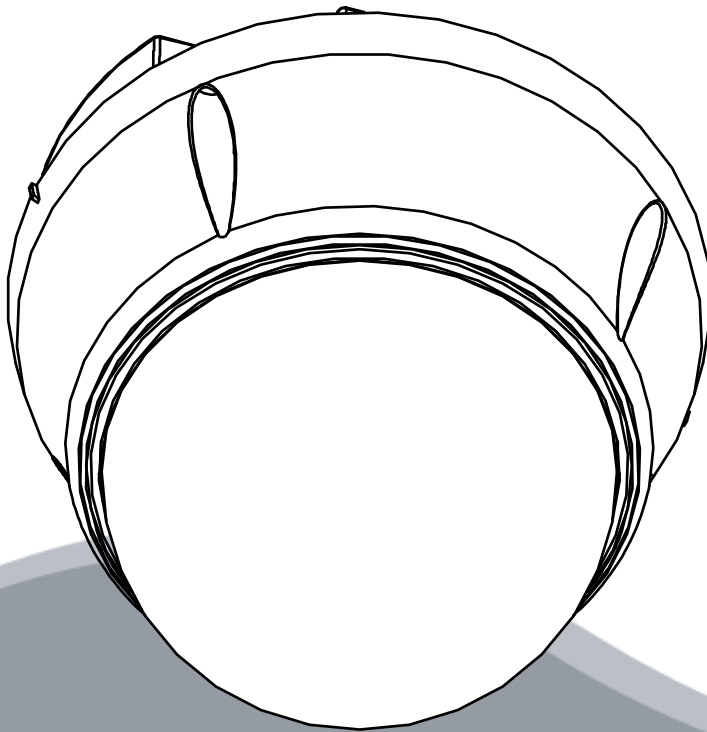


OpenEye[®]

410-Series Camera Mini Speed Dome

User Manual

model no. CM-410



**410 Series Mini Speed Dome Camera
User Manual**

Manual Edition 28561AA – DECEMBER 2007

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Important Safeguards

1. **Read Instructions**

Read all of the safety and operating instructions before using the product.

2. **Retain Instructions**

Save these instructions for future reference.

3. **Attachments / Accessories**

Do not use attachments or accessories unless recommended by the appliance manufacturer as they may cause hazards, damage product and void warranty.

4. **Water and Moisture**

Do not use this product near water or moisture.

5. **Installation**

Do not place or mount this product in or on an unstable or improperly supported location. Improperly installed product may fall, causing serious injury to a child or adult, and damage to the product. Use only with a mounting device recommended by the manufacturer, or sold with the product. To insure proper mounting, follow the manufacturer's instructions and use only mounting accessories recommended by manufacturer.

6. **Power source**

This product should be operated only from the type of power source indicated on the marking label.

Precautions

Operating

- Before using, make sure power supply and others are properly connected.
- While operating, if any abnormal condition or malfunction is observed, stop using the camera immediately and then contact your local dealer.

Handling

- Do not disassemble or tamper with parts inside the camera.
- Do not drop or subject the camera to shock and vibration as this can damage camera.
- Care must be taken when you clean the clear dome cover. Scratches and dust will ruin the image quality of your camera.

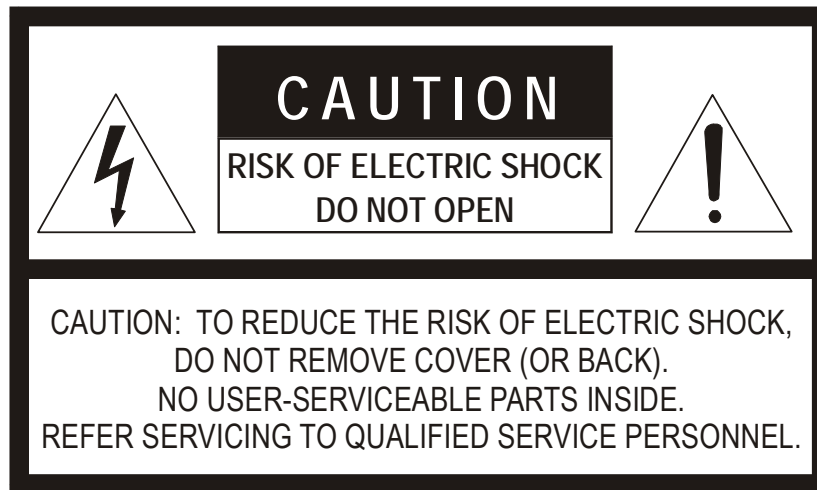
Installation and Storage

- Do not install the camera in areas of extreme temperatures in excess of the allowable range.
- Avoid installing in humid or dusty places.
- Avoid installing in places where radiation is present.
- Avoid installing in places where there are strong magnetic fields and electric signals.
- Avoid installing in places where the camera would be subject to strong vibrations.

WARNING

DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE.
DO NOT OPEN THE CABINET.
REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION



EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the product.

Standard Warranty

Openeye warrants all products to be free from defects in workmanship and material under normal use for a period of one year after the date of purchase. Any defective product that falls under this warranty will, at OpenEye's discretion, be repaired or replaced at no additional charge. Openeye may elect to replace defective products with new or factory reconditioned products of equal or greater value. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Exceptions to this are listed below:

- Two years on all X-Series, XR Series, H Series, HR Series and E-Series Digital Recorders
- Two years on all Dome Cameras

OpenEye will warrant all otherwise out of warranty replacement parts and repairs for 90 days from the date of OpenEye shipment.

The above warranty is the sole warranty made by OpenEye and is in lieu of all other warranties by OpenEye express and implied, including without limitation the warranties of merchantability and fitness for a particular purpose. Under no circumstances will OpenEye be liable for any consequential, incidental, special or exemplary damages arising out of or connected with the sale, delivery, use or performance of the product, even if OpenEye is apprised of the likelihood of such damages occurring. In no event shall OpenEye liability exceed the purchase price of the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state or country to country.

NOTES:

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INTRODUCTION

FEATURES

CAMERA SPECIFICATIONS

- CCD Sensor : 1/4" Interline Transfer CCD
- Zoom Magnification : × 10 Optical Zoom, × 10 Digital Zoom (Max × 100 Zoom)
- Day & Night Function
- Various Focus Mode: Auto-Focus / Manual Focus / Semi-Auto Focus.
- Independent & Simultaneous Camera Characteristic Setup in Preset operation

ADVANCED PAN/TILT FUNCTIONS

- Max. 360°/sec high speed Pan/Tilt Motion
- Using Vector Drive Technology, Pan/Tilt motions are accomplished with the shortest path. As a result, time to target view is reduced dramatically and the video stream transfers are natural to watch.
- For jog operation using a controller, an ultra slow speed of 0.05°/sec can be reached, making it very easy to relocate camera to the desired target view. Additionally, it is easy to move the camera to a desired position with zoom-proportional PanTilt movement.

PRESET, PATTERN, SWING, GROUP, AND PRIVACY MASK

- Presets are assignable and characteristics of each preset can be set up independently, such as White Balance, Auto Exposure, Label and so on. (Max. 127)
- Swing Action enables camera to move automatically between two preset positions at a designated speed. (Max. 8 set of Swing actions can be stored)
- Patterns can be recorded and played back. This enables camera to automatically follow any trajectory preset by joystick as closely as possible. (Max. 4)
- Group Action enables camera to move automatically with a combination of Preset or Pattern or Swing. A Group is composed of max. 20 entities of Preset/Pattern/Swings. (Max. 8 set of Group action can be stored)
- Privacy Masks are assignable, so as not to intrude on other's privacy. (4 Privacy Zones)

PTZ (PAN/TILT/ZOOM) CONTROL

- With RS-485 communication, a maximum of 255 cameras can be controlled at the same time.
- Pelco-D or Pelco-P protocol can be selected as a control protocol in the current firmware version.

OSD (ON-SCREEN DISPLAY)

- OSD menu is provided to display the status of camera and to configure the functions interactively.
- The information such as Camera ID, Pan/Tilt Angle, Alarm Input and Preset can be displayed on screen.

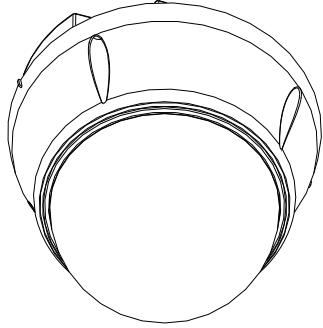
ALARM I/O FUNCTIONS

- 4 alarm sensor Inputs are available.
- To completely eliminate external electric noise and shock, alarm sensor Input is decoupled from photo coupler.
- The signal range of sensor Input is from 5 to 12 volts DC to adapt to various applications.
- If an external sensor is activated, camera can be set to move to the corresponding Preset position.

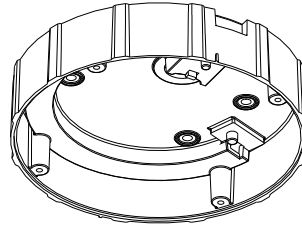
RESERVED PRESETS FOR SPECIAL PURPOSE

- Most camera characteristics can be set up easily and directly with reserved preset, without entering the OSD menu. For more information, refer to the *Reserved Preset* section in this manual.

