600TV Lines Super High Resolution Color Camera
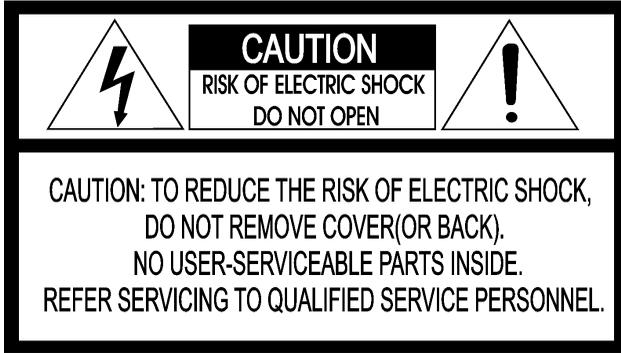
Please read this manual thoroughly before use, and keep it handy for future reference.
Desingn and specification are subject to change without notice.

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 SYMBOL

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "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 triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

PRECAUTIONS

Installation
Do not install the unit in an extremely hot or humid place or in a place subject to excessive dust, mechanical vibration.

Cleaning
Clean the unit with a slightly damp soft cloth.
Use a mild household detergent. Never use strong solvents such as thinner or Benzene as they might damage the finish of the unit.

Retain the original carton and packing materials for safe transport of this unit in the future.

Safety
Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.

Unplug the unit from the wall outlet if it is not going to be used for several days or more.
To disconnect the cord, pull it out by the plug. Never pull the cord itself.

Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on soft surfaces (rugs, carpets, sofas, etc.) or near materials (curtains, draperies) that may block the ventilation holes.

Height and vertical linearity controls located on the rear panel are for special adjustments by qualified personnel only.

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.

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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 Certified/Listed Class 2 power source only.*
17. Apparatus shall not be exposed to dripping or splashing and no object filled with liquids, such as vases, shall be placed on the apparatus.

INTRODUCTION

The camera provides high-quality images using SONY CCD technology especially designed for closed-circuit television (CCTV) and security surveillance applications.

Features:

High resolution and high performance 1/3" SONY Super HAD CCD Technology

Excellent picture quality

600 lines(Color) of resolution

0.14 Lux(Color), 0.03 Lux(B/W) @ F1.2, 30IRE Sensitivity

Auto electronic shutter [1/60(1/50) ~ 1/100,000] and manual electronic shutter modes

OSD (On Screen Display)

Auto and manual white balance modes

BLC (Back Light Compensation)

Day & Night (Auto / DAY / NIGHT / EXT)

Privacy Zone 8 Point, Polygonal Mosaic

AGC (Auto Gain Control)

Sense-up (x2 ~ x256)

MIRROR (NORMAL / MIRROR / VERTICAL / ROTATE)

VIDEO OUT BNC

Motion Detection(240 cells can be selected or deselected)

SLC (Side Light Compensation)

HDR (WDR)

DIS (Digital Image Stabilization)

DPC (Dead Pixel Cancellation)

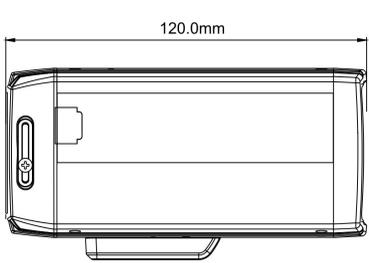Operates in AC24V ± 10% / DC12V ± 10%

Use Certified / Listed Class 2 power supply only

Camera Mount : camera mount directly to the wall or ceiling
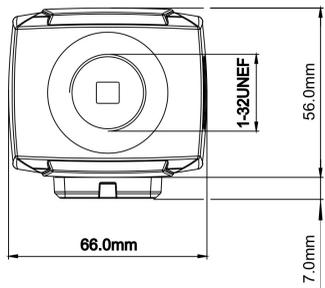
IMPORTANT: The user of this camera is responsible for checking and complying with local, state, and federal laws and statutes concerning the recording and monitoring of audio signals.
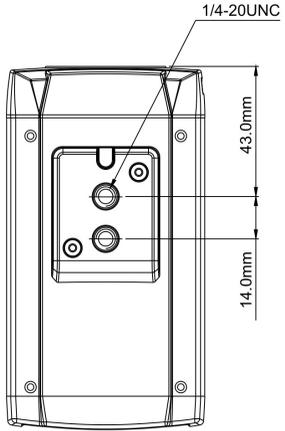
CAMERA OVERVIEW

