Industrial IP Surveillance Solutions for Mission-Critical Applications

MOXA®

Reliable Networks ▲ Sincere Service

Enhance Your Industrial IP Surveillance System

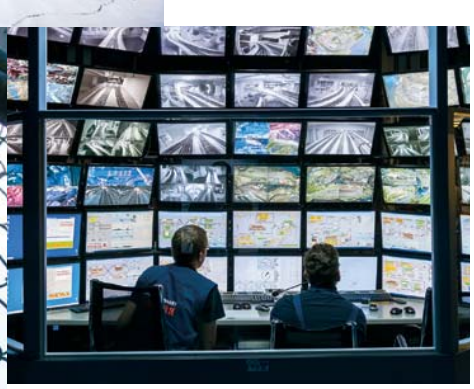
As industrial systems continue to be frequently deployed in industrial environments, the demand for an industrial-grade IP surveillance solution that can reliably transmit real-time surveillance images is increasing. This is particularly true for mission-critical applications, such as oil & gas and mining, as well as railway and other intelligent transportation systems (ITS), to ensure safe operations and reliable system management.

IP surveillance solutions installed in mission-critical environments need to overcome a variety of challenges, and require 24/7 real-time operation to facilitate immediate responses if an emergency occurs. An industrial-grade IP surveillance solution that satisfies these requirements is much better equipped to enhance public safety and secure facilities efficiently.

Your Requirements

Withstand Demanding Environments

For industrial environments, which are often located outdoors and experience extreme weather conditions, reliable solutions are essential to ensure that the systems can keep operating.



Non-stop Operations

For mission-critical IP surveillance applications that need to be operating 24/7 non-stop, reliability as well as the product life-cycle is essential to reduce maintenance cost and effort.

Instant Responses

Clear video images and the ability to send out alert notifications make you well prepared for incidents and allow you to react immediately to protect the valuables you can't afford to lose.

Moxa's Value

Moxa offers a comprehensive range of industrial-grade IP surveillance solutions to fulfill the requirements of mission-critical applications. Where the product is deployed will determine which of our values are included in the product.

Rugged Design for Industrial-Grade Reliability

- -40 to 75°C operating temperature range
- 5-year warranty
- MTBF greater than 300,000 hours
- Vibration-proof design
- Substation-grade EMC level
- Industry certifications

Optimal Video Technology for Superior Image Performance

- iCapTrue image enhancement
- DNR, WDR, and BLC for image optimization
- EIS for image enhancement when experiencing vibrations
- CBR Pro™ to eliminate packet loss
- DynaStream™ frame rate control for system and network efficiency

Smart Integration for Easy Deployment and Video Analysis

- IVS for automatic video analysis
- ONVIF Profile S compatibility
- NTCIP for ITS applications
- IEC 61375 for railway applications
- Supports Modbus TCP protocol to integrate seamlessly with SCADA software
- Open DSP camera platform to allow compatibility with customized software

Committed to Reliability

At Moxa, we produce top-quality, industrial-grade IP cameras that can operate reliably in harsh environments. Each product has a variety of rugged features to ensure reliability regardless of the environment. We take strict measures at each stage of the product development process, including R&D planning, component inspection, and product assembly, and we conduct a complete inspection of all our cameras before they're packaged to ensure that the cameras perform reliably even in the most extreme conditions.

-40 to 75°C

Moxa's cameras are built to ensure reliable performance in the most extreme temperatures.

5 Years

Our industry-leading 5-year warranty is a reflection of the high level of confidence we have in the quality of our products.

40+ Hours

Burn-in testing ensures that the cameras are able to work in harsh environments.

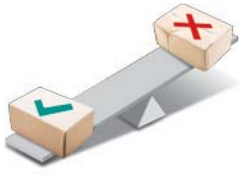
MTBF > 500,000 Hours

Moxa's cameras are designed for high MTBF values. High MTBF values are often used as an indicator of quality.

Note: Applies to most of the Moxa cameras featured here. See the comparison table for details. Calculated using the Telcordia SR332 standard.

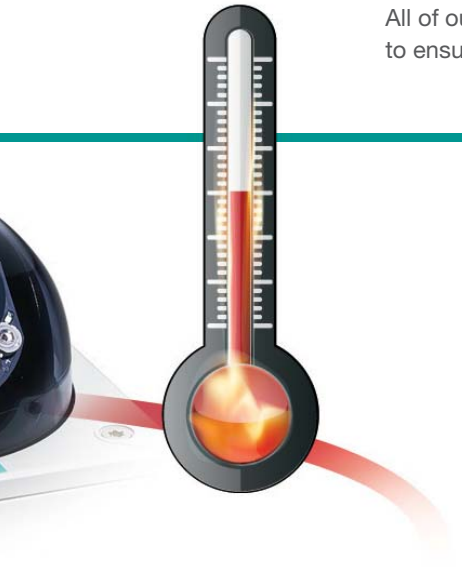
RMA < 0.5%

The impressive RMA rate of Moxa's products is a reflection of their high quality.



100% Tested

All of our IP cameras undergo strict inspections to ensure top product quality.



EN 50155 (TX), EN 50121-4, C1D2, NEMA TS2

Moxa's IP cameras comply with various certifications to ensure reliability when used for different applications.

IK10-rated

Strict vandal testing ensures that the cameras can withstand 20J impacts.

Note: Applies to many of the cameras featured here.

IP66-rated

Tough testing for water and dust intrusion ensures that Moxa's cameras work reliably outdoors.

Note: Applies to most of the cameras featured here.

40 Minutes

Strict vibration testing guarantees that the cameras function reliably even for applications subject to severe vibrations.

Maximum Quality

Moxa adheres to IRIS standards of process monitoring and control for product development and project management.

IRIS Certification

Moxa's Cutting-Edge Technologies

Moxa is continuously developing new video technologies that bring additional value to your IP surveillance systems. Our technology excels in three main aspects: optimized image quality for image enhancement, optimized video streaming performance, and intelligent video surveillance.

Optimized Image Quality

Enhanced image quality guaranteeing crystal clear images

Moxa's groundbreaking iCapTrue technology implements the "seeing is believing" adage by presenting images that are exactly what you would see with your own eyes if you were at the scene. iCapTrue includes an advanced AE (Auto Exposure) and AWB (Auto White Balance) algorithm that automatically detect users' settings to achieve superior image quality, and can capture all the details across a wide variety of environments and lighting conditions.

(A) Video captured from CCTV cameras

Note: For reference only; photo quality will vary depending on environmental conditions.

(B) In certain cases, overexposed images, underexposed images, or abnormal colors could degrade the usefulness of your videos.

(C) With Moxa's iCapTrue technology, VPort series cameras produce crystal clear images with true color, even under any color temperature and challenging light conditions.

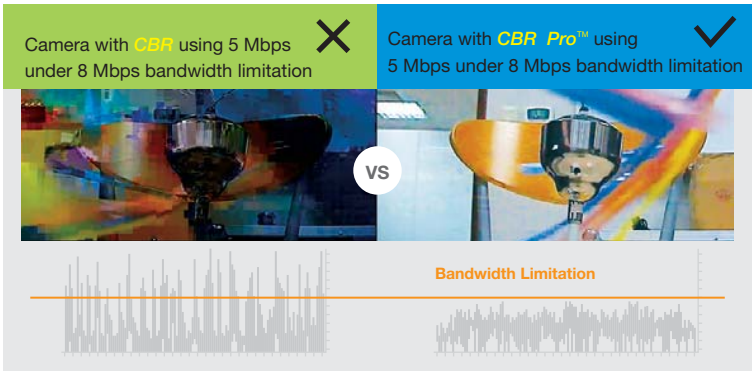
Electronic Image Stabilization: Smooth video guaranteed under turbulent conditions

Moxa's cameras are equipped with Electronic Image Stabilization (EIS), which is an image enhancement technology that stabilizes our IP cameras' image quality. Moxa specializes in developing IP cameras that will be deployed at industrial sites, which often require monitoring over vast areas, or in areas with strong vibrations, like the trackside. To ensure suitability for deployment at industrial sites, the picture quality of our IP cameras contains no distorted images even when monitoring large areas, and there is no reduction in image quality due to vibrations, allowing us to maintain the highest levels of image quality.

