BOLIN TECHNOLOGY

Visca Over IP To Serial Control Converter

USER MANUAL

VERSION: VCC-BL-VNS-11232021

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Contents

IMPORTANT INFORMATION **3**

WHAT'S IN THE BOX **5**

OVERVIEW **6**

MODEL NUMBERS 6

FEATURES 6

VISCA OVER IP SERIAL CONTROL CONVERTER **7**

SYSTEM CONFIGURATION **8**

PORT DIAGRAM 8

POWER 9

..... 9

VISCA OVER IP CONTROL **9**

VISCA OVER IP NETWORK CONFIGURATION 10

CONNECTION 11

RS232 SERIAL CONTROL VIA VISCA OVER IP 11

RS422 SERIAL CONTROL VIA VISCA OVER IP 12

CONNECTION FOR CONTROLLING SONY SERIAL CONTROL PTZ CAMERA 13

FIRMWARE UPGRADE **14**

UPGRADING MCU FIRMWARE 14

UPGRADE VIA IP 14

USER QUICK NOTICE GUIDE **15**

NETWORK CONNECTION **16**

LOGIN PREPARATION 17

CHECK BEFORE LOGIN 17

LOGGING IN TO THE WEB INTERFACE **17**

NOTE: FORGOT PASSWORD? 17

IP FINDER TOOL: 18

NETWORK-NETWORK SETTING-NETWORK 18

NETWORK-NETWORK SETTING-PORT 18

SYSTEM-SYSTEM SETTING- DEVICE 19

THIS SETTING PAGE IS TO GET THE BASIC PRODUCT INFORMATION OF THE VISCA IP BOX. 19

SYSTEM-SYSTEM SETTING-TIME 19

SYSTEM-SYSTEM SETTINGS-MAINTENANCE 20

Operating Instructions

Thank you for purchasing Bolin product. If there are any questions, please contact the authorized dealer.

Before operating the unit, please read this manual thoroughly and retain it for future reference.

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IMPORTANT INFORMATION

Legal Notice

Attention:

To ensure account security, please change the password after your first login. You are recommended to set a strong password (no less than eight characters). Password login does not apply to some models that do not need password login.

The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual.

Best effort has been made to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.

The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device.

This manual is a guide for multiple product models and so it is not intended for any specific product.

In this manual, the illustrations of displayed interface, parameters displayed, drawings and value ranges may vary with models. Please see the actual product for details.

Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual.

Use of this document and the subsequent results shall be entirely on the user’s own responsibility.

Safety Information

⚠ WARNING!

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all of the Safety Instructions supplied with your equipment before installation and operation.

Warnings:

- If the device does not work properly, please contact your dealer. Never attempt to disassemble the device yourself. (We will not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- This installation should be made by a qualified service person and should conform to all the local codes.
- When shipping, the device should be packed in its original packaging.
- Make sure the power supply voltage is correct before using the device.
- Do not drop the device or subject it to physical shock.

Maintenance Precautions:

- If there is dust on the surface, remove the dust gently using an oil-free brush or a rubber dust blowing ball.
- If there is grease or a dust stain on the surface, clean the surface gently using anti-static gloves or an oil-free cloth. If the grease or the stain still cannot be removed, use anti-static gloves or an oil-free cloth dipped with detergent and clean the surface gently until it is removed.
- Do not use organic solvents, such as benzene or ethanol when cleaning the surface.

Regulatory Compliance

FCC Part 15

This equipment has been tested and found to comply with the limits for digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

LVD/EMC Directive

This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

WHAT'S IN THE BOX

Visca Over IP to Serial converter X 1

DC12V Power Adaptor/Power cord X 1

RJ45 to RS422 Extension Cable X 1

Control Port Connector X 1

Bag of Mounting Screws X 1

Rackmount X 2

Rubber Pads X 4

Welcome Card X 1

Accessories (Optional)

RJ45 to RS232 Extension Cable

Din-Rail Mount Adaptor

Overview

Model Numbers

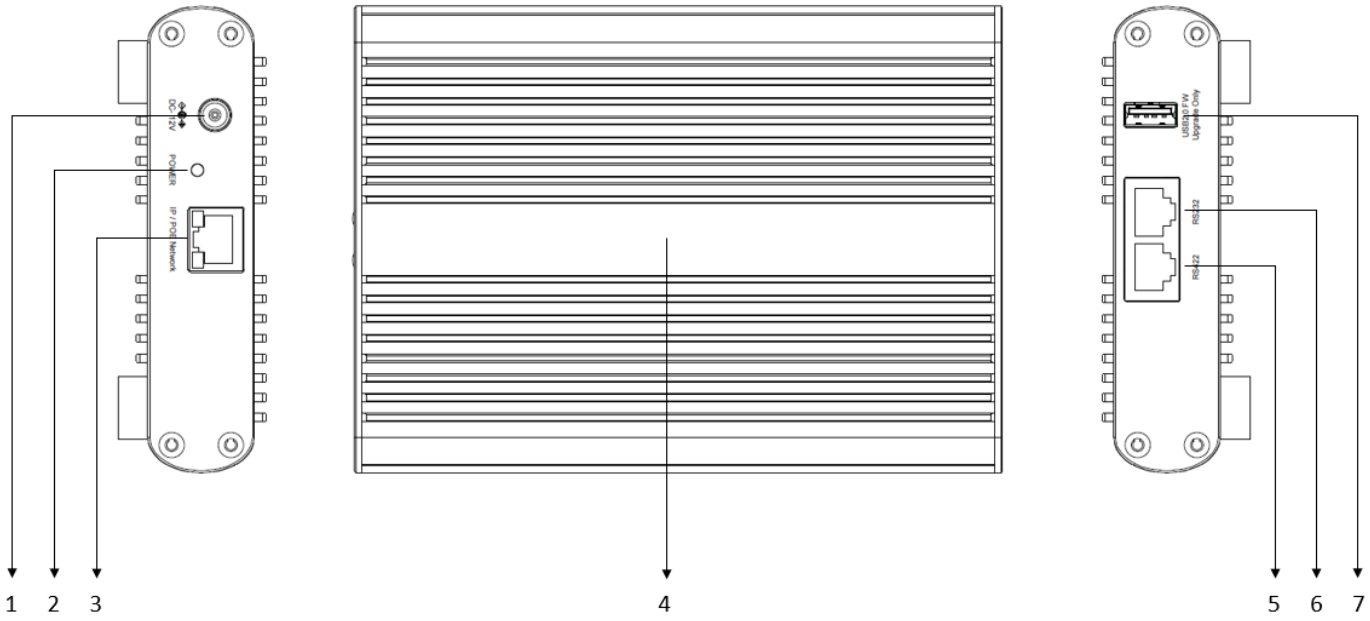
This user guide is suitable for the following models:

- BL-VNS-1

Features

- Hardware Visca over IP solution
- Support 802.3at PoE+
- Provide Serial RS-232, RS-422/485 control over Ethernet by Visca over IP protocol
- MCU firmware upgradable via USB port
- IP firmware upgradable via IP web interface
- Power: DC 12V Power input

Visca over IP Serial Control Converter



1. **12V DC Power Port**

   Connect include 12V DC power adaptor and cord

2. **Power LED Indicator**

   Turns red when the device is boot up completely.

3. **RJ45 Port for IP/PoE Network**

   Used for IP network connection, support PoE power supply (IEEE 802.3at)

4. **Heat-sink surface panel**

   All aluminum body for quick heat dissipation

5. **RS-422 Control Port**

   Use RJ45 to RS-422 extension adapter cable or make CAT6 cable to remotely control PTZ camera.

