

# VPort P16-2MR Series

EN 50155, 1080P image, infrared IP cameras



## Features and Benefits

- 1/3" progressive scan camera with maximum 1920 x 1080 resolution at up to 30 fps
- Built-in IR illuminator and ICR (Infrared Cut Filter Removal) for day & night images
- High quality video imaging with DNR and WDR
- Up to 4 H.264 or MJPEG independent simultaneous video streams
- DynaStream™ for optimized network efficiency
- CBR Pro™ for high image quality in limited bandwidth transmissions
- Supports SDXC (up to 2 TB SD card) for local storage
- 1 built-in microphone for audio input, and 1 digital input for external sensor
- ONVIF support for standardization and interoperability

## Certifications



## Introduction

The rugged VPort P16-2MR cameras produce Full HD (1920 x 1080) video images and feature 4 H.264/MJPEG video streams, giving them the versatility and ruggedness needed for mobile IP video surveillance applications in a variety of different installations and environments. In addition, the cameras feature vandal-proofing (EN 62262 IK8), a -25 to 55°C or -40 to 70°C (T models) operating temperature, a rugged M12 Ethernet port, PoE power input, a built-in microphone, a digital input, IP66 rain and dust protection, an IR illuminator for day & night image capabilities, and are compliant with the mandatory sections of EN 50155.<sup>1</sup>

## Specifications

### Memory

microSD Slot	SDXC
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### Input/Output Interface

Digital Input Channels	1
Digital Inputs	+13 to +30 V for state 1 -30 to +1 V for state 0 Max. input current: 8 mA
Connector	5-pin A-coded male M12 connector with 20 cm cable

### Ethernet Interface

PoE Ports (10/100BaseT(X), M12 D-coded 4-pin female connector)	1
Standards	IEEE 802.3af for PoE

### Ethernet Software Features

Protocols	TCP/IP, IPv4/IPv6, UDP, HTTP, RTP/RTSP, ARP, UPnP, FTP, TFTP, SMTP, NTP Client, DNS, DDNS, QoS, IGMP v3, ICMP, SNMPv1/v2c/v3, DHCP Opt66/67, HTTPS
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1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, refer to: [www.moxa.com/doc/specs/EN\\_50155\\_Compliance.pdf](http://www.moxa.com/doc/specs/EN_50155_Compliance.pdf)

## Security Functions

Password	User-level password protection
Filter	IP address
Encryption	HTTPS

## Power Parameters

No. of Power Inputs	1
Source of Input Power	PoE (IEEE 802.3af)
Input Current	0.26 A @ 48 VDC

## Camera Characteristics

Sensor	1/3-in 1080P progressive scan CMOS
Lens	VPort P16-2MR36M Series: f=3.6mm, F1.6, Diagonal 99°, Horizontal 70°, Vertical 39° VPort P16-2MR42M Series: f=4.2mm, F1.6, Diagonal 82°, Horizontal 62°, Vertical 34° VPort P16-2MR60M Series: f=6.0mm, F1.8, Diagonal 62°, Horizontal 43°, Vertical 24° VPort P16-2MR80M Series: f=8.0mm, F1.6, Diagonal 42°, Horizontal 33°, Vertical 17°
Minimum Illumination	Color: 0.2 lux, at F1.2 (Gain High, 50 IRE, 1/30 sec) B/W: 0.05 lux, at F1.2 (Gain High, 50 IRE, 1/30 sec) Note: 0 lux if IR illuminator is on
Camera Angle	Pan 350°, Tilt 65° (controlled manually)
Day & Night	Auto/Color/BW; ICR control
Synchronization	Internal
White Balance	ATW/AWB
Electronic Shutter	Auto, Fixed (1/30 to 1/25000 sec)
S/N Ratio	Maximum 50 dB (AGC off; DNR on)
ICR Control	Auto (light sensor control) or DI control
IR Illumination	IR LED illuminators, 5-meter (max.) effective distance; On/Off controlled manually (night mode) or by the light sensor
DNR (digital noise reduction)	Built-in 2D/3D DNR
WDR (wide dynamic range)	100 dB
AGC (auto gain control)	2X, 4X, 8X, 16X
Flickerless Control	Automatic, 50 Hz, 60 Hz modes
Image Rotation	Flip, Mirror, 90°, 180°, 270° rotation
Image Setting	Manual tuning with saturation, sharpness, and contrast