Optimized Video Streaming Performance

High quality video guaranteed even when the network bandwidth is limited

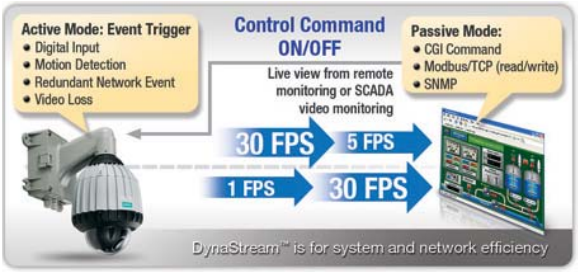
Moxa's CBR Pro™ is an optimized bit rate control technique designed to enhance image quality even when the network bandwidth is limited. CBR Pro™ stabilizes the bit rate and guarantees the system will maintain consistently good video performance even in low-bandwidth environments.



A constant bit rate (CBR) is often used to fix the overall network bandwidth at a targeted bit rate. Unfortunately, this often results in packet loss or dropped frames due to camera motion or other events. Moxa's CBR Pro™ provides better image quality by eliminating packet loss from your video stream transmission.

Manage your bit rate efficiently

Moxa's DynaStream™ technology enables users to manage video frame rate based on external events to maximize network system flexibility and efficiency. Users can define which events will be captured using high quality images and under what circumstances a lower picture quality will suffice. This is achieved by increasing the FPS (frames per second) for important events and decreasing the FPS for periods of low activity, allowing optimal bandwidth usage and storage availability without compromising on image quality.



Intelligent Video Surveillance

Active notification for instant response

Moxa's IVS (intelligent video surveillance) can handle several different scenarios, including camera tampering, detection lines and detection zones, and removed and idle objects. These features are based on object detection technologies developed by Moxa's IVS team. The functionality is built in to our IP cameras and video servers to free up network bandwidth and reduce the requirements on the backend system. In addition, the cameras are designed to operate in outdoor environments, including locations that experience frequent light changes and strong winds.

(A) Detection Zone and Detection Line

(B) Idle Object

(C) Removed Object

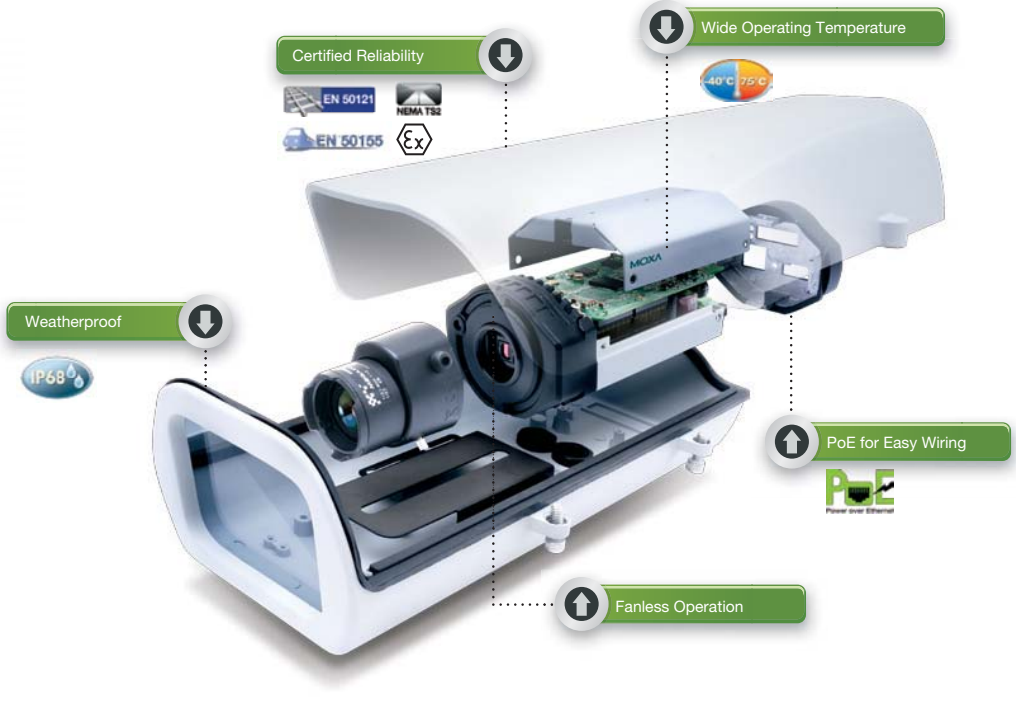
See Your Sites with Proven Reliability

A Complete Range of Industrial-Grade IP Cameras

Stationary IP Cameras

PTZ Speed Dome IP Cameras

- -40 to 65°C operating temperature
- Maximum 1920 x 1080 resolution at 60 FPS
- NEMA TS2 compliance
- Supports 360° endless pan and -6° to +96° tilt
- 22x/30x optical zoom; 20x digital zoom



Box Type IP Cameras

- -40 to 75°C operating temperature without fan
- Maximum 1920 x 1080 resolution at 30 FPS
- Built-in P-IRIS zoom lens with 3x and 2x optical zoom (VPort 36-2L Series only)
- SD card interface for disconnection and event recording

Railway Onboard IP Cameras

Dome Onboard IP Cameras

- -40 to 70°C operating temperature without fan or heater
- EN 50155 compliant
- IK8, IK10 vandal-proof
- Built-in IR illuminator and ICR (Infrared Cut-filter Removal) for day and night images (VPort P16 Series only)

Hidden IP Cameras

- Flush mountable for easy installation
- Video/audio recording
- Interoperation with intercom

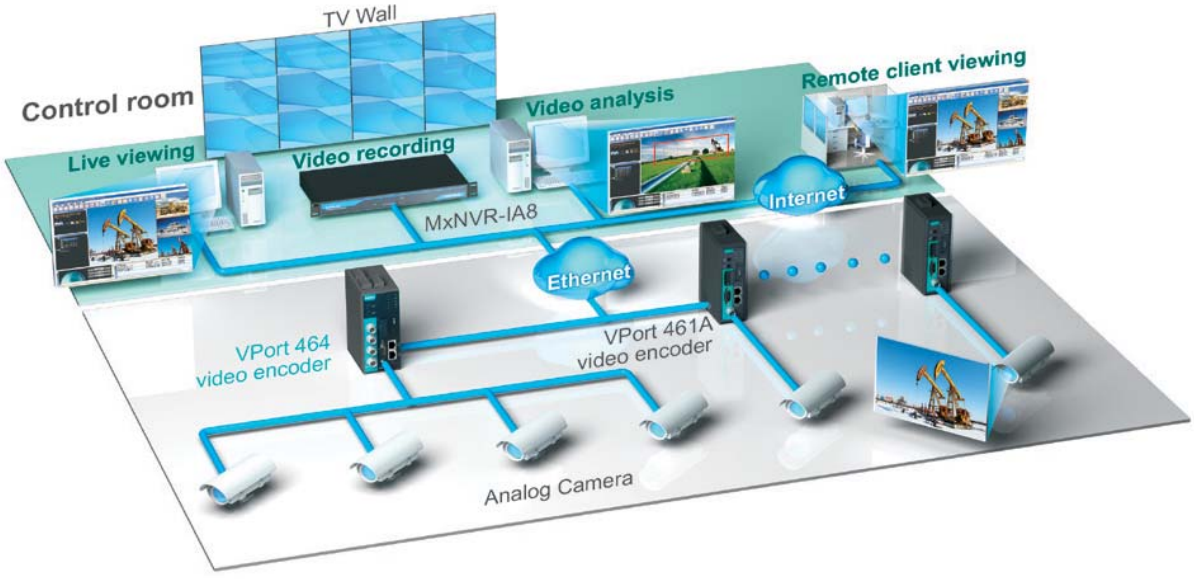
Retro-vision and pantograph IP Cameras

- IP67 rain and dust protection
- -40 to 70°C operating temperature without fan or heater
- 1920 x 1080 resolution at up to 60 FPS
- EN 50155 compliant
- Built-in front glass heater for defrost

The Encoders Built for Mission-Critical Surveillance

Moxa's industrial video encoders support 1-channel and 4-channel video captures, with analog video converted to multiple simultaneous H.264 or MJPEG streams. Moxa offers security professionals a seamless viewing experience with an end-to-end system latency of less than 200 ms. Users can easily integrate the video encoders into their existing CCTV systems to upgrade to an IP surveillance system, without replacing their original equipment.

