

SYSTEM CONTROLLER USER MANUAL





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

Please read the instructions carefully for correct use of the product and preserve it for reference purposes. This specification is subject to change without any prior notice to improve the quality.

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1. Warning and Cautions

Please carefully check these particulars for the safe use.

2. Examples of sign



WARNING

This symbol indicates the cause of death or serious injury to the user.



CAUTION

This symbol indicates the cause of equipment damage.



WARNING

1. Use the AC adaptor 12V DC, 300mA regulated.
2. Do not connect one adaptor with more than one controller.(It may result in fire, malfunction.)
3. Be sure to connect power cable securely.
4. Do not place metallic objects on the controller.
5. Never expose the appliance to moisture or dust.(It may result in fire.)
6. Immediately turn the power off to the appliance if there is any abnormal condition such as smoke or unusual smells,(Continuing to the appliance under abnormal conditions may result in serious damage.)
7. Do not attempt to disassemble the appliance. If it doesn't work, contact qualified service personnel for maintenance. (In case any problem occur by disassembling the appliance, we assume no responsibility or liability.)
8. Do not get the appliance wet.(It may result in fire or electric shock.)
If the body get dirty, wipe the surface with a soft cloth.



CAUTION

1. Do not drop the appliance on the floor and avoid from vibration or magnetic objects.
2. Always operate the appliance within the recommended temperature range of $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$.
3. If you want to move the appliance, please turn the power off and re-install the appliance.
4. Install the appliance in places where there are well ventilated.
5. If there are thunder or lighting, please turn the power off.

Chapter 1. Major functions and Features

1.1 Overview

This product is designed to control PTZ CAMERA, DVR and other equipment by RS-485 or RS-422

1.2 Features

1) A long distance remote control

It is possible to control equipment at a distance of 1.2Km by using RS-485.

2) System Control

Camera(Receiver Unit) and DVR are controllable by one controller.

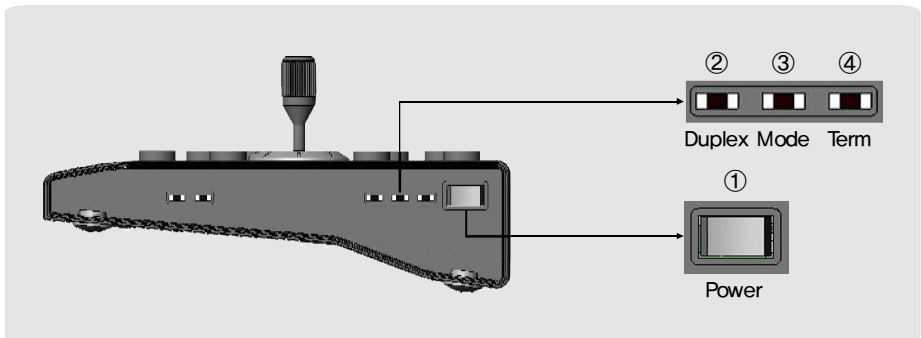
3) Multi-controller connection

Multi-connection enables users to control equipment at a separate place.

4) LCD display

LCD shows MENU, the status of operation, and other information to control easily.

1.3 Names and functions of each part



①Power switch : ON/OFF

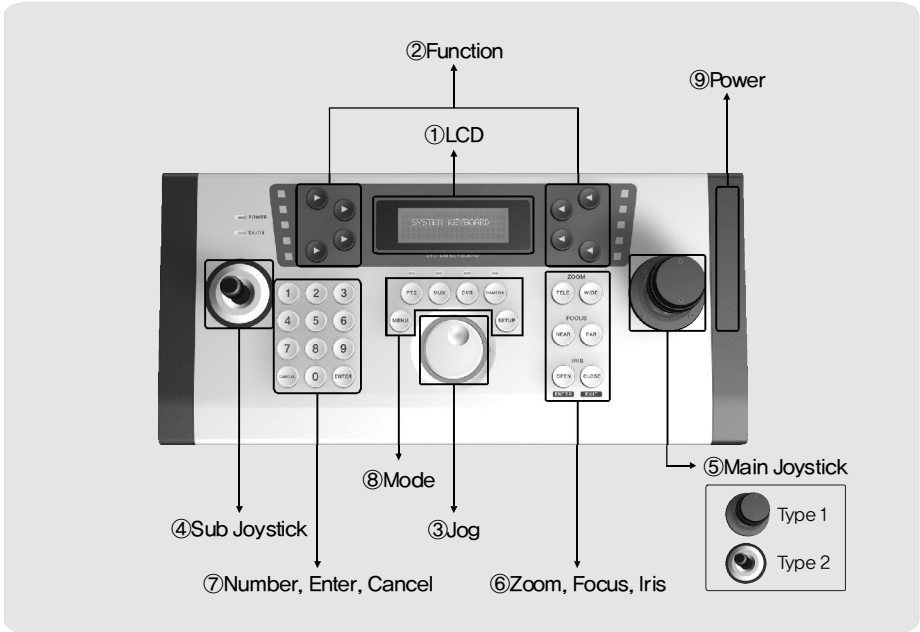
②Communication method selection : RS-422: Full Duplex, RS-485: Half Duplex)

③Mode selection : Master / Slave

④Termination selection :

ON : Set on the last controller for 1:1 or multi communication.

OFF : Set on all controllers except for the last controller for multi communication.



①LCD Display : Shows the information related to the operation.

②Function Key : There are 8 buttons(F1 ~ F8) to select functions.

F1	▶ SUNKWANG	[CAM:001]	◀	F5
F2	▶ [Preset]	[Pattern]	◀	F6
F3	▶ [AutoPan]	[Aux]	◀	F7
F4	▶ [ScanPan]	[Stop]	◀	F8

③JOG Dial : Used for easy control.

④Sub JoyStick : Used for DVR MENU selection or movement by specific direction.

⑤Main Joystick : Used for Pan/Tilt control or special functions.

⑥Zoom / Focus / Iris Key :

- Zoom : Performs camera zoom action(wide and telephoto).
- Focus : Used for manual focus adjustment.
- Iris : Adjusts the brightness or selects OSD menu of the camera.

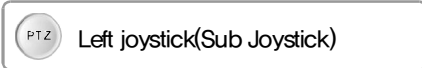
⑦ **Number / Enter / Cancel Key** : Enter the numeric values for PTZ or DVR menu setting.

