# Hardware & Accessories

- Hardware Guide
- How to Use the I/O Ports of a Video Capture Card
- IOC-0404P Card Guide
- IOB-0805 BOX Guide
- IOB-1616 BOX Guide
- LB-16 Input Video Loopback Card

# Hardware Guide

## Capture Card Models

### 4404SL$^+$ Video Capture Card

**Accessories**

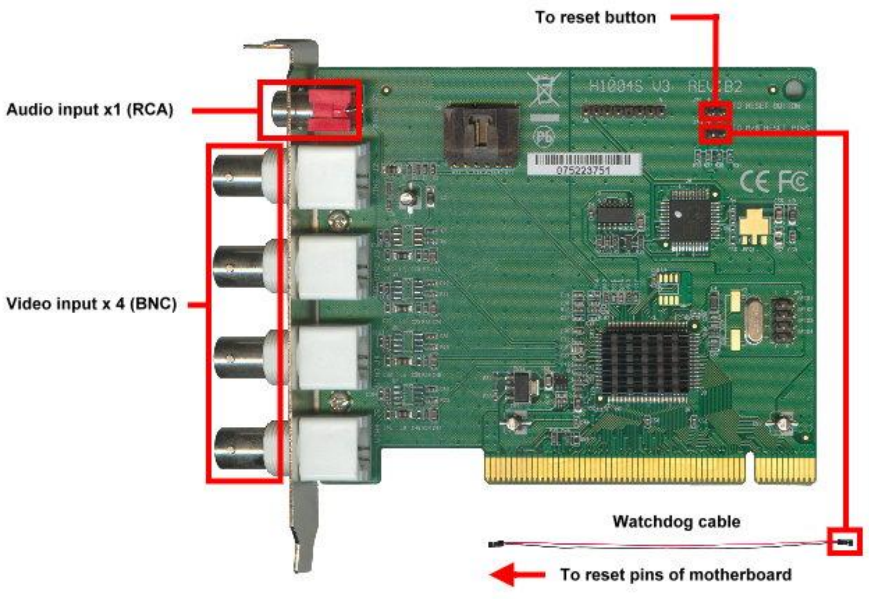
| | |
|---|---|
| Watchdog Cable | x 1 |

**Specifications**

| | |
|---|---|
| Video Input / Audio Input | 4 (BNC) / 1 (RCA) |
| Display & Recording Rate* | 40 fps (NTSC: 320x240)<br>30 fps (PAL: 320x240) |
| | 30 fps (NTSC: 720x480)<br>25 fps (PAL: 720x576) |
| Max. Stack Card / Channel | 4 Cards / 16 CH |
| PC Interface | PCI |

Notes:

- Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.
- Frame rates in Plus Series DVR cards show maximum frame rates at Turbo Capture Mode.


To reset button
Audio input x1 (RCA)
Video input x 4 (BNC)
Watchdog cable
To reset pins of motherboard

## 4416SL$^{+}$ Video Capture Card

### Accessories

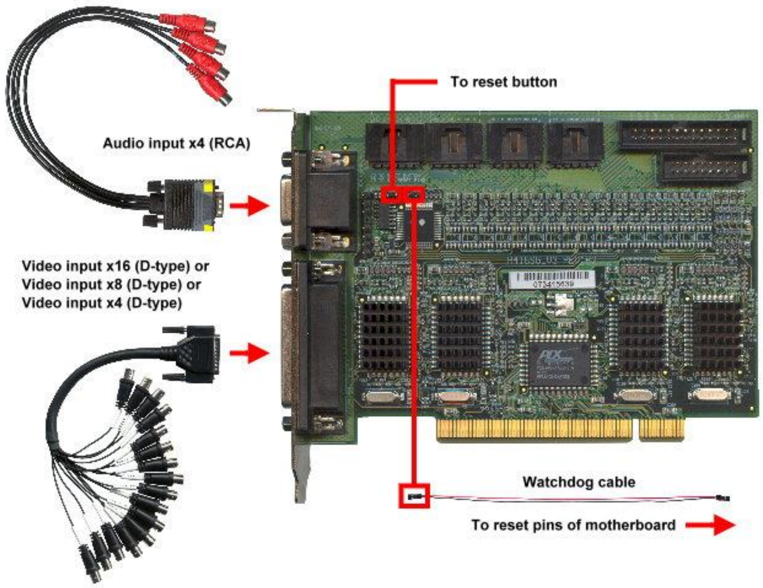
| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | | | |
|---|---|---|---|
| Video Input | 4 (D-Sub) | 8 (D-Sub) | 16 (D-Sub) |
| Audio Input | 4 (RCA) | | |
| Display & Recording Rate * | 120 fps<br>(NTSC: 320x240)<br>100 fps<br>(PAL: 320x240) | 120 fps<br>(NTSC: 320x240)<br>100 fps<br>(PAL: 320x240) | 160 fps<br>(NTSC: 320x240)<br>120 fps<br>(PAL: 320x240) |
| | 120 fps<br>(NTSC: 640x480)<br>100 fps<br>(PAL: 640x480) | 60 fps<br>(NTSC: 720x480)<br>55 fps<br>(PAL: 720x576) | 60 fps<br>(NTSC: 720x480)<br>55 fps<br>(PAL: 720x576) |
| Max. Stack Card / Channel | 2 Cards / 8 CH | 2 Cards / 16 CH | 2 Cards / 32 CH |
| PC Interface | PCI | | |

Notes:

- Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.
- Frame rates in Plus Series DVR cards show maximum frame rates at Turbo Capture Mode.


To reset button
Audio input x4 (RCA)
Video input x16 (D-type) or
Video input x8 (D-type) or
Video input x4 (D-type)
Watchdog cable
To reset pins of motherboard

## 4416SL$^+$-PCIeVideo Capture Card

### Accessories

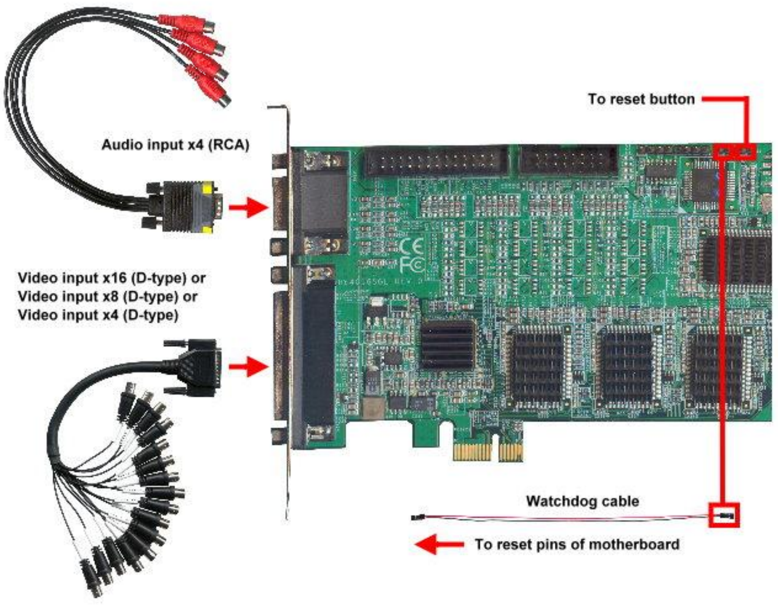
| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | | | |
|---|---|---|---|
| Video Input | 4 (D-Sub) | 8 (D-Sub) | 16 (D-Sub) |
| Audio Input | 4 (RCA) | | |
| Display & Recording Rate * | 120 fps<br>(NTSC: 320x240)<br>100 fps<br>(PAL: 320x240) | 120 fps<br>(NTSC: 320x240)<br>100 fps<br>(PAL: 320x240) | 160 fps<br>(NTSC: 320x240)<br>120 fps<br>(PAL: 320x240) |
| | 120 fps<br>(NTSC: 640x480)<br>100 fps<br>(PAL: 640x480) | 60 fps<br>(NTSC: 720x480)<br>55 fps<br>(PAL: 720x576) | 60 fps<br>(NTSC: 720x480)<br>55 fps<br>(PAL: 720x576) |
| Max. Stack Card / Channel | 2 Cards / 8 CH | 2 Cards / 16 CH | 2 Cards / 32 CH |
| PC Interface | PCI Express | | |

Notes:

- Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.
- Frame rates in Plus Series DVR cards show maximum frame rates at Turbo Capture Mode.


Audio input x4 (RCA)
Video input x16 (D-type) or
Video input x8 (D-type) or
Video input x4 (D-type)
To reset button
Watchdog cable
To reset pins of motherboard

## 4408Q-PCIe Video Capture Card

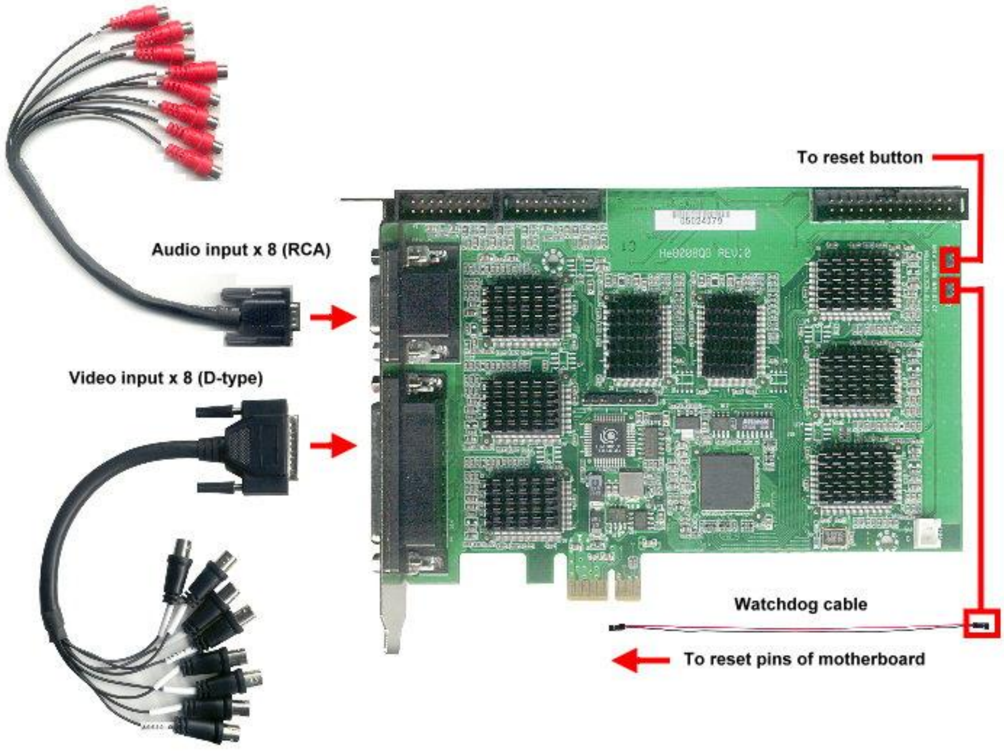
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input | 8 (D-Sub) / 8 (RCA) |
| Display & Recording Rate * | 240 fps (NTSC: 320x240)<br>200 fps (PAL: 320x240) |
| Max. Stack Card / Channel | 4 Cards / 32 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


To reset button
Audio input x 8 (RCA)
Video input x 8 (D-type)
Watchdog cable
To reset pins of motherboard

## 4604Q-PCIe Video Capture Card

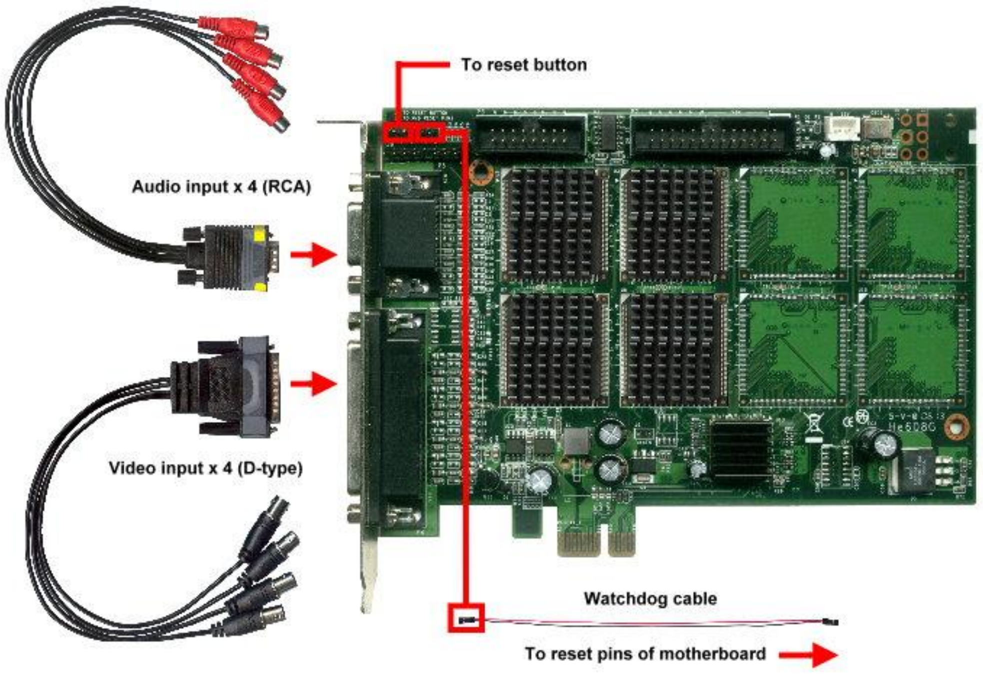
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input | 4 (D-Sub) / 4 (RCA) |
| Display & Recording Rate * | 120 fps (NTSC: 720x480)<br>100 fps (PAL: 720x576) |
| Max. Stack Card / Channel | 4 Cards / 16 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


To reset button
Audio input x 4 (RCA)
Video input x 4 (D-type)
Watchdog cable
To reset pins of motherboard

## 4606Q-PCIe Video Capture Card

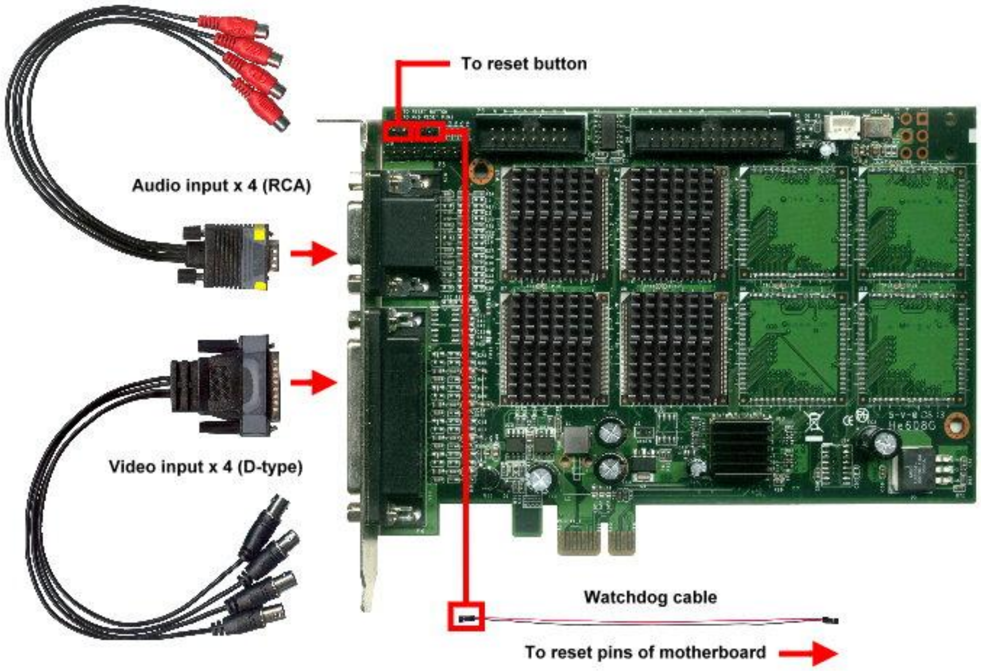
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input | 6 (D-Sub) / 6 (RCA) |
| Display & Recording Rate * | 180 fps (NTSC: 720x480)<br>150 fps (PAL: 720x576) |
| Max. Stack Card / Channel | 3 Cards / 18 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


To reset button
Audio input x 4 (RCA)
Video input x 4 (D-type)
Watchdog cable
To reset pins of motherboard

## 4704Q Video Capture Card

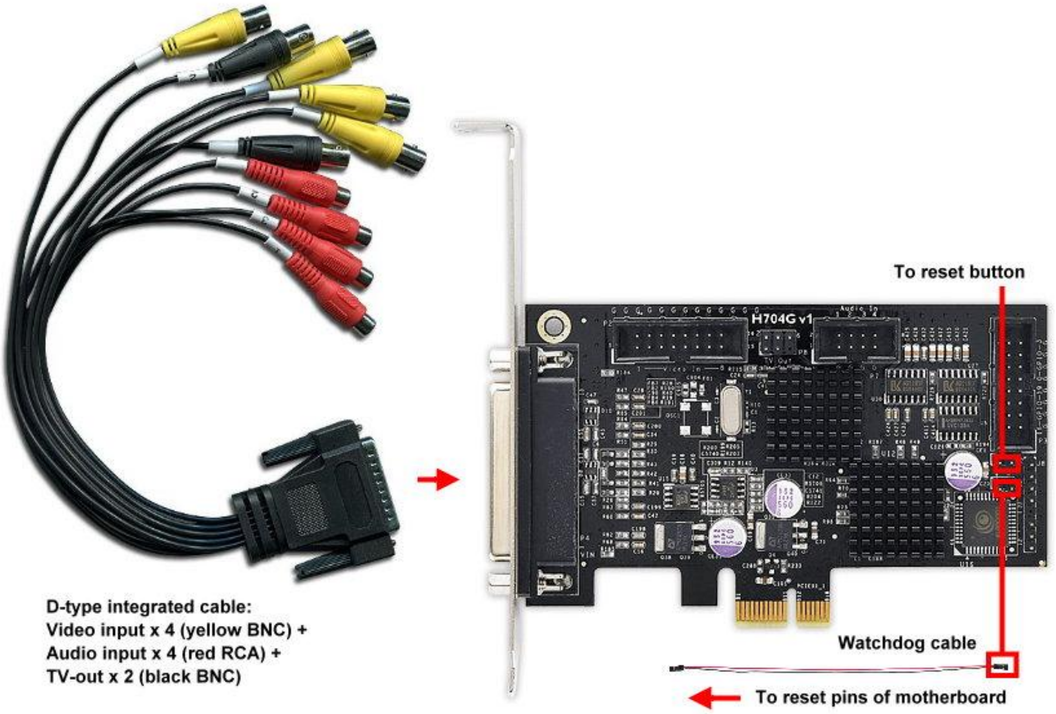
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input / TV-out | 4 (BNC) / 4 (RCA) / 2 (BNC) |
| Display & Recording Rate * | |
| 4704Q-120 | 120 fps (NTSC: 720x480)<br>100 fps (PAL: 720x576) |
| 4704Q-60 | 60 fps (NTSC: 720x480)<br>50 fps (PAL: 720x576) |
| 4704Q-30 | 30 fps (NTSC: 720x480)<br>25 fps (PAL: 720x576) |
| 4704Q-15 | 15 fps (NTSC: 720x480)<br>12.5 fps (PAL: 720x576) |
| Max. Stack Card / Channel | 4 Cards / 16 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


D-type integrated cable:
Video input x 4 (yellow BNC) +
Audio input x 4 (red RCA) +
TV-out x 2 (black BNC)
To reset button
H704G v1
Watchdog cable
To reset pins of motherboard

## 4708Q Video Capture Card

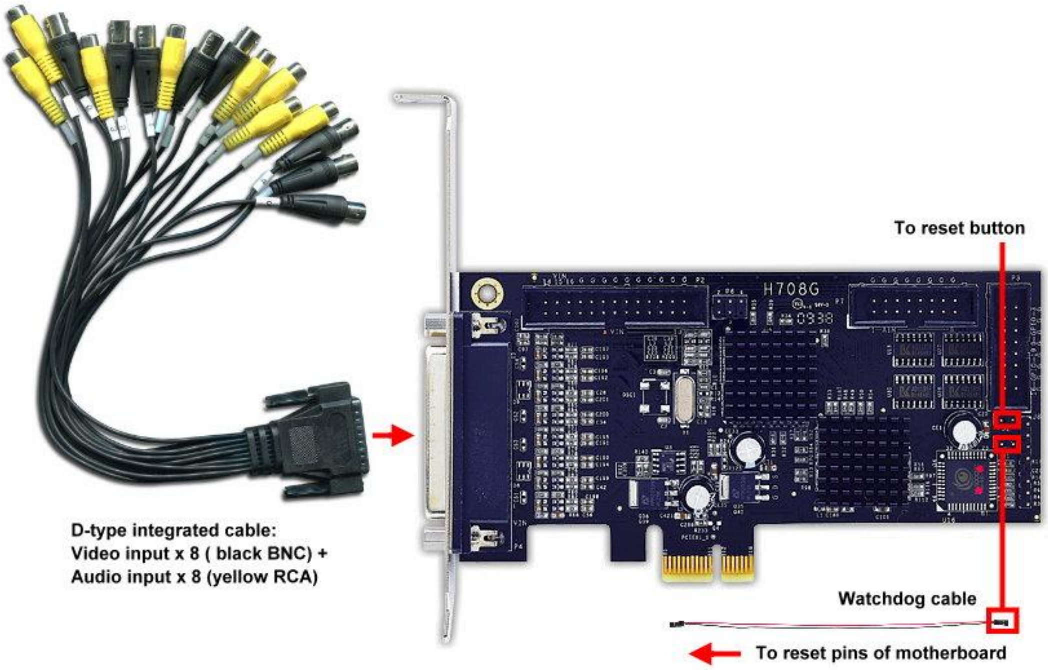
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input / TV-out | 8 (BNC) / 8 (RCA) / 2 (BNC) |
| Display & Recording Rate * | |
| 4708Q-240 | 240 fps (NTSC: 720x480)<br>200 fps (PAL: 720x576) |
| 4708Q-120 | 120 fps (NTSC: 720x480)<br>100 fps (PAL: 720x576) |
| 4708Q-60 | 60 fps (NTSC: 720x480)<br>50 fps (PAL: 720x576) |
| 4708Q-30 | 30 fps (NTSC: 720x480)<br>25 fps (PAL: 720x576) |
| Max. Stack Card / Channel | 4 Cards / 32 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


To reset button
H708G
D-type integrated cable:
Video input x 8 ( black BNC) +
Audio input x 8 (yellow RCA)
Watchdog cable
To reset pins of motherboard

## 4716Q Video Capture Card

### Accessories

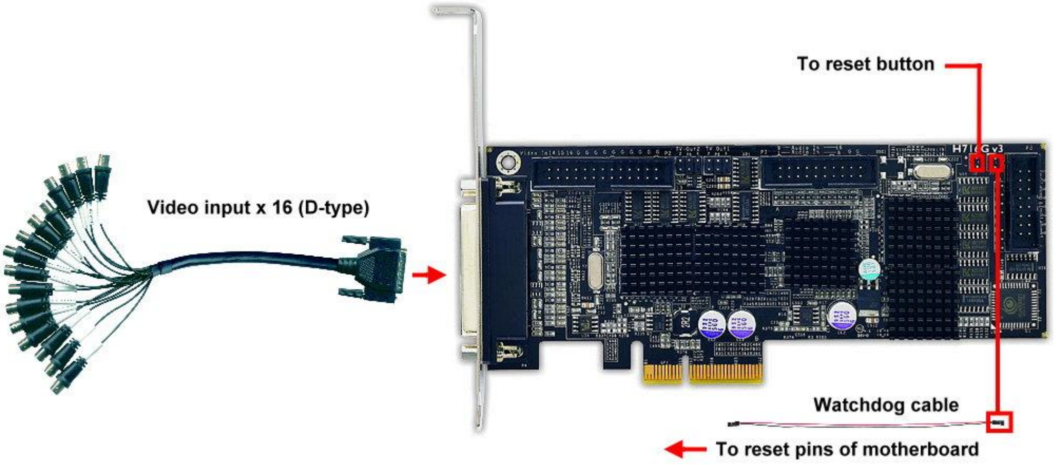
| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input / TV-out *[1] | 16 (BNC) / 16 (RCA) / 4 (BNC) |
| Display & Recording Rate *[2] | |
| 4716Q-480 | 480 fps (NTSC: 720x480)<br>400 fps (PAL: 720x576) |
| 4716Q-240 | 240 fps (NTSC: 720x480)<br>200 fps (PAL: 720x576) |
| 4716Q-120 | 120 fps (NTSC: 720x480)<br>100 fps (PAL: 720x576) |
| 4716Q-60 | 60 fps (NTSC: 720x480)<br>50 fps (PAL: 720x576) |
| Max. Stack Card / Channel | 2 Cards / 32 CH |
| PC Interface | PCI Express |

Notes:

- Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.
- The 16CH audio + 4 TV-out connector requires extra purchase.


To reset button
Video input x 16 (D-type)
Watchdog cable
To reset pins of motherboard

## 4704Q-Me Video Capture Card

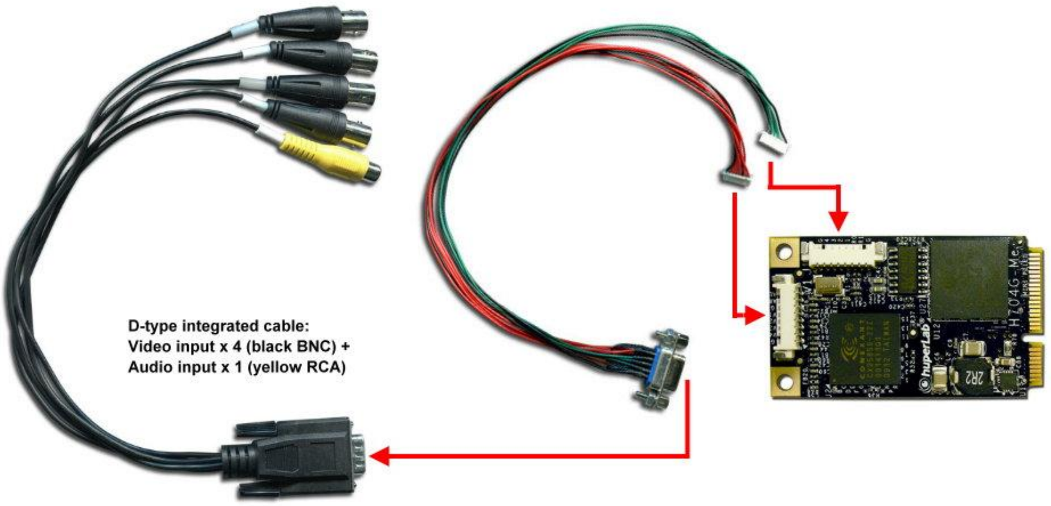
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input | 4 (BNC) / 1 (RCA) |
| Display & Recording Rate * | |
| 4704Q-Me-120 | 120 fps (NTSC: 720x480)<br>100 fps (PAL: 720x576) |
| 4704Q-Me-60 | 60 fps (NTSC: 720x480)<br>50 fps (PAL: 720x576) |
| 4704Q-Me-30 | 30 fps (NTSC: 720x480)<br>25 fps (PAL: 720x576) |
| 4704Q-Me-15 | 15 fps (NTSC: 720x480)<br>12.5 fps (PAL: 720x576) |
| Max. Stack Card / Channel | 1 Cards / 4 CH |
| PC Interface | Mini PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


D-type integrated cable:
Video input x 4 (black BNC) +
Audio input x 1 (yellow RCA)

## 4904Q Video Capture Card

### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input | 4 (BNC) / 1 (RCA) |
| Display & Recording Rate * | |
| 4904Q-120 | 120 fps (NTSC: 1080p)<br>100 fps (PAL: 1080p)<br>240 fps (NTSC: 720p)<br>200 fps (PAL: 720p) |
| 4904Q -60 | 60 fps (NTSC: 1080p)<br>50 fps (PAL: 1080p)<br>120 fps (NTSC: 720p)<br>100 fps (PAL: 720p) |
| 4904Q -30 | 30 fps (NTSC: 1080p)<br>25 fps (PAL: 1080p)<br>60 fps (NTSC: 720p)<br>50 fps (PAL: 720p) |
| 4904Q -15 | 16 fps (NTSC: 1080p)<br>16 fps (PAL: 1080p)<br>30 fps (NTSC: 720p)<br>25 fps (PAL: 720p) |
| Max. Stack Card / Channel | 4 Cards / 16 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.