System Diagram



Video Encoders


Model	VPort 461A	VPort 464
Video Inputs	1	4
No. of Streams	4	2 (for each channel)
Max. Resolution	NTSC: 720 x 480/ PAL: 720 x 576	
10/100BaseT(X) Ports	2	-
100BaseFX Ports	–	2
I/O	2 DIs / 2 DOs / PTZ Port / COM Port / RS-232 Console Port	2 DIs / 2 DOs / PTZ Port / COM Port / RS-232 Console Port
SD Card Slot	SDXC	SDXC (micro SD)

Key Features

Four Video Streams at 120 FPS

Moxa's VPort 461A includes a high performance codec chip that supports up to 4 independent video streams with H.264 and MJPEG formats at 120 FPS. Security professionals can utilize these 4 video streams for different purposes, such as live view, video recording, and video analysis. Each of these 4 video streams can support up to 30 FPS at maximum D1 resolution.

Local Video Recording

An SD card slot is incorporated into the VPort 461A for local video recording via an SD card. It can support SD cards larger than 64 GB by utilizing the SDHC/SDXC interface. Currently, local video recording can be triggered by an event or an interruption in network connectivity, which provides the added security of preserving important video images if there is a problem in network transmission or with the NVR.

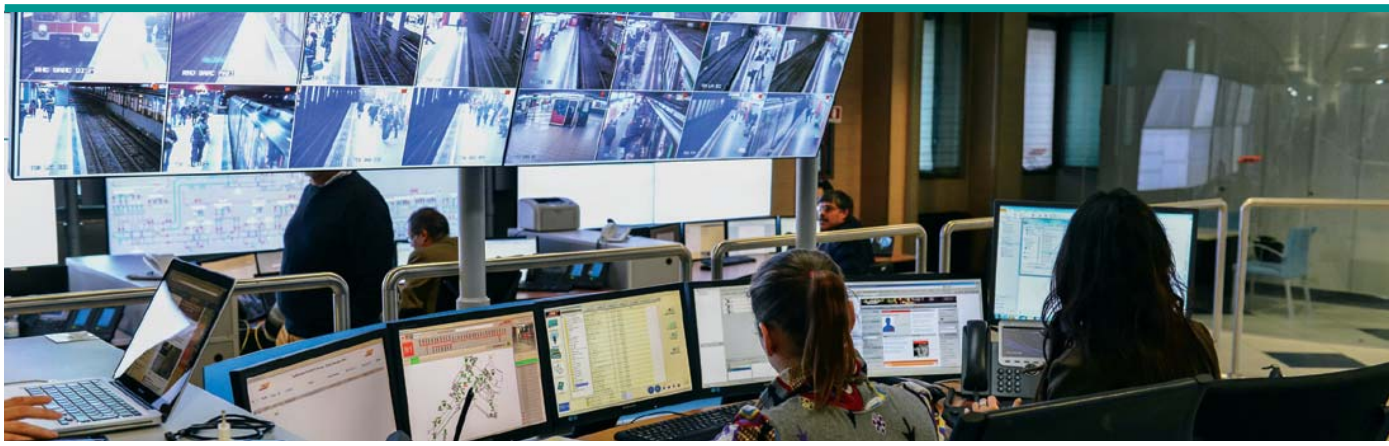
Two Ethernet Ports for Cascading or Port Redundancy

The VPort 461A has two built-in 10/100 Mbps Ethernet ports for cascading multiple VPort 461A units. The cascade feature means fewer switch ports are needed, and users also save on cabling costs and effort when setting up their system. Alternatively, the same Ethernet ports can be used to set up a backup path to continue transmitting video when the primary path is disconnected.

Two Ethernet Ports Support Rapid Spanning Tree Protocol (RSTP)

The VPort 464 has two built-in 10/100/1000 Mbps Ethernet ports that support Rapid Spanning Tree Protocol (RSTP) when multiple VPort 464 units are connected together. By supporting RSTP, fewer switch ports are needed, and users save on cabling costs and effort when setting up their system. RSTP can be used to establish a ring topology, which creates a backup path that will be activated automatically if one of the active paths is disconnected.

Industrial Network Video Management Solution



Network Video Recorders

MXNVR-RO-T Series

EN 50155 compliant onboard NVRs

- Records 1080P images at up to 450 FPS
- Live view of 720P images at up to 120 FPS
- 2 hot-swappable SATA 2.5” slots
- Flexible event settings and triggered actions
- Operating temperature range: -40 to 70°C for EN 50155 TX models
- ONVIF Profile S supported

Digital Signature

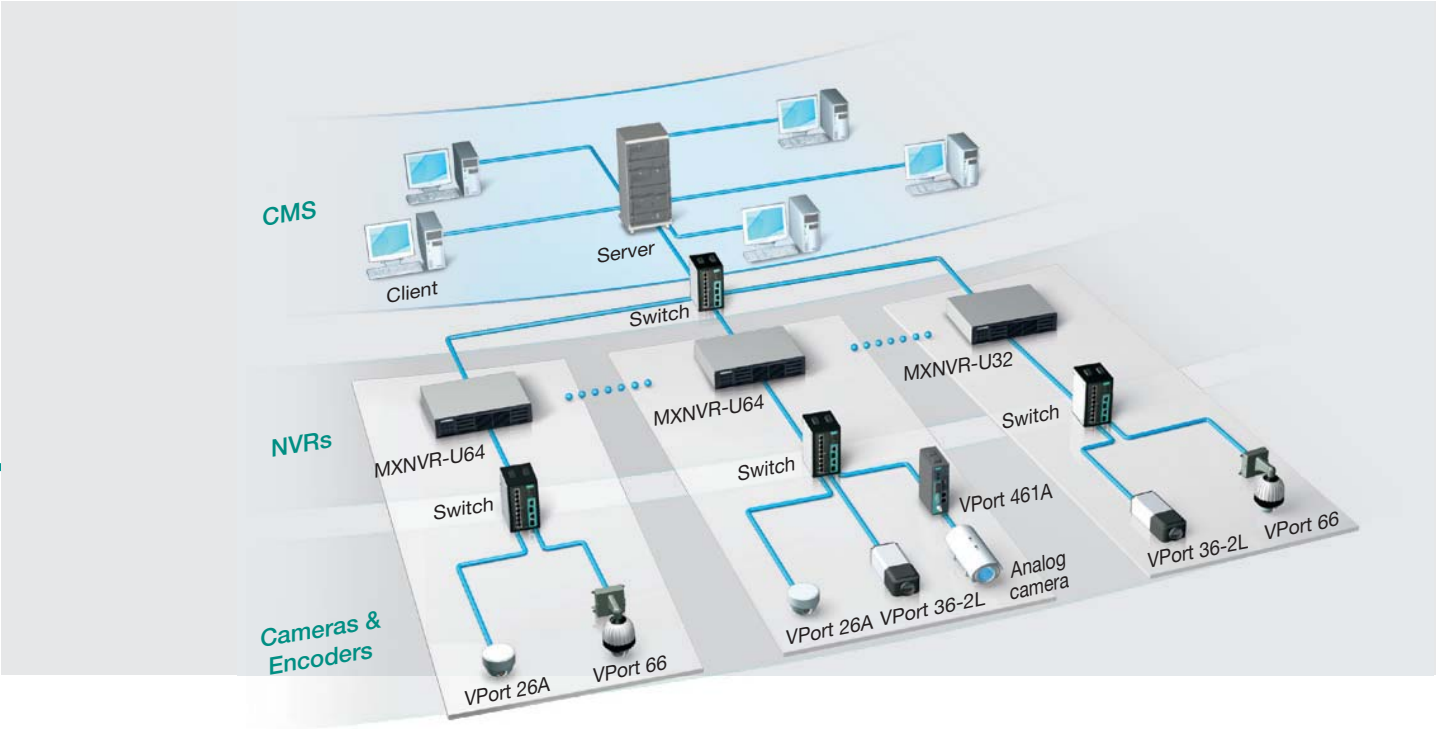
The MXNVR-RO-T utilizes the digital signature feature to enhance the security of the video file, as soon as a video stream is recorded, to eliminate all possibility that a recorded file will be tampered with.

