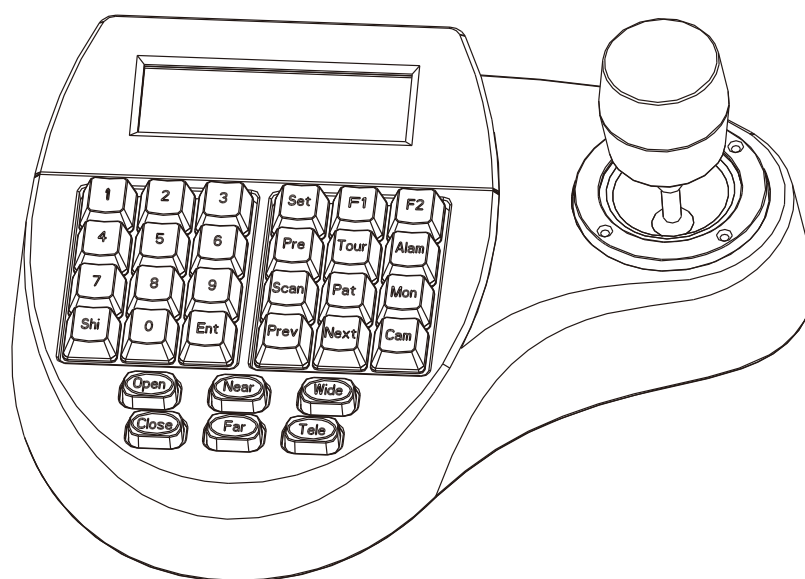


# Network Keyboard Controller

## Users Manual



# CATALOGUE

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## 1. Summary

The keyboard is an universal keyboard of security monitoring series, which can control integrate dome camera with all kinds of protocols matrix and DVR , which has been equipped with 3D joystick and 2D joystick which can control the revolving of the camera and the zoom magnification of lens; with the LCD screen and the function of back-light; which can display the current operation orde 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.
- Please don't close up the keyboard to exothermic object for long time.

### 1.2 Function and Characteristic

- The keyboard supports network control mode and non-network control mode(RS485, Rs422).
- Rs485 Bus Line, and a keyboard can connect 31 domes at most in the direct control mode.
- It can be compatible with all kinds of protocols .
- You can control the Iris 、 Locus and Zoom.
- You can set and call the preset, run scan、 pattern and tour.
- In non-network control mode, you can set horizontal scan, Pattern scanning and cruise.
- It has been equipped with the 2D/3D joystick and the larger LCD screen.

### 1.3 Technical Data

- Electrical
  - Input voltage: 9V-12V AC/DC
  - Rated power: 2.5W
- Communication
  - Network control mode:
  - Communication interface: Rj45×1
  - Communication frequency: 10/100Mbps
  - Communication distance: <=100 meters
  - Non-network control mode:
  - Communication interface: RS485×1, Rs422×1
  - Communication frequency: 2400, 4800, 9600, 19200bps
  - Communication distance: RS485, RS422 up to 1.2KM
- Operational environment
  - Operating temperature: 0℃~50℃
  - Relative humidity: less than 90%
- Physical property
  - L\*W\*H=218\*180\*55 (mm)
  - Weight: 630g (Net Weight)

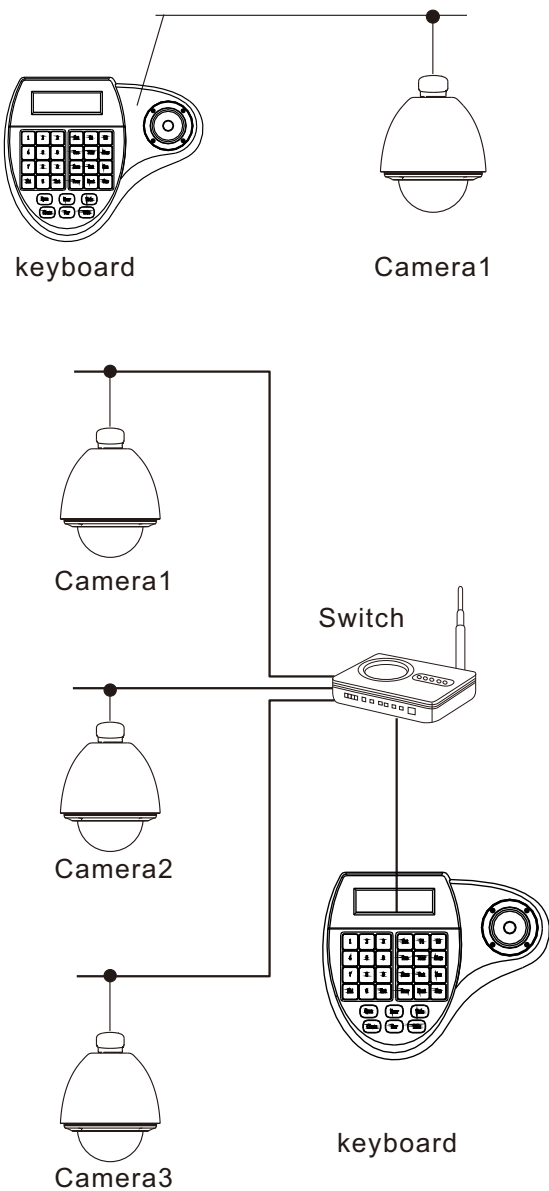
2. Network keyboard settings

Press "F2" key: switch network control mode  
Press "F1" key: non-network control mode

Modify network segment: 【number key】 + 【MON】  
Modify the last three digits of the IP address: 【number key】 + 【CAM】

2.1 Network keyboard connection

The keyboard can be directly connected to the network camera; it can also be connected to the Change the machine to control the network camera indirectly; as shown in the figure.



