

# DVR – ACAP Series

Hardware Installation Guide

Rev. 1.0

Digital Video Security System  
Digital Video Recorder

\*All contents of this document may change without prior notice.

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## Preface

This is a guide book that explains the hardware components and provides you the step by step installation of DVR board.

For the software explanation, please refer to “Installation and User’s Guide”.

This guide book is applicable to, among DVR products, DVR CAP120A16 board.

The pictures and names of the products are subject to change depending on hardware upgrade. However, the usages may be similar.

For any question you have, please contact to the following address. When you are sending your concerned matter, please include your company name and phone number with detail description.

# 1. Specification of DVR

- **1~16 Camera Inputs / Output**

Up to 16 camera inputs are available on screen for digital handling.

Normal input condition: 75 Ohm, 1 Volt (p-p)

- **1~16 Sensor Inputs**

Up to 16 sensors can be linked to the system with optional I/O Board.

External DC 12 Volt power must be provided to the sensor input from outside.

- **1~4 Digital Outputs (Relay Outputs)**

Digital Outputs can be used to activate things like shutters and sirens, and activation can be linked to sensor and motion detection. Optional I/O board is required.

- **Sound Recording and Two-Way Communication Capabilities**

Sound can be recorded with video images. Two-way communication is possible between DVR main and DVR Net.

- **Display Features (w/ Multi-Viewing)**

Multi-Viewing allows 1, 4, 6, 9, 10, or 16 different camera shots to be displayed onscreen at the same time.

Other display features include enlarging all displayed cameras or just one.

- **PAN/TILT/ZOOM/FOCUS Capabilities**

Each connected camera can be manipulated through the DVR main program as long as each camera supports such capabilities.

- **Auto Rebooting System**

When DVR detects an error or malfunction within the system, it will automatically reboot the system in order to correct it.

- **Motion Detection and Sensor Trigger**

Detection features make it possible to record images only when movement is detected, preserving volume space and maximizing the use of physical storage space.

#### ▪ **Scheduled Recording**

Scheduling allows the administrator to record images only during designated time periods, if so desired.

Every combination of scheduling is available in the DVR program.

#### ▪ **Manual and Auto Backup**

Data can be preserved through various formats (DAT, CD, or DVD) and data from specific cameras and/or time periods can be specifically isolated for backup as well. Much like scheduled recording, backup of data can be scheduled as well.

#### ▪ **Digitalized Video Search**

Recorded data features digital playback for each camera simultaneously or one at a time. Playback features include advanced search features and image extracting, which allows portions of existing video to be extracted and saved as a separate file.

#### ▪ **Network Support (PSTN, TCP/IP, LAN , Modem Protocol Support)**

DVR supports network access, which allows administrators to login to DVR main and remotely access all the features provided locally.

#### ▪ **POS, Access Control, ATM Support**

Text data from external devices (POS, Access Control, ATM, etc) can be recorded with DVR video images.

Text Search allows to search data from external devices with DVR video image when event occurs. This will raise the level of integrity and security.

Feature	ACAP Series
Camera Input	1~16Port(NTSC/PAL)
Sound Input	1 or 2 Port (Optional 16 Port)
Sensor Input	1~16 Port (Optional)
Relay Output	1~4 Port (Optional)
Composite Output	1 Port (NTSC/PAL, 1 Channel Switching)
Image Format	Software MPEG-4
Recording Mode	Watch, Normal, Motion Detection, Sensor, Scheduled Recording
Remote Control	Full remote control PSTN, ISDN,ADSL, LAN and TCP/IP
Back-up	DAT, CD, DVD
PAN/TILT/ZOOM/FOCUS	RS-232 Interface (Optional RS-422/485 Converter)

## 2. Products and Components

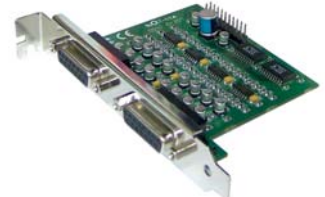
### 3.1 DVR ACAP Series Board



DVR-CAP120A16



I/O board  
(Optional)



Sound A16 board  
(Optional)

