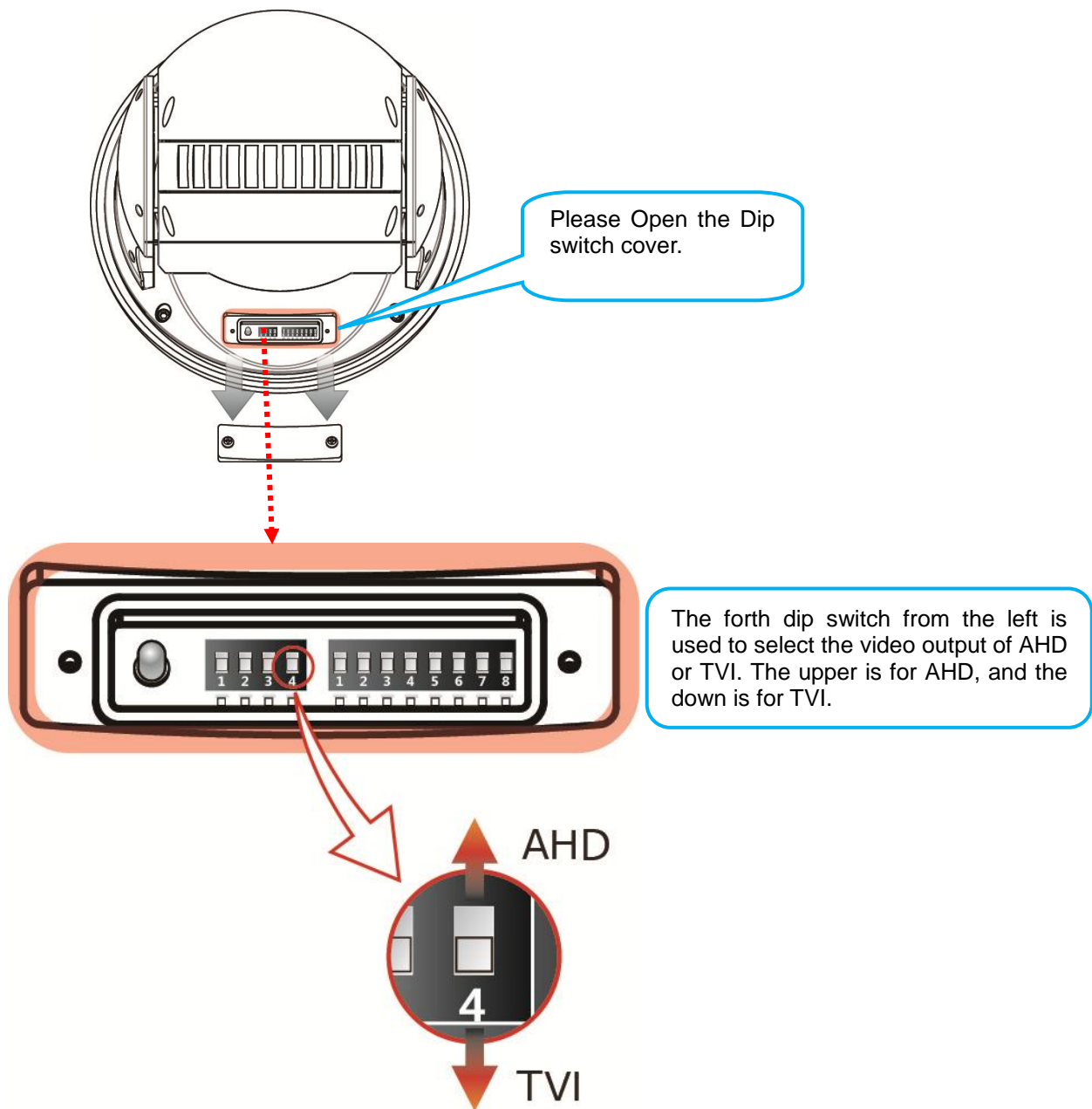


2Megapixel **TVI & AHD** *Hybrid* IR Speed Dome Camera
User's manual

Version 120717

How to select the video output of AHD and TVI



NOTE) If only CVBS output is when using only analog CVBS output without using the TVI / AHD output must TVI / AHD mode should be used, and to TVI mode. AHD mode when the camera is malfunctioning, and reboot. Be careful.







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1. Caution

Thank you for purchasing our product. Please operate the product after being fully aware of the manual. Please contact us if you have any query.

Precaution

Note the following matters before the installation of the product. Avoid the following places for the installation.	
	<ul style="list-style-type: none"> • A high/low temperature → Using indoor-cameras in the places of +50°C~ -10°C can cause troubles and lower its capacity.
	<ul style="list-style-type: none"> • Snow, rain and wet → Humidity or water and any liquid inside-camera can cause troubles.
	<ul style="list-style-type: none"> • Oil, gas → Oil and gas can damage the camera as they go through the cameras.
	<ul style="list-style-type: none"> • Vibration, shock → They bring on problems or errors of the camera.
	<ul style="list-style-type: none"> • Direct light, exposure to the air → In the case of that sets indoor- cameras outside where the weather is changeable, it can cause problems.
	<ul style="list-style-type: none"> • Closing to High frequency and electric power lines → Setting the camera up around electromagnetic units or power supplier can cause problems.

Caution in Use

Do not disassemble the unit and put alien substances in the unit.	
	<ul style="list-style-type: none"> • Disassembling the unit or putting alien substances such as a metal can make the camera defective.
	<ul style="list-style-type: none"> • Make sure of power switch-off before the installation. → Ensure power switch-off and check the voltage the camera before the installation.
	<ul style="list-style-type: none"> • Do not give the unit a shock and an operation. → Giving a strong shock or an excessive power on the button, terminal can cause problem.



This product has been designed and manufactured in accordance with the harmonized European standards, following the provisions of the below stated directives.

Electromagnetic Compatibility Directive 89/336/EEC(EN61000-3-2:1995, EN61000-3-3:1995, EN50081-1:1992, EN50082-1:1997)

This device complies with part 15 of the fcc rules operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) This device must accept any interference received including interference that may cause undesired operation

Caution :

- ① Must use AC24V power source, current intensity must be less than 2A and must use a double winding transformer.
- ② Never extend the power line from adaptor to camera.
- ③ Please use more thick cable than 18AWG(1.0mm), if you want to extend the power line.
- ④ You must use one adaptor per one camera that is being provided.
- ⑤ Use extra power supplier, If you want to supply many piece of cameras.

2. Product Introduction

2.1. Description and features

Description

This camera, 2 Megapixel Full TVI/AHD Hybrid speed dome camera, has been designed elegantly for buildings, department stores that need to be in harmony with the interior as a high speed dome camera, including various observation functions.






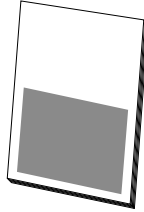


Feature

- Support full 2.2 Megapixel Full HD-SDI (1080p)
- Optical x30 zoom rates, Digital x32 zoom rates
- Enhance Electronic sensitivity lowest illumination 0.003Lux (DSS Control)
- Change to B/W model (0.1Lux) at night by ICR DAY & Night
- Digital Noise Reduction (DNR), True WDR
- DEFOG Function
- Motion detection, Privacy zones.
- Various surveillance functions
Preset(250), Group(12), Tour, Trace, Spiral
- Remove moisture inside of camera by using fan & heater
- Automatic movement detecting area as Alarm receiver unit or Sensor
- RS422/485 remote control
- Built-in Auto Tilt (Automatic 180° tilt rotation)
- Available to public office, indoor or outdoor, Parking violation

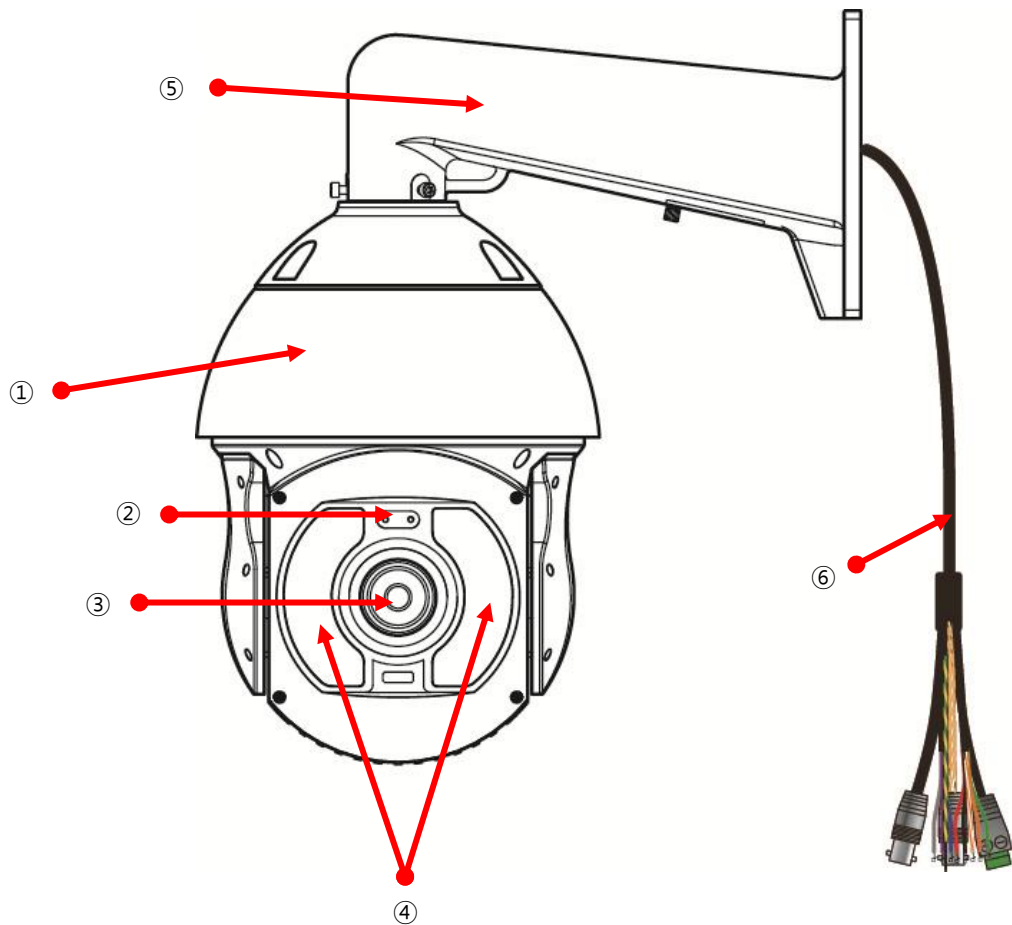
2.2. Product package





The following items are included in the product package.




HD-SDI IR Speed Dome Camera	1 pcs	
Wall Mount Bracket	1 pcs	
Power Supply (Power Cable & Linear AC24V/2.5A adapter)	1 pcs	
L-Wrench	1 pcs	
Anchor Bolts	4 pcs	
User's Manual	1 copy	

2.3. Name and function of each part

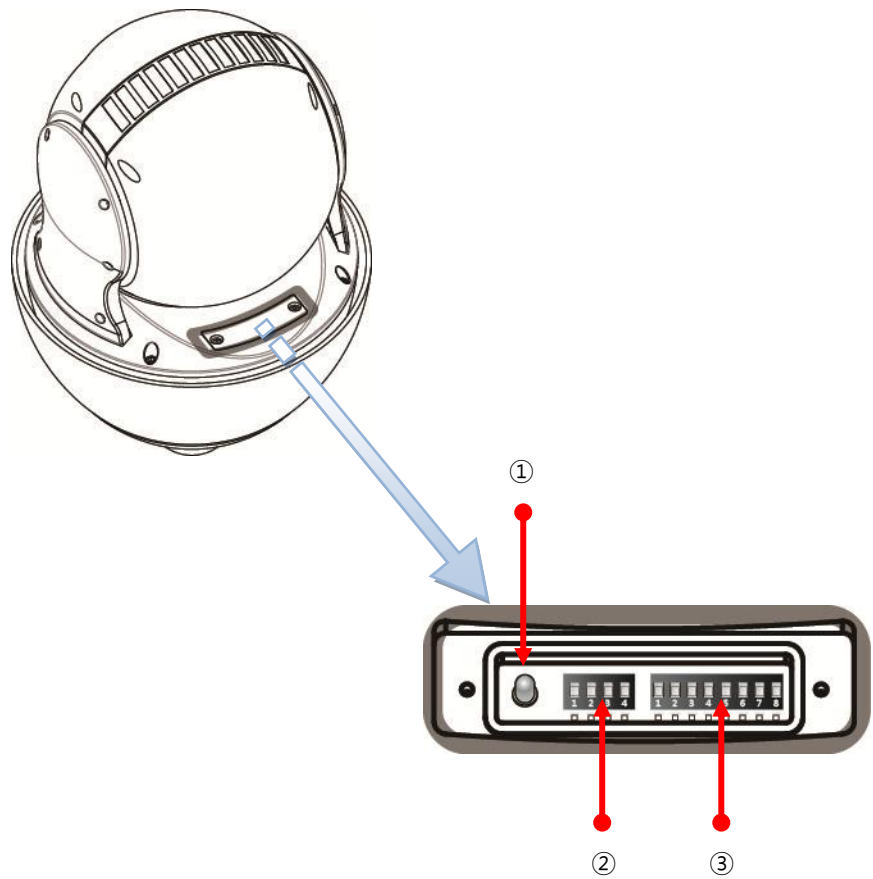
Exterior



No	Name	Function	
①	Upper Housing	Upper cover for camera	
②	CDS Sensor	CDS Sensor for operating IR LED	
③	Zoom Camera	30x / 36x Zoom Camera	
④	Zoom IR LED	Built-In Zoom LED	
⑤	Wall mount Bracket	Wall Mount Bracket	
⑥	Cable		POWER (AC24V 2.5A)
			CVBS
			TVI or AHD
			RS-485

			Alarm In→Green: ch1, Orange: ch2, White/Orange: ch3, Black: ch4, Red: GND
			Alarm Out→Dark Blue: COM, Purple: N/O, Gray: N/C
			Yellow/Green: Earth

