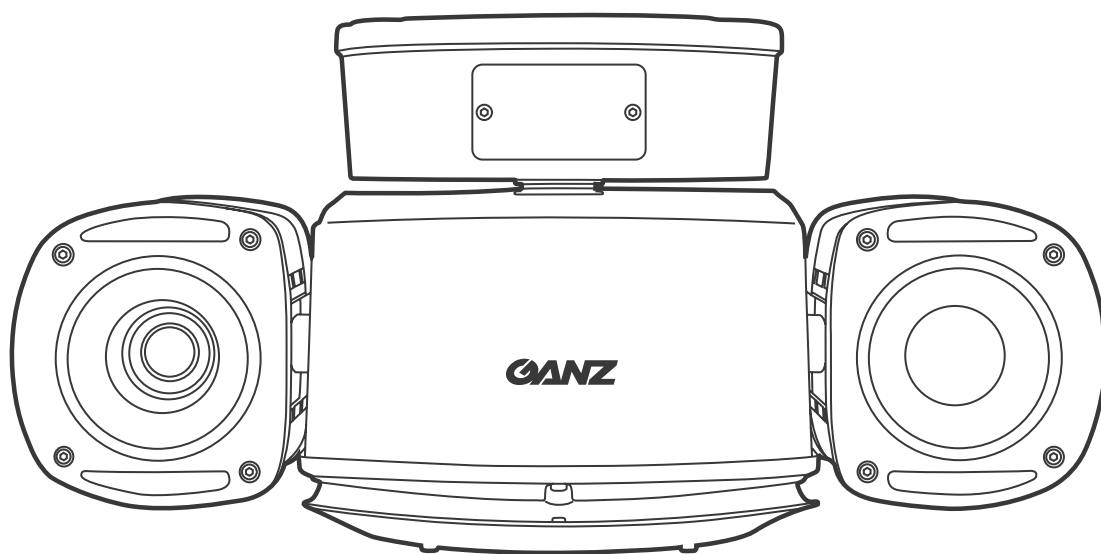


High Performance Thermal Cameras

ZT-PTD Series

INSTRUCTION MANUAL



GANZ[®]

ENGLISH

Document Information

Revision	Date	Notes
Ver 2.0	19/07/2013	Initial release
Ver 2.0.1	29/07/2013	Page07 : EXCELLENT RANGE PERFORMANCE Changed Page34, 35 : SPECIFICATIONS Changed



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Warning & Caution

- When mounting the product on a pole, tower or any elevated location, use industry standard safe practices to prevent injuries.
- Do not disassemble the product for any reason.
- Disassembly of the product (including removal of the cover) causes permanent damage and will void the warranty.
- Be careful not to leave fingerprints on the product's infrared optics.
- Operating the camera outside of the specified input voltage range or the specified operating temperature range can cause permanent damage.
- When lifting the product use the body and base, not the wings.
- Position the product not facing towards the sun or any other over bright light source.
- Direct point at sun could result in the microbolometer being damaged beyond repair.
- This installation should be made by a certified service person.
- When lifting the PTZ camera use the camera body and base, not the wings.

Important! All thermal imaging systems are subject to export control. Any re-export / re-import of the product to other country should be noticed to the supplier.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>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.</p>		



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.

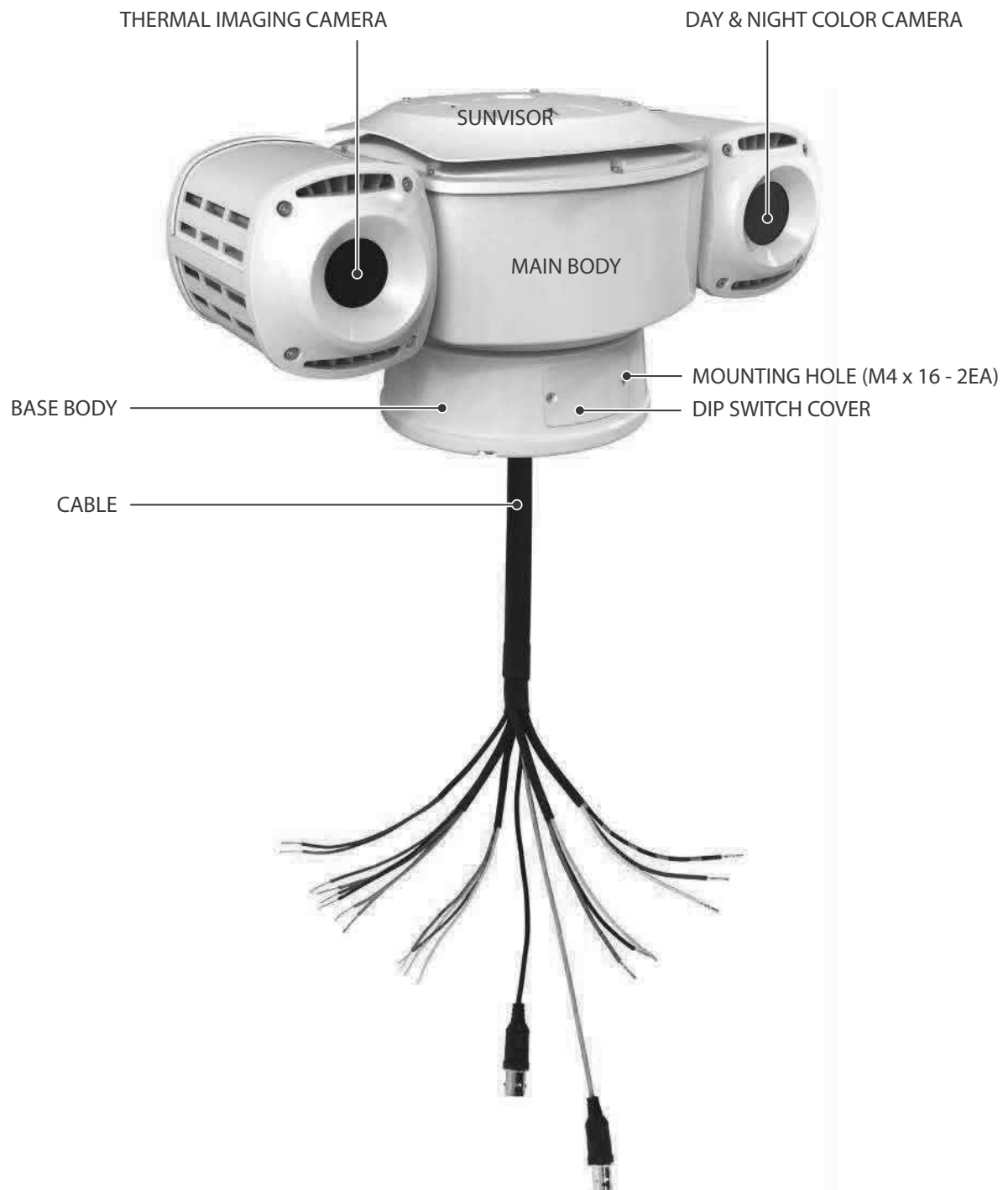


Disposal of your old appliance

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.

Part Names

A. Basic Parts



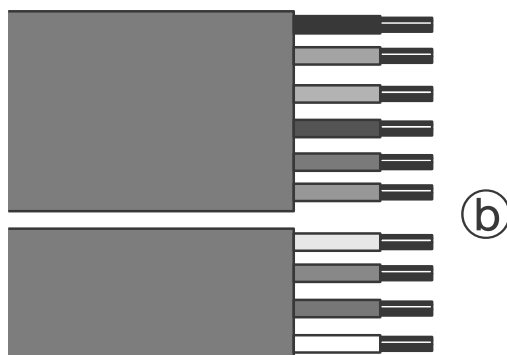
Part Names

B. Connection Method



(a) Communication (RS-485)

Color	USE
GREEN	RS-485 D -
BLUE	RS-485 D +



(b) Alarm input / AUX output

Color	USE
BLACK	GND
GRAY	GND
VERMILION	ALARM1
VIOLET	ALARM2
PINK	ALARM3
SKY	ALARM4
YELLOW	AUX 1-A
BROWN	AUX 1-B
RED	AUX 2-A
WHITE	AUX 2-B



(c) Camera Power

Color	USE
RED	VADC 24V
WHITE	VADC 24V
BLACK	F.G



(d) Heater Power

Color	USE
BLUE	HEATER +
YELLOW	TEATER -
BALCK WHITE	F.G

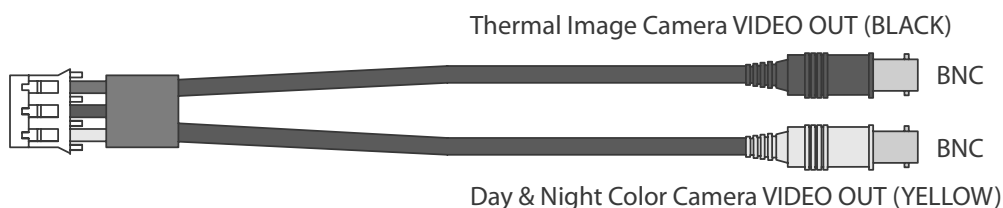


Analogue CVBS #1
(Thermal Imaging Camera)



Analogue CVBS #2
(Day & Night Color Camera)

