VPort P06-1MP-M12
Quick Installation Guide

Moxa IP Camera

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Overview

The compact VPort P06-1MP-M12 cameras provide an HD (720P, 1280 x 720) video image, and feature an H.264/MJPEG IP dome, giving them the versatility and ruggedness to excel in many different installations and environments for mobile IP video surveillance applications. In addition, the cameras are compliant with mandatory sections of EN 50155, covering operating temperature, power input voltage, surge, ESD, and vibration, as well as conformal coating and power insulation, making them suitable for a variety of industrial applications. The cameras feature vandal-proofing (EN 62262 IK10), a -25 to 55°C or -40 to 70°C (T models) operating temperature range, a rugged M12 Ethernet port, 1 audio input, PoE power inputs, IP66 rain and dust protection, a dehumidifying membrane, and a selectable lens.

Ordering Information

Moxa's VPort P06-1MP-M12 is shipped with the following item:

- VPort P06-1MP-M12 (lens included)

If this item is missing or damaged, please contact your customer service representative for assistance.

The following models are available:

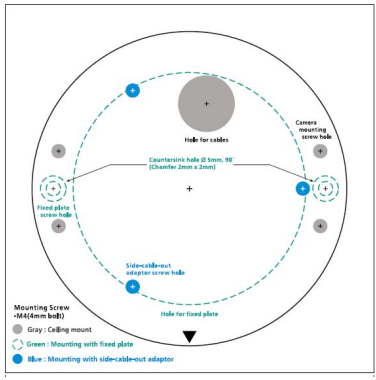
EN 50155, T1 -25 to 55°C	EN 50155, TX -40 to 70°C	Lens Focal-length	Line-in/ Microphone
VPort P06-1MP -M12-CAM36	VPort P06-1MP -M12-CAM36-T	3.6 mm	Line-in
VPort P06-1MP -M12-MIC-CAM36	VPort P06-1MP -M12-MIC-CAM36-T	3.6 mm	Microphone-in
VPort P06-1MP -M12-CAM42	VPort P06-1MP -M12-CAM42-T	4.2 mm	Line-in
VPort P06-1MP -M12-MIC-CAM42	VPort P06-1MP -M12-MIC-CAM42-T	4.2 mm	Microphone-in
VPort P06-1MP -M12-CAM60	VPort P06-1MP -M12-CAM60-T	6.0 mm	Line-in
VPort P06-1MP -M12-MIC-CAM60	VPort P06-1MP -M12-MIC-CAM60-T	6.0 mm	Microphone-in
VPort P06-1MP -M12-CAM36-CT	VPort P06-1MP -M12-CAM36-CT-T	3.6 mm	Line-in
VPort P06-1MP -M12-MIC-CAM36-CT	VPort P06-1MP -M12-MIC-CAM36-CT-T	3.6 mm	Microphone-in
VPort P06-1MP -M12-CAM42-CT	VPort P06-1MP -M12-CAM42-CT-T	4.2 mm	Line-in
VPort P06-1MP -M12-MIC-CAM42-CT	VPort P06-1MP -M12-MIC-CAM42-CT-T	4.2 mm	Microphone-in
VPort P06-1MP -M12-CAM60-CT	VPort P06-1MP -M12-CAM60-CT-T	6.0 mm	Line-in
VPort P06-1MP -M12-MIC-CAM60-CT	VPort P06-1MP -M12-MIC-CAM60-CT-T	6.0 mm	Microphone-in

Screw handle accessory package

Torx screw driver for attaching/detaching the upper case.	4 sets of nut, gasket, and spring washer for mounting the camera.	4 indented hexagonal head tapping screws for mounting the camera on the ceiling.
		

Sticker for camera mounting positions

- Quick installation guide
- Documentation and Software CD (includes User's Manual, Quick Installation Guide, and VPort Utility)
- Warranty card



NOTE Check the model name on the VPort's side label to determine if the model name is correct for your order.