# Hybrid DVR Card Models

## 4408Q-Hybrid Card

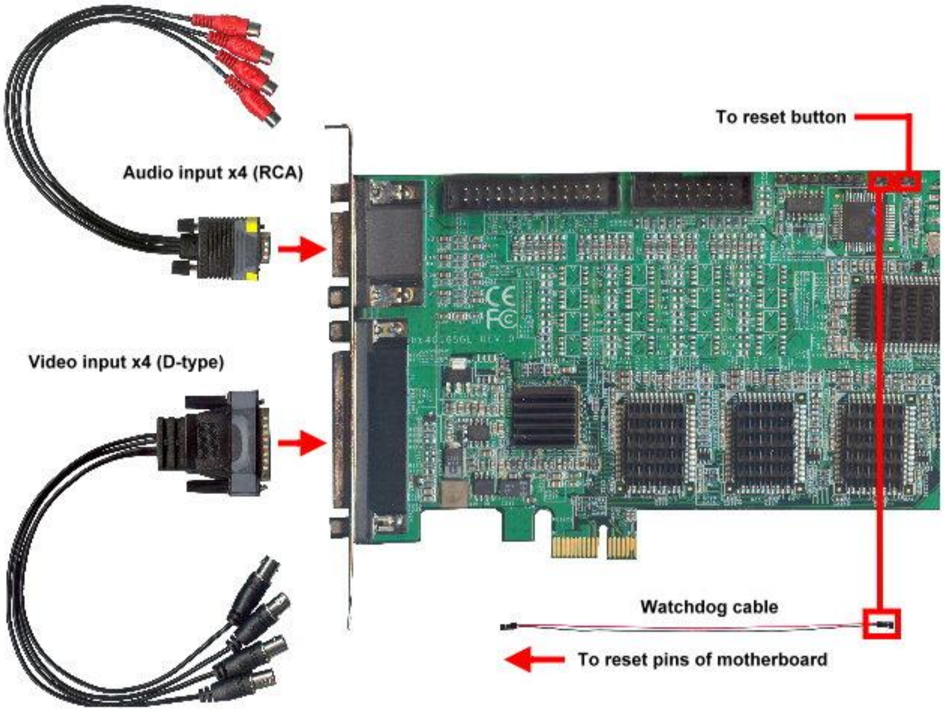
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input | 4 (D-Sub) / 4 (RCA) |
| IP Camera Channel | 4 |
| Display & Recording Rate * | 240 fps (NTSC: 320x240)<br>200 fps (PAL: 320x240) |
| Max. Stack Card / Channel | 4 Cards / 32 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


To reset button
Audio input x4 (RCA)
Video input x4 (D-type)
Watchdog cable
To reset pins of motherboard

## 4416Q-Hybrid Card

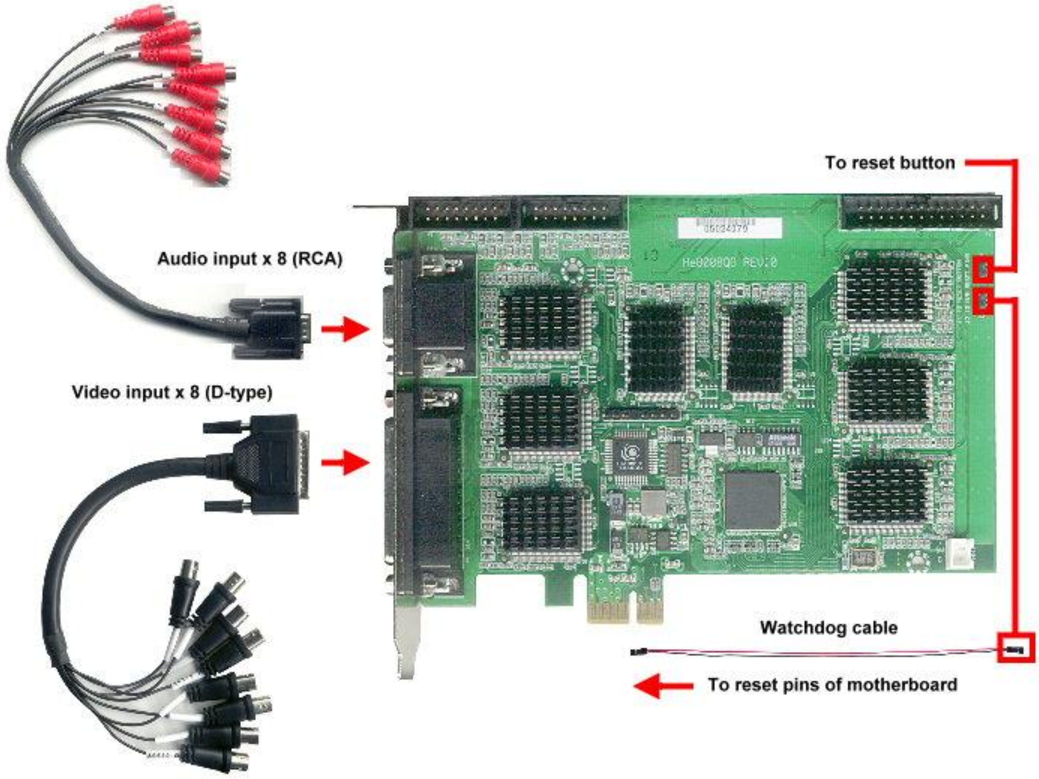
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | |
|---|---|
| Video Input / Audio Input | 8 (D-Sub) / 8 (RCA) |
| IP Camera Channel | 8 |
| Display & Recording Rate* | 240 fps (NTSC: 320x240)<br>200 fps (PAL: 320x240) |
| Max. Stack Card / Channel | 2 Cards / 32 CH |
| PC Interface | PCI Express |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.


To reset button
Audio input x 8 (RCA)
Video input x 8 (D-type)
Watchdog cable
To reset pins of motherboard

# License Card Models

## 4432IP/4416IP/4408IP/4404IP License Card

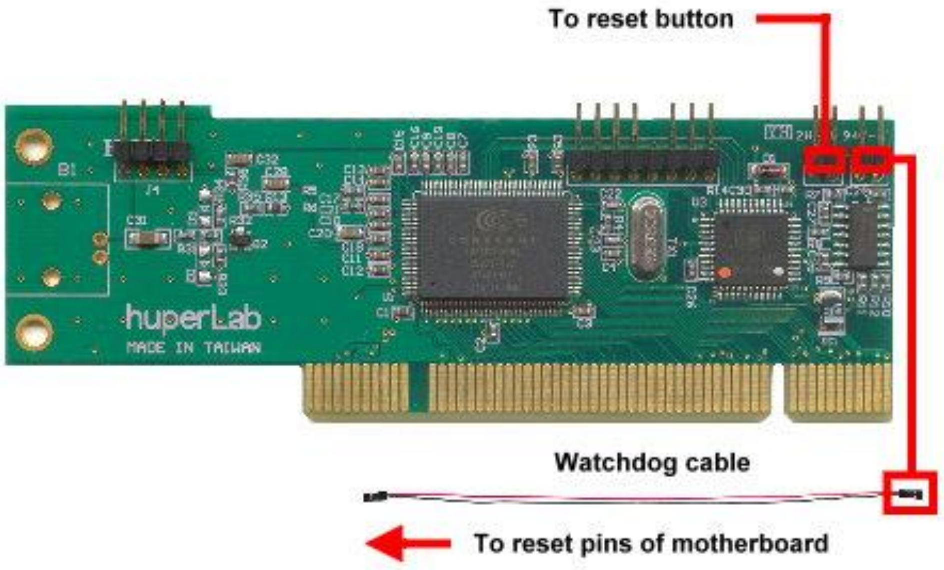
### Accessories

| | |
|---|---|
| Watchdog Cable | x 1 |

### Specifications

| | 4432IP | 4416IP | 4408IP | 4404IP |
|---|---|---|---|---|
| Display & Recording Rate * | 960 fps (NTSC)<br>800 fps (PAL) | 480 fps (NTSC)<br>400 fps (PAL) | 240 fps (NTSC)<br>200 fps (PAL) | 120 fps (NTSC)<br>100 fps (PAL) |
| Max. Stack Card / Channel | 1 Card / 32 CH | 2 Cards / 32 CH | 4 Cards / 32 CH | 4 Cards / 16 CH |
| PC Interface | PCI | | | |

Note: Display & recording Rates present the maximum frame rates per card. The exact frame rates may vary across hardware environments.

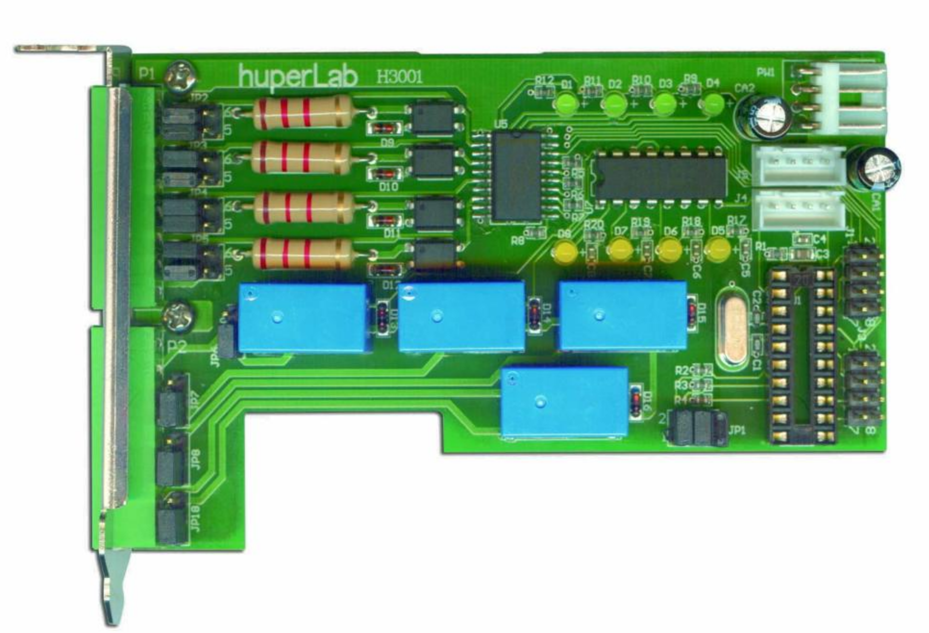

To reset button
huperLab
MADE IN TAIWAN
Watchdog cable
To reset pins of motherboard

# Accessories

## IOC-0404P I/O Card

### Specifications

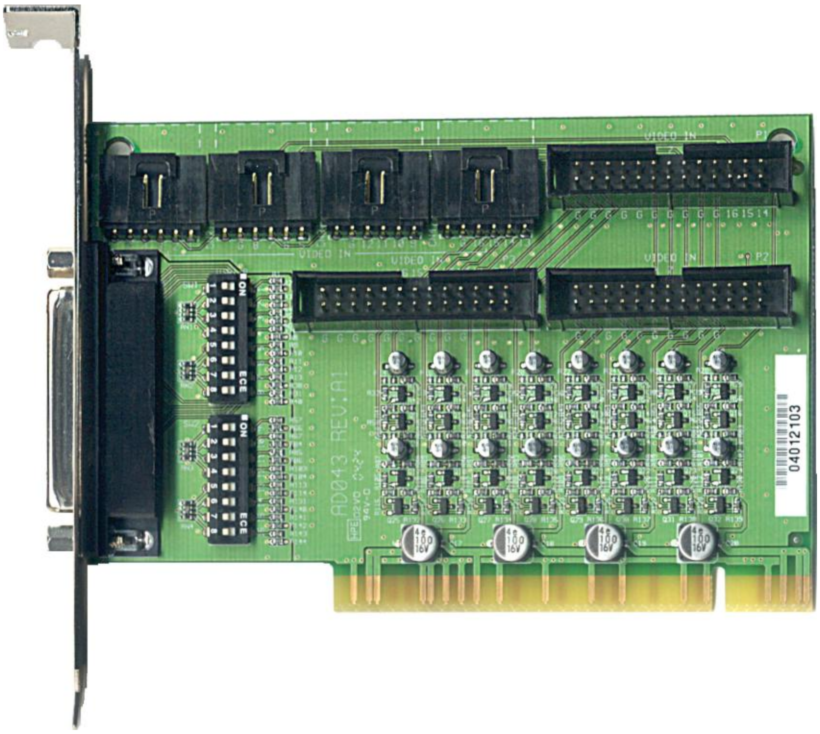
| | |
|---|---|
| Description | 32-bit card with 4 digital inputs and 4 relay outputs |
| System | 32-bit 5V card |
| Dimensions | 93 mm X 120 mm |
| Digital input | |
| Channels | 4 |
| Input voltage | Dry Contact Logic level 0: Close to GND<br>Logic level 1: Open<br>Optical Isolation: 24VDC<br>Dry Contact & Optical Isolation: Selectable |
| Power consumption | 200 mW each channel |
| Relay output | |
| Channel | 4-channel/relay output with Form C |
| Contact rating | AC 125 V @ 0.6 A; 250 V @ 0.3 A<br>DC 30 V @ 1 A; 110 V @ 0.6 A<br>NO & NC selectable by jumper |



# LB-16 Video Loop Through Card

**Specifications**

| | |
|---|---|
| Description | PCI card with 16CH video loop through |
| System | 32-bit 5V PCI card |
| Video Input | 4-center crimp terminal houses up to 16 channel video inputs<br>One box header (2 x 13 pins) supports 16 channel video inputs<br>Two box header (2 x 13 pins) supports 8 channel video inputs |
| Video Output | D-sub 25 connector supports 16 channel video outputs |
| Video signal | 1 Vpp, 75Ω switch optional |
| Dimensions | 119.88 mm x 85.09 mm |



## IOB-0805 Box

### Specifications

| | | |
|---|---|---|
| Digital Contact Input | 8 | |
| Isolation | 5000Vrms | |
| Digital Level 0 | Open Digital | |
| Level 1 | Close Relay | |
| Output | 5 | |
| Relay Type | Form A | |
| Contact Rating | 10A@125VAC,<br>5A@250VAC/30VDC | |
| Operate Time | 8 ms | |
| Release Time | 5 ms | |
| Dielectric Strength | 2500VAC | |
| Electrical life(min.) | 1 x 10 5 | |
| Mechanical life(min.) | 1 x 10 7 | |
| Power Consumption | 110 / 220 VAC or 5VDC, 5W°C | |
| Communication Port | RS232 / RS485 (Protocol : Huper RTU ASCII)<br>RS232:1200-115, 200 bps; RS485 : 1200-921.6K bps | |
| Communication Distance | RS232: 50 feet<br>RS485: 4000 feet | |
| Input Power Supply | 110 / 220 VAC or 5VDC, Digital Input: 5/12/24 VDC | |
| Dimension | 150 x 100 x 40 mm | |
| Weight | 360 g | |
| Approved Standards | CE | |

## IOB-1616 Box

**Specifications**

| | | |
|---|---|---|
| Digital Contact Input | 16 | |
| Isolation | 5000Vrms | |
| Digital Level 0 | Open | |
| Digital Level 1 | Close | |
| Open Collector Output | 16 | |
| Isolation | 5000 Vrms | |
| Load Voltage | 5/12/24 VDC | |
| Max Load Current | 500 ma<br>( 2A Per Common Group ) | |
| Power Consumption | 5W | |
| Communication port | RS232 / RS485 (Protocol : Huper RTU ASCII)<br>RS232 : 1200-115,200 bps; RS485 : 1200-921.6K bps | |
| Communication distance | RS232 : 50 feet<br>RS485 : 4000 feet | |
| Input Power Supply | 12 VDC (9 ~ 12), 5W | |
| Dimension | 150 x 100 x 40 mm | |
| Weight | 360 g | |
| Approved Standards | CE | |

# How to Use the I/O Ports of a Video Capture Card

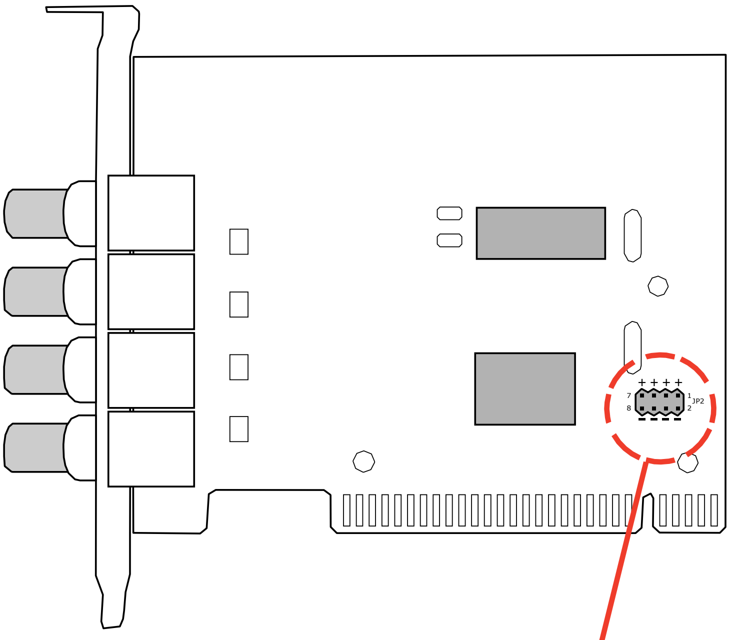
## The Specification of I/O Ports

Each video capture card provides four I/O ports. Each I/O port can connect to an Input Device (e.g. Infra-red sensor) or an Output Device (e.g. Alarm). The H1004S video capture card has four I/O ports, each marked by "GPIO1", "GPIO2", "GPIO3" and "GPIO4" (Please refer Figure 1-1 and 1-2). Every I/O port has two pins, a positive pole pin marked with "+" and a negative pole pin marked with "-". For other models of video capture cards (Please refer Figure 1-3 and 1-4), positive pole pins are at the side marked with "GPIO1-GPIO4", negative pole pins are at the opposite side marked with "G". The left-most pin pair are the first I/O port, the following pin pairs are numbered accordingly (second I/O port, third I/O port...). The I/O ports link directly to the BT878 GPIO* ports. Below are their specifications:

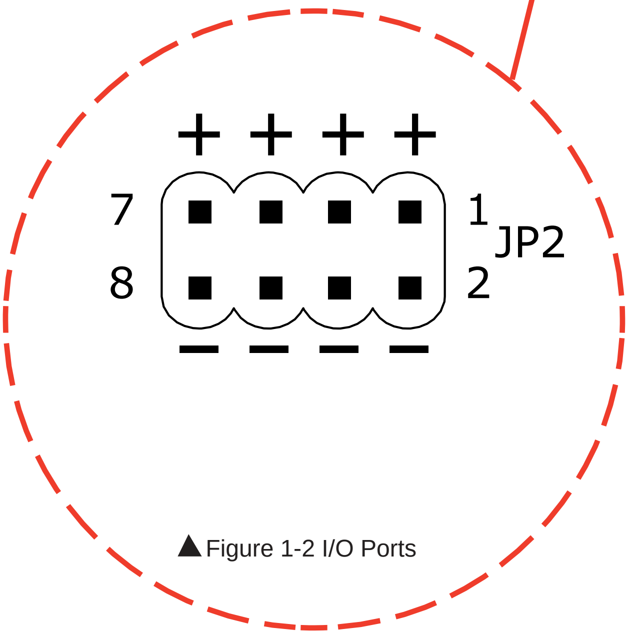
| **Digital Input/Output** | | **Min.** | **Max.** |
|---|---|---|---|
| GPIO Input | Input High Voltage | 2.0V | 5.5V |
| | Input Low Voltage | -0.5V | 0.8V |
| GPIO Output | Output High Voltage (I=-1.2mA) | 2.4V | 5V |
| | Output Low Voltage (I=8mA) | - | 0.4V |

Note:

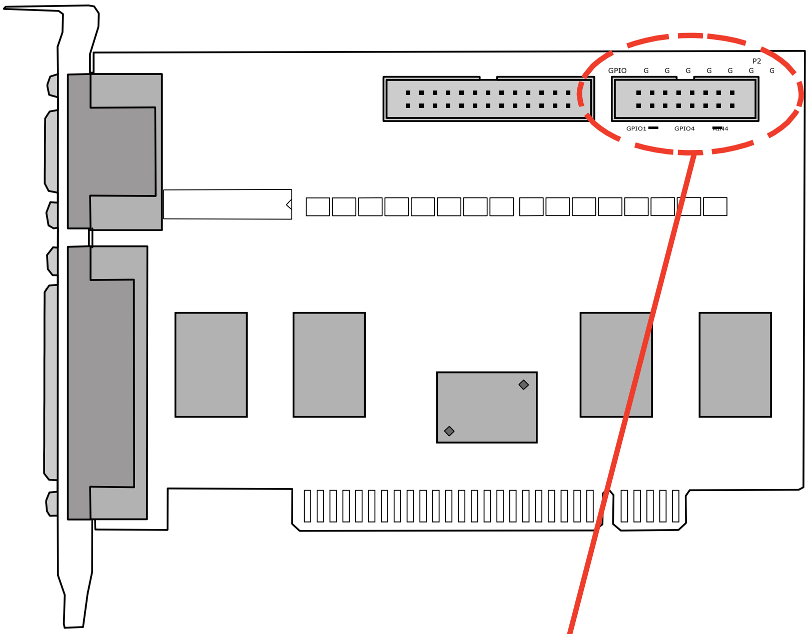
1. GPIO: General Purpose Input/Output ports.
2. Detail GPIO specifications. Please read the specifications of the Bt878 chip.



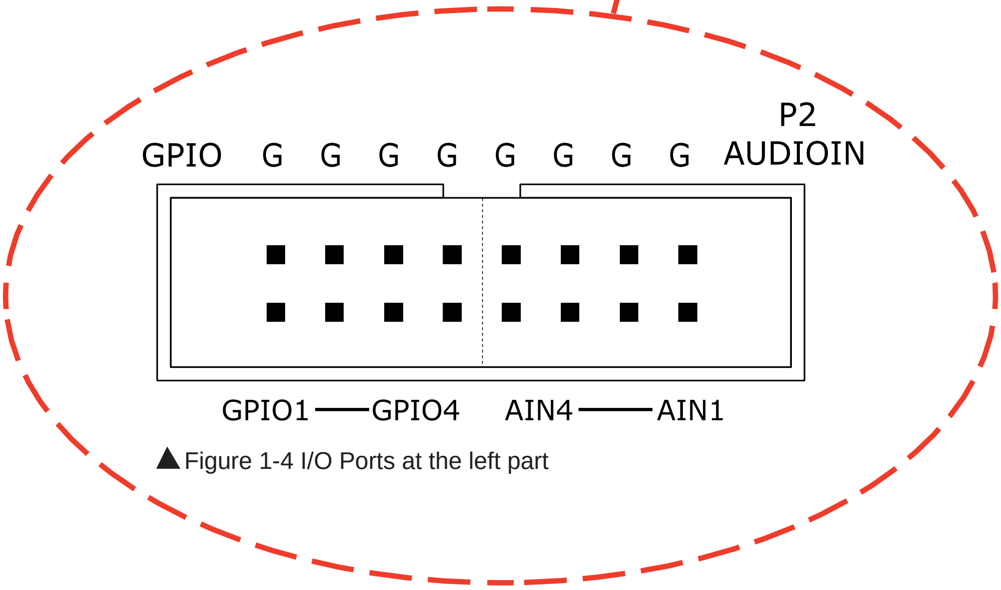
▲Figure 1-1 H1004S Video Capture Card



▲Figure 1-2 I/O Ports


GPIO
G
G
G
G
G
G
G
P2
GPIO1
GPIO4
AIN4

▲Figure 1-3 H4004Q Video Capture Card


GPIO
G
G
G
G
G
G
G
G
P2
AUDIOIN
GPIO1——GPIO4
AIN4——AIN1

▲Figure 1-4 I/O Ports at the left part

## Installing the Cable

You need to install a cable to connect I/O ports to I/O devices. You can purchase a cable from any PC accessory store or use the cable that comes with the video capture card. Please note that some models of video capture cards do not include cables. You can purchase the cable from the dealer where you purchased the product.

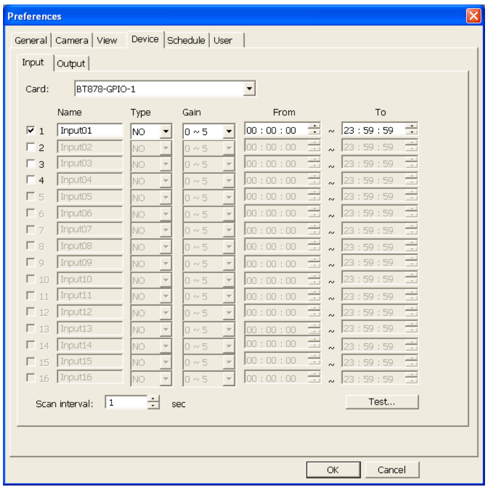
## Connecting to I/O Devices

Each I/O port can connect to an input device or an output device. If the input/output voltage from/to the I/O devices does not match the specifications of I/O ports, the video capture card or output devices may be damaged due to overrunning of the voltage limit. An extra circuit for increasing/decreasing the voltage from the input device or to the I/O port can solve the problem. Please note that I/O ports can only accept DC (Direct Current).

