

Model No.: (QC41-F)

Description: Quad processor

Observations

Price does not include power adaptor

Picture:

Specifications

Signal Format	NTSC/PAL
Picture Refresh Ratio	60fields/sec(NTSC), 50fields/sec(PAL)
Color Resolution	720x576(PAL),720x480(NTSC)
Video Input	4xBNC 1.0VP-P,75 Ω
Video Output	1xBNC 1.0VP-P, 75 Ω
Monitor Output	1xBNC 1.0VP-P, 75 Ω ,
Video Freeze function	1~255 (sec)
Video Output Mode	Quad Screen or full screen
Auto Dwell Time	1-255(sec)
Dimension	220(L)x160(W)x44(H)mm
Power Supply	DC12V 800mA
Weight	1.1kg

Features

High resolution;

4 channels real time display;

VCR playback 2x2 zoom in;

Time, date and camera titles display;

Freeze quad live picture;

Motion detection

Support various picture display modes: pip pop, e c;

Compatible with NTSC/PAL

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I Introduction

1. Introduction:

Thank you for using the product, 4 Channel Digital Multiplexer. Which is a new product with powerful functions. In this operation manual will introduce this product's special feature, installation and control method, try to help you understand the product in deep and quickly.

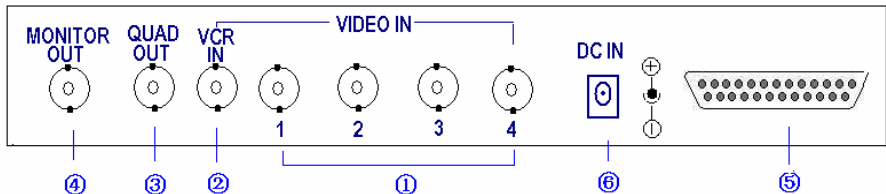
SPECIFICATIONS AND INFORMATION CONTAINED IN THIS MANUAL ARE FURNISHED FOR INFORMATIONAL USE ONLY, AND ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE.

2. Features:

- 1) Screen display, date, time, alarm event, video loss and Camera title (10 characters).
- 2) Loss alarm
- 3) Live picture freeze
- 4) Camera title setting
- 5) Auto dwell
- 6) Camera picture quality setting
- 7) 4×Zoom picture playback
- 8) Motion detection alarm and programmable motion for each channel

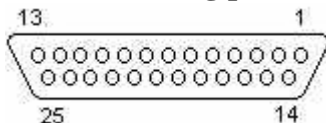
II Connection

1. Rear layout:



-
- ①- Video signal input. Four video input connectors, may connect four cameras or other standard video signal.
 - ②- VCR connector. Connect VCR Output, playback picture and display live picture.
 - ③- Quad out. Connect VCR input, recording the live picture.
 - ④- Monitor out. Connect Monitor video in, display camera live picture.
 - ⑤- Remote control and alarming port: DB25 port which supports RS232/RS485 communication and alarm input/output.
 - ⑥- DC Adapter input, (DC12V/1.2A)

2. Remote control and alarming port



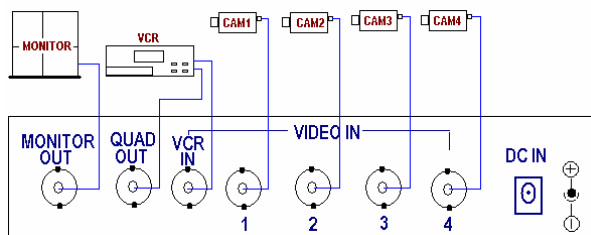
DB25 port

1.Blank 2.TXD 3.RXD 4.Blank 5.GND 6.Blank 7.ALARM CLOSE 8. ALARM COM 9. ALARM OPEN 10. Blank 11.A 12. B 13. Blank 14. ALARM IN1 15. ALARM IN2 16. ALARM IN3 17. ALARM IN4 18---23. Blank 24.GND 25.VCC

Serial data are of remote transmitting function, which makes it is possible to control the multiplexer by a PC or ASCLL terminator in a long distance. The front panel buttons of the multiplexer are corresponding to particular commands. As the serial data can realize the same controlling function as the front panel buttons, any command that is available can be realized in a long distance.