NOTE This product must be installed in compliance with your local laws and regulations.

Features

- 1/2.7" HD progressive CMOS image sensor
- High image quality with WDR (wide dynamic range) and DNR (Digital Noise Reduction) supported
- Minimum illumination up to 0.2 lux (color)
- Supports MJPEG and H.264 Dual Codecs
- Provides 3 video streams for H.264 and MJPEG simultaneously
- Video stream up to 30 frames/sec at WXGA (1280 x 800) resolution
- Supports video quality configuration with fixed bit rate (CBR) and fixed quality (VBR)
- Video latency under 200 ms
- DynaStream™ for network efficiency with dynamic frame rate change
- CBR Pro™ supported for high image quality with limited bandwidth transmissions
- WXGA, 720P, SVGA, Full D1, 4CIF, VGA, CIF, QCIF resolution

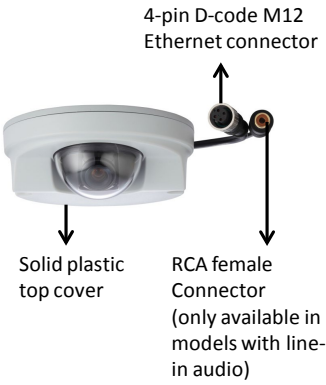
- TCP, UDP, and HTTP network transmission modes
- Supports DHCP OPT66/67 for automatic configuration from TFTP server, making it easy to batch configure several units
- Supports RTSP streaming
- Supports multicast (IGMP) video streaming
- Supports SNMP (V1/V2C/V3) for network system integration and management
- Supports QoS (ToS) for transmission priority
- Built-in web server for easy configuration
- Accessible IP filtering
- UPnP supported
- Complies with all EN 50155 mandatory test items*

*This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, click here: www.moxa.com/doc/specs/EN_50155_Compliance.pdf

- 1 10/100BaseT(X) port with M12 D-code connector
- 1 audio input with water-proof RCA-type connector
- IP66 rain and dust protection, with dehumidifying membrane
- PoE (Power-over-Ethernet, IEEE 802.3af) supported
- EN 62262 IK9 level vandal resistance
- -25 to 55°C (EN 50155, Class T1), or -40 to 70°C (EN 50155. Class TX) operating temperature for rolling stock environments
- CE, FCC, UL 60950-1
- Built-in tamper alarm and Video Motion Detection (VMD)
- Pre, Trigger, and post snapshot images supported
- Sequential snapshot images supported
- Supports SMTP and FTP for alarm message transmission
- Supports HTTP event server
- 5-year warranty

Product Description

Appearance



Built-in Microphone (-MIC model)

- **4-pin D-code M12 Ethernet connector:** Can be used for both the PoE power supply (Mode A) and Auto MDI/MDI-X Ethernet connection

PIN	TX
1	TD+
2	RD+
3	TD–
4	RD–

NOTE To connect the VPort P06-1MP-M12 to a network, use an Ethernet cable with D-code M12 connector and an M12 PoE switch or RJ45 PoE switch

M12 D-code to M12 D-code cable 	M12 PoE switch (e.g., TN-5508-4PoE) 
M12 D-code and RJ45 cable 	RJ45 PoE switch (e.g., EDS-P510) 

NOTE The power input rating of the VPort P06-1MP-M12 is 48 VDC, 0.12 A, with maximum power consumption approximately 6 W.

NOTE The equipment is designed for in building installation only and is not intended to be connected to exposed (outside the plant) networks

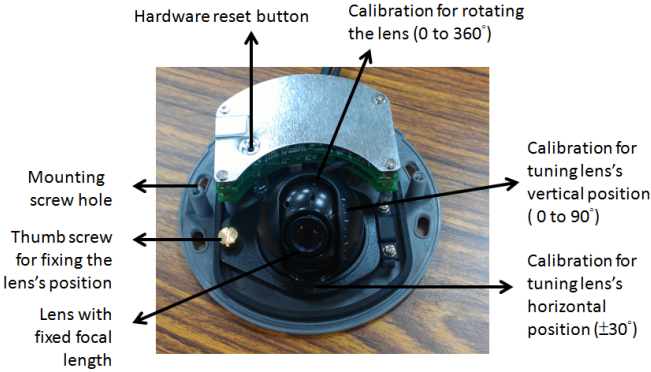
- **RCA female connector:** The VPort P06-1MP-M12 supports one audio input with RCA female connector. The audio will be digitized and compressed as an audio stream for network transmission with the video stream.