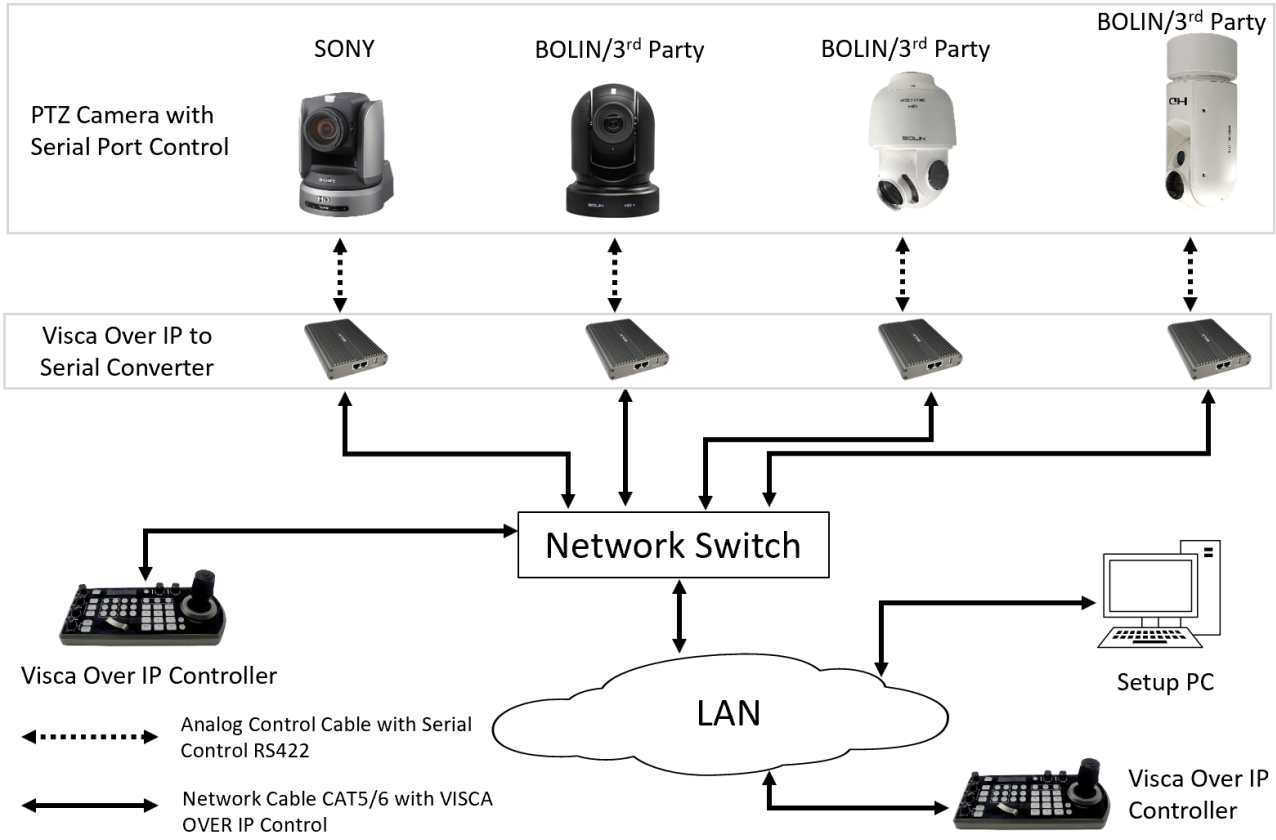
6. **RS232 Control Port**

   Use RJ45 to RS-232 extension adapter cable or make CAT6 cable to remotely control PTZ camera

7. **USB 2.0 Port**

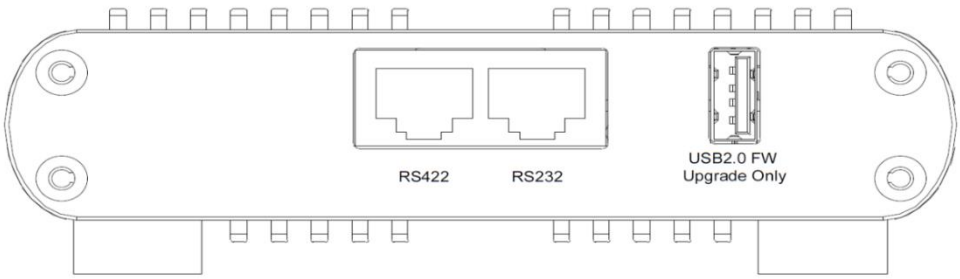
   Used for MCU firmware upgrade only.

System Configuration

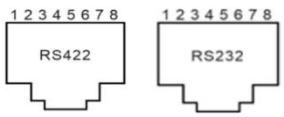


Control Serial Port PTZ Camera using Converter Box
via VISCA OVER IP Control Protocol

Port Diagram



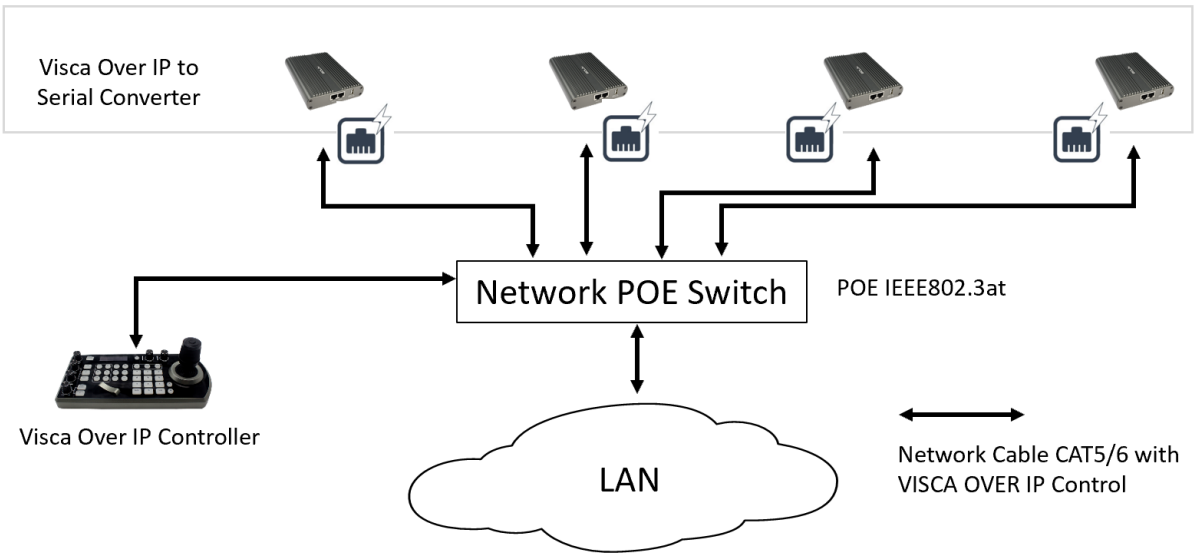
1	RX-	Orange/White
2	RX+	Orange
3	GND	Green/White
4	-	Blue
5	-	Blue/White
6	-	Green
7	TX-	Brown/White
8	TX+	Brown



1	-	Orange/White
2	-	Orange
3	-	Green/White
4	-	Blue
5	-	Blue/White
6	GND	Green
7	TX	Brown/White
8	RX	Brown