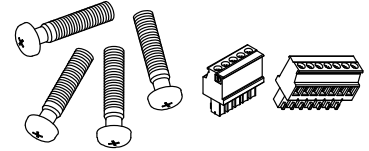
PRODUCT & ACCESSORIES



Main Body

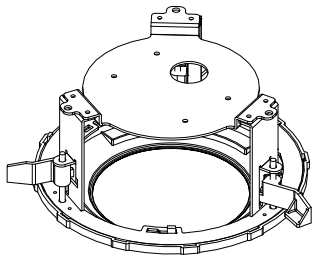


Surface Mount Bracket

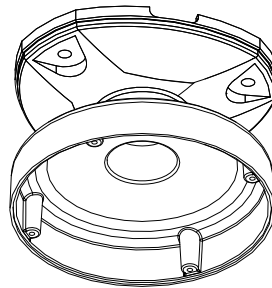


Screws and Terminal Block

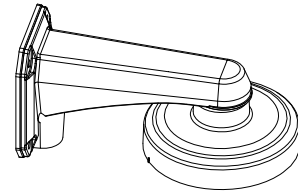
OPTIONAL ACCESSORIES



Flush Mount Kit

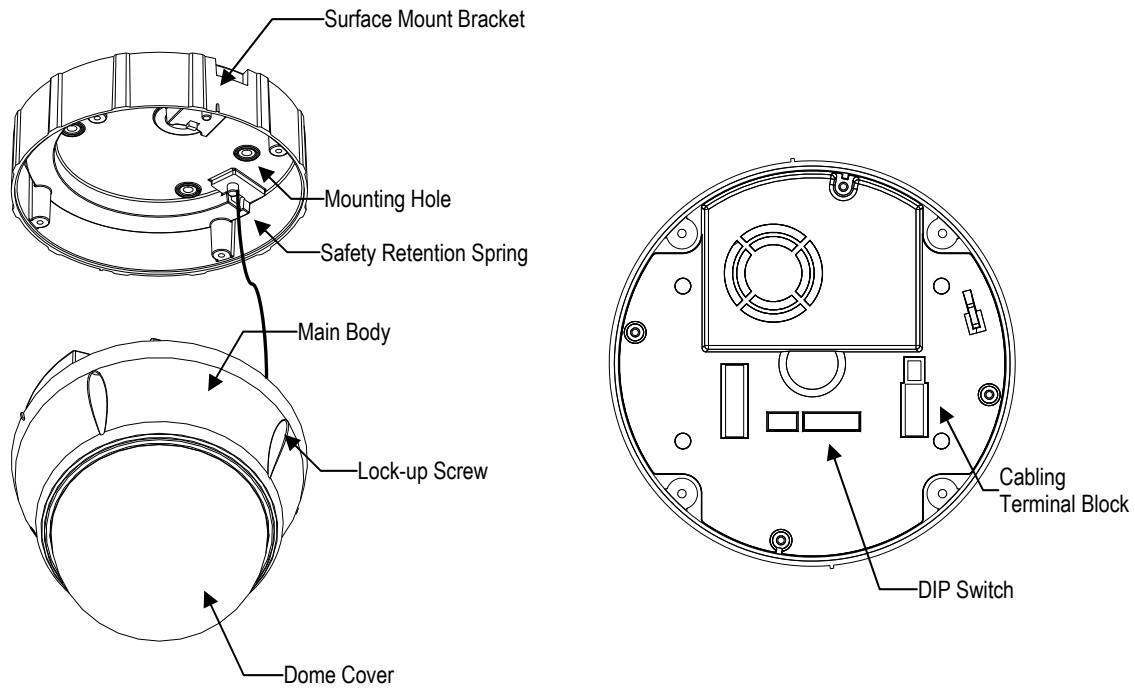


Ceiling Mount Bracket



Wall Mount Bracket

PART NAMES AND FUNCTIONS



Main Unit / Surface Mount Bracket

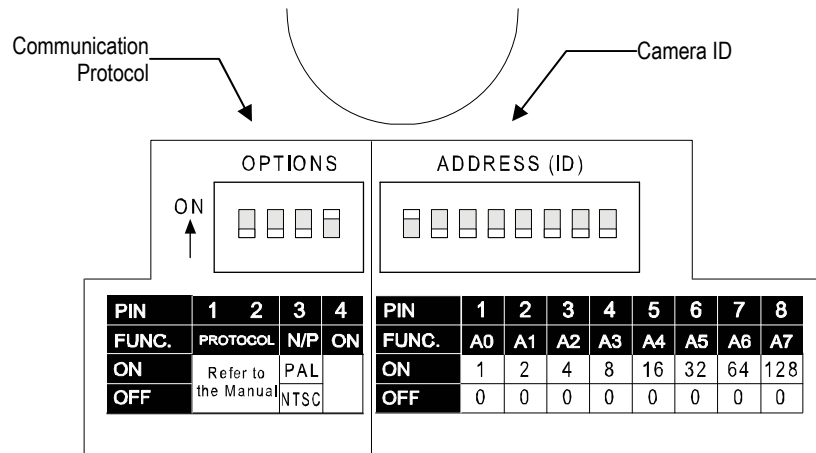
Back of Main Unit



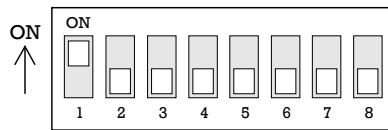
- Dome Cover** Do not remove protective vinyl from dome cover before finishing all installation processes to protect dome cover from scratches or dust.
- Surface Mount Bracket** Used to install the camera directly on the ceiling. Separate the cover first and then attach it directly to ceiling. Camera must be assembled at the last stage.
Do not use this bracket when installing camera on the wall with wall mount bracket or on the ceiling with ceiling mount bracket.
- Lockup Screw** Fixes main unit to surface mount bracket.
- Cabling Terminal Block** During installation, Power, Video, Communication, Alarm Input cables are connected on to this cabling terminal block.
- Safety Retention Spring** Pull out from Surface Mount Bracket and connect to Main Body hook.
- DIP Switch** Adjusts camera ID and protocols.

DIP SWITCH SETUP

Before you install the camera, you should set the DIP switches to configure the camera ID and communication protocol.



CAMERA ID SETUP



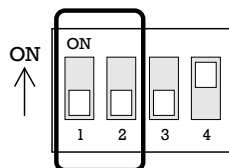
TIP: See the Appendix for a complete Camera ID switch setting table.

- ID number of camera is set using a binary number. Example is shown below.

Pin	1	2	3	4	5	6	7	8
ID Value	1	2	4	8	16	32	64	128
ex) ID=5	on	off	on	off	off	off	off	off
ex) ID=10	off	on	off	on	off	off	off	off

- The range of ID is 1~255. Do not use 0 as camera ID. Factory default of Camera ID is 1.
- If you want to control a certain camera, you must match the camera ID with Cam ID setting of DVR or Controller.

COMMUNICATION PROTOCOL SETUP

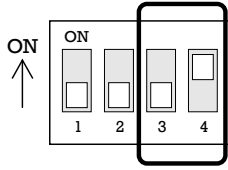


- Select the appropriate Protocol with DIP switch combination.

Switch State		Protocol
P0 (Pin 1)	P1 (Pin 2)	
OFF	OFF	PELCO-D, 2400 bps
ON	OFF	PELCO-D, 9600 bps
OFF	ON	PELCO-P, 4800 bps
ON	ON	PELCO-P, 9600 bps

- If you want to control using DVR or P/T controller, their protocol must be identical to camera. Otherwise, you cannot control the camera.
- If you changed camera protocol by changing DIP S/W, the change will be effective after you reboot the camera.
- Factory default of protocol is "Pelco-D, 2400 bps".

RESERVED FOR SUPPLIER

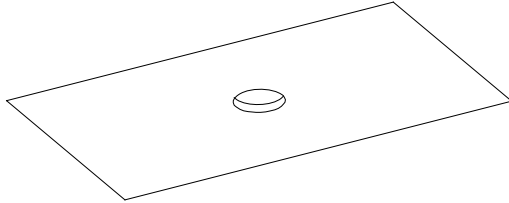


- Since Pin 3 ~ Pin 4 are only for supplier, DO NOT CHANGE THEIR ORIGINAL SETTINGS. If settings are changed, camera will not operate properly.
- ⦿ Pin 3 PAL / NTSC system selection of Camera. DO NOT CHANGE THIS PIN.
- ⦿ Pin 4 Factory default is ON. This pin is used for system firmware upgrade. DO NOT CHANGE THIS PIN.

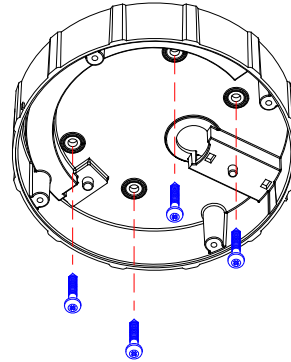
INSTALLATION

DIRECT INSTALLATION ON THE CEILING

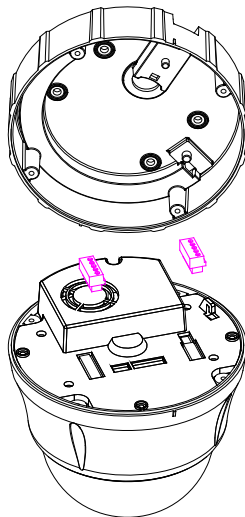
1. To pass cables to upside of ceiling, cut a 2~2.5 inch (50~60mm) hole in the ceiling panel.