120.0mm

1/4-20UNC

SIDE VIEW

43.0mm

14.0mm

FRONT VIEW

1-32UNEF

56.0mm

BOTTOM VIEW

66.0mm

7.0mm

REAR VIEW

3 2 4 6

1
5
10

POWER

ENTER

VIDEO OUT

< W / O UTP Model >

3 2 4 6

1
5
10

POWER

ENTER

NVT

TP
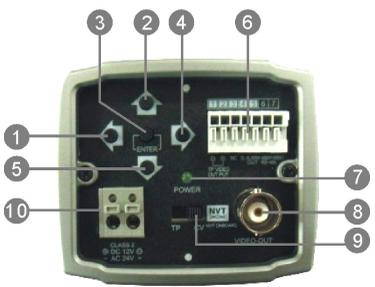
VIDEO OUT

< W / UTP Model >
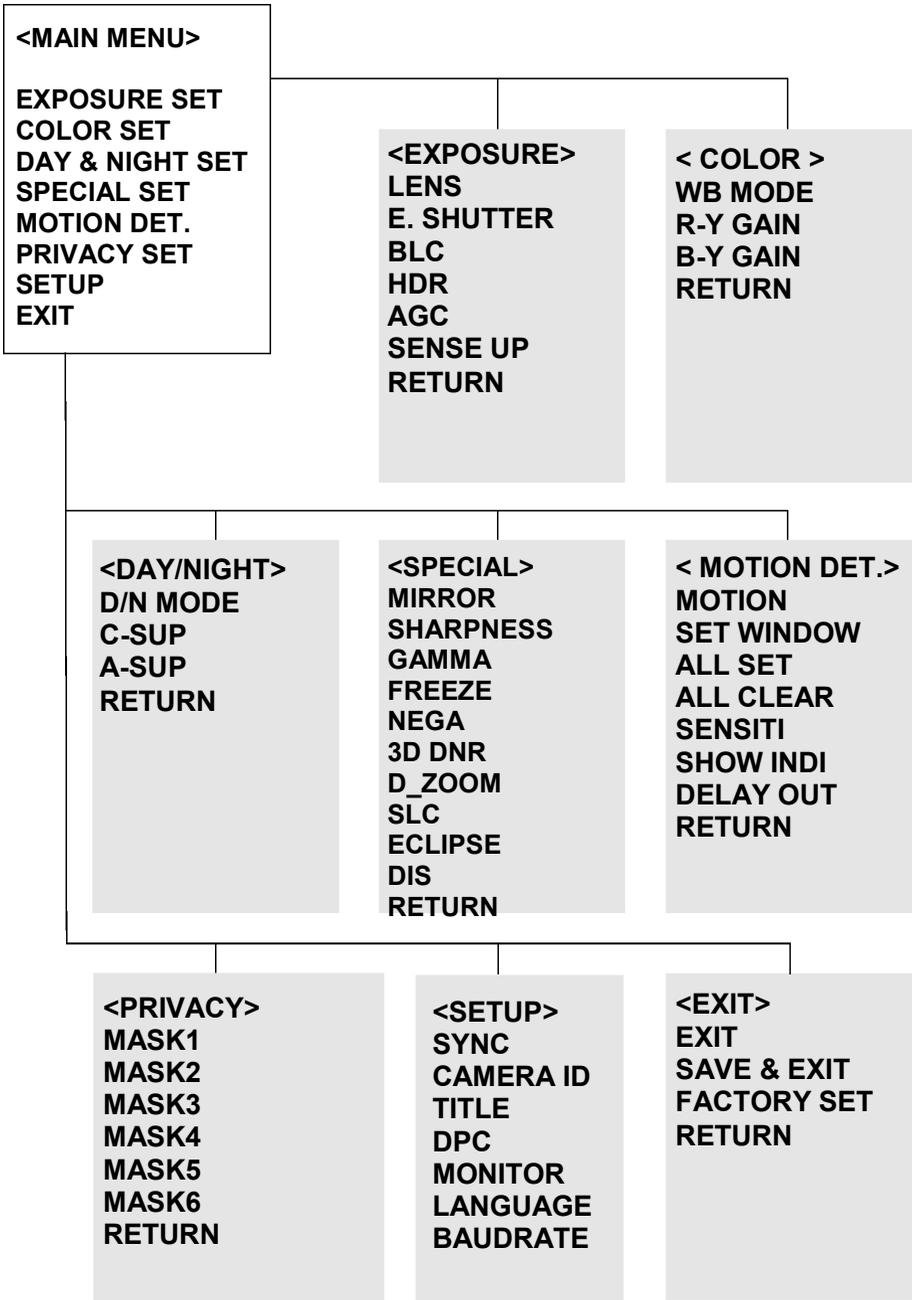
1 Left Button
2 Up Button
3 Enter Button
4 Right Button
5 Down Button
6 Day / Night External Input

