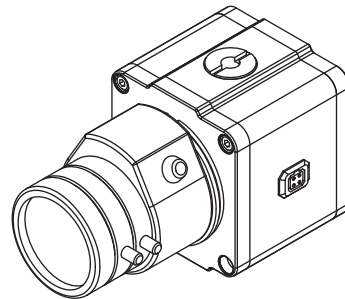


Distributed by

**P/N : 38801K655
PRINTED IN KOREA**

Full HD Mega pixel Box Camera

INSTRUCTION MANUAL



Before installing, operating or adjusting this product, please read this instruction booklet carefully and completely.



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

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with an 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 triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

FCC WARNING - This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction

manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

REGULATORY INFORMATION : FCC Part 15

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.

- A suitable conduit entries, knock-outs or glands shall be provided in the cable entries of this product in the end use
- Caution : Danger of explosion if battery is incorrectly replaced. Replaced only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- Holes in metal, through which insulated wires pass, shall have smooth well rounded surfaces or shall be provided with brushings.

WARNING - Do not install this equipment in a confined space such as a bookcase or similar unit.

WARNING - Wiring methods shall be in accordance with the National Electric Code, ANSI/NFPA 70.

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.

WARNING - To reduce a risk of fire or electric shock, do not expose this product to rain or moisture.

CAUTION - This installation should be made by a qualified service person and should conform to all local codes.

CAUTION - To avoid electrocal shock, do not open the cabinet. Refer servicing to qualified personnel only.

CAUTION - To apparatus should not be exposed to water (dripping or splashing) and no objects filled with liquids, such as vases, should be placed on the apparatus.



Disposal of your old appliance

1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

To disconnect power from the mains, pull out the mains cord plug. When install the product, ensure that the plug is easily accessible.

IMPORTANT SAFETY INSTRUCTIONS

- 1. Read these instructions** - All these safety and operating instructions should be read before the product is operated.
- 2. Keep these instructions** - The safety, operating and user instructions should be retained for future reference.
- 3. Heed all warnings** - All warnings on the product and in the operating instructions should be adhered to.
- 4. Follow all instructions** - All operating and user instructions should be followed.
- 5. Do not use this apparatus near water** - For example : near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement; near a swimming pool; etc.
- 6. Clean only with dry cloth** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners.
- 7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.** - Slots and openings in the cabinet are provided for ventilation, to ensure reliable operation of the product, and to protect it from overheating. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.
- 8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.**

IMPORTANT SAFETY INSTRUCTIONS

- 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 powersupply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.**

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- 1/3" Panasonic CMOS sensor
- Full HD Resolution
- DAY & NIGHT
- WDR (Wide Dynamic Range)
- DNR (Digital Noise Reduction, 2D+3D)
- Privacy mask Function
- On Screen Display
- Intelligent motion detection
- Output
- Protocol

CAUTIONS FOR SAFE OPERATION

Power Supply

Use DC12V

Note : Be careful of AC frequency when the camera is operated with Line lock mode.

Handling of unit

Be careful not to spill water or other liquids on the unit. Be cautious not to get combustible or metallic material inside the body. If used with foreign matter inside, the camera is liable to fail or cause a fire or an electric shock.

Operating and storage

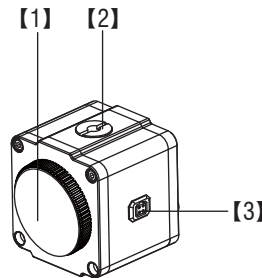
Avoid viewing a very bright object (such as light fittings) during an extended period. Avoid operating or storing the unit in the following locations.

- Extremely hot or cold places (operating temperature $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$, however, we recommend that the unit be used within a temperature range of $0^{\circ}\text{C} \sim 45^{\circ}\text{C}$)
- Damp or dusty place
- Places exposed to rain
- Places subject to strong vibration
- Close to generators with powerful electromagnetic radiation such as radio or TV transmitters.

