Hardware & Accessories

- **[Hardware Guide](#)** *Updated*

- **[How to Use the I/O Ports of a Video Capture Card](#)**

- **[IOU-0404C/IOU-0404U Card Guide](#)** *Updated*

- **[IOB-0805 BOX Guide](#)**

- **[IOB-1616 BOX Guide](#)**

- **[LB-16 Input Video Loopback Card](#)**

Hardware Guide

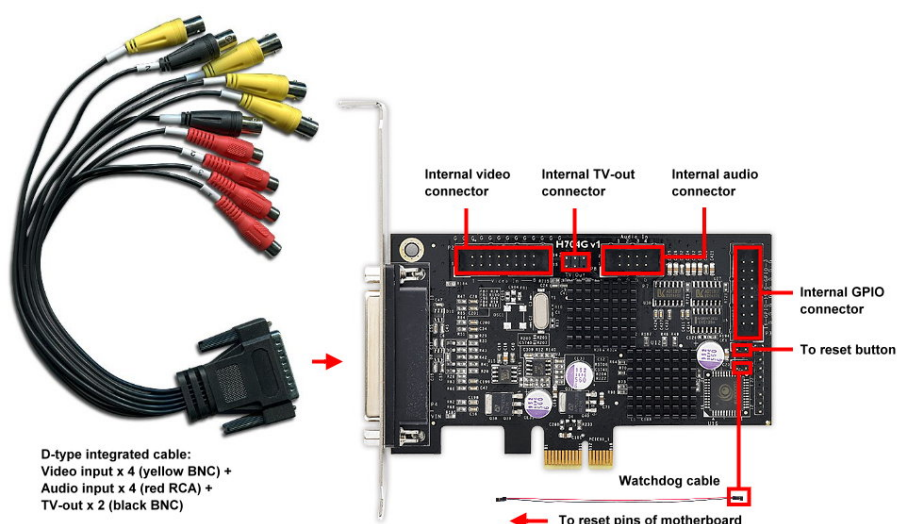## Capture Card Models

4704B Video Capture Card

Accessories

Watchdog Cable	x 1

Specifications

Video Input / Audio Input / TV-out	4 (BNC) / 4 (RCA) / 2 (BNC)
Display & Recording Rate *	
4704B-120	120 fps (NTSC: 720x480) 100 fps (PAL: 720x576)
4704B-60	60 fps (NTSC: 720x480) 50 fps (PAL: 720x576)
4704B-30	30 fps (NTSC: 720x480) 25 fps (PAL: 720x576)
4704B-15	15 fps (NTSC: 720x480) 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.

Internal video connector
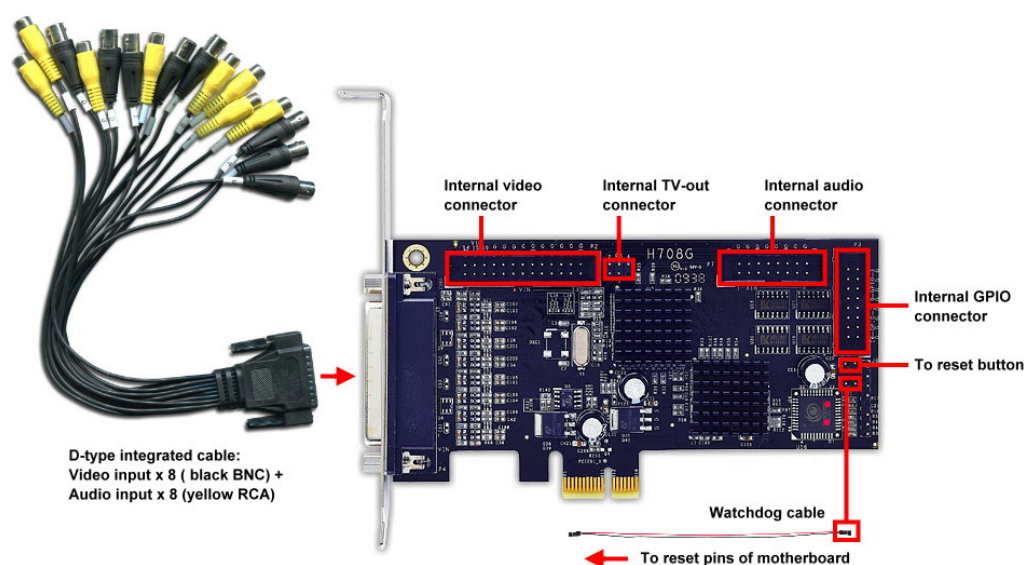Internal TV-out connector
Internal audio connector
Internal GPIO connector
To reset button
Watchdog cable
To reset pins of motherboard

D-type integrated cable:
Video input x 4 (yellow BNC) +
Audio input x 4 (red RCA) +
TV-out x 2 (black BNC)

4708B Video Capture Card

Accessories

Watchdog Cable	x 1

Specifications

Video Input / Audio Input / TV-out	8 (BNC) / 8 (RCA) / 2 (BNC)
Display & Recording Rate *	
4708B-240	240 fps (NTSC: 720x480) 200 fps (PAL: 720x576)
4708B-120	120 fps (NTSC: 720x480) 100 fps (PAL: 720x576)
4708B-60	60 fps (NTSC: 720x480) 50 fps (PAL: 720x576)
4708B-30	30 fps (NTSC: 720x480) 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.

Internal video connector

Internal TV-out connector

Internal audio connector

H708G

Internal GPIO connector

To reset button

D-type integrated cable:
Video input x 8 (black BNC) +
Audio input x 8 (yellow RCA)

Watchdog cable

To reset pins of motherboard

4716B 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]	
4716B-480	480 fps (NTSC: 720x480) 400 fps (PAL: 720x576)
4716B-240	240 fps (NTSC: 720x480) 200 fps (PAL: 720x576)
4716B-120	120 fps (NTSC: 720x480) 100 fps (PAL: 720x576)
4716B-60	60 fps (NTSC: 720x480) 50 fps (PAL: 720x576)
Max. Stack Card / Channel	4 Cards / 64 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.
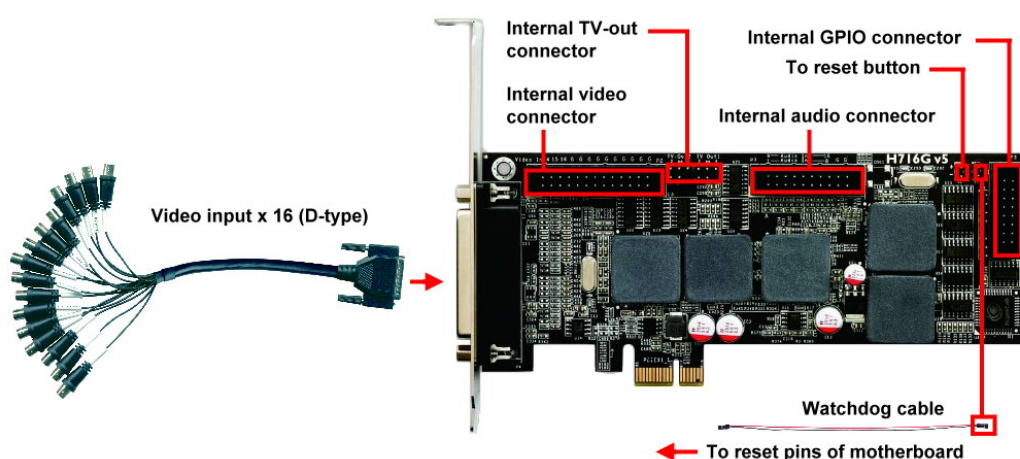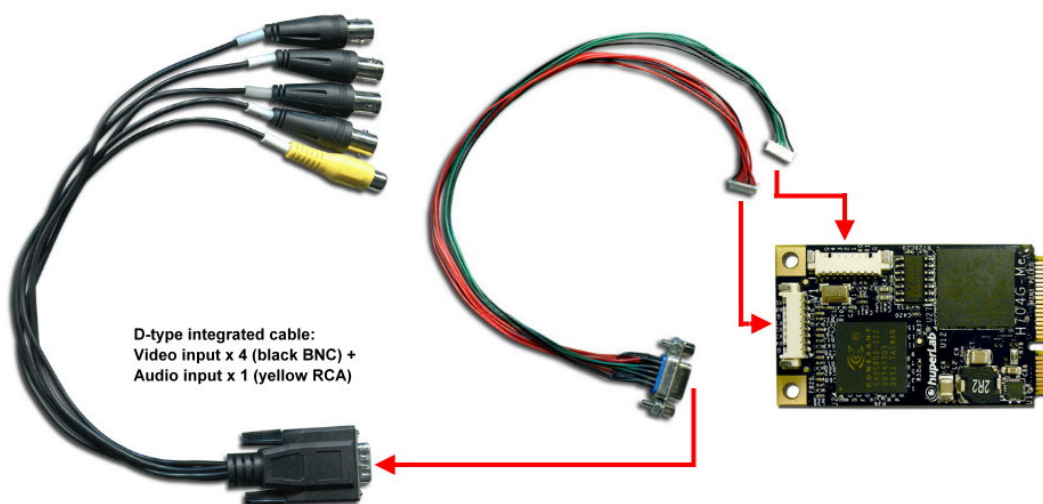
4704B-Me Video Capture Card

Accessories

Watchdog Cable	x 1

Specifications

Video Input / Audio Input	4 (BNC) / 1 (RCA)
Display & Recording Rate *	
4704B-Me-120	120 fps (NTSC: 720x480) 100 fps (PAL: 720x576)
4704B-Me-60	60 fps (NTSC: 720x480) 50 fps (PAL: 720x576)
4704B-Me-30	30 fps (NTSC: 720x480) 25 fps (PAL: 720x576)
4704B-Me-15	15 fps (NTSC: 720x480) 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.
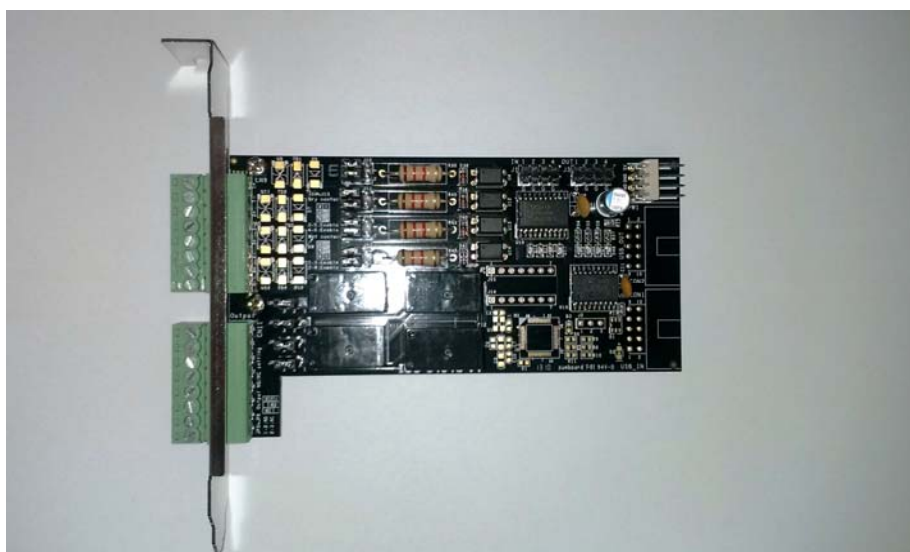

D-type integrated cable:
Video input x 4 (black BNC) +
Audio input x 1 (yellow RCA)

4904A Video Capture Card

Accessories

Watchdog Cable	x 1

Specifications

Video Input / Audio Input		4 (BNC) / 1 (RCA)
Display & Recording Rate *		
4904A-120	1080P	120 / 100 fps (NTSC / PAL)
	720P	240 / 200 fps (NTSC / PAL)
4904A -60	1080P	60 / 50 fps (NTSC / PAL)
	720P	120 / 100 fps (NTSC / PAL)
4904A -30	1080P	30 / 25 fps (NTSC / PAL)
	720P	60 / 50 fps (NTSC / PAL)
4904A -15	1080P	16 / 16 fps (NTSC / PAL)
	720P	30 / 25 fps (NTSC / PAL)
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.
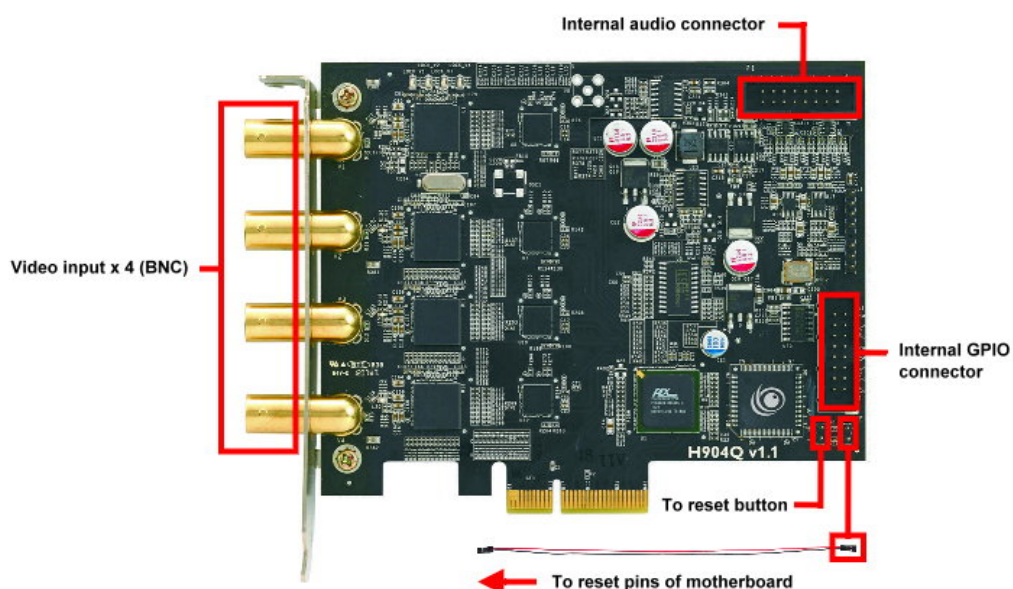
Accessories

IOU-0404C (IO Interface Control) I/O Card

Specifications

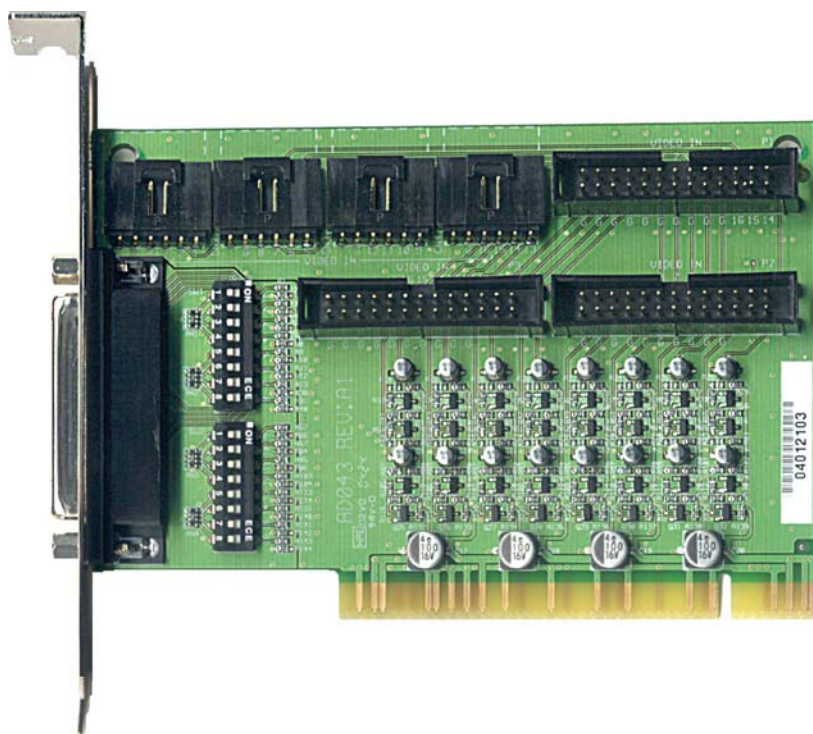| Description	32-bit PCI card with 4 digital inputs and 4 relay outputs
System	32-bit 5V PCI card
Dimensions	115 mm X 70 mm
Digital input	
Channels	4
Input voltage	Dry Contact
	Logic level 0 : Close to GND
	Logic level 1 : Open
	Optical Isolation :
	Logic level 0 : >1.2 V (24 VDC (TYP.), 50 VDC (MAX.))
	Logic level 1 : <0.2 V
	Dry Contact & Optical Isolation selectable
Power consumption	200 mW each channel
Relay output	
Channel	4-channel/relay output with RAYEX ELEC relay (LJ-5)
Contact rating	AC 250 V @ 3 A
	DC 30 V @ 3 A
	NO & NC selectable by jumper