ALARM OUT   Terminal
                             Block
RS - 485

UTP Video Output(option)

7 Power Indicator
8 Video Out Connector (BNC)
9 UTP or BNC Transformation Switch (option)
10 AC/DC Compatible Input Terminal

* 6 , 9 - UTP Option

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CAMERA OPERATION WITH O.S.D

<MAIN MENU>

EXPOSURE SET
COLOR SET
DAY & NIGHT SET
SPECIAL SET
MOTION DET.
PRIVACY SET
SETUP
EXIT

<EXPOSURE>
LENS
E. SHUTTER
BLC
HDR
AGC
SENSE UP
RETURN

< COLOR >
WB MODE
R-Y GAIN
B-Y GAIN
RETURN

<DAY/NIGHT>
D/N MODE
C-SUP
A-SUP
RETURN

<SPECIAL>
MIRROR
SHARPNESS
GAMMA
FREEZE
NEGA
3D DNR
D_ZOOM
SLC
ECLIPSE
DIS
RETURN

< MOTION DET.>
MOTION
SET WINDOW
ALL SET
ALL CLEAR
SENSITI
SHOW INDI
DELAY OUT
RETURN

<PRIVACY>
MASK1
MASK2
MASK3
MASK4
MASK5
MASK6
RETURN

<SETUP>
SYNC
CAMERA ID
TITLE
DPC
MONITOR
LANGUAGE
BAUDRATE

<EXIT>
EXIT
SAVE & EXIT
FACTORY SET
RETURN

OSD MAIN SCREEN

ALL operation is via the tact switch
  [CENTER]   **Turn OSD menu ON or to go into Sub Menu**
  [UP] / [DOWN]   **UP or DOWN of Cursor**
  [LEFT] / [RIGHT] **Change setting**

<EXPOSURE SET>
Press the **[ENTER]** button to access the **"EXPOSURE SET"** mode.

1) LENS : Select the type of lens.
   MANUAL : Select when fixed lens is used
              Sub Menu - MANUAL Level adjustment
               (Adjust brightness of fixed lens)
   DC : Select when DC Varifocal lens is used
        Sub Menu -DC Level adjustment
         (Adjust brightness of varifocal lens)

2) E. SHUTTER : Shutter setting
   Able to set from 256 to 1/100000 (Shutter speed adjustment)
   Change FLK MODE(Select when using flicker mode)

3) BLC : BLC Setting
   Select BLC ON/OFF(Backlight compensation function)
   Sub Menu -Set BLC activity area

4) HDR : HDR Setting
   Select HDR ON/OFF (Similar function as WDR)
   Sub Menu - Adjust HDR level

5) AGC : AGC Setting
   Select AGC OFF / LOW / MIDDLE / HIGH

6) SENSE UP : Sense up Setting
   Shutter Scale function(OFF, x2 ~ x256)

7) RETURN : Return to Main menu.

