

Protech DVR - H.264

Hardware Installation Guide

Rev. 2.0

Digital Video Security System
Digital Video Recorder

*All contents of this document may change without prior notice, and actual product appearance may differ from depicted herein.

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Introduction

This is a guide book that explains the hardware components and provides a 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 Protech products, 12004H, 24008H, 48016HE , 48016HE D1 and 96032HE Slave boards.

The pictures and the name of the products are subject to change; however, the usage may be similar.

1. Specification of Protech H.264

- **1~32 Camera Inputs / Output**

Up to 32 camera inputs are available on screen for digital handling.

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

- **1~32 Sensor Inputs**

Up to 32 sensors can be linked to the system

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

- **1~8 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.

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

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

**Note: Sound recording must be made with an amplified microphone.*

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

Multi-Viewing allows 1, 4, 6, 9, 10, 16, or 32 different camera shots to be displayed onscreen at the same time.

Other display features include enlarging all displayed cameras or just one. 32 channel viewing can be attained with specially configured cards.

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

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

- **Auto Rebooting System**

When Protech 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 Protech program.

- **Data Backup 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)**

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

- **Integration with Text data from External Devices**

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	12004H	24008H	48016HE	96032HE Slave	48016HE D1
Camera Input (NTSC/PAL)	1~4Port	1~8Port	1~16 Port	1~32 Port	1~16 Port
Sound Input	1~4Port	1~8Port	1~16 Port	1~32 Port	1~16 Port
Sensor Input	1~4Port	1~16Port	1~16 Port	1~32 Port	1~16 Port
Relay Output	1~4Port	1~4Port	1~4 Port	1~8 Port	1~4 Port
Composite Output	1 Port (NTSC/PAL, Normal)				
Image Format	H.264				
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-232/422/485 Interface				

* Note: 96032HE consists of one of 48016HE and 96032HE Slave

2. Products and Components

2-1. Protech H.264 Series Board



12004 H



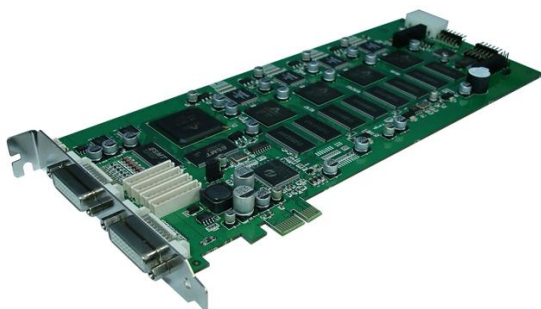
24008 H



48016 HE



96032 HE Slave



48016 HE D1

2-2. Accessories



4ch Video & Audio Pigtail Cable



8ch Video Pigtail Cable



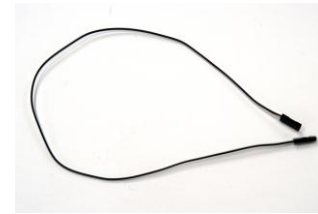
8ch Audio Pigtail Cable



16ch Video Pigtail Cable



16ch Audio Pigtail Cable



Reset Cable



Sensor & Relay Cable



Sensor & Relay Board

2-3. Optional Accessories



RS422/485 Board



RS422/485 Board (32ch)



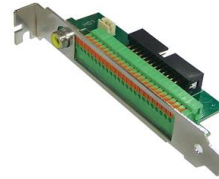
RS422/485 Board Cable



I/O Board



Sensor & Relay Cable



Sensor Board



Video Cable



Back Panel



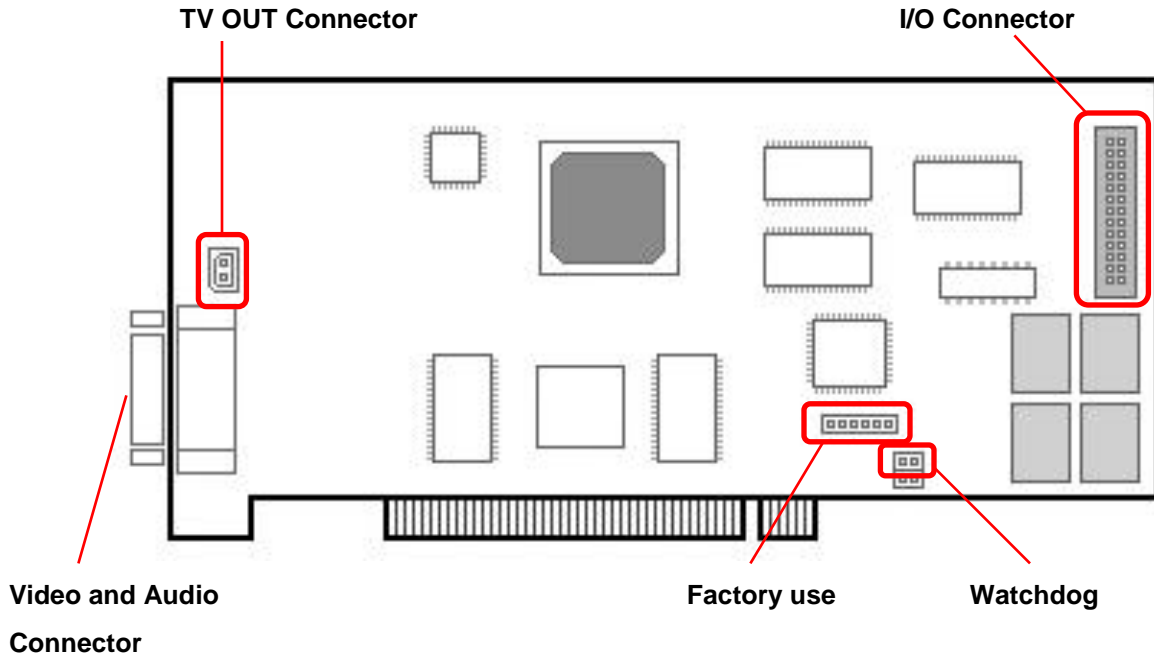
TV-OUT cable 1(for 32ch)



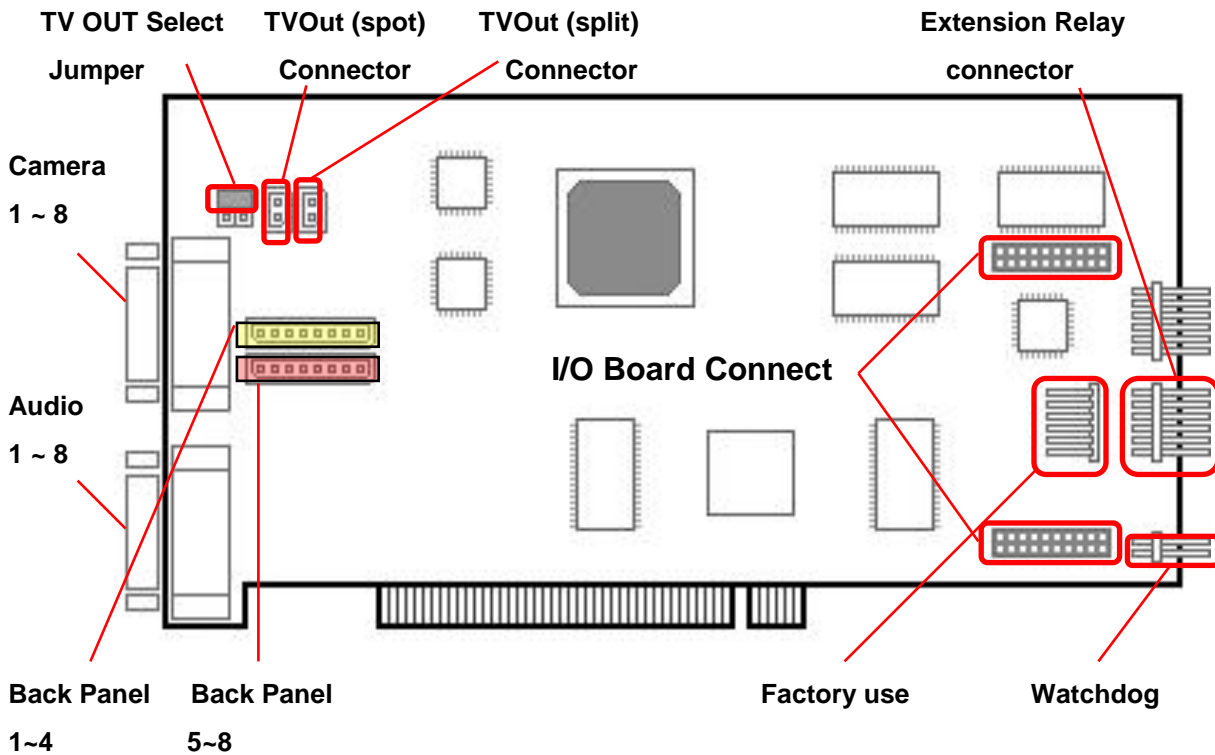
TV-OUT cable 2(for 32ch)

