System Keyboard Controller

User Manual

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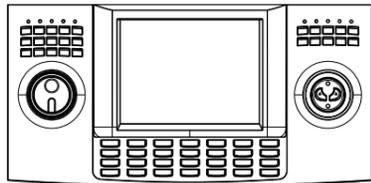
1. Summary

The keyboard is a universal keyboard of security monitoring series, which can control the PTZ CAMERA,matrix and quad processor. It has been equipped with the joystick and shuttle which can control therevolving of the camera and the zoom magnification offens; with the LCD screen and the function of back-light; which can display the current operation order the control protocol name the current dome ID the current monitor ID and the state of joysticks. The user can control the CCTV system more easily with the joystick and the LCD screen.

1.1 Notice
Please read the manual carefully and reserve it.
Please advert to the notice in manual.
Please don't place the keyboard in the moist place.

1.2 Function & Characteristic
● Rs485 Bus Line, RS232, VISCA communication, a keyboard can connect 31 domes at most in the direct control mode.
● Multi protocols.
● Can control the Iris, Focus, Zoom, water Wiper, auxiliary light.
● Can set and call the preset, scanning , pattern and tour。
● Can control the DVR, matrix and quad processor through which can control the PTZ indirectly.
● Support 4CH VGA/AV switch device operate
● Equipped with the joystick, shuttle and the larger LCD screen"
● Video(CVBS) input and display
● VGA input and display(1024*768,70HZ)
● SDI input optional

1.3 Technical Data

★ Electrical character

Input voltage: 12V---36V DC

Rating current: 500mA (12V DC input)

Rating power: 6.5W

★ Communicate character

Communicate interface: RS485×1, RS232×1, VISCA×1, RJ45×1

Communicate frequency: 2400、4800、9600、19200bps

★ Operational environment

Operating temperature: 0℃～50℃

Relative humidity less than: Lower than 90%

★ Physical property

L*W*H=430mm*215mm*156mm

Weight: 2629g

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2. Keyboard Connection

2.1 Keyboard Connection
There is interface on the back of the keyboard, which equipped with kinds of communication, like RS485, VGA in, SDI, Video in, USB, RJ45 , convenience to connect with different device, as figure 2-1.1
2.1.1 Interface instruction
Rs485 interfaces can connect with the PTZ and control it directly while the switch to BNC ;RS485 A+B-can connect with DVR or other keyboards when switch to VGA.
With VGA input, the keyboard can work with a display, can connected with DVR, PC ect.The max input resolution is 1280X720, 1024X768, 800X600.
Control IP camera through RJ45 (need customizing), through VISCA interface can control the SONY conference series camera, RS232 interface used for update.
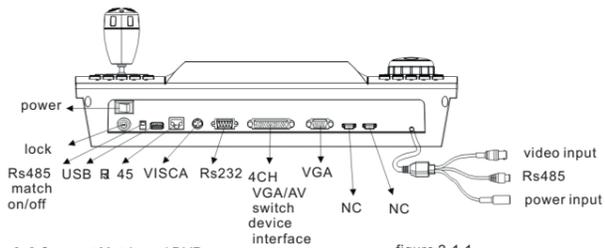
figure 2-1.1

2.2 Connect Matrix and DVR
Can control the Matrix and DVR which support the protocols, as figure 2-4.1

2.3 Direct connect with PTZ
Pls connect the controller to the PTZ and make sure the RS485 interface is in correct. Different manufacturer's PTZ RS485 interface is in different position. Pls find it and do the correct connection. RS485 connection as below.
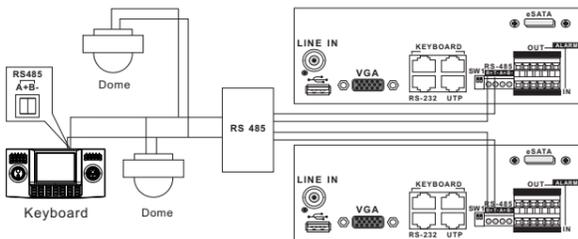
figure 2-3.1

