

Surveon[®]

CAM5210

Megapixel PT Dome Indoor

Network Camera

Hardware Manual

Release 1.0
March, 2011

All Rights Reserved © Surveon Technology 2010

Copyright Statement

No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written consent of Surveon Technology Inc.

Disclaimer

Surveon Technology makes no representations or warranties with respect to the contents hereof and specifically disclaim any implied warranties of merchantability or fitness for any particular purpose. Furthermore, Surveon Technology reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation to notify any person of such revisions or changes. Product specifications are also subject to change without notice.

Trademarks

Surveon and Surveon logo are trademarks of Surveon Technology Inc. Other names prefixed with "NVR" are trademarks of Surveon Technology Inc. All other names, brands, products or services are trademarks or registered trademarks of their respective owners

Table of Contents

Copyright Statement.....	II
Safety Precautions	IV
Device Site Recommendations.....	IV
Regulatory Compliance Information	V
Chapter 1. Product Overview.....	1
1.1. Features and Benefits	1
Chapter 2. Hardware Overview	2
2.1. Overview	2
Side View	2
Bottom View	3
2.2. Functions.....	4
Chapter 3. Troubleshooting.....	7
3.1. Checking Firmware Version	7
3.2. Upgrading Firmware	7
3.3. Emergency Recovery Procedure	8
3.4. Resetting to Factory Default Settings	8
Chapter 4. Technical Specifications.....	9

Safety Precautions



Electric Shock Warning

This equipment may cause electric shocks if not handled properly.

- Access to this equipment should only be granted to trained operators and maintenance personnel who have been instructed of, and fully understand the possible hazardous conditions and the consequences of accessing non-field-serviceable units such as the power supplies.
- The system must be unplugged before moving, or in the event that it becomes damaged.



Reliable Grounding

Particular attention should be given to prepare reliable grounding for the power supply connection. It is suggested to use a direct connection to the branch circuit. Check for proper grounding before powering on the device.



Overloading Protection

The device should be installed according to specifications. Provide a suitable power source with electrical overload protection. Do not overload the AC supply branch circuit that provides power to the device.



ESD Precautions

Please observe all conventional anti-ESD methods while handling the device. The use of a grounded wrist strap and an anti-static work pad are recommended. Avoid dust and debris in your work area.

Device Site Recommendations

The device should be installed according to specifications. This device should be operated at a site that is:

- Clean, dry, and free of excessive airborne particles.
- Well-ventilated and away from heat sources such as direct sunlight and radiators
- Clear of vibration or physical shock.
- Away from strong electromagnetic fields produced by other devices.
- Available with properly grounded wall outlet for power. In regions where power sources are unstable, apply surge suppression.
- Available with sufficient space behind the device for cabling.

Regulatory Compliance Information

Regulatory Compliance Information

- FCC/CE Class A
- IEC 60950

Shown below is the location of the compliance statement label.

FCC (applies in the U.S. and Canada)

FCC Class A Radio Frequency Interference Statement

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 (47 CFR, Part 2, Part 15 and CISPR PUB. 22 Class A). These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, 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, you are 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 an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help. This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

Warning!

A shielded power cord is required in order to meet FCC emission limits and also to prevent interference with nearby radio and television reception. Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.



This device is in conformity with the EMC.

Notice for Class A Product

This notice is for class A product only. If the equipment under test is a class B product, this notice should be disregarded.

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instruction for use.

Warning:

This is class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



For Power Supplies' compatibility to China Compulsory Certification.



Surveon is committed to being properly prepared and taking all the necessary steps that will result in our compliance with the new European directive, RoHS (2002/95/EC), on or before the specific dates set forth in those applicable laws and regulations. Surveon is applying its own internal efforts and expertise and is working closely with customers and suppliers to achieve compliance while maintaining an uninterrupted supply of quality products. Surveon is currently investigating, evaluating, and qualifying our materials and components to ensure that products sold on or after 1 July 2006, in such territory, are in compliance with the above regulations.



Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems) This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By proper waste handling of this product you ensure that it has no negative consequences for the environment and human health, which could otherwise be caused if this product is thrown into the garbage bin. The recycling of materials will help to conserve natural resources.

Chapter 1. Product Overview

1.1. Features and Benefits

This IP device is a cutting-edge digital video transmission device. It can compress and transmit real-time images of outstanding quality using a reasonable amount of bandwidth through a standard TCP/IP network. The following features make this IP camera an outstanding choice when building an intelligent IP surveillance system:

- **Megapixel Video Quality**

High image quality is essential in security surveillance applications. It is important to be able to clearly capture an incident in progress and identify persons or objects involved, especially during in areas that may not be sufficiently lighted. The megapixel sensor on the camera provides superior resolution while retaining exceptional video quality.

- **H.264/MPEG-4/MJPEG Compression**

Motion JPEG, MPEG-4, and H.264 (also known as MPEG-4 Part 10/AVC), each employ different techniques to reduce the amount of data transferred and stored in a network video system. Network cameras that support multiple compression standards are ideal for maximum flexibility and integration possibilities.

- **Dual Streaming**

Dual-stream design enables simultaneous support of real-time video monitoring, video recording, or mobile viewing applications which require different resolutions, compression formats and frame rates.

- **SD/SDHC card slot**

IP surveillance relies on network connectivity, making it susceptible to attacks on the network between the camera and recording facilities. With onboard recording capability, our network cameras can truly be online 24/7. The SD/SDHC card slot design ensures sufficient recording capacity for an over-weekend period even at full frame rate and high resolution.

- **Tampering Detection**

This is an intelligent video analytics application available only in selected network cameras in the market. When a camera is manipulated in any way (e.g. accidental redirection, blocking, defocusing, spray-painted, covered or damaged), it can automatically trigger recording and alert notifications.

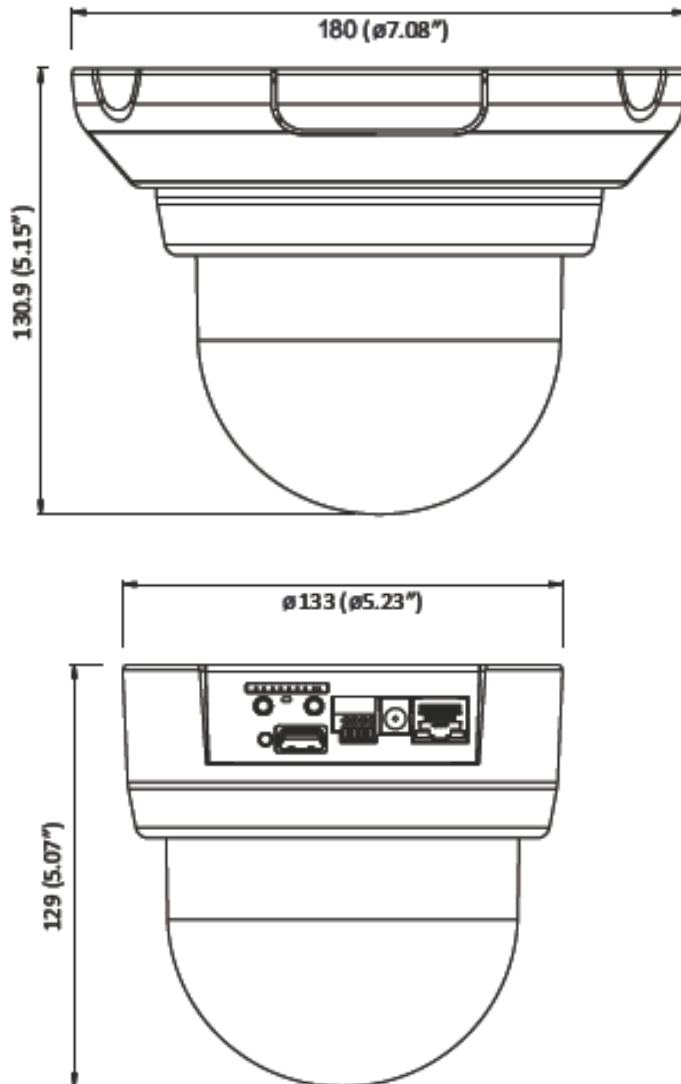
- **Power-over-Ethernet**

The built-in Power-over-Ethernet support reduces cabling and installation costs, and enables users to consolidate power facilities for higher reliability. With PoE, a camera can still operate in the event of a power failure if it is connected to a centralized backup power with an Uninterruptible Power Supply.