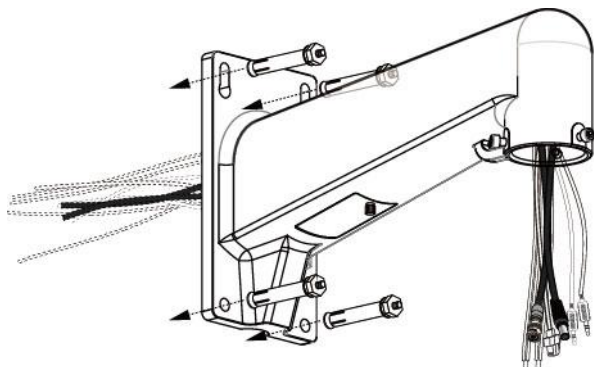
Interior



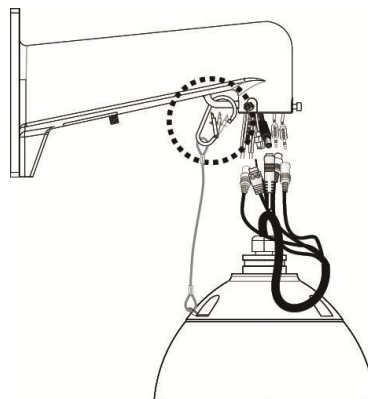
No	Name	Function
①	Power LED	Turn on the light when its power on
②	DIP Switch (1~4)	Set-up Setting switch
③	DIP Switch (1~8)	Address Setting switch

2.4.Installation

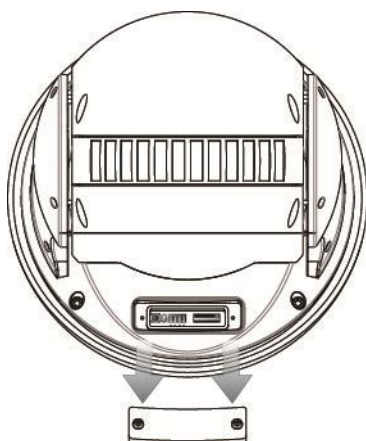
2.4.1.Installing wall mount bracket



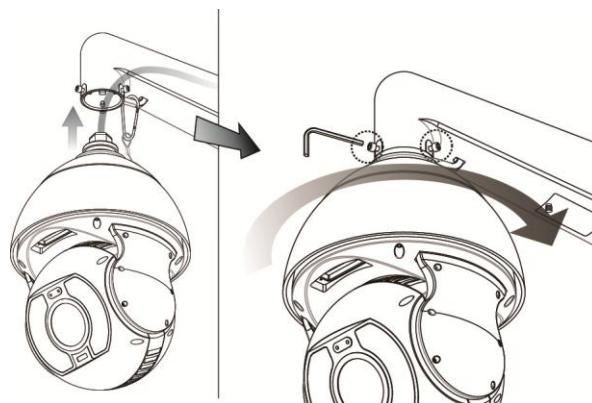
- ① Fix by 4 (anchor) bolts, after having passed each of the lines to the bracket.



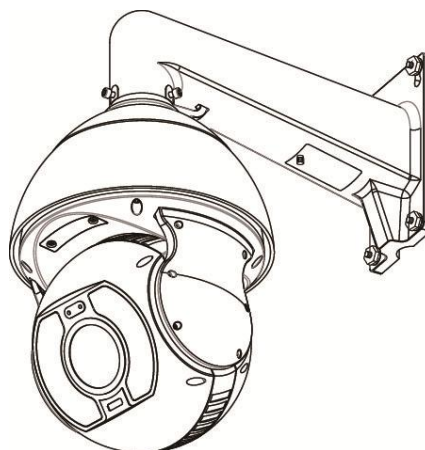
- ③ Connect cables after hanging up safety ring to the bracket like above picture.



- ② Before connecting camera with bracket, open the cover and built-in SD card like above picture.
(Set address number to "0", when not connecting RS-485).

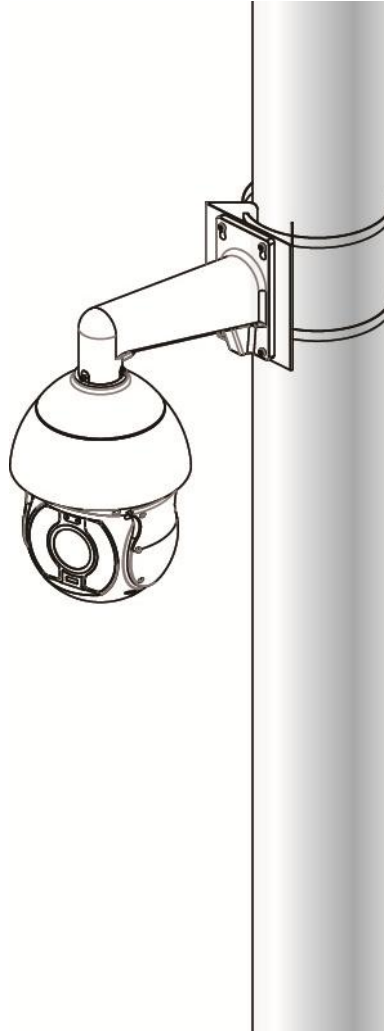


- ④ Insert the camera mount into the bracket, turn it to the left or right and tighten the three bolts.



- ⑤ Wall mount bracket installation

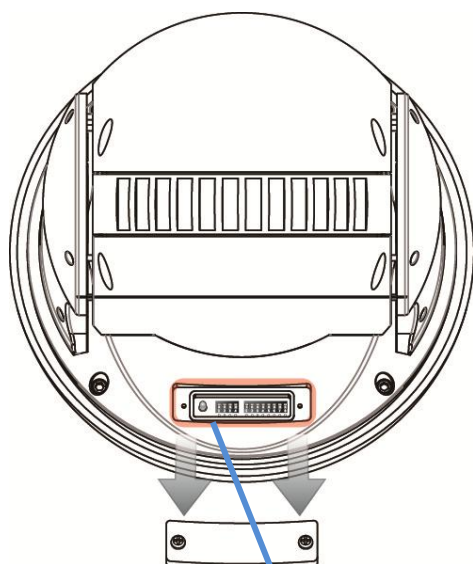
2.4.2.Installing Pole Mount



When installing the wall mount bracket on the cylinder, combine it with the pole mount and install it.

3. DIP switch setting

3.1. DIP Switch setting



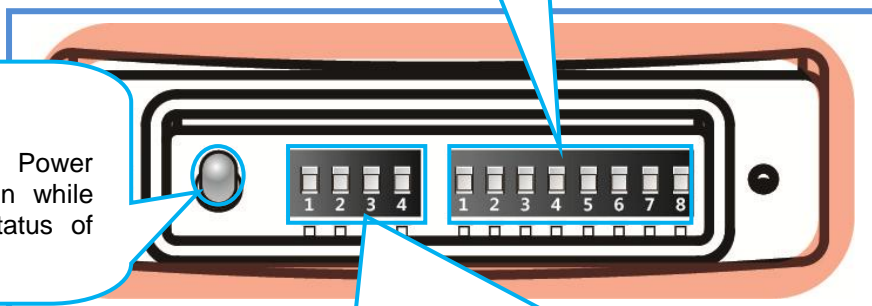
<S2>

Set the camera numbers in the state of ADDR, set communication speed, protocol in the state of INIT.

-This part is each address of camera.-

<POWER LED>

It shows the status of Power On/Off. Green LED is On while power is alive. In the status of operation, red LED is off.



<S1>

- Termination Resistor (DIP S1/SW1)

→ Turn the last camera on the data line as a switch to turn on/off the terminal resistor on.

Turn the DIP SW of some of the farthest cameras on in the case of the data lines distributed to several directions.

(* The default is off.)

- Address / Initial Select (DIP S1/SW2)

→ Set ADDRESS DIP SW in the status of ADDRESS

(* Reference to next page *)

(.*** The first default is ADDRESS.**)

Set the communication speed (baud rates) and Protocol (Demand for the technical inquiry) up in the state of the INITAIL.

-Select PAL / NTSC system (DIP S1/SW 3)

→ PAL : 25P, NTSC : 30P

- Select AHD or TVI output(DIP S1/SW 4)

→ ON: AHD output, OFF: TVI output

3.2. Protocol setting

Set up the switch

The switch for select protocol

The switch for select baud rates

PROTOCOL	S1	S2				
	SW 'INIT↔ADDR'	SW1	SW2	SW3	SW7	SW8
D-max (9600 bps)	INIT	OFF	OFF	OFF	OFF	OFF
P-P (9600 bps)	INIT	ON	OFF	OFF	OFF	OFF
P-P (4800 bps)	INIT	ON	OFF	OFF	OFF	ON
P-P (2400 bps)	INIT	ON	OFF	OFF	ON	OFF
P-D (9600 bps)	INIT	OFF	ON	OFF	OFF	OFF
P-D (4800 bps)	INIT	OFF	ON	OFF	OFF	ON
P-D (2400 bps)	INIT	OFF	ON	OFF	ON	OFF
S-T (9600 bps)	INIT	OFF	OFF	ON	OFF	OFF

Change S1 to INIT if user wants to change protocol

- ① Please the power off
- ② Switch protocol that user wants to change on in the above the table
- ③ The power on, then the set protocol and baud rates are displayed.
- ④ The power off, if every setting is right. Then the change of protocol is finished.
- ⑤ Change No. 2 of S2 to ADDR before the power on, then the power on after setting the address of the camera.
- ⑥ Try it again with the information as above the table, if something is wrong

3.3. Address DIP Switch Setting

ADDRESS is set No 1 ~ 255 by DIP switch 1~8.

RX NO	DIP SWITCH (HEX)							RX NO	DIP SWITCH (HEX)						
	1	2	3	4	5	6	7		1	2	3	4	5	6	7
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	33	ON	OFF	OFF	OFF	OFF	ON	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	34	OFF	ON	OFF	OFF	OFF	ON	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	35	ON	ON	OFF	OFF	OFF	ON	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	36	OFF	OFF	ON	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	37	ON	OFF	ON	OFF	OFF	ON	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	38	OFF	ON	ON	OFF	OFF	ON	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	39	ON	ON	ON	OFF	OFF	ON	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	40	OFF	OFF	OFF	ON	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	41	ON	OFF	OFF	ON	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	42	OFF	ON	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	43	ON	ON	OFF	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	44	OFF	OFF	ON	ON	OFF	ON	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	45	ON	OFF	ON	ON	OFF	ON	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	46	OFF	ON	ON	ON	OFF	ON	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	47	ON	ON	ON	ON	OFF	ON	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	48	OFF	OFF	OFF	OFF	ON	ON	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	49	ON	OFF	OFF	OFF	ON	ON	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	50	OFF	ON	OFF	OFF	ON	ON	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	51	ON	ON	OFF	OFF	ON	ON	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	52	OFF	OFF	ON	OFF	ON	ON	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	53	ON	OFF	ON	OFF	ON	ON	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF	54	OFF	ON	ON	OFF	ON	ON	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	55	ON	ON	ON	OFF	ON	ON	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	56	OFF	OFF	OFF	ON	ON	ON	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	57	ON	OFF	OFF	ON	ON	ON	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF	58	OFF	ON	OFF	ON	ON	ON	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF	59	ON	ON	OFF	ON	ON	ON	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF	60	OFF	OFF	ON	ON	ON	ON	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF	61	ON	OFF	ON	ON	ON	ON	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF	62	OFF	ON	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON	OFF	OFF	63	ON	ON	ON	ON	ON	ON	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF	64	OFF	OFF	OFF	OFF	OFF	OFF	ON

- ADDRESS Table -

- 7 DIP switched on, it can be set 65 ~ 128 as above.
- 8 DIP switched on, it can be set 129~192 as above.
- 7&8 DIP switched on, it can be set 129~255 as above.

3.4. OSD Menu setting

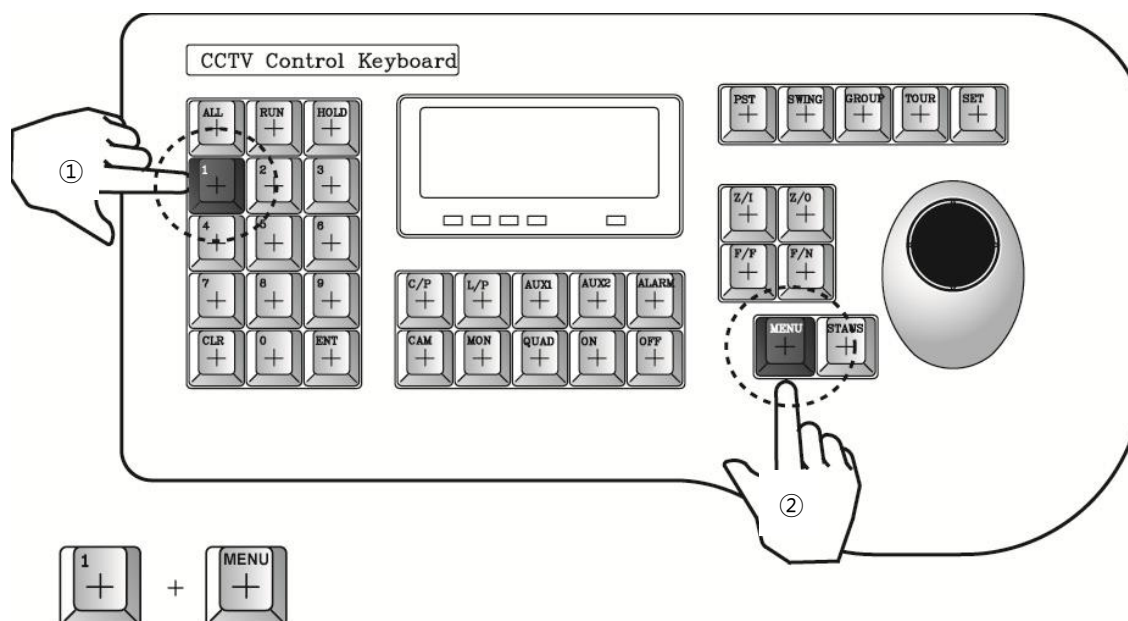
3.4.1. OSD Menu control

■ OSD (ON SCREEN DISPLAY) menu control

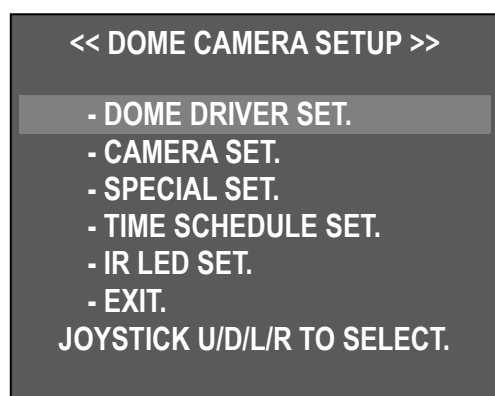
It is the function to call up the Menu of the camera.