IOU-0404U (USB Interface Control) I/O Card

Specifications

Description	32-bit PCI card with 4 digital inputs and 4 relay outputs
System	USB IO card
Dimensions	115 mm X 70 mm
Digital input	
Channels	4
Input voltage	Dry Contact
	Logic level 0 : Close to GND
	Logic level 1 : Open
	Optical Isolation :
	Logic level 0 : >1.2 V (24 VDC (TYP.), 50 VDC (MAX.))
	Logic level 1 : <0.2 V
	Dry Contact & Optical Isolation selectable
Power consumption	200 mW each channel
Relay output	
Channel	4-channel/relay output with RAYEX ELEC relay (LJ-5)
Contact rating	AC 250 V @ 3 A
	DC 30 V @ 3 A
	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
	One box header (2 x 13 pins) supports 16 channel video inputs
	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, 5A@250VAC/30VDC
Operate Time	8 ms
Release Time	5 ms
Dielectric Strength	2500VAC
Electrical life(min.)	1×10^5
Mechanical life(min.)	1×10^7
Power Consumption	110 / 220 VAC or 5VDC, 5W°C
Communication Port	RS232 / RS485 (Protocol : Huper RTU ASCII) RS232:1200-115, 200 bps; RS485 : 1200-921.6K bps
Communication Distance	RS232: 50 feet 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 (2A Per Common Group)
Power Consumption	5W
Communication port	RS232 / RS485 (Protocol : Huper RTU ASCII) RS232 : 1200-115,200 bps; RS485 : 1200-921.6K bps
Communication distance	RS232 : 50 feet 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.
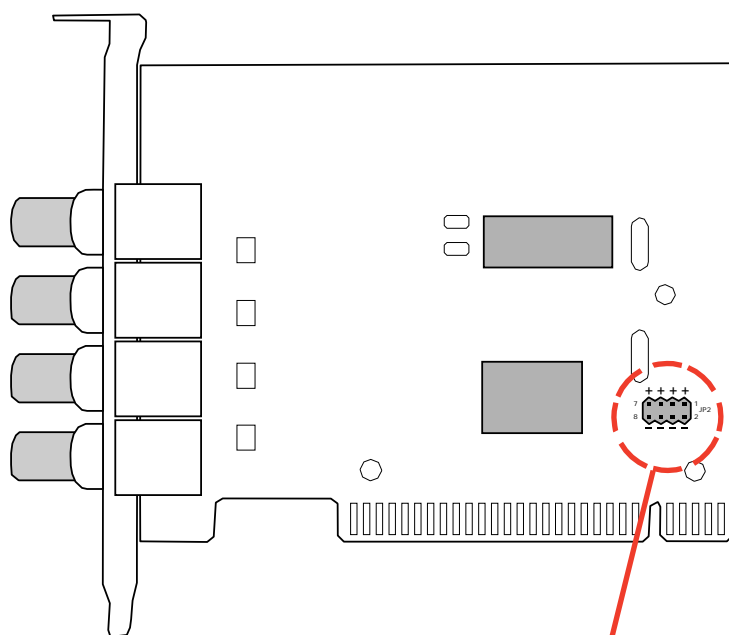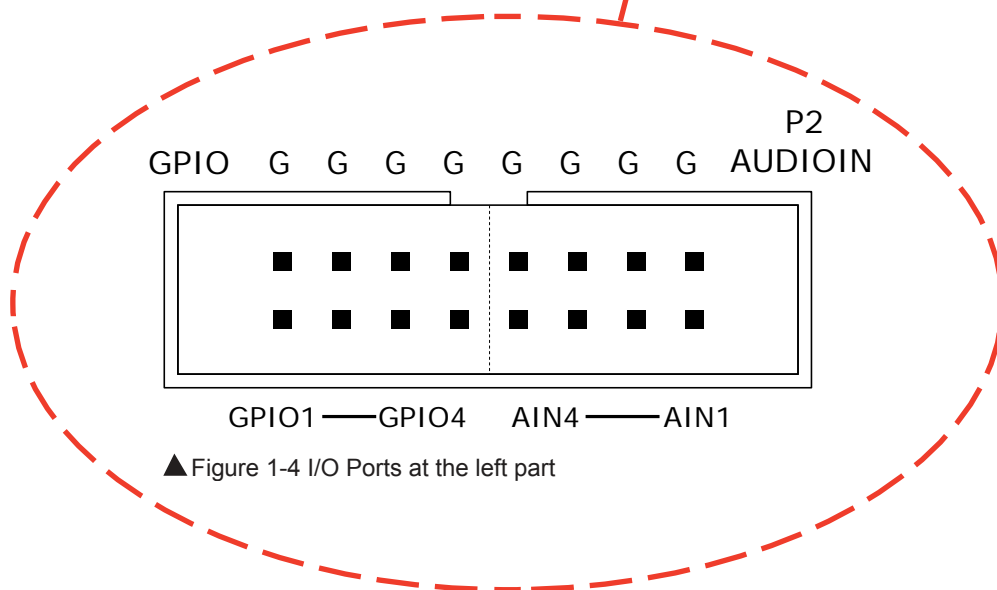
▲ Figure 1-1 H1004S Video Capture Card
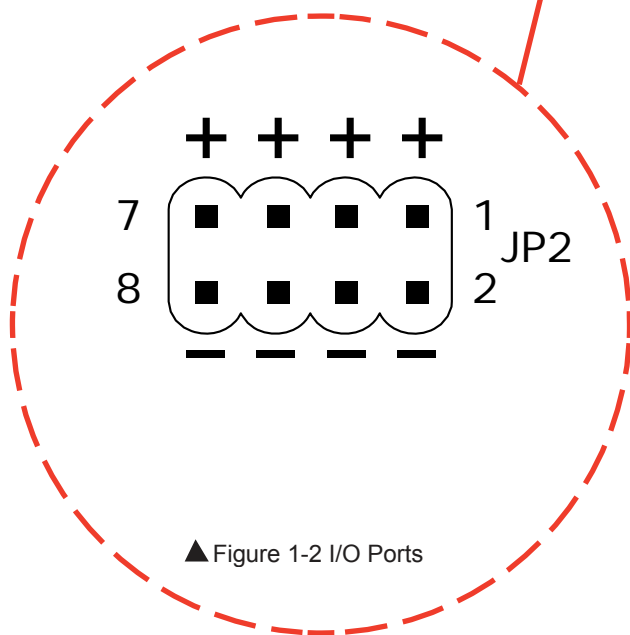
▲ Figure 1-2 I/O Ports
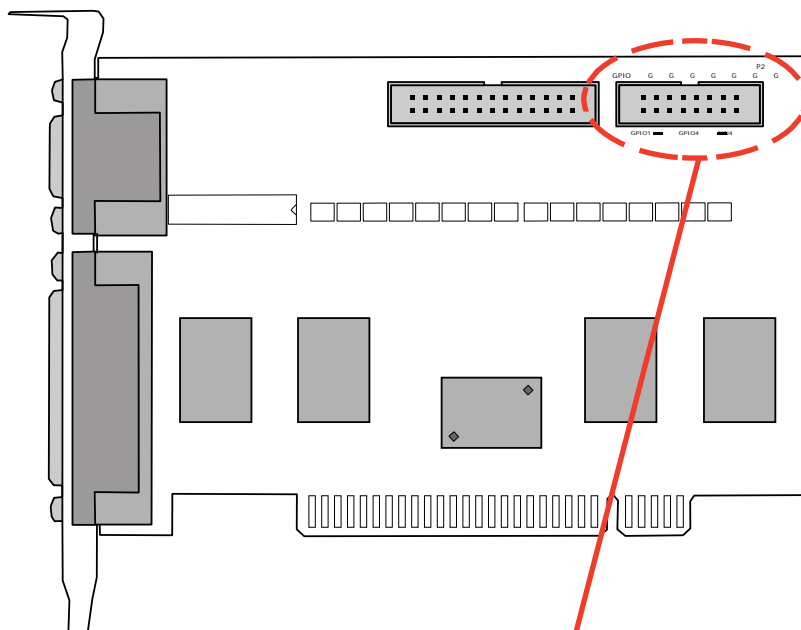
▲Figure 1-3 H4004Q Video Capture Card

P2
GPIO G G G G G G G G 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"
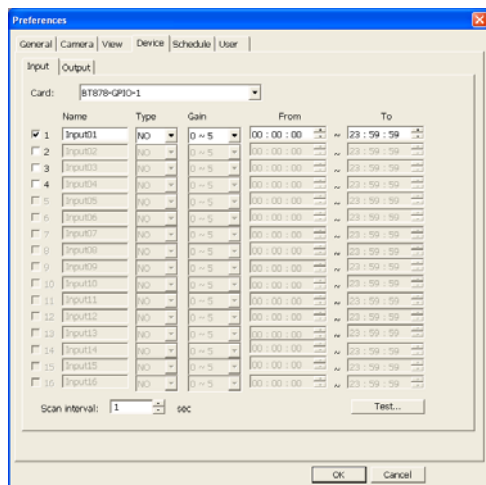
Enable the Input
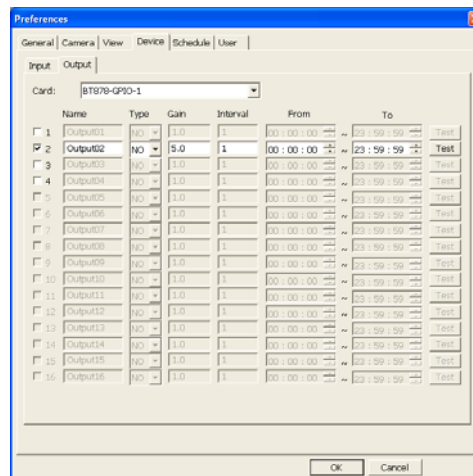
Enable the Output

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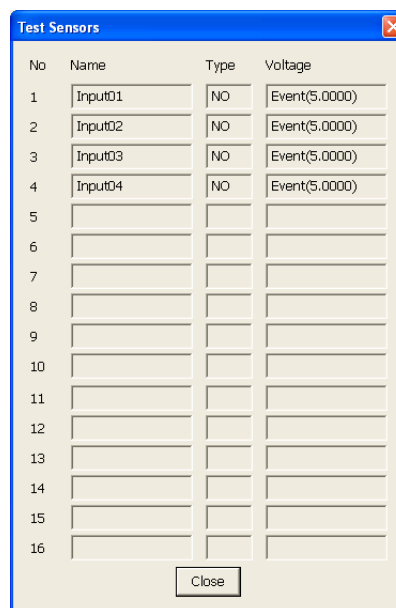
Including I/O Devices to the operation of DVR Site Server

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

IOU-0404C/IOU-0404U Card Guide

IOU-0404C (IO Interface Control)

The IOU-0404C is a 4-ch digital input and 4-ch. relay output module.

IOU-0404C 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 IOU-0404C supports dry contact wiring for simple implementation. Moreover, users can read the current input status from the yellow LED indicators on-board. Each input channel is jumper selectable to either isolated or non-isolated input.

The IOU-0404C provides four channels with Form RAYEX ELEC relay (LJ-5). IOU-0404C 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
	Off : Non-active

Input Voltage	Dry Contact
	Logic level 0 : Close to GND
	Logic level 1 : Open
	Optical Isolation :
	Logic level 0 : >1.2 V (24 VDC (TYP.), 50 VDC (MAX.))
	Logic level 1 : <0.2 V
	Dry Contact & Optical Isolation selectable
Power consumption	200 mW each channel

Relay Output	
Channel	4-channel / relay output with RAYEX ELEC relay (LJ-5)
LED Indicator	On: Non-active
	Off : Active
Contact Rating	AC 250 V @ 3 A
	DC 30 V @ 3 A;

IOU-0404U (USB Interface Control)

The IOU-0404U is a 4-ch digital input and 4-ch. relay output module. IOU-0404U uses USB MCU interfaces with host controller.

IOU-0404U 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 IOU-0404U supports dry contact wiring for simple implementation. Moreover, users can read the current input status from the yellow LED indicators on-board. Each input channel is jumper selectable to either isolated or non-isolated input.

The IOU-0404U provides four channels with Form RAYEX ELEC relay (LJ-5). IOU-0404U 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 Off : Non-active

Input Voltage	Dry Contact
	    Logic level 0 : Close to GND
	    Logic level 1 : Open
	Optical Isolation :
	    Logic level 0 : >1.2 V (24 VDC (TYP.), 50 VDC (MAX.))
	    Logic level 1 : <0.2 V
	Dry Contact & Optical Isolation selectable

Power consumption	200 mW each channel

Relay Output	
Channel	4-channel / relay output with RAYEX ELEC relay (LJ-5)
LED Indicator	On: Non-active Off : Active
Contact Rating	AC 250 V @ 3 A DC 30 V @ 3 A;

Application Wiring

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

Input wiring

Diagram
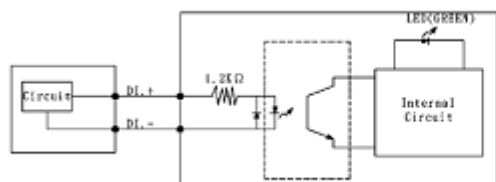
Dry Contact Input
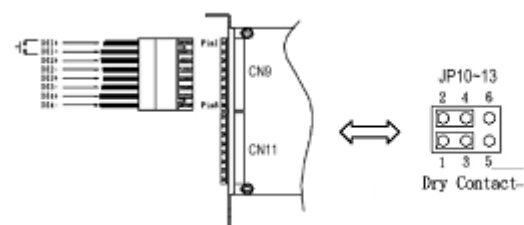
Isolation Digital Input
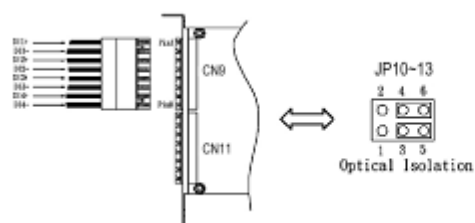
Output wiring

Diagram
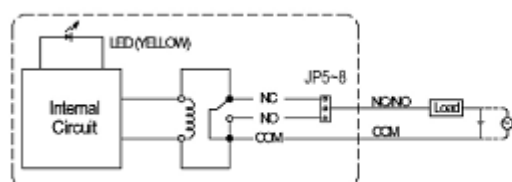
NC (Normal Close) setting
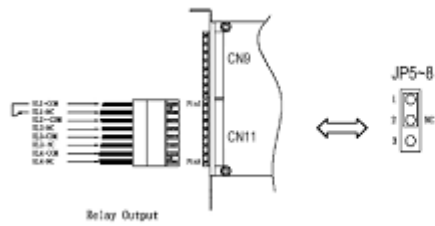
NO (Normal Open) setting
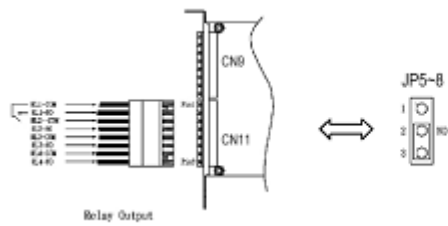
Installation