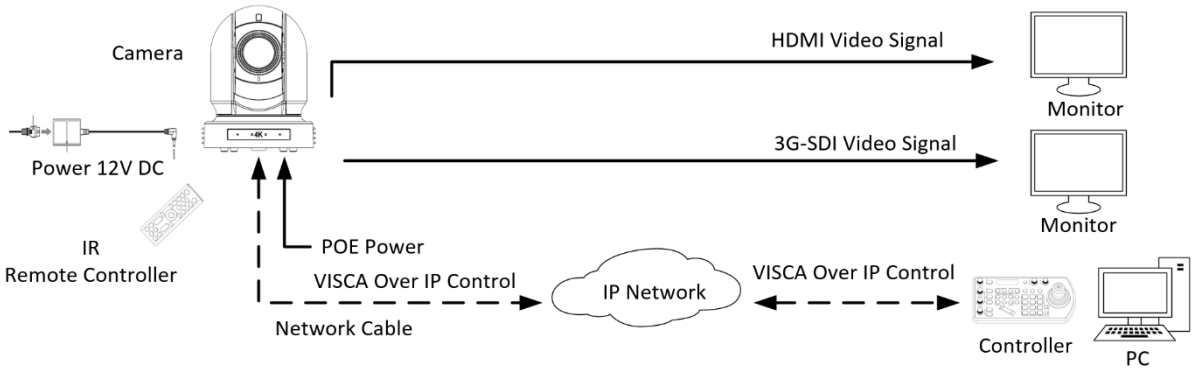
Power

- Use only the DC power adaptor (JEITA type4) supplied with the unit. Do not use any other DC power adaptor.
- If using POE to power the camera, PoE+(IEEE802.3at) is supported
- Ensure that the POE power source has sufficient power budget to power the camera, or some features may not function properly.



VISCA over IP Control

With VISCA over IP function, you can control the camera using VISCA protocol on a controller equipped with IP communication capabilities via LAN. This converter converts control signal via Visca Over IP to Serial control signal to control PTZ camera with only serial control functionality.



The communication specifications of VISCA over IP are followings:

- Interface: RJ-45 10/100M
- Interface protocol: IPv4
- Transport protocol: UDP
- IP address: 192.168.0.13 By default
- Port: 52381

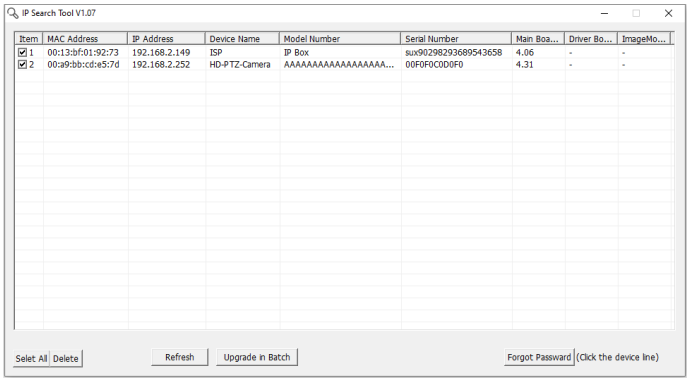
VISCA over IP Network Configuration

Re-assign the camera

The default information of the IP camera is following:

- Static IP: 192.168.0.13
- Subnet mask: 255.255.255.0
- Gateway: 192.168.0.1
- VISCA over IP control port: **52381**.

The camera IP address needs to be assigned to the IP address that works with your local network.



Controlling via VISCA over IP

- Connect the network port on the camera to the network switch.
- Set the IP address and other network information appropriately to communicate on your network
- Connect the VISCA over IP-compatible controller to the network
- Configure the controller to access the camera's IP address and VISCA over IP port
- ***The IP port within on your control must be set to 52381 to communicate with the camera.***
- Select VISCA protocol on your IP control device.

Recommended way to re-assign the IP address:

1. Create a local network within which the camera and your PC/Laptop are connected.
2. Install and run the IP-FINDER tool (You can contact Bolin Technical support team for tool requirements)
3. The IP-FINDER can find the camera IP address, which is the default :192.168.0.13
4. Click the search button, select the camera you want to Assign IP address, edit the IP address to the one that matches your local network credential.
5. Once the IP address has been changed successfully, you can access the IP camera via your local network.

Note

How to re-assign the IP address to the camera, please refer to user manual Part Two-IP Camera user guide.