2. 2 Network keyboard menu setting

Press the 【F2】 key on the keyboard to switch to the network control mode, Press and hold 【SET】 key for 2 seconds to bring up the keyboard main menu, All menu settings must call the main menu.

Enter the main menu, press 【1】 key or move the joystick to the right,

- 1、Keyboard setup
- 2、Dome setup
- 3、Protocol select
- 4、Exit menu

● Camera IP address setting

Press 【3】 key to set camera IP, IP is network camera IP address; 【Port】 is the port number of the camera, the default values 80, 【Protocol】 Protocol Factory, press 【Ent】 key Save and exit; the settings are as shown in the figure below:

- 1、Set KB Parameter
  - 2、About keyboard
  - 3、IP Setting
- 1、Camera IP
  - 2、Keyboard IP
- IP: 192. 168. 001. 088  
Port: 00080  
Protocol: Factory

● Keyboard IP address setting

Press 【 2 】 key, set keyboard IP, request keyboard and camera The IP of the machine is in the same network segment, press [Ent] key to save and exit.

- 1、Camera IP
  - 2、Keyboard IP
- IP: 192. 168. 001. 060  
GAR: 192. 168. 001. 002

After the above settings are completed, exit the menu to control the camera.

### 3. Non-network keyboard connection

#### 3.1 Keyboard Interface Instruction

There is interface on the back of the keyboard, which equipped with kinds of communication interfaces:RS422、RS485、RJ45,which can connect and control kinds of peripheral equipment.

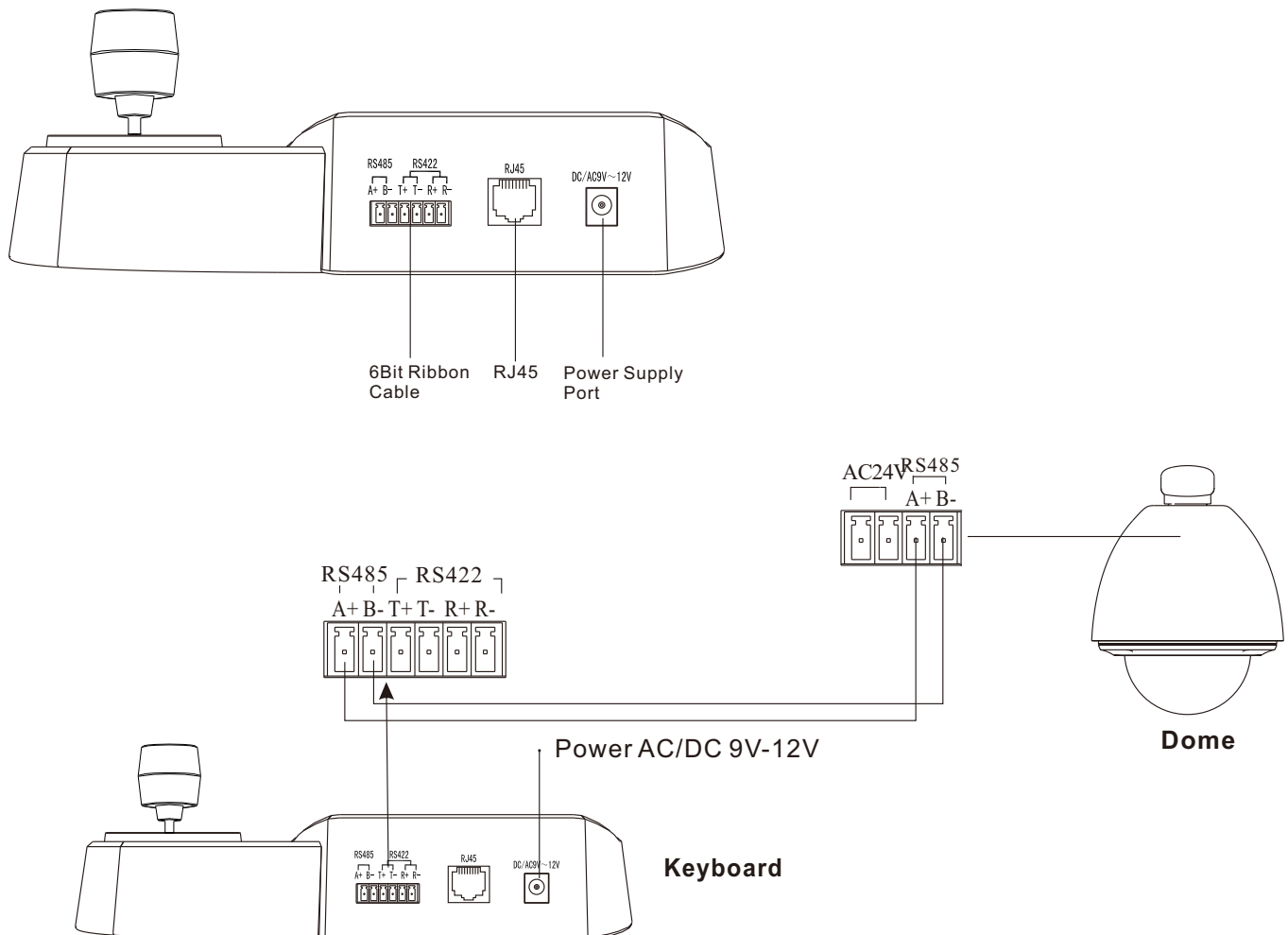
#### 3.2 RS422 and RS485 interface

Rs422 and Rs485 interface are on the 6bit ribbon cable connection of the keyboard.RS485 (A+ B-) can connect with the dome when the keyboard controls the dome directly;RS485 (A+, B-) can connect with DVR or other keyboards when the keyboard controls the dome by matrix; Rs422 (T+ ,T - ) is sending the signal ,RS422(R+ ,R - ) is receiving the signal , both of which can connect with matrix, DVR and so on.