- ◆ User can not only set Preset, Group, Tour, Swing, Trace functions of the camera up by the menu, but also set them up by shortening keys.

■ OSD MENU Enter

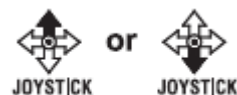


The menu is displayed on the screen with the key tone when user presses No.1 and menu key.

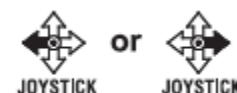


■ OSD Menu Control

- Move cursor by moving joystick up and down.



- Select Menu or change to setting and move to Joystick left or right.



■ Cancellation of OSD menu

- Press No. 1 + Menu button.



3.4.2.Menu function

■ OSD Menu tree

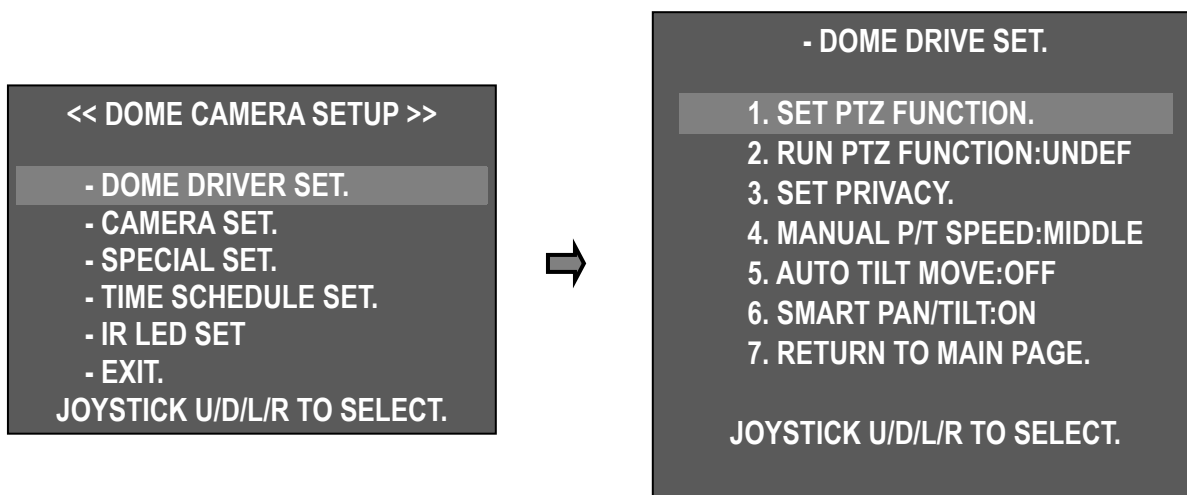
Main Menu	Sub Menu 1	Sub Menu 2
DOME DRIVER SET	SET PTZ FUNCTION	SELECT PRESET
		PRESET ID SET
		PRESET PTZ SET
		SWING SET
		GROUP SET CH:01~12
		TOUR SET
		TRACE SET
	RUN PTZ FUNCTION	n/a
	SET PRIVACY	
	MANUAL P/T SPEED	
	AUTO TILT MOVE	
	SMART PAN/TILT	
CAMERA SET	ID SET	n/a
	H-V REVERSE	
	AGC CONTROL	
	SHUTTER SPEED	
	SHARPNESS LEVEL	
	BRIGHTNESS	
	COLOR LEVEL	
	DNR LEVEL	
	FOCUS MODE	
	MAX ZOOM LIMIT	
	DSS CONTROL	
	BACK LIGHT MODE	(OFF / WDR / HLC / BLC / DEFOG)SET
	WHITE BALANCE	n/a
	DAY&NIGHT	
	STABILIZER	
SPECIAL SET	OSD DISPLAY	n/a
	ALARM CHANNEL ON/OFF	
	ALARM PRESET SET	
	AUTO REFRESH TIME	
	USE SHORTCUT KEY	
	RUN DEHUMIDIFICATION	
	LANGUAGE	
	USE PASSWORD	
	CHANGE PASSWORD	
	FACTORY RESET !	
TIME SCHEDULE SET	SCHEDULE FUNCTION SET	n/a
	SCHEDULE BACKLIGHT SET	
	RESUME TIME SET	
	HOME POSITION SET	
	TIME SET	
IR LED SET	LED OPERATION MODE	n/a
	LED ON SENSITIVITY	
	LED OFF SENSITIVITY	
	LED LUMINOSITY	
	LED ON TIME	
EXIT	n/a	n/a

- DOME DRIVER SET.	: Set Pan, Tilt or various surveillance functions.
- CAMERA SET.	: Set Video, screen display functions.
- SPECIAL SET.	: Set motion detection, alarm, multi-language, Password, Factory default
- TIME SCHEDULE SET.	: you can set time schedule for various function in this menu.
- IR LED SET	: Set the operation of the LED and the light Sensor
- EXIT.	: Out of OSD menu

3.4.2.1. DOME DRIVER SET

1. SET PTZ FUNCTION

Set up or execute Preset, Swing, Group, Tour, Trace.



Select "DOME DRIVER SET" in main menu, then move joystick left / right and display sub menu list.
Select "1. SET PTZ FUNCTION" then move joystick left/right and display various surveillance function list.

- SET PRESET & RUN.

1. SELECT PRESET CH:001
2. PRESET ID SET
3. PRESET PTZ SET
4. SWING SET
5. GROUP SET CH:01~12
6. TOUR SET
7. TRACE SET
8. PREVIOUS MENU PAGE.

JOYSTICK U/D/L/R TO SELECT.

1). SELECT PRESET CH

- Set up preset Number.
- Set up preset No by moving Joystick left / right.

◀ : Number up / ▶ : Number down

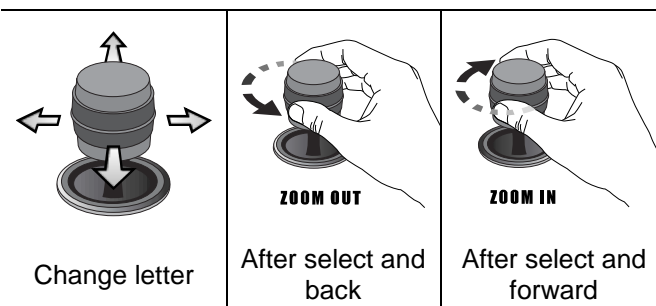
◆ Set up Max. 250 programmable Preset No.

2). PRESET ID SET

- User can set ID of each preset No.
- Select "2. PRESET ID SET" then moves joystick left or right and displays input of preset ID options.



User can select ID letter or icon by using joystick Up/Down/Right/Left. Shift letter digit by "ZOOM

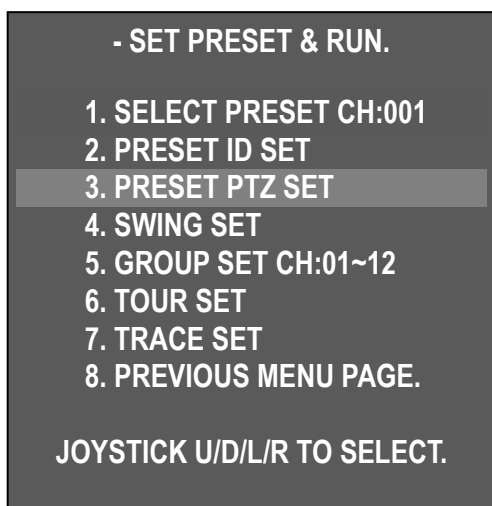


To save designated ID, Please pressing "F/F" key,
No to save ID, Please press "F/N" key, it doesn't save ID and back to previous setting..

3). PRESET PTZ SET

- PRESET setting menu.

"Save "1.SELECT PRESET CH" No and "2. PRESET ID"



Move to menu as desire by moving joystick up/down/left/right.

Press F/N [SAVE] → [DELETE] → [RETURN], Move cursor and select menu by pressing F/F.

- [SAVE] : Save and go to previous screen
- [DELETE] : Delete PRESET
- [RETURN] : Go to previous screen (Cancellation)

4). SWING SET

- The SWING commands the camera to move between 2 selected positions, monitoring the route

- SET PRESET & RUN.

1. SELECT PRESET CH:001
2. PRESET ID SET
3. PRESET PTZ SET
4. SWING SET
5. GROUP SET CH:01~12
6. TOUR SET
7. TRACE SET
8. PREVIOUS MENU PAGE.

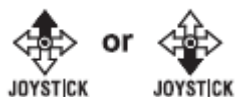
JOYSTICK U/D/L/R TO SELECT.



- SWING SET.

1. PAN/TILT SWING	: UNDEF
2. START PRESET	: 000
3. END PRESET	: 000
4. SWING TIME	: 000
5. SWING SPEED	: 000

F/F SAVE, F/N NOT SAVE.



or



: Moves menu



or



: Changes Setting

1. PAN/TILT SWING	TILT – Move Up and Down. PAN – Move Left and Right.
2. START PRESET	Set start preset point in Swing.
3. END PRESET	Set end preset point in Swing.
4. SWING TIME	Set duration time between Swing movement .(1~127)
5. SWING SPEED	Set movement speed.(1~64)

5). GROUP SET CH: 1~12

User can set up Max. 12 groups and it is included 12 preset points each group.

- SET PRESET & RUN.

1. SELECT PRESET CH:001
2. PRESET ID SET
3. PRESET PTZ SET
4. SWING SET
5. GROUP SET CH:01~12
6. TOUR SET
7. TRACE SET
8. PREVIOUS MENU PAGE.

SELECT (F/F), CHANGE (L/R)



- GROUP SET CH:001

[P]	[S]	[T]	[P]	[S]	[T]
000	000	000	000	000	000
000	000	000	000	000	000
000	000	000	000	000	000
000	000	000	000	000	000
000	000	000	000	000	000
000	000	000	000	000	000

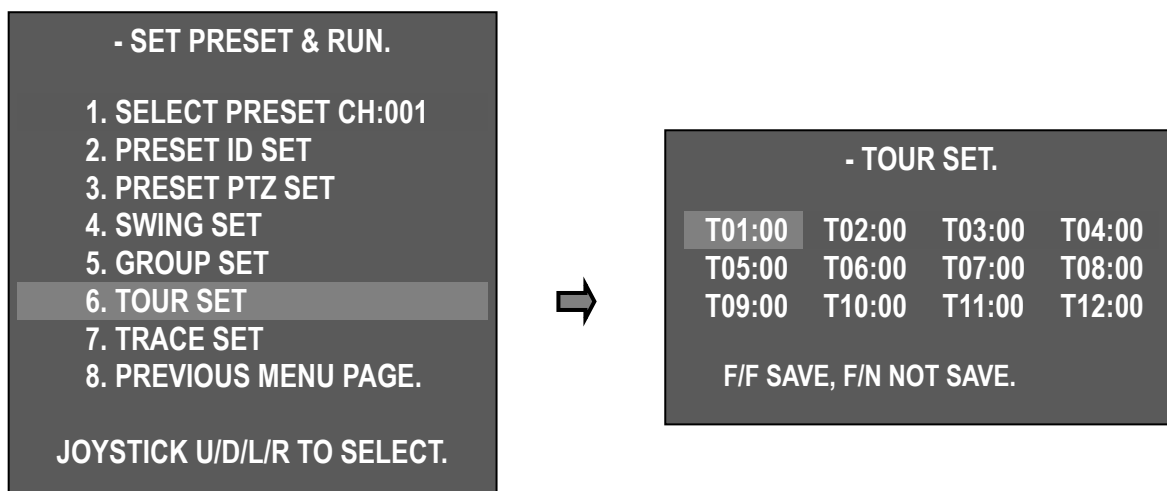
F/F SAVE, F/N NOT SAVE.

[P]	PESET : Enter PRESET No (Save PRESET No)
[S]	SPEED : Set movement speed (1~64) 1<64
[T]	TIME : Set duration time (1~127 sec)

 JOYSTICK Move next menu	 JOYSTICK Move previous menu	 or  JOYSTICK JOYSTICK Change setting
--	--	---

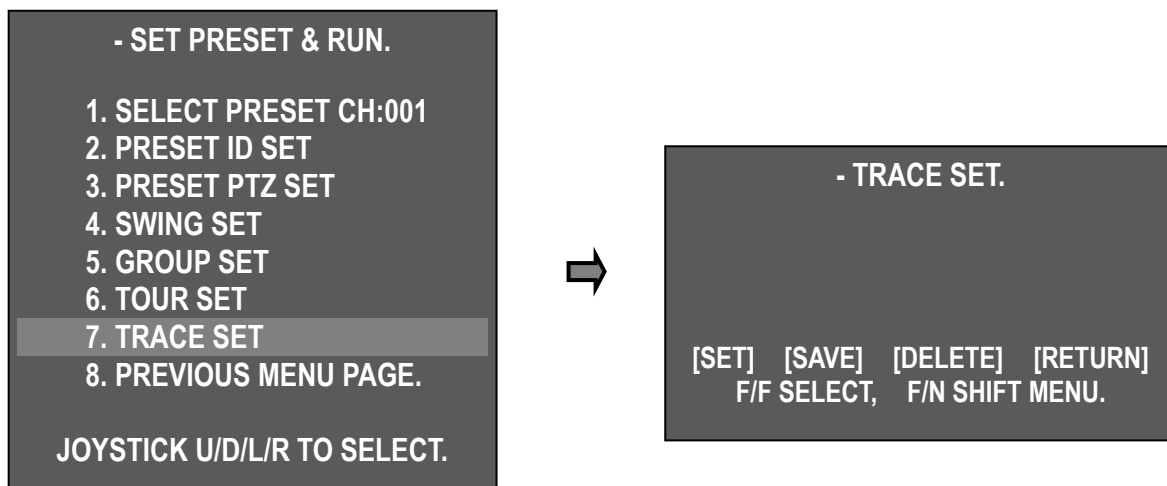
6). TOUR SET

Tour is included 12 groups.



7). TRACE SET

Save joystick pattern movement for Max. 180 seconds and execute save joystick movement. .