## Setting I/O Devices

I/O devices and I/O ports should have their corresponding positive pole pins connected and corresponding negative pole pins connected. If the first I/O port is connected to an input device, please select the first option on the "Device/Input" tab of the "Preferences" dialog box then specify the device type (either NC or NO). (Please refer to figure “Enable the input” below.)

If the first I/O port is connected to an output device, please select the first option on the "Device/Output" tab of the "Preferences" dialog box then specify the device type (either NC or NO). (Please refer to figure “Enable the output” below.) If you installed other I/O devices, follow the rule above for the "Preferences dialog box: Device tab"

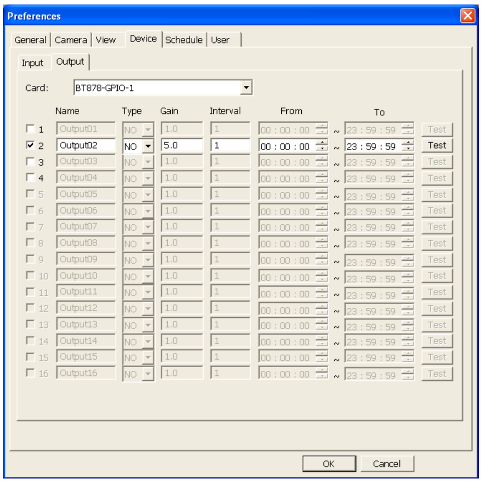


Card: BT878-GPIO-1

| | | Name | Type | Gain | From | | To |
|---|---|---|---|---|---|---|---|
| ☑ | 1 | Input01 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 2 | Input02 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 3 | Input03 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 4 | Input04 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 5 | Input05 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 6 | Input06 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 7 | Input07 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 8 | Input08 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 9 | Input09 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 10 | Input10 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 11 | Input11 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 12 | Input12 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 13 | Input13 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 14 | Input14 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 15 | Input15 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ | 16 | Input16 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |

Scan interval: 1 sec

Enable the Input



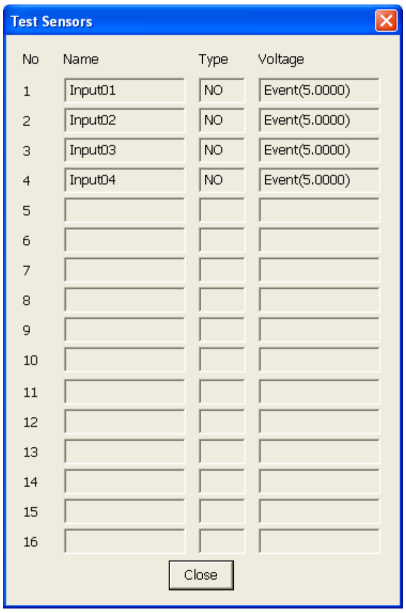
Card: BT878-GPIO-1

| | | Name | Type | Gain | Interval | From | | To | |
|---|---|---|---|---|---|---|---|---|---|
| ☐ | 1 | Output01 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ | 2 | Output02 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 3 | Output03 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 4 | Output04 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 5 | Output05 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 6 | Output06 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 7 | Output07 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 8 | Output08 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 9 | Output09 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 10 | Output10 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 11 | Output11 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 12 | Output12 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 13 | Output13 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 14 | Output14 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 15 | Output15 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ | 16 | Output16 | NO | 1.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |

Enable the Output

## Testing the I/O Device

After connecting the I/O ports to I/O devices and finalizing the settings, click the "Test" button on the "Preferences/Device" tab to check the connection and settings. Click the "Test" button on the "Preferences/Device/Input" tab to launch a dialog box displaying the current input voltage of input devices. (Please refer to the right figure.) You can trigger the input device and track the changes of input voltage in this dialog box. Click the "Test" button on the "Preferences/Device/Output" tab to change the output voltage. You can check the behavior of output devices to make sure the connections and settings are correct.



| No | Name | Type | Voltage |
|---|---|---|---|
| 1 | Input01 | NO | Event(5.0000) |
| 2 | Input02 | NO | Event(5.0000) |
| 3 | Input03 | NO | Event(5.0000) |
| 4 | Input04 | NO | Event(5.0000) |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |

## Including I/O Devices to the operation of DVR Site Server

When an input device has been triggered to issue an event, Site Server can have three reactions

1. In the event recording mode, starts the video recording and Site Server keeps recording till the event ends.
2. In non-event recording mode, the event time segment is recorded to enable searching of video recordings later.
3. Issue event notifications.

In order to include input devices to the normal operation of Site Server, you need to select the "Sensor detection" option in the "Detect events by" group on the "Preferences/Camera" tab for certain cameras. Then click the "Settings" button behind the option "Sensor detection" to assign input devices.

Output devices are for event notification. You can select the "External devices" option in the "Respond to events by" group on "Preferences/Camera" tab for certain cameras. Then click the "Settings" button behind the option "External devices" to assign output

# IOC-0404P Card Guide

The IOC-0404P is a 4-ch digital input and 4-ch. relay output module. IOC-0404P supports two interfaces with host controller, general-purpose input/output interface and RS232 interface to meet different requirements from the host controller.

IOC-0404P is a digital input module built with 5000VDC optical isolation, and it is suitable for noise environment or floating potential. Also, the 4 isolated inputs provide the best method to prevent the ground loop problem. The IOC-0404P supports dry contact wiring for simple implementation. Moreover, users can read the current input status from the green LED indicators on-board. Each input channel is jumper selectable to either isolated or non-isolated input.

The IOC-0404P provides four channels with Form C relay. IOC-0404P is excellent for ON/ OFF control or low-power switching applications.

For easy monitoring, each relay is equipped with one yellow LED to reflect its ON/OFF status.

## Technical Specifications

| **Digital Input** | |
|---|---|
| Channel | 4-channel / digital inputs |
| Optical Isolation | 5000 Vrms |
| Optical-isolator response time | 18 us |
| Over-voltage Protect | 70 VDC |
| LED Indicator | On: Active<br>Off : Non-active |
| Input Voltage | Dry Contact<br>Logic level 0 : Close to GND<br>Logic level 1 : Open<br>Optical Isolation : 24VDC (Normal)<br>Dry Contact & Optical Isolation selectable |
| Power consumption | 200 mW each channel |

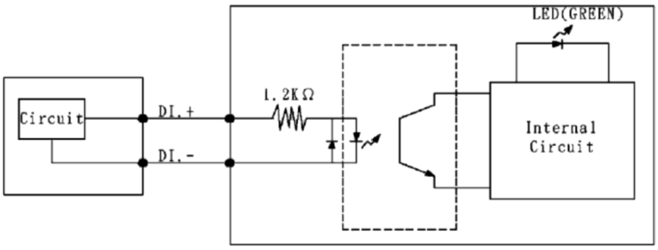
| **Relay Output** | |
|---|---|
| Channel | 4-channel / relay output with Form C |
| LED Indicator | On: Non-active<br>Off : Active |
| Contact Rating | AC 125 V @ 0.6 A<br>250 V @ 0.3 A<br>DC 30 V @ 1 A; |

## Application Wiring

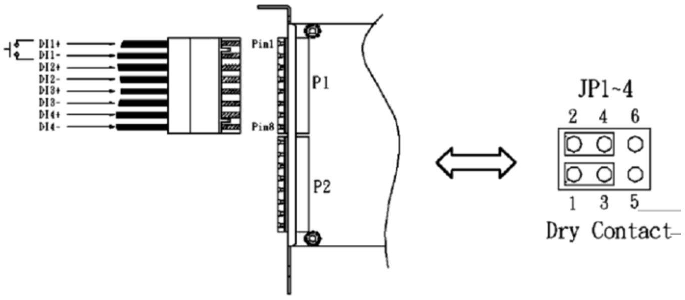
The following are examples on how to connect the cable to your IOC-0404P modules

### Input wiring

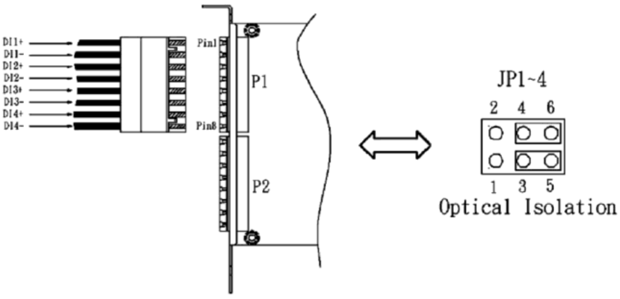
Diagram


LED(GREEN)
Circuit
DI.+
DI.-
1.2KΩ
Internal Circuit

Dry Contact Input

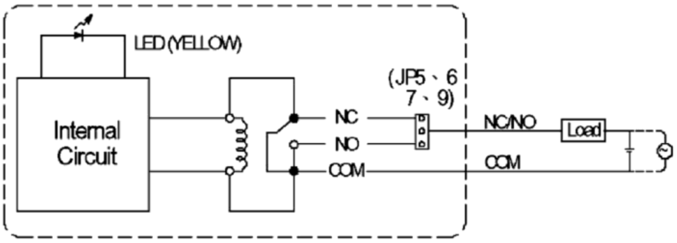

DI1+
DI1-
DI2+
DI2-
DI3+
DI3-
DI4+
DI4-
Pin1
Pin8
P1
P2
JP1~4
2 4 6
1 3 5
Dry Contact

Isolation Digital Input

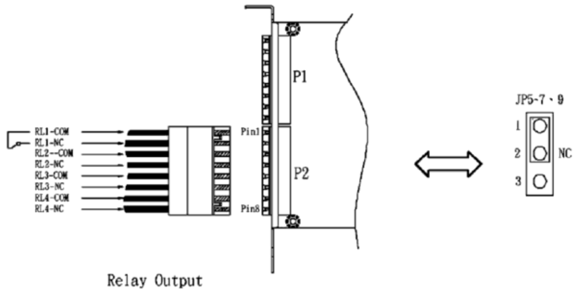

DI1+
DI1-
DI2+
DI2-
DI3+
DI3-
DI4+
DI4-
Pin1
Pin8
P1
P2
JP1~4
2 4 6
1 3 5
Optical Isolation

**Output wiring**

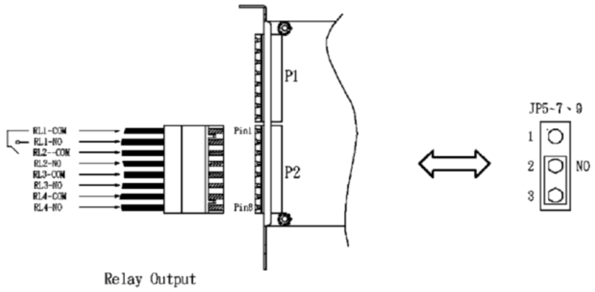
Diagram


LED (YELLOW)
Internal Circuit
(JP5 、6 7 、9)
NC
NO
COM
NC/NO
Load
COM

NC (Normal Close) setting


RL1-COM
RL1-NC
RL2--COM
RL2-NC
RL3-COM
RL3-NC
RL4-COM
RL4-NC
Pin1
Pin8
P1
P2
Relay Output
JP5-7、9
1
2
3
NC

NO (Normal Open) setting


RL1-COM
RL1-NO
RL2--COM
RL2-NO
RL3-COM
RL3-NO
RL4-COM
RL4-NO
Pin1
Pin8
P1
P2
Relay Output
JP5-7、9
1
2
3
NO

## Installation

1. Before installing the IOC-0404P into the system, remove the terminator housing from the IOC-0404P as illustrated in Figure 1.
2. Secure the IOC-0404P using a screw.
3. Connect the input/output cable to the terminator block as desired.
4. Plug the terminal block into the IOC-0404P as illustrated in Figure 2.
5. Check whether the INPUT/ OUTPUT module is fitted in the right terminal and right position.

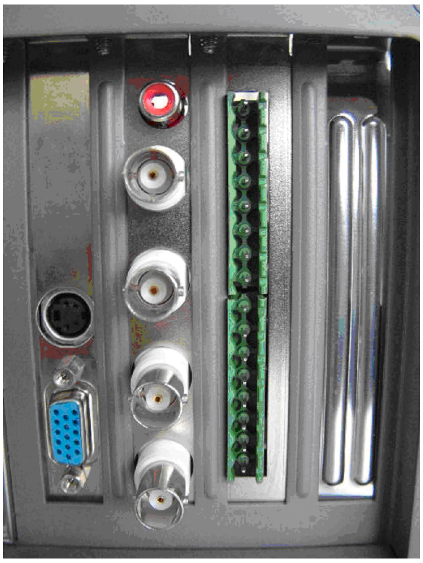


Figure 1

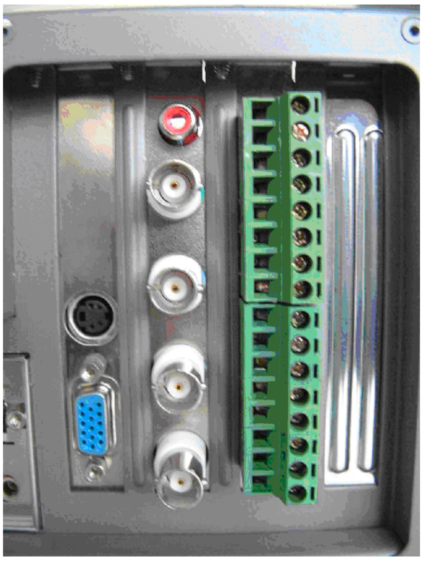
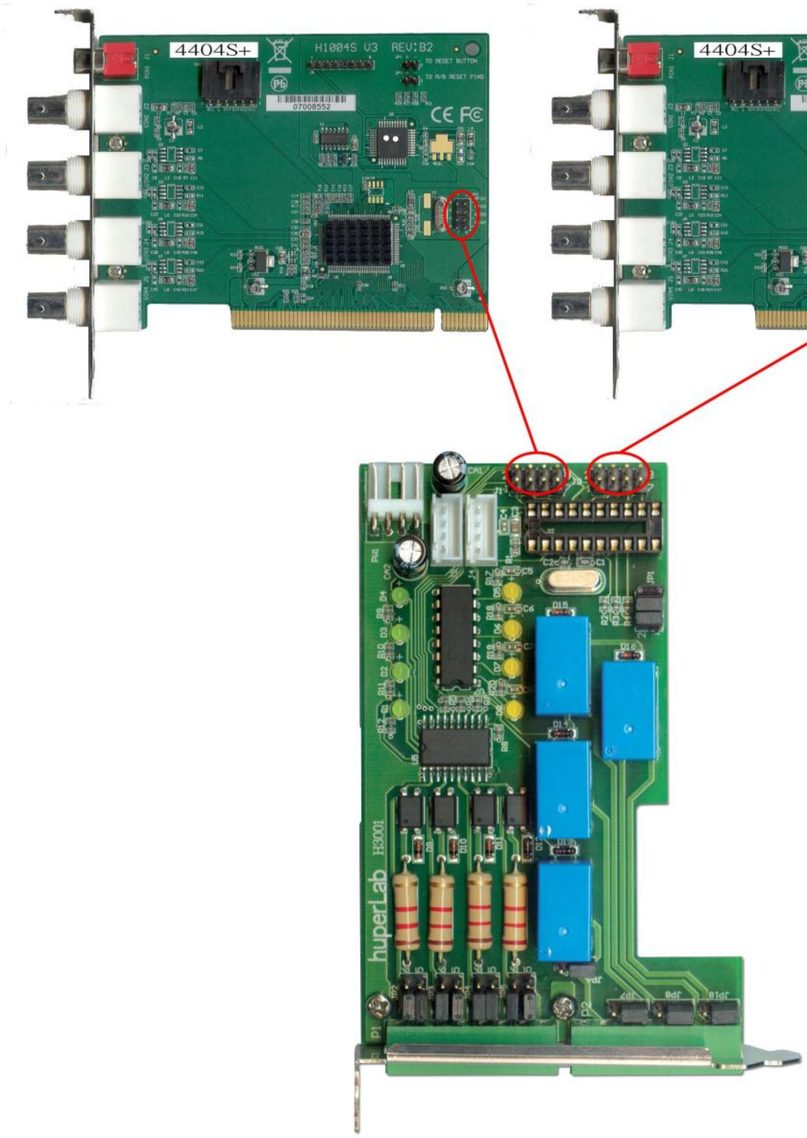


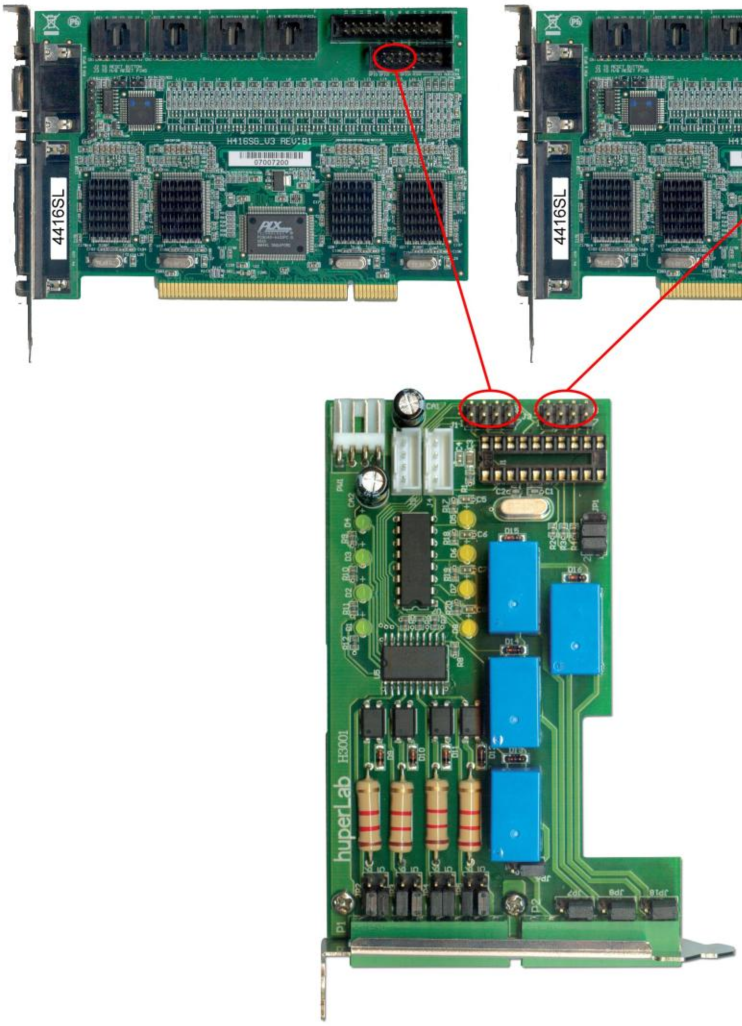
Figure 2

## Host wiring

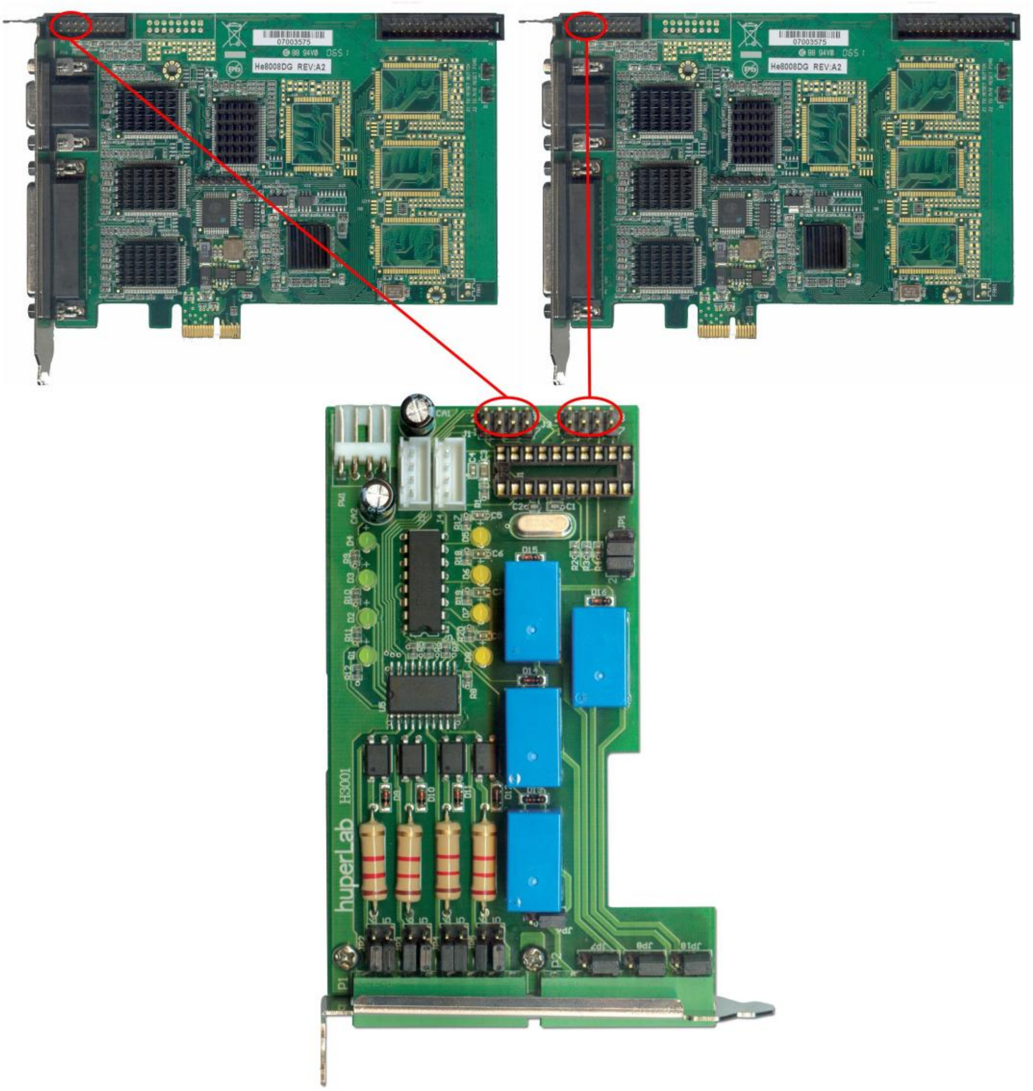
1. IOC-0404P to 4404S+: Take note that the red line of the cable should connect to Pin2 on the IOC-0404P card and the 4404S+ card.


4404S+
H1004S V3 REV:B2
4404S+
H1004S V3 REV:B2
H3001
huperLab

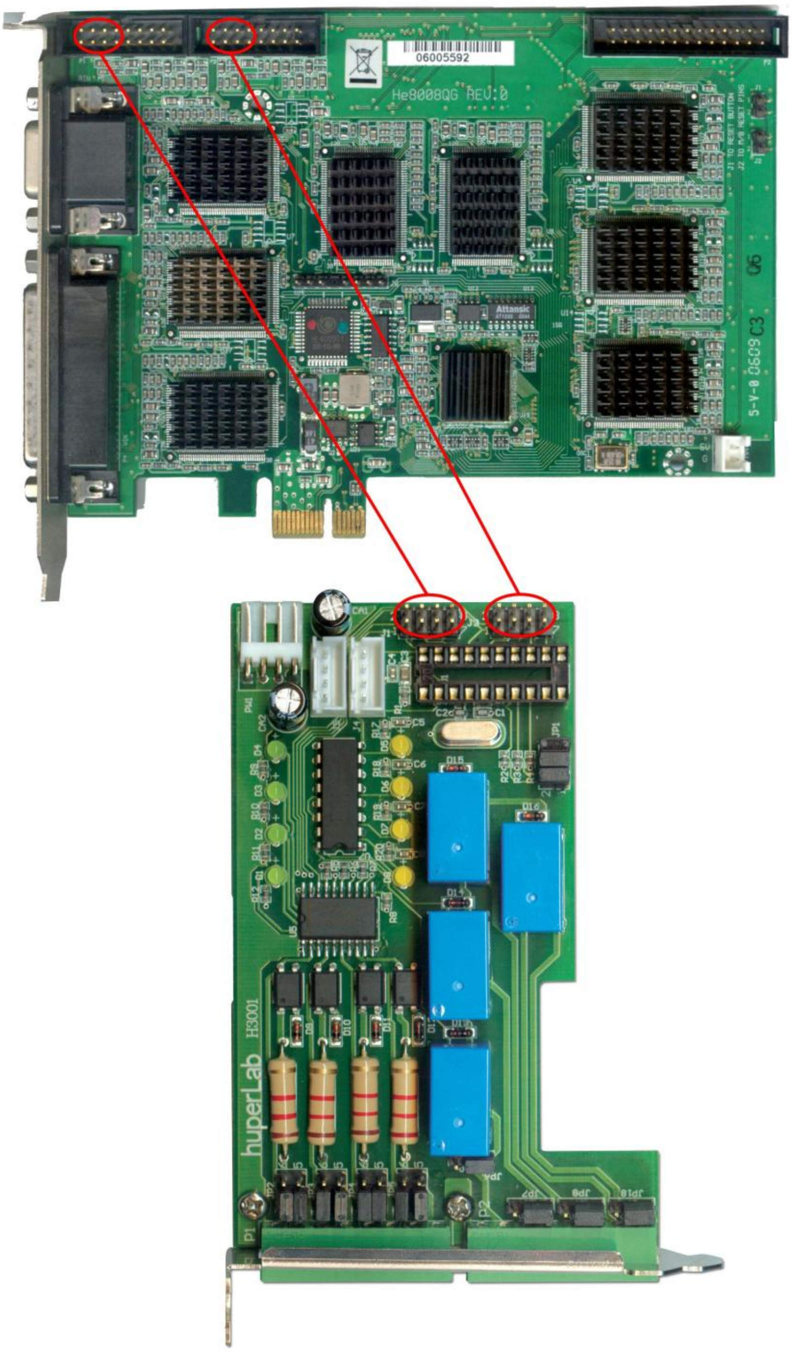
2. IOC-0404P to 4416SL: Take note that the red line of the cable should connect to Pin2 on the IOC-0404P card and to the "G" pin on the 4416SL card.
(The same wiring for 4416SB, 4408DB, 4416SG and 4408DG)


4416SL
H416SG_V3 REV:B1
4416SL
H416SG_V3 REV:B1
huperLab
H3001

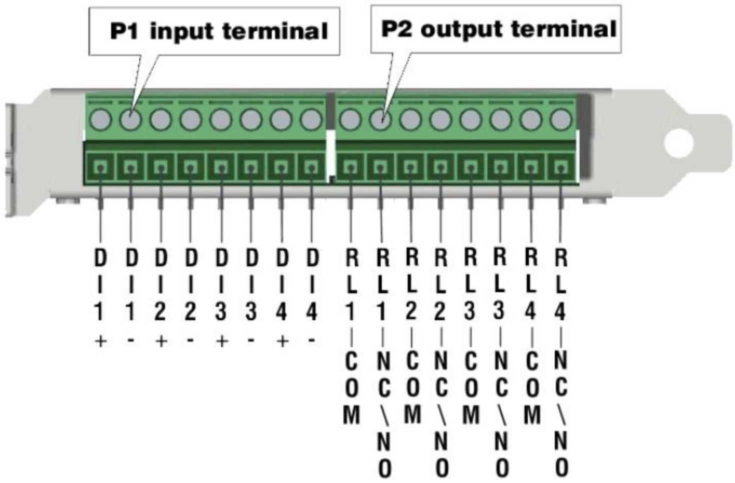
3. IOC-0404P to 4416S+-PCIe: Take note that the red line of the cable should connect to Pin2 on the IOC-0404P card and to the "G" pin on the 4416S+-PCIe card.


