

# IR WATERPROOF D&N CAMERA

SK-P700IR(D)/M944AI,

SK-P700IR(D)/M945AI

## MANUAL



### FEATURE

1. Long visible range at night,(70m Max. indoors, 60m Max. Outdoors)
2. This camera adopts split glass technology to prevent IR light reflection.
3. This camera has vari-focal IR lens to prevent defocusing under IR lighting.
4. Day & Night Function(ICR) at night to receive maximum available light.
5. This product can match for any circumstances very well.
6. This product is suitable for 24 hours surveillance with optical multi-coating filter according to IR LED and CCD.
7. This product is "waterproof" to resist rain, snow and other weather factors.(IP67)
8. Survivor 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. RS-485 interface.(Pelco-D protocol support)
11. Support 8 different privacy zone
12. Adopted DNR technology, It reduces noise efficiently in low light condition.
13. Multi-language full OSD support
14. Power & video cables are concealable.(Cable through bracket)
15. This camera adopts 3-axis bracket to install on the ceiling and wall.
16. You can connect 24V AC or 12V DC regardless polarity.  
(Dual power version only)
17. This camera supports the advanced high resolution,  
(580 TV-Line Color)
18. You can adjust the level of IR LED according to the circumstances.
19. A heater enables the camera to keep the proper operation at low temperature.  
- ON : 23°C, OFF : 28°C
20. A fan enables the camera to keep the proper operation when the LED is ON.
21. Provide Max, 10x digital zoom

22. WDR(Wide dynamic range) : SK-P700IR(D)/M945AI only
23. DIS(Digital Image stabilizer) relieves any picture tremble due to external factor such as wind.

### 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 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. DC 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.

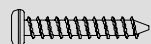


If the product is to be put out of operation definitively, take it to a local recycling plant for a disposal which is not harmful to the environment.