## Video Interface

Video Compression	H.264 (ISO/IEC 14496-10) or MJPEG
Video Output	via Ethernet
Video Streams	4 independent H.264 or MJPEG video streams

Video Resolution and FPS (frames 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	1280 x 720	30	1280 x 720	25
	WXGA	1280 x 800	30	1280 x 800	25
Full HD	1920 x 1080	30	1920 x 1080	30	
Video Viewing	DynaStream™ support for changing the video frame rate automatically CBR Pro™ for good image quality in limited bandwidth transmissions 3 privacy mask areas provided Adjustable image size and quality Timestamp and text overlay OSD (On Screen Display) position adjustable Maximum of 5 simultaneous unicast connections, 50 multicast clients				
<b>Audio Interface</b>					
Audio Format	Mono, PCM (G.711) AAC				
Audio Inputs	1 x built-in microphone				
<b>Camera Software Development</b>					
VPort SDK PLUS	Includes CGI commands, ActiveX Control, and API library for customized applications or system integration for third-party developers				
Video Standards	ONVIF Profile S				
<b>Camera Alarm Software Features</b>					
Intelligent Video	Camera tampering detection				
Video Motion Detection	3 independently configurable areas				
Shock Detection	Built-in G sensor				
Scheduling	Daily repeat timing schedule				
Imaging	JPEG snapshots for pre/trigger/post alarm images				
Custom Alarms	HTTP event servers for setting customized alarm actions				
Email/FTP Messaging	Automatic transfer of stored images via email or FTP as event-triggered actions				
Pre-Alarm Buffer	50 MB video buffer for JPEG snapshot images				
Video Recording	Event recordings stored on the SD card				
<b>Software Requirements</b>					
Memory Size	2 GB				
Operating System	Windows 7 or above				

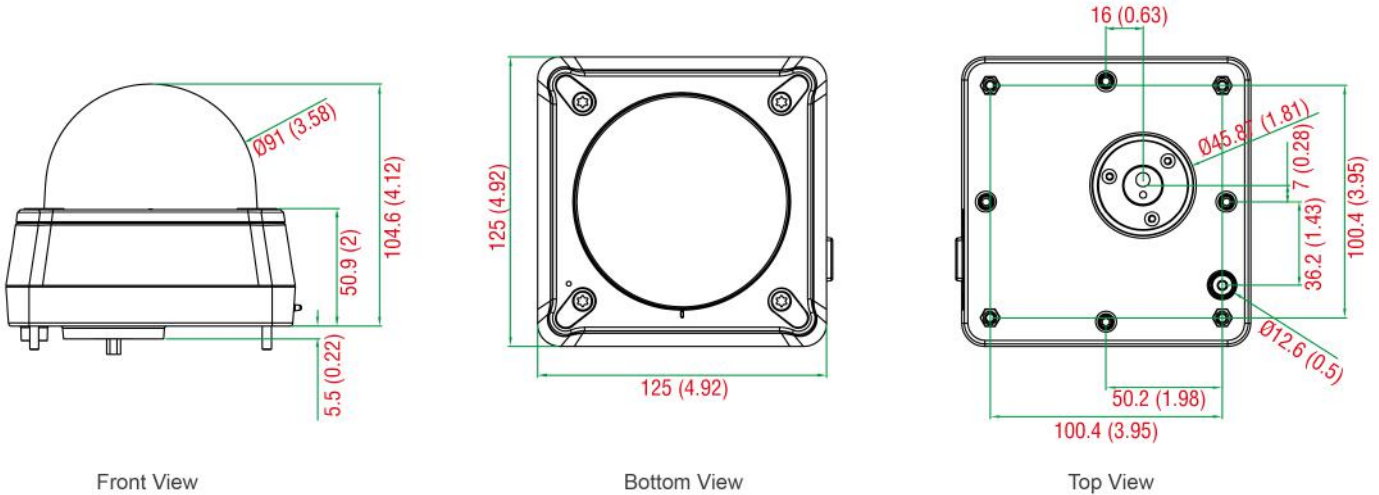
Browser	Internet Explorer 9.x or above
Multimedia	DirectX 9.0C or above
<b>Physical Characteristics</b>	
Housing	IP66 rain and dust protection Metal housing, PC dome cover IK8 vandal resistant protection
Dimensions	125 x 125 x 120.7 mm (4.92 x 4.92 x 4.8 in)
Weight	890 g (1.96 lb)
Installation	Panel mounting
Protection	-CT models: PCB conformal coating
<b>Environmental Limits</b>	
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 (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Ingress Protection	IEC 60529, IP66
Salt Spray Test	ASTM-B117
Vandal Resistance	EN 62262, IK8
Altitude	2000 m
<b>Standards and Certifications</b>	
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 PFMF
Freefall	IEC 60068-2-31
Railway Fire Protection	EN 45545-2
Safety	UL 60950-1
Shock	IEC 60068-2-27, IEC 61373, EN 50155
Vibration	IEC 60068-2-64, IEC 61373, EN 50155
Railway	EN 50155 (complies with a portion of EN 50155 specifications)
<b>MTBF</b>	
Time	997,474 hrs
Standards	Telcordia SR332
<b>Warranty</b>	
Warranty Period	5 years Note: Limited warranty on moving parts; see Moxa's online warranty policy for details.
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

