

KEYBOARD CONTROLLER SYSTEM



**Please read user manual carefully before installing or
operating the unit**

Notes:

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Part I

Introduction

- **Brief**
- **Function**
- **Application**

Keyboard Brief

The keyboard is characterized with mini size, it is very suitable for small place project, such as mobile P/T control, sub-control, small surveillance project, and so on.

The keyboard can control other control equipments, not only it can control my company matrix, but also can control other brand DVR, or connect to PTZ camera or decoder with multi-protocol.

The keyboard has built-in LCD screen, the displayed information would be wonderful.

Keyboard Function

Working Mode Option

The keyboard can set up matrix working mode and DVR working mode, it is very convenient to operate surveillance system in project.

Language option

Chinese and English LCD display, user can choose language according to requirement.

Communication Port

The keyboard offers 1 pcs RS-485 communication port and support semi duplex two ways communication, and it can offer one pcs of

DC 12V power input port and 1 pcs of COM port (COM port offer power supply and RS485 communication through connecting RJ45 port).

Matrix working Mode

When Keyboard working mode is matrix working mode,RS485 port can be used to connect to matrix switcher, the keyboard not only control matrix switcher, but also control PTZ camera, decoder, alarm equipments and assistant equipments.

P/T Working Mode

When keyboard working mode is P/T working mode,RS485 port is connected to PTZ camera and decoder, or other related equipments, The keyboard can choose different communication protocols and baud rates, so that it can connect to other front equipments, the function user can use as follow: DVR related function, camera's P/T control, camera zoom in and out, turn on or turn off auxiliary switchers, to set up or pick up auto scanning function, set up PTZ camera's parameters... and so on.

DVR Working Mode

When keyboard working mode is in DVR working mode, RS485 port can connect to DVR, NVS. The keyboard can choose different communication protocols and baud rates, so that it can connect to other front equipments, the function user can use as follow: DVR related function, camera's P/T control, camera zoom in and out, turn on or turn off auxiliary switchers, to set up or pick up auto scanning function, set up PTZ camera's parameters... and so on.

DVR related function includes:

Normal function: control DVR to record, play, pause, speed, playback, stop .

Advanced function: recording speed setup, audio search, alarm scanning and search, menu setting.

Combined Control Mode

In order to control different style of equipments at the same time, the keyboard offer combined control mode. When keyboard is connected to PTZ camera or decoder and DVR, users don't need to switch control mode to control every equipments.

Multi-function key of keyboard should be suitable for combined control mode, for which keyboard control multi-DVR to record, play, pause, speed, playback, stop and camera control and joystick control is suitable for PTZ camera and decoder.

Buzzer

Keyboard has built-in buzzer which can indicate operation of pressing keys. When it was connected to matrix switcher, it is also applied on monitor alarm, if there is association alarm in the system, buzzer can respond to association alarm, the buzzer can be set into ON or OFF according to requirement, or prohibit to use it.

Application

This keyboard can control my company series of matrix switcher, it is compatible with decoder or PTZ camera with multi-protocol, and support alarm association and DVR recording, when whole system is internet system, the keyboard can be used as internet keyboard to control all equipments which can receive communication control.

Part II

Installation, Connection and Setting

- Accessories
- Size
- Introduction
- Power On
- Keyboard hint

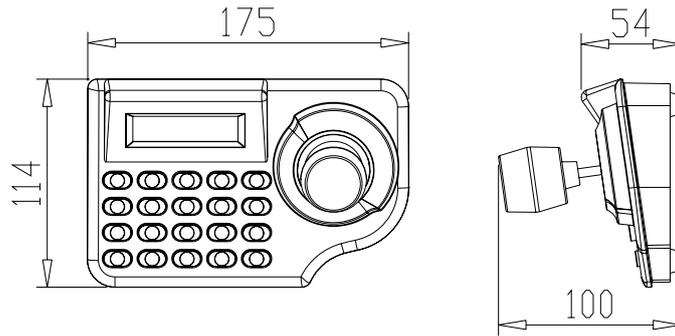
Installation, Connection and Setting

- 1) Only qualified and experienced person can carry on this installation
- 2) Before installation, please check all accessories, if there is something missed, please give your feedback to supplier in time, in case the keyboard can not work well.