3. Board Description

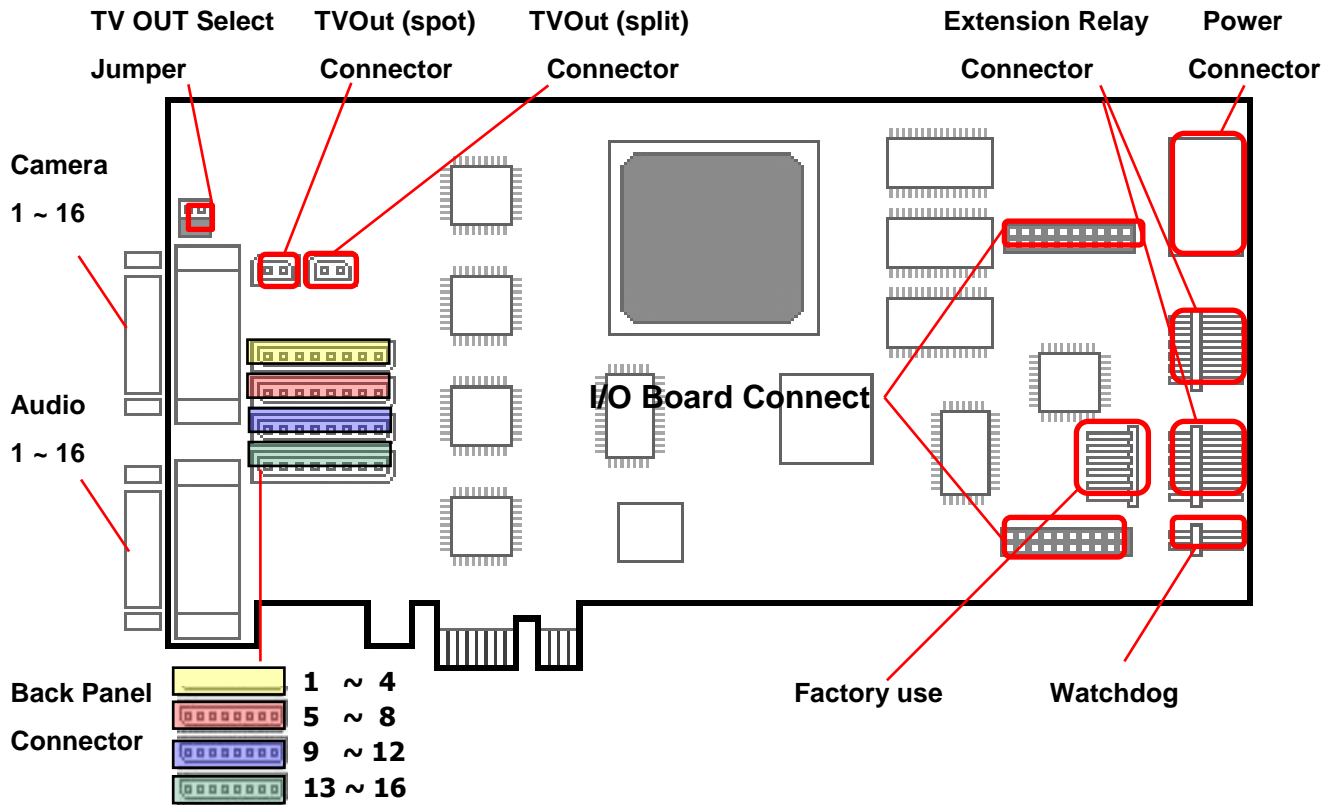
3-1. 12004 H



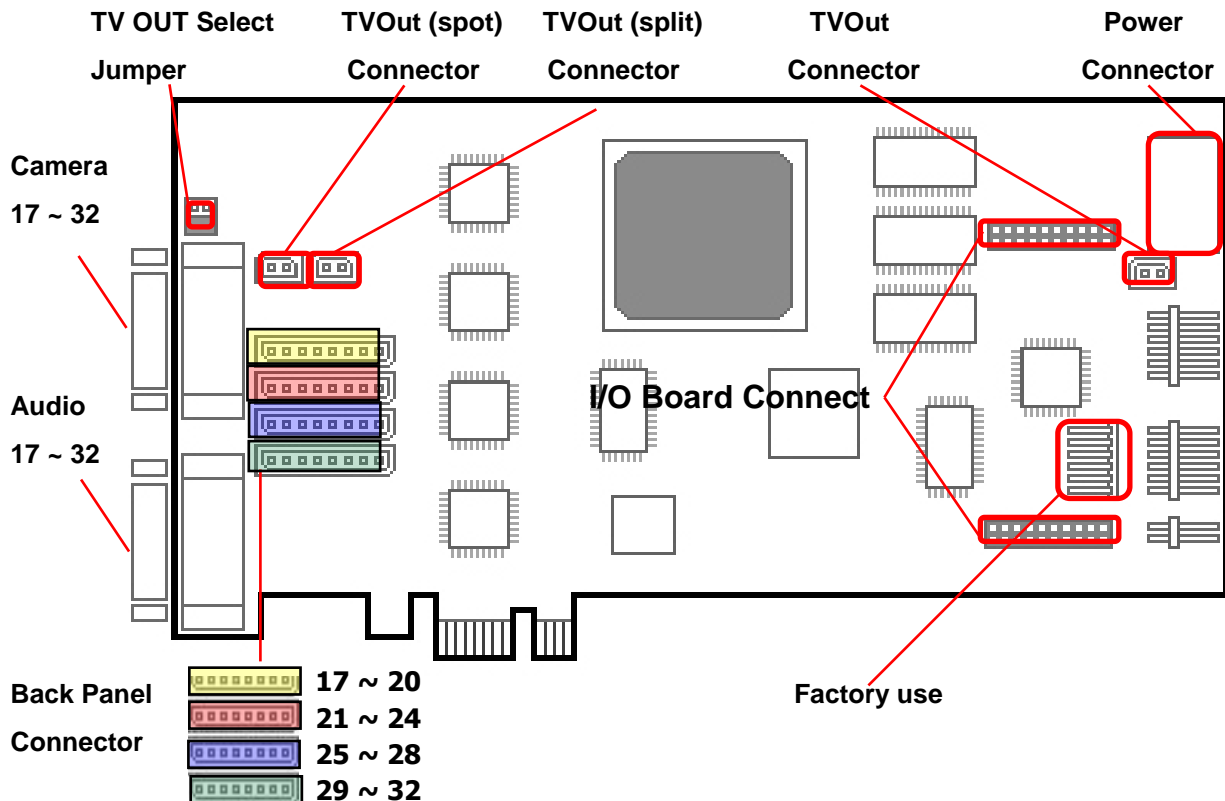
3-2. 24008 H



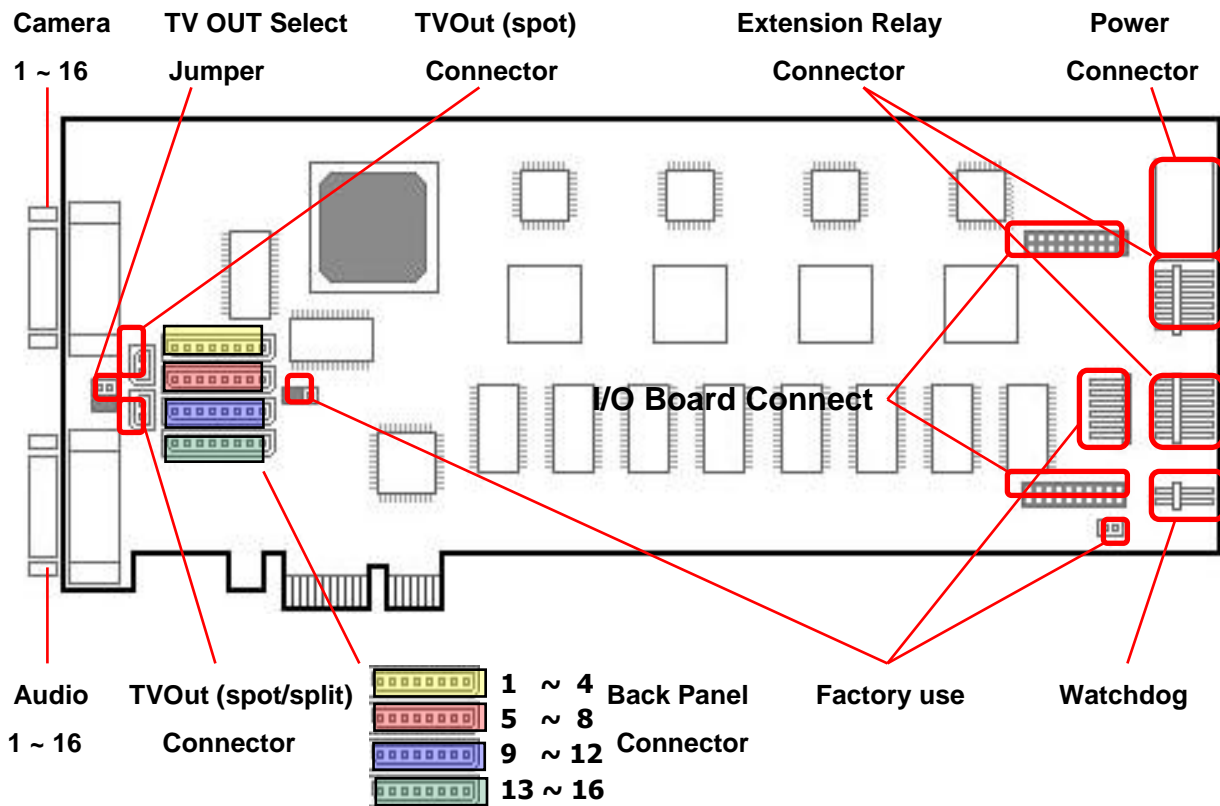
3-3. 48016 HE



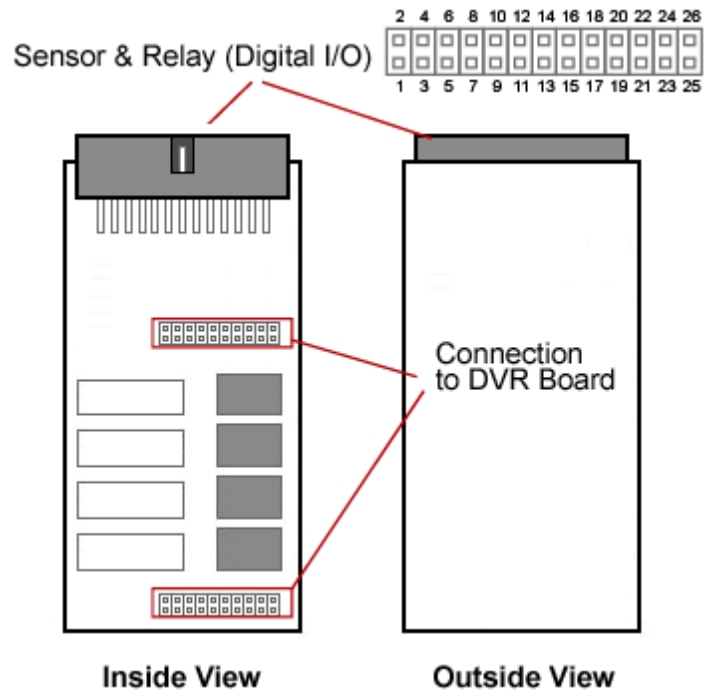
3-4. 96032 HE Slave



3-5. 48016 HE D1

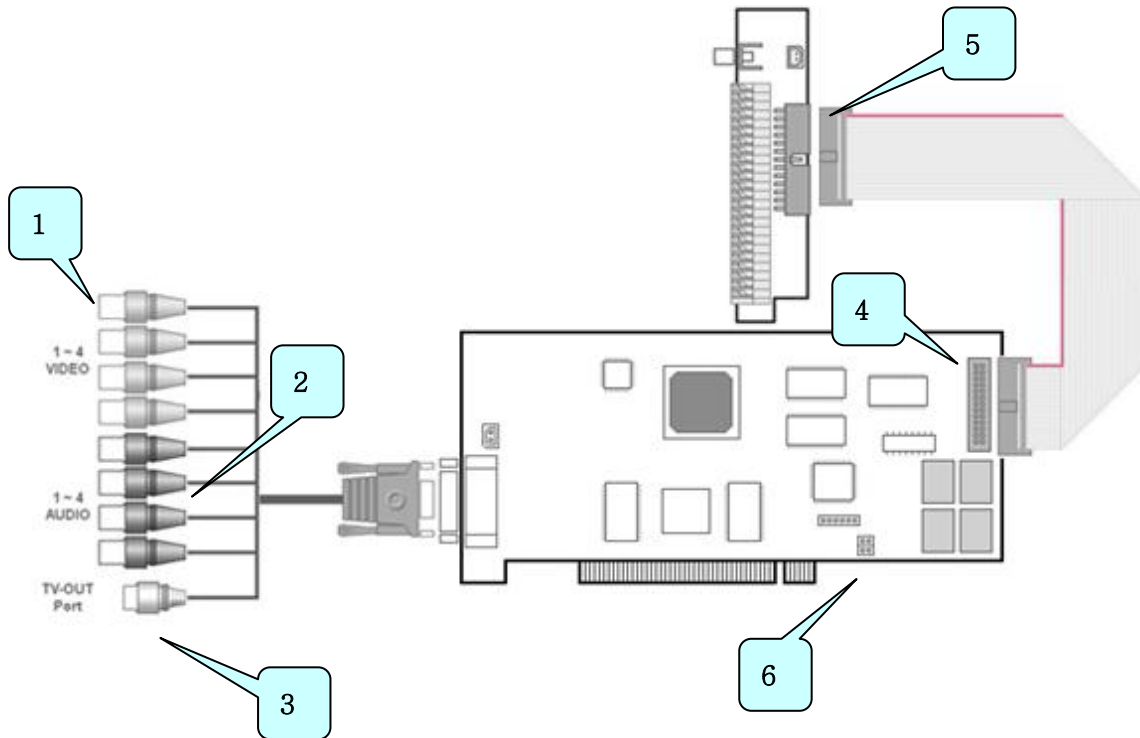


3-6. I/O Board

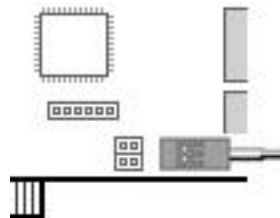


4. Installation