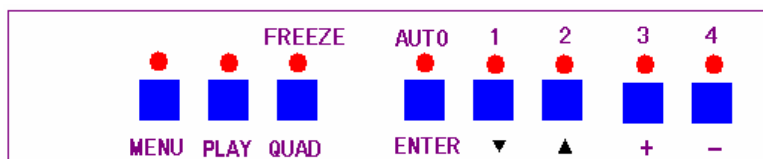
The communication protocols are contained in the appendix.

3. System connection:



III Front Panel buttons and function

1. Front panel layout:



2. MENU

- (1) When in the live or playback, keep pressing MENU key and enter the menu. The menu indicator lamp is on.
- (2) When operating in the menu, press the key to go back to upper stage menu.

3. PLAY

- (1) When in the live picture, press this key, the play indicator lamp is on, the main monitor displays "PLAY" on the top of screen, Quad processor begins playback picture. Press the "1", "2", "3", "4" key, you will see each channel playback picture.
- (2) When in the live picture, keep pressing PLAY key, the PLAY indicator lamp flash, you will see the VCR quad picture and the screen display "VCR IN" on

the screen. but no other characters display on screen.

(3) In the “MENU SET” item, the PLAY key meaning “←” key。

4 QUAD 【FREEZE】:

(1) When in the live picture(not in MENU SETTING or AUTO DWELL state),press “QUAD” key,4 channel screen will display.

(2) Each channel picture freeze: when in 4 channel picture mode, press the “QUAD” key, “FREEZE” indicator lamp will be on, the picture will be at each channel picture freeze state, press “1”、“2”、“3”、“4” key, the corresponding “1”、“2”、“3”、“4” picture will freeze. The “FREEZE” character on the screen will flash. Press the key again or the freeze time is over, the picture will resume.

(3) In the “MENU SET” item, the key “QUAD” meaning “←” key。

5 ENETR 【AUTO】

(1) In the MENU SET mode, press “ENTER” key, select desired menu item.

(2) When in other mode but not menu mode, press “AUTO” key, the AUTO indicator light on, the screen will be on AUTO DWELL mode, press the “AUTO” key again, the indicator light will be off, Auto dwell will be canceled.

6 “1”, “2”, “3”, “4” (“▲”, “▼”, “+”, “—”) KEY

(1) When in 4-screen splitter display mode, the number key can display opposite channel picture or freeze opposite channel picture.

(2) When in menu setting mode, the number key can move cursor to select desired item or to change the particular values setting.

IV、MENU SETUP

When choose among the menu setting and other settings, press (↓)and (↑) to move the cursor among selectable items up and down, press (←) and (→) to move the cursor horizontally, press (+) and (-) to change the particular values setting. Press [↵] key to enter the Sub-Menu.

Press ENTER key to enter the Sub-Menu after choosing one item in the menu. After or during the process of settings, press “EXIT” to save setting parameters and go back to upper stage menu, If already in the main menu state, press “EXIT” to go back to the splitter state before entering the main menu.

When in the live or playback mode, Press the “MENU” key for a long time to enter menu mode, the screen display as follows:



Press the password:1111,into the Main Menu.



In the lower right of the Main Menu, the software and hardware version of this processor will display.

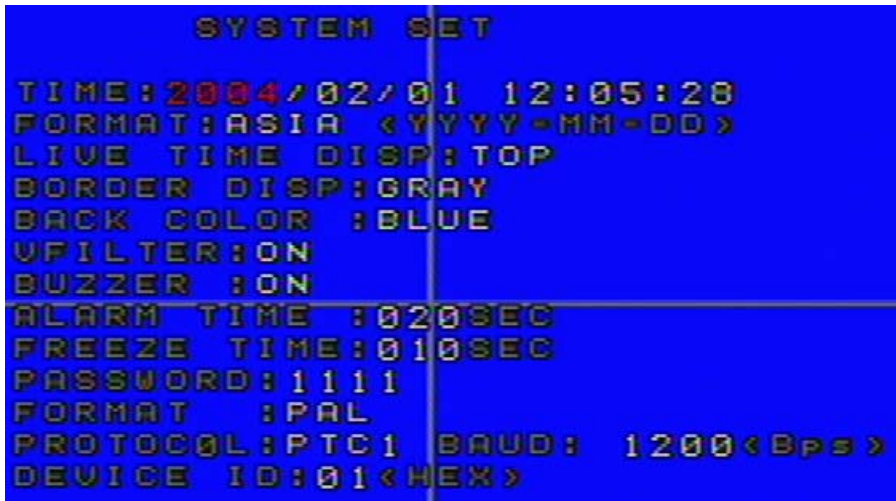
System will exit and go back the splitter state before entering the menu after three minutes without any operation

The factory default password is 1111. To load the factory default password, press key “1” and “2” simultaneously and restart the machine.