⑧ **Mode Key** :

- **PTZ** : Selects PTZ mode.
- **MUX** : Selects Mux mode.(It will be available in the future.)
- **DVR** : Selects DVR mode.(Available with the designated DVR)
- **CAMERA** : Selects CAMERA mode except PTZ camera.(It will be available in the future.)
- **SETUP** : Sets the basic setting.
- **MENU** : Menu display.

⑨ **Power** : Power and switches.

〈Basic joystick control〉

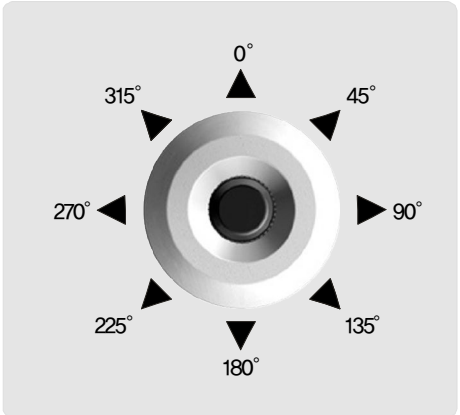


This controller adopts two joystick for easy operation, Left joystick can only control panning to move the specific points quickly. Angles of panning control are divided into 24 and each angle means 15 degrees.



Right joystick is for panning and tilting control. Press 'PTZ' button to control panning and tilting.

Refer to "Chapter4" for additional functions.



Chapter 2. How to install

2.1 Environment for installation

- 1) Please read carefull to install the appliance with safety.
- 2) Please install the product on a completely flat floor or table.
- 3) Install the appliance in places where there are well ventilated.
- 4) It is strongly recommended to install the controller at environment as follow.
 - Operation Temp. : $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$
 - Preserve Temp. : $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$
 - Operation Humidity : 20% \sim 85%
 - Preserve Humidity : 20% \sim 95%
 - Power supply : 12V DC , 300mA

2.2 Safety caution

- 1) Be sure to turn the power off before installation.
- 2) Strong shock or vibration may result in abnormal operation.
- 3) Do not install the product in the place where there are strong magnetic objects such as radio or TV.
- 4) Keep the place where the product is installed clean.
- 5) Install the product more than 15cm away from the wall.
- 6) Do not place the appliance in direct sunlight.
- 7) Immediately turn the power off to the appliance if there is any abnormal condition such as smoke or unusual smells.



CAUTION

If the controller body gets dirty, wipe the surface with a soft cloth. Do not use chemical agents such as alcohol or benzene.

2.3 Product Components

Controller



Junction Box



Cable



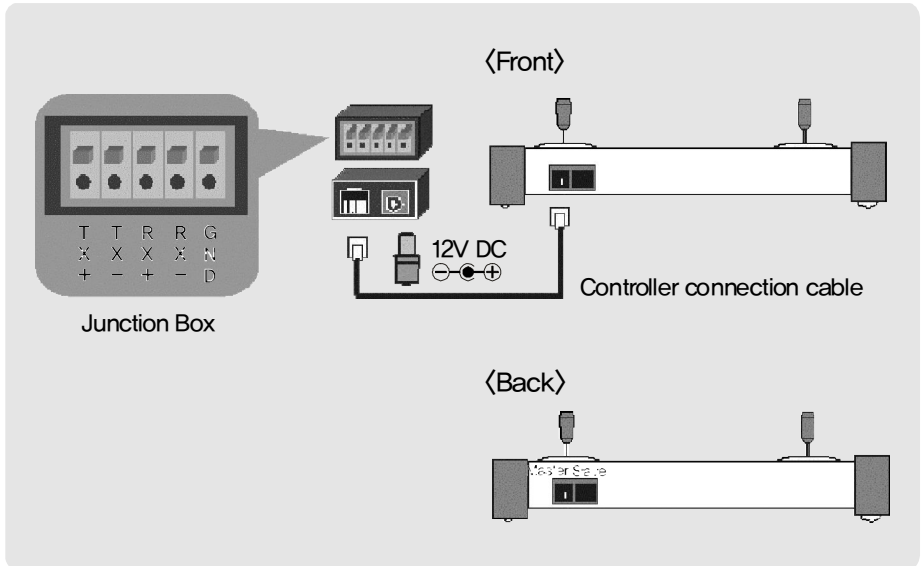
Manual



Chapter 3. System Connections

This chapter describes how to connect the controller with cameras, DVRs, multiplexers and other devices.

3.1 Connecting junction box and external device



1) Connecting with PTZ camera

Connect TX+ and TX- terminals to the unit as the above picture.

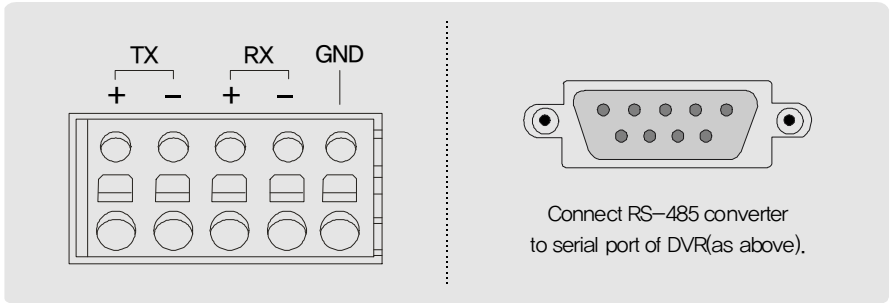
① In case of connection for Half Duplex(RS-485)

- Connect RX(+)terminal on PTZ cameras to TX(+)-terminal on the junction box.
- Connect RX(-)terminal on PTZ cameras to TX(-)terminal on the junction box.

② Connection for Full Duplex(RS-422)

- Connect RX(+) terminal on PTZ cameras to TX(+) terminal on the junction box.
- Connect RX(-) terminal on PTZ cameras to TX(-) terminal on the junction box.
- Connect TX(+) terminal on PTZ cameras to RX(+) terminal on the junction box.
- Connect TX(-) terminal on PTZ cameras to RX(-) terminal on the junction box.

2) Connecting with DVR



Connect RS-485 converter to serial port of DVR(as above).