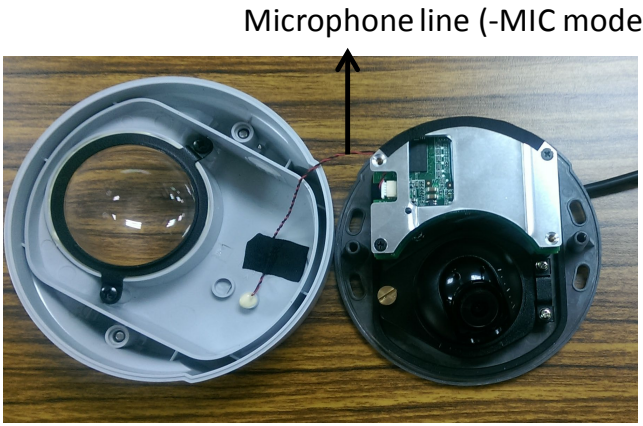
NOTE RCA audio connectors are popular and easily found in the market. If you require any other kind of audio connector, please contact your Moxa sales representative for customization service.

- **Solid plastic top cover:** This top cover can be removed for tuning the camera lens position.
- **Transparent dome cover:** The VPort P06-1MP-M12 is designed with a transparent PC dome cover, which is vandal-proof and satisfies EN 62262 (IEC 62262) Class IK9 requirements.
- **2 Torx screws for top cover:** These 2 torx screws are designed with anti-shedding to make installation more convenient. Use the L-type torx screwdriver to remove or attach the top cover.
- **Built-in microphone:** VPort P06-1MP-M12-MIC series products have a built-in microphone, and can simultaneously display or record live video and audio.

NOTE The color of the form factor can be customized based on your installation environment. Please contact your Moxa sales representative for customization service.

Inside the Camera





- **Mounting screw holes:** There are 4 mounting screw holes for mounting the VPort P06-1MP-M12 on the ceiling or the accessory.

- **Thumb screw for fixing the lens's position:** To tune the lens's position, loosen the thumb screw, and then retighten it after the position tuning is done.
- **Lens with fixed focal length:** The VPort P06-1MP-M12 series includes models with 3 different focal lengths. Choose the appropriate focal-length lens based on the viewing angle and object distance.
- **Hardware reset button:** Use a pointed object to depress the reset button to reboot or restore factory defaults.
  - Reboot: press the button one time.
  - Factory default: press the button and hold in for at least 90 sec.
- **Calibration for rotating lens (0 to 360°):** Rotate the lens to get the optimal image. When done, mark the position of this calibration for future placement or mass installation.
- **Calibration for tuning lens's vertical position (0 to 90°):** After tuning the lens's vertical position, mark the position of this calibration for future placement or mass installation.
- **Calibration for tuning lens's horizontal position (±30°):** After tuning the lens's horizontal position, mark the position of this calibration for future placement or mass installation.

Hardware Installation

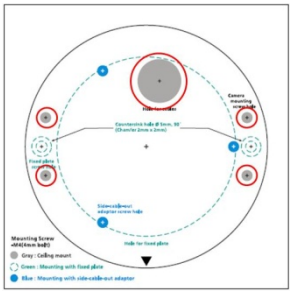
Step 1: Open and remove the top cover.