Accessory:

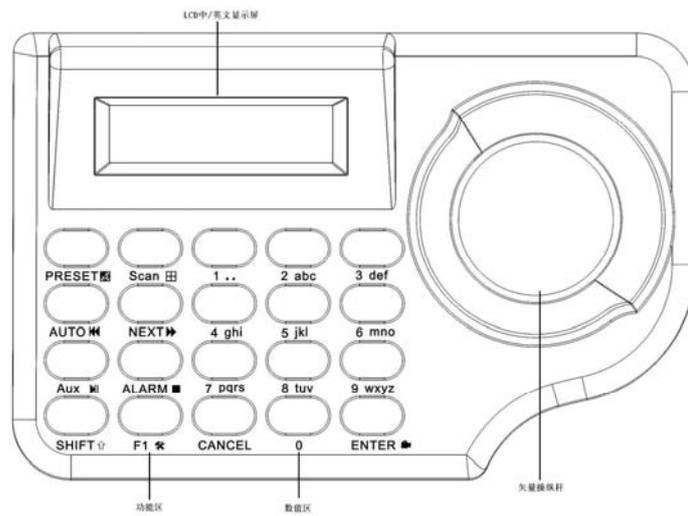
- Keyboard: 1 set.
- Connection port: 1 piece.
- Power: 1 set (AC110/220V input DC12V/500mA output).
- User Manuel: 1 piece.
- Warranty card: 1 piece.

Size:



Keyboard Explanation:

Keyboard front Sketch:



Function key:

Number area:

Number key: 1、2、3、4、5、6、7、8、9、0

Delete key: CANCEL

Confirmation key: ENTER

Function Area:

P/T Key: PRESET、AUTO、SCAN

Matrix Key: NEXT、AUTO、ENTER

Accessory: AUX

Alarm: ALARM

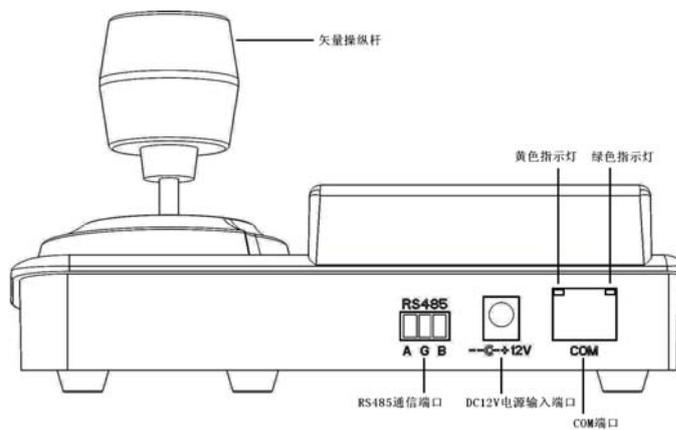
Special Function: F1

Assistant Function Key: SHIFT

Joystick: To control PT up and down, left and right; camera zoom in and out; the angle of control joystick can control P/T moving speed.

LCD Screen: display data of control equipments.

Keyboard back Sketch:



Back Port function introduction:

RS485 Port: Connect to communication port of other equipments.

Power Port: (12V/500MA)

COM Port: offer power and RS485 through RJ45

Green indicator: the light would be normally on when user set up matrix working mode and P/T working mode, if there is command sent to keyboard, the light would be glittered.

Yellow indicator: the light would be normally on when user set up matrix working mode and DVR working mode, when user control DVR through keyboard, the light would be glittered.

Power on

Before offering power to keyboard, kindly please check whether power of keyboard is accordance with offered power, and check whether keyboard input power is DC12V/500mA.

Power on:

- 1、 The keyboard will sound “di”, it proves user has offered power to keyboard successfully.
- 2、 The relative indicator would be normally on.
- 3、 LCD screen would display keyboard working mode, control protocol, baud rate:

Working Mode: DVR P:HIKVIS B:9600

Keyboard hint:

1、 Indicator explanation:

If indicator is on, it shows keyboard is powered on, and it works under some mode, when there are commands sent to keyboard,

indicator will glitter.

2、 Sound hint:

“Di” one time, It show user is operating keyboard

“Di,Di,Di” three times, it shows operation is wrong

“Di Di Di...”continuously sound, alarm happens.