■ TRACE Set

① "7. TOUR SET"



② Press F/N button to select "SET" mode → move camera by using joystick toward position you want up to for 180/sec

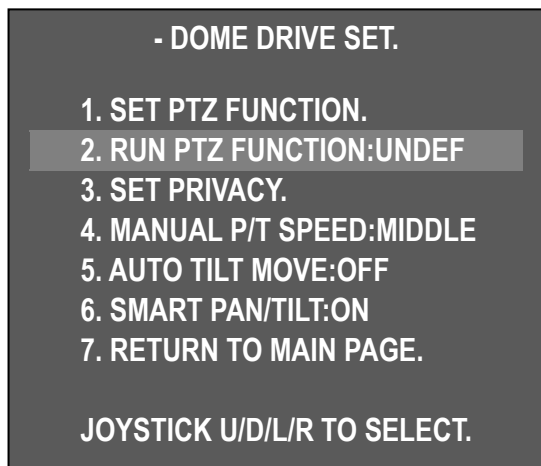


③ After finishing all work, move cursor to save mode → press F/N button to save joystick movement

- [SET] : Start TRACE set up
- [SAVE] : Save and previous OSD screen
- [DELETE] : Delete PRESET
- [RETURN] : Go to previous OSD screen (Cancellation)

8). "PREVIOUS MENU PAGE" - It is back to previous menu screen by moving joystick right.

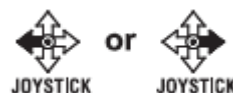
2. RUN PTZ FUNCTION



It is executed various surveillance function by DVR without keyboard.

"2. RUN PTZ FUNCTION"

Select desired function, SWING - GROUP - TOUR - TRACE by moving joystick right / left.



Select desired function and out of OSD menu, it is executed selected function automatically.

Display selected function icon in the screen.



: SWING



: GROUP



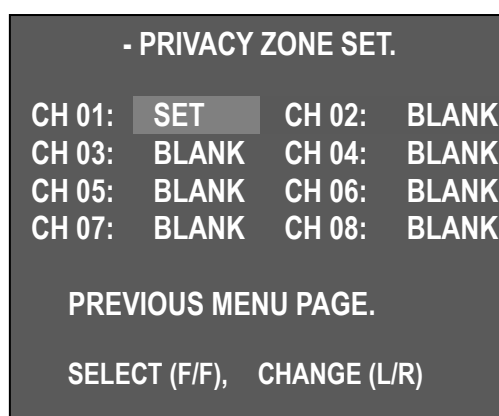
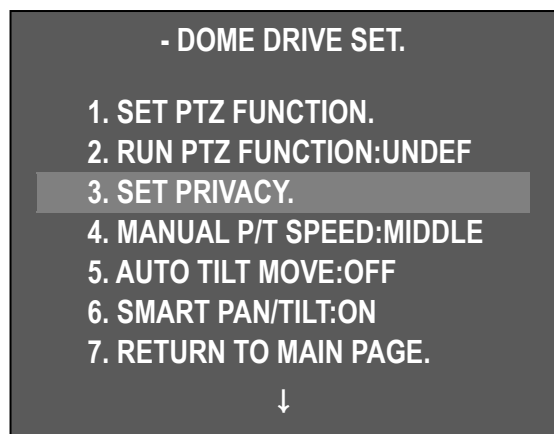
: TOUR



: TRACE

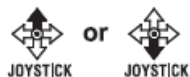
3. SET PRIVACY

Max 8 programmable privacy zones can be configured for the protection of privacy.



■ Setting

- DOME DRIVE SET → SET PRIVACY → Enter PRIVACY ZONE SET Mode

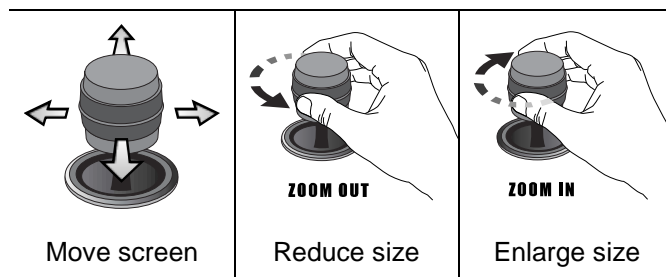


Move Joystick up / down at desired channel then display black box In the middle of screen by pressing "F/F" key.

- Move camera position where you want to hide
- Select privacy zone size by using zoom IN/OUT.

- Set up Privacy zone – adjust box size – Save Privacy setting by "F/F" key then back to previous menu

If press "F/N" key, it doesn't save privacy zone setting and back to previous screen..



Caution) Not enable to set under 45 degree for PRIVACY ZONE accuracy

- PRIVACY ZONE SET.

CH 01:	OFF	CH 02:	BLANK
CH 03:	BLANK	CH 04:	BLANK
CH 05:	BLANK	CH 06:	BLANK
CH 07:	BLANK	CH 08:	BLANK

- It is changed SET - ON - OFF – DEL in order each privacy setting channel by moving joystick left / right.

SET	ON	OFF	DEL
Set new privacy area	Display privacy area	Hide privacy area	Remove privacy area

pressing F/F.

- Select desired mode and execute selected menu by

4. MANUAL P/T SPEED

User can control the maximum speed in controlling of up and down; The mode is Low, Medium, Max

5. AUTO TILT MOVE

The PAN is turned in a 180° degree arc automatically when the angle of the camera moves down to the maximum degree, therefore, it is possible to track objects continuously



6. SMART PAN/TILT

This function makes the Pan/Tilt speed automatically as zoom magnification.

- DOME DRIVE SET.

1. SET PTZ FUNCTION.
2. RUN PTZ FUNCTION:UNDEF
3. SET PRIVACY.
4. MANUAL P/T SPEED:MIDDLE
5. AUTO TILT MOVE:OFF
6. SMART PAN/TILT:ON
7. RETURN TO MAIN PAGE.

JOYSTICK U/D/L/R TO SELECT.

3.4.2.2. CAMERA SET

1. ID SET

It is set camera ID up to 16 English letters it is enable to select desired letter by joystick zoom and save camera ID by F/F key and out of menu.

- CAMERA SET.

1. ID SET(PRESS F/F KEY).
2. H-V REVERSE : NORMAL
3. AGC CONTROL : ON
4. SHUTTER SPEED : AUTO
5. SHARPNESS LEVEL : 07
6. BRIGHTNESS LEVEL : 08
7. COLOR LEVEL : 05
8. NEXT MENU PAGE.
9. RETURN TO MAIN PAGE.

JOYSTICK U/D/L/R TO SELECT.



<< DOME CAMERA SETUP >>

- DOME DRIVER SET.
- **CAMERA SET.**
- SPECIAL SET.
- TIME SCHEDULE SET.
- IR LED SET
- EXIT.

JOYSTICK U/D/L/R TO SELECT.

SET ID[CAM-000]

!"\$%&'()*+,-./01234567
89:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefg
hijklmnopqrstuvwxyz{|}~°C

ZOOM(IN/OUT), ID SHIFT.
F/F SAVE, F/N NOT SAVE.

2. H-V REVERSE

Set up H-V reverse mode.

- Normal
- H-REV: Flip the picture horizontally on the screen.
- V-REV: Flip the picture vertically on the screen.
- HV-REV : Flip the picture horizontally and vertically on the screen.

- CAMERA SET.

1. ID SET(PRESS F/F KEY).
2. H-V REVERSE : **NORMAL**
3. AGC CONTROL : ON
4. SHUTTER SPEED : AUTO

↓

3. AGC CONTROL

AGC(Automatic Gain Control)- It adjusts the amount of video amplification to maintain a full 1-volt peak-to-peak video signal output automatically.

- ON, OFF

- CAMERA SET.

1. ID SET(PRESS F/F KEY).
2. H-V REVERSE : NORMAL
3. AGC CONTROL : **ON**
4. SHUTTER SPEED : AUTO

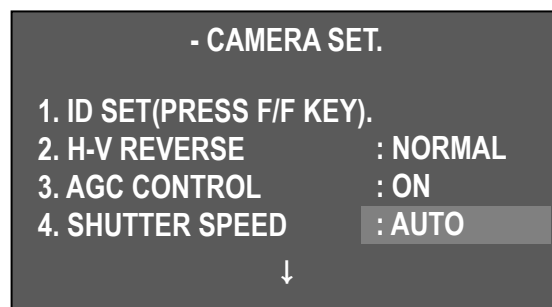
↓

4. SHUTTER SPEED

Adjust camera electronic Shutter speed.

Factory default: Auto.

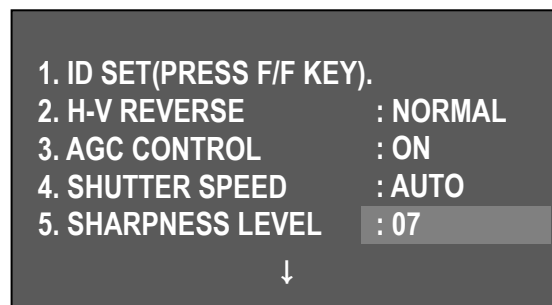
- Range : A.FLICKER, AUTO, 1/50,60~1/30000



5. SHARPNESS LEVEL

Compensation of the shape of a subject.

- Range : 1 ~ 10, Default : 07

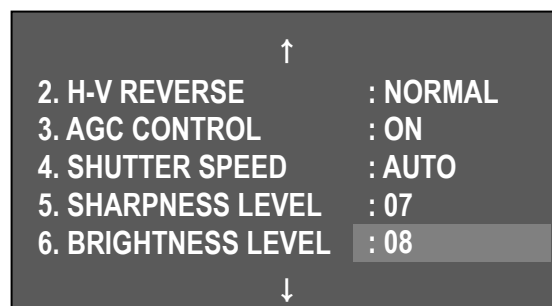


6. BRIGHTNESS LEVEL

Control brightness of a screen.

The screen gets dark because an iris is closed as the numerical value is low, whereas the screen gets bright because an iris is opened as the numerical value is high.

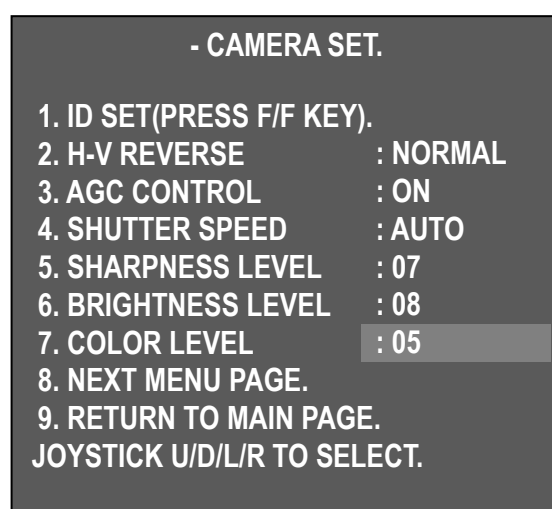
- Range : 0~20, Default: 08



7. COLOR LEVEL

Adjust the color saturation of the image. The higher number denotes a high saturation and low and close to the black-and-white color becomes darker.

- Range: 0~20 Default: 05



8. NEXT MENU PAGE.

- Go to next menu page.

9. RETURN TO MAIN PAGE.

- Go to previous menu.

10. DNR LEVEL

Reduce noise of minimum illumination and also file size becomes smaller while DVR is being recorded by the effective reduction of noise.

- ▶ OFF, LOW, MIDDLE, MAX, AUTO

- CAMERA SET.

10. DNR LEVEL	: AUTO
11. FOCUS MODE	: AUTO
12. MAX ZOOM LIMIT	: x30
13. DSS CONTROL	: OFF
14. BACK LIGHT MODE	: OFF



11. FOCUS MODE

Change Focus Mode to hand-worked or auto.

- ▶ MANUAL : User can set focus manually.
- ▶ AUTO : Execute Auto focus as subject movement
- ▶ ONE SHOT : Auto Focusing mode works while zoom is worked

- CAMERA SET.

10. DNR LEVEL	: AUTO
11. FOCUS MODE	: AUTO
12. MAX ZOOM LIMIT	: x30
13. DSS CONTROL	: OFF
14. BACK LIGHT MODE	: OFF



12. MAX ZOOM LIMIT

It is used when user corrects and limits the extensional range of the focus as a function to set the maximum value of zoom. (Available to set DIGITAL ZOOM range)

- CAMERA SET.

10. DNR LEVEL	: AUTO
11. FOCUS MODE	: AUTO
12. MAX ZOOM LIMIT	: x30
13. DSS CONTROL	: OFF
14. BACK LIGHT MODE	: OFF



13. DSS CONTROL

An object becomes clear as the field value gets higher in Illumination, Max. 32 field, whereas a moving object becomes dim.

- ▶ Range : Off, 2 ~ 32 fields
- ▶ Default : OFF

- CAMERA SET.

10. DNR LEVEL	: AUTO
11. FOCUS MODE	: AUTO
12. MAX ZOOM LIMIT	: x30
13. DSS CONTROL	: OFF
14. BACK LIGHT MODE	: OFF
15. WHITE BALANCE	: AUTO



14. BACK LIGHT MODE

It provides clear images of object and back ground against a severe back light.

- ▶ OFF : Disables the BACKLIGHT.
- ▶ WDR MODE: Activates back light Compensate.
- ▶ HLC(High Light Compensation) MODE : Activates High Light back light Compensate
- ▶ BLC MODE: Activates a Use defined back light compensation.
- ▶ DEFOG: Fog correction.

Select desired Back light mode by "F/F" key "

- WDR SET.

1. WDR LEVEL : MIDDLE

RETURN TO MENU.

WDR SET

- WDR LEVEL: Set WDR sensitivity, Low or Middle or Max.

- HLC SET.

1. HLC LEVEL : MIDDLE

2. HLC COLOR : BLACK

RETURN TO MENU.

HLC (High Light Compensation) SET

- HLC LEVEL: Set HLC level LOW, MIDDLE, MAX.

- HLC COLOR : Set GRAY, D.GRAY, BLACK.

The highlighted image changes into gray, D. gray and black.

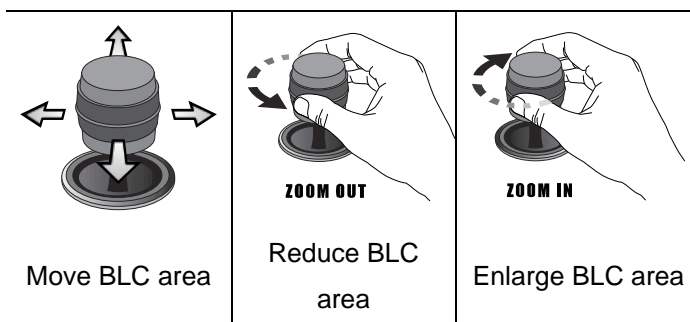
BLC SET

- BLC AREA SET

① 13.BACK LIGHT MODE → Enter BLC area set menu by pressing “F/F” key in BLC MODE.

