# O2B2



speco technologies®

### Directions

Be careful not to cause any physical damage by dropping or throwing the camera. Especially keep the device out of reach from children.

Do not disassemble the camera. No after service is assumed when disassembled.

Use only power adapters compatible with the unit.

Be careful to prevent moisture or water penetration into the unit. Particular attention is needed when installing the unit. The screw holes for the installation screws and pipe should be maintained water tight during the whole life time of the product.

All the electrical connection wires running into the unit should be prepared so that water from the outside cannot flow into the unit through the surface of the wires. Penetration of the moisture through the wire for extended period can cause malfunction of the unit or deteriorated image.

### Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into and outlet on a circuit different from that to which the receiver is connected

<div style="text-align:center;">

## Caution

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Any changes or modifications in construction of this device which are not explicitly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## Revision History

| Date | Revision | Details |
|---|---|---|
| Oct 25th, 2013 | 1.0 | First manual revision creation. |
| Nov 7th, 2013 | 1.1 | Text revisions |
| Mar 7th, 2014 | 1.11 | Minor revision |

# Contents

# 1. Introduction

## 1.1. Overview

The O2B2 is multi-codec (H.264, MJPEG) professional bullet IP camera built with embedded software and hardware technology. It enables real time transmission of synchronized video of up to 1080p and audio data. Remote clients can connect to O2B2 for the real time video/audio data through various client solutions running on PC or smart device. Real time 2-way communication is available through bidirectional audio communication feature.

Designed to be a stand-alone streaming audio & video transmission device, O2B2 can be applied to various application area such as video security, remote video monitoring, distance education, video conference or internet broadcasting system.

Vandal resistant and weather proof housing will extend the application area to harsh environment of wide temperature range.

Integrated PoE (Power over Ethernet, IEEE 802.3af) will enable the owner to reduce the total cost of ownership by reducing on-site wiring for the installation.

## 1.2. Specifications

| Category | Sub-Category | Details | |
|---|---|---|---|
| Video | Compression | H.264 / MJPEG | |
| | Resolution | 1920 x 1080 | |
| Audio (Bi-directional) | Up | 32 Kbps G.726 | |
| | Down | 64 Kbps PCM | |
| Network | Interface | RJ-45, 10/100 Mbps | |
| | Access network | Static, DHCP, PPP/PPPoE | |
| | Application | RTP, RTSP, SMTP, FTP, HTTP, SDP, NTP, DNS | |
| I/O | Sensor In | 1 | NC, NO Selectable |
| | Relay Output | 1 | |
| | RS-232C | N/A | |
| | Mic/Line In | Selectable in Admin page | |
| | Line Out | 1 V p-p output for amplified speaker | |
| Power Supply | PoE | Power over Ethernet (IEEE 802.3af) | |
| | DC Adapter | 12V DC adapter (1 Amp) | |
| Housing | IP66 compliant | | |
| Motion Detection | 3 zones | Arbitrary shape with independent sensitivity | |
| Upgrade | Firmware upgrade over IP network | | |
| Administration | Remote administration over IP network | | |
| Client & Viewer | Web Viewer | Internet Explorer 8 and up | |
| | VMS | Speco NVR (Windows) | |
| Dynamic IP support | DDNS support | Speco DDNS (free of charge) | |
| Security | Video/Audio stream encryption | | |
| | ID and Password protection | | |
| | IP filtering for restricting administrative | | |

| Time management | Sync to PC | Synchronize to PC |
|---|---|---|
| | Manual | Manual time setting |
| | Internet Time Server | Synchronize to Time Server |
| SDK support | Active-X | Supported |
| | HTTP | Supported |

## 1.3. Applications of O2B2

- Security surveillance (buildings, stores, manufacturing facilities, parking lots, banks, government facilities, military, etc.)
- Remote monitoring (hospitals, kindergartens, traffic, public areas, etc.)
- eleconference (Bi-directional audio conference). Remote Learning, Internet broadcasting
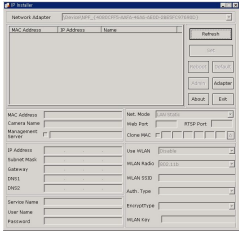- Weather and environmental observation

# 2. Product Description

## 2.1. Contents

The product package contains followings :

| Contents | Description | Remarks |
|---|---|---|
| **Main Unit** | O2B2 | |
| **Accessories** | CVBS Cable 1EA<br>Screws (3 pieces of 1 type)<br>Anchors (3 pieces of 1 type)<br>L-type wrench with six angles 1EA | |
| **CD** | Software & User's Guide | |
| **Quick Reference Guide** | Quick installation guide | |

## 2.2. Product Preview

| O2B2 | IP Installer | VMS Software (Speco NVR) |
|---|---|---|
| |  |  |
| Main Unit | PC software to allocate an IP address to the IP Camera | PC software to view and record the A/V streaming data transmitted from IP camera.<br>(Simultaneous support of up to 64 IP cameras@D1) |