Cleaning of the unit

- Remove dust or dirt on the surface of the lens with a blower.
- Use a dry soft cloth to clean the body. If it is very dirty, use a cloth dampened with a small quantity of neutral detergent, then wipe dry.
- Avoid the use of volatile solvents such as thinners, alcohol, benzene, and insecticides. They may damage the surface finish and / or impair the operation of the camera.

PART NAMES AND FUNCTIONS



【1】 Camera Cover

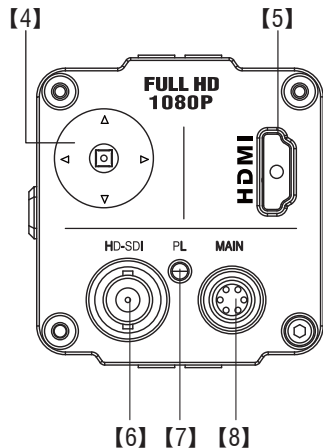
Used to protect the camera, please remove the cover before you install the camera.

【2】 Camera holder holes

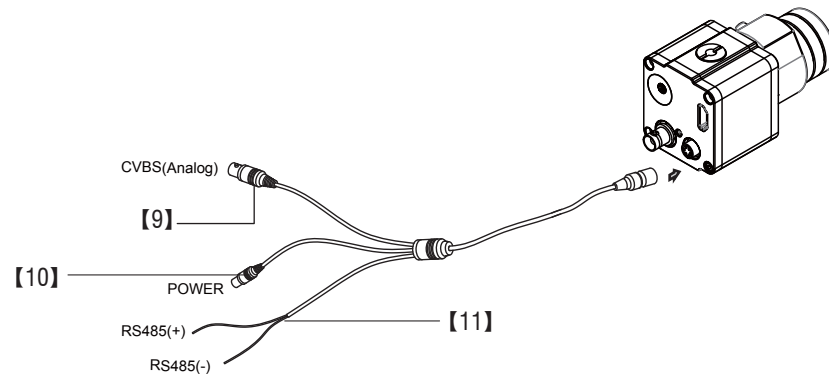
Used when you mount the camera onto the bracket.

【3】 Auto iris lens Connector

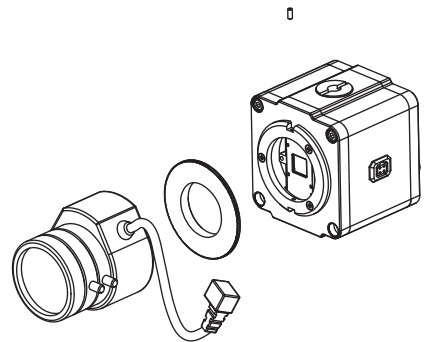
Used to supply power and output signal to control the iris of the lens.



- [4] Setup Switch**
The switch is used for setting and adjusting the camera's functions and properties.
- [5] HDMI out Terminal**
HDMI terminal for HD-SDI video signal output.
- [6] HD-SDI Video out Terminal**
BNC terminal for HD-SDI video signal output.
- [7] Power LED**
This lamp turns on when the proper power is applied to the camera.
- [8] Main cable terminal**
6 pin main cable connector.



- [9] C Video**
Analogue video output terminal of C-Video.
- [10] Power port**
Used to plug the power cable.
- [11] RS-485 cable**
Signal port for RS-485 communication (Yellow +/ Green -)



1. Remove the lens mount cap from the camera.

2. Install the auto-iris lens.

CS Mount Lens

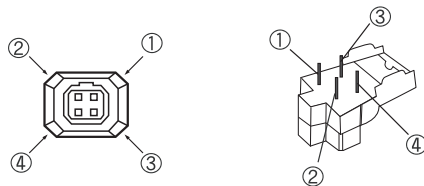
Install the CS Mount Lens by attaching the lens straight to the camera lens holder then slowly turn the lens until it is in place.

3. Connect the lens plug to the lens iris output connector (LENS) on the side of the camera.

When using lenses from other makers, the plug shape may not correspond to the terminal on the camera.