- BLC AREA SET.

F/F SAVE, F/N NOT SAVE.



② It is enables to move BLC area, reduce BLC area and enlarge BLC area by Joystick ZOOM IN/OUT

- DEFOG SET.

1. DEFOG MODE : AUTO

2. DEFOG LEVEL : MIDDLE

RETURN TO MENU.

DEFOG SET

When fog, smog, etc cause the degradation of surveillance function, DEFOG helps restore the clear-cut image.

- DEFOG MODE

► MANUAL: Manually sets the DEFOG.

► AUTO: DEFOG function will be executed automatically.

- DEFOG LEVEL: When the MANUAL DEFOG MODE can be set to LOW / MIDDLE / MAX.

15. WHITE BALANCE

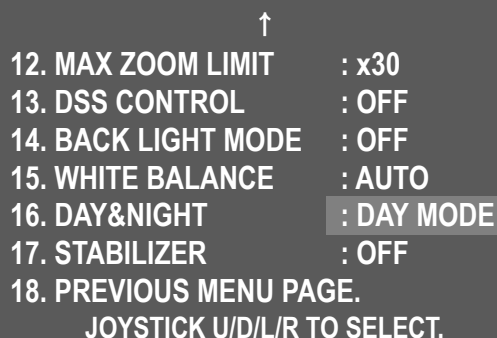
The white balance menus adjusts the balance of the screen colors under different lighting condition.

- ▶ AUTO: Compensates the color automatically.
- ▶ INDOOR: Compensates the color to fit the indoor environment.
- ▶ OUTDOOR: Compensates the color to fit the outdoor environment.

16. DAY&NIGHT

The Day & Night function allows the camera to switch between color and B/W mode. it is set optimal condition by DSS control function.

- ▶ NIGHT MODE : B/W mode
- ▶ AUTO SLOW : Operates in **DAY&NIGHT** mode under low illumination.
- ▶ AUTO FAST : Operates in **DAY&NIGHT** mode high illumination.
- ▶ DAY MODE : COLOR mode



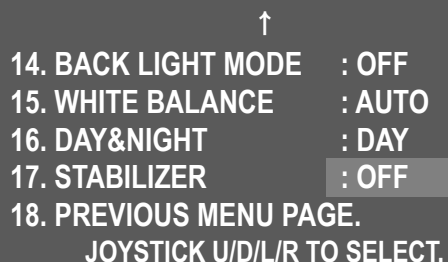
↑
12. MAX ZOOM LIMIT : x30
13. DSS CONTROL : OFF
14. BACK LIGHT MODE : OFF
15. WHITE BALANCE : AUTO
16. DAY&NIGHT : DAY MODE
17. STABILIZER : OFF
18. PREVIOUS MENU PAGE.
JOYSTICK U/D/L/R TO SELECT.

17. STABILIZER

There is some tremble as zoom magnification is high, the function can compensate the tremble.

- ▶ ON / OFF

Select "ON", it is fixed x30 optical zoom magnification in 12.MAX ZOOM LIMIT.
(Not available in Digital zoom).



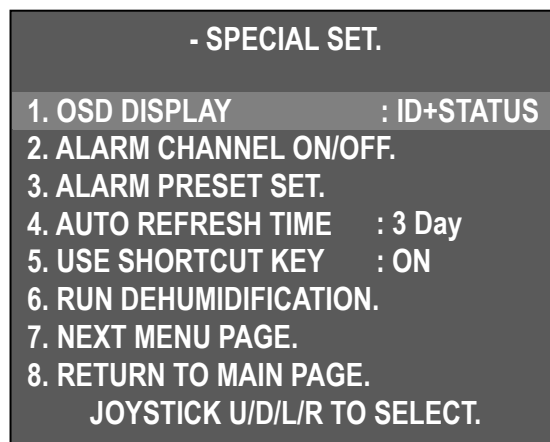
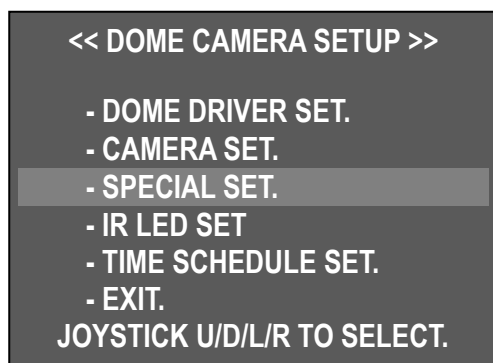
↑
14. BACK LIGHT MODE : OFF
15. WHITE BALANCE : AUTO
16. DAY&NIGHT : DAY
17. STABILIZER : OFF
18. PREVIOUS MENU PAGE.
JOYSTICK U/D/L/R TO SELECT.

18. PREVIOUS MENU PAGE

Back to previous screen.

3.4.2.3. SPECIAL SET

1. OSD DISPLAY



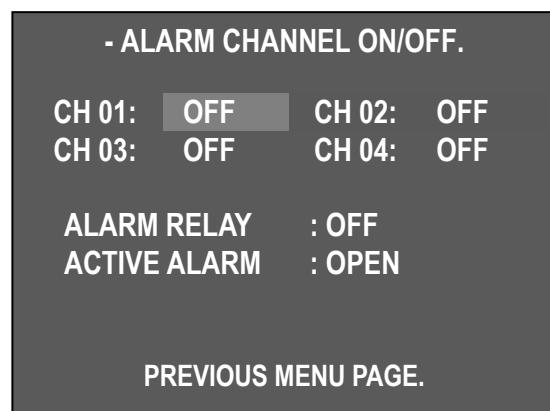
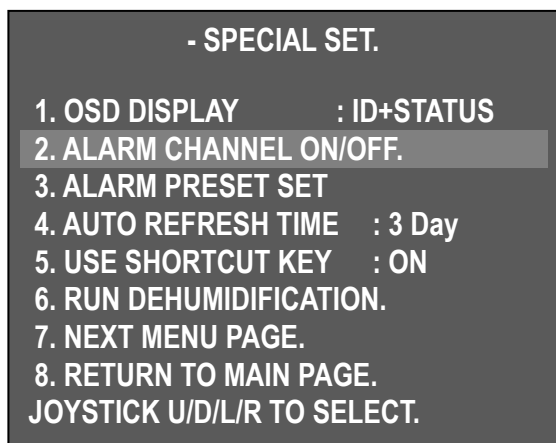
Display ID or Status in the screen

- ID + STATUS: Display 'ID' & 'Status' only
- ID ONLY: Display only 'ID'
- STATUS ONLY: Display 'Status' only
- ALL OFF: None display

Caution) Keep icon in the screen in any condition.

2. ALARM CHANNEL ON/OFF

- Set Alarm input On/Off each channel.



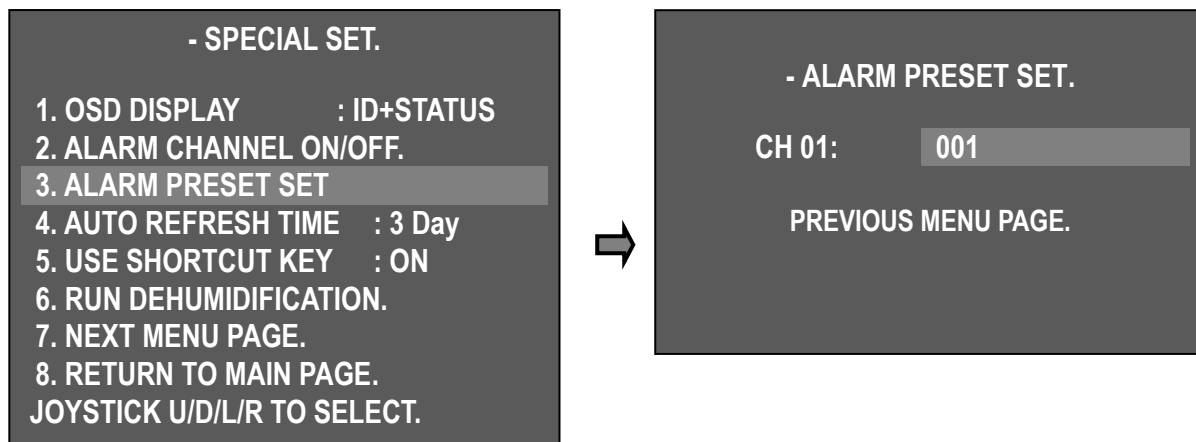
- ALARM CH On/Off : Alarm Input – Each channel can be ON/OFF.
- According to signal connection, user can select ACTIVE OPEN(N/C) or ACTIVE CLOSE(N/O).
- If the user selects ACTIVE OPEN, it is activated when Alarm input is open, if the user selects ACTIVE Close, it is activated when Alarm input is Close.

3. ALARM PRESET SET

- The camera can move to a preset point automatically when the wrong signal is sensed in each ALARM CHANNEL
- Set a preset point firstly to move, if wrong signal is sensed, then use that sets the preset number into

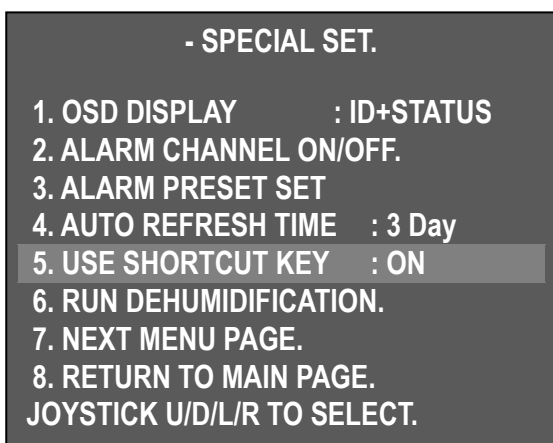
each ALARM CHANNEL.

- Select ALARM Channel "OFF" and doesn't move relevant preset point
- User can select PRESET Point number 1 to 250 and set it



4. AUTO REFRESH TIME

- Initialize automatically for focus normal movement.
 - ▶ OFF, 6hours~18hours, 1day~7days.
 - ◆ Focus initialize pressing F/F key



5. USE SHORTCUT KEY

- The Shortcut Key can make some of the functions to perform faster and easily
 - ▶ ON : Use shortcut key
 - ▶ OFF : Not use Shortcut key

Short cut key menu

Function	Operation	Function	Operation
Group 1	51 + Preset	Run Tilt Swing	65 + Preset
Group 2~11	52 ~61 + Preset	Run Trace	66 + Preset
Group 12	62 + Preset	Run Spiral	67 + Preset
Run Tour	63 + Preset	OSD Menu ON/OFF	95 + Preset
Run Pan Swing	64 + Preset		

Caution) it is able to perform the functions in all protocol type

6. RUN DEHUMIDIFICATION

- When the camera is installed under hush weather condition, it is hard to monitoring the subject due to moisture condense on the clear glass, to remove Moisture condense, the user can use Dehumidification which operate fan and heater for 10 min. The function stops after activating it for 10min automatically but if you want to use Dehumidification again, you could select the function in the OSD.



it is displayed icon on the screen.

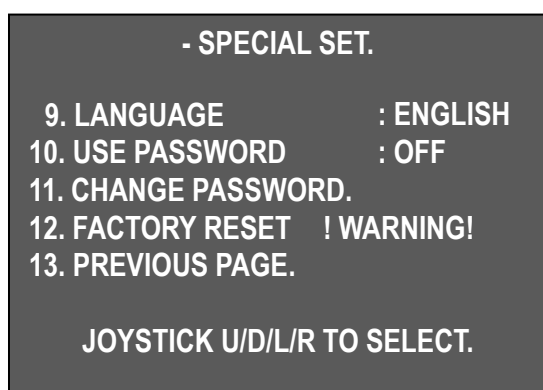
7. NEXT MENU PAGE.

8. RETURN TO MAIN PAGE.

9. LANGUAGE

► **ENGLISH:**(default), KOREAN

10. USE PASSWORD

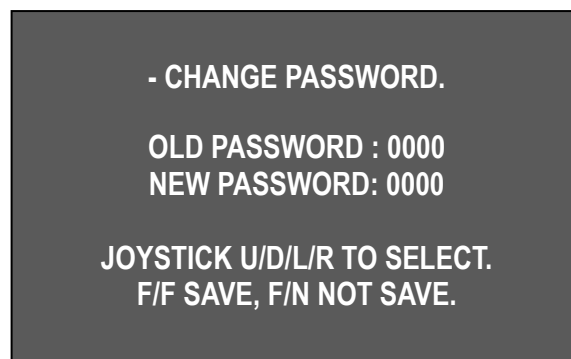
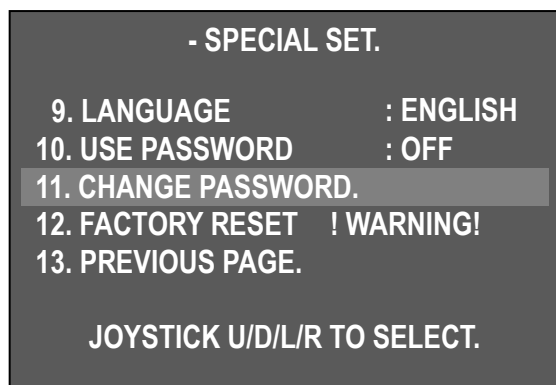


Designate User password for PTZ operation security

- "10.Select USE PASSWORD" ON/OFF by joystick
- Select Use password "ON", display Password question in the screen before the user enter OSD menu.

11. CHANGE PASSWORD

- "11. CHANGE PASSWORD" the user can select password by Joystick Left / Right.



- Initial Password is "0000", New Password is designated by Joystick UP/Down/Left/Right.
- F/F key : it saves the password and back to previous menu.
- F/N key : it doesn't save Password and back to previous menu.

*Caution) if user forget password, it would use Hidden password
Hidden password: 7233, Please change to Password for security.*

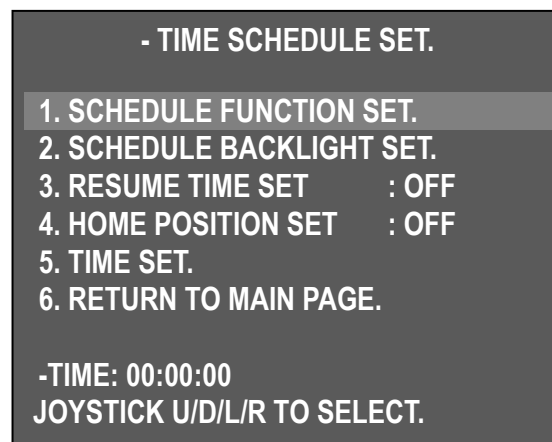
12. FACTORY RESET

- Set factory default same as initialization setting.