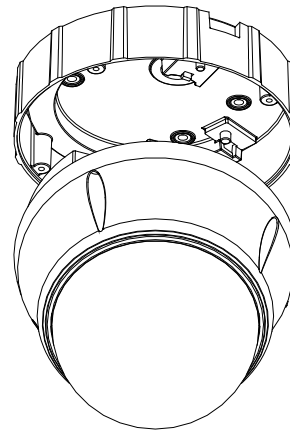
2. Fasten surface mount bracket to ceiling with 4 screws.



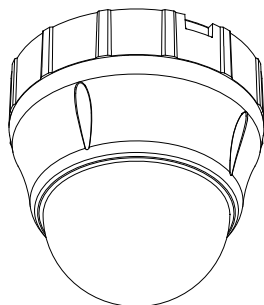
3. Wire cables to terminal block and connect the terminal blocks to main unit.



4. Fasten main unit to surface mount bracket with 4 lock-up screws.

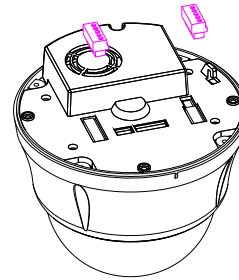
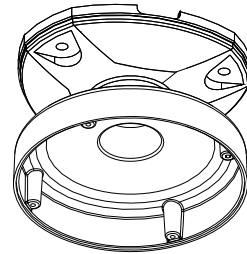
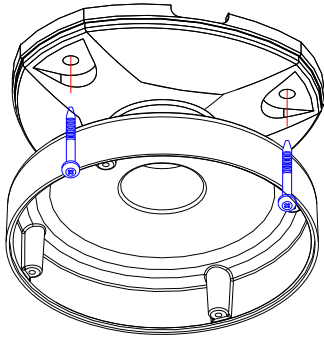


5. Remove protective vinyl from dome cover.

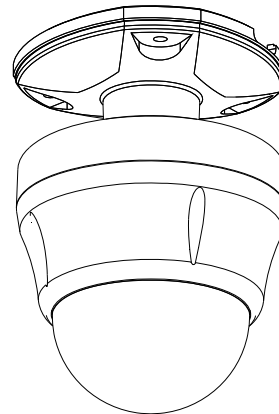
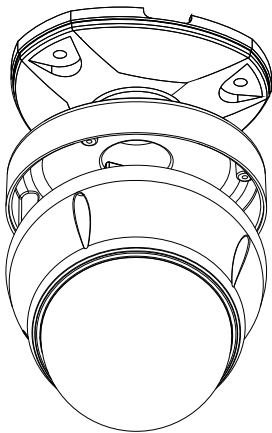


INSTALLATION USING THE CEILING MOUNT BRACKET

1. Fasten ceiling mount bracket to the ceiling with 3 screws.
2. Wire cables to terminals and connect the terminals to main unit. Do not use surface mount bracket!

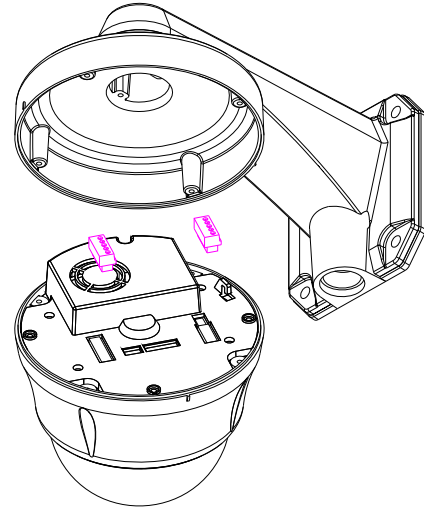
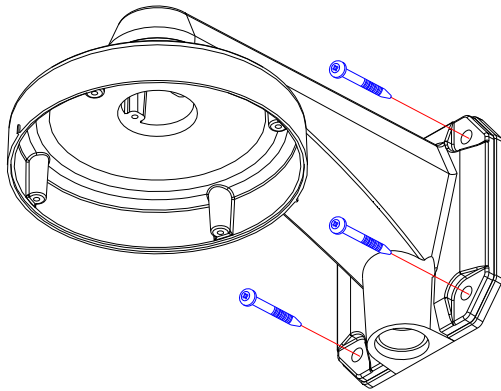


3. Fasten main unit to ceiling mount bracket with 4 screws.
4. Remove protective vinyl from dome cover.

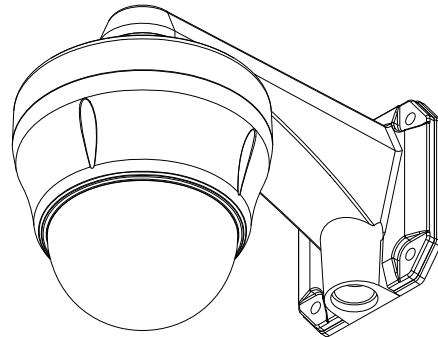
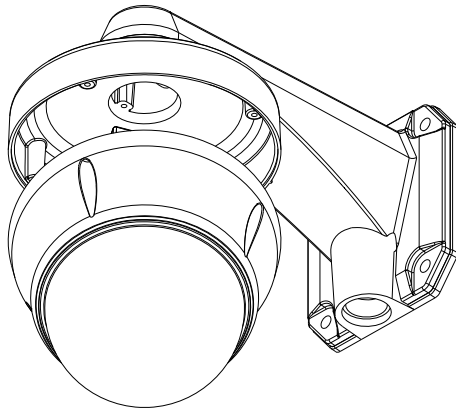


INSTALLATION USING THE WALL BRACKET

1. Fasten the wall bracket to the ceiling with 3 screws.
2. Wire cables to terminals and connect the terminals to main unit. Do not use surface mount bracket!

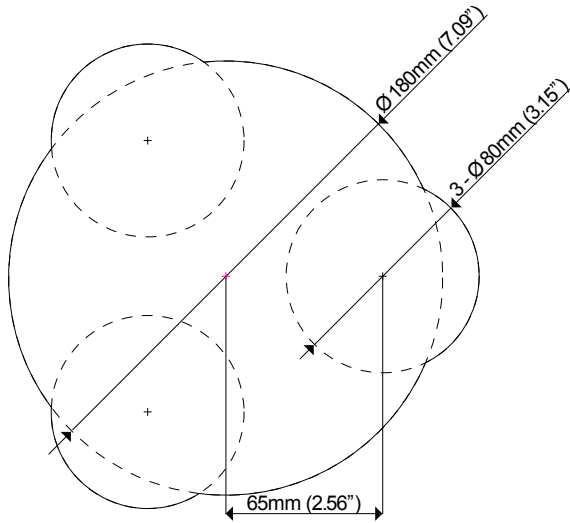


3. Fasten main unit to wall mount bracket with 4 screws.
4. Remove protective vinyl from dome cover.

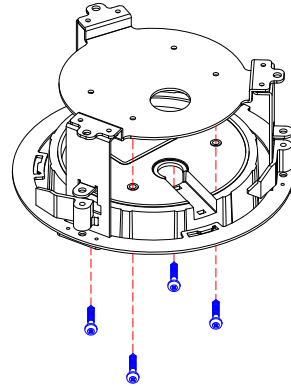


INSTALLATION WITH FLUSH MOUNT KIT

1. Cut holes in the ceiling. (Image not to scale)

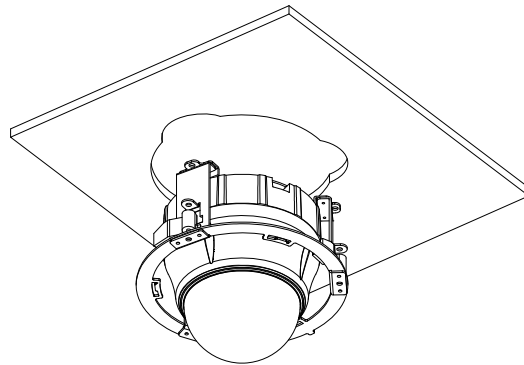
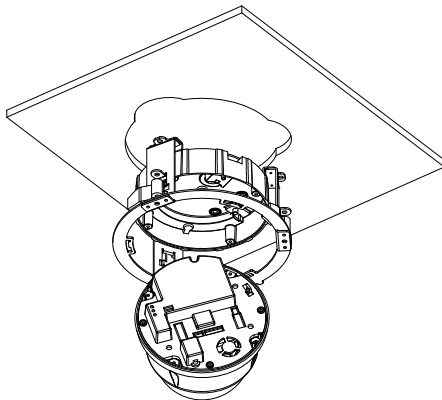


2. Align main body bracket with Flush Mount Kit. Fasten with screws.



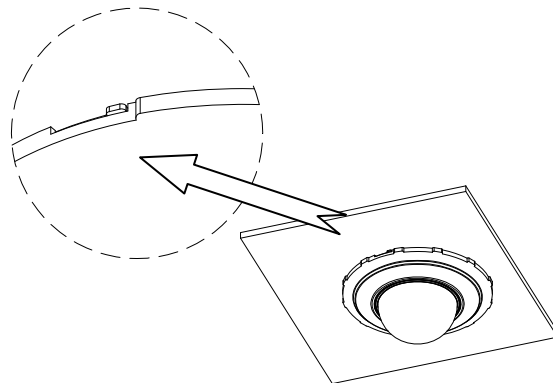
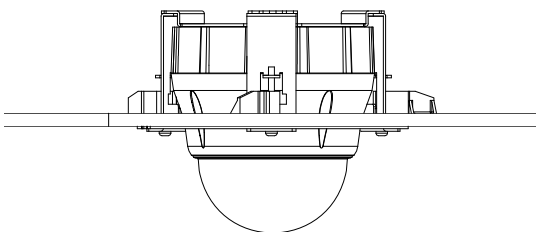
3. Connect fall-proof spring to main body hook. Assemble and fasten with screws.