He8008DG REV:A2
He8008DG REV:A2
huperLab
H3001

4. IOC-0404P to 4408Q-PCIe: Take note that the red line of the cable should connect to Pin2 of the IOC-0404P card and to the "G" pin on the 4408Q-PCIe card.



## Pin Assignment


P1 input terminal
P2 output terminal
DI1+
DI1-
DI2+
DI2-
DI3+
DI3-
DI4+
DI4-
RL1-COM
RL1-NC\NO
RL2-COM
RL2-NC\NO
RL3-COM
RL3-NC\NO
RL4-COM
RL4-NC\NO

| Pin no. | P1 General purpose input | Description |
|---|---|---|
| 1 | DI1+ | Input channel 1 + |
| 2 | DI1- | Input channel 1 - |
| 3 | DI2+ | Input channel 2 + |
| 4 | DI2- | Input channel 2 - |
| 5 | DI3+ | Input channel 3 + |
| 6 | DI3- | Input channel 3 - |
| 7 | DI4+ | Input channel 4 + |
| 8 | DI4- | Input channel 4 - |

| Pin no. | P2 Relay output | Description |
|---|---|---|
| 1 | RL1-COM | Relay output channel 1- common |
| 2 | RL1-NC/NO | Relay output channel 1- NC or NO |
| 3 | RL2-COM | Relay output channel 2- common |
| 4 | RL2-NC/NO | Relay output channel 2- NC or NO |
| 5 | RL3-COM | Relay output channel 3- common |
| 6 | RL3-NC/NO | Relay output channel 3- NC or NO |
| 7 | RL4-COM | Relay output channel 4- common |
| 8 | RL4-NC/NO | Relay output channel 4- NC or NO |

## Jumper & connector

Input module dry contact / optical isolation select (JP1 ~ 4)

| **Channels** | **Dry contact** | **Optical isolation** |
|---|---|---|
| Channel 1 (JP1) | 1-3,2-4 | 3-5,4-6 |
| Channel 2 (JP2) | 1-3,2-4 | 3-5,4-6 |
| Channel 3 (JP3) | 1-3,2-4 | 3-5,4-6 |
| Channel 4 (JP4) | 1-3,2-4 | 3-5,4-6 |

Relay output NC / NO select (JP5 ~7, 9)

| **Channels** | **Normal close (NC)** | **Normal open (NO)** |
|---|---|---|
| Channel 1 (JP5) | 1-2 | 2-3 |
| Channel 2 (JP6) | 1-2 | 2-3 |
| Channel 3 (JP7) | 1-2 | 2-3 |
| Channel 4 (JP9) | 1-2 | 2-3 |

ID selector (JP8)

| **Card ID** | **JP8** |
|---|---|
| Card ID 0 | 1-2,3-4,5-6 |
| Card ID 1 | 3-4,5-6 |
| Card ID 2 | 1-2,5-6 |
| Card ID 3 | 5-6 |
| Card ID 4 | 1-2,3-4 |
| Card ID 5 | 3-4 |
| Card ID 6 | 1-2 |
| Card ID 7 | Open |

Host interface-RS232 (J1)

| **Signals** | **J1** |
|---|---|
| Transmission data (TXD) | 1 |
| Ground | 2,3 |
| Receive data (RXD) | 4 |

Interface to next IOC-0404P-RS232 (J2)

| **Signals** | **J2** |
|---|---|
| Transmission data (TXD) | 1 |
| Ground | 2,3 |
| Receive data (RXD) | 4 |

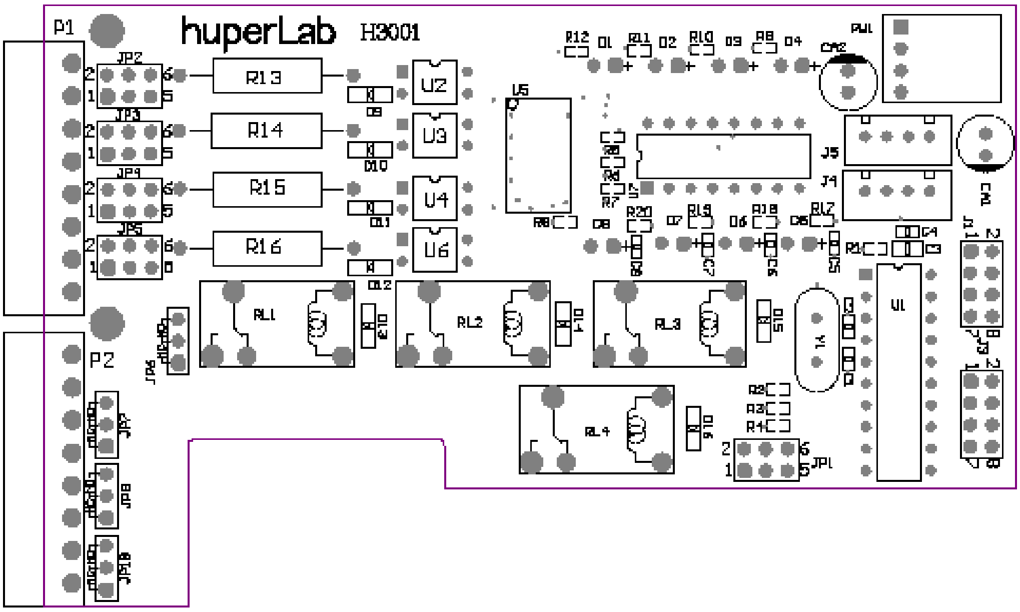
Host interface-GPIO (J3)

| Signals | J3 |
|---|---|
| Input channel 1-data | 1 |
| Input channel 1-ground | 2 |
| Input channel 2-data | 3 |
| Input channel 2-ground | 4 |
| Output channel 1-data | 5 |
| Output channel 1-ground | 6 |
| Output channel 2-data | 7 |
| Output channel 2-ground | 8 |

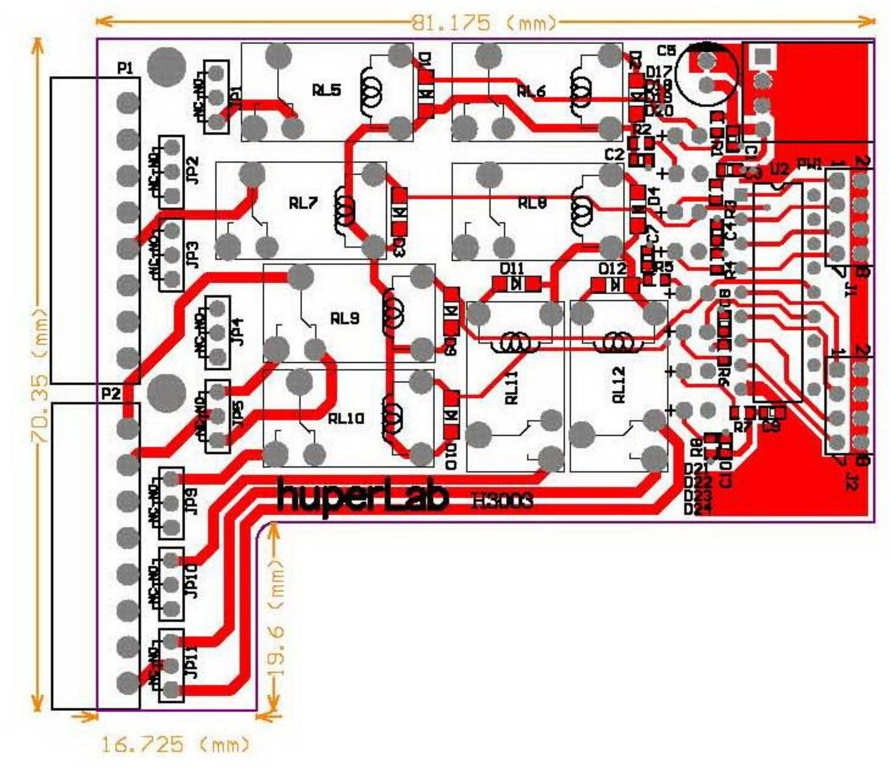
Host interface-GPIO (J4)

| Signals | J4 |
|---|---|
| Input channel 3-data | 1 |
| Input channel 3-ground | 2 |
| Input channel 4-data | 3 |
| Input channel 4-ground | 4 |
| Output channel 3-data | 5 |
| Output channel 3-ground | 6 |
| Output channel 4-data | 7 |
| Output channel 4-ground | 8 |

## Drawing and connection


P1
huperLab
H3001
JP2
JP3
JP4
JP5
R13
R14
R15
R16
U2
U3
U4
U6
U5
RL1
RL2
RL3
RL4
P2
JP6
JP7
JP8
JP10
J5
J4
J3
J1
JP1
U1
Y1
PW1
CA1
CA2

## IOC-0404P (H3001) Dimension


81.175 (mm)
70.35 (mm)
19.6 (mm)
16.725 (mm)
P1
P2
JP1
JP2
JP3
JP4
JP5
JP9
JP10
JP11
RL5
RL6
RL7
RL8
RL9
RL10
RL11
RL12
D11
D12
C2
C5
U2
PW1
J1
J2
huperLab
H3003

## Settings at huperVision

After installing the IOC-0404P I/O card, you can open the Preferences dialog box: Device tab of huperVision to customize I/O settings.

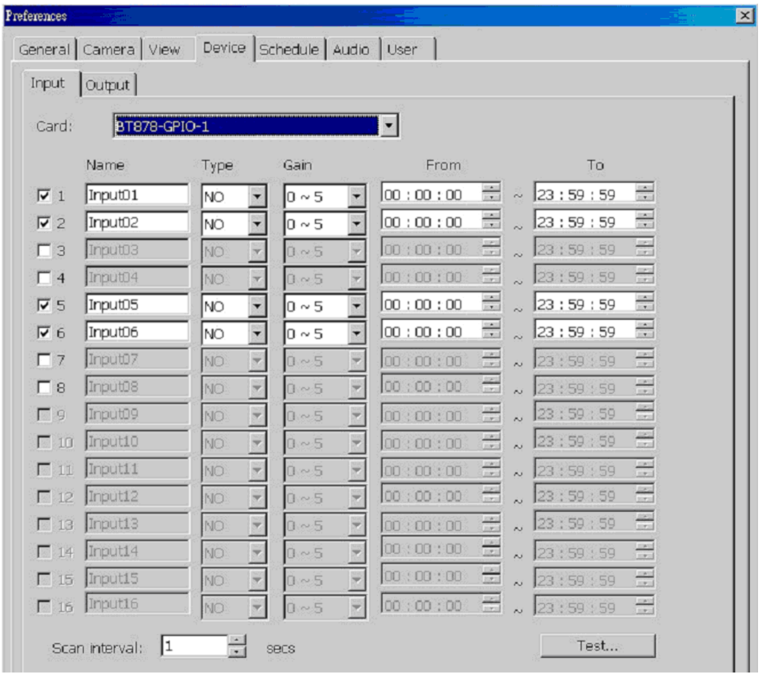
### Input Settings

Step 1: Open the Preferences dialog box, then click the Device/Input tab.

Step 2: Select "BT878-GPIO-1" item from the Card list.

Step 3: The 4 input ports of IOC-0404P map to input 1, 2, 5 and 6 in the settings. Please do not select input 3, 4, 7 and 8 in the settings.

Step 4: Click the Test button to open the "Sensor test" dialog box to examine correct input value and status.



Card: BT878-GPIO-1

| | Name | Type | Gain | From | | To |
|---|---|---|---|---|---|---|
| ☑ 1 | Input01 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 2 | Input02 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 3 | Input03 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 4 | Input04 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 5 | Input05 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 6 | Input06 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 7 | Input07 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 8 | Input08 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 9 | Input09 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 10 | Input10 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 11 | Input11 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 12 | Input12 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 13 | Input13 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 14 | Input14 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 15 | Input15 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 16 | Input16 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |

Scan interval: 1 secs

Note: If IO-0404P connects to two capture cards, the number of input pins is 8. They are input 1, 2, 5, 6, 9, 10, 13 and 14.

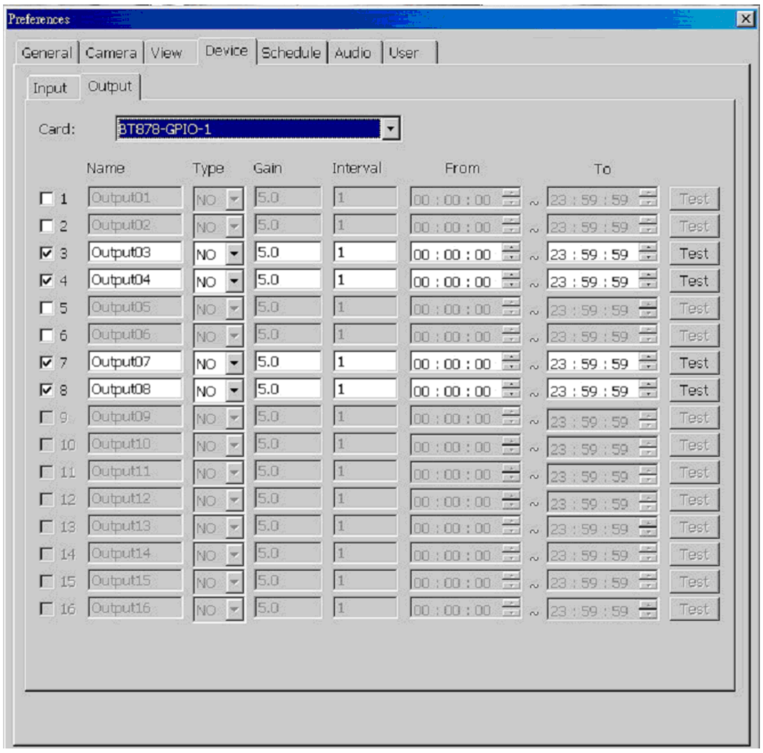
**Output Settings**

Step 1: Open the Preferences dialog box, then click the Device/Output

Step 2: Select "BT878-GPIO-1" from the Card

Step 3: The 4 output ports of IOC-0404P map to output 3, 4, 7 and 8 in the settings. Please do not select output 1, 2, 5 and 6 in the settings.

Step 4: Click the Test button to examine the response of connected output devices.



Card: BT878-GPIO-1

| | | Name | Type | Gain | Interval | From | To | |
|---|---|---|---|---|---|---|---|---|
| ☐ | 1 | Output01 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 2 | Output02 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☑ | 3 | Output03 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☑ | 4 | Output04 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 5 | Output05 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 6 | Output06 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☑ | 7 | Output07 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☑ | 8 | Output08 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 9 | Output09 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 10 | Output10 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 11 | Output11 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 12 | Output12 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 13 | Output13 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 14 | Output14 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 15 | Output15 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |
| ☐ | 16 | Output16 | NO | 5.0 | 1 | 00 : 00 : 00 | 23 : 59 : 59 | Test |

Note: If IO-0404P connects to two capture cards, there are total 8 output pins. They are output 3, 4, 7, 8, 11, 12, 15 and 16.

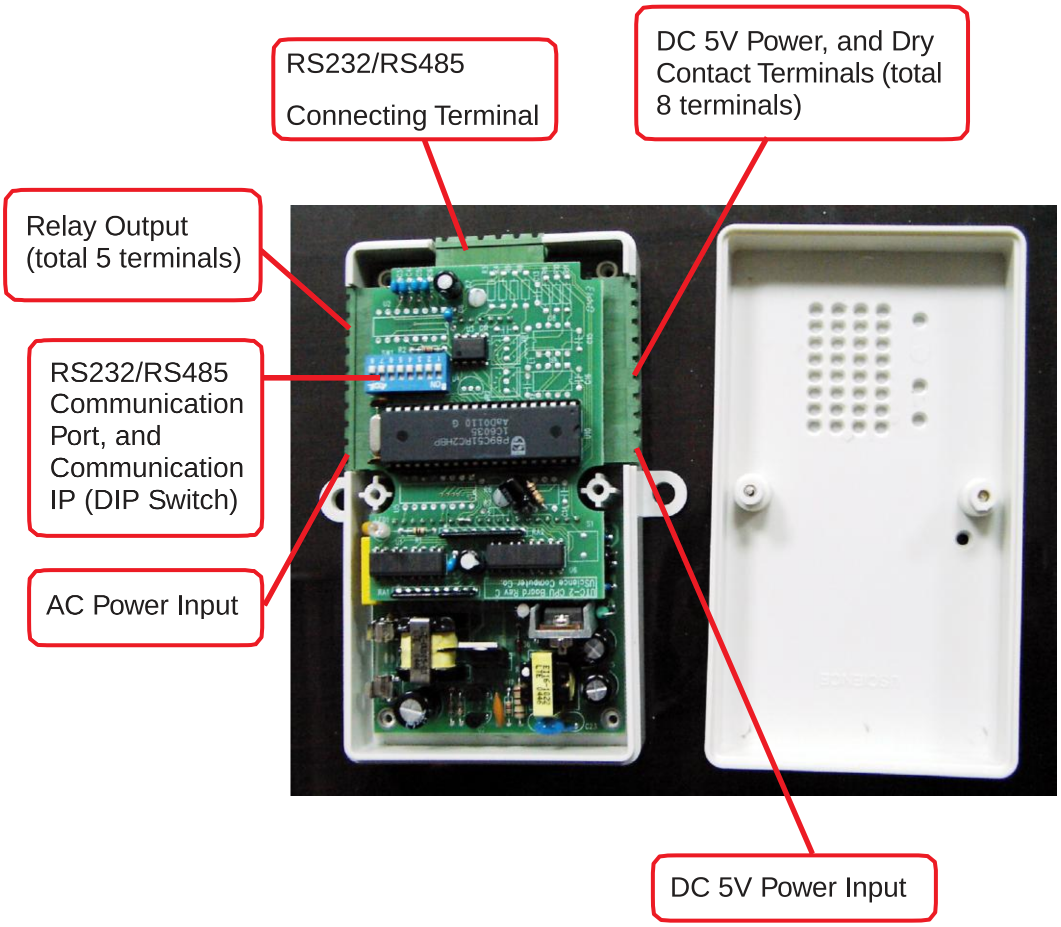
# IOB-0805 BOX Guide

CE Approved

## Technical Specifications

| | |
|---|---|
| Digital Contact Input Isolation | 8 |
| 5000Vrms Digital Level 0 | Open |
| Digital Level 1 | Close |
| Relay Output | 5 |
| Relay Type | Form A |
| Contact Rating | 10A@125VAC, 5A@250VAC/30VDC Operate |
| Time | 8 ms |
| Release Time | 5 ms Dielectric |
| Strength | 2500VAC Electrical |
| life(min.) | 1 x $10^5$ |
| Mechanical life(min.) | 1 x $10^7$ |
| Power Consumption | 110 / 220 VAC or 5VDC, 5W°C |
| Communication Port | RS232 / RS485 (Protocol : Huper RTU ASCII)<br>RS232:1200 – 115, 200 bps;<br>RS485 : 1200 – 921.6K bps |
| Communication Distance | RS232: 50 feet<br>RS485: 4000 feet |

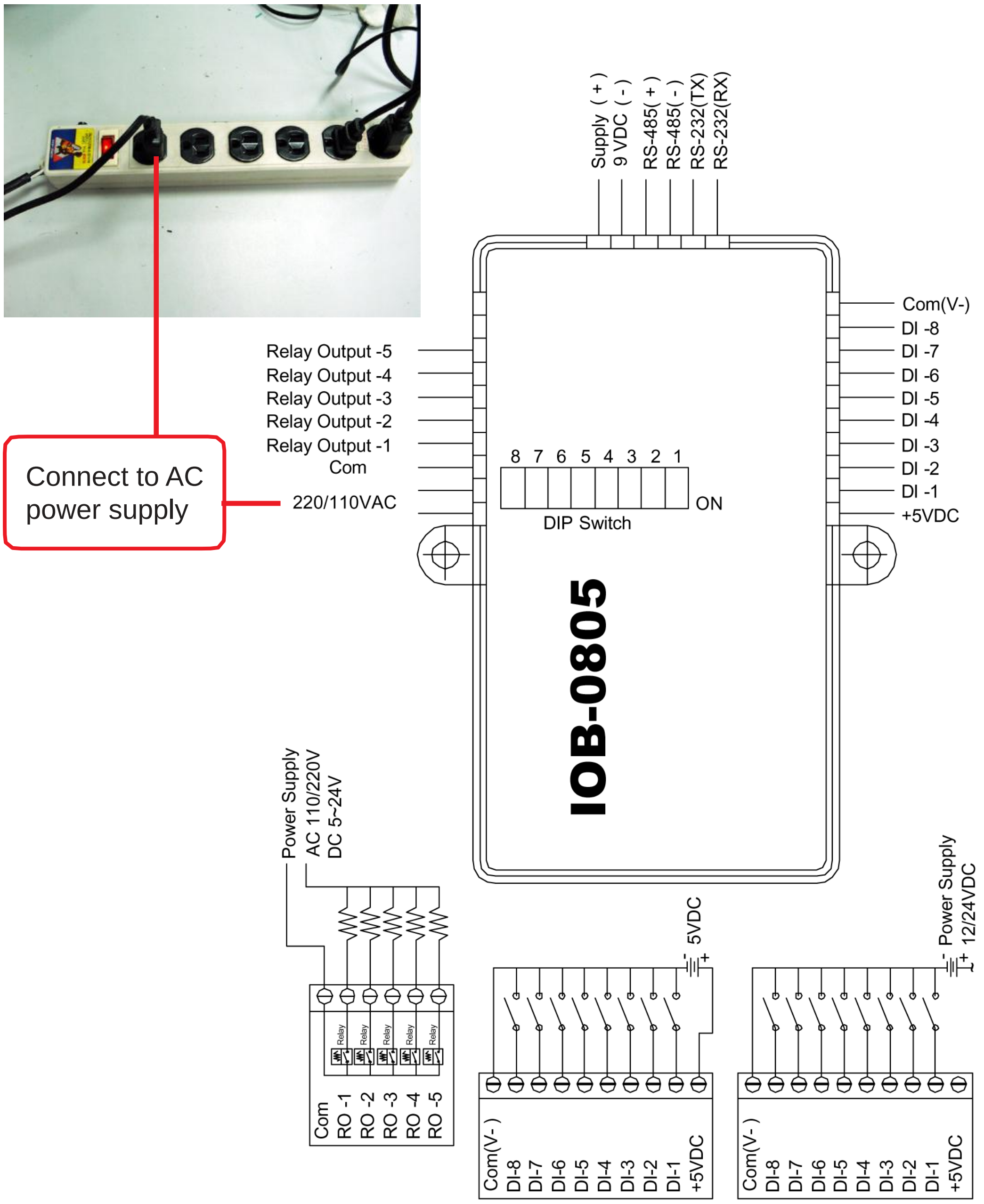
| | |
|---|---|
| Input Power Supply | 110 / 220 VAC or 5VDC,<br>Digital Input¡G 5/12/24 VDC |
| Dimension | 150 x 100 x 40 mm |
| Weight | 360 g |
| Approved Standards | CE |


RS232/RS485
Connecting Terminal
DC 5V Power, and Dry Contact Terminals (total 8 terminals)
Relay Output (total 5 terminals)
RS232/RS485 Communication Port, and Communication IP (DIP Switch)
AC Power Input
DC 5V Power Input