### 3.2 Accessories



Pigtail Cable



Audio Cable



Reset Cable

### 3.3 Optional Accessories



Sensor Port



Sensor & Relay Cable



Sound external cable



Sound internal cable



RS-485 Board

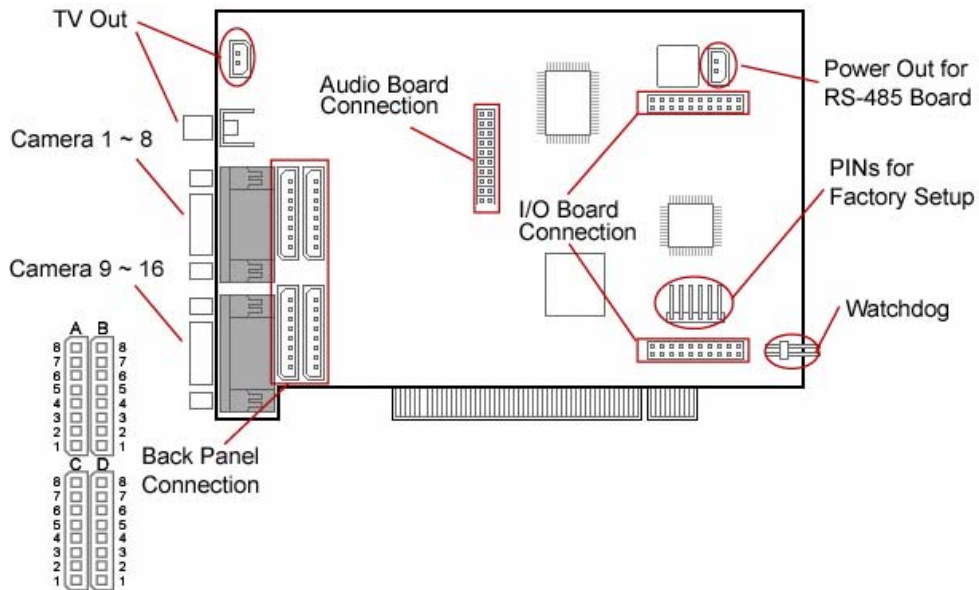
RS-232C Cable

Back Panel

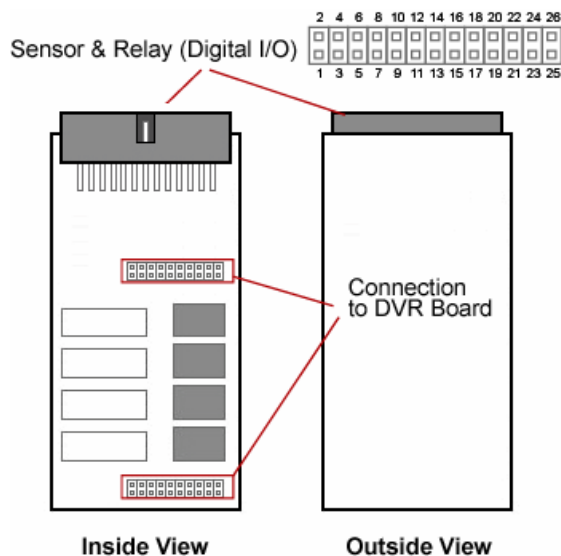
Video Cable

