Moxa IP Camera

VPort 25 Series
Quick Installation Guide

First Edition, July 2008

Overview

The VPort 25 is a vandal-proof, IP66-rated, fixed dome IP camera for use in harsh, outdoor environments. With a maximum resolution of 520 TVL and day-and-night CCD camera lens, the VPort 25 is especially well-suited for high performance video surveillance applications. To meet the outdoor environment requirements, the VPort 25 is IP66-rated to protect it against dust and rain. In addition, the vandal-proof form factor design prevents damage from unexpected external forces, and the case-open sensor sends an alarm message when the VPort 25's outer case is opened.

The VPort 25's no-heater/fan-less embedded system provides greater reliability for outdoor use. In addition, the camera comes with redundant power inputs:
(1) direct power connection (12/24 VDC and 24 VAC) and (2) PoE (IEEE 802.3af) power input.

The VPort 25 uses the ASIC compression chip, which provides video performance up to full D1 (720 x 480) @ 30 FPS. To meet a wider range of customer requirements, the VPort 25 supports dual-codecs, including the MJPEG and MPEG4 algorithms.

Package Checklist

Moxa's VPort 25 is shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

- 1 × VPort 25 (includes IP camera module, 9-pin terminal block, and 2-pin terminal block)
- Bolt and wrench accessories package

Security torx screw driver for attaching/detaching the upper case	Safety bolt for connecting the upper case to the bottom case

- Miscellaneous accessories package

IP66 cable glands to ensure IP66 protection when the cables are connected	Silica gel desiccant for absorbing moisture	Hook fasteners for attaching the desiccant inside the dome

- Quick Installation Guide
- Document & Software CD (includes User's Manual, Quick Installation Guide, and VPort Utility)
- Warranty Statement

Features

- Dome-type Ethernet-based IP camera
- High-quality day/night camera with 520 TVL
- Supports MPEG4 and MJPEG algorithms
- 1 auto-sensing 10/100 Mbps Ethernet port (supports auto MDI and MDI-X), RJ45 connector
- Video stream up to 30 frames/sec in full D1 (720 x 480) resolution
- 2-way audio supported for a complete video/audio surveillance solution
- TCP, UDP, and HTTP network transmission modes
- Supports RTSP streaming
- Supports IGMP (Ver.3) protocols and QoS (ToS) for efficient network transmission
- Supports SNMP (V1/V2C/V3) for network system integration and management
- Built-in web server for easy configuration
- Adjustable frame rate and bit rate control
- Built-in Video Motion Detection
- Accessible IP filtering
- 1 DI and 1 relay output for sensors and alarms
- Video loss and network off-line alarm
- Supports SMTP and FTP for alarm message transmission
- Redundant power inputs with 12/24 VDC, 24 VAC power inputs and PoE (802.3af)
- Built-in case-open sensor, which can trigger the relay alarm or send a warning email when the upper case is opened
- Moxa VPort SDK PLUS with CGI Commands and ActiveX Control supports for third-party developers
- DDNS & UPnP Supported
- Moxa SoftDVR Lite V4.x IP Surveillance Software bundled free
- IP66 form factor protection
- -40 to 50°C operating temperature
- CE, FCC

NOTE	Since the warranty of the CCD is one year, the product warranty for VPort 25 series products is also one year.

