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# **Color 9&16 Split System**

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***ACTII AC8755***

*User's Manual*



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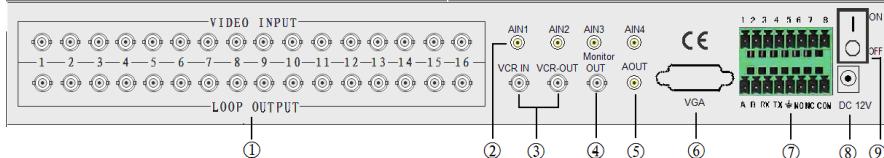
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# **1. System Features**

- 4 channel audio input, 1 channel audio output (option)
  - Connects up to 4/8/16 Video Camera  
Adjustable Brightness, Contrast, Saturation, Hue and Sharpness
  - High Resolution  
720X480 60Hz for NTSC  
720X576 50Hz for PAL  
VGA(option): 1024x768
  - Various Display Modes
    - 4 /8/16 Split Mode
    - Full Screen Mode
    - PIP Screen Mode
    - Realtime 8 Split Mode
    - Non-realtime 16 Split Mode
    - Dual Split Mode
    - Auto Sequence Mode
  - High Performance Freeze Function  
Flicker Free Image Capture
  - High Performance Zoom Function  
Selectable Zoom Area
  - Various Overlay Information
    - Camera Title
    - Real Time and Date
    - Loss/Alarm Message
  - Playback Function
  - Provide Various Event Input and Detection
    - Video Loss Detection
    - 60 Event Report
    - Built-in Buzzer and Relay Output
  - Remote Control by Infrared Transmitter and RS-232 connection (option)
  - Camera Control by RS485 connection (option)
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## 2.Rear Panel Installation

### e.g. 16 Split system



#### ① Camera Connection

Accept 16 loop composite video inputs from the camera.

#### ② AUDIO IN Connection

Accept 4 composite audio inputs from the camera.

#### ③ VCR IN / VCR OUT Connection

Accept 1 composite video input for playback from the VCR.  
Provide 1 composite video output for recording in the VCR.

#### ④ Monitor Connection

Provide 1 composite video output for the main monitor.

#### ⑤ AUDIO OUT Connection

Provide 1 composite audio output for the main monitor.

#### ⑥ VGA OUT Connection (option)

#### ⑦ RS485 / RS-232 / External Alarm Connection

#### ⑧ Power Jack Connection

DC 12V, Center is positive

#### ⑨ Power Switch

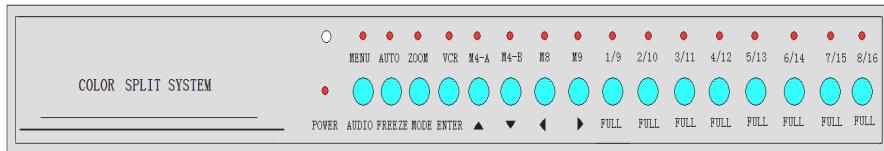
1 : ON

0 : OFF

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### 3.Front Key Operation

e.g. 16 Split system front panel



Note: (\*L) – Press key continuously more than one second to enter menu options.

(\*\*S) – Press key less than one second to enter menu options.

- (1) **MENU (\*L)** : Enter or Exit main menu mode.  
**AUDIO (\*\*S)** : switch audio channel or turn off audio
- (2) **AUTO (\*L)** : Auto channel switch ON/OFF  
**FREEZE (\*\*S)**: Press it to freeze/un-freeze display windows.
- (3) **ZOOM (\*L)** : Enter or exit ZOOM display mode.  
**MODE (\*\*S)** : Enter 16 Split ,picture in picture and Dual Split mode.
- (4) **VCR (\*L)** : Enter Playback function  
**ENTER (\*\*S)** : Enter menu setup
- (5) **M4-A / ▲ (\*L)** : Enter or Exit PTZ control function  
**M4-A / ▲ (\*\*S)** : Master QUAD display / up direction button
- (6) **M4-B / ▼ (\*\*S)** : Slave QUAD display / down direction button/switch channel for PTZ controlling
- (7) **M8/◀ (\*\*S)** : 8 Split display / left direction button
- (8) **M9/▶ (\*\*S)** : 9 Split display / right direction button
  
- (9) **1/9 / FULL** : Channel 1 ( channel 9) display
- (10) **2/10 / FULL** : Channel 2 ( channel 10) display
- (11) **3/11 / FULL** : Channel 3 ( channel 11) display
- (12) **4/12 / FULL** : Channel 4 ( channel 12) display
- (13) **5/13 / FULL** : Channel 5 ( channel 13) display