<COLOR SET>

Press the **[ENTER]** button to access the **"COLOR SET"** mode

1) WB MODE : WB Setting (White Balance)
    Select AWC/ATW/MANUAL/PUSH LOCK (adjust white balance)
    Select MANUAL WB (Manual white balance mode)
    Sub Menu -Select M.WB R (Adjust Red level when using manual WH)
    Sub Menu -Select M.WB B (Adjust Blue level when using manual WH)

2) R-Y GAIN : Adjust RED gain
3) B-Y GAIN : Adjust BLUE gain
4) RETURN : Return to Main menu.

<DAY & NIGHT SET>

Press the **[ENTER]** button to access the **"DAY & NIGHT SET"** mode

1) D&N MODE : DAY & NIGHT Setting
    Select AUTO/COLOR/BW/EXT
    (TDN FUNCTION/COLOR/BLACK AND WHITE)
  AUTO : The camera automatically switches between day and night
        BURST : Burst ON / OFF Setting(Only removing burst signal)
        COLOR ► BW : Switching time setting
        BW ► COLOR : Switching time setting
        READ TIME : Read Time setting(Adjust filter switching time)
        RETURN
  COLOR : The camera stays in day mode.
  B/W   **:** The camera stays in night mode.
  EXT   **:** The camera stays in external mode.
2) C-SUP : Color Suppress Setting
3) A-SUP : Aperture suppress setting
4) RETURN : Return to Main menu.

<SPECIAL SET>

Press the **[ENTER]** button to access the **"SPECIAL SET"** mode

1) MIRROR : OFF/MIRROR/V_FLIP/ROTATE Selectable
(left&right / up&down / rotate)
2) SHARPNESS : Adjust Sharpness (Image sharpness can be adjusted)
3) GAMMA : GAMMA Setting
Select 0.45/0.6/1.0(Adjust gamma level)
4) FREEZE : Image freeze function
5) NEGA. : Y Signal,Color Reverse function
6) 3D DNR : 3D DNR OFF/LOW/MIDDLE/HIGH Setting
(Adjust NOISE when low light condition)
7) D_ZOOM : D_ZOOM ON/OFF Setting
Adjustable from X1.0 to X3.0
Change left/right, up/down
Show ZOOM,PAN,TILT amount (shows on the right side of the bottom)
8) SLC : Side Light Compensation (Make brighter image of corner of screen)
SLC Level Setting(corner of screen can be adjusted**)**
9) ECLIPSE : Eclipse ON/OFF Selectable
Eclipse Level Setting (Brightness of Eclipse is adjustable)
10) DIS : DIS ON/OFF Setting (Digital Image Stabilization)
11) RETURN : Return to Main menu.

<MOTION DET.>

Press the **[ENTER]** button to access the **"MOTION DET."** Mode

1) MOTION : Motion ON/OFF Setting
2) SET WINDOW : Set the range when using motion detection function.
Set the screen range for motion detection.
(240 cells can be selected or deselected)
This feature allows you to detect the movement of an object in 240 different areas of the screen and display an alarm on the screen.
3) ALL SET : Set entire screen as a range for motion.
4) ALL CLEAR : Cancel entire screen range setting for motion.
5) SENSITI. : Adjust sensitivity when using motion detection.
As the sensitivity level increases, smaller movements are detected
6) SHOW INDI. : Motion defected indicator can be selected as OFF / ICON / TRACE
7) DELAY OUT : Alarm signal display on the screen is delayed from 1sec to 15sec
8) RETURN : Return to Main menu.

<PRIVACY SET>

Press the **[ENTER]** button to access the **"PRIVACY SET"** Mode

1) MASK1 : MASK1 Screen setting
2) MASK2 : MASK2 Screen setting
3) MASK3 : MASK3 Screen setting
4) MASK4 : MASK4 Screen setting
5) MASK5 : MASK5 Screen setting
6) MASK6 : MASK6 Screen setting
7) RETURN : Return to Main menu.
    Select MASK1~6 (Set from 1 to 6 where wish to be hidden)
    Mask Range can be adjusted, Able to set in different shapes
    Mask color setting(Can change the color of hidden part)
This function sets a certain areas of the screen to be hidden.
The image is divided into 6 zones.