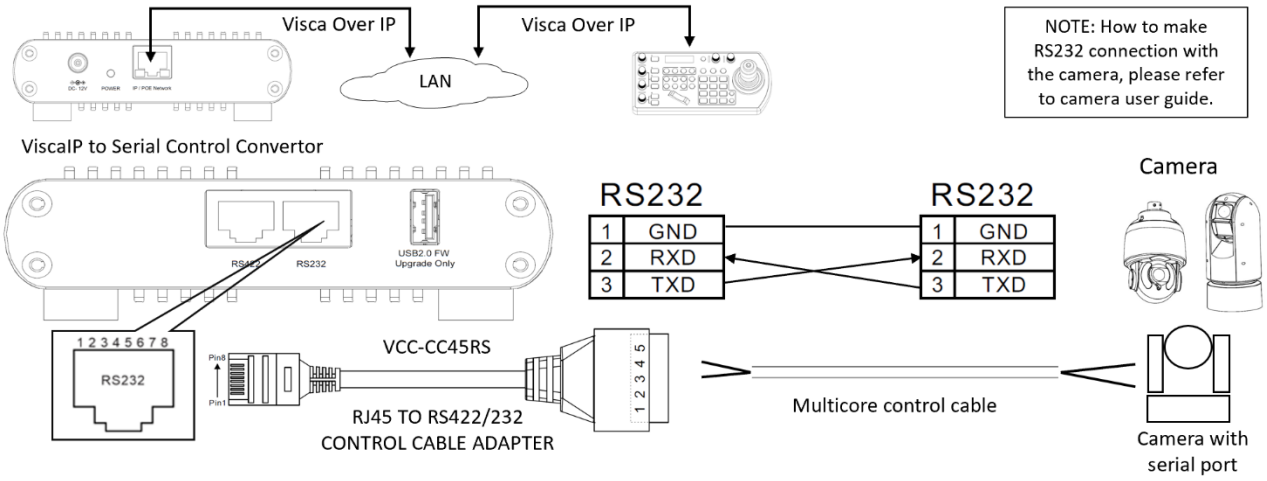
Connection

RS232 serial control via Visca Over IP

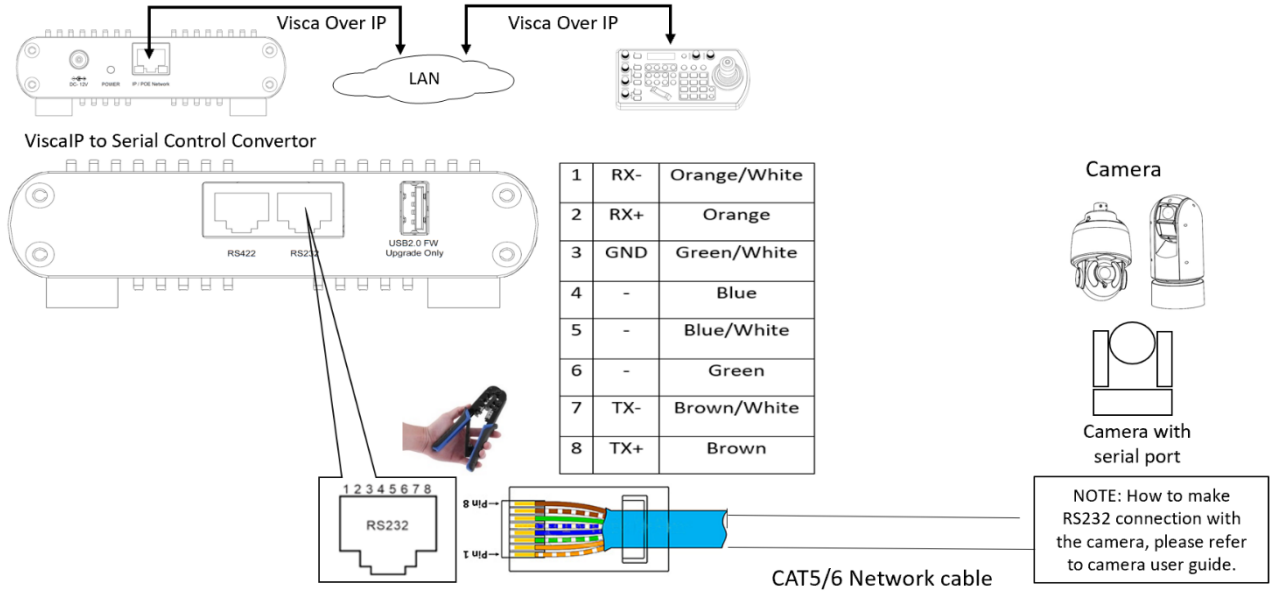
NOTE:

- *This Visca Over IP converter does not support Daisy Chain multiple camera control.*
- *This diagram shows how to make the connection correctly, for you to make the control with the controller and the camera successfully, please refer to your controller and camera user guides.*

1. Use extension cables included RJ45 to RS422/232 Phoenix terminal contact adaptor to make RS232 connection for your camera.

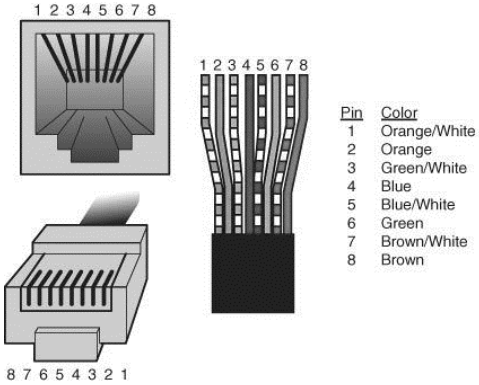


2. You can use CAT5/6 T-568B Standard Ethernet cable direct connect between the camera and the converter to make RS232 connection by following the pin definition below:

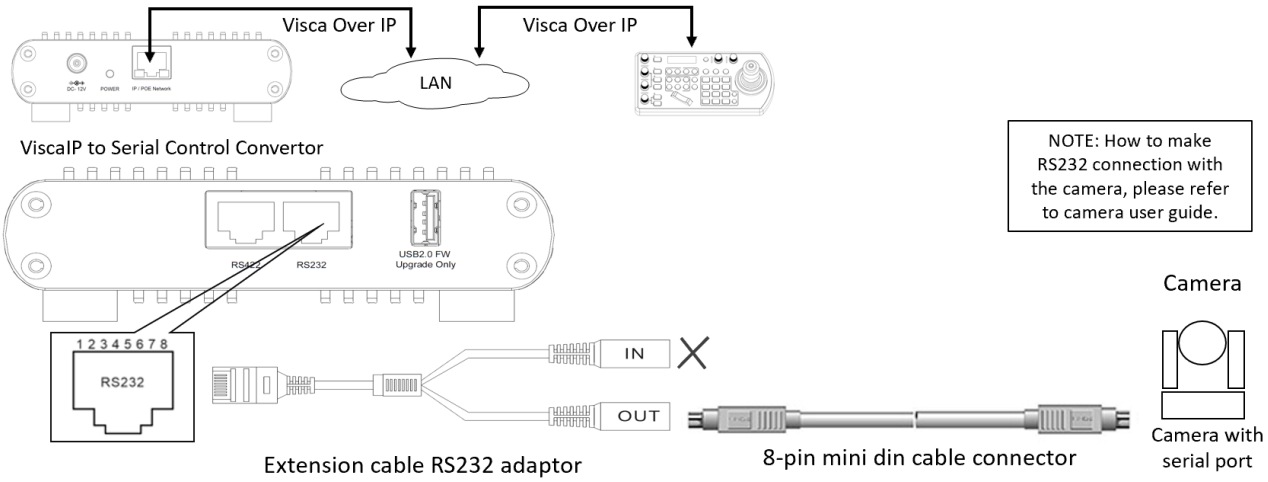


Important:

- *The baseline cable standard for HD/4K systems is Cat5e. Signal greater distances can be achieved by using Cat6e or higher above as Cat7, which have thicker copper cores for easier signal transfer.*
- *Whichever network cable type you choose, ensure that the main wiring is 'solid core', not 'patch' cabling.*
- *Terminate the cabling using RJ45 connectors to the 568B wiring standard, shown as below:*