SYSTEM SET In Main Menu, choose SYSTEM SET Menu then Press “ENTER” key to enter.

Press the (↓),(↑),(←),(→)key for down, up, left and right and

Press (+)/(-) key to change particular setting.



- TIME: SYSTEM DATE, YYYY/MM/DD(Y/M/D); SYSTEM TIME, HH/MM/SS(H/M/S)。
- FORMAT: DATE FORMAT [ASIA, Asian format; U.S.: American format; EURO: European format]。
- LIVE TIME DISP: Live time display position [TOP: Middle up; TOP_LEFT: Upper left TOP_RIGHT: Upper right NON:

-
- No display]。
 - BORDER DISP: Border color [GRAY , WHITE, BLACK , OFF]。
 - BACK COLOR: Background color [Blue, Black]。
 - VFILTER: Video filter type [ON, Soft; OFF, Clear]。
 - BUZZER: Buzzer alarm。 [ON, OFF]。
 - ALARM TIME: Alarm output lasting time。 [003—255] Sec
 - FREEZE TIME: Freeze time [000—255] Sec, 000 sec means illimitable time freeze。
 - FORMAT: Format。 [PAL, NTSC], The default format is NTSC。

CAMERA SET

In the Main Menu, choose CAMERA SET Menu then Press ENTER key to enter.

Press the (↓),(↑),(←),(→)key for down, up, left and right and Press (+)/(-) key to change particular setting.

```

CAMERA MENU
CAM1
PICTURE DISPLAY: YES
TITLE DISPLAY: YES
CAMERA TITLE : CAM1
AUTO TIME: 02SEC
PICTURE QUALITY [4]

SENSOR SWITCH: ON
SENSOR LEVEL : HIGH
DETECT TIME: 00:00-23:59
MOTION SWITCH: OFF
MOTION SET [4]
DETECT TIME: 00:00-23:59
ALARM OUT:
LOSS: NO  SENSOR: YES  MOTION: YES

```

- CAM: Camera number from 1 – 4.
- TITLE DISPLAY: Camera title display switch. Y for open, N for Close.

- CAMERA TITLE: Camera title compilation, random combination of 10 characters includes Alphabet, Numerical and Symbol
- AUTO TIME: Auto dwell time [0—99]Sec
- PICTURE QUALITY : Camera picture quality setting。
- BRIGHT: [0—255] 。
- CONTRA: [0—255] 。
- SHROMA: [0—255] 。
- SHARP : [0—255] 。
- DEFAULT: camera default picture quality setting.

MOTION SET

Choose “ MOTION SET ” in the Main Menu, then press ENTER key to enter the Sub-Menu “ MOTION SET”.

Press the (↓),(↑),(←),(→)key for down, up, left and right and Press (+)/(-) key to change particular setting.



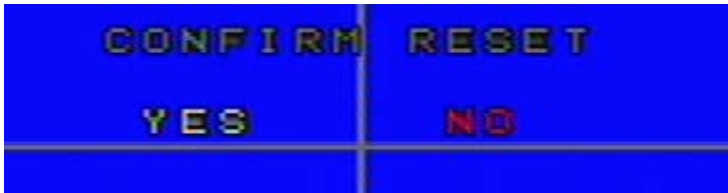
- CAMERA: Camera number [CMA1—CAM4]
- SENSITIVITY: Sensitivity level: 00-99, the lower means the higher sensitivity. (Note: Absolute motion detection threshold)
- MD/NUM: Alarm number。 00—99, the lower means the more chances to alarm
(Note: Threshold of window number for generating motion alarm)
- REFRESH: Refresh interval。 00—99, (01 = lowest; 10 = highest)
(Refreshing interval of reference image in Auto refresh mode)

-
- **MOTION SWITCH:** motion alarm switch [ON-open, OFF-close].
 - **DETECT TIME:** Motion alarm detect time.

