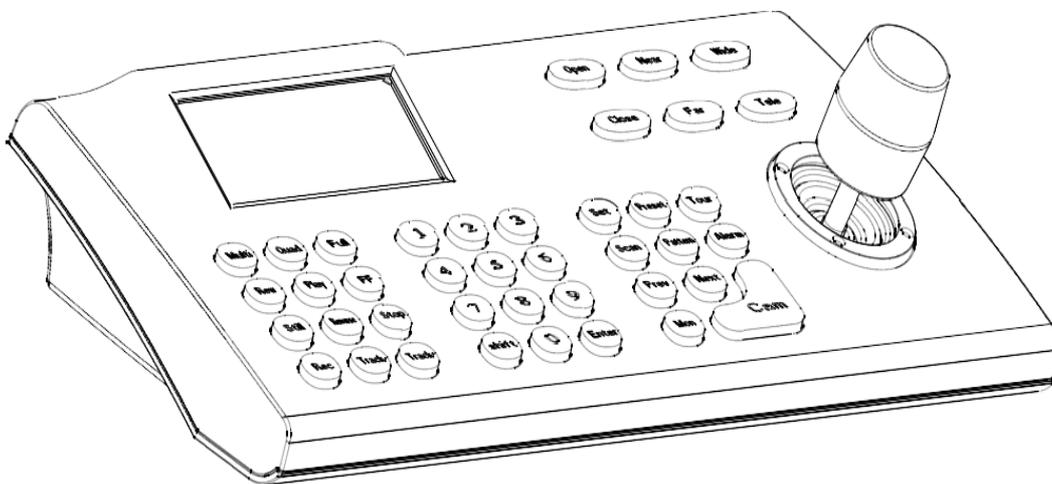


AViPAS

Model: AV-3106
Keyboard Controller



User Manual

V3.01

(English)

**Please read this User Manual
throughout before using.**

www.avipas.com

CONTENTS

1. Summary	1
1.1 Notice	1
1.2 Functions and characteristics	1
1.3 Technical data	1
2. Keyboard Connections	2
2.1 Interface instructions	2
2.1.1 RS422 and RS485	2
2.1.2 Power supply port	2
2.1.3 EIA RS232 interface	2
2.1.4 RJ45 interface	2
2.2 DIP switches settings	3
2.3 Matrix connections	3
2.3.1 RJ45 local connections	3
2.3.2 RS422 remote connections	3
2.4 Connect to a dome directly	4
2.5 Connect to a DVR	4
2.6 Connection to the system	4
3. Keyboard Operation Manual	6
3.1 Current-carrying capacity	6
3.2 LCD	6
3.3 Use joystick to control dome	6
3.4 Change object dome	7
3.5 Lens control	7
3.6 Set dome functions	7
3.6.1 Preset	7
3.6.2 Scan	7
3.6.3 Pattern	8
3.6.4 Tour	8
3.7 Call the dome main menu	8
3.8 Control the matrix	8
3.8.1 Switch dome in order	8
3.8.2 Call the matrix main menu	8
3.8.3 Confirm after setting	8
3.8.4 Change object monitor	8
4. Keyboard Menu	9
4.1 keyboard index settings	9
4.1.1 Set ID number	9
4.1.2 Set baud rate	9
4.1.3 Set password	9
4.1.4 Joystick calibrations	10
4.1.5 Multi-keyboard connection settings	11
4.2 Dome setups	11
4.2.1 Set preset positions	11
4.2.2 Horizontal scan	11
4.2.3 Pattern scan	12
4.2.4 Dome tour	12

4.3 Alarm box control-----	13
4.3.1 Set the alarm input channel and the alarm spot-----	13
4.3.2 Set alarm ON/OFF status and reset alarmtime-----	13
4.3.3 Reset the alarm input manually-----	14
4.3.4 Resume factory default settings -----	14
4.4 Protocol settings -----	14
4.4.1 Pelco matrix model -----	14
4.4.2 Direct control model-----	14
4.4.3 DVR control model-----	15
4.5 Display the keyboard information -----	15
4.6 Exit keyboard menu -----	15
5. Appendix -----	16
5.1 RS485 bus line basics -----	16
5.2 Keyboard shortcut operation manual-----	17
6. Keyboard Menu Index -----	18
7. Maintenance service terms -----	19

1. Summary

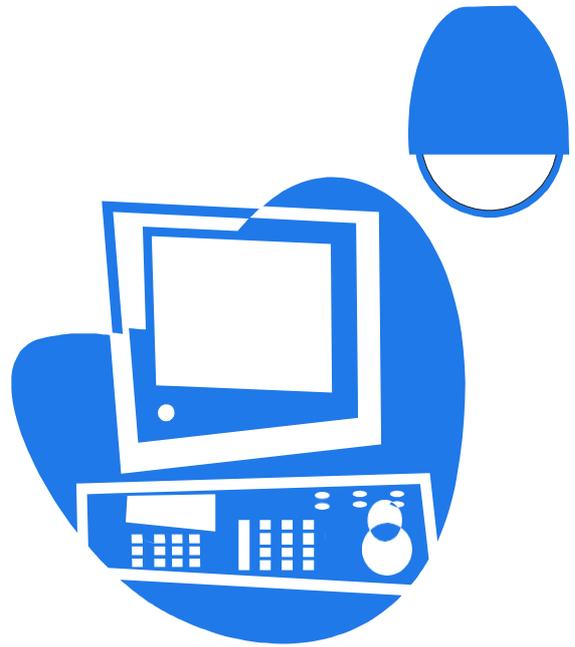
AV-3106 is a universal keyboard for security monitoring series. It can control integrated dome cameras owing to all kinds of protocol matrices and DVR. This controller is equipped with 3D joystick, which can control the camera panning and the zoom of lens. With the backlit LCD screen, the controller can display the current operation, the name of the control protocol, the current dome ID, the current monitor ID and the state of the joystick. The user can control the CCTV system more easily.

1.1 Notice

- Please read this manual thoroughly before use, and keep it handy for future reference.
- Do not use or store AV-3106 in the environment where the product is exposed to rainwater, moisture vapor, salty water, oil, etc.
- Do not place the controller close to any exothermic object for a long time.

1.2 Functions and Characteristics

- Using a RS485 bus line, this keyboard can connect up to 31 domes in the direct control mode.
- This keyboard is compatible with all kinds of protocols.
- The user can control the aperture, zoom and magnification.
- The user can set and call the preset menu, run scan or pattern and tour functions.
- The user can work with the matrix, which can be used to control the dome indirectly.
- The user can set alarm trigger and alarm linkage.
- This keyboard is equipped with a 3D joystick and a large LCD screen.



1.3 Technical Data

- ◆ Electrical
Input voltage: 9V~12V AC/DC
Rated power: 2.5W
- ◆ Communication
Communication interface:
RS485 × 1, RS422 × 1, RS232 × 1, RJ45 × 1
Communication frequency:
2400bps, 4800bps, 9600bps
Communication distance:
1.2km (only with RS485 and RS422)
- ◆ Operational Environment
Operating temperature: 0°C~40°C
Relative humidity: less than 90%
- ◆ Physical Properties
L*W*H=378*160*98 (mm)
Weight: 1.3kg (Net Weight)

2. Keyboard Connections

2.1 Interface instructions

AV-3106 is equipped with all kinds of communication interfaces: RS232, RS422, RS485, RJ45. The user can find them on the back of the keyboard. With proper connections, this keyboard can control target devices.

2.1.1 RS485 and RS422 interfaces

RS485 and RS422 interfaces are 6-bit ribbon cable connections on the keyboard. RS485 (A+, B-) can be used to connect a dome, in order to control the dome directly with the keyboard. RS485 (A+, B-) can be used to connect to a DVR or other keyboard when the dome is controlled via matrix. RS422 (T+, T-) is the “sending signal” mode, while RS422 (R+, R-) is the “receiving signal” mode, and both modes can be used to connect to a matrix, DVR and so on.

2.1.2 Power supply port

The power supply port is used to connect the keyboard to 9V-12V DC/AC power. The keyboard itself is equipped with an adaptor which converts 230VAV to 9VDC.