3、 Alarm display hint

When system give alarm signal, LCD will display as follow:

ALARM=> No:= address area

NN = DDDD ZZZZ

When system give alarm signal for several monitored spot, alarm Series Number NN, alarm address DDDD, alarm Zone ZZZZ, display alarm spot circularly.(note: display max up to 10 alarm spots)

Part III

Keyboard setting

- Setting Key
- Setting Procedure
- Menu Index

Keyboard Setting

The keyboard offer several kinds of working mode, joystick parameter correction setting, each key function.

Setting key

- 【CANCEL】 delete key
- 【ENTER】 confirmation key
- 【F1】 special function key
- 【SHIFT】 assistant function key

How to set up

To press【SHIFT】+【F1】 at the same time, then make keyboard power on , it will enter into keyboard menu setting within 5 seconds.

To press 【F1】 to enter into menu option, to press 【CANCEL】 exit menu; To press 【ENTER】 to confirm setting information;

Menu Index:

```
keyboard working mode option | matrix working mode | protocol option...|factory protocol
|
|           |Master/Sub-keyboard choose.....|→master keyboard
|           |           |           |           |→Sub-keyboard
|           |           |           |           |→sub-keyboard choose.....|→1
|           |           |           |           |→2
|           |           |           |           |→...
|           |           |           |           |→16
|           |           |           |           |→alarm choose...-----... |→1
|           |           |           |           |→2
|           |           |           |           |→...
|           |           |           |           |→239
|           |           |           |           |→P/T working Mode|→protocol choose...|→PELCO_D
|           |           |           |           |           |→PELCO_P
|           |           |           |           |→DVR working mode-|→protocol choose.....|→Hikvision
|           |           |           |           |           |→Dahua
|           |           |           |           |           |→...
|→baud rate option.....|→9600
|           |           |           |           |→4800
|           |           |           |           |→2400
|           |           |           |           |→1200
|→sound option.....|→ON
|           |           |           |           |→OFF
```

|→BLC control.....|→**Auto**
| |→Normal Open
| |→OFF
|→language.....|→Chinese
| |→**English**
|→Joystick setting.....|→press **【CANCEL】** to exit
| |→press **【5】** to get standard
| |→press **【2】** to maximum
| |→press **【0】** to maximum
| |→press **【4】** left to maximum
| |→press **【6】** right to maximum
| |→press **【7】** left to maximum
| |→press **【9】** right to maximum
|→press key testing|→press **【CANCEL】** to exit
| |→press other key to shows
|→default setting.....|→confirmation
| |→give up
|→software version.....|→Version 1.0

Note: Menu option with Remarkd“**XX**”is default setting.

Part IV

Keyboard Control Matrix

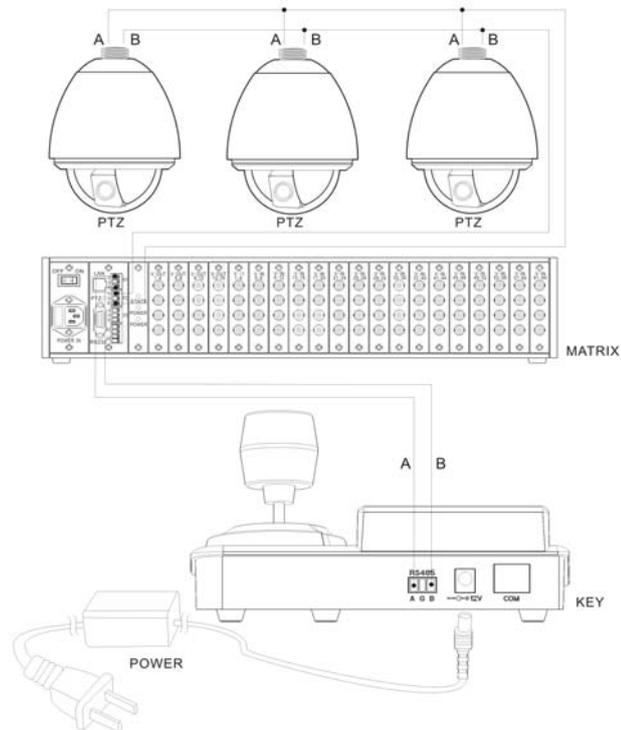
- connect to matrix
- setting for controlling matrix
- matrix control command index

Control matrix through keyboard

The keyboard can control all series of matrix switcher from my

company (M2000L/M/E/S), if there is matrix switcher from the third party which has my company communication, it can also control other matrix.