#### 3.3 Connect with The Dome Directly

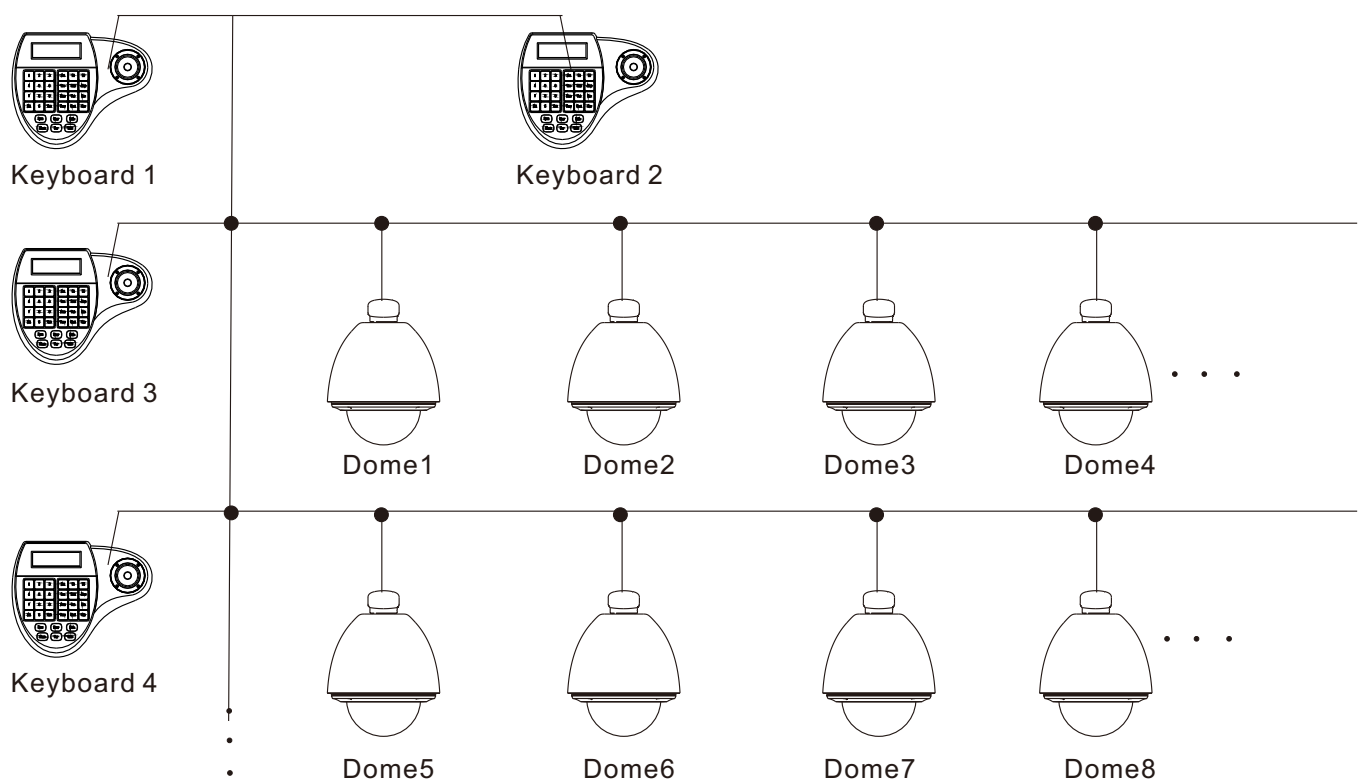
You can connect with the dome by Rs485 interface when the keyboard controls the dome directly. The Rs485 interface of the dome is on the switchboard of pendent hanger of the upper cover of the dome. You can find the 4Pin control/power socket and find the corresponding Rs485 (A+, B-) interface according to the above mark when you turn the metal button inside the hanger and open the switchboard.

There are different connection ways according to the domes which produce by the different manufacturers. About connection with the dome, please see to the dome installation manual.



## 3.4 The Connection of The Keyboard in The System

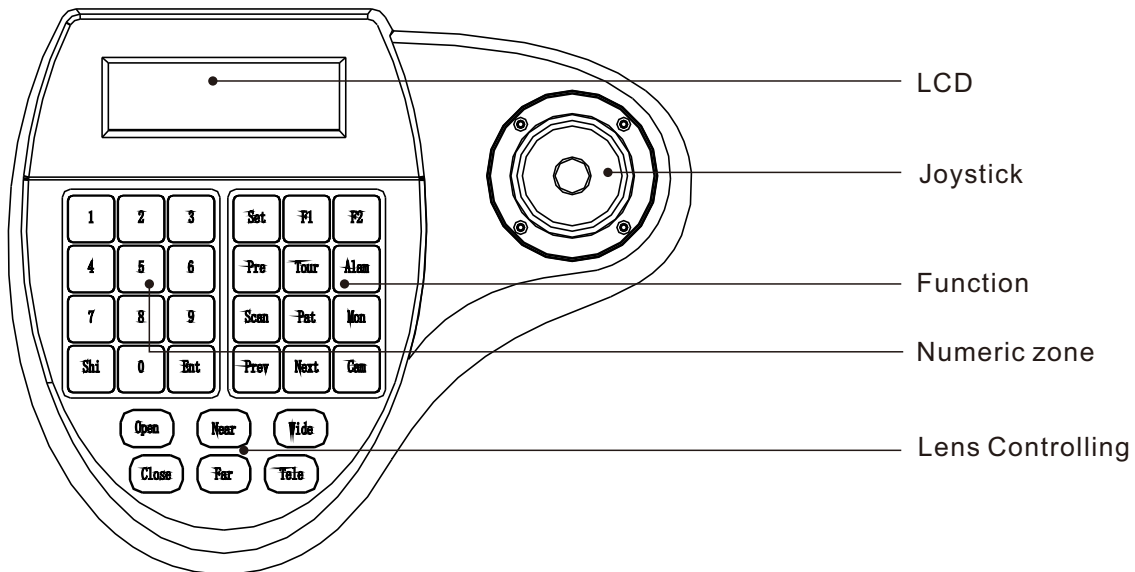
Keyboard and camera parallel connect to Rs 485 Bus and each keyboard can control each dome. This way is required to have a main keyboard (the main keyboard ID set as 1), the Baud rate of keyboard is set as 9600bps.