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

Figure 1
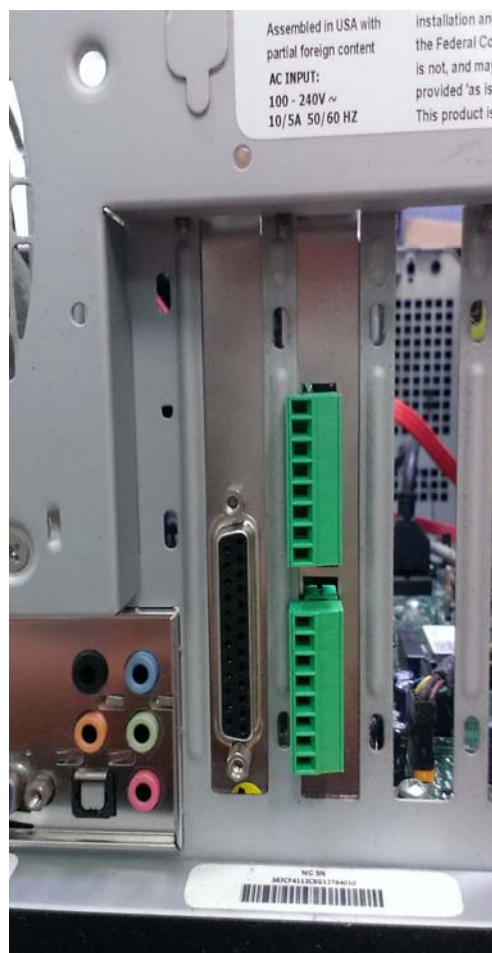
Figure 2

Host wiring

IOU-0404C

IOU-0404c to 4708B: Take note that the red line of the cable should connect to J1(Pin1) & J3(Pin1) on the IOU-0404C card and the 4708B card.
(The same wiring for 4704B, 4716B, 4904A & 4908A)
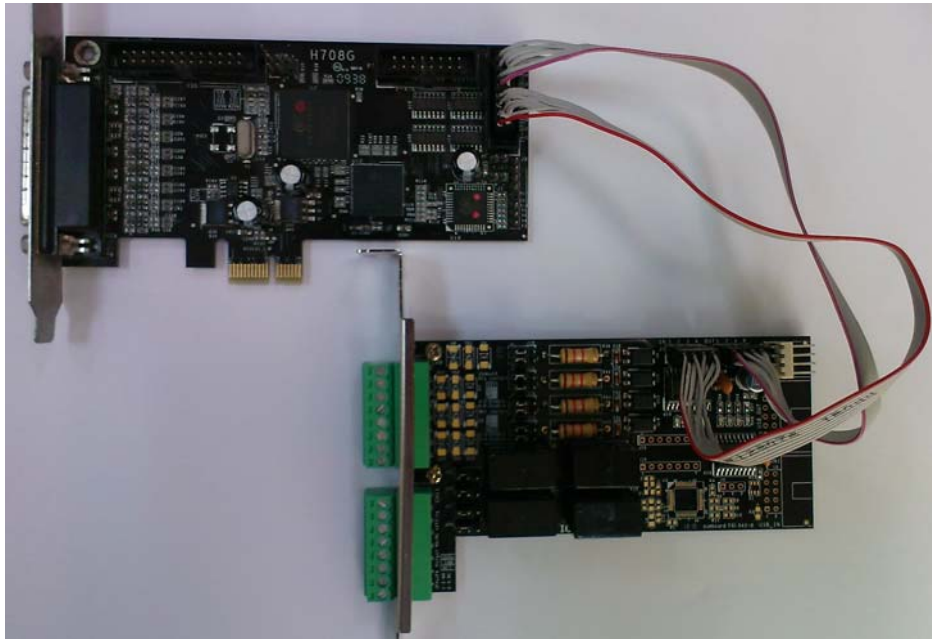
4708B wiring sample

4716B wiring sample
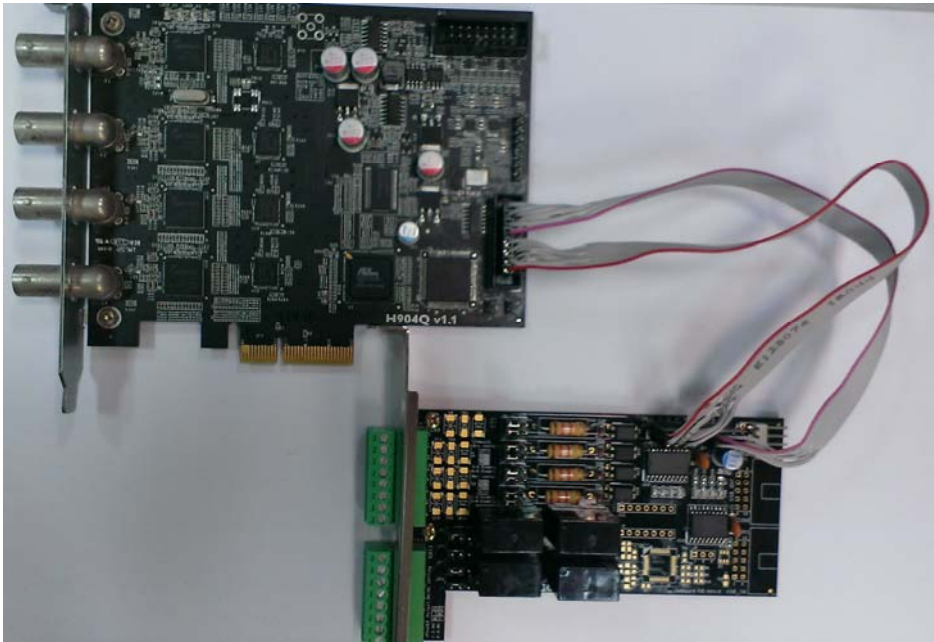
4904A wiring sample

IOU-0404U

IOU-0404U to PC: Take note that the red line of the cable should connect to CON1(USB_IN) on the IOU-0404U card (Figure 3).Please note the other connector of the cable must be connected to USB port of the PC board (Figure 4).

Figure 3
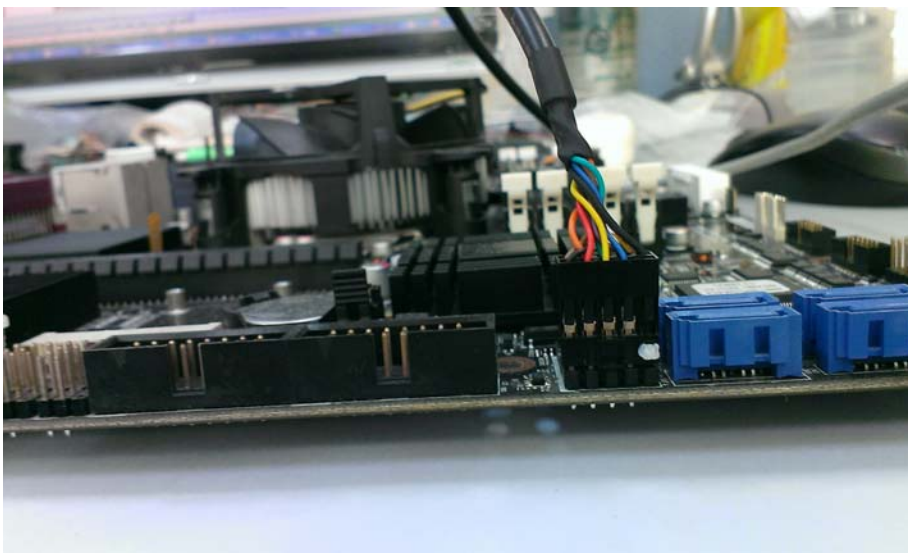
Figure 4

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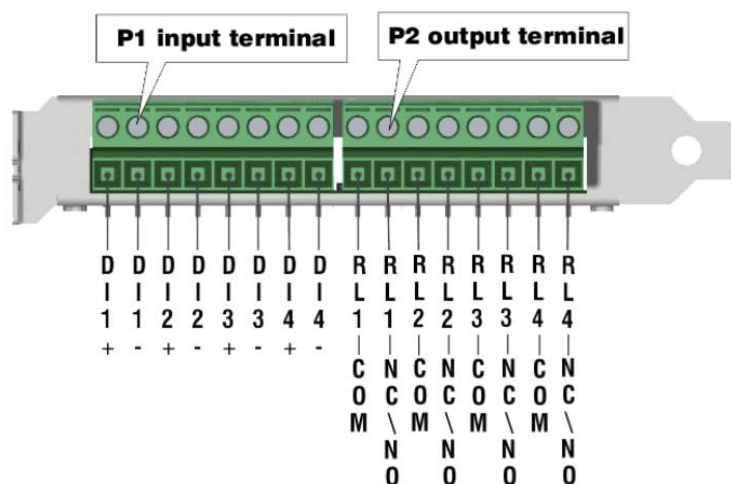
Pin no.	P1 General purpose input	Description
1	DI1+	Input channel 1 +
2	DI1-	Input channel 1 -
3	DI2+	Input channel 2 +
4	DI2-	Input channel 2 -
5	DI3+	Input channel 3 +
6	DI3-	Input channel 3 -
7	DI4+	Input channel 4 +
8	DI4-	Input channel 4 -

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 (JP10 ~ 13)

Channels	Dry contact	Optical isolation
Channel 1 (JP10)	3-5,4-6	1-3,2-4
Channel 2 (JP11)	3-5,4-6	1-3,2-4
Channel 3 (JP12)	3-5,4-6	1-3,2-4
Channel 4 (JP13)	3-5,4-6	1-3,2-4

Relay output NC / NO select (JP5 ~8)

Channels	Normal close (NC)	Normal open (NO)
Channel 1 (JP5)	2-3	1-2
Channel 2 (JP6)	2-3	1-2
Channel 3 (JP7)	2-3	1-2
Channel 4 (JP8)	2-3	1-2

IN interface-GPIO (CN9)

Signals	CN9
Input channel 1-data	1
Input channel 1-ground	2
Input channel 2-data	3
Input channel 2-ground	4
Input channel 3-data	5
Input channel 3-ground	6
Input channel 4-data	7
Input channel 4-ground	8

OUT interface-GPIO (CN11)

Signals	CN11
Output channel 1-data	1
Output channel 1-ground	2
Output channel 2-data	3
Output channel 2-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
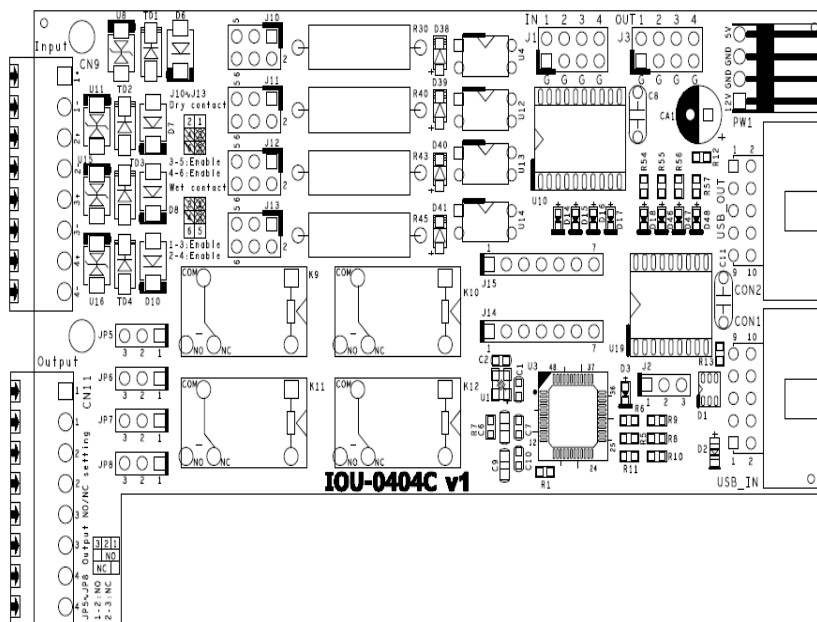
IOU-0404C/ IOU-0404U Dimension

115 mm

70mm
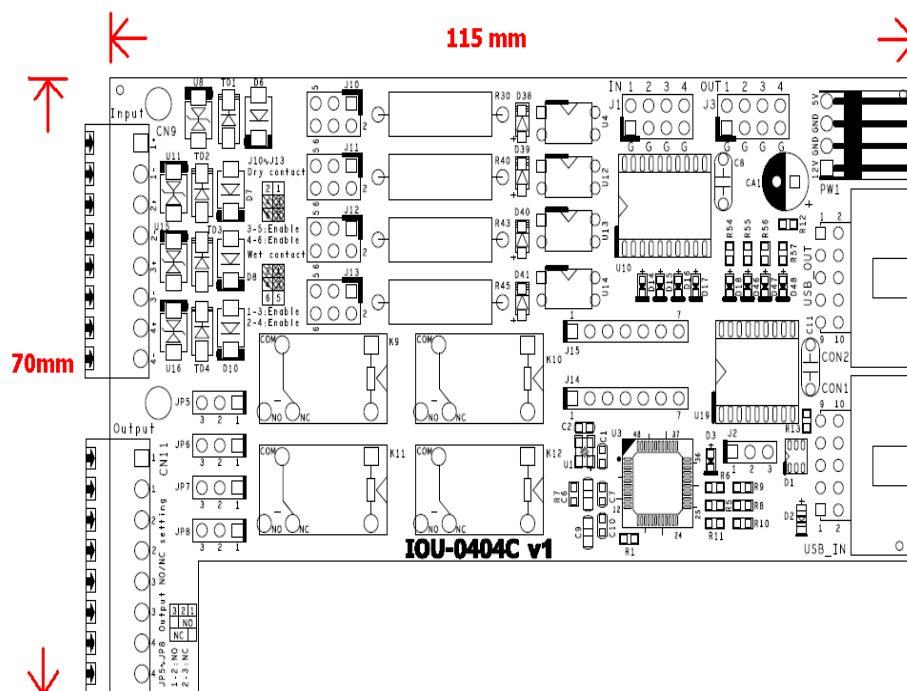
Settings at huperVision

After installing the IOU-0404C/IOU-0404U 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. If you use
                IOU-0404U, please select "IOUDevice-GPIO-1".

Step 3:   The 4 input ports of IOU-0404C map to input 1, 2, 3 and 4 in the settings.
                Please do not select input 5, 6, 7 and 8 in the settings.
                For IOU-0404U, only input 1, 2, 3 and 4 are selectable.

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

Note: If two IOU-0404C connect to capture card, the number of input pins is 8. They are input 1, 2, 3, 4, 9, 10, 11 and 12.

![huperVision]

Output Settings

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

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

   IOU-0404U, please select "IOUDevice-GPIO-1".

Step 3:   The 4 output ports of IOU-0404C NO (Normal Open) setting map to

   output 5, 6, 7 and 8 in the settings. Please do not select output 1, 2, 3 and 4

   in the settings.

   For IOU-0404U, only output 1, 2, 3 and 4 are selectable.

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

Note: If two IOU-0404C connect to capture card, there are total 8 output pins. They are output 5, 6, 7,
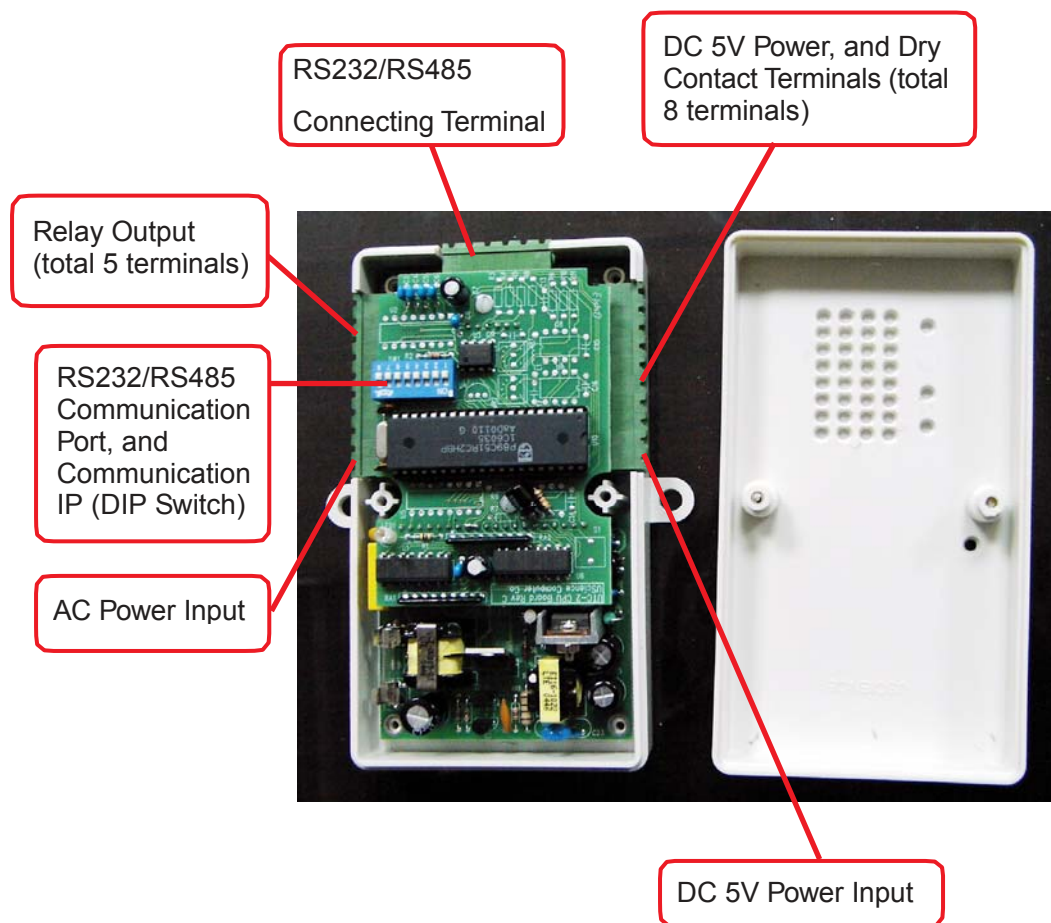
   8, 13, 14, 15 and 16.