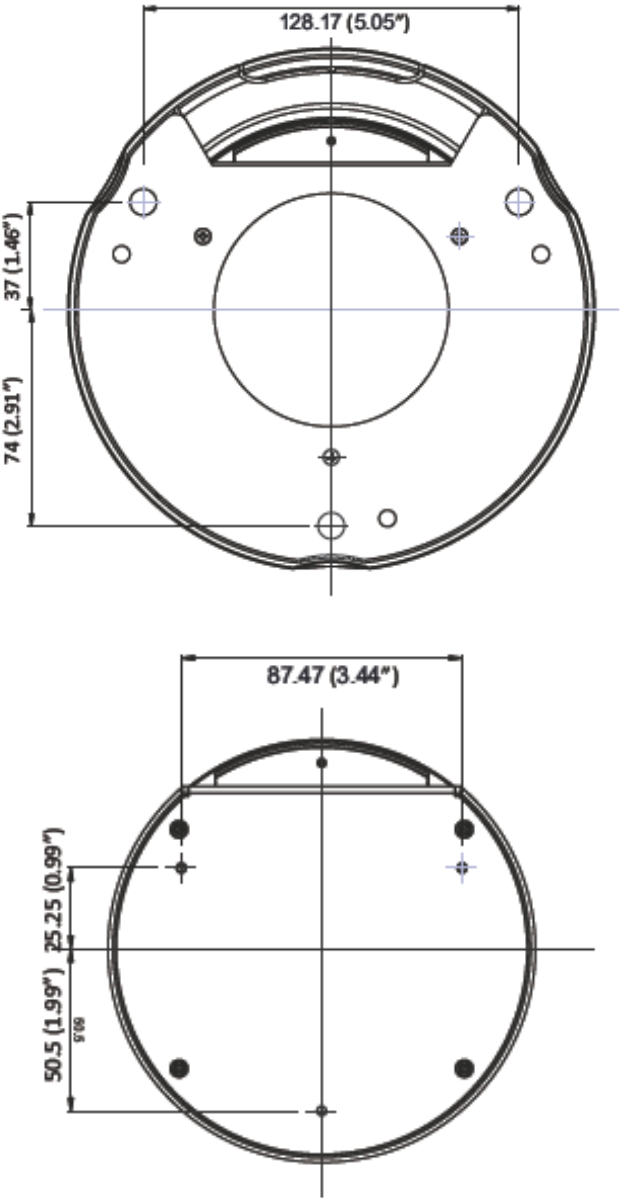
Chapter 2. Hardware Overview

2.1. Overview

Side View



Bottom View



2.2. Functions

- Status LED indicator

The LED will light up after the camera has successfully completed the boot process. The Status LED indicator in the rear of the camera can be set to light whenever the unit is accessed, or be shut off.

- Network connector

The camera connects to the network via a standard RJ-45 network connector. The camera detects the speed of the local network (10/100BaseT). The camera also supports PoE (Power-over-Ethernet), and can be powered directly through the network cable.

- SD/SDHC card slot

The SD/SDHC card slot can be used for local recording and firmware upgrade.

- Reset button

Pressing the reset button will restore the camera to its factory default settings, as described in *Resetting to the Factory Default Settings*.

- Audio in / out

Audio in /out are both for 3.5mm jacks. Audio-in provides for an external mono microphone. Audio out can be connected to a public address system or an active speaker with a built-in amplifier. A pair of headphones can also be attached.

- Power connector

The power connector and supplied power adapter is provided for solutions without PoE.