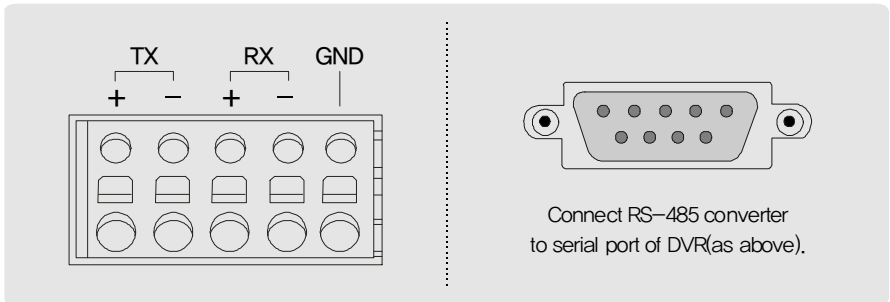
① Connection for Half Duplex

- Connect TX(+) terminal on RS-485 converter to TX(+) terminal on the junction box.
- Connect TX(-) terminal on RS-485 converter to TX(-) terminal on the junction box.

② Connection for Full Duplex

- Connect TX(+) terminal on RS-422 converter to TX(+) terminal on the junction box.
- Connect TX(-) terminal on RS-422 converter to TX(-) terminal on the junction box.
- Connect RX(+) terminal on RS-422 converter to RX(+) terminal on the junction box.
- Connect RX(-) terminal on RS-422 converter to RX(-) terminal on the junction box.

3) Connecting with MUX



Connect RS-485 converter to serial port of DVR(as above).

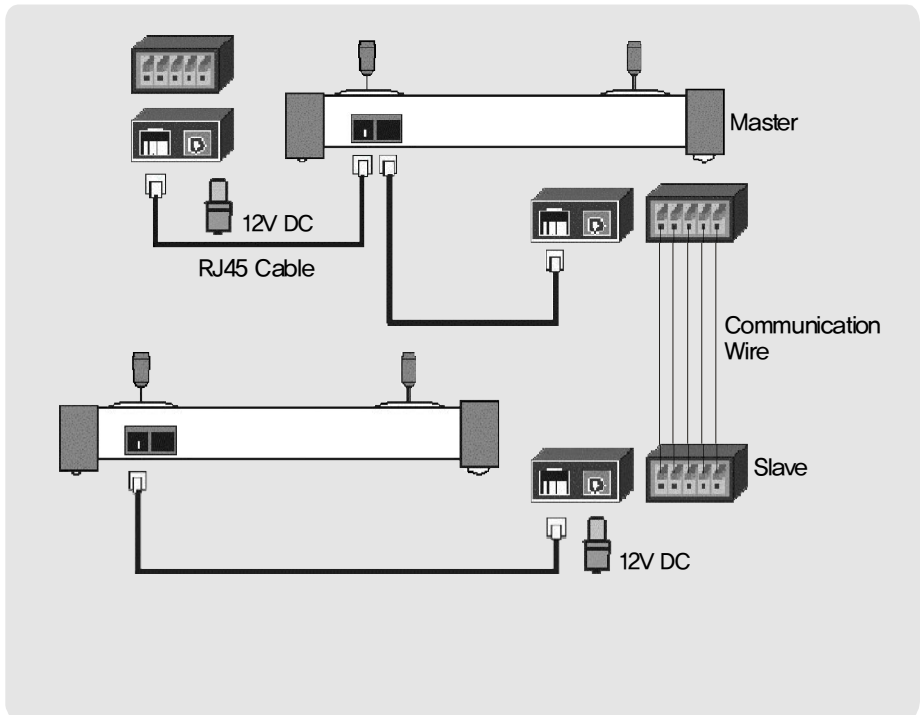
① Connection for Half Duplex

- Connect TX(+) terminal on RS-485 converter to TX(+) terminal on the junction box.
- Connect TX(-) terminal on RS-485 converter to TX(-) terminal on the junction box.

② Connection for Full Duplex

- Connect TX(+) terminal on RS-422 converter to TX(+) terminal on the junction box.
- Connect TX(-) terminal on RS-422 converter to TX(-) terminal on the junction box.
- Connect RX(+) terminal on RS-422 converter to RX(+) terminal on the junction box.
- Connect RX(-) terminal on RS-422 converter to RX(-) terminal on the junction box.

3.2 Connecting two or more controllers



① Connection for Half Duplex(RS-485)

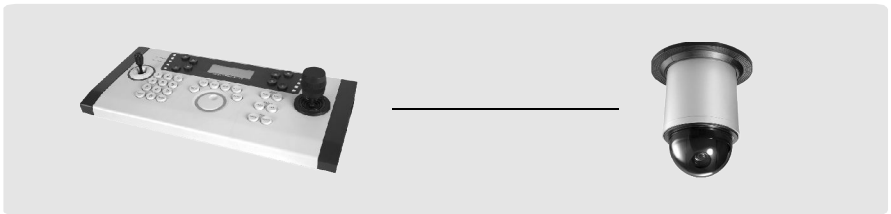
- Connect TX(+) terminal on the junction box of the master controller to TX(+) terminal on the junction box of the slave controller.
- Connect TX(-) terminal on the junction box of the master controller to TX(-) terminal on the junction box of the slave controller.

② Connection for Full Duplex

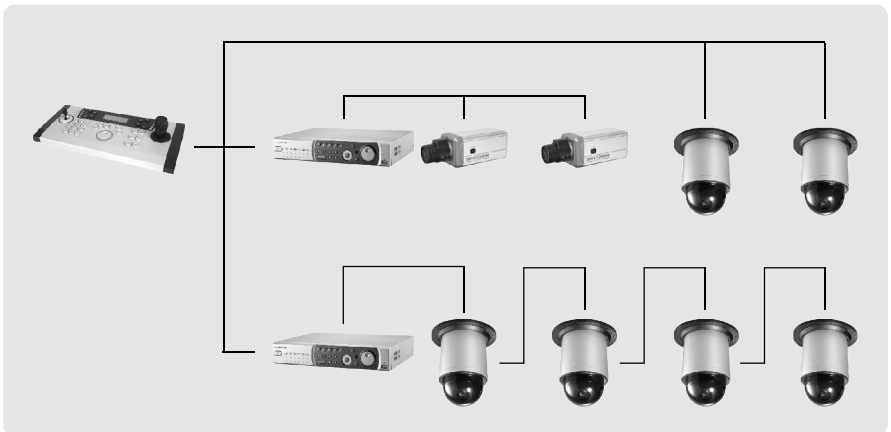
- Connect TX(+) terminal on the junction box of the master controller to TX(+) terminal on the junction box of the slave controller.
- Connect TX(-) terminal on the junction box of the master controller to TX(-) terminal on the junction box of the slave controller.
- Connect RX(+) terminal on the junction box of the master controller to RX(+) terminal on the junction box of the slave controller.
- Connect RX(-) terminal on the junction box of the master controller to RX(-) terminal on the junction box of the slave controller.