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(14) 6/14 / FULL : Channel 6 ( channel 14) display

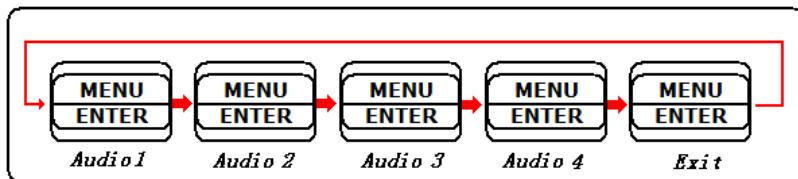
(15) 7/15 / FULL : Channel 7 ( channel 15) display

(16) 8/16 / FULL : Channel 8 ( channel 16) display

## 4. Function description

### 4.1 Button MENU / AUDIO

- **MENU:** Press the MENU (\*L) button to enter or exit menu setup.
- **AUDIO :** Press the AUDIO (\*\*S) button to switch audio channel to listion in or turn off audio.

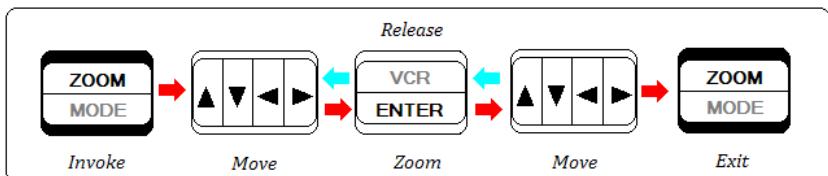


### 4.2 Button AUTO/ FREEZE

- **Auto :** Press the Auto (\*L) button to sequentially display the turned-on video channels (CH1,CH2,CH3,CH4.....CH16, and 4 quad if turned ON in the Auto sequence setup mode) in the display mode windows. The time of display video channels can be programmed by menu setup. Press any key exit AUTO mode.
- **Freeze :** Press the Freeze (\*\*S) button will freeze/un-freeze the display window.

### 4 .3 Button ZOOM/MODE

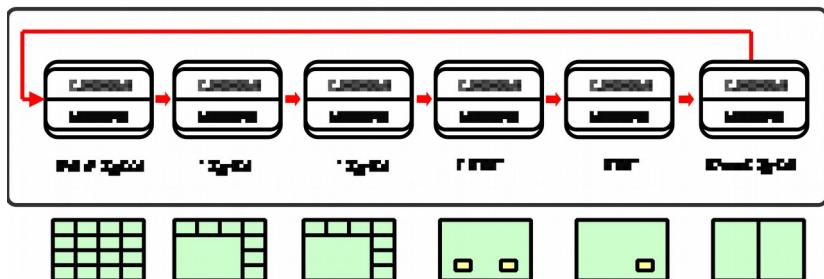
- **ZOOM :** Press the ZOOM (\*L) button to enter 2 \* ZOOM mode. The user can use the "M4-A /▲", "M4-B /▼", "M8/◀", "M9/▶" buttons to move the ZOOM-in frame. Press the ZOOM (\*L) button again will return to previous display mode.



- **MODE :** Press the MODE (\*\*S) to enter the MODE setup

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mode. By default, the display modes are circulated as the following sequence, Non-realtime 16 Split, realtime 8split,2 Picture-in-Picture, 1 Picture-in-Picture and Dual Split for each MODE key .



In 8split and PIP mode, press “ENTER” key enter setup function for select display channel and channel display area. Press up and down ( $\blacktriangle\blacktriangledown$ ) key to select item to setup . Press left and right( $\blacktriangleleft\blacktriangleright$ ) key to select which value we needed. Press “ENTER” key again to exit this setup function.

In two screen compared mode, select any two channel to compared screens. Press “ENTER” key enter setup function for select display channel and circle display star area. Press up and down( $\blacktriangle\blacktriangledown$ ) key to select item to setup. Press left and right( $\blacktriangleleft\blacktriangleright$ ) key to select which value we needed. Press “ENTER” key again to exit this setup function.

#### 4.4 Button VCR / ENTER

- **VCR** : Press the VCR (\*L) button to enter VCR playback mode. The user can use 4 arrow keys and 4 channel keys( $\blacktriangle, \blacktriangledown, \blacktriangleleft, \blacktriangleright$ , 1/9 , 2/10 , 3/11,4/12) to select each channel in the VCR mode. Press the VCR (\*L) button again will return to previous display mode.
- **ENTER** : In menu setup mode ,press the ENTER (\*\*S) to select the value.