Product Description of the VPort 25

Form Factor
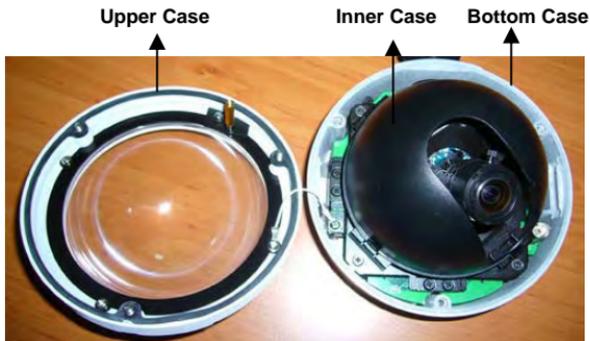
IP Camera Module
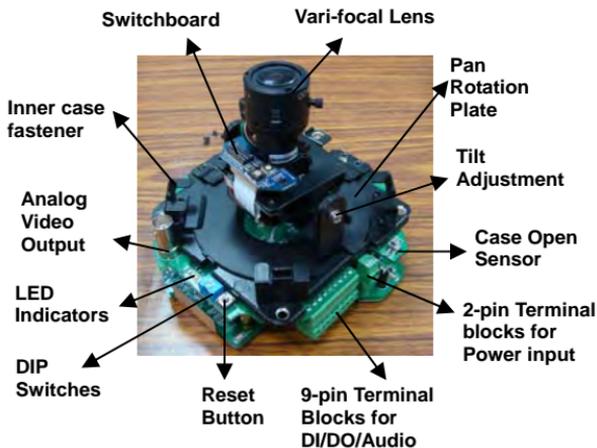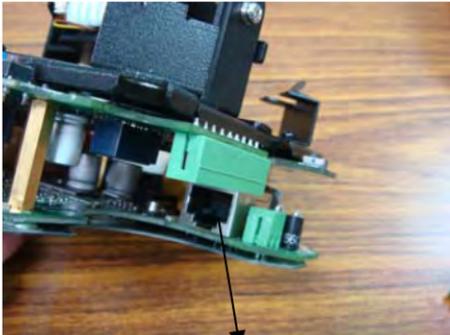
RJ45 Ethernet port

Vari-focal Lens

The VPort 25 series comes with a vari-focal lens for providing high quality video images. Users can adjust the Zoom and Focus manually to get clear images regardless of the site environment.

Screw for fixing the Zoom position

Screw for tuning the focus position

Switchboard

Users can enable or disable the functions on the switchboard based on the camera's installation environment to achieve better video quality and performance. All switch definitions and functions given here relate to the 10-pole DIP switches (day/night function model).
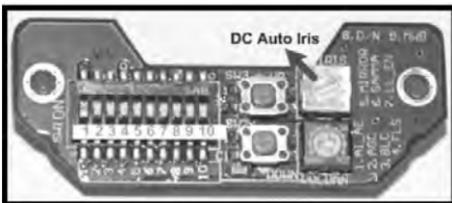
DC Auto Iris Switch

The DC Auto Iris Switch is used to adjust the brightness of the camera image. Turn the switch counterclockwise to achieve a brightener video image, and turn it clockwise to make the image less bright. In addition, we suggest adjusting the Auto Iris switch with a 0.4 x 2.0 mm ceramic adjuster.

NOTE Before adjusting the Iris, make sure the AE (see SW-1 below) is OFF.

Switch	Definition	Remarks
1	AI_AE	Auto Iris, Auto Exposure
2	AGC	Auto Gain Control
3	BLC	Back Light Compensation
4	FLS	Flickerless Mode
5	MIRROR	Mirror Function
6	GAMMA	Gamma Correction
7, 8, 9, 10	Reserved	

SW-1: AI_AE (Auto Iris, Auto Exposure)

In order to create a consistent video output level, in AE mode the camera's exposure and AGC control circuits work together to compensate for the light exposure of the CCD sensor automatically.

> **ON:** AE-Auto Exposure mode
> **OFF:** AI-Auto Iris mode (Default)

NOTE When AE is switched on, the Iris is fixed.

SW-2: AGC (Auto Gain Control)

AGC improves camera sensitivity and provides a clear image for low illumination conditions.

> **ON:** Activate the AGC mode and Enable the Day/Night Function (Default)
> **OFF:** Disable the AGC mode and the Day/Night Function

NOTE When Auto Iris is activated, AGC will be disabled.

SW-3: BLC (Back Light Compensation)

The BLC function solves the problem of backlight scene by brightening the foreground object.

