RETURN
```

(1) TITLE: You can enter up to 16 characters.

___	–		0	1	2	3	4	5	6	7	8	9		
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				

(2) TITLE DISP: To reveal or hide title display, setup ON/ OFF.

(3) Four TITLE Setup Positions (TITLE/ ID):

RIGHT DOWN/ LEFT UP/ RIGHT UP/ LEFT DOWN

(Default Setup: LEFT UP).

(4) Four ID Setup Positions:

RIGHT DOWN/ LEFT UP/ RIGHT UP/ LEFT DOWN (Default Setup:

LEFT UP).

(5) DEFAULT: Return to display default setup.

(6) RETURN: Return to previous status.

2. COLOR Setup:

```
                    COLOR

        BRIGHTNESS          0
        CONTRAST            128
        SHARPNESS           64
        HUE                 0
        GAMMA               2
        DEFAULT             ON
        RETURN
```

(1) BRIGHTNESS: Video brightness level setup (0~255).

(2) CONTRAST: Video contrast level setup (0~255).

(3) SHARPNESS: Video sharpness level setup (0~255).

(4) HUE: Video hue level setup (0~255).

(5) GAMMA: Video gamma setup (0~3).

(6) DEFAULT: Return to color default setup.

(7) RETURN: Return to previous status.

3. RESOLUTION Setup:
   There are 12 types of modes: 1080P60 , 1080P50 , 1080I60 , 1080I50 , 1080P30 , 1080P25 , 1080P59.94 , 1080P29,97 , 1080I59.94 , 720P60, 720P50 , 720P59.94 , (Default Setup: 1080P30).

4. RETURN: Return to previous status.

8.2.8 COMMUNICATION Setup

```
                    COMMUNICATION

        CAMERA ID              1
        SPEED                  2400
        DEFAULT                ON
        RETURN
```

1. CAMERA ID: ID setup 0~255 (Default Setup: 1).
2. SPEED: Baud Rate setup 2400, 4800 , 9600 , 115200 (Default Setup: 2400).
3. Refer to "6. INSTALLATION" for more information on Communication.

8.2.9 DEFAULT Setup

```
        MAIN MENU       V1.00 2012-04-03

        PROFILE               STANDARD
        CAMERA SETUP          —
        PRIVACY MASK          —
        DISPLAY INFO          —
        COMMUNICATION         —
        SYSTEM INFO           —
        DEFAULT               ON
```

Select Default Settings and the system will return to its factory default settings. All user settings on the device will be erased.

9. Specifications

Camera	GV-SDI-BX100-0		GV-SDI-BX100-1
Image Sensor	1/2.8" type CMOS		
Picture Elements	1920 (H) x 1080 (V)		
Min. Illumination	Color	0.5 Lux at F/1.4	0.5 Lux at F/1.5
	B/W	0.1 Lux at F/1.4	0.1 Lux at F/1.5
	IR On	0 Lux	
Resolution	Up to 900 TVL		
Shutter Speed	Automatic / Manual (1/50 ~ 1/20,000 sec)		
White Balance	AWB / ATW / Indoor / Outdoor / Push Auto / Manual		
S/N Ratio	More than 50dB		
Day/Night	Auto / Day / Night / EXT (with removable IR-cut filter)		
BLC	On / Off		
ATR-EX (WDR)	On / Off (Auto detection , 5 Levels)		
Digital Noise Reduction	Off / 1~5 Steps		
Gain Control	Auto / Off / Low / Mid / Mid-H / High		
Lens			
Megapixel	Yes		
Lens Type	Varifocal		Fixed
Focal Length	2.8 ~ 12 mm		4.0 mm
Maximum Aperture	F/1.4		F/1.5
Mount	CS Mount		
Image Format	1/3"		
Operation			
Signal System Format	1080P60, 1080P50, 1080I60, 1080I50, 1080P30, 1080P25, 1080P59.94 , 1080I59.94 , 1080P29.97, 720P60 , 720P50 , 720P59.94		
Camera Title	Up to 16 characters		
Mirror	Off / Horizontal / Vertical / Rotation		
Privacy Masking	16 areas (Area size adjustable)		
Positive / Negative	On / Off		

General	
Operating Temperature	-10℃ ~ 60℃ / 14℉ ~ 140℉
Power Source	DC12V / AC24V
Max. Power Consumption	6.6 W
Video Output	3G HD-SDI / 800mV / 75 Ohms
Remote Control	RS-485 / RS-422
Protocol	PELCO D&P

All specifications are subject to change without notice.

9 Specifications

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