## 2.3. Physical description

### 2.3.1. External View



**Figure 2-1. External view of O2B2**
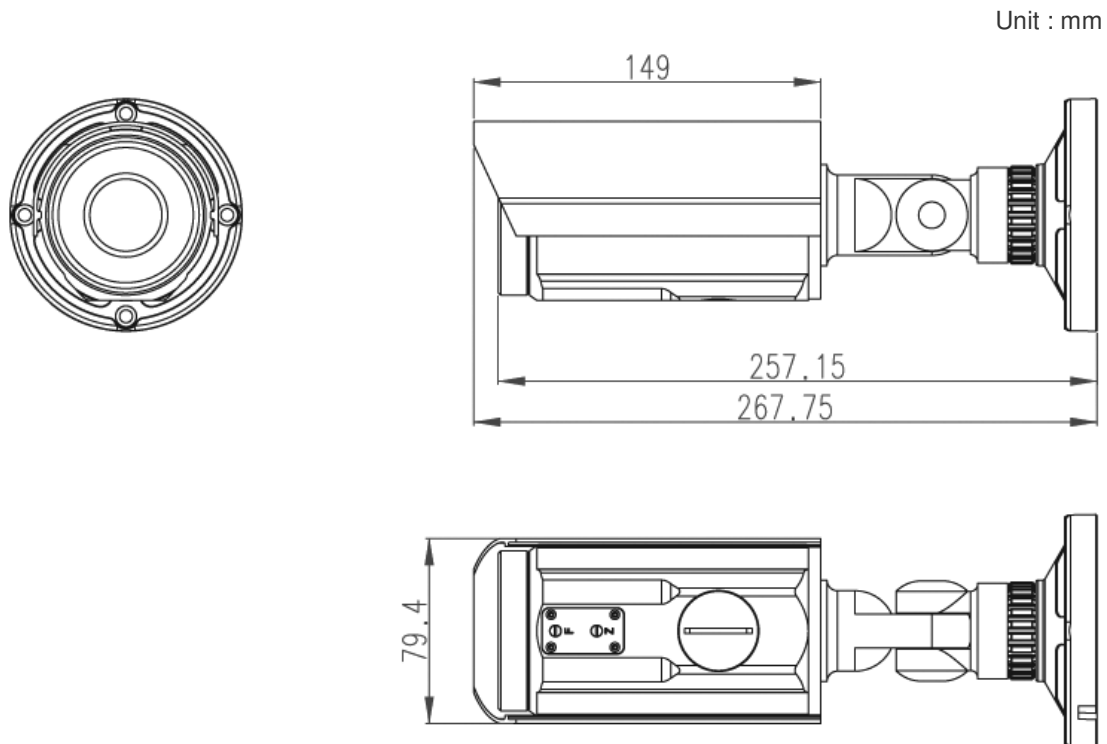
### 2.3.2. Dimensions

Unit : mm



**Figure 2-2. Dimensions**

**2.3.3. Connector Information**



Line Output

Network (LAN)

Mic/Line Input

Power

Sensor Input (white(+), Red(-))
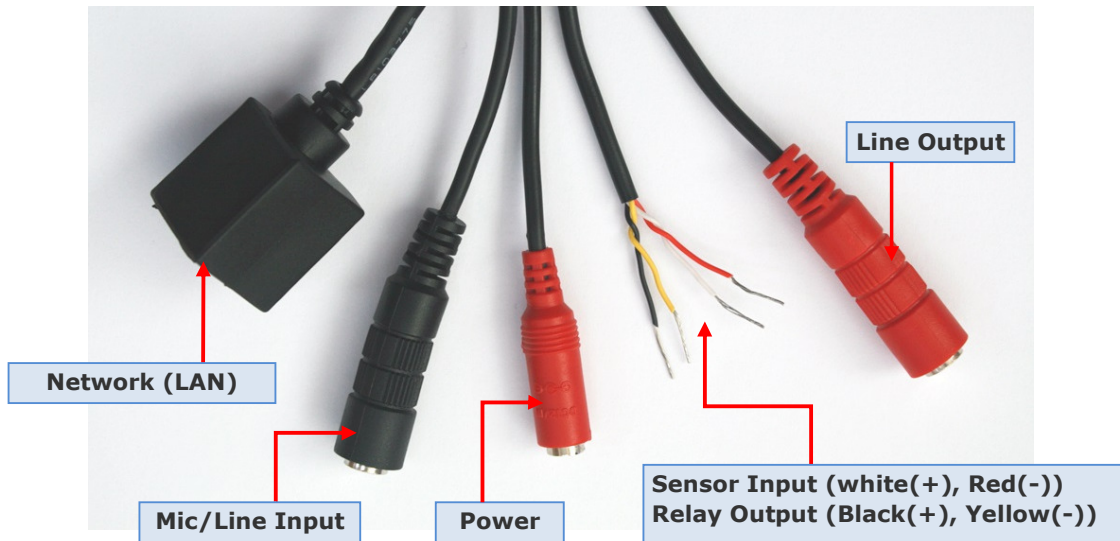Relay Output (Black(+), Yellow(-))

**Figure 2-3. Connector information**

## 2.4. Functional Description

- **Power : Power input for supplying 12V DC, 1A power.**

    **Caution : If O2B2 is powered by PoE, do not plug in DC Jack with active DC power into DC power connector.**

- **Network (LAN)**

    100Mbps Ethernet connector (RJ-45) with PoE standard (802.3af). LED on the Ethernet connector shows the status of O2B2 as the followings:

    - **Status LED** (It will be lit in green or red depending on the status)

        ① Green : Green color indicates that the camera is in normal operation mode. Continuous green indicates that data transmission is possible. Blinking green means that someone is connected to O2B2.

        ② Red : Continuous or blinking red indicates that hardware is in abnormal condition.

    LED will be lit with red momentarily and it will be lit with green after a while when power is applied into O2B2
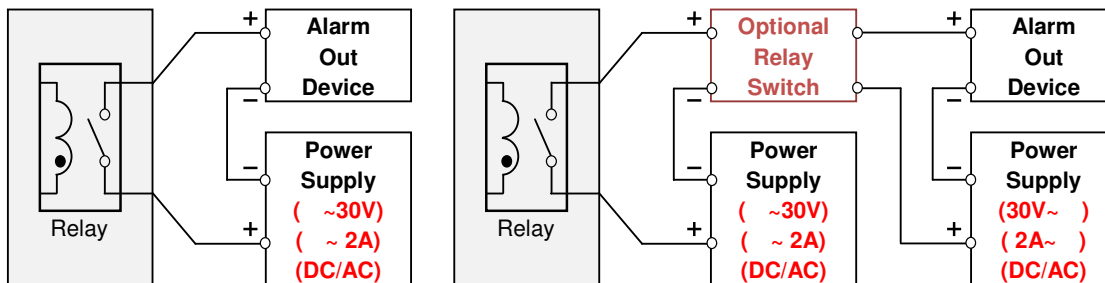
- **MIC/Line Input**

    Connect external audio source or microphone.

- **Line Output**

    Connect speakers with built in amplifier. Audio from remote site is output through Line out in bi-directional audio mode.

- **Relay Output**

  Relay output is provided for connecting alarm devices or for remote on/off control of devices such as light. Relay is normal open and it will be closed upon alarm annunciation or remote on.   The relay is capable of switching 30V AC/DC, 2A. For the application which needs power switching beyond this limit, use additional relay switch as shown in the right of Figure 2-4.