DriverView

The MXNVR-RO-T provides recording, live viewing, and DriverView, a simple, easy-to-use interface designed for train drivers. With DriverView, drivers can easily access and control recorded images in real time, which enables immediate responses to incidents.

Optimized Performance

The MXNVR-RO-T is designed with the powerful Intel® i7 processor, the i7-3517UE, and includes software designed for efficient live viewing and recording, allowing the network video recorder to be connected to multiple IP cameras for real-time viewing of 720P images at up to 120 FPS and record 1080P images at up to 450 FPS.



Centralized Management System Software

CMS

The CMSPlus software is designed for medium-sized industrial automation surveillance systems. The software provides a central location for managing all of your video data on NVRs and cameras. Using a client/server architecture, multiple users can remotely log in and access the footage.

Key Benefits:

- Efficiently manage up to 500 cameras by assigning each camera to a group.
- Up to 5 users can concurrently view the live feed remotely and perform playback.
- Intuitive UI that supports multiple languages: English, Japanese, Traditional Chinese, and Simplified Chinese.

Intuitive User Interface

The intuitive user interface reduces the training time that is required for operators to learn how to effectively manage their surveillance application. The interface integrates live viewing and playback operations into the same application, eliminating the need for operators to switch between different applications.

Centralized Alarm Notifications

CMSPlus server is the command center for the alarms that are triggered from all cameras and NVRs. The supported alarms include video loss/recovery status, motion detection, and storage status updates. When an alarm is triggered, an operator will get an instant notification that an incident has occurred.

High Reliability

To shorten system downtime and provide higher system reliability, the CMSPlus failover function allows a hot-standby server to take over all tasks in less than 60 seconds when the master server goes down.

Moxa's Complete Solution

Complete integration of Moxa's VPort cameras and NVRs to ensure that all the features included in both devices are fully operational. In addition, devices can easily be replaced and quickly restored to the user's original settings.

MXNVR-U32/MXNVR-U64

Network Video Recorder

- Standalone rack-mounted NVRs
- Record 32 or 64 cameras depending on the model selected
- ONVIF Profile S supported
- 8 hot-swappable SATA 3.5" slots, with RAID Level 1 or 5 redundancy

VPort ActiveX SDK

Video Management Software

- A handy tool that can easily integrate with VB or C# applications
- Supports live view, recording, and PTZ control
- Supports both 32- and 64-bit platforms

Safety and Efficiency in Any Corner of the Train

Moxa has one of the largest onboard IP camera portfolios. Every camera in our onboard portfolio is compliant with the EN 50155 standard, which defines product suitability for deployment on trains. Throughout our product development process we pay meticulous attention to every detail. This is one of the main reasons why Moxa was awarded the prestigious International Railway Industry Standards (IRIS) certification that recognized our commitment to achieve the highest standards in all phases of product development, including design, manufacturing, and testing.

Moxa has an excellent record of pioneering innovative solutions and technologies for railways. In 2016 we were asked to join the IEC railway committee, allowing us to share our expertise with others in the railway industry to help make railways safer, more efficient, and greener. We have also developed several breakthrough technologies and algorithms that ensure superior image quality onboard trains, especially for the rapid light changes that often occur on moving trains.

Moxa's Leading Competency in Railway Applications

Comprehensive Onboard Surveillance Product Portfolio

Every camera in Moxa's large portfolio of onboard IP cameras is compliant with the EN 50155 rail standard. The cameras can be deployed inside carriages, on the exterior of the train, and in the driver's cab. The user-friendly features of Moxa's EN 50155 compliant NVRs allow the train driver to respond instantly to incidents onboard the train, and enhance data security by securing data as soon as it's captured.

Industrial-Grade Robustness: -40 to 70°C, IP66, IK8

Moxa's onboard surveillance IP cameras are IP66- and IK8-rated, EN 50155 compliant, and have an operating temperature range of -40 to 70°C. Stringent testing procedures guarantee reliability and long product lifetimes, helping asset owners lower the total cost of ownership by reducing maintenance cost and effort.

Adheres to Railway Standards: EN 50155 (TX), EN 45545-2, IEC 61375, IRIS

Moxa's onboard IP surveillance portfolio is compliant with the EN 50155 and EN 45545-2 railway standards, allowing asset owners to deploy Moxa's onboard IP surveillance cameras with the knowledge that they will perform reliably on trains; our IP cameras also comply with the IEC 61375 standard. This interoperability simplifies onboard communications for the operator by ensuring compatibility with other devices and systems on the train. Moxa has received the prestigious International Railway Industry Standards (IRIS) certification, which recognizes our ability to achieve the highest standards in all phases of product development, including design, manufacturing, and testing.

Superior Image Quality under Challenging Light Conditions

iCapTrue, Moxa's groundbreaking IP camera technology, ensures clear and smooth video imaging in rapidly changing lighting conditions both inside and outside carriages as the train transitions from tunnels, to open air, and shade. Such conditions pose a major challenge to most train cameras, but Moxa's technology uses an advanced AE (Auto Exposure) and AWB (Auto White Balance) algorithm to enable superior image quality, and to capture every detail, even when subjected to such challenging lighting conditions.

Reliable IP CCTV Solutions for Any Rail Onboard Application

IP-based CCTV systems are becoming essential for train operations. Effective video surveillance protects passenger safety and makes train operations more efficient, which has led to increased investment in onboard IP CCTV systems. As these systems are adding more and more cameras and NVRs throughout the train, the scope and reach of these systems has been expanded. These new video surveillance applications have introduced important new IP video requirements.