### NOTICE

1. A line of Rs485 may control up to 32 main controlling and under controlling equipments, so a keyboard which controls the dome directly may connect up to 31 domes.
2. The system may connect up to 4 keyboards at the same time, and the four keyboards ID are different.

## 4. Keyboard Operation Manual



This paragraph describes mainly the operation ways of keyboard, it needs to especially explain that different systematic platform has not the same operations, and different systematic platform may have some particular requirements and operations, please operate it to combine with the operation manual of dome and matrix.

### 4.2 LCD

LCD display is used to list the basic information of keyboard operation, which involves controlling camera, monitor ID, baud rate and so on. In the last line there are keyboard input commands and joystick operation. As the right picture shows: When operate it, LCD will turn on back light, in order to operate easily; stop to operate it for 15s, back light will be off automatically.

### 4.1 Electrify to keyboard

When electrify to keyboard, the keyboard will auto-test the baud rate, protocol and object dome and object monitor will auto-set as 1, and these information will display in the LCD.

Cam ID:001 Mon ID:001  
Protocol: Factory  
Baudrate: 9600bps



#### NOTICE

1. when the keyboard is initializing, the joystick must to return 0, can not to pull or rotate the joystick.

## 4.3 Joystick controls the dome

Joystick has two functions, one is manually controlling dome rotation, the other is setting controlled object menu.

- Rotate joystick at any directions, the dome will rotate in correspondence with directions, at the same time, LCD displays the information as lower right corner shows "◀ ▶ ▲ ▼", they respectively show tilt up, tilt down, tilt right, tilt left. If the joystick tilts upper right corner, the screen will display such information "▲▶" The joystick return to the primary location, and the dome immediately stop to rotate.

- The joystick tilt up means choosing previous menu, which is down means choosing next menu if it is used to set the menu; the joystick is right means entering the next menu or reserving setting after set, which is left means exit or stop reserving.

- More pan/tilt to joystick, the more fast speed the dome rotates. Control the pan/tilt to joystick, it can control the rotation speed of dome.

## 4.4 Change object dome

【N】+【Cam】

【N】means numeric key (Do not explain it again), input the dome ID, Press 【Cam】 to change object dome.

## 4.5 Dome lens control

### ● Zoom control:

Press 【TELE】, lens zoom tele (the multiple of lens increase), leave to stop.

Press 【WIDE】, lens zoom wide (the multiple of lens reduction), leave to stop.

### ● Focus control:

Press 【FAR】 manually far focus, to make the far object more legible, leave to stop.

Press 【NEAR】 manually near focus, to make the near object more legible, leave to stop.

As usually, the camera is in the status of auto focus, user operate manual focus and run other operations by the two keys, and the camera will automatically resume to auto-focus.

### ● Iris control:

Press 【OPEN】 manual Iris increase, Iris is max, the screen will show white, leave to stop.

Press 【CLOSE】 manual Iris reduction, Iris is min, the screen will show black, leave to stop.

## 4.6 Dome function operation

### ● Preset

Set preset: 【SET】+【N】+【Preset】

Call preset: 【N】+【Preset】

【N】means preset number.

### ● Scan

Set left limit: 【SET】+【1】+【Scan】

Set right limit: 【SET】+【2】+【Scan】

Run scan: 【1】+【Scan】

User should enter into menu setup if change the speed of scan.

### ● Pattern

Set pattern path: 【SET】+【N】+【PATTERN】

+Path+【SET】+【0】+【PATTERN】

Press 【SET】, input pattern NO. (1-4),

Press 【PATTERN】 to enter tour setup, the dome records a series of motions, when end up, press 【SET】, then press 【0】, then press 【PATTERN】, the pattern setup finish.

Run pattern: 【N】+【PATTERN】 Input pattern number (1-4), press 【PATTERN】, run pattern.



## ● Tour

Run tour: 【N】 + 【TOUR】 / 【TOUR】

Press tour number, press 【TOUR】 , run tour.

If system has only a tour, press 【TOUR】 directly.

Set tour must enter setup menu.

## ● Call the dome main menu

【9】 + 【5】 + 【Preset】 : input 95, then press

【Preset】 to call the main menu of object dome,  
and the menu is displayed in the object monitor.

How to set the dome menu by keyboard,

Please refer to the dome Operation manual.

5. Keyboard menu control

- Keyboard menu control  
Press and hold 【SET】 key for 2 seconds to bring up the main menu of the keyboard Single, LCD display as shown in the figure. All menu settings must be adjusted Use the main menu.

1、Keyboard setup

2、Dome setup

3、Protocol select

4、Exit menu

- Save Settings  
According to the menu prompt, select the corresponding number key to enter the corresponding function Can be set,  
  
press 【ENTER】 key to save; after successful setting,LCD will display "success"
- Return to the previous menu  
Press 【 PREV 】 key or move the joystick to the left to return to the upper Level menu.

5.1 Keyboard parameter setting

- Set keyboard ID  
Enter the main menu, press the corresponding number key, or shake up and down After the joystick to the selected option, move the joystick to the right to enter Corresponding menu settings.

1、Keyboard setup

2、Dome setup

3、Protocol select

4、Exit menu

1、Set KB Parameter

2、About keyboard

1、Set KB ID

2、Set balldrate

3、Joy\_calibrate

4、Multi keyboard state:ON

Input KB ID:  
( 1-64 )

Press the corresponding number key (1-64); and press 【 Enetr 】 Confirm, the screen displays as shown in the figure, indicating that the operation is successful.