## 3. Board Description

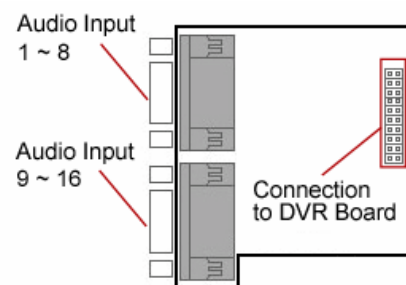
### 3-1. DVR CAP120A16



### 3-2. I/O Board

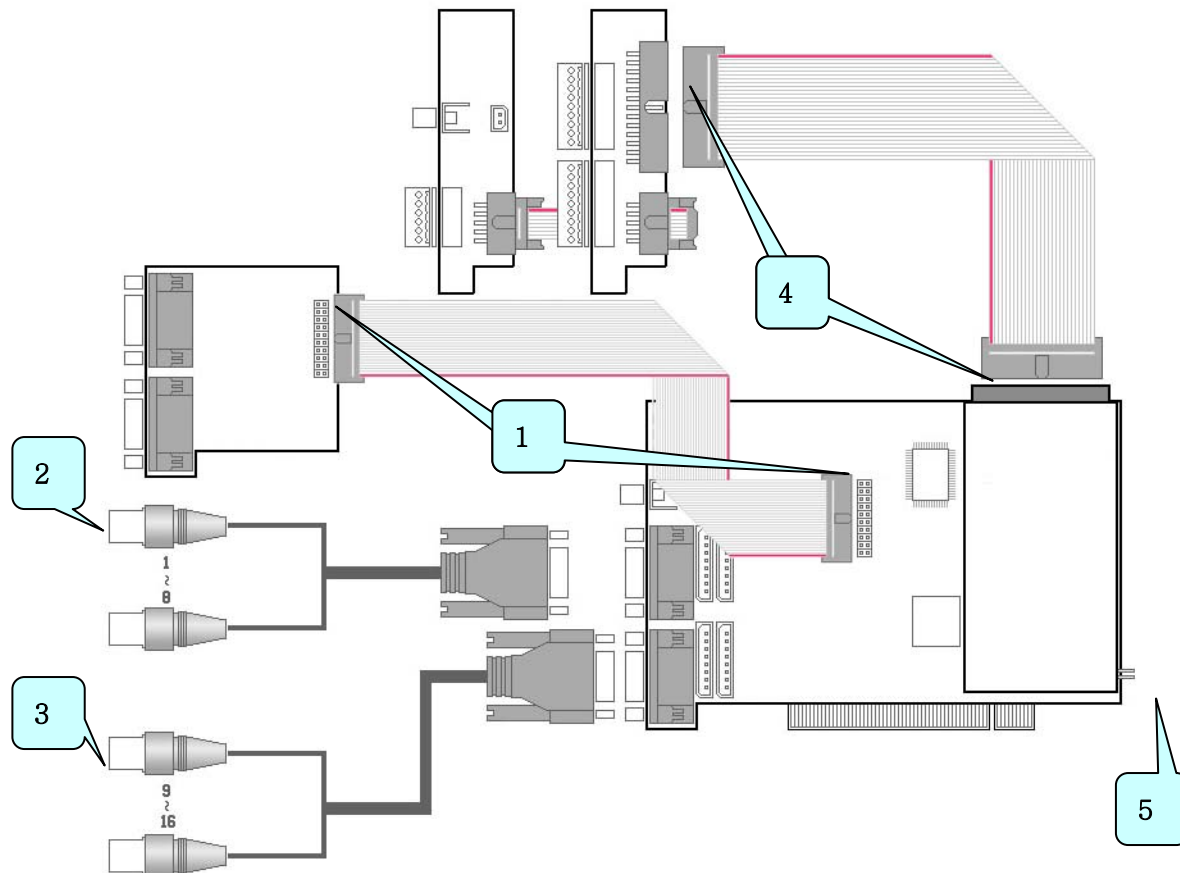


### 3-3. Audio Board

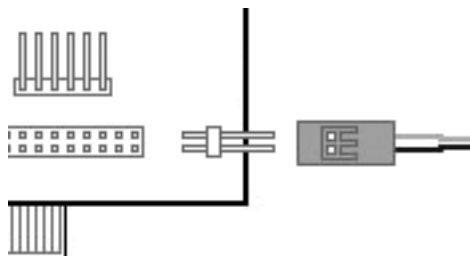


## 4. Installation

### 4-1. DVR CAP120A16 Pigtail Type

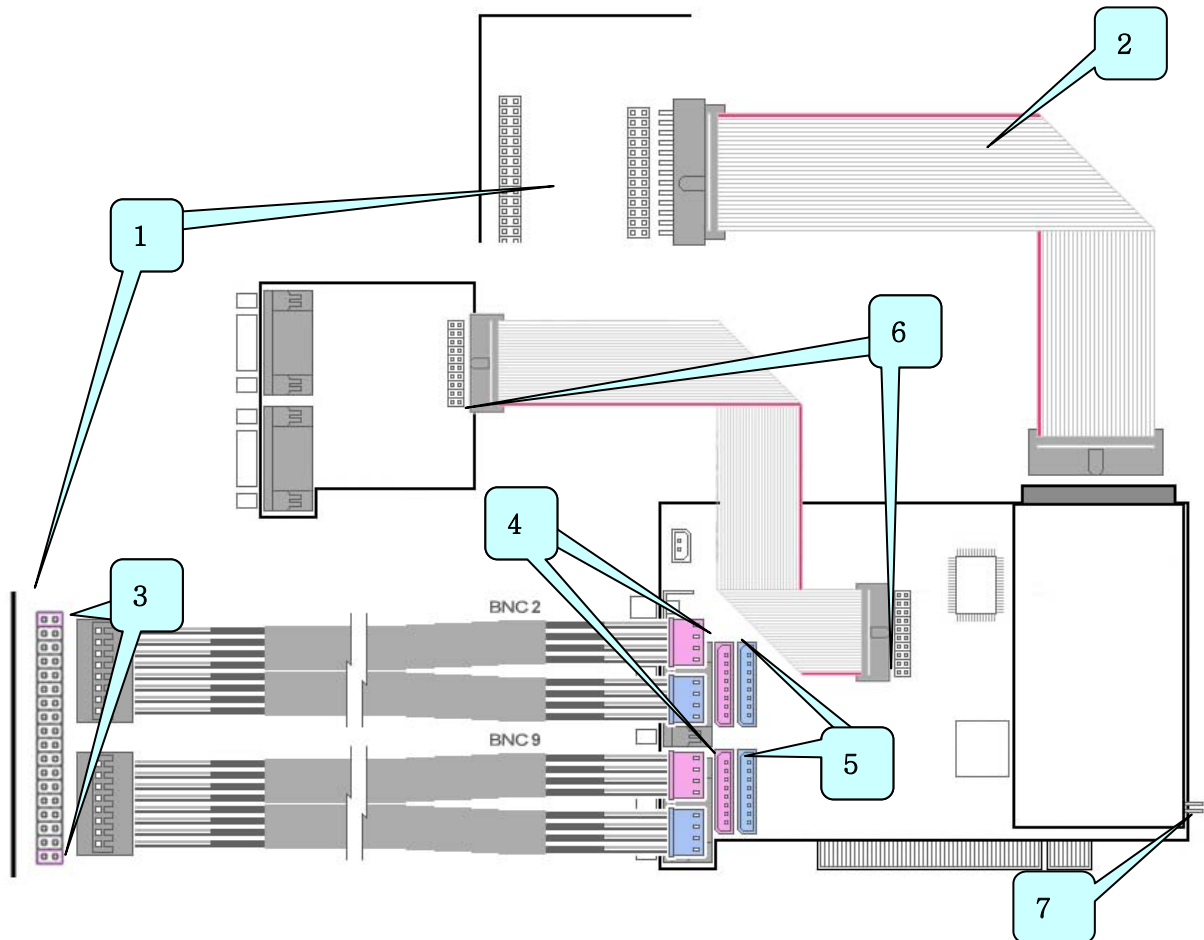


- 1) Connect Audio board with DVR board. Make sure Red line goes to the bottom.
- 2) Connect camera 1~8 to the BNC ports.
- 3) Connect camera 9~16 to the BNC ports.
- 4) Sensor cable connects to Sensor port.
- 5) The other side of sensor cable connects to IO socket on the DVR board.
- 6) Connect Watchdog cable. Make sure Black cable goes to the bottom as shown below.