2.4 Keyboard connection in the system

Indirect control the PTZ when connect with matrix（as figure 2-4.1）. Contrariwise will control the PTZ directly, Parallel connect the keyboard and dome to the bus of RS-485, all the keyboard can control direct the max dome quantity is 31 the add of the main keyboard should be "1" and baud rate should be 9600bps（as figure 2-4.2）
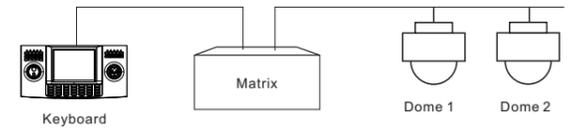
figure 2-4.1

Caution
1、the max quantity of master equip and be charged equip controlled by a RS485 bus is 32, so when use the keyboard to control direct the max dome quantity is 31
2、max quantity keyboard in a system is 4,also the 4 keyboards should be different ID。

figure 2-4.2
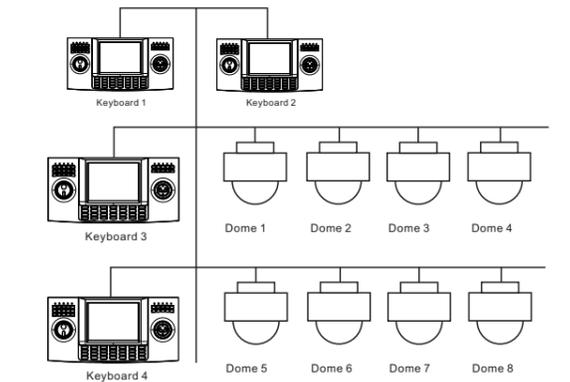
3.Keyboard Operation Instruction
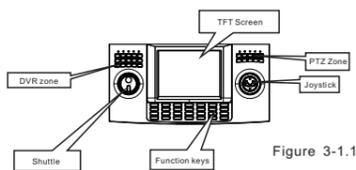
Figure 3-1.1

Attention please because different system have some different special operation ways, so should consider the actual requirement when operation in some special systems。

3.1 Electrify

Keyboard will self-check,and press MENU to display the detail information about the Baud rate, Protocol and camera ID.

Attention

> Joystick should be nil when keyboard is self-checking

3.2 TFT display screen

TFT screen display content:aim dome、aim monitor add.、baud rate etc. At the bottom of the content will show the keyboard information ,as follows figure show . When operation, TFT back light will on, and will off 15s after stop the operation。

```
Keyboard V 1.00
Keyboard ID: 001
Camera   ID: 001
Monitor  ID: 001
Protocol  : Pelco-d
Baudrate  : 2400bps
```
Figure 3-1.2

3.3 Joystick Controls Dome

Two main function of the navigation key, control the dome turn around , setup the aimed object's menu。
● When for menu setup, Up is for the upper menu, down for the next menu；Right for the sub menu or save the setup；Right for exit。
● Direct proportion between the speed of the Dome and the lean angle of the navigation keys, lange lean angle ,faster rotation speed。

3.4 Rigger the aim dome
【N】+【CAM】
【N】for Number, input the serial number of the Dome, Press 【CAM】key to rigger the add of the aim dome

3.5 Dome lens control
● Zoom:
Press 【TELE】, multiple accretion。
Press 【WIDE】key, multiple minish

● Focus:
Press 【FAR】key focus for far objects。
Press 【NEAR】key focus for vicinity objects。
Normally ,Zoom and focus will be adjust auto by the dome, and with the 【FAR】 【NEAR】 to realize the manual zoom and focus

● Iris:
Press 【OPEN】key, manual Iris accretion
Press 【CLOSE】key , manual Iris minish

● Water Wiper, auxiliary light control
Press 【LIGHT】, light on/off
Press 【WIPER】, Wiper on/off

3.6 Set dome function
3.6.1 Preset
Pre set: 【SET】+【N】+【PRE】
Adjust preset : 【N】+【PRE】
【N】for the number of the pre-set。
【GOTO】:Shortcut key for preset menu