Success!

If the input exceeds the ID range (1-64), the screen will display[Error] is displayed, and the screen displays as shown in the figure.

Error!

Press 【 Prev 】 key or move the joystick to the left to return step by step.

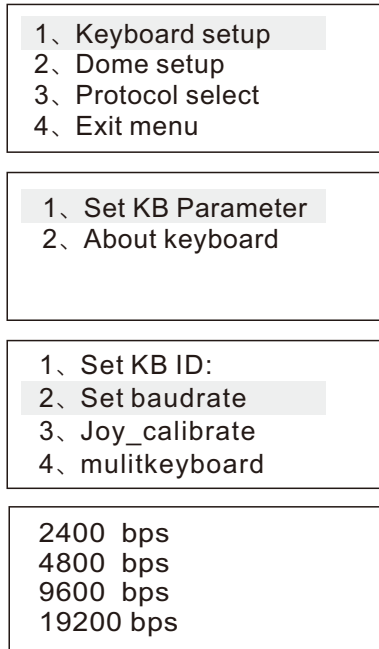


The factory default ID number of the keyboard is 1. Single keyboard work When the ID number must be 1; when working online, it can be at most There are 4 keyboards, but there must be only one The ID number of the keyboard is 1, otherwise all networked keyboards Will not work properly.

## ● Set keyboard baud rate

Enter the keyboard main menu, press [1] to select the keyboard setting;

Press [2] to select and set the keyboard baud rate.



The communication baud rate is 240bps\480bps\9600bps\19200bps, the user chooses the baud rate reasonably according to the actual situation Then press ENTER to save, the screen displays Success! to indicate the operation success.

Press [Prev] or move the joystick left to return.

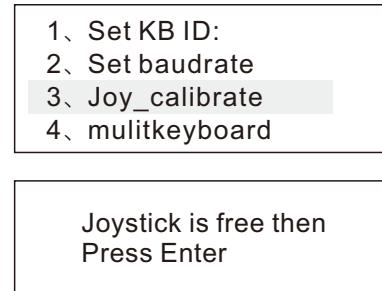


9600bps must be selected when connecting the matrix, When the keyboard is connected to the Internet, you must select 9600bps or 19200bps

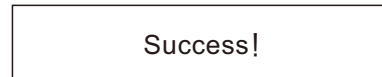
## ● Joystick calibration

When the joystick does not return to zero, the user can enter the joystick calibration menu To calibrate the joystick alone, the joystick must be in a natural state during calibration.

Enter the main menu of the keyboard, please refer to the figure above for the operation steps Press [3] key to enter joystick calibration,



After pressing [Enter] key to complete the operation, the screen will display as shown in figure



When the joystick is calibrated, the joystick must be in a natural Location.

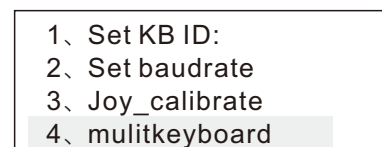
## ● Multi-keyboard connection status setting

Enter the main menu of the keyboard, please refer to the figure above for the operation steps Press [4] to select the multi-keyboard online status setting.

When [Multi keyboard state] is selected, go to The downward swing rocker can be set to "ON" or "OFF", The keyboard is set to OFF by default,

when it is set to ON, multiple keyboards can be used It works in cascade without interfering with each other. A group of up to 4 keyboards can be cascaded.

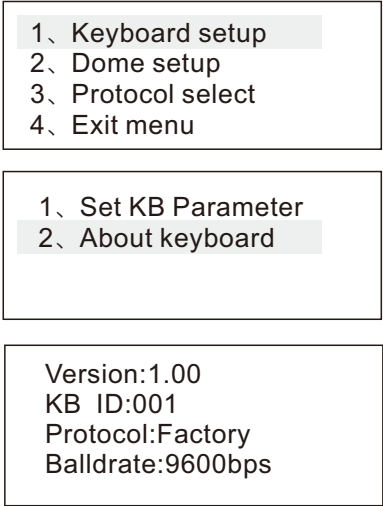
When the cascade state is turned on, if it is a single keyboard, then the keyboard The address must be set to 1, otherwise the keyboard cannot be controlled,



Multi-keyboard working status requires the baud rate of each keyboard Set to 9600bps.

● Keyboard information display

Enter the keyboard main menu,  
Press 【 1 】 to select the keyboard setting,  
Press 【 2 】 key to view keyboard information



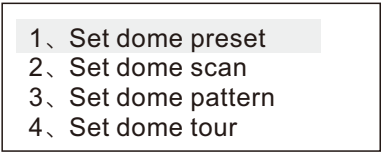
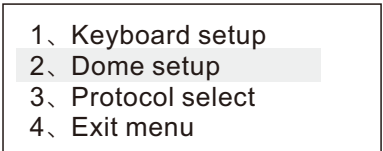
Press 【 Prev 】 key or move the joystick left to return. The keyboard information display menu will display the setting parameters of the keyboard. Number, including keyboard version model, keyboard address, keyboard communication Protocol and communication baud rate.

5.2 Camera settings

The text in this section mainly describes the main functions and implementations of the keyboard to operate the camera. The general principle is now, the specific operation methods of different system platforms are not the same. Generally, the operating manual of the system manufacturer shall prevail. In some cases, there will beFor some special requirements, please contact the dealer for information.

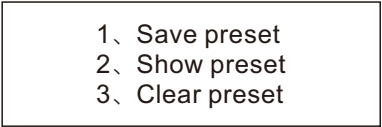
● Camera preset point setting

Enter the main menu, Press 【 2 】 key to enter the camera setting menu, the LCD display is as shown in the figure; Move the joystick up and down to set the camera preset point, scan, pattern scan respectivelyTracing and cruising.