2.1.3 EIA RS232 interface

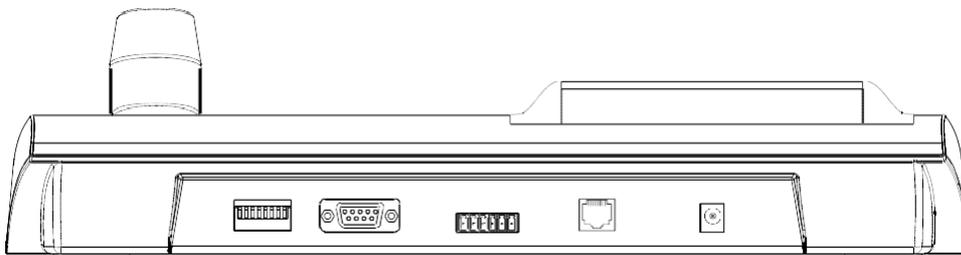
EIA RS232 interface is used to expand the functions to control the menu handler, DVR, PC and so on.

2.1.4 RJ45 interface

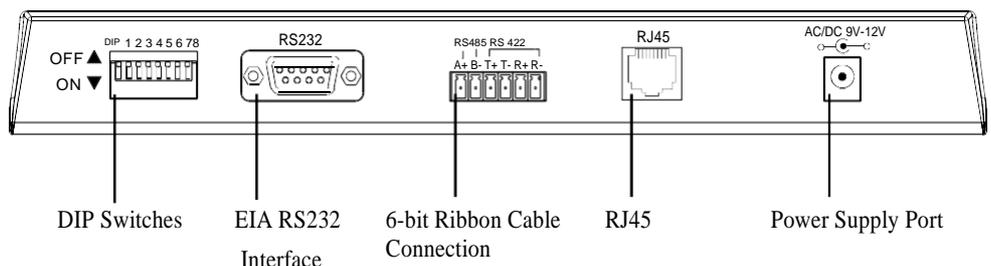
RJ45 interface is the standard network interface which is mainly used for connecting the matrix for short distance use (less than 7.6m). For more details, please see “2.3 Matrix connections” .

2.2 DIP switch settings

There is an 8-bit DIP switch on the back of this keyboard. Among the 8 bits, 1-7 bits are invalid, and the 8th bit is for end-of-line resistance (120Ω) setting for RS485 bus line. When the 8th bit is set to “ON”, it means the end-of-line resistance has been connected into the system. For more RS485 (A+, B-) bus line setting information, please see “5.1 RS485 bus line knowledge” .



Picture 2-1.1



Picture 2-1.2

2.3 Matrix connection

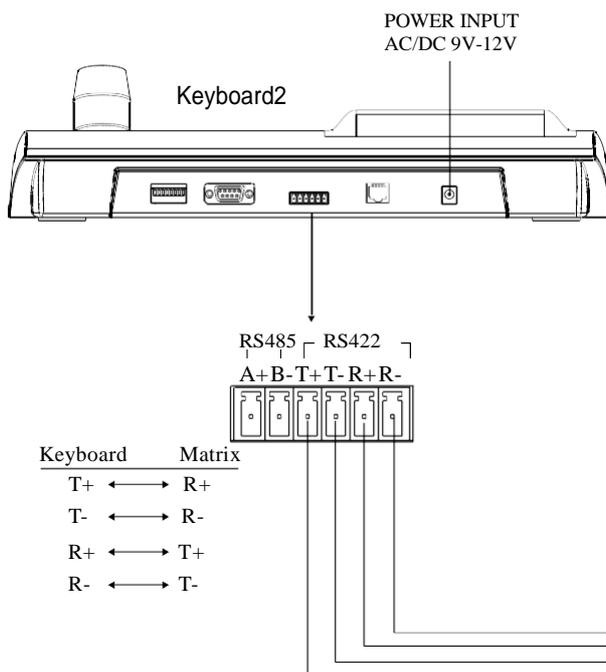
The keyboard can control matrices for PELCO CM6700 and CM6800. In order to introduce the connection between the keyboard and the matrix, take connection to PELCO CM6700 matrix as an example.

There are two kinds of keyboard connection interfaces on the back plate of CM6700 matrix: one is the local keyboard connection interface RJ45 (“LOCAL KEYBOARD”), which can control a single keyboard

within a distance of 7.6m; the other is the remote interface RS422 (“REMOTE KEYBOARD(S)”), which can connect to the RS422 interface on the keyboard. The maximum distance is 1200m.

2.3.1 RJ45 local connection

Please insert one crystal head of RJ45 cable into the RJ45 interface on the back panel of the keyboard, and insert the other end into the RJ45 interface (“LOCAL KEYBOARD”) of CM6700 matrix.



NOTICE

1. RJ45 local connection: the distance between the keyboard and the matrix is less than 7.6m.
2. RJ45 interface is powered by 12VAC, which can at the same time power the keyboard which is connected to CM6700 matrix.

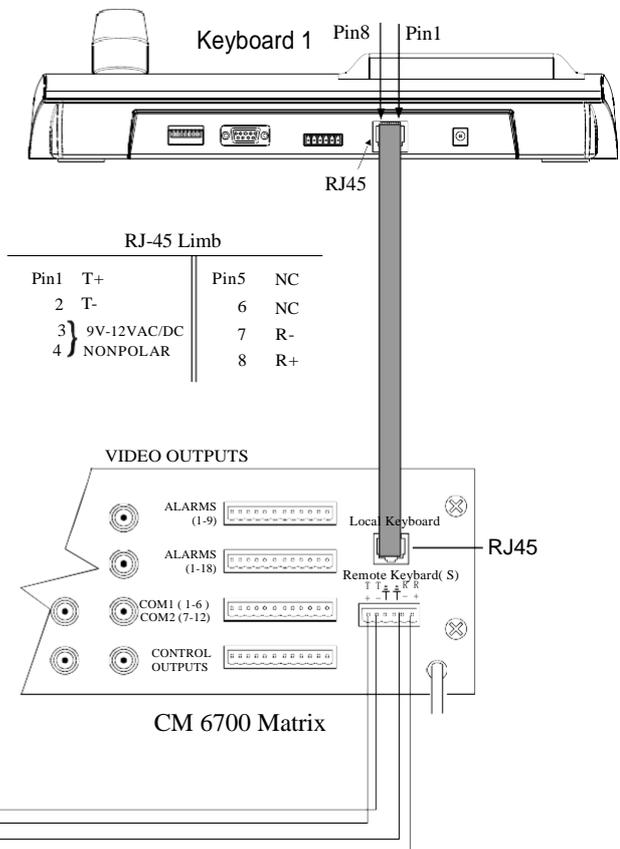
2.3.2 RS422 remote connection

Connect one end of RS422 cable to RS422 interface on the back plate of CM6700 (REMOTE KEYBOARD(s)), and connect the other end to RS422 interface on the keyboard. RS422 (R+, R-) on the keyboard corresponds to matrix interface RS422 (T+, T-); RS422 (T+, T-) on the keyboard corresponds to matrix interface RS422 (R+, R-).



NOTICE

RS422 remote connection: the maximum distance between the keyboard and the matrix is 1200m.



Picture 2-3.1

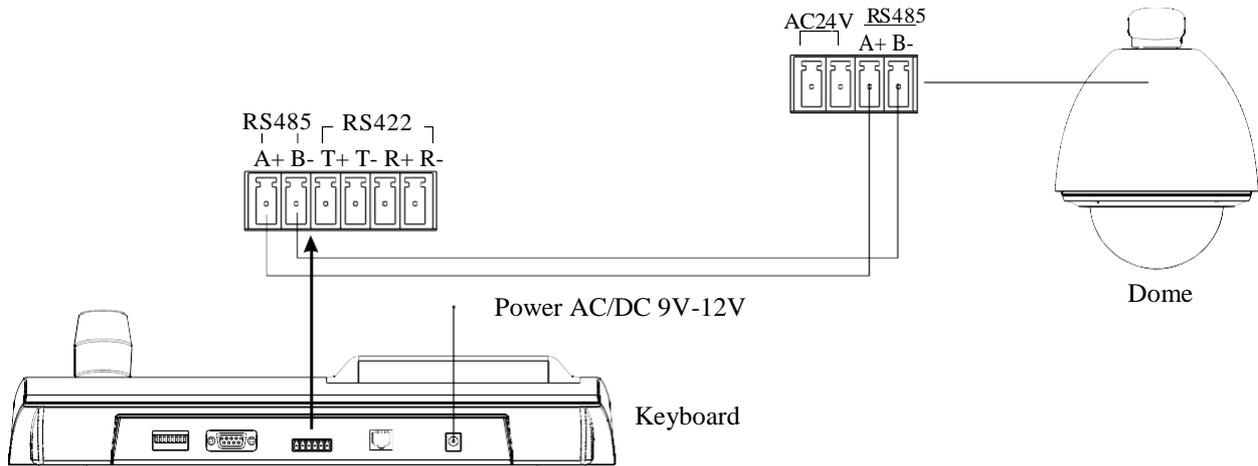
2.4 Connect to a dome directly

The user can connect the keyboard to a dome via a RS485 cable for direct control. Make sure that keyboard DIP switches are set in the direct control mode. To find the RS485 interface of the dome: The user needs to turn the metal button inside the hanging plate and open the cover. There is a 4-Pin control/power socket, and the RS485 interface (A+, B-) can be found following the instructions.