ON: Activate the BLC function
OFF: Disable the BLC function (Default)

SW-4: FLS (Flickerless Mode)

When the power supply frequency is different from the camera's, image flicker may occur. Activating Flickerless mode can help remove flicker.

ON: Activate Flickerless mode
OFF: Disable the mode (Default)

NOTE If Flickerless mode is switched on, the shutter will be fixed (1/100 for NTSC, 1/120 for PAL)

SW-5: MIRROR (Mirror Function)

When the Mirror function is activated, the image will appear as if you are viewing it through a rearview mirror.

ON: Activate the Mirror function
OFF: Disable the function (Default)

SW-6: GAMMA (Gamma Correction)

ON: 1.0
OFF: 0.45 (Default)

Pan Rotation Plate and Tilt Adjustment

Use the Pan Rotation Plate and Tilt Adjustment for panning and tilting the lens angles. To do this, the screws must be loosened in advance. After the lens angles are correct, tighten the screws to fix the angles

Case Open Sensor

The VPort 25 provides an open case sensor alarm for preventing the upper case from being opened without authorization. Users can enable/ disable the alarm with the web-based manager.

2-pin Terminal Blocks for Power Input

In addition to PoE (power-over-Ethernet), the VPort 25 series also supports 12/24 VDC and 24 VAC power inputs with the 2-pin terminal block connector.

9-pin Terminal Block Connector for DI, DO, and Audio

The VPort 25 supports 1 DI (digital input), 1 DO (relay output), 1 audio input (microphone), and
1 audio output (speaker) through the terminal block.

NC	C	NO	-	+	+	-	-	+	+	-
DO (Relay)			DI		Speaker		MIC		Power Input	
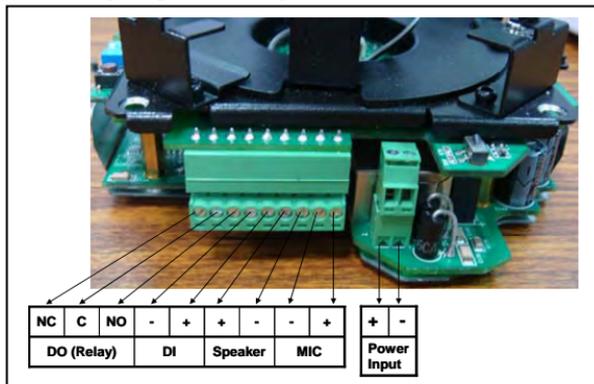
DO (Relay Output)	NO (Normal Open)	Max. 1A, 24 VDC Initial status is Normal Open
	C (Common)	
	NC (Normal Close)	
DI (Digital Input)	+	High: +13V to +30V Low: -30V to +3V
	-	

LED Indicators and DIP Switches

The VPort 25 has 4 LEDs for indicating the power status, 10 Mbps link, 100 Mbps link, and system status. In addition, DIP switches are provided for enabling or disabling the LED light for users who do not want the LED light to be visible at night.
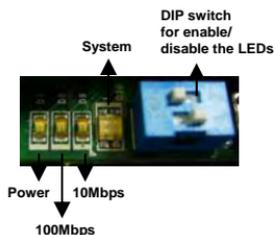
Text	LED	Description	
D7	Power	On: power on Off: power off	
D8	100 Mbps	On: Ethernet link is 100 Mbps	
D9	10 Mbps	On: Ethernet link is 10 Mbps	
D12	System	Red On	Hardware initialization
		Red blinking	Software initialization
		Green On	System boot-up
		Green blinking	Firmware upgrade proceeding
DIP Switch 1		Reserved	
DIP Switch 2	Enable/ Disable LED light	On: LED light is on Off: LED light is off	

Reset Button

This reset button can activate the hardware reset process.

1. Reboot:

To reboot the VPort 25, power it off and then power it back on again, or push the RESET button one time. The System LED will light in red as the POST (Power on Self Test) process runs. When the rebooting process is finished, the System LED will change to a green color.