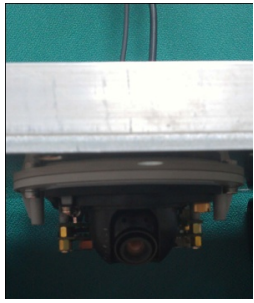
Use the torx screwdriver to loosen the top cover screws.

Step 2: Use the installation sticker for drilling the holes. There are 3 types of installation.

a. Mounting with 4 mounting screws

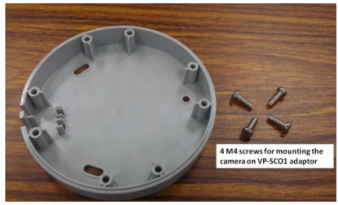
To mount the camera on the ceiling, drill a hole through the gray portion of the sticker and then mount the camera with the 4 nut/gasket/spring-washer sets and 4 indented hexagonal head tapping screws.

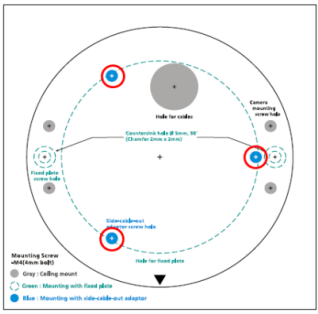


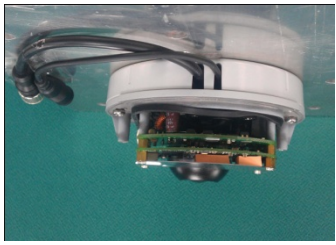


b. Mounting with the side-cable-out adapter

Use the side-cable-out adapter **VP-SCO1** (VP-SCO1) if your installation requires the cable–out on the side. Drill a hole through the blue portion of the sticker for mounting the adaptor on the surface with 3 nut/gasket/ spring-washer sets and indented hexagonal head tapping screws. Then, mount the VPort P06-1MP-M12 on the adapter with 4 M4 screws, which are provided in the VP-SCO1's package.



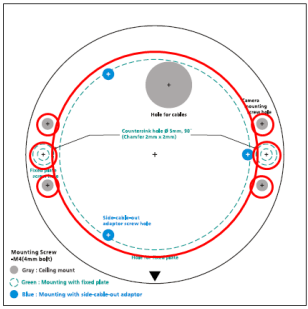


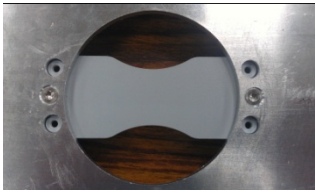


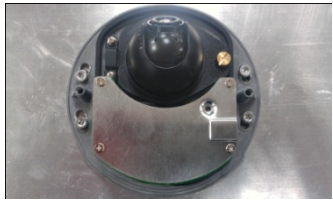
c. Mounting with the fixed plate

If you cannot use the nut/gasket/spring-washer set to mount the camera on your ceiling, use the VP-FP1 fixed plate. Drill holes through the green dotted-line holes and 4 camera mounting screw holes on the sticker, and then put the VP-FP1 inside the hole. Use the 2 countersink screws to mount the VP-SP1. Finally, mount the VPort P06-1MP-M12 on the fixed plate with the 4 indented hexagonal head tapping screws.

VP-FP1







NOTE The screw hole for mounting the VP-FP1 fixed plate is a countersunk hole with 5 mm diameter, and 90° 2 x 2 mm chamfer. Take this into consideration when drilling these 2 screw holes.

Step 3: Connect the camera with the 4-pin M12 D-code Ethernet connector and RCA male connector.

Step 4: Loosen the thumb screw for tuning the horizontal, vertical, and rotating lens position. Once the lens position is correct, fix the thumb screw.

Step 5: Fix the top cover. The installation is now complete.