C. Extra Video Cable

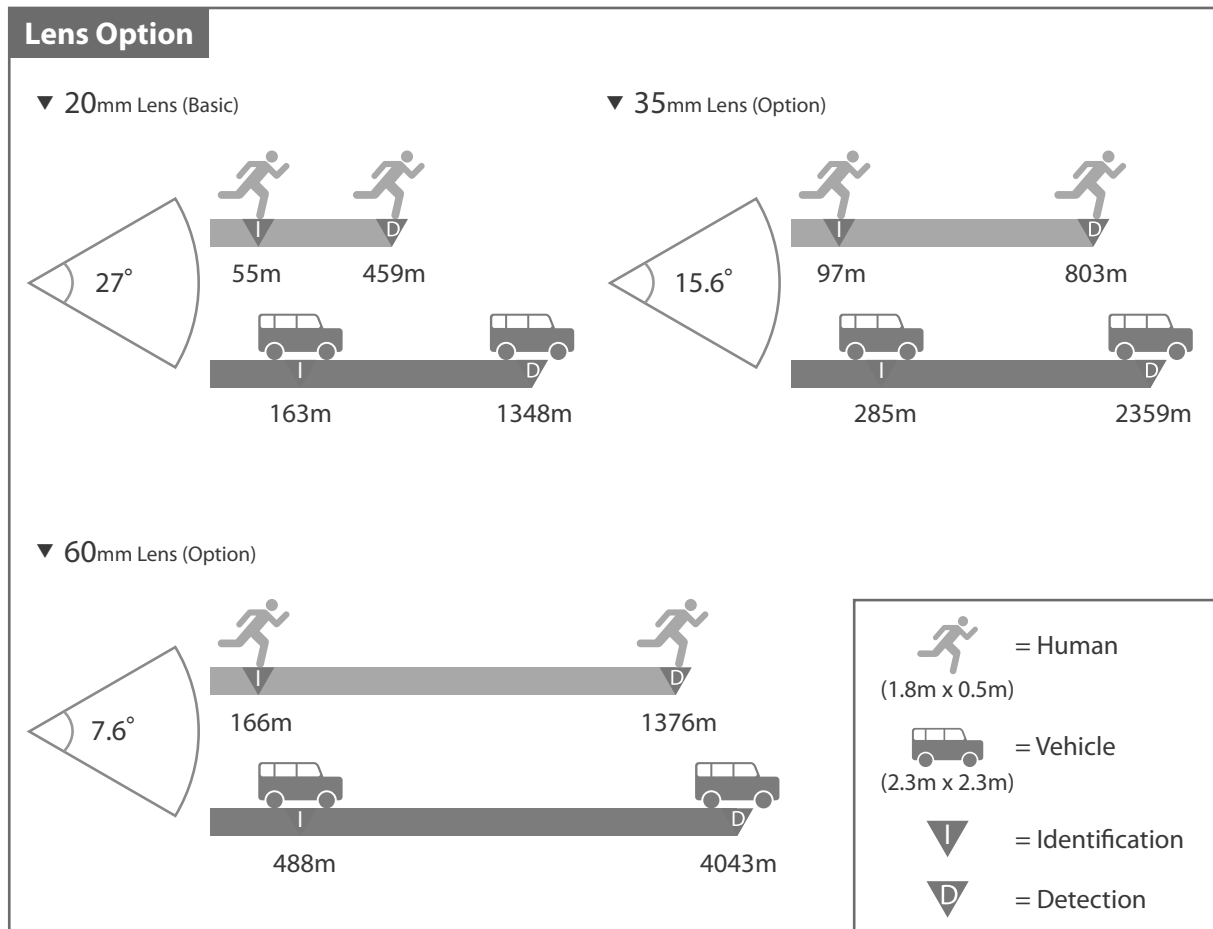


Introduction

A. Introduction

Thermal imaging PTZ cameras are installed on a precision pan / tilt mechanism. It allows the user to rotate & tilt the camera 360° continuously to increase situational awareness on ultimate weatherproof condition. The Pan/Tilt has 165 preset positions.

All versions are equipped with a long range daylight / low light camera. The video output of the thermal imaging and daylight / low light camera are simultaneously available.



< Thermal Imaging Camera >

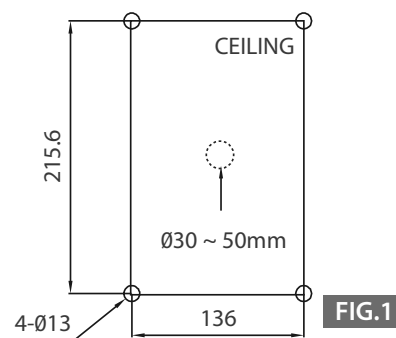
Installation

A. Ceiling Mounting Bracket

CONTENTS

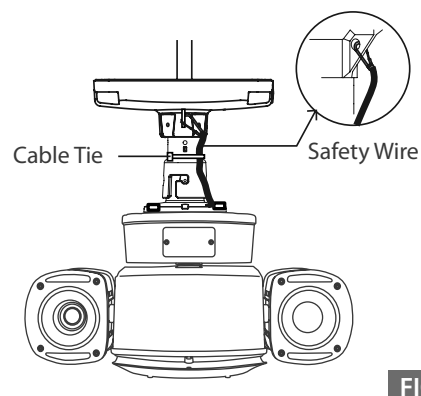
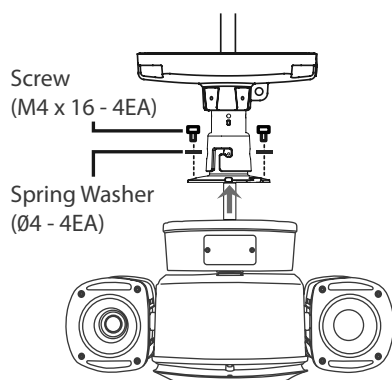
1. CEILING MOUNTING BRACKET	1EA	4. SPRING WASHER Ø4	5EA
2. SET ANCHOR BOLT (W5/9)	4EA	5. WRENCH (3mm)	4EA
3. SCREW M4 x 16	5EA	6. MANUAL	

A-1. When you install PTZ Camera on the ceiling, make 4 holes at the edge with $\text{Ø}13$ in diameter and 37mm in depth. If connect the cables from the inside of the ceiling, also make a hole for the cables with about $\text{Ø}30\sim 50$ in diameter in the center of the bracket base. (FIG.1)



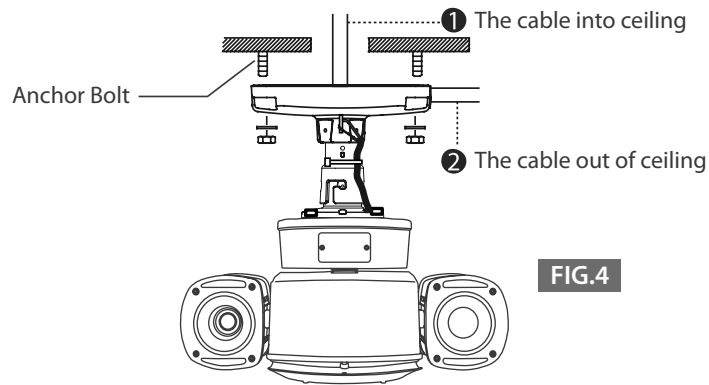
A-2. Connect the Ceiling Mounting Bracket to the Camera with 4 pieces of M4X16 screws and spring washer. (FIG.2)

A-3. Connect the Safety wire of the Bracket to the Camera. In order to avoid getting entangled in the Camera, fasten the Safety wire to the bracket with Cable tie. (FIG.3)

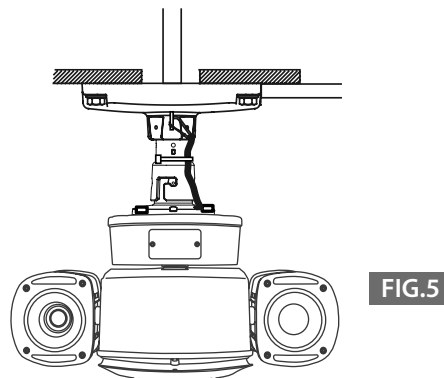


Installation

A-4. When connect the cables from the inside of ceiling, pass the cables through the ceiling. When you want to connect the cables from the outside of ceiling, remove the hole cap from the side of the bracket and pass the cables through the hole.



A-5. Install 4 pieces of Anchor bolt in the holes at the edge and tight enough with Nuts. (FIG.4)



A-6. Connect the cables referring to the page 7. (FIG.5)

Installation

B. Pole Stand Bracket

CONTENTS			
1. POLE STAND	1EA	5. SCREW M4 x 16	5EA
2. BOLT & NUT M10	4EA	6. SPRING WAHGER Ø4	5EA
3. FLAT WASHER	4EA	7. WRENCH (3mm)	1EA
4. SPRING WASHER Ø10	4EA	8. MANUAL	

B-1. When you install the PTZ Camera on the pole, make 4 holes at edge with $\text{Ø}13$ in diameter and 37mm in depth.

Make the hole for the cables with about $\text{Ø}30\sim 50$ in diameter in the bottom center of the bracket. (FIG.6)

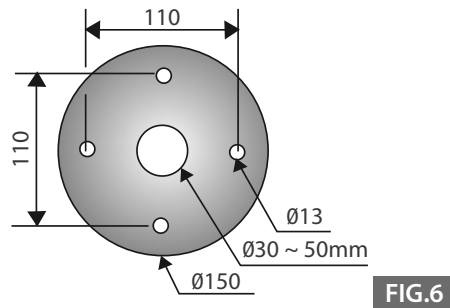


FIG.6

B-2. Pass the cables of the camera through the inside of Pole Stand and connect the Camera to the Pole Stand with pieces of M4 x 16 screws. (FIG.7)

B-3. Connect the Safety Wire of the Bracket to the Camera.