3. Use extension cables RJ45 to RS232 8 pin Mini Din adaptor (Sold separately) to make RS232 connection for your camera

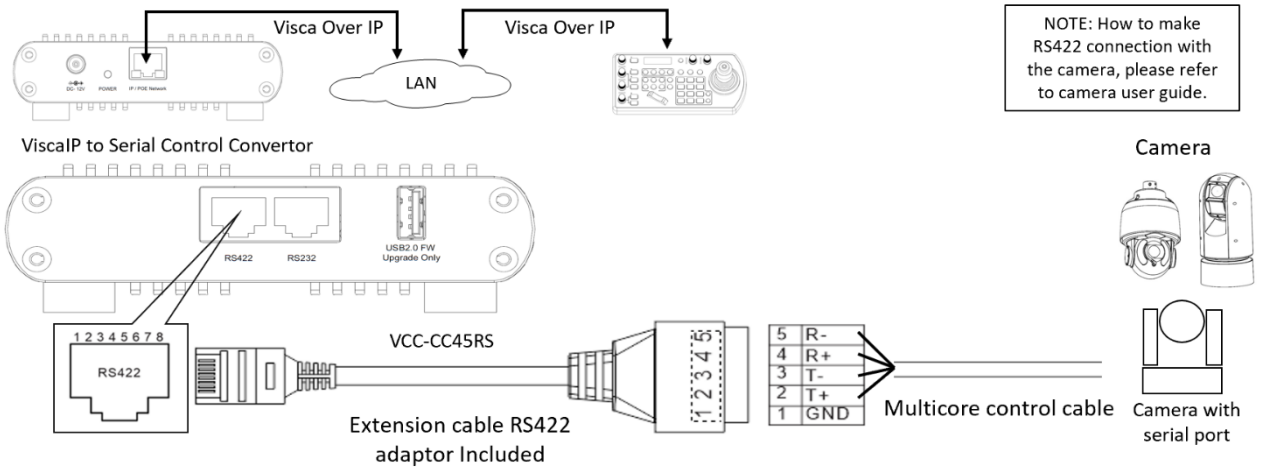


RS422 serial control via Visca Over IP

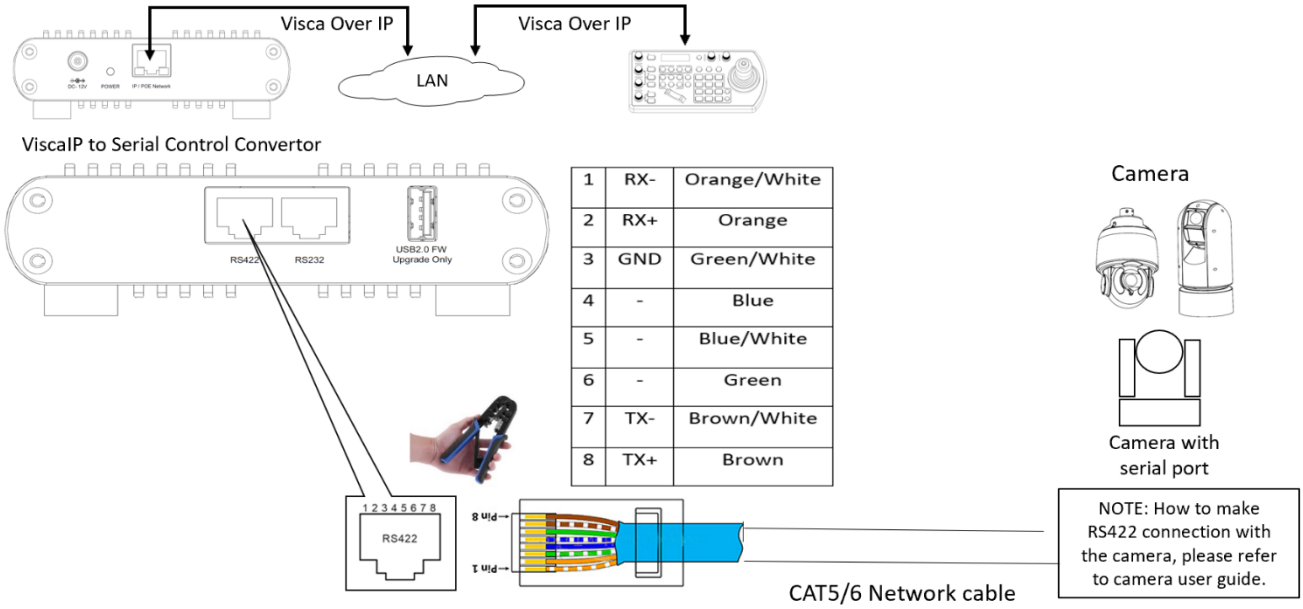
NOTE:

- *This Visca Over IP converter does not support Daisy Chain multiple camera control.*
- *This diagram shows how to make the connection correctly, for you to make the control with the controller and the camera successfully, please refer to your controller and camera user guides.*

1. Use extension cables RJ45 to RS422 Phoenix connecter adaptor included to make RS422 connection for your camera.



2. You can use CAT5/6 T-568B Standard Ethernet cable direct connects between the camera and the converter to make RS422 connection by following the pin definition below:

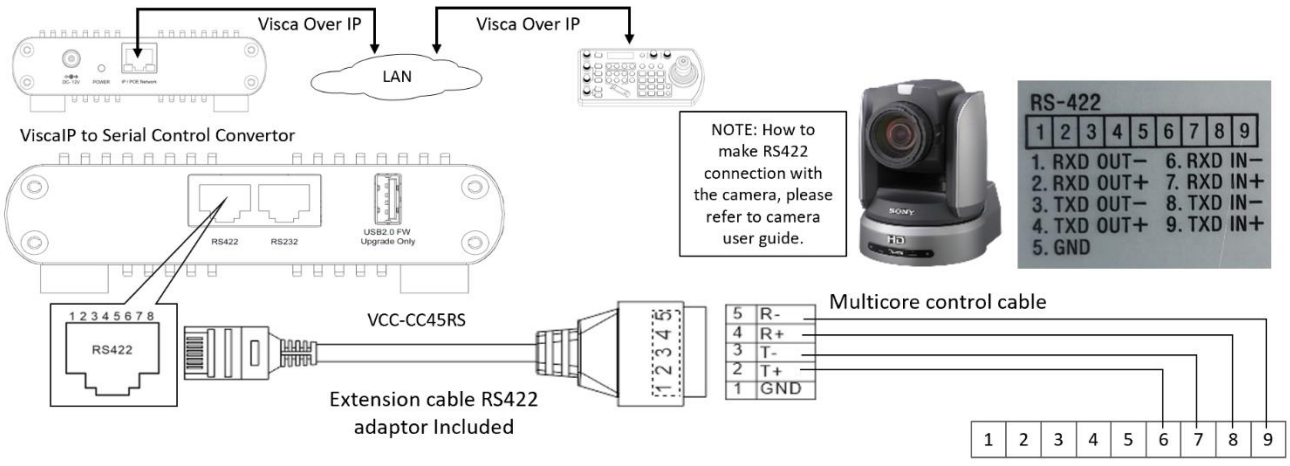


Connection for controlling SONY serial control PTZ camera

NOTE:

- *It requires a special firmware to control SONY serial PTZ camera. Please consult your seller to gain the correct version of the firmware.*
- *This Visca Over IP converter does not support Daisy Chain multiple camera control.*
- *This diagram shows how to make the connection correctly, for you to make the control with the controller and the camera successfully, please refer to your controller and camera user guides.*

1. Use extension cables RJ45 to RS422 Phoenix connecter adaptor included to make RS422 connection for your camera.

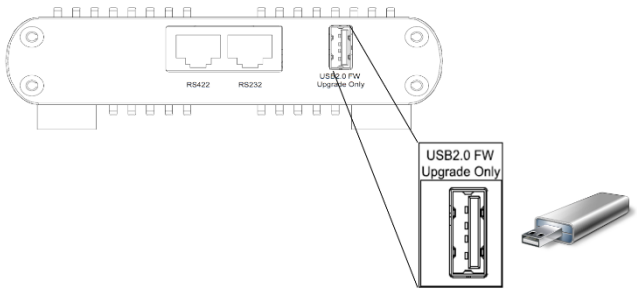


Firmware Upgrade

Upgrading MCU Firmware

MCU Firmware can be upgraded by following these steps:

1. Load the .bin file onto a flash drive (Formatted as FAT32), and **rename** the file “HD20.bin”
2. **With the camera powered off**, insert the flash drive to the USB port on the back panel of the camera
3. **Apply power** to the camera



After power on the converter box, wait for three minutes,
the new firmware will be upgraded successfully. There is no LED indicator to show the upgrade progresses.
The verify is the new firmware is upgraded correctly or not, go to the converter web GUI, System, Maintenance to check the firmware version.

NOTE:
The firmware upgrade process is intended to be performed under the supervision of a BOLIN-Authorized repair technician. For assistance with this, please contact your authorized BOLIN Technology dealer, installer, or integrator. BOLIN Technology Technical Support can also be reached for assistance with this process

Upgrade via IP

You can upgrade device IP Firmware via IP.
How to make Firmware upgrade for IP, please refer to User Manual Part Two.

Part Two

Bolin IP web interface

User Quick Notice Guide

This Visca-Over-IP Serial Control Converter does not have video IP streaming functionality.

All features related to IP video streaming are not functional.

IP feature is limited with the web GUI.

This Quick Guide is for Bolin Visca IP box IP web interface use. Please read it carefully before you start using your Visca IP box and follow the instruction to effectively use the Visca IP box device, or check it when you are having some trouble.

Please contact Bolin technical support team at www.bolintechnology.com if you have more questions or having trouble that is not included in this guidance.