4-1. 12004 H

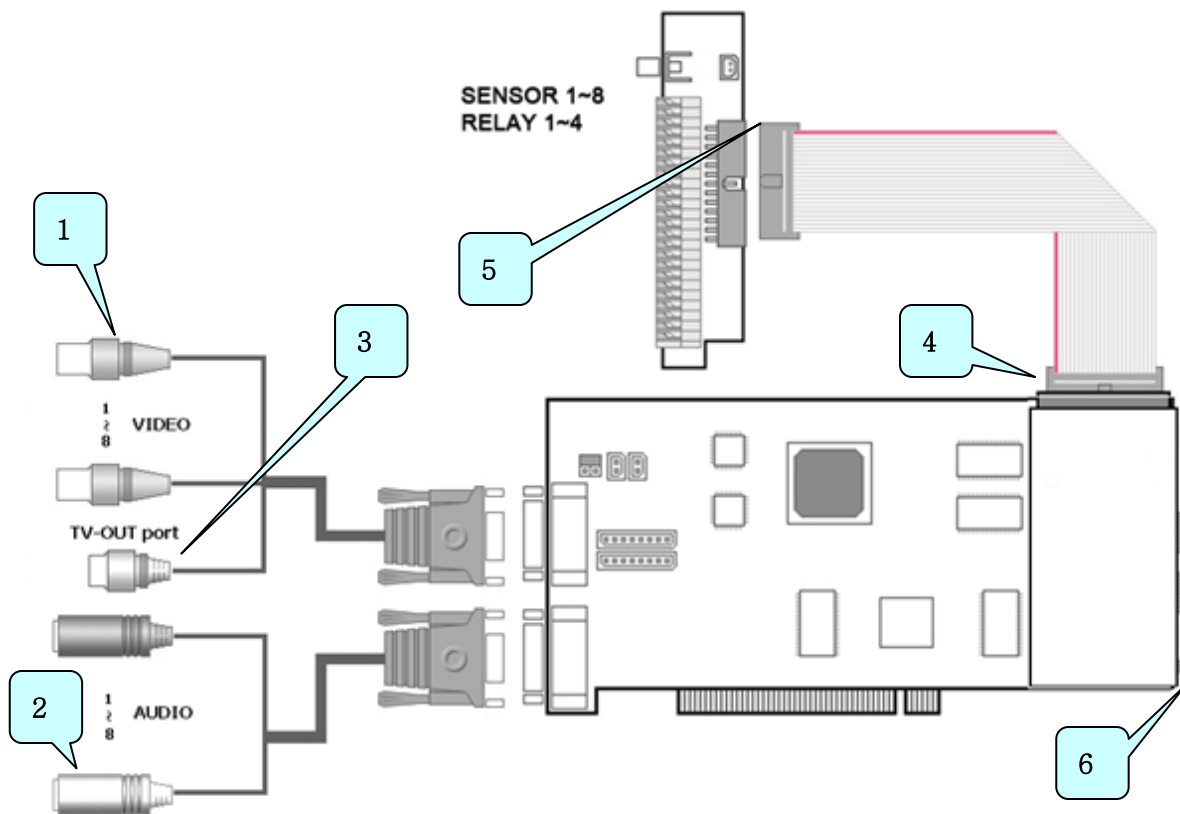


- 1) Connect 1~4 channel video pigtail cable to connector.
- 2) Connect 1~4 channel audio pigtail cable to connector.
- 3) Connect CCTV monitor.
- 4) Connect the other side of the I/O cable to the I/O connector
- 5) Connect I/O cable to the sensor port
- 6) Connect watchdog cable as shown below. (White cables must face the top)