In order to avoid getting entangled in the camera, fasten the Safety wire to the bracket with Cable Tie. (FIG.8)

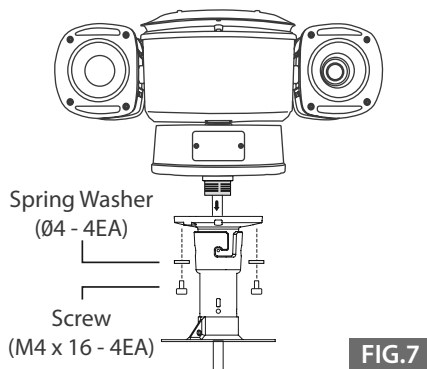


FIG.7

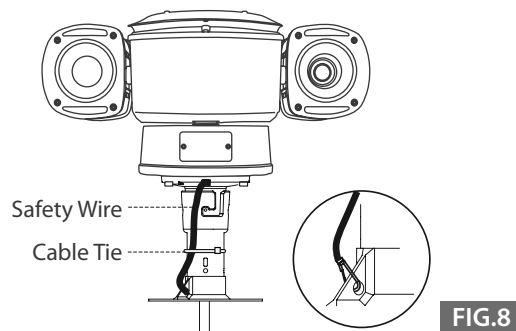


FIG.8

Installation

B-4. Install 4 pieces of Anchor bolt in the $\varnothing 13$ holes at the edge and connect the cables.

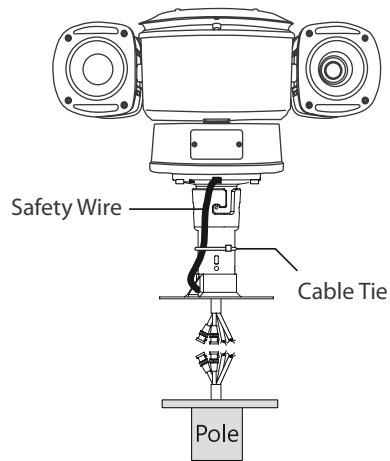


FIG.9

B-5. Adjust the Camera and Pole Stand to M10 x 45 Bolt, Flat Washer and Spring Washer. And then fasten enough with Nuts. (FIG.10)

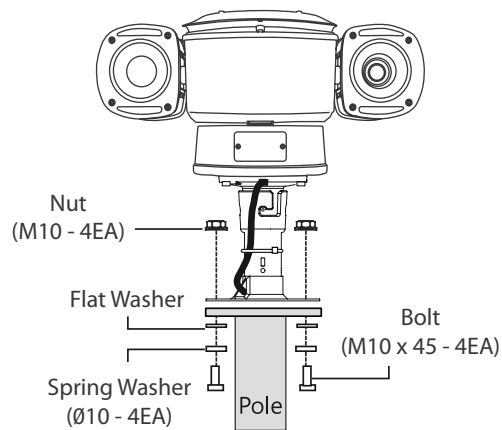


FIG.10

Installation

C. Wall Mounting Bracket

CONTENTS			
1. WALL MOUNTING BRACKET	1EA	4. SPRING WASHER Ø4	5EA
2. SET ANCHOR BOLT (W5/6)	4EA	5. WRENCH (3mm)	1EA
3. SCREW M4 x 16	5EA	6. MANUAL	

C-1. When install PTZ Camera on the wall, make 4 holes at the edge with Ø13 in diameter and 37mm in depth and install 4 pieces of Anchor bolt in the Ø13 holes at the edge. (FIG.11)

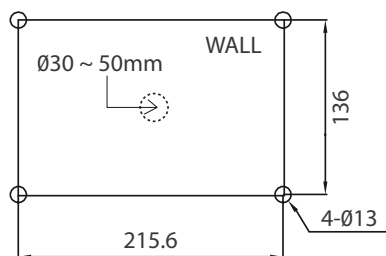


FIG.11

Note!! If connect the cables from the inside of the wall, also ake a hole for the cables with about Ø30~50 in diameter in the center of 4 edges. Check if the long side of the Bracket sets as horizontally and the short side of the Bracket sets as vertically.

C-2. Connect the Camera to Wall Mounting Bracket with 4 pieces of M4 x 16 screws and Spring Washer. (FIG.12)

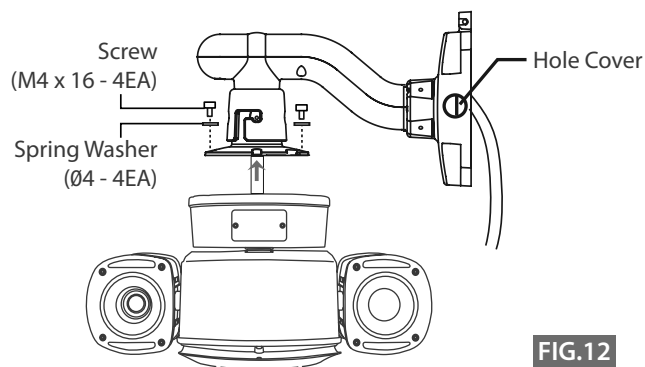


FIG.12

Installation

C-3. Connect the Safety wire of the Camera to the Bracket. In order to avoid getting entangled in the Camera, fasten the Safety wire to the bracket with Cable tie. (FIG.13)

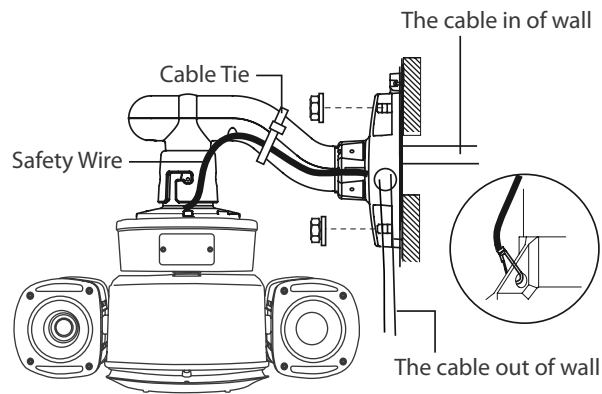


FIG.13

C-4. When you want to connect the cables from the inside of wall, pass the cables through the wall. When you want to connect the cables from the outside of wall, remove the hole cap from the side of the bracket and pass the cables through the hole.

C-5. Install 4 pieces of Anchor bolt in the holes at the edge and fasten enough with Nuts. (FIG. 13)

C-6. Connect the cables referring to the page 7. (FIG.14)

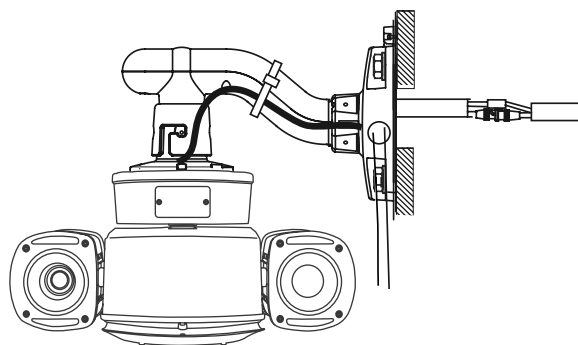


FIG.14

Quick Operating Keys

The Thermal Imaging PTZ Camera and the Day & Night Color Camera supports Pelco D/P Protocols. The default setting of the Thermal Imaging PTZ Camera and the Day & Night Color Camera are Pelco D/P(Auto Detection) with 2400bps (Baud rate).

[PELCO D/P PROTOCOLS]

The comprehensive feature set of the camera is available from Pelco compatible controllers via quick operation keys as defined below.

1~64 + preset and 100~200 + preset are used for normal user presets.

Presets 65~99 + are reserved for special functions.

For example, to enter OSD menu, press the button 95 + Preset.

<Quick Operation Key Table 1 - Common>

Number	Note	Function
1 ~ 64, 100 ~ 200 + PRESET	Preset	Executing Preset 1 ~ 64, 100 ~ 200
65 + PRESET	Preset Status	Display Preset Status
66 + PRESET	Auto Scan	Executing Auto Scan
71 ~ 78 + PRESET	Group Tour	Executing Group Tour #1 ~ #8
81 ~ 88 + PRESET	Pattern	Executing Pattern #1 ~ #8
91 + PRESET	Zero Position	Searching Pan / Tilt Zero Position
95 + PRESET	OSD	Entering OSD Main Menu
97 + PRESET	Alarm	Selectable Enable / Disable all alarms
98 + PRESET	AUX1	Selectable On / Off Aux1
99 + PRESET	AUX2	Selectable On / Off Aux2

<Quick Operation Key Table 2 - Only Thermal Imaging Camera>

Number	Note	Function
69 + PRESET	Temperature	Temperature Range Reset
79 + PRESET	Color	Color Mode Toggle
80 + PRESET	Inverse	Inverse Mode On / Off
89 + PRESET	Calibration	Calibration Execute
90 + PRESET	AGC	AGC Mode Toggle
92 + PRESET	Freeze	Select Freeze image when camera is working

<Quick Operation Key Table 3 - Only Day & Night Color Camera>

Number	Note	Function
70 + PRESET	Image Stabilization	Selectable On / Off in picture Stabilization Function
93 + PRESET	BLC / WDR	Selectable On / Off BLC or WDR function
94 + PRESET	Day/Night	Selectable Day / Night / Auto Mode
96 + PRESET	Focus Adjust	Focus adjust

<Quick Operation Key Table 4>

Number	Function
Tilt Up / Down	Sub Menu cursor moves up / down
Pan Left / Right	Enter to the sub menu or status change or decrement
Focus Near	Using for enter key when user select YES or NO
Focus Far	Using for function changing keys when set coordinate
Zoom Tele	Status cursor to the right
Zoom Wide	Status cursor to the left

- **65 + Preset**

Preset Status is displayed, to remove this menu, Press "Focus Near" button.

- **92 + Preset**

This feature freezes the current live image during tour, auto scan or pattern operation.