#### 4.5 Button M4-A / $\blacktriangle$

- M4-A: Press the M4-A (\*L) button to enter PTZ controlling function.Press the M4-B (\*L) button again to exit PTZ controlling function.
- M4-A: Press the M4-A (\*\*S) button to display master QUAD.

- 
- ▲: Press the ▲ (\*\*S) to move cursor in menu setup.

#### 4.6 Button M4-B / ▼

- M4-B: Press the M4-B (\*\*S) button to switch channel for PTZ in opening PTZ function.
- M4-A: Press the M4-A (\*\*S) button to display slaver QUAD.
- ▼: Press the ▼ (\*\*S) to move cursor in menu setup.

#### 4.7 Button M8/◀

- M8: Press the M8 (\*\*S) button to switch 8 split display.
- ◀: Press the ◀ (\*\*S) to move cursor or adjust the value in menu setup.

#### 4.8 Button M9/▶

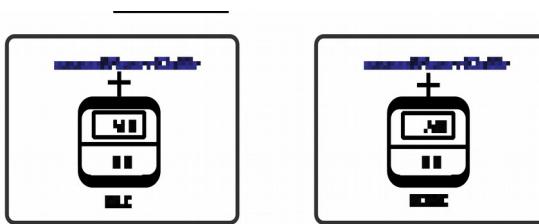
- M9: Press the M9 (\*\*S) button to switch 9 split display.
- ▶: Press the ▶ (\*\*S) to move cursor or adjust the value in menu setup.

#### 4.9 Button 1/9 / FULL, 2/10 / FULL, 3/11 / FULL...ect.

- 16 channel keys select camera to be displayed as full screen.

#### 4.10 PAL/NTSC System

System can be defined as NTSC or PAL standard with the following method. The first method is power on with pressing 7/15 or 8/16 key and the second one is to define in the setup menu.

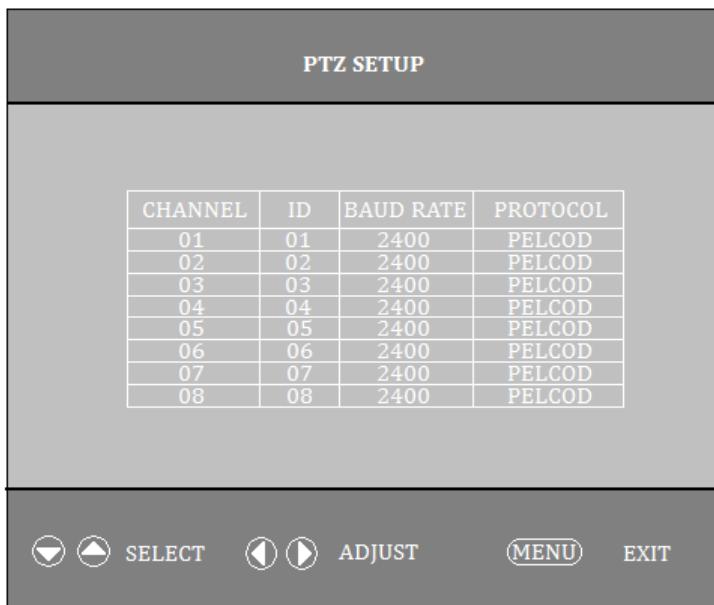


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#### 4.11 PTZ Function

- (1) Press the MENU (\*L) key to enter the system establishment main menu, choose "system setup" and enter by press the ENTER (\*\*S) key, "ptz setup" must establish for "yes" ,then press the ENTER (\*\*S) key to enter the sub-menu . Then adjust the value to ensure the value match as the channel of ptz connected.