3.6.2 Scan
Left limit : 【SET】+【1】+【SCAN】
Right limit : 【SET】+【2】+【SCAN】
Run: 【1】+【SCAN】
Change the scanning speed, must enter the menu

3.6.3 Pattern
● design path setup: 【SET】+【N】+【PAT】+path+【SET】+0+【PAT】
Press 【SET】key, input the number of design scan（1-4）, press 【PATTERN】key, enter the path setup state, when ending press 【SET】key first, then press【0】key, then 【PATTERN】key。
● Startup pattern: 【N】+【PATTERN】to input the scan no.（1-4）, Press 【PATTERN】, startup the pattern。

3.6.4 Tour
Starting: 【N】+【TOUR】/【TOUR】tour number first , then 【TOUR】key, starting the tour。
Direct press the 【TOUR】key when the system only have one tour .
Change the path of tour , must enter the menu

3.7 Call Dome main menu

Input 95, press 【PRESET】key, aim Dome, menu will display on the monitor。
Refer to dome menu to how to control the dome camera

3.8 Matrix control
3.8.1 Call matrix main menu
【SHIFT】+【SET】: Call the main menu, the menu will display on the object monitor. How to ues the keyboard
Setting the matrix? Please refers the matrix operate manual.

3.8.2 Confirm after program
【ENT】: after the matrix is programmed, press 【ENTER】, reflects confirm after program.
As for the detail program, please refer to the matrix operation manual.

3.8.3 Change object monitor
【N】+【MON】Input the monitor ID, then press MON the image and the menu of the dome that you controlled by keyboard will display in the object monitor

3.9 Control DVR
【Q】:Serach fanction
【□】:DVR equipment switching picture mode to single picture
【田】:DVR equipment switching picture mode to quad picture
【曲】:DVR equipment switching picture mode to nine picture
【▦】:DVR equipment switching picture mode to sixteen picture
【●】: Recording /Stop
【▶】: Play back
【Ⅱ】: Pause record
【◀◀】: Fast backward
【▶▶】: Fast forward

3.10 Operate 4CH VGA /AV switcher
【AUTO】: Fix time to change 1-4CH
【CH1】: CH 1
【CH2】: CH 2
【CH3】: CH 3
【CH4】: CH 4

4. Keyboard control
● Keyboard control
Turn on the power and press 【MENU】, the system information will display as (4.1-1), and press again, the information will disappear. You can do all the operation during this time.
Press 【MENU】and hold 2s, and call the main menu. All the sub menu setting needs enter the main menu. After entering the main menu, press the Figure key and or use the joystick to select the menu.

```
1. Keyboard setup
2. Dome setup
3. Protocol select
4. System setup
5. Exit menu
```
Figure4.1-1

Save setting
After finishing the setting, press the 【ENTER】keyboard to save; TFT will display "Success".

Back previous menu
Press 【PREV】keyboard, or turn the joystick to left, it will back to previous menu。

4.1 Keyboard parameter set up
4.1.1 Dome ID set up

1、Enter the main menu
TFT will display (picture4.1.1-1)

```
1. Keyboard setup
2. Dome setup
3. Protocol select
4. System setup
5 .Exit menu
```
figure 4.1.1-1

2. Press【1】to select the keyboard setting as TFT(Picture4.1.1-2)

```
1. Set KB ID(1-64):-
2. Set Baudrate:2400bps
3. Joy calibrate
4. About keyboard
```
figure 4.1.1-2

3.Press【1】again will show the picture(Picture4.1.1-3)

```
1. Set KB ID(1-64):-
```
figure 4.1.1-3

4.Press【1】to select the ID Setting (Picture4.1.1-4)

```
1. Set KB ID(1-64):-
```
figure 4.1.1-4

Use the Number. Keys on the keyboard to select the camera ID in the range（1-64）; And then press the 【Enter】to save, the screen will display Success as picture（4.1.1-5）.

```
Success
```
figure 4.1.1-5

If the NO you input outside the range 1~64, it will display Error as picture（4.1.1-6）

```
Error
```
figure 4.1.1-6