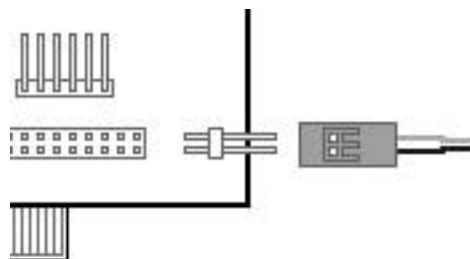


4-2. 24008 H

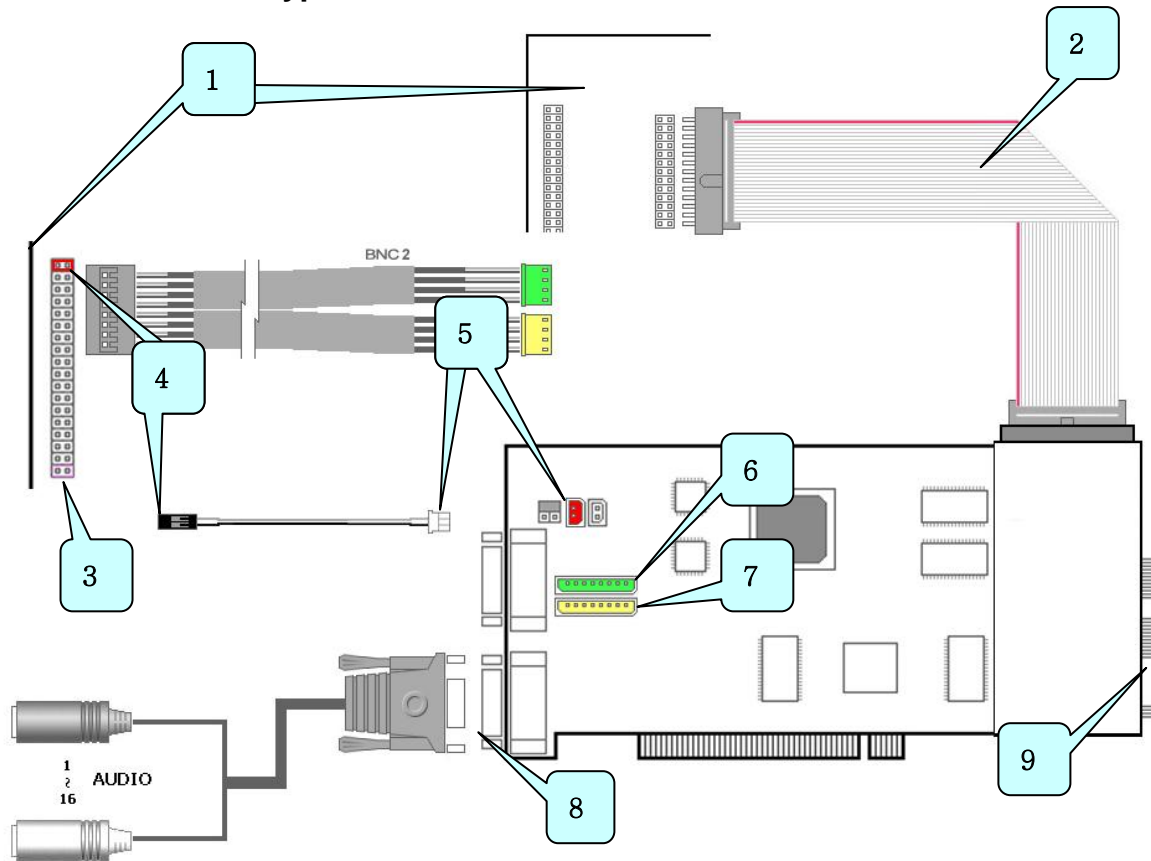
4-2-1. Pigtail Type



- 1) Connect 1~8 channel video pigtail cable the top connector.
- 2) Connect 1~8 channel audio pigtail cable to the bottom connector.
- 3) Connect CCTV monitor.
- 4) Connect the other side of the I/O cable to the I/O connector.
- 5) Connect I/O cable to the sensor port.
- 6) Connect watchdog cable as shown below. (White cables must face the top)



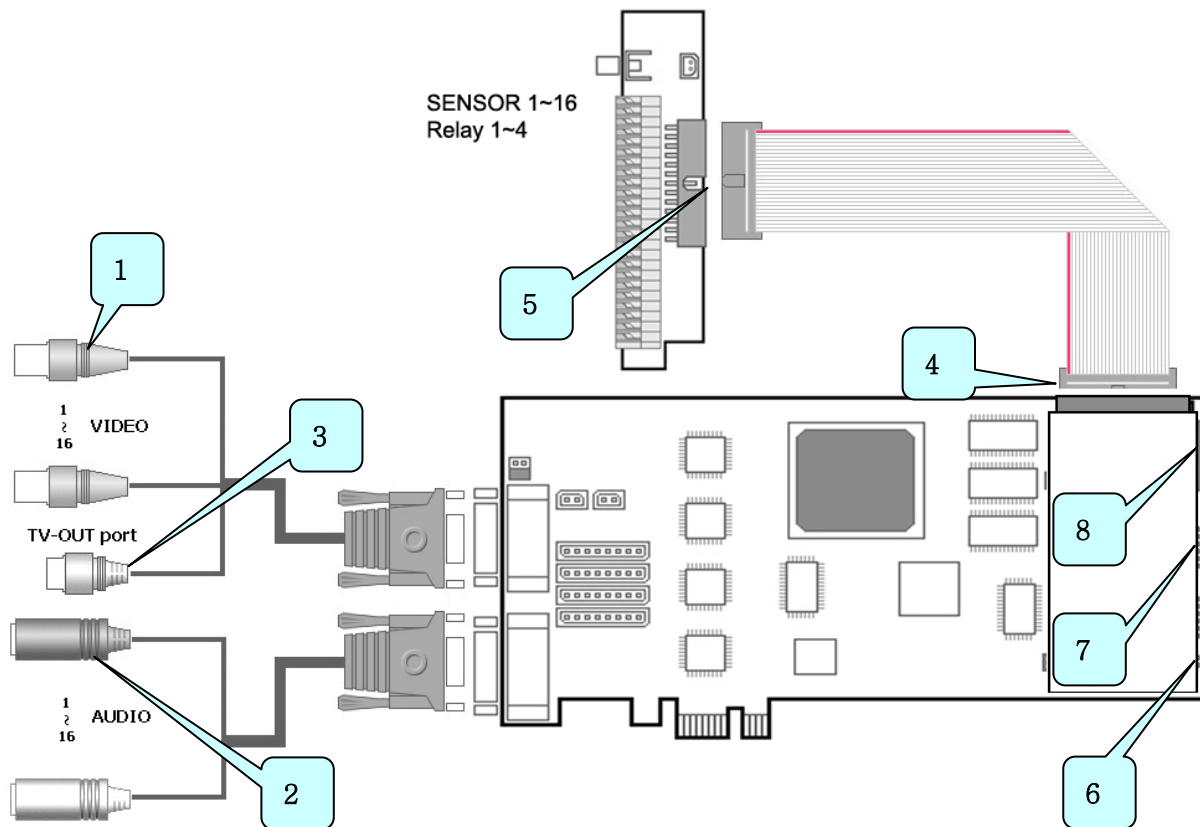
4-2-2. Back Panel Type



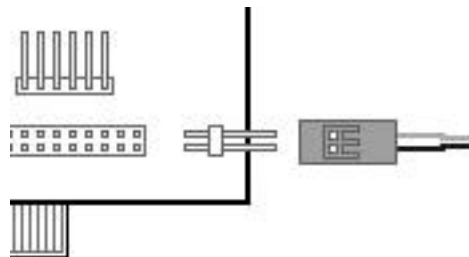
- 1) Back Panel.
- 2) Sensor Cable.
- 3) With white cable facing up, connect video cables to back panel leaving just one bottom pin.
- 4) Connect TV-Out cable to the top pin of back panel. (make sure the white cable is facing up)
- 5) Connect the other side of the TV-Out cable to the capture board.
- 6) Connect the video cable labeled BNC2 here.
- 7) Connect the remaining cable labeled BNC2 here.
- 8) Connect audio pigtail cable.
- 9) Connect watchdog cable as shown below. (White cables must face the top)