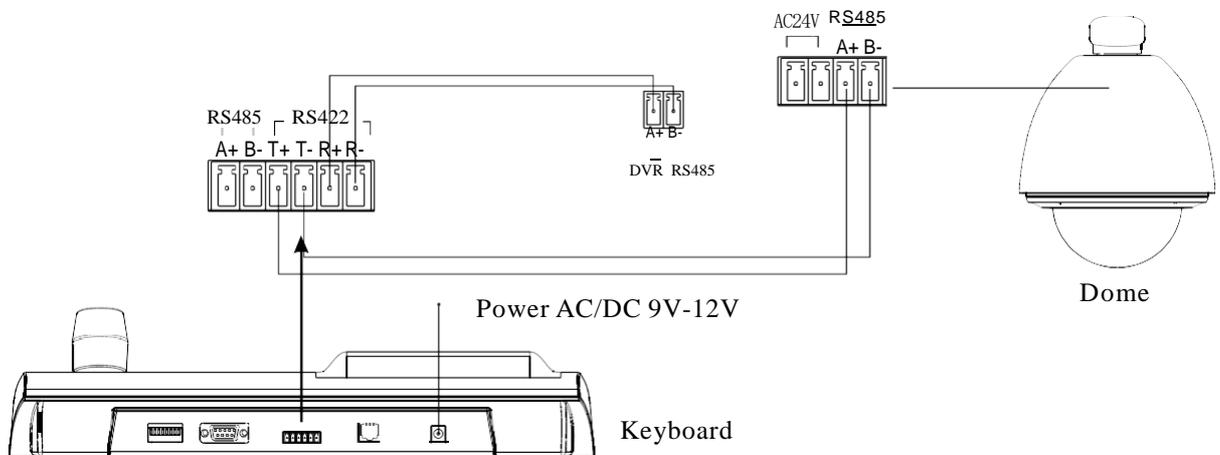
Dome cameras from different manufacturers may acquire different connections. Please see to the dome installation manual before connecting to the keyboard.

2.5 Connect to a DVR

The keyboard can be connected to a DVR and a dome via RS422 interface. RS422 (R+, R-) on the keyboard can connect RS485 (A+, B-) or RS485 (T+, T-) on the DVR and RS485 (A+, B-) on the dome separately.



Picture 2-4.1



Picture 2-5.1

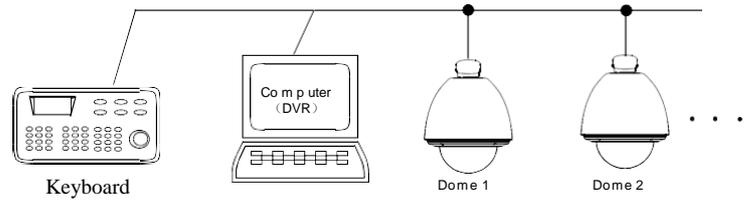
2.6 Connect the keyboard in the system

The user can use the keyboard to control the alarm box, and to connect the dome via the alarm box. Please see the alarm box user manual for more details regarding the connections. Every alarm box only can connect to one dome camera.

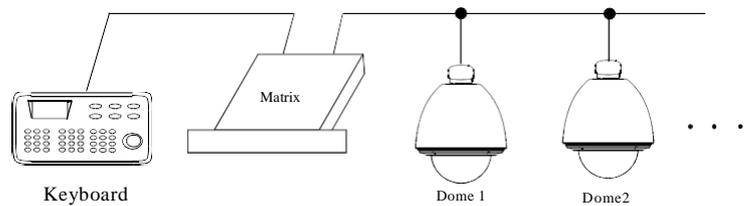
The keyboard can control the matrix, and control the domes indirectly by the matrix (see Picture2-6.1). When the keyboard is not connected to the matrix, it connects to a computer (DVR), and controls the dome (see Picture2-6.2); or the keyboard can also control the dome directly without DVR.

Several keyboards and dome cameras can be connected in parallel, and access RS485 bus line. Each keyboard can control a dome independently. Working in this mode requires the user to set a main keyboard (the main keyboard ID is set to 1), and the Baud rate of the keyboard is set to 9600bps (see Picture 2-6.3).

In the previous pictures, the connections between keyboard and keyboard or between keyboard and computer are all via RS232, however, when the distance between devices is more than 20m, it is suggested that RS485 should be used.