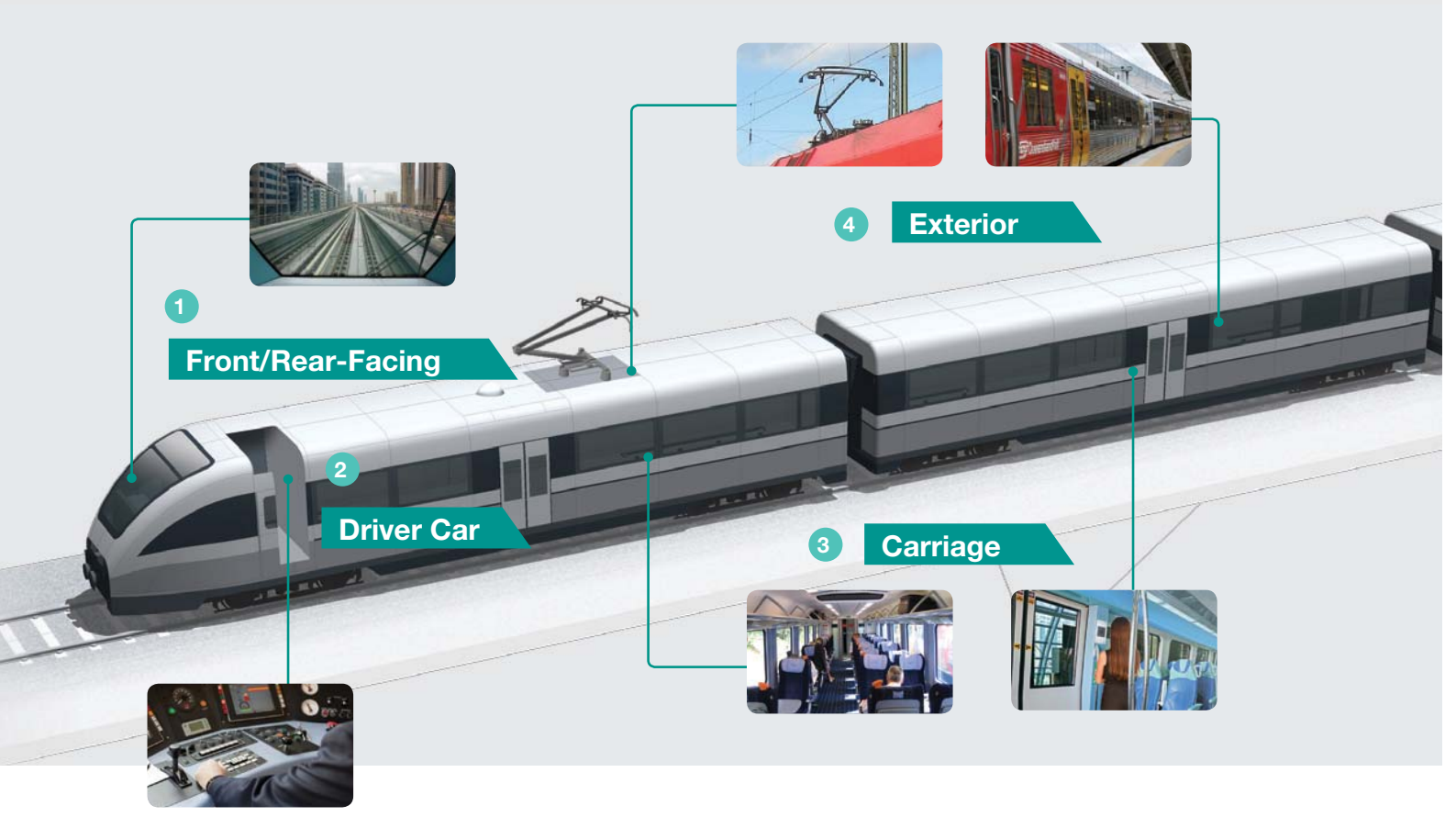
Project Requirements

- Requires onboard CCTV cameras that operate reliably in high vibration, unstable rolling stock environments subject to water, dust, EMC, and extreme temperatures.
- Continuous, crystal-clear image quality is required in different applications and viewing conditions, such as low luminance, and unstable or fluctuating lighting conditions.
- High performance video streams for smooth video surveillance
- The flexibility to integrate with existing systems and third party CCTV devices and VMSs
- The ability to seamlessly integrate with other onboard electronic devices, including fire alarms and displays for monitoring drivers.
- The ability to provide a total solution, including a diverse selection of IP cameras and video servers with the required industrial certifications.

Moxa Benefits

- **Wide Range of Onboard CCTV Solutions:** Moxa offers operators a wide selection of industrial-grade IP cameras, NVRs, and VMSs specifically designed for rail onboard usage.
- **Industrial-grade Reliability:** To ensure reliable onboard operation, Moxa's IP cameras and NVRs are industry-certified, and comply with onboard requirements such as EN 50155, wide operating temperature range, from -40 to 75°C, IP66 dust/water resistance, IK8 to IK10 vandal resistance, and high EMC protection (EN 50121-3-2).
- **Superior Image Quality in Any Condition:** Moxa's advanced image technologies include our iCapTrue technology, built-in IR, DNR (Digital Noise Reduction), BLC (Backlight Compensation), and WDR (Wide Dynamic Range) to ensure clear picture quality under any lighting conditions.
- **Optimal Streaming Performance:** Moxa's CBR Pro™ is an optimized bit rate control technique designed to solve performance issues under limited bandwidth. It stabilizes the bit rate and guarantees the system will maintain consistent video performance even in low-bandwidth environments such as onboard trains.
- **Easy Management:** Moxa's IP CCTV systems can seamlessly integrate and communicate with onboard electronic devices like fire alarms and displays for the driver to monitor. With ONVIF Profile S, Moxa's cameras and NVRs can integrate with any third party CCTV device and VMS, providing operators scalability and flexibility.

Find Your Ideal Product



Front/Rear-Facing

1

VPort P16-1MP-M12

- Clear color images both day and night
- Good image performance in fast changing lighting conditions
- High-speed imaging

Driver Car

2

VPort P16-1MP-M12-IR and VPort P16-2MR

- Built-in IR for low lux environments
- Color image for identifying the panel LED indicator

2

MXNVR-RO-T NVR

- Record up to 450 FPS @ 1080P
- Live view up to 120 FPS @ 720P
- ONVIF Profile S supported
- Two 2.5” HDD/SSD hot-swappable lots

Carriage

3

VPort 06-2 and VPort P06-1MP-M12

Consist Camera

- Clear daylight images
- Compact size
- Audio or microphone input

3

VPort P06HC-1MP-M12

Intercom Camera

- Video/audio recording
- Interoperation with intercom
- Flush mountable

Exterior

4

VPort 06EC-2V

Retro-vision and Pantograph Camera

- IP67 rain and dust protection
- 1920 x 1080 resolution at up to 60 FPS
- Built-in front glass heater for defrost

Ensure Everything That Happens at Your Facilities is Under Your Control

Perimeter protection and safety at facilities is essential in order to be prepared for all kinds of incidents and threats such as theft, boundary breaches, natural disasters, and even terrorism. Even though an IP surveillance system that is operational 24/7 is a basic requirement for detecting hazards around facilities, it plays a vital role for mission-critical applications as it allows operators to be able to react immediately once an incident occurs.