Caution) Remove exist setting in the menu.

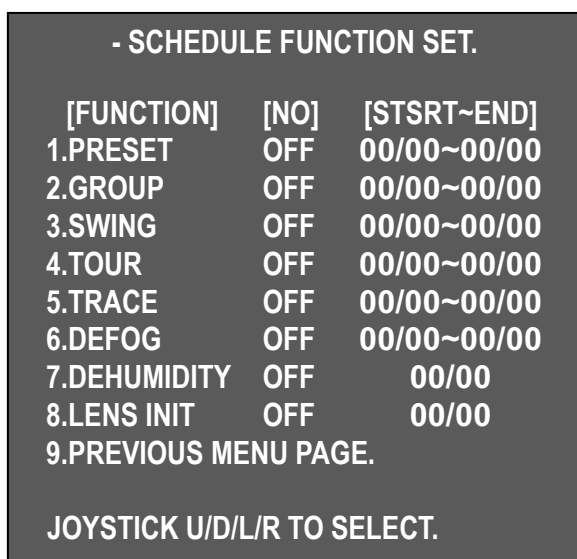
3.4.2.4. TIME SCHEDULE SET

1. SCHEDULE FUNCTION SET



Set to operate the functions for various surveillance, dehumidification, etc., in the designated time.

Select TIME SCHEDULE SET > SCHEDULE FUNCTION SET in order.



1. Setting PRESET, GROUP & SCHEDULE: Select PRESET or GROUP by moving the Joystick up & down in [FUNCTION]. Select the saved PRESET No. or GROUP No. in [NO] and then set the operating start time and the stop time for PRESET or GROUP in [START~END].

※ [START~END] indicates the hour/minute and the time is set within 24 hours.

※ PRESET, GROUP, SWING, TOUR, TRACE, DEFOG can be overlapped in [FUNCTION]1~6. Beware of malfunction when time is overlapped.

2. Setting SWING SCHEDULE: Select SWING in [FUNCTION]. Select PAN or TILT in [NO] and then set the operating start time and the stop time for SWING in [START~END].

※ Either PAN or TILT can be set for SWING.

3. Setting TOU and TRACE SCHEDULE: Select TOUR or TRACE in [FUNCTION]. Select ON or OFF in

[NO] and then set the operating start time and the stop time for TOUR or TRACE in [START~END].

4. Setting DEFOG SCHEDULE: Select DEFOG in [FUNCTION]. Select MANUAL or AUTO in [NO] and then set the operating start time and the stop time for DEFOG in [START~END].
5. Setting DEHUMIDITY(=DEHUMIDIFICATION) SCHEDULE: When the operating start time is set with DEHUMIDITY function 'ON', the fan & heater will work for 10 minutes on time.

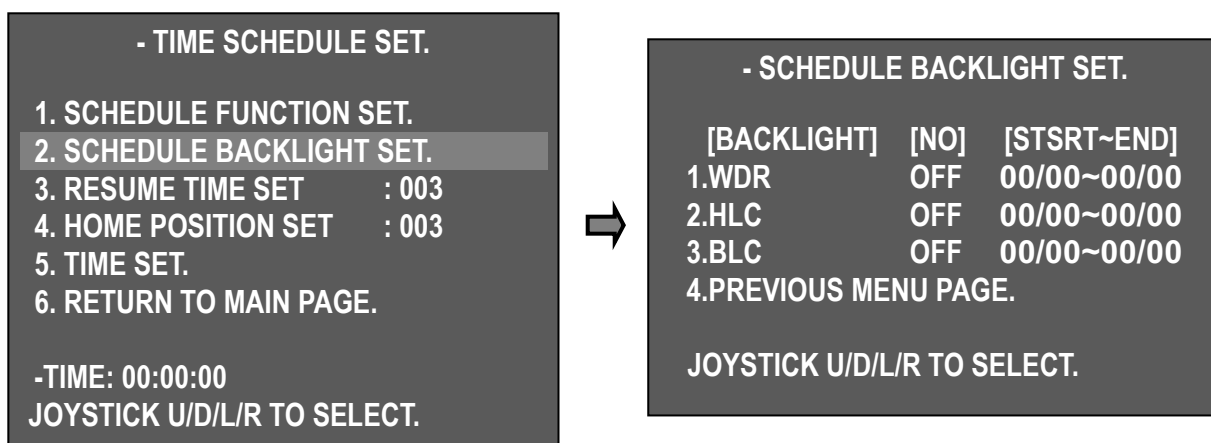
※ Use this function in the specific time when the dehumidification is needed.

6. Setting LENS INITIAL SCHEDULE: The zoom and the focus of LENS are initialized in the setting time.
- Set LENS INIT to 'ON' and then the operating time.

※ LENS INIT is for maintaining the lens in the constantly optimized condition when operating the autofocus function under the optimization of the lens motor.

2. SCHEDULE BACKLIGHT SET

This function makes the set Back Light Compensation worked in the designated time.



- After adjusting to 'ON' one function to operate for a fixed time among WDR/HLC/BLC and then set the operating start time & the stop time. When operating on SCHEDULE function and stopping, it operates as set in the BACKLIGHT function of CAMERA SET.

※ Beware of malfunction in case the time setting of BACKLIGHT 1,2,3 is overlapped.

3. RESUME TIME SET

It can select the delay time that the camera move to the place alarming to observe where wrong signal is sensed.

User can set it for 1sec to 180sec and operate GROUP, TOUR, SWING again in a preset time. SWING, GROUP, TOUR are operated in a preset time when user stops the operating joystick in the case of not connecting with the ALARM

- TIME SCHEDULE SET.

1. SCHEDULE FUNCTION SET.
2. SCHEDULE BACKLIGHT SET.
3. RESUME TIME SET : 003
4. HOME POSITION SET : OFF
5. TIME SET.
6. RETURN TO MAIN PAGE.

-TIME: 00:00:00
JOYSTICK U/D/L/R TO SELECT.



This Icon is displayed in the screen when it is set Resume Time.

When Resume time is set, it is not enable to set PRESET, GROUP, TOUR or SWING, If the user want to set the function, Resume time function have to be "OFF" then the user can set the desired function.

4. HOME POSITION SET

This function shows that when the abnormal sign happens in the execution of PRESET in SCHEDULE FUNCTION SET, the camera can move to and surveil Alarm position, and select the staying time. In addition, even after it works manually or the PRESET is run, the executed SCHEDULE PRESET operates again after this setting time. The user can designate the time from 3 to 180 seconds. When the setting time passes, the PRESET of SCHEDULE FUNCTION is run again.

- TIME SCHEDULE SET.

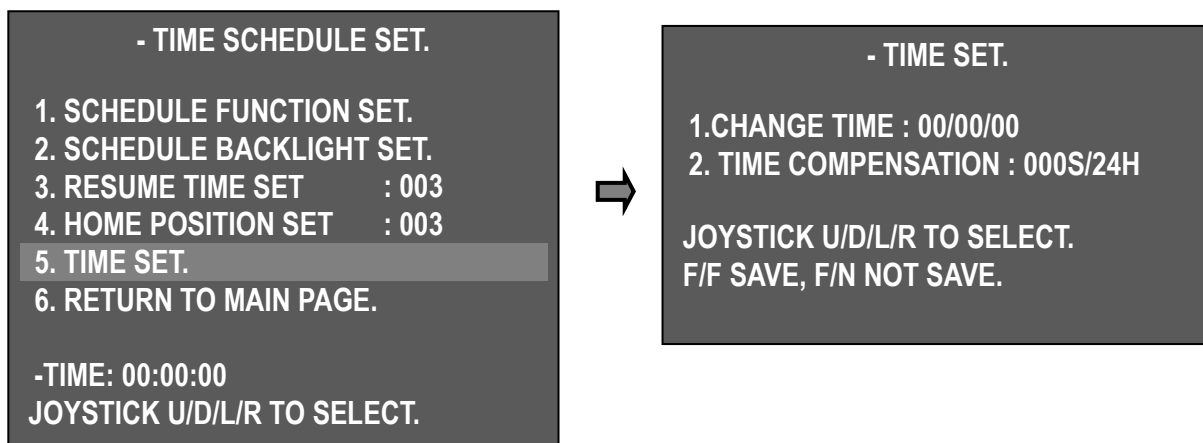
1. SCHEDULE FUNCTION SET.
2. SCHEDULE BACKLIGHT SET.
3. RESUME TIME SET : 003
4. HOME POSITION SET : 003
5. TIME SET.
6. RETURN TO MAIN PAGE.

-TIME: 00:00:00
JOYSTICK U/D/L/R TO SELECT.





EX). When the PRESET of SCHEDULE FUNCTION SET is set to 00:00~23:59, the camera always moves back to home position after the setting time in alarming or manual operation.

5. TIME SET

This function can set the operating time and the time compensation.



- When moving the joystick right and left in '5.TIME SET', 'TIME SET' appears on the screen .

- Move Menu  or  JOYSTICK
- Change Setting Value  or  JOYSTICK

- 1). CHANGE TIME: Set the time in order of hour/minute/second.
- 2). TIME COMPENSATION: Compensate the time error when operating for a long time. You can set it in seconds, even in positive numbers and negative numbers. (Based on 24 hours)

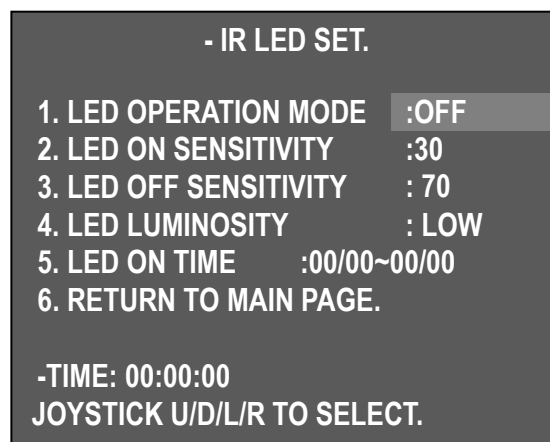
- After completing the setting, please press F/F key for saving.

- ex). 001S/24H → Compensate time one second faster a day(Max. -59 seconds)
 -02S/24H → Compensate time two seconds later a day(Max. -60 seconds)

※ As it's not a network product, time can be changed a little when using it for a long time. After the blackout or one to three-hour power-off, time can be compensated, but when operating again and using it in the long-time power-off, please be sure to check time.

3.4.2.5. IR LED SET

Set related IR function here.



1. LED OPERATION MODE

- This Clause permits you to set IR LED operation.

▶ ON: Turning IR on at all times.

▶ OFF: Turning IR off at all time

▶ AUTO: It's able to turn it on or off in accordance with an intensity of illumination.

You can set the sensitivity of turning IR on and off at the Led on/off sensitivity menu in the clause 2 / 3.

▶ TIME: Turning IR LED on at the appointed time.

You can set time at LED ON TIME menu in the clause 5.

2. LED ON SENSITIVITY

- If the led operation mode is enabled as 'AUTO', it will help you to set the sensitivity of IR Led.

▶ Setting value is within a range of 0 to 79, the lower the sense of illumination, the lower a LED is turned on.

3. LED OFF SENSITIVITY

- If the led operation mode is enabled as 'AUTO', it will help you to turn led off.

▶ Setting value is within a range of 20 to 99, the lower the sense of illumination, the lower a LED is turned off. In respect to the interval of IR ON/OFF, you can't make it lower than '20' and it's aimed at preventing LED malfunction beforehand.

4. LED LUMINOSITY

- You can adjust the brightness of LED.

▶ LOW, MIDDLE, MAX

5. LED ON TIME

- If the led operation mode is enabled as 'TIME', it will help you to set lighting up time of led

3.4.3. Set-up menu, Execute and delete by keyboard

1. Preset Setting

Save Max. 250 Preset points

① Preset set up



② Preset movement



Move designated preset position after press Preset No and P-SET button.

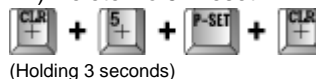
③ Each Preset movement



Press button for 3 sec then beep sound, it follows the steps as below.