   * **Left : switching requirement below 30V, 2A**

   * **Right : switching requirement higher than 30V, 2A. Apply this connection when either volt**
        **age or current exceed the limit.**

**Figure 2-4. RELAY Output connection**

- **Sensor Input**

  Connect external alarm sensor. Examples of sensing devices are infrared sensor, motion sensor, heat/smoke sensor, magnetic sensor, etc.   Connect the two wires of the sensors to "SNS In". The sensor type(NC/NO) can be set in admin page. Multiple sensor devices can be connected in parallel.
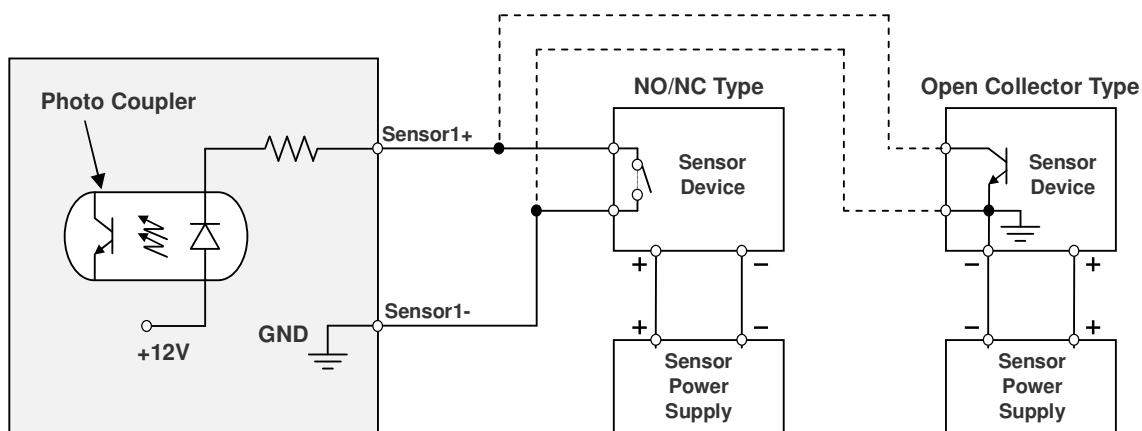


**Figure 2-5. SENSOR input and connection of the sensor**

• **Factory Default Switch & Micro SD Card Eject switch**

There is a switch provided for returning the encoder box to factory default state or safely eject the micro SD card. Press the switch for 5 seconds while power is applied to return the encoder to factory default state or press for 1 second to unmount the micro SD card for safe removal.
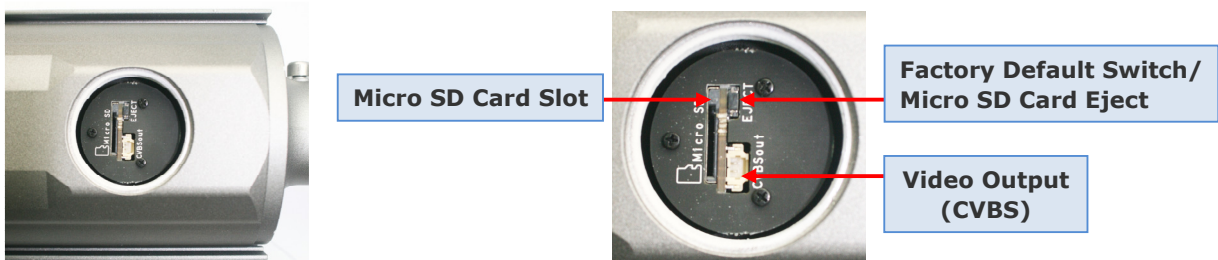


**Micro SD Card Slot**

**Factory Default Switch/ Micro SD Card Eject**

**Video Output (CVBS)**

**Figure 2-6. Factory Default Switch & SD card Eject switch**
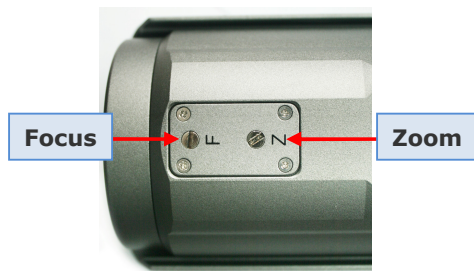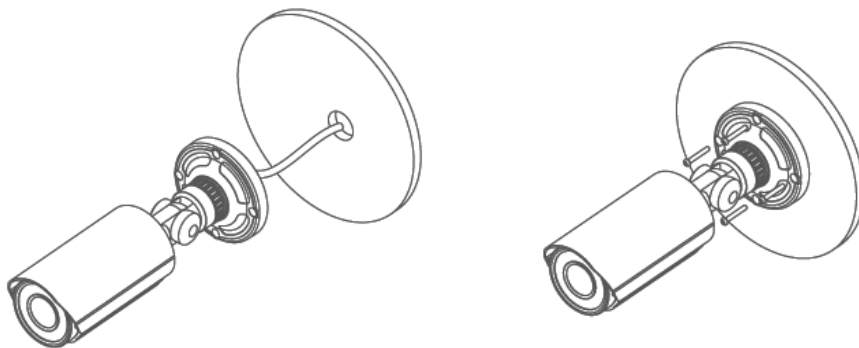


**Focus**

**Zoom**

**Figure 2-7. Focus and Zoom Control**
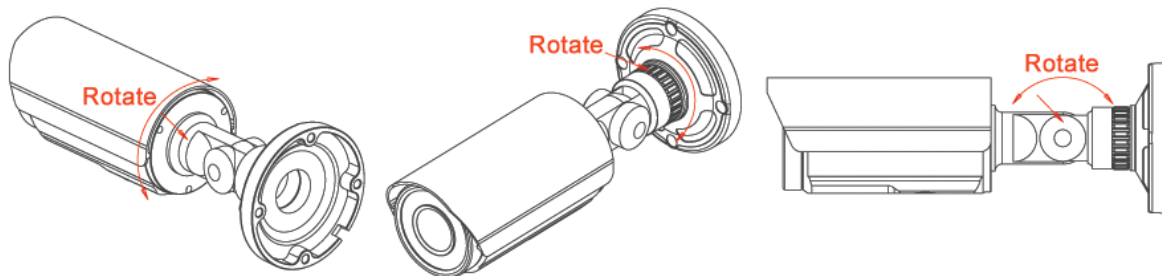
# 3. On Site Installation

Use Cables and conduits that are suitable for the installation. Particular attention should be paid in the installation so that no moisture is allowed to penetrate into the unit through the cables or conduits during the life time of the product. Products of which the internal parts are exposed to moisture because of improper installation are not covered by warranty. Follow the procedure below for proper installation

## 3.1. Ceiling or Wall Installation

1. Connect cables.
2. Fix the camera on wall or ceiling.



3. Adjust the position of the lens for desired viewing of the site.



4. Adjust the focus.

# 4. Getting Started

Brief information for first time operation of O2B2 is provided in this chapter.