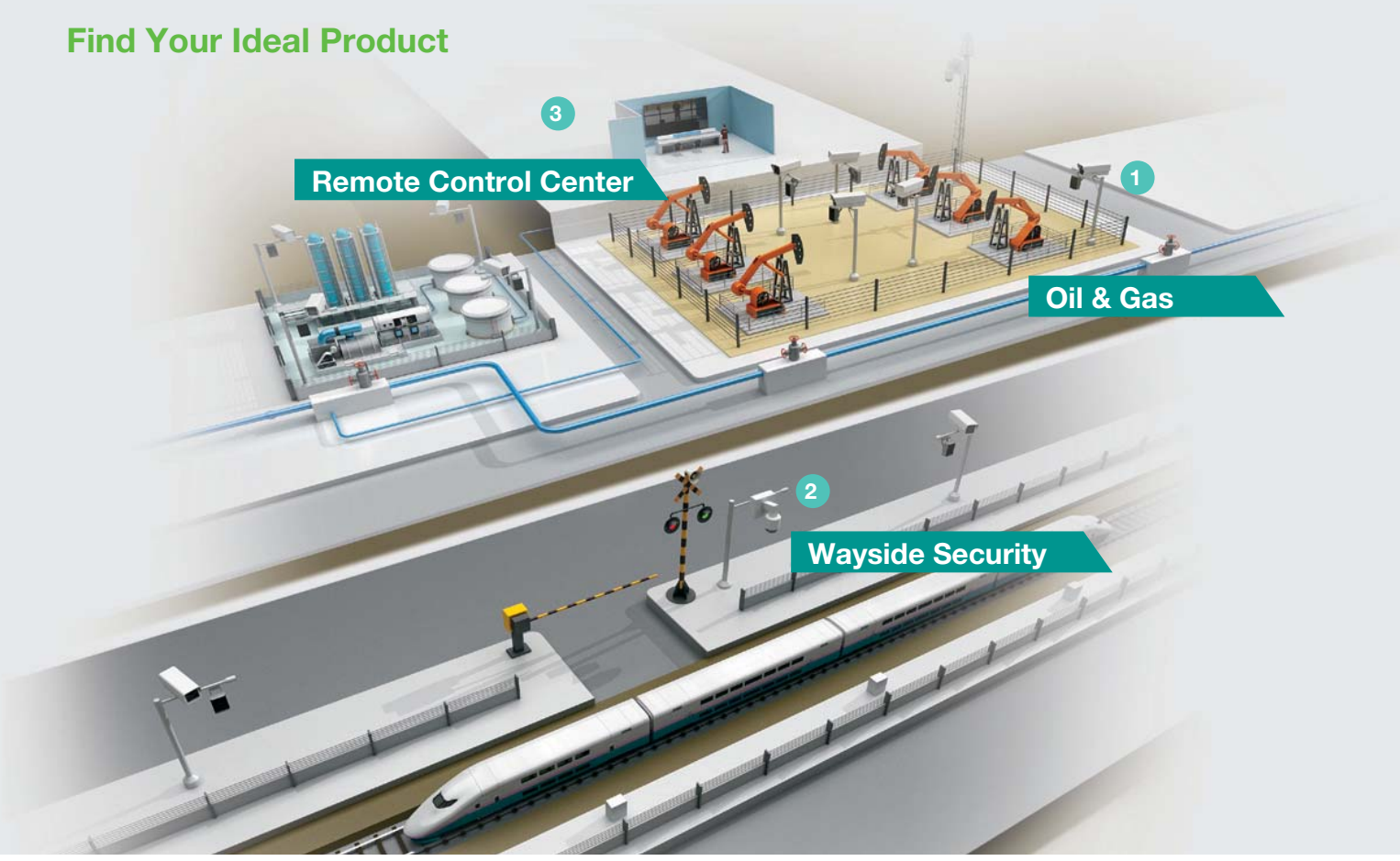
Project Requirements

- Devices need to be robust enough for deployment in environments with extreme temperatures and combustible atmospheres. In addition, devices must be able to withstand dust and water, and electromagnetic disturbances.
- A reliable IP surveillance system that is suitable for installation at unstaffed or remote field sites.
- The capability to detect objects and incidents, and send notifications immediately so operators can respond in real time.
- The flexibility to integrate with existing systems and third-party surveillance equipment.
- A total solution including video servers, standalone NVRs, and a wide range of IP cameras that are able to provide both wide-coverage and good zoom capabilities. All products should have the appropriate industrial certifications.

Moxa Benefits

- **C1D2, ATEX, and IECEx certified for use in explosive atmospheres:** Moxa's high performance industrial IP cameras enable monitoring in hazardous environments. These cameras have passed a variety of certifications specifically developed for harsh industrial environments.
- **Intelligent Video Surveillance (IVS) functions:** To improve surveillance efficiency, Moxa's IVS has several functions, including camera tampering, detection lines and detection zones, and removed and idle objects. In addition, some cameras support an open platform design that permits smooth integration with other systems and devices on your network.
- **Reliable industrial-grade design:** Moxa's industrial IP cameras have an operating temperature range of -40 to 75°C without a fan, IP66 dust- and waterproof protection, and IK8 to IK10 vandal resistance.
- **Shock and vibration protection:** Moxa's industrial IP cameras are EN 50155 and EN 60068 tested and certified during the design phase where screw torque values are strictly defined and followed to ensure high reliability.
- **Extremely low RMA rate, excellent warranty, and impressive MTBF:** Moxa's commitment to high quality standards for our IP cameras are reflected in our extremely low RMA rate, an excellent warranty period, and high MTBF values, which help industries keep their overall investment budget under control.
- **Easy integration and management:** Moxa's industrial IP cameras can seamlessly integrate into and communicate with SCADA systems and access control systems. In addition, our cameras are ONVIF Profile S compatible and can integrate with any third-party CCTV device and VMS system that is ONVIF compatible, giving operators greater scalability and flexibility.
- **Multiple camera types:** Moxa provides a diverse selection of industrial-grade IP cameras that can meet most industrial application requirements.

Find Your Ideal Product



Oil & Gas / Wayside Security

1

VPort 36-1MP

Day-and-night Box IP Camera

- -40 to 75°C wide temperature operation
- C1D2 and ATEX compliant
- Compatible with C/CS mount lens

VP-CI701

IP68 Outdoor Housing

- Die cast aluminum alloy

1 2

VPort 66-2MP

PTZ Speed Dome IP Cameras

- -40 to 65°C operating temperature
- Maximum 1920 x 1080 resolution at 60 FPS
- NEMA TS2 compliance
- Supports 360° endless pan and -6° to +96° tilt
- 22x/30x optical zoom; 20x digital zoom

1 2

VPort 36-2L

Day-and-night Box IP Camera

- -40 to 75°C wide temperature operation
- Anti-vibration
- Built-in 3X (3 to 9mm) or 2X (10 to 23mm) P IRIS zoom lens

Oil & Gas / Wayside Security

1

VPort 461A and VPort 464

Industrial Video Encoder

- Supports 1 or 4 video streams
- -40 to 75°C wide temperature operation

1 2

VP-IR2

High Power IR Illuminator

- Lightweight
- Increases energy efficiency by 50%
- 850 nm, up to 100 m visibility

Remote Control Center

3

SoftNVR-IA

Video Management Software

- Up to 64 channels
- Built-in OPC server
- H.264/MPEG4/MJPEG viewing

Industrial-Grade IP Cameras that Make Traffic Monitoring More Efficient and Reliable

Transportation infrastructure is a crucial component of any smart city. As more governments try to make their cities smart, the demand for reliable video surveillance solutions to monitor transportation systems is stronger than ever before. In order to make transportation infrastructure smarter, the first requirement is a reliable IP surveillance system that allows users to capture clear, real-time images of the traffic situation to help improve safety, and enhance the efficiency of the transportation system. As the smart city trend continues to grow, the importance of utilizing a trusted IP surveillance solution for monitoring traffic should not be underestimated.

