



# MS9390-EHV-v2

Multi-Sensor Panoramic Network Camera

8MP 30fps • 180° Panoramic View • 20M IR • WDR Pro • SNV • Smart Stream III  
• IP66 • IK10

## Technical Specifications

### System Information

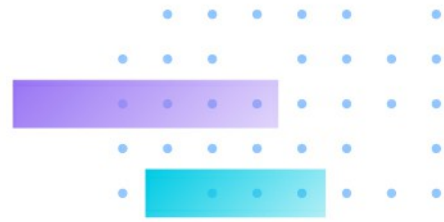
|       |                                 |
|-------|---------------------------------|
| Model | MS9390-EHV-v2                   |
| CPU   | Multimedia SoC (System-on-Chip) |
| Flash | eMMC 8GB                        |
| RAM   | DDR4 4GB                        |

### Camera Features

|                         |   |
|-------------------------|---|
| Image Sensor            | 1/2.7" Progressive CMOS   |
| Max. Resolution         | 4864x1632 (8MP)   |
| Lens Type               | Fixed-focal   |
| Focal Length            | f = 2.8 mm  |
| Aperture                | F1.2  |
| Iris Type               | Fixed iris  |
| Field of View           | 180° (Horizontal)<br>50° (Vertical)<br>180° (Diagonal)  |
| Shutter Time            | 1/30 sec. to 1/32,000 sec.  |
| WDR Technology          | WDR Pro   |
| Day/Night               | Yes   |
| Removable IR-cut Filter | Yes   |
| IR Illuminators         | Built-in IR illuminators, effective up to 20 meters with Smart IR , IR LED*8  |
| Minimum Illumination    | 0.018 lux @ F1.2 (Color), 30IRE<br><0.01 lux @ F1.2 (B/W)<br>0 lux with IR illumination on                            |
| Tilt Range              | 20°   |
| Storage                 | Seamless Recording to MicroSD/SDHC/SDXC card (1TB capacity supported) and recording to network-attached storage (NAS) |



|                                    |   |
|------------------------------------|---|
| Built-in Installation Aids         | Pixel calculator  |
| <b>Video</b>                       |   |
| Video Compression                  | H.265, H.264, MJPEG   |
| Maximum Frame Rate                 | 30 fps @ 4864x1632  |
| Maximum Streams                    | 3 video streams (Up to 8 configurable profiles)   |
| S/N Ratio                          | 57.9 dB   |
| Dynamic Range                      | 120 dB  |
| Video Streaming                    | Adjustable resolution, quality and constant bit rate control, Smart Stream III  |
| Image Settings                     | General settings: video title and time stamp overlay, day/night settings; Illuminators: illuminators, anti-overexposure; Image settings: white balance (auto, panorama, snow), image adjustment (brightness, contrast, saturation, sharpness, gamma curve), defog, 3DNR, HLM, scene mode (auto, deblur); Exposure: BLC, HLC, exposure control (exposure level, iris adjustment, exposure time, gain control, iris mode), AE speed adjustment, WDR; Privacy mask; Pixel calculator; Lens alignment; Scheduled profile settings |
| <b>Audio</b>                       |   |
| Audio Capability                   | One-way Audio   |
| Audio Compression                  | G.711, G.726, MPEG-2 AAC-LC   |
| Audio Interface                    | Built-in microphone   |
| Effective Range                    | 5 meters  |
| <b>Network</b>                     |   |
| Users                              | Live viewing for up to 10 clients   |
| Security                           | Access list, CSRF protection, digest authentication, HTTPS, IEEE 802.1x, Password protection, secure boot, signed firmware, Trend Micro IoT Security (brute force attack event, cyberattack event, quarantine event), user access log, user account management  |
| Protocols                          | 802.1X, ARP, Bonjour, CIFS/SMB, DDNS, DHCP, DNS, FTP, HTTP, HTTPS, ICMP, IGMPv3, IPv4, IPv6, NTP, PPPoE, QoS (CoS/DSCP), RTSP/RTP/RTCP, SMTP, SNMP, SSL, TCP/IP, TLS 1.2, UDP, UPnP   |
| Interface                          | 10 Base-T/100 Base-TX Ethernet (RJ-45)<br>*It is highly recommended to use standard CAT5e & CAT6 cables which are compliant with the 3P/ETL standard.   |
| ONVIF                              | Profile G, S, T supported, specification available at <a href="http://www.onvif.org">www.onvif.org</a>  |
| <b>AI Analytics</b>                |   |
| Compute Capability                 | SoC with built-in hardware deep learning accelerator  |
| Vision Object Analytics            | Object Detection: people, vehicle (4-wheeled, 2-wheeled);<br>Attribute Extraction: people (gender, color, bag, hat), vehicle (bike, bus, car, motorcycle, truck, color);<br>Re-Search Extraction;<br>Path Extraction  |
| Application                        | Deep Learning VCA (Smart Motion Detection, Smart VCA)<br>Smart Motion Detection (Five-window video motion detection, People detection, Vehicle detection, Time filter), Smart VCA (Intrusion detection, Loitering detection, Line crossing detection, Unattended object detection, Missing object detection, Face detection, Crowd detection)   |
| Application available with license | Running detection, Parking Violation Detection, Restricted Zone Detection<br>Support for more analytic applications and free trial, please visit <a href="https://vivotek.com/video-analytics">https://vivotek.com/video-analytics</a>  |
| <b>Solution Integration</b>        |   |
| Applications                       | Trend Micro IoT Security (3-year free trial)  |
| <b>Alarm and Event</b>             |   |
| Event Trigger                      | Audio detection, camera tampering detection, cybersecurity events (brute force attack event, cyberattack event, quarantine event), manual trigger, motion detection, periodical trigger, recording notification, SD card life expectancy, shock detection, system boot  |
| Event Action                       | Event notification via email, camera link, HTTP, FTP, NAS server, SD card, push notification<br>File upload via email, HTTP, FTP, NAS server, SD card   |
| <b>General</b>                     |   |
| Connectors                         | RJ-45 cable connector for 10/100 Mbps Network/PoE connection  |
| LED Indicator                      | System power and status indicator   |
| Power Input                        | IEEE 802.3at PoE Class 4  |
| Power Consumption                  | Max: 20 W / 13.5W (IR on/ IR off)   |