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.)	1×10^5
Mechanical life(min.)	1×10^7
Power Consumption	110 / 220 VAC or 5VDC, 5W°C
Communication Port	RS232 / RS485 (Protocol : Huper RTU ASCII) RS232:1200 – 115, 200 bps; RS485 : 1200 – 921.6K bps
Communication Distance	RS232: 50 feet RS485: 4000 feet

Input Power Supply	110 / 220 VAC or 5VDC, 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)
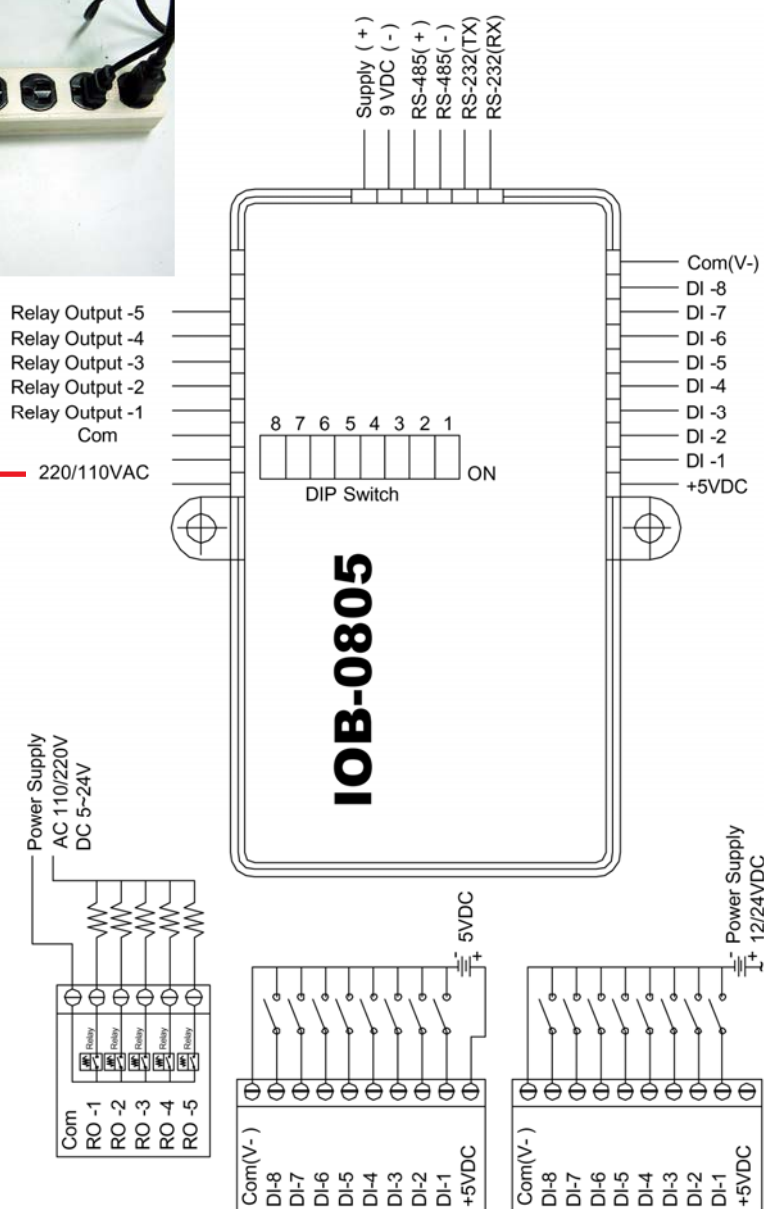
AC Power Input

DC 5V Power Input

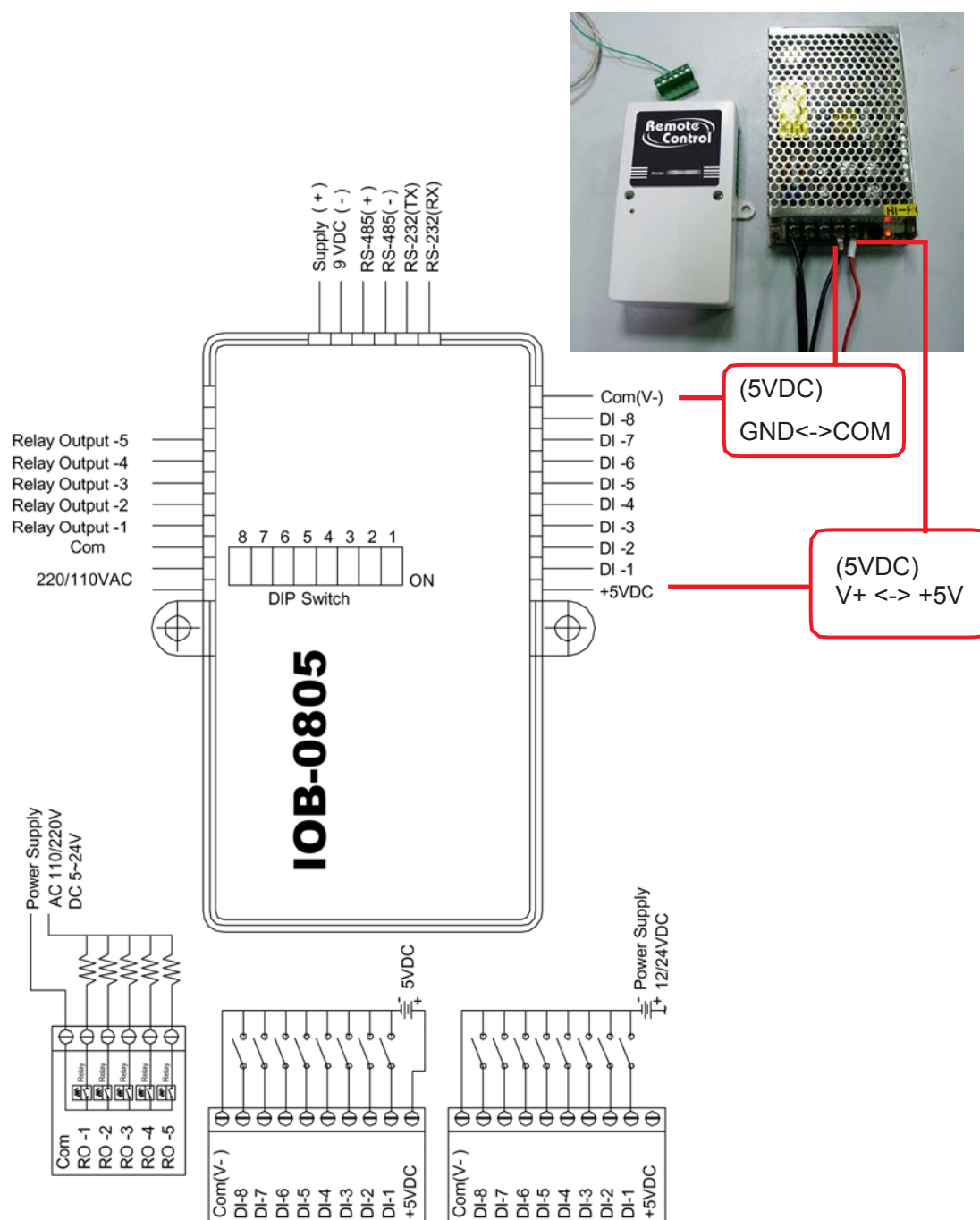## Installation

110 / 220 VAC Power Supply Wiring

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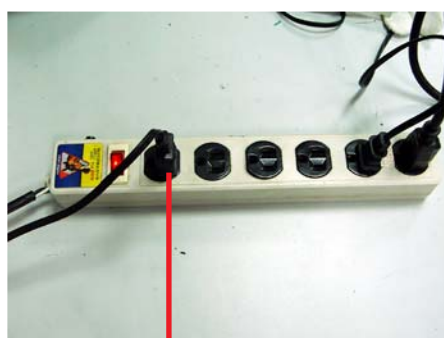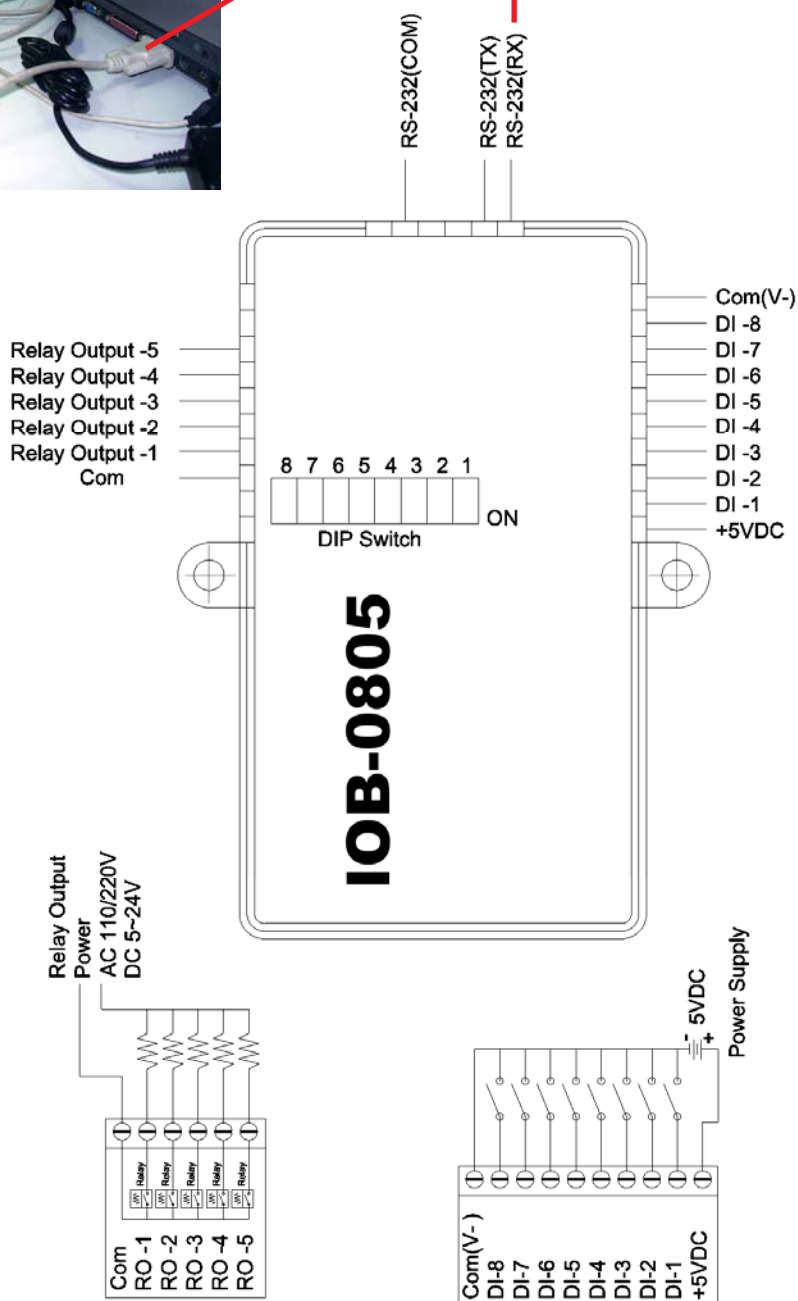
Connect to AC power supply

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.

(5VDC)
GND<->COM

(5VDC)
V+ <-> +5V

DVR Using RS232 Com Port

Connect to RS232 Port
(DVR using COM Port)

RS-232(COM)
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

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

Relay Output
Power
AC 110/220V
DC 5~24V

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
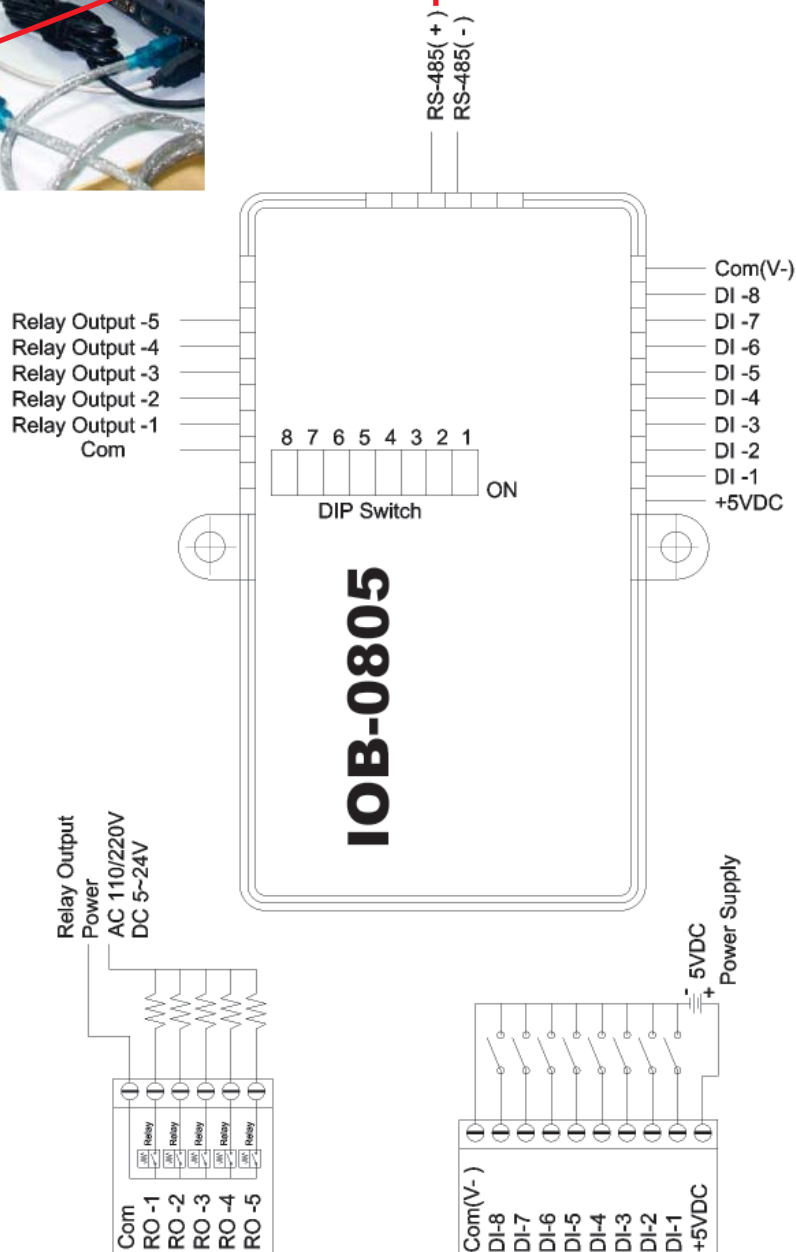
DVR Using USB to Connect to RS232 Com Port
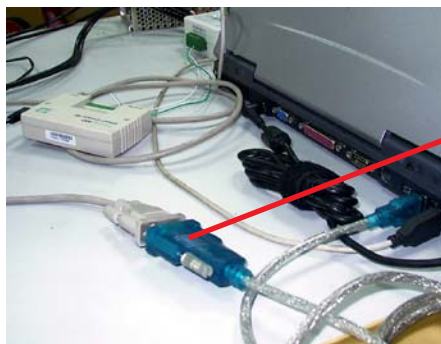
Connect to USB/RS232 converter (DVR without

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

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

- 5VDC +
Power Supply

Com
RO -1
RO -2
RO -3
RO -4
RO -5

Relay
Relay
Relay
Relay
Relay

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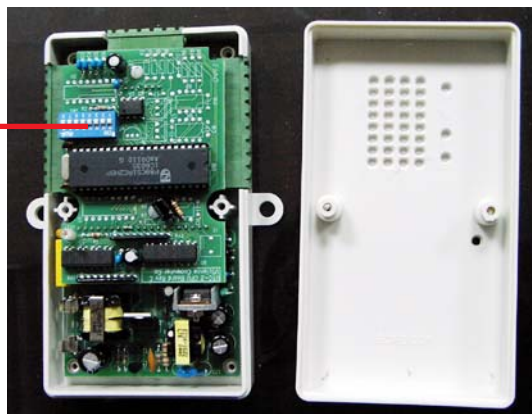
- DIP Switch Default: RS232, ID=1
- DIP Switch Setting: The DIP Switch is "OFF" by default which locates at the ID display side. Shift to the other side to turn the DIP Switch "ON."