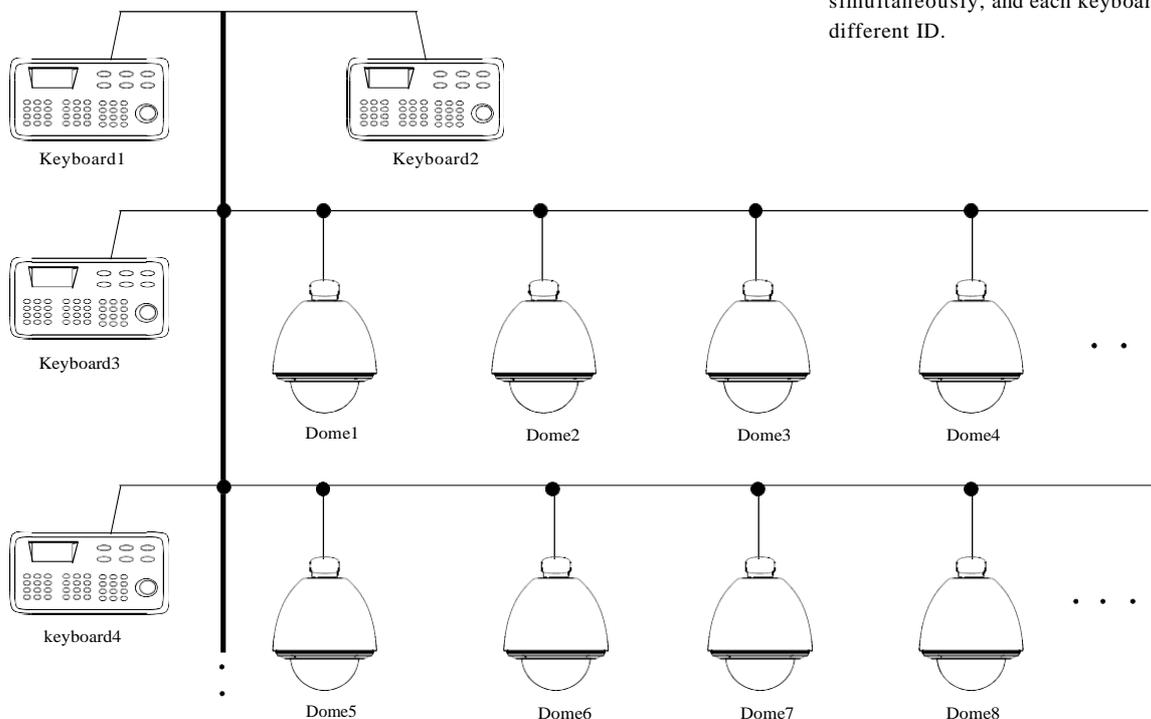
Picture 2-6.2



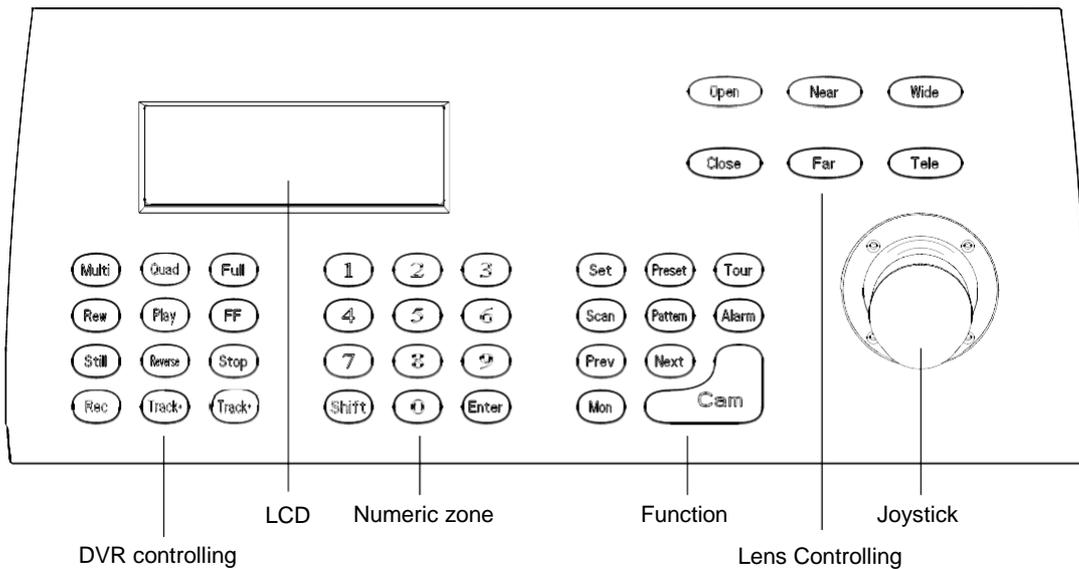
Picture 2-6.1



1. Using one RS485 cable enables the user to control up to 32 pieces of equipment. With that being said, a keyboard can directly control up to 31 domes.
2. The system may have up to 4 keyboards simultaneously, and each keyboard holds a different ID.



Picture 2-6.3



Picture 3-1.1

3. Keyboard Operation Manual

This section mainly describes the operations of keyboard. Notice that different systematic platforms may not always have the same operation, and for particular requirements and operations, please refer to the operation manuals of the dome and the matrix that are being used in the system.

3.1 Current-carrying capacity

Upon being power on, the keyboard will auto-test the version number, keyboard ID, baud-rate, protocol, and will auto-set the object dome and object monitor to #1. All the information will display on the LCD.



NOTICE

1. When the keyboard is initializing, the joystick would to return to position 0, and the user should not pull or tilt the joystick.

3.2 LCD

LCD is used to display the basic information of the keyboard, including the keyboard model, keyboard ID, object camera, object monitor ID, baud rate, etc. In the last line, there are keyboard input commands and the joystick operations (see Picture 3-1.2). When the keyboard is in operation, the backlight of LCD will light up; after no operation is going on for 15s, backlight will be off automatically.

Keyboard	V1.02
Keyboard ID:	001
Camera ID:	002
Monitor ID:	001
Protocol:	Pelco Matrix
Baud rate:	9600bps

Picture 3-1.2

3.3 Use joystick to control dome

The joystick has two functions: one is to manually rotate the dome, and the other is to control the menu settings of the object dome.

- Tilt the joystick to any direction, and the dome camera will rotate to the corresponding direction. At the same time, LCD displays the information at the lower right corner: “◀ ▶ ▲ ▼”, which respectively reflects tilt up, tilt down, tilt right, tilt left. If the joystick tilts to the upper right corner, then the screen will display such information as “▲ ▶”. When the joystick returns to the initial location in the center, the dome stops to rotate immediately.

- When being used to set the menu, the joystick tilting up means choosing the previous menu; tilting down means choosing the next menu; tilting right means entering the current menu or reserving the setting; tilting left means exiting the menu or discarding the changes.

- The greater the gradient of joystick is, the faster the dome rotates. By controlling the gradient of the joystick, the user can control the rotation speed of dome.

By rotating the joystick cap, the user can adjust the focus of lens: rotating the cap clockwise, the camera lens moves closer to the object, and at the same time a “” icon will display on the LCD; rotating the cap counter clockwise, the camera lens moves farther from the object, and at the same time a “” icon will display on the LCD. When controlling the dome via DVR, rotating the cap clockwise indicates “Select”; rotating the cap counter clockwise indicates “Exit”.

3.4 Change object dome

The user can change the object dome camera by using the combination **【N】 + 【Cam】** .

【N】 indicates a numeric key (the same indicator will be used throughout this manual). The user needs to input the dome ID, and then press **【Cam】** to change object dome.

3.5 Lens control

Magnification control: Press **【Tele】** to get a higher magnification. Let go to stop.

Press **【Wide】** to get a lower magnification. Let go to stop. Magnification can also be controlled by rotating the joystick.

Focus control: Press **【Far】** to manually move the focus farther away from the object. Let go to stop.

Press **【Near】** to manually move the focus closer to the object. Let go to stop.

Under a normal working mode, auto-focus function is on by default. The user can choose to manually control the focus using **【Far】** and **【Near】** . The camera will automatically resume to auto-focus when no button is being pressed.

Aperture control: Press **【Open】** to manually increase the aperture. When aperture is at its maximum, the screen will show all white. Let go to stop.

Press **【Close】** to manually reduce the aperture. When aperture is at its minimum, the screen will show all black. Let go to stop.

3.6 Dome function operation

3.6.1 Preset

- Set preset: **【Set】 + 【N】 + 【Preset】**
 - Call preset: **【N】 + 【Preset】**
- 【N】** indicates the preset number.

3.6.2 Scan

- Set left limit: **【Set】 + 【1】 + 【Scan】**
- Set right limit: **【Set】 + 【2】 + 【Scan】**
- Run scan: **【1】 + 【Scan】**

If the user would like to change the speed of scan, enter the menu to setup.

3.6.3 Pattern

- Set pattern path: **【Set】 + 【N】 + 【Pattern】 + Path + 【Set】 + 【0】 + 【Pattern】**

Press **【Set】** , then input pattern NO. (1-4), and press **【Pattern】** to enter the pattern path setup. The dome will record a series of motions and positions, and after recording is complete, press **【Set】** again, then press **【0】 + 【Pattern】** . Pattern setup is complete.

- Run pattern: **【N】 + 【Pattern】**

Input pattern NO. (1-4), then press **【Pattern】** , the corresponding pattern will run.

3.6.4 Tour

Run tour: **【N】 + 【Tour】 / 【Tour】**

Press tour number, then press **【Tour】** , run tour. If system has only one tour path, then press only **【Tour】** to run the tour directly.

If the user would like to set a tour path, enter the menu to setup.

3.7 Call the dome main menu

【9】 + 【5】 + 【Preset】 : call the main menu of object dome, and the menu will display on the object monitor. Please refer to the dome manual for more details regarding how to set the dome menu using a keyboard.



NOTICE

When the keyboard is working in Pelco matrix mode (refer to 2.2 DIP switches settings), it can control the dome or the monitor via matrix.

Only in Pelco matrix mode, can the keyboard perform the control commands of matrix.

3.8 Control the matrix

3.8.1 Switch the domes in order

A matrix can connect up to 16 domes. The user can switch the dome forward or backward sequentially.

【Prev】 : switch to the previous dome.

Press **【Prev】** to switch to the previous dome in single step; press **【Prev】** and hold it for 2s, it'll jump over 16 domes in a backward order.

【Next】 : switch to the next dome.

Press **【Next】** to switch to the next dome in single step; press **【Next】** and hold it for 2s, it'll jump over 16 domes in a forward order.

【Stop】 : stop the switch process.

3.8.2 Call the main menu of matrix

【Shift】 + 【Set】 : call the main menu. The menu will display on the object monitor. Please refer to the matrix manual for more details regarding how to set the matrix menu using a keyboard.

3.8.3 Confirm after setting

【Enter】 : after the matrix is set, press **【Enter】** to confirm the settings. Please refer to the matrix manual for more details.

