

QT-03M

Matrix Controller

INSTRUCTION MANUAL



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Note: It is necessary to review this manual prior to operating the keyboard controller.

Requirements: As this product has no serviceable parts, only a professional technician can service the unit. Accordingly, never attempt to disassemble the controller.

Warning: Please keep the keyboard from rain, wet and high temperature condition.

Keyboard Instruction

1. General

It is particularly designed to control speed dome and integrated camera.. The on-LCD programmable menu can be operated very easily. It supports the functions such as pan/tilt/zoom/focus , auto cruise and auto scan control etc. It can also set the alarm arm and alarm linkage, which completely meets the requirements of the small to mid-range surveillance systems.

2. Main Features

- Compact design, LCD menu, easy to install and operate
- RS-485 controlling signal, control up to 255 dome cameras
- Pan/Tilt/Zoom functions
- Presets, Auto Scan and Auto Cruise control
- Alarm activation and alarm linkage
- Keyboard clock function
- Up to 4 keyboard controllers connection

3. Technical Data

Electrical:

Input Voltage: 9—12Vdc

Power: Approx. 5W nominal

Communication:

Communication Way: RS485, Half-duplex

Communication Rate: 2400/4800/9600 bits/s

Transmitting Distance: 1.2Km (0.5mm Twist Pair)

Environmental:

Temperature: 0°C ~+40°C, operating

Relative Humidity: <90%, non-condensing

Physical:

Dimensions: 360×160×45 (mm)

Weight: Approx. 2.1Kg

4. Keyboard Installation

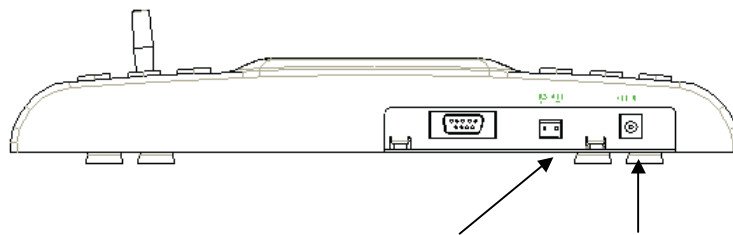
4.1 Transportation and Storage

- Be cautious to avoid rolling, collision and fall off in the transportation.
- Keyboard should be stored in warehouse with good ventilation and without acid, alkali and poisonous gas , The environment temperature should be -10°C ~+40°C, the humidity should be below 90%.
- Do not store the product covered for a period longer than six months. If in the event storage exceeds six months, uncover the package to provide adequate ventilation.

4.2 Precautions

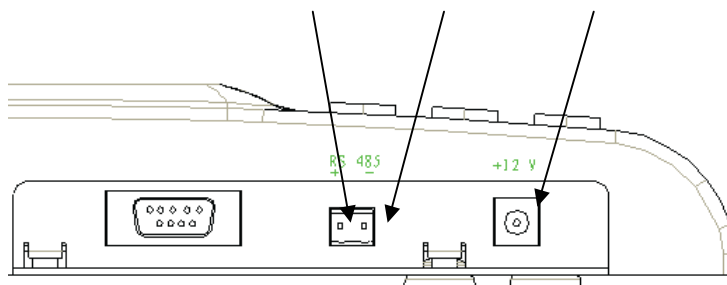
- Installation work undertaken shall comply with the applicable local regulations and should be carried out by suitably qualified technical system installers.
- There are no user serviceable parts available and only qualified personnel are to service the keyboard. Do not dismantle the outer case. Please consult to the repairman if there is any problem.
- The controller is not to be operated in environments exceeding 0°C to 40°C, and with a relative humidity level of less than 90%.
- The controller is a sensitive instrument; damages incurred due to acutely collision or shaking will void the warranty.
- Do not use detergents to clean the unit. Cleaning the keyboard by using a dry cloth. Under proper conditions no further cleaning is required, however, when necessary mild dish soap can be applied to a damp rag.
- The warranty for the keyboard is void if the unit comes in contact with liquid. Avoid all contact with liquids and excessive humidity.