4-3. 48016 HE

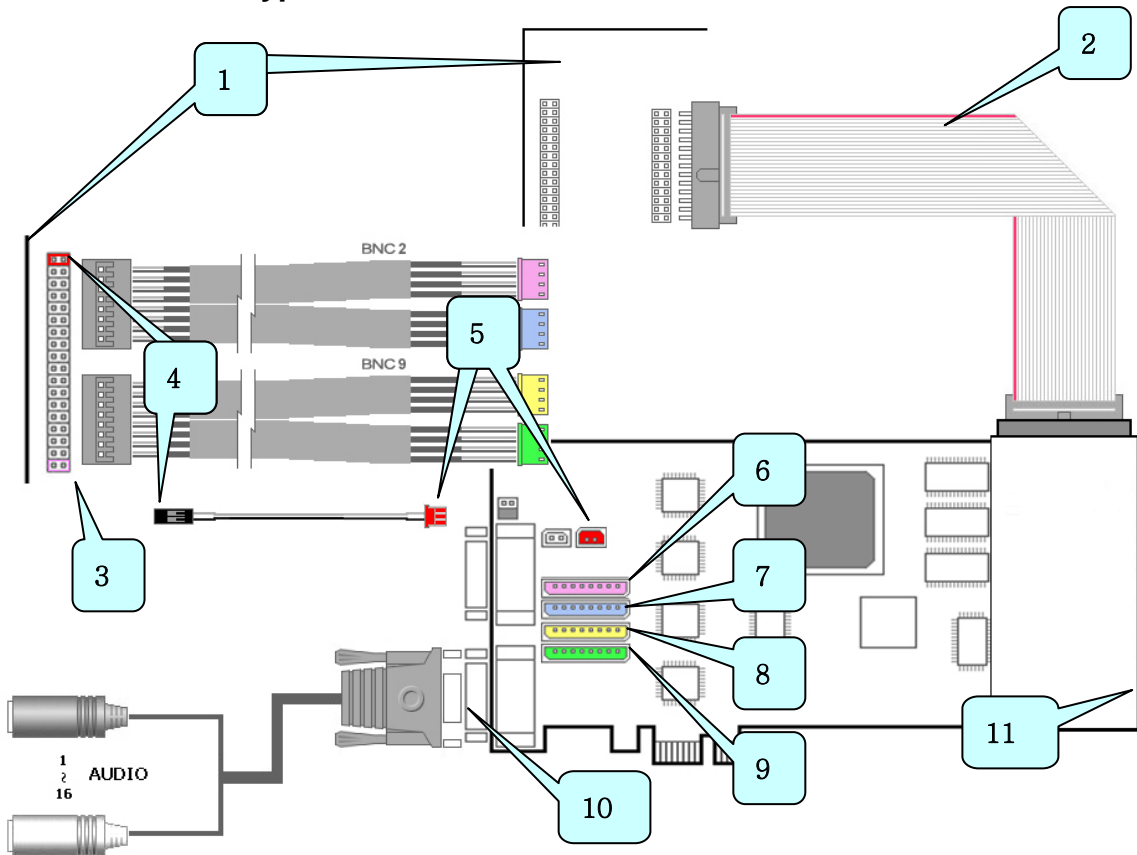
4-3-1. Pigtail Type



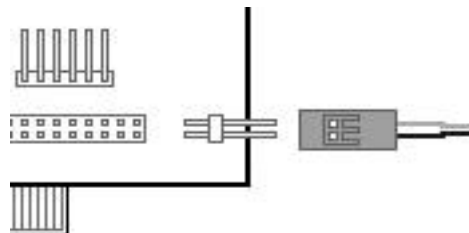
- 1) Connect 1~16 channel video pigtail cable to the top connector.
- 2) Connect 1~16 channel audio pigtail cable to the bottom connector.
- 3) Connect CCTV monitor.
- 4) Connect I/O cable to the sensor port.
- 5) Connect the other side of the I/O cable to the I/O connector.
- 6) Connect watchdog cable as shown below. (White cables must face the top)
- 7) Connect extension relay
- 8) Connect Power Cable



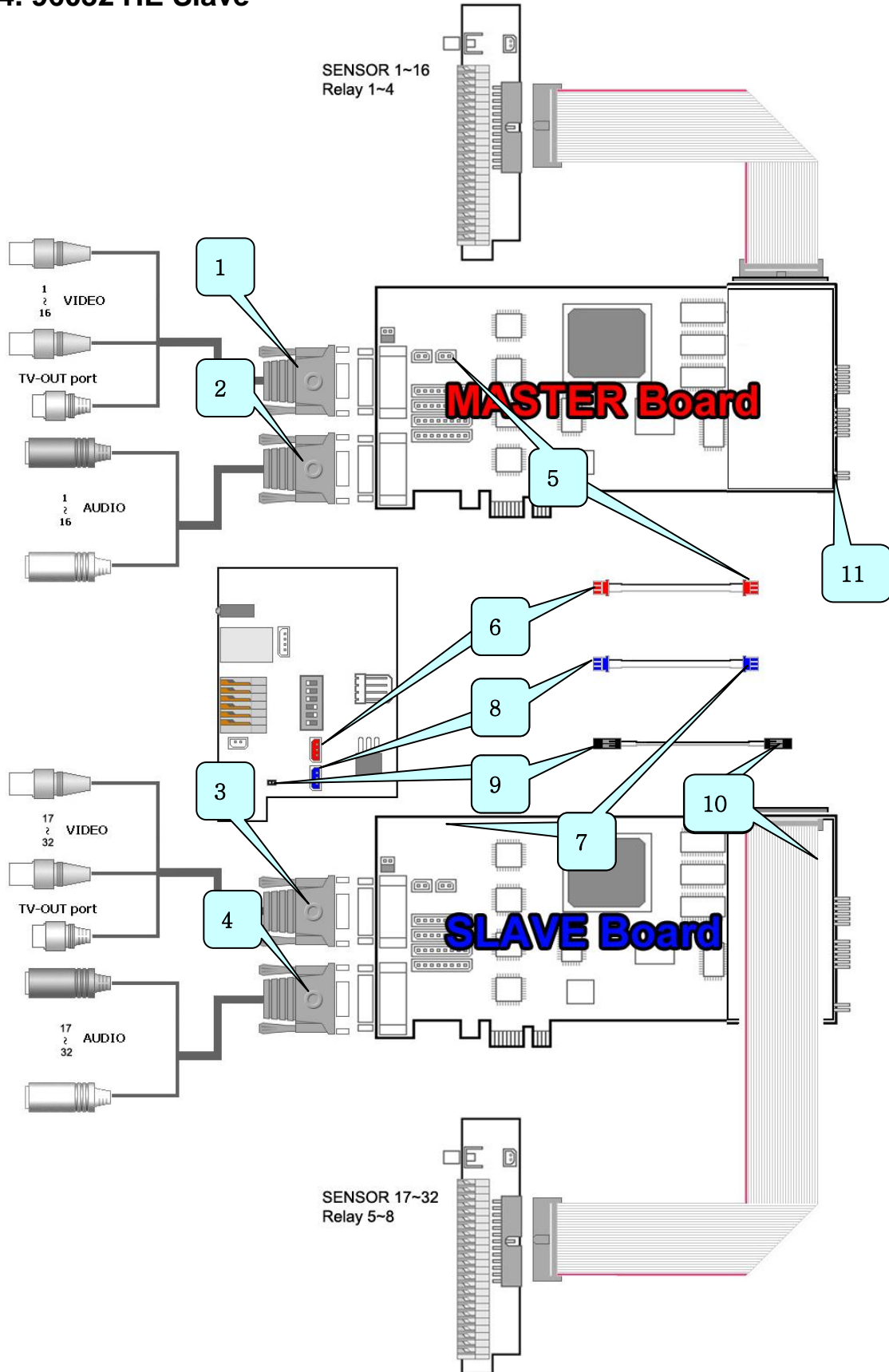
4-3-2. Back Panel Type



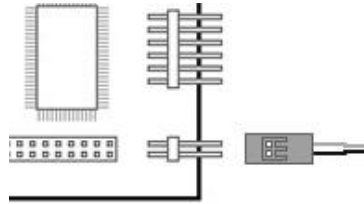
- 1) Back Panel.
- 2) Sensor Cable.
- 3) With white cable facing up, connect video cables to back panel leaving just one bottom pin..
- 4) Connect TV-Out cable to the top pin of back panel. (The white cable must face the top)
- 5) Connect the other side of the TV-Out cable to the capture board.
- 6) Connect the video cable labeled BNC2 here.
- 7) Connect the remaining cable labeled BNC2 here.
- 8) Connect the video cable labeled BNC9 here.
- 9) Connect the remaining cable labeled BNC9 here.
- 10) Connect audio pigtail cable.
- 11) Connect watchdog cable as shown below. (The white cable must face the top)