3.3 General Connection

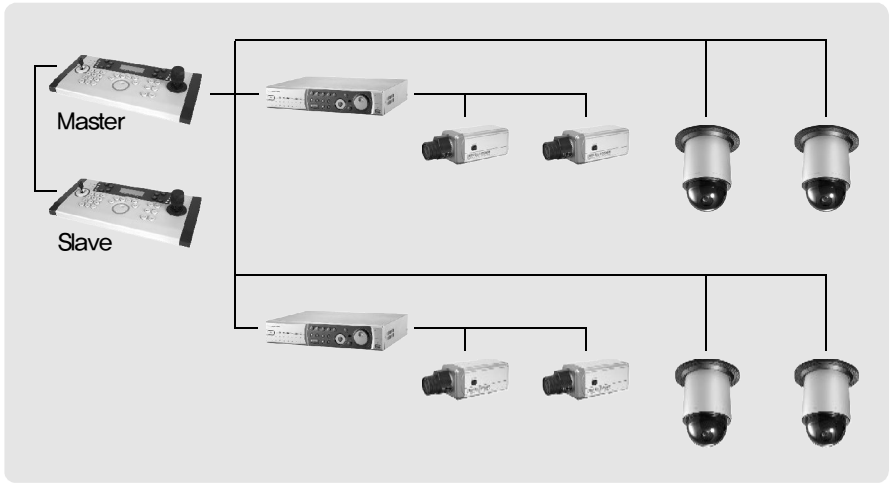
1) One keyboard to one device



2) One keyboard to multiple device



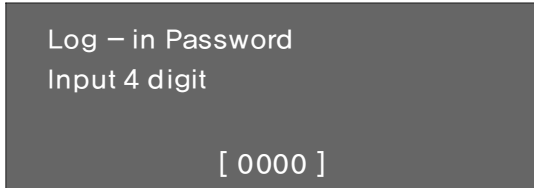
3) Multiple keyboards to multiple devices



Chapter 4. How to use

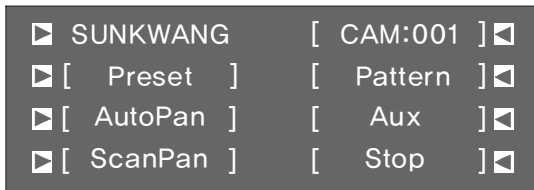
4.1 Log In

1) How to log in

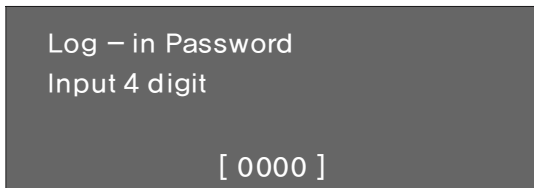


Factory default value is "0000"


Press  button and the followed picture will be shown.



2) How to set Password




Enter passwords to log in.(Factory default value is "0000")

Press  button to change passwords.

NEW PASSWORD
Input NEW PASSWORD

[0000]

Enter new passwords and press  button.
Please remember passwords.


<In case of forgetting your passwords.>

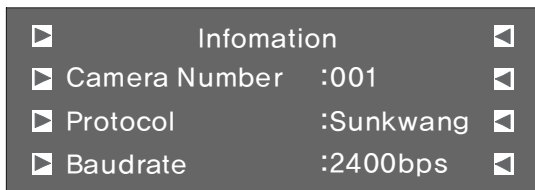
Log – in Password
Input 4 digit

[1897]

Enter "1897" and press  button.
You can see the first 2 digits of your passwords.

4.2 Infomation

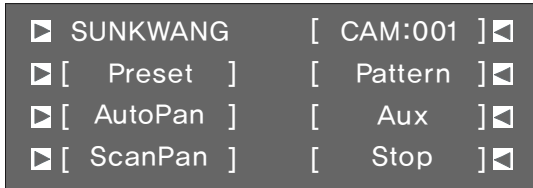
Press  button and LCD on controller will be shown as follow.
The information would be different according to the camera.



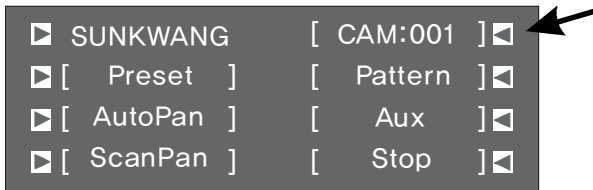
4.3 Control PTZ

1) Select PTZ

Push  button and screen will be shown as follow.




 Press 'F5' button to activate cursor.



 Press numeric key to select the camera.

 Press 'ENTER' button to complete selection of the camera.

 Check the video signal.

- **PAN/TILT** : Move joystick to control Pan or Tilt.
- **ZOOM** : Press 'TELE' button to zoom in,
Press 'WIDE' button to zoom out.
- **Focus** : Press 'NEAR' or 'FAR' button to adjust focus.
- **IRIS** : Press 'OPEN' or 'CLOSE' button to adjust IRIS.



Basic screen displays according to the protocol.

Screen displays would be different according to the protocol as follow.

```

▶ SUNKWANG      [ CAM:001 ]◀
▶ [ Preset ]    [ Pattern ]◀
▶ [ AutoPan ]   [ Aux ]◀
▶ [ ScanPan ]   [ Stop ]◀
  
```

```

▶ PELCO D       [ CAM:001 ]◀
▶ [ Preset ]    [ Pattern ]◀
▶ [ ----- ]   [ Aux ]◀
▶ [ ----- ]   [ Stop ]◀
  
```

```


▶ WONWOO        [ CAM:001 ]◀
▶ [ Preset ]    [ Pattern ]◀
▶ [ AutoPan ]   [ Group ]◀
▶ [ ScanPan ]   [ Tour ]◀
  
```

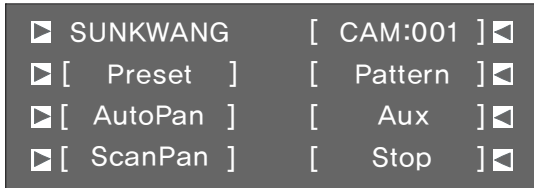
```

▶ PELCO P       [ CAM:001 ]◀
▶ [ Preset ]    [ Pattern ]◀
▶ [ ----- ]   [ Aux ]◀
▶ [ ----- ]   [ Stop ]◀
  
```

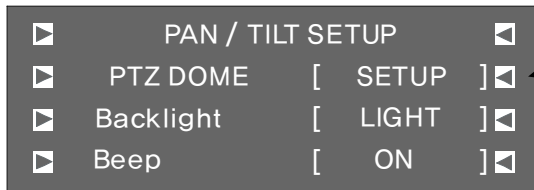
2) Camera Setting

This menu is for setting one or more PTZ units for operation by the controller.