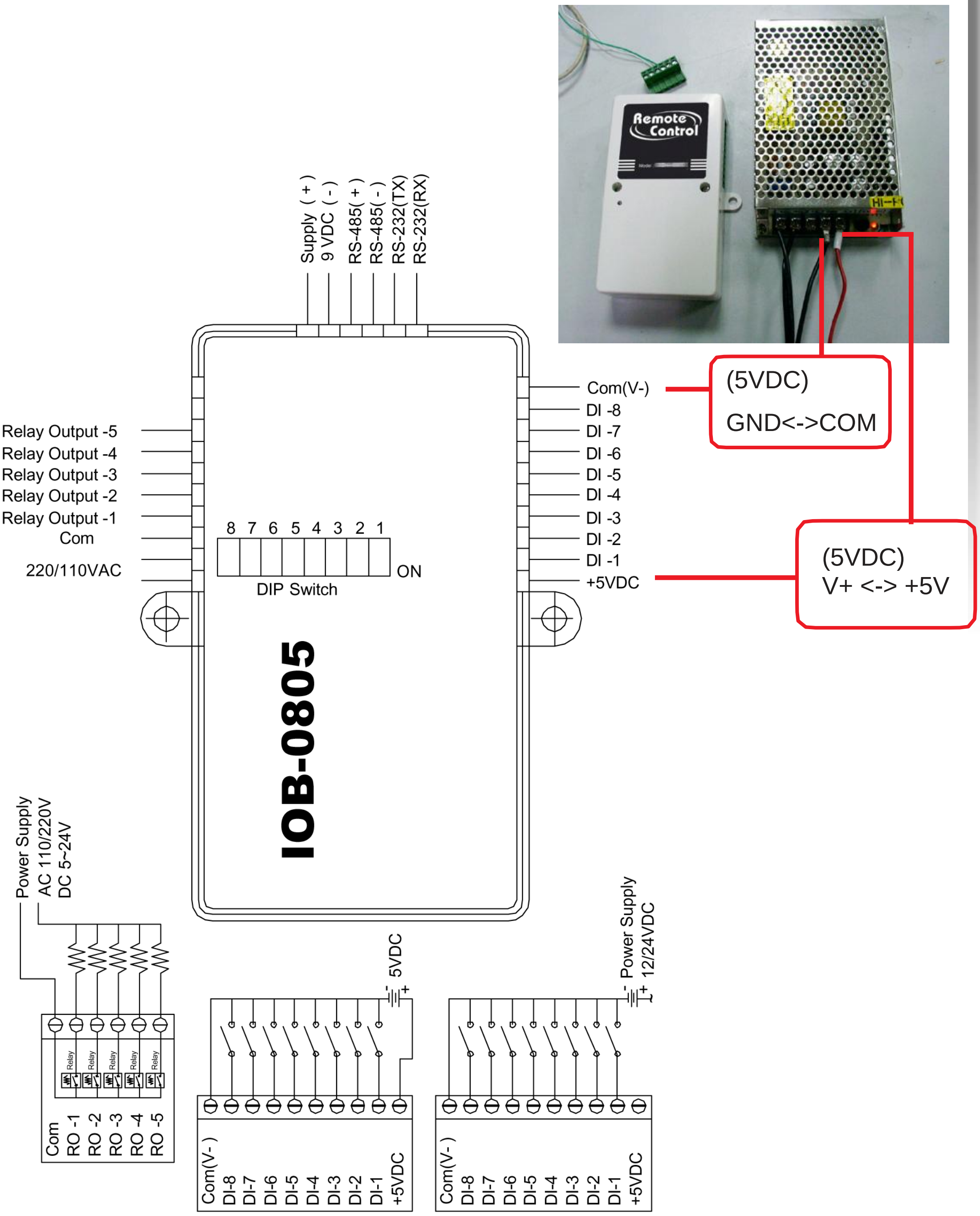
## Installation

110 / 220 VAC Power Supply Wiring

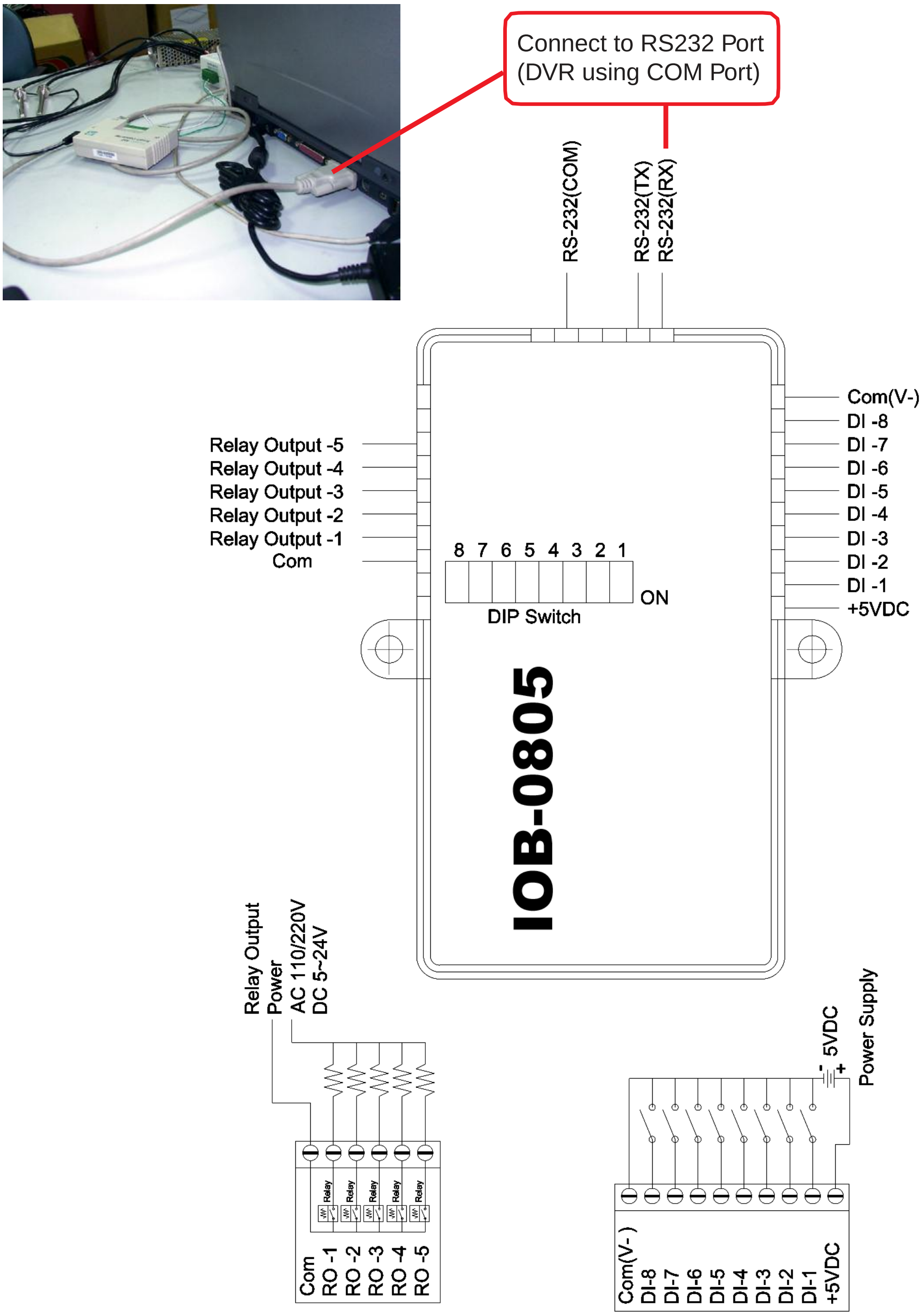
DC+5V power supply CANNOT be used together with the AC power supply.


Connect to AC power supply
220/110VAC
Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
8 7 6 5 4 3 2 1
ON
DIP Switch
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
IOB-0805
Power Supply
AC 110/220V
DC 5~24V
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC
Power Supply
12/24VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

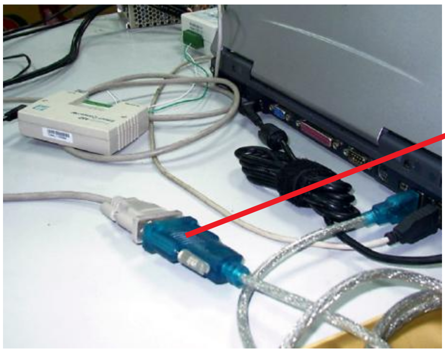
DC +5V Power Supply Wiring (When 5 relays are concurrently in use for a long time. DC+5V power supply CANNOT be used together with the AC power supply.


Remote Control
Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
(5VDC)
GND<->COM
(5VDC)
V+ <-> +5V
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
ON
DIP Switch
IOB-0805
Power Supply
AC 110/220V
DC 5~24V
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC
Power Supply
12/24VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

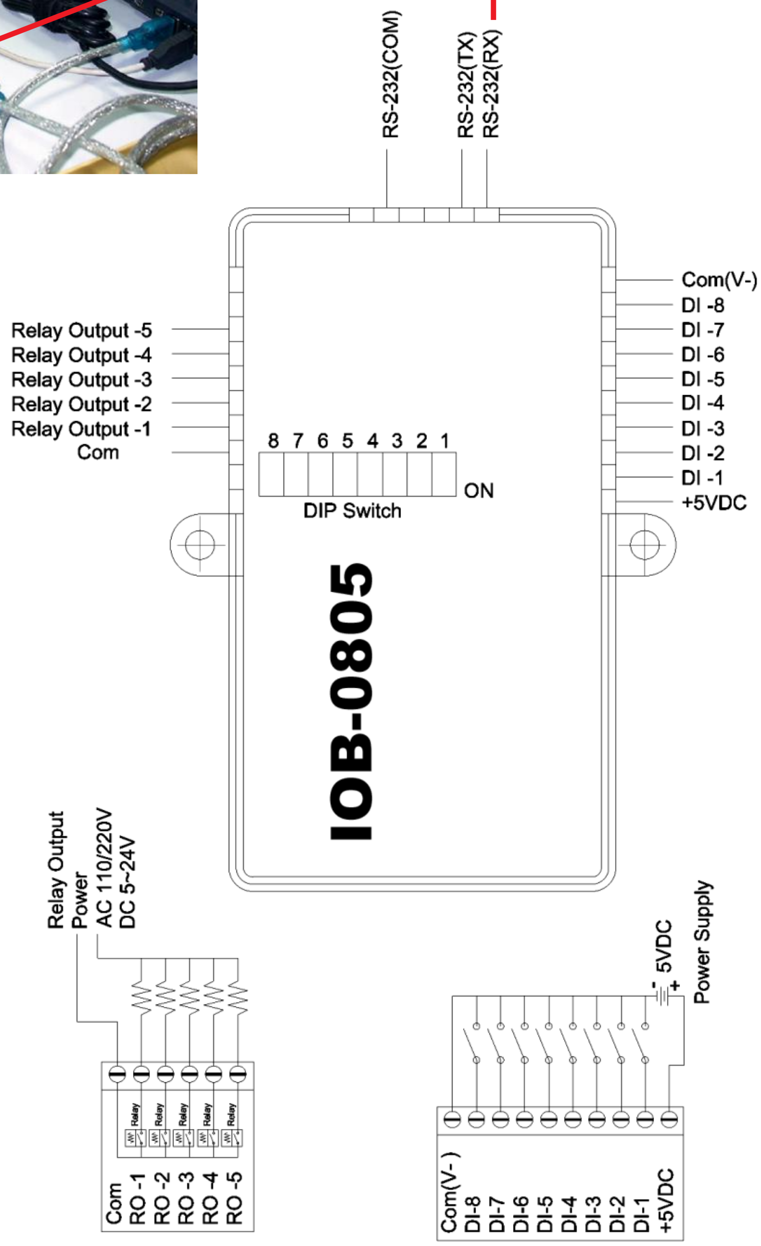
## DVR Using RS232 Com Port


Connect to RS232 Port
(DVR using COM Port)
RS-232(COM)
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
8 7 6 5 4 3 2 1
ON
DIP Switch
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
IOB-0805
Relay Output
Power
AC 110/220V
DC 5~24V
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
- 5VDC
+
Power Supply
Com(V- )
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

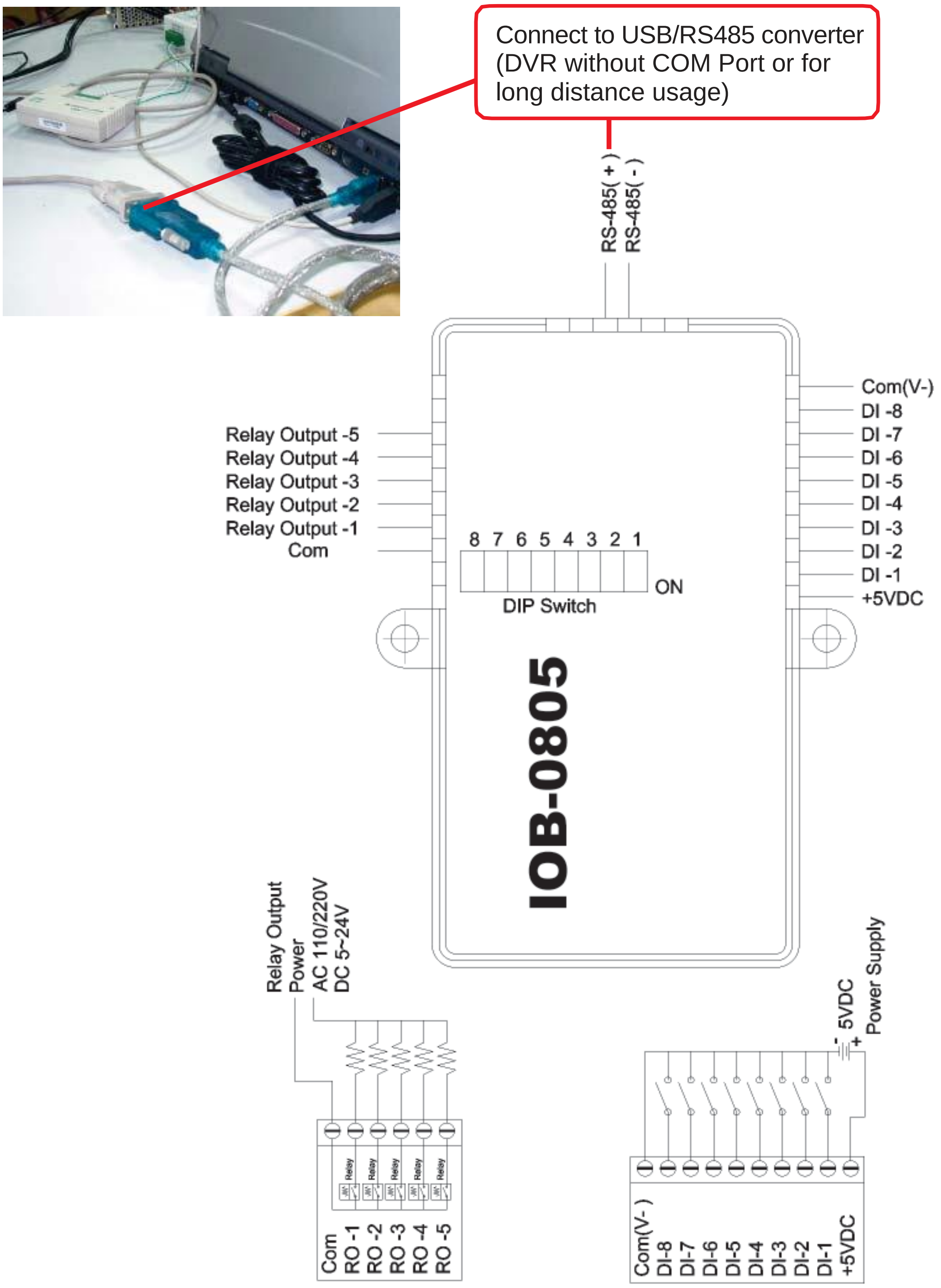
## DVR Using USB to Connect to RS232 Com Port



Connect to USB/RS232 converter (DVR without


RS-232(COM)
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
8 7 6 5 4 3 2 1
ON
DIP Switch
IOB-0805
Relay Output Power
AC 110/220V
DC 5~24V
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Power Supply
Com(V- )
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

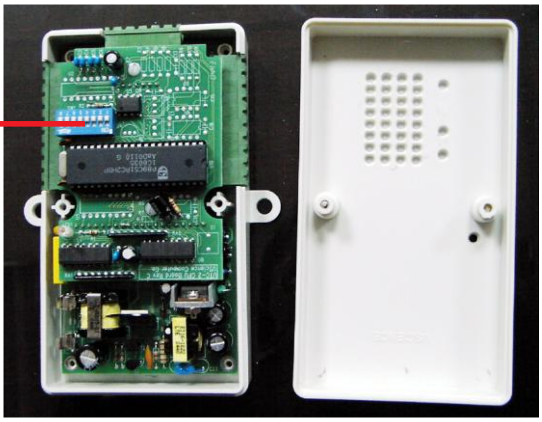
## DVR Using USB to Connect to RS485 Com Port



Connect to USB/RS485 converter (DVR without COM Port or for long distance usage)

RS-485( + )
RS-485( - )
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
8 7 6 5 4 3 2 1
ON
DIP Switch
IOB-0805
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
Relay Output Power
AC 110/220V
DC 5~24V
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
-
+
5VDC
Power Supply
Com(V- )
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

## RS232/RS485 Communication Port and IP (DIP Switch) Settings



RS232/RS485 Communication Port, and DIP Switch

- DIP Switch Default: RS232, ID=1
- DIP Switch Setting: The DIP Switch is “OFF” by default which locates at the ID display side. Shift to the other side to turn the DIP Switch “ON.”

Options for Communication Ports:

| DIP Switch<br>Comm. Port | NO. 1 | NO. 2 |
|---|---|---|
| RS-232 | OFF | ON |
| OFF | ON | OFF |

Notes:

NO.1 and NO.2 cannot be turned on at the same time; i.e. RS-232 and RS-485 cannot be used concurrently.

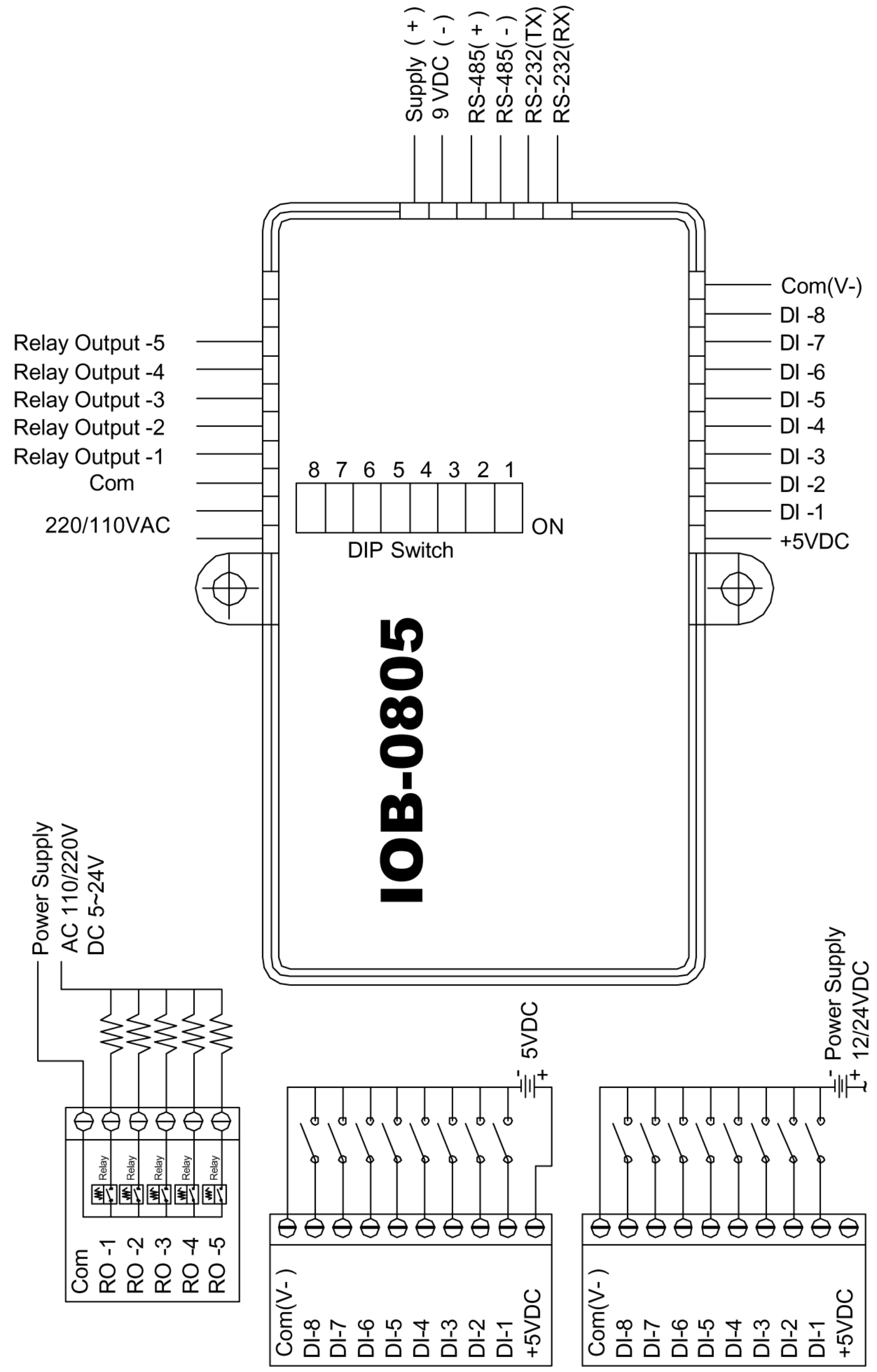
1. NO.3 ~ NO.8 are node ID (a binary system)
2. If NO.3 is ON and others are OFF, it means 01.
3. If NO.4 is ON and others are OFF, it means 02.
4. If NO.5 is ON and others are OFF, it means 04.
5. If NO.6 is ON and others are OFF, it means 08.
6. If NO.7 is ON and others are OFF, it means 16.
7. If NO.8 is ON and others are OFF, it means 32.

Example:

- If node ID is 1, the DIP Switch setting should be NO.3 is ON and others are OFF.
- If node ID is 3, the DIP Switch setting should be NO.3 and NO.4 are ON, and others are OFF.

- If node ID is 5, the DIP Switch setting should be NO.3 and NO.5 are ON, and NO.4 and others are OFF.
- If node ID is 7, the DIP Switch setting should be NO.3~NO.5 are ON, and NO.6 ~ NO.8 are OFF.
- The Node ID is the sum of DIP Switch NO.3 to NO.8.

## Input/Output Pin



Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
ON
DIP Switch
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
IOB-0805
Power Supply
AC 110/220V
DC 5~24V
Relay
Relay
Relay
Relay
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
- +
Com(V- )
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC
Power Supply
12/24VDC
- +
Com(V- )
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

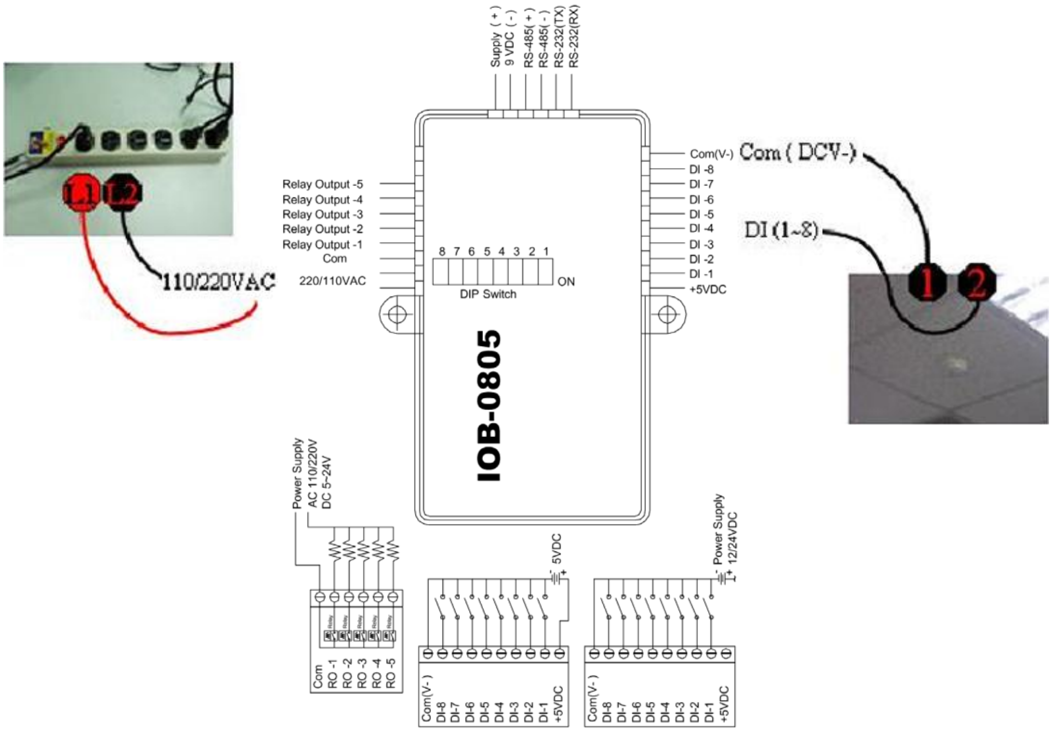
## DI Input Control

1. Connect the COM port to –VDC. The COM port cannot be connected to +VDC. The acceptable voltage is DC5V~DC24V.
2. 8 DI controls share the same power supply which accepts different levels of voltage starting from DC5V to DC24V.
3. IOB-0805 provides 5VDC for DI input control when the power supply is 110/220 VAC. No extra DC power supply is necessary.
4. When 5 relay output controls are in long-term use, an extra 5VDC power supply is necessary
5. Please DO NOT turn on the AC power supply while the DC +5V is in use.

## Application Example: Alarm Detection (Contact Input)

IOB-0805 provides 5VDC for DI input control when the power supply is 110/220 VAC. No extra DC power supply is necessary.

IOB-0805 DI Wiring Example A: Fire Alarm Detection (Contact Input) Using AC Power Supply

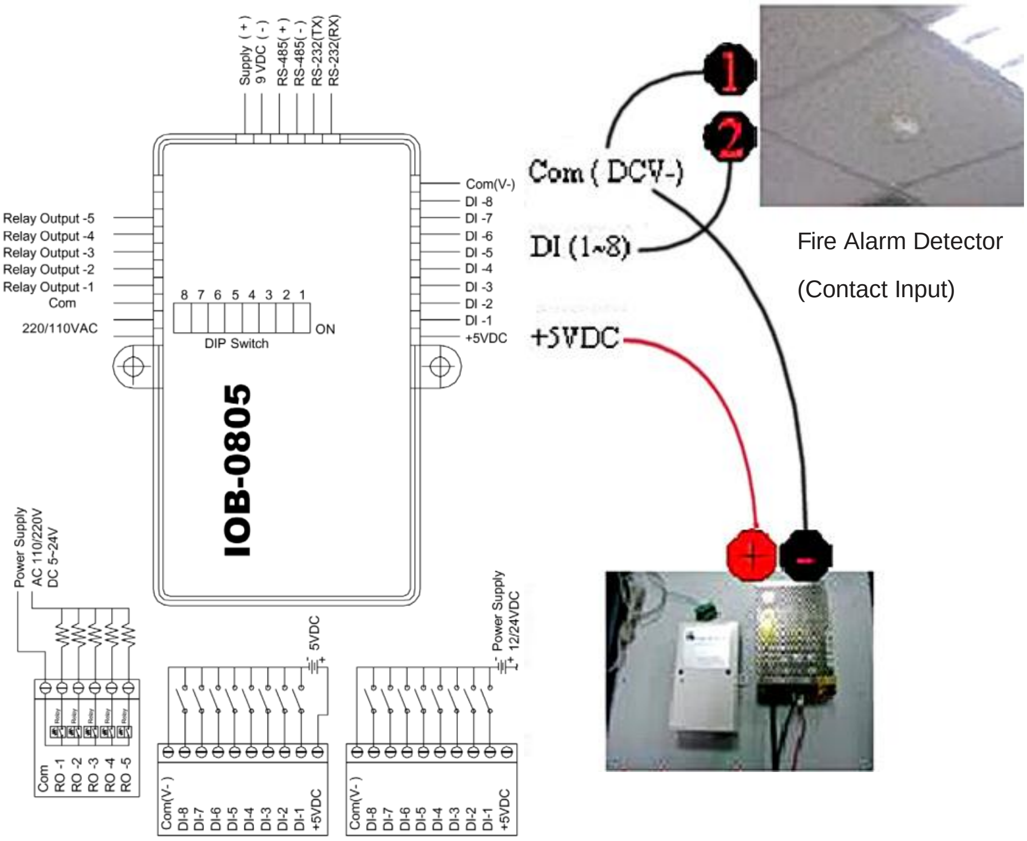


Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
L1
L2
110/220VAC
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
ON
DIP Switch
IOB-0805
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
Com ( DCV-)
DI (1~8)
1
2
Power Supply
AC 110/220V
DC 5~24V
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Power Supply
12/24VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

## Application Example: Alarm Detection (Contact Input)

When 5 relay output controls are in long-term use, an extra 5VDC power supply is necessary.

IOB-0805 DI Wiring Example B: Fire Alarm Detection (Contact Input) Using DC Power Supply.


Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
ON
DIP Switch
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
IOB-0805
Power Supply
AC 110/220V
DC 5~24V
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC
Power Supply
12/24VDC
1
2
Com ( DCV-)
DI (1~8)
+5VDC
+
-

Fire Alarm Detector

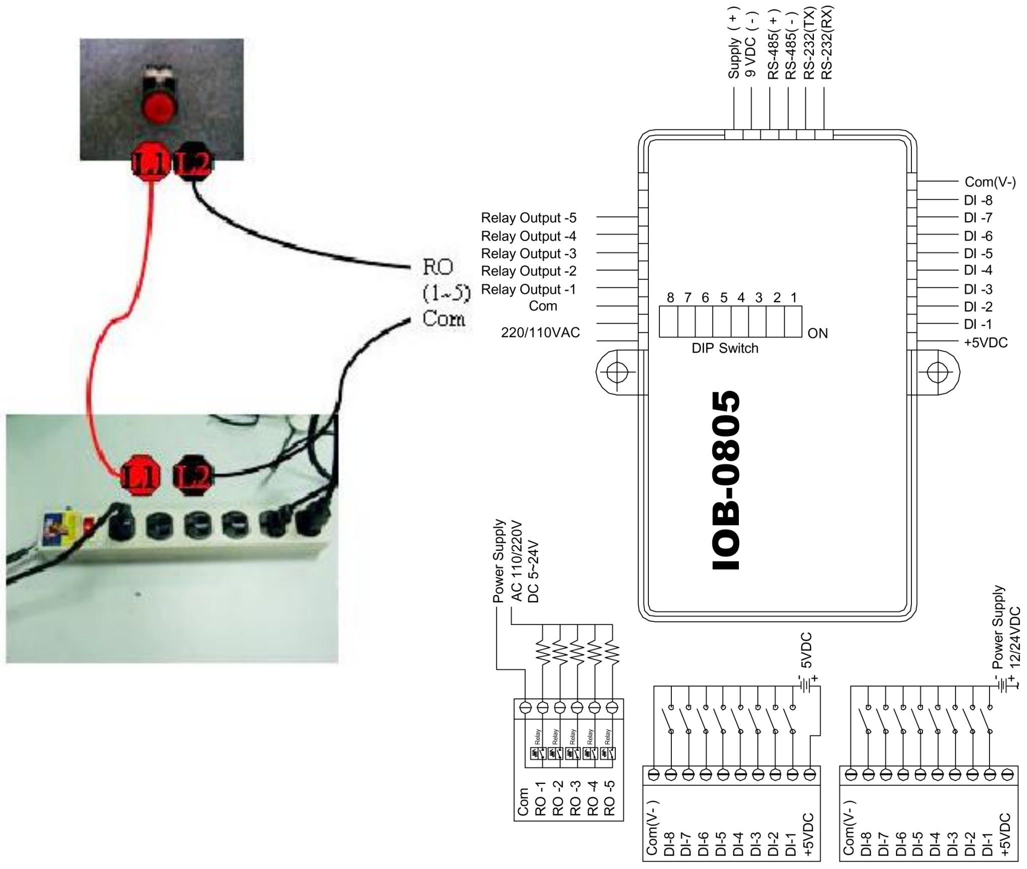
(Contact Input)

## RO (5A Relay Dry Contact) Output Control

5 RO controls share the same power supply, and accept different levels of voltage. All the power supplies must be the same type, i.e. AC or DC.

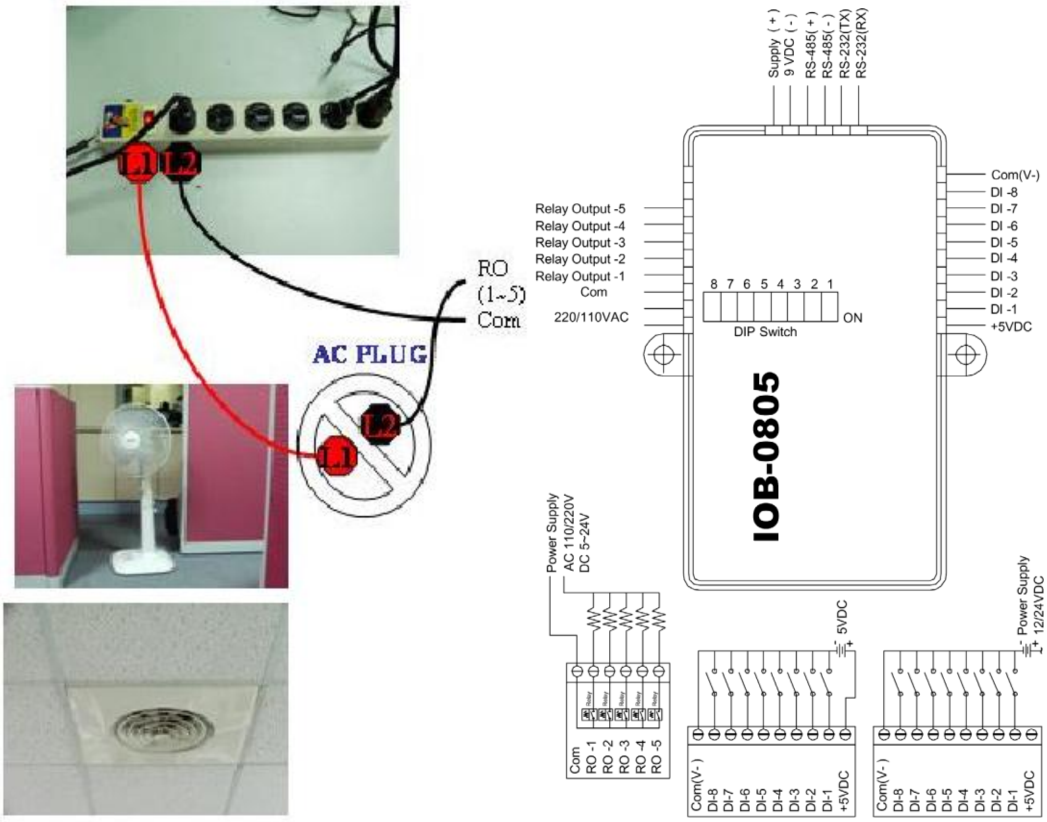
Application Example: Alarm Indicator (AC)

IOB-0805 RO Wiring Example A: Alarm Indicator (AC)


L1
L2
RO
(1~5)
Com
L1
L2
Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
ON
DIP Switch
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
IOB-0805
Power Supply
AC 110/220V
DC 5~24V
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC
Power Supply
12/24VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

## Application Example: Small Fan or TV Set (under 5A)

IOB-0805 RO Wiring Example B: Small Fan or TV Set (under 5A)

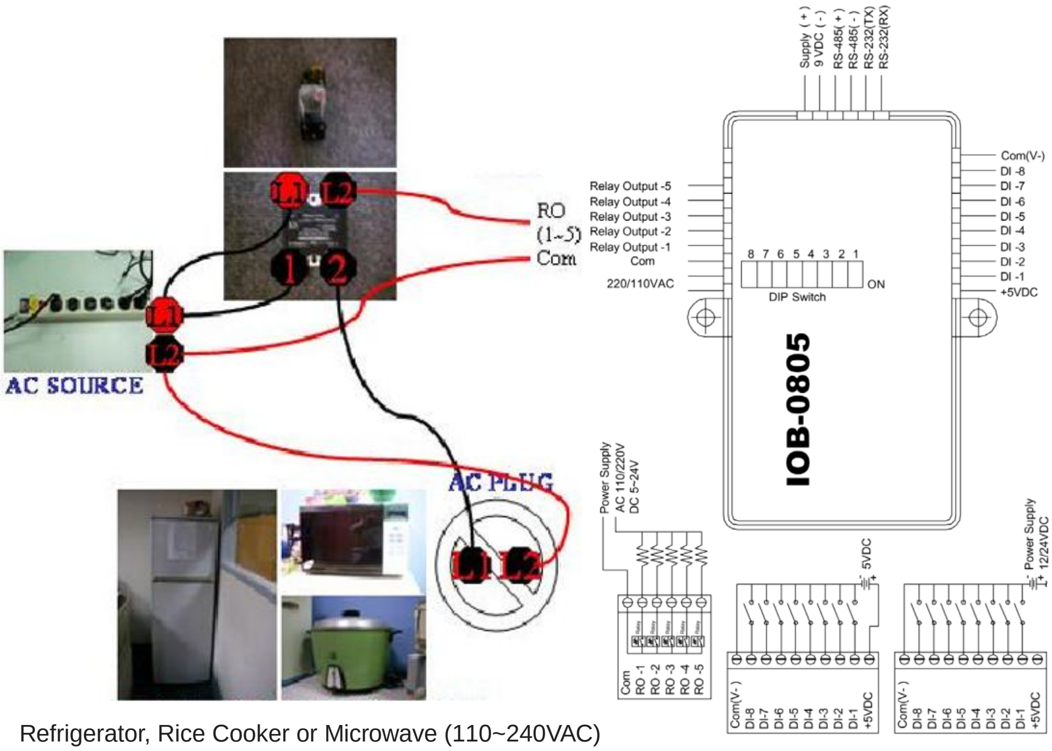

L1
L2
RO
(1~5)
Com
AC PLUG
L2
L1
Supply (+)
9 VDC (-)
RS-485(+)
RS-485(-)
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
ON
DIP Switch
IOB-0805
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
Power Supply
AC 110/220V
DC 5~24V
5VDC
Power Supply
12/24VDC
Com
RO -1
RO -2
RO -3
RO -4
RO -5
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

## Application Example: Refrigerator, Rice Cooker or Microwave (70~240VAC)

Note: Please use the relay, SSR or AC power supply with enough contact ratings to avoid danger.
The AC wire should be 3.5 mm when the power consumption is above 15A.

1. For the appliances whose power consumption is under 15A, such as refrigerators, rice cookers, microwaves, washers, small coolers and heaters, the AC wire needs to be 2.0 mm.
2. As for the large-sized appliances, like air conditioners and heaters, etc. whose power consumption is above 15A, the AC wire must be at least 3.5 mm or above.

IOB-0805 RO Wiring Example C: 15A/240V AC SSR or Relay (AC Control)


L1
L2
1
2
RO
(1~5)
Com
L1
L2
AC SOURCE
AC PLUG
L1
L2
Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
DIP Switch
ON
IOB-0805
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
Power Supply
AC 110/220V
DC 5~24V
Relay
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Power Supply
12/24VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

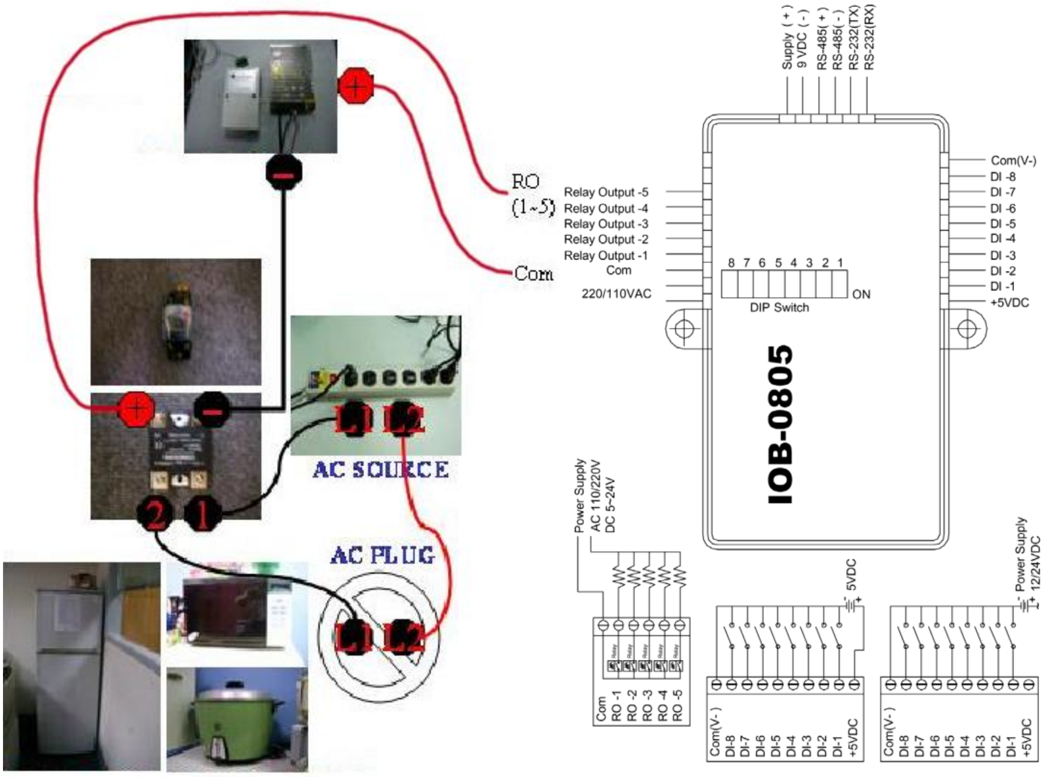
Refrigerator, Rice Cooker or Microwave (110~240VAC)

## Application Example: Refrigerator, Rice Cooker or Microwave (70~240VAC)

Note: Please use the relay, SSR or AC power supply with enough contact ratings to avoid danger.
The AC wire should be 3.5 mm when the power consumption is above 15A.

1. For the appliances whose power consumption is under 15A, such as refrigerators, rice cookers, microwaves, washers, small coolers and heaters, the AC wire needs to be 2.0 mm.
2. As for the large-sized appliances, like air conditioners and heaters, etc. whose power consumption is above 15A, the AC wire must be at least 3.5 mm or above.

IOB-0805 RO Wiring Example D: 15A/240V AC SSR or Relay (DC Control)

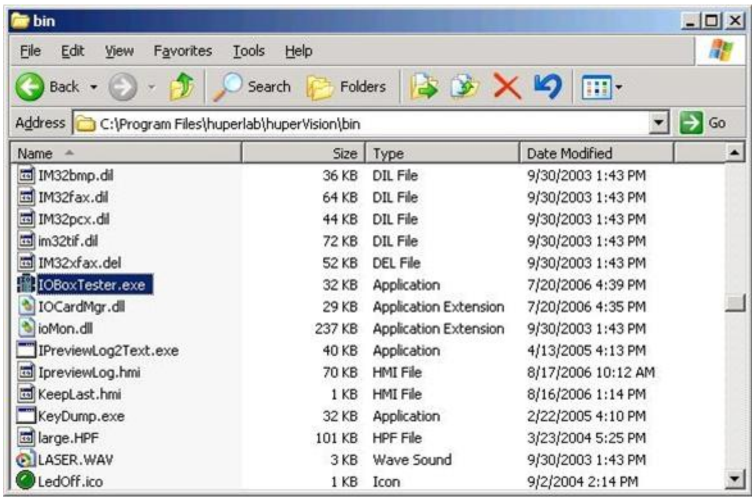

RO
(1~5)
Com
AC SOURCE
AC PLUG
L1
L2
2
1
Supply ( + )
9 VDC ( - )
RS-485( + )
RS-485( - )
RS-232(TX)
RS-232(RX)
Relay Output -5
Relay Output -4
Relay Output -3
Relay Output -2
Relay Output -1
Com
220/110VAC
8 7 6 5 4 3 2 1
ON
DIP Switch
IOB-0805
Com(V-)
DI -8
DI -7
DI -6
DI -5
DI -4
DI -3
DI -2
DI -1
+5VDC
Power Supply
AC 110/220V
DC 5~24V
Com
RO -1
RO -2
RO -3
RO -4
RO -5
5VDC
Power Supply
12/24VDC
Com(V-)
DI-8
DI-7
DI-6
DI-5
DI-4
DI-3
DI-2
DI-1
+5VDC

Refrigerator, Rice Cooker or Microwave (110~240VAC)

## Settings at huperVision

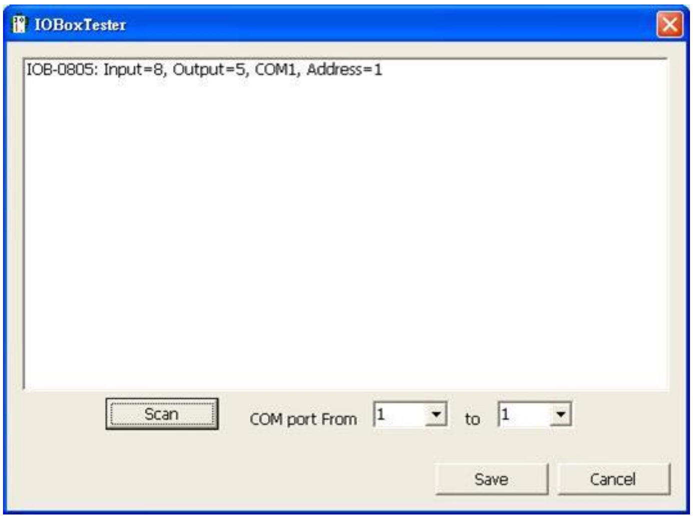
After installing the IOB-0805 I/O box, follow the steps below.

1. Please find the bin folder in the directory C:\Program Files\huperLab \huperVision\bin. (Close the DVR server).
2. Open the bin folder, then find the IOBoxTester.exe file. (See below).


bin
File Edit View Favorites Tools Help
Back Search Folders
Address C:\Program Files\huperlab\huperVision\bin Go

| Name | Size | Type | Date Modified |
|---|---|---|---|
| IM32bmp.dil | 36 KB | DIL File | 9/30/2003 1:43 PM |
| IM32fax.dil | 64 KB | DIL File | 9/30/2003 1:43 PM |
| IM32pcx.dil | 44 KB | DIL File | 9/30/2003 1:43 PM |
| im32tif.dil | 72 KB | DIL File | 9/30/2003 1:43 PM |
| IM32xfax.del | 52 KB | DEL File | 9/30/2003 1:43 PM |
| IOBoxTester.exe | 32 KB | Application | 7/20/2006 4:39 PM |
| IOCardMgr.dll | 29 KB | Application Extension | 7/20/2006 4:35 PM |
| ioMon.dll | 237 KB | Application Extension | 9/30/2003 1:43 PM |
| IPreviewLog2Text.exe | 40 KB | Application | 4/13/2005 4:13 PM |
| IpreviewLog.hmi | 70 KB | HMI File | 8/17/2006 10:12 AM |
| KeepLast.hmi | 1 KB | HMI File | 8/16/2006 1:14 PM |
| KeyDump.exe | 32 KB | Application | 2/22/2005 4:10 PM |
| large.HPF | 101 KB | HPF File | 3/23/2004 5:25 PM |
| LASER.WAV | 3 KB | Wave Sound | 9/30/2003 1:43 PM |
| LedOff.ico | 1 KB | Icon | 9/2/2004 2:14 PM |

3. Double-click to run IOBoxTester.exe, then click the Scan button (see below).


IOBoxTester
Scan
COM port From
1
to
1
Save
Cancel

```
IOB-0805: Input=8, Output=5, COM1, Address=1
```

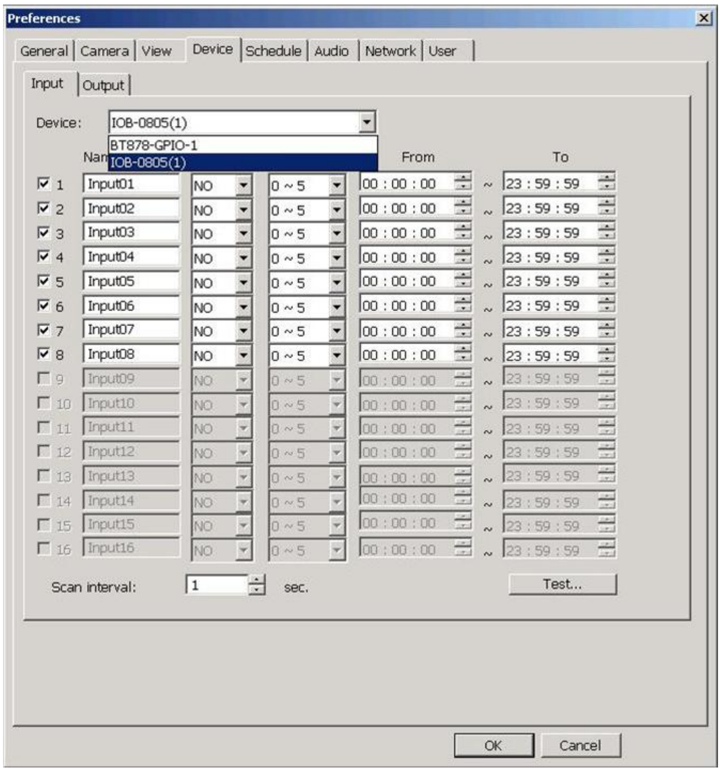
4. After the scan is completed, click the Save button.
5. After you restart the DVR site server. IO Box will be detected by the DVR in the Device tab of the Preferences dialog box.

## Input Settings

Step 1: Open the Preferences dialog box, click the Device/Input tab.

Step 2: Select the item "IOB-0805(1)" from the Device drop-down list.

Step 3: 8 input ports are then displayed, and their assigned numbers start from 1 to 8.


Preferences
General
Camera
View
Device
Schedule
Audio
Network
User
Input
Output
BT878-GPIO-1
IOB-0805(1)
Test...
OK
Cancel

Device: IOB-0805(1)

| | Nam | | | From | | To |
|---|---|---|---|---|---|---|
| ☑ 1 | Input01 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 2 | Input02 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 3 | Input03 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 4 | Input04 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 5 | Input05 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 6 | Input06 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 7 | Input07 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 8 | Input08 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 9 | Input09 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 10 | Input10 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 11 | Input11 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 12 | Input12 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 13 | Input13 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 14 | Input14 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 15 | Input15 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☐ 16 | Input16 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |

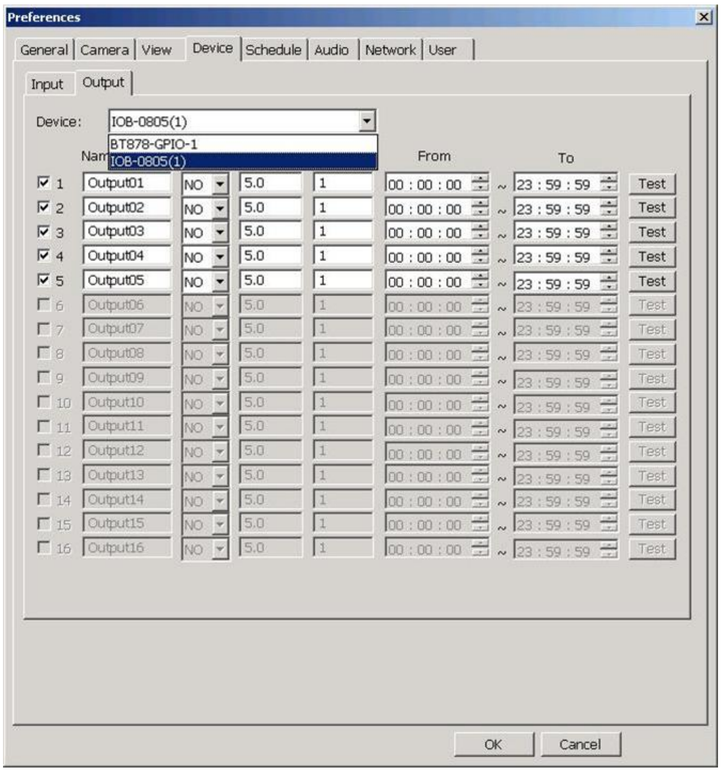
Scan interval: 1 sec.

## Output Settings

Step 1: Open the Preferences dialog box, click the Device/Output tab.

Step 2: Select the item "IOB-0805(1)" from the Device drop-down list.

Step 3: 5 output ports are then displayed, and their assigned numbers start from 1 to 5.