2. Restore to Factory Settings:

To restore the VPort 25 to the factory default settings, press the reset button continuously until the System LED blinks in red. After the system LED stops blinking, release the reset button. The POST process will run, and the VPort will reboot. The System LED will light in green when the VPort has finished rebooting.

Analog Video Output

The analog video output with standard BNC connector (1 Vpp, 75ohm) is for users who want to check if the camera lens is tuned properly, or if the analog video signal is normal when there is a

problem with the IP video stream.

RJ45 Ethernet Port

The RJ45 Ethernet port is for network transmission, in addition to PoE (power over Ethernet) power supply.

Inner Case Fastener

There are 4 fasteners located next to the Pan Rotation Plate for fixing the inner case.

First-Time Installation and Configuration

Before installing the VPort 25, check to make sure that all items in the Package Checklist are in the box. In addition, you will need access to a notebook computer or PC equipped with an Ethernet port.

Hardware Installation

Step 1: Open and remove the upper case.

Use the Security Torx to loosen the upper case screws.

Step 2: Remove the inner case.

Step 3: Remove the IP camera module.

Step 4: Connect the cables.

    a) Open the conduit hole.

    b) Prepare the cable gland (if required).

    c) Use the cable gland to assemble the cables.

NOTE When installing the cable gland, make sure the 2 rubber rings are assembled properly for IP66 protection. If necessary, use silicon sealant.

d) **Connect the cables to the IP camera module's connectors.**
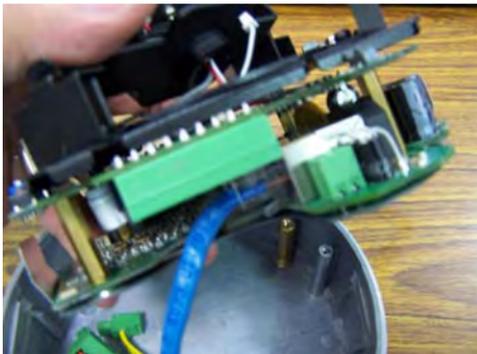
NOTE Be sure to arrange the cables carefully to make sure that all cables are connected properly. We recommend connecting the Ethernet cable first, and then the 9-pin terminal block. Connect the 2-pin terminal block last.

NOTE	The conduit hole must face downward to provide the VPort 25 with IP66 protection against rain when installed in an outdoor environment.

Step 5: Mount the bottom case on the ceiling or accessory's mounting kit (VP-MK)

a) Mounting on the ceiling

Step 1: Attach the bottom case to the appropriate mounting location on the wall, and mark the positions of the four screw holes with a pen or a pencil.

Step 2: In the marked locations, drill a hole slightly smaller than the supplied screw anchors.

Step 3: Put anchors into these drilled holes.

Step 4: Fasten the bottom case with the four copper pillar screws.

b) Mounting on the accessory's mounting kit (VP-MK)

Step 1: Fasten the bottom case on the plate with the four copper pillar screws.

Step 2: Assemble the mounting kit with the selected accessory.

Step 6: Assemble the IP Camera Module and upper case with the bottom case.

Step 7: To get the desired video image, adjust the angles and zoom strength.

    a) Pan rotation

b) Tilt adjustment
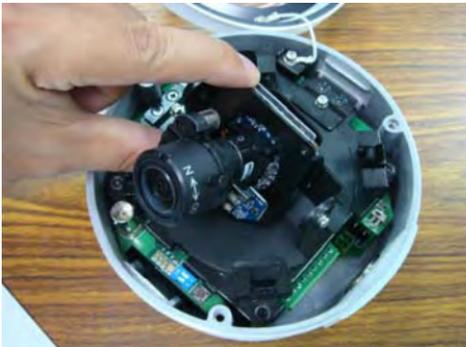
c) Zoom adjustment

Step 8: Fasten the silica gel desiccant in the inner case.