Options for Communication Ports:

DIP Switch / 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
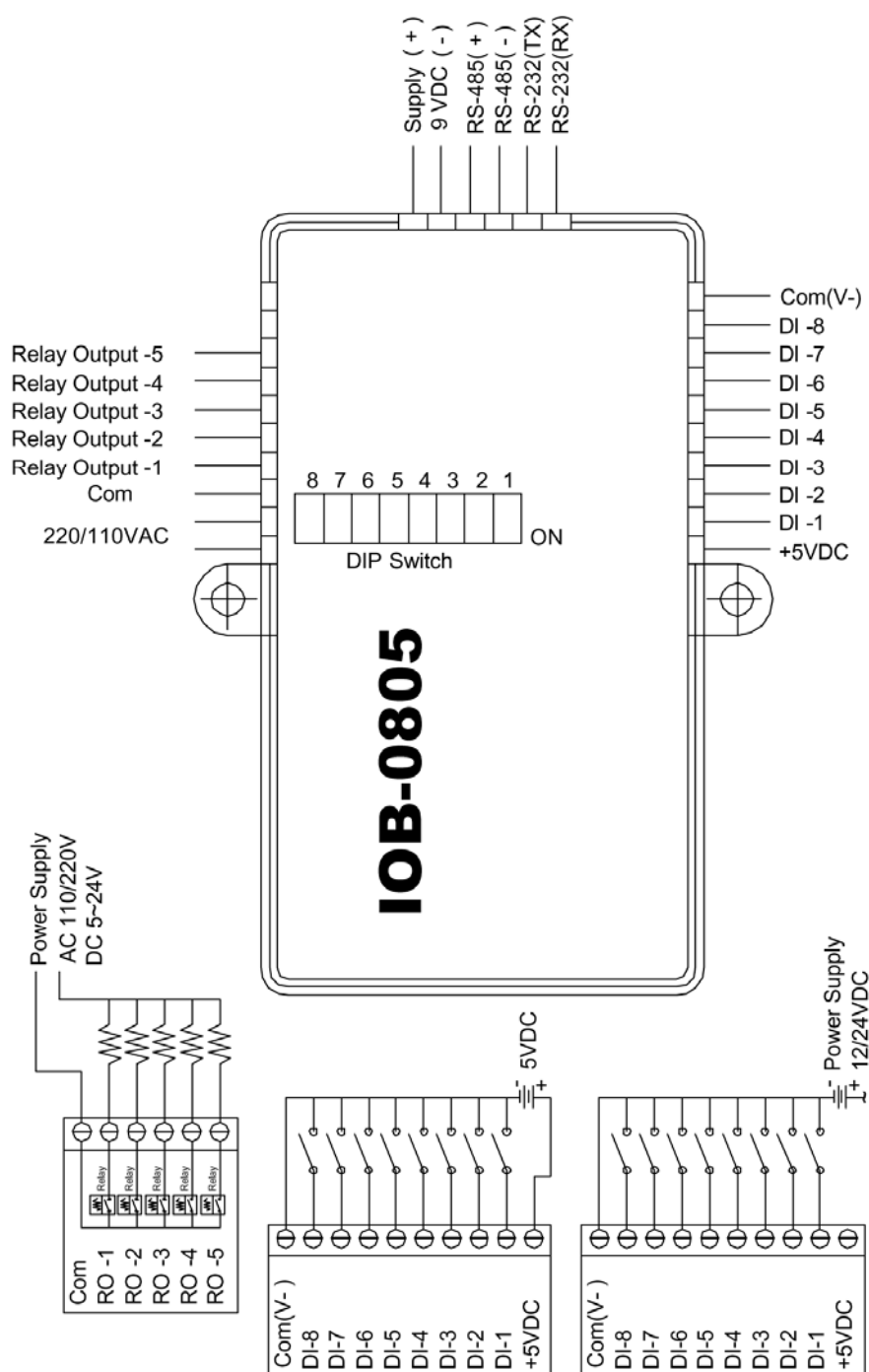
DI Input Control

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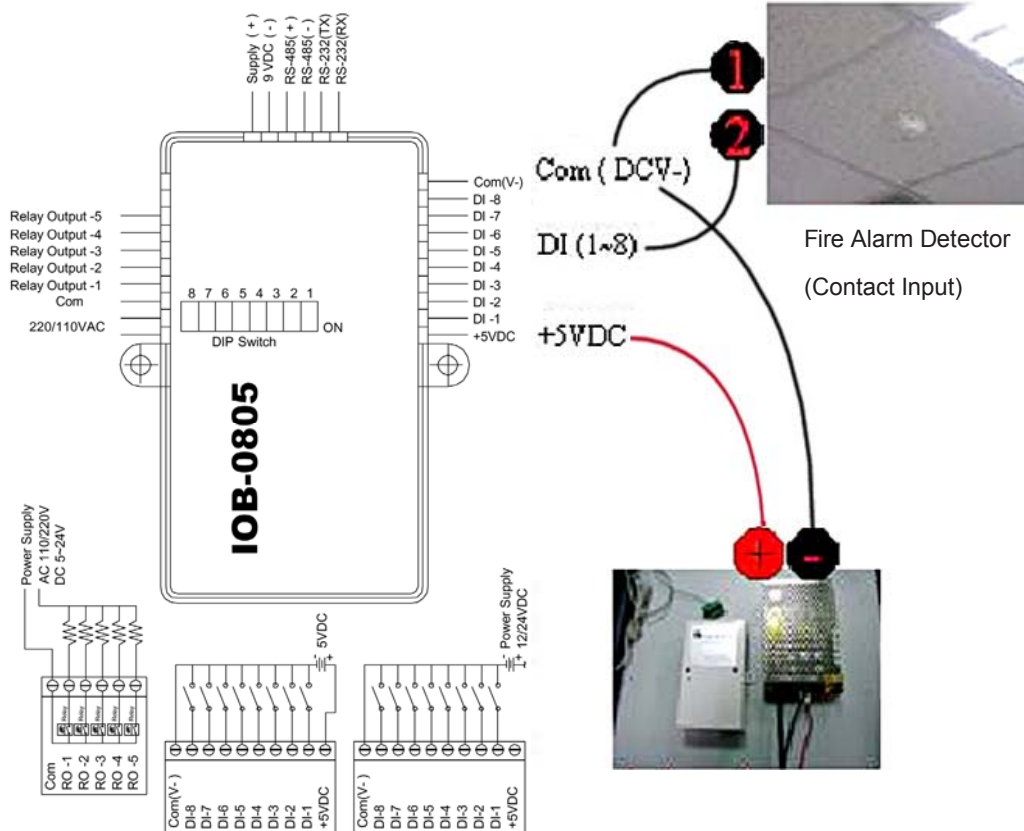
IOB-0805 DI Wiring Example A: Fire Alarm Detection (Contact Input) Using AC Power Supply
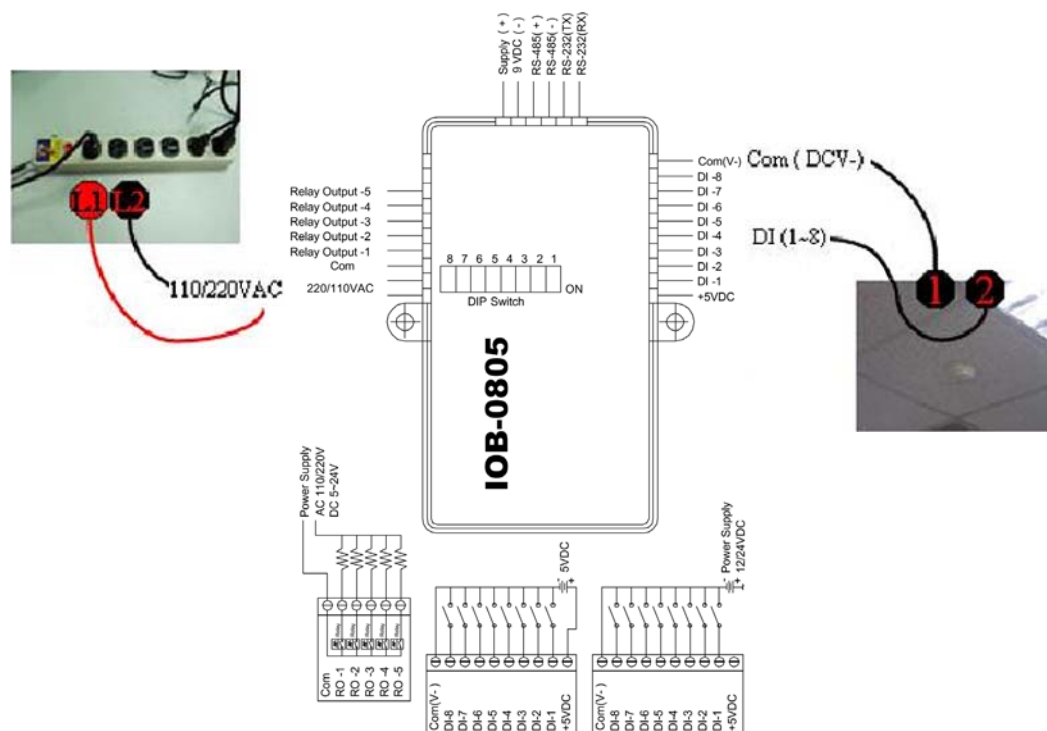
Application Example: Alarm Detection (Contact Input)

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.

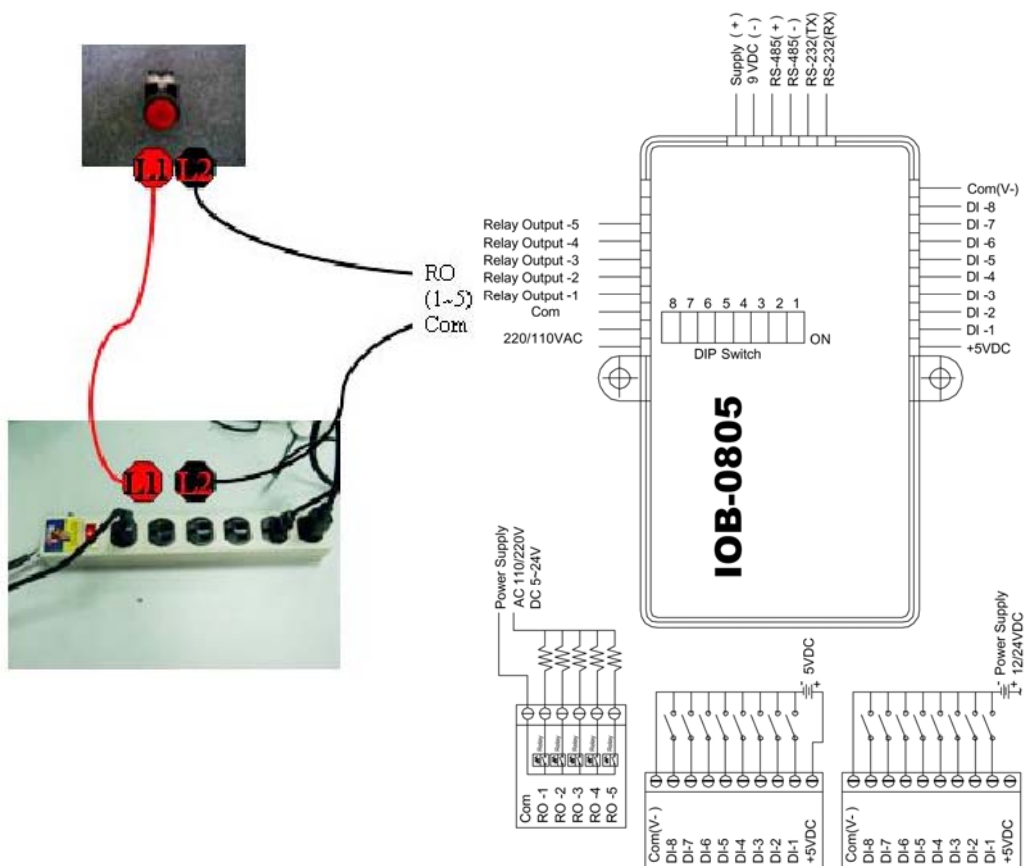
Fire Alarm Detector

(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.
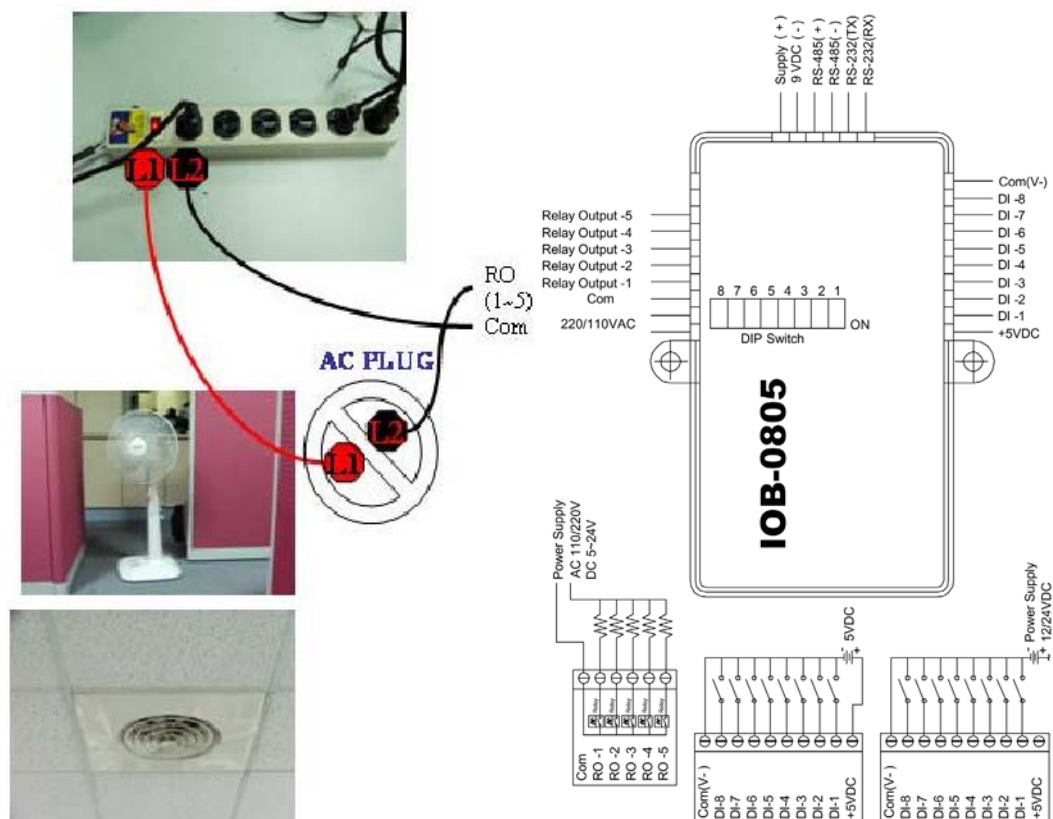
Application Example: Alarm Indicator (AC)