4-4. 96032 HE Slave

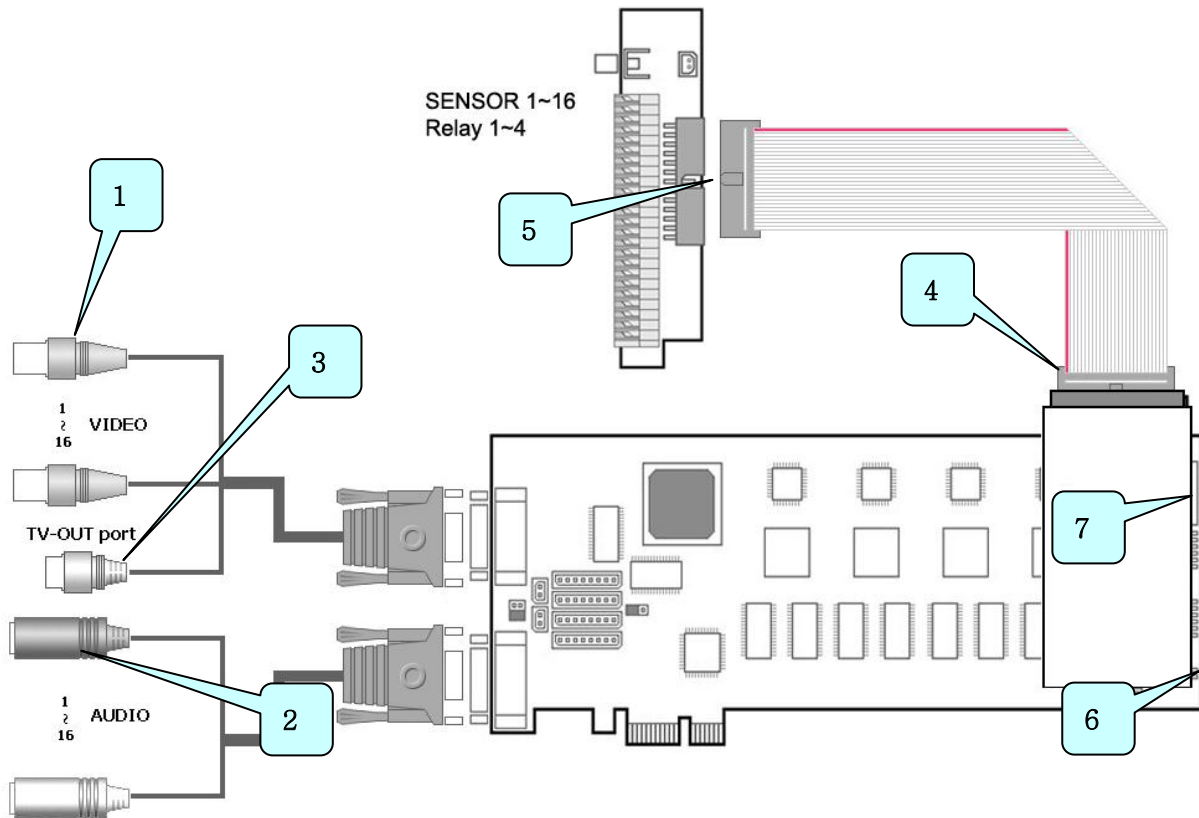


- 1) Connect 1~16 channel video pigtail cable to the top connector of the master board.
- 2) Connect 1~16 channel audio pigtail cable to the bottom connector of the master board.
- 3) Connect 17~32 channel video pigtail cable to the top connector of the slave board.
- 4) Connect 17~32 channel audio pigtail cable to the bottom connector of the slave board.
- 5) Connect TV-out cable to the master board.
- 6) Connect the other side of the TV-out cable to the master connector on TV-Out board.
- 7) Connect TV-out cable to the slave board.
- 8) Connect the other side of the TV-out cable to the slave connector on TV-Out board.
- 9) Make sure to have the white TV-out cable is facing up on the TV-Out board and facing down on the Slave board.
- 10) Connect the watchdog cable as shown below. (The white cable must face the top)

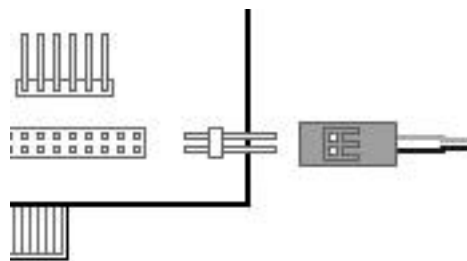


4-5. 48016 HE D1

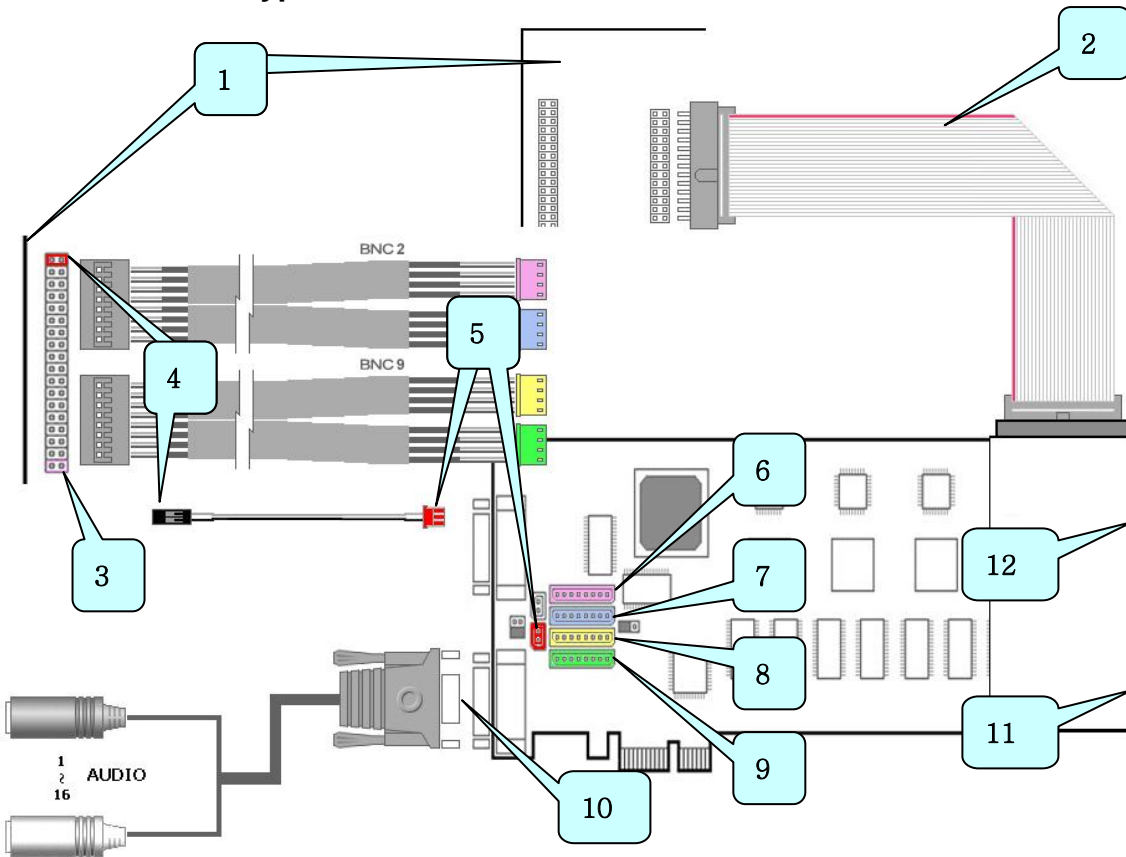
4-5-1. Pigtail Type



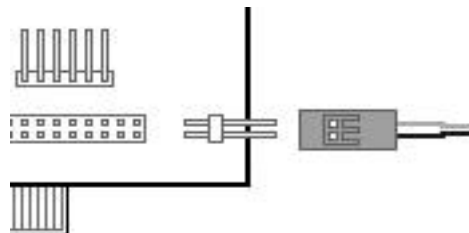
- 1) Connect 1~16 channel video pigtail cable to the top connector.
- 2) Connect 1~16 channel audio pigtail cable to the bottom connector.
- 3) Connect CCTV monitor.
- 4) Connect I/O cable to the sensor port.
- 5) Connect the other side of the I/O cable to the I/O connector.
- 6) Connect watchdog cable as shown below. (White cables must face the top)
- 7) Connect Power Cable