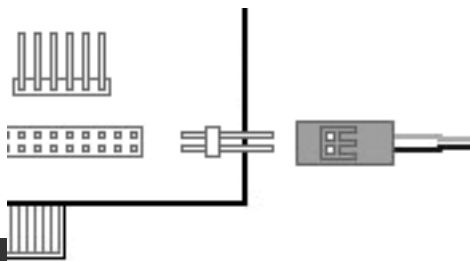




## 4-2. DVR CAP120A16 Back Panel Type

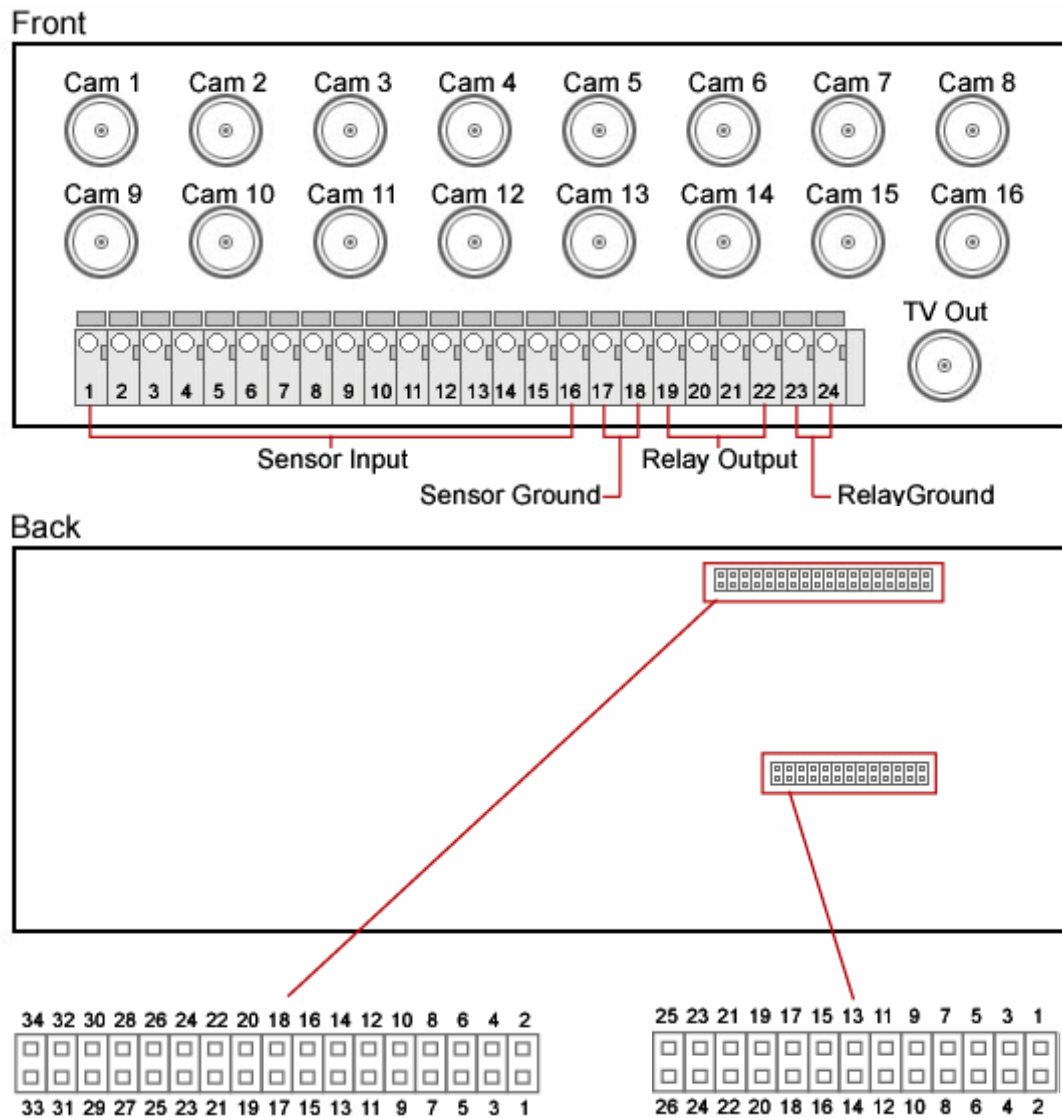


- 1) Back panel.
- 2) Sensor Cable.
- 3) When connect cable to back panel make sure to leave one pin from each end.  
White cable should be facing up.
- 4) Connect video cables. Make sure the cable with BNC2 label goes here.
- 5) Connect video cables. Make sure the cable with BNC9 label goes here.
- 6) Connect Audio board with DVR board. Make sure Red line goes to the bottom.
- 7) Connect Watchdog cable. Make sure Black cable goes to the bottom as shown below.



## 5. Accessories

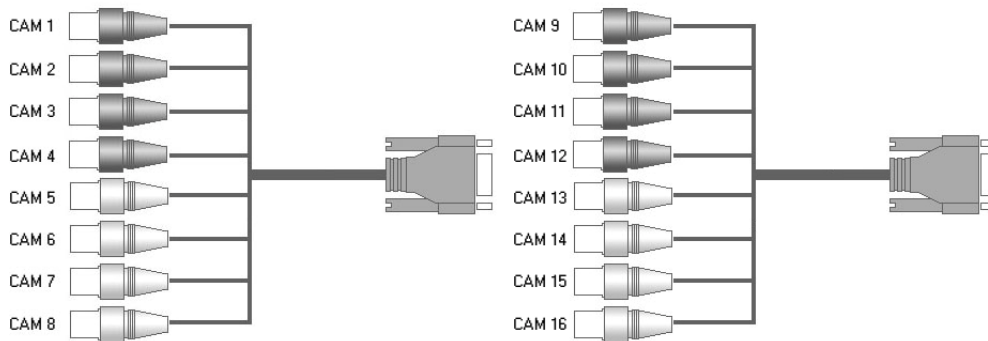
### 5-1. Back Panel



Camera I/O	
Camera Ground	3, 5, ~ 31, 33
Camera Signal	4, 6, ~ 32, 34
TV Out Ground	1
TV Out Signal	2