Press【PREV】or use the shake toward to LEFT to back to previous menu

4.1.2 Keyboard Baud Rate set up
Enter the main menu like the TFT picture (4.1.1-1) show..
Press【1】will show on the TFT as picture（4.1.1-2）
Press【2】select the Baud Rate setting, as Picture(4.1.2-1)

```
2. Set Baud rate:2400bps(4800bps\9600bps\19200bps)
```
figure 4.1.2-1

2400bps\4800bps\9600bps\19200bps is available，You can select the Baud rate
you need and press the【ENTER】to save. If you operate success, the screen
will show"Success".
Press【PREV】or use the shake toward to LEFT to back to previous menu
Warning:

```
If connect to the matrix, it must select the 9600bps. And is multi
keyboard to work, it must use 9600bps or 19200bps
```

4.1.3 Information display
Enter the menu，TFT will display as 4.1.1-2 press【4】，TFT will display as
（figure 4.1.4-1）。

```
Version:1.00
KB ID: 001
Protocol: Pelco-d
Baudrate:2400bps
```
figure 4.1.4-1

Press【PREV】or use the joystick turn LEFT back to previous menu.. The keyboard
menu will display all the keyboard setting information; include the keyboard model,
keyboard ID, Protocol and the Baud rate。

4.2 Dome set up
Just for reference. More details, Please follow the menu of dome camera

4.2.1 Preset set up
Enter the main menu as picture（4.1.1-1）and press【2】to enter the dome setting
menu as picture（4.2.1-1）；This part you can set the follow function: Preset, Scan,
Pattern, Tour.

```
1.Set dome preset
2.Set dome scan
3.Set dome pattern
4.Set dome tour
```
figure 4.1.1-1

-9-
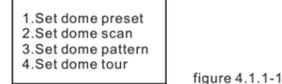
Press【1】enter the dome Preset function setting as picture（4.2.1-2）.

```
1. Save preset
2. Show preset
3. Clear preset
```
figure 4.1.1-2

Item 1 : Save preset; item 2 : Show the preset; Item 3: clear the preset
Press【1】enter the preset, you can input the preset NO as picture（4.2.1-3）show

```
Preset num:
(1-128)
Press PREV to back
```
figure 4.1.1-3

After enter the preset menu you can use navigate key control the dome directly, and
input the preset NO to save as the picture 4.2.1-4 show. And on the TFT screen will
display SUCCESS。

```
Success!
```
figure 4.1.1-4

Press【Prev】back to previous men。

Warning:

```
While enter the dome preset menu, the keyboard navigate keyboard can directly
control the dome and lens control zone also can control the dome's lens.
```

Press【2】enter the "Show the preset" menu as picture 4.2.1-5

```
Preset num:
(1-128)
Press PREV to back
```
figure 4.1.1-5

Input the Preset NO and press the【ENTER】to call it, and the TFT will display
"Success". Use the navigate Key or【PREV】back to previous menu.
Press【3】enter the "clear the Preset" to clear preset information as picture 4.2.1-6
show.

```
Preset num:
(1-128)
Press PREV to back
```
figure 4.1.1-6
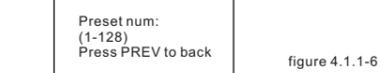
Input the PRESET NO which you want to clear, and press the Enter to clear it, and it
will show "Success" and back to previous men。

-10-

4.2.2 Dome Scan set up
Enter the menu like picture（4.1.1-1）
Press【2】enter the dome setting menu as the picture（4.2.1-1）；
Press【2】again to enter the dome scan setting as picture 4.2.2-1；

```
1. Set left limit
2. Set right limit
3. Run scan
```
figure 4.2.2-1