NOTE	The effect of the silica gel desiccant will decrease after being used for particular time period. Silica gel desiccants are commonly available, and can be replaced with the hook fastener.

Step 9: Complete the hardware installation.

Software Installation

Step 1: Configure the VPort 25's IP address

When the VPort 25 is first powered on, the POST (Power On Self Test) will run for a few moments. The System LED will turn green when the POST is complete. The 10 Mbps or 100 Mbps LED will then flash as the IP address is assigned. The network environment determines how the IP address is assigned.

<u>**Network Environment with DHCP Server**</u>

For this network environment, the unit's IP address will be assigned by the network's DHCP server. Refer to the DHCP server's IP address table to determine the unit's assigned IP address. You may also use the Moxa VPort and Ether Device Configurator Utility (edscfgui.exe), as described below:

Using the Moxa VPort and EtherDevice Configurator Utility (edscfgui.exe)

1. Run the **edscfgui.exe** program to search for the VPort. After the utility's window opens, you may also click on the **Search** button [icon] to initiate a search.

2. When the search has concluded, the Model Name, MAC address, IP address, serial port, and HTTP port of the VPort will be listed in the utility's window.
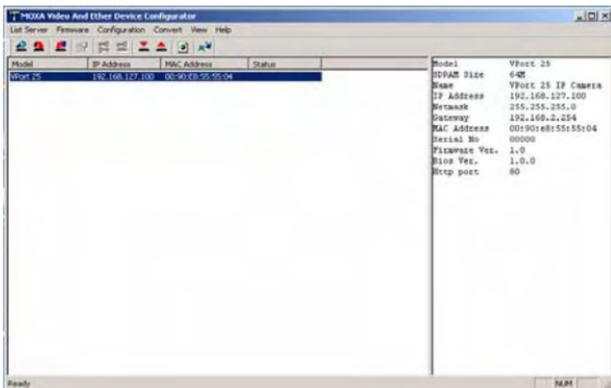
3. Users can double click the selected VPort, or use the IE web browser to access the VPort's web-based manager (web server).

Non DHCP Server Network Environment

If your VPort 25 is connected to a network that does not have a DHCP server, then you will need to configure the IP address manually. The default IP address of the VPort 25 is 192.168.127.100 and the default subnet mask is 255.255.255.0. Note that you may need to change your computer's IP address and subnet mask so that the computer is on the same subnet as the VPort.

To change the IP address of the VPort manually, access the VPort's web server, and then navigate to the **System Configuration → Network → General** page to configure the IP address and other network settings. Check the **Use fixed IP address** to ensure that the IP address you assign is not deleted each time the VPort is restarted.

Step 2: Accessing the VPort 25's web-based manager

Type the IP address in the web browser's address input box and then press enter.

Step 3: Install the ActiveX Control Plug-in

A security warning message will appear the first time you access the VPort's web-based manager. The message is related to installing the VPort AcitveX Control component on your PC or notebook. Click **Yes** to install this plug-in to enable the IE web browser for viewing video images.
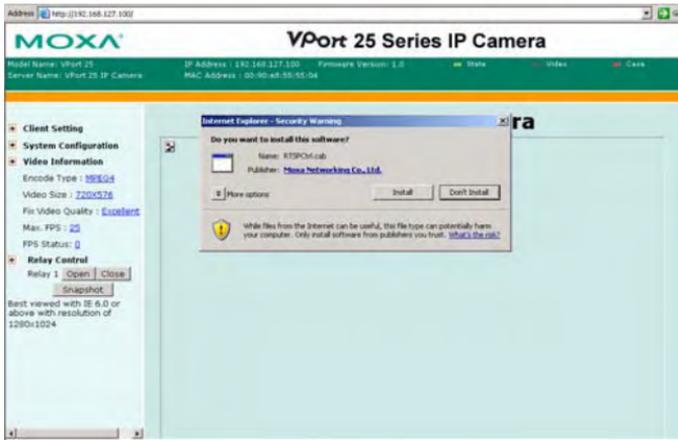
NOTE For Windows XP SP2 or above operating systems, the ActiveX Control component will be blocked for system security reasons. In this case, the VPort's security warning message window may not appear. Users should unlock the ActiveX control blocked function or disable the security configuration to enable the installation of the VPort's ActiveX Control component.