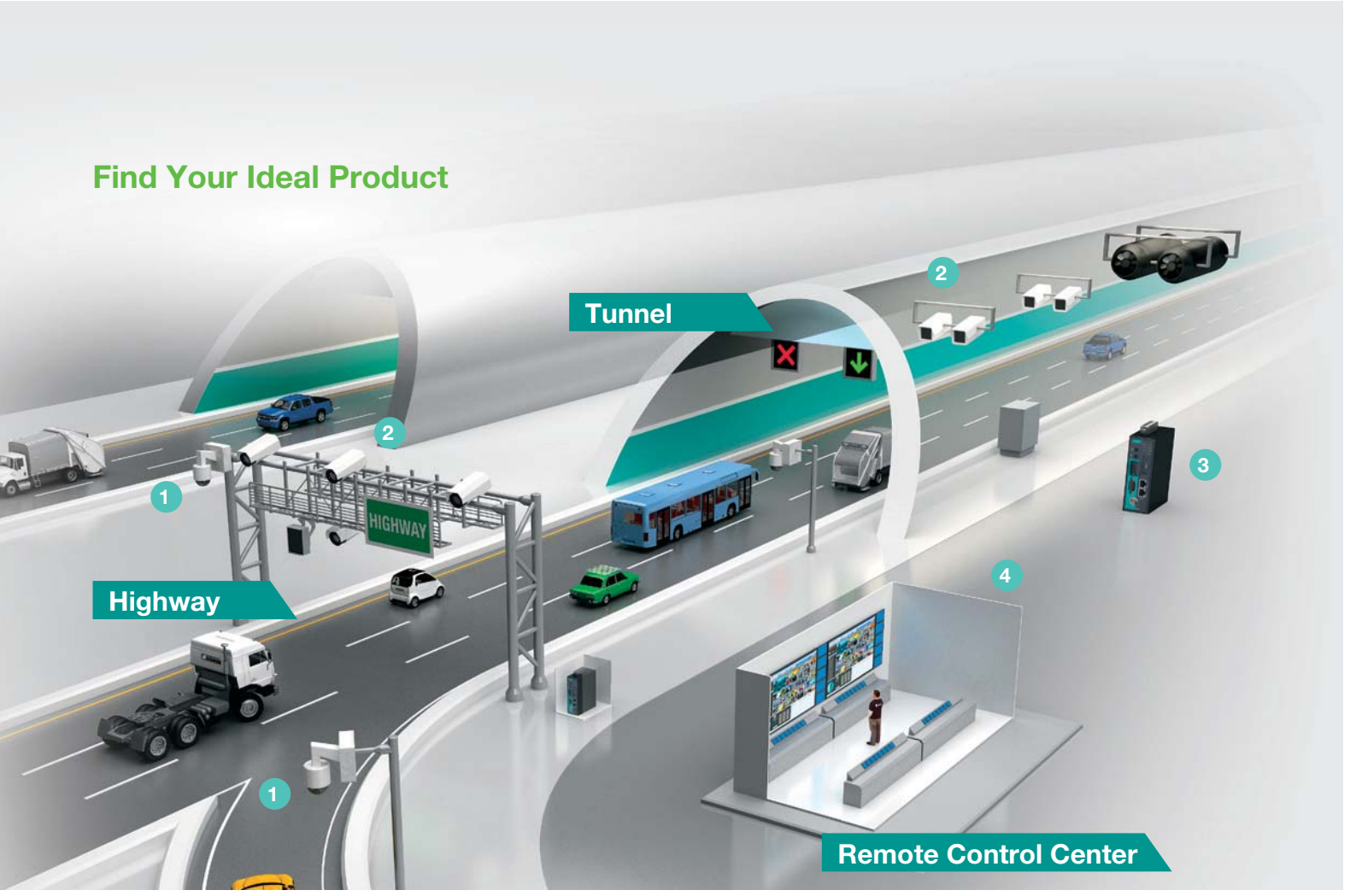
Project Requirements

- Cameras that are capable of withstanding harsh outdoor environments, including exposure to extreme temperatures, rain, dust, and strong electromagnetic disturbances.
- Cameras designed to endure frequent vibrations as cameras may be installed on bridges, or high poles that are affected by the wind or passing vehicles.
- Durable cameras with longer product life cycles that minimize the total cost of ownership by avoiding downtime and maintenance costs when a camera breaks or malfunctions.
- Overcome challenging light conditions when cameras are installed in tunnels, exposed to direct sunlight, or in environments with reflective glare.
- Products should adhere to NEMA TS2 and support the NTCIP control protocol.

Moxa Benefits

- **Approved by NEMA TS2 and NTCIP support to provide the best functionality in any traffic monitoring application:** Moxa provides a diverse selection of industrial-grade IP cameras that adhere to NEMA TS2 and support NTCIP 1205.
- **Shock and vibration protection:** Moxa's industrial IP cameras are EN 50155 and EN 60068 tested and certified in the design phase where screw torque values are strictly defined and followed to ensure high reliability.
- **Reliable industrial-grade design:** Moxa's industrial IP cameras have an operating temperature range of -40 to 75°C without a fan, IP66 dust- and waterproof protection, and IK8 to IK10 vandal resistance.
- **Extremely low RMA rate, excellent warranty, and impressive MTBF:** Moxa's commitment to high quality standards for our IP cameras are reflected in our extremely low RMA rate (< 0.5%), an excellent warranty period (3 or 5 years), and high MTBF values (> 200,000 hours), to help industries keep their overall investment budget under control.
- **Non-stop IP surveillance networks:** Integrate your IP surveillance system with Moxa's robust Ethernet switches that include our intelligent failover technology. Moxa provides a non-stop IP video surveillance system so users do not experience packet loss in mission-critical environments.

Find Your Ideal Product



Highway / Intersection / Tunnel

1

VPort 66-2MP

PTZ Speed Dome IP Camera

- -40 to 65°C operating temperature
- Maximum 1920 x 1080 resolution at 60 FPS
- NEMA TS2 compliance

2

VPort 36-2L

Day-and-night Box IP Camera

- -40 to 75°C wide temperature operation
- Anti-vibration
- Built-in 3X (3 to 9mm) or 2X (10 to 23mm) P IRIS zoom lens

2

VP-CI701

IP68 Outdoor Housing

- Die cast aluminum alloy

Highway / Intersection / Tunnel

2

VP-IR2

High Power IR Illuminator

- Aluminum Alloy
- Lightweight
- Increases energy efficiency by 50%
- 850 nm, up to 100 m visibility

3

VPort 461A and VPort 464

Industrial Video Encoder

- NEMA TS2 and NTCIP supported
- Supports 1 or 4 video streams
- -40 to 75°C wide temperature operation

Remote Control Center

4

SoftNVR-IA

Video Management Software

- Up to 64 channels
- Built-in OPC server
- H.264/MPEG4/MJPEG viewing

Selection Guide





	VPort 66-2MP Series	VPort 36-2L Series	VPort 36-1MP Series	VPort 26A-1MP Series	VPort P16-2MR Series
Video Performance					
Resolution (max.)	1920 x 1080	1920 x 1080	1280 x 800	1280 x 800	1920 x 1080
FPS (max.)	60	30	30	30	30
Connections (max.)	5 unicast 50 multicast RTSP	5 unicast 50 multicast RTSP	5 unicast 50 multicast RTSP	5 unicast 50 multicast RTSP	5 unicast 50 multicast RTSP
Video Stream					
H.264	✓	✓	✓	✓	✓
MJPEG	✓	✓	✓	✓	✓
No. of Streams	3	4	3	3	4
DynaStream™	✓	✓	✓	✓	✓
CBR Pro™	✓	✓	✓	✓	✓
Image Stabilizer	✓	✓	–	–	–
Camera					
Image Sensor	1/2.8" CMOS	1/3" CMOS	1/2.7" CMOS	1/2.7" CMOS	1/3" CMOS
Lens (mm)	4.3 to 94.6, 4.3 to 129	3 to 9, 10 to 23 , zoom lens	C/CS-mount lenses	3 to 9, vari-focal lens	3.6, 4.2, 6.0, 8.0
Day & Night	✓	✓	✓	✓	✓
Minimum Illumination	0.4 Lux @ F1.6, color 0.03 Lux @ F1.6, B/W	0.2 Lux @ F1.2, color 0.05 Lux @ F1.2, B/W	0.2 Lux @ F1.2, color 0.05 Lux @ F1.2, B/W	0.2 Lux @ F1.2, color 0.05 Lux @ F1.2, B/W	0.2 Lux @ F1.6, Color 0.05 Lux @ F1.6, B/W
White Balance	ATW/AWB	ATW/AWB	ATW/AWB	ATW/AWB	ATW/AWB
Electronic Shutter (sec)	Auto (1/120 to 1/16000)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)
Sense up	✓	✓	–	–	–
AGC Control	✓	✓	✓	✓	✓
Wide Dynamic Range	✓	✓	✓	✓	✓
Back Light Compensation	✓	✓	✓	✓	–
Auto Exposure	✓	✓	✓	✓	✓
Image Rotation	Flip, Mirror, 180° rotation	Flip, Mirror, 180° rotation	Flip, Mirror, 180° rotation	Flip, Mirror, 180° rotation	Flip, Mirror, 90°, 180°, 270° rotation
Digital Noise Reduction	✓	✓	✓	✓	✓
Network Connections					
10/100 Mbps, M12 Connector	–	–	–	–	1
10/100 Mbps, RJ45 Connector	1	1	1	1	–
100 Mbps Fiber Connector	–	1, single-mode	–	–	–
Peripherals					
Audio	1 line-in, 1 line-out	1 line-in, 1 line-out	–	1 line-in, 1 line-out	1 built-in microphone
DI/Relay	1 DI, 1 relay	1 DI, 1 relay	1 DI, 1 relay	1 DI, 1 relay	1 DI
SD Slot	1, SDHC/SDXC	1, SDHC/SDXC	1, SDHC	1, SDHC	✓
Network Management and Control					
Web Browser	✓	✓	✓	✓	✓
SNMP Protocols	v1/v2c/v3	v1/v2c/v3	v1/v2c/v3	v1/v2c/v3	v1/v2c/v3
RTSP (Real Time Streaming Protocol)	✓	✓	✓	✓	✓
Multicast (IGMP)	v3	v3	v3	v3	v3
QoS	✓	✓	✓	✓	✓
Automatic Configuration	–	–	–	–	DHCP Opt 66/67
Form Factor					
Ingress Protection Marking	IP66	IP30	IP30	IP66	IP66
Surface/Ceiling Mounting	✓	✓	✓	✓	✓
Flush-Mounting	–	–	–	–	✓
Outdoor Installation Accessory	✓	✓	✓	✓	–
Power Requirements					
Power-over-Ethernet (PoE)	(High Power PoE)	✓	✓	✓	✓
12/24 VDC, 24 VAC	✓	✓	✓	✓	–
Alarms					
VMD (Video Motion Detection)	✓	✓	✓	✓	✓
Alarm Snapshot Image	✓	✓	✓	✓	✓
Tamper Alarm	✓	✓	✓	✓	✓
Supported Operating Temperature Ranges					
Standard Models	-40 to 65°C (-40 to 149°F)	-25 to 60°C (-13 to 140°F)	-25 to 60°C (-13 to 140°F)	-40 to 50°C (-40 to 122°F)	-25 to 55°C (-13 to 131°F)
Wide Temp. Models	–	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)
Regulatory Approvals					
CE/FCC	✓	✓	✓	✓	✓
UL 60950-1	✓	✓	✓	✓	✓
EN 50155:2007	–	–	–	–	✓
EN 50121-3-2	–	–	–	–	✓
EN 50121-4	✓	✓	✓	✓	–
NEMA TS2	✓	✓	✓	–	–
Class 1 Division 2 / Atex Zone 2	–	–	✓	–	–
IK Rating (EN 62262)	IK10	–	–	IK10	IK8
ONVIF Profile S	✓	✓	✓	✓	✓
Warranty and MTBF					
Warranty Period	3 years	5 years	5 years	5 years	5 years
MTBF (Mean Time Between Failures)	525,491 hours	630,908 hours	541,826 hours	201,721 hours	997,474 hours