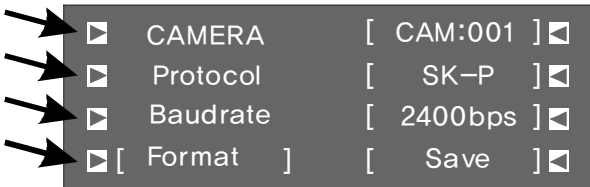
 Push PTZ button and screen will be shown as follow.




 Push SETUP button to go to 'SETUP' menu.




 Press F6 button to set PTZ camera.

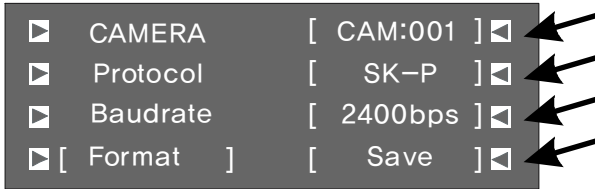








 Press F1 : Restore to default value.(SK-P/2400bps)

 Press F2 : Restore to default protocol.(SK-P)

 Press F3 : Restore to default baud rate.(2400bps)

 Press F4 : Format all cameras with current setting.



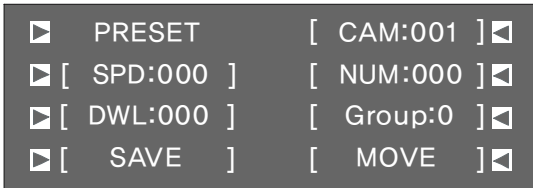
-  Press F5 button to select PTZ.
 Input a PTZ camera number by numeric key(0~9).
 Saved setting value will be shown.
-  Press F6 button to select protocol.
-  Press F7 button to select baud rate.
-  Press F8 button to save setting.
-  Press F4 button to apply same setting value to all cameras(#1~255).
-  Push PTZ button to go to initial screen display.

3) Preset – Set the specific position and move to the memorized position

Push  button and screen on the controller will be shown as follow.



 Press 'F2' button to select 'Preset'



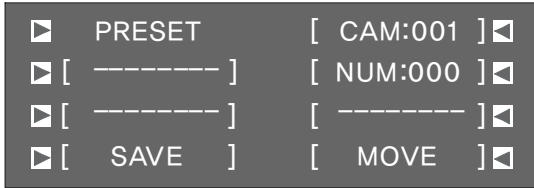
Description of menu is as follow.

F1	PRESET	Initialize all setting values.
F2	[SPD:000]	Movement speed set up
F3	[DWL:000]	Dwell time set up
F4	[SAVE]	Save the setting values
F5	[CAM:001]	Select a camera number
F6	[NUM:000]	Set a preset number
F7	[Group:0]	Set a group number
F8	[MOVE]	Move to the preset location

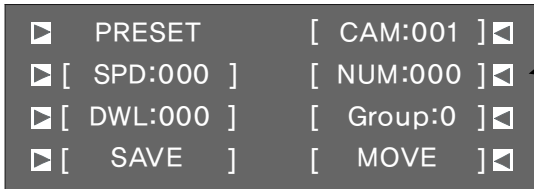



Notice : Some functions would be not selectable according to protocol.

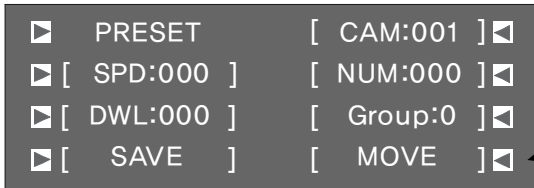
In case of PELCO protocol, screen will be shown as the followed picture.




<Preset Movement>

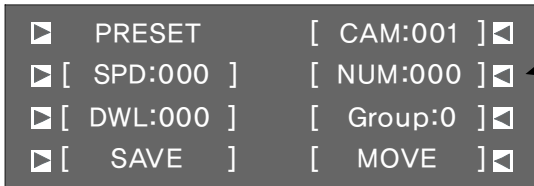



 Press 'F6' button and input the preset number.

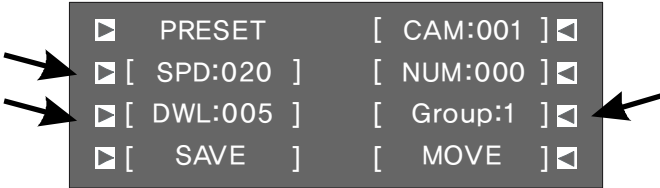



 Press 'F8' button to move to the preset location.

<Preset Setup>




 Press 'F6' button to input a preset number.



 Press 'F2' button to input the preset speed.

 Press 'F3' button to set dwell time.


 Press 'F7' button to input a group number.



Notice : Some functions would be not selectable according to protocol.
Preset setup is also available in the OSD menu of the connected PTZ camera.



Use the joystick and zoom control button to move the camera to the desired location.

 Press 'F4' button to save the setting values.



Some commands of PELCO-D have special functions other than preset.

1. 33+preset FLIP COMMAND
2. 97+preset RANDOM SCAN
3. 98+preset FRAME SCAN
4. 99+preset AUTO SCAN


- Some would be not available according to protocol.
- Each camera might have some differences between the specification and real operation.

4) Auto Pan Mode


This menu is for setting the camera panning automatically at the fixed speed.

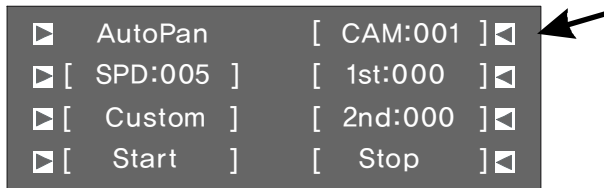
F1	AutoPan	Initialize all setting values.
F2	[SPD:005]	Set the panning speed.(Default value : 5)
F3	[Custom]	Select the type of AutoPan mode.(Default : Custom)
F4	[Start]	Operate AutoPan mode
F5	[CAM:000]	Set the camera No.(Protocols are not changed)
F6	[1st:000]	Set the starting point for preset operation
F7	[2nd:000]	Set the ending point for preset operation
F8	[Stop]	Stop the AutoPan operation or move the joystick to stop the operation.