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

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

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

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)
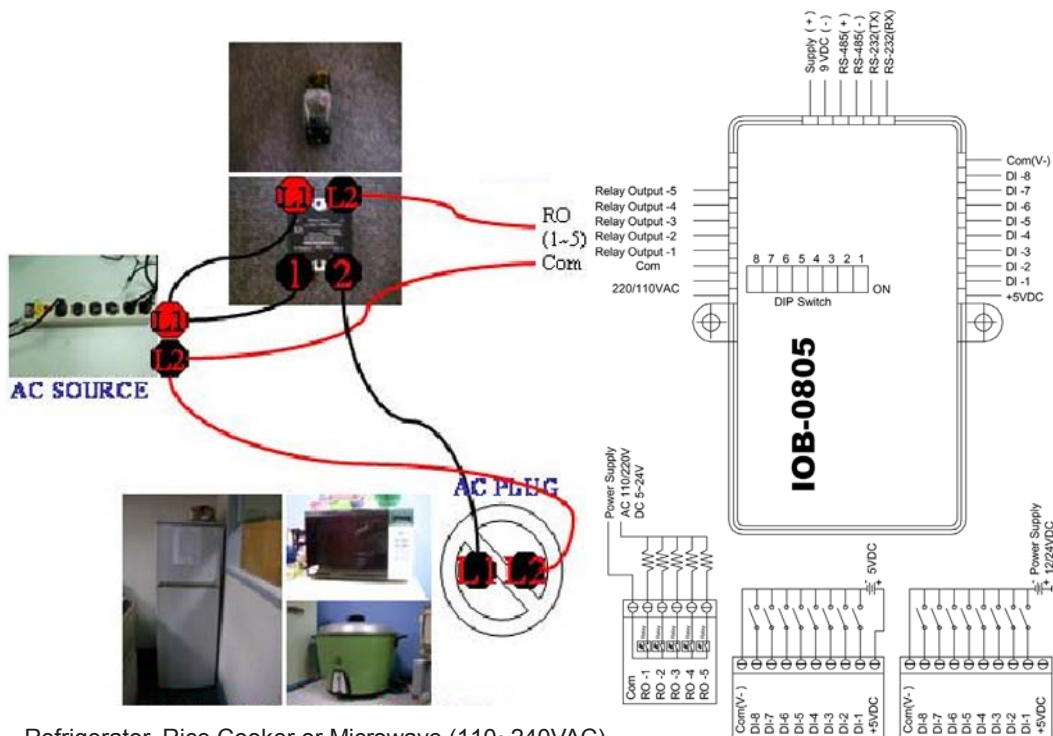

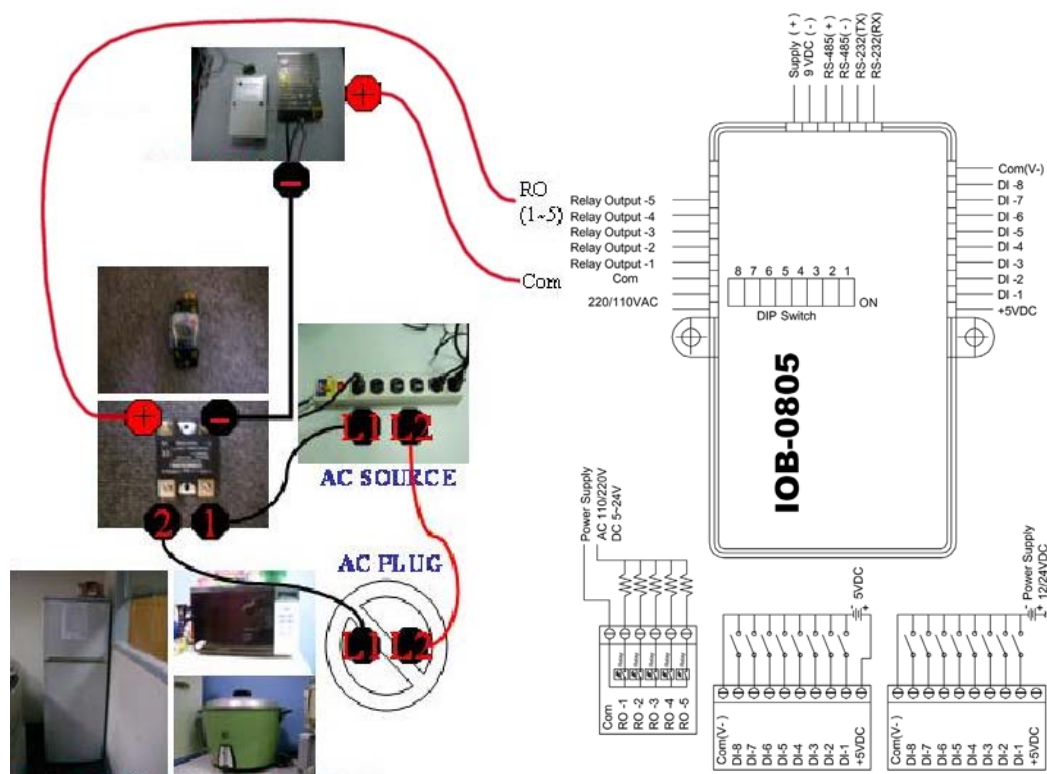Refrigerator, Rice Cooker or Microwave (110~240VAC)

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.

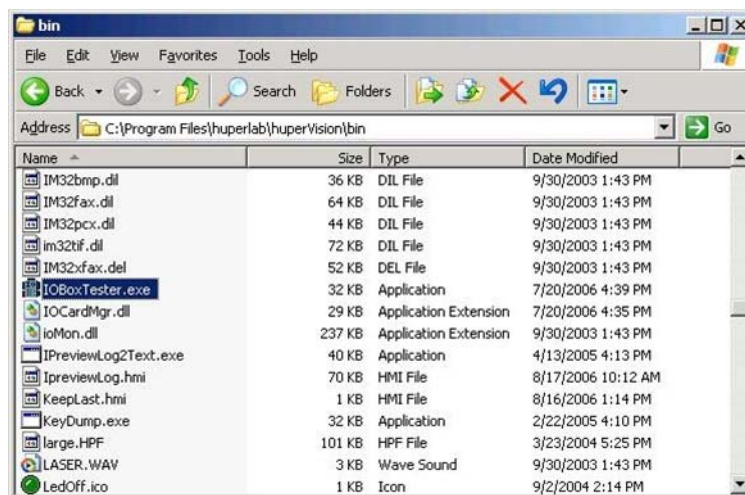IOB-0805 RO Wiring Example D: 15A/240V AC SSR or Relay (DC Control)

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 <u>bin</u> 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).

3. Double-click to run IOBoxTester.exe, then click the Scan button (see below).
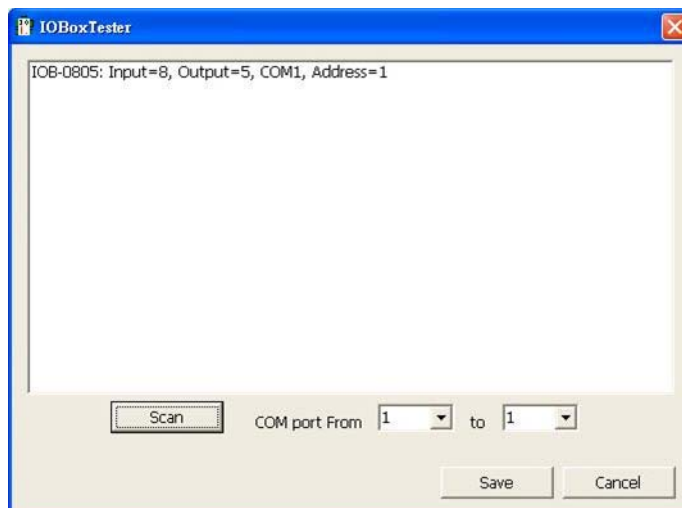
4. After the scan is completed, click the Save button.

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.
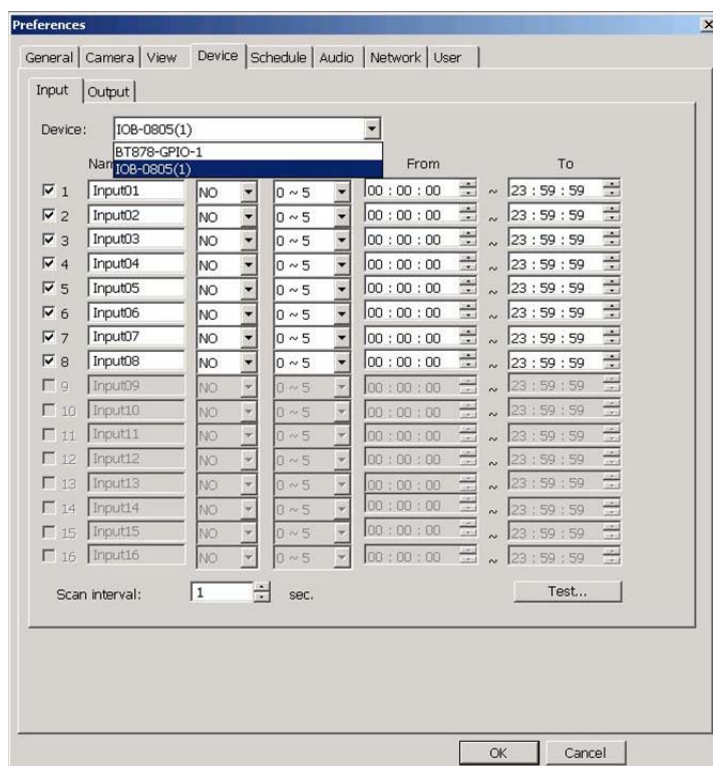
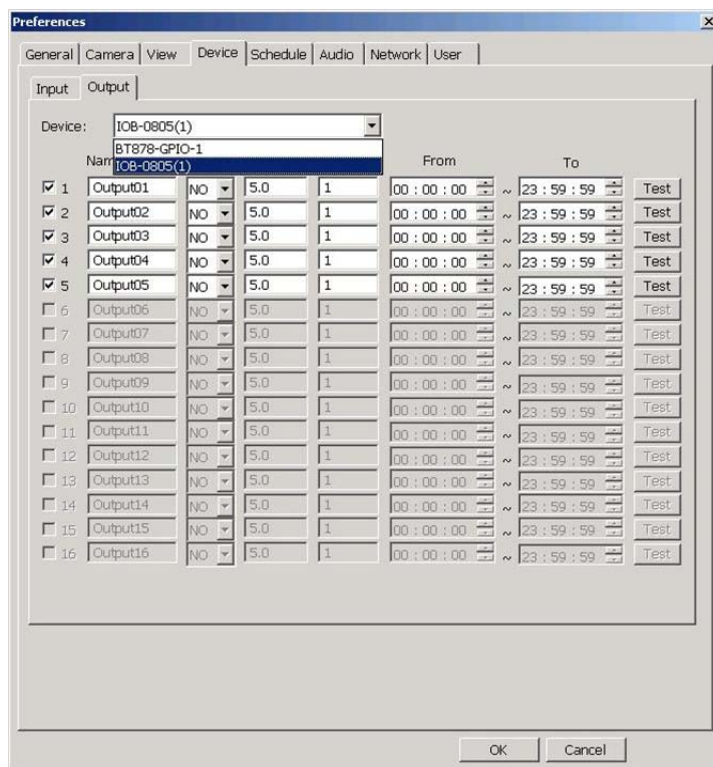## Output Settings

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.
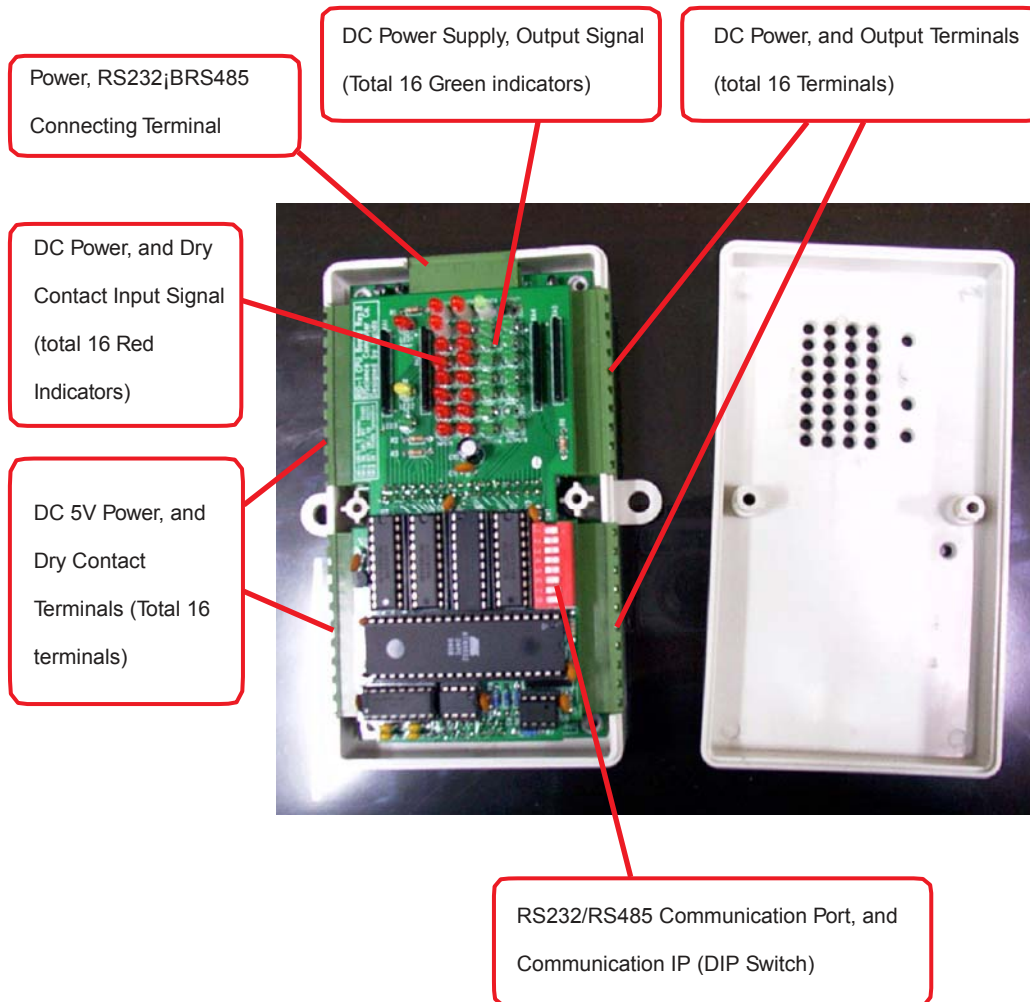
IOB-1616 BOX Guide

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） RS232：1200 – 115,200 bps； RS485：1200 – 921.6K bps
Communication distance	RS232： 50 feet 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)
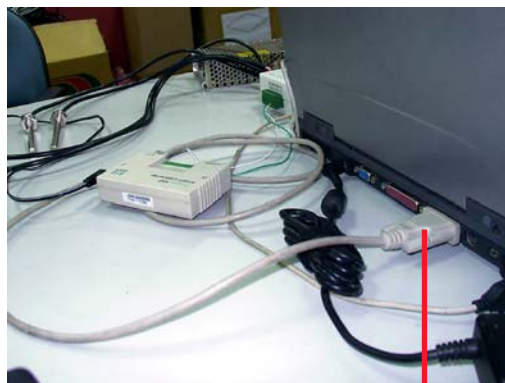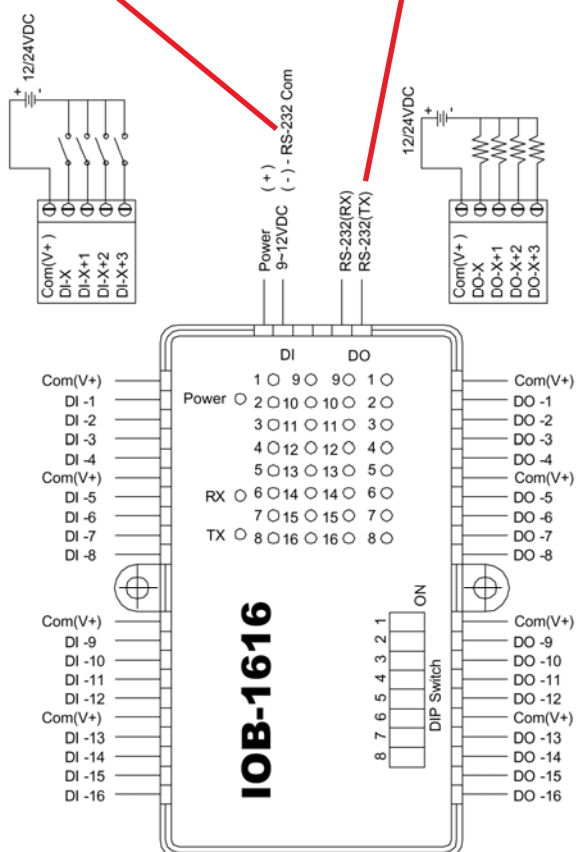
Installation