## 4.1. PC Requirement

Audio/Video streaming data received from O2B2 can be displayed or stored in a PC running client programs. Minimum requirement of the PC is described below:

|  | Minimum Requirement | Recommended Specification |
|---|---|---|
| CPU | Intel Core i3 3Ghz | Intel Core i7 |
| Main Memory | 2GB | 4GB |
| Operating System[*] | Windows XP | Windows 7 (64bit) |
| Web Browser | Internet Explorer 8, 9 | Internet Explorer 8 or higher |
| Graphic Card | Video RAM 256MB<br>Resolution 1920x1080 | Video RAM 1GB<br>Higher than 1920x1080 |
| Network | 100 Base-T Ethernet | 100 Base-T Ethernet |

* Operating Systems supported: Windows 2000 Professional, Windows XP / Vista / 7

## 4.2. Quick Installation Guide

### 4.2.1. Connect PC and O2B2 to network.

1. Prepare a PC to run programs for the installation and video connection

   (PC is needed to assign IP address to O2B2)

2. In the case of using PoE, connect the PC and O2B2 to the network using one of the following ways.

   If your LAN Switch does not support standard PoE, connect O2B2 as shown in dotted line in Figure 4-1.

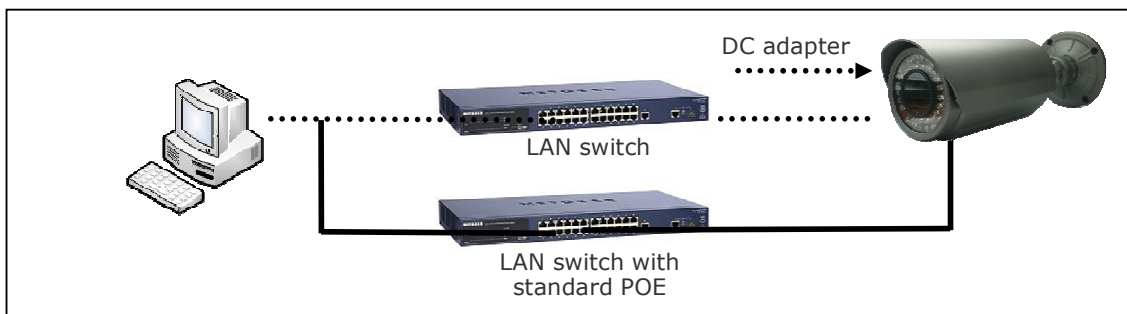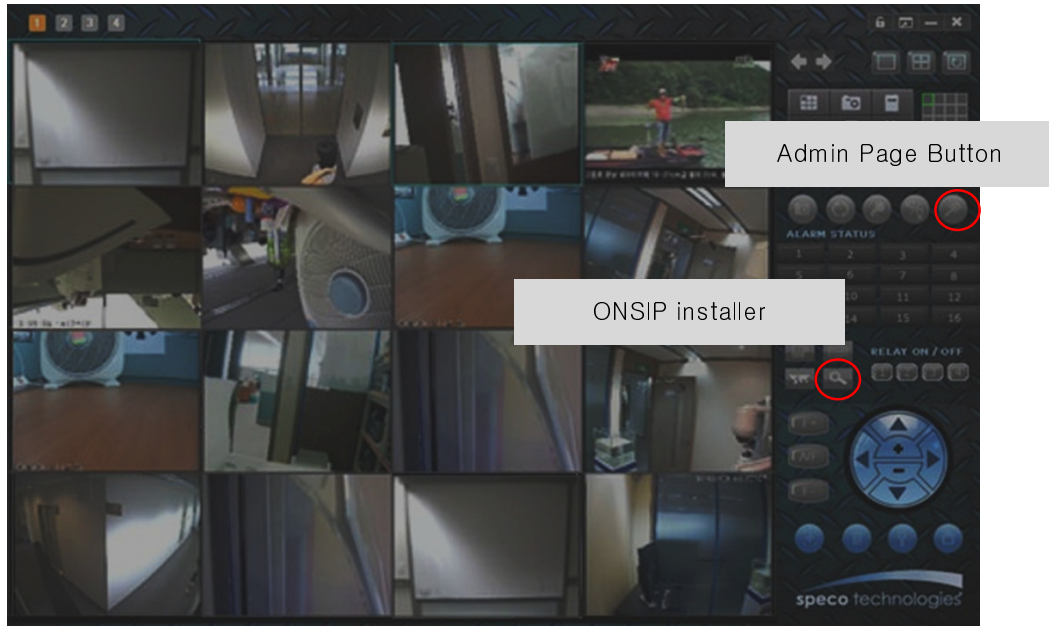   The DC power is applied through DC adapter.