Sensor & Relay (Digital I/O)	
Sensor Input 0~15	1~16
Input Common 0~1	17, 18
Relay Output 0~3	19~22
Output Common 0~1	23, 24

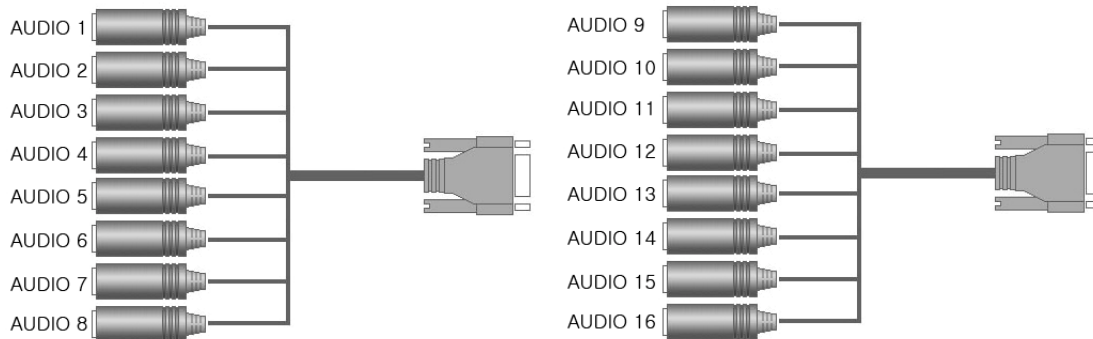
## 5-2. Video Pigtail



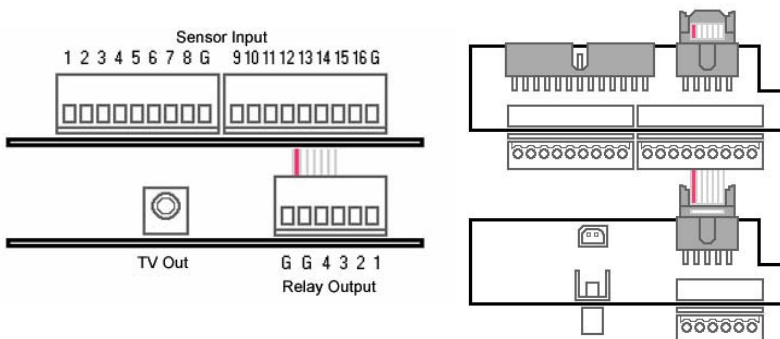
### Pigtail cable

1 ~ 4, 9 ~ 13: Black BNC  
5 ~ 8, 13 ~ 16: White BNC

## 5-3. Audio Pigtail



## 5-4. Sensor Board (16 channel)



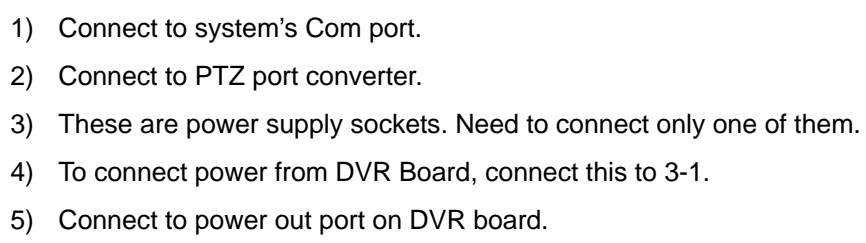
### Sensor port pin number

1 ~ 8, 9 ~ 16: Signal input

G: Ground

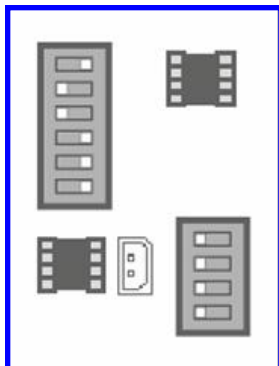
4, 3, 2, 1: Relay output

Response	Percentage
Yes, the U.S. should take action to reduce greenhouse gas emissions	85%
No, the U.S. should not take action to reduce greenhouse gas emissions	15%