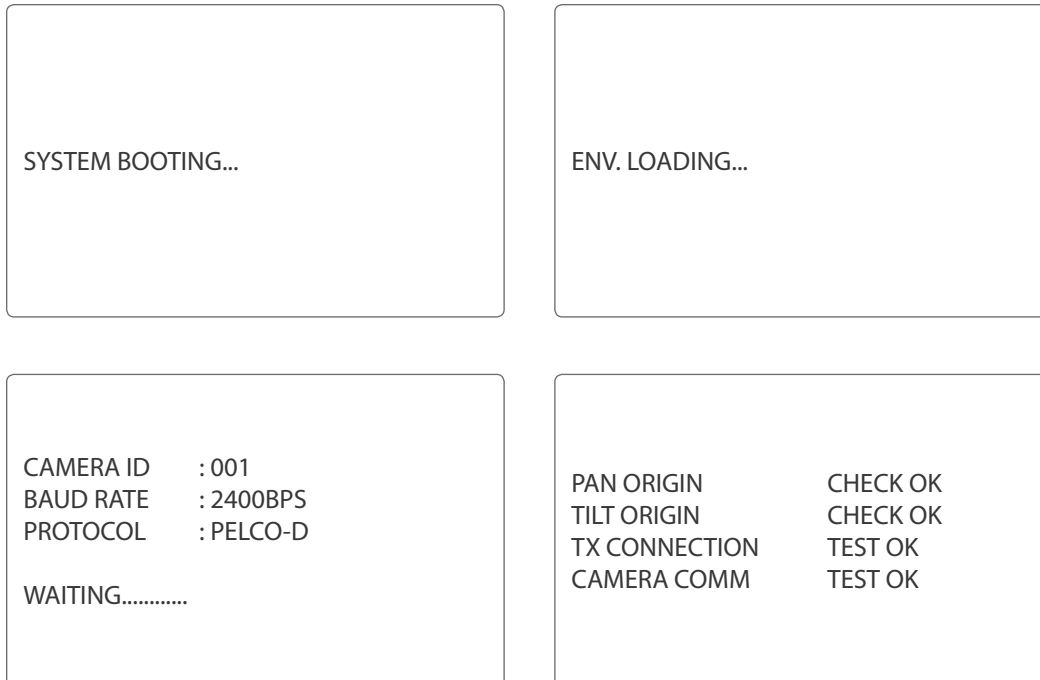
When you press "92+Preset" button, the image freezes but the camera is still working as operation such as tour, pattern or auto scan.

To return to normal images, press "92+Preset" button again

 **Note!!** This feature is operated by preset number but not included in OSD main menu.

Diagnostic

When the Camera is power on, a standard diagnostic is operated as below images.



A. PAN Origin Test

Zero point of Pan is Located during the Panning test.

B. Tilt Origin Test

Zero point of Tilt is Located during the Tilt Test.

C. TX Connection Test

Wait for 60 seconds for TX Connection Test.

During 60 seconds, the camera receives a signal by any control equipment as DVR or controller.

Then OK is displayed then automatically verifying TX Connection Test



Note!!

If "Not Tested" is displayed in the test.

- The result shows no signal from DVR or controller received.
 - Wrong sets on the protocol, baud rate or RS-485 connection.
- Please check the setting values carefully.

D. Camera Comm. Test

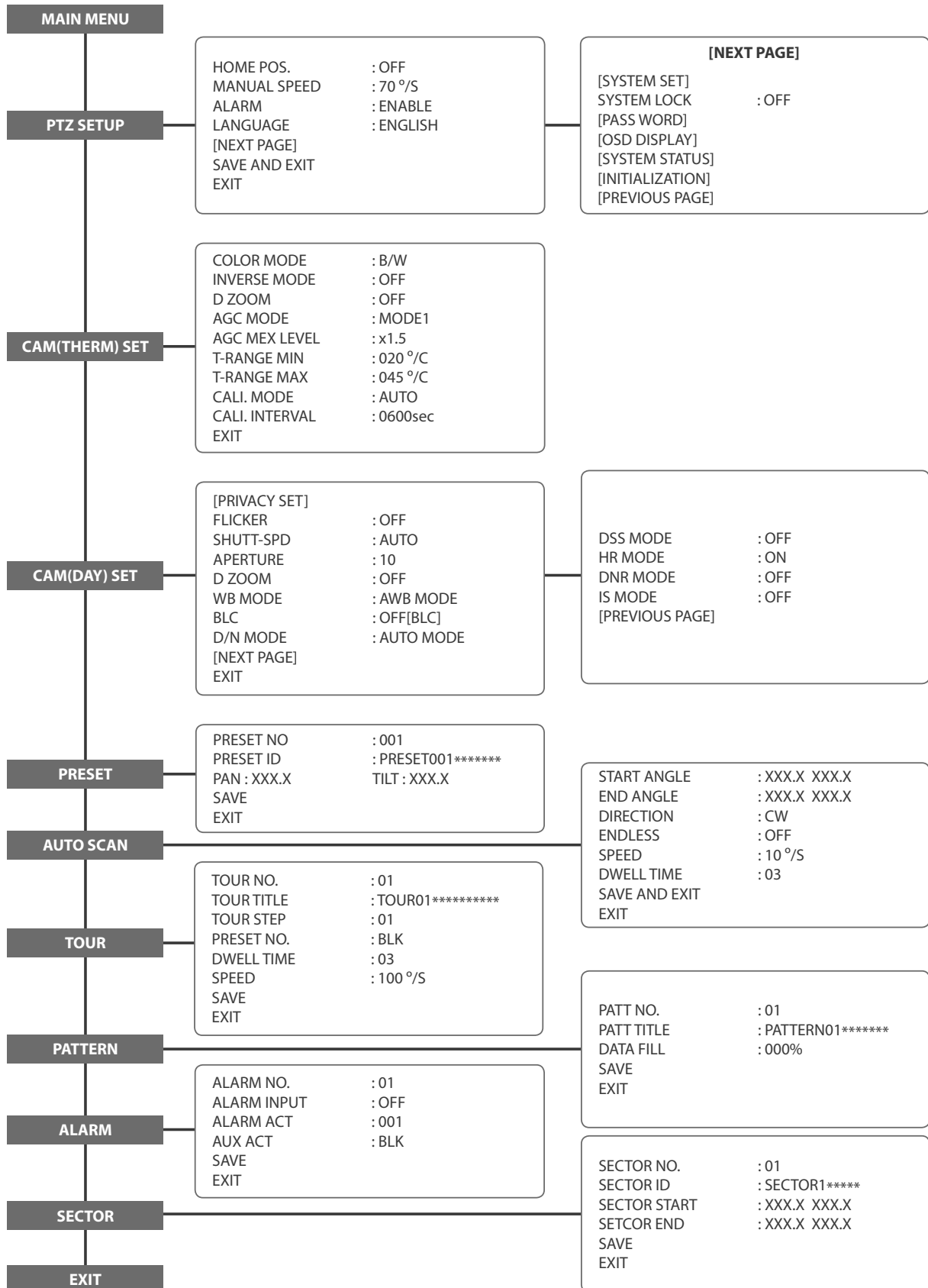
Camera communication is checked.

"CHECK OK" and "TEST OK" should be displayed in these four tests before installation.

If all the above Tests are OK, "NOW EEPROM CHECKING" and "ALL DATA INITIALIZING" is displayed and the camera should be operated normally.

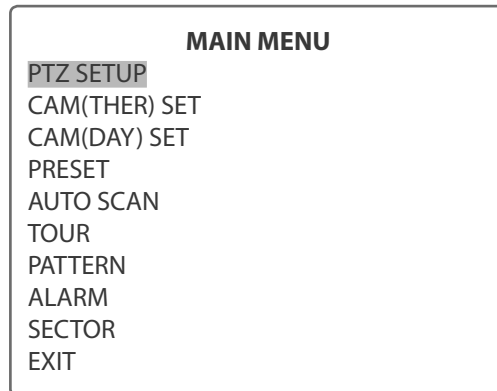
OSD Menu

A. OSD Menu Table

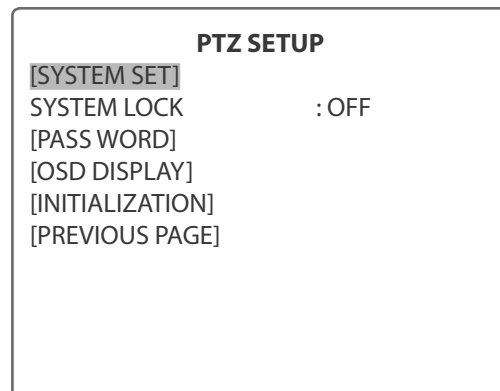
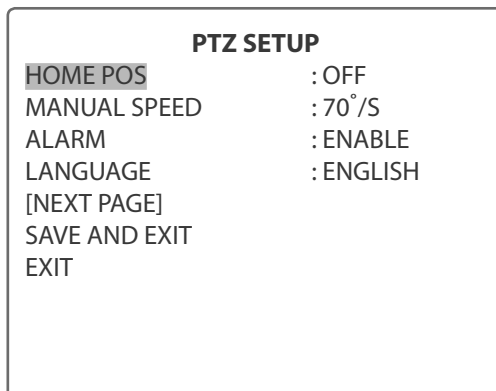


OSD Menu

To enter OSD Menu, press the button 95+Preset then OSD Main Menu is displayed.



B. PTZ SETUP



B-1. HOME POS

This is for Home Position, basically, including the Recover. On ON, it would be indicated the number [Relevant function], number is for time and [Relevant function] is that what operation product will be working on.

You can set up the time using the Joystick Left/Right, it should be showed up on the Left of Menu if you press the Focus Far Key. In case of "[]", possible to change into other one as you want and come out from "[]" after vanish.

- Set time : 15~90 (Each 5)

- Set article : [AUTO] - RECOVER operation.

[PRST1]-[PRST8] – PRESET1 ~ PRESET8 OPERATION.

[TOUR1] ~ [TOUR8] – TOUR1 ~ TOUR8 OPERATION.

[PATT1] ~ [PATT8] – PATTERN1 ~ PATTERN8 OPERATION

[SCAN] – AUTOSCAN OPERATION.