**Figure   4-1. Power and network connection**
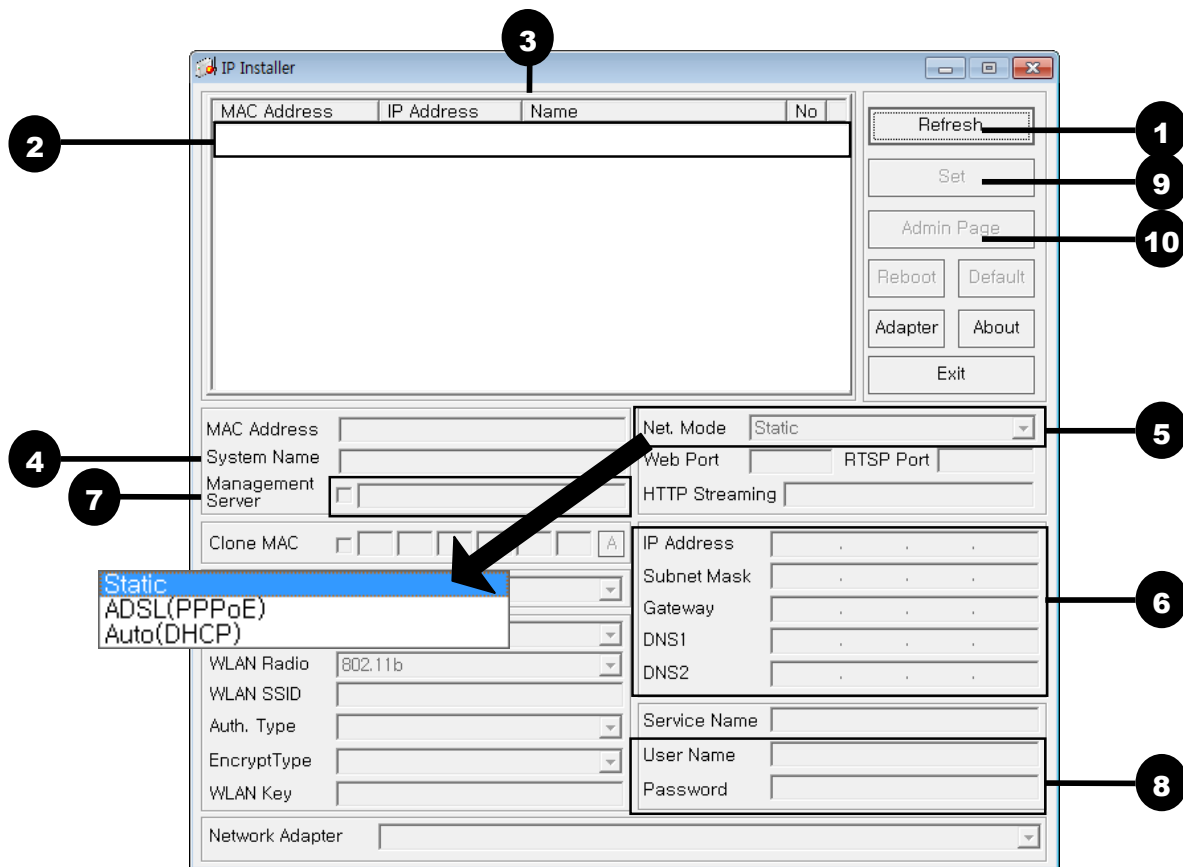
### 4.2.2. Install Speco-NVR

Speco-NVR is a multi-channel VMS program for the IP camera. Install Speco-NVR on remote PC to connect to these products. It is needed to assign connection information to Speco-NVR program before connection.

Insert the CD provided with product into the PC and install Speco-NVR.

Follow the sequence below for setting the IP parameter

i)      Run ONSIP installer

ii)     Click (1) in ONSIP installer window.> Double click on (2) > Fill in (4) > make a selection in (5) > Fill the
        parameters in (6)

iii)    Click on (9) to apply the settings.

iv)     You can connect to admin page by clicking on (10).

Click on the field in **(3)** for sorting and rearranging the list.

Select network mode that best suits from the drop down list in **(5)**. You can choose either Static or ADSL and Auto (DHCP), respectively. If ADSL and Auto are selected, the fields in (6) are deactivated.

In case of ADSL, fill the User Name and Password in (8) with the values provided by your ISP.

If DDNS service is needed, Check at the box and fill the empty field with hostname you want in (7).

**4.2.3. Remote video connection to O2B2**

1. Connection through Web Viewer

   Web Viewer offers simplest way of video connection to O2B2. For video connection, enter the IP address of O2B2 in the URL window of Internet Explorer as:

   [e.g.] Port 80      http://172.16.64.133/      Can be omitted the default port of 80

   [e.g.] Port 8080    http://172.16.64.133:8080/

   Note : Active-X module should be installed on your PC before actual connection. If your PC is not connected to the internet, you cannot download Active-X module. Most convenient way of installing the Active-X module is installing NVR-pro which is available from the CD or our web site.