DVR Using RS232 Com Port

Connect to DC power supply

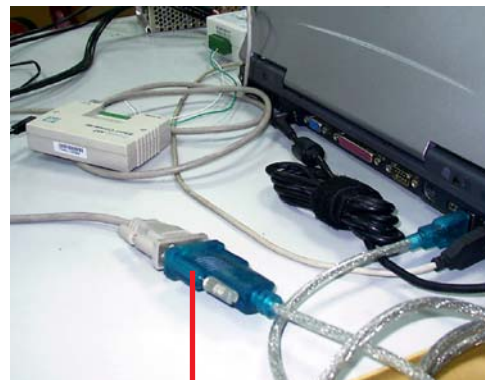Connect to RS232 Port (DVR

DVR Using USB to Connect to RS232 Com Port

Connect to DC power supply (Power consumption: 12VDC)
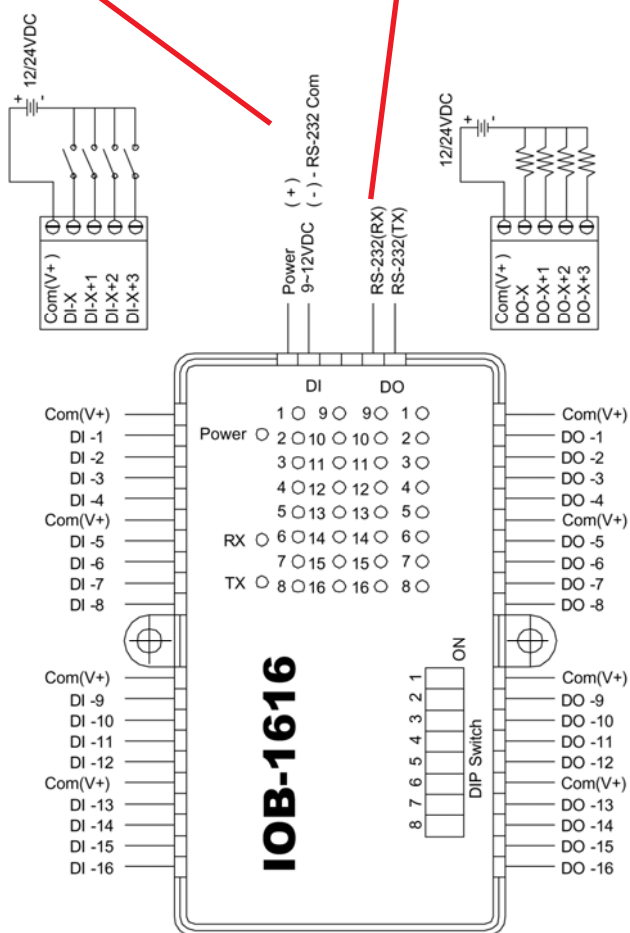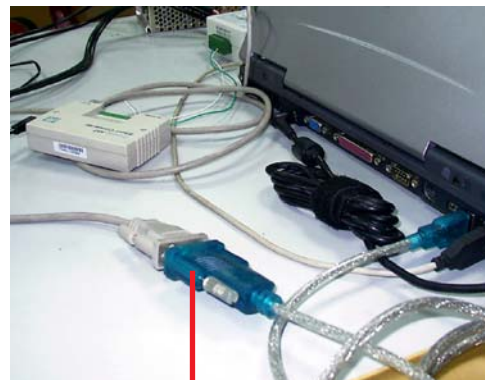
Connect to USB/RS232 converter (DVR without COM Port)

DVR Using USB to Connect to RS232 Com Port

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

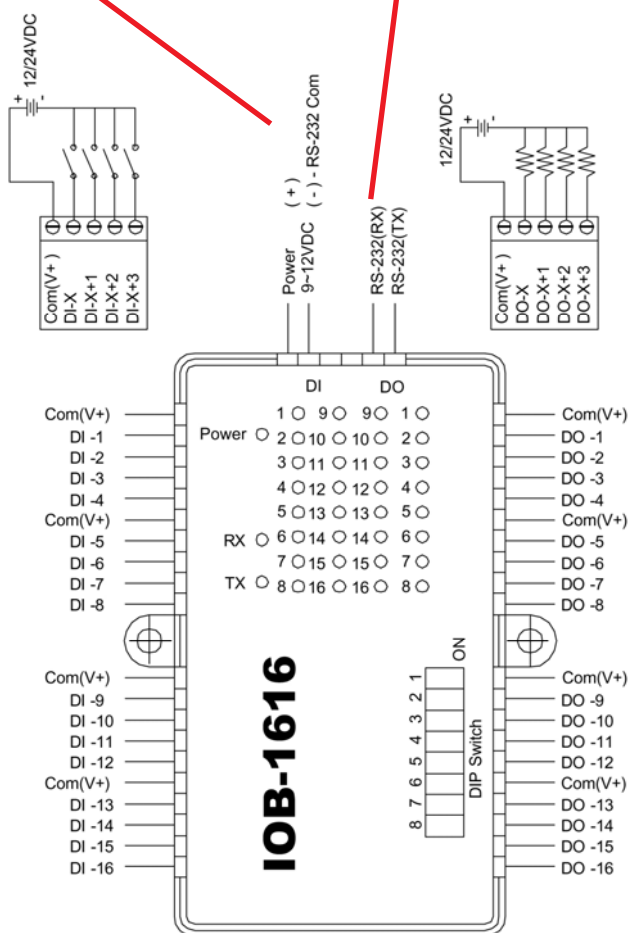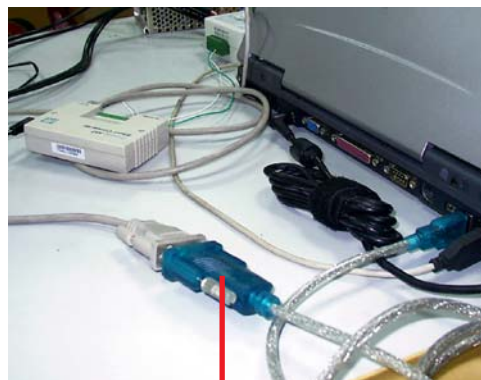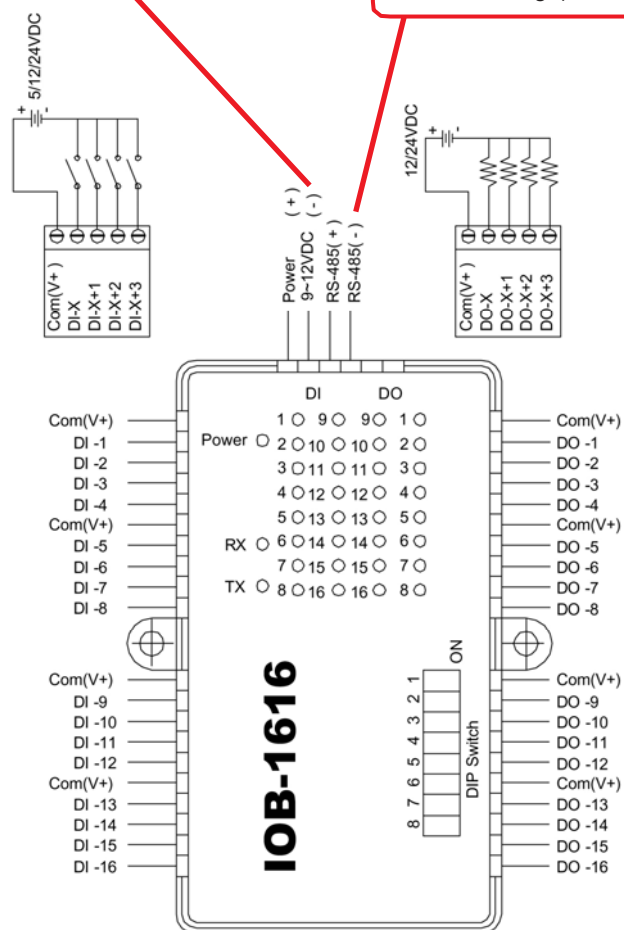Connect to USB/RS232 converter (DVR without COM Port)

DVR Using USB to Connect to RS485 Com Port

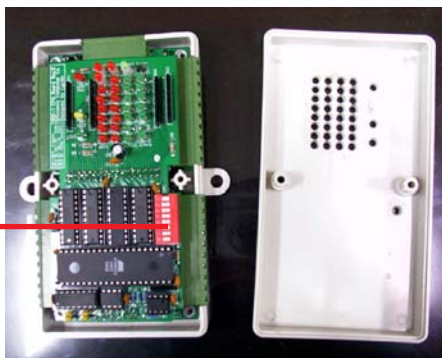Connect to DC power supply
(Power consumption: 12VDC)

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

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 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
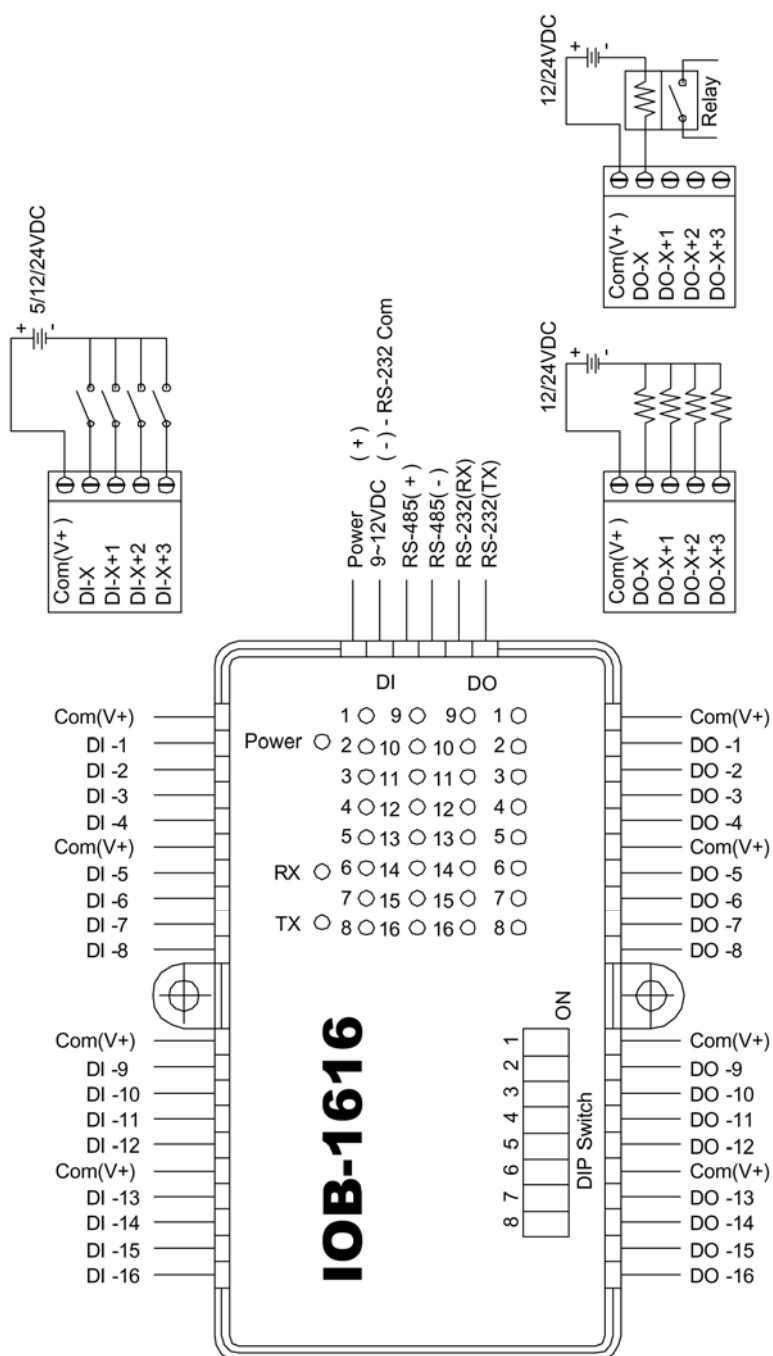
DI Input Control

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)

Fire Alarm Detector (Contact Input)

DO Output Control

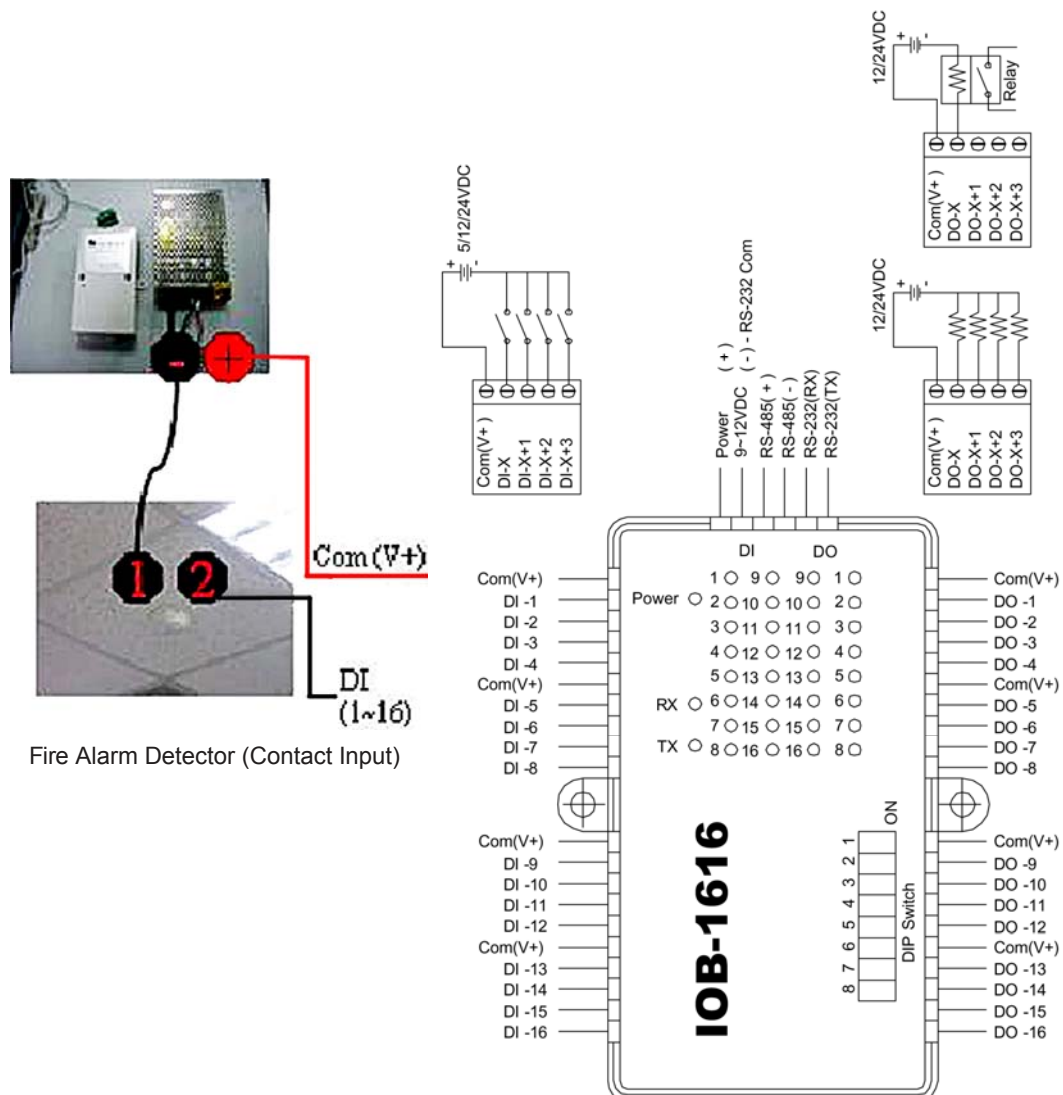1. Connect the COM port to +VDC. It's not allowed to connect to –VDC. The acceptable voltage is DC5V~DC24V.
2. 4 DI controls share the same power supply which accepts different levels of voltage starting from DC5V to DC24V