OSD Menu

B-2. MANUAL SPEED

Manual speed of Pan / Tilt is selectable from 050°/sec up to 80°/sec.
The default setting is 70°/sec.

B-3. ALARM

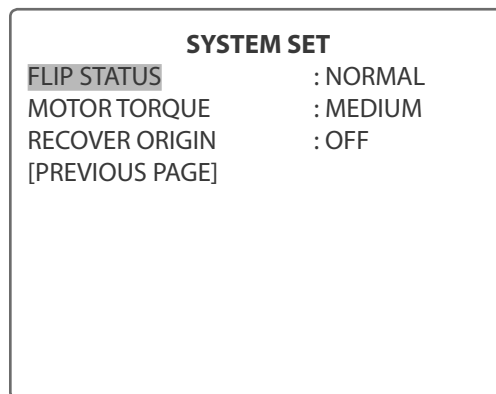
You must enable the alarms for them to operate. The default setting is ENABLE.
This function can be recalled by pushing 97+preset button.

B-4. LANGUAGE

Multiple languages are selectable here including English, Italian and Polish.
The default setting is ENGLISH.

B-5. [NEXT PAGE] -[SYSTEM SET]

To enter system set, use the joystick right to move when cursor on system set.



- Flip status available and the default setting is NORMAL.

Move joystick right or left direction is for selecting NORMAL or REVERSE.

- Motor torque available and the default setting is MEDIUM.

Move joystick right or left direction is for selecting LOW or MEDIUM or HIGH.

- Recover Origin is for correct when both of PAN and TILT are warped by impact. On ON, it should be operated, on OFF, it's not. Default setting is OFF.

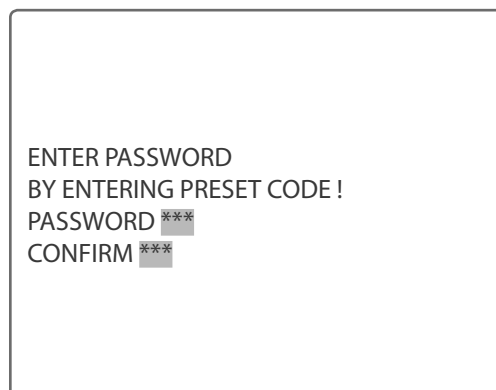
B-6. [NEXT PAGE] -SYSTEM LOCK

All stored dome settings can be password protected to prevent unauthorized changes. In order to enter [PASSWORD] page, the system lock status must firstly be set as ON. The default setting is OFF.

B-7. [NEXT PAGE] -[PASS WORD].

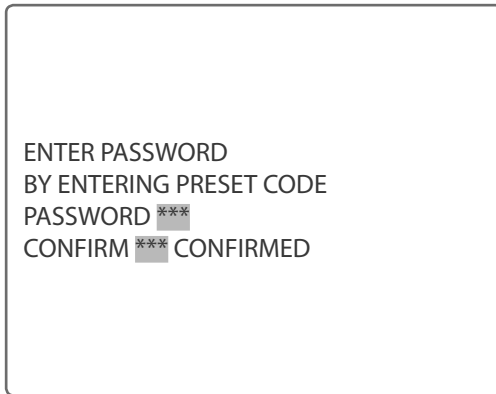
To enter this page to set a password. move joystick or pan key in the right direction.

The password must be set by preset number from 001 to 255 (Default 99).

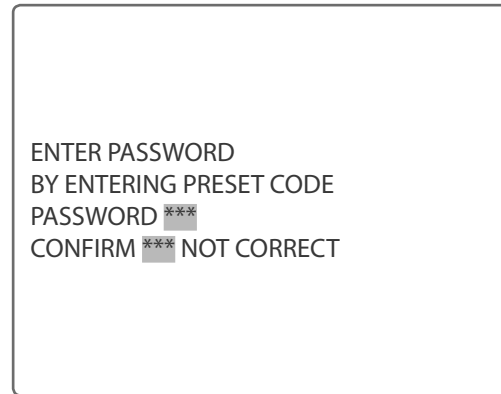


OSD Menu

Enter any number from 001~255 on the password blank area and again on the confirm blank area. Then "CONFIRMED" is displayed on the monitor and the menu will go back to the previous age automatically.



[CONFIRMED]



[NOT CONFIRMED]

If you press an incorrect number between PASSWORD and CONFIRMED, "CANCELLED" is displayed on the monitor when you press FOCUS NEAR key.

"CANCELLED" will be displayed on the monitor, it goes to previous page.

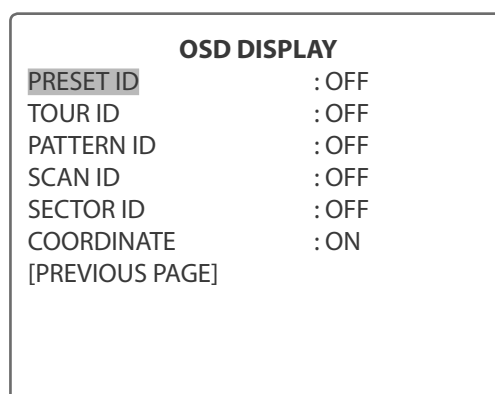


Note!!

When a password has been set, the operator must enter the correct password in order to enter OSD MAIN MENU, or to change any of the domes configuration data. If you set a password you must ensure that it does not get lost. If this happens the dome must be returned for workshop repair.

B-8. [NEXT PAGE] - [OSD DISPLAY]

To enter OSD DISPLAY, use the joystick right to move when cursor on OSD DISPLAY.



OSD Menu

B-9. [NEXT PAGE] - [SYSTEM STATUS]

This page shows the information of this camera.

- Protocol and baud rate are shown due to the dip switch setting
- Firmware version and upgraded date will change if upgraded.
- Camera module is setting as follows.

[SYSTEM STATUS]	
PROTOCOL	: PELCO-D
BAUD RATE	: 2400 BPS
FIRMWARE VER	: 1.00a
UPGRADED DATE	: 25.03.13 25.03.13
CAMERA MODULE	: TSM-72 EX1020
[PREVIOUS PAGE]	

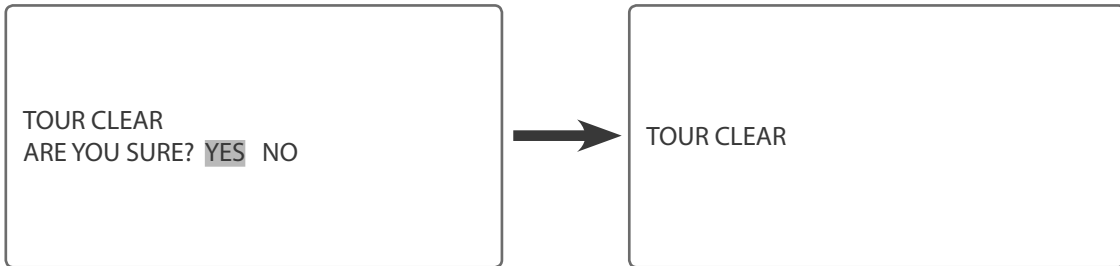
B-10. [NEXT PAGE] - [INITIALIZATION]

To clear the current settings select the item that you wish to reset back to factory defaults.


[INITIALIZATION]
[TOUR CLEAR]
[PRESET CLEAR]
[SECTOR CLEAR]
[PRIVACY CLEAR]
[PATTERN CLEAR]
[LOAD OPTIMIZED DEFAULT]
[PREVIOUS PAGE]

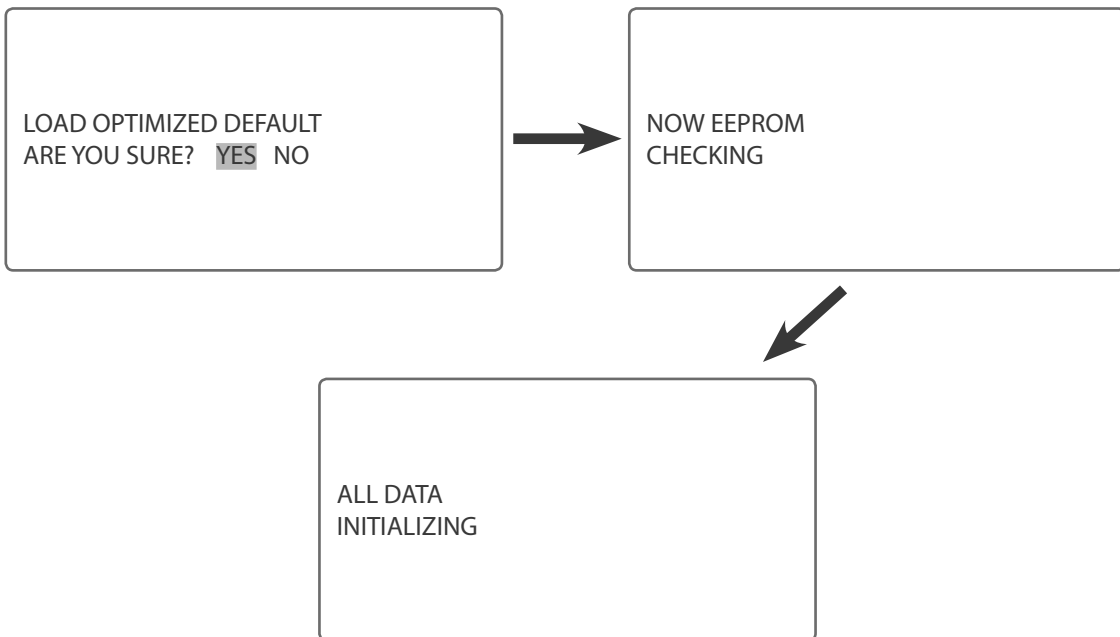
OSD Menu

To clear the memorized data, move the joystick or pan right key until the cursor is on the required item.