Dome scan setting include the: Left limit, Right Limit and Run scan
Press【1】to set the Left limit as picture 4.2.2-2 show。

```
Press ENTER sure
Press PREV to back
```
figure 4.2.2-2
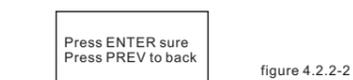
While enter the dome limit setting menu, move the dome to the suitable position,
and press【Enter】to save and will show "Success" and back to previous menu.
Select the item 2 to set the Right limit, and do the same as the left limit setting,
Back to the menu and press【3】to operate the Run Scan.
Warning:

```
After entering the dome scan menu, the keyboard can directly control
the dome and lens control zone also can control the dome's lens.
```

4.2.3 Pattern set up
Enter the menu as the picture (4.1.1-1)
Press【2】enter the dome setting menu as the picture（4.2.1-1）；
And then press【3】enter the pattern setting as picture 4.2.3-1 show

```
1. Pattern num:
2. Set pattern
3. Run pattern
```
figure 4.2.3-1
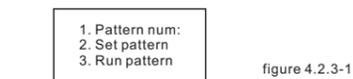
After enter the menu, the system need input the pattern information you want,
you can put in the NO1~4 and Press the【ENTER】. The mouse will skip to the
next item auto to set the second patter you need. If you already have it, you can
skip it and select the【3】to run the pattern directly.
Pattern setting: After enter the pattern setting menu, move the dome do the
suitable position and press the【1】to start record the scan track. The screen
will display "Start ……, like the picture 4.2.3-2. Press "0 " to finish the scan
record, and the screen will show "Success" and back to the previous menu.

```
Press 1 to start
Press 0 to start
Press PREV to back
```
figure 4.2.3-2

-11-
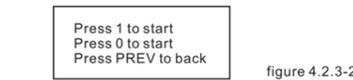
Warning:

```
After entering the dome pattern, the keyboard can directly control
the dome and lens control zone also can control the dome's lens.
```

4.2.4 Tour set up
Press【2】enter the dome setting menu, as picture 4.2.1-1 show,
And then press【4】enter the tour setting as the picture 4.2.4-1 show.

```
1. Tour num:
2. Insert preset
3. Run tour
```
figure 4.2.4-1

After enter the menu, you need input the TOUR information, the range you can
put is 1~6, and press the【ENTER】. The mouse will auto skip to the second
TOUR setting. If you have already set it, you can skip it. And it will show the
"Success" and back to the previous menu.
  Select the Item 2 as picture（4.2.4-2），you need input the tour preset, and in
the second item you need put in the speed information, the range is（1-127）；
In the third item you need input the time how long it need to stop, the range is
（1-255）. After finishing all the step, press the【ENTER】and will display
"Success" and back to previous menu.

```
1. Preset num:
2. Speed   :
3. D Well   :
```
figure 4.2.4-2

Press【3】Run the TOUR
Warning:

```
Insert the tour can not work now
```

4.3 Protocol set up
Enter the menu as picture（4.1.1-1），Press【3】
enter the Protocol setting as picture (4.3-1)

```
1. QUAD-DVR
2. Dome
```
figure 4.3.1

4.3.1 DVR / matrix mode
Press【1】enter spliter /DVR/ Matrix model as the picture (4.3.1-1);
And then press the【ENTER】to select the Protocol and back to previous menu.

```
1.QUAD
2.HCDVR
3.DHDVR
4.XSJDVR
5.VA-KBD
6.RMDVR
```
figure 4.3.1-1

-12-
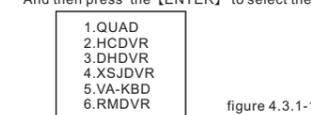
4.3.2 Dome control model
Press【2】enter the dome control model as the picture (4.3.2-1).
According to the user's need, select the suitable PROTOCOL and back to the
previous menu.

```
1.Factory
2.Pelco-p
3.Pelco-d
4.DH-SD
5.Samsun
6.LG-Multix
```
figure 4.3.2-1
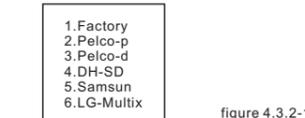
4.4 System Setting（can select the key4）as picture 4.4
figure 4.4