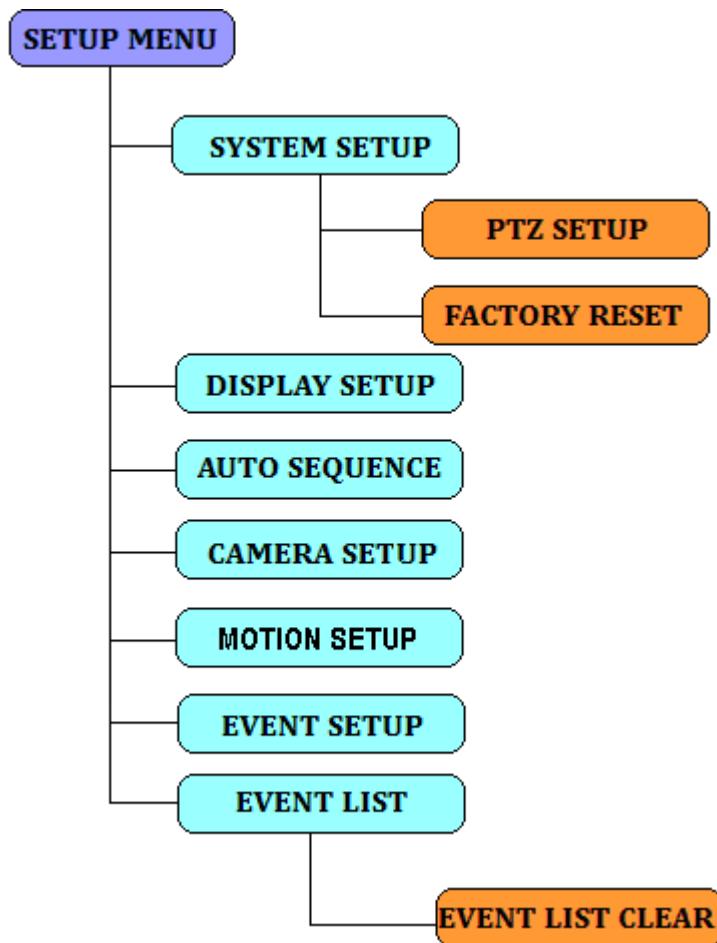
- 
- (2) Press the M4-A (\*L) button to enter PTZ controlling function. Press the M4-B (\*L) button again to exit PTZ controlling function.
  - (3) Press the M4-B (\*\*S) button to switch channel for PTZ controlling when the ptz controlling is effective
  - (4) The control key definition (as follows):
    - ◀: stop;                    8/16 FULL: automatic pattern
    - ▶: right;                1/9 FULL: left;                (direction)
    - 2/10 FULL: down        3/11 FULL: up;
    - 4/12 FULL: near        5/13 FULL: far                (focal distance)
    - 6/14 FULL: big          7/15 FULL: small              (aperture)



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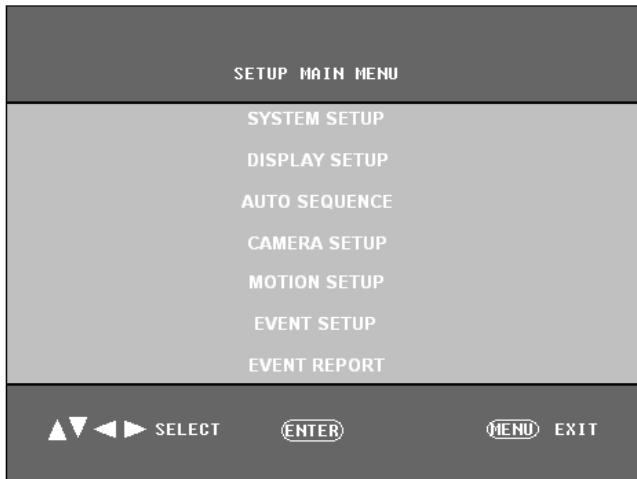
## 5. Setup Menu Operation

The system provides a built-in GUI setup screen. For each menu, the key function is described in the lower region to help operation. The following figure shows the structure of GUI menu.



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## 5.1 Setup Main menu:



Press **MENU (\*L)** key to enter main menu setup.

Move cursor to the item of needed setup with **▲/▼**.Press **◀/▶** to select the value. Press **ENTER** key to enter submenu.

Press **MENU (\*L)** key to exit last menu.

Press **MENU (\*L)** to exit main menu setup.