Press FOCUS NEAR button when the cursor is at YES in order to clear memorized data. Then each item such as tour, preset, and sector will flicker for about 2 ~ 3 seconds. After this process, the menu is returned to the previous page.

 *Note!!* Use the above method for [PRESET CLEAR], [SECTOR CLEAR],[PRIVACY CLEAR], [PATTERN CLEAR].



- To Clear all data and return to factory defaults, move the joystick right or press the pan light key to when the cursor is at [LOAD OPTIMIZED DEFAULT] to enter the next page.
- Move joystick or the pan right key so that the cursor is over YES, then press the FOCUS NEAR button. "ALL DATA INITIALIZING" is then displayed for about 5~7 seconds and then the menu is returned to the previous page automatically.

B-11. SAVE AND EXIT

To saving the memorized data and escape this page, move joystick to the right direction when cursor is at SAVE AND EXIT.

B-12. EXIT

In order not to save any data and wants to escape this page, move joystick to the right direction when cursor is at EXIT.

OSD Menu

C. CAM(THERM) SET

CAM(THER) SET	
COLOR MODE	: B/W
INVERS MODE	: OFF
D-ZOOM	: OFF
AGC MODE	: MODE1
AGC MAX LEVEL	: x1.5
T-RANGE MIN	: 020°C
T-RANGE MAX	: 045°C
CALI. MODE	: AUTO
CALI. INTERVAL	: 600SEC
EXIT	

C-1. COLOR MODE

Possible to set up the color mode 4 in total (B/W, RAINBOW, IRON, GLOWBOW)

C-2. INVERSE MODE

For reversal the COLOR. (ON / OFF)



< Inverse On - Black Hot palette >



< Inverse Off - White Hot palette >

C-3. D-ZOOM

As Digital ZOOM, ON setting, it should be operated for 4 times. (ON / OFF)

C-4. AGC MODE

As AUTO GAIN Control Mode, MODE1 setting, you can control the AGC Mode. (OFF / MODE1 / MODE2 / MODE3/ MODE4)

C-5. AGC MAX LEVEL

On setting the AGC MODE, you can set up the Max Gain Level. 5 stages is available in total. (x1, x1.5, x2, x2.5, x3)

C-6. T-RANGE MIN

For setting minimum temperature when AGC is off. Degree is available -20 ~ 120°C.

C-7. T-RANGE MAX

For setting maximum temperature when AGC is off. Degree is available -20 ~ 120°C.

C-8. CALI. MODE

For setting Calibration Mode. You can set it up 3 modes. (AUTO / INTERVAL /MANUAL)

C-9. CALI. INTERVAL

On setting the Calibration Mode into INTERVAL MODE, possible to set up the fixed Calibration period. Time is 10 ~ 3600sec. available.

OSD Menu

D. CAM(DAY) SET

CAM(DAY) SET	
[PRIVACY SET]	
FLICKER	: OFF
SHUTT-SPD	: AUTO
APERTURE	: 10
DZOOM	: OFF
WB MODE	: AWB MODE
BLC	: OFF[BLC]
D/N MODE	: AUTO
[NEXT PAGE]	
EXIT	

CAM(DAY) SET	
DSS MODE	: OFF
HR MODE	: ON
DNR MODE	: OFF
IS MODE	: OFF
[PREVIOUS PAGE]	

D-1. [PRIVACY SET]

PRIVACY SET	
PRIVACY NO	: 01
DISPLAY	: OFF
ACTION	: MOVE
SAVE	
EXIT	

D-1-1. PRIVACY NO.

Up to 8 privacy masking zones can be set.

D-1-2. DISPLAY

Move the joystick right or left or press pan right / left to set ON in order to show the selectable block in the center of the monitor. This block appears as a translucent square with blue color when set ON. The default setting is OFF.

D-1-3. ACTION


To set the blocking area, press FOCUS FAR button when MOVE MODE is displayed.

Then use the joystick or pan keys to the user defined area in order to set the blocking area.

Then press FOCUS FAR button again to escape from Move mode.

To adjust the size of the blocking area, move the joystick or use the pan keys when the cursor is on ACTION. After it has changed to ADJUST MODE, press FOCUS FAR button in order to adjust the size of the blocking area. The size of the blocking area can be adjusted by using joystick up / down or left / right or the pan and tilt keys.

After adjusting the size of the blocking area, press FOCUS FAR button to escape the ADJUST mode.

 **Note!!** - ADJUST : You can change the masking size by using the joystick or pan keys.
- MOVE : You can move the masking area by using the joystick or pan keys. (Default)

OSD Menu

D-1-4. SAVE

After setting the privacy masking zone, to save the data, move the joystick right or pan right key when the cursor is on SAVE.

After saving the data, the cursor moves to PRIVACY NO.2 automatically to prepare for the next privacy masking zone.

D-1-5. EXIT

To escape this page, move the joystick right.

D-2. FLICKERLESS

The flickerless feature has options of 50Hz and 60Hz.

The default setting is OFF (NTSC : 60Hz / PAL : 50Hz).

The flickerless mode only needs to be set when there is a mismatch between the power frequency and camera sync rate. The default setting is OFF.

D-3. SHUTTER-SPD

It is for set up the Shutter Speed of camera.

• Default value is Auto and it can be changed into other one using the Joystick Left/Right of Controller.

- Change to turn : Full Auto → Manual

- Auto : Changed according to light level automatically.

- Manual : It can be changed into other one using the Focus Far Key of controller and on ON the DSS (Digital Slow Shutter), it should be set up 1/1 to 1/10,000, on OFF, 1/50(1/60)~1/10,000.

D-4. APERTURE

Aperture correction enhances the picture details and sharpness by increasing the gain of the camera.

Increase the value to sharpen the image, decrease to soften it the default setting is 10. (The aperture level is from 00 ~ 15.)

D-5. D ZOOM

Digital zoom is enabled to apply when the zoom lens has reached its maximum optical zoom in capability. The default setting is OFF.

D-6. WB MODE

White balance functions has 4 modes and may need to be changed depending on the situation.

• AWB Mode : 3,200°K to 6,500°K (Default)

• Indoor : up to 3,200°K

• Outdoor : up to 5,800°K

D-7. BLC (Back Light Compensation)

From simple ON / OFF setting to user friendly BLC status indication [BLC] status with control of controller by "FOCUS FAR KEY"(" " signal appeared) With the control of joystick on controller by LEFT / RIGHT, setting change of [BLC] / [WDR] is available.

Setting change completed by pressing FOCUS FAR KEY.(" " signal disappeared.)

This function can be recalled by pushing 93+Preset button.

D-8. D/N MODE

The dome camera can operate in day / night mode and will switch depending on lighting conditions. Alternatively it can be forced into color only mode.

The default setting is AUTO MODE. This function can be recalled by pushing 94+Preset button.

OSD Menu

D-9. [NEXT PAGE] - DSS MODE (DIGITAL SLOW SHUTTER)

If digital slow shutter is enabled the exposure time of the camera is increased, thus allowing more light to be collected and improving low light response.

This setting should not be enabled if the dome is touring at night or fast moving objects are likely to be in the scene as smearing is also increased.

The default setting is OFF.

D-10. [NEXT PAGE] - HR MODE

Images with a high resolution can be obtained using a newly developed DSP for improved picture quality.

The default setting is OFF.

 <i>Note!!</i> OFF : 530TV Lines ON : 550TV Lines

D-11. [NEXT PAGE] - DNR MODE

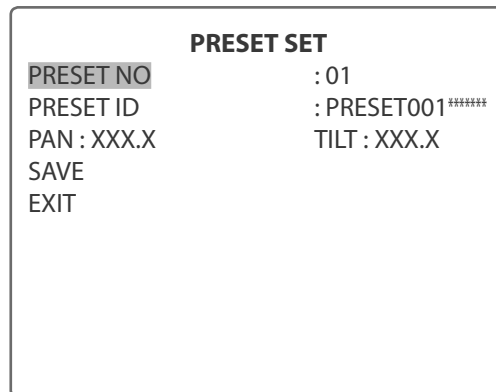
It enables noise reduction digitally.

It sets the noise reduction rate using LEFT / RIGHT key of CONTROLLER JOYSTICK [OFF, 1~5]. The default setting is OFF.

D-12. [NEXT PAGE] - IS MODE

It helps to stabilize video image when camera is affected by wind or other environmental reasons. The default setting is OFF.

E. PRESET SET



E-1. PRESET NO

Up to 165 preset positions are available.

Use the joystick or pan left / right keys to select the number.

E-2. PRESET ID

To create preset titles use the joystick or pan left / right keys to navigate the menu.

The ZOOM TELE button moves to the next character from left to right and ZOOM WIDE button moves to the next character from right to left. (Space displays when □ appears.)

E-3. PAN : XXX.X TILT : XX.X

Press FOCUS FAR button in order to set preset position then, use the joystick or pan left / right keys to the position where memorized preset number is needed.

Then press FOCUS FAR button again after setting a preset location.

OSD Menu

E-4. SAVE

Move the joystick right or press the pan right key when the cursor is at SAVE and then the cursor will be located on Preset ID for the continuous preset No. setting.

E-5. EXIT

To escape this page, move joystick to the right direction.

F. AUTO SCAN SET

66+Preset button is working as AUTO SCAN after setting.

AUTO SCAN SET	
START ANGLE	: XXX.X.XXX.X
END ANGLE	: XXX.X.XXX.X
DIRECTION	: CW
ENDLESS	: OFF
SPEED	: 10°/S
DWELL TIME	: 03
SAVE AND EXIT	
EXIT	

F-1. AUTO SCAN - START ANGLE.

To set the start position, press FOCUS FAR button then move the dome to the required start position. Press FOCUS FAR button again is to escape.

F-2. AUTO SCAN - END ANGLE

To set the end position, press FOCUS FAR button then move the dome to the required end position. Press FOCUS FAR button again is to escape.