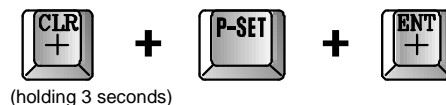
Ex) Delete No 5 Preset



④ All Preset Movement

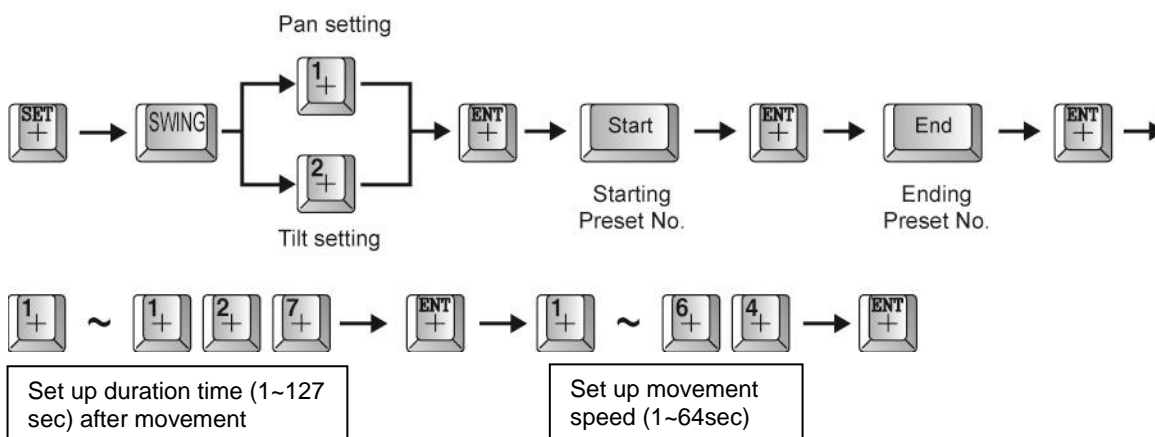


Press button for 3 sec then beep sound, it follows the steps as below



2. Swing Setting

① Swing set



② Swing execute

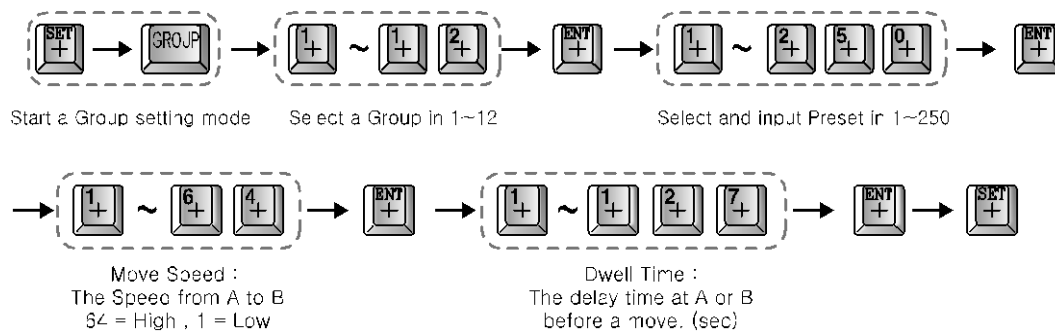


③ Swing stop




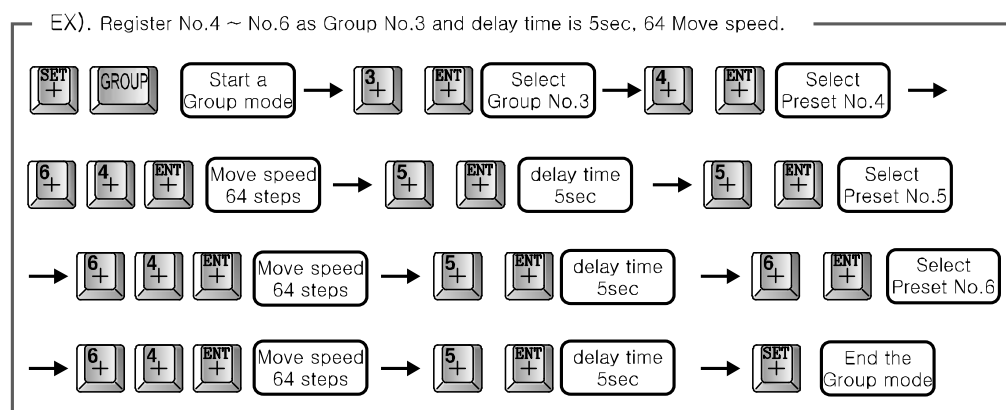
3. Group setting

① Start Group setting mode



To set more preset, enter preset No and set same process.


Set a GROUP again from the first after ending with , if user wants to finish Preset input in one Group to input another Group.



② Group execute

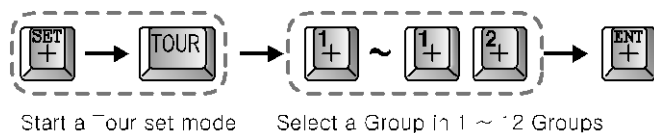


③ Group stop

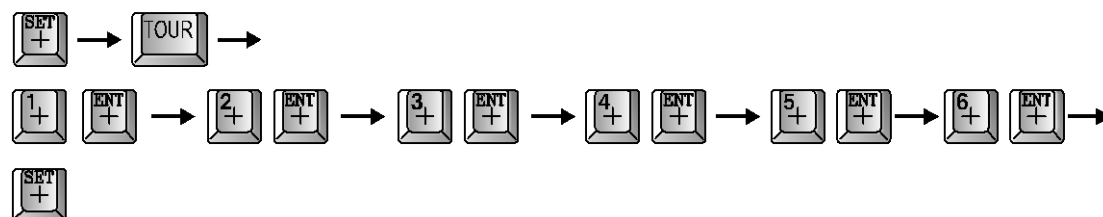
It can be stopped when user presses  or controlling the joystick.

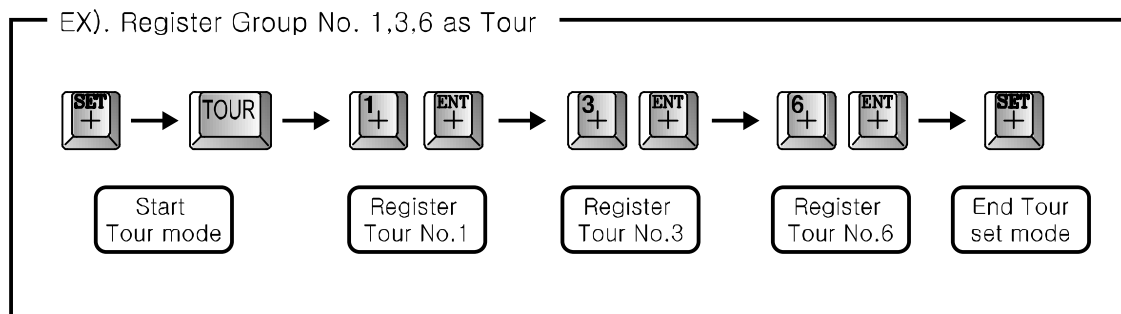
4. Tour setting

① Tour set mode

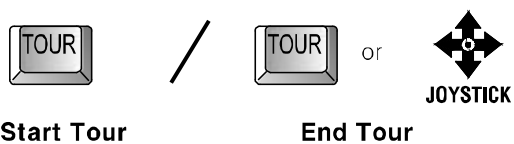


■ Repeat input in continual input

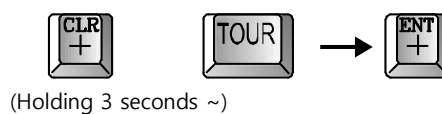




② Tour execute/Stop



③ Tour remove



5. Spiral Function

It is a function to observe objects automatically in the spiral direction.

Spiral On



② Spiral Off



* 26. "67+PRESET key" is also available in Shortcut key 'On' mode

6. PTZ Trace

It memorizes P/T/Z motions for 200sec then operates them at the same Trace.

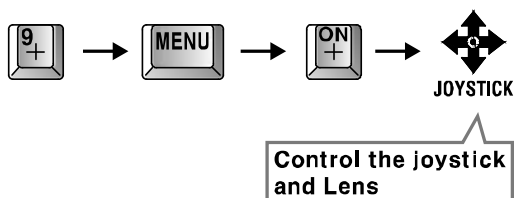
① Trace execute/Stop



▪ Cancellation:



② Trace setting



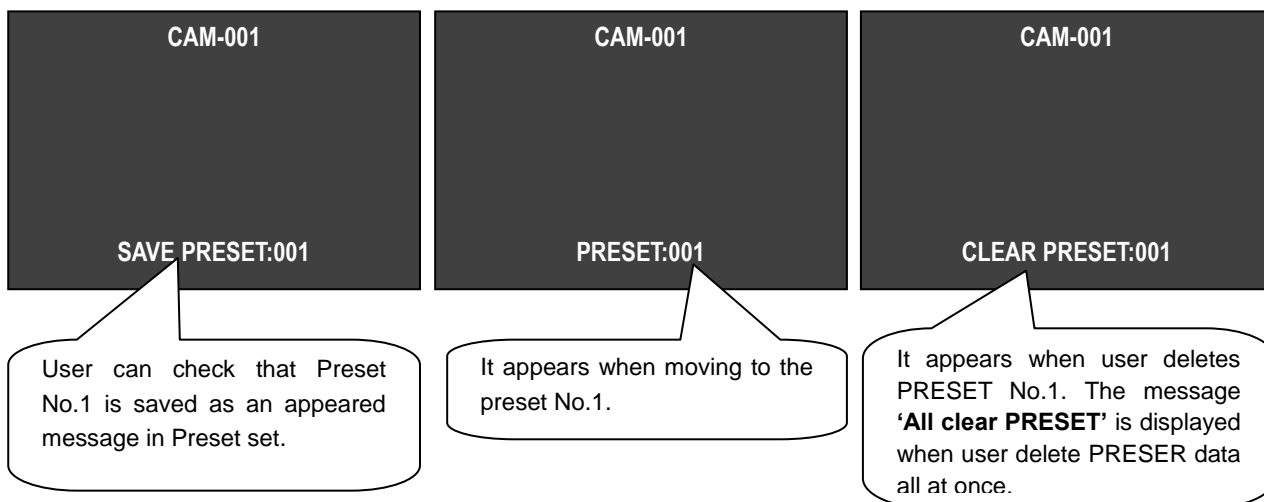
③ Trace Cancellation



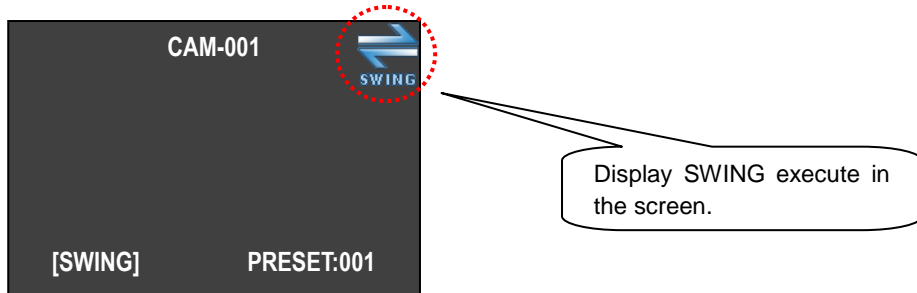
* 26. "66+PRESET key" is also available in Shortcut key 'On' mode