4. Put main body and bracket assembly into main hole.

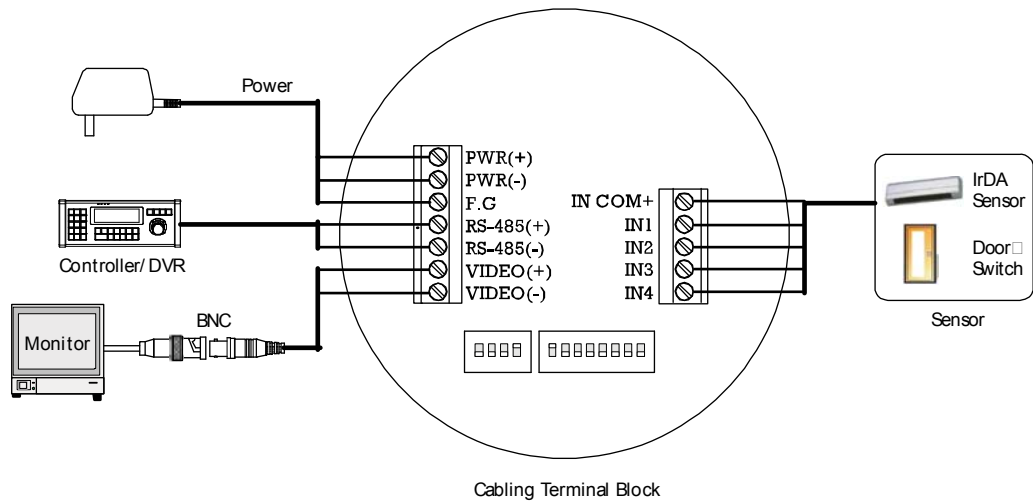


5. Secure Flush Mount Kit to the ceiling with screws through the 3 holes on the bracket.

6. Cover assembly with bracket cover and turn it clockwise.



CABLING



POWER CONNECTION

- Check the voltage and current capacity of rated power carefully. Rated power is indicated on the back of the main unit.

Rated Power	Input Voltage Range	Current Consumption
AC 24V	AC 17V ~ 29V	0.4 A

Grounding

The GND (ground) wire must be directly connected to the F.G. pin of the cabling terminal block. Failure to connect the ground can cause damage and failure of the camera and may void the warranty.

If the connection of the GND wire causes video noise, use a video isolator. This is only necessary in some situations.

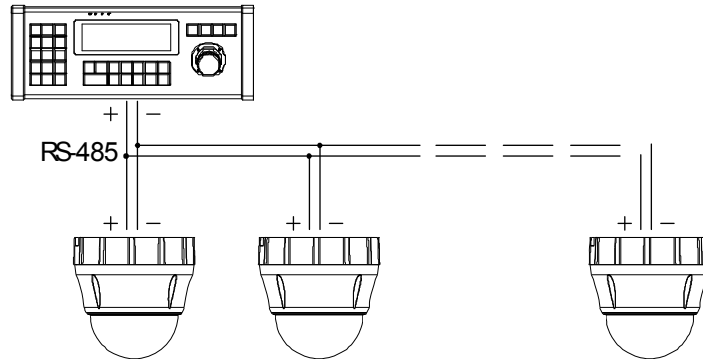
Power Wire Length Specifications

Wire Gauge	Maximum Distance
22	178 feet
20	284 feet
18	451 feet
16	716 feet
14	1138 feet
12	1811 feet
10	2886 feet

RS-485 COMMUNICATION

- For PTZ control, connect this line to the keyboard and DVR. To control multiple cameras at the same time, RS-485 communication lines to cameras are connected in parallel as shown below.
- OpenEye recommends Category 5 or 6 Twisted Pair Cable for the RS-485 wire

Keyboard Controller/ DVR

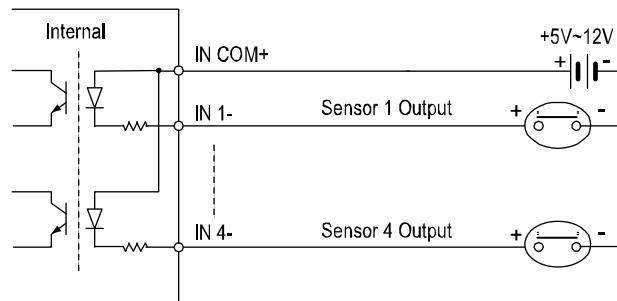


VIDEO CONNECTION

- Connect with BNC coaxial cable.

ALARM INPUT CONNECTION

Sensor Input



Before connecting sensors, check the sensor driver voltage and output signal type. Since sensor output signal types are divided into Open Collector and Voltage Output types in general, the cabling must be installed properly depending on the signal type.

Signal	Description
IN COM+	Connect (+) cable of electric power source for Sensors to this port as shown in the circuit above.
IN1-, IN2-, IN3-, IN4-	Connect output of sensors for each port as shown in the circuit above.

If you want to use Alarm Input, the type of sensor must be selected in OSD menu. The sensor types are Normal Open and Normal Close. If the sensor type is not selected properly, alarm activation will occur opposite of what is desired.

<input type="radio"/> Normal Open	Output Voltage is high state when sensor is activated
<input type="radio"/> Normal Close	Output Voltage is high state when sensor is not activated

NOTES:

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OPERATION

CHECK POINTS BEFORE OPERATION

- Before power is applied, please check the cables carefully.
- The camera ID of the controller must be identical to that of the target camera. The camera ID can be checked by reading the DIP switches on the camera.
- If your controller supports multiple protocols, the protocol must be changed to match to that of the camera.
- If you changed the camera protocol by changing the DIP switch, the change will be effective after you reboot the camera.
- Since the operation method can be different for each controller available, refer to the manual for your controller if camera cannot be controlled properly. The operation of this manual is based on the standard Pelco® Controller.

PRESET AND PATTERN FUNCTION PRE-CHECK

- Check controller or DVR preset and pattern function operation in advance to take advantage of full camera functions when using controller or DVR.
- Refer to the following table when using a standard Pelco® protocol controller.

< Go Preset >	Input [Preset Number] and press [Preset] button.
< Set Preset >	Input [Preset Number] and press [Preset] button for more than 2 seconds.
< Run Pattern >	Input [Pattern Number] and press [Pattern] button.
< Set Pattern >	Input [Pattern Number] and press [Pattern] button for more than 2 seconds.

- If the controller or DVR has no pattern button or function, use shortcut keys with preset numbers. For more information, refer to "Reserved Preset" in this manual.

STARTING OSD MENU

Function	Using the OSD menu, Preset, Pattern, Swing, Group and Alarm Input function can be configured for each application
Enter Menu	<Go Preset> [95]

RESERVED PRESET

Some Preset numbers are reserved to special functions.

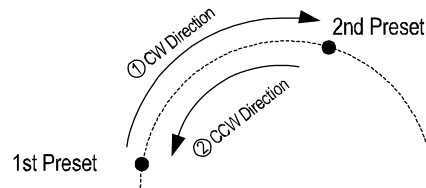
Function	Go Preset [95]	: Enters OSD menu
	Go Preset [131~134]	: Runs Pattern Function 1 ~ 4
	Go Preset [141~148]	: Runs Swing Function 1 ~ 8
	Go Preset [151~158]	: Runs Group Function 1 ~ 8
	Go Preset [170]	: Sets Camera BLC Mode to OFF
	Go Preset [171]	: Sets Camera BLC Mode to ON
	Go Preset [174]	: Sets Camera Focus Mode to AUTO
	Go Preset [175]	: Sets Camera Focus Mode to Manual
	Go Preset [176]	: Sets Camera Focus Mode to SEMI-AUTO
	Go Preset [177]	: Sets Day & Night Mode to AUTO
	Go Preset [178]	: Sets Day & Night Mode to NIGHT
	Go Preset [179]	: Sets Day & Night Mode to DAY
	Go Preset [190]	: Sets OSD Display Mode to AUTO (Except Privacy Mask)
	Go Preset [191]	: Sets OSD Display Mode to OFF (Except Privacy Mask)
	Go Preset [192]	: Setting OSD Display Mode to ON (Except Privacy Mask)
	Go Preset [193]	: Sets all Privacy Mask Display to OFF
	Go Preset [194]	: Sets all Privacy Mask Display to ON

PRESET

Function	Max. 127 positions can be stored as Preset position. The Preset number can be assigned from 1 to 128, but 95 is reserved for starting OSD menu. Camera characteristics (i.e. White Balance, Auto Exposure) can be set up independently for each preset. The label should be left blank and "Camera Adjust" should be set to "GLOBAL" as default. All characteristics can be set up in the OSD menu.
Set Preset	<Set Preset> [1~128]
Run Preset	<Go Preset> [1~128]
Delete Preset	To delete Preset, use OSD menu.