When setting, the moving area will become burgundy. Thus you can set the above three motion alarm parameters.

Press ENTER key until the red cube occur, the upper left Conner of monitor screen will occur a red color cursor, move this cursor to green color areas by using(↓),(↑)(←),(→)key for down, up, left and right and Press (+)/(-) key to choose or delete green color area. Then press ENTER to save the particular setting changes and exit

CONFIRM RESET To change the machine to default setting, please choose “YES” and then, press “ENTER” key to confirm. To cancel changing the default setting, pleas choose “NO”, then press “ ENTER”.



V OPERATION

LOSS ALARM When the camera signal is lost, it will switch to 4 channels splitter picture. Buzzer alarm (programmable) and alarm output will occur and the character “LOSS” and indicator lamp flash. Buzzer alarm will stop when press any key or camera signal resume.

MOTION ALARM

If motion detection is open, the picture on screen is change, buzzer alarm and alarm output will occur and the indicator lamp and “MOTION” character flash, the buzzer alarm will stop if press any function button or alarm time is over.

CONFIRM ALARM

There are two confirm-alarm methods, auto and manual. When in the Menu and playback mode, only can wait for system’s auto confirmation (alarm displayed character and indicator lamp must be confirmed manually before the message disappears). In any circumstance, the system will confirm automatically if no key-pushing operation in alarm time.

(1)Buzzer alarm confirm: Only when confirm alarm is achievable, press any key to stop buzzer alarm. If there is continuous alarm, buzzer alarm will not occur. Only after alarm time (start from the last time if continuous alarm occurs), when alarm reoccurs, the buzzer alarm will occur (Set alarm time in the “ALARM TIME “ of SYSTEM SET)

(2)Alarm displayed character confirm: During the process of alarm , press the key to delete the displayed character, and press any of “1”、“2”、“3” “4” key, alarm displayed character will be deleted in the current channel and the indicator lamp will be off. If continuous alarm occurs, press the corresponding digit keys to delete the displayed character and the indicator lamp will be off. But it will resume after a period.

PLAYBACK

When in the live state, and not in the Menu、AUTO setting, press “PLAY(VCR)” key, the indicator lamp is on ,the character “PLAY” appears in the main monitor and the processor begins to play. If no playback signal input, “NO PLAY VIDEO” will appear in the monitor.

When in the playback mode, press “PLAY” key, the indicator lamp is off, the processor returns to live state.

PICTURE FREEZE when in 4 channel picture mode, press the “QUAD” key, “FREEZE” indicator lamp will be on, the picture will be at each channel picture freeze state, press “1”、“2”、“3”、“4” key, will freeze the corresponding “1” “2” “3” “4” camera picture. The character “FREEZE” on screen will flash. And press any number key to release screen freeze state.

AUTO DWELL when in the live state, press “AUTO” key, the indicator lamp is on, the screen will be in auto dwell state of big picture, the indicator lamp of the corresponding picture is on.

It dwells according to the scheduled time automatically. You can set the dwell time of every picture in the “AUTO TIME” of “CAMERA SET”. Press “AUTO” key again to cancel the auto dwell state.

Appendix : communication protocols

1) PTC 1 (ROBERT) (fixed character string length)

Serial port setting: BAUD,n,8,1(BAUD =1200,2400,4800,9600,19200)

Commands (CHAR)	Sexadecimal numbers	Function	Note(keyboard)
/AF	0x2F 0x41 0x46	MENU/EXIT	FUNC+FULL
/SQ	0x2F 0x53 0x51	AUTO/ENTER	
/TP	0x2F 0x54 0x50	VCR/LIVE	
/22	0x2F 0x32 0x32	2X2	
/01	0x2F 0x50 0x50	Cameras1/ up arrow	
/02	0x2F 0x33 0x33	Cameras2/ down arrow	
/03	0x2F 0x34 0x34	Cameras3/ add	

/04	0x2F 0x4C 0x56	Cameras4/ dec	
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2) **PTC 2 (ROBERT_EXT)** (fixed character string length)

Serial port setting: BAUD,n,8,1(BAUD =1200,2400,4800,9600,19200)