F-3. AUTO SCAN - DIRECTION

Auto Scan directions are available as CW or CCW.

- CW : Clock wise direction. [Default]
- CCW : Count Clock Wise Direction.

F-4. AUTO SCAN - ENDLESS

Auto Scan can be set to endless rotation by enabling the endless option. The default setting is OFF.

F-5. AUTO SCAN – SPEED

The scan speed can be programmed from 05°/S up to 35°/S. The default setting is 10°/S.

F-6. AUTO SCAN - DWELL TIME

The dwell time at the start and end points can be programmed from 1 second to 99 seconds. The default setting is 05 seconds.

F-7. AUTO SCAN - SAVE AND EXIT

To save the memorized data and escape this page, move the joystick right or press the pan right key when the cursor is at SAVE AND EXIT.

F-8. AUTO SCAN - EXIT

To escape this page, move joystick to the right direction.

OSD Menu

G. TOUR SET

8 Programmable tours can be set and each tour can have up to 64 preset steps.
After setting up the tours the 71 ~ 78+Preset buttons launch group tours #1 ~ 8.

TOUR SET	
TOUR NO.	: 01
TOUR TITLE	: TOUR 01*****
TOUR STEP	: 01
PRESET NO	: BLK
DWELL TIME	: 03
SPEED	: 100°/S
SAVE	
EXIT	

G-1. TOUR NO.

Up to 8 group tours can be programmed.

G-2. TOUR TITLE

To set a tour title, use the joystick left / right or pan left / right keys.

Each title can have up to 16 characters. Press ZOOM TELE button to move the next character from left to the right and ZOOM WIDE button to move the next character from right to left. (Space displays when □ appears.) The tour title is not displayed on the monitor and is only for the reference of user.

G-3. TOUR STEP

Each tour group consists of up to 60 preset steps with different dwell time and speed.
It is possible to match any preset # for any tour step.

G-4. PRESET NO.

For each tour step it is possible to select any preset number up to 64.
The default setting is BLK.

G-5. DWELL TIME

Dwell time can be programmed from 1-99 seconds.
The default setting is 03 seconds.

G-6. SPEED

Each tour step can be set with a different speed from 10°/S up to 100°/S.

G-7. SAVE

To save the memorized data and escape this page, move the joystick right or press the pan right key when cursor is at SAVE.

G-8. EXIT

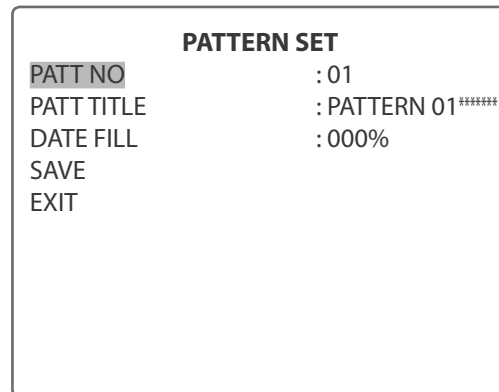
To escape this page, move joystick to the right direction.

OSD Menu

H. PATTERN SET

8 Programmable patterns are available with 16 characters of title.

After set the data to the each pattern #1 ~ 8, 81 ~ 88+preset buttons are working as pattern #1 ~ 8.



H-1. PATT NO.

Up to 8 Programmable user-defined patterns are available.

H-2. PATT TITLE.

To set PATTERN TITLE move Joystick left / right or use the pan keys.

Press ZOOM TELE button moves to the next character from the left / right and ZOOM WIDE button moves to the next character from the right / left. (Space displays when appears.)

The pattern title is not displayed on the monitor, but only for the reference of the user.

H-3. DATA FILL

To memorize a pattern, press FOCUS FAR button in order to start the process.

The progress is shown as % filled. Press FOCUS FAR button again in order to escape.

H-4. SAVE

To save the memorized pattern data, move the joystick right or press the pan right key when the cursor is on SAVE. Then the cursor moves to the PATT NO.02 in order to prepare for the next pattern.

H-5. EXIT

To escape this page, move the joystick right or press the pan right key.

OSD Menu

I. ALARM SET

4 Alarm inputs are available and each alarm is activating to presets, group tours or patterns.

ALARM SET	
ALARM NO.	: 01
ALARM INPUT	: OFF
ALARM ACT	: 001
AUX ACT	: BLK
SAVE	
EXIT	

I-1. ALARM NO.

Up to 4 alarms are selectable by using joystick right or pressing the pan right key when the cursor is on ALARM NO.

I-2. ALARM INPUT

Alarm inputs can be programmed as NC (Normally Close) or NO (Normally Open).
The default setting is OFF.

I-3. ALARM ACT

Active alarms can trigger modes such as presets, Group tours 1-8, and Patterns 1-8.
Use the joystick or pan keys to select any preset number, Group tour No.

I-4. AUX ACT

You can select one of BLK (No AUX triggering) / AUX1 (triggering AUX1) / AUX2 (triggering AUX2) and default value is BLK.

If ALARM triggers AUX, AUX will be off after 5 seconds. If many ALARMS trigger AUX port one by one, the last one will be off after 5 seconds.

I-5. SAVE

After setting up the alarm features, to save the data move the joystick right or press the pan right key when the cursor is on SAVE. After saving the data, the cursor moves to Alarm NO.2 automatically to prepare for the next alarm.

I-6. EXIT

To escape this page, move the joystick right or press the pan right key.

 **Note!!** Before activating Alarms, you must set ALARM ENABLE at PTZ SET ALARM ENABLE.

OSD Menu

J. Sector Set

Up to 8 programmable sectors are available with 16 characters.
This feature is useful to memory the certain location such as parking zone or so on.

SECTOR	
SECTOR NO	: 01
SECTOR ID	: SECTOR01*****
SECTOR START	: XXX.X. XXX.X
SECTOR END	: XXX.X. XXX.X
SAVE	
EXIT	

J-1. SECTOR NO.

Up to 8 programmable sectors are available.

J-2. SECTOR ID

To set a SECTOR ID, use the joystick or pan left /right keys.

Press ZOOM TELE button to move to the next character from left to right and ZOOM WIDE button to move to the next character from right to left. (Space displays when appears.)

J-3. SECTOR START

To set a SECTOR START position press FOCUS FAR button then move the joystick or pan keys to set the position. Press FOCUS FAR button again to escape.

J-4. SECTOR END

To set a SECTOR END position press FOCUS FAR button then move the joystick or pan keys to set the position. To press FOCUS FAR button again to escape.

J-5. SAVE

After setting the SECTOR position, to save the data move the joystick right or press the pan right key when the cursor is on SAVE. After saving the data, the cursor moves to sector No. 2 automatically to prepare for the next sector.

J-6. EXIT

To escape this page, move joystick to the right or press the pan right key.

K. Exit

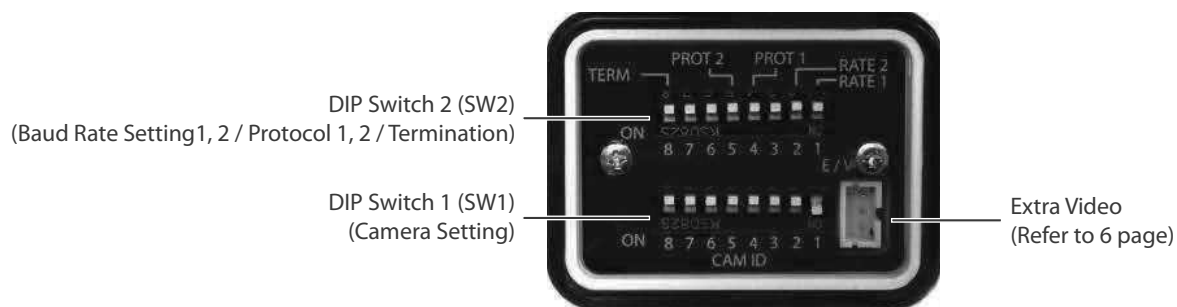
To escape OSD Main Menu, move joystick to the right or left direction then this camera is ready to operate.

DIP Switching Setting

A. ID Setting

The camera has CAMERA ID to be controlled by controller or DVR.
After opening, set ID using DIP SW1.

- Factory default : Camera ID = 1



ID	SW1-#1	SW1-#2	SW1-#3	SW1-#4	SW1-#5	SW1-#6	SW1-#7	SW1-#8
Digit Value	1	2	4	8	16	32	64	128
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF


⋮

243	ON	ON	OFF	OFF	ON	ON	ON	ON
244	OFF	OFF	ON	OFF	ON	ON	ON	ON
245	ON	OFF	ON	OFF	ON	ON	ON	ON
246	OFF	ON	ON	OFF	ON	ON	ON	ON
247	ON	ON	ON	OFF	ON	ON	ON	ON
248	OFF	OFF	OFF	ON	ON	ON	ON	ON
249	ON	OFF	OFF	ON	ON	ON	ON	ON
250	OFF	ON	OFF	ON	ON	ON	ON	ON
251	ON	ON	OFF	ON	ON	ON	ON	ON
252	OFF	OFF	ON	ON	ON	ON	ON	ON
253	ON	OFF	ON	ON	ON	ON	ON	ON
254	OFF	ON	ON	ON	ON	ON	ON	ON
255	ON	ON	ON	ON	ON	ON	ON	ON

DIP Switching Setting

B. Baud Rate Setting

Set by using the 1st and 2nd Switch of DIP SW2, changeable speed is 4800bps, 9,600bps.

 **Note!!** Factory default : 2,400bps

DIP SW2 - 1 st	DIP SW2 - 2 nd	BAUD RATE
OFF	OFF	2,400bps
ON	OFF	4,800bps
OFF	ON	9,600bps
ON	ON	Not used

- The 3rd, 6th, 7th of DIP SW2 are not used.