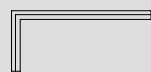
### ACCESSORIES



ANCHOR 8x35 4EA



SCREW 6x35 TP1 PAN SUS 4EA



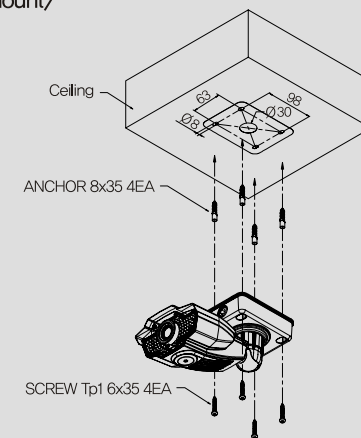
WRENCH 5mm L TYPE 1EA



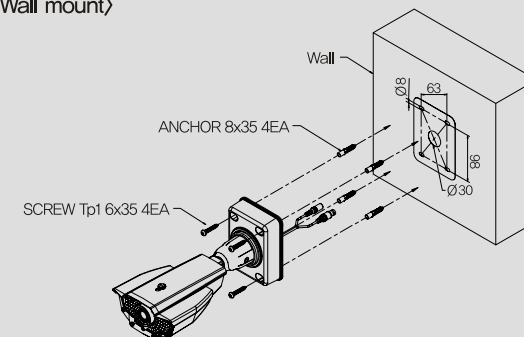
BOLT 1/4"-20UNC L=6, 1EA

### INSTALLATION

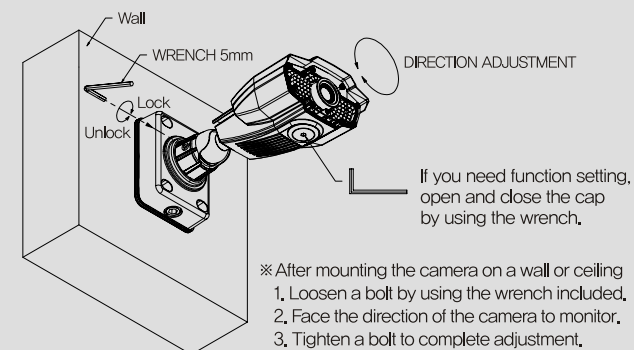
#### <Ceiling mount>



#### <Wall mount>



### ADJUST THE DIRECTION & OPEN/CLOSE CAP



## ● SPECIFICATION

Model No.	SK-P700IR(D)/M944AI	SK-P700IR(D)/M945AI
Image Sensor	1/3" SONY SUPER HAD CCD II	1/3" SONY DS CCD
Effective Pixel	768(H) X 494(V) PIXEL(NTSC), 752(H) X 582(V) PIXEL(PAL)	
Cell Size	6.35μm(H) X 7.4μm(V) (NTSC), 6.5μm(H) X 6.25μm(V) (PAL)	
Scanning System	2:1 Interface	
Sync. Type	Internal / Line lock(Option)	
OSD	Multi-language	
Backlight	BLC / HLC / OFF	BLC / HLC / WDR / OFF
Resolution	Color : 580 TV-Line, B/W : 700 TV-Line	
S/N Ratio	52 dB(AGC OFF, Weight ON)	
Min. Illumination	0 Lux(70M RANGE) / LED ON 0,00004 Lux(Color Sense-up), 0,00004 Lux(B/W Sense-up) / LED OFF	
White Balance	ATW / AWC / MANUAL / OUTDOOR(1800°K ~ 10,500°K) / INDOOR(4,500°K ~ 8,500°K)	
Shutter	1/60 ~ 1/120,000sec	
Sense Up	AUTO / FIXED / OFF(x2 ~ x256 selectable)	
Gain Control	LOW / HIGH / OFF	
DNR	OFF / ON(1 ~ 32 Level adjustable)	
Motion Detection	ON / OFF(8 Zone, Alarm output)	
Privacy	ON / OFF(8 Zone)	
Mirror	H / V / BOTH / OFF	
Freeze Image	ON / OFF	
Sharpness	ON / OFF(Level adjustable)	
D&N	COLOR / Black&White / AUTO / EXT(Option)	
DIS	ON / OFF	
Digital Zoom	ON(x10) / OFF	
DPC	256 point(Even 128 point, ODD 128 point)	
Communication(Option)	RS-485(PELCO-D Protocol)	
Power Supply	12V DC ±10%(24V AC : Option)	
Current Consumption	150mA(LED OFF), 1.2A(LED ON)	
Operation Temp.	-10 ~ 50°C / 30% to 80% RH	
Preservation Temp.	-20 ~ 60°C / 20% to 90% RH	
Dimension	141,9(W) X 80,2(H) X 183,3(D)mm	
Weight	Approx. 1,7kg	

## ● FUNCTION SETTING

### · OSD Menu Structure

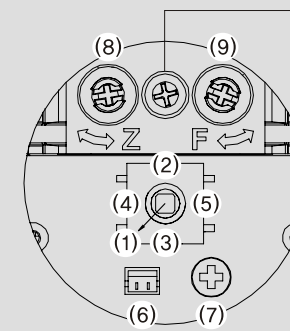
Function setting menu	Select menu	Sub menu	Contents
1. LENS	DC	Brightness	Adjust the brightness of the screen (Range : 1 ~ 70, Default value : 25)
	MANUAL		Manual mode is not recommended using built-in the DC Lens
2. EXPOSURE	Shutter	—, FLK, Auto, Manual	Auto, Manual setting is not selectable when selected DC Lens
	AGC	Off, Low ↵, High ↵	Off : Deactivates function Low : Auto selection between 5.3dB and 32dB High : Auto selection between 5.3dB and 37dB (You can not use the DIS, Day&Night when AGC is off)
	Sense-up	Off, Auto ↵	Off : Deactivates function Auto : Using sense up when it is low luminance (x2 ~ x256 selectable)
	Return		Save the value then move back to previous menu
*Notes : If the AGC is off, the sense-up function is not available As the sense-up level increases, an after-image will appear			
3. WHITE BAL	ATW		Color temperature 1800 ~ 10500°K
	Indoor		Color temperature 4500 ~ 8500°K
	Outdoor		Color temperature 1800 ~ 10500°K
	AWC → SET		Find the optimal white balance for current luminance environment(The camera focus must towards to white paper)
4. BACKLIGHT	Manual		Adjust the Red or Blue values to shift the color of the object
	Off		Deactivates function
	BLC	Top, Bottom, Left, Right, Level	User programmable BLC zone and compensation level
	HLC	Mask color	Removed HIGH LIGHT. It enable us to watch license plate clearly
4. BACKLIGHT	WDR	Max, Value, Level	Select WDR to adjust WDR sensitivity and brightness
	*Note that the function of WDR supported on SK-P700IR(D)/M945AI only		