Transmitted serial number	Transmitted Value	Note
Byte0	0x03	Fixed bits
Byte1	0xaa	Recognizable characters of the multiplexer
Byte2	0x01	Fixed bits
Byte3	Device id	Address of the multiplexer
Byte4~6	见 PTC 1 (ROBERT)	The command is the same as PTC (ROBERT)

3) **PTC 3**

Serial port setting: BAUD,n,8,1(BAUD =1200,2400,4800,9600,19200)

Sent off by PC (variable length)

buf_232[0]	buf_232[1]	buf_232[2]	buf_232[3]	buf_232[4]	buf_232[n]	buf_232[n+1]
0xa0	counter	0x00~ff	function			
Start sign	Data length (n+1)	Address of device MU4	Functional codes			check_sum

//function 0x01_key_function, 0x02_write eeprom, 0x03_read eeprom, 0x04_disp mode change, 0x05_restart, 0x06_general message query
 eeprom command: buf_232[4]_change the character size, the starting position of buf_232[5]_eeprom is high , the starting position of

buf_232[6]_eeprom is low, buf_232[7]....._change the value

functional code(buf_232[3]):

0x01 key_function command: buf_232[4][5][6] is the same as PTC 1 (ROBERT)

Function code(buf_232[3]):

0x02 write eeprom

Sent out by PC(the character string length is variable)

Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte[n]	Byte[n+1]
0xa0	counter	0x00~ff	0x02	length	high addr	low addr		Data	
Start sign	Data length (n+1)	Address of device MU4	Functional code	1~4 (the maximum value is 4)	0x00~0x07	0x00~0xff		0x00~0xf	check _sum

Functional code(buf_232[3]):

0x03 read eeprom

Received by PC (the character string length is variable)

Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6		Byte[n]	Byte[n+1]
0x00	counter	0x00~ff	0x03	length	high addr	low addr		Data	
Start sign	Data length (n+1)	Address of device MU4	Functional code	1~4 (the maximum value is 4)	0x00~0x07	0x00~0xff		0x00~0xff	checksum

Functional (buf_232[3]):

0x04 display mode:

Note: when in the receiving mode, the format CANNOT be changed.

Sent out by PC(the character string length is variable)

Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6		Byte[n+1]
0x00	counter	0x00~ff	0x04	dumo_num	buf_cam[0]	buf_cam[1]		
Start sign	Data length (n+1)	Address of device MU4	Functional code		n	n		checksum

Byte4: dumo_num---- LFULL(00), L4(01)

buf_cam[n]: n----0~3

Received by PC: get the result as the common searching

Functional code(buf_232[3]):

0x05 restart:

Received by PC: get the result as the common searching

Functional code(buf_232[3]):

0x06 the result of common searching

Received by PC(fixed character string length)

Byte0	Byte1	Byte2	Byte3		Byte11
0xa0	0x0b	0x01~ff			
Start sign	Data length	Address of device MU4			check_sum

Byte3: freeze4_1

Byte5: errorcode

Byte6: demo_num

Byte7: menu_num

Byte9: bit(1)—auto_flag , bit(0)—freeze_flag

byte check_sum()

```
{  
    byte i;  
    word wtemp=0;  
    for(i=1;i<buf_232[1];i++)  
    {  
        wtemp+=buf_232[i];  
    }  
    wtemp=0xffff-wtemp;  
    i=wtemp;  
    return(i);  
}
```

4) **PTC 4 (PELCO)** (fixed character string length)

	Correction position	Data position	Stopping position	Device address
N	Non	8	1	0

Note: N=1200,2400,4800,9600,19200

Description of the protocol:

The length of the protocol: 8 bits

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8
0xa0	Addr	0x00	0x07	0x00	Var	0xaf	checksum

Functions of the 6th character:

Byte6	key	function
0x01	Cam01	Cameras1/ down arrow
0x02	Cam02	Cameras2/ a up rrow
0x03	Cam03	Cameras3/ add
0x04	Cam04	Cameras4/ dec
0x05	/AF	MENU/EXIT
0x06	/22	2X2
0x07	/TP	VCR/LIVE
0x08	/SQ	AUTO/ENTER

The function of the 8th character:

$$\text{Byte8} = \text{Byte1} \wedge \text{Byte2} \wedge \text{Byte3} \wedge \text{Byte4} \wedge \text{Byte5} \wedge \text{Byte6} \wedge \text{Byte7}$$

^ : different or