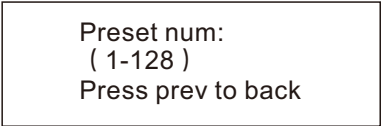


Press 【 1 】 key to enter the camera preset point setting.

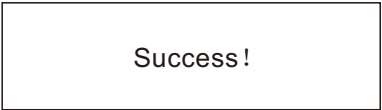
The first item is to set the preset point; the second item is to call the preset point; The third item is to clear the preset point.




Select [1] to enter the preset point setting, this item requires the input of the saved Preset point number.



When entering the menu of setting camera presets, the keyboard joystick will be straight Connect to the control camera, enter the corresponding preset point number, and press [Enter] to Save, the LCD will display "Success" to indicate that the operation is successful.



Press 【 Prev 】 key to return to the previous menu



When entering the menu of setting camera presets, The keyboard joystick will directly control the camera, at this time the lens The buttons in the control area can also control the camera lens normally, In the normal menu mode, the joystick and button operation are In valid camera。

Press 【 2 】 key to enter the camera call preset menu.

Preset num:  
( 1-128 )

Input the corresponding preset point number, press 【 Enter 】 key to call the preset Set the point, LCD displays "Success" to indicate the operation is successful, the joystick Left or press 【 Prev 】 key to return to the previous menu.

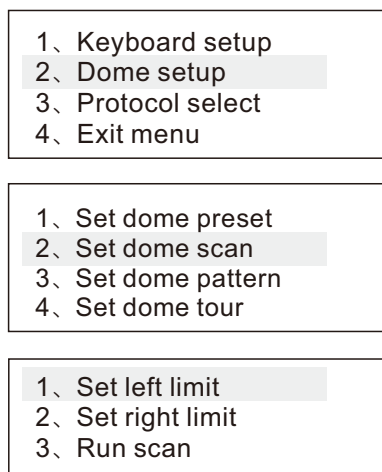
Press 【 3 】 key to enter the clear camera preset menu.

Enter the camera preset point number to be cleared, and press 【 Enter 】 to clear Except for the preset point, LCD displays "Success" to indicate the operation is successful and return Up-level menu.

## ● Camera scan settings

Enter the menu, press 【 2 】 key to enter the camera setting menu, as shown in the figure;

Press 【 2 】 again to enter the camera scan settings.



Camera scan settings include setting the camera's left and right limit and running Scan; select 【 1 】 to set the left limit of the camera.

Press enter sure  
Press prev to back

After entering the set camera limit menu, move the camera to the appropriate Position, press 【 Enter 】 key to save, LCD displays "Success" Indicates that the operation is successful and returns to the previous menu.

Select the second item to set the right limit of the camera, the operation steps are the same as the left limit The setting method is the same. After returning to the scan menu, press 【 3 】 to run the scan.



When entering the setting camera limit menu, the keyboard joystick will Directly control the camera, at this time the buttons in the lens control area can also Normally control the camera lens, pan in the general menu mode.  
The lever and button operations are invalid for the camera.

## ● Pattern scan settings

Enter the menu, press 【 2 】 key to enter the camera setting menu;

Press 【 3 】 again to enter the camera pattern scan setting.

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

1、 Pattern num: \_  
2、 Set pattern  
3、 Run pattern

After entering the menu, the system requires the first input to be set Pattern scanning line, input range (1-4), press 【 Enter 】 key Confirm, the cursor will automatically jump to the second item, start to set the pattern scan, If the user has already set the pattern scan, you can skip this item, Select 【 3 】 to run the pattern scan directly.

Press 1 to start  
Press 0 to stop  
Press prev to back

Pattern scan setting: when entering the pattern scan menu, move When the camera arrives at a suitable position, press the 【 1 】 key to start recording the scan trace.

The screen displays "start....."

Press "0" to end the record scan, the screen displays "Success" and Return to the previous menu, indicating that the operation is successful.

## ● Cruise settings

Enter the menu, press [ 2 ] key to enter the camera setting menu,

Press [ 4 ] again to enter the camera cruise setting, as shown in the figure

- 1、Keyboard setup
- 2、Dome setup
- 3、Protocol select
- 4、Exit menu

- 1、Set dome preset
- 2、Set dome scan
- 3、Set dome pattern
- 4、Set dome tour

- 1、Tour num: \_
- 2、Insert preset
- 3、Run tour

After entering the menu, the system requires the first input to be set Cruise route line, input range (1-6), press [ Enter ] key Confirm, the cursor will automatically jump to the second line to set the cruise route, such as If the user has set the cruise route, you can skip the second item and directly transport Cruise, LCD displays "Success" and returns to the previous menu, Indicates that the operation was successful.

Select the second item to input the cruise preset point to be inserted. In the second item Input preset speed, input range (1-127), input in the third item Preset point dwell time, input range (1-255), press [ Enter ] Press to confirm, LCD displays "Success" and returns to the previous menu, Indicates that the preset point is successfully added.

- 1、Preset num: \_
- 2、speed:
- 3、dwell:

Press [ 3 ] key to run the cruise route.



The function of inserting cruise presets is only available in It is valid under the VIDO-B02 protocol, while other Invalid settings under the agreement.

## ● Protocol settings

Enter the menu, press [ 3 ] key to enter the protocol setting.

- 1、Keyboard setup
- 2、Dome setup
- 3、Protocol select
- 4、Exit menu

## ● Camera control mode

Select [ 2 ] to enter the camera control mode

- 1、Matrix
- 2、Dome

- 1、Factory protocol
- 2、Pelco-p protocol
- 3、Pelco-d protocol
- 4、VIDO-B02

According to the actual situation of the user, select the corresponding communication protocol, After the protocol is selected, the system automatically returns to the previous menu.

## 5.3 Exit keyboard menu

Enter the menu, press [ 4 ] to exit the menu directly.

