

# GEN II IR WATERPROOF D&N CAMERA SK-P441(D)/M844AI MANUAL



## FEATURE

1. New generation, new technology Gen II DSP adopted
2. This camera supports the supreme resolution.(600 TV-Line Color)
3. This product is suitable for 24 hours surveillance with optical multi-coating filter according to IR LED and CCD.
4. Long visible range at night.(70m Max. Indoor)
5. Day & Night Function(ICR) at night to receive maximum available light.
6. This product can match for any circumstances very well.
7. This product is "weather-proof" to resist rain, snow and other weather factors.(IP66)
8. Supervisor of this product can help the camera get the picture clearly.
9. This product is made of corrosion-free surface to resist rust and corrosion for a long time.
10. This camera has vari-focal IR lens to prevent defocusing under IR lighting.
11. RS-485 interface(Pelco-D, Pelco-P protocol support) – Option
12. Support 8 different privacy zone
13. Adopted 3D DNR technology, it reduces noise efficiently in low light condition.
14. Multi-language full OSD support
15. Power & video cables are concealable.(Cable through bracket)
16. You can connect 24V AC or 12V DC regardless polarity.(Dual power version only)
17. You can adjust the level of IR LED according to the circumstances.
18. A fan enables the camera to keep the proper operation when the LED is ON.
19. Provide Max. 10x digital zoom
20. LWDR(Low frame Wide Dynamic Range) & DWDR(Digital Wide Dynamic Range)
21. DIS(Digital Image stabilizer) relieves any picture tremble due to external factor such as wind.
22. Dynamic IR : When IR LED is turned on in B/W, the objects can be clearly identified due to the function that decreases screen saturation of objects within a short distance.

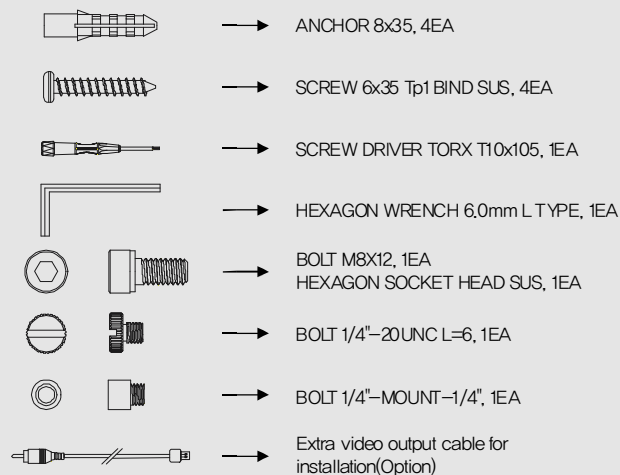
## CAUTION

1. Please study the instruction manual before your applications and keep it for your future reference.
2. Do not flash LED light directly on the eyes when LEDs are on.
3. Do not install the camera on a unstable surface. It will cause falling or other hazards.
4. Do not use improper power, it could cause fire or electric shock. (Use the AC adaptor 12V DC regulated, 1.5A. Dual voltage product can use 24V AC, 1A adaptor. –option)
5. Do not disassemble or re-model the camera, it could cause fire, electric shock or other hazards.
6. Stop using the camera when you find a malfunction like smoke or unusual heat, it could cause fire or electric shock.
7. Due to the possibility of water leakage, do not cut or peel off the cable. In case you cut or peel off the cable, the warranty will be void.
8. Do not adhere dangerous articles to the camera.
9. Do not leave the unit along with an unstable stand or table.
10. Power cable or video cable should be always loose. Do not keep the cables tight or twisted.
11. Please use the camera unit within given temperature and electricity limit.
12. Please make sure that installation should be done by qualified service person only.
13. Do not disassemble the unit by yourself. When there is problem with the unit please contact after-sale service center or the shop where you bought.

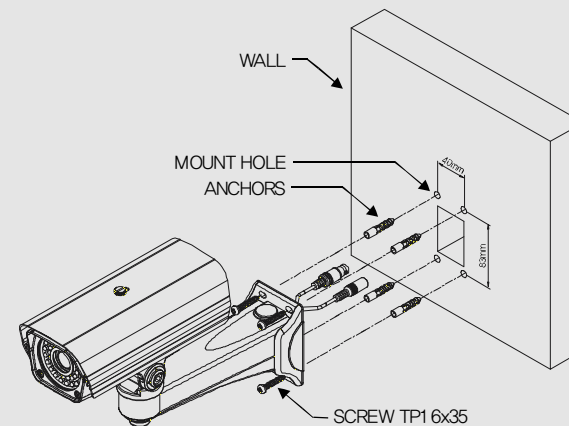


If the product is to be put out of operation definitively, take it to a local recycling plant for a disposal which is not harmful to the environment.