3.4.4.OSD Message Description

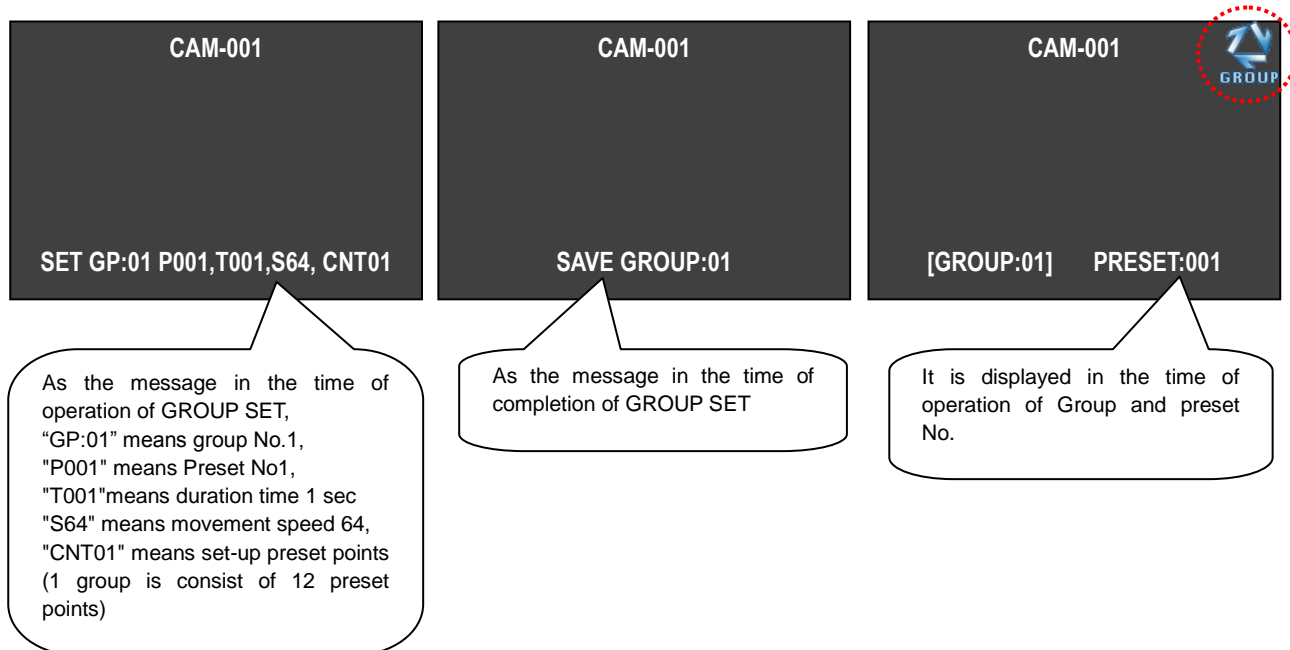
1. PRESET Message



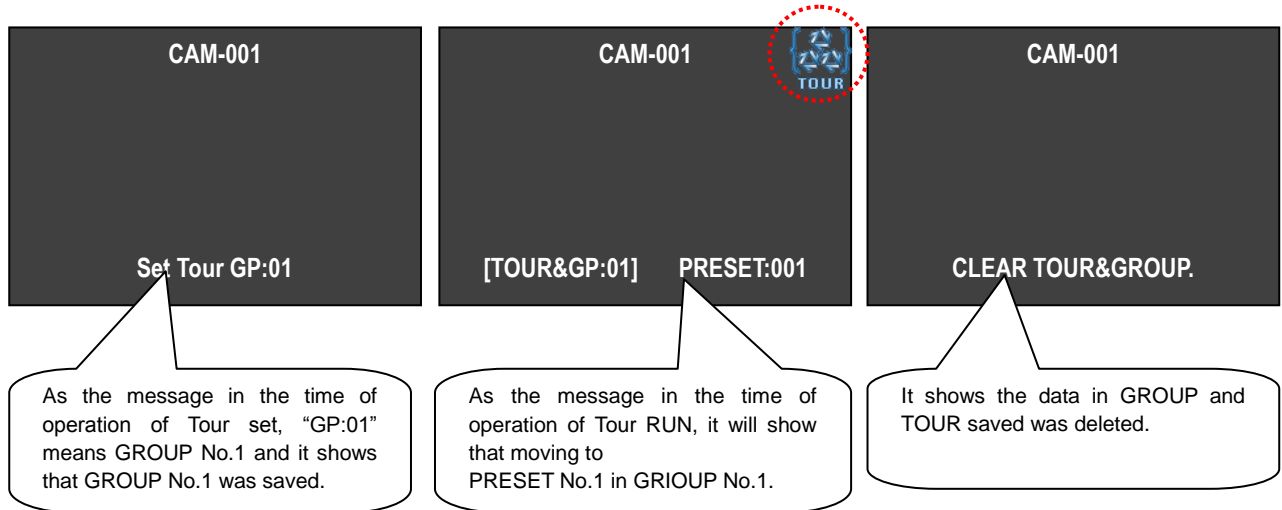
2. SWING Message



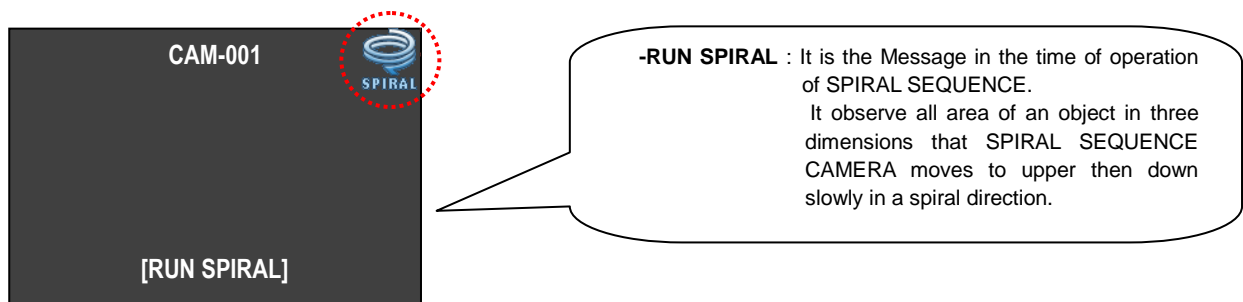
3. GROUP Message



4. TOUR Message



5. SPIRAL Message



4. TROUBLE SHOOTING

CAUTION IN USE

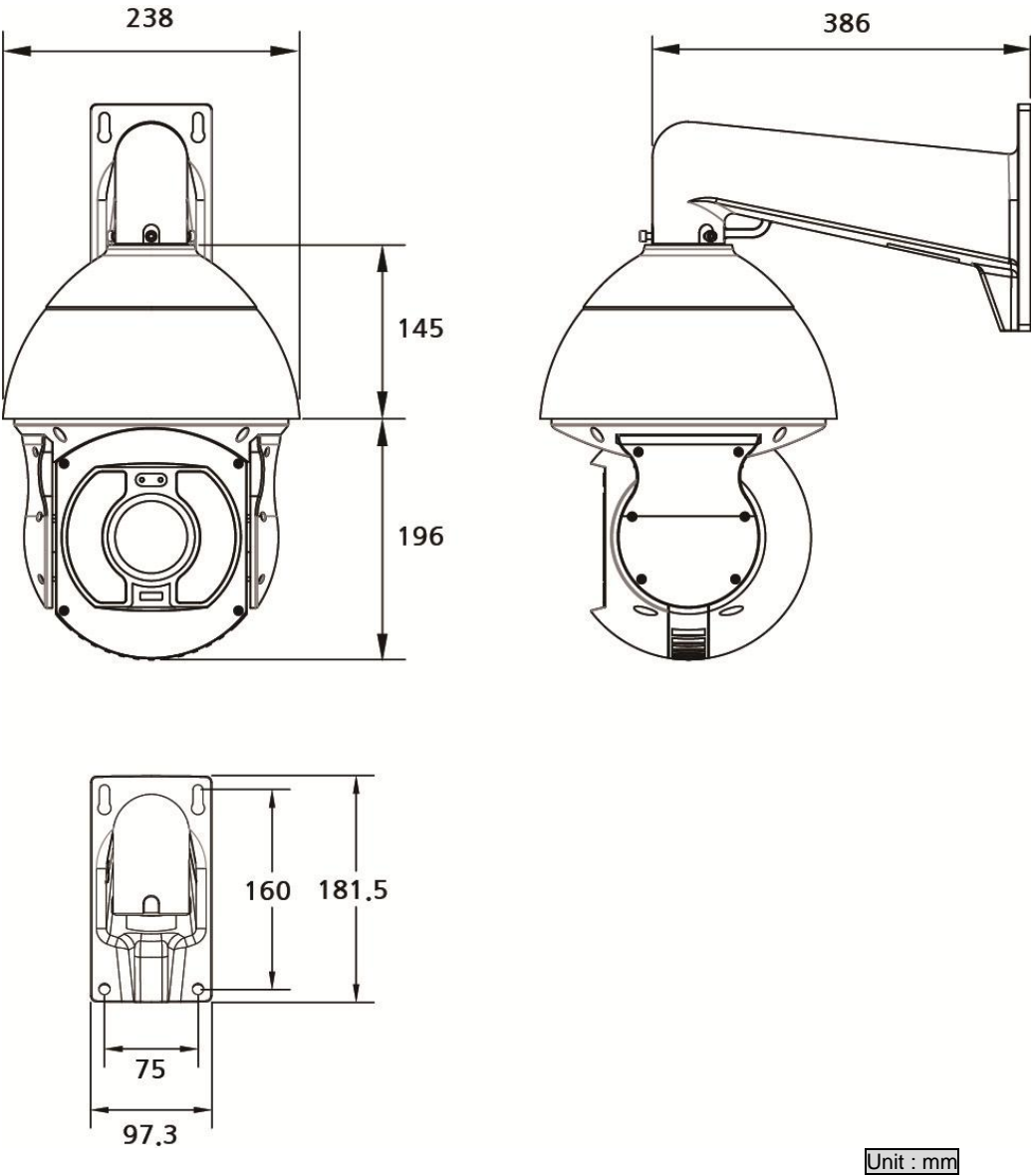
- Make sure that turn the power switch off before installation.
- Avoid the places where is the high/low temperature and humid.
- Power supply must be min AC24V/2A.
- Please be careful of that you connect respective wires without mismatching in installation.
- Supply to power sources after checking the state of insulation of cables which is connected to the exterior
- Please keep the product from a strong shock or vibration which is the cause of troubles.

Checking in under using

Check the product as following, if something is wrong in installation or using.

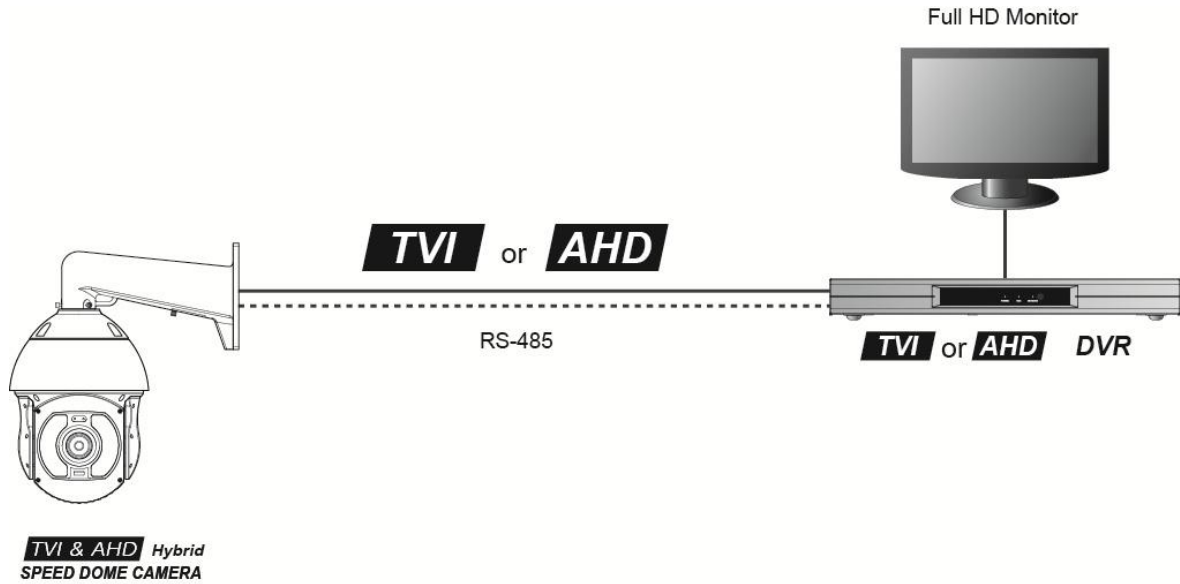
STATUS	CHECK POINT	TROUBLE SHOOTING
Power is not turned on.	Does the electric power supply into the product well?	Check the POWER LED is "ON" at the BOTTOM COVER.
Does not work in Power On.	In operating, does the LED beside POWER SW light on red?	Check the status of DATA CABLE, if it is not lit.
	Have you selected to RS485 or RS422 right?	Check ADDRESS and DIP SW of communication speed setting, if it is not lit.
Poor condition of PAN/TILT	Have you turned the ending terminal register 'ON'?	Turn 'ON' the ending terminal register of the camera which is set in farthest away.
A image is not clear or black lines are displayed on the screen.	Is the power adapter AC24V, 1.5A over?	Exchange the adapter to for an adapter which has higher current.
The message 'P/T POSITION ERROR' is displayed continuously.	Is the camera pressed by something heavy or put it between others?	Check that a rotation of the camera's body works smoothly and remove a object that hinders the operation of the camera.
The message 'SORRY NOT MEMORY' is displayed continuously.	Have you set the related functions?	Please refer to the manual book and setting the function you want.
ALARM RELAY is not changed to 'ON' in the state of being alarmed.	Have you set the ALARM RELAY 'ON' in the SET MODE?	Make sure ALARM RELAY 'ON' in the SET MODE.
In abnormal condition, even if the sensor is well.	Is it correct ALARM ACTIVE setting status and the sensor is either opened or closed?	Fit ALARM ACTIVE MODE setting with the connection of the SENDOR in the SET MODE.(It means either sensor is opened or closed)
PRESET point is different or out of moving when the ALARM occurs. The warning does not work from the keyboard when the ARLAM occurs.	Have you set ALARM PRESET in the SET MODE?	Check the status of the ALARM PRESET setting in the SET MODE.
	Have you used the exclusive control keyboard?	The warning is only reacted to the exclusive control keyboard.
	YES.	Make sure ALARM "ON" of the camera.

5. Dimension

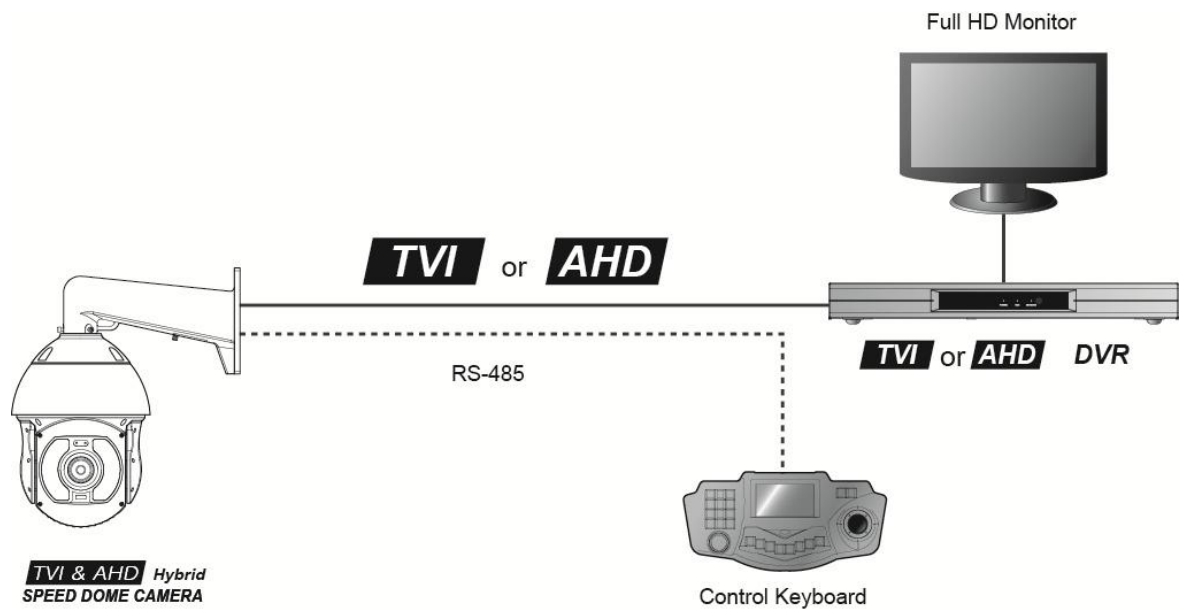


6. Configuration diagram

• CAMERA + DVR + MONITOR



• Camera + DVR + Monitor + Controller



7. Specification

MODEL	1/2" 36x Zoom	1/3" 30x Zoom
Video		
Image Sensor	1/1.9" 2Mega Sony CMOS	1/3" 2Mega Panasonic CMOS
Scan mode	Progressive Scan	
Total number of pixels	1,952(H) x 1,241(V), 2.4M Pixels	1,956(H) x 1,266(V), 2.48M Pixels
Number of active pixels	1,937(H) x 1,097(V), 2.1M Pixels	1,944(H) x 1,092(V), 2.12M Pixels
Resolution	1080P	
Minimum illumination	Color : 0.15Lux , BW : 0.015Lux Min. Color 0.005Lux B/W 0.0005Lux with DSS(32x)	Color : 0.5Lux , BW : 0.1Lux Min. 0.003Lux with DSS(32x)
	LED On:0Lux	
Video Output	LAN / CVBS : 1.0Vp-p, 75Ω Composite	
S/N Ratio	50dB	
Lens		
Lens	5.8~210mm(F1.5~F4.8) Optical(36x), Digital Zoom(12x), Total Zoom (432x)	4.3~129mm(F1.6~F4.7) Optical(30x), Digital Zoom(32x), Total Zoom (960x)
Focus mode	Auto / Manual / Oneshot	
Angle of view	H:60°~3.7°, V:34.58°~1.99°	D:71.3°~2.58°, H:58.9°~2.11°, V:45.3°~1.61°
Pan/ Tilt		
Pan/Tilt angle	360° Endless / -10°~ 92°	
Pan Speed	0.1° ~ 120°/sec (64 Levels), Preset: 240°/sec	
Preset point	250 Presets	
Function		
Day & Night	Day / Auto Slow / Auto fast / Night	
Back Light	Off / WDR / HLC / BLC	
White Balance	Auto / Indoor / Outdoor	
AGC	On / Off	
DNR	Off / Low / Middle / Max	
Privacy / Motion	8 Zones / 1 Zones	
Brightness	Level Setting	
Color Level	Level Setting	
Defog	Off/Auto/Manual	
Dehumidification	Available	
Stabilizer	-	On/Off
Time Schedule	Available	
IR Distance	Max. 400m	Max. 250m
	10pcs High Power LEDs+4pcs Laser LEDs	
Alarm	4 input/1output	
Environment		
Operating Humidity	30 % ~ 90 % RH	
Operating Temp.	- 50°C to 50°	
Electrical & Mechanical		
Power Consumption	Max. 36W	
Power Supply	AC24V, 50/60Hz	
Construction	Aluminum body(Ivory/Black) & Plastic Window(Black)	
Dimension	238(W)X341(H)mm	
Weight	About 5Kg (Camera Only)	

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