4.3 The Back View



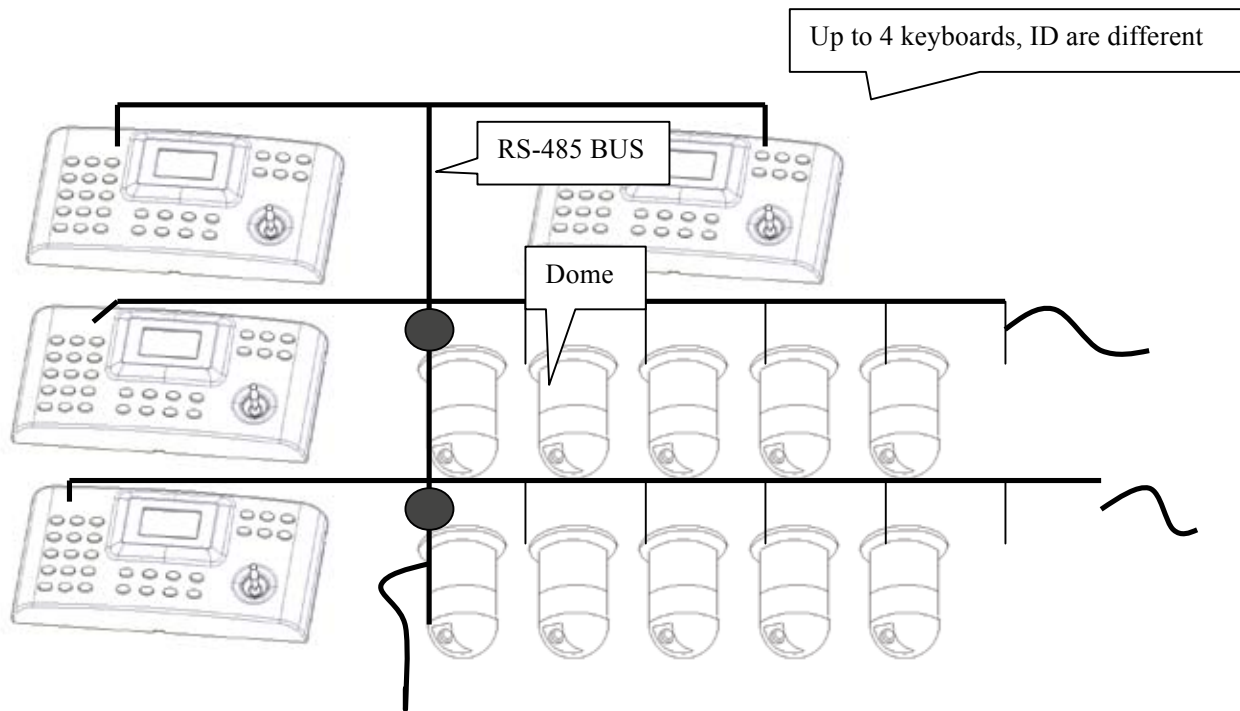
485 interface power supply interface

485 A+ 485 B- power supply interface



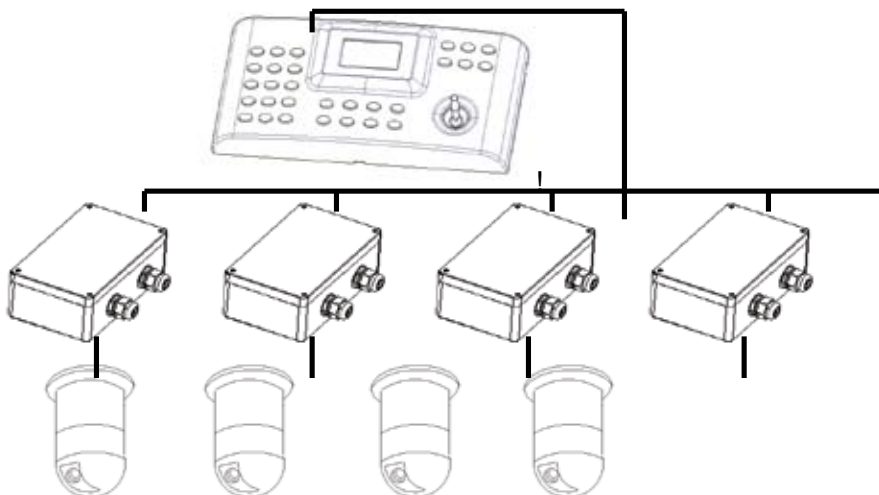
4.4 Keyboard and Dome Connection

Connection Diagram



4.5 Keyboard, Dome and Alarm Box Connection

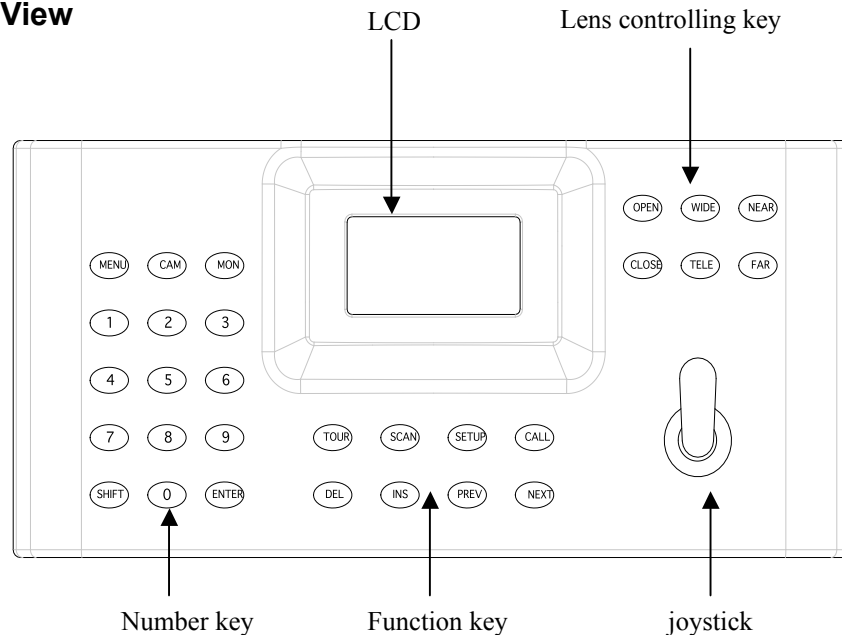
When the keyboard is connected with alarm box and dome, every alarm box can be only connected with one dome. Thus, the Dome ID selected in the keyboard should be in accordance with the responding alarm box ID. (The alarm box ID setting and other operation refer to the alarm box manual).



5. Keyboard Operation

5.1 Keyboard view and function

Front View



Note:!

1. LCD displays the current control state, the current menu and other necessary information.
2. Lens controlling key is for the operation of the lens, iris/zoom/focus or other function control when combined with the function key. (Refer to Keyboard Operation Instruction).
3. Number key is for inputting the parameter value and selecting menu items etc.
4. Function key is for the operation of the functional control.
5. The joystick is for the pan/tilt of the dome or for editing menu. (The difference between the 2-axis keyboard and 3-axis keyboard is the use of the joystick, refer to the instruction below)

5.2 Power On

Make sure the connections are correct, turn on the power, the LCD displays:

KEYBOARD: 001
BAUDRATE: 4800
VERSION: n.nn (Software version information)

After 5 seconds, the keyboard goes to waiting for command status, the LCD displays:

Keyboard ID: 001 . standing for the keyboard address in operation,
factory default 001)

Dome ID: 000 !!!!!(standing for the dome address in operation)

Monitor: 000 (standing for monitor address in operation)

Baudrate: 4800 (standing for the keyboard baud rate in operation)

Date: YY/MM/DD

Time: HH/MM/SS

Note: The baud rate of the keyboard must be in accordance with the dome baud rate. Set dome ID same with the controller ID.