SWING

Function	By using the Swing function, you can make the camera move between two Preset positions repeatedly. When the swing function runs, the camera moves from the preset assigned as the 1st point to the preset assigned as the 2nd point in a CW (Clockwise) direction. Then the camera moves from the preset assigned as the 2nd point to the preset assigned as the 1st point in a CCW (Counterclockwise) direction.
----------	---



If the preset assigned as the 1st point is the same as the preset assigned as the 2nd point, the camera will turn 360° in a CW (Clockwise) direction, then 360° in a CCW (Counterclockwise) direction.

Speed can be set up from 1°/sec to 180°/sec.

Set Swing	To set Swing, use OSD menu.	
Run Swing	Method 1) <Run Pattern> [Swing NO.+10] Method 2) <Go Preset> [Swing NO.+140]	ex) Run Swing 3 : <Run Pattern> [13] ex) Run Swing 3 : <Go Preset> [143]
Delete Swing	To delete Swing, use OSD menu.	

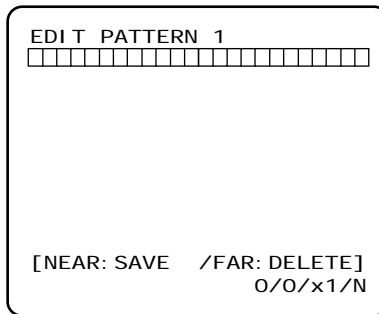
PATTERN

Function Pattern Function allows the camera to memorize a path (often a curved path) created by a controller joystick for an assigned time. The camera will then retrace the path exactly as memorized.
4 Patterns are available and a Maximum of 1200 communication commands can be stored in a pattern.

Set Pattern Patterns can be created by one of following two methods.

Method 1) <Set Pattern> [Pattern NO.]

- Pattern editing screen is displayed as bellow.



- Movement by Joystick and preset movement can be memorized in a pattern.
- The remaining memory size is displayed in progress bar.
- To save the recording, press NEAR key and to cancel, press FAR key.

Method 2) OSD Using OSD Menu: See the section "How to use OSD Menu".

Run Pattern Method 1) <Run Pattern> [Pattern NO.] ex) Run Pattern 2 : <Run Pattern> [2]

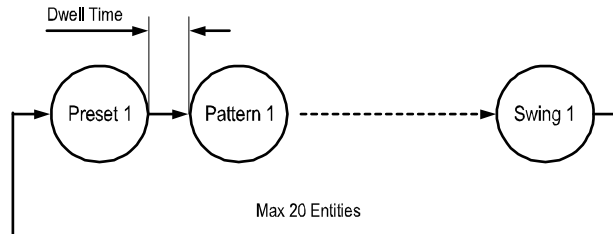
Method 2) <Go Preset> [Pattern NO.+130] ex) Run Pattern 2: <Go Preset> [132]

Delete Pattern Use OSD menu to delete a Pattern.

GROUP

Function

The group function allows a running sequence of Presets, Pattern and/or Swings. Max 8 groups can be stored. Each group can have max 20 action entities which can be preset, pattern or swing. Preset speed can be set up and the repeat number of Pattern & Swing can be set up in Group setup. Dwell time between actions can also be set up.



Set Group

Use OSD Menu to create a Group.

Run Pattern

Method 1) <Run Pattern> [Group NO.+20]

ex) Run Group 7 : <Run Pattern> [27]

Method 2) <Go Preset> [Group NO.++150]

ex) Run Group 7 : <Go Preset> [157]

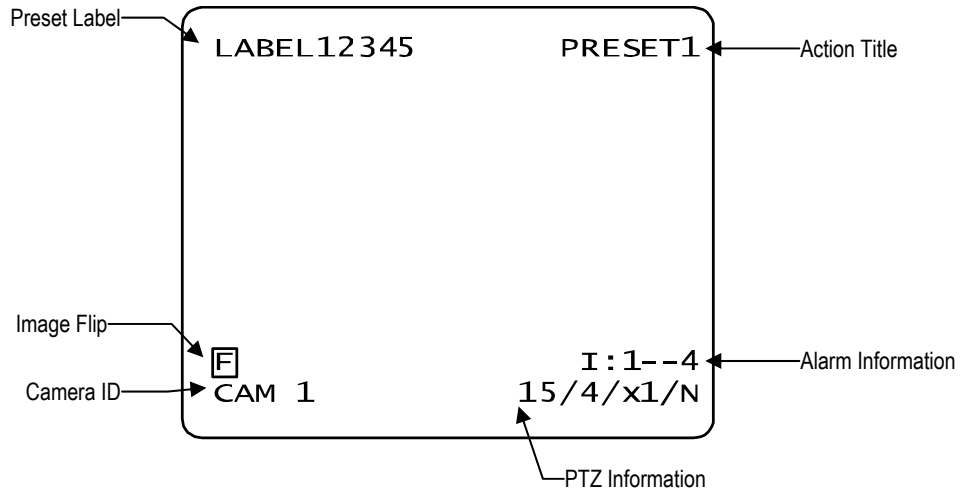
Delete Pattern

Use OSD menu to delete a Group.

OTHER FUNCTIONS

Power Up Action	This function enables the camera to resume the last action executed before power down. Most actions such as Preset, Pattern, Swing and Group are available for this function, but Jog actions cannot be resumed.
Auto Flip	If the tilt angle arrives at the top of tilt orbit (90°), zoom module camera will keep moving in the opposite tilt direction (180°) to keep tracing targets. As soon as zoom module camera passes through the top of tilt direction (90°), images will be reversed automatically and the F symbol appears on screen. If this function is set to OFF, tilt movement range is 0 ~ 95°.
Parking Action	This function sets the camera to a specific position automatically if operator doesn't operate the controller for a while. The Park Time can be defined as an interval from 1 minute to 4 hours.
Alarm Input	4 Alarm Inputs are used. If an external sensor is activated, the camera can be set to move to corresponding preset position. Note: the latest alarm input is in effect if multiple sensors are activated.
Privacy Zone Mask	To protect privacy, max. 4 Privacy Masks can be created in arbitrary locations to hide objects such as windows, shops or private houses. With the Spherical Coordinates system, a powerful Privacy Zone Mask function is available.
GLOBAL/LOCAL Image Setup	<p>WB (White Balance) and AE (Auto Exposure) can be set up independently for each preset. There are 2 modes, "Global" mode & "Local" mode. The Global mode means that WB or AE can be set up simultaneously for all presets in the "ZOOM CAMERA SETUP" menu. The Local mode means that WB or AE can be set up independently or separately for each preset in each preset setup menu. Each Local WB/AE value will activate correspondingly as the camera arrives at each preset location.</p> <p>During jog operation, Global WB/AE values should be applied. All Local WB/AE values will not change although Global WB/AE value changes.</p>
SemiAuto Focus	<p>Automatically selects focus mode from Manual Focus or Auto Focus depending on type of operation. Manual Focus mode activates in preset operation and Auto Focus mode activates during jog operation. In Manual mode, Focus data for each preset is memorized in advance, and the camera calls focus data for corresponding presets as soon as it arrives at a preset. This method shortens focus times.</p> <p>Focus mode changes to Auto Focus mode automatically when jog operation starts.</p>

OSD OF MAIN SCREEN



P/T/Z Information Current Pan/Tilt angle in degree, zoom magnification and a compass direction.

Camera ID Current Camera ID(Address).

Action Title Followings are possible Action Titles and their meaning.

- "SET PRESET xxx" When Preset xxx is stored
- "PRESET xxx" When camera reach to Preset xxx
- "PATTERN x" When Pattern x is in action
- "SWGx/PRESET xxx" When Swing x is in action
- "UNDEFINED" When undefined function is called to run

Preset Label The Label stored for specific Preset.

Alarm Input This information shows current state of Alarm Input. If an Input point is ON it will show a number corresponding to each point. If an Input point is OFF, '-' will be displayed.
Example - if points 2 & 3 of inputs are ON, the OSD will show as below:

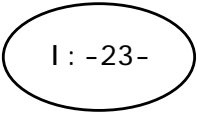


Image Flip Indicates that images are currently reversed by Auto Flip Function.

HOW TO USE THE OSD MENU

GENERAL RULES OF KEY OPERATION FOR MENU

- The menu items surrounded with () always have a sub menu.
- At all menu levels, to go into sub menu, press the FOCUS NEAR key.
- To go to up one menu level, press the FOCUS FAR key.
- To move from items to item in the menu, use joystick in the Up/Down or Left/Right.
- To change a value of an item, use Up/Down of the joystick in the controller.
- Press the FOCUS NEAR key to save values and Press the FOCUS FAR key to cancel values.

MAIN MENU

```

SPEED DOME CAMERA
-----
-><SYSTEM INFORMATION>
<DISPLAY SETUP>
<DOME CAMERA SETUP>

<SYSTEM INITIALIZE>

EXIT
    
```

System Information	Displays system information and configuration.
Display Setup	Enable/Disable of OSD display on Main Screen.
Dome Camera Setup	Configure various functions of this camera.
System Initialize	Initializes system configuration and sets all data to factory default configuration.