Step 4: Access the homepage of VPort 25's web-based manager.

After installing the ActiveX Control component, the homepage of the VPort 25's web-based manager will appear. Check the following items to make sure the system was installed properly:

1. Video Images
2. Audio Sound (make sure your PC's or notebook's sound is turned on)
3. Video Information
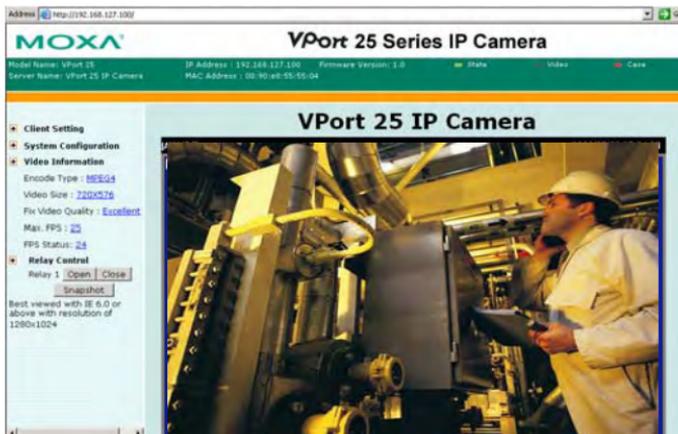
Step 5: Access VPort's system configuration.

Click on **System Configuration** to access the overview of the system configuration to change the configuration. **Model Name**, **Server Name**, **IP Address**, **MAC Address**, **Firmware Version**, and **LED Status** appear in the green bar near the top of the page. Use this information to check the system information and installation.

For details of each configuration, check the User's Manual on the software CD.
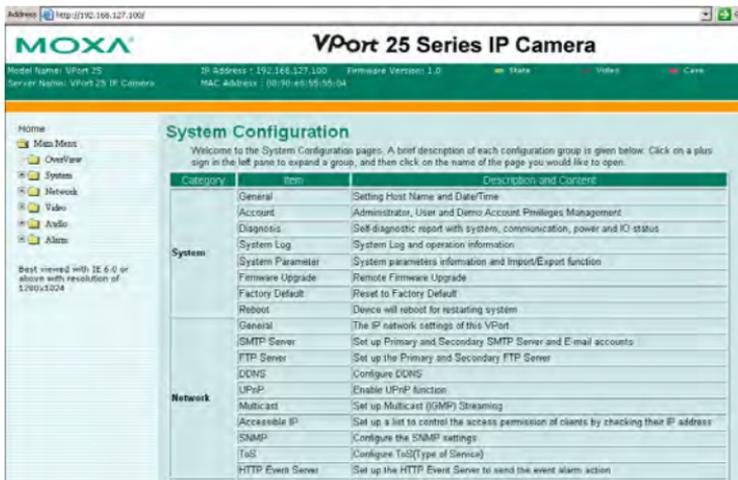
Wiring Requirements

> ⚠️ **ATTENTION**
>
> **Safety First!**
>
> Be sure to disconnect the power cord before installing and/or wiring your Moxa VPort 25.
>
> Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.
>
> If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

You should also pay attention to the following:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.
- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separated.
- It is strongly advised that you label wiring to all devices in the system when necessary.