5.3 Menu Operation

1. Main Menu: Press MENU key, LCD displays: Password:
2. Input 4-bit password, **Note: The original keyboard password: “0000”**
Input the correct password to enter main menu, the LCD displays:
 1. Keyboard Setup
 2. Dome Setup
 3. Alarm Box Setup
 4. Select Multiplexer (Reserved)
3. Enter Sub-menu
Press “1”, “2”, “3” key to enter the corresponding sub-menu.
4. Select digital key to enter the corresponding operation
5. Refer to the operation instruction to finish the corresponding function or setting.
6. Return to Main Menu
Press “MENU” key to return to the previous menu or return to waiting for command status from Main Menu.
When there is no operation on buttons and joystick, the LCD will resume to wait for command state after 15 seconds.

5.4 Command Operation

The keyboard can conduct the controlling and setting of dome camera, pan/tilt and lens by operating the functional key, digital key and joystick.

Keyboard Commands:

- Joystick Operate the joystick to conduct the camera up, down, left, right movement and lens control.
- Single Key Command: Press one key to finish the command, for example: Iris CLOSE/OPEN.
- Combined Key Commands: User may need to operate some functional key and digital key continuously to conduct one command, please see the details in the following chapters as below:

For example: Preset setting command

INS + M + **ENTER**

Conduct the following operation continuously:

1. Press INS key
2. Input Value N
3. Press ENTER key.

6. Keyboard Parameter Setting

6.1 Setting Keyboard ID

1. Press MENU key to enter main menu.
2. Press 1 to select setting keyboard.
3. Press 1 to select setting keyboard ID.
LCD display: INPUT KB ID:
4. Input the keyboard number (1-4) to be set, Press ENTER key.
5. Press MENU key to return.

Note: Set the keyboard ID 1 when there is only one keyboard connected in the system. If up to 4 keyboards connected in one system, one and only one keyboard ID must be set 1, otherwise, the keyboard network can not work properly.

6.2 Setting Keyboard Baud Rate

1. Press MENU key to enter main menu
2. Press 1 to select setting keyboard
- 67 Press 2 to select setting baud rate!
LCD display8 1.2400
2.4800
3.9600
4. Select the baud rate to be set
5. Press MENU key to return

6.3 Setting keyboard Password

1. Press MENU key to enter main menu
2. Press 1 to select setting keyboard
3. Press 3 to select setting password
LCD display: INPUT OLD PASSWORD:
4. Input the old password, press ENTER key; If the password is wrong, input the password again until it's right. Press MENU key to exit setting password and return to the previous menu.
5. Input the new password and press ENTER key.
6. The system will ask for confirming the new password. Re-input the new password and press ENTRE key. If the re-input password is different with the previous one, the new password is void.
7. Press MENU key to return to the previous menu.

6.4 Setting keyboard clock

1. Press MENU key to enter main menu
2. Press 1 to select setting keyboard
3. Press 4 to select setting keyboard clock.
LCD display: year: 20__
Input the current year and press ENTER, the LCD display: month: __
Input the current month and press ENTER, input the date, hour and minute accordingly and press ENTER to confirm, the system will return to the main menu automatically.

7. Controlling Dome Camera

7.1 Setting dome ID. (The 1-6 bits of DIP switch of dome camera must be set ON)

1. Press MENU key to enter main menu.
2. Press 2 to select setting dome.
3. Press 1 to select setting dome ID
LCD display: INPUT S/N:
Input the dome serial number and press ENTER key.
4. The system asks for inputting dome ID, input the desired number and press ENTER key.
5. Press MENU key to return

7.2 Selecting the desired dome to control

1. Press CAM key.
 2. Input the desired dome ID number to control.
 3. Press ENTER key.
- For example: Select #1 dome, CAM+1+ENTER; Select #10 dome, CAM+1+0+ENTER.

7.3 Controlling dome movement

Control the dome pan and tilt by the joystick. 3-axis joystick can control the camera zoom

Note: While turning joystick to maximum optical zoom, turn joystick again to enter digital zoom.