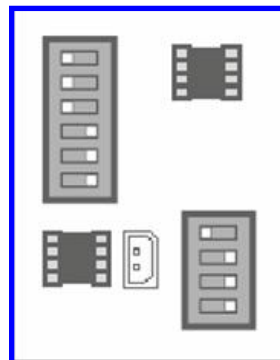


## Dip Switches

## RS-485 Mode



## RS-422 Mode

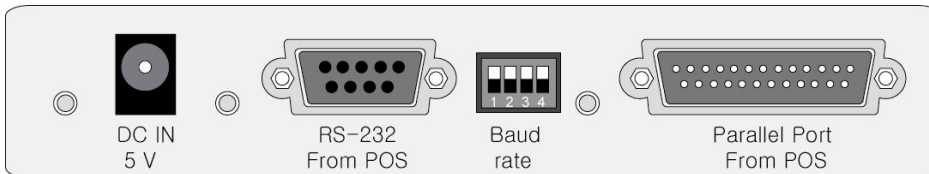


## 5-6. PORT Converter

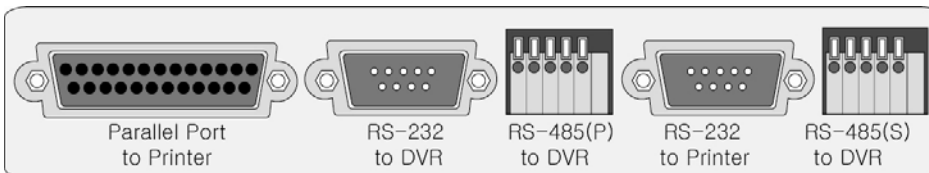
### 5-6-1. Specification

Input		RS-232 from POS	DB9 Female
		Parallel Port from POS	DB25 Male
Output	Serial	RS-232 to Printer	DB9 Male
		RS-485(S) to DVR	TX(+)(-), RX(+)(-), GND
	Parallel	Parallel Port to Printer	DB25 Female
		RS-232 to DVR	DB9 Male
		RS-485(P) to DVR	TX(+)(-), RX(+)(-), GND
Power		DC 5V	
Cable	Serial	RS-232 from POS	DB9 Female to DB9 Male Direct
		RS-485(S) to DVR	DB9 Female to DB9 Female Cross
		RS-485(P) to DVR	DB9 Female to DB9 Female Cross
	Parallel	Parallel Port from POS	DB25 Male to DB25 Female Direct
		Parallel Port to Printer	DB25 Female to IEEE 1284

### 5-6-2. Layout Description



- 1, DC IN 5V
- 2, Rs-232 From POS: Connect to the serial port in POS
- 3, Baud rate: Select the Baud rate
- 4, Parallel Port from POS: Connect to the parallel port in POS



- 5, Parallel Port to Printer: Used by Parallel printer
- 6, RS-232 to DVR: Used by Serial port in DVR
- 7, RS-485(P) to DVR: Used by RS-485 board in DVR
- 8, RS-232 to Printer: Used by Serial Printer

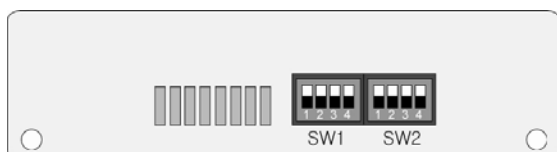
9, Rs-485(S) to DVR: Used by RS-485 board in DVR