Software Installation

Step 1: Configure the VPort P06-1MP-M12's IP address

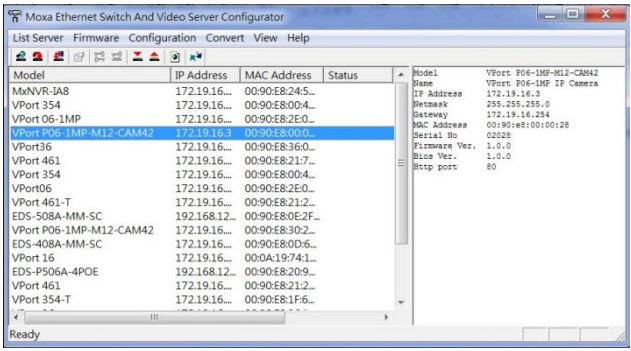
When the VPort P06-1MP-M12 is first powered on, the POST (Power On Self Test) will run for a few moments (about 30 seconds). The network environment determines how the IP address is assigned.

Network Environment with DHCP Server

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 EtherDevice 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 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.



You 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 16-M12 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 16-M12 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 *Use fixed IP address* to ensure that the IP address you assign is not deleted each time the VPort is restarted.

Step 2: Access the VPort P06-1MP-M12'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. You 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 P06-1MP-M12's web-based manager.

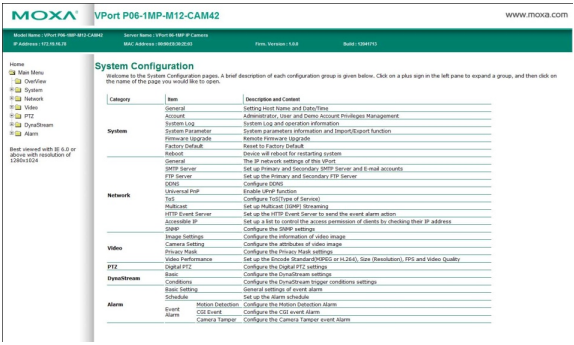
After installing the ActiveX Control component, the homepage of the VPort P06-1MP-M12's web-based manager will appear. Check the following items to make sure the system was installed properly:

1. Video Images
2. Video Information

Step 5: Access the 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**, and **Firmware Version** appear on 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

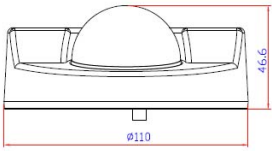
Safety First!

Be sure to disconnect the power cord before installing and/or wiring your Moxa VPort P06-1MP-M12. 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.

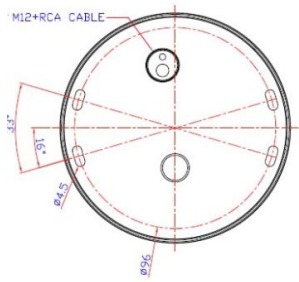
You should also pay attention to the following:

- 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 separate.
- We strongly advise labeling wiring to all devices in the system.

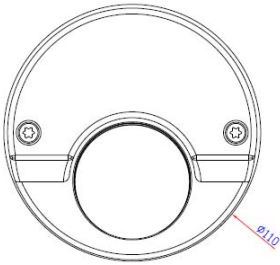
Dimensions (mm)