## 5.2 System Setup Menu

- 1) Press **▲/▼** to select the item of setup .Press **◀/▶** to select the value;
- 2) DATA:there are three kinds of display format to data:MM-DD-YY  
DD-MM-YY , YY-MM-DD 。Default:YY-MM-DD, 07-07-07
- 3) TIME: time setup. HH:MM:SS is hour, minute and second.  
Default:12:00:00.
- 4) SYSTEM FORMAT :PAL / NTSC. Default :PAL;
- 5) LANGUAGE : English/Simple chinese. Default: PAL
- 6) PTZ SETUP :If select YES, press ENTER to enter PTZ setup.
- 7) KEY LOCK: key lock. If select NO, after exit menu setup mode, all key be locked except MENU key. Default:OFF;
- 8 ) SYSTEM ID:The machine ID, used for external devices, such as keyboard control through RS232 / RS485 control the machine, Default: 01

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9) RS232: controlled way set, when RS232 set to off, through the rs485 control the machine, otherwise, through the 232 control the machine, default: off

10) FACTORY RESET: comeback to factory setup. Press **◀/▶** to select YES or NO. If select NO, press ENTER to enter into next dialog box. Press **◀/▶** to select YES and press ENTER to comeback factory setup. Default: NO



*Factory Reset Menu*



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### 5.3 Display Setup Menu

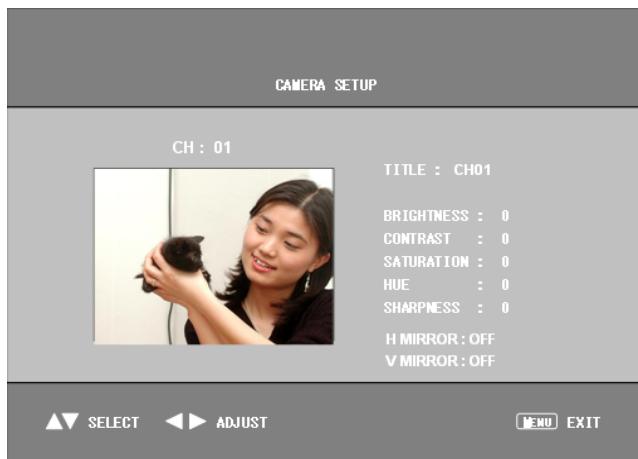


- 1 DISPLAY ON SCREEN : Select YES or NO to display camera title, data time in the screen. Press ▲/▼ to move cursor, press ENTER to change state. Display “√”
- 2 SCREEN POSITION : Select screen display area. X position: -10 ~ +10. Y position: -4 ~ +3 . Default(X:0 , Y:0).
- 3 BORDER COLOR : Border colors have black, gray, white and selected.  
Default: GRAY2.

VGA: change the resolution of the vga output(optional)

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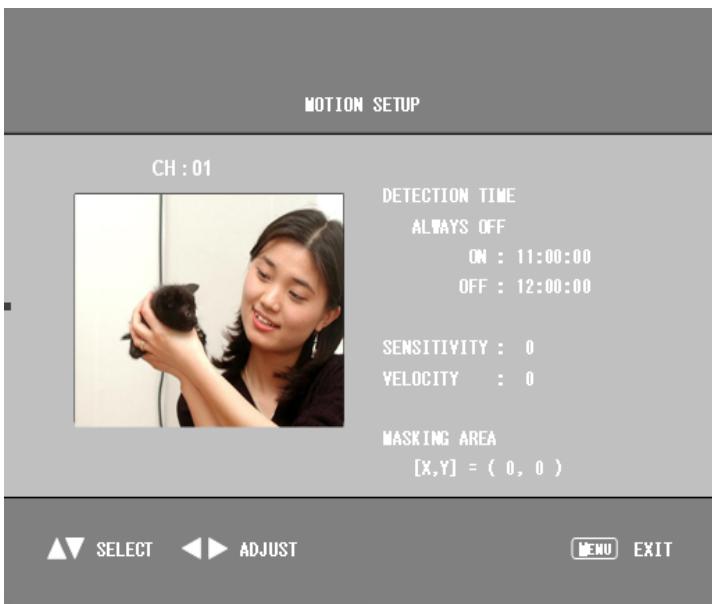
### 5.4 Camera Setup Menu



Setup each camera's title / brightness /contrast / saturation / hue / sharpness and mirroring independently.

- 1           CAMERA : Select the camera with **◀/▶**.Default: ch1.
- 2           TITLE: Channel name setup. Press **▲/▼** to move cursor to next character and press **◀/▶** to change character. Default: CAMERA1
- 3           BRIGHTNESS : Brightness setup. From -100 to +100 can be selected. Press long **◀/▶** key, value can be continued changed. Default: 0
- 4           CONTRAST : Contrast setup. From -100 to +100 can be changed. Press long **◀/▶** key, value can be continued changed. Default: 0
- 5           SATURATION : Saturation setup. From -100 to +100 can be selected. Press long **◀/▶** key, value can be continued changed. Default :0
- 6           HUE : Hue setup. From -100 to +100 can be selected. Press long **◀/▶** key, value can be continued changed. Default :0
- 7           SHARPNESS : Sharpness setup. From 0 to 3 can be selected. Press long **◀/▶** key, value can be continued changed. Default :0
- 8           MIRRORING : Mirroring display camera screen. Default: OFF

## 5.5 Motion Setup Menu



Setup each camera's detection time/sensitivity/velocity and masking area

CAMERA: Select the camera with **◀/▶**. Default: ch1.