Connection between Keyboard and matrix



Control matrix through keyboard

To choose working mode and control protocol:

To press **【SHIFT】+【F1】** keys synchronously, then make keyboard power on, user will enter into keyboard setting menu after 5 seconds.

Keyboard setting Menu
1. Working Mode

To press **【ENTER】** to enter into working mode setting; to press **【F1】** to choose matrix working mode:

1. Working Mode
1> Matrix

When user see matrix working mode, then press **【ENTER】** to enter into related option of matrix working mode; to press **【F1】** to choose control protocol, press **【ENTER】** to confirm it.

1. Matrix mode
1) control protocol



1. Control protocol
Default protocol

To press **【F1】** to choose "default protocol", to press **【ENTER】** to save it; to press **【CANCEL】** to back to "keyboard setting menu".

To choose baud rate:

To press **【F1】** to choose baud rate, then press **【ENTER】** to enter into baud rate setting:

Keyboard setting Menu
1. Working Mode



Keyboard setting Menu
2. Baud rate setting

2. Baud rate setting 9600 Bit/S

To press **【F1】** to choose “9600”, to press **【ENTER】** to confirm it; to press **【CANCEL】** to exit setting menu.

Matrix control command index

Operation commands:

Switch camera: **【number】** + **【ENTER】**

Switch monitor: **【number】** + **【SHIFT】** + **【ENTER】**

Camera sequence switch: **【number】** + **【SHIFT】** + **【AUTO】**

Switch camera back: **【NEXT】**

Switch camera front: **【SHIFT】** + **【NEXT】**

Note: when user uses **【SHIFT】**, please keep pressing this key, at the same, to press other keys.

PTZ camera control command:

Right and left: **【joystick】** move to left or right

Up and down: **【Joystick】** move up and down

Zoom in and out: **【Joystick】** rotation

Focus: **【SHIFT】** + **【Joystick】** left and right

IRIS: **【SHIFT】** + **【Joystick】** Up and down

Pick up preset: **【number】** + **【PRESET】**

Set up preset: **【number】** + **【SHIFT】** + **【PRESET】**

Clear preset: **【number】** + **【F1】** + **【PRESET】**

Auto scanning: **【AUTO】**

Run scanning: **【AUTO】**

Set up left l: **【F1】** + **【AUTO】**

Set up right: **【F1】 + 【SHIFT】 + 【AUTO】**

Preset tour: **【number】 + 【SCAN】**

Run pattern: **【number】 + 【SHIFT】 + 【SCAN】**

Other operation commands:

Auxiliary function on: **【number】 + 【AUX】**

Auxiliary function off: **【number】 + 【SHIFT】 + 【AUX】**

Notes:

Auxiliary function **【Number】** : 1. heater 2. windshield wiper 3.
Light (The function is related with the equipments used)

Alarm function on: **【number】 + 【ALARM】**

Alarm function off: **【number】 + 【SHIFT】 + 【ALARM】**

Alarm cancel: **【SHIFT】 + 【CANCEL】**

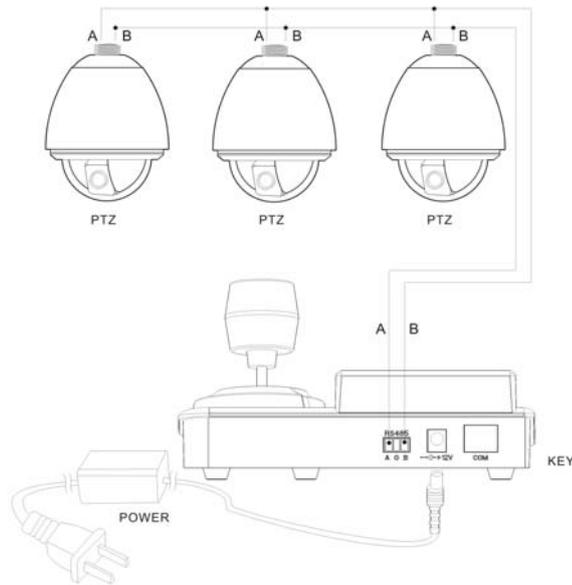
Note: Alarm function **【number】** : Alarm address