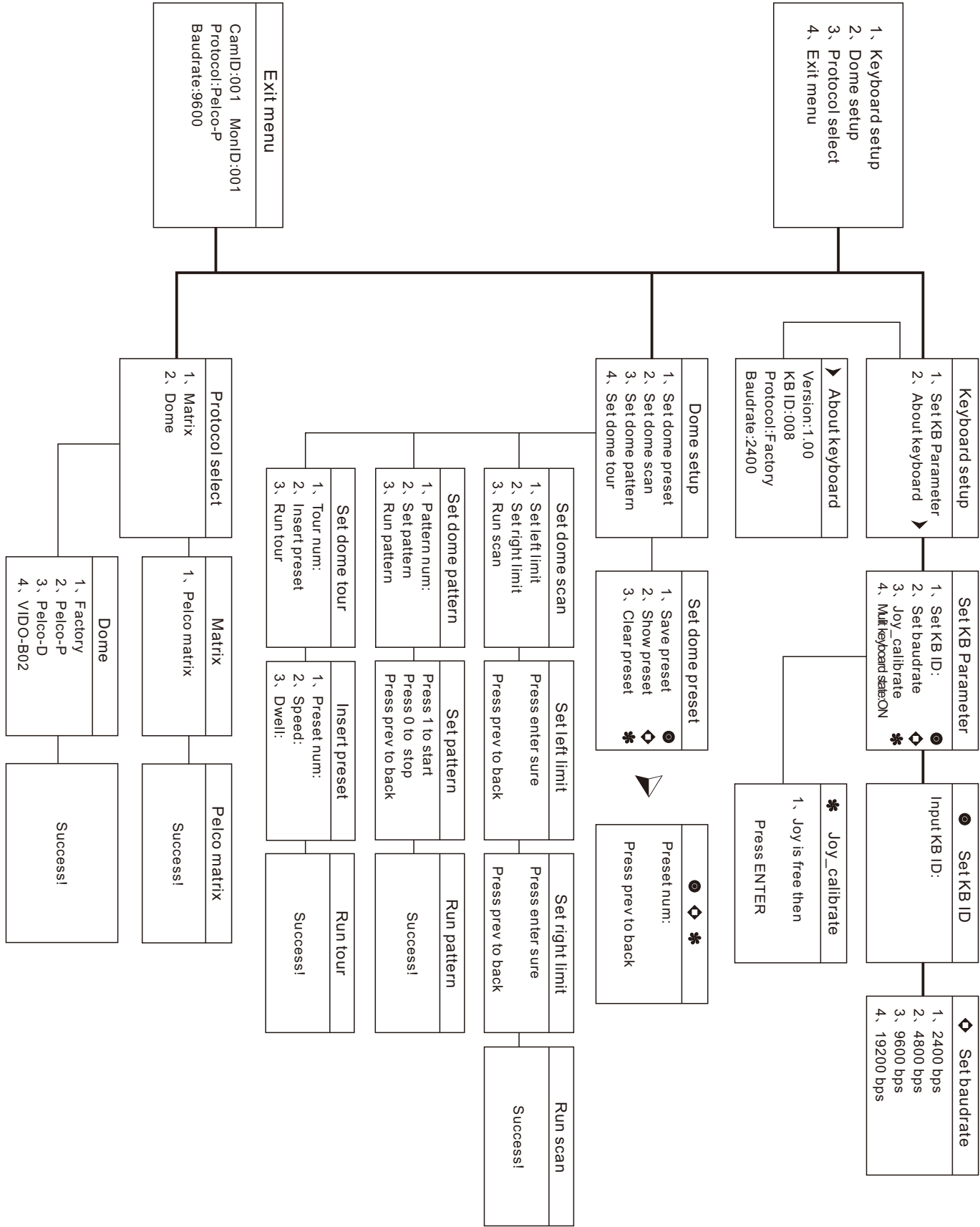
- 1、Keyboard setup
- 2、Dome setup
- 3、Protocol select
- 4、Exit menu

## 5.4 Keyboard shortcut operation manual

Working Mode	Shortcut	Operation object	Function
Non-Network Mode	<b>【N】 + 【Cam】</b>	High speed dome	Input Dome ID, press <b>【Cam】</b> to select object dome.
	<b>【Tele】</b>		Press <b>【Tele】</b> , increase the multiple of lens
	<b>【Wide】</b>		Press <b>【Wide】</b> , reduce the multiple of lens
	<b>【Far】</b>		Press <b>【Far】</b> , far focus
	<b>【Near】</b>		Press <b>【Near】</b> , near focus
	<b>【Close】</b>		Press <b>【Close】</b> , reduct the Iris
	<b>【Open】</b>		Press <b>【Open】</b> , increase th Iris
	<b>【Set】 + 【N】 + 【Preset】</b>		Adjust the image to object position, press <b>【Set】</b> to input preset Number, then press <b>【Preset】</b> to set preset.
	<b>【N】 + 【Preset】</b>		Input preset Number, press <b>【Preset】</b> to call the preset.
	<b>【SET】 + 【1】 + 【Scan】</b>		Adjust the image to object position, press <b>【Set】</b> to input 1, then press <b>【Scan】</b> to set scan left limit.
	<b>【SET】 + 【2】 + 【Scan】</b>		Adjust the image to object position, press <b>【Set】</b> to input 2, then press <b>【Scan】</b> to set scan right limit.
	<b>【1】 + 【Scan】</b>		Input 1, press <b>【Scan】</b> to run scan.
	<b>【Set】 + 【N】 + 【Pattern】</b>		Press <b>【Set】</b> to input pattern number, press <b>【Pattern】</b> to record pattern path.
	<b>【Set】 + 【0】 + 【Pattern】</b>		Press <b>【Set】</b> ,input 0, then press <b>【Pattern】</b> to save pattern
	<b>【N】 + 【Pattern】</b>		Input pattern number(1-4), press <b>【Pattern】</b> to run pattern.
Network Mode	<b>【N】 + 【Tour】 / 【Tour】</b>	High speed dome	Input tour number, press <b>【Tour】</b> or directly press <b>【Tour】</b> to run cruise.
	<b>【9】 + 【5】 + 【Preset】</b>		Input 95 to call main menu of dome
	<b>【N】 + 【MON】</b>		Modify network segment
	<b>【N】 + 【CAM】</b>		Modify the last three digits of the IP address