C. Protocol

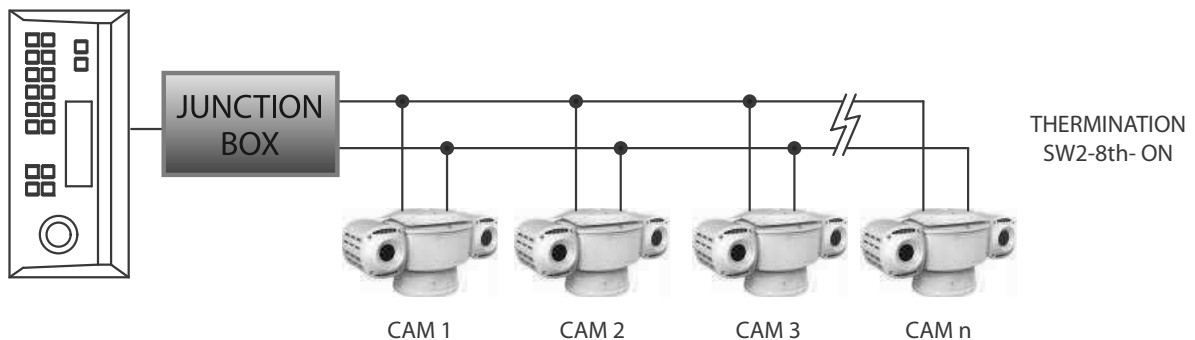
Set by using 4th and 5th Switch of DIP SW2.

 **Note!!** Factory default : Pelco-D or Pelco-P (Auto)

DIP SW2 - 4 th	DIP SW2 - 5 th	PROTOCOL
OFF	OFF	Pelco-D or Pelco-P
ON	OFF	Not used
OFF	ON	Not used
ON	ON	Not used

D. 485 Termination

The 8th of DIP SW2 is used for 100Ω termination.
Set the termination on the last looped camera on the entire system.



Trouble Shooting

If you have trouble setting up or operating the camera, refer to the following.

Video not displayed on monitor

If the camera will not produce an image, check the video connection at the camera. If the connectors to be properly engaged but the camera does not produce an image, ensure that power has been applied to the camera properly and the fuse is OK.

If the camera still does not display an image, have an authorized service representative make the appropriate repairs.

Noisy image

A noisy image is usually attributed to a cable problem (too short or inferior quality) or the cable is picking up electromagnetic interference (EMI) from another device. Although coax cable has built-in losses, the longer and smaller the cable is, the worse the losses become; and the higher the signal frequency, the more pronounced the losses. This is one of the most common and unnecessary problems currently plaguing video security systems.

Image out of focus

The camera systems have a fixed-focus lens (focused at infinity at the factory) and the lens focus is not field-controllable. Each camera has a minimum focus distance, as listed in the specifications section. An out-of-focus object may be too close to the camera within the minimum focus distance.

Performance varies with time of day

You may observe differences in the way the camera performs at different times of the day, due to the cycle of the sun. That the camera produces an image based on temperature differences. At certain times of the day, such as just before dawn, the objects in the image scene may all be roughly the same temperature, compared to other times of the day.

Note: Under conditions such as just before dawn when it appears the camera has low contrast due to many objects at roughly the same temperature (typically inanimate objects), a person or an animal walking through the scene during this time will be quite noticeable and cause the AGC to produce a high-contrast image.

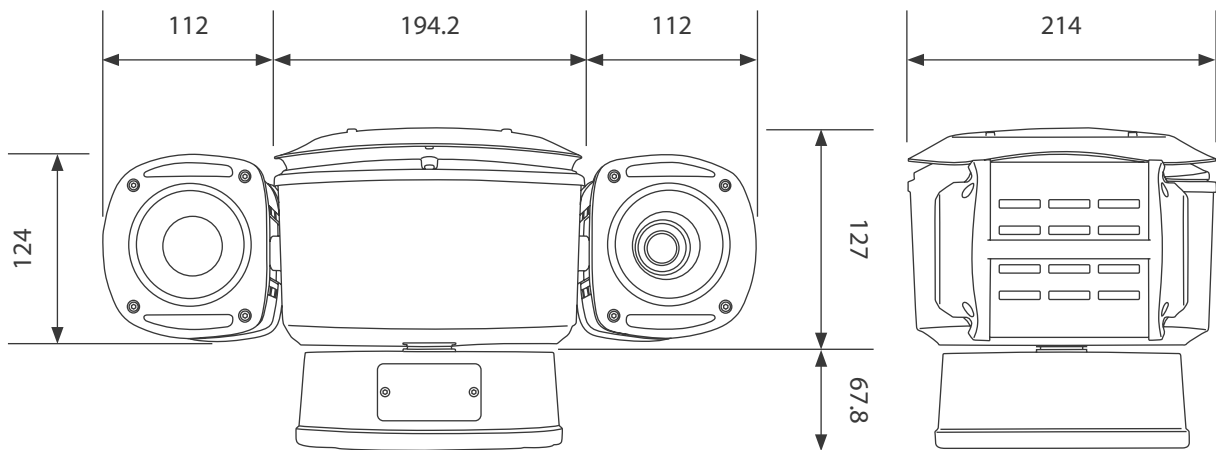
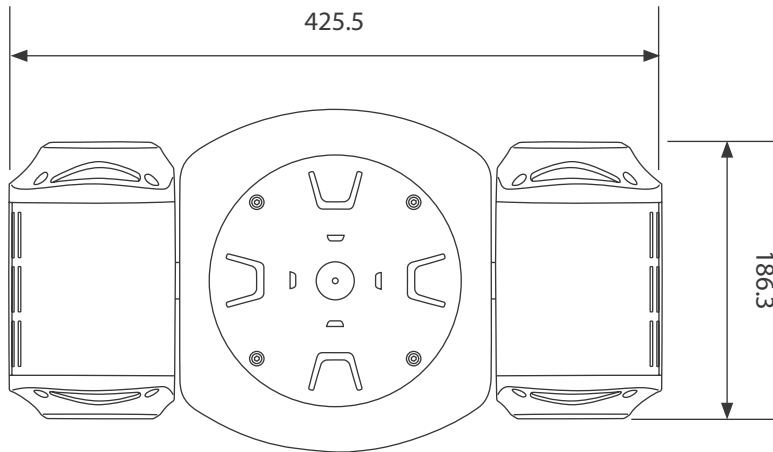
Specification

THERMAL MODUL	
PAN/TILT	
Thermal Sensor	Uncooled Micro Bolometer
Pixel Pitch	25 μ m
Wave Length	8 ~ 14 μ m
NETD	<40mK (@f/1.0)
Output Frequency	NTSC : 59.94Hz (30fps), PAL : 50Hz (25fps)
Resolution	720 x 480 (NTSC) / 720 x 576 (PAL)
Lens	20mm (Basic), 35mm / 60mm (Option)
FUNCTION	
Calibration	AUTO / MANUAL / INTERVAL(sec) Mode Selectable
Image Flip	Vertical, Horizontal ON / OFF
Inverse Mode	ON / OFF
Freeze Mode	ON / OFF
AGC Mode	Mode : Mode (1, 2, 3, 4), OFF / ACG Level : 5 steps (x1.0, x1.5, x2.0, x2.5, x3.0)
Temperature Range Process	MIN / MAX Temperature Range Setable
Image Mode	B/W and Three Color Modes
D-Zoom	x4 (15step)
CAMERA MODULE	
Image Sensor	1/4" Sony Exview HAD CCD
Total Image Pixels	NTSC : 811(H) x 508(V) 410K / PAL : 795(H) x 596(V) 470K
Lens	36x F=1.6~4.5, f=3.4~122.4mm (Digital : 12X / Total : 432X)
Min. Illumination	0.01Lux(B/W : ICR ON) 0.1Lux(Color : 50IRE) 1.4 Lux(DSS OFF)
Luminance S/N ratio	More than 50dB

Specification

MECHANISM	
PAN/TILT	
Pan Rotation Angle	0° ~ 360° Endless
Pan Speed	Manual : 0.1° ~ 80°/sec (64step), Preset : MAX 100°/sec
Tilt Rotation Angle	0° ~ 360° Endless
Tilt Speed	Manual : 0.1° ~ 80°/sec (64step), Preset : MAX 100°/sec
System Accuracy	0.0225°
FUNCTION	
Preset	165 positions with 16-character label available for each position with different speed steps and Freeze Preset available
Group Tour	Max. 8 Programmable Group Tours (each one consisting of up to 60 preset steps with different steps)
Auto Scan	Programmable Auto Scan
Pattern	8 Programmable Patterns (total 480 seconds)
Password Protection	Available
Video Output	CVBS : 1.0Vp-p / 75Ω , Analog CVBS Out 2Channel (Thermal, Day Light)
Alarm Input	4 Alarms (With various programmable states)
Alarm Actions	Activate preset, Group Tour, Pattern
Aux Output	2 Relay
Auto Flip	Digital Auto Flip (Angle Auto Sensing)
OSD Menu	Yes
Communication	Rs-485 (Pelco-D 2400 / 4800 / 9600bps)
OTHERS	
Dimensions	425.5mm(W) x 194.8mm(H) x 214mm(D)
Weight	12.3Kg
Construction	Aluminum die casting
Storage Temperature	-40°C ~ 60°C
Operating Temperature	-40°C ~ 55°C (When the power in at -40°C operation start within 1 hour.)
Option	1,000 hours Saltproof
Certifications	CE, FCC, IP68
POWER	
Power Consumption	Camera Power : AC24V 2.6A 62.4W (Peak) / DC24V 1.7A 40.8W (Peak) Heater Power : AC/DC 24V 3.4A 81.6W (Peak)
Power Supply	AC24V 50/60Hz 5A / DC24V 5A

Dimension



UNITS : mm