7.4 Controlling camera lens

- Press OPEN, CLOSE key to control IRIS
- Press NEAR, FAR key to control FOCUS
- Press TELE, WIDE key to control ZOOM.
- 3-axis joystick can control the camera zoom.

7.5 Preset

7.5.1 Setting preset

INS + N + **ENTER**

Note: N stands for the preset number to be set, the effective value is 1-100.

7.5.2 Calling preset

CALL + N+ **ENTER**

Note: N is the preset number which has been set, the effective value is 1-100.

7.6 Home Position

7.6.1 Setting home position

SET + T + **SCAN** + N + **ENTER**

Note:

1. T stands for the time of turning to the home position. For example, T=10, it takes 100 seconds to turn to the home position.
2. N stands for the preset number to be set to the home position.

7.6.2 Clearing home position

SET + 0 + **SCAN** + 0 + **ENTER**

7.7 Auto Cruise

7.7.1 Inserting the presets into the sequence

TOUR +1+ **INS** + N + **ENTER**

Note: N is the preset number to be inserted in the sequence, effective value is 1-100.

Repeat the same operation to insert different presets into the sequence.

7.7.2 Activating auto cruise

SET +T+ **TOUR** +1+ **ENTER**

Note: T stands for the auto cruise dwelling time, effective value is 0-255 seconds. For example, If input T=10, the camera will stay in each preset 10 seconds.

7.7.3 Deleting preset sequence

TOUR +1+ **DEL**

7.8 Auto Scan

7.8.1 Setting auto scan left limit

CALL +1+ **ENTER**

7.8.2 Setting auto scan right limit

CALL +255+ **ENTER**

7.8.3 Activating auto scan

SCAN +S+ **ENTER**

Note: S stands for the scan velocity, effective value is 1-255, 255 is the highest velocity.

7.9 Pattern

7.9.1 Pattern Recording

1. Activating Recording

SET + S + **INS** + 1 + **ENTER**

Note: S is Pattern Sequence, effective value is 1-4.

2. Recording

Use joystick and send a series of commands to dome camera as scheduled by keyboard, record the camera movement according to the set mode.

3. End Recording

SET + S + **INS** + 0 + **ENTER**

Note: 1. S is Pattern Sequence, effective value is 1-4.

2. When it records more than the volume limits, the camera will end recording automatically.

7.9.2 Pattern Replay

TOUR +S+ **ENTER**

Note: S is Pattern sequence number.

7.10 Setting the camera parameter

7.10.1 Setting Camera Parameter Directly

SET + **N** + **SHIFT** + **M** + **ENTER**

Note:

1. N stands for the command number of setting camera parameter, referring to the attached “setting camera parameter command table” for the detailed value.
2. M stands for the value of setting camera parameter, referring to the attached “setting camera parameter command table” for the detailed value.

7.10.2 Setting camera auto iris ALC

Two methods:

1. Set by the above 5.25 No.7 command.
2. Set by the menu:

- a. Press MENU key to enter main menu.
- b. Press 2 to select setting camera
- c. Press 2 to select setting camera ALC
LCD display:
INPUT auto iris AVR
Level (0-255):
(16X-128, 22X-57)
- d. Input the value to be set, press ENTER to confirm.

7.10.3 Setting camera auto iris PLC

Two methods:

1. Set by the above 5.24 No.8 command.
2. Set by the menu:
 - a. Press MENU key to enter main menu
 - b. Press 2 to select setting camera
 - c. Press 3 to select setting camera PLC
LCD display:
INPUT auto iris PEAK
Level (0-127):
(16X-16, 22X-8)
 - d. Input the value to be set, press ENTER key to confirm.

7.10.4 Setting camera maximum digital magnification

Two methods:

1. Set by the above 5.25 number 9 command.
2. Set by the menu:
 - a. Press MENU key to enter main menu
 - b. Press 2 to select setting camera
 - c. Press 4 to select setting camera maximum digital magnification
LCD display:
1. 1X- 5. 5X-
2. 2X- 6. 6X-
3. 3X- 7. 7X-
4. 4X- 8. 8X-
Input value (1-8):
 - d. Input the maximum digital magnification, press ENTER key to confirm.