*F6 and F7 buttons for setting of preset operation are only available for the designated compact PTZ dome camera.

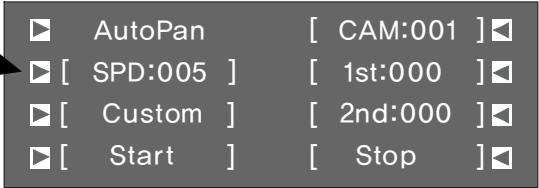
 Press "PTZ" button and screen on the controller will be shown as follow.



 Press [AutoPan] button and check the CAM Number you want to operate.




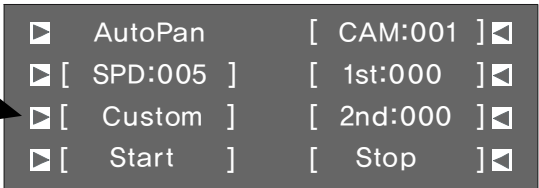
Press  button to control the panning speed.
Max.20 levels are selectable. Higher number means higher speed.



```

▶ AutoPan      [ CAM:001 ]◀
▶ [ SPD:005 ]  [ 1st:000 ]◀
▶ [ Custom ]   [ 2nd:000 ]◀
▶ [ Start ]   [ Stop ]◀
  
```

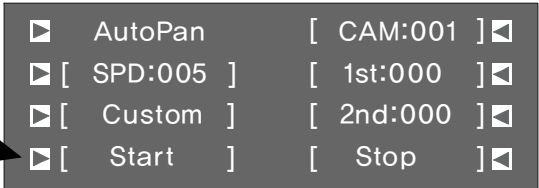
Press  button to set the type of AutoPan mode.
You can choose [Custom], [CW], or [CCW].
*Custom : In case of the speed dome, patrol the area set by the user on "Custom set" with OSD menu
– CW : Clockwise AutoPan – CCW : Counterclockwise AutoPan.



```


▶ AutoPan      [ CAM:001 ]◀
▶ [ SPD:005 ]  [ 1st:000 ]◀
▶ [ Custom ]   [ 2nd:000 ]◀
▶ [ Start ]   [ Stop ]◀
  
```

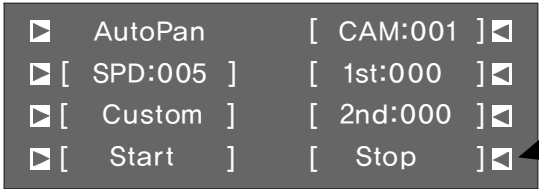
Press  button to execute the operation.



```

▶ AutoPan      [ CAM:001 ]◀
▶ [ SPD:005 ]  [ 1st:000 ]◀
▶ [ Custom ]   [ 2nd:000 ]◀
▶ [ Start ]   [ Stop ]◀
  
```

Press  button to stop the operation.




```

▶ AutoPan      [ CAM:001 ]◀
▶ [ SPD:005 ]  [ 1st:000 ]◀
▶ [ Custom ]   [ 2nd:000 ]◀
▶ [ Start ]   [ Stop ]◀
  
```


5) Scan Pan Mode

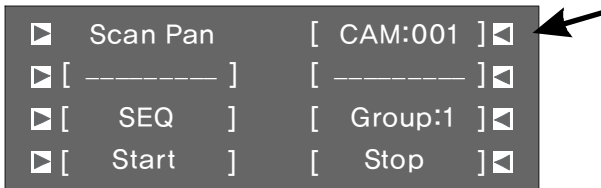
This menu is to move the camera to the memorized positions one by one or randomly. The minimum of two PRESETs should be saved for this mode.

F1	Scan Pan	Initialize all setting values.
F2	[—————]	No function
F3	[SEQ]	Select "SEQ" or "RANDOM".
F4	[Start]	Start the operation.
F5	[CAM:000]	Set the number of the cameras,(In case of changing the number, the initial setup menu will be displayed.)
F6	[—————]	No function
F7	[Group:0]	Change the group to operate.
F8	[Stop]	Stop the operation. Or move the joystick to stop the operation.

Press  button to go to "Scanpan" menu.



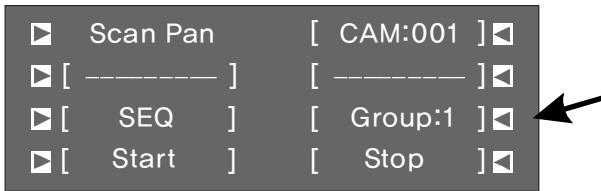
 Check the CAM number.
In case of changing the number, the initial setup menu will be displayed.



Press **F3** button to select "SEQ" or "RANDOM" mode to operate.



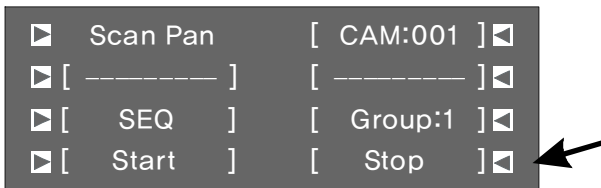
Press **F7** button to select the group.



Press **F4** button to execute the operation.



Press **F8** "STOP" button or move the joystick to stop the operation.




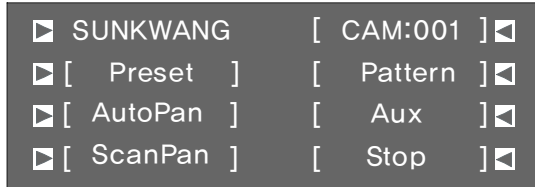
6) Pattern


① This menu is for memorizing the position by panning, tilting, or zoom for a while and moving the camera to the memorized positions.

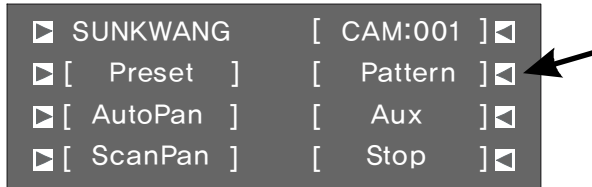
See the camera manual for more information.

② Pattern Setup

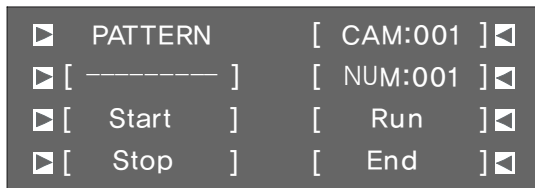
 Push 'PTZ' button and the screen on the controller will be shown as follow.