3.8.4 Change object monitor

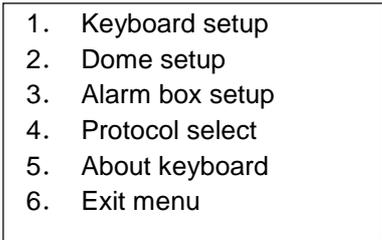
【N】 + 【Mon】 : input the monitor ID, then press **【Mon】** . Both the image from the dome and the main menu of the dome that is being controlled by the keyboard will display on the object monitor.

4. Keyboard Menu

□ The keyboard menu controlling

Press **【Set】**, and hold it for 2 seconds, the keyboard main menu will show on the LCD (see Picture 4.1-1). The main menu should be called before any setup.

Press the numerical key or move the joystick up/down after entering the main menu, the user can select and enter the sub-menu for setups.



Picture 4.1-1

□ Save the settings

Choose the numerical key in according to the menu, then enter the sub-menu; press **【Enter】** to confirm the changes. LCD will display “success” after saving the setting successfully.

□ Return to the previous menu

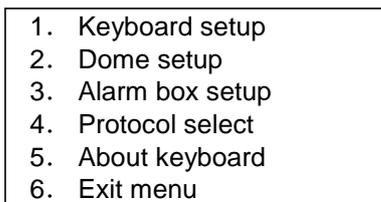
Press **【Prev】** or move the joystick to the left, it'll return to the previous menu.

4.1 Keyboard ID settings

4.1.1 Set keyboard ID

1. Enter the main menu

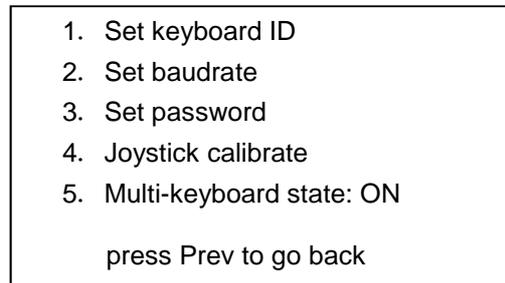
The LCD screen is shown below (see Picture 4.1.1-1).



Picture 4.1.1-1

2. Press **【1】** to enter Keyboard setup

The LCD screen is shown below (see Picture 4.1.1-2).



Picture 4.1.1-2

3. Press **【1】** to enter Set keyboard ID

The LCD screen is shown below (see Picture 4.1.1-3).



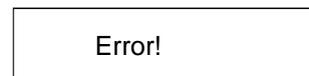
Picture 4.1.1-3

Press the corresponding numerical key (1-64), then press **【Enter】**. The LCD screen will show the message below (see Picture 4.1.1-4), and keyboard ID is set successfully.



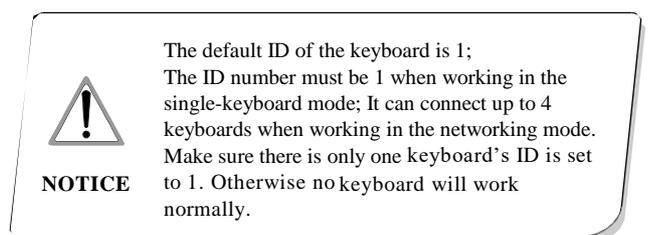
Picture 4.1.1-4

The screen will show **【Error】** if the number entered is invalid (see Picture 4.1.1-5).



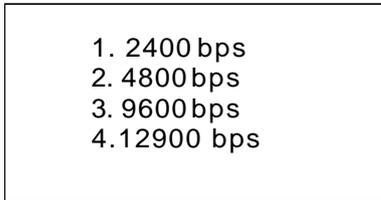
Picture 4.1.1-5

4. Press **【Prev】** or move the joystick leftwards to go back to the previous menu



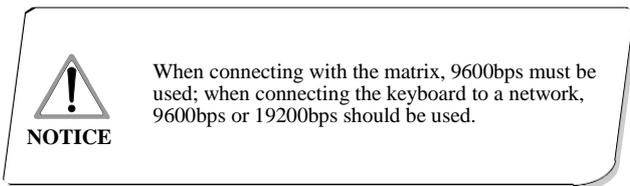
4.1.2 Set keyboard baud rate

Enter menu, the LCD screen will show the main menu (see Picture 4.1.1-1). Press **【1】** to enter Keyboard setup, and press **【2】** to enter Set baud rate. The LCD will show as below (see Picture 4.1.2-1).



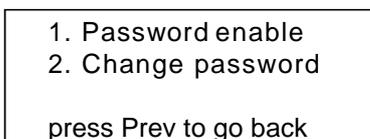
Picture 4.1.2-1

Choose the baud rate by pressing number or moving the cursor to the number, and then press Enter. The LCD screen will show as Picture 4.1.1-4, which means the setup is success. Press **【Prev】** or move the joystick leftwards to go back.



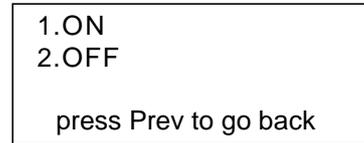
4.1.3 Set password

Enter main menu, and the LCD screen will show as Picture (4.1.1-1). Press **【1】** to enter Keyboard setting, and press **【3】** to enter set password. The LCD screen will show as below (see Picture 4.1.3-1).



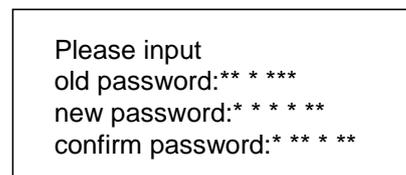
Picture 4.1.3-1

Press **【1】** again to enable the password. The LCD screen will show the “Success” message, which means accessing the main menu requires a password; Press **【2】** to disable the password. The LCD will show the “Success” message, which means accessing the main menu does not require any password (see Picture 4.1.3-2).



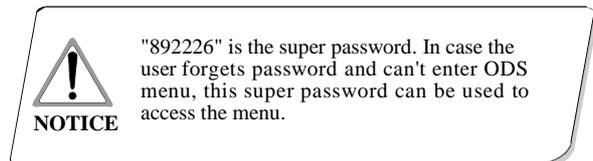
Picture 4.1.3-2

Press **【2】** to enter “Change password”. The LCD screen will show as below (see Picture 4.1.3-3).



Picture4.1.3-3

Input the old password “892226”, then press “Enter”, and the cursor will jump to the second row. Input the new password, press “Enter”, the cursor will jump to the third row. Input the new password again to confirm the new password, press “Enter”. The LCD screen will show the “Success” message, and will return to the main menu.



4.1.4 Joystick calibrate

When the joystick cannot return to zero, the user can enter the Joystick calibration menu to perform the adjustment. The joystick must be in its natural state (in the center) while being calibrated.

Enter the main menu, and the LCD screen will show as Picture 4.1.1-1. Press **【1】** to enter Keyboard setting. Press **【4】** to enter Joystick calibrate. The LCD screen will show as below (see Picture 4.1.4-1).

Joystick is free then
Press Enter

Picture 4.1.4-1

Press **【Enter】** to complete the operation. The LCD screen will show the “Success” message (see Picture 4.1.4-2).

Success !

Picture 4.1.4-2

During the calibration, make sure the joystick is in its natural state (in the center).

NOTICE

4.1.5 Multi-keyboard connection settings

Enter main menu, and the LCD screen will show as Picture (4.1.1-1). Press **【1】** to enter Keyboard setting, and press **【4】** to enter Multi-keyboard state setting. In the sub-menu, use the joystick tilting up/down choose the state ON/OFF. The default setting is OFF. Upon being set to ON, the keyboard can support multi-keyboard network, where there is no interference among each keyboard. One network can support 4 keyboards at most. When the Multi-keyboard state is ON, if there is only one keyboard in the network, the keyboard ID must be set to 1, or the keyboard won't work.

Under multi-keyboard usage condition, the baud rate of each keyboard should be set to 9600bps.

NOTICE

4.2 Dome function settings

Enter the main menu, and press **【2】** to enter Dome setup. The LCD screen will show as below.

1. Set dome preset
2. Set dome scan
3. Set dome pattern
4. Set dome tour

press Prev to go back

Picture 4.2.1

4.2.1 Set preset positions

Press **【1】** to enter dome preset, and the LCD screen will show as below.