## Package Contents

Device	1 x VPort P16-2MR Series camera
Installation Kit	1 x sticker 1 x L-type Torx screwdriver 4 x indented hexagonal head tapping screws, nuts, gaskets, and spring washers
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	Lens	Local Storage	Operating Temp.	Conformal Coating
VPort P16-2MR36M	3.6 mm	microSD slot, SDXC interface	-25 to 55°C	-
VPort P16-2MR42M	4.2 mm	microSD slot, SDXC interface	-25 to 55°C	-
VPort P16-2MR60M	6.0 mm	microSD slot, SDXC interface	-25 to 55°C	-
VPort P16-2MR80M	8.0 mm	microSD slot, SDXC interface	-25 to 55°C	-
VPort P16-2MR36M-T	3.6 mm	microSD slot, SDXC interface	-40 to 70°C	-
VPort P16-2MR42M-T	4.2 mm	microSD slot, SDXC interface	-40 to 70°C	-
VPort P16-2MR60M-T	6.0 mm	microSD slot, SDXC interface	-40 to 70°C	-
VPort P16-2MR80M-T	8.0 mm	microSD slot, SDXC interface	-40 to 70°C	-
VPort P16-2MR36M-CT	3.6 mm	microSD slot, SDXC interface	-25 to 55°C	✓
VPort P16-2MR42M-CT	4.2 mm	microSD slot, SDXC interface	-25 to 55°C	✓
VPort P16-2MR60M-CT	6.0 mm	microSD slot, SDXC interface	-25 to 55°C	✓
VPort P16-2MR80M-CT	8.0 mm	microSD slot, SDXC interface	-25 to 55°C	✓

Model Name	Lens	Local Storage	Operating Temp.	Conformal Coating
VPort P16-2MR36M-CT-T	3.6 mm	microSD slot, SDXC interface	-40 to 70°C	✓
VPort P16-2MR42M-CT-T	4.2 mm	microSD slot, SDXC interface	-40 to 70°C	✓
VPort P16-2MR60M-CT-T	6.0 mm	microSD slot, SDXC interface	-40 to 70°C	✓
VPort P16-2MR80M-CT-T	8.0 mm	microSD slot, SDXC interface	-40 to 70°C	✓

## Accessories (sold separately)

### Camera Mounting Kits

VP-FMK1	Flush-mounting kit for the VPort P16
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