Part V Control PTZ Camera and Decoder

- **Connection between keyboard and PTZ camera**
- **Control PTZ camera through keyboard**
- **PTZ Camera control command index**

Control PTZ Camera and Decoder

Connection between keyboard and PTZ camera



Control PTZ camera through keyboard

Select the working mode and control protocol

Press **【SHIFT】 + 【F1】** at the same time, then make power on, then enter into keyboard setting menu after 5 minutes.

Keyboard setting menu

1.working mode

Press **【ENTER】** to enter into working mode setting; press **【F1】** to choose keyboard and PTZ working mode

1.working mode
2..PTZ

When LCD displays PTZ mode, to press **【ENTER】**to enter into related PTZ mode; to press **【F1】**to choose default protocol, To press **【ENTER】** to confirm setting information;

2) PTZ mode
1)control protocol

1)control protocol
PELCO-D

To press **【F1】** to select default protocol, to press **【ENTER】** to confirm it; To press **【CANCEL】**menu to exit to “keyboard setting menu”

To choose baud rate:

To press **【F1】** to choose baud rate, to press **【ENTER】** to enter into baud rate setting:

Keyboard setting menu
1. working mode

→

Keyboard setting menu
2.baud rate setting

2. baud rate setting
9600 Bit/S

To press **【F1】** to choose baud rate, To press **【ENTER】** to confirm setting information; To press **【CANCEL】** menu to exit to keyboard setting menu.

PTZ Camera control command index

PTZ Camera control command

P/T Right and left: **【Joystick】** move to left or right
P/T up and down: **【Joystick】** move up and down
lens zoom : **【Joystick】** rotation
Lens Focus: **【SHIFT】** + **【Joystick】** left and right
Lens Iris: **【SHIFT】** + **【Joystick】** Up and down
Pick up preset: **【number】** + **【PRESET】**

Set up preset: **【number】** + **【SHIFT】** + **【PRESET】**
Clear preset: **【number】** + **【F1】** + **【PRESET】**
Auto scanning: **【AUTO】**
Run scanning: **【AUTO】**
Set up left : **【F1】** + **【AUTO】**
Set up right : **【F1】** + **【SHIFT】** + **【AUTO】**
Run Preset tour: **【number】** + **【SCAN】**
Run pattern: **【number】** + **【SHIFT】** + **【SCAN】**

Note: User need to keep pressing 【SHIFT】 key, then press other function keys, setting would be valid.

Other operating commands:

Auxiliary function on: **【number】** + **【AUX】**
Auxiliary function off: **【number】** + **【SHIFT】** + **【AUX】**

Note:

Auxiliary function **【Number】** : 1. heater 2. windshield wiper 3. Light (The function is related with the equipments used)

Alarm function on: **【number】 + 【ALARM】**

Alarm function off: **【number】 + 【SHIFT】 + 【ALARM】**

Alarm cancel: **【SHIFT】 + 【CANCEL】**

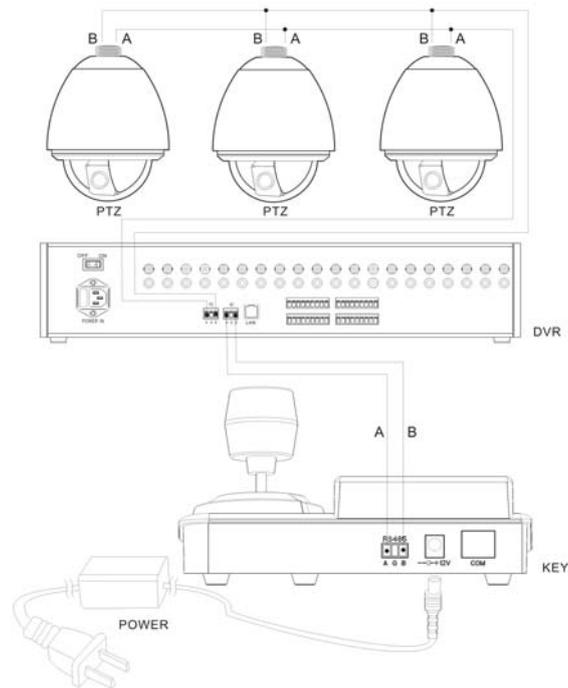
Note: Alarm function **【number】** : Alarm address