DISPLAY SETUP

```

DISPLAY SETUP
-----
->CAMERA ID          ON
PTZ INFORMATION     AUTO
ACTION TITLE        AUTO
PRESET LABEL         AUTO
ALARM INPUT          AUTO
<SET NORTH DIRECTION>
<PRIVACY ZONE>

BACK
EXIT
    
```

This menu defines Enable/Disable of OSD display on Main Screen. If an item is set to be AUTO, the item is displayed only when the value of it is changed.

Camera ID	[ON/OFF]
PTZ Information	[ON/OFF/AUTO]
Action Title	[ON/OFF/AUTO]
Preset Label	[ON/OFF/AUTO]
Alarm Input	[ON/OFF/AUTO]

COMPASS DIRECTION SETUP

```

SET NORTH DIRECTION
-----

MOVE TO TARGET POSITION
[NEAR: SAVE /FAR: CANCEL
    
```

Set North to assign compass direction as criteria. Move camera and press NEAR button to save.

PRIVACY ZONE MASK SETUP

```

PRIVACY ZONE
-----
->MASK NO      1
                UNDEFINED
DI SPLAY      OFF
CLEAR MASK    CANCEL
<EDIT MASK>

BACK
EXIT
    
```

Select area in image to mask.

Mask No	[1~4]	Select Mask number. If the selected mask has already data, camera moves as it was set. Otherwise, "UNDEFINED" will be displayed under "Mask NO".
Display	[ON/OFF]	Sets if camera makes mask shows or not on images.
Clear Mask	[CANCEL/OK]	Deletes data in the selected mask NO.

PRIVACY ZONE AREA SETUP

```


EDIT MASK 1
-----

MOVE TO TARGET POSITION
[NEAR: SELECT/FAR: CANCEL]
    
```

Move camera to the area to mask. Then the menu to adjust mask size will be displayed.

PRIVACY ZONE SIZE ADJUSTMENT

```

EDIT MASK 1
-----

[◀▶: ADJUST MASK WIDTH]
[▲▼: ADJUST MASK HEIGHT]
[NEAR: SAVE /FAR: CANCEL]
    
```

Adjust mask size. Use joystick or arrow buttons to adjust mask size.

◀ ▶ (Left/Right)	◀ ▶ (Left/Right)
▲ ▼ (Up/Down)	▲ ▼ (Up/Down)

CAMERA SETUP

```

ZOOM CAMERA SETUP
-----
-> FOCUS MODE      SEMI AUTO
   DIGITAL ZOOM   ON
   LINE LOCK      OFF
   <WHITE BALANCE SETUP>
   <AUTO EXPOSURE SETUP>

BACK
EXIT
    
```

Setup the general functions of zoom camera module.

- Focus Mode** [AUTO/MANUAL/SEMIAUTO]
 Sets camera focus mode.
SEMIAUTO Mode
 Automatically selects focus mode from Manual Focus or Auto Focus depending on type of operation. Manual Focus mode activates in preset operation and Auto Focus mode activates during jog operation. In Manual mode, Focus data for each preset is memorized in advance, and the camera calls focus data for corresponding presets as soon as it arrives at a preset.
- Digital Zoom** [ON/OFF]
 Sets digital zoom function to ON/OFF. When set to OFF, optical zoom function runs but zoom function stops at the end of optical zoom magnification.
- Line Lock** [ON/OFF]
 If Line lock sync is ON, video signal is synchronized with AC power. Video can be fluctuated after setting is changed.

WHITE BALANCE

```

WB SETUP - GLOBAL
-----
-> WB MODE      AUTO
   ● RED ADJUST  ---
   ● BLUE ADJUST ---

BACK
EXIT
    
```

- WB Mode** [AUTO/MANUAL]
 In Manual mode, Red and Blue level can be set up manually
- Red Adjust** [10~60]
- Blue Adjust** [10~60]

AE SETUP (AUTO EXPOSURE)

AE SETUP - GLOBAL			
→BACKLIGHT	OFF	Backlight	[ON/OFF] Sets Backlight Compensation
DAY/NIGHT	AUTO1	Day/Night	[AUTO1/AUTO2/DAY/NIGHT] AUTO1 exchanges Day/Night mode faster than AUTO2.
BRIGHTNESS	25	Brightness	[0~100] Adjusts brightness of images. Iris, Shutter Speed and Gain are adjusted automatically in correspondence with this value.
IRIS	AUTO	IRIS	[AUTO/MANUAL(0~100)] If Iris is set to Auto, Iris should have highest priority in adjusting AE and Shutter Speed should be fixed. If Iris is set to Manual, Iris should be fixed and Iris has lower priority in adjusting AE, in comparison with others.
SHUTTER	ESC	Shutter Speed	[ESC/A.Flicker/Manual(×128~1/120000 sec)] If Iris is set to Manual and Shutter Speed is set to ESC (Electronic Shutter Control), Shutter Speed should have highest priority. If Shutter Speed is set to A.Flicker, to remove Flicker, Shutter Speed should be set to 1/100 sec.
AGC	NORMAL	AGC	[OFF/NORMAL/HIGH] Enhances image brightness automatically in case that luminance level of image signal is too low.
SSNR	MIDDLE	SSNR	[OFF/LOW/MIDDLE/HIGH] Enhances images by filtering noise when the level of Electronic Gain is too high and creates noise.
SENS-UP	<AUTO>	SENS-UP	[AUTO(2~128)/OFF] Activates Slow Shutter function when luminance of image (signal) is too dark. It is possible to set up the maximum number of frames stacked on one another by Slow Shutter function.

MOTION SETUP

MOTION SETUP

```

-----
->MOTION LOCK      OFF
PWR UP ACTION     ON
AUTO FLIP         ON
JOG MAX SPEED     120/SEC
JOG DIRECTION     INVERSE
FRZ IN PRESET     OFF
<PARKING ACTION SETUP>
<ALARM INPUT SETUP>
BACK
EXIT
    
```

Setup the general functions of Pan/Tilt motions.

Motion Lock	[ON/OFF]	If Motion Lock is set to ON, it is impossible to set up and delete Preset, Swing, Pattern and Group. It is only possible to run these functions. To set up and delete these functions, enter into OSD menu.
Power Up Action	[ON/OFF]	Refer to "Other Functions" section.
Auto Flip	[ON/OFF]	Refer to "Other Functions" section.
Jog Max Speed	[1°/sec ~360°/sec]	Sets maximum jog speed. Jog speed is inversely proportional to zoom magnification. As zoom magnification goes up, pan/tilt speed goes down.
Jog Direction	[INVERSE/NORMAL]	If you set this to 'Inverse', the view on the screen will move in the same direction as jog tilt. If 'Normal' is selected, the view on the screen will move in the opposite direction.
Freeze in Preset	[ON/OFF]	At start point of preset movement, camera will freeze the image of start point. Camera keeps displaying the image of start point during preset movement and does not display the images received during preset movement. As soon as camera stops at preset end point, camera will display live images received at the preset end point. Availability of this function will vary by model.

PARKING ACTION SETUP

PARKING ACTION SETUP

```

-----
->PARK ENABLE      OFF
WAIT TIME         00: 10: 00
PARK ACTION       HOME
    
```

```

BACK
EXIT
    
```

If Park Enable is set to ON, camera runs assigned function automatically if there is no PTZ command during assigned "Wait Time".

Park Enable	[ON/OFF]	
Wait Time	[1 minute ~ 4 hour]	The time is displayed with "hh:mm:ss" format and can be changed in 1 min units.
Park Action	[HOME/PRESET/PATTERN/SWING/GROUP]	<u>HOME</u> Camera moves to home position if there is no PTZ command during assigned "Wait Time".

ALARM INPUT SETUP

```

ALARM INPUT SETUP
-----
->ALARM1 TYPE  N. OPEN
  ALARM2 TYPE  N. OPEN
  ALARM3 TYPE  N. OPEN
  ALARM4 TYPE  N. OPEN
  ALARM1 ACT   NOT USED
  ALARM2 ACT   NOT USED
  ALARM3 ACT   NOT USED
  ALARM4 ACT   NOT USED
  BACK
  EXIT
    
```

Matches the Alarm sensor input to one of Preset positions. If an external sensor is activated, camera will move to corresponding preset position when this item is predefined.

Alarm × Type [Normal OPEN/Normal CLOSE]
Sets sensor input type.

Alarm × Action [NOT USED/PRESET 1~128]
Assign counteraction Preset position to each Alarm input.

PRESET SETUP

```

PRESET SETUP
-----
->PRESET NO.    1

  CLR PRESET    CANCEL
  <EDIT SCENE>
  <EDIT LABEL> LABEL123
  CAM ADJUST    GLOBAL

  BACK
  EXIT
    
```

Preset Number [1~128]
If a selected preset is already defined, camera moves to pre-defined position and preset characteristics such as Label and Relay Outputs show on monitor. If a selected preset is not defined, "UNDEFINED" shows on monitor.