## ACCESSORIES

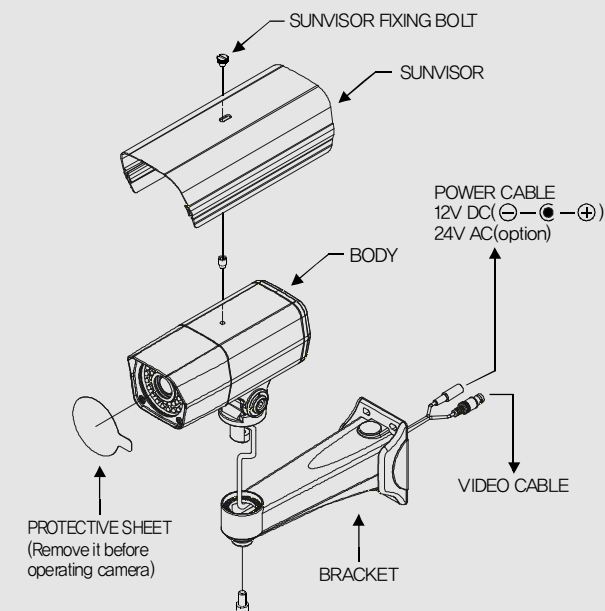


## INSTALLATION



1. Make a hole on the wall
2. Insert the screw anchors.
3. Fix the screws.

## CONFIGURATION

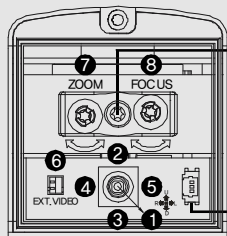


## SPECIFICATION

Model No.	SK-P441(D)/M844A
Image Sensor	1/3" SONY SUPER HAD CCD II
Effective Pixel	768(H) X 494(V) PIXEL(NTSC), 752(H) X 582(V) PIXEL(PAL)
Cell Size	6.35 $\mu$ m(H) X 7.4 $\mu$ m(V)(NTSC), 6.5 $\mu$ m(H) X 6.25 $\mu$ m(V)(PAL)
Scanning System	2:1 Interlace
Sync. Type	Internal/ Line-Lock(option)
Resolution	600 TV-LINE(COLOR), 700 TV-LINE(B/W)
S/N	52dB or More(AGC OFF)
Video Output	1.0 Vp-p(Sync. Negative) Termination 75 $\Omega$
Min. Illumination	0.01Lux(F/1.2), 0.0003Lux(Sense up), 0Lux(70M Range at LED HIGH) – Indoor
Gamma	$\gamma = 0.45$ typ.(0.45, 0.6, 1.0, user) Yes(Multi Language)
White Balance	ATW(2,500°K ~ 9,500°K)/MANUAL/AWC
Shutter Speed	1/60(1/50) ~ 1/100,000sec
Sense up	Auto(Selectable limit 2x~256x)/FIXED/OFF
Backlight	BLC, LWDR, DWDR, HLC(ON/OFF)
AGC	LOW/MIDDLE/HIGH/OFF
DNR(3D)	LOW/MIDDLE/HIGH/OFF
Motion Detection	ON/OFF(240 Block)
Privacy Zone	ON/OFF(8 Zone)
Mirror	H/V/BOTH/AUTO(option)
Freeze	ON/OFF
Day & Night	ICR(AUTO, COLOR, B/W)
LED Brightness	70pcs(LOW, MIDDLE, HIGH, OFF), Dynamic IR
DIS	ON/OFF
Digital Zoom	ON(10X)/OFF
Blemish Compensation	AUTO/OFF
Impact Detection	LOW/MIDDLE/HIGH/OFF
Communication(option)	RS-485(Protocol : Pelco D, Pelco P)
Lens	Day & Night Vari-focal auto iris lens
Power Supply	12V DC $\pm$ 10%(24V AC : option)
Current Consumption	LED ON : Max. 1.1A, LED OFF : Max. 150mA
Fan	Yes
Operation Temp.	-20°C ~ 50°C
Preservation Temp.	-20°C ~ 60°C
Dimension	100(W) X 87.8(H) X 229(D)mm
Weight	Approx. 2kg

## FUNCTION SETTING

### 1. OSD menu structure



**Zoom & Focus fixing screw :**  
Focal length adjustment direction  
1. Unfasten the 'TORX' screw inside  
2. Adjust two trimmers properly  
3. Tighten the screw  
(Caution) When you tighten the screw, don't put stress excessively.