Part VI Control DVR

- **Connection between keyboard and DVR**
- **Set up DVR through keyboard**
- **DVR control commands index**

Control DVR

Connection between keyboard and DVR



Set up DVR through keyboard

To choose working mode and control protocol:

To press **【SHIFT】** + **【F1】** keys synchronously, then make keyboard power on, user will enter into keyboard setting menu after 5 seconds.

Keyboard setting Menu
1. Working Mode

To press **【ENTER】** to enter into working mode setting; to press **【F1】** to choose keyboard and PTZ working mode:

2. Working Mode
3) DVR

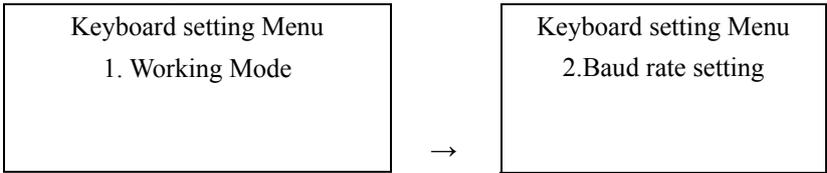
When user see P/T mode, then press **【ENTER】** to enter into related option of P/T working mode; to press **【F1】** to choose control protocol, press **【ENTER】** to confirm it.



To press **【F1】** to choose "default protocol", to press **【ENTER】** to save it; to press **【CANCEL】** to exit to "keyboard setting menu".

To choose baud rate:

To press **【F1】** to choose baud rate, then press **【ENTER】** to enter into baud rate setting:



2. Baud rate setting
9600 Bit/S

To press **【F1】** to choose default baud rate, to press **【ENTER】** to confirm it; to press **【CANCEL】** to exit keyboard setting menu.

DVR control commands index

DVR control commands:

Picture monitor: **【】**
Image Browsing: **【SHIFT】 + 【】**
Multi-Image switch **【number】 + 【】**
The beginning: **【】**
The end: **【SHIFT】 + 【】**
FF: **【】**
REW: **【SHIFT】 + 【】**
Pause: **【】**
Play: **【SHIFT】 + 【】**
Stop: **【】**
Videotape: **【SHIFT】 + 【】**

Note: User need to keep pressing 【SHIFT】 key, then press other function keys, setting would be valid.

PTZ camera control command:

Ptz right and left: **【joystick】** move to left or right
Ptz up and down: **【Joystick】** move up and down
Zoom in and out: **【Joystick】** rotation
Focus: **【SHIFT】 + 【Joystick】** left and right
IRIS: **【SHIFT】 + 【Joystick】** Up and down
Pick up preset: **【number】 + 【PRESET】**
Set up preset: **【number】 + 【SHIFT】 + 【PRESET】**
Clear preset: **【number】 + 【F1】 + 【PRESET】**

Auto scanning: **【AUTO】**
Run scanning: **【AUTO】**
Set up left l: **【F1】 + 【AUTO】**
Set up right: **【F1】 + 【SHIFT】 + 【AUTO】**
Preset tour: **【number】 + 【SCAN】**
Run pattern: **【number】 + 【SHIFT】 + 【SCAN】**

Other operation commands:

Auxiliary function on: **【number】 + 【AUX】**
Auxiliary function off: **【number】 + 【SHIFT】 + 【AUX】**

Notes:

Auxiliary function **【Number】** : 1. heater 2. windshield wiper 3. Light (The function is related with the equipments used)

Alarm function on: **【number】 + 【ALARM】**
Alarm function off: **【number】 + 【SHIFT】 + 【ALARM】**
Alarm cancel: **【SHIFT】 + 【CANCEL】**

Note: Alarm function **【number】** : Alarm address

Part VII Appendix

Appendix A	RS485 Bus Knowledge
Appendix B	Technology Parameters

Appendix: RS485 Bus Basic Knowledge

1. Characteristics of RS485 Bus

As specified by RS485 standards, RS485 Bus is of half-duplexed data transmission cables with characteristic impedance as 120 Ohm. The maximum load capacity is 32 unit loads (including main controller and controlled equipment).