In such a case, remove the original plug and using a soldering iron, connect a lens iris plug according to the diagram. (Refer to next page.)

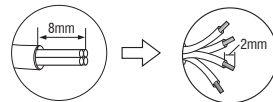
Pin layout for the lens iris output connector



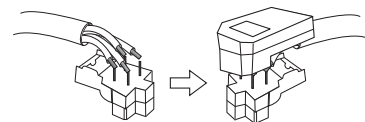
No.	DC type lenses
1	Damping -
2	Damping +
3	Drive +
4	Drive -

Rewire the lens iris plug

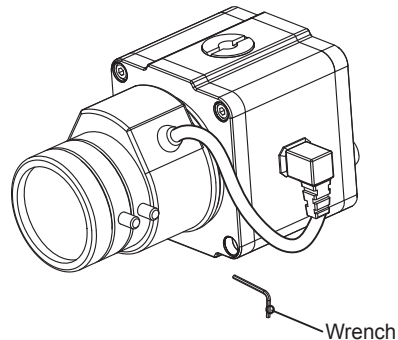
1. Cut off the plug of the lens cable, cut off approximately 8mm of the insulation, and then strip approximately 2mm of the ends of the cable sheaths.



2. Solder the ends of the cable wires to the ends of the pins, and then attach the cover of the lens iris plug.



The adjustment is required only when a lens without focus-adjusting mechanism is mounted, or when a lens with adjusting mechanism is mounted and focus that is more accurate is needed.

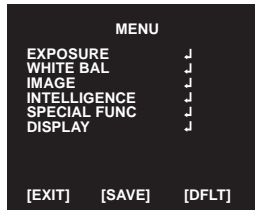


1. With the included Wrench unscrew the Set Screws on the right and bottom of the camera.
2. Adjust the focus while watching the video by adjusting the Mount Adapter.
3. After adjusting to the desired focus level use the included Wrench to fasten the Set Screws.

Note :

The object may be out of focus when using a source of near-infrared light than using the visible light.

MAIN MENU



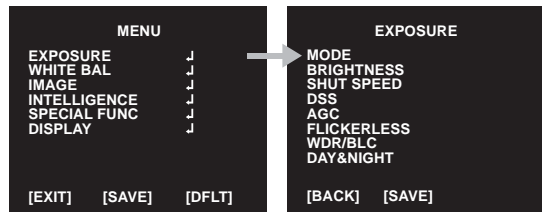
Functions can be setup using “Menu Key Command” of Visca protocol. The menu consists of the “Main Menu” and “Sub Menu”. The main menu is displayed where 7 camera functions can be selected. To the push of each main menu selection, the sub-menu is displayed

If you want save the menu, select [SAVE].

If you want not save the menu, select [EXIT] (After select, Power off -> on)

If you want default the menu, select [DFLT]

EXPOSURE

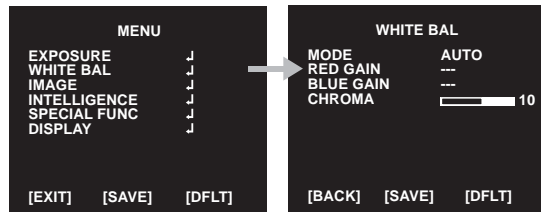


- ◆ LENS : Select LENS type
 - ▶ DC
 - ▷ MODE : INDOOR, OUTDOOR, DEBLUR
 - ▶ MANUAL
 - ▷ MODE : NORMAL, DEBLUR
- ◆ BRIGHTNESS : Adjust brightness level
 - ▶ 0(dark) ~ 20(bright) steps
- ◆ SHUT SPEED : Can be set in AUTO or MANUAL
 - ▶ AUTO / x2, x3, x4, 1/30(25), 1/60(50), 1/120(100), 1/240, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000, 1/30000, 1/60000 sec
- ◆ DSS : Select maximum DSS(Digital Slow Shutter)
 - ▶ OFF / x2, x3, x4
- ◆ AGC : Select Auto Gain Control
 - ▶ OFF / ON
- ◆ FLICKERLESS : Select Flickerless mode
 - ▶ OFF / ON (remove screen flicker)