<SETUP>

Press the **[ENTER]** button to access the **"SETUP"** Mode

1) SYNC : Sync Setting
    Line Lock Mode Setting(Select when using line lock)
    RANGE SETTING(Set line lock range)
2) CAMERA ID : Camera ID Setting (Set a camera ID no. as a unique identifier)
3) TITLE : Title ON/OFF Setting
    Title EDIT(Select desired characters using joystick)
    Title Reset (Clears the title)
    Title Position Select
4) DPC : DPC Auto Setting (Dead pixels are automatically removed)
    WHITE THR.(Cancelling White defective pixels)
    BLACK THR. (Cancelling Black defective pixels)
    DPC Level gain setting (Overall level can be adjusted)
5) MONITOR : Monitor Setting Mode (CRT/LCD Selectable)
6) LANGUAGE : Select Language
7) BAUDRATE : Set Data communication speed

<EXIT>

Press the **[ENTER]** button to access the **"EXIT"** Mode

1) EXIT
2) SAVE & EXIT : OSD menu after saving current setting.
3) FACTORY SET : Go back to factory default.
4) RETURN : Return to Main menu

CONTROL AND CONNECTIONS/DAY&NIGHT INPUT / ALARM OUT TERMINALS - (UTP MODEL)

<WITH UTP MODEL>

1	2	3	4	5	6	7
TP VIDEO OUTPUT		D&N	COM	ALARM	RS-485	
⊖	⊕	IN	GND	OUT	RS 485+(RX)	RS 485-(TX)

*3Pin : Only D&N with ICR model option (DDN model : NC)

1) CAMERA CONTROL

- 6 PIN : RS 485+
- 7 PIN : RS 485-

2) DAY&NIGHT INPUT Terminal (Only D&N with ICR model option)

To select Day/Night mode using external equipment, connect control line

to the appropriate terminal.

· DAY&NIGHT EXTERNAL INPUT (2pin)

It is the function that can be switched to DAY Mode or NIGHT Mode by receiving the D&N on/off signal from external light sensor or IR LED LAMP. When D&N Mode is set "EXT" on the OSD menu of the camera.

4	GND
3	DAY&NIGHT INPUT

Open contact : DAY
Close contact : NIGHT
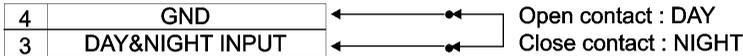
3) ALARM OUT (5pin)

Motion detection signals are output through this port. (OFF : GND, ON : 3.3V)

4) POWER INPUT TERMINAL

CLASS 2
+ DC 12V -
~ AC 24V ~

- This terminal accepts a DC12V or AC24V power source from a DC12V or AC24V ac +/-10% 60/50Hz +/- 1Hz.

- Use Certified/Listed Class 2 power supply only.

- In DC power, use the Adapter mode than DC 12V 500mA Capacity.

5) VIDEO OUT CONNECTOR

BNC : This BNC connector provides a 1.0Vp-p/75 ohms composite video Signal.
UTP : Unshielded Twisted Pair video Transmission for effective installation(option).
1PIN : TP VIDEO OUTPUT ⊖
2PIN : TP VIDEO OUTPUT ⊕

CONTROL AND CONNECTIONS/DAY&NIGHT INPUT / ALARM OUT TERMINALS - (W/O UTP MODEL)

<W/O UTP MODEL>

1	2	3	4	5
D&N	COM	ALARM	RS-485	
IN	GND	OUT	RS 485+(RX)	RS 485-(TX)

*1Pin : Only D&N with ICR model option (DDN model : NC)

1) CAMERA CONTROL

- 4 PIN : RS 485+
- 5 PIN : RS 485-

2) DAY&NIGHT INPUT Terminal (Only D&N with ICR model option)

To select Day/Night mode using external equipment, connect control line to the appropriate terminal.

• DAY&NIGHT EXTERNAL INPUT (2pin)

It is the function that can be switched to DAY Mode or NIGHT Mode by receiving the D&N on/off signal from external light sensor or IR LED LAMP. When D&N Mode is set "EXT" on the OSD menu of the camera.