2. Transmission distances of RS485 Bus

When user selects the 0.56mm (24AWG) twisted pair wires as data transmission cable, the maximum theoretical transmitting distances are as follows:

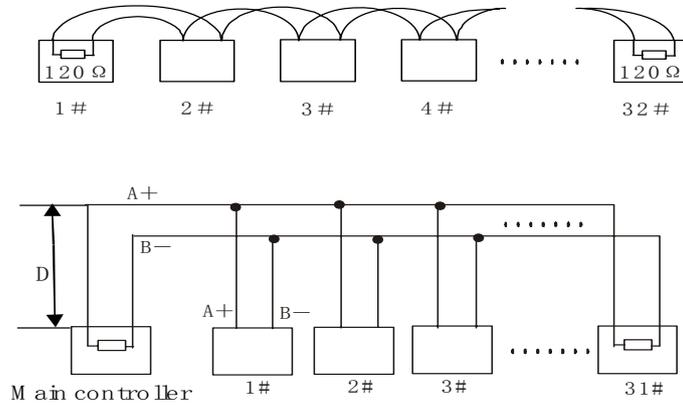
Baud Rate	Transmission Distance (Max.)
2400bps	5,906ft (1800m)
4800bps	3,937ft (1200m)
9600bps	2,625ft (800m)

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.

3. Connection and termination resistor

3-1 The RS485 standards require a daisy-chain connection between the equipment. There must be termination resistors with 120 Ohm impedance at both ends of the connection (refer to following pictures).

Please refer to below picture for simple connection. Distance “D” should not exceed 7 meters.



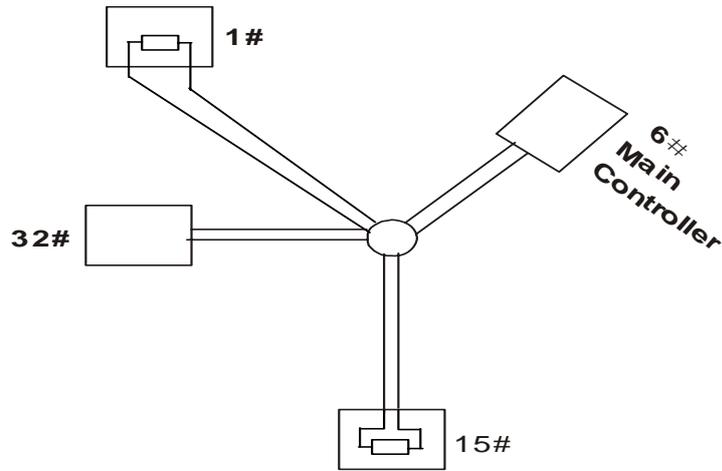
3-2 The connection of 120 Ohm termination resistor:

The termination resistor is ready on the Protocol PCB. There are two kinds of connection. Please refer to the Protocol PCB jumper setting form (refer to following pictures).

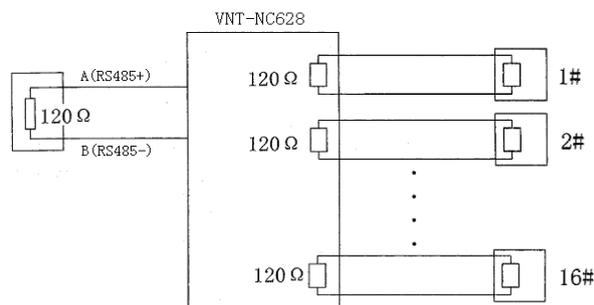
4. Problems in practical connection

In some circumstances user adopts a star configuration in practical connection. The termination resistors must be connected to the two equipment that are farthest away from each other, such as equipment 1# and 15# in the Picture as below. 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 is

decreased with the phenomena that the dome does not respond to or just responds at intervals to the controller, or does continuous operation without stop (refer to the following picture).



In such circumstances the factory 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 following picture).



Appendix B Technology Parameters

LCD display	Chinese/English
Joystick	Three dimension
HIDD	RS485 half duplex
Baud rate	1200、2400、4800、9600
Power supply	DC129V/500mA
Power	5W