Note:

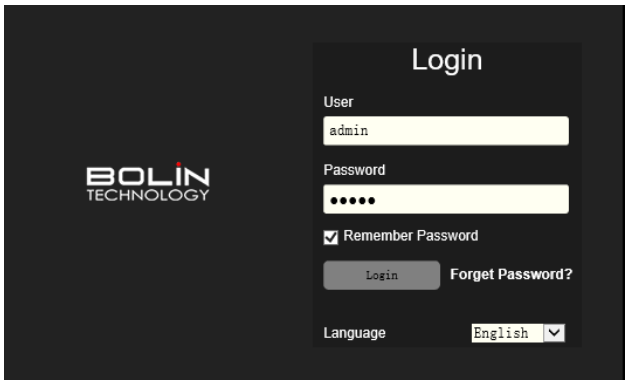
- ***Currently the Visca IP box only supports Internet Explorer 11 browser, other browsers compatibility will be available via future firmware upgrading.***
- ***It will be required to download the Controls (VideoPlugin) for the first-time login, please click the download link and follow the prompts to download and install it.***
- ***After the VideoPlugin has been installed, you may be prompted to update the VideoPlugin, please uninstall the old version of Plugin before you download and install the new version of Plugin.***

Login

The default static IP address of the Visca IP box is 192.168.0.13, and default subnet mask is 255.255.255.0. Please change your PC/laptop's IP address to located within the same subnet as the Visca IP box.

The login procedure as following:

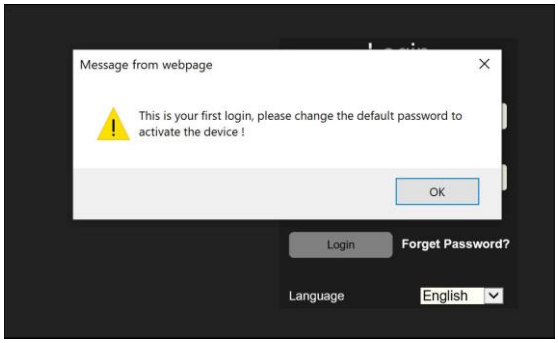
- Open the Internet Explorer 11 browser, running it as Administrator
- Browser to the login page by entering http://192.168.0.13
- The default username is admin, password is admin

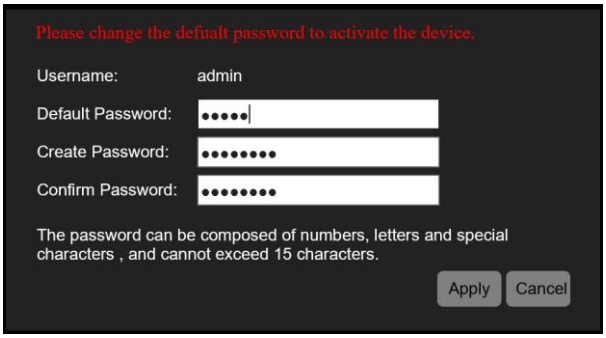


It is requested to create a new password when you first time login to web interface.

IMPORTANT INFORMATION:

Please write down the new password and keep it safe. If you lost the password, the web system does not have the feature of retrieving or recreating password that is lost, you have to contact dealer to process the new password recovery.





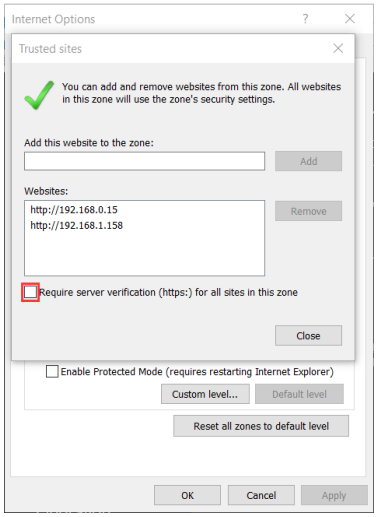
IP Firmware Update

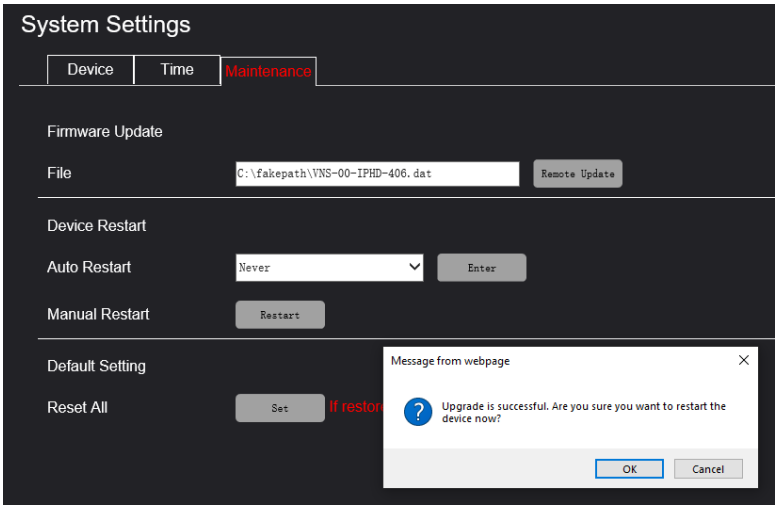
You have to add the Visca IP box IP interface URL to the IE11 browser's Trusted Sites before to start firmware update, otherwise, you will be prompted that the firmware file cannot be opened.

- Click Setting button of IE11 browser, access to Internet Option > Security page.
- There has Trusted Sites option, click and add the URL to the list.
- Please don't check the "Require server verification (https:) for all sites in this zone" option box.
- Go back to maintenance page and now you can start the firmware update.

NOTE: The firmware update including two steps:

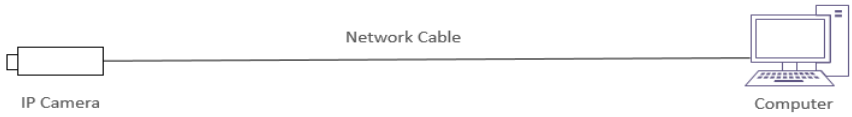
- The First step is to select the firmware file and upload it to the Visca IP box IP module, there will be a percentage progress bar display to indicate the upload status on the page.
- The Second step is the firmware burning and updating, there is no progress bar prompt in this step, the burning and updating process takes about 3 minutes. After the update is successful, the page will prompt "Upgrade is successful…", please click OK button to reboot the device.
- Please don't power off or reboot the Visca IP box during the whole updating process, until the page prompt "Upgrade is successful…"



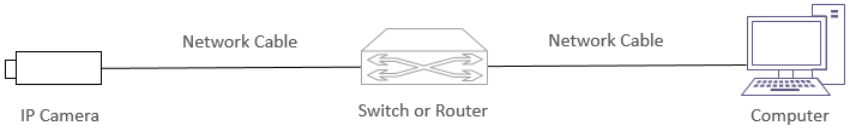


Network Connection

Before accessing a Visca IP box from a PC, you need to connect the Visca IP box to the PC directly with a network cable or via a switch or router.



Use a Shielded Twisted Pair (STP) cable to connect the network interfaces of the Visca IP box and the PC.



Use Shielded Twisted Pair (STP) cables to connect the network interfaces of the camera and the switch or router.

Login Preparation

After you have completed the installation in accordance with the quick guide, connect the Visca IP box to power to boot it. After the Visca IP box is booted, you can access the Visca IP box from a PC client using Internet Explorer.

The following uses Internet Explorer 11 on a Microsoft Windows 10 operating system as an example.