**Debug port :** For factory and service personnel only.

- ①SETUP : Press "SETUP" button to go to the menu.
- ②UP, ③DOWN : Use "UP" or "DOWN" button to go to the up or the down.
- ④LEFT, ⑤RIGHT : Use "RIGHT" or "LEFT" button to go to the right or the left.
- ⑥EXT. VIDEO : Extra video output terminal for installation. The cable is option.
- ⑦Zoom, ⑧Focus : Use a the 'TORX' screw driver for adjusting zoom and focus.

### 2. OSD menu structure

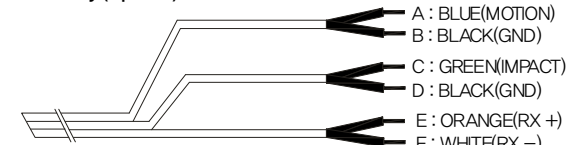
Function setting menu	Select menu	Sub menu	Contents	
1. EXPOSURE	LENS	MANUAL-↓, DC-↓	Fixed focal lens or Vari-focal auto iris lens	
	LEVEL	0~99	Adjust the brightness	
	E.SHUTTER	AUTO	Shutter speed auto adjustable	
		1/60(1/50)~1/100,000	Select shutter speed manually	
	AGC	OFF, LOW, MIDDLE, HIGH	Determines that use the AGC function or not and AGC level selectable(You can not use the Auto D&N change mode when AGC is off)	
	SENSE UP	OFF, x2~x256	Using sense up when it is low luminance (OFF, x2~x256 selectable)	
	ANTI-GHOST	OFF, ON	When the Sense-up is activated and the camera detects motion, operates LED and changes to B/W mode if this mode is activated. Then user can see vivid images without the afterimage. (You can set this mode when the camera has LED and the D&N mode is set to 'Color'.)	
	BLC	OFF, ON-↓	BLC function	
	LEVEL	0~20	Adjust BLC level	
	LWDR	OFF, ON-↓, AUTO-↓	Select LWDR	
	LEVEL	0~60	Adjust WDR level	
	OFF-ON	0~70	Using the Auto mode, set the WDR ON brightness	
	ON-OFF	0~100	Using the Auto mode, set the WDR OFF brightness	
	DELAY TIME	3~12	Using the Auto mode, set the WDR switching delay time	
	2. WHITE BALANCE	DWDR	OFF, LOW, MIDDLE, HIGH	Digital Wide Dynamic Range
HLC		OFF, ON-↓ AUTO-↓	High Light Compensation(Using the Auto mode, the HLC is not activated in day light.)	
LEVEL		0~60	According to the threshold value, the camera will recognize as High light or not.	
DNR		OFF, ON-↓	Reduce noise in low illumination	
LEVEL		0~20	Level is selectable	
WB MODE		ATW MANUAL-↓ AWC ↓	Color temperature 2500 ~ 9500°K Adjust the Red or Blue values Move the camera lens toward to white paper then press the set button to find the optimal white balance for current environment	
MANUAL RED		0~255	Adjust the Red value to shift the color of the object	
MANUAL BLUE		0~255	Adjust the Blue value to shift the color of the object	
R-Y GAIN		0~255	Adjust Red tone of the image	
B-Y GAIN		0~255	Adjust Blue tone of the image	
AUTO-↓			Auto day&night switching mode	
D&N MODE		COLOR B&W	Fixed at color(LED OFF) Fixed at B/W(LED level selectable)	
COLOR-BW BW-COLOR		65~160 30~125	Select brightness of illumination about changing the day ↔ night mode	
DELAY TIME		3~12	Select the duration time about changing the day ↔ night mode	
3. DAY&NIGHT		BURST	OFF, ON	Determines whether to transmit the burst signal or not in B/W mode
	LED LEVEL	OFF, LOW, MIDDLE, HIGH	IR LED OFF/ON and output level adjustable	
	DYNAMIC IR	OFF, MODE1, MODE2	When IR LED is turned on in B/W, the objects can be clearly identified due to the function that decreases screen saturation of objects within a short distance.	
	FLIP	OFF, VERT, HORI, BOTH, AUTO(option)	VERT : Set a vertical image inversion HORI : Set a horizontal image inversion BOTH : set a image rotation AUTO : Automatically rotate the screen according to the camera's position	
	SHARPNESS	0~49	Sharpness adjustable	
	GAMMA	0.45, 0.6, 1, USER	Gamma adjustable	
	FREEZE	OFF, ON	Get a still image	
	LSC	OFF, ON-↓	Determines whether to use the brightness compensation of four lens' corners(LSC) or not	
	LEVEL	0~50	The LSC level selectable	
	DZOOM	OFF, ON-↓	Max 10x digital zoom available(Default value is X3)	
	ZOOM	X1.0~X10	Digital zoom adjustable	