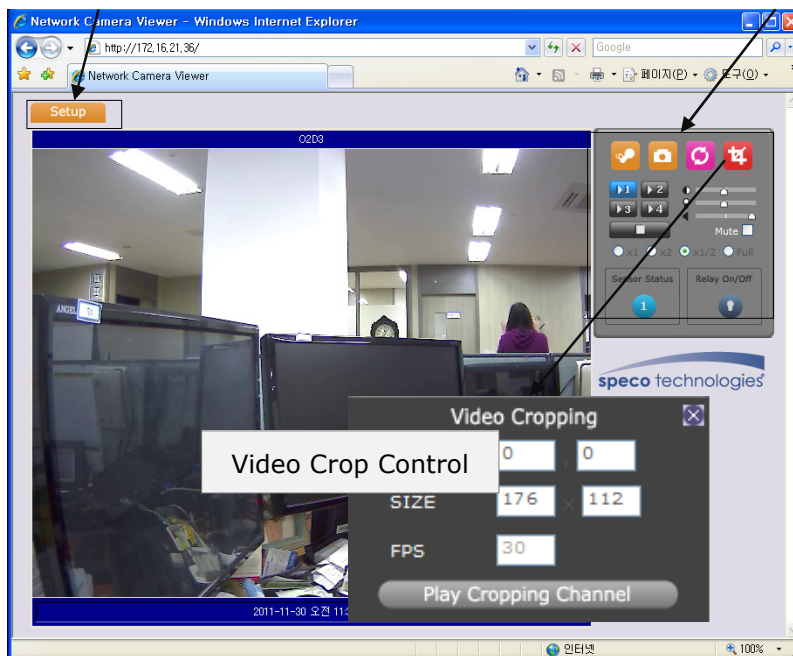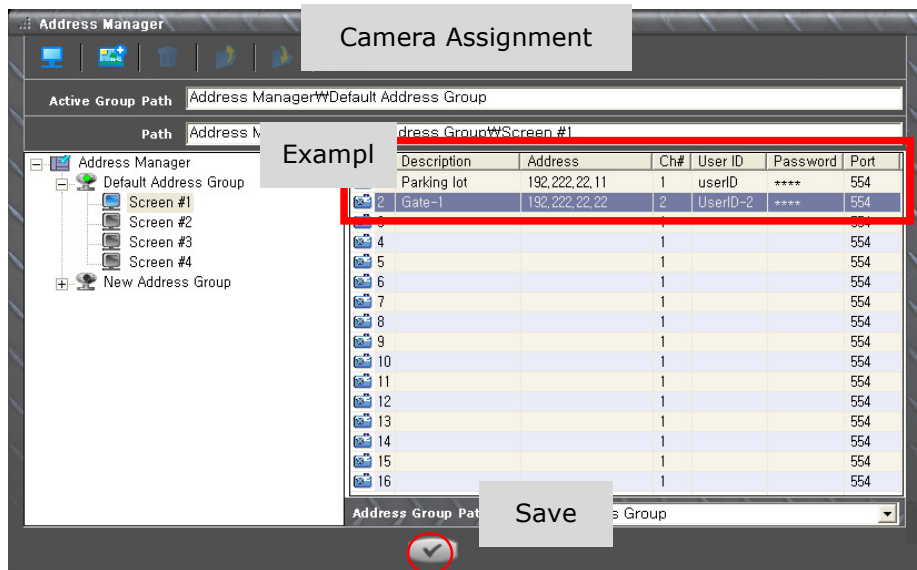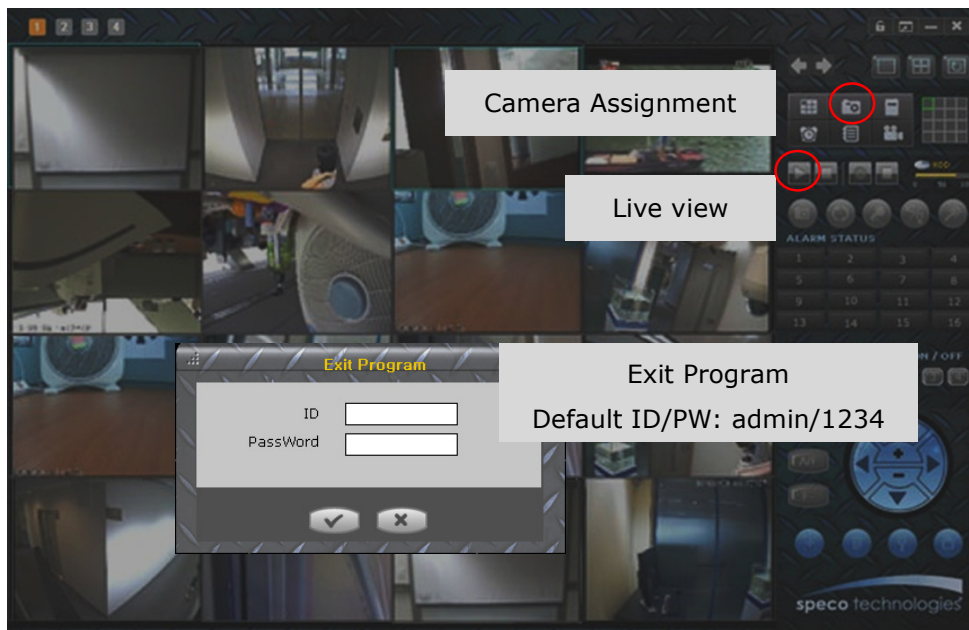**Connection to Admin Page**                    **Basic Control**



**Video Crop Control**

**Figure 4-2. Web Viewer**

Default ID and password of Admin Page are "**admin**", "**1234**".

For more detailed information, please refer to the "**Configuration_Guide**".

2.  Connection through Speco-NVR

3.  Click the camera assignment button for setting the camera address. Input the description, address, Ch#, User ID, Password and port and then click the save button. After assignment procedure, you must click the SAVE button. You can see the live video when you click the live view button as below. When you exit Speco-NVR, you have to input the ID/PW, admin/1234. Details for Speco-NVR can be found in **[Speco-NVR User's Guide]**.



4.

**Figure 4-3. Speco-NVR**

**4.2.4. Additional settings through connection to the Admin Page**

All the parameters of new IP camera follows factory default values. For more sophisticated target application it is needed to change parameters. The admin page can be connected through

"http://**IP_Address:Port_Number**/admin.htm"

ID and password of the administrator are required. Default ID and password are **admin, 1234**. It is highly recommended to change the ID and password to prevent illegal access to the IP camera. For more detailed information, please refer to the [Configuration_Guide].
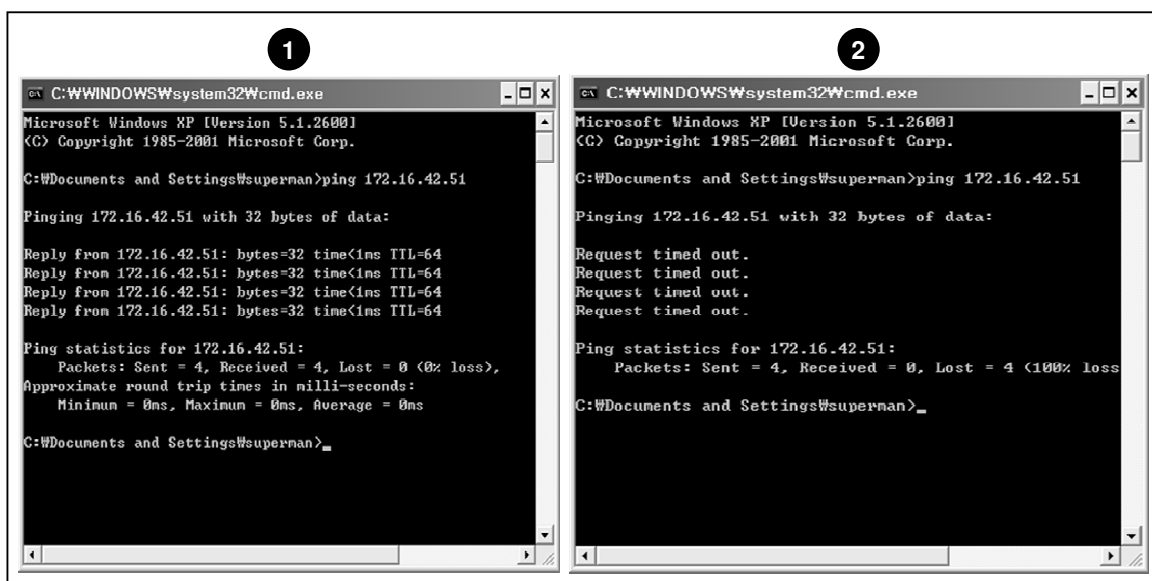
# 5. Troubleshooting

## 5.1. No power is applied

- In case of Standard PoE (Power over Ethernet)

  Power supply through standard PoE is possible only when the following conditions are met.