1. Save preset
2. Show preset
3. Clear preset

press Prev to go back

Picture 4.2.1-1

Press **【1】** again to set the preset positions. By operating joystick, locate the best position and adjust the lens, then press **【1】** to save this preset position. Set the preset position number: 1-128. The LCD screen will show as below (see Picture 4.2.1-2).

1. Preset num:
(1-128)

press Prev to go back

Picture 4.2.1-2

Press **【2】** to operate the preset position: input a particular preset number, then the camera will move to the preset position. Press **【Prev】** to go back.

Press **【3】** to clear preset: input a particular preset location number, then the corresponding preset position will be removed. Press **【Prev】** to go back.

4.2.2 Horizontal scan

Press **【2】** to enter Set dome scan, the LCD screen will show as below (see Picture 4.2.2-1).

1. Set left limit
 2. Set right limit
 3. Run scan

press Prev to go back

Picture 4.2.2-1

Press **【1】** to set the left limit of scan: by operating the joystick to choose the camera position, press **【Enter】** to confirm. LCD screen will show a “Success” message, and the screen will show as below (see Picture 4.2.2-2).

Press Enter to confirm

press Prev to go back

Picture 4.2.2-2

Same as above, press **【2】** to set the right limit of scan.

Press **【3】** to run the current scan (with keyboard the user can set 1 scan path). Press **【Prev】** to go back.

4.2.3 Pattern scan

Press **【3】** to enter Set dome pattern, and the LCD screen will show as below (see Picture 4.2.3-1).

1. Pattern num:
 2. Set pattern
 3. Run pattern

press Prev to go back

Picture 4.2.3-1

Press **【1】** to input a pattern number: 1-4.

Press **【2】** to set the pattern path: move the camera and adjust the lens to capture the ideal image. The dome camera will record pause time, lens settings and a series of actions. Press **【1】** to start recording, and press **【0】** to stop recording. The LCD screen will show as Picture 4.3.2-2.

Press 1 to start

Press 0 to stop

press Prev to go back

Picture 4.2.3-2

Press **【3】**, the dome will continuously repeat moving along the path that has been recorded. Press **【Prev】** to go back.

4.2.4 Tour

Press **【4】** to enter Set dome tour, and the LCD screen will show as Picture 4.2.4-1.

1. Tour num:
 2. Insert preset
 3. Run tour

press Prev to go back

Picture 4.2.4-1

Press **【1】** to input a tour number: 1-6.

Press **【2】** to set the preset positions, speed and the pause time at each position. The LCD screen will show as Picture 4.2.4-2.

1. Preset num:
 2. Speed
 3. Dwell

press Prev to go back

Picture 4.2.4-2

Press **【1】** to input a preset number: 1-80. Press **【Enter】** to confirm, and the cursor will jump to the second row.

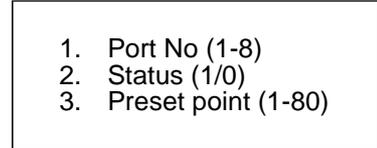
Set the speed: 1-8 of current preset path, press **【Enter】** to confirm, and the cursor will jump to the third row.

Set the pause time: 1-60s for the current preset position, and press **【Enter】** to confirm. The LCD screen will show a “Success” message, and then it will show as Picture 4.2.4-2. Up to 6 tour paths can be set. Press **【Prev】** to go back to the previous menu (see Picture 4.2.4-1), and press **【3】** to run the tour.

4.3 Alarm box control

The keyboard can be used to control the alarm box for the following operations:

- It can set the state of the input alarm signal and the preset position number of that input channel.
- It can set the alarm input channel whether or not responding to the alarm input.
- It can set the restoration mode (Manual or Auto) of the alarm input channel, and its restore time (for Auto).
- It can restore the alarm channel manually.
- The keyboard still can control the camera via the Alarm box. The functions of the camera won't be affected, but the objective camera ID will be determined by the DIP switches of the alarm control box.



Picture 4.3.1-3

Set the port (input channel) number: 1-8. ("0" means perform the same operation for all channels). Press **【Enter】**, and the cursor will jump to the second row.

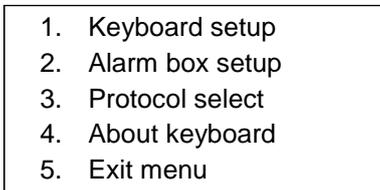
Set the status: 1: ON or 0: OFF. Press **【Enter】**, and the cursor will jump to the third row.

Enter a preset position number that the dome will turn to upon alarm is ON ("0" means perform the same operation for all preset positions). Press **【Enter】**, and the Alarm I/O setup is complete. Picture 4.3.4-3 will show again. Press **【Prev】** to go back to the previous menu.

4.3.1 Set the alarm input channel and the alarm spot

1. Enter the main menu

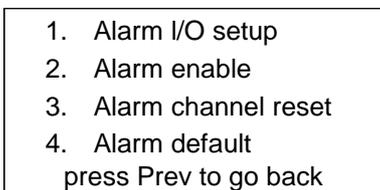
The LCD screen will show as below (see Picture4.3.1-1).



Picture 4.3.1-1

2. Press **【2】** to enter Alarm box setup

The LCD screen will show as below (see Picture 4.3.1-2).



Picture 4.3.1-2

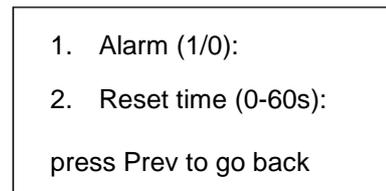
3. Press **【1】** to enter Alarm I/O setup

The LCD screen will show as below (see Picture 4.3.1-3).

4.3.2 Set alarm ON/OFF status and reset alarm time

Enter the Alarm box setup menu, and the LCD screen will show as below (see Picture4.3.1-2).

Press **【2】** to enter Alarm enable? to set the alarm ON/OFF status and to reset alarm time. The LCD screen will show as Picture 4.3.2-1.



Picture 4.3.2-1

Press **【1】** to enable the alarm function; press **【0】** to disable the alarm function. Press **【Enter】**, and the cursor will jump to the second row.

Set the reset time: 0-60s. "0" means the alarm box needs to be restored manually.

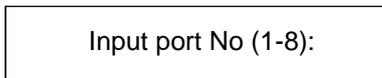
Press **【Prev】** or move the joystick leftwards to go back.

4.3.3 Reset the alarm input manually

Enter the Alarm box setup menu, and the LCD screen will show as Picture 4.3.1-2. Press **【3】** to enter Alarm acknowledge to reset the alarm input Channel manually.

Input a channel number: 1-8, then press **【Enter】** to confirm.

Press **【Prev】** or move the joystick leftwards to go back to the previous menu.

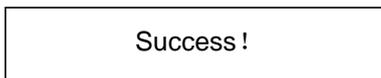


Input port No (1-8):

Picture 4.3.3-1

4.3.4 Resume factory default settings

Enter the Alarm box setup menu, and the LCD screen will show as Picture 4.3.1-2. Press **【4】** to resume factory default settings, and the LCD screen will show as below (see Picture 4.3.3-2).



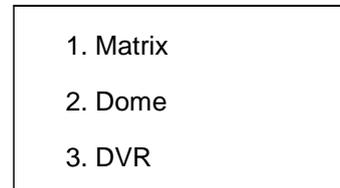
Success!

Picture 4.3.3-2

After returning to the previous menu automatically, all settings and parameters will be restored to factory default. Please use this function with caution!

4.4 Protocol settings

Enter the main menu, and the LCD screen will show as Picture 4.3.1-1. Press **【3】** to enter the protocol setting, and the LCD screen will show as below (see Picture 4.4-1)



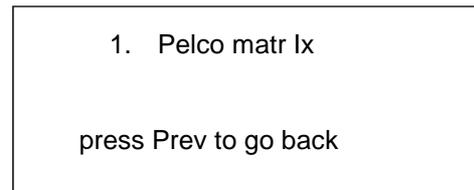
1. Matrix
2. Dome
3. DVR

Picture 4.4-1

4.4.1 Pelco matrix mode

Press **【1】** to enter the matrix menu, and the LCD screen will show as below (see Picture 4.4.1-1).

Press **【Enter】** to choose the protocol, then return to the previous menu.