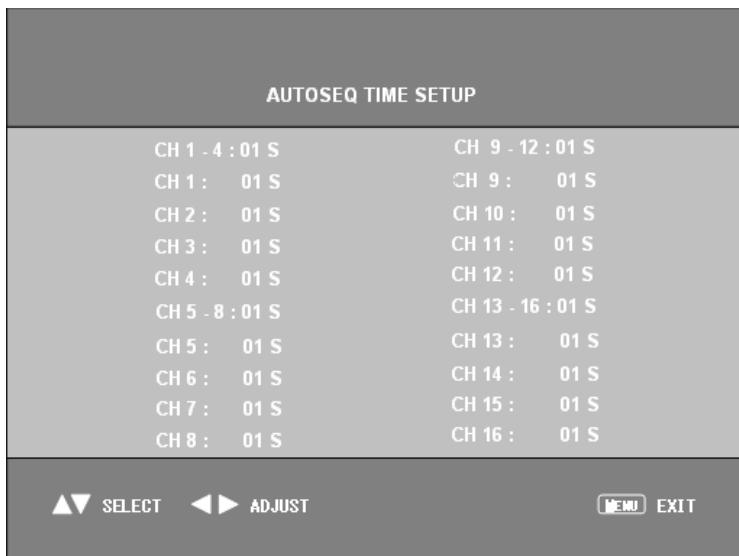
DETECTION TIME: ALWAY ON/ALWAYS OFF/ON/OFF TIME

SENSITIVITY: setup. From -7 to +7 can be selected.

VELOCITY: setup. From -7 to +7 can be selected.

MASKING AREA: every camera has 16x12 area, press **▲/▼/◀/▶** select the area, press "enter" to change state.

## 5.6 Auto Sequence Setup Menu



Setup display times of AUTO sequence to each screen. There are skip/1sec~99sec be selected.

Default: 1sec.

EVENT SETUP

BUZZER/REPORT CONTROL								
CH NO	1	2	3	4	5	6	7	8
ALARM	<input type="checkbox"/>							
LOSS	<input checked="" type="checkbox"/>							
MOTION	<input type="checkbox"/>							
CH NO	1	2	3	4	5	6	7	8
ALARM	<input type="checkbox"/>							
LOSS	<input checked="" type="checkbox"/>							
MOTION	<input type="checkbox"/>							

BUZZER HOLD TIME : 05 SEC  
REPORT HOLD TIME : 30 SEC  
ALARM POLARITY : LOM

SELECT      NO      EXIT

Can be set up independently every event is enabled. Press **▲/▼/◀/▶** to select item o and press ENTER to change state. “” is ON.

- 1 ALARM : External alarm input enable switch. Default: all off
- 2 LOSS: Video lost alarm enable switch. Default: all on
- 3 MOTION: Motion detects alarm enable switch. Default: all off
- 4 BUZZER HOLD TIME : OFF/1ses~99ses can be selected. Default: 5ses.
- 5 REPORT HOLD TIME : Report of relay.Holding time. OFF/1ses~99ses can be selected. Default: 30sec.
- 6 ALARM POLARITY: low/high. External alarm input polarity choice. Set to high, high level (closed type) input effective; Set to low, low-level input (often open type) effective. Default: low

## 5.8 Event Report

**EVENT REPORT**

OF 6 PAGE

ID	DATE	TIME	TYPE	VAL	STATE
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	
1	12/12/00	23:59:00		0000	

LIST CLEAR : NO

**▲▼ SELECT    ◀▶ ELECT PAGE**

**[ENTER] EXIT**

Display every report of alarm. Event report has 6 page totally and 10 recordings per page. Press **◀/▶** to change pages.

**LOSS:** video loss.

**ALARM:** exterior alarm

**MOTION:** motion detection.

**LIST CLEAR:** Clear the list of reports.

### 5.9 Event List Clear Menu

**LIST CLEAR**

**WARNING!**  
THIS SYSTEM GETS TO LOSE  
THE CURRENT EVENT LIST  
AND WILL BE INITIALIZED  
WITH BLINK.

ARE YOU SURE?