 Push 'F6' button to go to 'Pattern' menu.

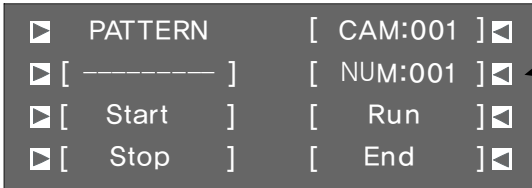


Upon pushing 'F6' button, the screen on the controller will be shown as follow.



'F6:NUM' would be selected automatically.

-  When 'F6' is selected, input the pattern number.
1~4 are selectable as a pattern number.




-  Press 'F3' button to set up 'PATTERN'.

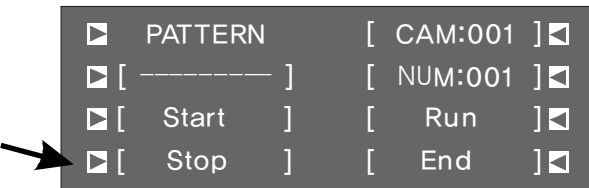


Check the picture for pattern setup on a monitor.

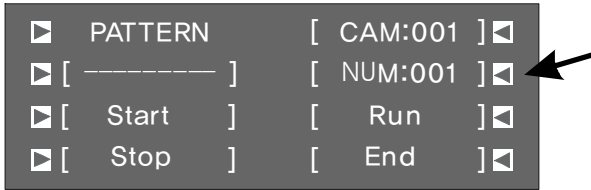


Use joystick or Zoom buttons to input camera movements.

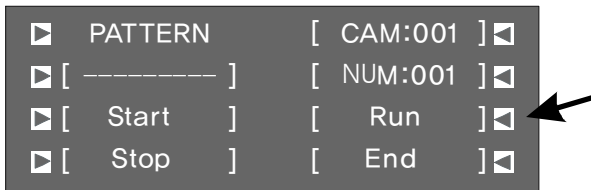
-  Press 'F4' button to save the pattern setup.




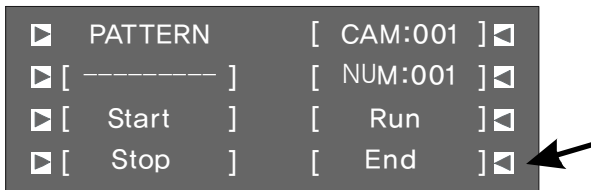
③How to run PATTERN operation.



 Check the pattern number. Press 'F7' button for pattern operation.

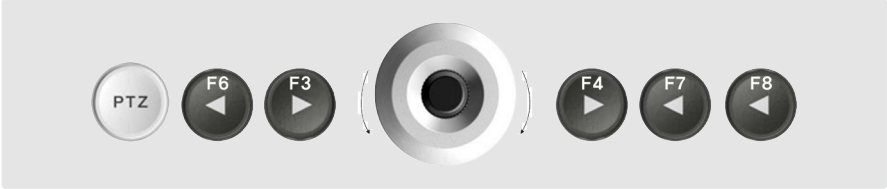


 Press 'F8' button or move the joystick to stop pattern operation.



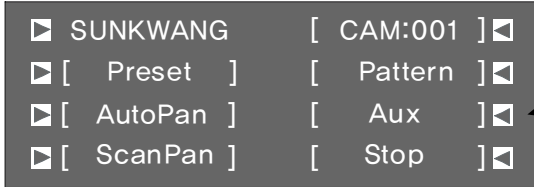
F1	PATTERN	No function
F2	[-----]	No function
F3	[START]	Start the pattern setup
F4	[STOP]	Stop the pattern setup
F5	[CAM:001]	Set a camera number
F6	[NUM:000]	Set a pattern number
F7	[RUN]	Run the pattern operation
F8	[END]	Stop the pattern operation You can also move the joystick to stop the pattern operation


[START] – PATTERN SETUP – [STOP] – [RUN] – [END]

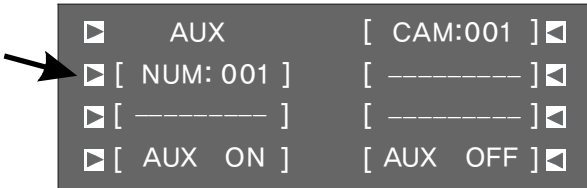


7) AUX Mode

This function is to control AUX switch in case of any alarm on the cameras, Pelco and SK-P protocols only support this function.

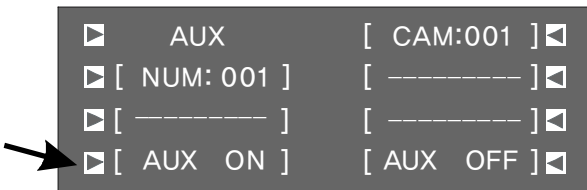




 Press 'F7' button to select AUX mode.



 Press 'F2' button to select the AUX number you want to control.

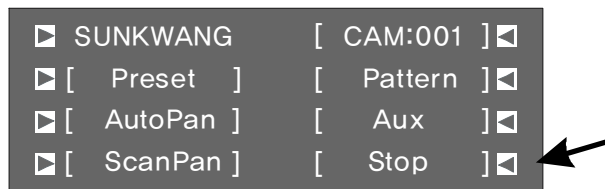
 Input numeric key to select the Aux.



  Press 'F4' or 'F8' to select 'AUX ON' or 'AUX OFF'.

8) Pattern Stop

This function is to stop memorizing pattern operation.




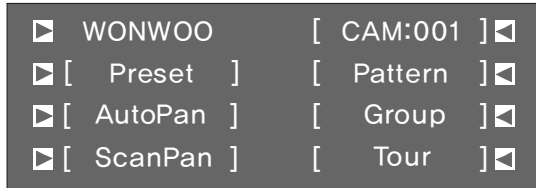
9) Group Mode


① This menu is for setting repeated sequential surveillance of assigned locations with assigned speed and intervals.

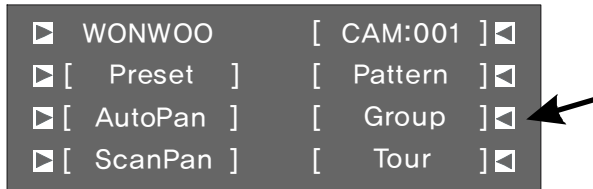
See the camera manual for more information.