  1. Standard PoE is supported on the product.

  2. The LAN switch supports standard PoE.

  Make sure that both the IP camera and the LAN switch support standard PoE (IEEE 802.3af)

- In case of DC adapter

  If PoE is not applied, the power and network connection should be made through separate cables. It is recommended to use a DC adapter supplied by the provider for the feeding of the power. In case of replacing the DC power supply, make sure that the power supply meets with the power requirement of the IP camera to prevent damage or malfunction.

## 5.2. Cannot connect to the Video

Check the status of the network connection through PING test.

Try the following on your PC :

- Start > Run > Cmd > Ping IP address (Ex : Ping 172.16.42.51)
- If "Reply from ~" message is returned (① in the figure below), the network connection is in normal state. Try connection to the video again. If the problem persists, or refer to other trouble shooting notes.
- If "Request timed out" message is returned. (② in the figure below), the network connection or network setting is not in normal state. Check the network cable and settings.
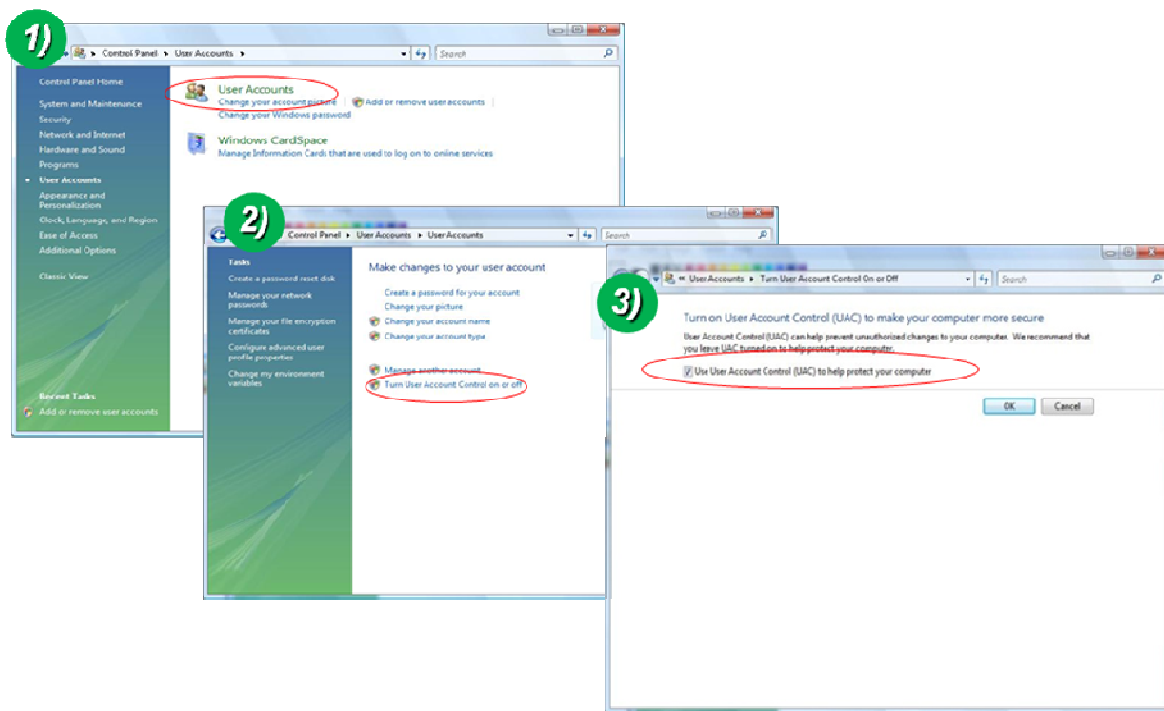
## 5.3. Windows Vista or Windows 7

Windows Vista and Windows 7 users need to configure UAC (User Access Control) and Privilege Level for proper recording and still video capture in Speco-NVR and Web Viewer.
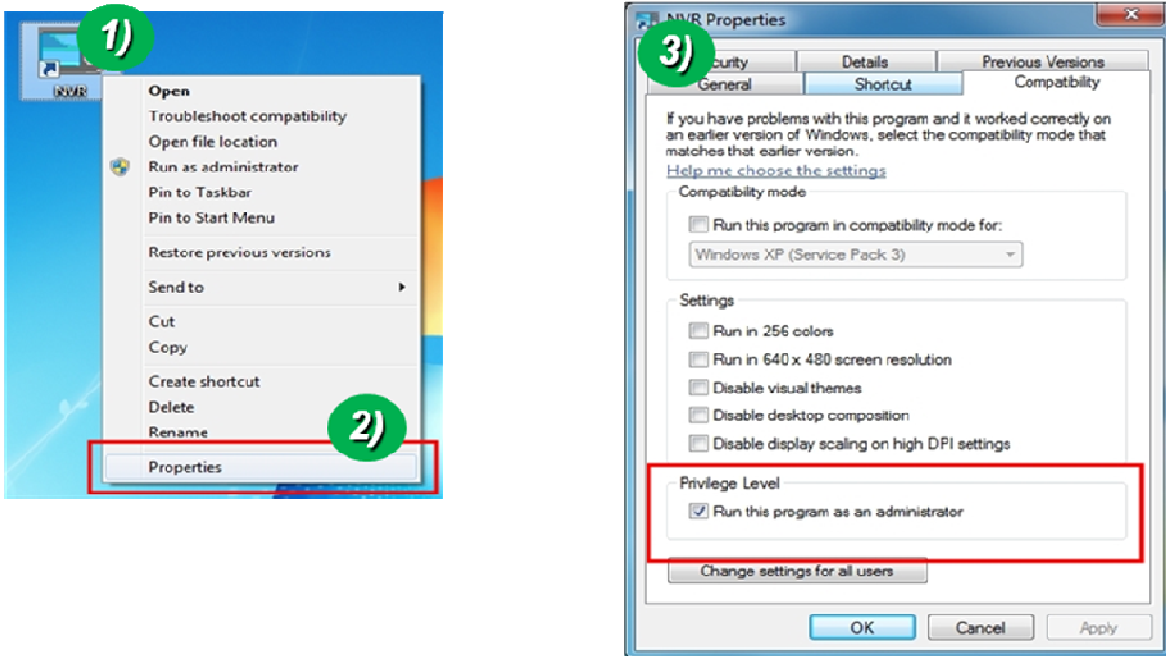
### \<Windows Vista>