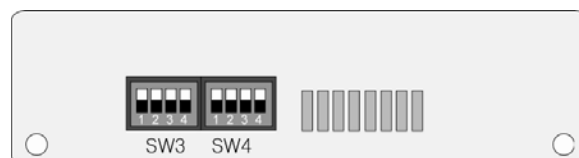
1 2 3 4 5

10, Terminal Block

- TxData	1	+ TxData	2
- RxData	3	+ RxData	4
Signal	5		



11, SW1, SW2: Used in output of Parallel port



12, SW3, SW4: Used in output of Serial

### 5-6-3. Baud Rate



1,200 BPS



2,400 BPS



4,800 BPS



9,600 BPS



19,200 BPS



38,400 BPS



57,600 BPS



115,200 BPS

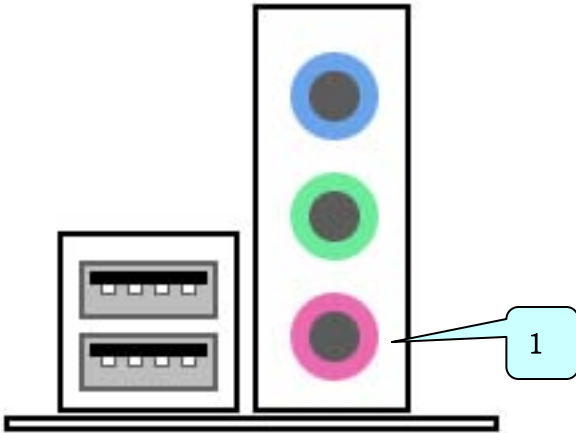
### 5-6-4. Jumper Selection

Output of parallel port	Output of serial port
<p>RS-232</p> <p>SW1 SW2</p> <p>RS-422</p> <p>SW1 SW2</p> <p>RS-485</p> <p>SW1 SW2</p>	<p>RS-232</p> <p>SW3 SW4</p> <p>RS-422</p> <p>SW3 SW4</p> <p>RS-485</p> <p>SW3 SW4</p>

## 5-7. Sound Recording

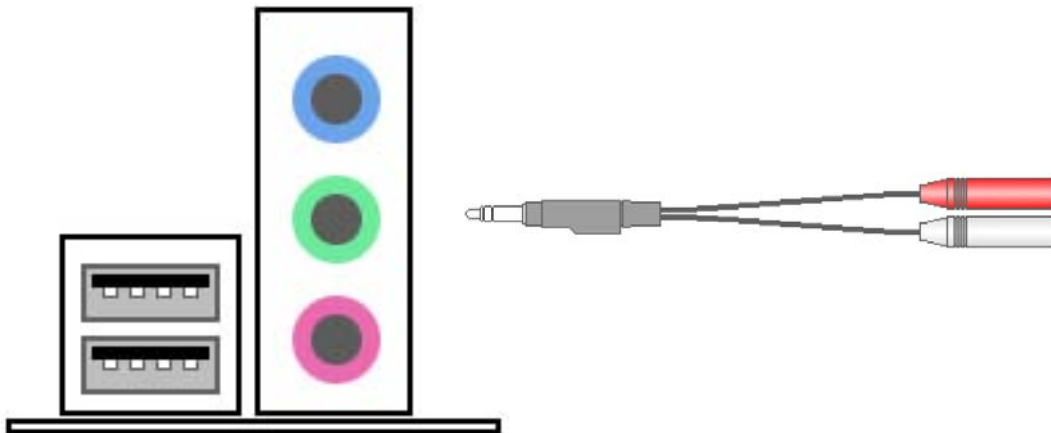
After connecting Microphone, ensure that “Line In” and “Microphone In” is not muted in the Windows sound setting. It is required to *have Direct X 8.0 or higher*.

### 5-7-1. 1 Channel sound



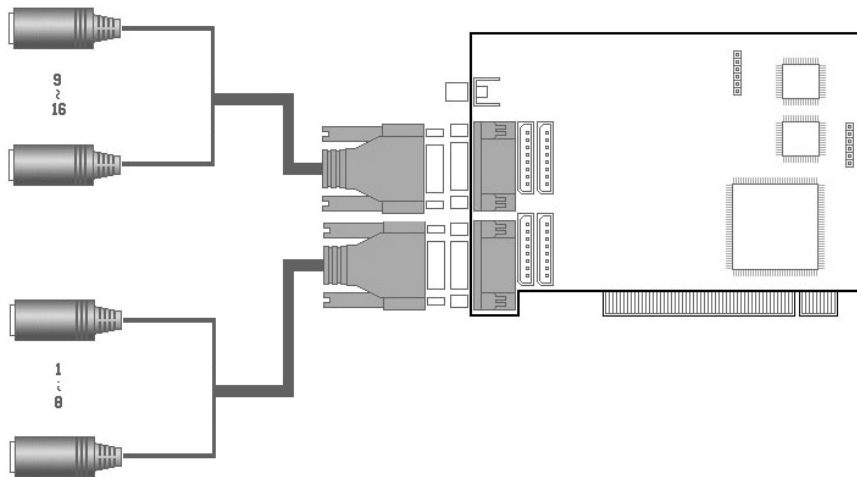
- 1) Connect to “Microphone In” of sound card.

### 5-7-2. 2 Channel sound



- 1) Connect to “Line In” of sound card with included 2 channel audio cable.
- 2) Connect microphones to the audio cable.
  - Must use amplified microphone.

### 5-7-3. 16 channel sound



- 1) Optional 16 channel sound card is required.
- 2) Connect pigtails to the audio board
- 3) Connect microphones to the each audio channel.
  - Must use amplified microphones.