|                       |   |
|-----------------------|---|
| Dimensions            | 165 x 112 x 97 mm (w/o sunshield)<br>165 x 100 x 119 mm (w/ sunshield)  |
| Weight                | 1.2 kg  |
| Certifications        | EMC: CE (EN 55032/EN 55035 Class A), UKCA (BS EN 55032/BS EN 55035 Class A), FCC (FCC Part 15 Subpart B Class A), RCM (AS/NZS CISPR 32 Class A), VCCI (VCCI-CISPR 32 Class A), IC (ICES-003 Issue 7, Class A);<br>Safety: UL (UL 62368-1), CB (IEC/EN 62368-1, IEC/EN 60950-22, IEC/EN 62471), LVD (IEC/EN 62368-1), UKCA (BS EN 62368-1); Environment: IK10 (IEC 62262), IP66(IEC 60529), IA: BIS (IS 13252), BSMI (EMC: CNS 15936, Safety: CNS 15598-1) |
| Operating Temperature | Starting Temperature:<br>-30°C ~ 55°C (-22°F ~ 131°F)<br>Working Temperature:<br>-40°C ~ 55°C (-40°F ~ 131°F) (IR off)<br>-40°C ~ 50°C (-40°F ~ 122°F) (IR on)  |
| Humidity              | 90%   |

### System Requirements

|                  |   |
|------------------|---|
| Operating System | Microsoft Windows 10/8/7<br>Mac 10.12 (Chrome only) |
| Web Browser      | Chrome 58.0 or above<br>Internet Explorer 10/11     |
| Other Players    | VLC: 1.1.11 or above                                |

### Included Accessories

|                  |  |
|------------------|--|
| Packing Contents | Quick installation guide, alignment sticker, desiccant bag, screw driver, screws pack, sunshield |
|------------------|--|

### DORI (EN 62676-4 Standard)

|                           |                   |
|---------------------------|-------------------|
| Detect (25PPM/ 8PPF)      | 58.1 m (190.6 ft) |
| Observe (63PPM/ 19PPF)    | 23.2 m (76.1 ft)  |
| Recognize (125PPM/ 38PPF) | 11.6 m (38.1 ft)  |
| Identify (250PPM/ 76PPF)  | 5.7 m (18.7 ft)   |