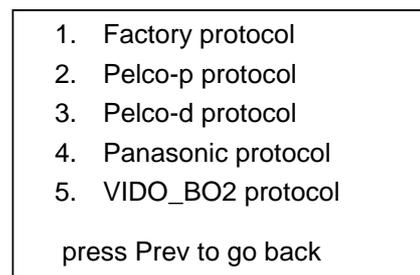
1. Pelco matr lx

press Prev to go back

Picture 4.4.1-1

4.4.2 Direct control model

Press **【2】** to enter the direct control mode, and the LCD screen will show as below (see Picture 4.4.2-1). The user can choose one from a list of protocols according to the usage environment.



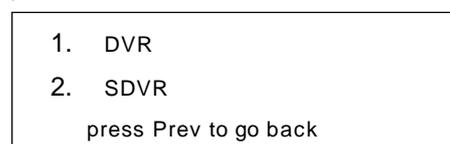
1. Factory protocol
2. Pelco-p protocol
3. Pelco-d protocol
4. Panasonic protocol
5. VIDO_BO2 protocol

press Prev to go back

Picture 4.4.2-1

4.4.3 DVR control model

Enter the Protocol settings menu (see Picture 4.4-1), and press **【3】** to enter the DVR control menu (see Picture 4.4.3-1).



1. DVR
2. SDVR

press Prev to go back

Picture 4.4.3-1

There are two different protocols: DVR and special DVR (SDVR). The user may choose one according to the usage environment. Press **【Enter】** or move the joystick rightwards to confirm. The LCD screen will show a “Success” message once the protocol is set successfully.

After the DVR control protocol is set, press **【Prev】** to quit the keyboard control menu. The current protocol will show on the LCD screen (after the Protocol item).

When the keyboard is working under the SDVR protocol, if the user needs to control the dome during the time when DVR is being used, press the **【Shift】** on the keyboard to easily switch between the DVR control mode and the keyboard direct control mode. After switching to the keyboard direct control mode, the protocol used for keyboard and dome camera will show on the LCD screen (after the Protocol item). The ID will also change from the “DVR id” to the “Camera id”, and the user can choose the object DVR or camera id by **【Prev】** and **【Next】**. Press **【Prev】** indicates reducing 1 from the current id number; press **【Next】** indicates adding 1 to the current id number. Only when the communication protocol, baud rate and the id number are all correct, can the keyboard control DVR.

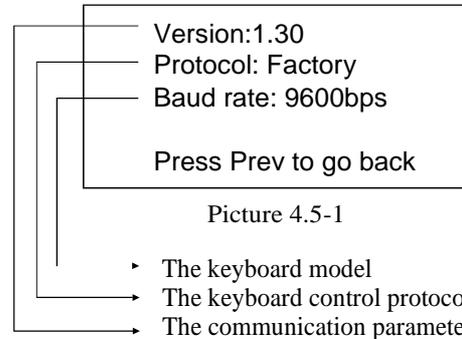


NOTICE

1. When DVR control mode is being chosen, the baud rate must be set to 9600bps.
2. All channels of DVR should be set to use protocol Pelco-d4, and the baud rate should be 9600bps. Then it can communicate with the dome.

4.5 Keyboard message display

Enter the main menu, and press **【5】** to enter About keyboard menu to check the keyboard information on the LCD screen (see Picture 4.5-1).



Press **【Prev】** or move the joystick leftwards to return. The about keyboard menu will display the keyboard model, the keyboard parameter settings, the keyboard communication protocol and the baud rate.

4.6 Exit the keyboard menu

Enter the main menu, and press **【6】** to Exit menu.

5.1 RS485 bus line basics

Characteristics of RS485 bus line

As specified by RS485 standards, RS485 bus line is a half-duplex data transmission cable with characteristic impedance of 120Ω . The maximum load capacity is 32 unit loads (including the main device and the controlled devices).

Transmission distance of RS485 bus line

When the user selects the 0.56mm (24AWG) twisted pair wires, theoretically the maximum transmission distances are as the table shows below.

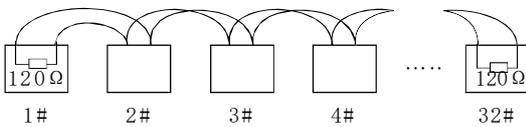
If user selects a thinner cable, or installs the dome in an environment with stronger electromagnetic interference, or connects lots of devices to the RS485 bus line, the maximum transmission distance will decrease. To increase the maximum transmission distance, the user should do the contrary.

Baud Rate	Maximum Distance
2400bps	1800m
4800bps	1200m
9600bps	800m
19200bps	600m

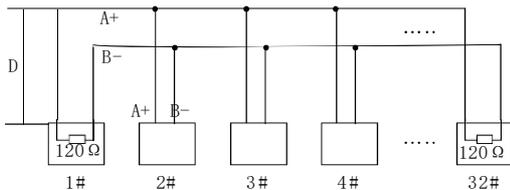
Connection and terminal resistance

The RS485 standards require a daisy-chain connection between each device. There must be terminal resistors of 120Ω at both ends of the connection (see Picture 5-1.1).

Please refer to picture 5-1.2 for simple connection. The length of the “D” area should not exceed 7m.



Picture 5-1.1

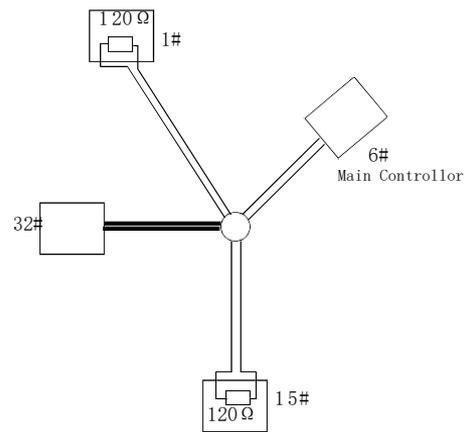


Picture 5-1.2

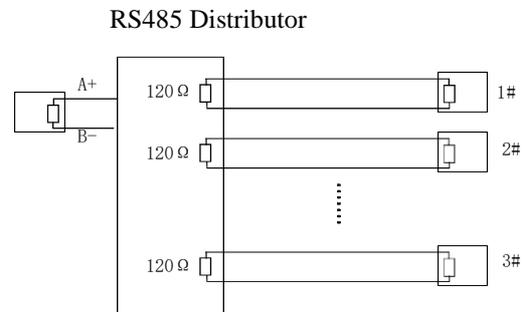
Problems in practice

In practice, the user usually adopts a star configuration, and in this case, terminal resistors must locate at the two devices that are farthest away (see Picture 5-1.3 device 1# and 15#). However, the star configuration is not in conformity with the RS485 standards, so problems such as signal reflections, poor anti-interference performance will arise when the devices are relatively far away from each other. The reliability of the control signal will decrease: the dome dose not responds to or just responds at intervals to the controller, or the dome continuously repeats an operation.

Under such circumstances, we recommend the usage of RS485 distributor. The distributor can change the star configuration to a connection configuration that is stipulated in the RS485 standards, and this configuration can achieve reliable data transmission (see Picture 5-1.4)