5. DNR	On	Level	Reduce noise in low illumination (Reduction level is selectable)
	Off		Deactivates function
*Notes : If the AGC is off, the DNR function is not available			
6. DAY/NIGHT	Auto	Dwell time	Day : Color → Night : B/W (Switching time adjustable)
	Color		Fixed at color(LED OFF)
	B/W		Fixed at B/W(LED ON)
*Notes : If the AGC is off, this function is unavailable			
7. IMAGE ADJ	Freeze	Off, On	You can get a still image
	V-REV	Off, On	Set a vertical image inversion
	H-REV	Off, On	Set a horizontal image inversion
	D-Zoom	Off, On ↵	Max 10x digital zoom available(Default value is 0)
	Sharpness	Off, On ↵	The image outline will be strong and clear according to sharpness level increasing(Default is 12) If this function is Off, it may looks like unfocused
	Return		Save the value then move back to previous menu
8. SPECIAL			Please refer to "Special setup"
9. Exit			Save the value and exit menu

- 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.

Special setting menu	Select menu	Sub menu	Contents	
1. CAM TITLE	Off		No title displays on the screen	
	On	Camera title setup	Display the camera's title on the screen (Max. 15character, position adjustable)	
2. SYNC	INT		Internal Sync with 12V DC power	
	LL		Setting the phase is selectable when used 24V AC(DUAL POWER only)	
3. MOTION DET : Off / On	Sensitivity	Area 1 ~ Area 8	When sensitivity number is high, also motion detection sensitivity will increase (Area 1 ~ Area 8)	
	Area Mode	Off, On	Determines whether to use the MD area selected in SENSITIVITY	
	SEL POS	L_TOP/R_TOP/L_BOTTOM/R_BOTTOM	Determines which of the 4 vertices of each MD area is to be used	
	YPOS		Determines the coordinate of the vertical axis for SEL POS	
	XPOS		Determines the coordinate of the horizontal axis for SEL POS	
	Fill → Set		Fill the color in selected area (The color of filling is sequentially selected as brown, orange, blue, cyan, yellowish green, yellow, magenta and red.)	
	Return		Save the value then move back to previous menu	
	*Notes : If the camera detected motion, 'MOTION DETECTED' will appear on the screen			
	4. PRIVACY : Off / On	Area SEL	Area 1 ~ Area 8	Select privacy zone up to 8 area
		Area Mode	On ↵, Off	Determines use the area or not, and setting the size and position of the area
Mask Color			Fill the color in selected area (Gray, Green, Blue, Black, White)	
TRANSP		0 ~ 3	Setting transparency of selected area (0 : opacity ~ 3 : transparency)	
Return			Save the value then move back to previous menu	
5. DIS	On		This function can be mitigates image movement from external factors (This function uses digital zoom)	
	Off		Deactivates function	
6. COMM ADJ (Option)	Cam ID		Setting the camera ID(0 ~ 255, Default)	
	Baud rate		Selects baud rate (2400 ~ 57600bps, Default 9600)	
	UART Mode		Parity bits selectable(NONE, EVEN, ODD)	
	RET PKT	Off, On	Determines whether to send a command back to the controller device when a communication control command is sent to the camera	
	DISP ID	Off, On	Display the camera ID on the screen	
	*Notes : PELCO-D protocol only			
7. LANGUAGE			Select language	
8. RESET			To reset your camera to factory default condition(Notice : COMM ADJ and Language is not changed)	
9. RETURN			Save the value then move back to previous menu	

### · How to use the jog lever & Zoom/Focus trimmer



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

#### (1) Enter

- Push the lever : Used to access the menu and confirm selection,
- Push the lever for one second : Used to return to previous menu from the motion detection setting section or privacy mask setting section.

#### (2) Up, (3) Down : Used to move the cursor to up or down,

- (4) Left, (5) Right : Used to move the cursor to left or right and change the value.

#### (6) EXT-VIDEO : Extra video output terminal for installation, Plug your test monitor in hear. The cable is option.

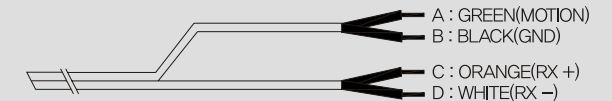
#### (7) LED : LED Level adjustment

#### (8) Zoom, (9) Focus : Use a '+' type driver for adjusting zoom and focus.

### · How to control through RS-485 communication

Match the camera with controller's ID, baudrate and protocol

### · Cable array(RS-485, ALARM)



No.	FUNCTION	REMARK
A	ALARM	· If the camera detected motion when using Motion 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 are 'open collector'.
C	RX +	· Max current & voltage are 200mA and 30V DC.
D	RX -	RS-485B

(Caution) All connectors must be securely sealed to prevent water leakage, especially for un-used wires.