**1. UAC (User Access Control) configuration**

1) Double-click "User Accounts" in control panel

2) Double-click "Turn User Account Control on or off"

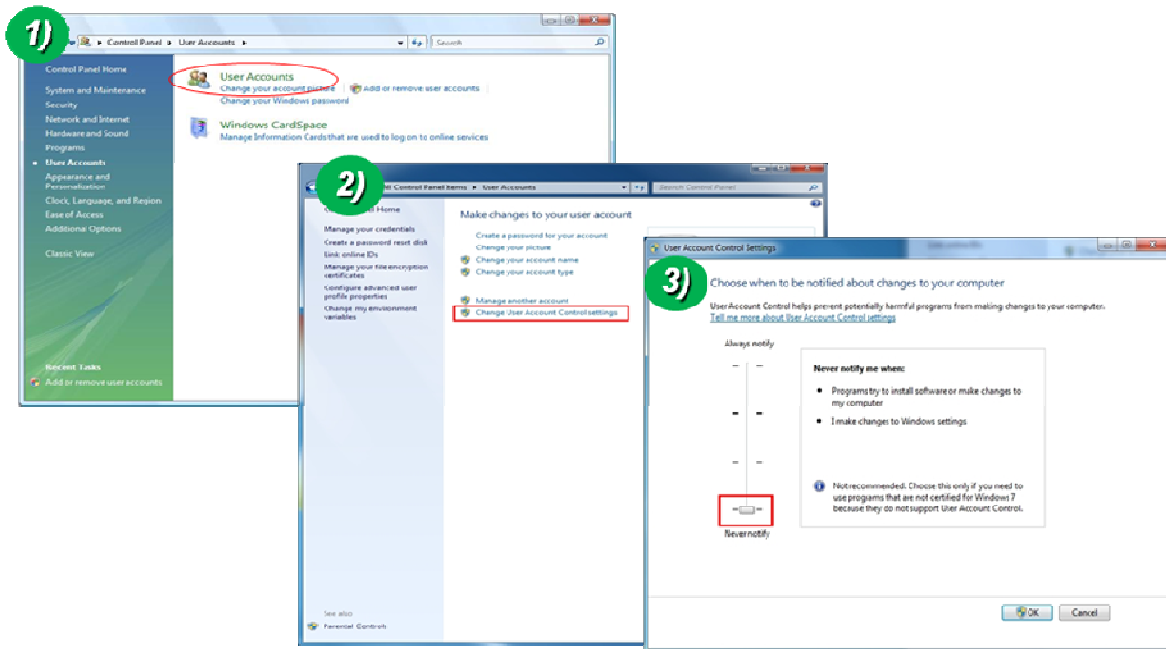3) Uncheck "Use UAC to help protect your computer"



**2. Privilege Level Control**

1) Select "NVR" icon on the desktop

2) Click right mouse button and select "Properties"

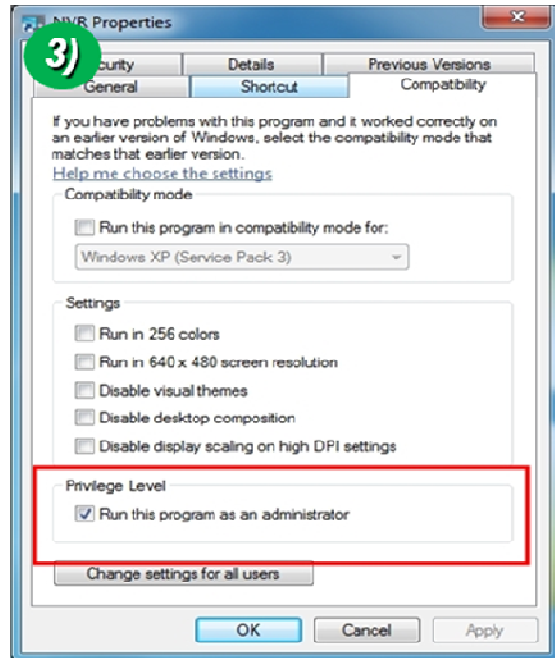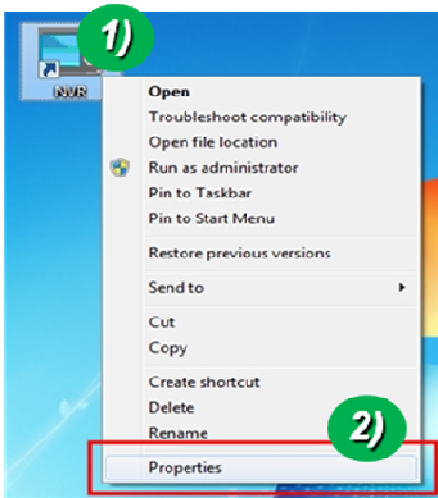3) Check "Privilege Level" in "Compatibility" tab

**<Windows 7>**

   **1. UAC (User Access Control) configuration**

   1) Double-click "User Accounts" in control panel

   2) Double-click "Change User Account Control setting"

   3) Set to "Never notify"

**2. Privilege Level Control**

1) Select "NVR" icon on the desktop

2) Click right mouse button and select "properties"

3) Check "Privilege Level" in "Compatibility" tab

## 5.4. Technical Assistance

If you need any technical assistance, please contact your dealer. For immediate service please provide the following information.

1. **Model name**

2. **MAC address and Registration number**

3. **Purchase date**

4. **Description of the problem**

5. **Error message**

## Appendix A – Important Notice in Exchanging SD Card (Micro SD)

SD Card is a non-volatile memory device for storing video and audio data on the product. Continued writing to the SD Card will cause wear-off of the memory cell.

When you plug out the SD Card for replacement or other purpose, follow the steps below in order to prevent data loss.

1. Press factory default button for 1 sec to unmount the SD Card .
   - SD Card can also be unmounted by going to Admin Page -> Sensor&Capture Setup and clicking on CONFIRM button at the right of SD Card Unmount menu.
2. Unplug the SD Card .
   - If no action is taken within 1 minute, SD card will be mounted again.
3. Plug in new SD Card
4. If the SD Card   is a new one for the IP camera, format the SD Card by following through the steps below.
   - Go to Admin Page -> Sensor&Capture Setup
   - In the SD card management menu, click on CONFIRM button at the right of SD card Format.

**For more detailed information regarding connection to admin page,**
**please refer to the "Configuration_Guide".**