2	GND	Open contact : DAY
1	DAY&NIGHT INPUT	Close contact : NIGHT
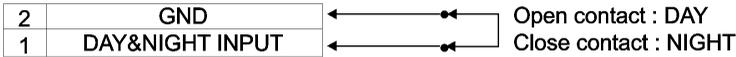
3) ALARM OUT (3pin)

Motion detection signals are output through this port. (OFF : GND, ON : 3.3V)

4) POWER INPUT TERMINAL
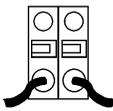
CLASS 2
+ DC 12V -
~ AC 24V ~

- This terminal accepts a DC12V or AC24V power source from a DC12V or AC24V ac +/-10% 60/50Hz +/- 1Hz.
- Use Certified/Listed Class 2 power supply only.
- In DC power, use the Adapter mode than DC 12V 500mA Capacity.

5) VIDEO OUT CONNECTOR

BNC : This BNC connector provides a 1.0Vp-p/75 ohms composite video Signal.

SPECIFICATIONS

Power	Power source	AC24V ± 10% / DC12V ± 10%
	Power consumption	Max 4.0 Watts
General	Image sensor	1/3" SONY Super-HAD CCD
	Total number of pixels	NTSC : 811(H) x 508(V), PAL : 795(H) x 596(V)
	Scanning system	2:1 interlace
	Scanning frequency	NTSC : 15.734KHz(H) x 59.94Hz(V) PAL : 15.625KHz(H) x 50Hz(V)
	Sync. system	Internal / Line Lock
	Electronic shutter	1/60(1/50) ~ 1/100,000sec
	Resolution	600 TVL (colour)
	Min. illumination	0.14 Lux(Color), 0.03 Lux(B/W) @ F1.2, 30IRE
	Video output	1.0Vp-p (75ohm, composite)
	S/N ratio	More than 50dB (AGC OFF, Sense up OFF)
	Camera Control	OSD(TACT Switch), RS-485
	F U N C T I O N — Exposure Shutter	1/60(1/50), Flickeless, 1/250 ~ 1/100,000sec
	Lens (Auto Iris Control)	DC / ELC
	Lens Level(Brightness)	0 ~ 99
	BLC	OFF/ON
	AGC	OFF / LOW / MIDDLE / HIGH
	HDR(WDR)	OFF / ON (0~20)
	Sense-up	OFF, x2~x256
	Eclipse	OFF / ON
	3D-DNR	OFF / LOW / MIDDLE / HIGH
	DIS	OFF / ON (Digital Image Stabilization)
	White Balance	AWC / ATW / MANUAL / PUSH
	Day & Night	AUTO / COLOR / B&W / EXT
	Privacy zone	OFF / ON (8 Point, Polygonal Mosaic)
	Display Title	OFF / ON (EDIT, RESET, POSITION)
	Gamma	USER, 0.45, 0.6, 1.0
	Freeze	OFF / ON
	SLC	OFF / ON (0~50) / Side Light Compensation
	Motion Detection	OFF / ON, (SET WINDOW, ALL SET, ALL CLEAR, SENSITIVITY, SHOW INDICATOR, DELAY OUT)
	DPC	OFF / AUTO (WHITE, BALCK, DPC LEVEL) (Dead Pixel Cancellation)
	LANGUAGE	ENGLISH / CHINESE
	BAUDRATE	2400 / 4800 / 9600 / 14400 / 19200 / 38400
	Video Picture	POSI / NEGA
	Sharpness	0~49
	Mirror	OFF / MIRROR / V-FLIP / ROTATE

	Sync	INTER / AUTO
	Zoom & Pan/Tilt	ZOOM (X1~X3), PAN(-128~+127), TILT(-82~+81)
	V - Phase (LineLock)	0 ~ 199
	Camera ID	0 ~ 254
	EXIT	EXIT / SAVE & EXIT / FACTORY SET
Connector Etc	Power input	2-Pin Terminal Block
	Video output	BNC connector
	Day & Night Input	Terminal Block
	Lens mount	C/CS mount (Selected through back focus)
	Auo Iris Output	4-pin mini din jack (Standard connection)
	Alarm Output	Terminal Block
	RS-485	Terminal Block
	Mounting Hole	1/4"-20 UNC (top or bottom)
	Operating Temperature	-10°C~+55°C [14°F~131°F]
	Operating humidity	0~96% (non-condensing)
	Weight	270g
	External Dimension (mm)	66(W) x 56(H) x 120(D)