EXPOSURE

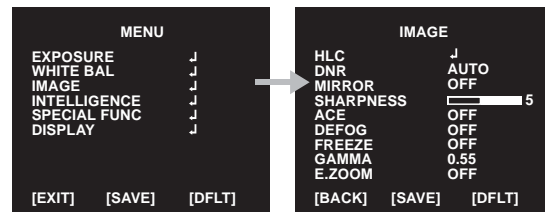
- ◆ WDR/BLC : Select WDR(Wide Dynamic Range) or BLC(Back Light Compensation)
 - ▶ WDR.↵
 - ▷ LEVEL : Adjust WDR level.
 - ▶ LOW, MID-LOW, MIDDLE, MID-HIGH, HIGH
 - ※ WDR doesn't work in Shutter Manual Mode.
 - ▶ BLC.↵
 - ▷ POSITION : Adjust the window position
 - ▷ SIZE : Adjust the window size
 - ※ Can't use WDR and BLC at the same time.
(When WDR On, BLC is Off. And when BLC is On, WDR is Off)
- ◆ DAY&NIGHT : Select Day&Night
 - ▷ MODE : AUTO / EXT-IN / DAY / NIGHT
 - ▶ AUTO.↵
 - ▶ EXT-IN.↵
 - ▷ POLARITY : ACTIVE LOW / HIGH
 - ▷ DELAY : 0 ~ 255 sec
 - ▷ THRS : 0 ~ 28
Day↔Night switching level in Auto Mode. Switching in lower lux with higher threshold level.
 - ▷ GAP : LOW, MID-LOW, MIDDLE, MID-HIGH, HIGH
Margin between Day →Night switching level and Night →Day switching level.
 - ▷ ANTI-SAT : LED saturation improves. (0~20)
 - ▷ BURST : OFF / ON

WHITE BALANCE



- ◆ AWB : Select WHITE BALANCE mode
 - ▶ AUTO / ONE PUSH / MANUAL / INDOOR / OUTDOOR
 - ▷ AUTO : Automatically adjusts color according to the available lighting.
 - ▷ ONE PUSH : It is a fixed white balance mode that may be automatically readjusted only by pressing ONE PUSH
 - ▷ MANUAL ↵ : Color can be corrected when the user increases or decreases "RED GAIN" or "BLUE GAIN".
 - ▷ INDOOR : Set color temperature to be Indoor light (3700°K)
 - ▷ OUTDOOR : Set color temperature to be Outdoor light (5100°K)
- ◆ RED GAIN : Adjust R gain value
 - ▶ 0 ~ 20 steps
- ◆ BLUE GAIN : Adjust B gain value
 - ▶ 0 ~ 20 steps
- ◆ CHROMA : Adjust CHROMA gain value
 - ▶ 0 ~ 20 steps

IMAGE

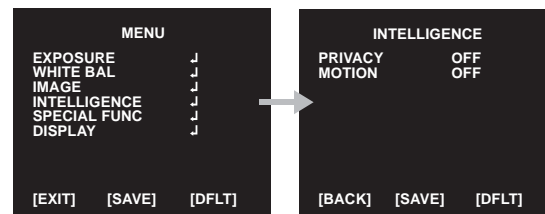


- ◆ HLC : Select High Light Compensation.
 - When extremely bright light is projected to the camera masking is used on the portion to prevent partial saturation on the monitor.
 - ▷ MODE : OFF / ON / NIGHT
 - ▷ LEVEL : 0 ~ 20 steps
 - ▷ COLOUR : 0 ~ 13 steps
- ◆ DNR : Select Digital Noise Reduction
 - ▶ AUTO / OFF / LOW / MIDDLE / HIGH
- ◆ MIRROR : Select a flip mode
 - ▶ OFF / H / V / H&V
 - ▷ H : You can flip the picture horizontally on the screen
 - ▷ V : You can flip the picture vertically on the screen
 - ▷ H&V : You can flip the picture horizontally & vertically on the screen