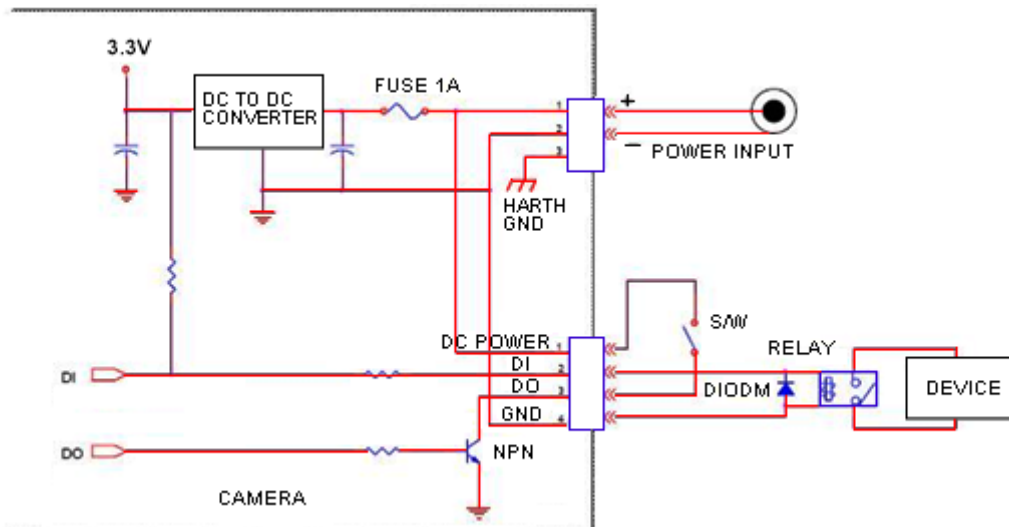
- I/O terminal connector

The I/O terminal connector provides digital input, digital output, and connection points for auxiliary DC power and GND.

12V Auxiliary DC Power (not to power this camera)	Pin 1	Electrically connected in parallel with the connector for the power supply, this pin provides an auxiliary connector for main power to the unit. This pin can also be used to power auxiliary equipment with a maximum current of 100mA.	Voltage: 12V DC, Max: 1.2W
DI1 (Digital Input)	Pin 2	Connect to GND to activate, or leave floating (or unconnected) to deactivate.	Must not be exposed to voltages greater than 30V DC
DO (Digital Output)	Pin 3	Uses an open-collector NPN transistor with the emitter connected to the GND pin. If used with an external relay, a diode must be connected in parallel with the load, for protection against voltage transients.	Max load = <100mA Max voltage = 24V DC (to the transistor)
GND	Pin 4	Ground	Description

LED Indicators:

Status LED (rear)	Green	Shows steady green for normal operation, flashing when the camera is accessed. Note: The Status LED can be configured to be unlit.
	Amber	Steady during startup, reset to factory default or when restoring settings.
		Flashes every 0.2 sec during firmware upgrade. (On:0.2 sec, Off: 0.2 sec) Note: Startup or reboot may have failed if the status LED shows steady amber for over 1 minute.
Unlit	No network connection.	



Chapter 3. Troubleshooting

3.1. Checking Firmware Version

Connect to the camera through a web browser. Firmware version information will be under **System > System Status > Firmware version**.

3.2. Upgrading Firmware

Upgrading with a firmware file on a PC:

1. Power ON the device.
2. Connect to the camera through a web browser and go to **System > Firmware Upgrade**
3. Choose "Specify the firmware to upgrade". Click **Browse...** and locate the file 5210fw.
4. The LED will flash amber during the firmware upgrading. The camera will start reboot after firmware upgrade completed.
5. When the LED indicator turns green, the firmware is upgraded successfully.

From SD/SDHC card:

1. Save the firmware file to a SD/SDHC card with the file name 5210fw.
2. Power off the device.
3. Insert the SD/SDHC card with the 5210fw file into the slot in the rear of the camera.
4. Power on the device and firmware upgrade will start automatically. The status LED flashes in amber during the upgrade.
5. The camera will start reboot after firmware upgrade completed. Remove the SD/SDHC card from the slot. When LED turns green, firmware upgrade is completed.