1.System mode:	PAL/NTSC	7.Contrast:	000~100
2.Buzzer	ON/OFF	8.Saturation:	000~100
3.Key time/s:	000~255	9.Language:	CHN/ENG
4.LED Backlight:	000~100	10.Init System:	ON/OFF
5.USB Mode	Mouse/PCKEY/NONE		Press PREV to back
6.Brightness:	000~100		
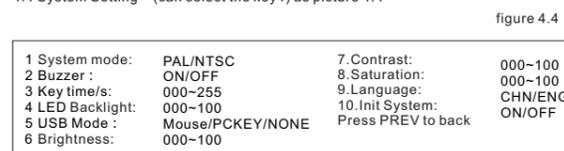
Instruction:
1.Buzzer ON/OFF function 2 Auto switch interval of four ways switcher
(Unit: second) 3. USB mode 4. SYSTEM INITIAL

4.5 Exit the keyboard menu
Enter the menu as picture (4.2.1-1) and press the【5】to exit the menu.

5. Appendix

5.1 RS485 Bus General Knowledge

●RS485 Bus General Character

According to Bus industrial standards, RS485 Bus is of half-duplexed data
transmission cables
with characteristic impedance as 120. The maximum load capacity is 32
unit loads (including main
controller and controller equipment)
Distance of RS485 bus transmission
While use the 0.56mm (24AWG) twisted cable as the communication, the farthest
distance it can reach as follow based on the different Baud rate:

Baud rate	Max.distance
2400bps	1800M
4800bps	1200M
9600bps	800M
19200bps	600M

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If user selects thinner cables, or installs the dome in an environment with strong
electromagnetic interference, or connects lots of equipment to the RS485 Bus,
the maximum transmitting distance will be decreased. To increase the maximum
transmitting distance, do the contrary.。

●Connection and term national resistance

The RS485 standards require a daisy-chain connection between the equipment.
There must be termination resistance with 120 impedance at both ends of the
connection (refer to picture 4-1.1).Please refer to picture 4-1.2 for simple
connection But "D" should not exceed 7m。
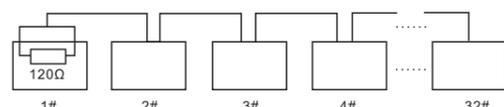
Figure 4-1.1
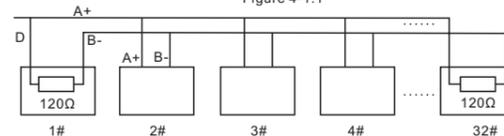
Figure 4-1.2

●Problems in practical use

In some circumstances user adopts a star configuration in practical connection.
The termination resistors must be connected to the two equipments that are father
away from each other, such as equipment1# and 15# (refer to picture 4-1.3). As the
star configuration is not in conformity with the requirements of RS485 standards,
problems such as signal reflections, lower anti-interference performance arise
when the cables are long in the connection. The reliability of control signals are
decreased with the phenomena that the dome dose not responds to or just responds
at intervals to the controller, or dose continuous operation without stop.
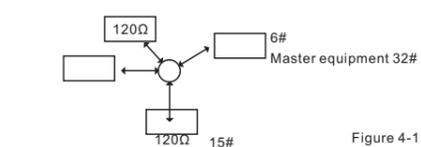
Figure 4-1.3

In such circumstances the factory will recommends the usage of Rs485 distributor.
The distributor can change the star configuration connection to the mode of
connection stipulated in the RS485 standards. The new connection achieves reliable
data transmission (refer to picture 4-1.4)