Specifications

Camera	
Sensor	1/3" Sony Super HAD or 1/3" Sony ExView
Lens	Wide end: F1.4, Diagonal 97.61° / Horizontal 76.92°
	Tele End: F2.4, Diagonal 28.37° / Horizontal 22.73°
	Focal length: F= 3.7~12 mm
Modulation	NTSC or PAL
Camera Angle	pan ±180°, tilt ±85°, rotation ±170°
Illumination (Low light sensitvity)	Color: 0.2 Lux at F1.2 Black/ White: 0.03 Lux at F1.2
Synchronization	Internal
Gamma Correction	0.45
White Balance	Auto Tracking White Balance
Electronic Shutter	Auto: 1/60 (50) second to 1/100,000 second
S/N Ratio	More than 50 dB (AGC off)
AGC Control	On/ Off
Flickerless Control	On/ Off
Backlight Compensation	On/ Off
Mirror	On/ Off

Auto Exposure/ Auto Iris	On: Auto Exposure Off: Auto Iris

Video

Video Compression	MJPEG or MPEG4 (ISO/IEC 14496-2)
Video Output	Via Ethernet port or BNC connector (1.0 Vpp, 75Ω)

Video Resolution and FPS (Frame per second):

	NTSC		PAL	
	Size	Max. FPS	Size	Max. FPS
QVGA	320 x 240	30	320 x 288	25
CIF	352 x 240	30	352 x 288	25
VGA	640 x 480	30	640 x 480	25
4CIF*	704 x 480	30	704 x 576	25
Full D1	720 x 480	30	720 x 576	25

Video Viewing	Adjustable image size and quality Timestamp and text overlay

Audio

Audio Input	1 Line-in or MIC-in with 2-pin terminal block connector
Audio Output	1 Line out with 2-pin terminal block connector

Network

Protocols	TCP, UDP, HTTP, SMTP, FTP, Telnet, NTP, DNS, DHCP, UPnP, RTP, RTSP, ICMP, IGMPv3, SNMPv3, DDNS
Ethernet	1 10/100BaseT(X) auto negotiation RJ45 port

GPIO

Digital Input	1, max. 8 mA "High": +13V to +30V "Low": -30V to +3V
Relay Output	1 (max. 24 VDC @ 1A)

LED Indicators

Network	1 LED for 10 Mbps, 1 LED for 100 Mbps
Power	Power On/ Off
System	Indicates if the system booted properly or not
DIP Switch	For turning the LED light ON or Off

Power	
Input	Redundant power inputs 1 12/ 24 VDC or 24 VAC with 2-pin terminal block connector 1 Power-over-Ethernet (IEEE802.3af)
Consumption	Max. 9.5W

Physical Properties	
Housing	IP66 rated for rain and dust protection Vandal-proof supports
Dimensions	Diameter: 142 mm (5.6 in) Height: 119 mm (4.7 in)
Weight	2 kg
Installation	Surface/ Wall Mounting

Environmental Limits	
Operating Temperature	-40 to 50°C (-40 to 122°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Regulatory Approvals	
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), Level 2 EN61000-4-3 (RS), Level 3 EN61000-4-4 (EFT), Level 3 EN61000-4-5 (Surge), Level 3 EN61000-4-6 (CS), Level 2 EN61000-4-12 (Oscillatory wave immunity), Level 3
Shock	IEC60068-2-27
Freefall	IEC60068-2-32
Vibration	IEC60068-2-6
Warranty	1 year

Alarm Features

- Video motion detection with sensitivity tuning
- Video loss alarm
- Built-in open-case sensor alarm
- Daily repeat timing schedule
- JPEG snapshots for pre/trigger/post alarm images
- HTTP Event Servers for setting customized alarm actions

Security

User level password protection
IP address filtering

Minimum Viewing System Requirements

Pentium 4, 2.4 GHz
512 MB of memory
Windows XP/2000 with SP4 or above
Internet Explorer 6.x or above
DirectX 9.0c or above

Software Bundled Free

Moxa SoftDVR Lite   1- to 4-ch IP Surveillance Software for viewing &
                         recording

Technical Support Contact Information
www.moxa.com/support

Moxa Americas: Moxa China (Shanghai office):
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Fax: +49-89-3 70 03 99-99   Fax: +886-2-8919-1231