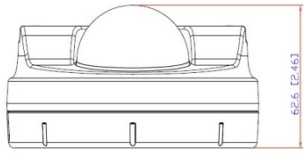
Front View



Bottom View



Top View



Camera with SCO1 adaptor

Specifications

Camera	
Sensor	1/2.7" HD progressive scan CMOS
Lens	3.6, 4.2, 6 mm fixed focal length
Angle of view	3.6 mm, F1.6: Diagonal 120°, Horizontal 96°, Vertical 56° 4.2 mm, F1.6: Diagonal 96°, Horizontal 81°, Vertical 47° 6.0 mm, F1.8: Diagonal 66°, Horizontal 51°, Vertical 38°
Camera lens angle	Pan: ±30°; Tilt: 0-90°, Rotate: ±180° (contolled manually)
Illumination (Low light sensitivity)	0.2 Lux at F=1.2, color
Synchronization	Internal
White Balance	ATW/AWB (range: 3200 to 10000°K)
Electronic Shutter	Auto, 1/30 to 1/25000 sec.
S/N Ratio	50 dB (Gamma, Aperture, AGC, OFF; DNR ON)
DNR	Built-in DNR
WDR	Level 1 to 8
AGC Control	2X, 4X, 8X, 16X, 32X, 64X
Flickerless Control	50Hz/60Hz mode
Black level control	High/Medium/Low
Auto Exposure	Level ±5
Image Rotation	Flip, Mirror, and 180° rotation
Image Setting	Manual tuning with saturation, sharpness, and contrast
Video	
Video Compression	H.264 (ISO/IEC 14496-10) or MJPEG
Video Output	Via Ethernet port
Video Streams	3 video streams (2 H.264 and 1 MJPEG)

Video Resolution and FPS (Frame per second):

	NTSC		PAL	
	Size	**Max. FPS**	**Size**	**Max. FPS**
QCIF	176 x 112	30	176 x 144	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
SVGA	800 x 600	30	800 x 600	25
HD	1280x720	30	1280x720	25
WXGA	1280x800	30	1280x800	25

Video Viewing	• DynaStream™ supported for automatic frame rate adjustment • CBR Pro™ for good image quality in limited bandwidth transmission • 3 configurable privacy mask areas • Adjustable image size and quality • Timestamp and text overlay • OSD (On screen Display) position adjustable • Maximum of 5 simultaneous unicast connections
Audio	
Audio inputs	1 Line-in, rugged RCA connector, or 1 built-in microphone input
Audio format	Mono, PCM (G.711)
Network	
Protocols	TCP, UDP, HTTP, SMTP, FTP, Telnet, NTP, DNS, DHCP, UPnP, RTP, RTSP, ICMP, QoS, SNMPv1/v2c/v3, DDNS, TFTP, OPT 66/67
Ethernet	1 10/100BaseT(X) Ethernet port, M12 D-code connector
Power Requirements	
Input	Power-over-Ethernet (IEEE 802.3af)
Consumption	Maximum 6 W
Physical Characteristics	
Housing	IP66 rain and dust protection, vandal-proof protection
Dehumidifying Membrane	GORE protective vent
Dimensions	110 mm (diameter) x 47 mm (height)
Weight	310 g
Installation	Surface (ceiling) mounting
Environmental Limits	
Operating Temperature	Standard models: -25 to 55°C (-13 to 131°F) Wide temp. models: -40 to 70°C (-40 to 158°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Regulatory Approvals	
Safety	UL 60950-1
EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A

EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8
Rail Traffic	EN 50155*, EN 45545-2
*This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, click here: www.moxa.com/doc/specs/EN_50155_Compliance.pdf	
Shock	IEC 61373
Freefall	IEC 60068-2-32
Vibration	IEC 61373
Vandal resistance	IEC 62262, IK10 level
Fire Protection	EN 45545-2: 2013
MTBF (mean time between failures)	
Time	Ground Benign: 1,944,687 hours Ground Mobile: 206, 189 hours
Standard	Telcordia TR/SR
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty
Alarm Features	
• Intelligent Video: Camera tamper • Video Motion Detection: 3 independently configurable motion areas • Scheduling: Daily repeat timing schedule • Imaging: JPEG snapshots for pre/trigger/post alarm images • Email/FTP Messaging: Automatic transfer of stored images via email or FTP as event-triggered actions • Custom Alarms: HTTP event servers for setting customized alarm actions	
Security	
• Password: User level password protection • Filtering: By IP address • Encryption: HTTPS, SSH	
Minimum Viewing System Requirements	
• Pentium 4, 2.4 GHz • 512 MB of memory • Windows XP with SP3 and above, Windows 7 • Internet Explorer 9.x or above • DirectX 9.0c or above	
Software Development Kit	
VPort SDK PLUS	Includes CGI commands, ActiveX Control, and API library for customized applications or system integration for third-party developer
Standard	ONVIF