7.10.5 Camera Color/Mono Switch

- a. Switch to monochrome mode
CALL +62+ ENTER
- b. Switch to color mode
CALL +61+ ENTER

- Note: 1. The command is only supported by day/night switch dome camera.**
- 2. Normally the day/night switch dome will switch between color and monochrome automatically according to the background illumination. If switching to monochrome mode manually, the camera can not switch to color automatically (auto switch mode close), user need to switch back to color mode manually, thus the auto switch mode will open.**

7.11 Other Operation

7.11.1 Calling and Operating box integrated camera OSD menu

Use the following command to call the menu

CALL + 95 + **ENTER**

The menu will be in the screen. Operate the joystick up or down to select the options in the menu, operate the joystick right to enter the selected item sub-menu or functional operation. The detailed operation please refer to the manual of the box integrated camera

7.11.2 AUX function ON/CLOSE

1. Open the AUX function:

SET + **N** + **OPEN** + **ENTER**

2. Close the AUX function:

SET + **N** + **CLOSE** + **ENTER**

Note: 1. N is Relay Number, effective value 1-255.

2. AUX is special function for some products, not all products support.

8. Controlling Alarm Box

The operation of alarm box:

- Setting the state of the input alarm signal and the corresponding preset number.
- Setting the alarm input port responding to the alarm input.
- Setting the reset mode (manual/auto) and reset time.
- Resetting the alarm input manually
- No influence on operation under connecting with alarm box .
- DIP switch of dome ID setting is void while connecting with alarm box. Dome ID is in accord with alarm box.

8.1 Setting the alarm input port status and corresponding presets

1. Press MENU key to enter main menu
2. Press 3 to select setting alarm box
3. Press 1 to select setting alarm input port status and corresponding presets:

LCD display: Port No:

Status:

Preset:

Input the corresponding port number (1-8), press ENTER key, the cursor move to the second line, input the port status to be set (1: NO; 0: NC), press ENTER key, the cursor move to the third line, input the corresponding preset number, press ENTER key, the LCD display as above again. Set another port, press MENU key to return to previous menu.

8.2 Setting arm/disarm and reset time

1. Press MENU key to enter main menu
2. Press 3 to select setting the alarm box
3. Press 2 to select setting arm/disarm and reset time.

LCD display: 1. Alarm: OFF

2. Reset: 00

Press 1 to switch from alarm on to off, press PREV key or NEXT key to switch the reset time, the value is 0-50. The alarm box will reset manually when the reset time is 0.

4. Press MENU key to return.

8.3 Resetting alarm input manually

1. Press MENU key to enter main menu
2. Press 3 to select setting alarm box
3. Press 3 to select resetting the alarm input manually
4. LCD display: Input port No:
5. Input the port number to be reset and press ENTER key
6. Press MENU key to return

Appendix:

Camera Parameter Setting Command Table

Command number	Command function	Parameter value	Parameter definition	
0	Resume dome default setting	0		
1	Auto stop time	0-255	After 50*Data2 ms auto stop	
2	Auto focus recover time	0-255	0= cancel auto recover	
3	Auto iris recover time	0-255	0= cancel auto recover	
4	R gain	0-255		It will be auto white balance if setting both R gain and B gain 0.
5	B gain	0-255		
6	AWB mode	0-16	0 is automatic	
7	Auto iris ALC	0-255		
8	Auto iris PLC	0-127		
9	Maximum digital zoom	0-8	0 closing digital zoom	
10	DSS restriction	0-6	0 is close	
11	Exposure priority	0-10	0 is automatic	
12	Shutter Priority	0-15	0 is automatic	
13	AE mode	0-16		
14	Backlight compensation	0-255	0 is close	
15	Auto gain control	0-255	0 is automatic	
16	WDR	0-255		
17	Turning night function on	0-255		
18	Turning night function off	0-255		
21	Night function mode control	0-16		0 = NO; 1 = NC; 2 = camera auto; 3 = gate control; 4 = time control
255	Restart dome	0		