4-5-2. Back Panel Type

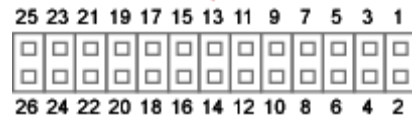
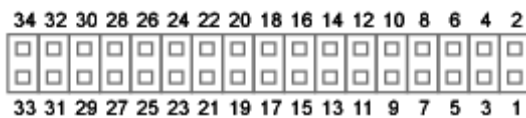
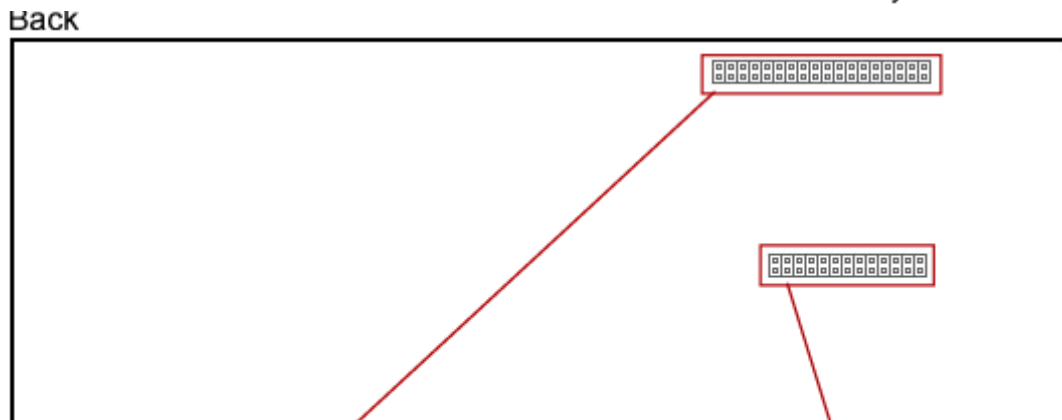
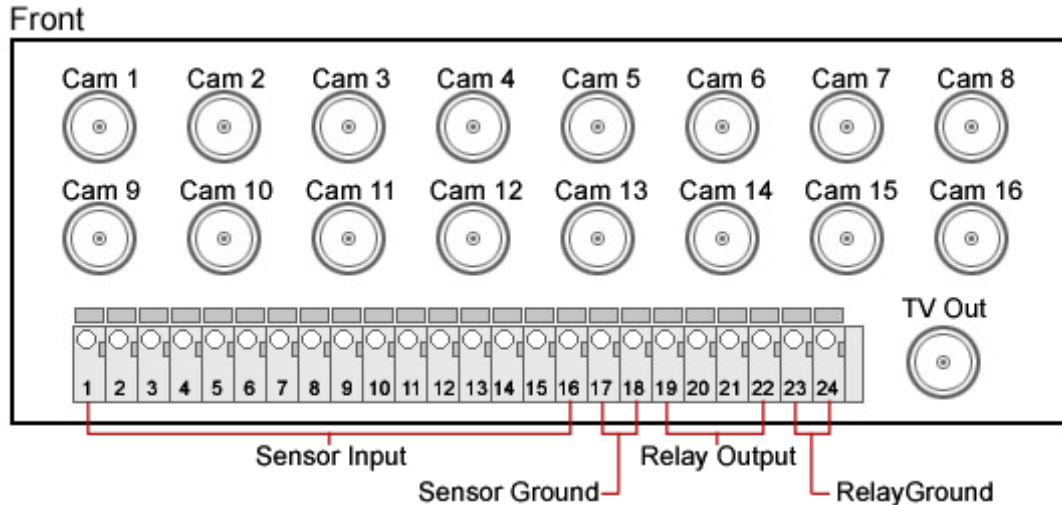


- 1) Back Panel.
- 2) Sensor Cable.
- 3) With white cable facing up, connect video cables to back panel leaving just one bottom pin..
- 4) Connect TV-Out cable to the top pin of back panel. (The white cable must face the top)
- 5) Connect the other side of the TV-Out cable to the capture board.
- 6) Connect the video cable labeled BNC2 here.
- 7) Connect the remaining cable labeled BNC2 here.
- 8) Connect the video cable labeled BNC9 here.
- 9) Connect the remaining cable labeled BNC9 here.
- 10) Connect audio pigtail cable.
- 11) Connect watchdog cable as shown below. (The white cable must face the top)
- 12) Connect power cable



5. Accessories

5-1. Back Panel

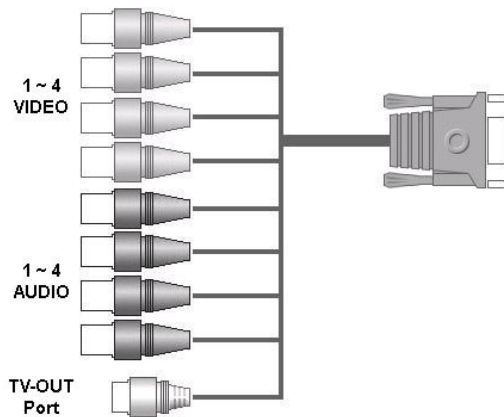


Camera I/O	
Camera Ground	3, 5, ~ 31, 33
Camera Signal	4, 6, ~ 32, 34
TV Out Ground	1
TV Out Signal	2

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 and Audio Pigtail Cable

5-2-1. Pigtail 4ch and 8ch Cable

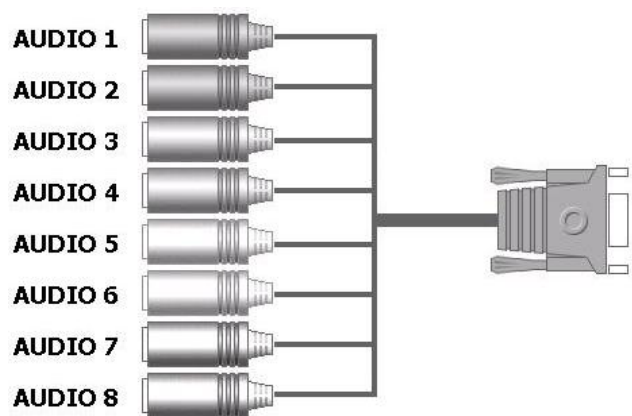
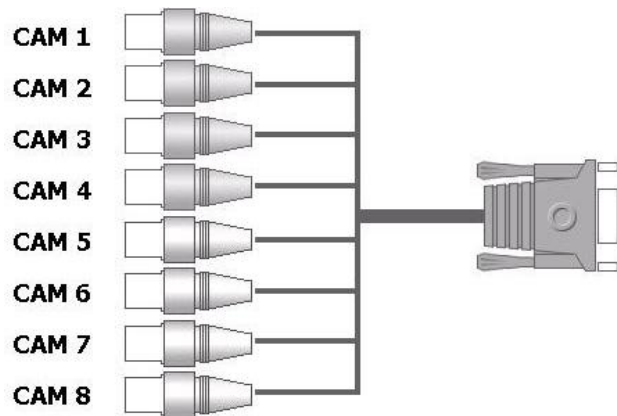


Video Pigtail cable

1~4 BNC : Black BNC

Audio Pigtail cable

- 1 : Blue con
- 2 : Yellow con
- 3 : Green con
- 4 : Red con



Video Pigtail cable

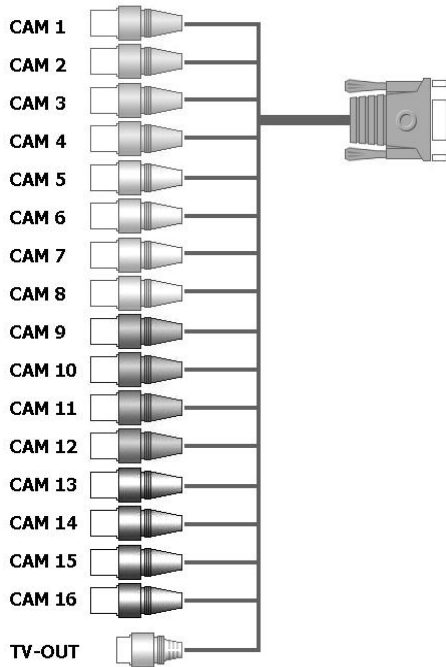
1~4 BNC : Black BNC

5~8 BNC : White BNC

Audio Pigtail cable

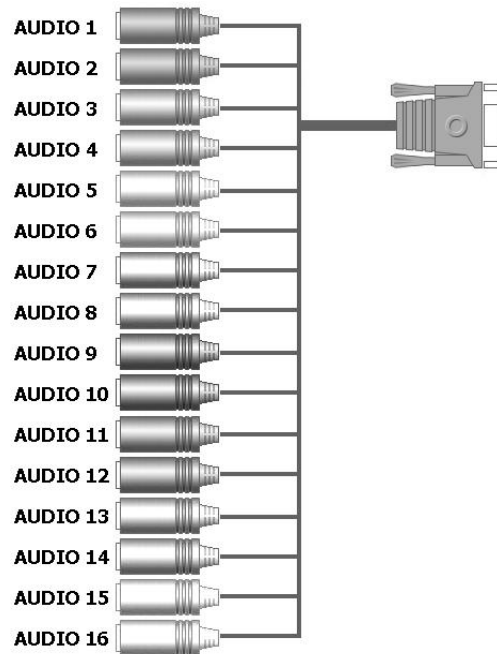
- | | |
|----------------|----------------|
| 1 : Blue con | 5 : Gray con |
| 2 : Yellow con | 6 : Purple con |
| 3 : Green con | 7 : White con |
| 4 : Red con | 8 : Orange con |