IMAGE

- ◆ SHARPNESS : Adjust sharpness level
 - ▶ 0 ~ 10 steps
- ◆ ACE : Select Digital WDR (Wide Dynamic Range)
 - ▶ OFF / LOW / MIDDLE / HIGH
- ◆ DEFOG : Carry out defog function
 - ▶ OFF / ON,↵
 - ▷ MODE : AUTO / MANUAL
 - ▷ LEVEL : LOW / MIDDLE / HIGH
- ※ Can't use DEFOG and ACE at the same time
(When ACE On, DEFOG is Off. And when DEFOG is On, ACE is Off)
- ◆ Freeze : Select real or still mode
 - ▶ OFF / ON
- ◆ GAMMA : Select GAMMA
 - ▶ 0.45 / 0.50 / 0.55 / 0.60 / 0.65
- ◆ E.ZOOM
 - ▶ OFF / ON
 - ▷ LIMIT : Max x2 ~ x19, x21, x23, x25, x28, x32
 - ▷ POSITION : Select maximum digital zoom magnification.
- ※ Can't use Digital Zoom when the motion detection is turned on.

INTELLIGENCE

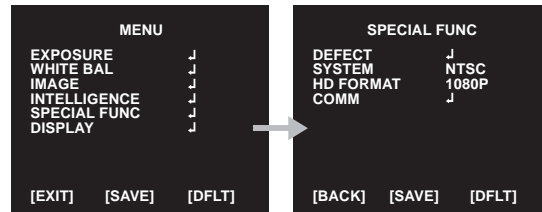


- ◆ PRIVACY : Hide an area you want to hide on the screen
 - ▶ OFF / ON,↵
 - ▷ MASK# : Select mask area number (1 ~ 24)
 - ▷ MODE : Mask enable or disable (OFF / ON)
 - ▷ POSITION : Adjust the mask position
 - ▷ SIZE : Adjust the mask size
 - ▷ COLOR : Select mask color (0 ~ 13)
 - ▷ TRANS : Select mask transparency level (0 ~ 4)

INTELLIGENCE

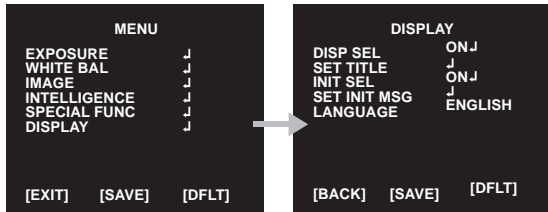
- ◆ MOTION : When there is movement of the subject in the screen, there will be an motion detection
 - ▶ OFF / ON.↵
 - ▷ AREA# : Setting 3 areas(1~3) of motion detection
 - ▷ MODE : OFF / ON (Limit and define areas of motion detection)
 - ▷ SENSITIVITY : Adjust sensitivity of MD (0 ~ 20 steps)
 - More sensitive to setting to low step with sensitivity
 - ▷ POSITION : Adjust the Area position
 - ▷ SIZE : Adjust the Area size
 - ▷ INTERVAL TIME : Select the alarm interval time (0 ~ 255sec)
 - ▷ DWELL TIME : Select the duration time about changing MD mode (0 ~ 255sec)

SPECIAL FUNC



- ◆ DEFECT : Compensates for bad pixels that may occur. Occurs when the whole screen is in full black or if there is bad pixelation and it changes the THRS values until the screen is fixed.
- ◆ SYSTEM : Select NTSC(30fps) or PAL(25fps). (NTSC / PAL)
- ◆ HD FORMAT : Select Digital output 1080P or 720P. (1080P / 720P)
- ◆ COMM : Set up the camera ID, baud rate, protocol
 - ▷ ID : Select the camera ID
 - ▶ 1 ~ 255
 - ▷ BAUD RATE : Select serial communication speed
 - ▶ 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200bps
 - ▷ PROTOCOL : Select operating protocol
 - ▶ VISCA / PELCO-D / PELCO-P / UPDATE