Application Example: Alarm Indicator (DC)

IOB-1616 DO Wiring Example A: Alarm Indicator (DC)
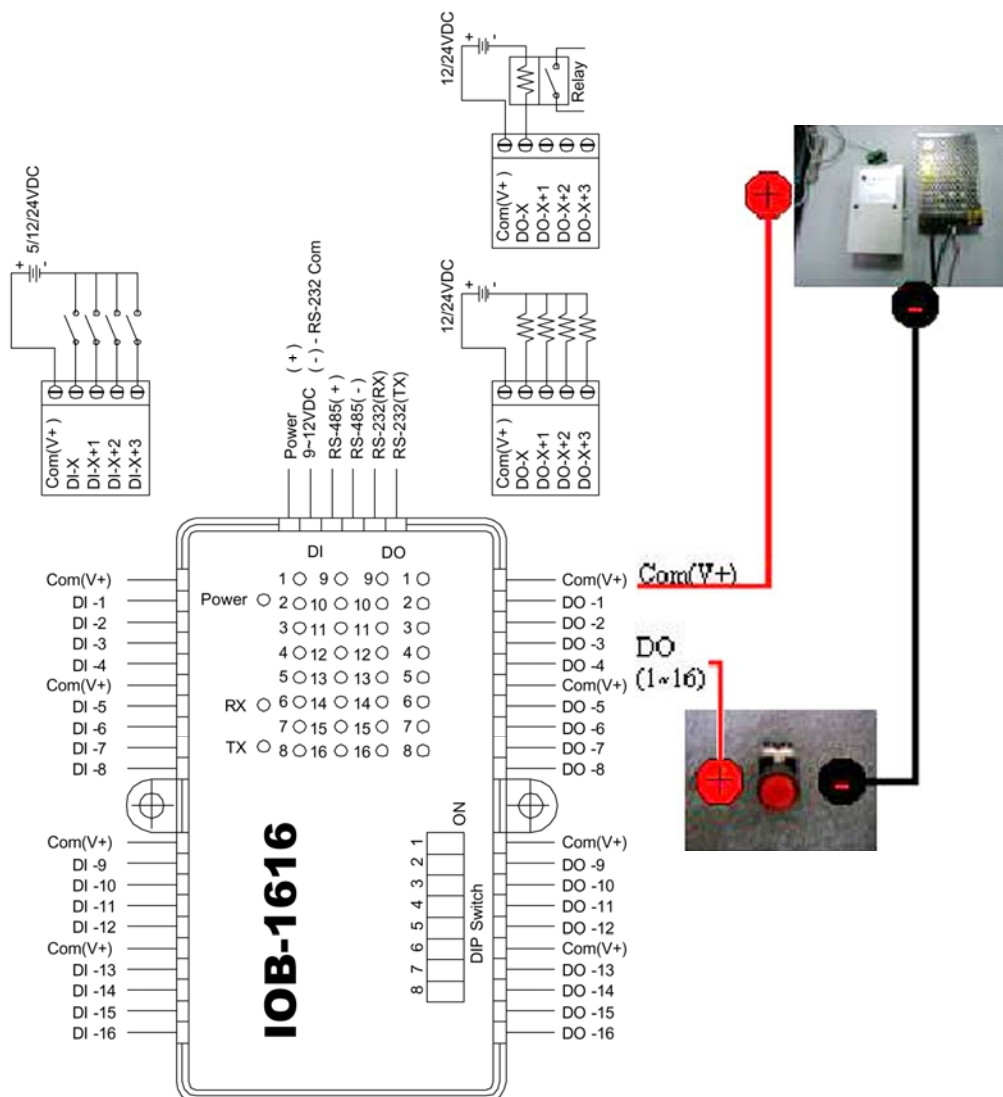
Application Example: Refrigerator, Rice Cooker or Microwave (70~240VAC)

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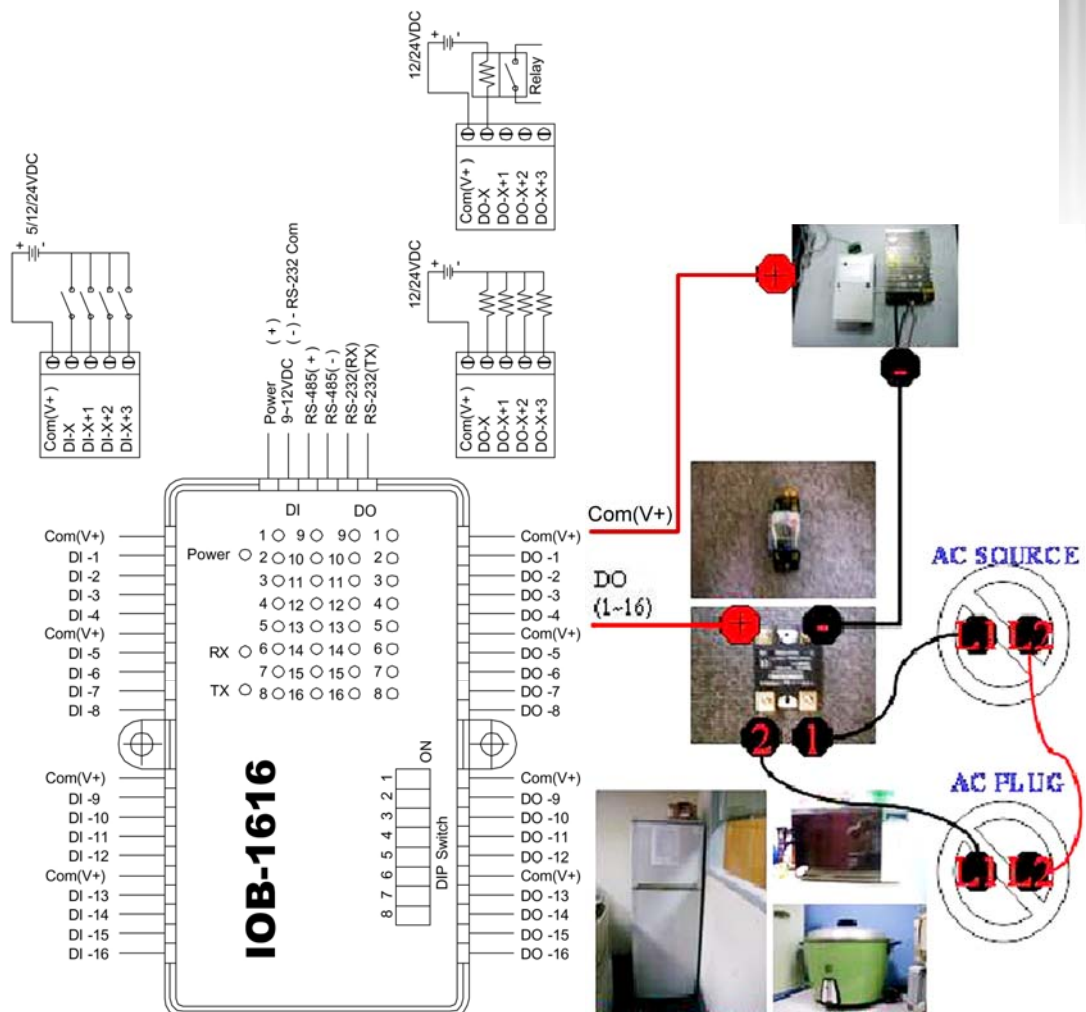
Refrigerator, Rice Cooker or Microwave (110~240VAC)

Settings at huperVision

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

1. Please find the <u>bin</u> 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).

3. Double-click to run IOBoxTester.exe, then click the Scan button (see below).
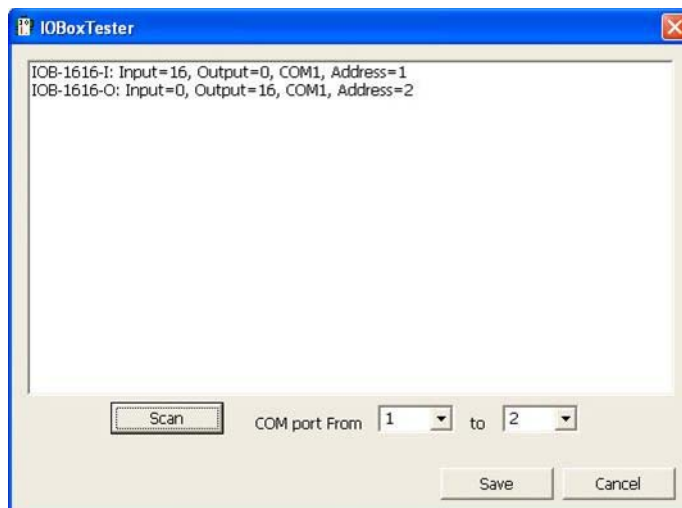
4. After the scan is completed, click the Save button.

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.
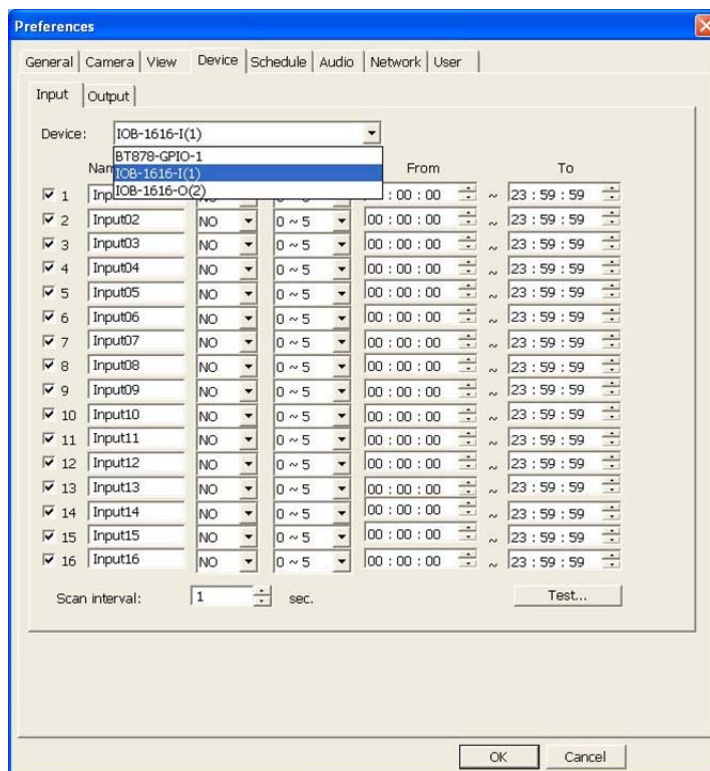
Output Settings

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.
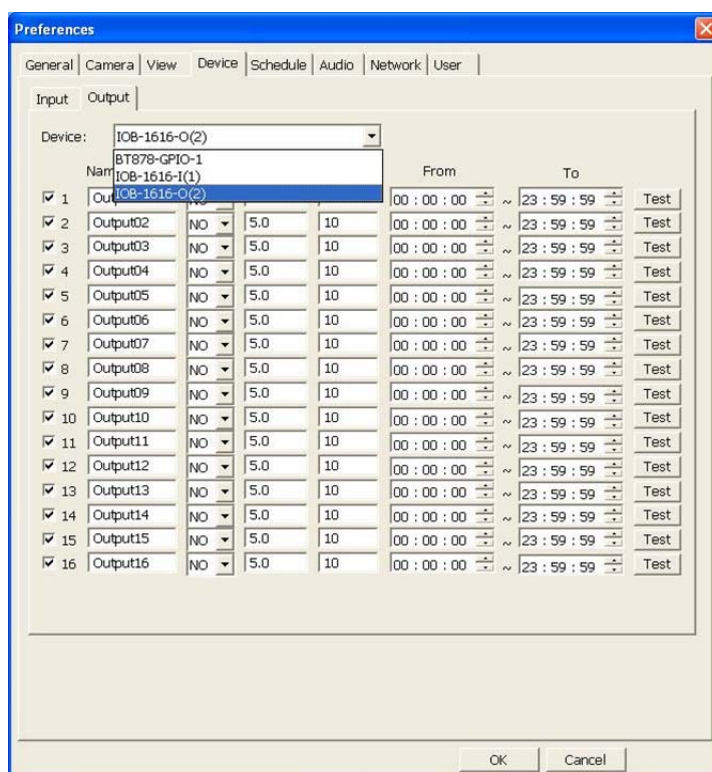
LB-16 Input Video Loopback Card

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, 75 Ω 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	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)

```
25 ◇◇◇◇◇◇◇◇◇◇◇◇◇ 1
26 ◇◇◇◇◇◇◇◇◇◇◇◇◇ 2
```

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)

```
25 ◇◇◇◇◇◇◇◇◇◇◇◇◇ 1
26 ◇◇◇◇◇◇◇◇◇◇◇◇◇ 2
```

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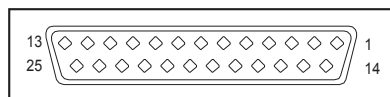
Pin no.(P4)	Signal	Pin no.(P4)	Signal
1	Ground	14	Video 1
2	Video 5	15	Ground
3	Video 9	16	Video 13
4	Ground	17	Video 2
5	Video 6	18	Ground
6	Video 10	19	Video 14

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

4404Q / 4408DB / 4408QB Video Input Connector

16 Channel Video Output

Video Signal 75Ω Switch Optional
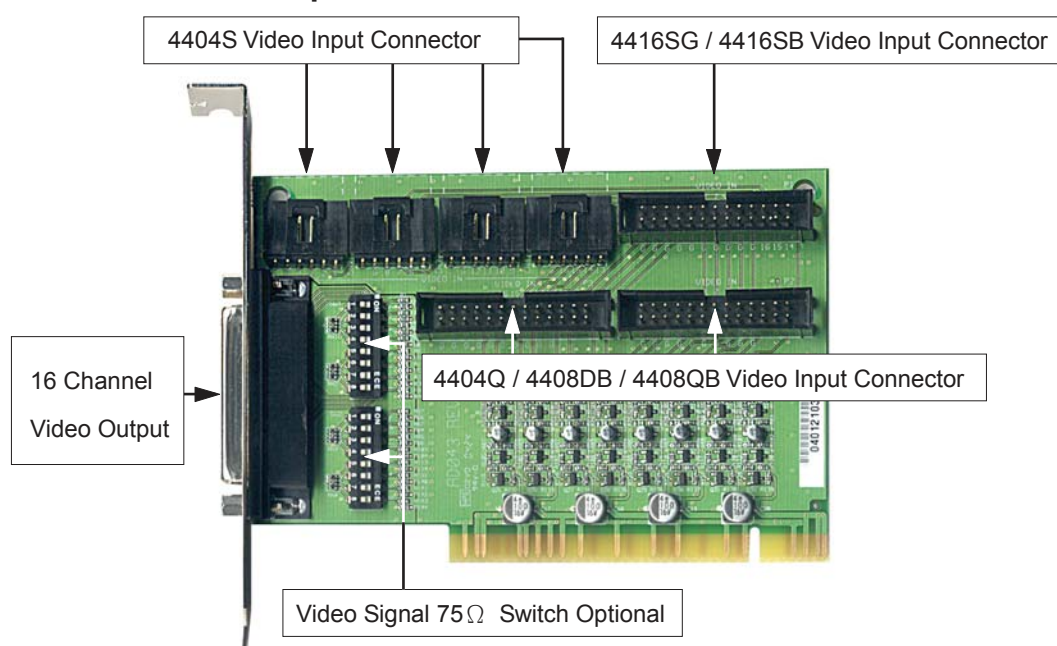
Capture Card Model / Max Number	Slots for connection	# of Loop Back Channels
4404S x 4	P4, P5, P6, P7	4, 8, 12, 16
4416SG x 1	P1	16
4416SB x 1	P1	16
4404Q x 2	P2, P3	4, 8
H4008DB x 2	P2, P3	8, 16
H8008DB x 2	P2, P3	8, 16