Check before login

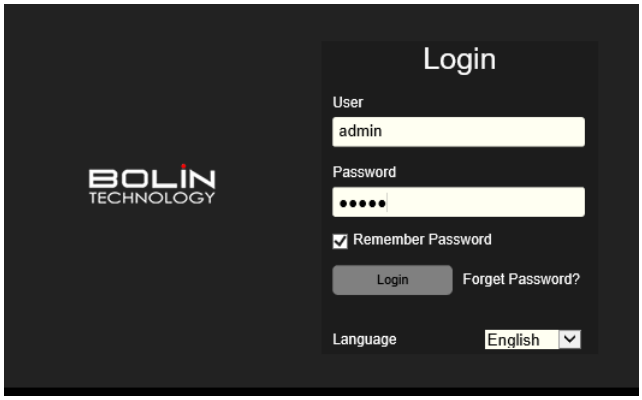
- The Visca IP box is powered on and connected to the network switch
- The Visca IP box's IP address is located within the same subnet as the PC
- The PC is connected to the network switch
- The PC's IP address is located within the same subnet as the Visca IP box
- The PC is installed with Internet Explorer 8.0 or higher (Internet Explorer 11 recommended)

Logging in to the Web Interface

The default static IP address of the camera is 192.168.0.13, and the default subnet mask is 255.255.255.0

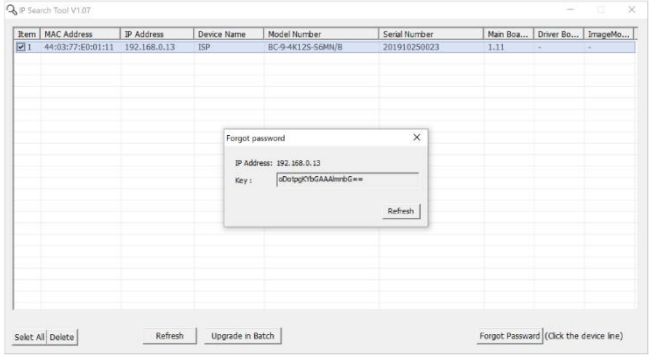
The following uses Internet Explorer as an example to describe the login procedure.

1. Browse to the login page by entering correct IP address plus port number 8080 (e.g. http://192.168.0.13) of your camera in the Internet Explorer address bar.
2. Enter the username and password, and then click Login. The default username **admin** and password **admin**
3. If this is your first timing login in to the camera web interface, you have to download and install the Control plug-in, click "***Click Here To Download Controls***" link to start the download.
4. Follow system prompts and install the "*VideoPlugin-win32-4.1.0.10512*". You need to close your browser and reopen it again to complete the installation.
5. Click Allow to enable the plugin when you re-login after installed the "*VideoPlugin-win32-4.1.0.10512*"



- *The default password is used for your first login. To ensure account security, please change the password after your first login. You are recommended to set a strong password (no less than eight characters).*
- *VideoPlugin version may different in different camera version.*
- *If you login with Remember Password selected, you do not need to enter the password each time when you login, to ensure security, you are not advised to select Remember Password.*

NOTE: Forgot Password?



- *A message will pop up, which reads: "Please contact the manufacturer for disposal!"*
- *You can download the IPCSearch tool from the www.bolintechnology.com*
- *Unzip the file and configure your laptop in the same subnet as camera's, run the IPCSearch tool and you will get the camera connection with your IPCSearch tool, click this camera bar (not to tick off the selection box) in the list, and then click Forgot Password button which is in the bottom right corner, a key number will display in the pop-up window*
- *Please copy this key number and send it to us, you can contact us at: support@bolintechnology.com*
- *A BOLIN Technology Support team will provide a temporary password that is only valid for 24 hours, which can*

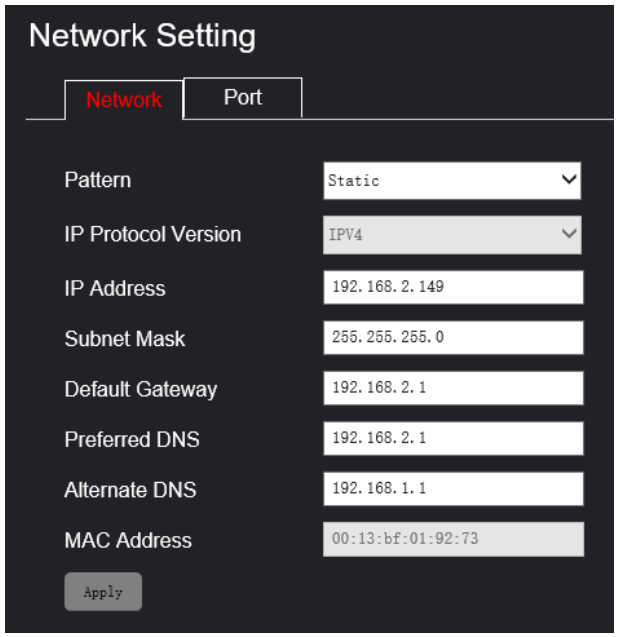
be used to log in to the camera to create a new password. Please use the temporary password within 24 hours, you will have to repeat the above process to get a new temporary password if it gets expired.

IP Finder Tool:

- Running the IP Finder Tool on your laptop/pc, it will automatically get the list of all cameras that located in the same network.
- You can get the MAC address, IP address, Camera name, Camera model, Serial number etc. of the cameras.
- IP Finder Tool will help you to get the IP address when you forget the camera IP.

Network-Network Setting-Network

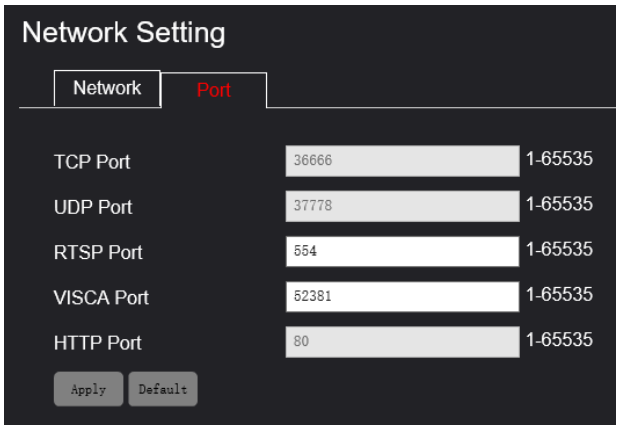
The network tab is where the user is able to configure the following:



- DHCP options
  - DHCP – An IP address will be dynamically assigned to the camera from the gateway (router)
  - Static IP – The user will enter / define the IP address
- IP Address
  - Default IP address is 192.168.0.13
- Subnet Mask
  - Default mask is 255.255.255.0
- Default Gateway
  - Default gateway is 192.168.0.1
- Preferred DNS
- Alternate DNS
- MAC Address
  - Fixed, can't be modified.