-14-
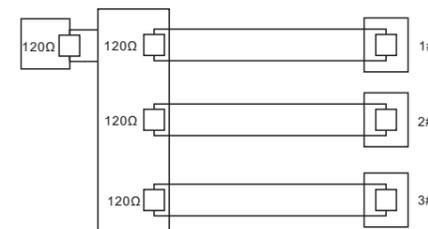
Figure 4-1.4

5.2 Keyboard shortcut instruction

Working Mode	shortcut	Operation object	Function
All mode	【LCD】	Keyboard	ON/OFF
	【MENU】	Keyboard	System information display
	【UP】	Keyboard	Choose the above function
	【DOWN】	Keyboard	Choose the next function
	【LEFT】	Keyboard	Exit order
	【RIGHT】	Keyboard	Enter order
	【IN/MON】	Keyboard	Input choose:AV/VGA/HDMI/SDI
	【N】+【CAM】	High speed dome	Input Dome ID, press【CAM】to select object dome.
	【TELE】	High speed dome	Press【TELE】，increase the multiple of lens
	【WIDE】	High speed dome	Press【WIDE】，reduce the multiple of lens
	【FAR】	High speed dome	Press【FAR】for focus
	【NEAR】	High speed dome	Press【NEAR】，near focus
	【CLOSE】	High speed dome	Press【CLOSE】，deduct iris
	【OPEN】	High speed dome	Press【OPEN】，increase iris
	【LIGHT】	High speed dome	ON/OFF auxiliary light
	【WIPER】	High speed dome	ON/OFF water Wiper
	【CALL】	High speed dome	Spare key
	【GOTO】	High speed dome	Shortcut for preset call
	【SET】+【N】+【PRE】	High speed dome	Adjust the image to object position, Press【SET】to input the preset, and press【PRESET】to set the preset

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All mode	【N】+【PRE】	High speed dome	Input preset ID, press【Preset】to call the preset
	【SET】+【1】+【SCAN】	High speed dome	Adjust the image to object position, press Set to input【1】then press Scan to set【scan】left limit.
	【SET】+【2】+【SCAN】	High speed dome	Adjust the image to object position, press Set to input【2】，then press【Scan】to set scan right limit.
	【1】+【SCAN】	High speed dome	Input【1】.press【Scan】to run scan.
	【SET】+【N】+【PAT】	High speed dome	Press【Set】to input pattern number, press Pattern】to record pattern path.
	【SET】+【0】+【PAT】	High speed dome	Press【SET】and input0, Press【PATTERN】to save path
	【N】+【PAT】	High speed dome	Input the pattern path(1-4)Press【PATTERN】to start pattern
	【N】+【TOUR】/【TOUR】	High speed dome	Input the TOUR NO, press【TOUR】or directly press【TOUR】to start the Tour
	【9】+【5】+【PRE】	High speed dome	Input 95 and press【Preset】to call the menu
Pelco Matrix Mode	【SHIFT】+【SET】	Matrix	Press【SHIFT】and【SET】to call the matrix menu
	【PREV】	Matrix	Press【PREV】skip to the previous dome, hold on 2sec on【PREV】to continuously skip the sixteen domes of connection matrix forwards
	【NEXT】	Matrix	Press【NEXT】skip to the previous dome, hold on 2sec on【NEXT】to continuously skip the sixteen domes of connection matrix backwards
	【Stop】	Matrix	Stop switch
	【ENT】	Matrix	After program, press【Enter】to confirm。
	【N】+【IN/MON】	Matrix	Input monitor ID, press【Cam】to select object monitor
DVR	【◁】	DVR	Show video circularly
	【□】	DVR	Single screen mode
	【⊞】	DVR	Four screen mode
	【⊞】	DVR	Nine screen mode
	【⊞】	DVR	Sixteen screen mode
	【●】	DVR	Start/Stop recording
	【▶】	DVR	Video play
	【‖】	DVR	Video pause
	【◀◀】	DVR	Fast back play
	【▶▶】	DVR	Fast forward play
	【Rotate the shuttle anti-clockwise】	DVR/control center	Enter/Exit menu
	【Rotate the shuttle clockwise】	DVR/control center	Up/Down choose
Four ways VGA/AV Switcher	【AUTO】	switcher	Timing choose route CH1-CH4
	【Ch1】	switcher	Choose Ch1
	【Ch2】	switcher	Choose Ch2
	【Ch3】	switcher	Choose Ch3
	【Ch4】	switcher	Choose Ch4

Note:【PRE】=【PRESET】【PAT】=【PATTERN】
【SHI=SHIFT】【ENT=【ENTER】

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