Note: A SD/SDHC card with at least 13MB free space is required for firmware upgrade. The device will enter firmware upgrade mode again if the SD/SDHC card is not removed

3.3. Emergency Recovery Procedure

If the status LED shows steady amber for over 1 minute, the camera will become unresponsive and the upgrade process may have failed. Please contact with your reseller or Surveon technical support at support@surveontech.com.

3.4. Resetting to Factory Default Settings

To reset the device to the factory default settings:

1. Make sure the device is in operation mode.
2. Using a needle or similar object to press and hold the Reset button until the camera restarts (about 2 seconds). The status LED will change to amber during startup.
3. When the Status Indicator changes to back to Green (which may take up to 1 minute), the process is complete. The default IP address is 192.168.88.10 if not assigned by a DHCP server.

Note: Resetting to the factory default settings using the Reset button will cause all parameters (including the IP address) to be reset. To reset the unit without changing parameters, disconnect and reconnect the power adapter.

To check for updated information on your camera, or for any other questions, please refer to <http://www.surveontech.com/support/faq.asp> or contact technical support at support@surveontech.com.

Chapter 4. Technical Specifications

Image sensor	1/3" 1.3 megapixel progressive scan CMOS
Lens	4.2 mm, F1.8 (default)
WDR	N/A
Day/Night ICR	N/A
IR LED	N/A
Min. illumination	3 Lux @ F1.0
Iris control	N/A
Shutter time	1/5 ~ 1/15,000 s
Viewing angle	Diagonal:89° Horizontal:71° Vertical:49.5°
Camera angle adjustment	Pan: 360° , 1° – 200°/s Tilt: -5° ~ +90°, 1° – 120°/s
Pan/tilt/zoom	1. Over 3 levels selection of various speed 2. Fast positioning with stable compact mechanism 3. Superior accuracy and reliability
Video compression	H.264/MPEG-4/MJPEG
Resolution	Up to 1280 x 1024
Frame rate	15 fps at SXGA (1280 x 1024) 15 fps at HD720 (1280 x 720) 30 fps at VGA (640 x 480) 30 fps at QVGA (320 x 240)
Video stream	Dual stream at H.264, MPEG-4, and MJPEG simultaneously
Bit rate	32K ~ 10Mbps, VBR, CBR, controller frame rate and quality
Video control	AGC (Auto Gain Control), AWB (Auto White Balance), BLC (Back Light Compensation), Image adjustment, Privacy zone: On/Off (8 zones)
Intelligent Video	Motion detection, tampering detection (blocked, redirected, defocused, or spray-painted)
Video jack	N/A
Built-in MIC	N/A
Audio compression	32KHz, ADPCM
Audio input	3.5mm phone jack
Audio output	3.5mm phone jack
Alarm in	1, terminal block
Alarm out	1, terminal block
Video buffer	5 second pre-alarm, 30 second post-alarm
Event action	Send snapshot or video clip by FTP or email, record to NAS, record to local storage, trigger DO
Supported protocols	IPv4, ARP, TCP, UDP, ICMP, DHCP, NTP, DDNS, SMTP, FTP, HTTP, CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP

Ethernet	10/100 Base-T / RJ45
Local storage	SD/SDHC x 1 (Class 4/Class 6 only)
RS-485	N/A
USB	USB 2.0 x 1
SDK	Surveon SDK 2.0
OS	Microsoft Windows XP/Vista/7
Browser	Microsoft IE 6.0 or above
Software	Surveon VMS 2.4.1
Temperature	Operation: -10°C ~ 50°C (14°F ~ 122°F) Storage: -30°C ~ 60°C (-22°F ~ 140°F)
Humidity	0 to 90%
Power	12VDC 1.5A ; PoE (IEEE 802.3af) with Class 3
Power consumption	Max. 10W
Dimensions (WxHxD)	ø180mm x 130.9mm (H)
Weight	Net: 1.2kg Gross: 1.9kg
Certifications	Safety: LVD EMC: FCC, CE