	PAN	-128~127	Zoomed in image can be moved to horizontal	
	TILT	-110~109	Zoomed in image can be moved to vertical	
	DIS	OFF, ON	This function can be mitigates image movement from external factors(This function uses digital zoom)	
	4. IMAGE ADJ.	PATTERN GENERATOR-↓		Test signal. Press the set button, color bar appeared on the screen and press any key to return to menu
MOTION		OFF, ON-↓	Determines whether to use the motion detection function or not	
DISPLAY		NONE	No display on the screen though movement is detected	
MESSAGE			The words 'MOTION' appear on the screen when movement is detected	
5. ALARM	SET WINDOW		Press the set button to move into the motion detection area section to set the 240 blocks. To escape this menu, you should press the left button at the far left or press the right button at the far right	
	ALL SET ↓		Press the set button to select all area	
	ALL CLEAR ↓		Press the set button to remove all area	
	SENSITIVITY	0~120	Motion detection sensitivity	
	HOLD TIME	1~15	Set the duration of alarm out. If the way of display is message, it means display time of message	
	IMPACT	OFF, ON-↓	Determines whether to use impact detection function or not	
	SENSITIVITY	LOW, MIDDLE, HIGH	Sensitivity setting	
	HOLD TIME	1~15	Set the duration of alarm out and display time of 'IMPACT' message	
	6.PRIVACY ZONE	MASK 1 ~8	OFF, ON-↓	Display each privacy mask or not.
		SET WINDOW-↓		Press the set button to move into the motion detection area section to set the 240 blocks. To escape this menu, you should press the left button at the far left or press the right button at the far right
		COLOR SET	BLACK, GRAY...	Select mask color(8 color is available)
		LANGUAGE	ENGLISH, ...	Select language
		TITLE	OFF, ON-↓	Display the camera ID on the screen
		EDIT-↓		Camera ID setting
		RESET ↓		Camera ID reset
POSITION-↓			Camera ID position	
DPC		OFF, AUTO-↓	Defect pixel correction in low illumination	
WHITE THR		0~255	Setup the limited value of white pixel correction	
BLACK THR	0~255	Setup the limited value of black pixel correction		
DPC LEVEL	0~255	Setup the DPC(Defect Pixel Correction) level		
7. SPECIAL	SYNC	INT L/L-↓	Internal Sync with 12V DC power Setting the phase is selectable when used 24V AC(Dual power only)	
	VPHASE	0~255	Phase controllable at 24V AC input(L/L mode)	
	MONITOR	CRT, LCD	Monitor setting	
	COMMUNICATION-↓		Communication setting	
	COM. ID	1~255	Select the camera ID for RS-485 communication	
	BAUDRATE	2400, 4800, 9600	Select baud rate	
	PROTOCOL	PELCO-D, PELCO-P	Select protocol	
	FACTORY SET ↓		Reset your camera to factory default condition and then restart Notice : Lens, communication and language is not changed	
	SAVE AND EXIT ↓		Save the value and then restart	
	EXIT ↓		Escape the menu without save	
RETURN-↓		Move back to previous menu		
8. EXIT				

- The '↓' icon appeared with desired function, press the set button to move sub menu.
- The '---' icon appeared with function that is unavailable according to function setting.

### 3. How to control through RS-485 communication(option)

- 1) Match the camera with controller's ID, baudrate and protocol
- 2) Up, Down, Left and right of Jog lever is same as Up, Down, Left and right of RS-485 controller
- 3) Enter of Jog lever is the same as menu key or IRIS open key of RS-485 controller

### 4. Cable array(option)



No.	FUNCTION	REMARK
A	MOTION ALARM	· If the camera detected motion when using Motion & Impact function, outside line of motion alarm connect with GND(B).
B	GND	· If the camera detect impact, outside line of impact alarm connect with GND(D). Outputs of Motion & Impact are 'open collector'.
C	IMPACT ALARM	· Max current & voltage are 200mA and 30V DC.
D	GND	
E	RX +	RS-485A
F	RX -	RS-485B