5-2-2. Pigtail 16ch Cable



Video Pigtail cable

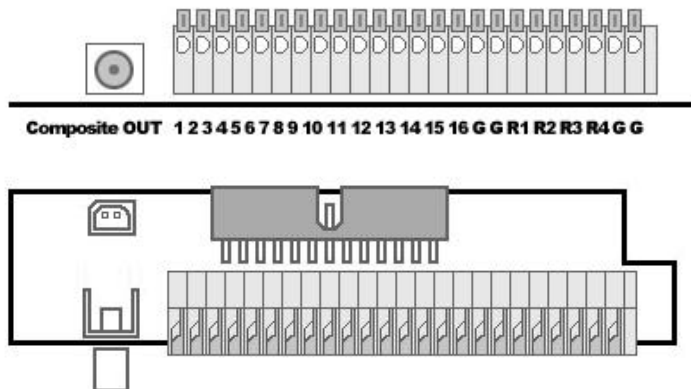
- 1 ~ 4 : Blue BNC
- 5 ~ 8 : Orange BNC
- 9 ~ 12 : Violet BNC
- 13 ~ 16 : Gray BNC



Audio Pigtail cable

- | | |
|--------------------|--------------------|
| 1, 9 : Red con | 5, 13 : Blue con |
| 2, 10 : Orange con | 6, 14 : Violet con |
| 3, 11 : Yellow con | 7, 15 : Gray con |
| 4, 12 : Green con | 8, 16 : White con |

5-3. Sensor Board

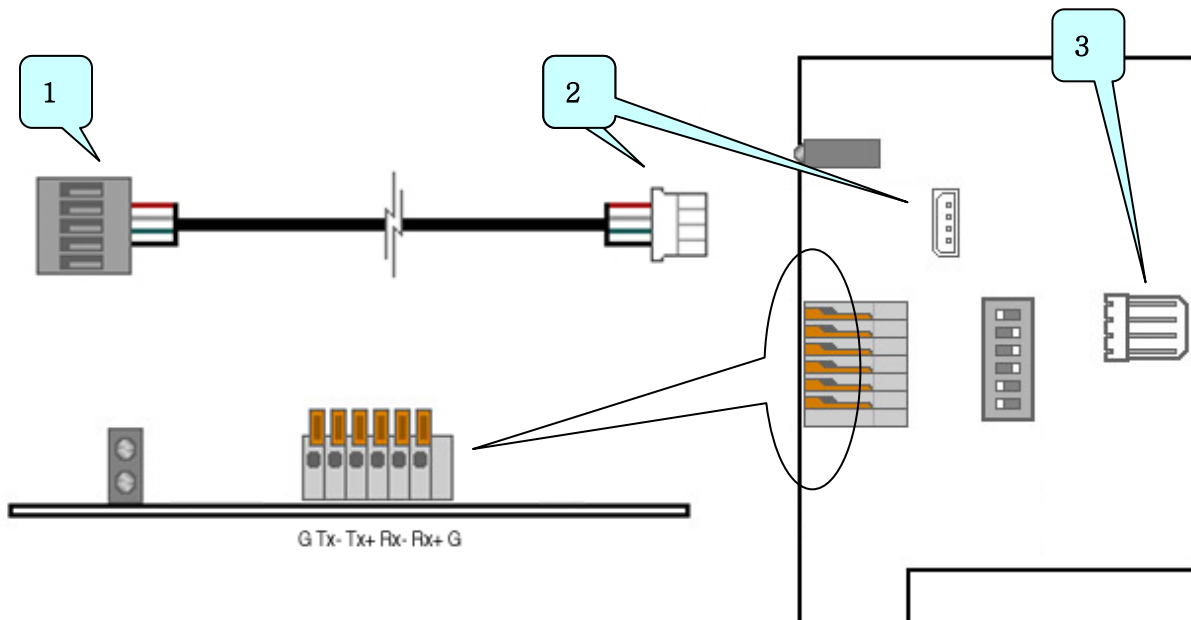


Sensor port pin number

- 1 ~ 16 : Signal input
- G : Ground
- R1, R2, R3, R4 : Relay output

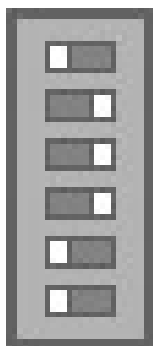
5-4. USB to RS422/485 Converter

PTZ Device Port Converter

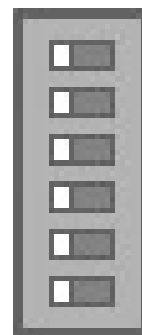


- 1) Connect to internal USB header on system motherboard.
- 2) Connect the other side to RS422/485 Board.
- 3) Connect a power source to any one of these power sockets.

RS-485 Mode

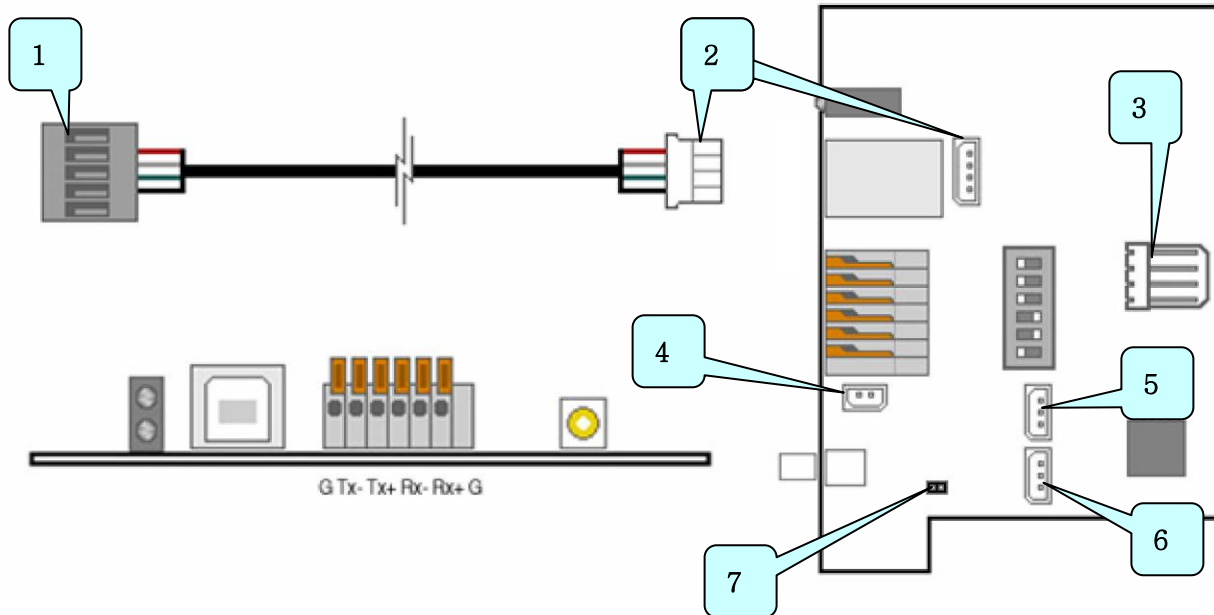


RS-422 Mode



5-5. USB to RS422/485 Converter (32ch)

USB to RS422/485 Converter + TV-OUT board for 32 channels



- 1) Connect to internal USB header on system motherboard.
- 2) Connect the other side to RS422/485 Board.
- 3) Connect a power source to any one of these power sockets.
- 4) Connect to the TV-out cable
- 5) TV-Out connector: Connect it to the master board.
- 6) TV-Out connector: Connect it to the slave board.
- 7) Connect it to the slave board.