② Group Mode

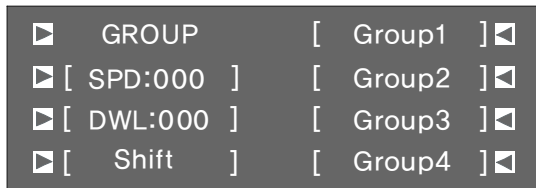
 Push 'PTZ' button and the screen on the controller will be shown as follow.




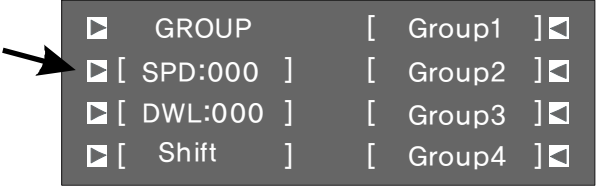
 Push 'F7' button to go to 'Group' menu.



Upon pushing 'F7' button, the screen on the controller will be shown as follow.




 Push 'F2' button to set the movement speed.





 Push 'F3' button to set the dwell time.



 Push 'F5' button to activate 'GROUP1'.

 Push 'F6' button to activate 'GROUP2'.

 Push 'F7' button to activate 'GROUP3'.

 Push 'F8' button to activate 'GROUP4'.





Push 'F4' button to select 'GROUP5' to 'GROUP8'.



```

▶ GROUP [ Group1 ]◀
▶ [ SPD:000 ] [ Group2 ]◀
▶ [ DWL:000 ] [ Group3 ]◀
▶ [ Shift ] [ Group4 ]◀

```

Upon pushing 'F4' button, 'GROUP1 ~ GROUP4' and 'GROUP5 ~ GROUP8' are replaced each other.

```

▶ GROUP [ Group5 ]◀
▶ [ SPD:000 ] [ Group6 ]◀
▶ [ DWL:000 ] [ Group7 ]◀
▶ [ Shift ] [ Group8 ]◀

```


F1	GROUP	Not selectable
F2	[SPD:000]	Movement speed
F3	[DWL:000]	Dwell time(Not available now)
F4	[Shift]	Go to next group
F5	[Group 1]	Run 'Group 1'
F6	[Group 2]	Run 'Group 2'
F7	[Group 3]	Run 'Group 3'
F8	[Group 4]	Run 'Group 4'

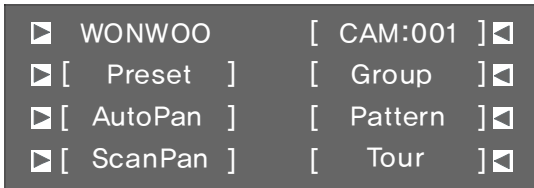



Notice : This mode is only available on WONWOO protocol.

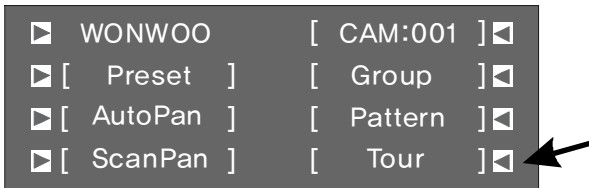
10) Tour Mode

This menu is for setting one or more Groups for Tour so that continuous Group operations can be carried out.

 Push 'PTZ' button and the screen on the controller will be shown as follow.



 Press 'F8' button to run 'Tour'.



Move the joystick to stop 'Tour'.

*This mode is only available on WONWOO protocol.

4.4 Control DVR



1) Control DVR Mode

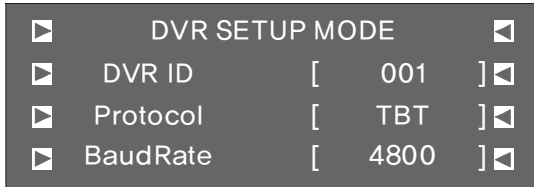
Press  button and the followed picture will be shown.




F1	[Display]	Select display division mode
F2	[Backup]	Backup key – To setup backup mode
F3	[Search]	Search key – To search recorded data
F4	[Menu]	Menu key – Menu display
F5	[FF]	FF key – Fast Forward data
F6	[REW]	REW key – Rewind data
F7	[Play]	Play key – Play data
F8	[Stop]	Stop key – Stop

2) DVR Setup

Press  button and then press  button.



 **DVR ID** : Select address of DVR(Default : 001)

 **Protocol** : Select type of protocol(TBT protocol only)

 **BaudRate** : Select baudrate of protocol(Default : 4800)

*Support the DVR using TBT protocol only

*For more detail, please refer to the manual of DVR.



and  buttons are not available at present.

Chapter 5. Specification

Control Interface	Signal	RS-485 / RS-422
	In/output terminal	RJ-45
	Baudrate	2400/4800/9600
Joystick	Type 1	2 Axis 1ea, 3 Axis 1ea
	Type 2	2 Axis, 2ea
Control	256 Camera ID	
	Protocol setting	
	Alarm setting	
	Pan	
	Tilt	
	Zoom operation	
	Iris	
	Focus adjust	
	64 preset setting	
	6 Pattern operation	
Number of Buttons	32	
Passwords	4 digits	
LCD Display	Text LCD 20 Characters x 4Lines	
Current Consumption	12V DC, 300mA	
Operating Temp. & Humidity	-10°C ~ 50°C / 0% RH ~ 80% RH	
Preservation Temp. & Humidity	-20°C ~ 60°C / 0% RH ~ 85% RH	
Dimension	411 X 70 X 190mm	
Weight	1Kg	

Chapter 6. Q&A

1. The camera can not be controlled.
 - Check the protocols of the cameras.
2. No screen.
 - Any shock might cause the malfunction. Please contact the place you purchased.
3. A button is pressed, but nothing is happened.
 - Check if you press another button simultaneously.
4. The controller is not compatible with another device.
 - Check the setting mode(Master/Slave).
5. Joystick is operating well, zoom and other functions don't work.
 - Check the setting value.
6. RANDOM or SEQ mode doesn't work.
 - When you set about PRESET menu, you should set GROUP.
7. Forget password.
 - Push '1' '8' '9' '7' and 'OPEN' button, and you will see the first two digits.
8. Buttons regarding MENU don't work.
 - Check if you push another button simultaneously.
 - Check if you set the protocol correctly.
9. With connection of two or more controllers, you can not control the operation of the camera.
 - Check if you set Master or Slave correctly.
 - Check if the master controller is operating.
 - * The slave controller is not available when the master controller is operating.

Please read this manual carefully before installing and using the camera.
Be sure to keep the manual handy for later reference.