Network-Network Setting-Port

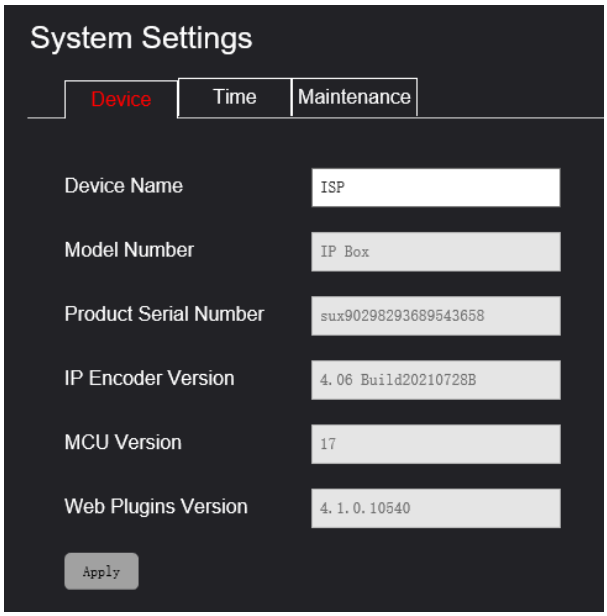
This setting page is to specify which ports the camera will use to communicate with the following protocols:



- TCP Port:
  - 1 to 65535 adjustable
- UDP Port:
  - 1 to 65535 adjustable
- RTSP: Default 554 (Reserved)
- VISCA Port
  - Visca over IP port, default is 52381
- HTTP: Default 80
  - HTTP is the protocol used to access the web interface.
  - Changing this port number will require the user to specify the port number when entering the IP address to the web browser.
  - For example, if it is changed to 85, the IP address will need to be entered as follows in order to access the web interface: *http://192.168.0.13:85*

System-System Setting- Device

This setting page is to get the basic product information of the Visca IP box.

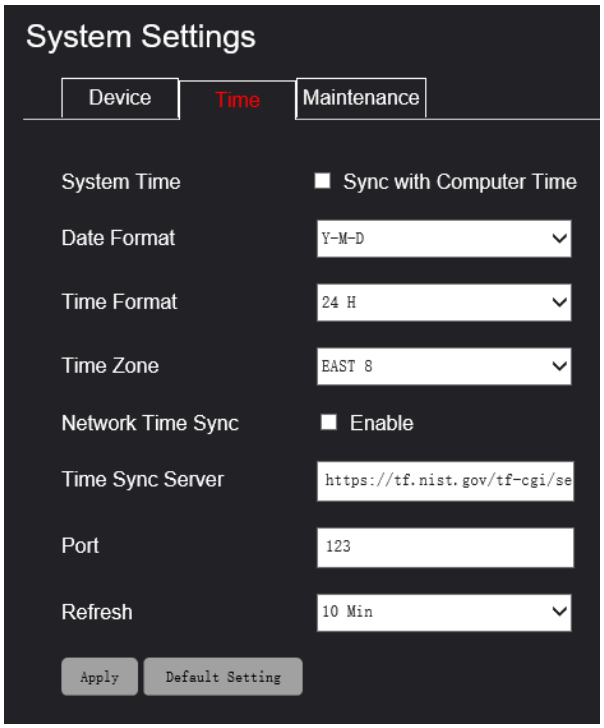


- Device Name
  - You can set a name to this Visca IP box
- Model Number
  - The specific model of this Visca IP box
- Product Serial Number
  - The serial number of this Visca IP box, each serial number is unique and fixed, can't be modified.
- IP Encoder Version
  - The current encoder version running on this Visca IP box
- MCU Version
  - The current MCU version running on this Visca IP box
- Web Plugins Version
  - The current web interface plugin version running on this Visca IP box

You may be asked to provide above information by Bolin technical team for any possible technical support cases.

System-System Setting-Time

This interface allows user to configure the date / time settings of the Visca IP box



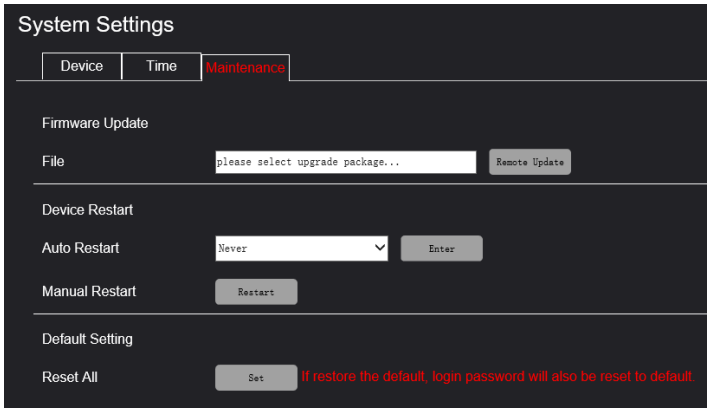
- System Time
  - You can check the Sync with Computer Time option and synchronize the camera operation time with your PC time system.
- Date Format
  - Two formats selectable
  - Y-M-D or D/M/Y
- Time Format
  - Two formats selectable
  - 24H or 12H standard
- Time Zone
  - WEST 12 to EAST 12 selectable
  - Please select the correct time zone for your location
- Network Time Sync
  - Check the Enable option
  - Input the time sync server address, port number
  - Select refresh time option, it has 10 Min, 30Min, 1 Hour, 1 Day selectable.

After done the configuration, please remember to click Apply button to make the setting activated. You also can click Default Setting to restore settings to default if you want to.

System-System Settings-Maintenance

The Maintenance tab under the System Setting section can be used to perform the following functions:

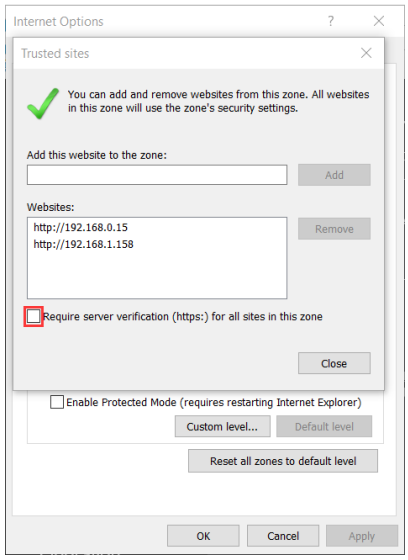
- **Firmware Update**
  You can upgrade IP Encoder software via this Firmware Update feature.



    - IP firmware can be upgraded from this section:
        - Firmware for IP encoder. The name of the file shown as "VNS-00-IPHD-xxx.dat"
    - A firmware file can be obtained from BOLIN Technology website: www.bolintechnology.com

NOTE:

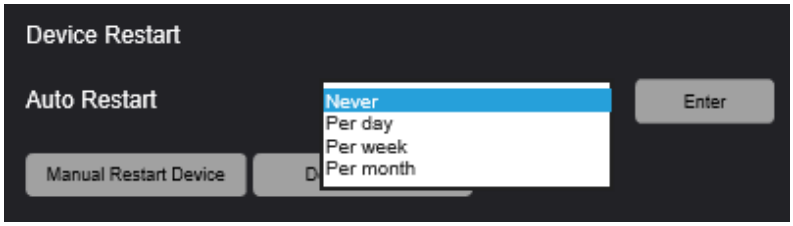
- For MCU version upgrade, please refer to "Upgrading MCU Firmware" in User Manual Part 1.



NOTE: You need to add the Visca IP box's IP interface URL to the IE browser's Trusted sites before to start upgrade, otherwise, you will be prompted that the file cannot be opened.

- Click Setting button of IE browser, access to Internet Option> Security page;
- There has Trusted sites option, click and add the URL to the list;
- Please don't check the "Require server verification (https:) for all sites in this zone" option box;
- Go back to maintenance page and now you can start the upgrade;

- Device Restart
    - Soft reboot, only restart the IP encoding board. When there is a problem with the IP interface or the IP output, you can try to restart the encoding board;
    - Supports auto restart and manual restart mode;



    - Auto Restart can be configured as Never, Per day, Per week, Per month, what you have to do is just select an option and click Enter button to make it available.
    - Manual Restart is just to click the Manual Restart Device button, and the camera encoding board will going to restart immediately.

- Reset All
    - To reset system all data back to default settings except IP address
    - To reset the system password back to default username: admin and password: admin

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