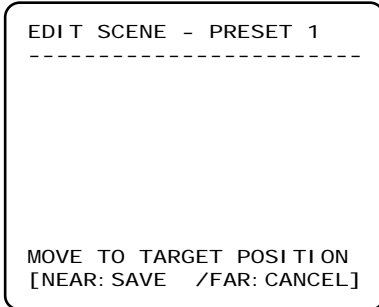
Clear Preset [CANCEL/OK]
Delete current Preset data

Edit Preset Scene Redefine current Preset scene position (i.e. PTZ).

Edit Preset Label Edits Label to show on monitor when preset runs. MAX. 10 alphabets are allowed.

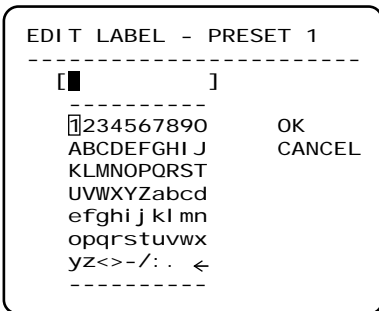
CAM Adjust [GLOBAL/LOCAL]
WB(White Balance) and AE(Auto Exposure) can be set up independently for each preset. There are 2 modes, "Global" mode & "Local" mode. The Global mode means that WB or AE can be set up totally and simultaneously for all presets in "ZOOM CAMERA SETUP" menu.
The Local mode means that WB or AE can be set up independently or separately for each preset in each preset setup menu. Each Local WB/AE value should activate correspondingly when camera arrives at each preset location. During jog operation, Global WB/AE value should be applied.
All Local WB/AE values should not change although the Global WB/AE value changes. If "Local" is selected, Menu to set WB/AE shows on monitor.

EDIT PRESET SCENE



1. Using Joystick, move camera to desired position.
2. By pressing NEAR key, save current PTZ data.
3. Press FAR key to cancel.

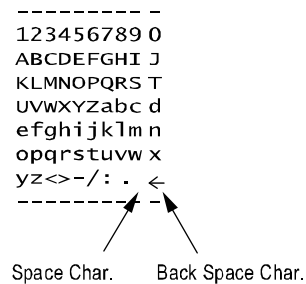
EDIT PRESET LABEL



1. Edits label to show on monitor when camera arrives at presets. In Edit Label menu, a reverse rectangle is the cursor. As soon as alphabetic selection is complete, the cursor will move to the next digit.



2. Using Left/Right/Up/Down of joystick, move to an appropriate character from the Character set. To choose the character, press the NEAR key.



3. If you want to use blank, choose Space character (" "). If you want to delete a character before, use back space character ("←").
4. When you complete the Label editing, move cursor to "OK" and press NEAR key to save completed label. To abort current change, move cursor to "Cancel" and press NEAR key.

SWING SETUP

```

SWING SETUP
-----
-> SWING NO.      1
   1ST POS.      NOT USED
   2ND POS.      NOT USED

SWING SPEED     30/SEC
CLEAR SWING     CANCEL

BACK
EXIT
    
```

Swing Number

[1~8]

Select Swing number to edit. If a selected Swing is not defined, "NOT USED" is displayed in 1st Position and 2nd Position

1st Position

[PRESET 1~128]

2nd Position

Set up the 2 position for Swing function. If a selected preset is not defined, "UNDEFINED" will be displayed as shown below.

```

          SWING SETUP
          -----
          SWING NO.      1
          1ST POS.      PRESET5
          2ND POS.      NOT USED
                      ──> UNDEFINED
    
```

When swing function runs, the camera will move from the preset assigned as the 1st point to the preset assigned as the 2nd point in a CW (Clockwise) direction. Then the camera will move from the preset assigned as the 2nd point to the preset assigned as the 1st point in a CCW (Counterclockwise) direction. If the preset assigned as the 1st point is same as the preset assigned as the 2nd point, the camera will turn 360° in CW direction and then turn 360° in CCW direction.

Swing Speed

[1°/sec ~180°/sec]

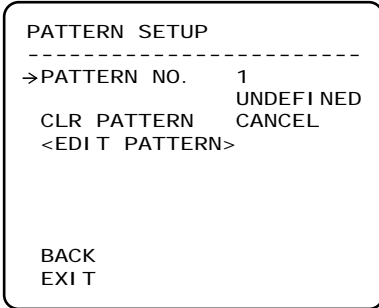
Sets Swing speed from 1°/sec to 180°/sec.

Clear Swing

[CANCEL/OK]

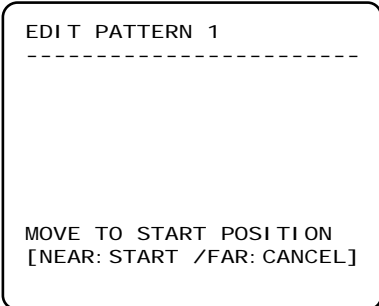
Deletes current Swing data.

PATTERN SETUP

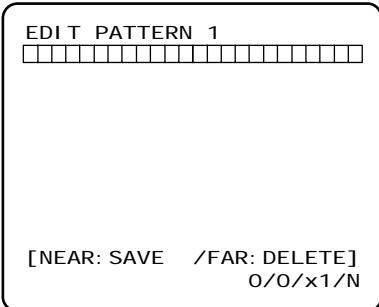


Pattern Number	[1~4] Selects Pattern number to edit. If a selected pattern number is not defined, "UNDEFINED" will be displayed under selected pattern number.
Clear Pattern	[CANCEL/OK] Deletes data in current pattern
Edit Pattern	Starts editing pattern.

EDIT PATTERN



1. Using Joystick, move to start position with appropriate zoom. To start pattern recording, press NEAR key. To exit this menu, press FAR key.



2. Move camera with controller joystick or run preset function to memorize a path (often a curved path) in a selected pattern. The total memory size and remaining memory size are displayed in the form of a bar. Maximum 1200 communication commands can be stored in a pattern.
3. To save data and exit, press NEAR key. To cancel recording and delete record data, press FAR key.

GROUP SETUP

```

GROUP SETUP
-----
->GROUP NO.      1
                UNDEFINED
CLEAR GROUP     CANCEL
<EDIT GROUP>

BACK
EXIT
    
```

Group Number [1-8]
 Selects Group number to edit.
 If a selected Group number is not defined, "UNDEFINED" will be displayed under selected Group number.

Clear Group [CANCEL/OK]
 Deletes data in current Group

Edit Group Starts editing Group.

EDIT GROUP

```

EDIT GROUP 1
-----
->NO ACTION ### DWELL OPT
-----
1 NONE
2 NONE
3 NONE
4 NONE
5 NONE
-----
SAVE
CANCEL [NEAR: EDIT]
    
```

1. Press Near key in "NO" list to start Group setup.

```

EDIT GROUP 1
-----
NO ACTION ### DWELL OPT
-----
-> 1 NONE
2 NONE
3 NONE
4 NONE
5 NONE
-----
SAVE [NEAR: EDIT ACT]
CANCEL [FAR : EDIT END]
    
```

2. Note that MAX. 20 Functions are allowed in a Group. Move cursor up/down and press Near key to set up.

```

EDIT GROUP 1
-----
NO ACTION ### DWELL OPT
-----
1 NONE
2 NONE
3 NONE
4 NONE
5 NONE
-----
SAVE [◀▶: MOVE CURSOR]
CANCEL [▲▼: CHANGE VAL. ]
    
```

3. Set up Action, Dwell time and Option. Note that selected item is displayed in reverse. Move cursor Left/Right to select items and move cursor Up/Down to change each value.

Action ### [NONE/PRESET/SWING/PATTERN]

DWELL [0 second ~ 4 minutes]
 Sets Dwell Time between functions

OPT Option. Displays the preset speed when preset is set in Action. Displays the number of repeats when Pattern or Swing is selected in Action

```

EDIT GROUP 1
-----
NO ACTION ### DWELL OPT
-----
1 PRESET  [ ] 00: 03 360
2 NONE
3 NONE
4 NONE
5 NONE
-----
SAVE  [◀▶: MOVE CURSOR]
CANCEL [▲▼: CHANGE VAL. ]

```

4. Set up items such as Action, ###, Dwell and OPT.

```

EDIT GROUP 1
-----
NO ACTION ### DWELL OPT
-----
→ 1 PRESET  1 00: 03 360
2 NONE
3 NONE
4 NONE
5 NONE
-----
SAVE  [NEAR: EDIT ACT]
CANCEL [FAR : EDIT END]

```

5. After finishing setup of an Action, press Near key to one-upper-level menu(Step 2). Move cursor Up/Down to select Action number and repeat Step 2 ~ Step 4 to edit selected Group.

```

EDIT GROUP 1
-----
NO ACTION ### DWELL OPT
-----
1 PRESET  1 00: 03 360
2 NONE
3 NONE
4 NONE
5 NONE
-----
→SAVE
CANCEL

```

6. After finishing setup of all Actions, press FAR key to exit. Then cursor should be moved to "SAVE". Press Near key to save data.