DISPLAY



- ◆ DISP SEL : Select display item.
 - ▶ OFF / ON,↓
 - ▷ ID : OFF / ON
 - ▷ TITLE : OFF / ON
 - ▷ ZOOM RATIO : OFF / ON
 - ▷ SYSTEM MSG : OFF / ON (MD Alarm and Wait message)
- ◆ SET TITLE : Select camera title menu (Text edit)
- ◆ INIT SEL : Select display initial message.
 - ▶ OFF / ON,↓
 - ▷ ID : OFF / ON
 - ▷ BAUDRATE : OFF / ON
 - ▷ PROTOCOL : OFF / ON
 - ▷ VERSION : OFF / ON
 - ▷ INIT MSG : OFF / ON

DISPLAY

- ◆ SET INIT MSG : modify initial message. (Text edit)
- ◆ LANGUAGE : Select language.
 - ▶ English / Simplified Chinese / Traditional Chinese / Japanese

※ Character Table of Text edit Mode

```

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 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 * + - / = ~ ! ? " '

```

SPECIFICATIONS

Model	
Image Sensor	1/3" Panasonic CMOS
Total Pixels	2010(H) x 1108(V) = 2,227,080 (pixels)
Active pixels	1944(H) x 1092(V) = 2,122,848 (pixels)
Scanning system	Progressive
Resolution	Digital ; 1920x1080p(1080p/30fps) , 1280x720p(720p/30fps)
	Analog : 700TVL
Min. illumination	Color : 1.0 lux , BW : 0.5lux
	Color DSS : 0.002 lux , BW DSS : 0.001 lux
Video Output	HD : HD-SDI, BT.1120
	Analog : NTSC / PAL (without WDR)
S/N Ratio	more than 50dB (AGC off)
LENS	DC / Manual
Brightness	0 ~ 20
Shutter speed	Auto / Manual (x2, x3, x4, 1/30(1/25) ~ 1/60000)
DSS	Off / x2 / x3 / x4
AGC	Off / On
Flickerless	Off / On
WDR/BLC	Off / WDR / BLC
DAY&NIGHT	Auto / Ext-in / Day / Night

SPECIFICATIONS

Model	
WHITE BAL	Auto / One Push / Manual / Indoor / Outdoor
HLC	Off / On / Night
DNR	Off / Low / Middle / High / Auto
Mirror	Off / H / V / H&V
Sharpness	0 ~ 10
ACE	Off / Low / Middle / High
Defog	Off / On (Auto / Manual)
Freeze	Off / On
GAMMA	0.45 / 0.50 / 0.55 / 0.60 / 0.65
E.Zoom	Off / Max x2 ~ x32
PRIVACY	Off / On (24 points)
MOTION	Off / On (3 points)
Defect	One Push
System	NTSC / PAL
HD Format	1080P / 720P
Comm	Baud Rate : 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200
	Protocol : VISCA / Pelco-D / Pelco-P / Update
Disp Sel (Off / On)	ID / Title / Zoom Ratio / System Message
Set Title	Text Edit

SPECIFICATIONS

Model	
Init Sel (Off / On)	ID / Baud Rate / Protocol / Version / Init. Message
Set Init Msg	Text Edit
Language	English / Simplified Chinese / Traditional Chinese / Japanese
OSD Text	0 ~ 9 , A ~ Z , a ~ z
Power Source	DC12V±10%
Power Consumption	150mA
Power Input	Connector
Video Output(HD-SDI)	MMCX Connector
Operating Temperature	-10℃ ~ +50℃ (Humidity : 0%RH ~ 80%RH)
Storage Temperature	-20℃ ~ +60℃ (Humidity : 0%RH ~ 90%RH)

DIMENSIONS