	VPort 06-2 Series	VPort 06EC-2V Series	VPort P16-1MP-M12-IR Series	VPort P16-1MP-M12 Series	VPort P06-1MP-M12 Series	VPort P06HC-1MP-M12 Series
Video Performance						
Resolution (max.)	1920 x 1080	1920 x 1080	1280 x 800	1280 x 800	1280 x 800	1280 x 800
FPS (max.)	30	60	30	30	30	30
Connections (max.)	5 unicast 50 multicast RTSP	5 unicast 50 multicast RTSP	5 unicast 50 multicast RTSP	5 unicast 50 mulitcast RTSP	5 unicast 5 mulitcast RTSP	5 unicast 50 mulitcast RTSP
Video Stream						
H.264	✓	✓	✓	✓	✓	✓
MJPEG	✓	✓	✓	✓	✓	✓
No. of Streams	4	4	3	3	3	3
DynaStream™	✓	✓	✓	✓	✓	✓
CBR Pro™	✓	✓	✓	✓	✓	✓
Image Stabilizer	–	–	–	–	–	–
Camera						
Image Sensor	1/3" CMOS	1/3" CMOS	1/2.7" CMOS	1/2.7" CMOS	1/2.7" CMOS	1/2.7" CMOS
Lens (mm)	2.5, 3.6, 4.2, 6.0, 8.0	3.6, 4.2, 6.0, 8.0	3.6, 8.0	3.6, 8.0	2.5, 3.6, 4.2, 6.0, 8.0	3.6
Day & Night	–	✓	✓	✓	–	–
Minimum Illumination	0.2 Lux @ F1.6, color	0.2 Lux @ F1.6, color 0.05 Lux @ F1.6, B/W	0.2 Lux @ F1.2, color 0.05 Lux @ F1.2, B/W	0.2 Lux @ F1.2, color 0.05 Lux @ F1.2, B/W	0.2 Lux @ F1.2, color	0.2 Lux @ F1.2, color
White Balance	ATW/AWB	ATW/AWB	ATW/AWB	ATW/AWB	ATW/AWB	ATW/AWB
Electronic Shutter (sec)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)	Auto (1/30 to 1/25000)
Sense up	–	–	–	–	–	–
AGC Control	✓	✓	✓	✓	✓	✓
Wide Dynamic Range	✓	✓	✓	✓	✓	✓
Back Light Compensation	–	–	–	–	–	–
Auto Exposure	✓	✓	✓	✓	✓	✓
Image Rotation	Flip, Mirror, 90°, 180°, 270° rotation	Flip, Mirror, 90°, 180°, 270° rotation	Flip, Mirror, 180° rotation	Flip, mirror, 180° rotation	Flip, mirror, 180° rotation	Flip, mirror, 180° rotation
Digital Noise Reduction	✓	✓	✓	✓	✓	✓
Network Connections						
10/100 Mbps, M12 Connector	1	1	1	1	1	1
10/100 Mbps, RJ45 Connector	–	–	–	–	–	–
100 Mbps Fiber Connector	–	–	–	–	–	–
Peripherals						
Audio	1 line-in or mic-in	-	1 built-in microphone	–	1 line-in or mic-in	1 mic-in
DI/Relay	1 DI	1 DI	1 DI	–	–	1 DI
SD Slot	✓	✓	✓	–	–	–
Network Management and Control						
Web Browser	✓	✓	✓	✓	✓	✓
SNMP Protocols	v1/v2c/v3	v1/v2c/v3	v1/v2c/v3	v1/v2c/v3	v1/v2c/v3	v1/v2c/v3
RTSP (Real Time Streaming Protocol)	✓	✓	✓	✓	✓	✓
Multicast (IGMP)	v3	v3	v3	v3	v3	v3
QoS	✓	✓	✓	✓	✓	✓
Automatic Configuration	DHCP Opt 66/67	DHCP Opt 66/67	DHCP Opt 66/67	DHCP Opt 66/67	DHCP Opt 66/67	DHCP Opt 66/67
Form Factor						
Ingress Protection Marking	IP66	IP67	IP66	IP66	IP66	IP66
Surface/Ceiling Mounting	✓	–	✓	✓	✓	–
Flush Mounting	✓	–	✓	✓	✓	✓
Outdoor Installation Accessories	–	–	–	–	–	–
Power Requirements						
Power-over-Ethernet (PoE)	✓	✓ (for camera only)	✓	✓	✓	✓
12/24 VDC, 24 VAC	✓	✓ (for de-frost heater and DO)	–	–	–	–
Alarms						
VMD (Video Motion Detection)	✓	✓	✓	✓	✓	✓
Alarm Snapshot Image	✓	✓	✓	✓	✓	✓
Tamper Alarm	✓	✓	✓	✓	✓	✓
Supported Operating Temperature Ranges						
Standard Models	-25 to 55°C (-13 to 131°F)	-25 to 55°C (-13 to 131°F)	-25 to 55°C (-13 to 131°F)			
Wide Temp. Models	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)			–
Regulatory Approvals						
CE/FCC	✓	✓	✓	✓	✓	✓
UL 60950-1	✓	✓	✓	✓	✓	✓
EN 50155:2007	✓	✓	✓	✓	✓	✓
EN 50121-3-2	✓	✓	✓	✓	✓	✓
EN 50121-4	–	–	–	–	–	–
NEMA TS2	–	–	–	–	–	–
Class 1 Division 2 / Atex Zone 2	–	–	–	–	–	–
IK Rating (EN 62262)	IK8	IK7	IK10	IK10	IK9	–
ONVIF Profile S	✓	✓	✓	✓	✓	✓
Warranty and MTBF						
Warranty Period	5 years	5 years	5 years	5 years	5 years	5 years
MTBF (Mean Time Between Failures)	977,972 hours	823,209 hours	1,052,184 hours	1,602,553 hours	1,944,687 hours	1,275,915 hours