Picture 5-1.3

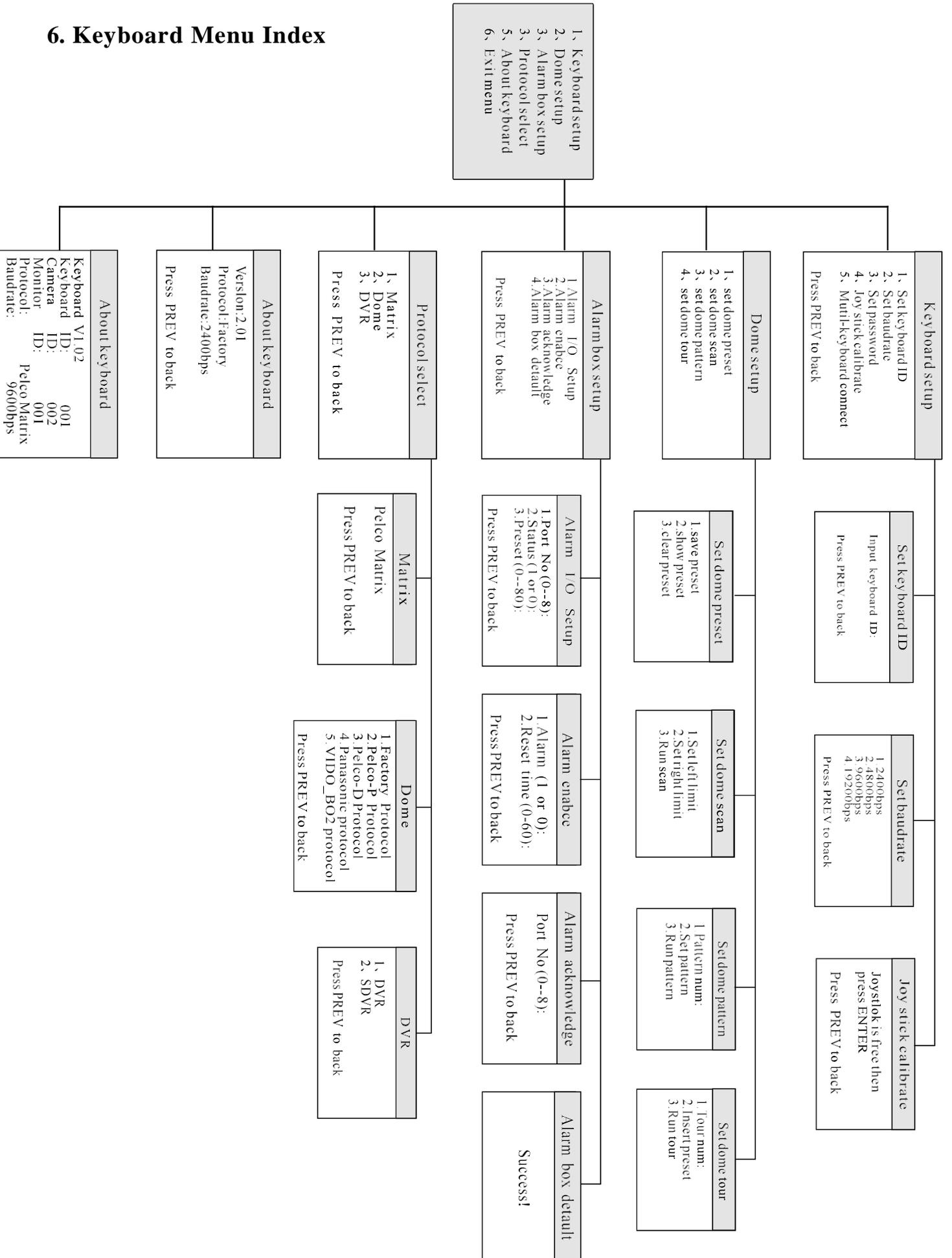


Picture 5-1.4

5.2 Keyboard shortcut operation manual

Working Mode	Shortcut	Operation object	Function
Direct Control Mode and PELCO Matrix Mode	【N】 + 【Cam】	High speed dome	Input the object dome id number, then press 【Cam】 to select the dome.
	【Tele】	High speed dome	Press 【Tele】 to increase the magnification of lens.
	【Wide】	High speed dome	Press 【Wide】 to reduce the magnification of lens.
	【Far】	High speed dome	Press 【Far】 to further? the focus.
	【Near】	High speed dome	Press 【Near】 to near? the focus.
	【Close】	High speed dome	Press 【Close】 to reduce the aperture.
	【Open】	High speed dome	Press 【Open】 to increase the aperture.
	【Set】 + 【N】 + 【Preset】	High speed dome	Press 【Set】 , and input the preset number, then press 【Preset】 to confirm.
	【N】 + 【Preset】	High speed dome	Input the preset position number, then press 【Preset】 to call the preset position.
	【Set】 + 【1】 + 【Scan】	High speed dome	Press 【Set】 , and then input 【1】 , then press 【Scan】 to set the left limit of the scan area.
	【Set】 + 【2】 + 【Scan】	High speed dome	Press 【Set】 , and then input 【2】 , then press 【Scan】 to set the right limit of the scan area.
	【1】 + 【Scan】	High speed dome	Input 【1】 , then press 【Scan】 to run the scan.
	【Set】 + 【N】 + 【Pattern】	High speed dome	Press 【Set】 , and input the pattern number, then press 【Pattern】 to record pattern path.
	【Set】 + 【0】 + 【Pattern】	High speed dome	Press 【Set】 , and input 【0】 , then press 【Pattern】 to save the recorded pattern path.
	【N】 + 【Pattern】	High speed dome	Input a pattern number (1-4), then press 【Pattern】 to run the pattern.
【N】 + 【Tour】 / 【Tour】	High speed dome	Input the tour number, then press 【Tour】 . Or directly press 【Tour】 to run the tour.	
【9】 + 【5】 + 【Preset】	High speed dome	Input 【9】 and 【5】 , then press 【Preset】 to call the main menu of the dome camera.	
PELCO Matrix Mode	【Shift】 + 【Set】	Matrix	Press 【Shift】 and 【Set】 to call the main menu of the matrix.
	【Prev】	Matrix	Switch to the previous dome. Press 【Prev】 to jump to the previous dome. Press 【Prev】 and hold it for 2 sec to jump forward to the 16 th dome in the connection network.
	【Next】	Matrix	Switch to the next dome. Press 【Next】 to jump to the next dome. Press 【Next】 and hold it for 2 sec to jump backward to the 16 th dome in the connection network.
	【Stop】	Matrix	Stop switching domes.
	【Enter】	Matrix	After the change of settings, press 【Enter】 to confirm.
	【N】 + 【Mon】	Monitor	Input the monitor id number, and press 【Cam】 to confirm.

6. Keyboard Menu Index



7. Maintenance service terms

1. Range of warranty

- AViPAS warrants its new product against defects in materials and workmanship for a period of ONE (1) YEAR from the date of original invoice.
- Within three months after the 1-year warranty, if the product is noticed to have the same malfunction as before the warranty ends, it will obtain free maintenance service.
- This warranty does NOT cover problems or damage resulting from, but not limited to, any of the following: any accident, disassembly, or misapplication; any improper operation that is not in accordance with the supplied product instructions; any other cause which does not relate to a product defect in materials or workmanship.
- Please avoid stress, vibration or soakage during transport, storage and installation. Problems or damage resulting from the above are NOT covered by warranty.
- Please remain the way of fission package and our original package for transport. Any damage resulting from integrated package or customer package are NOT covered by warranty.
- This warranty does NOT cover any problem or damage resulting from unauthorized repair or disassembly.
- Our company does offer repair services to out-of-warranty products. Please notice that service fees will be charged.
- For the defected products: if it's still under warranty, please fill out the warranty form with all the information needed, describing the problems in detail. Customers may be asked to furnish proof of ownership and date of purchase by showing the sales receipt/purchase invoice/warranty card.
- We are not responsible for the damage or loss caused by specific usage or applications. Any compensation made by the company regarding breach of contract, negligence or infringement won't exceed the amount of the product. The factory won't bear any responsibility for special, unexpected or continue damage caused by any other reasons.
- Our company has the final right of explanation for the above terms.

2. Warranty conditions

- Customers may be asked to send the warranty card and a detailed description of the problem together with the product for repair.

3. Shipping

- If the product needs to be sent back to the manufacturer for repair, the customer can send it back to the manufacturer directly or through the supplier. If sending back to the manufacturer directly, please contact us first to speed up the process. Our company is only responsible for the one-way shipping fee from the manufacturer to customer after repair or maintenance.

Copyright Notice

All contents of this manual, whose copyright belongs to our Corporation cannot be cloned, copied or translated without the permission of the company. Product specifications and information which were referred to in this document are for reference only. We may alter the content at any time and without prior notice.

Contact Details:

SWIT Electronics USA, LLC

Address: 3350 Scott Blvd. 61-02

Santa Clara, CA 95054

Phone: 1-844-228-4727

Fax: (408) 228-8438

Email: info@swit.us

Website: <http://www.swit.us>

Keyboard Controller
Users Manual
Version V3.01

Manufacturer:

AViPAS Inc.
www.avipas.com
4300 Stevens Creek Blvd. Suite 230
San Jose, CA 95129
(408) 983-0866 1-844-228-4727

Distributed by:

SWIT Electronics USA, LLC
www.swit.us
3350 Scott Blvd. 61-02
Santa Clara, CA 95054
(408) 228-8438