Device: IOB-0805(1)

BT878-GPIO-1
IOB-0805(1)

| | Nam | | | | From | | To | |
|---|---|---|---|---|---|---|---|---|
| ☑ 1 | Output01 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 2 | Output02 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 3 | Output03 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 4 | Output04 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 5 | Output05 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 6 | Output06 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 7 | Output07 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 8 | Output08 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 9 | Output09 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 10 | Output10 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 11 | Output11 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 12 | Output12 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 13 | Output13 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 14 | Output14 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 15 | Output15 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☐ 16 | Output16 | NO | 5.0 | 1 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |

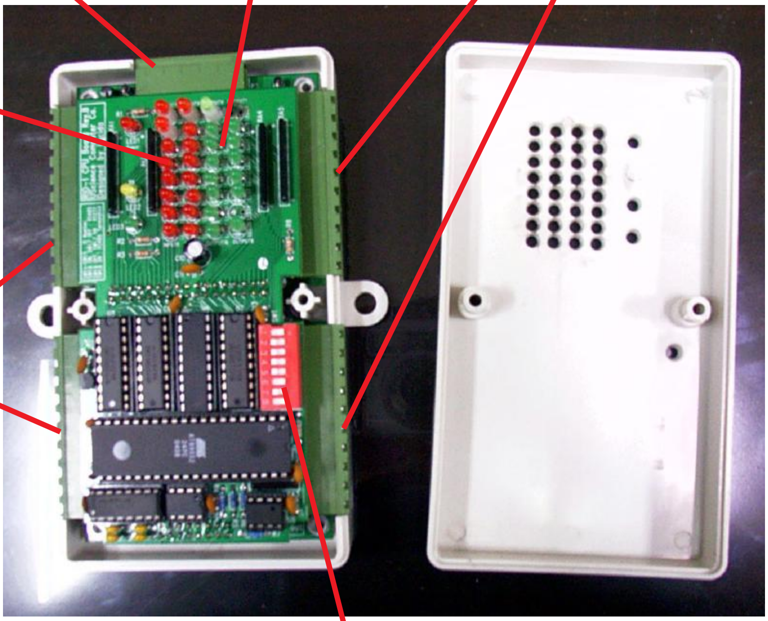
# IOB-1616 BOX Guide

**CE** Approved

## Technical Specifications

| | |
|---|---|
| Digital Contact Input Isolation | 16 |
| 5000Vrms Digital Level 0 | Open |
| Digital Level 1 | Close |
| Open Collector Output | 16 |
| Isolation | 5000 Vrms |
| Load Voltage | 5/12/24 VDC |
| Max Load Current | 500 ma ( 2A Per Common Group ) Power |
| Consumption | 5W |
| Communication port | RS232 / RS485 （Protocol : Huper RTU ASCII）<br>RS232 : 1200 – 115,200 bps；<br>RS485 : 1200 – 921.6K bps |
| Communication distance | RS232： 50 feet<br>RS485： 4000 feet |
| Input Power Supply | 12 VDC（9 ~ 12V)，5 W |
| Dimension | 150 x 100 x 40 mm |
| Weight | 360 g |
| Approved Standards | CE |

## Introduction



Power, RS232¡BRS485 Connecting Terminal

DC Power Supply, Output Signal (Total 16 Green indicators)

DC Power, and Output Terminals (total 16 Terminals)

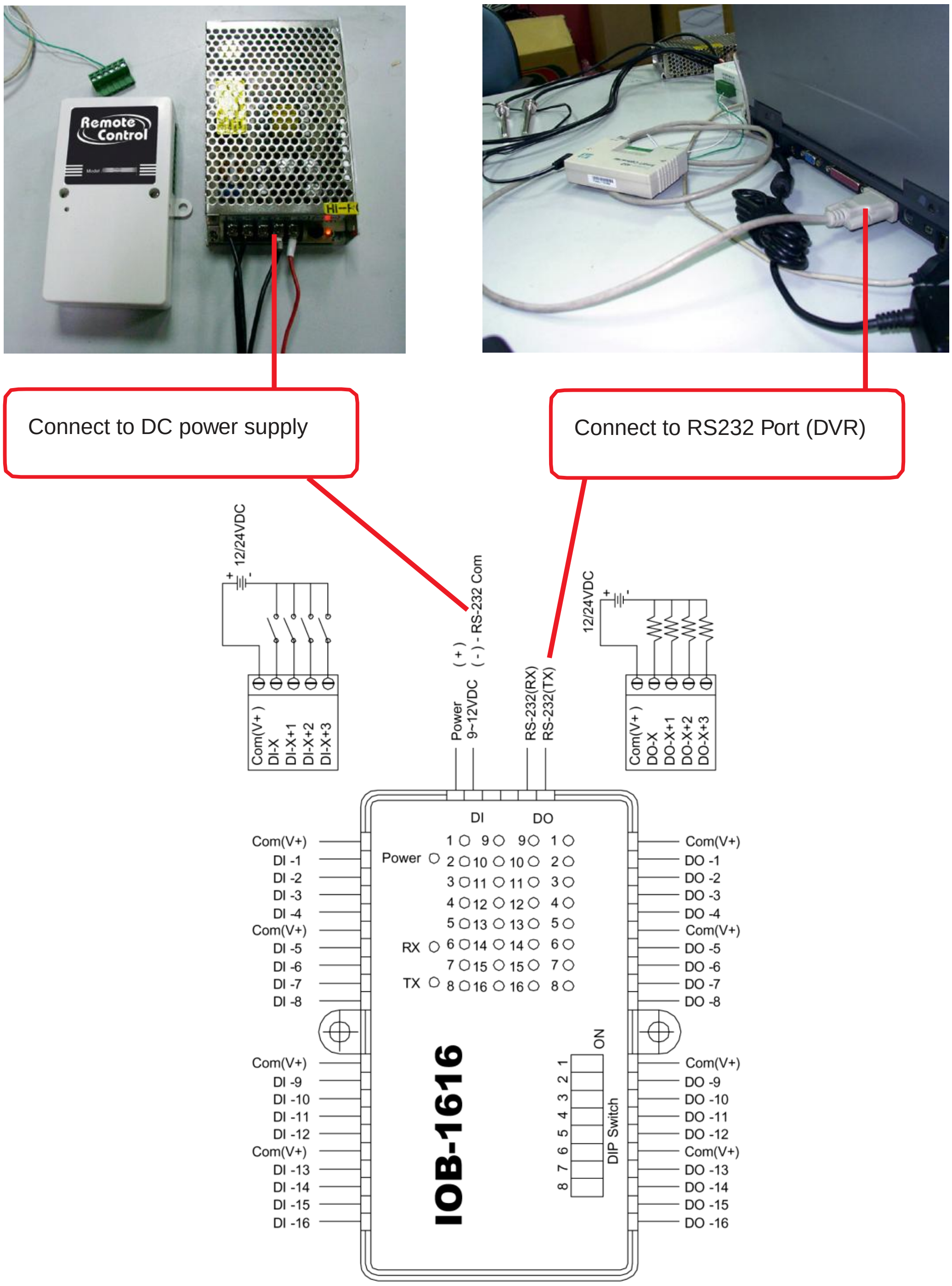
DC Power, and Dry Contact Input Signal (total 16 Red Indicators)

DC 5V Power, and Dry Contact Terminals (Total 16 terminals)

RS232/RS485 Communication Port, and Communication IP (DIP Switch)

## Installation

DVR Using RS232 Com Port

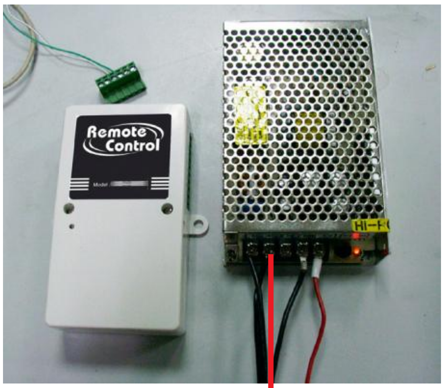


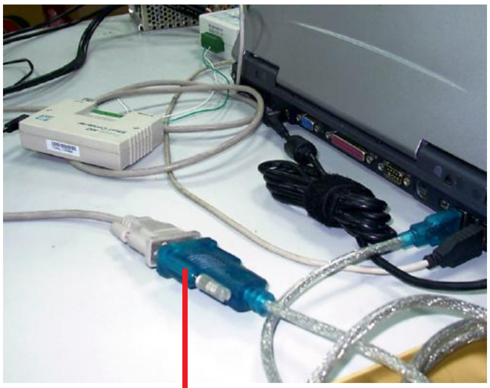
Connect to DC power supply

Connect to RS232 Port (DVR)

Remote Control
12/24VDC
Com(V+)
DI-X
DI-X+1
DI-X+2
DI-X+3
Power 9~12VDC
( + )
( - ) - RS-232 Com
RS-232(RX)
RS-232(TX)
12/24VDC
Com(V+)
DO-X
DO-X+1
DO-X+2
DO-X+3
DI
DO
Power
RX
TX
IOB-1616
ON
DIP Switch
1 2 3 4 5 6 7 8
Com(V+)
DI -1
DI -2
DI -3
DI -4
Com(V+)
DI -5
DI -6
DI -7
DI -8
Com(V+)
DI -9
DI -10
DI -11
DI -12
Com(V+)
DI -13
DI -14
DI -15
DI -16
Com(V+)
DO -1
DO -2
DO -3
DO -4
Com(V+)
DO -5
DO -6
DO -7
DO -8
Com(V+)
DO -9
DO -10
DO -11
DO -12
Com(V+)
DO -13
DO -14
DO -15
DO -16

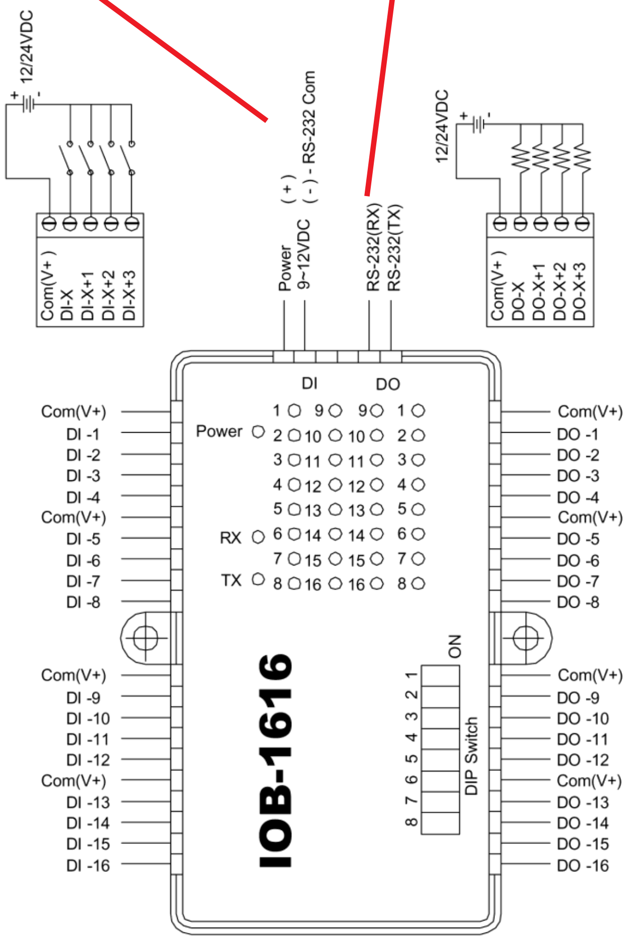
## DVR Using USB to Connect to RS232 Com Port


Remote Control

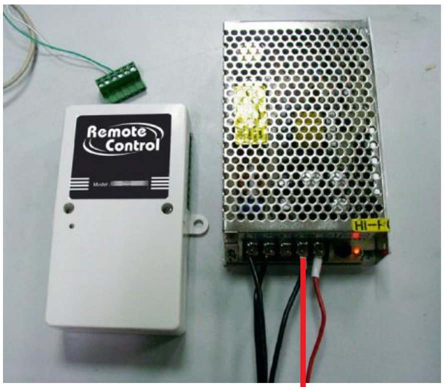


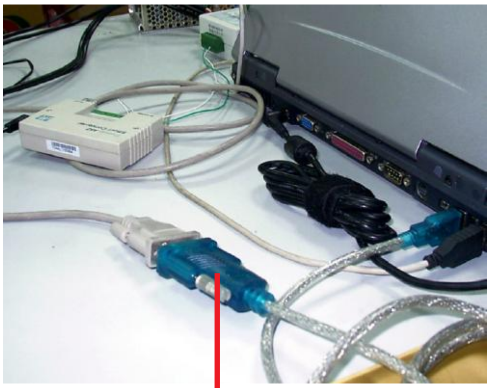
Connect to DC power supply (Power consumption: 12VDC)

Connect to USB/RS232 converter (DVR without COM Port)


12/24VDC
+
-
Com(V+ )
DI-X
DI-X+1
DI-X+2
DI-X+3
Power
9~12VDC
( + )
( - ) - RS-232 Com
RS-232(RX)
RS-232(TX)
12/24VDC
Com(V+ )
DO-X
DO-X+1
DO-X+2
DO-X+3
DI
DO
Power
RX
TX
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
Com(V+)
DI -1
DI -2
DI -3
DI -4
Com(V+)
DI -5
DI -6
DI -7
DI -8
Com(V+)
DI -9
DI -10
DI -11
DI -12
Com(V+)
DI -13
DI -14
DI -15
DI -16
Com(V+)
DO -1
DO -2
DO -3
DO -4
Com(V+)
DO -5
DO -6
DO -7
DO -8
Com(V+)
DO -9
DO -10
DO -11
DO -12
Com(V+)
DO -13
DO -14
DO -15
DO -16
IOB-1616
ON
DIP Switch

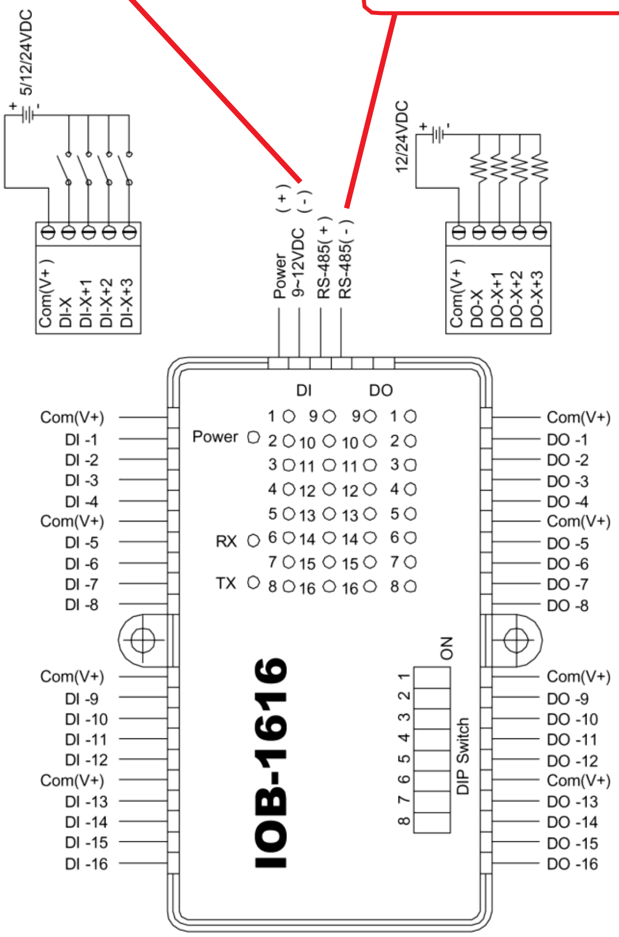
DVR Using USB to Connect to RS485 Com Port


Remote Control
HI-P

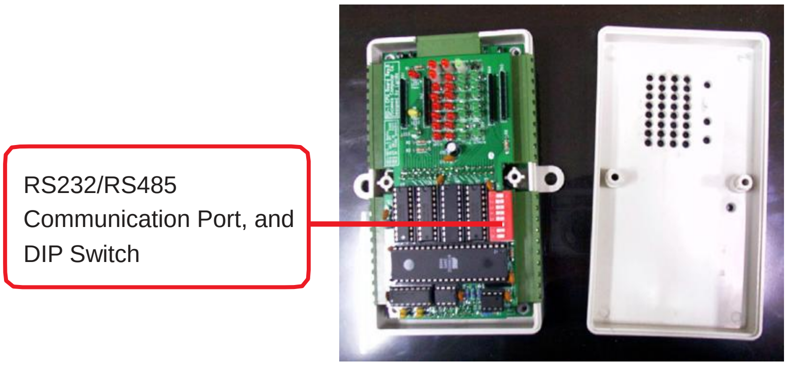


Connect to DC power supply
(Power consumption: 12VDC)

Connect to USB/RS485 converter
(DVR without COM Port or for long
distance usage)


5/12/24VDC
+
-
Com(V+)
DI-X
DI-X+1
DI-X+2
DI-X+3
( + )
( - )
Power
9~12VDC
RS-485( + )
RS-485( - )
12/24VDC
+
-
Com(V+)
DO-X
DO-X+1
DO-X+2
DO-X+3
DI
DO
Power
RX
TX
1 ○ 9 ○ 9 ○ 1 ○
2 ○ 10 ○ 10 ○ 2 ○
3 ○ 11 ○ 11 ○ 3 ○
4 ○ 12 ○ 12 ○ 4 ○
5 ○ 13 ○ 13 ○ 5 ○
6 ○ 14 ○ 14 ○ 6 ○
7 ○ 15 ○ 15 ○ 7 ○
8 ○ 16 ○ 16 ○ 8 ○
IOB-1616
ON
1 2 3 4 5 6 7 8
DIP Switch
Com(V+)
DI -1
DI -2
DI -3
DI -4
Com(V+)
DI -5
DI -6
DI -7
DI -8
Com(V+)
DI -9
DI -10
DI -11
DI -12
Com(V+)
DI -13
DI -14
DI -15
DI -16
Com(V+)
DO -1
DO -2
DO -3
DO -4
Com(V+)
DO -5
DO -6
DO -7
DO -8
Com(V+)
DO -9
DO -10
DO -11
DO -12
Com(V+)
DO -13
DO -14
DO -15
DO -16

## RS232/RS485 Communication Port and IP (DIP Switch) Settings



- DIP Switch Default: RS232, ID=1
- DIP Switch Setting: The DIP Switch is "OFF" by default which locates at the ID display side. Shift to the other side to turn the DIP Switch "ON."

Options for Communication Ports:

| DIP Switch / Comm. Port | NO. 6 | NO. 7 | NO. 8 |
|---|---|---|---|
| RS-232 | OFF | ON | OFF |
| RS-485 | ON | OFF | ON |

Notes:

NO.6, NO.7 and NO.8 cannot be turned on at the same time; i.e. RS-232 and RS-485 cannot be used concurrently.

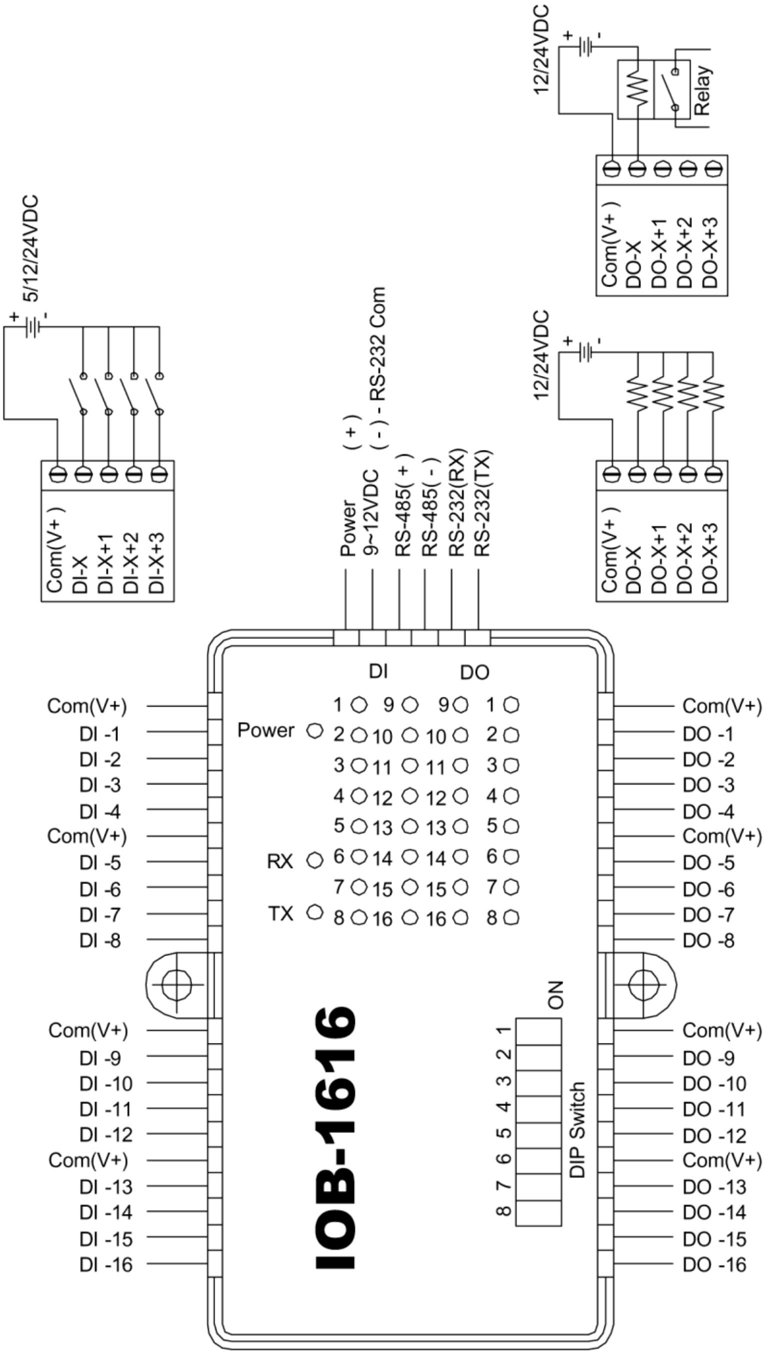
1. NO.1 ~ NO.5 are node ID (a binary system)
2. If NO.1 is ON and others are OFF, it means 01.
3. If NO.2 is ON and others are OFF, it means 02.
4. If NO.3 is ON and others are OFF, it means 04.
5. If NO.4 is ON and others are OFF, it means 08.
6. If NO.5 is ON and others are OFF, it means 16.

Example:

- If node ID is 1, the DIP Switch setting should be NO.1 is ON and others are OFF.
- If node ID is 3, the DIP Switch setting should be NO.1 and NO.2 are ON, and others are OFF.
- If node ID is 5, the DIP Switch setting should be NO.1 and NO.3 are ON, NO.2, NO.4 and NO.5 are OFF.

- If node ID is 7, the DIP Switch setting should be NO.1, NO.2 and NO.3 are ON, NO.4 and NO.5 are OFF.
- The Node ID is the sum of DIP Switch NO.1 to NO.5.

## Input/Output Pin



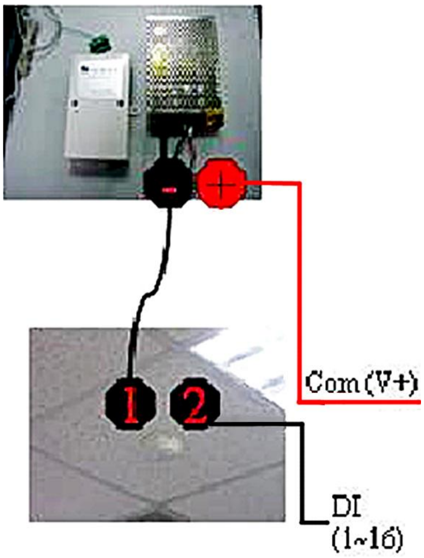
5/12/24VDC
Com(V+)
DI-X
DI-X+1
DI-X+2
DI-X+3
12/24VDC
Relay
Com(V+)
DO-X
DO-X+1
DO-X+2
DO-X+3
Power
9~12VDC
( + )
( - ) - RS-232 Com
RS-485( + )
RS-485( - )
RS-232(RX)
RS-232(TX)
DI
DO
Power
RX
TX
IOB-1616
ON
DIP Switch
Com(V+)
DI -1
DI -2
DI -3
DI -4
DI -5
DI -6
DI -7
DI -8
DI -9
DI -10
DI -11
DI -12
DI -13
DI -14
DI -15
DI -16
DO -1
DO -2
DO -3
DO -4
DO -5
DO -6
DO -7
DO -8
DO -9
DO -10
DO -11
DO -12
DO -13
DO -14
DO -15
DO -16

## DI Input Control

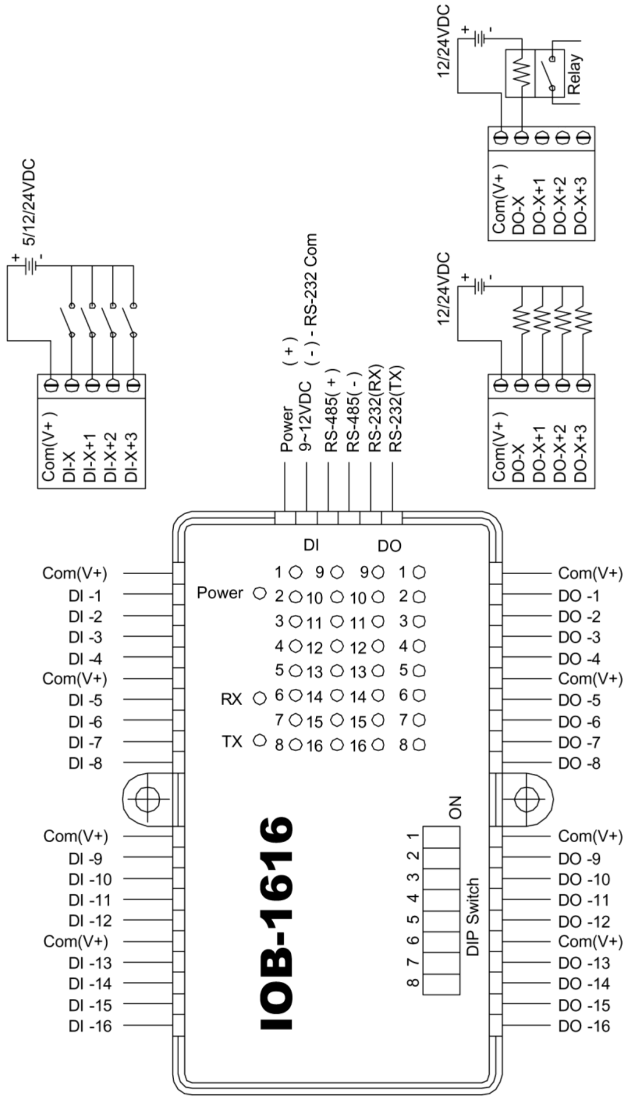
1. Connect the COM port to +VDC. It's not allowed to connect to –VDC. The acceptable voltage is DC5V~DC24V.
2. 4 DI controls share the same power supply which accepts different levels of voltage starting fromDC5V to DC24V

## Application Example: Alarm Detection (Contact Input)

IOB-1616 DI Wiring Example A: Fire Alarm Detection (Contact Input)


Com(V+)
1
2
DI
(1~16)

Fire Alarm Detector (Contact Input)

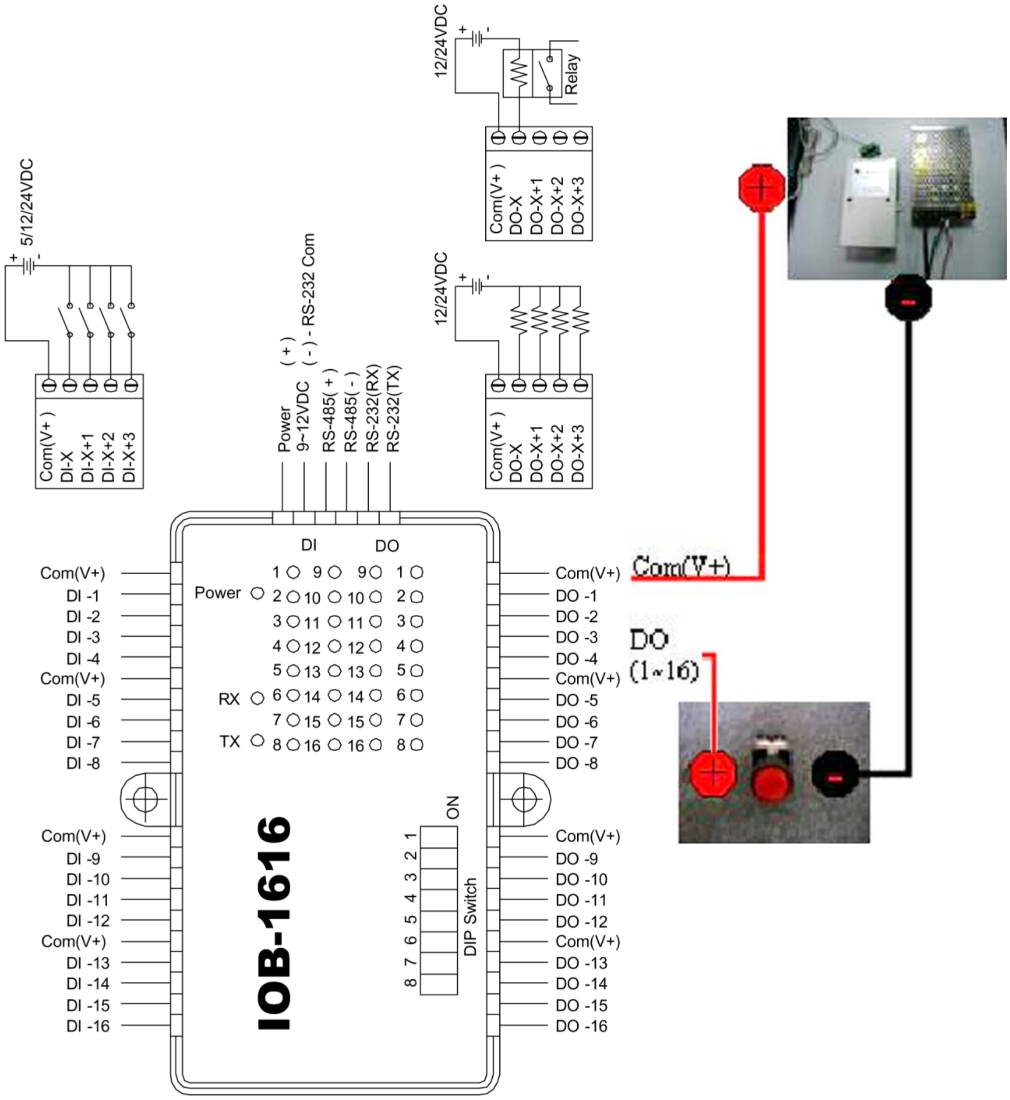

5/12/24VDC
+
-
Com(V+)
DI-X
DI-X+1
DI-X+2
DI-X+3
Power
9~12VDC
( + )
( - )
- RS-232 Com
RS-485( + )
RS-485( - )
RS-232(RX)
RS-232(TX)
12/24VDC
Relay
Com(V+)
DO-X
DO-X+1
DO-X+2
DO-X+3
DI
DO
Power
RX
TX
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
Com(V+)
DI -1
DI -2
DI -3
DI -4
Com(V+)
DI -5
DI -6
DI -7
DI -8
Com(V+)
DI -9
DI -10
DI -11
DI -12
Com(V+)
DI -13
DI -14
DI -15
DI -16
Com(V+)
DO -1
DO -2
DO -3
DO -4
Com(V+)
DO -5
DO -6
DO -7
DO -8
Com(V+)
DO -9
DO -10
DO -11
DO -12
Com(V+)
DO -13
DO -14
DO -15
DO -16
IOB-1616
ON
DIP Switch