SYSTEM INITIALIZE

```

SYSTEM INITIALIZE
-----
->CLEAR ALL DATA      NO
  ●CLR DISPLAY SET    NO
  ●CLR CAMERA SET     NO
  ●CLR MOTION SET     NO
  ●CLR EDIT DATA     NO
  REBOOT CAMERA       NO
  REBOOT SYSTEM       NO

  BACK
  EXIT
    
```

- Clear All Data Deletes all configuration data such as display, camera, motion setup and so on.
- Clear Display Set Initializes Display Configuration
- Clear Camera Set Initializes Camera Configuration
- Clear Motion Set Initializes Motion Configuration
- Clear Edit Data Deletes Preset Data, Swing Data, Pattern Data and Group Data
- Reboot Camera Reboots Zoom Camera module
- Reboot System Reboots Speed Dome Camera

INITIAL CONFIGURATION TABLE

Display Configuration		Camera Configuration	
Camera ID	ON	Focus Mode	SemiAuto
PTZ Information	AUTO	Digital Zoom	ON
Action Title	AUTO	Line Lock	OFF
Preset Label	AUTO	White Balance	AUTO
Alarm Input	AUTO	Backlight	OFF
North Direction	Pan 0°	Day&Night	AUTO1
Privacy Zone	Undefined	Brightness	25
		Iris	AUTO
		Shutter	ESC
		AGC	NORMAL
		SSNR	MIDDLE
		SENS-UP	AUTO (4 Frame)
Motion Configuration		User Edit Data	
Motion Lock	OFF	Preset 1~128	Undefined
Power Up Action	ON	Swing 1~8	Undefined
Auto Flip	ON	Pattern 1~4	Undefined
Jog Max Speed	120°/sec	Group 1~8	Undefined
Jog Direction	INVERSE		
Freeze In Preset	OFF		
Park Action	OFF		
Alarm Action	OFF		

NOTES:

APPENDIX: CAMERA ID

Camera ID	bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8
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
13	On	Off	On	On	Off	Off	Off	Off
14	Off	On	On	On	Off	Off	Off	Off
15	On	On	On	On	Off	Off	Off	Off
16	Off	Off	Off	Off	On	Off	Off	Off
17	On	Off	Off	Off	On	Off	Off	Off
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Camera ID	bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8
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254	Off	On	On	On	On	On	On	On
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NOTES:

APPENDIX: SPECIFICATIONS

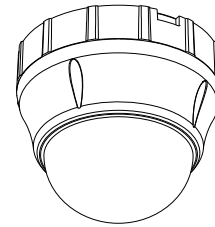
CAMERA SPECIFICATIONS

Model		CM-410
Camera	CCD	1/4" Interline Transfer CCD
	Max. Pixels	811(H)×508(V) 410K
	Effective Pixels	768(H)×494(V) 380K
	Horizontal Res.	500 TV (Color), 570 TV (B/W)
	S/N Ratio	50 dB (AGC Off)
	Zoom	×10 Optical Zoom, ×10 Digital Zoom
	Focal length	F1.8, f=3.8~38mm
	Min. illumination	0.7 Lux (Color) / 0.02 Lux (B/W), 50 IRE
	Day & Night	Auto / Day / Night(ICR)
	Focus	Auto / Manual / SemiAuto
	Iris	Auto / Manual
	Shutter Speed	×128 ~ 1/120000 sec
	AGC	Normal / High / Off
	White Balance	Auto / Manual(Red, Blue Gain Adjustable)
	BLC	Low / Middle / High / Off
	Flickerless	Selectable
SSNR	Low / Middle / High / Off	
Pan/Tilt	Range	Pan : 360°(Endless)
		Tilt : 180° (Auto-Flip), 95° (Normal)
	Pan/Tilt Speed	Preset : 360°/sec
		Manual : 0.05 ~ 360°/sec (proportional to zoom)
		Swing : 1~ 180°/sec
	Preset	127 Preset (Label, Camera Image Setting)
	Pattern	4 Pattern, 1200 commands(about 5 minute)/Pattern
Swing	8 Swing	
Group	8 Group (20 action entities per Group)	
Other Functions	Auto Flip, Auto Parking, Power Up Action etc.	
General	Communication	RS-485
	Protocol	Pelco-D, Pelco-P selectable
	Privacy Zone	4 Zone
	Alarm Input	4 Input
	OSD	Menu / PTZ information etc
	Rated Power**	AC 24V / 0.4A
	Dimension	Dome : Ø115
		Housing : Ø154.5 × 158.5(H) mm
	Weight	about 1.3 Kg
Operating Temp.	0°C ~ 40°C	

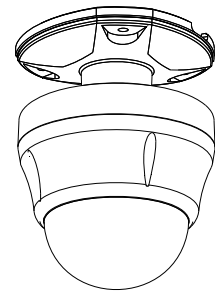
* Specifications of this product are subject to change without notice.

** Check the voltage and current capacity of rated power carefully.

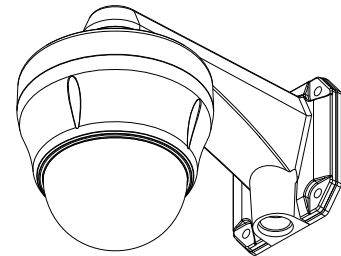
■ Appearance



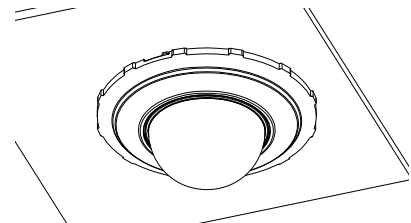
Main Unit



Ceiling Mount



Wall Mount

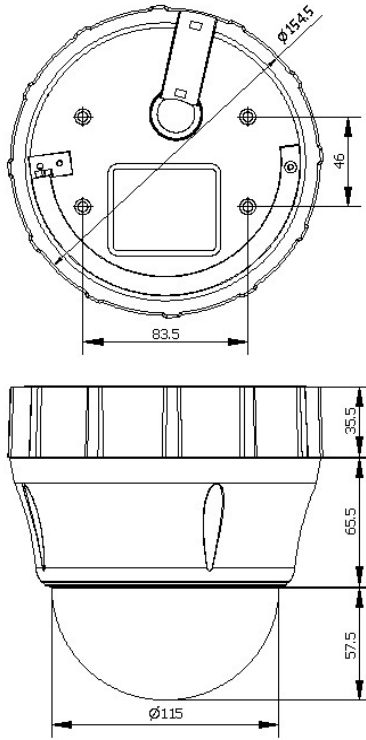


In-Ceiling Mount

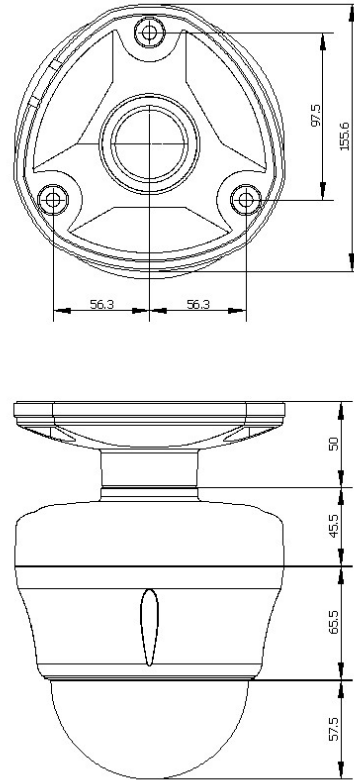
DIMENSIONS

All measurements in millimeters (mm)

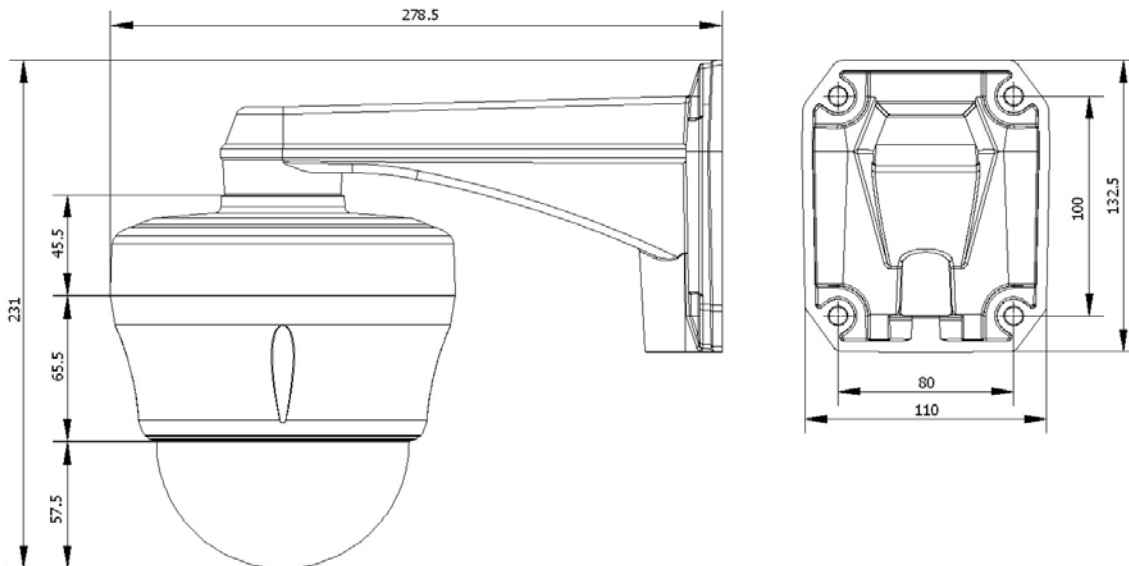
Main Unit & Surface Mount Bracket



Ceiling Mount Bracket



Wall Mount Bracket



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