6. Appendix

6.1 Keyboard Menu Index





## 6.2 Rs485 Bus Basic Knowledge

### \* Characteristic of RS485 Bus line

According to RS485 standards, RS485 Bus is of half-duplexed data transmission cables with characteristic impedance as  $120\Omega$ . The maximum load capacity is 32 unit loads (including main controller and controller equipment)

### \* Transmission distance of RS485 Bus line

When user selects the 0.56mm (24AWG) twisted-pair as data transmission cable, the maximum theoretical transmitting distances are as follows according to different baud rate:

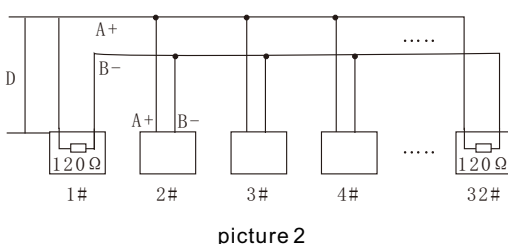
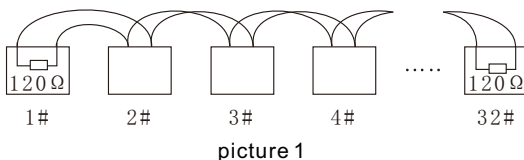
If user selects thinner cables, or installs the dome in an environment with strong electromagnetic interference, or connects lots of equipment to the RS485 Bus, the maximum transmitting distance will be decreased. To increase the maximum transmitting distance, do the contrary.

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 the equipment. There must be termination resistance with  $120\Omega$  at both ends of the connection.

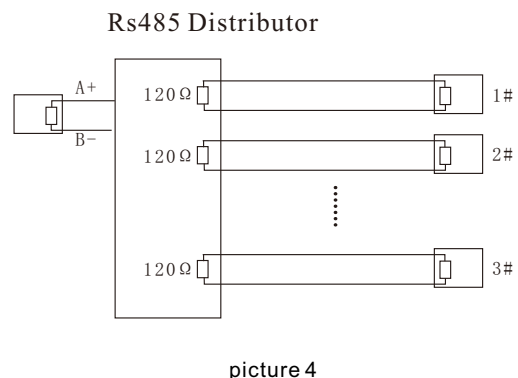
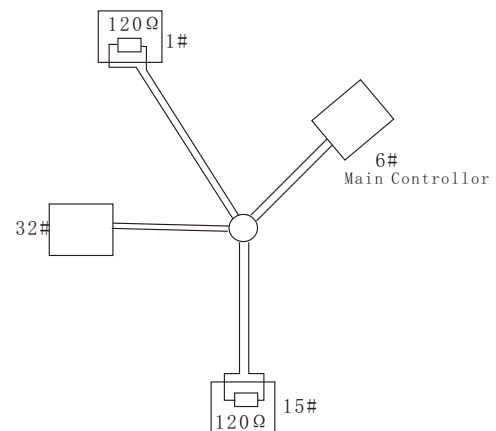
Please refer to picture 2 for simple connection. And "D" should not exceed 7m.



### \* Problems in practical use

User adopts a star configuration in practical connection. The termination resistors must be connected to the two equipments which are farthest away from each other, such as equipment 1# and 15#. This connection way not accord with the requirements of RS485 standards, it is easy to bring signal reflections, lower anti interference performance when the cable distance of the equipment is far away from each other. The reliability of control signals are decreased. It can not control the dome, or sometimes can or sometimes can not, or continuous operate by itself.

The factory will recommend the RS485 distributor. The distributor can transfer the star configuration connection to the mode of connection accordance with the RS485 standards. The new connection achieves reliable data transmission and avoid the problem.



## 7. Maintenance service terms

### 1. Range of warranty

- The product will be maintained free for one year.
- The product will be obtained the free maintenance service if the same malfunction appears again within three months.
- Malfunction of products caused by force majeure (such as war, earthquake, lightning strike and so on ), abuse, non-standard operation, change of construction, non-normal wear or accident are non-free of warranty.
- Please prevent from the damage which is caused by heavy pressure , the fierce vibration and soaks in the process of transportation and storage, which does not belong to the free maintenance scope.
- Please adopt the way of fission package or original package to transport because the product damage dose not belong to the free maintenance scope if you use the whole packing way , not the original packing way.
- The maintenance services will not be free when the pan/tilt module is disassembled or serviced by the user voluntarily.
- Our company implements the lifetime payable service if the product in malfunction has surpassed the warranty period.
- To the products with defect :if it's in the period of warranty, please fill in the form of warranty information correctly, describe the trouble in details, and provide original sales. invoice or its copy.
- For the damage and loss which was caused by the user's specifically application, factory won't bear any risk and responsibility. The factory compensation made by breach of faith, negligence or tortious won't exceed the amount of the products. The factory won't bear any responsibility for the special, unexpected and continue damage caused by any other reasons.
- Our company has the final right of explanation for the above terms.

### 2. Warranty terms

- If the products are within the warranty time, the buyer should fill in the warranty card and send back together with the products.

### 3. Shipping

- If the product needs repaired , you can return it to the manufacturer through the supplier or directly. If you choose the later , please contact us in order to speed up the process. And our company only undertake the one-way freight from manufacturer to customer after maintenance.