**YES**      **NO**

**◀▶ SELECT**

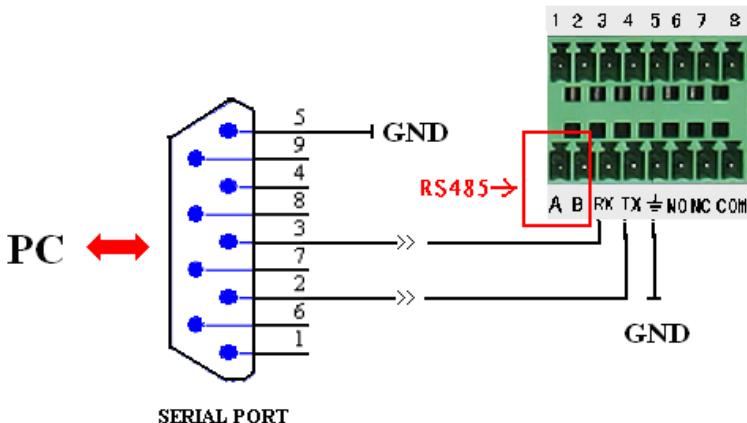
**[ENTER]**

**[MENU] EXIT**

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## 6. RS-232C and RS485 Interface

Connection as follow:



The Explanation of connection as follow:

- 1 Ground must be connected into together
- 2 The 3th foot of the serial port connect to RX port of the machine..
- 3 The 2th foot of the serial port connect to TX port of the machine .

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### 6.4 Control Protocol and operating instructions

The company the color split system controlled type points two kinds, one kind is common type does not have the keyboard control function, control instructions simple, suitable for user directly in computer RS232 control. Another kind of have the keyboard control function, and can use the keyboard B5003HB HANBANGGAOKE control operation, easy to use.

the control equipment and the machine's baud rate and ID number set to the same, default ID: 0x01

#### B5003HB HANBANGGAOKE control keyboard and Receive Protocol

FUNCTION	CODE(hex, ID: 0x01)	Keyboard symbol	Description
MENU/ ESC	F6 30 <b>01</b> 00 1D 00 <b>4E</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	MENU	MENU/ ESC
AUTO	F6 30 <b>01</b> 00 7D 00 <b>2E</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	RUN	Auto Sequence
FREEZE	F6 30 <b>01</b> 00 B5 00 <b>66</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	FAR	Freeze ON/OFF
ZOOM	F6 30 <b>01</b> 00 25 00 <b>56</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	WIDE	Zoom ON/OFF
MODE	F6 30 <b>01</b> 00 BD 00 <b>6E</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	PATRN	Switch mode
VCR	F6 30 <b>01</b> 00 2D 00 <b>5E</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	OPEN	VCR ON/OFF
ENTER	F6 30 <b>01</b> 00 37 00 <b>68</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	ENTER	ENTER
▲	F6 30 <b>01</b> 00 1F 00 <b>50</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	ROCKER UP	UP / PRE mode
▼	F6 30 <b>01</b> 00 2F 00 <b>60</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	ROCKER DOWN	DOWN / Next mode
◀	F6 30 <b>01</b> 00 8F 00 <b>40</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	ROCKER LEFT	LEFT / PRE Channel
▶	F6 30 <b>01</b> 00 AF 00 <b>60</b> F6 30 <b>01</b> 00 00 00 <b>31</b>	ROCKER RIGHT	DOWN / Next Channel
1	F6 30 <b>01</b> 00 8D 00 <b>3E</b>	1	Channel 1
2	F6 30 <b>01</b> 00 AD 00 <b>5E</b>	2	Channel 2
3	F6 30 <b>01</b> 00 9D 00 <b>4E</b>	3	Channel 3
4	F6 30 <b>01</b> 00 4D 00 <b>7E</b>	4	Channel 4
5	F6 30 <b>01</b> 00 6D 00 <b>1E</b>	5	Channel 5
6	F6 30 <b>01</b> 00 5D 00 <b>0E</b>	6	Channel 6
7	F6 30 <b>01</b> 00 CD 00 <b>7E</b>	7	Channel 7
8	F6 30 <b>01</b> 00 ED 00 <b>1E</b>	8	Channel 8

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9	F6 30 <b>01</b> 00 DD 00 <b>0E</b>	9	Channel 9
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**NOTE:**