## DO Output Control

1. Connect the COM port to +VDC. It’s not allowed to connect to –VDC. The acceptable voltage is DC5V~DC24V.
2. 4 DI controls share the same power supply which accepts different levels of voltage starting from DC5V to DC24V

## Application Example: Alarm Indicator (DC)

IOB-1616 DO Wiring Example A: Alarm Indicator (DC)


5/12/24VDC
+
-
Com(V+)
DI-X
DI-X+1
DI-X+2
DI-X+3
Power
9~12VDC
( + )
( - ) - RS-232 Com
RS-485( + )
RS-485( - )
RS-232(RX)
RS-232(TX)
12/24VDC
Relay
Com(V+)
DO-X
DO-X+1
DO-X+2
DO-X+3
12/24VDC
Com(V+)
DO-X
DO-X+1
DO-X+2
DO-X+3
DI
DO
Power
RX
TX
IOB-1616
ON
DIP Switch
Com(V+)
DI -1
DI -2
DI -3
DI -4
Com(V+)
DI -5
DI -6
DI -7
DI -8
Com(V+)
DI -9
DI -10
DI -11
DI -12
Com(V+)
DI -13
DI -14
DI -15
DI -16
Com(V+)
DO -1
DO -2
DO -3
DO -4
Com(V+)
DO -5
DO -6
DO -7
DO -8
Com(V+)
DO -9
DO -10
DO -11
DO -12
Com(V+)
DO -13
DO -14
DO -15
DO -16
Com(V+)
DO
(1~16)

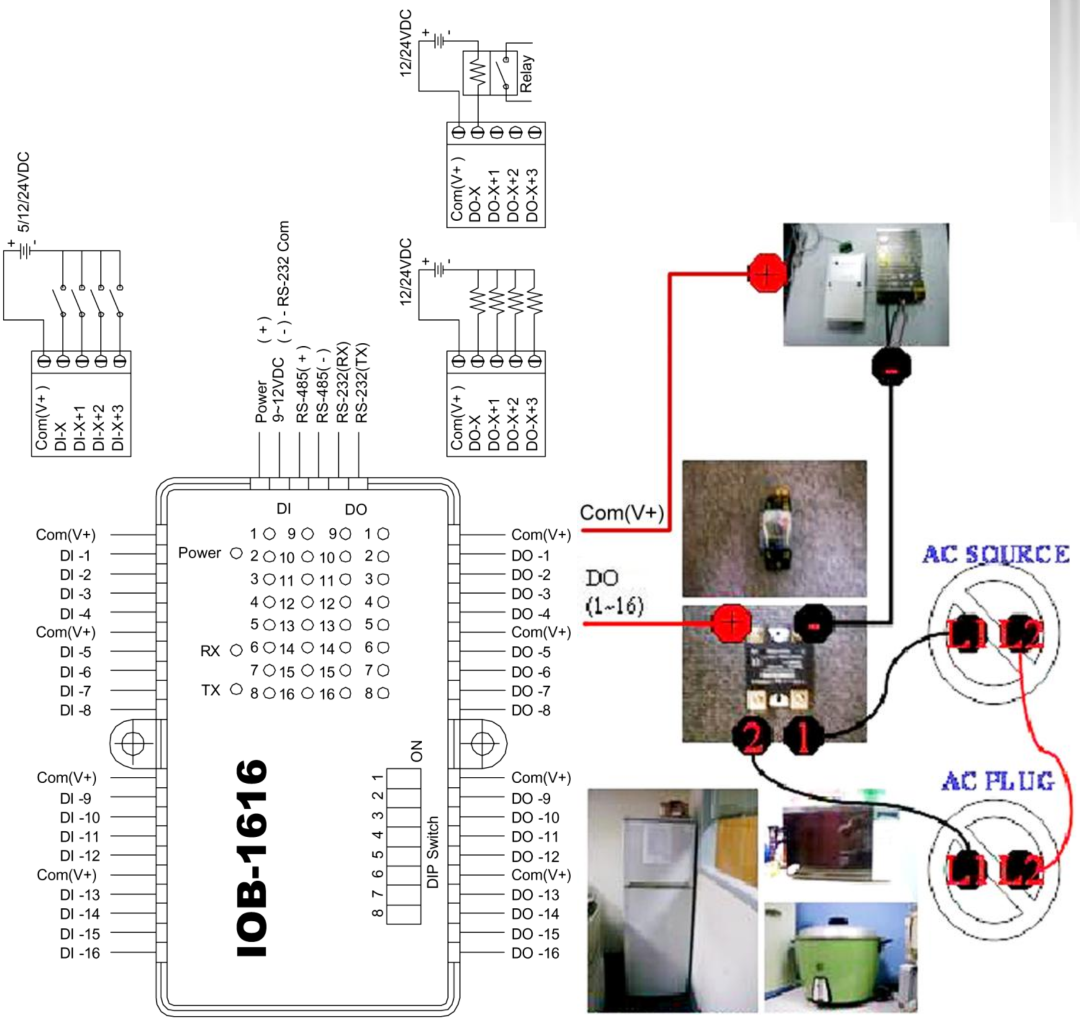
## Application Example: Refrigerator, Rice Cooker or Microwave (70~240VAC)

Notes:

Please use the relay, SSR or AC power supply with enough contact ratings to avoid danger. The AC wire should be 3.5 mm when the power consumption is above 15A.

1. For the appliances whose power consumption is under 15A, such as refrigerators, rice cookers, microwaves, washers, small coolers and heaters, the AC wire needs to be 2.0 mm.
2. As for the large-sized appliances, like air conditioners and heaters, etc. whose power consumption is above 15A, the AC wire must be at least 3.5 mm or above.

IOB-1616 DO Wiring Example B: 15A/240V AC SSR or Relay (DC Control)

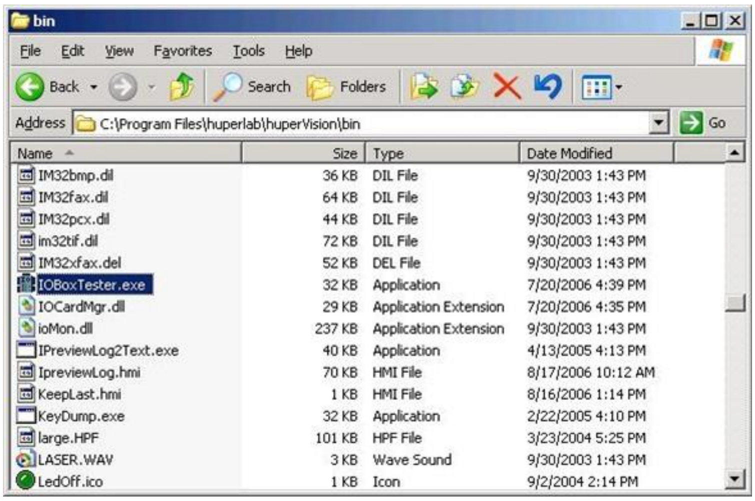

12/24VDC
Relay
Com(V+)
DO-X
DO-X+1
DO-X+2
DO-X+3
5/12/24VDC
DI-X
DI-X+1
DI-X+2
DI-X+3
Power
9~12VDC
( + )
( - ) - RS-232 Com
RS-485( + )
RS-485( - )
RS-232(RX)
RS-232(TX)
DI
DO
Power
RX
TX
DI -1
DI -2
DI -3
DI -4
DI -5
DI -6
DI -7
DI -8
DI -9
DI -10
DI -11
DI -12
DI -13
DI -14
DI -15
DI -16
DO -1
DO -2
DO -3
DO -4
DO -5
DO -6
DO -7
DO -8
DO -9
DO -10
DO -11
DO -12
DO -13
DO -14
DO -15
DO -16
IOB-1616
ON
DIP Switch
1 2 3 4 5 6 7 8
Com(V+)
DO
(1~16)
AC SOURCE
AC PLUG
L1
L2
2
1

Refrigerator, Rice Cooker or Microwave (110~240VAC)

## Settings at huperVision

After installing the IOB-1616 I/O box, follow the steps below.

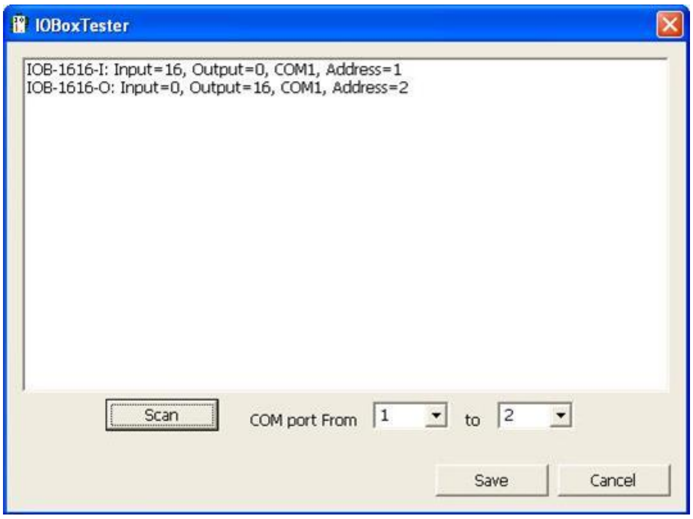
1. Please find the bin folder in the directory C:\Program Files\huperLab \huperVision\bin. (Close the DVR server).
2. Open the bin folder, then find the IOBoxTester.exe file. (See below).



Address C:\Program Files\huperlab\huperVision\bin

| Name | Size | Type | Date Modified |
|---|---|---|---|
| IM32bmp.dil | 36 KB | DIL File | 9/30/2003 1:43 PM |
| IM32fax.dil | 64 KB | DIL File | 9/30/2003 1:43 PM |
| IM32pcx.dil | 44 KB | DIL File | 9/30/2003 1:43 PM |
| im32tif.dil | 72 KB | DIL File | 9/30/2003 1:43 PM |
| IM32xfax.del | 52 KB | DEL File | 9/30/2003 1:43 PM |
| IOBoxTester.exe | 32 KB | Application | 7/20/2006 4:39 PM |
| IOCardMgr.dll | 29 KB | Application Extension | 7/20/2006 4:35 PM |
| ioMon.dll | 237 KB | Application Extension | 9/30/2003 1:43 PM |
| IPreviewLog2Text.exe | 40 KB | Application | 4/13/2005 4:13 PM |
| IpreviewLog.hmi | 70 KB | HMI File | 8/17/2006 10:12 AM |
| KeepLast.hmi | 1 KB | HMI File | 8/16/2006 1:14 PM |
| KeyDump.exe | 32 KB | Application | 2/22/2005 4:10 PM |
| large.HPF | 101 KB | HPF File | 3/23/2004 5:25 PM |
| LASER.WAV | 3 KB | Wave Sound | 9/30/2003 1:43 PM |
| LedOff.ico | 1 KB | Icon | 9/2/2004 2:14 PM |

3. Double-click to run IOBoxTester.exe, then click the Scan button (see below).



```
IOB-1616-I: Input=16, Output=0, COM1, Address=1
IOB-1616-O: Input=0, Output=16, COM1, Address=2
```

COM port From 1 to 2

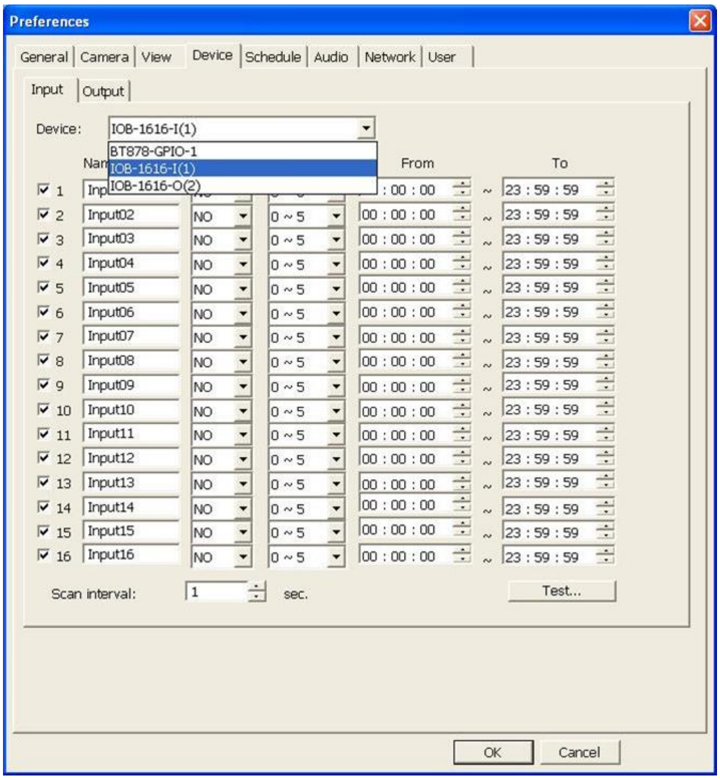
4. After the scan is completed, click the Save button.
5. After you restart the DVR site server. IO Box will be detected by the DVR in the Device tab of the Preferences dialog box.

## Input Settings

Step 1: Open the Preferences dialog box, click the Device/Input tab.

Step 2: Select the item "IOB-1616-I(1)" from the Device drop-down list.

Step 3: 16 input ports are then displayed, and their assigned numbers start from 1 to 16.


Preferences
General
Camera
View
Device
Schedule
Audio
Network
User
Input
Output
BT878-GPIO-1
IOB-1616-I(1)
IOB-1616-O(2)
Test...
OK
Cancel

Device: IOB-1616-I(1)

| | Nar | | | From | | To |
|---|---|---|---|---|---|---|
| ☑ 1 | Inp | | | : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 2 | Input02 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 3 | Input03 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 4 | Input04 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 5 | Input05 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 6 | Input06 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 7 | Input07 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 8 | Input08 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 9 | Input09 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 10 | Input10 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 11 | Input11 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 12 | Input12 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 13 | Input13 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 14 | Input14 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 15 | Input15 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |
| ☑ 16 | Input16 | NO | 0 ~ 5 | 00 : 00 : 00 | ~ | 23 : 59 : 59 |

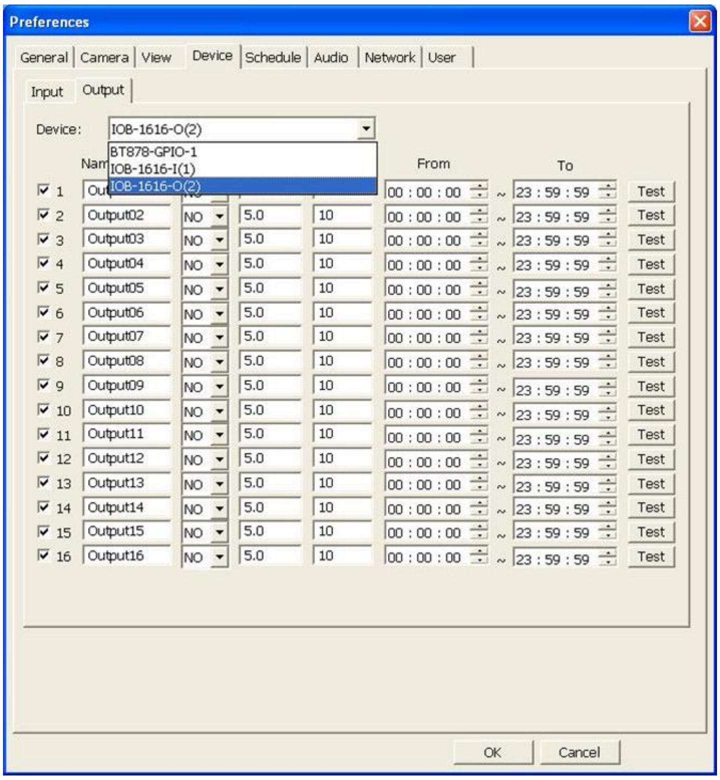
Scan interval: 1 sec.

## Output Settings

Step 1: Open the Preferences dialog box, click the Device/Output tab.

Step 2: Select the item "IOB-1616-O(2)" from the Device drop-down list.

Step 3: 16 output ports are then displayed, and their assigned numbers start from 1 to 16.



Preferences
General
Camera
View
Device
Schedule
Audio
Network
User
Input
Output
BT878-GPIO-1
IOB-1616-I(1)
IOB-1616-O(2)
OK
Cancel

Device: IOB-1616-O(2)

| | Nam | | | | From | | To | |
|---|---|---|---|---|---|---|---|---|
| ☑ 1 | Ou | | | | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 2 | Output02 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 3 | Output03 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 4 | Output04 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 5 | Output05 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 6 | Output06 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 7 | Output07 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 8 | Output08 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 9 | Output09 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 10 | Output10 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 11 | Output11 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 12 | Output12 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 13 | Output13 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 14 | Output14 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 15 | Output15 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |
| ☑ 16 | Output16 | NO | 5.0 | 10 | 00 : 00 : 00 | ~ | 23 : 59 : 59 | Test |

# LB-16 Input Video Loopback Card

Video loop back card connects to huperVision capture cards to loop back video signals. Camera video can through the video loop back card to the monitor set or to the quad processor for monitoring purpose or other special applications.

## Specifications

| | |
|---|---|
| Model name | LB-16 (AD043) |
| System | 32 bits 5V PCI card |
| Video Input | Four center crimp terminal housing up to 16 channel video input One box header (2*13 pin) support 16 channel video input Two box header (2*13 pin) support 8 channel video input |
| Video Output | D-sub 25 connector support 16 channel video output |
| Video signal | 1 Vpp, 75Ω switch |
| Dimension | 119.88*85.09 mm |

## Connector Pin Assignment

### Center crimp terminal housing for 4 channel video input (CN1,2,3,4)

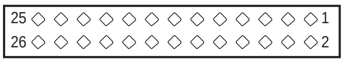
| Pin no.(CN1) | Signal | Pin no. (CN1) | Signal |
|---|---|---|---|
| 1 | X | 4 | Video 3 |
| 2 | Ground | 5 | Video 2 |
| 3 | Video 4 | 6 | Video 1 |

| Pin no.(CN2) | Signal | Pin no. (CN2) | Signal |
|---|---|---|---|
| 1 | X | 4 | Video 7 |
| 2 | Ground | 5 | Video 6 |
| 3 | Video 8 | 6 | Video 5 |

| Pin no.(CN3) | Signal | Pin no. (CN3) | Signal |
|---|---|---|---|
| 1 | X | 4 | Video 11 |
| 2 | Ground | 5 | Video 10 |
| 3 | Video 12 | 6 | Video 9 |

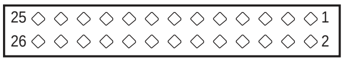
| Pin no.(CN4) | Signal | Pin no. (CN4) | Signal |
|---|---|---|---|
| 1 | X | 4 | Video 15 |
| 2 | Ground | 5 | Video 14 |
| 3 | Video 16 | 6 | Video 13 |

## Box header for 16 channel video input (P1)



| Pin no.(P1) | Signal | Pin no.(P1) | Signal |
|---|---|---|---|
| 1 | Video 1 | 14 | Ground |
| 2 | Video 14 | 15 | Video 8 |
| 3 | Video 2 | 16 | Ground |
| 4 | Video 15 | 17 | Video 9 |
| 5 | Video 3 | 18 | Ground |
| 6 | Video 16 | 19 | Video 10 |
| 7 | Video 4 | 20 | Ground |
| 8 | Ground | 21 | Video 11 |
| 9 | Video 5 | 22 | Ground |
| 10 | Ground | 23 | Video 12 |
| 11 | Video 6 | 24 | Ground |
| 12 | Ground | 25 | Video 13 |
| 13 | Video 7 | 26 | Ground |

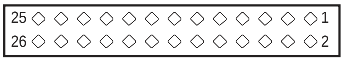
## Box header for 8 channel video input (P2)



| Pin no.(P2) | Signal | Pin no.(P2) | Signal |
|---|---|---|---|
| 1 | Video 1 | 14 | Ground |
| 2 | X | 15 | Video 8 |
| 3 | Video 2 | 16 | Ground |
| 4 | X | 17 | X |
| 5 | Video 3 | 18 | Ground |
| 6 | X | 19 | X |
| 7 | Video 4 | 20 | Ground |
| 8 | Ground | 21 | X |

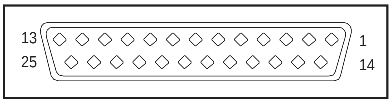
| | | | |
|---|---|---|---|
| 9 | Video 5 | 22 | Ground |
| 10 | Ground | 23 | X |
| 11 | Video 6 | 24 | Ground |
| 12 | Ground | 25 | X |
| 13 | Video 7 | 26 | Grounds |

## Box header for 8 channel video input (P3)



| Pin no.(P3) | Signal | Pin no.(P3) | Signal |
|---|---|---|---|
| 1 | Video 9 | 14 | Ground |
| 2 | X | 15 | Video 16 |
| 3 | Video 10 | 16 | Ground |
| 4 | X | 17 | X |
| 5 | Video 11 | 18 | Ground |
| 6 | X | 19 | X |
| 7 | Video 12 | 20 | Ground |
| 8 | Ground | 21 | X |
| 9 | Video 13 | 22 | Ground |
| 10 | Ground | 23 | X |
| 11 | Video 14 | 24 | Ground |
| 12 | Ground | 25 | X |
| 13 | Video 15 | 26 | Ground |

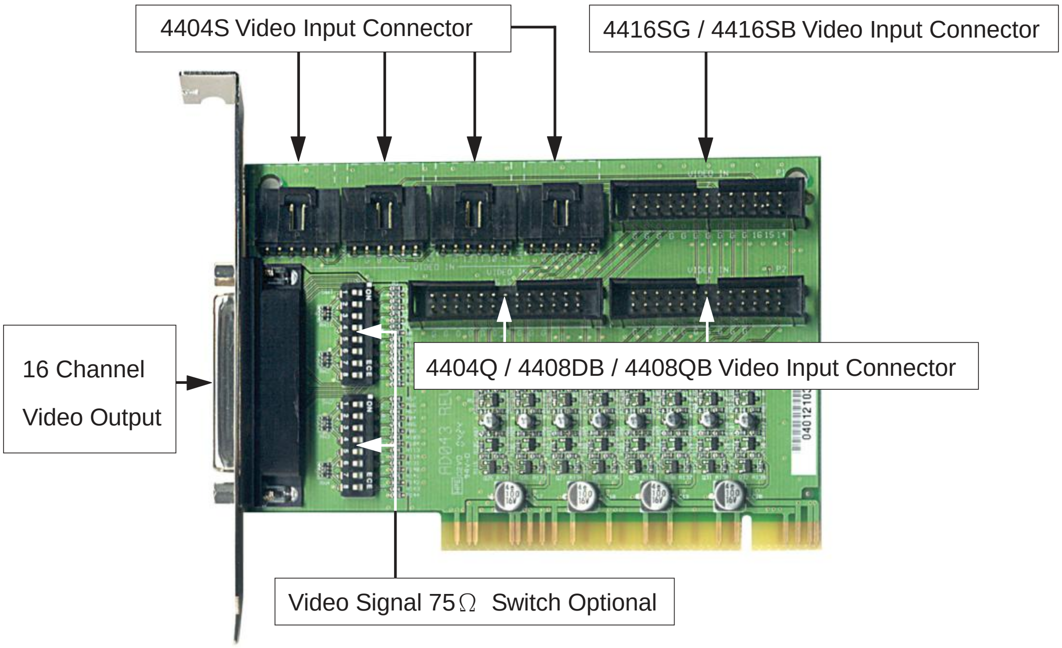
## D-sub 25 connector for 16 channel video output (P4)



| Pin no.(P4) | Signal | Pin no.(P4) | Signal |
|---|---|---|---|
| 1 | Ground | 14 | Video 1 |
| 2 | Video 5 | 15 | Ground |
| 3 | Video 9 | 16 | Video 13 |
| 4 | Ground | 17 | Video 2 |
| 5 | Video 6 | 18 | Ground |
| 6 | Video 10 | 19 | Video 14 |

| | | | |
|---|---|---|---|
| 7 | Ground | 20 | Video 3 |
| 8 | Video 7 | 21 | Ground |
| 9 | Video 11 | 22 | Video 15 |
| 10 | Ground | 23 | Video 4 |
| 11 | Video 8 | 24 | Ground |
| 12 | Video 12 | 25 | Video 16 |
| 13 | Ground | | |

### Connect to video capture card


4404S Video Input Connector
4416SG / 4416SB Video Input Connector
16 Channel Video Output
4404Q / 4408DB / 4408QB Video Input Connector
Video Signal 75Ω Switch Optional

| Capture Card Model / Max Number | Slots for connection | # of Loop Back Channels |
|---|---|---|
| 4404S x 4 | P4, P5, P6, P7 | 4, 8, 12, 16 |
| 4416SG x 1 | P1 | 16 |
| 4416SB x 1 | P1 | 16 |
| 4404Q x 2 | P2, P3 | 4, 8 |
| H4008DB x 2 | P2, P3 | 8, 16 |
| H8008DB x 2 | P2, P3 | 8, 16 |