When the equipment ID add 1, the above Bold code, adds 1

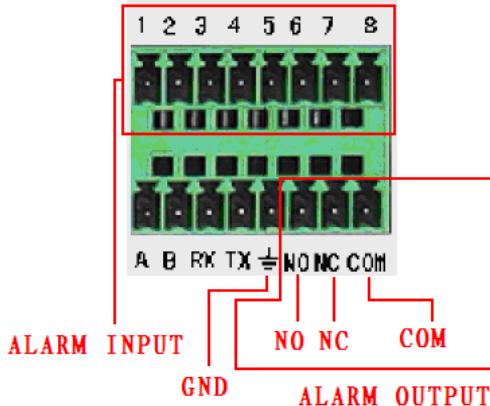
Receive Protocol of Color 9 Split system (Simple type)

Code(Hex)	Description	Code(Hex)	Description
0x81	Channel 1	0x94	Zoom
0x82	Channel 2	0x95	Menu
0x83	Channel 3	0x96	▲
0x84	Channel 4	0x97	▼
0x85	Channel 5	0x98	◀
0x86	Channel 6	0x99	▶
0x87	Channel 7	0x9a	Enter
0x88	Channel 8	0x9b	PTZ in/out
0x89	Channel 9	0x9c	CHN
0x8a	Quad A Page(1-4)	0x9d	Stop
0x8b	Quad B Page(5-8)	0x9e	Right
0x8c	Quad C Page(9-3)	0x9f	Left
0x8d	9 Split Page (1-9)	0xa0	Down
0x8e	2 Picture-in-Picture	0xa1	Up
0x8f	1 Picture-in-Picture	0xa2	Focus Near
0x90	Dual Split	0xa3	Focus Far
0x91	Auto Sequence	0xa4	Zoom Wide
0x92	Playback	0xa5	Zoom Tele
0x93	Freeze	0xa6	Auto

Receive Protocol of Color 16 Split system (Simple type)

Code(Hex)	Description	Code(Hex)	Description
0x80	NULL	0x95	A Page 8 Unite
0x81	Channel 1	0x96	B Page 8 Unite
0x82	Channel 2	0x97	A Page 9 Unite
0x83	Channel 3	0x98	B Page 9 Unite
0x84	Channel 4	0x99	Non-realtime 16 Split
0x85	Channel 5	0x9a	8 A Page
0x86	Channel 6	0x9b	8 B Page
0x87	Channel 7	0x9c	2 Picture-in-Picture
0x88	Channel 8	0x9d	1 Picture-in-Picture
0x89	Channel 9	0x9e	Dual Split
0x8a	Channel 10	0x9f	Auto Sequence
0x8b	Channel 11	0xa0	Playback
0x8c	Channel 12	0xa1	Freeze
0x8d	Channel 13	0xa2	Zoom
0x8e	Channel 14	0xa3	Menu
0x8f	Channel 15	0xa4	▲
0x90	Channel 16	0xa5	▼
0x91	Quad A Page(1-4)	0xa6	◀
0x92	Quad A Page(5-8)	0xa7	▶
0x93	Quad B Page(1-4)	0xa8	Enter
0x94	Quad B Page(5-8)	0xa9	Audio
0xaa	9 A PAGE	0xab	9 B PAGE

## 6.5 External Alarm Interface



#### Alarm input explains:

- 1) to make the alarm input effective, needs to set it in the event the corresponding alarm open.
- 2) 8 road alarm input, input type unlimited, is often can open type or closed type, when using, need to set the alarm polarity corresponding types.
- 3) the police probe grounding termination this machine grounding end (the police probe should by external power source supply).

#### Alarm output explains:

- 1) 2 "switch quantity alarm output (often on or closed), external alarm equipment need to have power supply.
- 2) to avoid overload and damage the host, and please refer to the connection of the table relay related parameters

Type: HRS1-S DC5V		
Contact	AuAg	
rating (resistance load)	Contact Rating	24VDC 2A, 120VAC 1A
	Max-Switching	120VA 24W
	Max-	30VAC/120VAC
	Max-switching	2A
Dielectric Strength	Homo-polarity	1000 VAC, 1 min
	Inhomo-polarity	1000VAC, 1 min

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	Contact and coil	1500VAC ,1 min
Surge voltage	Homo-polarity	1500VAC (10×160us)
Operate time	5ms max	
Release time	5ms max	
Life Expectancy	Mechanical	10,000,000 ops
	Electrical	100,000 ops
Temp Range	-25~+55°C	

